N60200.AR.000801
NAS CECIL FIELD, FL
5090.3a

FINAL BASELINE RISK ASSESSMENT AT OPERABLE UNIT 7 (OU 7) SITE 16 NAS CECIL FIELD FL

1/1/1996

ABB ENVIRONMENTAL SERVICES INC

NAS Cecil Field Administrative Record
Document Index Number

32215-007
03.09.07.0007

FIRST 5
Single

BASELINE RISK ASSESSMENT
OPERABLE UNIT 7

NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

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

JANUARY 1996

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

PRINTED ON RECYCLED PAPER

DIRECTIONS FOR ASSEMBLING THE FINAL OU 7 BRA REPORT
NAS CECIL FIELD
JACKSONVILLE, FLORIDA
JANUARY 1996

1. Replace the existing Draft BRA report text with the enclosed Final BRA report text.

2. Replace Appendicies B, C, D, E, I, J, K, L, M, N, R, S, T, U, and V in the Draft BRA with the enclosed appendicies.

3. Add the Fish Sampling Locations figure to the beginning of Appendix P.

4. Replace the Draft BRA report covers and spines with the enclosed green Final BRA report covers and spines.

NAS CECIL FIELD
JACKSONVILLE, FLORIDA

BASELINE RISK ASSESSMENT

OPERABLE UNIT 7

JANUARY 1996

SOUTHERN DIVISION
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BASELINE RISK ASSESSMENT
OPERABLE UNIT 7

NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

Unit Identification Code: N60200

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

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January 1996

CERTIFICATION OF TECHNICAL
DATA CONFORMITY (MAY 1987)

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

DATE: January 4, 1996

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(DFAR 252.227-7036)

CF-0U7RA
PMW.12.95

FOREWORD

The Department of the Navy developed the Installation Restoration (IR) pro
to locate, identify, and remediate environmental contamination from the
disposal of hazardous materials at Navy and Marine Corps installations. The
IR program follows the Department of Defense Environmental Restoration Pro
mandated by the Superfund Amendments and Reauthorization Act of 1986 to add
waste sites that may pose a threat to human health or the environment.

The IR program consists of preliminary assessment and site inspection, reme
investigation and feasibility study (RI/FS), and remedial design and reme
action at sites where chemicals were allegedly disposed. The Prelimi
Assessment and Site Inspection identifies the presence of pollutants. The R
analyzes the nature and extent of contamination and determines the opt
remedial solution. The Remedial Design and Remedial Action complete
implementation of the solution.

Previous investigations have determined that Naval Air Station (NAS) Cecil F
has 18 waste sites that may pose a threat to human health or the environm
Therefore, an RI/FS will be performed to address the extent, magnitude,
impact of possible contamination at these waste sites.

The Baseline Risk Assessment report for Operable Unit 7 provides the result
the assessment of potential human health and ecological risks associated with
contamination identified at Site 16 at NAS Cecil Field.

Questions regarding this report should be addressed to the Commanding Offi
Code 00B, P.O. Box 111, NAS Cecil Field, Jacksonville, Florida 32215-0111.

EXECUTIVE SUMMARY

A Baseline Risk Assessment (BRA) was completed for wastes released at Site 16 (Operable Unit 7) at Naval Air Station (NAS) Cecil Field near Jacksonville, Florida. The BRA, including human health and ecological risks, is based on information collected during the remedial investigation (RI). The BRA results are used to develop remedial response objectives in the feasibility study (FS). The BRA, RI, and FS are being completed as part of the Navy's Installation Restoration (IR) program. The objective of the IR program is to identify and evaluate past hazardous waste sites and control migration of hazardous contaminants from those sites.

Human Health Risks. Potential health risks were evaluated under current and assumed future land use conditions for a subset of contaminants detected in surface soil, subsurface soil, surface water, sediment, and groundwater (surficial and intermediate aquifers) associated with Site 16. The chosen chemicals were selected because they are the most likely chemicals to cause adverse health effects.

Under current land use conditions, all cancer and noncancer risks were consistent with U.S. Environmental Protection Agency (USEPA) guidelines, established in the National Oil and Hazardous Substances Contingency Plan, that indicate that the excess lifetime cancer risk (ELCR) due to exposure to the contaminants at a site, by each complete exposure pathway, should not exceed a range of 1 in a million to 1 in 10,000 or a hazard index (HI) of 1.

However, cancer risks for surface soil and surface water under current land use exceed the Florida Department of Environmental Protection (FDEP) cancer risk threshold of $1x10^{-6}$ (ABB Environmental Services, Inc., [ABB-ES] 1995)

Under future land use conditions, cancer and noncancer risks for surface soil, subsurface soil, surface water, sediment, and the intermediate aquifer are consistent with acceptable risks as described by USEPA. Only risks associated with the surficial aquifer exceed the USEPA exposure levels. However, continued industrial use of Site 16 is expected in the future and exposure to contamination in the surficial aquifer under future land use conditions may never occur.

However, cancer risks for surface soil and surface water under current land use exceed Florida Department of Environmental Protection (FDEP's) cancer risk threshold of $1x10^{-6}$ (ABB-ES, 1995).

The cancer risk estimate for the surficial aquifer under future land use conditions (ingestion of groundwater and inhalation of volatile organic compounds, while showering by an adult resident) is 3 in 1,000. The major contaminant contributing cancer risk to the ELCR for the resident is 1,1-dichloroethene. The noncancer risk estimate HI for the surficial aquifer is 50. Major contributors to this HI are 1,2-dichloroethene, 1,1-dichloroethene, trichloroethene, antimony, and thallium.

Ecological Risks. Potential risks for ecological receptors were evaluated for ecological chemicals of potential concern (ECPCs) in surface water, sediment, and groundwater. There were no risks identified for terrestrial wildlife resulting from exposures to ECPCs in surface water and sediment.

Sediment bioassay data were collected from drainage ditches that receive surface runoff from Site 16 and other industrial areas through storm sewers. Evaluation of the data suggests that certain types of macroinvertebrates may be adversely affected by exposure to sediment. This response may be associated with elevated concentrations of total petroleum hydrocarbons (TPHs). Because the ditches receive stormwater drainage from the runway area and much of the developed area west of the runways, and because significant quantities of TPH were not detected at Site 16 where the waste was initially released, it is believed that the presence of, and effects caused by, TPH in the sediment of the drainage ditches is not site related.

Future risks for aquatic receptors were evaluated for exposures to ECPCs in groundwater when it discharges to both Sal Taylor Creek and the wetlands downgradient of surficial groundwater flow at Site 16. The risk characterization did not identify risks for aquatic receptors in Sal Taylor Creek associated with ECPCs in groundwater. However, risks associated with exposures to bis(2-ethylhexyl)phthalate, aluminum, iron, and zinc are possible for aquatic receptors in the wetlands. Concentrations of bis(2-ethylhexyl)phthalate, iron, and zinc appear to originate in the intermediate aquifer and flow upward to the surficial aquifer. Because the intermediate aquifer is not affected by water released at Site 16, these detections and associated risks are not believed to be associated with Site 16.

TABLE OF CONTENTS

Baseline Risk Assessment
Operable Unit 7, NAS Cecil Field
Jacksonville, Florida

Chapter	Title	Page No.
1.0	INTRODUCTION	1-1
2.0	HISTORY AND ENVIRONMENTAL SETTING	2-1
2.1	OPERABLE UNIT 7 LOCATION AND HISTORY	2-1
2.1.1	Site 16	2-1
2.2	TOPOGRAPHY AND SURFACE FEATURES	2-7
2.3	SURFACE HYDROLOGY	2-8
2.3.1	Drainage at NAS Cecil Field	2-8
2.3.2	Drainage at OU 7	2-8
2.4	REGIONAL GEOLOGY	2-10
2.5	HYDROGEOLOGY	2-10
2.6	DEMOGRAPHY AND LAND USE INFORMATION	2-11
2.6.1	Population	2-11
2.6.2	Groundwater Use	2-11
2.6.2.1	Navy Supply Wells	2-13
2.6.2.2	Private Water Supply Wells	2-13
2.6.3	Land Use	2-13
2.6.3.1	Current Facility Land Use	2-13
2.6.3.2	Current Adjacent Land Use	2-15
2.6.3.3	Future Facility Land Use	2-16
3.0	OPERABLE UNIT 7 INVESTIGATION AND DATA EVALUATION METHODOLOGY	3-1
3.1	SOIL INVESTIGATIONS	3-1
3.2	SURFACE WATER AND SEDIMENT INVESTIGATIONS	3-4
3.2.1	Sampling and Analysis	3-4
3.2.2	Toxicity Testing of Sediment	3-7
3.2.3	Biological Investigation	3-7
3.3	GROUNDWATER INVESTIGATION	3-7
3.4	BACKGROUND INVESTIGATIONS	3-9
3.4.1	Surface Soil	3-9
3.4.2	Subsurface Soil	3-11
3.4.3	Groundwater	3-11
3.4.4	Surface Water and Sediment	3-15
3.5	DATA EVALUATION METHODOLOGY	3-15
4.0	HUMAN HEALTH RISK ASSESSMENT (HHRA)	4-1
4.1	HHRA APPROACH	4-1
4.1.1	Data Evaluation and Summarization	4-1
4.1.2	Approach for Identification of Chemicals of Potential Concern (CPCs)	4-2
4.1.3	Exposure Assessment	4-3
4.1.3.1	Characterization of Exposure Setting	4-3
4.1.3.2	Identification of Exposure Pathways and Receptors	4-4
4.1.3.3	Quantification of Exposures	4-4

TABLE OF CONTENTS (Continued)

Baseline Risk Assessment
Operable Unit 7, NAS Cecil Field
Jacksonville, Florida

Chapter	Title	Page No.
	4.1.4 Toxicity Assessment	4-7
	4.1.4.1 Hazard Identification	4-7
	4.1.4.2 Dose-Response Assessment	4-7
	4.1.4.3 Dose-Response Values	4-9
	4.1.4.4 Toxicity Equivalency Factors for Carcinogenic Polynuclear Aromatic Hydrocarbons (PAHs)	4-9
	4.1.5 Risk Characterization	4-10
	4.1.6 Uncertainty Analysis	4-12
	4.1.6.1 Data Collection, Analysis, and Evaluation	4-12
	4.1.6.2 Selection of Chemicals of Potential Concern	4-14
	4.1.6.3 Exposure Assessment	4-15
	4.1.6.4 Toxicity Assessment	4-17
	4.1.6.5 Risk Characterization	4-18
	4.1.7 Remedial Goal Options	4-18
	4.1.7.1 Comparison to Available Criteria	4-19
4.2	HUMAN HEALTH RISK ASSESSMENT FOR SITE 16	4-19
	4.2.1 Selection of CPCs	4-20
	4.2.1.1 Surface Soil	4-20
	4.2.1.2 Subsurface Soil	4-20
	4.2.1.3 Surface Water	4-20
	4.2.1.4 Sediment	4-20
	4.2.1.5 Groundwater	4-30
	4.2.2 Exposure Assessment	4-30
	4.2.2.1 Surface Soil	4-37
	4.2.2.2 Subsurface Soil	4-37
	4.2.2.3 Surface Water and Sediment	4-37
	4.2.2.4 Groundwater	4-47
	4.2.3 Toxicity Assessment	4-47
	4.2.4 Risk Characterization	4-48
	4.2.4.1 Surface Soil	4-48
	4.2.4.2 Subsurface Soil	4-48
	4.2.4.3 Surface Water	4-48
	4.2.4.4 Sediment	4-48
	4.2.4.5 Groundwater	4-52
	4.2.5 Uncertainty Analysis	4-52
	4.2.5.1 Data Evaluation	4-52
	4.2.5.2 Selection of CPCs	4-54
	4.2.5.3 Exposure Assessment	4-55
	4.2.5.4 Toxicity Assessment	4-56
	4.2.5.5 Risk Characterization	4-58
	4.2.6 Comparison to Available Criteria	4-59
	4.2.7 Remedial Goal Options	4-60
	4.2.8 Summary	4-63

TABLE OF CONTENTS (Continued)

Baseline Risk Assessment
Operable Unit 7, NAS Cecil Field
Jacksonville, Florida

Chapter	Title	Page No.
5.0	ECOLOGICAL RESOURCES AND SITE-SPECIFIC FIELD STUDIES	5-1
5.1	TERRESTRIAL AND WETLAND HABITATS	5-1
5.1.1	Terrestrial Habitats	5-1
5.1.2	Wetlands	5-1
5.2	AQUATIC HABITATS AND RECEPTORS	5-5
5.2.1	Sampling and Analytical Methods	5-5
5.2.2	Physical Substrate and Chemical Parameters	5-7
5.2.3	Aquatic Habitat Assessment Results	5-9
5.2.4	Fish Species Identified in Sal Taylor Creek	5-9
5.2.5	Benthic Macroinvertebrate Community	5-10
5.2.5.1	Dip Net Samples	5-10
5.2.5.2	Hester-Dendy Samples	5-16
5.2.5.3	Ponar Samples	5-16
5.2.6	Summary of Macroinvertebrate Study	5-19
5.3	RARE, ENDANGERED, AND THREATENED SPECIES	5-20
6.0	ECOLOGICAL RISK ASSESSMENT (ERA)	6-1
6.1	ECOLOGICAL ASSESSMENT METHODOLOGY	6-1
6.1.1	Problem Formulation	6-1
6.1.1.1	Identification of Receptors	6-1
6.1.1.2	Identification of Exposure Pathways	6-2
6.1.1.3	Identification of Endpoints	6-4
6.1.2	Selection of ECPCs	6-4
6.1.3	Exposure Assessment	6-8
6.1.3.1	Terrestrial Receptors	6-8
6.1.3.2	Aquatic Receptors	6-9
6.1.4	Ecological Effects Assessment	6-9
6.1.4.1	Surface Water and Sediment	6-9
6.1.4.2	Groundwater	6-12
6.1.5	Risk Characterization	6-12
6.1.5.1	Surface Water and Sediment	6-13
6.1.5.2	Groundwater	6-13
6.1.6	Uncertainty Analyses	6-14
6.2	ECOLOGICAL ASSESSMENT FOR SITE 16	6-14
6.2.1	Selection of ECPCs	6-14
6.2.1.1	Surface Water	6-14
6.2.1.2	Sediment	6-19
6.2.1.3	Groundwater	6-19
6.2.2	Exposure Assessment	6-27
6.2.2.1	Surface Water	6-27
6.2.2.2	Sediment	6-29
6.2.2.3	Groundwater	6-29
6.2.3	Ecological Effects Assessment	6-31
6.2.3.1	Surface Water and Sediment	6-31
6.2.3.2	Groundwater	6-32

TABLE OF CONTENTS (Continued)

Baseline Risk Assessment
Operable Unit 7, NAS Cecil Field
Jacksonville, Florida

Chapter	Title	Page No.
6.2.4	Risk Characterization	6-37
	6.2.4.1 Surface Water	6-37
	6.2.4.2 Sediment	6-38
	6.2.4.3 Groundwater	6-43
6.2.5	Uncertainty Analyses	6-47
6.2.6	Summary of Assessment for Site 16	6-47

REFERENCES

APPENDICES

Appendix A: Historical Data Evaluation
Appendix B: Validated Remedial Investigation and Baseline Risk Assessment Data
Appendix C: Background Sampling Program
Appendix D: U.S. Environmental Protection Agency (USEPA) Region III and Florida Department of Environmental Protection (FDEP) Contaminant of Concern Screening Guidance, and Florida Soil Clean-up Goals, Florida Groundwater Guidance Concentrations
Appendix E: Derivation of Particulate Emissions Factor
Appendix F: Calculation of Air Concentrations Using the Shower Model
Appendix G: Dermal Guidance Summary
Appendix H: Human Health Exposure Parameters
Appendix I: Human Health Risk Assessment Spreadsheets
Appendix J: Human Health Toxicity Profiles
Appendix K: Human Health Dose-Response Tables
Appendix L: Comparison to Available Criteria For Groundwater
Appendix M: Comparison to Available Criteria for Soil
Appendix N: Comparison to Available Criteria Total Petroleum Hydrocarbons
Appendix O: Ecological Receptors
Appendix P: Results of Aquatic Sampling
Appendix Q: Protocols and Results of Toxicity Testing of Soil and Sediment
Appendix R: Aquatic Information Retrieval (AQUIRE) Database Information and Search Results
Appendix S: Bioconcentration Factor Data
Appendix T: Model for Prediction of Groundwater to Surface Water Transport and Dilution of Ecological Chemicals of Potential Concern (ECPCs)
Appendix U: Ingestion Toxicity Information for Terrestrial Species
Appendix V: Model of Potential Exposures and Risks for Representative

LIST OF FIGURES

Baseline Risk Assessment
Operable Unit 7, NAS Cecil Field
Jacksonville, Florida

Figure	Title	Page No.
2-1	General Location Map	2-2
2-2	Facility and Site Location Map	2-3
2-3	Seepage Pit area (before 1994 removal action)	2-4
2-4	Surface Features, Topography	2-5
2-5	Stormwater Sewers, Inlets, and Drainage	2-6
2-6	Drainage Basins	2-9
2-7	Groundwater Elevation and Flowpath Cross Sections	2-12
2-8	Location of Facility Supply Wells	2-15
3-1	Post Excavation Soil Sampling Locations	3-2
3-2	Confirmatory Surface Soil Sampling Locations	3-3
3-3	Confirmatory Subsurface Soil Sampling Locations	3-5
3-4	Surface Water and Sediment Sampling Locations	3-6
3-5	Monitoring Well Locations	3-8
3-6	Background Surface Soil and Subsurface Soil Sampling Locations	3-10
3-7	Location of Five Mile Creek	3-17
4-1	Complete Exposure Pathways for Human Receptors, Site 16	4-40
4-2	Cancer Risk Summary, Current Land Use	4-64
4-3	Hazard Index Summary, Current Land Use	4-65
4-4	Cancer Risk Summary, Future Land Use	4-67
4-5	Hazard Index Summary, Future Land Use	4-68
5-1	Wetlands East of Site 16	5-2
5-2	Relationship Between Habitat Quality and Biological Condition	5-17
6-1	Contaminant Pathway Model for Ecological Receptors	6-3
6-2	"Weight of Evidence" Conceptual Risk Model	6-6
6-3	Ecological Contaminant of Potential Concern Selection Process	6-7
6-4	Summary of TPH Concentrations and Toxicological Results at the Drainage Ditch and Reference Sampling Stations	6-41

LIST OF TABLES

Baseline Risk Assessment
Operable Unit 7, NAS Cecil Field
Jacksonville, Florida

Table	Title	Page No.
3-1	Analytes Detected in Background Locations Surface and Subsurface Soil	3-12
3-2	Analytes Detected in Background Locations, Surficial Aquifer	3-14
3-3	Analytes Detected at the Reference Location, Surface Water and Sediment	3-16
4-1	Toxicity Equivalency Factors for Carcinogenic Polynuclear Aromatic Hydrocarbons	4-10
4-2	Potential Sources of Uncertainty	4-13
4-3	Summary of Human Health Chemicals of Potential Concern (HHCPCs)	4-21
4-4	Surface Soil Human Health Chemicals of Potential Concern (HHCPs)	4-22
4-5	Subsurface Soil Human Health Chemicals of Potential Concern (HHCPCs)	4-25
4-6	Surface Water Human Health Chemicals of Potential Concern (HHCPCs)	4-28
4-7	Sediment Human Health Chemicals of Potential Concern (HHCPCs)	4-31
4-8	Surficial Aquifer Human Health Chemicals of Potential Concern (HHCPCs)	4-33
4-9	Intermediate Aquifer Human Health Chemicals of Potential Concern (HHCPCs)	4-36
4-10	Summary of Potential Exposure Pathways	4-38
4-11	Surface Soil Exposure Point Concentrations for Human Health Chemicals of Potential Concern	4-41
4-12	Subsurface Soil Exposure Point Concentrations for Human Health Chemicals of Potential Concern	4-42
4-13	Surface Water Exposure Point Concentrations for Human Health Chemicals of Potential Concern	4-43
4-14	Sediment Exposure Point Concentrations for Human Health Chemicals of Potential Concern	4-44
4-15	Surficial Aquifer Exposure Point Concentrations for Human Health Chemicals of Potential Concern	4-45
4-16	Intermediate Aquifer Exposure Point Concentrations for Human Health Chemicals of Potential Concern	4-46
4-17	Risk Summary	4-49
4-18	Summary of Remedial Goal Options for Groundwater Associated with Site 16	4-61
4-19	Summary of Remedial Goal Options for Surface Soil Associated with Site 16	4-62
4-20	Summary of Remedial Goal Options for Surface Soil Associated with Site 16	4-63
5-1	Characteristic Wetlands	5-3
5-2	Ecological Risk Assessment, Aquatic Sampling	5-6
5-3	Surface Water Quality Measurements Summary	5-8
5-4	Habitat Assessment Scores	5-9
5-5	Benthic Macroinvertebrate Community Metrics	5-11
5-6	Metrics for Description of Macroinvertebrates Sampled in Dip Nets	5-12
5-7	Hester-Dendy Artificial Substrate Macroinvertebrate Sample Metrics	5-13

LIST OF TABLES (Continued)

Baseline Risk Assessment
Operable Unit 7, NAS Cecil Field
Jacksonville, Florida

Table	Title	Page No.
5-8	Ponar Dredge Macroinvertebrate Sample Metrics	5-14
5-9	Rare, Endangered, and Threatened Flora and Fauna at or in the Vicinity of Naval Air Station (NAS) Cecil Field	5-21
5-9	Rare, Endangered, and Threatened Flora and Fauna at or in the Vicinity of Naval Air Station (NAS) Cecil Field	5-23
6-1	Ecological Assessment Endpoints	6-5
6-2	Contaminant Exposure Models	6-10
6-3	Potential Sources of Uncertainty	6-15
6-4	Surface Water Ecological Chemicals of Potential Concern (ECPCs)	6-17
6-5	Sediment Ecological Chemicals of Potential Concern (ECPCs)	6-20
6-6	Total Petroleum Hydrocarbon (TPH) and Total Organic Carbon (TOC) in Sediment	6-22
6-7	Groundwater Ecological Chemicals of Potential Concern (ECPCs)	6-23
6-8	Filtered Groundwater Results	6-26
6-9	Wildlife Exposure Parameters	6-28
6-10	Estimated Exposure Concentrations Associated with Groundwater Discharge to Sal Taylor Creek and Wetlands	6-30
6-11	Sediment Toxicity Testing Results	6-32
6-12	Toxicity of Site 16 Surface Water and Groundwater Ecological Chemicals of Potential Concern (ECPCs) to Aquatic Receptors	6-33
6-13	Comparison of Concentrations of Ecological Chemicals of Potential Concern (ECPCs) in Surface Water of the Drainage Ditches Adjacent to Site 16 with Aquatic Toxicity Benchmarks	6-35
6-14	Comparison of Drainage Ditch Sediment with Toxicity Benchmarks	6-36
6-15	Aquatic Receptor Risk Characterization	6-39
6-16	Comparison of Unfiltered Groundwater Exposure Concentrations with Toxicity Benchmarks	6-44

GLOSSARY

ABB-ES	ABB Environmental Services, Inc.
ac	acre
AIMD	Aircraft Intermediate Maintenance Department
AOC	area of concern
AQUIRE	Aquatic Information Retrieval
ASTM	American Society for Testing and Materials
AWQC	ambient water quality criteria
BCF	bioconcentration factor
BEQ	Bachelors Enlisted Quarters
bls	below land surface
BRA	Baseline Risk Assessment
BRAC	Base Realignment and Closure
BW	body weight
CAG	Carcinogenic Assessment Group
CE	commercially exploited
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CPC	chemical of potential concern
CLP	Contract Laboratory Program
COC	chemical of concern
CSF	cancer slope factor
DDD	dichlorodiphenyldichloroethane
DDE	dichlorodiphenyldichloroethene
DDT	dichlorodiphenyltrichloroethane
DERP	Defense Environmental Restoration Program
DO	dissolved oxygen
°C	degrees Celsius
E	endangered
ECPC	ecological chemicals of potential concern
ELCR	excess lifetime cancer risk
EPC	exposure point concentration
EPT	ephemeroptera-plecoptera-trichoptera
ERA	Ecological Risk Assessment
ER-L	effects range-low
ER-M	effects range-medium
FDEP	Florida Department of Environmental Protection (as of 7/93)
FDER	Florida Department of Environmental Regulation (before 7/93)
FFA	Federal Facility Agreement
FNAI	Florida Natural Areas Inventory
FOD	frequency of detection
FS	Feasibility Study
ft^2	square feet
g	grams

GLOSSARY (Continued)

HBI	Hilsenhoff Biotic Index
HEAST	Health Effects Assessment Summary Tables
HHCPC	human health chemicals of potential concern
HHRA	Human Health Risk Assessment
HI	Hazard Index
HQ	Hazard Quotient
HRS	Health and Rehabilitative Services
individual/-mi^2	individuals per square mile
IR	Installation Restoration
IRA	Interim Remedial Action
IRIS	Integrated Risk Information System
IZS	intermediate zone of surficial aquifer
J	estimated value
kg	kilogram
K_{OW}	octanol-water partition coefficient
K_P	permeability constants
LANTARPLX	Land Target Complex
LD_{50}	oral dose lethal to 50 percent of a test population
LOAEL	lowest observed adverse effects level
LZS	lower zone of the surficial aquifer
ℓ/day	liters per day
m	meter
MCL	maximum contaminant level
m/s	meter per second
mg/cm^2	milligrams per square centimeter
mg/day	milligrams per day
mg/kg	milligrams per kilogram
mg/ℓ	milligrams per liter
mg/kg-day	milligrams per kilogram per day
mℓ/hour	milliliter per hour
mℓ/min	milliliters per minute
μg/kg	micrograms per kilogram
μg/kg·day	micrograms per kilogram per day
μg/ℓ	micrograms per liter
μg/min	micrograms per minute
$\mu g/m^3$	micrograms per cubic meter
μℓ/day	microliters per day
μmhos/cm	micromhos per centimeter
NA	not available or not applicable
NAS	Naval Air Station
NAVSTA	Naval Station
NC	not calculated
NCar	not calculated because carcinogens were not selected as HHCPCs

NCP	National Oil and Hazardous Substances Contingency Plan
ND	not detected
NDI	nondestructive inspection
NEESA	Naval Energy and Environmental Support Activity
NFD	Naval Fuel Depot
N/m^2	individuals per square meter
NOAA	National Oceanic and Atmospheric Administration
NOAEL	no observed adverse effect level
NPL	National Priority List
NS	not searched
OLF	Outlying Landing Field
OU	Operable Unit
PAH	polycyclic aromatic hydrocarbons
PARCC	precision, accuracy, representativeness, completeness, and comparability
PDE	potential dietary exposure
PEF	particulate emission factor
%	percent
QC	quality control
RBC	risk based concentration
RBP	Rapid Bioassessment Protocols
RfC	reference concentration
RfD	reference dose
RGO	remedial goal option
RI/FS	Remedial Investigation and Feasibility Study
RME	reasonable maximum exposure
RTVs	reference toxicity values
SARA	Superfund Amendments and Reauthorization Act
SDWA	Safe Drinking Water Act
SOUTHNAV-FACENGCOM	Southern Division, Naval Facilities Engineering Command
SSC	species of special concern
SQL	sample quantitation limit
SVOC	semivolatile organic compound
SWMU	Solid Waste Management Unit
SW/SD	surface water/sediment
T	threatened
TAL	target analyte list
TCE	trichloroethene
TCL	target compound list
TEF	toxicity equivalence factor
TIC	tentatively identified compound
TOC	total organic carbon
TPH	total petroleum hydrocarbons
TSD	treatment, storage, and disposal

GLOSSARY (Continued)

T(S/A)	threatened due to similarity of appearance
UCL	upper confidence limit
USC	United States Code
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
UZH	upper water-bearing zone of the Hawthorn
UZS	upper zone of the surficial aquifer
VOC	volatile organic compound

1.0 INTRODUCTION

Under Contract No. N62467-89-D-0317/090, ABB Environmental Services, Inc. (ABB-ES), has been contracted by the Department of the Navy, Southern Division, Naval Facilities Engineering Command (SOUTHNAVFACENGCOM) to complete a Baseline Risk Assessment (BRA) as part of a Remedial Investigation and Feasibility Study (RI/FS) for Operable Unit (OU) 7 at Naval Air Station (NAS) Cecil Field in Jacksonville, Florida. In 1990, NAS Cecil Field was placed on the National Priority List (NPL) (i.e., Superfund) and entered into a federal facility agreement (FFA) with the U.S. Environmental Protection Agency (USEPA) and the Florida Department of Environmental Protection (FDEP) (formerly the Florida Department of Environmental Regulation [FDER]). The RI/FS is being completed in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) and the Superfund Amendments and Reauthorization Act (SARA) of 1986, which established a series of programs for the cleanup of hazardous waste disposal and spill sites nationwide. One of those programs, the Defense Environmental Restoration Program (DERP), is codified in SARA Section 211 (10 U.S. Code [USC] 2701). The Navy's Installation Restoration (IR) program is a component of the DERP.

Waste sites located at NAS Cecil Field have been divided into eight OUs based on the types of waste disposed of and the typical profiles of suspected contaminants (SOUTHNAVFACENGCOM, 1993). OU 7 is composed of Site 16, Aircraft Intermediate Maintenance Department (AIMD) seepage pit and appurtenances, and the adjacent affected area. The sites in the remaining seven OUs have been or will be addressed in additional RI/FS activities. Separate human health and ecological risk assessments will be completed for each of the OUs as components of the respective RI/FS reports.

The goals of the RI/FS are as follows:

- to assess the extent, magnitude, and impact of confirmed contamination at waste disposal sites;
- to assess qualitatively and quantitatively the risks posed to human health and the environment; and
- to develop appropriate remedial alternatives for sites that are determined to pose a threat to human health and/or the environment.

The BRA is required as part of the RI for hazardous waste sites under USEPA guidance (USEPA, 1988b). The risk assessment for OU 7 was completed according to current USEPA guidance for risk assessments at Superfund sites (USEPA, 1989a; 1989c; 1989e; 1989f; 1991a; 1991b; 1991d; 1992a; 1992b; 1992c; 1992e; 1992f; 1992g) and USEPA Region IV guidance for Superfund risk assessments (USEPA, 1991c).

The remainder of the BRA is organized as summarized in the following paragraphs.

- **Chapter 2.0, History and Environmental Setting**, establishes the site history of OU 7 along with the environmental setting of NAS Cecil Field and OU 7, and includes discussions of local topography, surface water and

drainage, geology and hydrogeology, demographic information, and groundwater and land usage.

- **Chapter 3.0, Operable Unit 7 Investigation and Data Evaluation Methodology**, includes a summary of the OU 7 field investigation, a conceptual understanding of site contamination, and a discussion on the data evaluation methodology used for the human health and ecological risk assessments for OU 7.

- **Chapter 4.0, Human Health Risk Assessment (HHRA)**, includes the characterization of the risks associated with potential exposures to site-related contaminants detected at OU 7 for human health receptors. To determine if contaminants pose a potential risk to human receptors, five components for the human health evaluation are completed: (1) data evaluation and selection of human health chemicals of potential concern (HHCPC), (2) exposure assessment, (3) toxicity assessment, (4) risk characterization, and (5) uncertainty analysis.

- **Chapter 5.0, Ecological Resources and Site-specific Field Studies**, includes a description of the ecological setting at OU 7 and the results of field investigations completed to support the ecological assessment. Wetland habitats are identified and characterized based on a U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory Map (USFWS, 1983). Aquatic habitats and receptors are characterized including fish species, physical parameters, and chemical parameters. Benthic macroinvertebrate community structure and function are measured and the results are discussed.

- **Chapter 6.0, Ecological Risk Assessment (ERA)**, includes an assessment of potential adverse effects for ecological receptors associated with contamination emanating from OU 7. The ecological assessment includes problem formulation, identification of ecological chemicals of potential concern (ECPC), exposure assessment, ecological effects assessment, risk characterization, and uncertainty analyses.

2.0 HISTORY AND ENVIRONMENTAL SETTING

This chapter establishes a brief history of NAS Cecil Field and OU 7 and introduces the environmental setting of the area. A more detailed description of OU 7 history and environmental setting is provided in the RI report (ABB-ES, 1995).

NAS Cecil Field is located in northeastern Florida, primarily within Duval County with the remainder located in the south-central part of Clay County (Figure 2-1). Downtown Jacksonville, Florida, lies approximately 14 miles northeast of the facility's main entrance. The Georgia State line is located approximately 15 miles north of the facility.

NAS Cecil Field was established in 1941 and has grown to occupy more than 31,000 acres. The official mission of NAS Cecil Field is to provide facilities, services, and material support for the operation and maintenance of naval weapons and aircraft and other units of the operating forces as designated by the Chief of Naval Operations. Some of the tasks required to accomplish this mission include: (1) operation of fuel storage facilities, (2) provision of facilities and performance of organizational level aircraft maintenance, (3) provision of facilities and performance of intermediate level aircraft maintenance, (4) maintenance and operation of an engine repair facility and test cells for designated turbo-jet engines, and (5) provision of special weapons support. However, the facility is scheduled for closure in the late 1990's as part of Base Realignment and Closure (BRAC). A NAS Cecil Field reuse plan is being prepared as part of BRAC. Many of the traditional operations at the facility are being scaled down as facility personnel prepare for closure.

2.1 OPERABLE UNIT 7 LOCATION AND HISTORY. OU 7 is located in south-central NAS Cecil Field (Figure 2-2), adjacent to the north-south jet runways on NAS Cecil Field. OU 7 is bounded by 6th Street to the north, the north-south jet runways to the east, Building 313 to the south, and Jet Road to the west.

OU 7 consists of Site 16, the AIMD seepage pit and adjacent area. The AIMD seepage pit and adjacent area are located 60 feet north of Building 313. Currently, the Jet Engine Maintenance Shop and Non-Destructive Inspection (NDI) Laboratory are located in Building 313. A map of the vicinity of OU 7 is provided on Figure 2-3.

Surface features and topography are depicted on Figure 2-4, and storm drainage features and utilities are depicted on Figure 2-5. A brief description and history of the site is summarized in the paragraphs below.

2.1.1 Site 16 From 1959 until 1980, greases, rusts, scale, and paint wastes generated during a machine and engine parts cleaning process, along with glass beads and blasting grit from the airframe blasting shop, were disposed of at OU 7. Liquid waste generated from operations conducted within Building 313 drained to a floor sump located at the north end of the building (Figure 2-3). This sump was connected via vitrified clay piping to a 4,100-gallon underground concrete tank (NDI holding tank) located north of the building. The holding tank acted as a surge tank for the adjacent seepage pit. The holding tank contained a sump

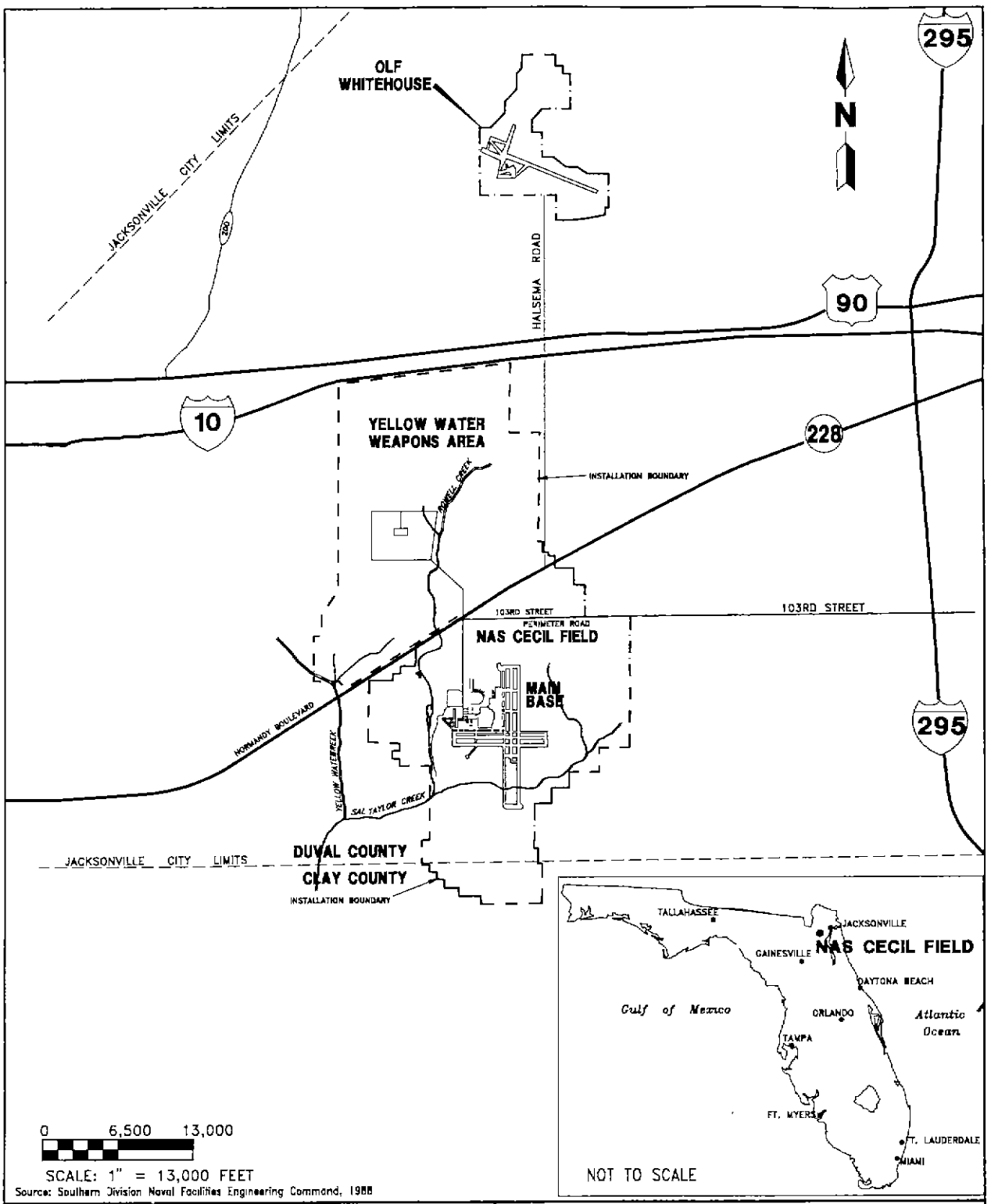


FIGURE 2-1
GENERAL LOCATION MAP

BASELINE RISK ASSESSMENT, OPERABLE UNIT 7

NAS CECIL FIELD
JACKSONVILLE, FLORIDA

CEC.../CE-BRAC/WDW-NP-WDW/03-02-95

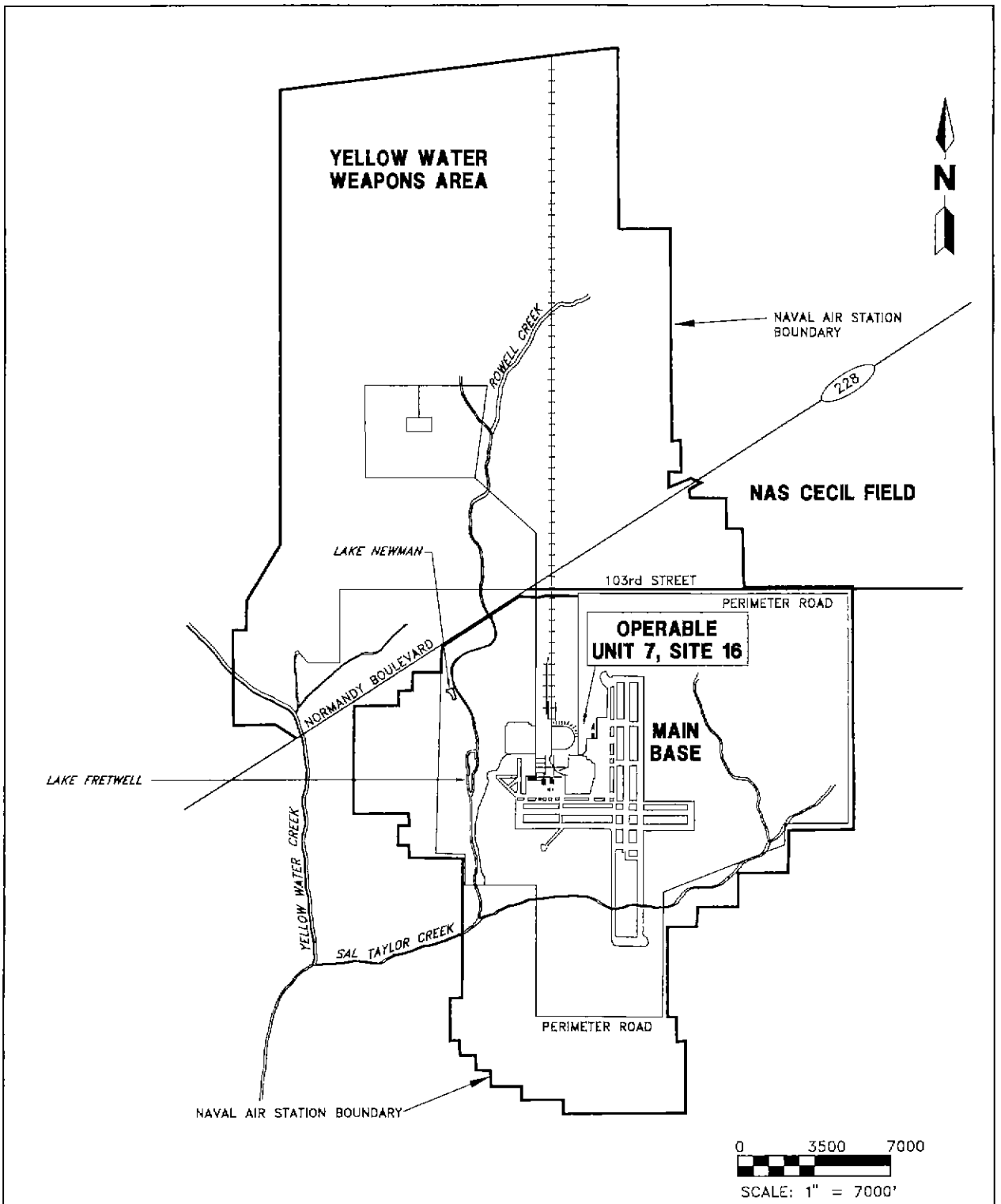
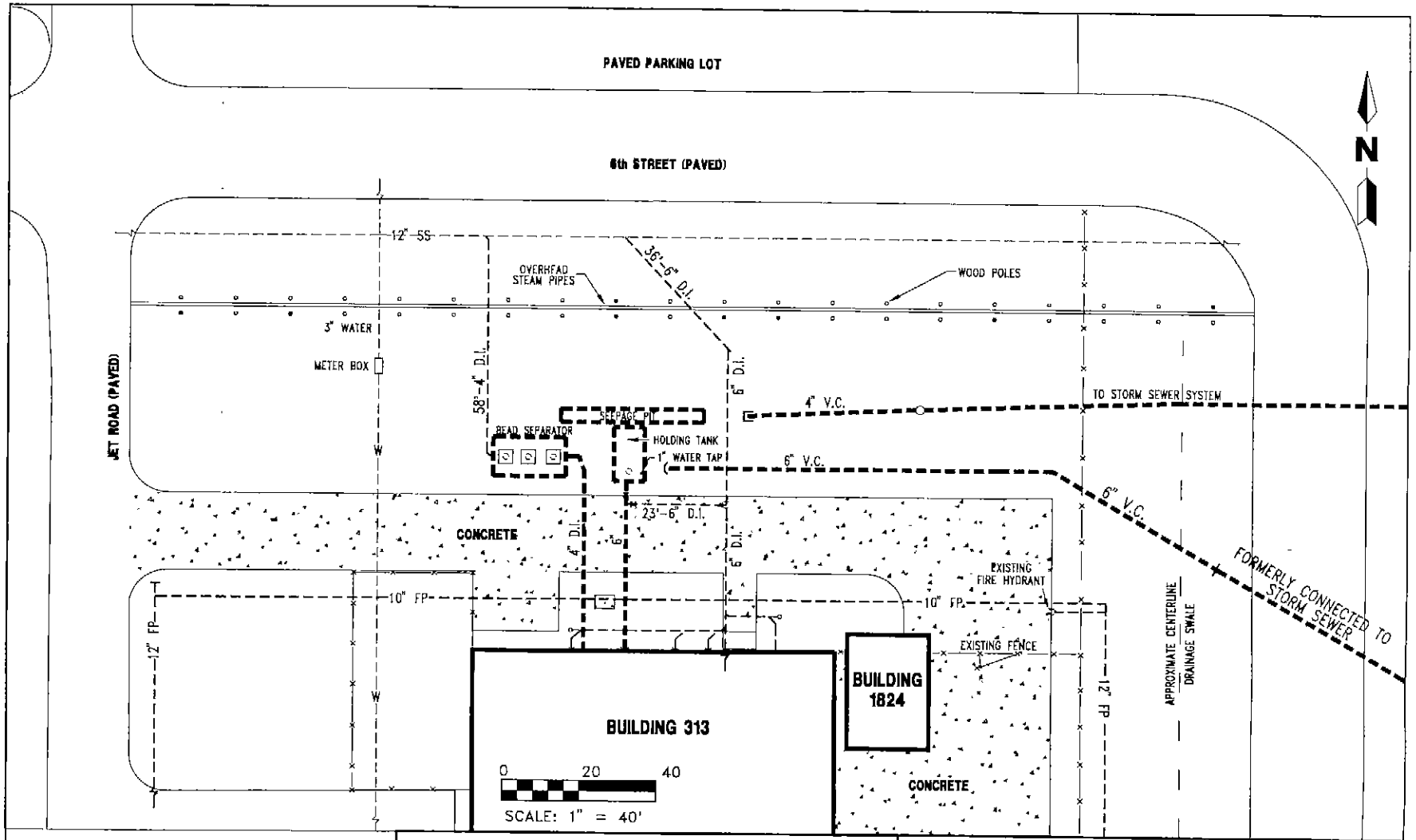


FIGURE 2-2
FACILITY AND SITE LOCATION MAP

CECIL/FFSFACIL/NP-WDW/03-02-95

BASELINE RISK ASSESSMENT, OPERABLE UNIT 7

NAS CECIL FIELD
JACKSONVILLE, FLORIDA



LEGEND

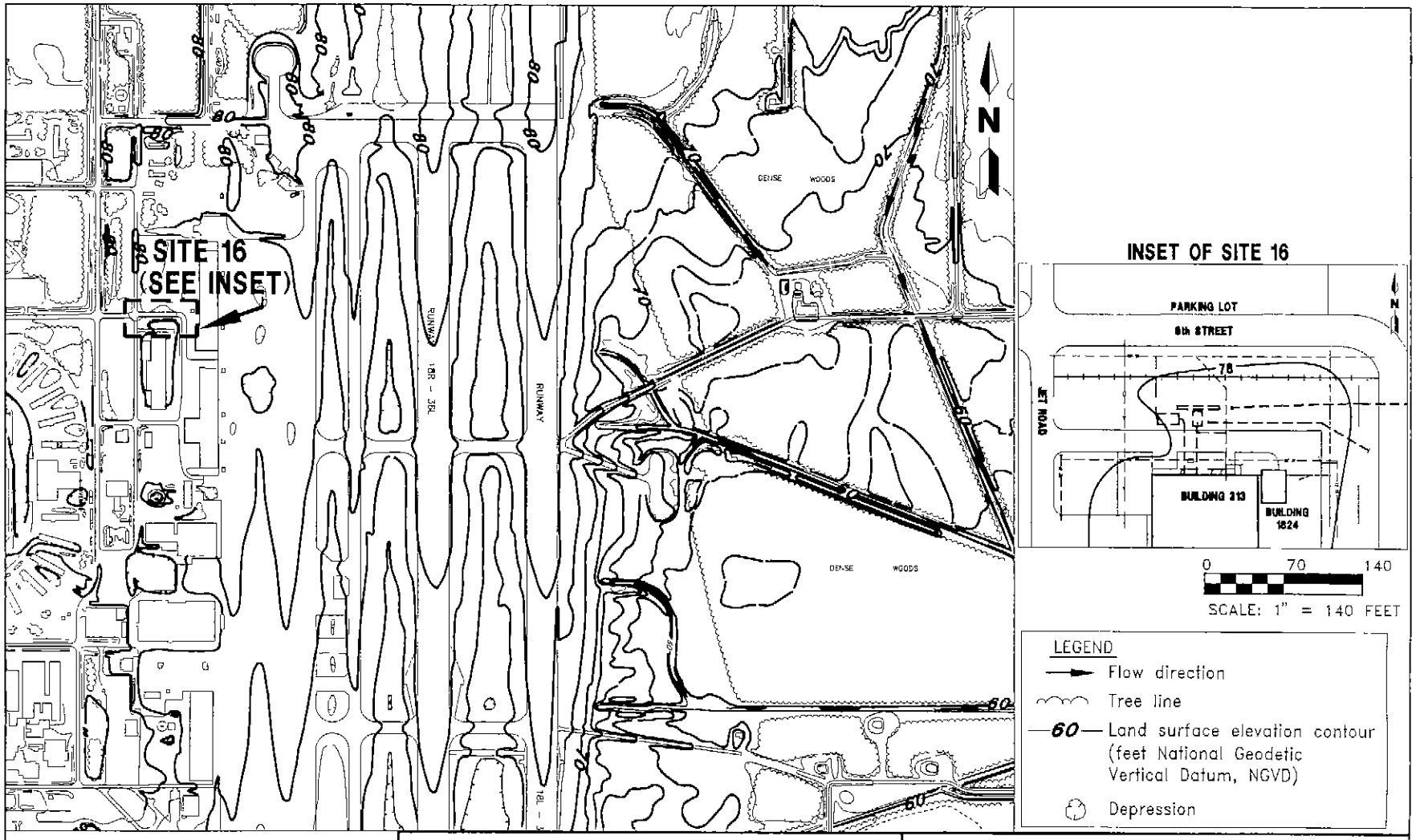
D.I. Ductile iron
V.C. Vitrified clay
W Water main
SS Sanitary sewer
FP Firemain pipe

FIGURE 2-3
SEEPAGE PIT AREA
(BEFORE 1994 REMOVAL ACTION)

BASELINE RISK ASSESSMENT, OPERABLE UNIT 7

NAS CECIL FIELD
JACKSONVILLE, FLORIDA

CECIL\SITE_A\NP-WDW\03-03-95



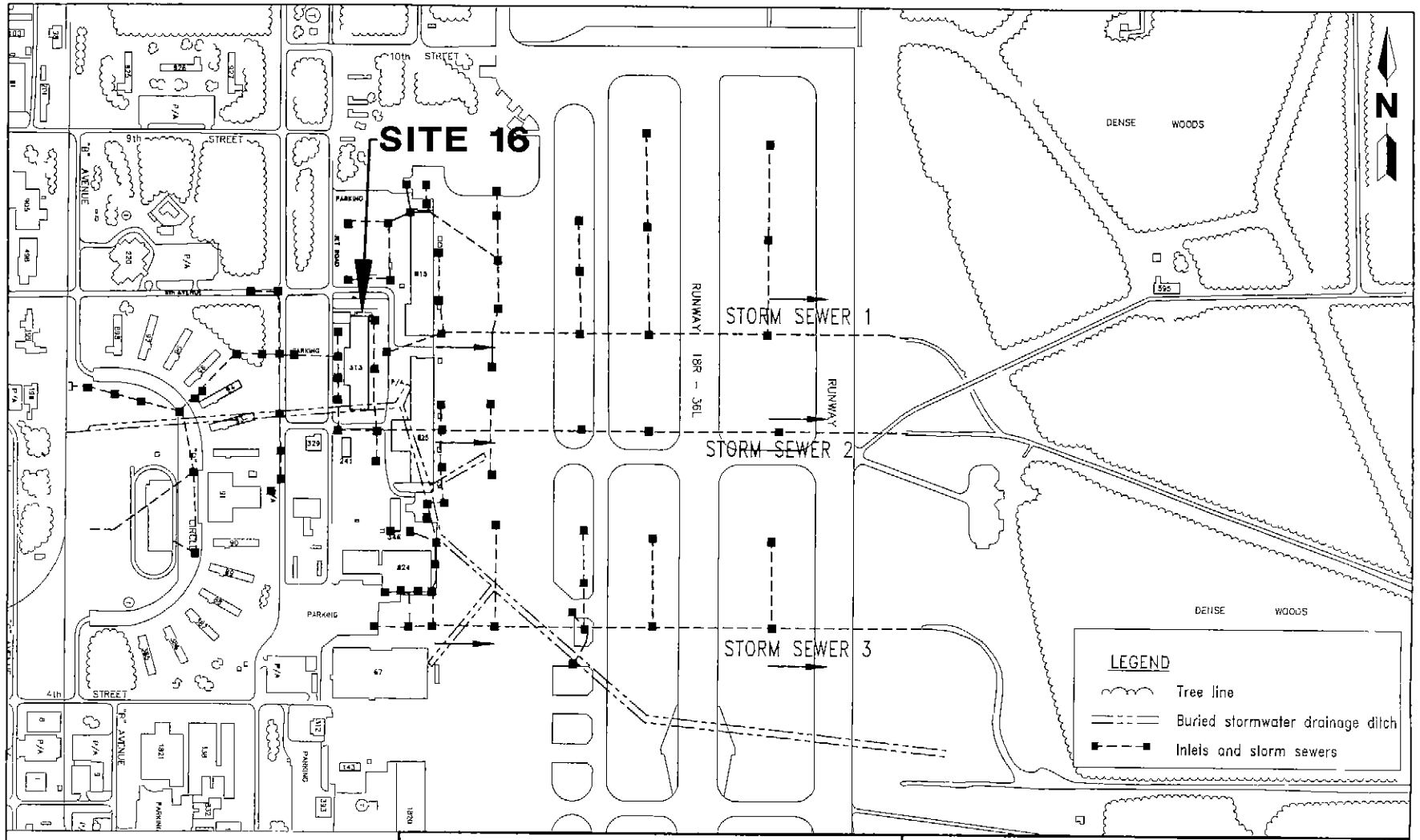
0 500 1000
SCALE: 1" = 1000'

CECIL\CE-SUR\HP\03-23-95

FIGURE 2-4
SURFACE FEATURES, TOPOGRAPHY

BASELINE RISK ASSESSMENT, OPERABLE UNIT 7

NAS CECIL FIELD
JACKSONVILLE, FLORIDA



0 400 800
SCALE: 1" = 800'

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FIGURE 2-5
STORMWATER SEWERS, INLETS, AND DRAINAGE

BASELINE RISK ASSESSMENT, OPERABLE UNIT 7

NAS CECIL FIELD
JACKSONVILLE, FLORIDA

equipped with a sump pump, and was constructed so that waste could be pumped from the sump into either the seepage pit located north of the holding tank or into the NAS Cecil Field storm sewer system.

In the late 1960's, a 4-inch vitrified clay discharge pipe was installed in the seepage pit to allow drainage to the NAS Cecil Field storm sewer system. This pipe was installed so that when the level of wastewater within the seepage pit reached the level of the discharge pipe, the wastewater would overflow to the storm sewer system. This stormwater drainage system eventually discharges to a series of open ditches that empty into Sal Taylor Creek (Harding Lawson Associates, 1988). The distance from OU 7 to Sal Taylor Creek is approximately 5,000 feet.

Use of the seepage pit was discontinued in 1980. Piping leading from the tank to the seepage pit was removed and the tank's outlet to the seepage pit was plugged. The top 4 feet of the seepage pit were removed and backfilled with clean sand. Concurrently, a bead separator, for gravity settling of glass beads from the wastewater, was installed to the west of this system. Discharge from the bead separator was connected to the NAS Cecil Field sanitary sewer system (Vargas, C. & Associates, Ltd., 1981). Wastewater discharge from Building 313 continued after the installation of the bead separator.

From 1980 until 1989, the holding tank was used for 90-day storage of hazardous waste. The use of the bead separator continued from 1982 until 1989. Renovation of the north end of Building 313 in 1989 included the abandonment of this system. All piping leading from the building to the bead separator and from the building to the 4,100-gallon holding tank was disconnected and plugged. In addition, all liquids in the holding tank were pumped out and transported to an offsite treatment, storage, and disposal (TSD) facility for treatment.

The NDI holding tank was excavated on May 11, 1994, and removed from the site on May 17, 1994. The seepage pit and bead separator were also removed. Associated piping was either entirely or partially removed, cut at appropriate locations, and plugged with grout. Soil contaminated with trichloroethene (TCE) at concentrations above the action level of 1 milligram per kilogram (mg/kg) was excavated to the top of the water table. The area was backfilled with clean fill and restored to original conditions (ABB-ES, 1995).

2.2 TOPOGRAPHY AND SURFACE FEATURES. The topography of Duval County's 840 square miles is controlled by a series of ancient marine terraces that have been dissected and modified by stream erosion. These terraces were formed during Pleistocene times 1 million years ago when the ocean was at levels higher than NAS Cecil Field. As the ocean dropped to a lower level, the ocean floor emerged as a terrace marked by a low scarp. A gently undulating topography is formed by these north to south paralleling terraces. Generally, these terraces are interspaced with poorly drained areas and swamps (Jacksonville Area Planning Board, 1980).

The topography of OU 7 is depicted on Figure 2-4. OU 7 is vegetated with grass that is mowed regularly. The general area adjacent to OU 7 is relatively flat and is covered with asphalt and concrete. The immediate area is crisscrossed with several utilities (Figures 2-3 and 2-5), including a water line, overhead steam line, fire water main, a sanitary sewer main, and storm drain lines (both

active and abandoned). There are no inlets to the storm sewer system in the immediate vicinity of OU 7 (ABB-ES, 1992b). Adverse effects, such as surface soil staining or stressed vegetation, from waste activities were not visible during site visits in 1988, 1991, and 1993. A wetland system is located east of OU 7. The wetlands are described in Chapter 5.0.

2.3 SURFACE HYDROLOGY. Surface water drainage in Duval County consists of many short streams that serve as tributaries to four major water courses: the St. Johns River, the St. Marys River, the Nassau River, and the Intracoastal Waterway. Erosion has not been pronounced along the divides between the major drainage divisions. As a result, relatively wide and flat swampy areas remain between divides. The flat swampy areas make delineation of some drainage areas difficult.

2.3.1 Drainage at NAS Cecil Field Streams ranging in width from 3 to 15 feet, with lengths totaling approximately 8 miles, are present on NAS Cecil Field property (Figure 2-6). These streams include Yellow Water Creek, Sal Taylor Creek, and Rowell Creek, as well as smaller tributaries. Two man-made lakes are located at NAS Cecil Field: Lake Newman and Lake Fretwell. Both lakes are part of the Rowell Creek drainage basin.

Generally, the eastern and southern parts of NAS Cecil Field drain to Sal Taylor Creek, and the northern and western parts drain to Lake Newman, Lake Fretwell, or to Rowell Creek, which eventually discharges south to Sal Taylor Creek. Sal Taylor Creek drains in a southerly and then westerly direction, discharging into Yellow Water Creek, which drains south to the St. Johns River via Black Creek.

Sal Taylor Creek, Rowell Creek, Yellow Water Creek, Black Creek, and the St. Johns River are all classified by the FDEP as Class III waters and, therefore, are designated for recreation, propagation, and management of fish and wildlife (Jacksonville Area Planning Board, 1980; Florida Legislature, 1992b). Lake Fretwell, a man-made lake approximately 8 acres in area, is stocked with bass for sportfishing. A recreational complex has been developed along its northeastern shoreline (SOUTHNAVFACENGCOM, 1989).

2.3.2 Drainage at OU 7 Surface water flow is toward paved roads in the vicinity of OU 7. However, a drainage swale that may carry some runoff to the south of the site is located east of the fence between Building 313 and Hangar 815. The swale is covered with grass and drains to the stormwater sewer system. It is believed that the runoff from the paved roads in the vicinity of OU 7 ultimately flows to the NAS Cecil Field stormwater sewer system (Harding Lawson Associates, 1988).

The stormwater sewer system collects surface runoff in catch basins or inlets and transports it through underground piping as indicated by the flow arrows on Figure 2-5. Most of the storm sewer trunk lines (main lines) penetrate below the water table as do some of the lateral lines (smaller sewer lines draining into the trunk lines).

The system discharges into the wetlands from outfalls on the east side of the runways. Small drainageways flow from the outfalls, through the wetlands, and discharge into Sal Taylor Creek farther to the east.

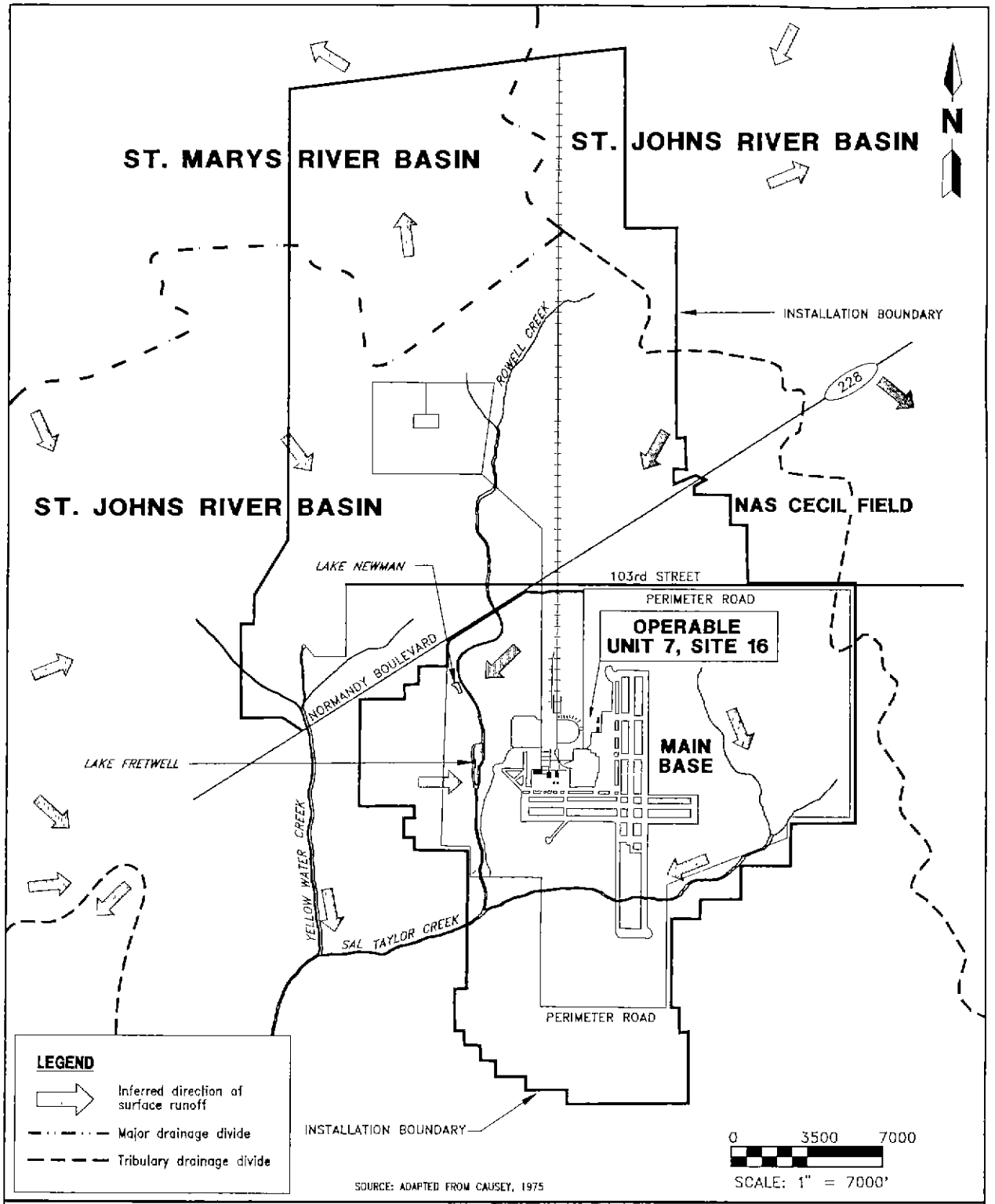


FIGURE 2-6
DRAINAGE BASINS

CECIL/RI-DRAIN/WDW/03-27-95

BASELINE RISK ASSESSMENT, OPERABLE UNIT 7

NAS CECIL FIELD
JACKSONVILLE, FLORIDA

Prior to the construction of the runways (circa 1952), runoff was transported from the area of OU 7 to the wetlands via a drainage ditch. Based on its depiction on the U.S. Geological Survey (USGS) topographic quadrangle and its appearance in historical aerial photographs, the ditch is estimated to have been approximately 50 feet wide and below the water table. During construction of the runways, the ditch was filled and the storm drain system discussed above was installed. The currently filled ditch may provide a preferential pathway for transport of groundwater to the wetlands. As with the filled drainage ditch, the back fill around the storm sewers may provide a preferential groundwater flowpath. Infiltration of groundwater into the sewer pipes would provide an additional preferential groundwater flowpath.

2.4 REGIONAL GEOLOGY. In general, the area in which NAS Cecil Field is situated consists of mostly quartz sand, with some clayey sand and clay from the land surface to approximately 100 feet below land surface (bls) (ABB-ES, 1994b). Below these sediments lie sediments of the Hawthorn Group, which are generally clay rich and are over 300 feet thick in the area of NAS Cecil Field. Locally, the upper part of the Hawthorn Group sediments consists of a carbonate-rich unit of dolomite or shell hash that has been called the "rock aquifer" or "secondary artesian aquifer." In the vicinity of NAS Cecil Field, this unit is approximately 20 to 25 feet thick and occurs at a depth of 60 to 120 feet bls. Below the Hawthorn Group is a series of carbonate-rich units that form the Floridan aquifer system.

2.5 HYDROGEOLOGY. In general, three water-bearing systems are present within the area of investigation (ABB-ES, 1995). From shallowest to deepest, these are: the surficial aquifer system, the intermediate aquifer system and confining unit, and the carbonate-rich Floridan aquifer system.

The surficial aquifer in the area of OU 7 is composed of undifferentiated sediment. It is not separated into an upper and lower zone based on geology and is considered as one unit. Although the surficial aquifer at OU 7 will be discussed as a single unit, well screens were placed to investigate conditions in the shallow upper zone of the surficial aquifer (UZS), intermediate zone of surficial aquifer (IZS), and deep lower zone of the surficial aquifer (LZS) parts of the surficial aquifer system. The historical rock aquifer or secondary artesian aquifer discussed in Section 2.4 is included as a zone within the intermediate aquifer system and confining unit and will be referred to as the upper water-bearing zone of the Hawthorn Group (UZH). The Floridan aquifer system was not encountered during the investigation at OU 7.

The general groundwater flow direction in the surficial aquifer is to the southeast. This general flow direction indicates that the groundwater discharges to the wetland area east of the runways. However, there is a dramatic upward vertical gradient in the surficial aquifer before groundwater even reaches the west side of the runways. The groundwater appears to be upwelling from the intermediate aquifer to the surficial aquifer. The upwelling is interpreted to be caused by a localized absence or thinning of the clay layer on top of the dolomite of the intermediate aquifer. Regional groundwater flow in the UZH, which is the lower part of the intermediate aquifer and confining unit, is to the east (Fairchild, 1972). Leve (1966) and Geraghty & Miller (1983) report that groundwater within the Floridan aquifer flows east-northeast in the vicinity of

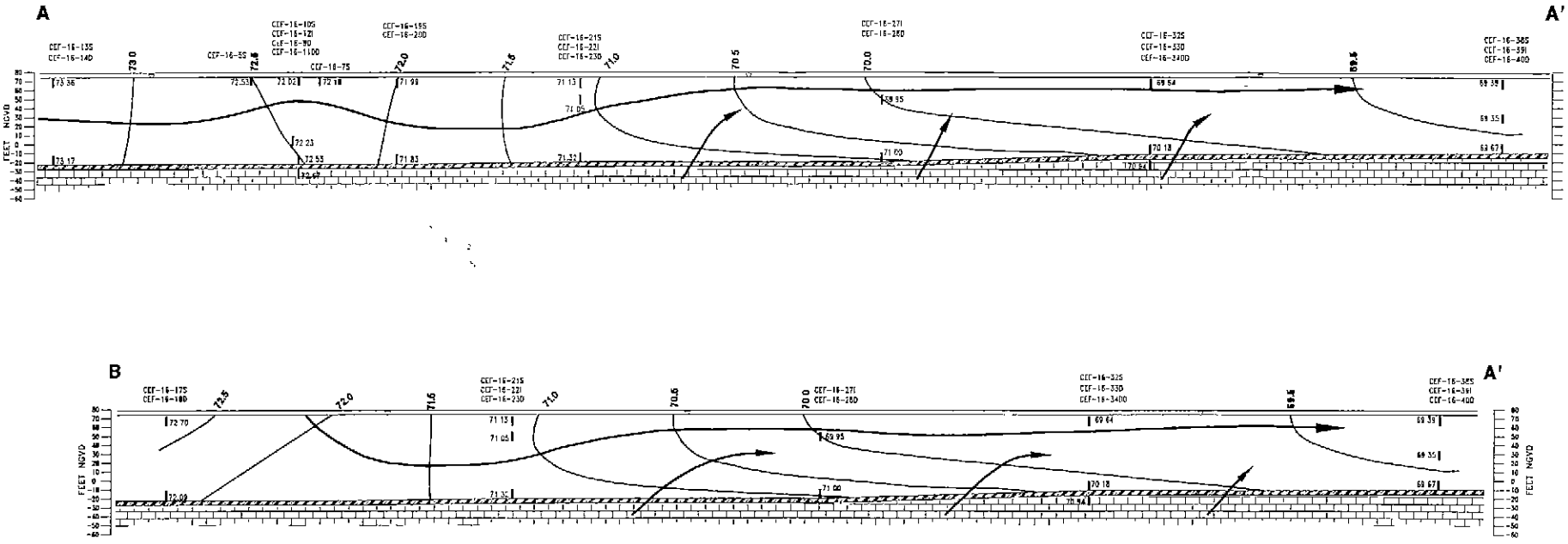
NAS Cecil Field. Figure 2-7 presents groundwater elevation and flowpath cross sections in the vicinity of the study area.

Based on the observations and interpretations of physical and chemical data presented in the RI, it is interpreted that groundwater under the former seepage pit and holding tank is contaminated with TCE and other contaminants from the AIMD wastewater. These contaminants have followed the flow of groundwater and have been detected approximately 1,000 feet southeast of the seepage pit. Contaminants are found up to 50 feet below the water table at the seepage pit. Approximately 400 feet downgradient, the groundwater flows upward and the contaminants are only found to a depth of approximately 15 feet below the water table. It is interpreted that contaminants will remain at this shallow depth until the groundwater discharges to the wetlands east of the runways. Based on the rate of groundwater flow, contaminants are projected to discharge to these wetlands in 105 years. Once contaminants begin to discharge, it is estimated that they will continue to discharge for 60 years, resulting in a peak TCE concentration of approximately 730 micrograms per liter ($\mu g/\ell$). Currently, the mechanisms for OU 7 contaminants to reach the wetlands are the storm sewers that received surface runoff and direct discharge from the holding tank and seepage pit when these facilities were operating, and currently (for storm sewer 2), infiltration from the groundwater plume.

2.6 DEMOGRAPHY AND LAND USE INFORMATION. The following subsections provide information on the demographics of the NAS Cecil Field facility and surrounding areas. Included are discussions of the population (Subsection 2.6.1), groundwater use (Subsection 2.6.2), and land use (Subsection 2.6.3). This information is used to characterize the human population that could potentially be exposed to contaminants released from OU 7.

2.6.1 Population In the Resource Availability Inventory Report distributed by the St. Johns River Water Management District (1990), the population of Duval County is reported to be increasing with time, and continued growth is projected through the year 2000. The military personnel at NAS Cecil Field and surrounding military facilities such as NAS Jacksonville, Naval Station Mayport, and Naval Fuel Depot (NFD) Jacksonville contribute significantly to this population. NAS Cecil Field reports to the Commander in Chief, U.S. Atlantic Fleet Norfolk, VA. The base is composed of a variety of departments and special assistants permitting the command to provide tenant-support activity to more than 40 tenant commands and activities. This infrastructure supports a military population in excess of 7,000, a civilian workforce of 1,500, and can accommodate approximately 3,500 residents in facility quarters and housing (ABB-ES, 1992b).

2.6.2 Groundwater Use Water obtained from the surficial aquifer system, described in Section 2.5, is primarily used in the Duval County area for lawn irrigation and domestic purposes, including heat exchange units in heating and air conditioning systems. The yield of wells placed in the surficial aquifer is typically between 30 and 100 gallons-per-minute and water use estimates for the surficial aquifer are in the 10 to 25 million gallons-per-day range for the City of Jacksonville (Jacksonville Area Planning Board, 1980). Recharge of this aquifer occurs mainly through infiltration of rainwater and water from rivers, lakes, and marshes (Jacksonville Area Planning Board, 1990). The surficial aquifer level and flow directions have been altered over time because of



LEGEND

72.70 Monitoring well screen and groundwater elevation in feet National Geodetic Vertical Datum (NGVD), August 1994

73.0 Groundwater equipotential line

Estimated groundwater flow direction

Sand (surficial aquifer)

Clay and dolomite

Dolomite (intermediate aquifer)

0 60 120
SCALE: 1 INCH = 120 FEET

FIGURE 2-7
GROUNDWATER ELEVATION AND FLOWPATH CROSS SECTIONS

BASELINE RISK ASSESSMENT
OPERABLE UNIT 7

NAS CECIL FIELD
JACKSONVILLE, FLORIDA

CECIL\CDHCROSS\NF-JC\01-04-96

increased water use and pumping rates. Many homes in the Jacksonville area could be expected to obtain water for potable purposes from private wells placed within the surficial aquifer.

The intermediate aquifer system described in Section 2.5 contains the UZH. The water from the limestone, shell, and sand part of the UZH has moderate dissolved solids levels and the quality of water ranges from hard to very hard. The iron content is variable and some areas contain hydrogen sulfide (Geraghty & Miller, 1985). At least 50,000 homes in the Jacksonville area obtain water from private wells in the UZH (Jacksonville Area Planning Board, 1990).

The Floridan aquifer system described in Section 2.5 is one of the most productive aquifers in the world, and is the primary source of water in Jacksonville for all uses.

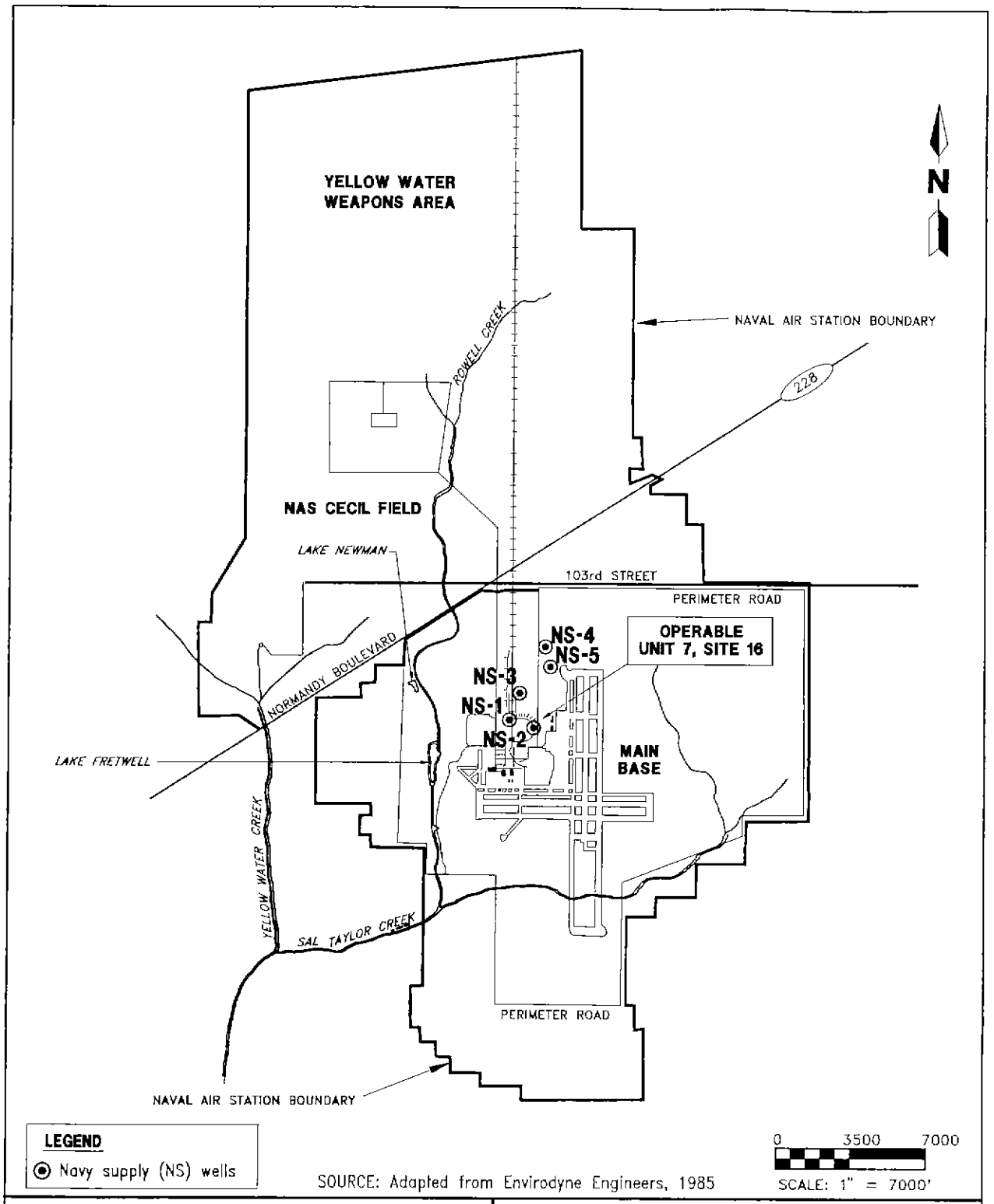
2.6.2.1 **Navy Supply Wells** NAS Cecil Field obtains its potable water from five Navy supply wells shown on Figure 2-8. These wells are finished within the Floridan aquifer system at depths ranging from 400 to 800 feet bls (NAS Cecil Field, 1990). Water is extracted from these wells and stored in reservoirs and elevated water tanks. There are two 250,000-gallon elevated water tanks and two reservoirs: one 500,000-gallon and one 200,000-gallon at NAS Cecil Field. The five wells have a combined capacity of approximately 4.8 million gallons per day (Envirodyne Engineers, 1985). Water from these wells is used for potable, industrial, and heating purposes. Treatment consists of chlorination and aeration. There have been no reported incidents of groundwater contamination in any of the wells at NAS Cecil Field tapping the Floridan aquifer system (NAS Cecil Field, 1991). There are no backup supplies of potable water for the facility.

Other wells on NAS Cecil Field are reportedly finished within the intermediate aquifer system (Geraghty & Miller, 1983). These wells are not a part of the NAS Cecil Field water supply system and are not used for drinking water. These wells are used as individual water supplies along the outlying areas of the facility that are not served by the main water system. Water from these wells is used for flushing toilets, sanitation, cleaning equipment, and irrigation (Envirodyne Engineers, 1985).

2.6.2.2 **Private Water Supply Wells** The Florida Department of Health and Rehabilitative Services (HRS) estimates that there are approximately 75 private wells located within a 2-mile radius of NAS Cecil Field and they are reportedly finished within the intermediate aquifer system. No private wells are located within a 1-mile radius of Site 16; therefore, no private wells are associated with the groundwater plume evaluated for Site 16. Two potable supply wells are present in a small unincorporated community on Nathan Hale Road, immediately west of NAS Cecil Field and south of Normandy Boulevard (State Road 228). These private wells are finished at 64 and 125 feet bls (Geraghty & Miller, 1983).

2.6.3 Land Use The land use at NAS Cecil Field and the surrounding area are described in this subsection. The discussion includes information on potential future uses of the NAS Cecil Field property.

2.6.3.1 **Current Facility Land Use** NAS Cecil Field, occupying more than 31,000 acres, can be divided into four distinct areas: the main station (NAS Cecil Field), which occupies 9,516 acres; the Yellow Water Weapons Department, which



SOURCE: Adapted from Envirodyne Engineers, 1985

FIGURE 2-8
LOCATION OF FACILITY SUPPLY WELLS

CECIL\RI-FACIL\WDW-NP\03-23-95

BASELINE RISK ASSESSMENT, OPERABLE UNIT 7

NAS CECIL FIELD
JACKSONVILLE, FLORIDA

occupies 8,091 acres; Outlying Landing Field (OLF) Whitehouse, which occupies 2,587 acres; and the 11,072-acre Land Target Complex (LANTARPLX) Detachment Astor, which includes Pinecastle Electronic Warfare Range, Stevens Lake, Lake George, and Rodman ranges (Figures 2-1 and 2-2). The main station and the Yellow Water Weapons Department are separated by State Road 228. OLF Whitehouse lies approximately 7 miles north of the main entrance.

The rural community of Whitehouse is nearly adjacent to OLF Whitehouse, and the rural community of Halsema is approximately 1.8 miles to the south of OLF Whitehouse. The main station, NAS Cecil Field, consists of intersecting north-south and east-west runways bracketing the flightline and support facilities. These facilities occupy approximately 1,000 acres in the northwest quadrant of the main station. The remaining acreage of the main facility is mostly undeveloped (SOUTHNAVFACENGCOM, 1989).

There is no housing in the immediate vicinity of OU 7. However, bachelor enlisted quarters (BEQs) are located approximately 500 feet west of the site. Senior officer housing is located approximately 2,000 feet west of the site, and enlisted family housing is located approximately 1,500 feet northwest of the site. A housing complex is located on the northeastern shore of Lake Fretwell, which is located approximately 9,500 feet southwest of OU 7. Lake Fretwell is also used for recreational activities.

OU 7 is located within the controlled access part of NAS Cecil Field and security passes are needed for admittance onto the base. However, OU 7 is accessible once entrance to NAS Cecil Field has been attained as no fences have been constructed around the OU. The north-south runways are located approximately 1,500 feet west of OU 7. Building 313 includes the AIMD and the NDI laboratory and is currently used for jet engine maintenance and inspection. Building 1824 is currently used for X-raying aircraft components, parachutes, and aircraft stabilizers (ABB-ES, 1994a). Navy personnel routinely use the roads and parking areas near OU 7.

2.6.3.2 Current Adjacent Land Use The area surrounding NAS Cecil Field is rural and sparsely populated. The city of Jacksonville lies approximately 14 miles to the northeast. Surrounding land use is primarily forestry with some light agricultural and ranching use. Small communities and scattered dwellings associated with these activities are located in the vicinity. A small residential area on Nathan Hale Road, which abuts the NAS Cecil Field property to the west, typifies these rural communities. The nearest incorporated municipality is the town of Baldwin, whose center lies approximately 6 miles to the northwest of the main station entrance.

To the east of NAS Cecil Field, the rural surroundings grade into a suburban fringe bordering the major east-west roadways. Low commercial use, such as convenience stores, and low density residential areas characterize the land use (Jacksonville Area Planning Board, 1979). A development called Villages of Argyle, when complete, will consist of seven separate villages or communities that will ultimately abut NAS Cecil Field to the south and southeast. The current schedule for completion of this development is unknown. A golf course and residential area also border NAS Cecil Field to the east (SOUTHNAVFACENGCOM, 1989).

2.6.3.3 Future Facility Land Use As discussed in Chapter 2.0, NAS Cecil Field is currently scheduled for closure under BRAC. Future zoning by the local reuse commission for the land currently owned by the facility is scheduled for completion in 1995. Therefore, the future use of land encompassing NAS Cecil Field and, in particular, the area encompassing and immediately surrounding OU 7, is unknown at this time. It is likely that OU 7 will continue to be used for industrial activity.

3.0 OPERABLE UNIT 7 INVESTIGATION AND DATA EVALUATION METHODOLOGY

This chapter presents the purpose of the RI field program as it relates to the BRA, the media sampled and analyzed to support the BRA effort, and a brief discussion of the methodology used for evaluating data during the BRA. It also includes a discussion of the characterization of background concentrations for media at OU 7. More detailed information can be found in the RI (ABB-ES, 1995).

Investigations completed during the RI field program at OU 7 that supported the BRA efforts included the following:

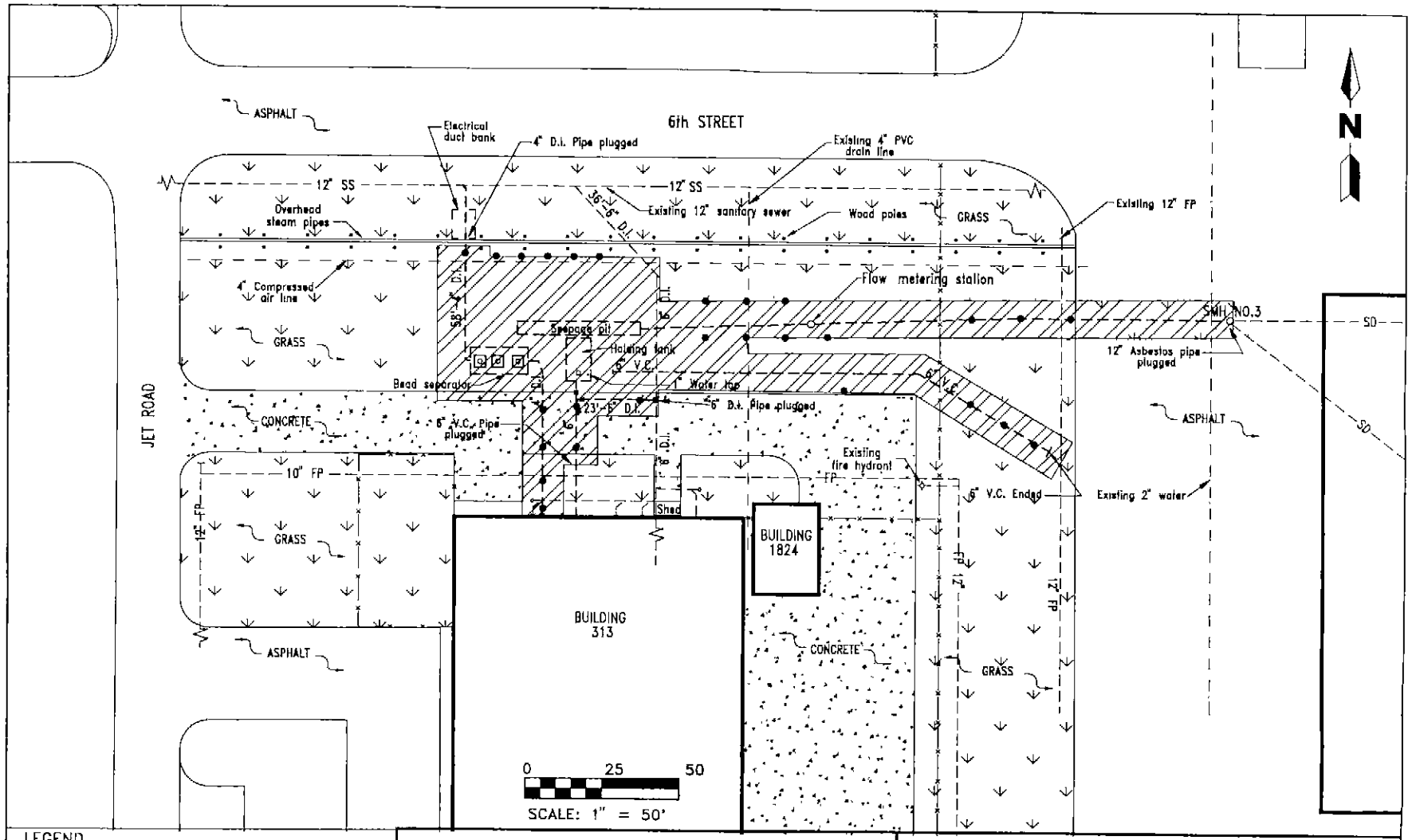
- field screening of soil sample and monitoring well locations;
- post-excavation site surface soil sampling;
- confirmatory sampling and chemical analyses of surface and subsurface soil;
- sampling and chemical analyses of surface water and sediment, toxicity testing of sediment, and biological investigations at surface water and sediment sampling points;
- monitoring well installation and subsequent confirmatory sampling and chemical analyses of groundwater; and
- facility-wide and upgradient background investigations.

The wetlands located east of Site 16 and Sal Taylor Creek are discussed in Chapter 5.0; the sampling activities are discussed in the following sections.

3.1 SOIL INVESTIGATIONS. The surface soil and vadose zone (subsurface soil) investigations were completed in 1994 to characterize the nature and extent of contamination. After the completion of a soil screening program, an interim remedial action (IRA) was conducted in May 1994 at the seepage pit area to remove the seepage pit, holding tank, bead separator, and unsaturated soil with concentrations of TCE above 1 mg/kg. The excavated soil was staged on the grass strip of Site 16 north of the overhead steam pipes and south of 6th Street prior to offsite treatment and disposal. Soil samples were collected from the excavated area for analyses (historical data evaluation is included in Appendix A). The area of excavation and the sample locations are depicted on Figure 3-1.

To confirm the nature and extent of the contamination detected at the seepage pit area, confirmatory surface and subsurface soil sampling and analyses were completed. Data from the confirmatory sample analyses were used to evaluate and characterize remaining risk posed by the OU 7 soil (after excavation) to human health and to support the feasibility study (FS) recommended technology (validated RI and BRA data are included in Appendix B).

Surface soil samples were collected from 10 locations at Site 16 (Figure 3-2). As clean fill was added during the IRA, locations selected were from areas of the grassy strip that was not excavated. All surface soil samples were collected



LEGEND

- Limits of structure and pipe removal and soil excavation.
- ● Post excavation soil sampling locations
- D.I. Ductile iron
- V.C. Vitrified clay
- W Water main
- SS Sanitary sewer
- FP Firemain pipe

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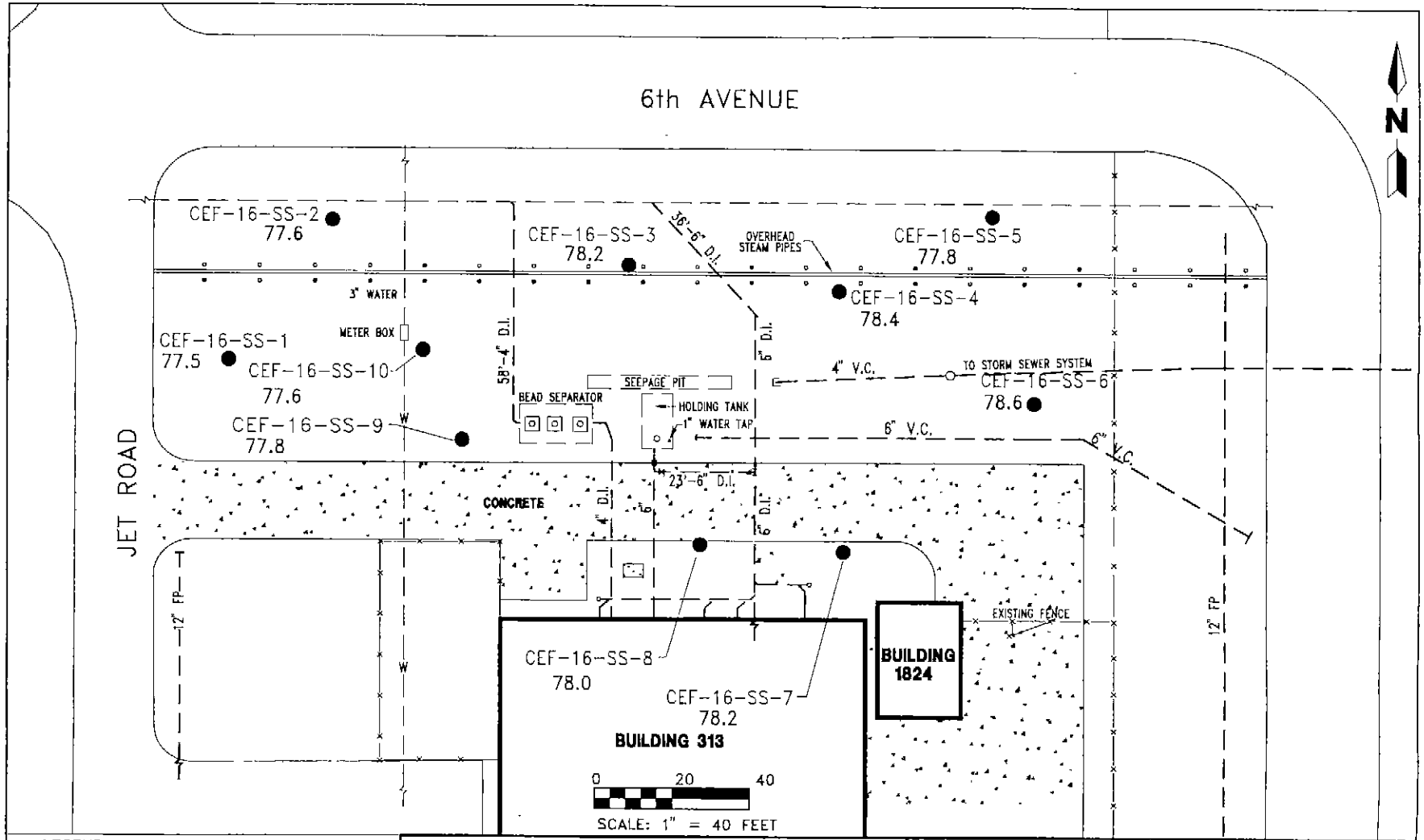
FIGURE 3-1
POST EXCAVATION SOIL SAMPLING LOCATIONS

BASELINE RISK ASSESSMENT, OPERABLE UNIT 7

NAS CECIL FIELD
JACKSONVILLE, FLORIDA



LEGEND

- ● Surface soil sample
- 77.8 Land surface elevation, in feet NVGD
- D.I. Ductile iron
- V.C. Vitrified clay
- W Water main
- SS Sanitary sewer
- FP Firemain pipe

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FIGURE 3-2
CONFIRMATORY SURFACE SOIL SAMPLING LOCATIONS

BASELINE RISK ASSESSMENT, OPERABLE UNIT 7

NAS CECIL FIELD
JACKSONVILLE, FLORIDA

from a depth of 0 to 12 inches bls. Surface soil samples were analyzed according to Contract Laboratory program (CLP) methods for target compound list (TCL) organics, target analyte list (TAL) inorganics, and total petroleum hydrocarbons (TPHs) (Appendix B) for use in the BRA for human health evaluation.

Confirmatory subsurface soil samples at Site 16 were collected from the 12 locations depicted on Figure 3-3. Two subsurface soil samples were collected from each boring. All samples were analyzed according to CLP methods for TCL organics, TAL inorganics, TPHs, and total organic carbon (TOC) in accordance with Naval Energy and Environmental Support Activity (NEESA) Level D requirements (Appendix B).

3.2 SURFACE WATER AND SEDIMENT INVESTIGATIONS. The surface water and sediment investigations were completed to assess human health and ecological risks associated with potential contamination from OU 7. Contamination migrating via the storm drains through groundwater-surface water interaction, surface runoff, and/or soil erosion was assessed. The storm drains are the only mode of contaminant transport at OU 7 to the drainage ditches where the surface water and sediment sampling was completed. (A discussion of the drainage at OU 7 is included in this report as Subsection 2.3.2.) There were three types of investigations completed: sampling and chemical analyses, toxicity testing of sediment, and biological investigations. Each of these investigations is discussed in the following subsections.

3.2.1 Sampling and Analysis The surface water and sediment sampling was part of a facility-wide investigation of the drainage areas at NAS Cecil Field. In the sampling location nomenclature, "STC" denotes Sal Taylor Creek and "SD" and "SW" denote sediment and surface water, respectively. "Bio" denotes biological investigation and "Tox" denotes toxicity testing.

During the 1993 field event, samples were collected at four stations in the drainage ditches east of the runways and one reference station located northeast of the drainage ditches in Sal Taylor Creek. Samples from three of the four sampling stations in the drainage ditches (STC-SW/SD/Bio/Tox-1, STC-SW/SD/Bio/Tox-3, and STC-SW/SD/Bio-4; Figure 3-4), interpreted to be associated with OU 7 and used in the risk assessments, were collected east of the runways in the drainage ditches receiving discharge from Storm Sewers 1 and 2 (Figure 2-5). The fourth surface water and sediment sample, collected east of the runways from an area receiving discharge from Storm Sewer 3, was at station STC-SW/SD/Bio/Tox-2, which is located in a drainage ditch (south of STC-SW/SD/Bio/Tox-3). The data from STC-SW/SD/Bio/Tox-2 were not used as part of the OU 7 human health or ecological risk assessments because they were interpreted to be unrelated to OU 7. The groundwater plume migrating to the southeast from Site 16 has not reached, and is not expected to intersect, the storm drain (Storm Sewer 3; Figure 2-5) that empties into the drainage ditch where sampling station STC-SW/SD/Bio/-Tox-2 is located. Also, surface water runoff from OU 7 is interpreted to be captured by Storm Sewers 1 and 2, and the Storm Sewer 3 catchment area is not related to contamination from OU 7.

Surface water and sediment samples were analyzed for TCL organics and TAL inorganics for use in the BRA for human and ecological receptors (Appendix B). The detection limits of beryllium, cadmium, and silver were lowered to improve

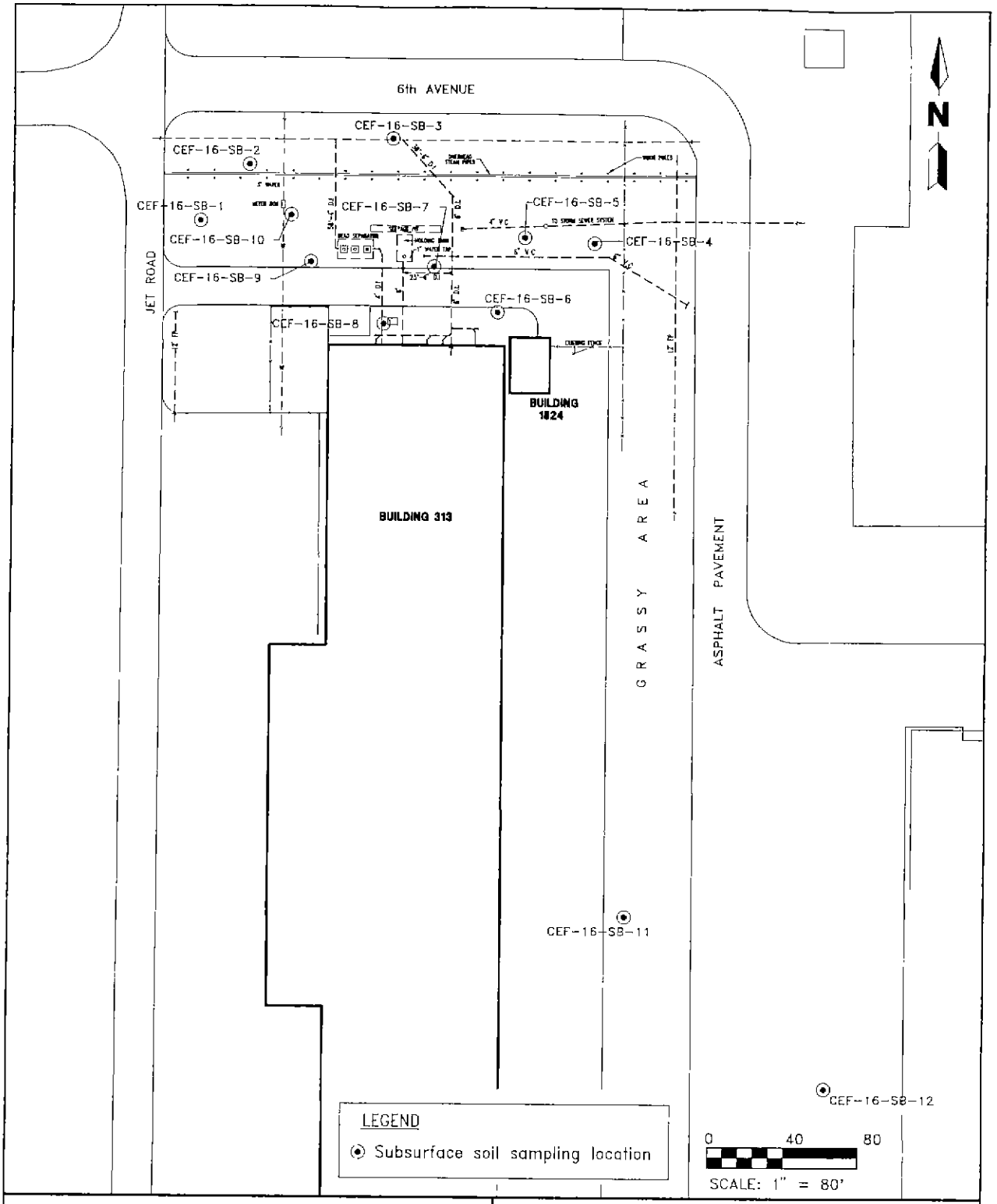

FIGURE 3-3
CONFIRMATORY SUBSURFACE SOIL SAMPLING LOCATIONS

BASELINE RISK ASSESSMENT, OPERABLE UNIT 7

NAS CECIL FIELD
JACKSONVILLE, FLORIDA

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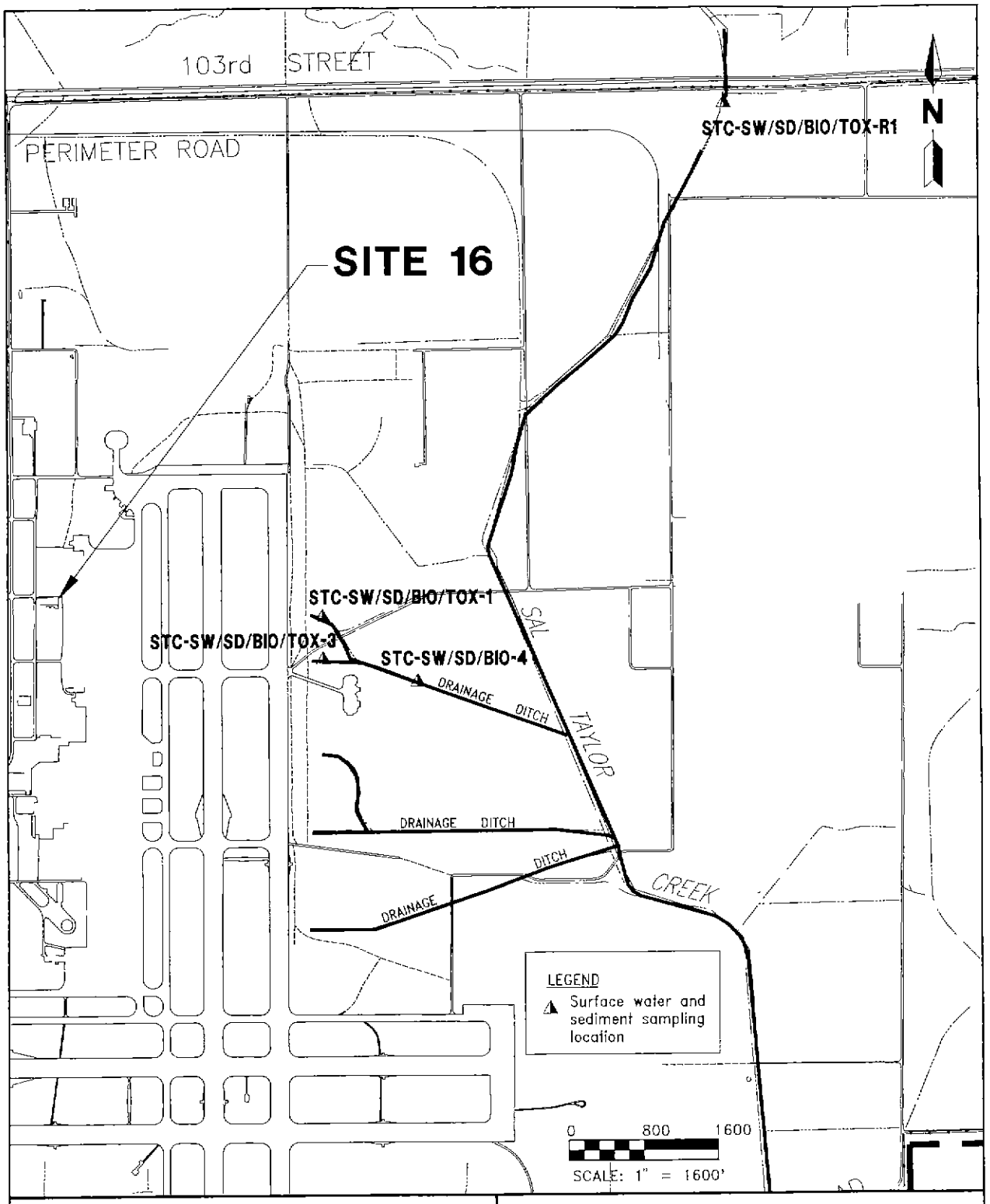

FIGURE 3-4
SURFACE WATER AND SEDIMENT SAMPLING LOCATIONS

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BASELINE RISK ASSESSMENT, OPERABLE UNIT 7

NAS CECIL FIELD
JACKSONVILLE, FLORIDA

quantitative comparisons with USEPA Region IV Waste Management Division Screening Values (USEPA, 1992d) and other criteria. For the remainder of the inorganic analytes, the CLP methods attained the necessary screening value concentration or represented the best detection limit available.

Detection limits were not lowered to attain the screening values for pesticides or polychlorinated biphenyls (PCBs) in surface water samples. These contaminants—for which lower detection limits would be necessary—are not likely to partition to the water column as they are not water soluble. Environmental sampling to detect the presence of these substances should be focused on the sediment where they are likely to partition. Special analytical techniques were not necessary to attain the required detection limits used for comparison with sediment screening values.

TOC content was measured for OU 7 sediment to evaluate the capabilities of the sediment to bind hydrophobic organic contaminants. TPH analyses were completed at selected sediment sampling locations. Wet chemistry analyses performed on the surface water samples included hardness and nutrient analyses. In addition, hexavalent chromium was analyzed for selected surface water and sediment samples to detect the presence of this more toxic form of chromium (Appendix B).

3.2.2 Toxicity Testing of Sediment Sediment samples were collected from selected OU 7 sampling locations (STC-SW/SD/Bio/Tox-1, STC-SW/SD/Bio/Tox-3, and STC-SW/SD/Bio/Tox-RI; Figure 3-4) and submitted for analyses of toxicity to two sensitive and commonly used test organisms, the water flea (*Ceriodaphnia dubia*) and the amphipod (benthic crustacean) (*Hyallela azteca*). The samples for toxicity testing were collected with the samples for chemical analyses, homogenized, and split. The purposes of the toxicity testing were to determine a location-specific toxicity of sediment and risks for aquatic receptors in the ecological assessment, and to determine concentrations of contaminants in the sediment at OU 7 at which no adverse effects (e.g., death or reduced reproduction vitality) to the test organisms were observed. Toxicity testing of sediment is further described in Paragraph 6.1.4.1.

3.2.3 Biological Investigation Biological sampling included the collection and identification of benthic macroinvertebrates at all surface water and sediment sampling locations and the collection of fish at two surface water and sediment sampling locations (STC-SW/SD/Bio-4 and STC-SW/SD/Bio/Tox-R1; Figure 3-4). The purpose of the biological investigation was to determine the status of the structure and function of the benthic macroinvertebrate and fish communities in the area of OU 7, and to evaluate if contaminants present at OU 7 may be affecting the health of those communities. The biological investigations are discussed in detail in Section 5.2.

3.3 GROUNDWATER INVESTIGATION. For the BRA, the purposes of monitoring well installation and subsequent groundwater sampling were to investigate the nature and extent of contamination in groundwater resulting from disposal activities at OU 7, to evaluate migration of contaminants, and to collect analytical information necessary to assess quantitative risks to human health and the environment caused by contamination in groundwater. Groundwater samples were collected from all monitoring wells at OU 7 during July and August 1994. Monitoring well locations are shown on Figure 3-5. Subsurface soil sampling and analyses were also completed during installation of monitoring wells.

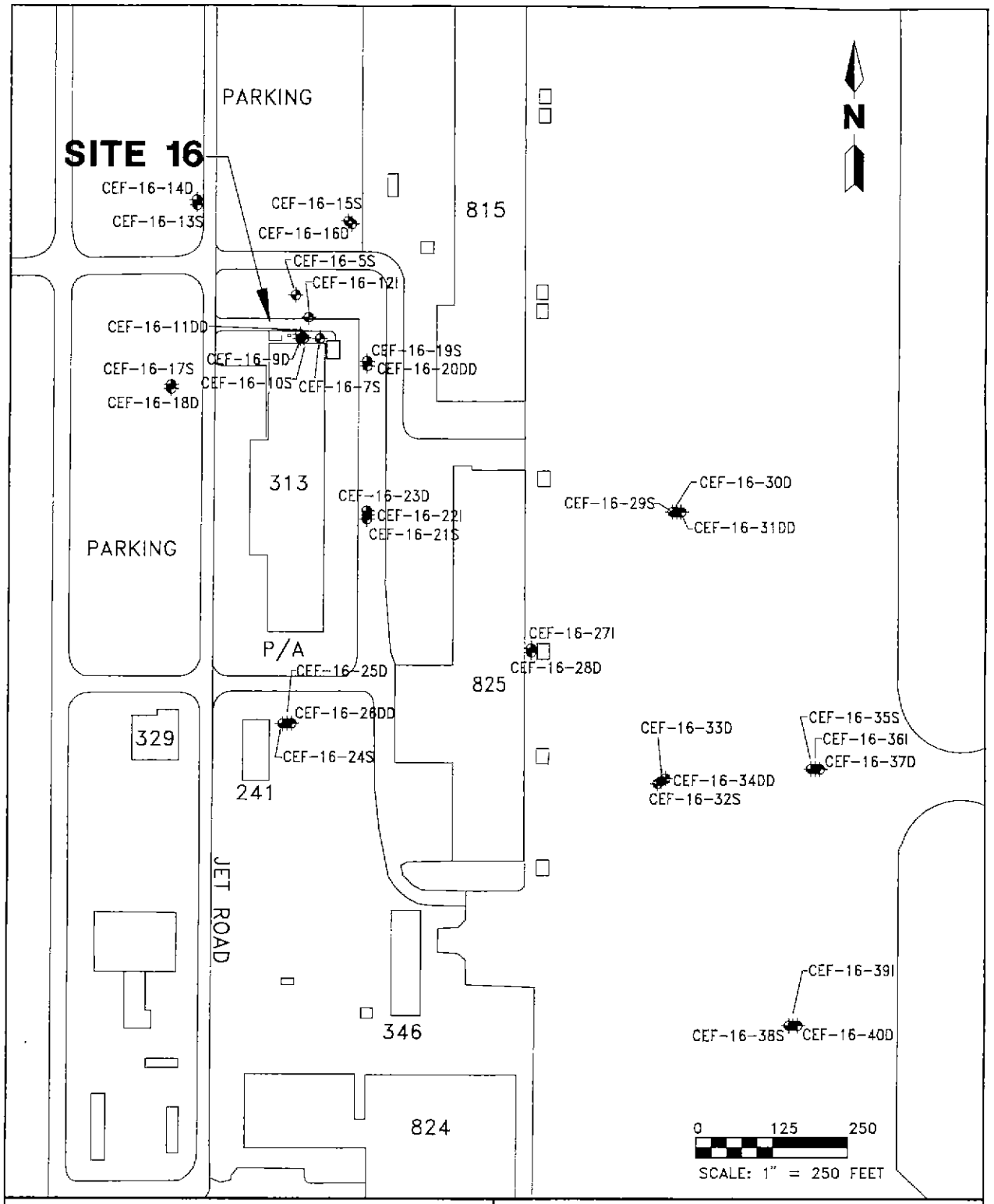

FIGURE 3-5
MONITORING WELL LOCATIONS

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BASELINE RISK ASSESSMENT, OPERABLE UNIT 7

NAS CECIL FIELD
JACKSONVILLE, FLORIDA

All groundwater samples were analyzed according to CLP methods for TCL organics, TAL inorganics, TPHs, and major cations and anions. Both filtered and unfiltered groundwater samples were analyzed for TAL inorganics. Filtration decreases the turbidity (an indirect measure of the amount of small, suspended, fine-grained undissolved solids) of groundwater samples. Concentrations of inorganic analytes (metals) will generally be higher in unfiltered, turbid groundwater samples because metals occur naturally in suspended, fine-grained soils such as silt and clay.

3.4 BACKGROUND INVESTIGATIONS. A sampling program was designed to characterize existing background conditions for NAS Cecil Field and to support the RI/FS and BRA for each OU (the background sampling program is discussed in detail in Appendix C). The background monitoring network consisted of monitoring well installation and the collection of surface soil, subsurface soil, and groundwater samples. Reference surface water and sediment sampling was also completed over much of the drainage system for NAS Cecil Field. For the BRA for OU 7, the facility-wide background samples are used for surface and subsurface soil evaluations. Upgradient or reference samples specific to OU 7 will be used for groundwater, surface water, and sediment evaluations.

The objective of the background sampling program was to develop an accurate representation of existing physical and chemical background conditions at NAS Cecil Field. The establishment of existing background conditions is most important for the inorganics (metals), which are both naturally occurring and possibly waste related and will be detected at varying concentrations in all soil and groundwater samples collected. Characterization of existing background conditions is also important for the interpretation of certain organic analyses, such as pesticides, naturally occurring hydrocarbons, and organic carbon. The analytical results of the background samples for all media can be interpreted as a baseline for comparison to concentrations of contaminants detected in onsite samples. Background samples for all media were analyzed for TCL organics and TAL inorganics. A brief discussion of relevant organics and inorganics found in background samples is included in the following background media-specific discussions.

A detailed summary of the entire background sampling program for NAS Cecil Field is contained in Appendix C. A discussion of the background sampling program for soil as it pertains to OU 7, and specifically the BRA, is presented in detail in Appendix C; a summary of this discussion as it pertains to surface soil is provided in Subsection 3.4.1. Background subsurface soil conditions, upgradient groundwater conditions, and reference surface water and sediment conditions as they apply to OU 7 are included in Subsections 3.4.2 through 3.4.4.

3.4.1 Surface Soil Four background surface soil samples and one duplicate were selected for use in the OU 7 BRA (Sample locations BSS01, BSS02, BSS03, and BSS04 are depicted on Figure 3-6 as S1). The majority of the soil present at OU 7 has been classified as Arents or Arents-Sanitary Landfill, a soil unit designated for areas that have been disturbed or reworked (ABB-ES, 1995).

Surface soil samples at the background S1 location have been classified in the Arents soil unit. The S1 location was used as the reference background location for OU 7 surface soil. To determine if the S1 soil samples represented soil

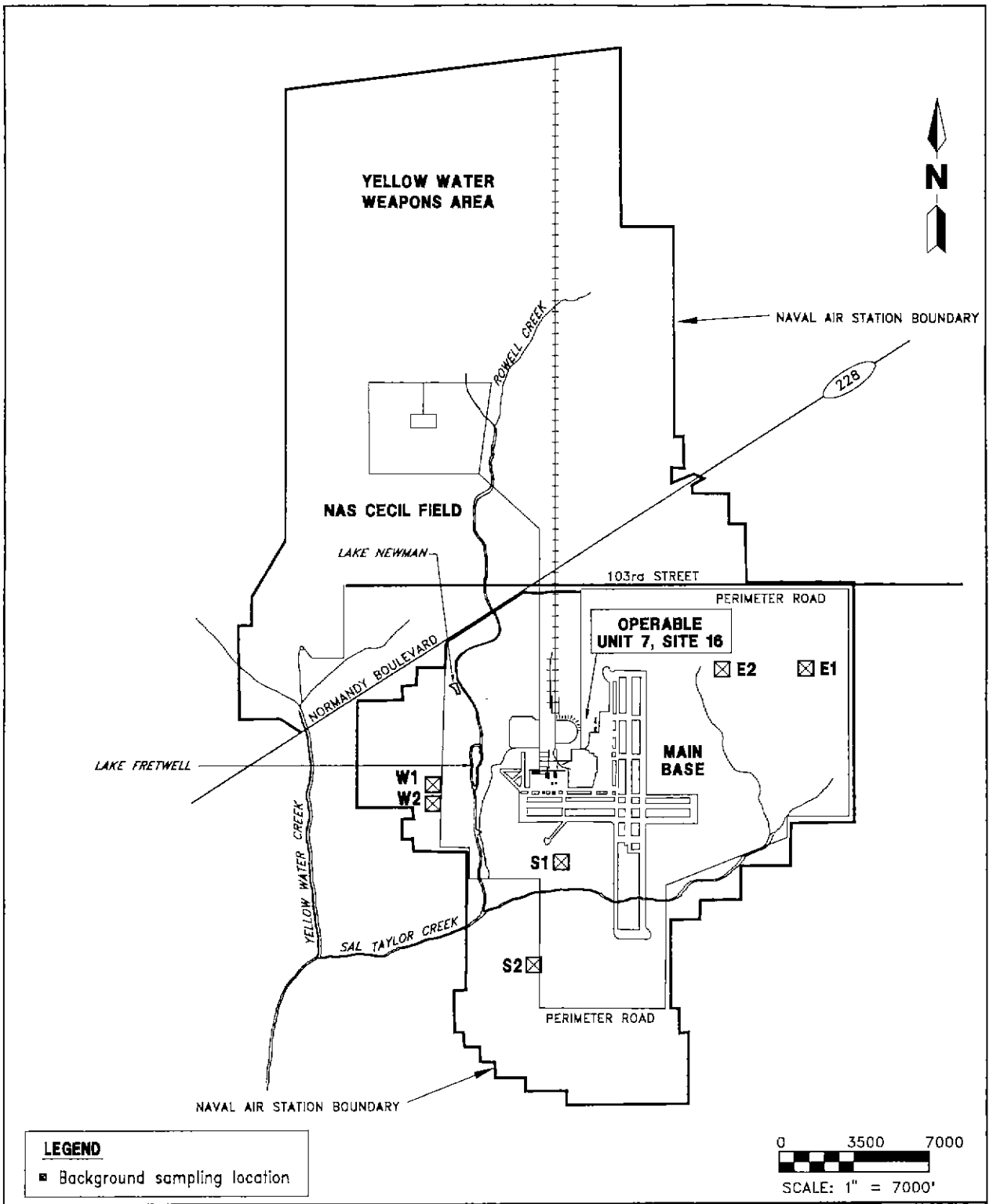

FIGURE 3-6
BACKGROUND SURFACE SOIL AND SUBSURFACE SOIL SAMPLING LOCATIONS

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BASELINE RISK ASSESSMENT, OPERABLE UNIT 7

NAS CECIL FIELD
JACKSONVILLE, FLORIDA

native to the facility, the inorganic analyses of the S1 samples were compared with those of subsurface soil samples from across the facility. This statistical analysis, which used t-scores at a 95 percent confidence level (Appendix C), indicated that the S1 location results were similar to the subsurface soil results across the site. Therefore, the S1 location is considered to represent disturbed soil (as the Arents designation implies), similar to that present at Site 16, that could be derived from within the facility by reworking existing soil from deeper (5 to 8 feet bls) depths.

The background samples do contain organic analytes including pesticides at low concentrations (endrin and endrin aldehyde) and phthalates (bis(2-ethylhexyl)phthalate and di-n-butylphthalate) (Table 3-1). Phenols were also detected at low concentrations. Although the phthalates are common sampling and laboratory contaminants, they could not conclusively be associated with laboratory or sampling contamination and, therefore, were retained in the data set. The presence of organic contamination in the background location samples does not necessarily indicate that the inorganic concentrations in those samples are not representative inorganic reference concentrations.

3.4.2 Subsurface Soil One set of background sample locations for subsurface soil collected at NAS Cecil Field (CEFBBMS1S0, CEFBBMS1S6, CEFBBMS2S2, CEFBBMS2S6, CEFBBMS312, CEFBBMS316, CEFBBMS4S2, CEFBBMS4S4, CEFBBMS5S2, CEFBBMS5S6, CEFBBMS610, CEFBBMS616, CEFBBMS7S0, CEFBBMS7S4, CEFBBMS8S2, CEFBBMS8S6, CEFBBMS910, and CEFBBMS916, including a duplicate at CEFBBMS7S0) are depicted as S1, S2, E1, E2, W1, and W2 on Figure 3-6. Pentachlorophenol was detected at low concentrations in 3 of the 18 locations. 4,4-Dichlorodiphenyldichloroethene (DDE), 4,4-dichlorodiphenyltrichloroethane (DDT), and Aroclor-1260 were each detected in 1 of the 18 background locations (Table 3-1). The concentrations of inorganics in the background samples appear to be appropriate for regional conditions.

3.4.3 Groundwater A cluster of four monitoring wells located upgradient of OU 7 was selected as the location for the collection of background groundwater samples (16MW13S, 16MW14D, 16MW15S, and 16MW16D). The four monitoring wells (CEF-16-13S, CEF-16-14D, CEF-16-15S, and CEF-16-16D), shown on Figure 3-5, are located at the northern edge of Site 16. These wells were selected because they are upgradient of OU 7 and outside of the limits of waste disposal activity at Site 16. USEPA Region IV guidance suggests using local upgradient conditions to establish baseline or background concentrations for analytes in groundwater. Average concentrations of detected analytes in samples from the upgradient wells for unfiltered surficial aquifer system groundwater were used as the baseline concentrations to which concentrations of analytes in groundwater samples collected at OU 7 were compared. An upgradient monitoring well in the intermediate aquifer system was not used for the BRA.

Organic contamination (diethylphthalate, phenol, and bis(2-ethylhexyl)phthalate) was detected in two upgradient groundwater samples (Table 3-2). Although bis(2-ethylhexyl)phthalate is a common sampling and laboratory contaminant, it could not be conclusively associated with laboratory or sampling contamination and, therefore, was retained in the data set. There is no reason to believe that the groundwater background locations do not represent suitable reference concentrations for the inorganics detected.

Table 3-1
Analytes Detected in Background Locations
Surface and Subsurface Soil

Baseline Risk Assessment
Operable Unit 7, NAS Cecil Field
Jacksonville, Florida

Analyte	Surface Soil (Arents Soil Unit) [1]				Subsurface Soil [2]			
	Frequency of Detection[3]	Range of Quantitation Limits	Range of Detections	Background Screening Concentration [4]	Frequency of Detection [3]	Range of Quantitation Limits	Range of Detections	Background Screening Concentration [4]
Semivolatiles (µg/kg)								
Pentachlorophenol	ND	ND	ND	ND	3/18	820 to 950	180 to 420	320
Phenol	1/4	350 to 390	52	52	ND	ND	ND	ND
Di-n-butylphthalate	1/4	350 to 390	34	34	ND	ND	ND	ND
bis(2-Ethylhexyl)phthalate	2/4	350 to 390	[5] 47 to 48	47	ND	ND	ND	ND
Pesticides and PCBs (µg/kg)								
4,4-DDD	ND	ND	ND	ND	1/18	3.4 to 4	0.68	0.68
4,4-DDE	ND	ND	ND	ND	ND	ND	ND	ND
4,4-DDT	ND	ND	ND	ND	1/18	2.1 to 4	0.73	0.73
Aroclor-1260	ND	ND	ND	ND	1/18	34 to 40	9.7	9.7
Endrin	1/4	0.7 to 3.85	[5] 1.09	1.09	ND	ND	ND	ND
Endosulfan II	ND	ND	ND	ND	ND	ND	ND	ND
Endrin aldehyde	1/4	3.6 to 4	0.45	0.45	ND	ND	ND	ND
Inorganics (mg/kg)								
Aluminum	4/4	40	4,720 to 24,000	29,000	18/18	40	[5] 629 to 15,600	11,200
Arsenic	2/4	2	[5] 1.2 to 2.2	3.4	2/18	2	0.65 to 0.98	1.64
Barium	4/4	40	5.4 to [5] 16.4	21	11/18	40	2.2 to [5] 12.2	16
Calcium	ND	ND	ND	ND	8/18	1,000	102 to 277	320
Chromium	4/4	2	5.9 to 24.9	31.2	14/18	2	[5] 1.6 to 17.4	16
Copper	ND	ND	ND	ND	1/18	5	0.58	1.16
Iron	4/4	20	716 to 7,140	8,060	18/18	20	104 to 5,660	2,840

See notes at end of table.

Table 3-1 (Continued)
Analytes Detected in Background Locations
Surface and Subsurface Soil

Baseline Risk Assessment
Operable Unit 7, NAS Cecil Field
Jacksonville, Florida

Analyte	Surface Soil (Arents Soil Unit) [1]				Subsurface Soil [2]			
	Frequency of Detection[3]	Range of Quantitation Limits	Range of Detections	Background Screening Concentration [4]	Frequency of Detection [3]	Range of Quantitation Limits	Range of Detections	Background Screening Concentration [4]
Inorganics (mg/kg) (continued)								
Lead	4/4	1	4.8 to [5] 10.5	15.6	15/18	1	1.6 to 18.8	14
Magnesium	4/4	1,000	123 to [5] 376	474	10/18	1,000	60.1 to [5] 255.8	268
Manganese	4/4	3	4.8 to 10.9	18	5/18	3	3.2 to 4.5	7.8
Mercury	ND	ND	ND	ND	1/18	0.1	0.55	1.1
Nickel	4/4	8	1.5 to [5] 5.7	8	5/18	8	1.8 to 3.9	5.4
Potassium	4/4	1,000	69.7 to 236	310	10/18	1,000	17 to 158	152
Sodium	ND	ND	ND	ND	6/18	1,000	117 to 225	312
Vanadium	4/4	10	4.9 to 30.7	34.2	10/18	10	1.4 to 15.1	16

[1] Background sample locations (Arents soil unit) BSS01, BSS02, BSS03, and BSS04, including a duplicate at BSS02 are depicted on Figure 3-6 as S-1.
[2] Background sample locations CEFBBMS1S0, CEFBBMS1S6, CEFBBMS2S2, CEFBBMS2S6, CEFBBMS312, CEFBBMS316, CEFBBMS4S2, CEFBBMS4S4, CEFBBMS5S2, CEFBBMS5S6, CEFBBMS610, CEFBBMS616, CEFBBMS7S0, CEFBBMS7S4, CEFBBMS8S2, CEFBBMS8S6, CEFBBMS910, and CEFBBMS916, including a duplicate at CEFBBMS7S0 are depicted on Figure 3-6.
[3] Frequency of detection is the number of samples in which the analyte was detected divided by the total number of samples analyzed.
[4] The arithmetic mean of all background samples in which the analyte was detected is used in the risk assessments as the background screening concentration for organics. Two times the arithmetic mean is calculated as the background screening concentration for inorganics.
[5] Value is the average of a sample and its duplicate.

Notes: µg/kg = micrograms per kilogram.
ND = not detected in any background samples.
PCBs = polychlorinated biphenyls.
DDD = dichlorodiphenyldichloroethane.
DDE = dichlorodiphenyldichloroethene.
DDT = dichlorodiphenyltrichloroethane.
mg/kg = milligrams per kilogram.

Table 3-2
Analytes Detected in Background Locations, Surficial Aquifer

Baseline Risk Assessment
Operable Unit 7, NAS Cecil Field
Jacksonville, Florida

Analyte	Frequency of Detection [1]	Range of Detected Concentrations	Range of Reporting Limits	Background Screening Concentration [2]
Semivolatiles (μg/ℓ)				
Diethylphthalate	2/4	0.5 to 0.9	10 to 10	0.7
Phenol	2/4	0.5 to 1	10 to 10	0.75
bis(2-Ethylhexyl)phthalate	1/4	1 to 1	10 to 10	1
Inorganics (μg/ℓ)				
Aluminum	2/4	342 to 1,160	200 to 200	1,500
Arsenic	1/4	3 to 3	10 to 10	6
Barium	4/4	8.5 to 31.4	200 to 200	44.4
Calcium	4/4	1,390 to 27,000	5,000 to 5,000	25,300
Chromium	1/4	8.8 to 8.8	10 to 10	17.6
Copper	1/4	2.1 to 2.1	25 to 25	4.2
Iron	4/4	476 to 1,030	100 to 100	1,550
Magnesium	4/4	1,260 to 4,710	5,000 to 5,000	5,910
Manganese	4/4	4.7 to 24.2	15 to 15	36.4
Potassium	4/4	292 to 895	5,000 to 5,000	1,170
Selenium	1/4	4.2 to 4.2	5 to 5	8.4
Sodium	4/4	2,940 to 8,290	5,000 to 5,000	10,200
Vanadium	2/4	2.6 to 2.7	50 to 50	5.4
Zinc	1/4	27.6 to 27.6	20 to 20	55.2

[1] Frequency of detection is the number of samples in which the analyte was detected divided by the total number of samples analyzed (16MW13S, 16MW14D, 16MW15S, and 16MW16D) for the surficial aquifer. Sample locations are depicted on Figure 3-5 from corresponding monitoring wells CEF-16-13S, CEF-16-14D, CEF-16-15S, and CEF-16-16D.

[2] The arithmetic mean of all background samples in which the analyte was detected is used in the risk assessments as the background screening concentration for organics. Two times the arithmetic mean is calculated as the background screening concentration for inorganics.

Note: μg/ℓ = micrograms per liter.

3.4.4 Surface Water and Sediment One location was selected as a Site 16 reference location for concentrations of analytes in surface water and sediment. This location, STC-SW/SD/Bio/Tox-R1, is located northeast of Site 16 in Sal Taylor Creek (Figure 3-4).

Acetone and chloromethane were detected in the reference surface water sample (Table 3-3). Although acetone is a common sampling and laboratory contaminant, it could not conclusively be associated with laboratory or sampling contamination and, therefore, was retained in the data set. There is no reason to believe that the surface water reference location does not represent suitable reference concentrations for the inorganics detected.

Acetone was also detected in the reference sediment sample (Table 3-3) and retained in the data set. The detection of acetone does not indicate that the inorganic concentrations do not represent reference concentrations.

Biological conditions at the reference location were also compared to those encountered at the OU 7 drainage ditches to assess effects that were attributable to contamination at OU 7. Biological investigations at the State of Florida regional reference location at Five Mile Creek (Figure 3-7) were also conducted to make comparisons with the biological conditions observed in the drainage ditches at OU 7 (see Chapter 5).

The purpose of reference comparisons is to focus the BRA on contamination associated with OU 7 as the BRA results are intended to provide information for development of remedial action objectives for Site 16.

3.5 DATA EVALUATION METHODOLOGY. This section presents the methodology used to evaluate analytical data collected to support the BRA. Additionally, some considerations and uncertainties concerning specific conditions at OU 7 will be discussed in Chapters 4.0 and 6.0.

The data from Site 16 were evaluated to determine (1) which data were of sufficient quality for use in quantitative risk assessment, and (2) which detected chemicals were believed to be site related. Chemical analyses completed were CLP methods, as required by human health and ecological risk assessment guidelines. Data from the RI were first compiled and sorted by environmental medium (i.e., surface soil, subsurface soil, groundwater, surface water, and sediment). Then, based on results of the data validation (only data validated based on USEPA guidelines were used in the BRA), overall quality of the data was reviewed to determine which data were sufficient for use in quantitative risk assessment. The analytical precision, accuracy, representativeness, completeness, and comparability (PARCC) of the data were used to evaluate data usability. A detailed description of the PARCC is included in the OU 7 RI report (ABB-ES, 1995).

Precision is a measure of the agreement of repeatability of a set of replicate results obtained from duplicate laboratory analyses of samples collected from the same location onsite. Precision was calculated from laboratory analytical data and cannot be measured directly.

Table 3-3
Analytes Detected at the Reference Location, Surface Water and Sediment

Baseline Risk Assessment
Operable Unit 7, NAS Cecil Field
Jacksonville, Florida

Analyte	Surface Water [1]			Sediment [2]		
	Frequency of Detection	Reference Station Screening Concentration [3]	Reporting Limit	Frequency of Detection	Reference Station Screening Concentration [3]	Reporting Limit
Organics		(units = µg/ℓ)			(units = µg/kg)	
Acetone	1/1	16	10	1/1	38	14
Chloromethane	1/1	3	10	ND	ND	ND
Inorganics		(units = µg/ℓ)			(units = mg/kg)	
Aluminum	1/1	696	200	1/1	2,200	40
Arsenic	1/1	3.8	10	1/1	1.68	2
Barium	1/1	28.6	200	1/1	8	40
Calcium	1/1	66,000	5,000	1/1	11,300	1,000
Chromium	ND	ND	ND	1/1	4.4	2
Copper	ND	ND	ND	1/1	2	5
Iron	1/1	762	100	1/1	826	20
Lead	1/1	5.8	5	1/1	14.4	1
Magnesium	1/1	2,560	5,000	1/1	202	1,000
Manganese	1/1	14.8	15	1/1	3.8	3
Potassium	1/1	3,020	5,000	ND	ND	ND
Sodium	1/1	5,960	5,000	ND	ND	ND
Zinc	1/1	36.8	20	1/1	21.8	4

[1] Reference location (STCSWR1) is depicted on Figure 3-4.
[2] Reference location (STCSDR1) is depicted on Figure 3-4.
[3] The detected concentration in the sample from the reference location is used in the risk assessments as the screening concentration for organics. Two times the detected concentration is calculated as the screening concentration for inorganics.

Notes: µgℓ = micrograms per liter.
µg/kg = micrograms per kilogram.
ND = not detected.
mg/kg = milligrams per liter.

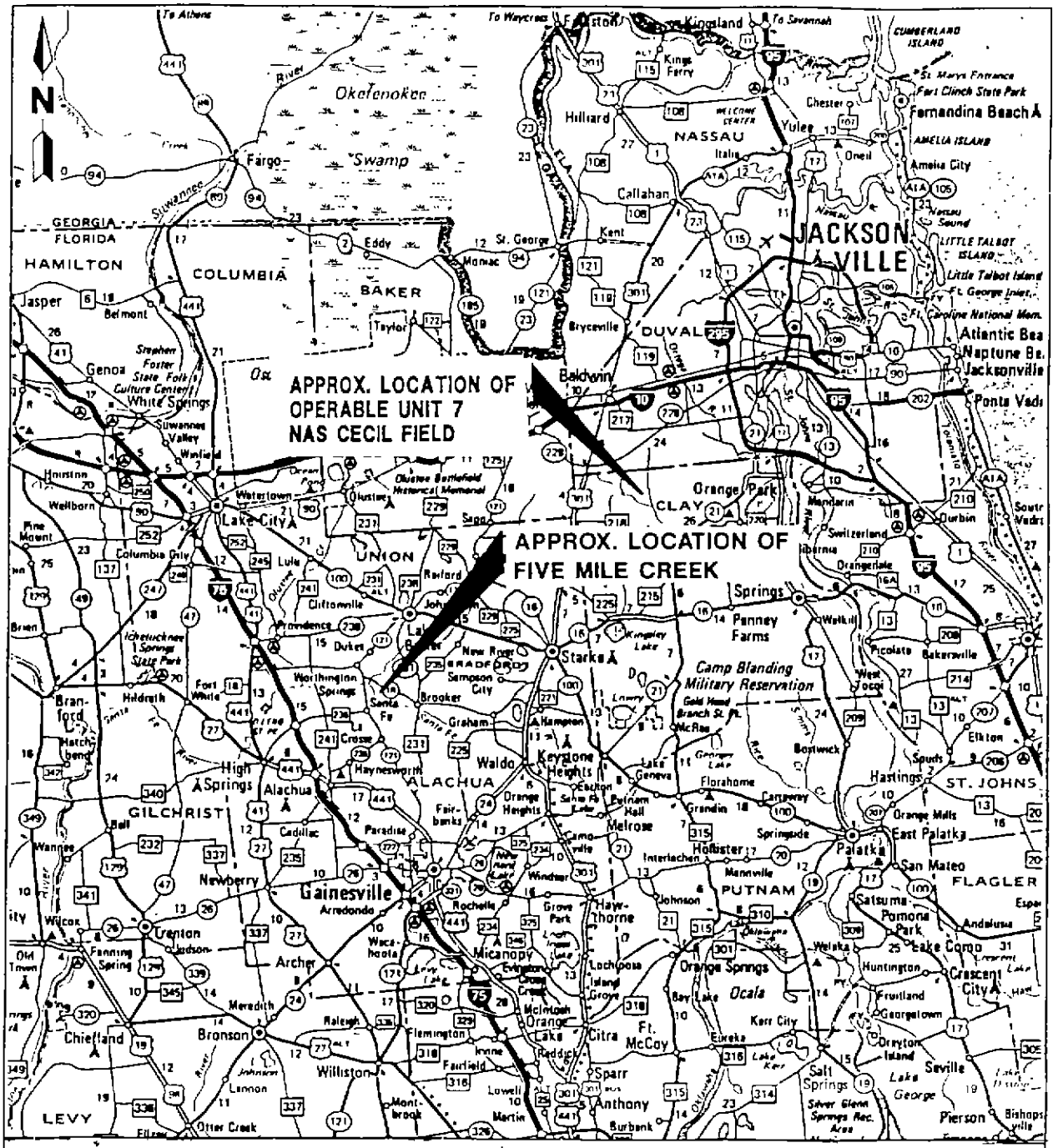


FIGURE 3-7

LOCATION OF FIVE MILE CREEK

BASELINE RISK ASSESSMENT, OPERABLE UNIT 7

NAS CECIL FIELD
JACKSONVILLE, FLORIDA

Accuracy is a measure of the agreement between an experimental determination and the true value of the parameter being measured. Accuracy is used to identify the bias in a given measurement system (i.e., laboratory conditions, sample matrix, and sampling conditions).

Representativeness is a qualitative measure of the degree to which sample data accurately and precisely represent a characteristic environmental condition. Representativeness was evaluated using the field and laboratory quality control (QC) sample results (i.e., rinsate blanks, field blanks, trip blanks, and laboratory method blanks). Positive detections of target analytes in the QC blank samples identify contaminants that possibly were introduced to the associated environmental sample during sample collection or transport or laboratory analysis.

Completeness is defined as the percentage of measurements that are judged to be valid compared to the total number of measurements made in the laboratory. Valid usable data are values that were not qualified as rejected ("R" qualifier) during data validation. Valid useable data are qualified with a " ", "J", "U", or "UJ" qualifier.

Comparability is the qualitative measure designed to express the confidence with which one data set may be compared with another. Factors affecting comparability are: sample collection and handling techniques, sample matrix types, and analytical method.

The data evaluation process also included an assessment of the quantitation limits reported for Site 16 samples. Sample concentrations were compared with facility-wide background concentrations (e.g., soil), upgradient background concentrations (e.g., groundwater), and reference concentrations (e.g., surface water and sediment) to evaluate which contaminants may reasonably be attributed to the site.

The product of the data evaluation was a summary of usable data that was used in the quantitative risk assessments. The analytical data were used to select separate groups of chemicals of potential concern (CPCs) for human and ecological receptors. The respective assessments were then made using these CPCs. Data collected from previous investigations were evaluated qualitatively (Appendix A).

4.0 HUMAN HEALTH RISK ASSESSMENT (HHRA)

An HHRA was conducted as part of the BRA for OU 7 (Site 16) at NAS Cecil Field. The purpose of the HHRA is to characterize the risks associated with the potential exposures to site-related contaminants at Site 16. An overview of the HHRA methodology used in this evaluation is presented here as a means of an introduction to the HHRA.

4.1 HHRA APPROACH. The HHRA is conducted according to both Federal and USEPA Region IV guidelines including:

- Risk Assessment Guidance for Superfund, Volume I, Human Health Evaluation Manual, Part A (USEPA, 1989f);
- Supplemental Region IV Risk Assessment Guidance (USEPA, 1991c);
- New Interim Region IV Risk Assessment Guidance (USEPA, 1992h);
- Exposure Factors Handbook (USEPA, 1989b);
- Human Health Evaluation Manual, Supplemental Guidance, Standard Default Exposure Factors (USEPA, 1991d); and
- Guidance for Data Usability in Risk Assessment (USEPA, 1992e).

The HHRA also considers State of Florida standards and guidance (FDEP, 1994a; 1994b).

In an HHRA, risks (current and future) associated with potential exposures to site-related contaminants are characterized. The HHRA is composed of four parts: (1) data evaluation and summarization including identification of HHCPCs, (2) an exposure assessment covering both present and future uses of the site, (3) a toxicity assessment of HHCPCs, and (4) a risk characterization including an uncertainty analysis.

4.1.1 Data Evaluation and Summarization This subsection describes the data evaluation and summarization approach as it applies to the HHRA. A more detailed discussion can be found in Section 3.5 and additional information can be found in the PARCCs summary located in the RI report (ABB-ES, 1995).

Validated data collected during the RI are first compiled and sorted by environmental media (surface soil, subsurface soil, groundwater, surface water, and sediment) (Appendix B). Based on the validated data, the overall quality of the data is reviewed to determine which data are of sufficient quality for use in quantitative risk assessments (USEPA, 1992e). Rejected data are excluded from the BRA.

A summary of usable data for each medium is produced after data evaluation for use in the HHRA. The summarized analytical data are then used to select HHCPCs for each media (Section 4.1.2). Data collected from previous investigations are evaluated qualitatively (Appendix A).

4.1.2 Approach for Identification of Chemicals of Potential Concern (CPCs)

HHCPCs are generally a subset of all compounds detected in the various media at a site, and are selected based on concentration and frequency of detection; physical, chemical, and toxicological characteristics; and comparison of detected values to background, associated blanks, and risk-based values. In selecting CPCs for human health, USEPA criteria have been used (USEPA, 1989f). HHCPCs include contaminants that are:

- positively identified in at least one sample,
- detected at levels significantly elevated above blank concentrations, and
- detected at levels elevated above background levels (inorganics only).

Chemicals that do not contribute significantly to human health risks are removed or "screened" from further consideration as HHCPCs, as recommended by USEPA (1991c). Analytes are excluded as HHCPCs if they meet any one of the following criteria.

1. If the maximum detected concentration is less than twice the arithmetic mean of the background concentration (inorganics only), the chemical is excluded (USEPA, 1991c).

2. The chemical is excluded if the maximum reported soil or water concentration is less than the Soil Cleanup Goal for Florida (September 27, 1995) (FDEP, 1995) or Florida Groundwater Guidance Concentration (June 2, 1994), as appropriate, and the corresponding risk-based concentration (RBC) taken from the USEPA Region III COC screening table (March 18, 1994) (USEPA, 1994e) as described in USEPA Region III guidance for selecting exposure routes and HHCPCs (USEPA, 1993b). The stated guidance, the USEPA Region III chemical of concern (COC) screening table, the Soil Cleanup Goals for Florida, and the Florida Groundwater Guidance Concentrations are provided in Appendix D. The target hazard quotient (HQ) for non-carcinogenic substances is 0.1, whereas the target cancer risk is 1×10^{-6} in the USEPA Region III COC screening table.

   For surface soil, subsurface soil, and sediment, the residential soil RBCs are used. No RBC is available for lead in soil due to lack of toxicity data. Based on USEPA recommendation, a target level for cleanup at Superfund sites for lead of 400 mg/kg is used as the RBC for lead in soil (USEPA, 1994f). The risk-based screening does not address potential leaching of analytes from soil to groundwater. Surface soil and sediment are also screened against the residential soil cleanup goals for Florida. Subsurface soil is also screened against the industrial soil clean-up goals for Florida. Analytes in subsurface soil that are also detected in groundwater are also screened against the Florida leaching values (FDEP, 1995).

   For groundwater and surface water, tap water RBCs are used. No RBC is available for lead in groundwater; therefore, the treatment technology action level for lead in drinking water of 15 micrograms per liter ($\mu g/\ell$) is used (USEPA, 1994b). Groundwater is also screened against the Florida Groundwater Guidance Concentrations (FDEP, 1994).

3. The chemical is excluded if the average concentration of an essential nutrient (sodium, potassium, magnesium, iron, and calcium) in a medium is below a toxic level and consistent with or only slightly above the background concentration for that essential nutrient.

4. If a chemical has a frequency of detection (number of samples in which the analyte is detected divided by the number of samples analyzed for that analyte) of less than 5 percent (USEPA, 1989f) and is not an HHCPC in another medium, it is excluded.

After applying these criteria using professional judgment, medium-specific CPCs for human health are identified for each medium. Chemicals not identified as HHCPCs are clearly identified in tables and the justification for their exclusion is noted.

4.1.3 **Exposure Assessment** The exposure assessment is conducted to estimate the pathways by which humans are potentially exposed, the magnitude of actual and/or potential human exposure, and the frequency and duration of exposure. This process is performed for both current and future site land uses. This process involves:

- characterization of the exposure setting in terms of physical characteristics and the populations that may potentially be exposed to site-related chemicals;
- identification of potential exposure pathways and receptors; and
- quantification of exposure for each population in terms of the amount of chemical either ingested, inhaled, or absorbed through the skin from all complete exposure pathways.

4.1.3.1 **Characterization of Exposure Setting** In the characterization of the exposure setting for an HHRA, the physical setting and demographics near the waste site are identified. The physical setting is characterized in terms of the following attributes: climate, meteorology, geology, vegetation, soil type, groundwater, and surface water (Chapter 2.0). This information is gathered from previous investigations, including the RI (ABB-ES, 1995). The information generated from the evaluation of the physical setting aids in defining the physical mechanisms that control or influence how people could be exposed at a waste site and provides information on the potential migration of contaminants.

Demographics are also characterized and identified for (1) the populations residing or working near the waste site; (2) the activity patterns of residents and/or workers; and (3) if any exist, the locations of potentially sensitive subgroups (Section 2.6). Sources of this information include (1) site visits, (2) previous investigations, (3) information generated during the RI, (4) maps, (5) aerial and standard photographs, and (6) Navy personnel interviews. Key to this activity is determining current and foreseeable future land use of the waste site and surrounding areas (e.g., residential, commercial and industrial, or recreational). Under the BRAC plan, future land use of Site 16 has not specifically been addressed but is anticipated to remain industrial (Paragraph 2.6.3.3).

4.1.3.2 Identification of Exposure Pathways and Receptors The purpose of this step in the exposure assessment is the identification of all relevant exposure pathways through which specific populations may be exposed, under current and future land use, to contaminants at the site. An exposure pathway consists of four necessary elements: a source or mechanism of chemical release, a transport or retention medium, a point of human contact, and a route of exposure at the point of contact (USEPA, 1989f). Exposure pathways that have these elements are considered complete pathways. Only complete exposure pathways are evaluated in the HHRA.

A summary of exposure pathways for the HHRA is normally included in a site conceptual model. In most cases, the source of contamination is either in the soil, or soil is the initial receiving medium. There are several mechanisms for migration of contaminants from soil. Contaminants may accumulate in plants and animals that are in contact with soil or are in food chains that include biota in direct contact with soil. Mechanisms for migration into air include volatilization (primarily volatile organic compounds [VOCs]) and wind erosion of contaminated soil (all types of contaminants). Overland flow of water can result in migration of contaminants to surface water and sediment and in relocation to other surface soil (all types of contaminants). Infiltration can result in migration into subsurface soil and into groundwater (soluble contaminants). Contaminants can be transported in groundwater (primarily soluble VOCs, semivolatile organic compounds [SVOCs], and inorganics) and may potentially also discharge to surface water. Analytes can also be transferred to sediment (generally insoluble forms of inorganics and relatively insoluble SVOCs and pesticides) and to fish (primarily non-polar organics and some inorganics that tend to accumulate in tissue) and other biota.

Human receptors are identified based on the current and potential future land uses. Receptors commonly include future residents and excavation workers, and current site workers and trespassers. Exposure scenarios are constructed to evaluate each receptor (Paragraph 4.1.3.3).

4.1.3.3 Quantification of Exposures Once complete exposure pathways are selected for evaluation (Paragraph 4.1.3.2), the final step of the exposure assessment is to quantify exposure (i.e., intake) for each pathway. This quantification process involves developing assumptions regarding exposure conditions and exposure scenarios for each receptor to estimate the total amount of contaminants that a hypothetical receptor may ingest, dermally absorb, or inhale from each exposure pathway. These exposure scenarios are based on several variables, which can be grouped into chemical-, population-, and assessment-related variables.

The ultimate goal of this step, as defined in USEPA guidance, is to identify the combination of these exposure variables or parameters that results in the most intense level of exposure that may "reasonably" be expected to occur under current and future site conditions (USEPA, 1989f). This is performed for every complete exposure pathway selected for evaluation. The resulting exposure scenarios are referred to as the reasonable maximum exposure (RME) for each exposure pathway. More recent USEPA Guidance (USEPA 1992f) recommends developing two exposure scenarios, an average exposure and a "high end," or RME. This guidance also suggests that other uncertainty analyses, including Monte Carlo analysis, can be useful in putting risk estimates into perspective.

Chemical-Related Variable. The chemical-related variable is the exposure point concentration (EPC), which is the representative concentration at the exposure point. The EPCs are calculated in a manner consistent with USEPA guidance (USEPA, 1989f; 1991d; 1992a). The EPCs are, with the exceptions noted below, the 95 percent upper confidence limit (UCL) on the arithmetic mean of the concentrations in the dataset used to evaluate exposure. The following equation for calculating the UCL on the arithmetic mean for a log normal distribution (USEPA, 1991c; 1992g) is used to calculate all UCLs:

$$UCL = e^{\left(\bar{x} + 0.5\, s^2 + \frac{s\, H}{\sqrt{n-1}} \right)} \qquad (1)$$

where

UCL	=	upper confidence limit,
e	=	constant (base of the natural log, equal to 2.718),
xbar	=	mean of transformed data,
s	=	standard deviation of the transformed data,
H	=	H-statistic (from table published in Gilbert, 1987), and
n	=	number of samples.

In calculating the 95 percent UCLs, non-detections are assigned a value of one-half the associated reporting limits in the calculation of the arithmetic mean. In cases where there are fewer than ten samples (according to informal guidance from USEPA Region IV) or where the UCL is greater than the maximum detected concentration, the maximum detected concentration is identified as the EPC.

Population-Related Variables. Population-related variables describe the characteristics of a hypothetical individual receptor within each potentially exposed population. These variables include contact rates, such as exposure frequencies and ingestion rates, and physical characteristics of human bodies, such as body weights and surface areas. When applicable, contact rates are selected from USEPA standard default exposure factor guidance (USEPA, 1991d) or USEPA dermal guidance (USEPA, 1992a). If site-specific factors indicate that such parameters are not appropriate, alternative parameters are used based on knowledge of human behavior and the relative accessibility of a site. Parameters describing the physical characteristics of the exposed populations are identified from appropriate USEPA guidance (USEPA, 1989f; 1989b; 1991d; 1991c).

Assessment-Related Variable. The assessment-related variable involved in exposure quantification is the averaging time. Averaging time reflects the duration of exposure and depends on the type of effect being evaluated. Exposure intake during a defined interval (e.g., a lifetime) is averaged over the entire period, resulting in an estimate of average daily intake.

There are essentially two types of effects typically evaluated in human health risk assessment: carcinogenic effects and noncarcinogenic effects. According to USEPA guidance, the averaging time for carcinogenic effects is assumed to be a 70-year lifetime (USEPA, 1989f). The averaging times for noncarcinogenic effects are equivalent to the duration of exposure and may vary depending on the nature of exposure. There is a wide range of possible estimates, from a day to a lifetime. However, based on USEPA guidance, exposure duration for noncarcinogenic effects can roughly be categorized into one of three periods: (1) chronic

exposures: 7 years to a lifetime; (2) subchronic exposures: 2 weeks to 7 years; and (3) acute exposures: less than 2 weeks (USEPA, 1989f). The length of the exposure period depends on the potentially exposed population and the characteristics of exposure. The averaging times applied to receptors are used in the risk calculations. All exposure scenarios evaluated for noncarcinogenic effects at NAS Cecil Field are considered chronic or subchronic exposures.

Calculation of Intakes. The equations used to calculate chemical intake are those presented in USEPA guidance (USEPA, 1989f). The general equation for calculating chemical intake is as follows:

$$Intake = \frac{C \times CR \times EF \times ED}{BW \times AT} \qquad (2)$$

where

Intake	=	daily chemical intake per unit body weight averaged over the exposure period,
C	=	concentration of the chemical in the exposure medium,
CR	=	contact rate for the medium of concern,
EF	=	exposure frequency,
ED	=	exposure duration,
BW	=	body weight of the hypothetically exposed individual,
AT	=	averaging time (for carcinogens, AT = 70 years for 365 days per year; for noncarcinogens, AT = ED).

Some of the exposure pathways require additional calculations before intake values can be calculated. Brief explanations of the additional calculations required for the inhalation of particulates, inhalation of vapors while showering, and dermal absorption are provided below.

Inhalation of Particulates from Soil. This evaluation is conducted to estimate levels of site contaminants that could occur in ambient air as a result of wind erosion. To estimate atmospheric concentrations of fugitive air contaminants, a three step modeling process is conducted. In the first step, respirable particle-phase emission rates are calculated. In the second step, contaminant emission rates on a unit surface area basis are calculated. In the third step, downwind ambient concentrations are estimated using air dispersion modeling. The three step process is further defined in Appendix E.

Inhalation of Vapors while Showering. For this exposure scenario, the contaminant concentration in air is estimated based on release rates of volatiles from shower water. The model selected to predict indoor (bathroom) concentrations is that presented by Foster and Chrostowski (1987). The specific equations used to determine concentrations of contaminants in bathroom air are presented in Appendix F.

Dermal Absorption from Water. The permeability constant approach is used to estimate dermal exposures to contaminants detected in water in accordance with the USEPA Dermal Exposure Assessment: Principles and Applications Interim Report (USEPA, 1992a). These models apply only to absorption from water. For inorganic chemicals, steady-state conditions and the permeability of water constant is assumed for all analytes. For organic compounds, a non-steady-state model is used. The model employs a dermal permeability constant estimated from the

compound's octanol-water partition coefficient. A further description of the process used to estimate absorption of contaminants in water through the skin can be found in Appendix G.

Dermal Absorption from Soil. Dermal absorption from soil is calculated in accordance with the USEPA Dermal Exposure Assessment: Principles and Applications, Interim Report (USEPA, 1992a). Percutaneous absorption of chemicals detected in soil is chemical and matrix dependent. According to USEPA Region IV guidance (USEPA, 1992h), absorption factors for organics and inorganics are 0.1 percent and 0.01 percent, respectively. A soil adherence factor of 1 milligram of soil per square centimeter of skin (mg/cm^2) per event is used in the dermal intake equations (USEPA, 1992a). The equations used to describe dermal absorption from soil are located in Appendix G.

4.1.4 Toxicity Assessment The toxicity assessment evaluates the available evidence on the potential adverse effects associated with exposure to each HHCPC. With this information, a relationship between the extent of exposure and the likelihood or severity of adverse human health effects is developed. Two steps are typically associated with toxicity assessment: hazard identification and dose-response assessment.

4.1.4.1 Hazard Identification Hazard identification is the process of determining if exposure to an agent can cause a particular adverse health effect and, more importantly, if that effect will occur in humans. Characterizing the nature and strength of causation is a part of the hazard identification step. For a number of the chemicals at hazardous waste sites, potential toxic effects have already been identified. Consequently, the objectives of the hazard identification in the HHRA are to (1) identify which of the contaminants detected at the site are potential hazards, and (2) summarize their potential toxicity in brief narrative profiles.

4.1.4.2 Dose-Response Assessment A dose-response assessment is conducted to characterize and quantify the relationship between intake, or dose, of an HHCPC and the likelihood of a toxic effect, or response. There are two major types of toxic effects evaluated in an HHRA: carcinogenic and noncarcinogenic. Following USEPA guidance for HHRAs (USEPA, 1989f), these two endpoints (cancer and noncancer) are evaluated separately. As a result of the dose-response assessment, identified dose-response values are used to estimate the incidence of adverse effects as a function of human exposure to a chemical.

There are two types of dose-response values: cancer slope factors (CSFs) for carcinogens and reference doses (RfDs) for noncarcinogens. For many compounds, both types of values have been developed by USEPA because many compounds cause both carcinogenic and noncarcinogenic effects. In addition, because the toxicity and/or carcinogenicity of a compound can depend on the route of exposure (i.e., oral, inhalation, or dermal), unique dose-response values are developed for the oral, dermal, and inhalation exposure routes. The source of the dose-response values are described below in Paragraph 4.1.4.3.

Cancer Toxicity Values. The CSF is a chemical-specific toxicity value developed by the USEPA Carcinogenic Assessment Group (CAG) based upon the dose of a chemical and the probability of a carcinogenic response. The unit risk, a toxicity value developed by the USEPA, is an estimate of the relationship between

the inhaled concentration of a chemical and the probability of a carcinogenic response from the exposure during the lifetime of the individual.

As required by USEPA Region IV guidance (USEPA, 1991c), risks associated with dermal exposures (most commonly for soil and water dermal contact) are evaluated using CSFs that are specific to dermally absorbed doses. Most oral CSFs are based on administered dose rather than the absorbed dose (trichloroethene's CSF is a notable exception). It is, therefore, necessary to adjust toxicity values that are based on administered doses so that they can be used for evaluation of absorbed doses. For dermal exposures, the toxicity values are adjusted as follows:

$$CSF_{adjusted} = \frac{CSF_{oral}}{ABSEFF_{oral}} \tag{3}$$

where $ABSEFF_{oral}$ is the absorption efficiency in the study that is the basis of the oral toxicity value.

If there is no information available on oral absorption efficiency, the conservative default values (USEPA, 1994) of 80 percent for volatiles, 50 percent for SVOCs, and 20 percent for inorganics are used.

The oral CSF, inhalation CSF and unit risk, dermal CSF, weight of evidence classification, and cancer type observed for each carcinogenic HHCPC analyzed in an HHRA are normally provided in an appendix to the HHRA.

Non-cancer Toxicity Values. The RfD is an estimate (with uncertainty spanning an order of magnitude or more) of a daily intake for the human population, including sensitive subpopulations, that is likely to be without appreciable risk of deleterious effects during a lifetime. Noncarcinogenic risks due to inhalation are estimated by comparing the inhalation concentration to the inhalation correlate of the RfD, the reference concentration (RfC).

As required by USEPA Region IV guidance (USEPA, 1991c), risks associated with dermal exposures (most commonly for soil and water dermal contact) are evaluated using RfDs that are specific to absorbed doses. Most oral RfDs are based on an administered dose rather on the absorbed dose. It is, therefore, necessary to adjust toxicity values that are based on administered doses so that they can be used for evaluation of absorbed doses. For dermal exposures, we adjust the toxicity values as follows:

$$RfD_{adjusted} = RfD_{oral} \times ABSEFF_{oral} \tag{4}$$

where $ABSEFF_{oral}$ is the absorption efficiency in the study that is the basis of the oral toxicity value.

If there is no information available on oral absorption efficiency, the conservative default values (Keller, 1993a) of 80 percent for volatiles, 50 percent for SVOCs, and 20 percent for inorganics are used.

Separate sets of RfDs have been developed for several chemicals for evaluating chronic and subchronic exposures. When available, subchronic RfDs are used for evaluating exposures with a duration less than 7 years but more than 2 weeks. Chronic RfDs are used when subchronic values are unavailable and when the exposure duration is greater than 7 years. There are no analogous reference values for evaluating acute exposures, those lasting less than 2 weeks.

The oral RfD, inhalation RfC, dermal RfD, critical study on which the RfD is based, critical effect in the study, any uncertainty and modifying factors applied to the RfD or RfC, and the degree of confidence assigned to the RfD or RfC for each HHCPC analyzed in an HHRA is normally provided in an appendix to the HHRA.

4.1.4.3 **Dose-Response Values** The primary source for identifying dose-response values is the USEPA Integrated Risk Information System (IRIS), which is an on-line computer database containing health risk and USEPA regulatory information about specific chemicals (USEPA, 1994d). Health risk information is included on IRIS only after a comprehensive review of chronic toxicity data by work groups composed of USEPA scientists. If no information is found in IRIS, the USEPA Health Effects Assessment Summary Tables or HEAST (USEPA, 1994c) are used as a source of information. If appropriate dose-response values are not located from either of these two sources, other USEPA sources (including past versions of IRIS and HEAST and the documents produced by the USEPA's Environmental Criteria and Assessment Office) are consulted. If no USEPA dose-response value is identified, surrogate values from structurally similar compounds may be assigned.

Dose-response values for each of the contaminants selected as an HHCPC in an HHRA are normally provided as an appendix to the HHRA.

4.1.4.4 **Toxicity Equivalency Factors for Carcinogenic Polynuclear Aromatic Hydrocarbons (PAHs).** Carcinogenic PAHs are a class of compounds with very similar, complex heterocyclic structures. From this group of compounds, only one, benzo(a)pyrene, has a USEPA published CSF. For the other carcinogenic PAHs, the variable toxicity has been addressed by using Toxicity Equivalency Factors (TEFs) published by USEPA (USEPA, 1993a). The TEFs identify the relative potency of each compound relative to that of benzo(a)pyrene.

The TEFs are not CSFs themselves nor are they used to calculate CSFs for the other PAHs. The TEFs are applied to carcinogenic PAH EPCs to determine the equivalent benzo(a)pyrene concentration. The benzo(a)pyrene equivalent EPC for each carcinogenic PAH is then multiplied by the CSF for benzo(a)pyrene to obtain an estimate of the cancer risk for these compounds. The TEFs are only used in estimating the cancer risk of these compounds and are not used to estimate the noncancer risks. The TEFs for the carcinogenic PAHs are provided in Table 4-1.

Table 4-1
Toxicity Equivalency Factors for
Carcinogenic Polynuclear Aromatic Hydrocarbons

Baseline Risk Assessment
Operable Unit 7, NAS Cecil Field
Jacksonville, Florida

Polynuclear Aromatic Hydrocarbon	Toxicity Equivalency Factors
Benzo(a)pyrene	1
Benzo(a)anthracene	0.1
Benzo(b)fluoranthene	0.1
Benzo(k)fluoranthene	0.01
Chrysene	0.001
Dibenzo(a,h)anthracene	1
Indeno(1,2,3-c,d)pyrene	0.1

Source: U.S. Environmental Protection Agency (USEPA, 1993a).

Carcinogenic Risks. Carcinogenic risks associated with exposure to individual chemicals are estimated by multiplying the chemical intake for each carcinogen by its CSF. This value is a chemical-specific excess lifetime cancer risk (ELCR) and represents an upper bound of the probability of an individual developing cancer over a lifetime as the result of exposure to a chemical. For each exposure pathway, the chemical-specific risks for all carcinogenic compounds are summed to determine the pathway-specific lifetime cancer risk. The following equations are used to estimate the chemical- and pathway-specific cancer risks:

Chemical-Specific Excess Lifetime Cancer Risk

$$Risk_i = CDI_i \times CSF_i \tag{5}$$

where

$Risk_i$ = unitless probability of an individual developing cancer as the result of exposure to a chemical i,

CDI_i = chronic daily intake of chemical i averaged over 70 years and expressed as milligrams per kilogram body weight per day (mg/kg-day), and

CSF_i = USEPA cancer slope factor for chemical i $(mg/kg\text{-}day)^{-1}$.

4.1.5 Risk Characterization Risk characterization is the final step in the risk assessment process. This step involves the integration of the exposure and toxicity assessments into a qualitative or quantitative expression of potential human health risks associated with contaminant exposure. Quantitative estimates of both carcinogenic and noncarcinogenic risks are made for each HHCPC and each complete exposure pathway identified in the exposure assessment.

Pathway-Specific Incremental Lifetime Cancer Risk

$$Risk_T = \Sigma\, Risk_i \tag{6}$$

where

$Risk_T$ = unitless probability of an individual developing cancer as the result of multiple chemical exposures and

$Risk_i$ = unitless cancer risk estimate for the ith chemical associated with an exposure pathway

The results from the carcinogenic risk assessment are compared with acceptable risks established by the USEPA. The USEPA guidelines, established in the National Oil and Hazardous Substances Contingency Plan (NCP), indicate that the total lifetime cancer risk due to exposure to the HHCPCs at a site, by each complete exposure pathway, should not exceed a range of 1 in 1,000,000 ($1x10^{-6}$) to 1 in 10,000 ($1x10^{-4}$) (USEPA, 1990a). For reference, the average cancer burden in the United States in 1993 was 1 in 3 for women and 1 in 2 for men (American Cancer Society, 1994).

Noncarcinogenic Risks. Noncarcinogenic risk estimates are calculated by dividing chemical intake for each compound by the appropriate RfD. The result is called the HQ. The HQs for individual compounds within an exposure pathway were summed to obtain the hazard index (HI) for that particular pathway.

The following equations are used to determine the HQs and HIs:

Hazard Quotient

$$HQ_i = \frac{I_i}{RfD_i} \tag{7}$$

where

HQ_i = hazard quotient of chemical i,

I_i = intake of chemical i averaged over the exposure period (mg/kg-day), and

RfD_i = reference dose for chemical i corresponding to the same exposure duration as the intake (mg/kg-day).

Hazard Index

$$HI = \Sigma\, HQ_i \tag{8}$$

where

HI = potential for noncarcinogenic effects from multiple chemical exposures and

HQ_i = hazard quotient for i^{th} chemical associated with an exposure pathway.

HQ less than 1 indicates that noncarcinogenic toxic effects are not expected to occur due to HHCPC exposure. HIs greater than 1 may be indicative of a possible noncarcinogenic toxic effect but the circumstances must be evaluated on a case-by-case basis (USEPA, 1989f). As the HI increases, so does the likelihood that adverse effects might be associated with exposure. In general, chronic HI values are calculated. Subchronic HIs are calculated for limited exposures (i.e., 30 days) at NAS Cecil Field.

Summary. Risk estimates are calculated for each waste site and are summarized in risk summary tables. The risks are presented by medium for both current and future land uses. The calculations of these estimates are documented in an appendix with all spreadsheets used to complete calculations. Within the risk summary text for each medium and site, the relative confidence in each risk estimate is discussed. The relative significance of risk estimates is evaluated in terms of a comparison with acceptable risk levels established by USEPA.

4.1.6 Uncertainty Analysis Risk estimates are generally conservative values that result from multiple layers of conservative assumptions inherent in the risk assessment process. Quantitative estimates of risk are based on numerous assumptions, most intended to be protective of human health (i.e., conservative). As such, risk estimates are not truly probabilistic estimates of risk, but rather conditional estimates given a series of conservative assumptions about exposure and toxicity.

A thorough discussion of all potential sources of uncertainty in risk assessment is not feasible. In general, sources of uncertainty can be categorized into site-specific factors (e.g., variability in analytical data and exposure assessment) and toxicity and risk characterization assessment factors. Most toxicity- and risk characterization-specific uncertainties apply to all HHRAs equally in their impact on the calculated risk estimates. Common (not site-specific) sources of uncertainty and their potential effects on the magnitude of estimated risks are discussed here. Table 4-2 summarizes some of the sources of uncertainty that are common to all HHRAs. Site-specific uncertainties are normally discussed in the site-specific uncertainty section in an HHRA to provide perspective for the interpretation of the site-specific risk estimates.

4.1.6.1 Data Collection, Analysis, and Evaluation A certain amount of uncertainty is associated with the representative nature of the data collected to complete the risk evaluation at each site. Additional uncertainties associated with estimating exposure result from the variance in sampling and analytical techniques. There are three general uncertainties related to data collection, analysis, and evaluation.

1. Nature and extent of contamination

2. Adequate characterization of exposure areas

3. Differences between site-specific inorganic concentrations and background inorganic concentrations

Nature and Extent of Contamination. The nature and extent of contamination is normally discussed in detail as part of the RI. The extensive sampling and analytical program of an RI should adequately characterize the types of contaminants present, the physical location of those contaminants, and the concentrations that are present. There is inherent uncertainty in the assumption that the nature and extent of contamination has been adequately characterized.

Adequate Characterization of Exposure Areas. Contaminated areas, specifically soil, are sometimes small relative to the area in which a receptor would potentially be exposed. Nonrandom sampling may be conducted in areas of known or visible contamination. Because a receptor's exposure area may actually be

Table 4-2
Potential Sources of Uncertainty

Baseline Risk Assessment
Operable Unit 7, NAS Cecil Field
Jacksonville, Florida

Potential Source	Direction of Effect	Justification
Exposure Assessment		
Likelihood of exposure pathways	Overestimate	Actual exposure may not occur.
Exposure point concentrations	Overestimate	Sampling data are assumed to be representative of the exposures.
Exposure assumptions (e.g., frequency)	Overestimate	Parameters selected are conservative estimates of exposure representing a reasonable maximum exposure.
Degradation of chemicals not considered	Overestimate	Risk estimates are based on recent chemical concentrations. Concentrations tend to decrease over time as a result of degradation for many organics.
Absorption of soil contaminants through the skin	Overestimate	Dermal absorption of chemicals is a function of the length of actual skin contact. Contact at this solid waste management unit (SWMU) or area of concern (AOC) may be insufficient to result in the absorption assumed.
Modeled exposure point concentrations	Unknown, probably overestimate.	Models are based on numerous assumptions resulting in conservative exposure point concentrations (EPCs).
Lack of dermal groundwater evaluation	Underestimate	Dermal absorption of chemicals in groundwater is not normally a driving exposure pathway.
Toxicity Assessment		
Extrapolation of animal toxicity data to humans	Unknown, probably overestimate.	Animals and humans differ with respect to adsorption, metabolism, distribution, and excretion of chemicals. The magnitude and direction of the difference varies with each chemical. Animal studies typically involve high-dose exposures, whereas humans are exposed to low doses.
Use of linearized, multi-stage model to derive cancer slope factors	Overestimate	Model assumes a non-threshold, linear at low dose relationship for carcinogens. Many compounds induce cancer by non-genotoxic mechanisms. Model results in 95 percent upper confidence limits of cancer potency. Potency is unlikely to be higher and may be as low as zero.
Lack of oral toxicity values for lead	Underestimate	Dose-response values for lead are not available for exposures to lead in soil or groundwater. Risk from exposure to lead in soil and groundwater is not quantitatively evaluated.
Lack of inhalation toxicity values	Underestimate	Inhalation reference doses (RfDs) and cancer slope factors (CSFs) will not be available for all human health chemicals of potential concern (HHCPCs) being evaluated for inhalation exposures (fugitive dust and volatiles while showering). Therefore, risks cannot be quantified and are underestimated.
Risk Characterization		
Summation of risk among chemicals within exposure pathways	Unknown	Little is known about the toxicity of chemical mixtures. In the absence of evidence to the contrary, additivity of risk is assumed.

larger than the area of contamination and a receptor's exposure would often be random, the nonrandom sampling may actually result in overestimation of exposures.

Differences Between Site and Background Concentrations. A comparison between site-specific and background inorganic concentrations is conducted as part of the selection of HHCPCs (Paragraph 4.1.2). Both organic contaminants and inorganic analytes are commonly detected in surface soil, surface water, sediment, and groundwater background locations.

Organics (e.g., pesticides) that are sometimes detected in background samples, which would be expected in an industrialized area such as NAS Cecil Field, do not necessarily indicate that the inorganic concentrations in those samples do not represent background reference concentrations. Phthalates are also commonly detected in background samples. Phthalates are common sampling and laboratory contaminants, but sometimes cannot be conclusively associated with laboratory or sampling contamination and, therefore, are retained in the background data set.

In summary, the presence of organic contamination in a particular background sample does not necessarily indicate that the inorganic concentrations in that sample is not representative of inorganic reference concentrations. The use of the background sample data as a reference point for inorganics detected in surface soil, surface water, sediment, and surficial groundwater is generally considered appropriate based on carefully chosen sampling locations.

4.1.6.2 Selection of Chemicals of Potential Concern Although USEPA criteria are used in selecting HHCPCs (USEPA, 1989f), there are uncertainties in the general selection process based on the use of a risk based screening and comparison to inorganic concentrations at reference locations.

USEPA Region III COC Screening Table (March 18, 1994). USEPA Region IV prefers to exclude contaminants that do not contribute significantly to the risk from the risk calculations (ABB-ES, 1991c). The HHRA uses medium-specific RBCs that are calculated by assuming residential exposures and calculating risk-based levels in water (e.g., tap water) and soil (e.g., residential surface soil) using an acceptable cancer risk level of 10^{-6} and an HQ of 0.1 (USEPA, 1994e) as a risk based screening for the maximum concentration of each contaminant detected in surface soil and groundwater, respectively.

The risk-based levels in water (i.e., tap water) and soil (i.e., residential soil) are also used as a risk based screening for surface water and sediment, respectively. This approach is conservative because the exposure assumptions for tap water and residential soil are similar, but more intense, than exposure to surface water and sediment. The assumed exposure assumptions used to derive the RBCs are likely to overestimate exposures to surface water used for non-drinking purposes and sediment. This approach is appropriate for a surface water and sediment risk-based screening to remove contaminants from the HHCPCs list that are not likely to contribute a significant amount of risk.

Further, in several cases, the USEPA Region III COC screening table does not provide values for chemicals in surface soil or groundwater. For those chemicals where a USEPA Region III COC screening value does not exist, a chemical in the table that is similar in structure and physical properties to the detected contaminant may be used to provide a risk based comparison (for example, using

the pyrene residential soil value as a surrogate for benzo(g,h,i)perylene, or di-n-octylphthalate for di-n-butylphthalate). Based on the similarities in toxicological properties between the compounds and their surrogates, it is reasonable to conclude that the USEPA Region III screening values are adequately health protective for the chemicals detected. Generally, the use of surrogates is an approach to help focus effort on those contaminants that are contributing a significant amount of risk (e.g., cancer risk of greater than 10^{-6} and an HQ of greater than 0.1). In the cases where surrogates were not available or appropriate, a risk-based screening is not completed during the HHCPC selection process for specific chemicals.

Background Screening for Inorganics. For a given inorganic analyte, the maximum reported soil or groundwater concentration at a waste site is compared to 2 times the average of the medium-specific concentrations in the background (Subsection 4.1.2) locations. This comparison is conducted as part of the selection of HHCPCs. If the maximum site concentration is less than 2 times the arithmetic mean of the inorganic reference concentrations, the analyte is considered to be consistent with background concentrations. This approach is conservative in that it is likely to identify certain analytes as being inconsistent with background (including them as HHCPCs) even though the distribution of concentrations onsite is very similar to that of the background dataset. This can occur when the average inorganic screening concentration at a reference location is less than the maximum detected value at the site being investigated. For example, a site-specific inorganic could be present at a concentration greater than the corresponding screening concentration, including it as a HHCPC, but still be within the detected range of inorganic concentrations the reference locations. This is the result of natural variability for inorganic concentrations in soil. Therefore, it is quite possible that an analyte could have a concentration distribution at a site that is identical to the distribution of concentrations for that analyte in the background dataset, but also have a maximum detected concentration that is more than twice the arithmetic mean of the concentrations in the reference dataset.

Toxicity Equivalency Factors for Carcinogenic PAHs. In selecting HHCPCs (Subsection 4.1.2), the selection of a single PAH in a particular medium requires that the additional PAHs detected in that medium be retained as HHCPCs even if the PAH is less that the available risk based screening level. This is a protective approach that is unlikely to underestimate risks.

4.1.6.3 **Exposure Assessment** There are four major issues that contribute to uncertainties in the exposure assessment of most HHRAs.

1. Land use
2. Use of the reasonable maximum exposure
3. Determination of the exposure point concentration
4. Exposure parameters.

Land Use. Generally, exposure scenarios associated with future land use are difficult to predict. In an HHRA, residential land use is typically evaluated. A residential land use analysis normally includes an evaluation of the domestic use of groundwater (ingestion and inhalation of volatiles while showering) and residential use of soil, as well as residential use of nearby surface water or sediment (for recreation). The inclusion of a residential land use scenario in

an HHRA is intended to represent a worst case scenario. Future residential land use at or near a historic waste site is normally possible, but not always probable.

In the case of NAS Cecil Field, the facility is scheduled for closure in the late 1990's as part of BRAC (Subsection 4.1.2). The NAS Cecil Field reuse plan is being prepared as part of BRAC. Many of the traditional operations at the facility are currently being scaled down as facility personnel prepare for closure; however, future residential land use is unlikely in many locations at NAS Cecil Field because the land at and associated with historic waste sites are likely to remain industrial.

RME. The exposure assessments conducted in an HHRA can be characterized as RME. As such, the exposure estimates represent a mix of "high end" and average exposure parameter values that result in an exposure estimate that is unlikely to be exceeded in an exposed population. Because some of these parameters are functions of the behavior patterns and personal habits of the exposed populations, no one value can be assumed representative of all possible exposure conditions. Further, uncertainties associated with assigning single exposure parameters to a heterogeneous population, which includes both men and women and the young and the old, (e.g., body weight, surface area, and ingestion rates), are considered significant. However, the risk assessment incorporates assumptions or procedures that result in the estimate of an upper bound of risk. This type of exposure assessment tends to overestimate risks for the large majority of an exposed population. To address the most conservative exposure scenario available, the future resident (an RME) is normally evaluated in an HHRA.

Exposure Point Concentration. The EPCs used in the HHRA are the 95 percent UCL on the arithmetic mean concentration or the maximum reported concentration in a contaminated area (whichever is lower). In many cases there is a relatively small number of samples available, and the 95 percent UCL is actually higher than the maximum detected concentration of a contaminant. In such cases, the maximum detected concentration has been used to represent the exposure concentrations. Because the cancer risks and HI calculations theoretically evaluate risks for average concentrations (USEPA, 1992g), the use of the 95 percent UCL or the maximum detected concentration is a conservative estimate of exposure and, therefore, risk.

Exposure Parameters. The selection and use of exposure parameters contribute to the uncertainty inherent in a risk estimate. There are several exposure parameters that impact most risk assessments as described below.

Residence Time. Future residential exposure scenarios evaluated in the HHRA assume that an individual may be exposed to contaminants at one location for 30 years. This value represents a high end (90th percentile value) estimate of the time spent in a single residence (USEPA, 1991d). The median (50th percentile) time for an individual to reside in one location is 9 years. There is considerable variability in the time spent in a residence for the individuals within the population. The estimate used in this analysis is likely to overestimate exposure duration for roughly 90 percent of a population that might live in the area.

Sediment Ingestion. For ingestion of sediment by a child, it was assumed that a child would consume 200 milligrams per day (mg/day) of sediment at a given surface water or sediment location. This estimate of the daily inadvertent sediment ingestion is an assumption that the sediment intake rate is equal to the daily soil ingestion rate published by USEPA (USEPA, 1991d). There are actually very little data available concerning actual sediment ingestion rates in children. Because the commonly used soil ingestion rate includes both outdoor soil exposures as well as indoor dust exposures, it is likely an overestimate of sediment exposure.

Dermal Exposure to Surface Water. The approach for calculating dermal exposures to surface soil, surface water, and sediment at a specific site is described in Appendix G. In calculating dermal exposures to surface water, permeability constants (K_p) are used to estimate the movement of a chemical across the skin surface. Although some K_p values are empirically based, most are estimated based on characteristics such as octanol water partition coefficients (K_{ow}) and molecular weights. There are uncertainties inherent in these calculations.

Particulate Emission Factor. The derivation of the particulate emission factor that is used as an exposure parameter to evaluate exposure to particulates resulting from soil suspension by wind is described in Appendix E. The particulate emission factor (PEF) that is used to calculate the concentration of soil particles that a receptor may inhale is the same for multiple receptors (for example, the resident and excavation worker). However, it is likely that more soil particles would be suspended in air during soil excavation activities and, therefore, that an excavation worker would be exposed to greater concentrations of HHCPCs associated with airborne soil particles than a resident. Risk associated with inhalation exposures for the excavation worker may be underestimated in the HHRA. It is likely; however, that use of a PEF representing greater particulate concentrations would only result in additional risks of less than an order of magnitude. If risk estimates for the excavation worker are orders of magnitude below USEPA threshold ranges, the use of an excavation worker-specific PEF will not normally be evaluated.

Dermal Exposures to Groundwater. The ingestion of drinking water is normally the exposure pathway that produces the greatest risk associated with contaminated groundwater. The approach to the calculation of air concentrations of VOCs during showering is described in Appendix G. Dermal exposure to groundwater while showering is not evaluated in the HHRA (Keller, 1994). This may result in an underestimation of risk, particularly to SVOCs in groundwater. For VOCs, the analytes will tend to migrate to air prior to and during contact. This lessens the potential for dermal absorption.

Drinking Water Ingestion Rate. The drinking water ingestion scenario assumes an ingestion rate of 2 liters of water per day, 350 days per year for 30 years. The 2-liter ingestion rate is a 90th percentile rate whereas the average consumption rate is 1.4 liters per day (USEPA, 1989f). The use of the 2 liter value may overestimate exposure and risk from drinking water for a large part of a potentially exposed population.

4.1.6.4 Toxicity Assessment Toxicity information for many chemicals is very limited, leading to varying degrees of uncertainty associated with calculated toxicity values obtained in IRIS or HEAST. General sources of uncertainty for calculating toxicity factors include extrapolation from animal to human popula-

tions, low to high dose extrapolation, short-term to long-term exposures, interspecies sensitivity variation, extrapolation from subchronic to chronic no observed adverse effect level (NOAEL), extrapolation from lowest observed adverse effect level (LOAEL) to NOAEL, amount of data supporting the toxicity factors (i.e., inadequate studies), consistency of different studies for the same chemical, and responses of various species to equivalent doses.

The identification of human carcinogens and non-carcinogens, based on animal data, is a primary source of uncertainty in the use of toxicity values. It is not certain that the identification of carcinogenic activity in an animal species means that carcinogenic activity in humans will occur. In some cases, the metabolic processes involved in carcinogenic activity in a particular organ in animals may not exist in humans. Available evidence indicates that there are a limited number of substances that are classified as human carcinogens (USEPA Class A substances). The extrapolation of short-term to long-term exposures is also a component in some cases for the carcinogen dose-response values. The use of toxicity measures (e.g., RfDs and CSFs) introduces additional uncertainties. These parameters are generally based on animal studies, many of which are performed at high doses relative to the site-specific exposures that potentially could occur. These data require interpretation and/or extrapolation in the low dose area of the dose-response curve. The CSFs used in the risk assessment generally represent a "high end" estimate. The CSFs are the 95 percent UCL on the actual slope derived from the scientific data and, therefore, are likely overestimates of the potency.

4.1.6.5 Risk Characterization A mixture of analytes is present in each media evaluated at NAS Cecil Field. The USEPA's Guidelines for the Health Risk Assessment of Chemical Mixtures (USEPA, 1986a) states that if sufficient data are not available on the effects of the chemical mixture of concern, or a reasonably similar mixture, additivity of effects for constituents of the mixture should be assumed. This assumption, according to USEPA, is expected to yield generally neutral risk estimates (i.e., neither conservative nor lenient). More recent guidance from USEPA (USEPA, 1992f) also references the Guidelines for the Health Risk Assessment of Chemical Mixtures, but further states that the assumption of additivity assumes independence of action and that if this assumption is incorrect, overestimation or underestimation of the actual multiple substance risk may occur. In calculating HI values, additivity is assumed, but in some cases the analytes in a mixture have significantly different toxic mechanisms of action and impact different organs. In these cases, the overall HI likely overestimates non-cancer risks.

4.1.7 Remedial Goal Options. Those HHCPCs with estimated incremental lifetime cancer risks above 1 in 1,000,000 or media with a total HI greater than 1 are identified for each relevant site. Media cleanup levels are developed in accordance with FDEP guidance (ABB-ES, 1995) and USEPA Region IV guidance (Keller, 1993b). Remedial goal options (RGOs) and available criteria are intended to provide the basis for the development of remedial alternatives in the FS, which follows the RI.

Each RGO table contains the potential media cleanup levels for those media that have HHCPCs with cancer risk estimates in excess of 10^{-6} or those media with an HI greater than 1. Only analytes that individually contribute cancer risk greater than 10^{-6} or an HQ greater than 0.1 for a given medium are included in and RGO table. The table includes the concentrations associated with cancer risk

levels of 10^{-4}, 10^{-5}, and 10^{-6}; with HQs of 0.1, 1, and 10; and any State or Federal regulatory guidance for an environmental medium. The concentrations at these risk levels are calculated using the re-arranged site-specific RME daily dose equation used in the risk assessment.

RGOs are presented for informational purposes and are not considered actual cleanup goals.

4.1.7.1 Comparison to Available Criteria Site-specific data at NAS Cecil Field are compared to criteria for groundwater, surface soil, and subsurface soil. Available criteria are considered for each medium in an HHRA by presenting a comparison of those contaminants detected to the available criteria and providing the results of the comparison in an appendix.

Groundwater. The available criteria for groundwater are based on the assumption that groundwater is used as a potable water supply. Federal drinking water criteria used in the comparison are the primary standards, which are based on health, economic, and engineering considerations (USEPA, 1994b). The standards, referred to as maximum contaminants levels (MCLs), are promulgated under the Safe Drinking Water Act (SDWA) and are intended to regulate the quality of "finished" water discharged to a community water supply distribution system. Secondary standards (also referred to as secondary MCLs) promulgated under the SDWA are based on aesthetic and economic considerations (e.g., taste, odor, or staining) and are not enforceable on the Federal level. Federal MCLs are normally regarded as the best criteria available for evaluating safe drinking water concentrations.

State criteria for groundwater include the Florida drinking water standards (Florida Legislature, 1994b) and the Florida guidance concentrations (FDEP, 1994b). The State of Florida recognizes the Florida primary standards to be the best criteria available for evaluating safe drinking water concentrations.

Soil. Only Florida has developed criteria for surface soil (FDEP, 1995). These criteria were developed for Federal facilities in Florida. The available criteria used for surface soil are based on the assumption that surface soil will be used in a residential setting. The residential setting criterion is selected because it is protective of human health.

When groundwater contamination is present at a site and soil may be contributing to the groundwater contamination, it is appropriate to evaluate the leaching potential of the soil. Florida has developed soil criteria based on leaching of soil to groundwater (FDEP, 1995). The FDEP leaching-based soil concentrations have been developed so the leachate will meet drinking water quality standards.

TPH. When collected, TPH data in soil (surface and subsurface soil as well as sediment) are compared to the available Florida guidance value of 50 mg/kg. The Florida guidance value is defined in the FAC under criteria for clean soil that has been thermally treated after contamination with petroleum (Florida Legislature, 1992a). This criterion may not be directly applicable to soil and sediment at all sites, but may provide some regulatory perspective.

4.2 HUMAN HEALTH RISK ASSESSMENT FOR SITE 16. The location, description, and history associated with Site 16 is discussed in detail in Chapter 2.0. At Site 16, surface soil, subsurface soil, surface water, sediment, and groundwater

samples were collected and analyzed during the RI field investigation (Sections 3.1 through 3.3). After evaluation and management of the environmental data collected at Site 16 (Section 3.5), medium-specific (e.g., surface water and groundwater) HHCPCs were selected and the potential human health risks associated with each medium at the waste site were characterized as part of the HHRA.

A description of the methodology used to complete the HHRA for Site 16 is presented in Section 4.1.

4.2.1 Selection of CPCs HHCPCs are defined as chemicals for which data of sufficient quality are available for use in the risk assessment, that are potentially site related, and that are present at concentrations above risk-based screening levels (where available) as well as background screening levels (where available). In selecting HHCPCs USEPA criteria have been used (Subsection 4.1.2). A summary of the HHCPCs selected for surface soil, subsurface soil, surface water, sediment, and groundwater (surficial and intermediate aquifers) is provided in Table 4-3.

4.2.1.1 **Surface Soil** Ten surface soil samples (16SS01, 16SS02, 16SS03, 16SS04, 16SS05, 16SS06, 16SS07, 16SS08, 16SS09, and 16SS10, including a duplicate at 16SS08) were collected at Site 16 from a depth of 0 to 1 foot bls (Figure 3-2).

A summary of the analytes detected in the surface soil samples at Site 16 and the HHCPC screening results are presented in Table 4-4. Seven SVOCs (PAHs) and two inorganic contaminants (calcium, and sodium) were retained as HHCPCs.

4.2.1.2 **Subsurface Soil** Subsurface soil samples were collected at 24 locations (16SB10S2, 16SB10S4, 16SB11S2, 16SB11S6, 16SB12S2, 16SB12S6, 16SB1S0, 16SB1S6, 16SB2S2, 16SB2S4, 16SB3S0, 16SB3S6, 16SB4S2, 16SB4S6, 16SB5S2, 16SB5S6, 16SB6S2, 16SB6S4, 16SB7S2, 16SB7S4, 16SB8S2, 16SB8S4, 16SB9S4, 16SB9S6, including duplicates at 16SB10S2, 16SB5S2, and 16SB7S2), as indicated on Figure 3-3.

Subsurface soil data were grouped together at Site 16, regardless of the depth interval in which they were collected for HHCPC selection. A summary of the analytes detected in the subsurface soil samples at Site 16 and the HHCPC screening results are presented in Table 4-5. One VOC (trichloroethene), one SVOC (phenol), and three inorganic contaminants (arsenic, calcium, cobalt, and thallium) were retained as HHCPCs.

4.2.1.3 **Surface Water** Surface water was sampled concurrently with sediment in drainage ditches associated with Site 16 at three locations (STCSW1, STCSW3, and STCSW4) (Figure 3-4).

A summary of the analytes detected in the surface water samples at Site 16 and the HHCPC screening results are presented in Table 4-6. Two VOCs (1,2-dichloroethene and trichloroethene) and three inorganic analytes (beryllium, cadmium, and iron) were retained as HHCPCs.

4.2.1.4 **Sediment** Sediment samples (STCSW1, STCSW3, and STCSW4) were collected in the drainage ditches associated with Site 16 concurrently with surface water samples (Figure 3-4).

Table 4-3
Summary of Human Health Chemicals of Potential Concern (HHCPCs)

Baseline Risk Assessment
Operable Unit 7, NAS Cecil Field
Jacksonville, Florida

Environmental Medium	Human Health Chemicals of Potential Concern [1]
Surface Soil	**Inorganics:** calcium, and sodium **Organics:** benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenz(a,h)anthracene, and indeno(1,2,3-dc)pyrene.
Subsurface Soil	**Inorganics:** arsenic, calcium, cobalt, and thallium **Organics:** trichloroethene, phenol
Surface Water	**Inorganics:** beryllium, cadmium, and iron **Organics:** 1,2-dichloroethene and trichloroethene
Sediment	**Inorganics:** cadmium and sodium **Organics:** none
Surficial Aquifer	**Inorganic:** aluminum, antimony, arsenic, cobalt, iron, magnesium, manganese, and thallium **Organics:** 1,1,1-trichloroethane, 1,1-dichloroethene, 1,2-dichloroethene, bis(2-ethylhexyl)phthalate, and trichloroethene.
Intermediate Aquifer	**Inorganics:** antimony and manganese **Organic:** bis(2-ethylhexyl)phthalate

[1] Selection of HHCPCs for each medium is described in Paragraphs 4.2.1.1 through 4.2.1.5.

Table 4-4
Surface Soil Human Health Chemicals of Potential Concern (HHCPs)

Baseline Risk Assessment
Operable Unit 7, NAS Cecil Field
Jacksonville, Florida

Analyte	Frequency of Detection [1]	Range of Detected Concentrations	Range of Reporting Limits	Mean of Detected Concentrations [2]	Screening Background Concentration [3]	Risk Based Concentration [4]	Florida Soil Cleanup Goal	Analyte HHCPC? (Yes/No)
Volatiles (µg/kg)								
1,2-Dichloroethene (total)	1/10	[6] 6.5	5 to 11	6.5	NA	70,000	NS	No [5]
Trichloroethene	6/10	3 to 150	5 to 12	43.2	NA	47,000	6,500	No [5]
Semivolatiles (µg/kg)								
Acenaphthene	3/10	32 to 82	360 to 380	55	NA	470,000	2,800,000	No [5]
Acenaphthylene	1/10	31	360 to 380	31	NA	[7] 230,000	670,000	No [5]
Anthracene	3/10	46 to 170	360 to 380	102	NA	2,300,000	20,000,000	No [5]
Benzo(a)anthracene	3/10	200 to 420	360 to 380	340	NA	880	1,400	Yes [C]
Benzo(a)pyrene	5/10	[6] 29 to 310	360 to 380	178	NA	88	100	Yes
Benzo(b)fluoranthene	9/10	23 to 620	360 to 380	193	NA	880	1,400	Yes [C]
Benzo(g,h,i)perylene	5/10	82 to 140	360 to 380	110	NA	[7] 230,000	14,000	No [5]
Benzo(k)fluoranthene	5/10	[6] 20 to 180	360 to 380	103	NA	8,800	14,000	Yes [C]
Butylbenzylphthalate	6/10	[6] 32 to 140	360 to 380	78.2	NA	1,600,000	15,000,000	No [5]
Carbazole	3/10	65 to 140	360 to 380	94.7	NA	32,000	42,000	No [5]
Chrysene	7/10	26 to 360	360 to 380	150	NA	88,000	140,000	Yes [C]
Dibenz(a,h)anthracene	3/10	29 to 52	360 to 380	41.7	NA	88	100	Yes [C]
Dibenzofuran	1/10	44	360 to 380	44	NA	NA	240,0000	No [5]
Fluoranthene	7/10	41 to 870	360 to 380	351	NA	310,000	2,900,000	No [5]
Fluorene	3/10	26 to 97	360 to 380	55.3	NA	310,000	2,400,000	No [5]
Indeno(1,2,3-cd)pyrene	5/10	62 to 190	360 to 380	125	NA	880	1,400	Yes [C]
Naphthalene	1/10	28	360 to 380	28	NA	310,000	1,300,000	No [5]
Phenanthrene	6/10	[6] 39 to 740	360 to 380	288	NA	[7] 230,000	1,700,000	No [5]
Pyrene	8/10	24 to 600	360 to 380	203	NA	230,000	2,200,000	No [5]

See notes at end of table.

Table 4-4 (Continued)
Surface Soil Human Health Chemicals of Potential Concern (HHCPs)

Baseline Risk Assessment
Operable Unit 7, NAS Cecil Field
Jacksonville, Florida

Analyte	Frequency of Detection [1]	Range of Detected Concentrations	Range of Reporting Limits	Mean of Detected Concentrations [2]	Screening Background Concentration [3]	Risk Based Concentration [4]	Florida Soil Cleanup Goal [5]	Analyte HHCPC? (Yes/No)
Pesticides and PCBs (µg/kg)								
4,4-DDD	1/10	[6] 5.85	3.6 to 4	5.9	NA	2,700	4,500	No [S]
4,4-DDE	7/10	0.32 to 3.1	3.6 to 4	0.97	NA	1,900	3,000	No [S]
Aroclor-1260	4/10	5.5 to 33	36 to 38	21.1	NA	[7] 83	900	No [S]
Endosulfan sulfate	1/10	0.27	3.6 to 4	0.27	NA	[9] 47,000	NS	No [S]
alpha-Chlordane	4/10	0.6 to [8] 26	1.9 to 2	7.4	NA	[10] 470	800	No [S]
gamma-Chlordane	1/10	[8] 30	1.9 to 2	30	NA	[10] 470	800	No [S]
Inorganics (mg/kg)								
Aluminum	10/10	932 to [6] 5,950	40 to 40	2,770	29,000	23,000	75000	No [S,B]
Barium	10/10	1.7 to 8.7	40 to 40	5.8	21	550	5,200	No [S,B]
Cadmium	5/10	[6] 0.35 to 0.94	1 to 1	0.69	ND	3.9	37	No [S]
Calcium	10/10	994 to 13,000	1,000 to 1,000	4,040	ND	NA	NS	Yes
Chromium	10/10	1.8 to [6] 13	2 to 2	6.5	31.2	[11] 39	290	No [S,B]
Cobalt	4/10	0.49 to 0.71	10 to 10	0.61	ND	NA	4,700	No [S]
Copper	9/10	0.81 to 3.1	5 to 5	1.7	ND	290	2,900	No [S]
Iron	10/10	207 to 1,030	20 to 20	603	8,060	NA	NS	No [EN]
Lead	10/10	3.9 to 32 1	0.6 to 0.6	16.1	15.6	[12] 400	500	No [S]
Magnesium	10/10	66 to [6] 173	1,000 to 1,000	114	474	NA	NS	No [EN]
Manganese	10/10	2.9 to 14	3 to 3	7.7	18	39	370	No [S,B]
Nickel	9/10	0.81 to 2.6	8 to 8	1.6	8	[13] 160	1,500	No [S,B]
Potassium	9/10	21.7 to 93.7	1,000 to 1,000	45.3	310	NA	NS	No [EN]
Silver	1/10	0.4	2 to 2	0.4	ND	39	390	No [S]
Sodium	10/10	143 to 192	1,000 to 1,000	164	ND	NA	NS	Yes
Vanadium	10/10	1.2 to 5	10 to 10	2.9	34.2	55	490	No [S,B]

See notes at end of table.

Table 4-4 (Continued)
Surface Soil Human Health Chemicals of Potential Concern (HHCPCs)

Baseline Risk Assessment
Operable Unit 7, NAS Cecil Field
Jacksonville, Florida

Analyte	Frequency of Detection [1]	Range of Detected Concentrations	Range of Reporting Limits	Mean of Detected Concentrations [2]	Screening Background Concentration [3]	Risk Based Concentration [4]	Florida Soil Cleanup Goal [5]	Analyte HHCPC? (Yes/No)
Inorganics (mg/kg)								
Zinc	8/10	9.4 to 25.2	4 to 4	14.2	ND	2,300	23,000	No [S]

[1] Frequency of detection is the number of samples in which the analyte was detected divided by the total number of samples analyzed (16SS01, 16SS02, 16SS03, 16SS04, 16SS05, 16SS06, 16SS07, 16SS08, 16SS09, and 16SS10, including a duplicate at 16SS08).
[2] The average of detected concentrations is the arithmetic mean of all samples in which the analyte was detected. It does not include those samples in which the analyte was not detected.
[3] Twice the average of detected concentrations for inorganic analytes at BSS01, BSS02, BSS03, and BSS04, including a duplicate at BSS02 (Arenta soil unit).
[4] U.S. Environmental Protection Agency (USEPA) Region III chemical of concern (COC) screening table for residential soil per January 1993 guidance. Actual values are taken from the COC screening table dated March 18, 1994, which calculates screening values based on a cancer risk of 10^{-6} and a hazard quotient of 0.1.
[5] The Florida Soil Cleanup Goals (September 29, 1995) are provided in Appendix D.
[6] Value is the average of a sample and its duplicate.
[7] Risk base concentration (RBC) value for this polynuclear aromatic hydrocarbon (PAH) is not available; RBC for pyrene used as a conservative surrogate.
[8] RBC value for this specific Aroclor is not available; the general RBC for polychlorinated biphenyls is used as a surrogate.
[9] RBC value for endosulfan sulfate is not available; RBC for endosulfan is used as a surrogate.
[10] RBC values for alpha or gamma Chlordane are not available; RBC for Chlordane is used as a surrogate.
[11] RBC is based on chromium VI.
[12] RBC is not available; value is from *Interim Guidance on Establishing Soil Lead Cleanup Levels at Superfund Sites* (USEPA, 1994f).
[13] RBC value for nickel is not available; RBC for nickel soluble salts is used as a surrogate.

Notes: µg/kg = micrograms per kilogram.
NA = not applicable.
DDD = dichlorodiphenyldichloroethane.
DDE = dichlorodiphenyldichloroethene.
mg/kg = milligrams per kilogram.
ND = not detected in any background samples.
[C] = Analyte is a member of a chemical class that contains other HHCPCs and, therefore, this analyte is retained as an HHCPC.
[B] = Maximum detected concentration did not exceed twice the arithmetic mean of detected concentrations at background locations; therefore, the analyte will not be evaluated in the human health risk assessment (HHRA).
[EN] = Analyte is an essential nutrient, is not present at toxic levels, and has a mean concentration that is less than the background screening concentration. The analyte will not be evaluated in the HHRA.
[S] = maximum detected concentration did not exceed RBC or Florida Soil Cleanup Goal; therefore, this analyte will not be evaluated in the HHRA.
HHRA = human health risk assessment.

Table 4-5
Subsurface Soil Human Health Chemicals of Potential Concern (HHCPCs)

Baseline Risk Assessment
Operable Unit 7, NAS Cecil Field
Jacksonville, Florida

Analyte	Frequency of Detection [1]	Range of Detected Concentrations	Range of Reporting Limits	Mean of Detected Concentrations [2]	Screening Background Concentration [3]	Risk Based Concentration [4]	Florida Leaching Value [5]	Florida Soil Cleanup Goal [5]	Analyte HHCPC? (Yes/No)
Volatiles (µg/kg)									
1,2-Dichloroethene (total)	3/24	[6] 3 to [6] 350	5 to 28	145	NA	70,000	NS	NS	No [S]
2-Butanone	1/24	6	11 to 54	6	NA	4,700,000	NG	1,500,000	No [S,F]
Acetone	4/24	46 to 220	11 to 150	169	NA	780,000	NG	180,000	No [S]
Methylene chloride	10/24	[6] 2.5 to 10	5 to 28	6	NA	85,000	NG	23,000	No [S]
Trichloroethene	9/24	3 to 650	5 to 54	146	NA	47,000	10	9,300	Yes
Semivolatiles (µg/kg)									
2-Methylnaphthalene	1/24	21	360 to 410	21	NA	[6] 310,000	NC	880,000	No [S,F]
Benzo(a)pyrene	2/24	20 to 21	360 to 410	20.5	NA	88	NG	500	No [S]
Benzo(b)fluoranthene	6/24	23 to 49	360 to 410	32.4	NA	880	NG	5,000	No [S]
Benzo(g,h,i)perylene	2/24	19 to 21	360 to 410	20	NA	[7] 230,000	NG	5,000	No [S]
Butylbenzylphthalate	4/24	21 to 750	360 to 410	244	NA	1,600,000	NG	31,000,000	No [S]
Chrysene	1/24	46	360 to 410	46	NA	88,000	NG	500,000	No [S,F]
Diethylphthalate	1/24	23	360 to 410	23	NA	6,300,000	20,000	97,000,000	No [S,F]
Dimethylphthalate	1/24	29	360 to 410	29	NA	78,000,000	NG	NS	No [16,17]
Fluoranthene	2/24	[6] 23.5 to 28	360 to 410	25.8	NA	310,000	NG	4,800,000	No [S]
Indeno(1,2,3-cd) pyrene	1/24	20	360 to 410	20	NA	880	NG	5,000	No [S,F]
Phenol	2/24	20 to 33	360 to 410	26.5	NA	4,700,000	20	44,000,000	Yes
Pyrene	2/24	21 to [6] 23	360 to 410	22	NA	230,000	NG	4,100,000	No [S]
bis(2-Ethylhexyl) phthalate	8/24	23 to 600	360 to 410	108	NA	46,000	11,000	110,000	No [S]
Pesticides and PCBs (µg/kg)									
4,4-DDD	2/24	0.99 to 3.1	0.6 to 4.1	2	NA	2,700	NG	17,000	No [S]
4,4-DDE	8/24	0.27 to [6] 4.2	3.6 to 4.1	1.2	NA	1,900	NG	11,000	No [S]
4,4-DDT	1/24	0.31	2.25 to 4.1	0.31	NA	1,900	NG	12,000	No [S,F]

See notes at end of table.

Table 4-5 (Continued)
Subsurface Soil Human Health Chemicals of Potential Concern (HHCPCs)

Baseline Risk Assessment
Operable Unit 7, NAS Cecil Field
Jacksonville, Florida

Analyte	Frequency of Detection [1]	Range of Detected Concentrations	Range of Reporting Limits	Mean of Detected Concentrations [2]	Screening Background Concentration [3]	Risk Based Concentration [4]	Florida Leaching Value [5]	Florida Soil Cleanup Goal [5]	Analyte HHCPC? (Yes/No)
Pesticides/PCBs (µg/kg)									
Aroclor-1248	2/24	[6] 15.8 to 30	33 to 41	22.9	NA	[9] 83	NG	3,500	No [S]
Aroclor-1254	3/24	[6] 15 to 66	36 to 41	43.3	NA	[9] 83	NG	3,500	No [S]
Aroclor-1260	4/24	3.1 to 49	36 to 41	16.5	NA	[9] 83	NG	3,500	No [S]
Heptachlor epoxide	1/24	1.5	0.4 to 2.1	1.5	NA	70	NG	300	No [S,F]
alpha-Chlordane	5/24	[8] 1.25 to 19	1.8 to 2.1	6.8	NA	[10] 470	NG	3,000	No [S]
gamma-Chlordane	7/24	1 to 22	1.8 to 2.1	5.9	NA	[10] 470	NG	3,000	No [S]
Inorganics (mg/kg)									
Aluminum	24/24	882 to 15,300	40 to 140	6,150	11,200	23,000	NC	NS	No [S]
Arsenic	5/24	0.75 to 1.9	2 to 2	1.1	1.64	[11] 0.37	NC	3.1	Yes
Barium	22/24	1.6 to 15.6	40 to 40	7.1	16	550	NC	8,400	No [S,B]
Cadmium	1/24	0.93	1 to 1	0.93	ND	3.9	NC	60	No [S,F]
Calcium	18/24	304 to 45,500	1,000 to 1,000	4,370	320	NA	NC	NS	Yes
Chromium	24/24	[6] 1.4 to 19.5	2 to 2	8.3	16	[12] 39	NC	43	No [S]
Cobalt	14/24	0.49 to [6] 2.85	10 to 10	1	ND	NA	NC	11,000	No [S] Yes
Copper	16/24	[8] 0.525 to 2.1	5 to 5	0.84	1.16	290	NC	7,200	No [S]
Cyanide	2/23	1.7 to 2	0.5 to 0.5	1.9	ND	[13] 160	NC	4,500	No [S]
Iron	24/24	191 to 4,420	20 to 20	1,030	2,840	NA	NC	NS	No [EN]
Lead	24/24	1.6 to 55	0.6 to 0.6	7.6	14	[14] 400	NC	1,000	No [S]
Magnesium	18/24	39.7 to 339	1,000 to 1,000	189	268	NA	NC	NS	No [EN]
Manganese	24/24	2.8 to 8	3 to 3	4.8	7.8	39	NC	550	No [S]
Mercury	4/24	0.12 to [6] 0.13	0.1 to 0.1	0.13	1.1	2.3	NC	48	No [S,B]
Nickel	22/24	0.48 to 5	8 to 8	2.2	5.4	[15] 160	NC	2,600	No [S,B]
Potassium	18/24	33.6 to [6] 277	1,000 to 1,000	103	152	NA	NC	NS	No [EN]
Sodium	8/24	142 to 781	1,000 to 1,000	239	312	NA	NC	NS	No [EN]
Thallium	2/24	2.1 to 2.6	2 to 2	2.4	ND	[16] 0.63	NC	NS	Yes
Vanadium	24/24	[6] 1.1 to 1.7	10 to 10	5.7	16	55	NC	480	No [S]
Zinc	2/24	9.4 to 25 8	4 to 4	17.6	ND	2,300	NC	56,000	No [S]

See notes at end of table.

Table 4-5 (Continued)
Subsurface Soil Human Health Chemicals of Potential Concern (HHCPCs)

Baseline Risk Assessment
Operable Unit 7, NAS Cecil Field
Jacksonville, Florida

Analyte	Frequency of Detection [1]	Range of Detected Concentrations	Range of Reporting Limits	Mean of Detected Concentrations [2]	Screening Background Concentration [3]	Risk Based Concentration [4]	Florida Leaching Value [5]	Florida Soil Cleanup Goal [5]	Analyte HHCPC? (Yes/No)

[1] Frequency of detection is the number of samples in which the analyte was detected divided by the total number of samples analyzed (16SB10S2, 16SB10S4, 16SB11S2, 16SB11S6, 16SB12S2, 16SB12S6, 16SB1S0, 16SB1S6, 16SB2S2, 16SB2S4, 16SB3S0, 16SB3S6, 16SB4S2, 16SB4S6, 16SB5S2, 16SB5S6, 16SB6S2, 16SB6S4, 16SB7S2, 16SB7S4, 16SB8S2, 16SB8S4, 16SB9S4, 16SB9S6, including duplicates at 16SB10S2, 16SB5S2, and 16SB7S2).
[2] The average of detected concentrations is the arithmetic mean of all samples in which the analyte was detected. It does not include those samples in which the analyte was not detected.
[3] Twice the average of detected concentrations for inorganic analytes at CEFBBMS1S0, CEFBBMS1S6, CEFBBMS2S2, CEFBBMS2S6, CEFBBMS312, CEFBBMS316, CEFBBMS4S2, CEFBBMS4S4, CEFBBMS5S2, CEFBBMS5S6, CEFBBMS610, CEFBBMS616, CEFBBMS7S0, CEFBBMS7S4, CEFBBMS8S2, CEFBBMS8S6, CEFBBMS910, and CEFBBMS916, including a duplicate at CEFBBMS7S0 (background).
[4] U.S. Environmental Protection Agency (USEPA) Region III chemical of concern (COC) screening table for residential soil per January 1993 guidance. Actual values are taken from the COC screening table dated March 18, 1994 which calculates screening values based on a cancer risk of 10^{-6} and a hazard quotient of 0.1.
[5] The Florida Cleanup Goals (September 29, 1995) are provided in Appendix D. Industrial noncarcinogenic values have been adjusted for an HQ of 0.1. The Florida leaching values are also provided in Appendix D.
[6] Value is the average of a sample and its duplicate.
[7] Risk based concentration (RBC) value for 2-methylnaphthalene is not available; RBC for naphthalene is used as a surrogate.
[8] RBC value for this polynuclear aromatic hydrocarbon (PAH) is not available; RBC for pyrene used as a conservative surrogate.
[9] RBC value for this specific Aroclor is not available; the general RBC for polychlorinated biphenyls is used as a surrogate.
[10] RBC values for alpha or gamma Chlordane are not available; RBC for Chlordane is used as a surrogate.
[11] RBC is based on the carcinogenic effects of arsenic.
[12] RBC is based on chromium VI.
[13] RBC value for cyanide is not available; RBC for free cyanide is used as a surrogate.
[14] RBC is not available; value is from *Interim Guidance on Establishing Soil Lead Cleanup Levels at Superfund Sites* (USEPA, 1994f).
[15] RBC value for nickel is not available; RBC for nickel soluble salts is used as a surrogate.
[16] RBC value for thallium is not available; RBC for thallium sulfate is used as a surrogate.

Notes: µg/kg = micrograms per kilogram.
NA = not applicable.
DDD = dichlorodiphenyldichloroethane.
DDE = dichlorodiphenyldichloroethene.
DDT = dichlorodiphenyltrichloroethane.
mg/kg = milligrams per kilogram.
ND = not detected in any background samples.
NS = no standard or guideline available.
NG = not detected in groundwater.
NC = not calculated.
PCBs = polychlorinated biphenyls.

[S] = Maximum detected concentration did not exceed RBC and, therefore, the analyte will not be evaluated in the human health risk assessment (HHRA).
[F] = Frequency of detection was less than or equal to 5 percent and, therefore, the analyte will not be evaluated in the HHRA.
[B] = Maximum detected concentration did not exceed twice the arithmetic mean of detected concentrations at background locations; therefore, the analyte will not be evaluated in HHRA.
[EN] = Analyte is an essential nutrient, is not present at toxic levels, and has a mean concentration that is less than the reference concentration. The analyte will not be evaluated in the HHRA.

Table 4-6
Surface Water Human Health Chemicals of Potential Concern (HHCPCs)

Baseline Risk Assessment
Operable Unit 7, NAS Cecil Field
Jacksonville, Florida

Analyte	Frequency of Detection [1,2]	Range of Detected Concentrations	Range of Reporting Limits	Mean of Detected Concentrations [3]	Reference Station Screening Concentration [4]	Risk Based Concentration [5]	Analyte HHCPC? (Yes/No)
Volatiles (µg/ℓ)							
1,2-Dichloroethene (total)	2/3	4 to 9	10 to 10	6.5	NA	5.5	Yes
Toluene	1/3	2 to 2	10 to 10	2	NA	75	No [S]
Trichloroethene	2/3	8 to 20	10 to 10	14	NA	1.6	Yes
Inorganics (µg/ℓ)							
Aluminum	3/3	292 to 490	200 to 200	384	696	11,000	No [S,B]
Barium	3/3	17.6 to 18.6	200 to 200	18.2	28.6	260	No [S,B]
Beryllium	1/3	0.49 to 0.49	5 to 5	0.49	ND	0.016	Yes
Cadmium	2/3	0.32 to 37.3	5 to 5	18.8	ND	1 8	Yes
Calcium	3/3	6,510 to 10,800	5,000 to 5,000	9,140	66,000	NA	No [EN]
Copper	3/3	2.4 to 11.9	25 to 25	6.4	ND	140	No [S]
Iron	3/3	847 to 1,470	100 to 100	1,110	762	NA	Yes
Lead	1/3	14.1 to 14.1	5 to 5	14.1	5.8	[6]15	No [S]
Magnesium	3/3	1,190 to 3,290	5,000 to 5,000	2,520	2,560	NA	No [EN]
Manganese	1/3	9.6 to 9.6	15 to 15	9.6	14.8	18	No [S,B]
Sodium	3/3	3,120 to 5,200	5,000 to 5,000	4,370	5,960	NA	No [EN]
Zinc	3/3	25.4 to 68.4	20 to 20	39.8	36.8	1,100	No [S]

See notes on next page.

Table 4-6 (Continued)
Surface Water Human Health Chemicals of Potential Concern

Baseline Risk Assessment
Operable Unit 7, NAS Cecil Field
Jacksonville, Florida

Analyte	Frequency of Detection [1,2]	Range of Detected Concentrations	Range of Reporting Limits	Mean of Detected Concentrations [3]	Reference Station Screening Concentration [4]	Risk Based Concentration [5]	Analyte HHCPC? (Yes/No)

[1] Sample locations (STCSW1, STCSW3, and STCSW4) are depicted on Figure 3-4.
[2] Frequency of detection is the number of samples in which the analyte is detected divided by the total number of samples analyzed.
[3] The average of detected concentrations is the arithmetic mean of all samples in which the analyte was detected; it does not include those samples in which the analyte was not detected.
[4] The upstream reference sample location is STCSWR1. The concentrations of analytes detected in the upstream location are listed in Table 3-3. The screening concentration is 2 times the concentration detected in the reference station sample.
[5] U.S. Environmental Protection Agency (USEPA) Region III chemical of concern (COC) screening table for tap water per January 1993 guidance. Actual values are taken from the COC screening table dated March 18, 1994, which calculates screening values based on a cancer risk of 10^{-6} and a hazard quotient of 0.1.
[6] Treatment technology action limit for lead in drinking water distribution system identified in the *Drinking Water Standards and Health Advisories* (USEPA, 1994b).

Notes: $\mu g/\ell$ = micrograms per liter.
NA = not available.
ND = not detected in any background samples.
[S] = Maximum detected concentration did not exceed risk-based concentration; therefore, will not be evaluated in the human health risk assessment (HHRA).
[B] = Maximum detected concentration did not exceed twice the arithmetic mean of detected concentrations at background locations; therefore, the analyte will not be evaluated in the HHRA.
[EN] = Analyte is an essential nutrient, is not present at toxic levels, and has a mean concentration that is less than the background concentration; therefore, the analyte will not be evaluated in the HHRA.

A summary of the analytes detected in the sediment samples at Site 16 and the HHCPC screening results are presented in Table 4-7. Two inorganic analytes (cadmium and sodium) were retained as HHCPCs. Sodium was retained as an HHCPC because neither a risk-based concentration screen nor a background screen was available to eliminate this inorganic analyte from the list of HHCPCs for sediment. Inclusion of sodium as an HHCPC does not suggest that it substantially contributes to potential risks associated with exposure to this medium.

4.2.1.5 **Groundwater** As previously discussed in Section 3.3 and in the RI report (ABB-ES, 1995), unfiltered and filtered samples were submitted for chemical analyses during the groundwater sampling program investigating the surficial and intermediate aquifers. Sample locations for the surficial aquifer (16MW10S, 16MW12I, 16MW13S, 16MW14D, 16MW15S, 16MW16D, 16MW17S, 16MW18D, 16MW19S, 16MW20D, 16MW21S, 16MW22I, 16MW23D, 16MW24S, 16MW25D, 16MW27I, 16MW28D, 16MW29S, 16MW30D, 16MW32S, 16MW33D, 16MW35S, 16MW36I, 16MW37D, 16MW38S, 16MW39I, 16MW40D, 16MW5S, 16MW7S, and 16MW9D, including duplicates at 16MW10, 16MW21S, 16MW28D, and 16MW40D) and the intermediate aquifer (16MW11DD, 16MW26DD, 16MW31DD, and 16MW34DD) are indicated on Figure 3-5.

The separate evaluations of the surficial and intermediate aquifers at NAS Cecil Field in the risk characterization part of the HHRA (Paragraph 4.2.4.5) includes results from unfiltered samples only.

Surficial Aquifer. HHCPCs were selected according to the procedures outlined in Subsection 4.1.2 for those monitoring wells that are within the contaminant plume (16MW10S, 16MW12I, 16MW17S, 16MW18D, 16MW19S, 16MW20D, 16MW21S, 16MW22I, 16MW23D, 16MW24S, 16MW25D, 16MW27I, 16MW28D, 16MW32S, 16MW33D, 16MW38S, 16MW39I, 16MW40D, 16MW5S, 16MW7S, and 16MW9D, including duplicates at 16MW10, 16MW21S, 16MW28D, and 16MW40D) as described in the RI report (ABB-ES, 1995). Additional information concerning the plume at Site 16 is located in the RI report (ABB-ES, 1995).

Table 4-8 summarizes the analytes detected in surficial aquifer samples at Site 16. Five organic analytes, including four VOCs (1,1,1-trichloroethane, 1,1-dichloroethene, 1,2-dichloroethene, and trichloroethene) and one SVOC (bis(2-ethylhexyl)phthalate), and eight inorganics were retained as HHCPCs. Neither a risk-based concentration screen nor a background screen was available for cobalt. Inclusion of cobalt as a HHCPC does not suggest that it substantially contributes to potential risks associated with exposure to surficial aquifer groundwater.

Intermediate Aquifer. HHCPCs were selected according to the procedures outlined in Subsection 4.1.2 for all monitoring wells present in the intermediate aquifer at Site 16 (16MW11DD, 16MW26DD, 16MW31DD, and 6MW34DD) because no organic plume was identified (ABB-ES, 1995).

Table 4-9 summarizes the analytes detected in the intermediate aquifer samples at Site 16. One SVOC (bis(2-ethylhexyl)phthalate) and two inorganics (antimony and manganese) were retained as HHCPCs.

4.2.2 **Exposure Assessment** Although permission is required to obtain access to NAS Cecil Field, Site 16 and the surrounding area can be accessed by Navy personnel, including adult and child dependents. There are five media that represent potential sources of exposure associated with Site 16: surface soil, subsurface soil, surface water, sediment, and groundwater. Based on current land use (industrial at the former seepage pit and possibly recreational in the

Table 4-7
Sediment Human Health Chemicals of Potential Concern (HHCPCs)

Baseline Risk Assessment
Operable Unit 7, NAS Cecil Field
Jacksonville, Florida

Analyte	Frequency of Detection [1,2]	Range of Detected Concentrations	Range of Reporting Limits	Mean of Detected Concentrations [3]	Reference Station Screening Concentration [4]	Risk Based Concentration [5]	Analyte HHCPC? (Yes/No)
Volatiles (µg/kg)							
2-Butanone	2/3	3 to 5	13 to 19	4	NA	4,700,000	No [S]
Acetone	3/3	3 to 11	13 to 19	7.3	NA	780,000	No [S]
Toluene	2/3	4 to 6	13 to 19	5	NA	1,600,000	No [S]
Semivolatiles (µg/kg)							
bis(2-Ethylhexyl)phthalate	2/3	8,200 to 12,000	6,500 to 24,-000	10,100	NA	46,000	No [S]
Inorganics (mg/kg)							
Aluminum	3/3	1,820 to 3,890	40 to 40	2,840	2,200	23,000	No [S]
Barium	3/3	3 to 11.1	40 to 40	6.3	8	550	No [S]
Cadmium	1/3	4.6 to 4.6	1 to 1	4.6	ND	3.9	Yes
Calcium	2/3	142 to 436	1,000 to 1,000	289	11,300	NA	No [EN]
Chromium	2/3	11.4 to 11.9	2 to 2	11.7	4.4	[6] 39	No [S]
Chromium, hexavalent	1/1	0.99 to 0.99	0 01 to 0.01	0.99	NA	[6] 39	No [S]
Copper	3/3	2.8 to 13.5	5 to 5	9.3	2	290	No [S]
Iron	3/3	463 to 1,500	20 to 20	815	826	NA	No [EN]
Lead	3/3	4.7 to 30.6	1 to 1	21.7	14.4	[7] 400	No [S]
Magnesium	2/3	60.1 to 138	1,000 to 1,000	99.1	202	NA	No [EN]
Manganese	1/3	4.9 to 4.9	3 to 3	4.9	3.8	39	No [S]
Mercury	2/3	0.06 to 0.12	0.1 to 0.1	0.09	ND	2.3	No [S]
Nickel	1/3	4.6 to 4.6	8 to 8	4.6	ND	[8] 160	No [S]
Sodium	1/3	21.2 to 21.2	1,000 to 1,000	21.2	ND	NA	Yes
Vanadium	2/3	4.1 to 6.8	10 to 10	5.4	ND	55	No [S]
Zinc	3/3	19.5 to 109	4 to 4	68.4	21.8	2,300	No [S]

See notes at end of table.

Table 4-7 (Continued)
Sediment Human Health Chemicals of Potential Concern (HHCPCs)

Baseline Risk Assessment
Operable Unit 7, NAS Cecil Field
Jacksonville, Florida

Analyte	Frequency of Detection [1,2]	Range of Detected Concentrations	Range of Reporting Limits	Mean of Detected Concentrations [3]	Reference Station Screening Concentration [4]	Risk Based Concentration [5]	Analyte HHCPC? (Yes/No)

[1] Sample locations (STCSD1, STCSD3, and STCSD4) are depicted on Figure 3-4.
[2] Frequency of detection is the number of samples in which the analyte is detected divided by the total number of samples analyzed.
[3] The average of detected concentrations is the arithmetic mean of all samples in which the analyte was detected; it does not include those samples in which the analyte was not detected.
[4] The upstream sample location is STCSDR1. The concentrations of analytes detected in the upstream location are listed in Table 3-3. The screening concentration is 2 times the concentration detected in the reference station sample.
[5] U.S. Environmental Protection Agency (USEPA) Region III chemical of concern (COC) screening table for residential soil per January 1993 guidance. Actual values are taken from the COC Screening table dated March 18, 1994 which calculates screening values based on a cancer risk of 10^{-6} and a hazard quotient of 0.1.
[6] Risk based concentration (RBC) is based on chromium VI.
[7] RBC is not available; value is from *Interim Guidance on Establishing Soil Lead Cleanup Levels at Superfund Sites* (USEPA, 1994f).
[8] RBC value for nickel is not available; RBC for nickel soluble salts is used as a surrogate.

Notes: µg/kg = micrograms per kilogram.
NA = not available.
mg/kg = milligrams per kilogram.
ND = not detected in any background samples.
[B] = Maximum detected concentration did not exceed RBC and, therefore, will not be evaluated in the human health risk assessment (HHRA).
[EN] = Analyte is an essential nutrient, is not present at toxic levels, and has a mean concentration that is less than the background screening concentration. The analyte will not be evaluated in the HHRA.

Table 4-8
Surficial Aquifer Human Health Chemicals of Potential Concern (HHCPCs)

Baseline Risk Assessment
Operable Unit 7, NAS Cecil Field
Jacksonville, Florida

Analyte	Frequency of Detection [1]	Range of Detected Concentrations	Range of Reporting Limits	Mean of Detected Concentrations [2]	Background Screening Concentration [3]	Risk Based Concentration [4]	Florida Groundwater Guidance Concentrations [5]	Analyte HHCPC? (Yes/No)
Volatiles (µg/ℓ)								
1,1,1-Trichloroethane	1/21	[6] 3,000 to [5] 3,000	1 to 830	3,000	NA	130	200	Yes [X]
1,1-Dichloroethane	1/21	1 to 1	1 to 420	1	NA	81	700	No [S,F]
1,1-Dichloroethene	1/21	[6] 400 to [6] 400	1 to 625	400	NA	0.044	7	Yes [X]
1,2-Dichloroethene (total)	2/21	270 to [6] 12,450	1 to 830	6,360	NA	5.5	NS	Yes
4-Methyl-2-pentanone	1/16	1 to 1	2 to 830	1	NA	180	350	No [S]
Trichloroethene	7/21	12 to [5] 630	1 to 830	238	NA	1.6	3	Yes
Semivolatiles (µg/ℓ)								
2-Methylnaphthalene	1/21	[6] 2.75 to [6] 2.75	10 to 10	2.8	NA	[7] 150	6.8	No [S,F]
Diethylphthalate	2/21	1 to 1	10 to 10	1	NA	2,900	5,600	No [S]
Naphthalene	1/21	[6] 3.5 to [6] 3.5	10 to 10	3.5	NA	150	6.8	No [S,F]
Phenanthrene	1/21	3 to 3	10 to 10	3	NA	[8] 110	10	No [S,F]
Phenol	3/21	0.8 to [5] 1.45	10 to 10	1.1	NA	2,200	10	No [S]
bis(2-Ethylhexyl)phthalate	17/21	0.5 to [6] 20.5	10 to 17	5.7	NA	4.8	6	Yes
Pesticides and PCBs (µg/ℓ)								
Endrin	1/20	0.02 to 0.02	0.01 to 0.1	0.02	NA	1.1	2	No [S,F]
Inorganics (µg/ℓ)								
Aluminum	12/21	[6] 176 to [5] 7,970	200 to 200	1,480	1,500	11,000	200	Yes
Antimony	3/21	2.2 to [6] 16.05	60 to 60	7.3	ND	1.5	6	Yes
Arsenic	10/21	3.6 to 56.2	10 to 10	13.2	6	[9] 0.038	50	Yes
Barium	21/21	6.5 to 108	200 to 200	27.5	44.4	260	2,000	No [S]
Cadmium	1/21	[6] 3.3 to [5] 3.3	5 to 5	3.3	ND	1.8	5	No [F]
Calcium	21/21	603 to [6] 58,500	5,000 to 5,000	19,800	25,300	NA	NS	No [EN]
Chromium	4/21	2.2 to 7.9	10 to 10	4.8	17.6	[10] 18	100	No [S,B]

See notes at end of table.

Table 4-8 (Continued)
Surficial Aquifer Human Health Chemicals of Potential Concern (HHCPCs)

Baseline Risk Assessment
Operable Unit 7, NAS Cecil Field
Jacksonville, Florida

Analyte	Frequency of Detection [1]	Range of Detected Concentrations	Range of Reporting Limits	Mean of Detected Concentrations [2]	Background Screening Concentration [3]	Risk Based Concentration [4]	Florida Groundwater Guidance Concentration [5]	Analyte HHCPC? (Yes/No)
Inorganics (µg/ℓ)								
Cobalt	3/21	[6] 2.3 to 5.9	50 to 50	4.6	ND	NA	NS	Yes
Copper	5/21	[6] 2.1 to 3.8	25 to 25	3	4.2	140	1,000	No [5,8]
Iron	20/20	[6] 260 to 9,150	100 to 100	1,830	1,550	NA	300	Yes
Lead	1/21	[6] 2.55 to [4]2.55	3 to 3	2.6	ND	[11] 15	15	No [S,F]
Magnesium	21/21	254 to 28,000	5,000 to 5,000	8,190	5,910	NA	NS	Yes
Manganese	18/20	[6] 4.9 to 56 8	15 to 15	27.4	36.4	18	50	Yes
Mercury	1/21	1 to 1	0.2 to 0.2	1	ND	1.1	2	No [S,F]
Nickel	2/21	[6] 11 to 12.5	40 to 40	11.8	ND	[12] 73	100	No [S]
Potassium	21/21	125 to [6] 4,470	5,000 to 5,000	806	1,170	NA	NS	No [EN]
Sodium	21/21	[6] 2,670 to [6] 31,700	5,000 to 5,000	7,510	10,200	NA	160,000	No [EN]
Thallium	3/21	6 to 6.3	10 to 10	6.2	ND	[13] 0.29	2	Yes
Vanadium	13/21	1.1 to 14.3	50 to 50	4.1	5.4	26	49	No [S]
Zinc	8/21	[6] 16 to 89.5	20 to 20	40.4	55.2	1,100	5,000	No [S]

See notes on next page.

Table 4-8 (Continued)
Surficial Aquifer Human Health Chemicals of Potential Concern (HHCPCs)

Baseline Risk Assessment
Operable Unit 7, NAS Cecil Field
Jacksonville, Florida

Analyte	Frequency of Detection [1]	Range of Detected Concentrations	Range of Reporting Limits	Mean of Detected Concentrations [2]	Background Screening Concentration [3]	Risk Based Concentration [4]	Analyte HHCPC? (Yes/No)

[1] Frequency of detection is the number of samples in which the analyte was detected divided by the total number of samples analyzed (16MW10S, 16MW12I, 16MW17S, 16MW18D, 16MW19S, 16MW20D, 16MW21S, 16MW22I, 16MW23D, 16MW24S, 16MW25D, 16MW27I, 16MW28D, 16MW32S, 16MW33D, 16MW38S, 16MW39I, 16MW40D, 16MW5S, 16MW7S, and 16MW9D, including duplicates at 16MW10, 16MW21S, 16MW28D, and 16MW40D). The samples were unfiltered.
[2] The average of detected concentrations is the arithmetic mean of all samples in which the analyte was detected. It does not include those samples in which the analyte was not detected. The samples were unfiltered.
[3] Twice the average of detected concentrations for inorganic analytes at 16MW13S, 16MW14D, 16MW15S, and 16MW16D.
[4] U.S. Environmental Protection Agency (USEPA) Region III chemical of concern (COC) screening table for tap water per January 1993 guidance. Actual values are taken from the COC screening table dated March 18, 1994, which calculates screening values based on a cancer risk of 10^{-6} and a hazard quotient of 0.1.
[5] Florida Department of Environmental Protection Groundwater Guidance Concentrations (June, 1994) are provided in Appendix D. The value for naphthalene is used as a surrogate for 2-methylnaphthalene.
[6] Value is the average of a sample and its duplicate.
[7] Risk based concentration (RBC) value for 2-methylnaphthalene is not available; RBC for naphthalene is used as a surrogate.
[8] RBC value for this polynuclear aromatic hydrocarbon (PAH) is not available; RBC for pyrene used as a conservative surrogate.
[9] RBC is based on arsenic's properties as a carcinogen.
[10] RBC is based on value for chromium VI.
[11] Treatment technology action limit for lead in drinking water distribution system identified in the Drinking Water Standards and Health Advisories (USEPA, 1994b).
[12] RBC value for nickel is not available; RBC for nickel soluble salts is used as a surrogate.
[13] RBC value for thallium is not available; RBC for thallium sulfate is used as a surrogate.

Notes: $\mu g/\ell$ = micrograms per liter.
NA = not available.
ND = not detected in any background samples.
PCBs = polychlorinated biphenyls
[X] = Although the frequency of detection is less than or equal to 5 percent, the analyte will be evaluated in the human health risk assessment (HHRA) because of its high concentration and known association with past waste disposal activities at Site 16.
[S] = Maximum detected concentration did not exceed risk based concentration and, therefore, will not be evaluated in the HHRA.
[F] = Frequency of detection was less than or equal to 5 percent and, therefore, the analyte will not be evaluated in the HHRA.
[B] = Maximum detected concentration did not exceed twice the arithmetic mean of detected concentrations at the background locations and, therefore, the analyte will not be evaluated in HHRA.
[EN] = Analyte is an essential nutrient, is not present at toxic levels, and has a mean concentration that is less than the background concentration; therefore, the analyte will not be evaluated in the HHRA.

Table 4-9
Intermediate Aquifer Human Health Chemicals of Potential Concern (HHCPCs)

Baseline Risk Assessment
Operable Unit 7, NAS Cecil Field
Jacksonville, Florida

Analyte	Frequency of Detection [1]	Range of Detected Concentrations	Range of Reporting Limits	Mean of Detected Concentrations [2]	Background Screening Concentration [3]	Risk Based Concentration [4]	Florida Groundwater Guidance Concentration [5]	Analyte HHCPC? (Yes/No)
Semivolatiles (μg/ℓ)								
Di-n-butylphthalate	1/4	1 to 1	10 to 10	1	NA	[6] 73	700	No [S]
bis(2-Ethylhexyl) phthalate	4/4	1 to 10	10 to 10	5.5	NA	4.8	6	Yes
Inorganics (μg/ℓ)								
Antimony	2/4	3.1 to 10.3	60 to 60	6.7	NA	1.5	6	Yes
Barium	4/4	7 to 41.8	200 to 200	27.3	NA	260	2,000	No [S]
Calcium	4/4	9,160 to 63,400	5,000 to 5,000	49,300	NA	NA	NS	No [EN]
Chromium	1/4	9.8 to 9.8	10 to 10	9.8	NA	[7] 18	100	No [S]
Copper	2/4	8 to 8.2	25 to 25	8.1	NA	140	1,000	No [S]
Iron	4/4	69.6 to 444	100 to 100	250	NA	NA	300	No [EN]
Magnesium	4/4	16,000 to 28,7-00	5,000 to 5,000	24,500	NA	NA	NS	No [EN]
Manganese	4/4	6.7 to 57.5	15 to 15	40.5	NA	18	50	Yes
Potassium	4/4	853 to 39,900	5,000 to 5,000	10,700	NA	NA	NS	No [EN]
Sodium	4/4	8,050 to 30,600	5,000 to 5,000	14,800	NA	NA	160,000	No [EN]
Zinc	3/4	48.6 to 98.5	20 to 20	75.7	NA	1,100	5,000	No [S]

[1] Frequency of detection is the number of samples in which the analyte was detected divided by the total number of samples analyzed (16MW11DD, 16MW26DD, 16MW31DD, and 6MW34DD). The samples are unfiltered.
[2] The average of detected concentrations is the arithmetic mean of all samples in which the analyte was detected. It does not include those samples in which the analyte was not detected.
[3] A background screening location was not available for the intermediate aquifer.
[4] U.S. Environmental Protection Agency (USEPA) Region III chemical of concern (COC) screening table for tap water per January 1993 guidance. Actual values are taken from the COC Screening Table dated March 18, 1994, which calculates screening values based on a cancer risk of 10^{-6} and a hazard quotient of 0.1.
[5] Florida Department of Environmental Protection Groundwater Guidance Concentrations (June, 1994) are provided in Appendix D.
[6] Risk based concentration (RBC) value for di-n-butylphthalate is not available; RBC for di-n-octylphthalate is used as a surrogate.
[7] RBC is based on value for chromium VI.

Notes: μg/ℓ = microgram per liter.
NA = not available.
[S] = Maximum detected concentration did not exceed risk-based concentration and, therefore, the analyte will not be evaluated in the human health risk assessment (HHRA).
[EN] = Analyte is an essential nutrient and will not be evaluated in the HHRA.

drainage ditches associated with the site), surface soil, surface water, and sediment are the media that are appropriate for evaluation in the HHRA for Site 16. Under future conditions, residential land use is a possibility and, therefore, surface soil, subsurface soil, surface water, sediment, and groundwater are evaluated in the HHRA.

Media-specific receptors and exposure scenarios are identified in Paragraphs 4.2.2.1 through 4.2.2.4 for current and future land use. The information is also summarized in Table 4-10 and on Figure 4-1. Receptor-specific exposure parameters for each exposure scenario are presented in Appendix H. The risk calculation spreadsheets in Appendix I also contain the exposure parameters for each exposure scenario. EPCs for each medium were determined according to procedures outlined in Paragraph 4.1.3.3. The EPCs for analytes selected as HHCPCs are presented in Tables 4-11 through 4-16. The contaminant exposure intakes for the receptors evaluated are presented in the risk calculation spreadsheets in Appendix I.

4.2.2.1 Surface Soil

Current Land Use. At Site 16, current land use (i.e., military and industrial) indicates that an adult and child transient, an adult site worker, and an adult maintenance worker are appropriate for evaluation of surface soil ingestion, dermal contact, and inhalation of fugitive dust (Table 4-10). The transient and worker evaluations are only presented under current land use in the risk characterization (Paragraph 4.2.4.1).

Future Land Use. Because adjacent land use is highly industrial (i.e., concrete runway and heavy machinery), current land use of Site 16 is not expected to dramatically change in the future. However, under future land use at Site 16, the evaluation of an adult and child resident would be considered appropriate if the current land use is changed to housing. Surface soil ingestion, dermal contact, and inhalation of fugitive (airborne) dust for the future resident are evaluated.

Exposure Point Concentrations. The EPCs for HHCPCs identified for surface soil at Site 16 are presented in Table 4-11.

4.2.2.2 Subsurface Soil

Current Land Use. Currently, there is no exposure to subsurface soil at Site 16.

Future Land Use. Under future land use at Site 16, an adult excavation worker scenario would be considered appropriate. The adult excavation worker scenario is appropriate for evaluation because utility lines are located in the area and future development of land at or near Site 16 could include excavation and/or earthwork.

Exposure Point Concentrations. The EPCs for HHCPCs for Site 16 subsurface soil are presented in Table 4-12.

4.2.2.3 Surface Water and Sediment Sal Taylor Creek is classified by the FDEP as a Class III water and, as such, is designated for recreation, propagation, and management of fish and wildlife (Florida Legislature, 1995). Because the drainage ditches associated with Site 16 ultimately drain to Sal Taylor Creek

Table 4-10
Summary of Potential Exposure Pathways

Baseline Risk Assessment
Operable Unit 7, NAS Cecil Field
Jacksonville, Florida

Medium of Exposure	Route of Exposure	Potentially Exposed Population	Selected for Evaluation?	Reason for Selection or Exclusion
Current Land Use				
Surface Soil	Dermal contact, ingestion of soil, and inhalation of fugitive dust.	Resident (child and adult) Transient (child and adult) Site worker (adult) Maintenance worker (adult)	No Yes Yes Yes	No humans currently reside at the site. Children and adults may contact surface soil while trespassing. Under current land use, worker exposure to surface soil is possible because of contact with the area.
Subsurface Soil	Dermal contact, ingestion of soil, and inhalation of fugitive dust.	Excavation worker (adult)	No	No earthwork is currently being conducted at the site.
Sal Taylor Creek: Sediment and Surface Water	Dermal contact, ingestion of sediment, and surface water wading.	Resident (child and adult) Transient (child and adult)	No Yes	No humans currently reside at the site associated with Sal Taylor Creek. Although it is unlikely, adults or children may wade in sediment and surface water while trespassing in water associated with the site. The resident is evaluated under future land use for wading in surface water and sediment.
Sal Taylor Creek: Sediment and Surface Water	Fish consumption	Resident (child and adult) Transient (child and adult)	No No	No humans currently reside at the site associated with Sal Taylor Creek. Fishing is not known to occur in Sal Taylor Creek in the area east of Site 16 under current land use.
Groundwater: Surficial and Intermediate Aquifer	Ingestion of groundwater as drinking water, and inhalation of volatiles while showering.	Resident (child and adult)	No	There are no current exposures to groundwater.

Table 4-10 (Continued)
Summary of Potential Exposure Pathways

Baseline Risk Assessment
Operable Unit 7, NAS Cecil Field
Jacksonville, Florida

Medium of Exposure	Route of Exposure	Potentially Exposed Population	Selected for Evaluation?	Reason for Selection or Exclusion
Future Land Use				
Surface Soil	Dermal contact, ingestion of soil, and inhalation of fugitive dust.	Resident (child and adult) Transient (child and adult) Site worker (adult) Maintenance worker (adult)	Yes Yes Yes Yes	If the site is developed for residential use, residents could potentially contact contaminants in surface soil. The transient exposure scenario is only reported under current land use. The worker exposure scenarios are only reported under current land use. Exposure is not anticipated to be significantly altered between current and future land use for the transient and worker exposures.
Subsurface Soil	Dermal contact, ingestion of soil and inhalation of fugitive dust.	Excavation worker (adult)	Yes	Excavation workers could be exposed if the site was developed for industrial or residential use.
Sal Taylor Creek: Sediment and Surface Water	Dermal contact, ingestion of sediment, and surface water wading.	Resident (child and adult) Transient (child and adult)	Yes Yes	Transients or residents may wade in Sal Taylor Creek while trespassing or living on or near the site. The transient exposure scenario is only reported under current land use.
Sal Taylor Creek: Sediment and Surface Water	Fish consumption.	Resident (child and adult) Transient (child and adult)	Yes No	Although it is unlikely, future residents may consume fish caught in Sal Taylor Creek. If contaminants detected in the surface water of Sal Taylor Creek are lipophilic and high in concentration, fish tissue concentrations will be modeled from surface water and an ingestion exposure evaluated. Fish tissue samples have not been collected at Naval Air Station (NAS) Cecil Field.
Groundwater	Ingestion of groundwater as drinking water and inhalation of volatiles while showering.	Resident (child and adult)	Yes	If the site is developed for residential use, residents could potentially contact contaminants in the surficial or intermediate aquifer.

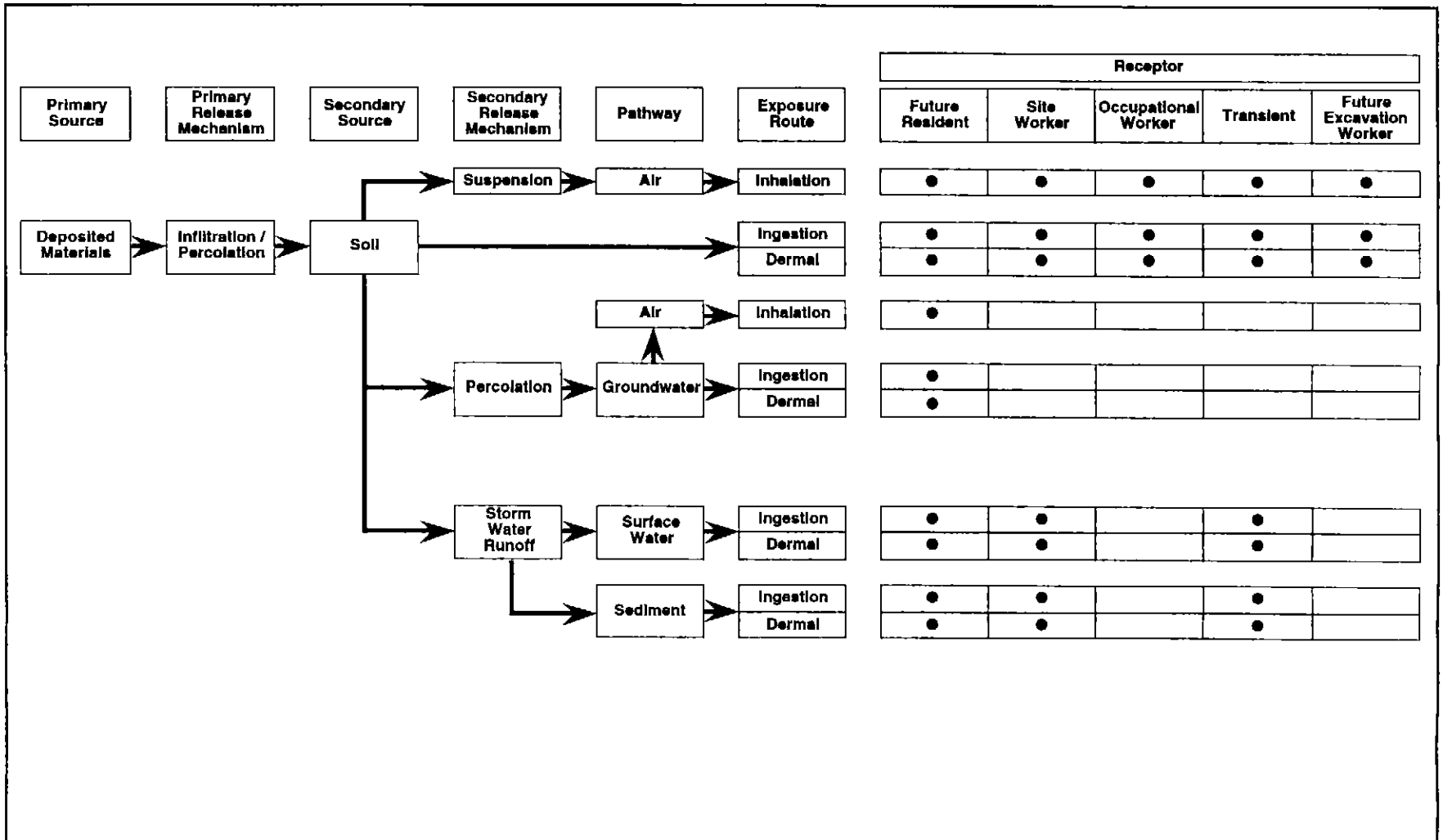


FIGURE 4-1

COMPLETE EXPOSURE PATHWAYS FOR HUMAN RECEPTORS, SITE 16

BASELINE RISK ASSESSMENT, OPERABLE UNIT 7

NAS CECIL FIELD
JACKSONVILLE, FLORIDA

8500-12 950324WEM

Table 4-11
Surface Soil Exposure Point Concentrations for Human Health Chemicals of Potential Concern

Baseline Risk Assessment
Operable Unit 7, NAS Cecil Field
Jacksonville, Florida

Analyte	Frequency of Detection [1]	Maximum Detected Concentration	95% UCL [2]	Exposure Point Concentration [3]
Semivolatiles (µg/kg)				
Benzo(a)anthracene	3/10	420	290	[4] 290
Benzo(a)pyrene	5/10	310	354	310
Benzo(b)fluoranthene	9/10	620	973	[4] 620
Benzo(k)fluoranthene	5/10	180	330	[4] 180
Chrysene	7/10	360	508	[4] 360
Dibenz(a,h)anthracene	3/10	52	302	52
Indeno(1,2,3-cd)pyrene	5/10	190	202	[4] 190
Inorganics (mg/kg)				
Calcium	10/10	13,000	7,560	7,560
Sodium	10/10	192	176	176

[1] Frequency of detection is the number of samples in which the analyte was detected divided by the number of samples analyzed.
[2] 95 percent upper confidence limit (UCL) calculated on the arithmetic mean of all samples using one-half the reporting limit for non-detected concentrations.
[3] Exposure point concentration equals 95 percent UCL unless: the maximum detected concentration is less than the 95 percent UCL; if there are three or less total samples, then the maximum detected concentration is the exposure point concentration.
[4] Value is adjusted for carcinogenicity assessment in risk calculation spreadsheet using a toxicity equivalency factor per U.S. Environmental Protection Agency (USEPA) Region IV guidance (February 10, 1992).

Notes: % = percent.
µg/kg = micrograms per kilogram.
mg/kg = milligrams per kilogram.

Table 4-12
Subsurface Soil Exposure Point Concentrations for Human Health Chemicals of Potential Concern

Baseline Risk Assessment
Operable Unit 7, NAS Cecil Field
Jacksonville, Florida

Analyte	Frequency of Detection [1]	Maximum Detected Concentration	95% UCL [2]	Exposure Point Concentration [3]
Volatiles (µg/kg)				
Trichloroethene	9/24	650	NC	NC
Semivolatiles (µg/kg)				
Phenol	2/24	33	NC	NC
Inorganics (mg/kg)				
Arsenic	5/24	1.9	1.1	1.1
Calcium	18/24	45,500	4,870	4,870
Thallium	2/24	2.6	1.2	1.2

[1] Frequency of detection is the number of samples in which the analyte was detected divided by the number of samples analyzed.
[2] 95 percent upper confidence limit (UCL) calculated on the arithmetic mean of all samples using one-half the reporting limit for nondetected concentrations.
[3] Exposure point concentration equals 95 percent UCL unless: the maximum detected concentration is less than the 95 percent UCL; if there are nine or less total samples, then the maximum detected concentration is the exposure point concentration.

Notes: % = percent.
UCL = upper confidence limit.
µg/kg = micrograms per kilogram.
NC = not calculated.

Table 4-13
Surface Water Exposure Point Concentrations for Human Health Chemicals of Potential Concern

Baseline Risk Assessment
Operable Unit 7, NAS Cecil Field
Jacksonville, Florida

Analyte	Frequency of Detection [1]	Maximum Detected Concentration	95% UCL [2]	Exposure Point Concentration [3]
Volatiles (µg/ℓ)				
1,2-Dichloroethene (total)	2/3	9	NC	9
Trichloroethene	2/3	20	NC	20
Inorganics (µg/ℓ)				
Beryllium	1/3	0.49	NC	0.49
Cadmium	2/3	37.3	NC	37.3
Iron	3/3	1,470	NC	1,470

[1] Frequency of detection is the number of samples in which the analyte was detected divided by the number of samples analyzed.
[2] 95 percent upper confidence limit (UCL) calculated on the arithmetic mean of all samples using one-half the contract required quantitation limit and contract required detection limit (CRQL/CRDL) for non-detected concentrations.
[3] Exposure point concentration equals 95 percent UCL unless: the maximum detected concentration is less than the 95 percent UCL; if there are nine or less total samples, than the maximum detected concentration is the exposure point concentration.

Notes: % = percent.
µg/ℓ = microgram per liter.
NC = not calculated.

Table 4-14
Sediment Exposure Point Concentrations for Human Health Chemicals of Potential Concern

Baseline Risk Assessment
Operable Unit 7, NAS Cecil Field
Jacksonville, Florida

Analyte	Frequency of Detection [1]	Maximum Detected Concentration	95% UCL [2]	Exposure Point Concentration [3]
Inorganics (mg/kg)				
Cadmium	1/3	4.6	NC	4.6
Sodium	1/3	21.2	NC	21.2

[1] Frequency of detection is the number of samples in which the analyte was detected divided by the number of samples analyzed.
[2] 95 percent UCL calculated on the arithmetic mean of all samples using one-half the contract required quantitation limit and contract required detection limit (CRQL/CRDL) for non-detected concentrations.
[3] Exposure point concentration equals 95 percent UCL unless: the maximum detected concentration is less than the 95 percent UCL; if there are nine or less total samples, than the maximum detected concentration is the exposure point concentration.

Notes: % = percent.
UCL = upper confidence limit.
mg/kg = microgram per kilogram.
NC = not calculated.

Table 4-15
Surficial Aquifer Exposure Point Concentrations for Human Health Chemicals of Potential Concern

Baseline Risk Assessment
Operable Unit 7, NAS Cecil Field
Jacksonville, Florida

Analyte	Frequency of Detection [1]	Maximum Detected Concentration	95% UCL [2]	Exposure Point Concentration [3]
Volatiles (µg/ℓ)				
1,1,1-Trichloroethane	1/21	[4] 3,000	49.9	[5] 3,000
1,1-Dichloroethene	1/21	[4] 400	12.4	[5] 400
1,2-Dichloroethene (total)	2/21	[4] 12,450	652	[6] 12,450
Trichloroethene	7/21	[4] 630	1,740	630
Semivolatiles (µg/ℓ)				
bis(2-Ethylhexyl)phthalate	17/21	[4] 20.5	10.2	10.2
Inorganics (µg/ℓ)				
Aluminum	12/21	[4] 7,970	NC	7,970
Antimony	3/21	[4] 16.1	43	16.1
Arsenic	10/21	56.2	10.8	10.8
Cobalt	3/21	5.9	33.1	5.9
Iron	20/20	9,150	3,330	3,330
Magnesium	21/21	28,000	40,100	28,000
Manganese	18/20	56.8	46.1	46.1
Thallium	3/21	6.3	5.4	5.4

[1] Frequency of detection is the number of samples in which the analyte was detected divided by the number of samples analyzed.
[2] 95 percent upper confidence limit (UCL) calculated on the arithmetic mean of all samples using one-half the contract required quantitation limit and contract required detection limit (CRQL/CRDL) for nondetected concentrations.
[3] Exposure point concentration equals 95 percent UCL unless: the maximum detected concentration is less than the 95 percent UCL; if there are nine or less total samples, than the maximum detected concentration is the exposure point concentration.
[4] Value is the average of a sample and associated duplicate.
[5] Exposure point concentration equals the maximum detected concentration because of the low frequency of detection.
[6] The maximum detected concentration was selected rather the 95 percent UCL because the maximum concentration is more representative of the concentrations that have been historically associated with the site (Appendix A).

Notes: % = percent.
µg/ℓ = microgram per liter.
NC = not calculated.

Table 4-16
Intermediate Aquifer Exposure Point Concentrations for Human Health Chemicals of Potential Concern

Baseline Risk Assessment
Operable Unit 7, NAS Cecil Field
Jacksonville, Florida

Analyte	Frequency of Detection [1]	Maximum Detected Concentration	95% UCL [2]	Exposure Point Concentration [3]
Semivolatiles (µg/ℓ)				
bis(2-Ethylhexyl)phthalate	4/4	10	NC	10
Inorganics (µg/ℓ)				
Antimony	2/4	10.3	NC	10.3
Manganese	4/4	57.5	NC	57.5

[1] Frequency of detection is the number of samples in which the analyte was detected divided by the number of samples analyzed.
[2] 95 percent upper confidence limit (UCL) calculated on the arithmetic mean of all samples using one-half the contract required quantitation limit and contract required detection limit (CRQL/CRDL) for nondetected concentrations.
[3] Exposure point concentration equals 95 percent UCL unless: the maximum detected concentration is less than the 95 percent UCL; if there are nine or less total samples, than the maximum detected concentration is the exposure point concentration.

Notes: % = percent.
µg/ℓ = microgram per liter.

(Paragraph 4.2.5.1), the ditch samples have been evaluated as if they were a Class III water.

Current Land Use. The drainage ditches associated with Site 16 are not currently used for recreation by Navy personnel or civilians probably because of its location directly off the flight line. Transients are not known to come into contact with the drainage ditches adjacent to Site 16; however, it is possible transients could wade in the ditches if they were trespassing in the area. A transient wading scenario using exposure parameters commonly employed in swimming exposures has been used for the surface water and sediment at Site 16 (see Appendix H, Tables H-12 and H-14). The transient evaluation is only presented under current land use in the risk characterization (Paragraphs 4.2.4.3 and 4.2.4.4).

Future Land Use. The drainage ditches associated with Site 16 are not currently used for recreation by Navy personnel or civilians; however, because the receiving body of the ditches (Sal Taylor Creek) is a Class III recreational body of water, exposures to surface water and sediment via ingestion and dermal contact are evaluated using exposure parameters for a child and adult resident in a future wading scenario. A resident wading scenario using exposure parameters commonly employed in swimming exposures has been used for the surface water and sediment in Sal Taylor Creek (see Appendix H, Tables H-11 and H-13).

Exposure Point Concentrations. The EPCs for HHCPCs for Site 16 surface water and sediment at Site 16 are presented in Tables 4-13 and 4-14.

4.2.2.4 **Groundwater** As discussed in Paragraph 2.6.2.1, potable water for NAS Cecil Field is obtained from the Floridan aquifer system. Households in the Jacksonville area obtain water from the surficial and intermediate aquifers as well as the Floridan aquifer system (Subsection 2.6.2). It is possible that some households would use the water as a potable water supply.

Current Land Use. Currently, neither the surficial nor the intermediate aquifer is used as a potable or non-potable water source at Site 16.

Future Land Use. The domestic use of the surficial or intermediate aquifer (adult ingestion and inhalation of volatiles while showering) as part of a residential exposure scenario would be considered appropriate at Site 16 if the current land use was changed to residential use in the future. The surficial and intermediate aquifers are evaluated separately in the risk characterization because they are geologically distinct and exhibit different organic and inorganic contamination (Paragraph 4.2.4.5).

Exposure Point Concentration. The EPCs for HHCPCs for the surficial aquifer at Site 16 are presented in Table 4-15. The EPCs for HHCPCs for the intermediate aquifer at Site 16 are presented in Table 4-16.

4.2.3 Toxicity Assessment The purpose of the toxicity assessment is to identify the adverse effects that are associated with exposure to each analyte and to identify the relationship between level of exposure and severity or likelihood of adverse effects. The toxicity assessment methods are described in Subsection 4.1.4. Brief toxicity summaries for the HHCPCs appear in Appendix J. Dose-response information for HHCPCs is identified in Appendix K. This information was used to estimate the ELCR for carcinogens and the HI for all HHCPCs in the

risk characterization (Subsection 4.2.4). Dose-response values current as of November 1994 for IRIS and March 1994 for HEAST have been used in this HHRA. Uncertainties associated with chemical-specific toxicity values are discussed in Paragraph 4.2.5.3.

4.2.4 Risk Characterization Quantitative estimates of both carcinogenic and noncarcinogenic risks were calculated for each HHCPC and each complete exposure pathway selected for evaluation in the exposure assessment as described in Subsection 4.1.5. Risk estimates for potential exposures to surface soil, subsurface soil, surface water, sediment, and groundwater are discussed in Paragraphs 4.2.4.1. through 4.2.4.5. A summary of the risk estimates is provided in Table 4-17. Risk calculation spreadsheets are presented in Appendix I.

4.2.4.1 Surface Soil The risk characterization results are shown in spreadsheets I-1 through I-12 in Appendix I.

For current land use, the cancer risk associated with surface soil ingestion, dermal contact, and fugitive dust inhalation is 8×10^{-7} for the transient. The cancer risk for the site worker is 2×10^{-6} and the maintenance worker is 2×10^{-7}. For potential future land use, the resident cancer risk is 7×10^{-6}.

RGOs for the ELCR associated with the resident are presented in subsection 4.2.7. HIs could not be calculated for surface soil because toxicity values were not available for any of the HHCPCs.

4.2.4.2 Subsurface Soil The risk characterization results for subsurface soil are shown in spreadsheets I-13 and I-14 in Appendix I.

Exposure to subsurface soil is not occurring under current land use. For potential future land use, the cancer risk associated with subsurface soil ingestion, dermal contact, and fugitive dust inhalation is 3×10^{-9} for the excavation worker, which is below the USEPA acceptable risk range of 10^{-6} to 10^{-4}. The HI associated with the ingestion, dermal contact, and fugitive dust inhalation of Site 16 subsurface soil is 0.002, which is also below a level of concern.

4.2.4.3 Surface Water The risk characterization results for surface water are shown in spreadsheets I-15 through I-19 in Appendix I.

For current land use, the cancer risk associated with surface water ingestion and dermal contact in the drainage ditches associated with Site 16 is 3×10^{-6} for the transient wader. Under future land use, the cancer risk associated with surface water ingestion and dermal contact in the drainage ditches is 9×10^{-6} for the resident. The HIs associated with surface water ingestion and dermal contact for current and future land use are below 1 (adult and child transient and child and adult resident).

RGOs for the ELCR associated with the resident are presented in Subsection 4.2.7.

4.2.4.4 Sediment The risk characterization results for sediment are shown in spreadsheets I-20 through I-23 in Appendix I.

The cancer risk associated with sediment ingestion and dermal contact in the drainage ditches associated with Site 16 was not calculated because carcinogens

Table 4-17
Risk Summary

Baseline Risk Assessment
Operable Unit 7, NAS Cecil Field
Jacksonville, Florida

Land Use	Exposure Route	HI	ELCR
Future Land Use			
Surface soil:			
Adult resident	Incidental ingestion	ND	2×10^{-6}
	Dermal contact	ND	1×10^{-5}
	Inhalation of particulates	ND	ND
	Total adult resident:	**ND**	**3×10^{-5}**
Child resident	Incidental ingestion	ND	4×10^{-6}
	Dermal contact	ND	4×10^{-7}
	Inhalation of particulates	ND	ND
	Total child resident:	**ND**	**4×10^{-6}**
	Total resident:	**NC**	**7×10^{-6}**
Subsurface soil:			
Adult excavation worker	Incidental ingestion	0.002	3×10^{-9}
	Dermal contact	0.0001	2×10^{-10}
	Inhalation of particulates	ND	1×10^{-10}
	Total:	**0.002**	**3×10^{-9}**
Surficial aquifer:			
Adult resident	Ingestion of groundwater as drinking water	50	3×10^{-3}
	Inhalation of volatiles while showering	ND	4×10^{-4}
	Total adult resident:	**50**	**3×10^{-3}**
Intermediate aquifer:			
Adult resident	Ingestion of groundwater as drinking water	1	2×10^{-5}
	Inhalation of volatiles while showering	ND	ND
	Total adult resident:	**1**	**2×10^{-5}**

See notes at end of table.

Table 4-17 (Continued)
Risk Summary

Baseline Risk Assessment
Operable Unit 7, NAS Cecil Field
Jacksonville, Florida

Land Use	Exposure Route	HI	ELCR
Surface water:			
Adult resident (wader)	Incidental ingestion	0.04	4×10^{-7}
	Dermal contact	0.3	6×10^{-6}
	Total adult resident:	**0.3**	**6×10^{-6}**
Child resident (wader)	Incidental ingestion	0.2	5×10^{-7}
	Dermal contact	0.4	2×10^{-6}
	Total child resident:	**0.6**	**3×10^{-6}**
	Total resident:	**NC**	**9×10^{-6}**
Sediments:			
Adult resident (wader)	Incidental ingestion	0.002	NCar
	Dermal contact	0.01	NCar
	Total adult resident	**0.01**	**NCar**
Child resident (wader)	Incidental ingestion	0.02	NCar
	Dermal contact	0.02	NCar
	Total child resident:	**0.04**	**NCar**
	Total resident:	**NC**	**NCar**
Current Land Use			
Surface soil:			
Adult transient	Incidental ingestion	ND	9×10^{-8}
	Dermal contact	ND	6×10^{-8}
	Inhalation of particulates	ND	ND
	Total adult transient:	**ND**	**1×10^{-7}**
Child transient	Incidental ingestion	ND	4×10^{-7}
	Dermal contact	ND	2×10^{-7}
	Inhalation of particulates	ND	ND
	Total child transient:	ND	**6×10^{-7}**
	Total transient:	**NC**	**7×10^{-7}**

See notes at end of table.

Table 4-17 (Continued)
Risk Summary

Baseline Risk Assessment
Operable Unit 7, NAS Cecil Field
Jacksonville, Florida

Land Use	Exposure Route	HI	ELCR
Surface soil (continued):			
Adult site worker	Incidental ingestion	ND	1×10^{-6}
	Dermal contact	ND	8×10^{-7}
	Inhalation of particulates	ND	ND
	Total adult site worker:	ND	**2×10^{-6}**
Adult maintenance worker	Incidental ingestion	ND	1×10^{-7}
	Dermal contact	ND	8×10^{-9}
	Inhalation of particulates	ND	ND
	Total adult maintenance worker:	**ND**	**2×10^{-7}**
Surface water:			
Adult transient (wader)	Incidental ingestion	0.02	1×10^{-7}
	Dermal contact	0.1	2×10^{-6}
	Total adult transient	**0.1**	**2×10^{-6}**
Child transient (wader)	Incidental ingestion	0.003	1×10^{-7}
	Dermal contact	0.2	1×10^{-6}
	Total child transient:	0.2	1×10^{-6}
	Total transient:	**NC**	**3×10^{-6}**
Sediment:			
Adult transient (wader)	Incidental ingestion	0.0004	NCar
	Dermal contact	0.005	NCar
	Total adult transient	**0.006**	**NCar**
Child transient (wader)	Incidental ingestion	0.0007	NCar
	Dermal contact	0.006	NCar
	Total child transient:	**0.007**	**NCar**
	Total transient:	**NC**	**NCar**

Notes: HI = hazard index.
ELCR = excess lifetime cancer risk.
ND = no toxicity values available for calculation.
NC = not calculated because child and adult hazard indices are not additive.
NCar = not calculated because carcinogens were not selected as HHCPCs.

were not selected as HHCPCs (Table 4-7). The HIs associated with sediment ingestion and dermal contact for current and future land use are below 1 (adult and child transient and child and adult resident).

4.2.4.5 **Groundwater** The risk characterization results for unfiltered groundwater are shown in spreadsheets I-24 through I-29 in Appendix I. The surficial aquifer results are shown in spreadsheets I-24 through I-26 in Appendix I. The surficial aquifer results are shown in spreadsheets I-27 through I-29 in Appendix I.

Surficial Aquifer. There is no exposure to water from the surficial aquifer under current land use. The cancer risks associated with potential future domestic use of groundwater (ingestion and inhalation exposure to VOCs during showering) is 3×10^{-3} for the future adult resident. The major contaminant contributing cancer risk to the ELCR for the resident is 1,1-dichloroethene (ELCR = 3×10^{-3}) (adult resident ingestion). As shown in Table 4-17, cancer risks from potential inhalation of VOCs while showering do not contribute significantly to the total cancer risk estimates.

The HI associated with domestic use of groundwater under potential future land use is 50. Major contributors to this HI are 1,2-dichloroethene (HQ = 38), 1,1-dichloroethene (HQ = 1.2), trichloroethene (HQ = 2.5), antimony (HQ = 1.1), and thallium (HQ = 1.8) (via ingestion).

RGOs for the ELCR and HI associated with the resident are presented in Subsection 4.2.7.

Intermediate Aquifer. There is no exposure to water from the intermediate aquifer under current land use. The cancer risks associated with potential future domestic use of groundwater (ingestion and inhalation exposure to VOCs during showering) is 2×10^{-6} for the future adult resident. The only contaminant contributing cancer risk to the ELCR for the resident is the common laboratory contaminant bis(2-ethylhexyl)phthalate (adult resident ingestion). As shown in Table 4-17, cancer risks from the potential inhalation of VOCs while showering were not calculated.

RGOs for the ELCR associated with the resident are presented in subsection 4.2.7.

The HI associated with domestic use of groundwater under potential future land use is 1. The major contributors to this HI are antimony (HQ = 0.7) and manganese (HQ = 0.3) (via ingestion).

4.2.5 Uncertainty Analysis General uncertainties associated with the collection, analysis and evaluation of data, exposure assessment, toxicity assessment, and the risk estimation process were discussed in Subsection 4.1.6. Site-specific uncertainties that are important for the interpretation of the calculated risk estimates at Site 16 are presented below for surface soil, subsurface soil, surface water, sediment, and groundwater.

4.2.5.1 **Data Evaluation** A certain amount of uncertainty is associated with the representative nature of the data collected to complete the risk evaluation at Site 16. As noted in the RI (ABB-ES, 1995), data were collected to best represent the current conditions at Site 16 in surface soil, subsurface soil, surface water, sediment, and groundwater. The data were not collected randomly,

but were biased to characterize the contamination in media associated with historic waste disposal activities at Site 16. The data collected at Site 16 are believed to be representative of the current media conditions (ABB-ES, 1995).

Surface Soil. The samples of surface soil at Site 16 were purposely collected outside of the area of excavation (Figure 3-2) so that clean fill would not be evaluated in the RI and BRA. For this reason, the surface soil sampling results are not biased low. Of the 44 contaminants detected onsite, 11 HHCPCs were selected for evaluation (see). Some of the organic contaminants that were detected in the surface soil at Site 16, especially PAHs, would be expected in an industrialized area near the NAS Cecil Field flightline. (PAHs are common air emission products of combustion processes.) The presence of PAHs does not necessarily indicate that the PAHs are associated with historic activity at Site 16.

Subsurface Soil. Subsurface soil samples were collected at and near Site 16 for the RI and HHRA (Figure 3-3). Of the 47 contaminants detected onsite, 4 HHCPCs were selected for evaluation (see Table 4-5). Some of the organic contaminants that were detected in the subsurface soil at Site 16, especially PAHs and pesticides, would be expected in an industrialized area near the NAS Cecil Field flightline. The presence of PAHs and pesticides does not necessarily indicate that these organics are associated with historic activity at Site 16.

Surface Water and Sediment. During the 1993 field event, samples were collected at three stations in the drainage ditches east of the runways and at one reference station located upstream in Sal Taylor Creek. Two of the sampling stations (STCSW/SD-1 and STCSW/SD-3; Figure 3-4) are located in the two ditches east of Site 16 and west of Sal Taylor Creek. The two ditches are adjacent to storm sewers 1 and 2 (Figure 2-5) located approximately 500 feet east of the runway. The drainage ditches extend 500 to 600 feet in length before they merge into one ditch where the third sampling station (STCSW/SD-4; Figure 3-4) is located. The ditches receive stormwater drainage from the runway area and much of the developed area west of the runways (including Site 17) and carry the stormwater approximately 2,400 feet to Sal Taylor Creek. Because the storm sewers that discharge to these drainage ditches collect water from industrial areas in addition to Site 16, the origin of contamination in the ditches may not be attributable to Site 16.

Groundwater. Uncertainty is associated with the representative nature of the data collected to complete the risk evaluation for groundwater. Generally, turbidity in the unfiltered groundwater samples was minimal. However, filtered data were collected at specific sample locations (16MW10S, 16MW11DD, 16MW12I, 16MW20D, 16MW22I, 16MW27I, 16MW28D, 16MW32S, 16MW33D, 16MW34DD, 16MW5S, 16MW7S, and 16MW9D). The filtered data were collected because high turbidity was associated with the unfiltered samples at the same locations. The filtered data were not used in the HHRA. Some of the unfiltered data used in the HHRA are, therefore, expected to contain some high inorganic concentrations as a result of suspended solids from the specific sample locations. Thus, the results may be biased high and cause overestimation of risk to inorganics.

Surficial Aquifer. In the HHRA, the monitoring wells in the surficial aquifer were selected for evaluation on the basis of the presence or absence of an organic plume (USEPA, 1991c). A plume was associated with Site 16 in the surficial aquifer system (ABB-ES, 1995). Because a plume was identified, only

those monitoring wells in the organic plume were used to evaluate groundwater in the HHRA. This method of selecting monitoring wells for evaluation at a site may underestimate the risk associated with inorganic contaminants but did not in the case of Site 16.

In regard to arsenic detected in the surficial aquifer (concentration range of 3.6 to 56.2 $\mu g/\ell$ detected in 10 of 21 samples selected for use in the HHRA), Florida has been documented to have a relatively high background or baseline concentrations of arsenic in soil, groundwater, and sediment. One possible explanation for these elevated concentrations is believed to be linked to historic land use in Duval County (Phillips and Beatty, 1992; Maddox and others, 1992). In the early 1900s, the Duval County area was used for agricultural purposes. An outbreak of the Texas tick among cattle in the area occurred in the 1920s. To control the spread of the insect, farmers were required to dip their herds in an insecticide containing arsenic. Typically, dipping occurred in shallow unlined pits on a farmer's land. Reportedly, there were thousands of such pits in Duval County during the outbreak. Exact locations of the pits are unknown. It is reported that this activity has contributed to persistent arsenic contamination at concentrations that could be considered baseline for the county area. These issues make it difficult to positively identify that the source of arsenic in groundwater at Site 16 is a result of historic industrial activity.

The reporting limit for arsenic in groundwater was 10 $\mu g/\ell$. Although this limit is well above the risk-based screening concentration of 0.038 $\mu g/\ell$, the detected concentrations of arsenic in the surficial aquifer ranged from 3.6 $\mu g/\ell$ to 56.2 $\mu g/\ell$ (frequency of detection: 10/21); the exposure point concentration was 10.8 $\mu g/\ell$. The exposure point of concentration is less than the MCL of 50 $\mu g/\ell$.

The reporting limit for antimony in groundwater was 60 $\mu g/\ell$. Although this limit is above the risk-based screening concentration of 1.5 $\mu g/\ell$, the detected concentrations in the surficial aquifer ranged from 2.2 $\mu g/\ell$ to 16.05 $\mu g/\ell$ (frequency of detection: 3/21) and the exposure point concentration was 16.1 $\mu g/\ell$.

With detected concentrations well below the reporting limit and with some of those detected concentrations below the MCL of 6 $\mu g/\ell$, the elevated reporting limit is more reflective of a published reporting requirement than an indicator of the reporting limit for these samples. Therefore, very little uncertainty is associated with the reporting limit for antimony.

Tentatively Identified Compounds (TICs). As their designation implies, the presence of TICs has not been established with a degree of certainty great enough to warrant their inclusion in the HHRA for any medium at Site 16. The relative number of TICs is low in comparison to the contaminants detected using the TCL and TAL methods. Further, there are little toxicity data available to evaluate the potential health effects of these analytes even if they were considered for quantitative evaluation. The inability to evaluate TICs in the HHRA may result in a potential underestimation of the health risks associated with the use of media at Site 16 under current and future land uses.

4.2.5.2 **Selection of CPCs** Although USEPA criteria have been used in selecting HHCPCs at Site 16, there are uncertainties in the general selection process based on the use of a risk based screening and comparison to inorganic concentrations at reference locations (Paragraph 4.1.6.2). There are also additional site-

specific issues at Site 16 (surficial and intermediate aquifers) and concern about the omission of potentially appropriate screening tools.

Surficial Aquifer. Both 1,1,1-trichloroethane and 1,1-dichloroethene were retained as HHCPCs because of their historical use at Site 16. This was a conservative measure designed to protect human health. Each chemical, however, could have been eliminated from the list of HHCPCs because of its low frequency of detection (FOD) (less than 5 percent).

Intermediate Aquifer. Under normal circumstances, some analytes would be excluded from the intermediate aquifer assessment by a comparison to upgradient inorganic concentrations. Background (upgradient) was not considered during the selection of HHCPCs for the intermediate aquifer. The HHCPC selection for the intermediate aquifer was, therefore, conservative.

Available Criteria. Available criteria for groundwater, surface soil, and subsurface soil are considered in Appendices L through M for Site 16. The maximum detected concentrations for each chemical detected in the surficial aquifer (Table L-1), the intermediate aquifer (Table L-2), surface soil (Table M-1), and subsurface soil (Table M-2) were compared to available criteria (See Paragraph 4.1.7.1). If this type of comparison had been used to supplement the HHCPC selection process (Subsection 4.1.2), it would not have resulted in the selection of a different set of HHCPCs for the surficial aquifer, intermediate aquifer, surface soil, or subsurface soil.

4.2.5.3 **Exposure Assessment** Residential land use was the assumed future land use scenario according to USEPA Region IV guidance (USEPA, 1991c). It is likely, however, that the area near Site 16 will remain industrial after base closure because of the physical plant value (e.g., utilities and runways).

Surface Soil. The exposure scenarios and exposure parameters selected for the evaluation of Site 16 surface soil (Appendix H, Tables H-1 and H-8) are considered conservative because they address realistic current exposures and a reasonable maximal exposure for future land use (future resident). Based on the selection of these exposure scenarios and the associated exposure parameters, the calculated risks are sufficiently conservative to state that the risk estimates associated with surface soil at Site 16 are overestimates of what an individual might be exposed to under current or future land use.

Surface Water. The exposure scenarios and exposure parameters selected for the evaluation of Site 16 surface water are presented in Appendix H, Tables H-11 and H-12.

Wading Scenario. There is high confidence that swimming is not a realistic recurring pathway based on the topography of the drainage ditches leading to Sal Taylor Creek adjacent to Site 16 (see Paragraph 4.2.5.1). The depth of the ditches at the sampling stations ranges from approximately 0.3 to 1.0 meter and width ranges from approximately 1 to 5 meters (EA, 1994). The evaluation of a wading scenario (for exposure to both surface water and sediment) has been completed to provide a realistic pathway for current and future land use. However, the wading scenario was completed in a manner that probably overestimates risk by selecting exposure parameters from guidance for swimming exposures.

The exposure frequency used in the current land use wading scenario was 45 days per year as recommended by USEPA Region IV for swimming exposure (USEPA, 1991d). This frequency reflects the number of days that a transient might use the recreational waters and is likely an overestimate for a trespasser exposure because of the location of the ditches (Figure 3-4). The exposure frequency used in the future land use wading scenario is 100 days per year, and exceeds the USEPA suggested frequency.

The ingestion rate (0.13 liter per day [ℓ/day]) reflects conservative assumptions used in swimming scenarios. The ingestion rate is the product of an exposure time of 2.6 hours per day and a 50 milliliters per hour (mℓ/hour) (USEPA, 1989b) surface water consumption value. The dermal surface area exposed to surface water while wading is age-adjusted in accordance with USEPA guidance (1992a) and is limited to skin surfaces that are commonly exposed during wading (e.g., hands, feet, and legs) for children and adults. This is the greatest deviation from normal swimming scenario exposure parameters.

Fish Consumption. Fish that might be consumed by humans are not currently present in drainage ditches associated with Site 16. Fish tissue samples were not available from the drainage ditches or Sal Taylor Creek for the Site 16 HHRA. Concentrations of contaminants in fish that could be consumed by humans were not estimated because lipophilic compounds (i.e., DDT and mercury) that commonly accumulate in fish tissue were not detected in the surface water or sediment collected in the drainage ditches (Tables 4-6 and 4-7).

Sediment. The exposure scenarios and exposure parameters selected for the evaluation of Site 16 sediment are presented in Appendix H, Tables H-13 and H-14.

Wading Scenario. The evaluation of a wading scenario for both exposure to surface water and sediment has been completed to provide a realistic pathway, but it has been completed in a conservative manner as previously in the section on surface water (Subsection 4.2.5.3).

The exposure parameters used in the wading scenario were primarily selected from guidance on swimming exposures as mentioned earlier in Subsection 4.2.5.3. For consumption of sediment by a child, it was assumed that a child would consume 200 mg/day of sediment during each exposure (USEPA, 1991d). This estimate of the daily inadvertent sediment ingestion is an assumption that the sediment intake rate is equal to the daily soil ingestion rate. There are actually very little data available concerning actual sediment ingestion rates in children and this assumption is probably an overestimate for a wading exposure.

4.2.5.4 Toxicity Assessment This section addresses chemical-specific uncertainties associated with the evaluation of risk in this assessment. Site- and media-specific applications of these uncertainties are addressed below for arsenic, lead, and manganese under each media as appropriate. The lack of inhalation toxicity values is also discussed.

Surface and Subsurface Soil.

Lead. Currently, there are no suitable dose-response values for assessing the risks associated with exposure to lead in soil. The USEPA Superfund program has issued a directive that sets soil lead screening levels at 400 to 1,000 mg/kg (USEPA, 1994f). Risk from exposure to lead was not quantitatively evaluated because concentrations in surface and subsurface soil at Site 16 are below 400 mg/kg.

Surficial and Intermediate Aquifer.

Lead. Currently, there are no suitable dose-response values for assessing the risks associated with exposure to lead in groundwater. The USEPA Office of Water has issued an action level of 0.015 milligram per liter (mg/ℓ) for groundwater in the May 1994 Drinking Water Regulations and Health Advisories (USEPA, 1994b). Risk from exposure to lead is not quantitatively evaluated because concentrations in both the surficial and intermediate aquifer are below 0.015 mg/ℓ.

Surficial Aquifer.

Arsenic. The arsenic CSF is a source of uncertainty in the HHRA for the surficial aquifer because concentrations of arsenic that tend to be present in the regional area surrounding NAS Cecil Field are high enough to consistently cause arsenic to be a significant contributor to cancer risks. There are two CSFs associated with ingested inorganic arsenic, an unmodified CSF ($[1.75\ mg/kg/day]^{-1}$) and a modified CSF ($[0.175\ mg/kg/day]^{-1}$). Either CSF may be used to evaluate cancer risk associated with arsenic. The more conservative approach has been used in this document, but it may provide an overestimate of the risk associated with ingested arsenic. The use of the modified CSF ($0.175\ mg/kg/day]^{-1}$) would have resulted in lower calculated risks.

Intermediate Aquifer.

Manganese. The RfD used to evaluate the non-cancer risks associated with the ingestion of manganese in drinking water may result in overestimates in the evaluation of the intermediate aquifer. The RfD for manganese was recently revised by USEPA and it is based on an epidemiological study with considerable uncertainty. The HHRA also uses the newly revised RfD and, as a result, may be an overestimation of the risks associated with manganese in drinking water.

The manganese drinking water RfD of 5×10^{-3} mg/kg-day is based on a single epidemiological study conducted in Greece (Kondakis and others, 1989). The critical study assessed neurological function in an adequate number of individuals residing in three geographically distinct areas of Greece, each area with significantly different levels of manganese endemic to the local water supply. The study failed to investigate and quantitate other dietary sources of manganese in the study groups. The levels of manganese in locally grown produce and livestock can be presumed to reflect the local concentration of manganese in the water supply (i.e., the high manganese area would also have local food with higher levels of manganese than the areas with lower water levels). This study flaw may have resulted in the establishment of an oral drinking water RfD that

is artificially low. Additionally, the study assessed neurological function only in individuals older than 50 years of age. The neurological degeneration documented to be produced by high chronic manganese consumption are non-specific in nature and may in fact be produced by a number of other neurological diseases, such as Parkinsonism and Alzheimer's disease, which increase in prevalence with age. The failure of this study to control for the presence of other neurological disease or for patients with a family history of neurological disease lends uncertainty to the cause-and-effect relationship of manganese to the toxic endpoint assessed.

Lack of Inhalation Toxicity Values. In some cases, inhalation RfDs and CSFs are not available for HHCPCs being evaluated for inhalation exposures (fugitive dust and volatiles while showering). For example, inhalation CSFs are not currently available for many PAHs, some of which have been implicated in causing cancer and other toxic effects via the inhalation route. Risks associated with inhalation exposures for those compounds cannot be quantified and are, therefore, underestimated. However, exposures associated with inhalation are often orders of magnitude lower than the corresponding ingestion and dermal exposures. The magnitude of underestimation of risk because of the lack of inhalation toxicity values is, therefore, minor.

4.2.5.5 Risk Characterization A mixture of analytes is present in each medium evaluated. The USEPA's Guidelines for the Health Risk Assessment of Chemical Mixtures (USEPA, 1986) states that if sufficient data are not available on the effects of the chemical mixture of concern, or a reasonably similar mixture, additivity of effects for constituents of the mixture should be assumed (Paragraph 4.1.6.6). In calculating HI values in this HHRA, additivity was assumed, but in some cases the analytes in a mixture have significantly different toxic mechanisms of action and affect different organs. In these cases, the overall HI likely overestimates non-cancer risks. This is especially relevant for the HI calculated for the surficial and intermediate aquifers.

Surficial Aquifer. The HI calculated for the surficial aquifer was 50. This HI was partially attributable to 1,1,1-trichloroethane, 1,2-dichloroethene, trichloroethene, antimony, and thallium. A wide range of chronic effects is present in the main contributors to the HI of 50 in the surficial aquifer: 1,1,1-trichloroethane (depression of the central nervous system and adverse cardiovascular effects), 1,2-dichloroethene (depression of the central nervous system, and toxicity to liver and lungs), trichloroethene (neurotoxic effects), antimony (adverse cardiovascular effects), and thallium (cataracts, peripheral muscular weakness and atrophy, peripheral neuropathy, and kidney damage). The application of additivity may or may not be appropriate for some or all of these chronic toxicants. The risk associated with each of the five HHCPCs is, however, unacceptable (for example, each has an HQ > 1). Concern over the contamination in the surficial aquifer (in regard to chronic health effects) is, therefore, warranted regardless of whether the additivity of each of the HHCPCs is appropriate.

Intermediate Aquifer. The HI calculated for the intermediate aquifer was 1. This HI was attributable to antimony and manganese. A range of chronic effects is present in the two contributors to the HI of 1 in the intermediate aquifer: antimony (adverse cardiovascular effects) and manganese (toxicity to the lungs and central nervous system). It is unlikely that these two HHCPCs are additive because their target organs are different for chronic health effects. Concern

over the contamination in the intermediate aquifer (in regard to chronic health effects) may, therefore, not be warranted because the additivity of antimony and manganese is not appropriate.

4.2.6 Comparison to Available Criteria Available criteria for groundwater (USEPA, 1994b; FDEP, 1994b), surface soil (FDEP, 1994a), and subsurface soil (FDEP, 1994a) were considered in the HHRA for Site 16. The maximum detected concentrations for each chemical detected in the Site 16 surficial aquifer (Table L-1), intermediate aquifer (Table L-2), surface soil (Table M-1), and subsurface soil (Table M-2) were compared to the available criteria (Paragraph 4.1.7.1).

Groundwater. In the surficial aquifer, the maximum detected concentration of 1,1,1-trichloroethane, 1,1-dichloroethene, 1,2-dichloroethene, trichloroethene, bis(2-ethylhexyl)phthalate, aluminum, antimony, arsenic, iron, manganese, and thallium exceeded their respective Federal MCL, Florida standard, and Florida guidance values (Appendix L, Table L-1)). Each of these chemicals was retained as an HHCPC in the surficial aquifer because it was detected at a concentration that exceeded background (upgradient) or risk-based screening concentrations.

In the intermediate aquifer, the maximum concentrations of bis(2-ethylhexyl)-phthalate (a common laboratory contaminant), antimony, iron, and manganese exceeded their respective Federal MCL, Florida standard, and Florida guidance values (Appendix L, Table L-2)). Each of these chemicals was retained as an HHCPC (except iron) in the intermediate aquifer because it was detected at a concentration that exceeded a risk-based screening concentration. Iron was not selected as an HHCPC because it is an essential nutrient.

Soil. In surface soil, the maximum detected concentration of benzo(a)pyrene exceeds the Florida leaching value (Appendix M, Table M-1).

In subsurface soil, the maximum concentrations of acetone, methylene chloride, phenol, and trichloroethene exceed their available FDEP guidance concentrations for leaching to groundwater (Appendix M, Table M-2). This comparison was conducted because subsurface soil may be contributing to the contamination in the surficial aquifer. It should be noted that acetone (FOD = 4/24) and methylene chloride (FOD = 10/24) are both common laboratory contaminants.

TPH. TPH data were collected from surface and subsurface soil samples as well as sediment samples at Site 16. The TPH value for each sample location has been compared to the available Florida guidance value of 50 mg/kg developed for thermally treated soil contaminated with TPH (Florida Legislation, 1992a) in Table N-1 of Appendix N.

Surface and subsurface soil near the holding tank and seepage pit and sediment in the drainage ditches east of the runways exceed the 50 mg/kg guidance value at one or more sample locations. However, the source of the TPH in surface soil may not be the result of waste placed in the holding tank or seepage pit. The source may be the result of fuel or lubricants from heavy equipment operating on-site during the removal of soil during the IRA (ABB-ES, 1995). TPH in sediment east of the runways may result from sources other than Site 16 such as runway and industrial operations that discharge surface runoff to the storm drains that discharge to the drainage ditches.

4.2.7 **Remedial Goal Options** This section presents potential media cleanup levels at various human health risk targets. These potential media cleanup levels are not intended to be actual cleanup levels; rather, they are presented as alternatives to evaluate during the Feasibility Study. As previously discussed in Subsection 4.1.7, potential media cleanup goals are calculated for HHCPCs with incremental lifetime cancer risks above 1 in 1,000,000 and/or media with a total HI greater than 1.

Groundwater Potential medium cleanup levels have been developed for bis(2-ethylhexyl)phthalate, the only HHCPC that contributes a cancer risk greater than 10^{-6} to the ELCR of $2x10^{-6}$ for unfiltered groundwater from the intermediate aquifer. The potential cleanup levels are presented in Table 4-18. The maximum detected concentration of bis(2ethylhexyl)phthalate (a common laboratory contaminant) exceeds the Federal primary MCL and the Florida primary standard.

Potential medium cleanup levels have been developed for those HHCPCs that contribute cancer risk greater than 10^{-6} to the ELCR of $3x10^{-3}$ for unfiltered groundwater form the surficial aquifer (1,1-dichloroethene, trichloroethene, bis-2(ethylhexyl)phthalate, and arsenic) and for those HHCPCs that contribute an HQ greater than 0.1 to the HI of 50 for the surficial aquifer (1,1-dichloroethene, 1,2-dichloroethene, trichloroethene, aluminum, antimony, arsenic, manganese, and thallium). The potential medium cleanup levels are presented in Table 4-18. The maximum detected concentrations of 1,1-dichloroethene, 1,2-dichloroethene, trichloroethene, bis(2-ethylhexyl)phthalate, aluminum, antimony, and thallium exceed their respective Federal MCLs and Florida standards.

The cancer risk associated with arsenic in the surficial aquifer exceeds 10^{-4} and the HQ exceeds 0.1; however, the exposure point concentration of 10.8 $\mu g/\ell$ does not exceed 0.1, but the exposure point concentration of 10.8 $\mu g/\ell$ does not exceed its Federal MCL (50 $\mu g/\ell$) or Florida standard (50 $\mu g/\ell$).

Bis(2-ethylhexyl)phthalate is a common laboratory and sampling contaminant that was detected in background groundwater samples. In addition, although the risk-based potential cleanup level associated with an ELCR of 10^{-6} for bis(2-ethylhexyl)phthalate is 6 $\mu g/\ell$ and the Federal primary MCL and Florida primary standard are both 6 $\mu g/\ell$, the CRDL/CRQL is 10 $\mu g/\ell$. Actual cleanup may be limited to the level of detection.

The risk-based potential cleanup level associated with an HQ of 0.1 for antimony is 1.46 $\mu g/\ell$, but the Federal MCL and Florida primary standard are both 6 $\mu g/\ell$.

Although the risk-based potential cleanup level associated with an HQ of 0.1 is 0.3 $\mu g/\ell$ for thallium and the Federal MCL and Florida primary standard are both 2 $\mu g/\ell$ the CRDL/CRQL is 10 $\mu g/\ell$. The exposure point concentration for thallium is 5.4 $\mu g/\ell$. Actual cleanup may be limited to the level of detection.

Iron and 1,1,1-trichloroethae are presented in Table 4-18 because their maximum detected concentrations exceeded the respective Federal MCLs and Florida primary standards (see Appendix L, Table L-1).

Surface soil Potential medium cleanup levels have been developed for benzo(a)-pyrene, the only HHCPC that contributes a cancer risk greater than 10^{-6} to the ELCR of $7x10^{-6}$ for residential exposure to surface soil. They are presented in Table 4-19. Although the risk-based potential cleanup level associated with an

Table 4-18
Summary of Remedial Goal Options for Groundwater Associated with Site 16

Baseline Risk Assessment
Operable Unit 7, NAS Cecil Field
Jacksonville, Florida

Contaminant	Exposure Point Concentration [1]	Excess Lifetime Cancer Risk, Risk Range			Hazard Quotient, Risk Range			Federal Primary MCL [2]	Florida Primary Standard [3]
		10^{-4}	10^{-5}	10^{-6}	0.1	1	10		
Surficial Aquifer (µg/ℓ)									
Resident, future land use [4]									
1,1,1-Trichloroethane [a]	3,000	NA	NA	NA	ND	ND	ND	200	200
1,1-Dichloroethene	400	12.7	1.27	0.127	33.3	333	3,330	7	7
1,2-Dichloroethene	12,450	NA	NA	NA	32.8	328	3,280	[5] 70	[5] 70
Trichloroethene	630	649	64.9	6.49	25.2	252	2,520	5	3
bis(2-Ethylhexyl)phthalate	10.2	600	60	6	NA	NA	NA	6	6
Aluminum	7,970	NA	NA	NA	3,623	36,227	362,270	[5] 200	[7] 200
Antimony	16.1	NA	NA	NA	1.46	14.6	146	6	6
Arsenic	10.8	4.9	0.49	0.049	1.09	10.9	109	50	50
Iron [a]	3,330	NA	NA	NA	ND	ND	ND	[6] 300	[7] 300
Manganese	46.1	NA	NA	NA	18.4	184	1,840	[6] 50	[7] 50
Thallium	5.4	NA	NA	NA	0.3	3	30	2	2
Intermediate Aquifer (µg/ℓ)									
Resident, future land use [4]									
bis(2-Ethylhexyl)phthalate	10	600	60	6	NA	NA	NA	6	6

[1] Exposure point concentrations are presented in Table 4-15.
[2] Federal primary maximum contaminant levels (MCLs) are taken from U.S. Environmental Protection Agency (USEPA) Drinking Water Regulations and Health Advisories (May 1994).
[3] Florida primary standards are taken from Chapter 1 (primary standards) of the Florida Department of Environmental Protection (FDEP) Groundwater Guidance Concentrations (June 1994).
[4] Ingestion of drinking water and inhalation of vapors (if applicable).
[5] Primary MCL is for cis-1,2-dichloroethylene.
[6] Value is a Federal secondary MCL.
[7] Value is a Florida secondary MCL.
[a] Analyte was selected as a human health chemical of potential concern (HHCPC) for groundwater because the maximum detected concentration exceeded the groundwater background screening concentration or the available risk based screen (Table 4-8). However, toxicity values were not available for the calculation of risk; therefore, remedial goal options (RGOs) are not presented.

Notes: Concentrations are presented in micrograms per liter (µg/ℓ).
MCL = maximum contaminant level.
NA = not applicable.
ND = no data.

Table 4-19
Summary of Remedial Goal Options for Surface Soil Associated with Site 16

Baseline Risk Assessment
Operable Unit 7, NAS Cecil Field
Jacksonville, Florida

Contaminant	Exposure Point Concentration [1]	Excess Lifetime Cancer Risk, Risk Range			Hazard Quotient, Risk Range			Florida Cleanup Goal [2]
		10^{-4}	10^{-5}	10^{-6}	0.1	1	10	
Surface Soil (µg/kg)								
Resident, future land use								
Benzo(a)pyrene	310	7,000	700	70	ND	ND	ND	100

[1] Exposure point concentrations are presented in Table 4-11.
[2] Florida Cleanup Goals (September 19, 1995) are provided in Appendix D.

Notes: µg/kg = micrograms per kilogram.
ND = no data.

ELCR of 10^{-6} is 70 μg/kg and the Florida Cleanup Goal is 100 μg/kg, the CRDL/CRQL for benzo(a)pyrene is 200 μg/kg. Actual cleanup may be limited to the level of detection.

Surface water Potential medium cleanup levels have been developed for those HHCPCs that contribute a cancer risk greater than 10^{-6} to the ELCR of $9x10^{-6}$ for residential exposure to surface water (beryllium and trichloroethene). They are presented in Table 4-20. Although the risk-based potential cleanup level associated with an ELCR of 10^{-6} is 0.07 μg/ℓ for beryllium, the CRDL/CRQL for beryllium is 5 μg/ℓ. Actual cleanup may be limited to the level of detection.

Table 4-20
Summary of Remedial Goal Options for Surface Soil Associated with Site 16

Baseline Risk Assessment
Operable Unit 7, NAS Cecil Field
Jacksonville, Florida

Contaminant	Exposure Point Concentration [1]	Excess Lifetime Cancer Risk, Risk Range			Hazard Quotient, Risk Range		
		10^{-4}	10^{-5}	10^{-6}	0.1	1	10
Surface Water (μg/ℓ)							
Resident, future land use							
Beryllium	0.49	7	0.7	0.07	NA	NA	NA
Trichloroethene (TCE)	20	950	95	9.5	NA	NA	NA

[1] Exposure point concentrations are presented in Table 4-13.

Notes: μg/ℓ = micrograms per liter.
NA = not available.

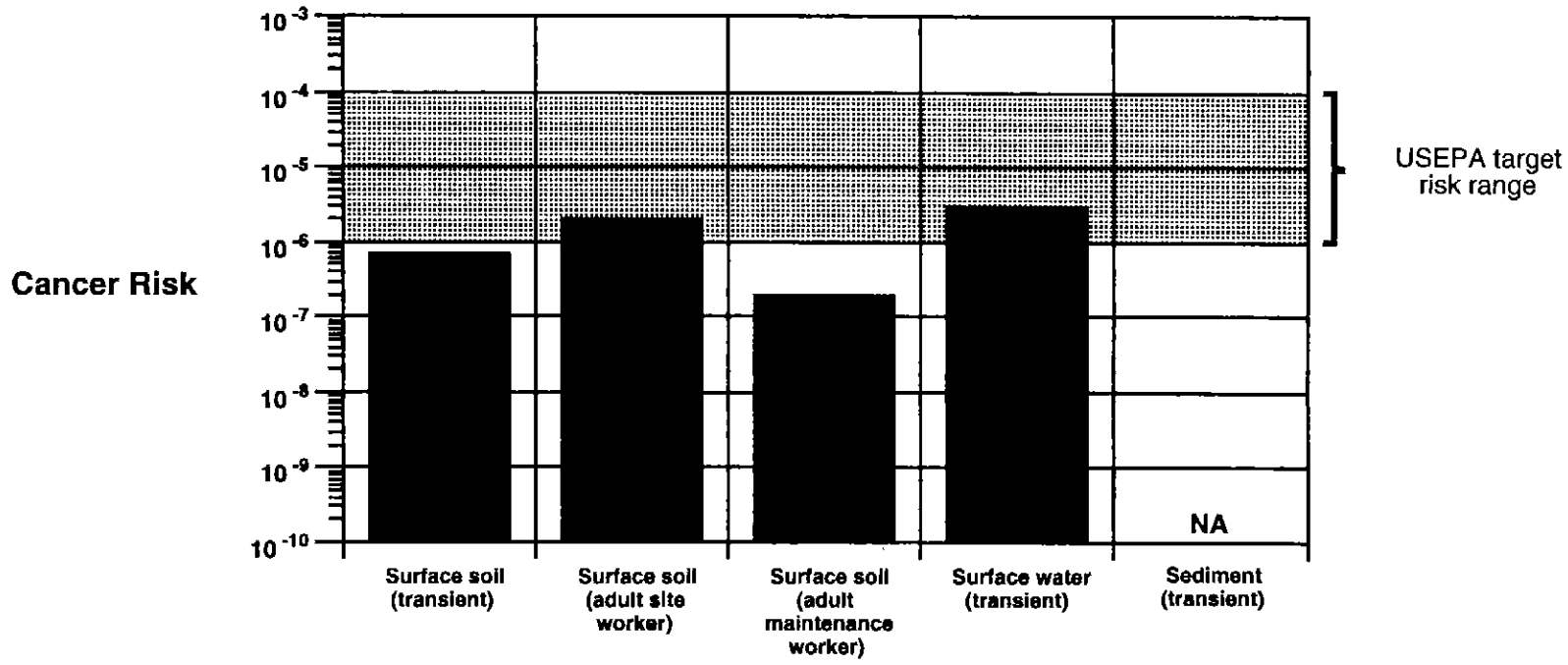
4.2.8 Summary The purpose of the HHRA at Site 16 was to characterize the risks associated with the potential exposures to site-related contaminants. Potential health risks were evaluated under current and assumed future land use conditions for a subset of contaminants detected in surface soil, subsurface soil, surface water, sediment, and groundwater (surficial and intermediate aquifers) associated with Site 16 (Table 4-3). The chemicals chosen were selected because they are the most likely chemicals to cause adverse health effects.

Current Land Use. All cancer (Figure 4-2) and noncancer risks (Figure 4-3) for current land use are consistent with USEPA guidelines, established in the NCP, that indicate that the excess lifetime cancer risk due to exposure to the HHCPCs at a site, by each complete exposure pathway, should not exceed a range of $1x10^{-6}$ to $1x10^{-4}$ (USEPA, 1990a) or an HI of 1.

However, cancer risks for surface soil and surface water under current land use exceed FDEPs cancer risk threshold of $1x10^{-6}$ (ABB-ES, 1995).

In surface soil, the only contaminant contributing a cancer risk greater than $1x10^{-6}$ under current land use conditions (site worker) is benzo(a)pyrene ($1.3x10^{-6}$).

Cancer Risk Summary, Current Land Use



NA = No carcinogens were selected as Human Health Chemicals of Potential Concern in sediment.

FIGURE 4-2

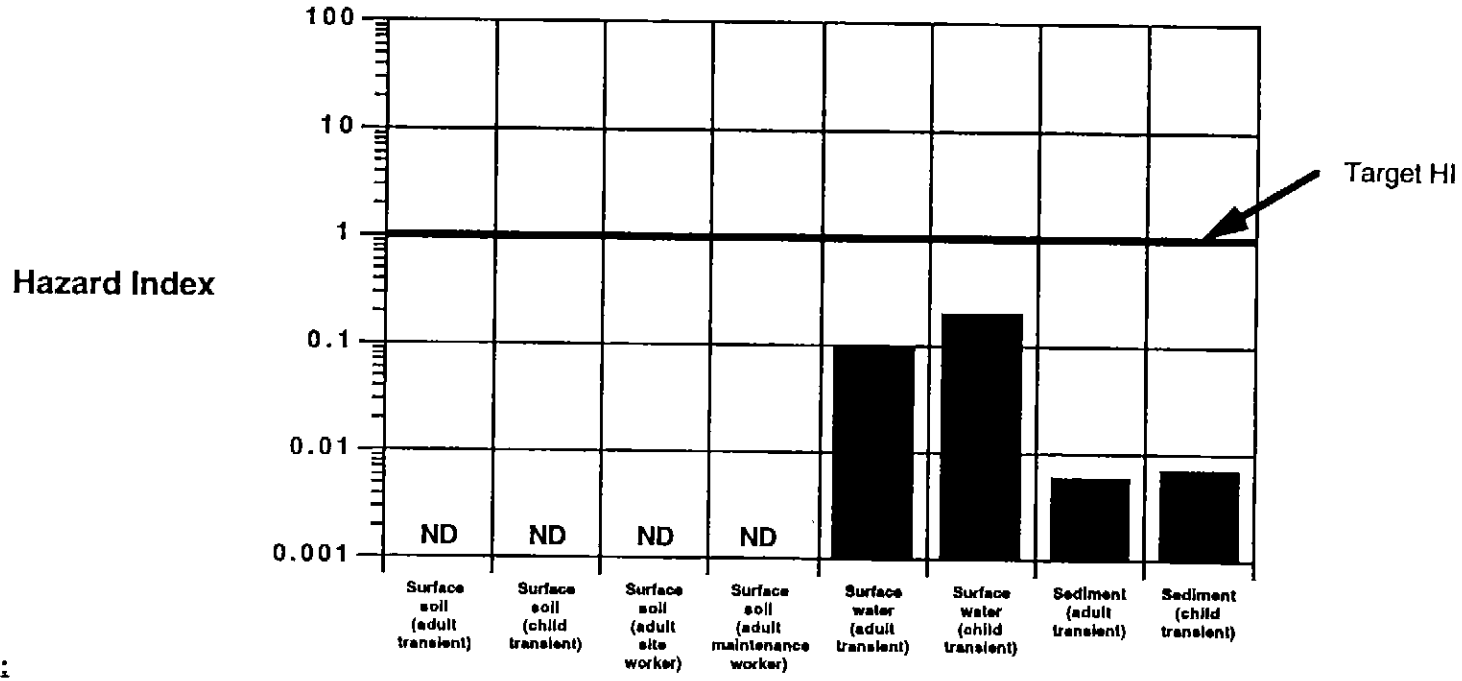
CANCER RISK SUMMARY, CURRENT LAND USE

BASELINE RISK ASSESSMENT, OPERABLE UNIT 7

NAS CECIL FIELD
JACKSONVILLE, FLORIDA

8500-12 950310WEM

Hazard Index Summary, Current Land Use



NOTES:

ND = No toxicity values were available for the HHCPCs.

FIGURE 4-3
HAZARD INDEX SUMMARY,
CURRENT LAND USE

BASELINE RISK ASSESSMENT,
OPERABLE UNIT 7

NAS CECIL FIELD
JACKSONVILLE, FLORIDA

8500-12 FIG 4-3 111395MAW

In surface water, the only contaminant contributing a cancer risk greater than $1x10^{-6}$ under current land use (adult and child transient) is beryllium ($2.6x10^{-6}$).

Future Land Use. Cancer and noncancer risks in surface soil, subsurface soil, surface water, sediment, and the intermediate aquifer under future residential land use assumptions are consistent with acceptable risks as described by USEPA (USEPA, 1990a).

Only the surficial aquifer exceeds the USEPA exposure levels. The cancer risk estimate for the surficial aquifer under future land use conditions (adult resident) is $3x10^{-3}$ (Figure 4-4). The major contaminant contributing cancer risk to the ELCR for the resident is 1,1-dichloroethene (ELCR = $3x10^{-3}$). The noncancer risk estimate (HI) for the surficial aquifer (adult resident) is 50 (Figure 4-5). Major contributors to this HI are 1,2-dichloroethene (HQ = 38), 1,1-dichloroethene (HQ = 1.2), trichloroethene (HQ = 2.5), antimony (HQ = 1.1), and thallium (HQ = 1.8). It should be noted, however, that continued industrial use of Site 16 is expected, and exposure to contamination in the surficial aquifer at Site 16 may never occur.

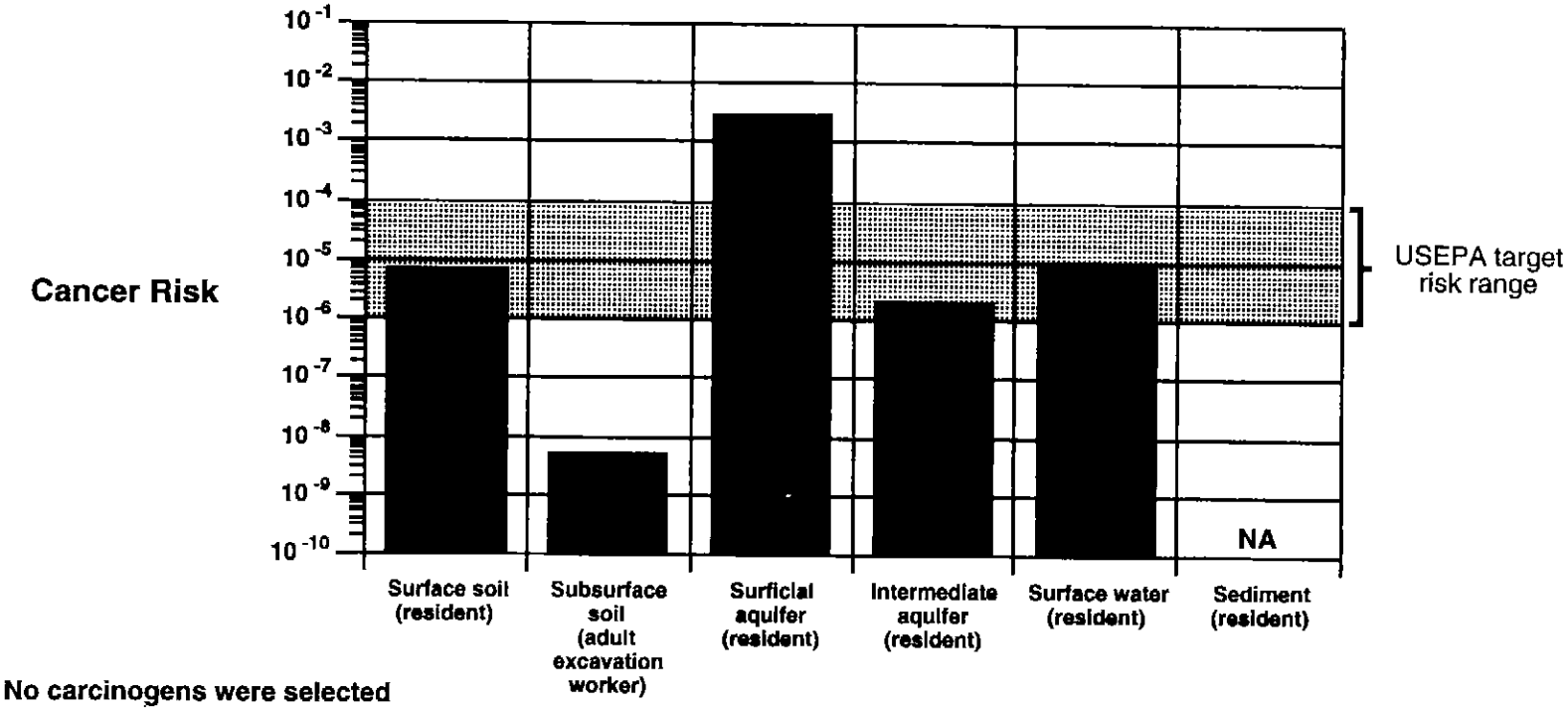
Cancer risks for surface soil, surface water, and groundwater (both the surficial and intermediate aquifers) under future land use exceed FDEP's cancer risk threshold of $1x10^{-6}$ (ABB-ES, 1995).

In surface soil, the only contaminant contributing cancer risk greater than $1x10^{-6}$ under future land use conditions (adult and child resident) is benzo(a)-pyrene ($4.4x10^{-6}$).

In surface water, two contaminants contribute cancer risk greater than $1x10^{-6}$ under future land use conditions (adult and child resident): beryllium ($6.7x10^{-6}$) and trichloroethene ($2.1x10^{-6}$).

In the intermediate aquifer, the only contaminant contributing cancer risk greater than $1x10^{-6}$ under future land use conditions (adult resident) is bis (2-ethylhexyl) phthalate ($1.6x10^{-6}$).

Cancer Risk Summary, Future Land Use



NA = No carcinogens were selected as Human Health Chemical of Potential Concern in sediment.

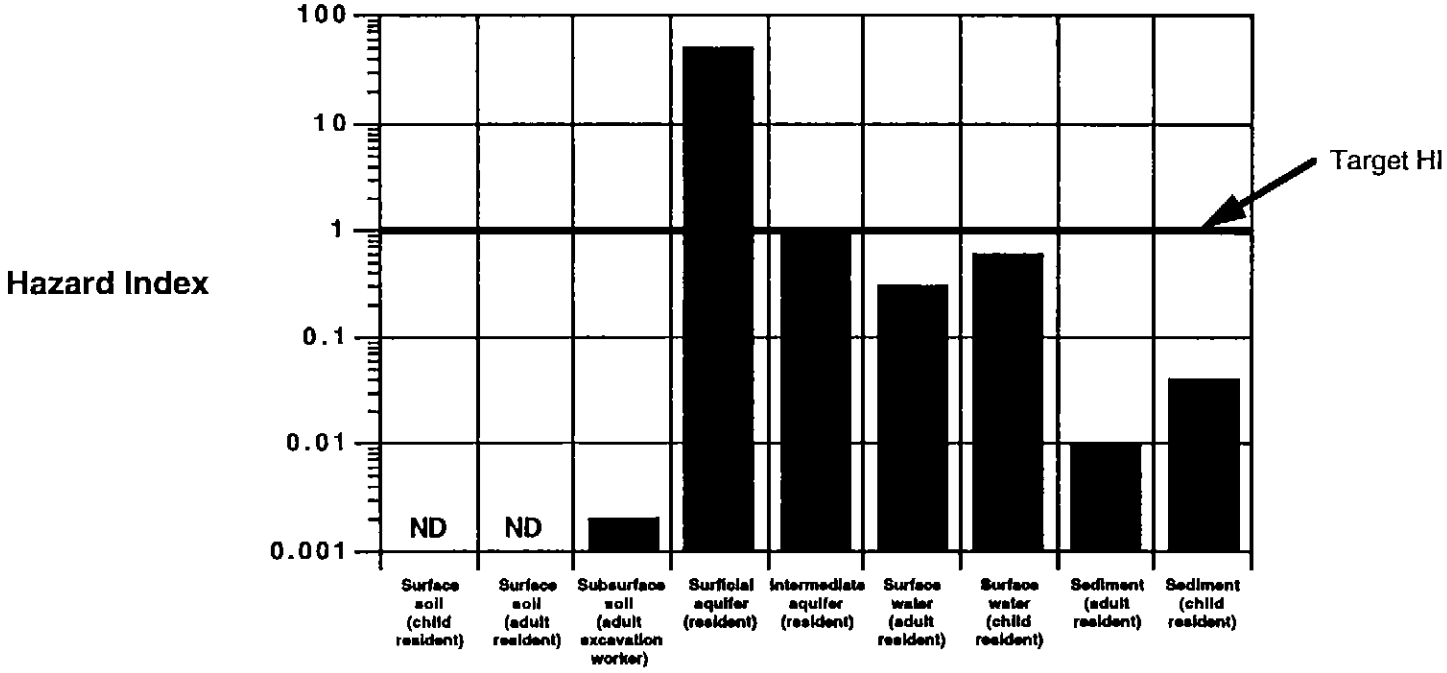
FIGURE 4-4

CANCER RISK SUMMARY, FUTURE LAND USE

BASELINE RISK ASSESSMENT, OPERABLE UNIT 7

NAS CECIL FIELD
JACKSONVILLE, FLORIDA

Hazard Index Summary, Future Land Use



NOTES:

ND = No toxicity values were available for the HHCPCs.

FIGURE 4-5
HAZARD INDEX SUMMARY,
FUTURE LAND USE

BASELINE RISK ASSESSMENT,
OPERABLE UNIT 7

NAS CECIL FIELD
JACKSONVILLE, FLORIDA

8500-12 FIG 4-5 111395MAW

5.0 ECOLOGICAL RESOURCES AND SITE-SPECIFIC FIELD STUDIES

Ecological resources at OU 7 were characterized based on the results of several field investigations and a limited review of the literature. Terrestrial wildlife habitat and wetlands are described in Section 5.1 based on the results of a habitat evaluation field program completed in 1994. Aquatic habitats adjacent to OU 7 and expected aquatic receptors are discussed in Section 5.2. Rare, endangered, and threatened species that may be present at NAS Cecil Field and OU 7 are described in Section 5.3.

Sediment toxicity testing was also completed at OU 7. Toxicity testing activities are described in Chapter 6.0.

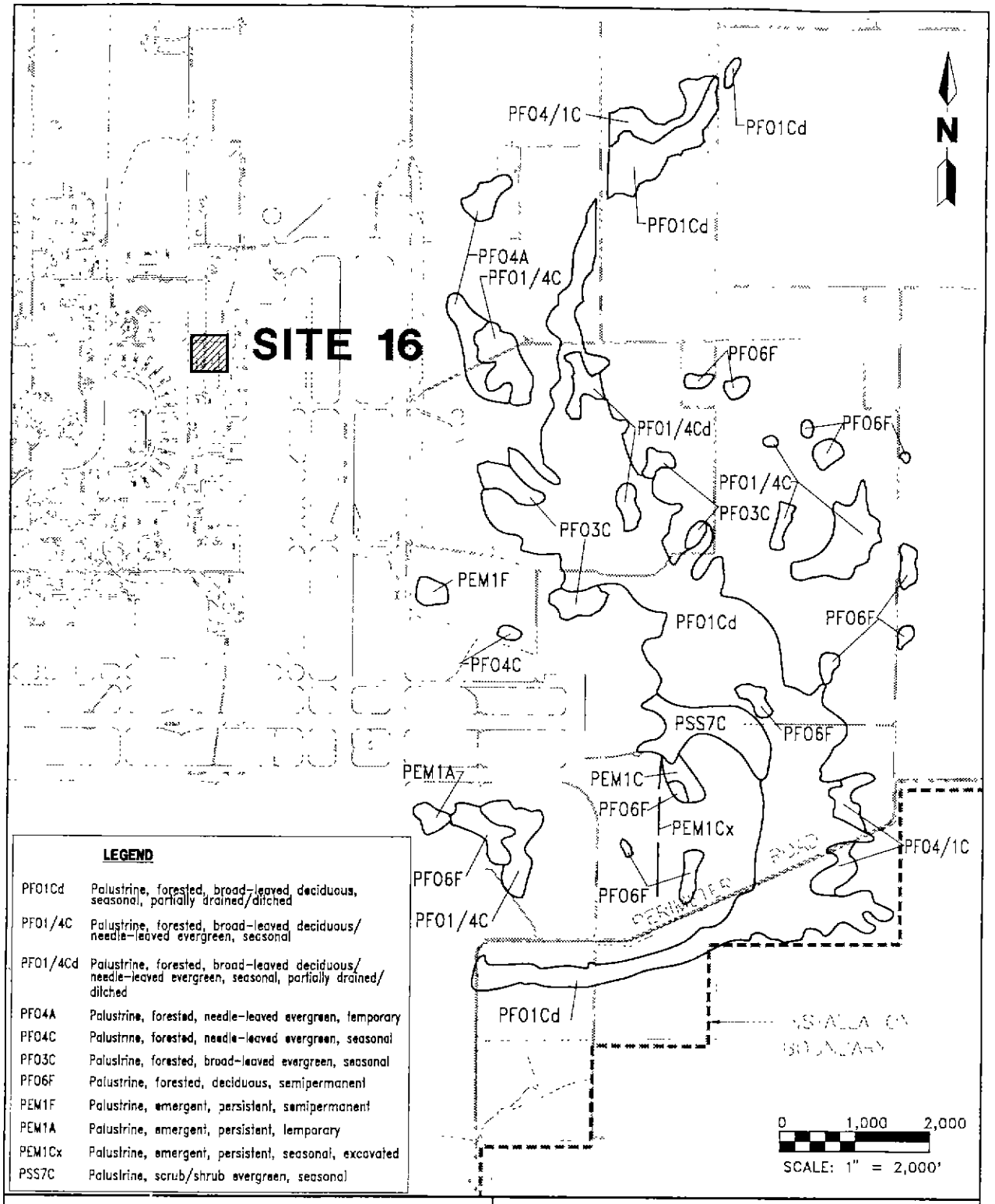
5.1 TERRESTRIAL AND WETLAND HABITATS. Terrestrial and wetland habitats and receptors are described in Subsections 5.1.1 and 5.1.2, respectively. Although a wetlands assessment has not been completed for OU 7, a description of the wetlands east of Site 16 is provided based on the USFWS national wetland inventory map.

5.1.1 Terrestrial Habitats OU 7 consists of Site 16, the AIMD seepage pit and adjacent area. Site 16 is vegetated with approximately 22,000 square feet of mowed grass (Figure 2-3). Adverse effects, such as surface soil staining or stressed vegetation, from waste activities were not visible during site visits in 1988, 1991, and 1993. The general area adjacent to Site 16 is relatively flat and is covered with asphalt and concrete. Because Site 16 is a small area of mowed grass surrounded by paved roadways and parking and storage lots in an industrialized area, terrestrial receptors are not expected to reside at this site. However, many terrestrial species have been identified at or in the vicinity of NAS Cecil Field. Appendix O provides a list of characteristic amphibian, reptile, bird, and mammal species that may occur at or in the vicinity of NAS Cecil Field.

5.1.2 Wetlands Although wetlands were not identified in the immediate area of Site 16 (CDM, 1994), wetlands are located to the east of Site 16, as shown in Figure 5-1. Sal Taylor Creek, which is located approximately 5,000 feet east of OU 7, flows through and directly influences these wetlands. A national wetland inventory map (USFWS, 1983) was used to assist in the classification of the wetlands to the east of Site 16. Wetland communities are described according to the USFWS classification system (Cowardin and others, 1979). Table 5-1 presents the USFWS wetland classifications for the wetlands east of Site 16, a brief description of the wetland characteristics, a list of the dominant plant species expected in each wetland cover type, and a summary list of representative vegetation expected in each wetland cover type.

According to the USFWS national wetland inventory map, the wetlands east of Site 16 fall under the following seven general USFWS classes (Cowardin and others, 1979):

1. Palustrine forested broad-leaved deciduous
2. Palustrine forested needle-leaved evergreen
3. Palustrine forested broad-leaved evergreen
4. Palustrine emergent persistent
5. Palustrine scrub and shrub evergreen



LEGEND

PFO1Cd	Palustrine, forested, broad-leaved deciduous, seasonal, partially drained/ditched
PFO1/4C	Palustrine, forested, broad-leaved deciduous/ needle-leaved evergreen, seasonal
PFO1/4Cd	Palustrine, forested, broad-leaved deciduous/ needle-leaved evergreen, seasonal, partially drained/ ditched
PFO4A	Palustrine, forested, needle-leaved evergreen, temporary
PFO4C	Palustrine, forested, needle-leaved evergreen, seasonal
PFO3C	Palustrine, forested, broad-leaved evergreen, seasonal
PFO6F	Palustrine, forested, deciduous, semipermanent
PEM1F	Palustrine, emergent, persistent, semipermanent
PEM1A	Palustrine, emergent, persistent, temporary
PEM1Cx	Palustrine, emergent, persistent, seasonal, excavated
PSS7C	Palustrine, scrub/shrub evergreen, seasonal

FIGURE 5-1
WETLANDS EAST OF SITE 16

H:\CECIL\WETLAND\WDW\03-03-95

BASELINE RISK ASSESSMENT, OPERABLE UNIT 7

NAS CECIL FIELD
JACKSONVILLE, FLORIDA

Table 5-1
Characteristic Wetlands

Baseline Risk Assessment
Operable Unit 7, NAS Cecil Field
Jacksonville, Florida

USFWS Classification	Description	Expected Dominant Species (common name)	Representative Vegetation (common name)
Palustrine forested broad-leaved deciduous	Occurs on seasonally flooded soil along stream channels. Located to the east of Site 16 and west of Sal Taylor Creek, a large part of this wetland type is partially drained or ditched. Contaminated groundwater from Site 16 may discharge to this type of wetland, located to the south and southeast of the drainage ditches.	Red maple	Laurel oak, water ash, bald cypress, sweetgum, slash pine, loblolly pine, sweetbay, cinnamon fern, and wax myrtle.
Palustrine forested needle-leaved evergreen	Occurs on temporarily or seasonally flooded soil. One of the three patches of this type of wetland may be affected by potential groundwater contamination from Site 16 migrating to the southeast.	Pond pine	Pond pine in association with dense stands of broad-leaved evergreen and deciduous shrubs.
Palustrine forested broad-leaved evergreen	Occurs on seasonally flooded soil. Contaminated groundwater from Site 16 may discharge to this type of wetland, located to the east and southeast of the drainage ditches.	Sweet bay	Red bay and loblolly bay.
Palustrine emergent persistent	Usually flooded with flowing water. Contaminated groundwater from Site 16 may discharge to this type of wetland, located to the south and southeast of the drainage ditches.	Cattails	Bulrushes, saw grass, sedges, reed, manna grasses, slough grass, whitetop, dock, water willow, and smartweeds.
Palustrine scrub and shrub evergreen	Woody vegetation less than 6 meters tall. Occurs to the west of Sal Taylor Creek on seasonally flooded soil. Contaminated groundwater from Site 16 may discharge to this type of wetland, located to the southeast of the drainage ditches.	Fetterbush, young or stunted black spruce, or pond pine	Coastal sweetbells, gallberry, and black titi.
Palustrine forested broad-leaved deciduous and needle-leaved evergreen	Occurs on seasonally flooded soil. East of Site 16, patches of this wetland type are partially drained or ditched. Two of the four patches of this type of wetland may be affected by potential groundwater contamination from Site 16 migrating to the southeast.	Red maple and pond pine	Combination of typical vegetation of broad-leaved deciduous and needle-leaved evergreen (see above).
Palustrine forested deciduous	Surface water is present throughout the growing season in most years, or semipermanent. This type of wetland occurs to the east and west of Sal Taylor Creek; those wetlands located west of Sal Taylor Creek and southeast of the drainage ditches may be affected by potential groundwater contamination from Site 16.	Red maple and bald cypress	Typical vegetation of broad-leaved deciduous (see above) in addition to pond cypress.

Source: Cowardin and others, 1979.

Note: USFWS = U.S. Fish and Wildlife Service.

6• Combination palustrine forested broad-leaved deciduous and needle-leaved evergreen
7• Palustrine forested deciduous (unspecified)

Palustrine communities are freshwater wetlands dominated by plants adapted to anaerobic substrate conditions imposed by substrate saturation or inundation during 10 percent or more of the growing season (Florida Natural Areas Inventory [FNAI], 1990). According to the USFWS national wetland inventory map, the majority of the wetlands (greater than 90 percent) associated with Site 16 and the Sal Taylor Creek floodplain are palustrine forested broad-leaved deciduous wetlands (Figure 5-1). This area is prone to seasonal flooding by Sal Taylor Creek. The dominant tree species commonly found in this type of wetland is red maple (Acer rubrum), with occasional sweet bay (Magnolia virginiana) and bald cypress (Taxodium distichum). American elm (Ulmus americana), ashes (Fraxinus sp.), black gum (Nyssa sylvatica), and tupelo gum (N. aquatica) are also often found in this wetland type. The shrub understory expected is open, and includes alder (Alnus serrulata), titi (Cyrilla racemiflora), wax myrtle (Myrica cerifera), gallberry (Ilex glabra), fetterbush (Lyonia lucida), and swamp bay (Persea palustris). Herbaceous species commonly include cinnamon fern (Osmunda cinnamomea), royal fern (Osmunda regalis), netted chain fern (Woodwardia areolata), and poison ivy (Toxicodendron radicans) (Cowardin and others, 1979; ABB-ES, 1994b).

Patches of combination palustrine forested broad-leaved deciduous and needle-leaved evergreen wetlands occur along the edges of the large area of broad-leaved deciduous wetland (Figure 5-1) discussed above. These wetlands are commonly considered a transitional wetland area between broad-leaved deciduous and needle-leaved evergreen wetlands and include vegetation found in both. The needle-leaved evergreen wetland commonly consists of pond pine (Pinus serotina) in association with deciduous shrubs and dense stands of broad-leaved evergreen (Cowardin and others, 1979). Three patches of palustrine forested needle-leaved evergreen wetlands are located west of Sal Taylor Creek and southeast of the sampling stations in the drainage ditches (Figure 5-1).

Two patches of palustrine forested broad-leaved evergreen wetland are located west of Sal Taylor Creek and southeast of the drainage ditches along the edge of the large broad-leaved deciduous wetland (Figure 5-1) discussed above. Sweet bay (Magnolia virginiana), red bay (Persea borbonia), and loblolly bay (Gordonia lasianthus) are usually prevalent in this wetland type, especially on organic soil (Cowardin and others, 1979).

Palustrine emergent persistent wetlands are located in four areas west of Sal Taylor Creek and south-southeast of the drainage ditches (Figure 5-1). These wetlands typically contain a vast array of grasslike plants such as cattails (Typha spp.), bulrushes (Scirpus spp.), saw grass (Cladium jamaicense), sedges (Carex spp.), and true grasses such as reed (Phragmites communis), manna grasses (Glyceria spp.), slough grass (Beckmannia syzigachne), and whitetop (Scolochloa festucacea). There is also a variety of broad-leaved persistent emergents such as waterwillow (Decodon verticillatus) and many species of smartweeds (Polygonum) (Cowardin and others, 1979).

An area of palustrine scrub and shrub evergreen wetland is located west of Sal Taylor Creek and southeast of the drainage ditches along the edge of the large broad-leaved deciduous wetland area (Figure 5-1). The USFWS national wetland inventory map does not specify the area as broad-leaved or needle-leaved, but

typical vegetation expected in this wetland includes fetterbush, coastal sweetbells (Leucothoe axillaris), gallberry, and black titi (Cyrilla racemiflora), as well as, young or stunted trees such as pond pine (Cowardin and others, 1979).

Patches of palustrine forested deciduous wetland are located east and west of Sal Taylor Creek (Figure 5-1). These areas are expected to include plant species common to the forested broad-leaved deciduous wetland as well as bald cypress (Taxodium distichum) and pond cypress (Taxodium ascendens) (Cowardin and others, 1979).

5.2 AQUATIC HABITATS AND RECEPTORS. Aquatic habitats near Site 16 were characterized as part of a facility-wide field survey completed in June and July 1993 (EA, 1994). Three sampling stations in the drainage ditches and one reference station in Sal Taylor Creek (STC-SW/SD/Bio/Tox-R1) were used for the Site 16 risk assessment (see Subsection 3.2.1; Figure 3-4). Two of the sampling stations (STC-SW/SD/Bio/Tox-1 and STC-SW/SD/Bio/Tox-3) were located in the two ditches east of Site 16 and west of Sal Taylor Creek. The two ditches are adjacent to storm sewers 1 and 2 (Figure 2-5) located approximately 500 feet east of the runway. The drainage ditches extend 500 to 600 feet in length before they merge into one ditch where the third sampling station (STC-SW/SD/Bio-4; Figure 3-4) was located. The ditches receive stormwater drainage from the runway area and much of the developed area west of the runways (including OU 7). The ditches carry the stormwater approximately 2,400 feet to Sal Taylor Creek.

During the 1993 sampling event, the depth of water in the ditches at the sampling stations ranged from approximately 0.3 to 1.0 meter and the width ranged from approximately 1 to 5 meters (EA, 1994). Four macroinvertebrate sampling stations (STC-Bio-1, STC-Bio-3, STC-Bio-4 and STC-Bio-R1) and two fish sampling stations (STC-Bio-4 and STC-Bio-R1) were sampled (Figure 3-4).

The aquatic sampling effort focused on the status of macroinvertebrate community structure and function and fish species in the drainage ditches. The aquatic sampling stations were identical to those selected for chemical sampling of surface water and sediment and the collection of sediment samples for toxicity testing. The sampling stations and program for analyses of chemical contamination of surface water and sediment are discussed in Subsection 3.2.1 and Paragraph 6.1.4.1. Table 5-2 provides a cross reference for the aquatic sampling program completed to support the ERA for Site 16. The results of the aquatic sampling, the chemical analyses, and the laboratory toxicity testing of sediment were evaluated together in a "weight-of-evidence" approach for assessment of ecological risks associated with any contamination emanating from Site 16.

5.2.1 Sampling and Analytical Methods Macroinvertebrate and fish sampling were completed at NAS Cecil Field during the period June 21 through 29, 1993. Sampling was completed during low flow which is considered to be a period of high stress (Frydenberg, 1992). A detailed discussion of the field and laboratory methodology for collection and analyses of the macroinvertebrate data is provided in Appendix P.

Table 5-2
Ecological Risk Assessment, Aquatic Sampling

Baseline Risk Assessment
Operable Unit 7, NAS Cecil Field
Jacksonville, Florida

Sampling Location[1]	Sample Type					
	SW	SD	Fish	Bio	Tox	Comment
STC-1	X	X		X	X	Northernmost station in the drainage ditch east of Site 16.
STC-3	X	X		X	X	South of STC-1 in the drainage ditch east of Site 16.
STC-4	X	X	X	X		Downstream of STC-1 in the drainage ditch east of Site 16.
STC-R1[2]	X	X	X	X	X	Reference location northeast of Site 16 in Sal Taylor Creek.

[1] Sampling locations indicated on Figure 3-4.
[2] Sediment was recollected from the reference location for all Contract Laboratory Program (CLP) and toxicity analyses because holding times for the samples collected in June were violated. Analytical and toxicity testing data from the samples recollected in August were evaluated in the human health and ecological risk assessments.

Notes: SW = surface water sample collected for target analyte list (TAL) and target compound list (TCL) analyses.
SD = sediment sample collected for TAL and TCL analyses.
Fish = fish sampling.
Bio = benthic macroinvertebrate sampling.
Tox = sediment sample collected for toxicity testing. See Chapter 6.0. STC = Sal Taylor Creek.
R1 = Reference location.

Sampling completed at the Site 16 sampling stations included the following:

- Collection of parameters describing aquatic habitat
- Collection and identification of fish by net-seining
- Collection of macroinvertebrates using dip net sweeps
- Collection of macroinvertebrates using Hester-Dendy artificial substrates
- Collection of macroinvertebrates using petite ponar dredge samplers

The sampling and analyses of the Site 16 drainage ditch benthic communities and aquatic habitat assessment generally follow USEPA rapid bioassessment protocols (RBP), a cumulative metric technique developed by USEPA (1989d), modified by Barbour and others (1992), and further adapted by FDEP (EA, 1992). This process involves the use of a series of metrics or community attributes, each of which is designed to evaluate a component of benthic community structure or function.

5.2.2 Physical Substrate and Chemical Parameters A summary of the physical and chemical characterization scores for each station sampled is included in Table 3-1 of Appendix P. All stations had fairly similar characteristics. However, due to differences in habitat, the reference location in Sal Taylor Creek (STC-Bio-R1) may not be suitable for comparison with drainage ditch parameters. All stations were located in open canopy areas except for the reference location, which was heavily shaded.

The surface water quality measurements for the Sal Taylor Creek and drainage ditch locations including total hardness, nitrate and nitrite, total nitrogen, and total phosphorus are summarized in Table 5-3. Water depth was 1.0 meter or less at all stations, water temperatures ranged from 24.3 to 26.5 degrees Celsius (°C), and pH ranged from 5.8 to 6.3. The dissolved oxygen (DO) values were less than the State of Florida surface water quality standard of ≥5 mg/ℓ (Florida Legislature, 1995) at the four Site 16 sampling locations (including the reference station), ranging from a low value of 3.4 mg/ℓ (STC-SW/Bio-4) to a high of 4.9 mg/ℓ (STC-SW/Bio-3). DO measurements at the storm sewer discharge locations (STC-SW/Bio-1 and STC-SW/Bio-3) were higher than the other two sampling stations.

Conductivity was highest at STC-SW/Bio-R1 (169 micromhos per centimeter [μmhos/cm]) and lowest at STC-SW/Bio-1 (92 μmhos/cm). All measurements of conductivity fall within the normal range according to State of Florida surface water quality standards (Florida Legislature, 1995).

Water was clear at all stations. A viscous oily sheen was observed on the water surface at one station (STC-SW/Bio-1). Petroleum sediment odor was evident at two stations (STC-SD/Bio-1 and STC-SD/Bio-3). Fifty percent aquatic vegetation was observed at two stations (STC-SW/Bio-1 and STC-SW/Bio-4) and 75 percent aquatic vegetation was observed at one station (STC-SW/Bio-3). No aquatic vegetation was observed at the reference location (STC-SW/Bio-R1). Leaf pack and mud, muck, or silt were observed as substrate components only at the reference station (STC-SW/Bio-R1).

Table 5-3
Surface Water Quality Measurements Summary

Baseline Risk Assessment
Operable Unit 7, NAS Cecil Field
Jacksonville, Florida

Station	Depth (m)[1]	Temperature (°C)[1]	Stream Velocity (m/s)	pH[1]	DO (mg/ℓ)[1]	Conductivity (μmhos/cm)[1]	Secchi (m)[1]	Total Hardness (mg/ℓ as $CaCO_3$)[2]	Total Keljdahl Nitrogen (mg/ℓ)[2]	Nitrate/ Nitrite (mg/ℓ)[2]	Total Nitrogen (mg/ℓ)[2]	Total Phosphorous (mg/ℓ)[2]
STC-Bio/SW-1	0.5	25.7	0.0	5.8	4.3	92	1.0	21.2	1.62	0	1.62	0.06
STC-Bio/SW-3	0.3	26.5	<0.5	6.2	4.9	146	0.3	40.5	NA	NA	NA	NA
STC-Bio/SW-4	1.0	24.3	<0.5	5.9	3.4	125	1.0	37.9	NA	NA	NA	NA
STC-Bio/SW-R1	0.2	25.1	<0.5	6.3	3.7	169	0.2	87.9	1.09		1.09	0.09
Five Mile Creek[3]	1	23	0.1	4.4	5.8	62	0.3	NA	NA	NA	NA	NA

[1] From Appendix P. Measured in the field by EA Engineering, Science, and Technology, Inc.
[2] From Appendix A. Measured in the laboratory. Total Keljdahl nitrogen, nitrate plus nitrite, total nitrogen, and total phosphorous were not measured for STC-Bio/SW-3, STC-Bio-SW-4, and the Five Mile Creek regional reference.
[3] Five Mile Creek is the Florida regional reference station considered in this study.

Notes: m = meter.
°C = degrees Celsius.
m/s = meter per second.
DO = dissolved oxygen.
$CaCO_3$ = calcium carbonate.
NA = not available.
mg/ℓ = milligrams per liter.
μmhos/cm = micromhos per centimeter (a measure of electrical conductivity, equal to $\mu ohm^{-1}/cm$).

5.2.3 Aquatic Habitat Assessment Results Aquatic habitat quality scores were calculated for each of the sampling stations based on data collected during the field survey. The results of the habitat quality scoring, including the State of Florida regional reference, Five Mile Creek, are summarized in Table 5-4. The location of Five Mile Creek relative to NAS Cecil Field is shown on Figure 3-7.

Table 5-4
Habitat Assessment Scores

Baseline Risk Assessment
Operable Unit 7, NAS Cecil Field
Jacksonville, Florida

Station	Bottom Substrate	Water Velocity	Artificial Channel	Bank Stability	Riparian Zone Vegetation	Flow Adjustment	Total Score	Percent Comparison to Five Mile Creek [1]
STC-Bio-1	5	0	2	2	2	NA	11	16
STC-Bio-3	5	3	2	2	2	NA	14	21
STC-Bio-4	5	5	3	8	2	NA	23	34
STC-Bio-R1	18	10	14	8	6	NA	56	84
Five Mile Creek	24	8	15	10	10	5	72	100

[1] Five Mile Creek is the Florida regional reference station considered in this study. Methods for sampling and habitat scoring procedures are reported in Appendix P.

Note: NA = not applicable.

Habitat quality at all Site 16 stations is generally poor. The upgradient reference station, STC-Bio-R1, scored 56 in the habitat assessment (Table 5-4). Although this is less than the regional reference station at Five Mile Creek (total score of 72), the reference station (STC-Bio-R1) habitat quality is considerably higher than the Site 16 drainage ditch sampling stations (STC-Bio-1, STC-Bio-3, and STC-Bio-4), which had habitat quality scores ranging from 11 to 23 (Table 5-4). Although the habitats of the Sal Taylor Creek reference station (STC-Bio-R1) and Five Mile Creek regional reference station are comparable, the habitat assessment scores show that both the Sal Taylor Creek reference station and the Five Mile Creek regional reference location are vastly different from the drainage ditch stations and may not be suitable as reference locations for purposes of comparison. In addition to the fact that the drainage ditches are artificial, man-made channels, the reference locations and the drainage ditch sampling locations are substantially different with regards to bottom substrate, water velocity, and vegetation.

5.2.4 Fish Species Identified in Sal Taylor Creek Fish were collected with a 10 foot seine at sampling station STC-Bio-4 in the deepest section of the drainage ditch and at the reference location STC-Bio-R1. The sampling was qualitative in approach and provided basic information on the fish community species composition and general fish health.

A total of two fish species were collected from the Site 16 fish sampling stations (STC-Bio-4 and STC-Bio-R1). Two eastern mosquitofish (*Gambusia affinis*)

were collected at the reference location (STC-Bio-R1). Thirty-six eastern mosquitofish and four least killifish (Heterandria formosa) were collected at STC-Bio-4. The length and weight ranges for all fish collected are listed in Appendix P. As indicated by the length and weight data, the fish collected were small species of fish with consequently low biomass. The most notable abnormality was the presence of eroded caudal fins on three specimens (out of 36 specimens) of eastern mosquitofish collected at sampling station STC-Bio-4. No physical abnormalities or deformities were observed on the fish collected from STC-Bio-R1.

5.2.5 Benthic Macroinvertebrate Community A taxonomic (classification) list of the benthic macroinvertebrates collected is presented in Appendix P. Identified taxa (categories) were collected from the drainage ditch and reference station using a combination of dip net, Hester-Dendy, and Ponar samplers. In addition, drainage ditch data were compared to data from Five Mile Creek, a State of Florida regional reference site. The regional reference data are useful to compare the Site 16 results with results for other streams in Florida. Five Mile Creek is cooler, more acidic, and has a lower conductivity than any of the stations evaluated in this study. Although the potential impacts of these differences in conditions were considered in the bioassessment procedure, the structure and function of aquatic macroinvertebrate communities that are adapted to the conditions found in the drainage ditches are anticipated to be dissimilar to those typical of systems with better habitat quality. In this assessment, emphasis is placed on comparisons between the Site 16 stations (STC-Bio-1, STC-Bio-3, and STC-Bio-4) and the reference station (STC-Bio-R1) for drawing conclusions concerning potential impacts relative to Site 16.

Metrics are measurements of various components of the structure and function of the benthic macroinvertebrate community. Independently, they provide information on the status of the part of the community they represent. Together, the metrics contribute to an integrated assessment of the biological condition of the community. Thirteen metrics were used as measurements of the benthic macroinvertebrate community structure and function for Site 16. These metrics are described in Table 5-5. The calculated metric values for the three sample types (i.e., dip net, Hester-Dendy, and ponar dredge) for each of the stations are presented in Tables 5-6 through 5-8 and Appendix P. A discussion of the metric values calculated for Site 16 is included in the following sections.

5.2.5.1 Dip Net Samples The metric values selected for analyses include total taxa, density, percent dominant taxon, Florida index, Shannon-Weaver index, percent diptera, percent chironomid, percent ephemeroptera-plecoptera-trichoptera (EPT) index, percent filter-collectors, percent shredders, percent calcium dependent, and Hilsenhoff biotic index (HBI) (Table 5-5). The values calculated for each of these metrics for dip net samples are presented in Table 5-6. Dip net samples were taken at all Site 16 sampling locations (STC-Bio-1, STC-Bio-3, STC-Bio-4, and STC-Bio-R1) and the Florida regional reference at Five Mile Creek.

Examination and interpretation of the metric scores do not show any trends in the data or a pattern of degradation with increased distance from Site 16. Most of the metric values are similar to those calculated for the reference location (STC-Bio-R1), but are quite different from the Five Mile Creek reference. With

Table 5-5
Benthic Macroinvertebrate Community Metrics

Baseline Risk Assessment
Operable Unit 7, NAS Cecil Field
Jacksonville, Florida

Metric	Description
Total taxa (number of invertebrate taxa)	Defines species richness. Richness generally increases with increasing water quality, habitat diversity, and/or habitat suitability (U.S. Environmental Protection Agency [USEPA], 1990).
Number of individuals per square meter	Classifies invertebrate density (USEPA, 1990b).
Dominant taxon	Measures redundancy. A high level of redundancy (i.e., dominance of the fauna by a single taxon) is equated with the dominance of a pollutant tolerant organism and a lowered diversity (USEPA, 1989d).
Percent dominant taxon	Calculated as the ratio of the taxonomic group with the most individuals (dominant) to the total number of organisms. Percent dominance should remain low to reflect a healthy biotic condition (USEPA, 1989d).
Florida index	Commonly used index for Florida streams that focuses on the tolerance of specific populations indigenous to the State. This index does not use the entire macroinvertebrate assemblage, and is heavily weighted to the arthropods (e.g., insects with horny segmented external covering and jointed limbs). The Florida index increases in value as the condition of the water quality increases (Florida Department of Environmental Regulation [FDER, currently known as Florida Department of Environmental Protection, FDEP], 1990).
Shannon-Weaver index	Measures indices of community structure and function. The Shannon-Weaver value may range from 0 to 3.3 log N, where N = the total number of individuals. This index is often insensitive to subtle changes in community structure unless the environment has been grossly modified; however, it is often used to calculate other indices (USEPA, 1990b).
Percent diptera	Measures increases in the presence of stress (USEPA, 1990b).
Percent chironomid	Represents pollutant tolerant benthic taxa (USEPA, 1990b).
Percent ephemeroptera-plecoptera-trichoptera (EPT)	Consists of the most pollutant sensitive benthic taxa. Good biotic condition is reflected in communities having a fairly even distribution among EPT and chironomids (USEPA, 1990b).
Percent filter collectors	Reflects the riffle and run community food base and provides insight into the nature of potential disturbance factors. Predominance of a feeding type may indicate an unbalanced community responding to an overabundance of a particular food source. Filtering collectors are sensitive to toxicants bound to fine particulate organic material and may decrease in abundance when exposed to sources of such bound toxicants (USEPA, 1990b).
Percent shredders	Shredders are sensitive to riparian (bank to bank) zone impacts and are particularly good indicators of toxic effects when the toxicants are readily adsorbed to coarse particulate organic matter (USEPA, 1990b).
Percent calcium dependent	Measures the number of crustacean and mollusc individuals. These taxa are calcium dependent and are generally most diverse in alkaline-fed streams. Stress such as habitat degradation or chemical contamination may eliminate certain taxa represented in this metric (FDER, 1990).
Hisenhoff biotic index (HBI)	Developed to summarize overall pollutant tolerance of the benthic arthropod community. Similar in concept to the Florida index, but incorporates abundance and a slightly different weighing factor for tolerance. Tolerance values are assigned ranging from 0 to 10 (10 signifying the most tolerant). The 0 to 10 scale was modified to include non-arthropod species. The HBI decreases in value with increasing water resource integrity. Although it may be applicable for other types of pollutants, use of the HBI in detecting non-organic pollutant effects has not been thoroughly evaluated (USEPA, 1990b).

Table 5-6
Metrics for Description of Macroinvertebrates Sampled in Dip Nets

Baseline Risk Assessment
Operable Unit 7, NAS Cecil Field
Jacksonville, Florida

Station	Total Taxa	Density[1]	Dominant Taxon	% Dominant Taxon	FL Index	Shannon-Weaver Index (base 2)	% Diptera	% Chirono-mid	% EPT	% Filter-collec-tors	% Shredders	% Calcium Dependent	HBI
STC-Bio-1	7	420	Dero	64	2	1.626	2	2	0	0	0	0	9.9
STC-Bio-3	18	155	P. Illinoense	33	6	2.802	77	77	0	1	37	2	7.3
STC-Bio-4	20	42	Larsia	20	4	3.282	87	86	0	0	12	2	7.7
STC-Bio-R1	14	14	Corduliidae	41	4	2.988	12	10	0	0	17	26	6.2
Five Mile Creek[2]	32	824	Lumbriculidae	11	12	4.500	21	20	10	10	16	18	6.9

[1] Density is equal to the number of individuals per square meter. Methods for calculation of metrics reported in Appendix P.
[2] Five Mile Creek is the Florida regional reference station considered in this study.

Notes: % = percent.
FL = Florida.
EPT = ephemeroptera-plecoptera-trichoptera.
HBI = Hilsenhoff biotic index

Table 5-7
Hester-Dendy Artificial Substrate
Macroinvertebrate Sample Metrics

Baseline Risk Assessment
Operable Unit 7, NAS Cecil Field
Jacksonville, Florida

Station	Total Taxa	Density[1]	Dominant Taxon	% Dominant Taxon	FL Index	Shannon-Weaver Index (base 2)	% Diptera	% Chironomid	% EPT	% Filter-collectors	% Shredders	% Calcium Dependent	HBI
STC-Bio-1	2	95	*Tubificidae*	64	0	0.944	0	0	0	0	0	0	10.0
STC-Bio-4	7	74	*Dicrotendipes*	46	1	1.991	96	96	0	0	29	0	7.4
Five Mile Creek[2]	30	326	*Tanytarsus sp.*	15	15	4.612	61	61	6	30	10	1	6.4

[1] Density is equal to the number of individuals per square meter. Methods for calculation of metrics reported in Appendix P.
[2] Five Mile Creek is the Florida regional reference station considered in this study.

Notes: % = percent.
FL = Florida.
EPT = ephemeroptera-plecoptera-trichoptera.
HBI = Hisenhoff biotic index.

Table 5-8
Ponar Dredge Macroinvertebrate Sample Metrics

Baseline Risk Assessment
Operable Unit 7, NAS Cecil Field
Jacksonville, Florida

Station	Total Taxa	Density[1]	Dominant Taxon	% Dominant Taxon	FL Index	Shannon-Weaver Index (base 2)	% Diptera	% Chironomid	% EPT	% Filter-collectors	% Shredders	% Calcium Dependent	HBI
STC-Bio-1	4	143	*Tubificidae*	70	1	1.357	10	10	0	0	10	0	10.0
STC-Bio-3	17	731	*Tubificidae*	28	2	3.453	41	39	0	8	2	14	8.7
STC-Bio-4	10	530	*Procladius*	41	2	2.645	87	81	0	0	11	0	8.3
STC-Bio-R1 (reference)	24	2,610	*Tubificidae*	40	5	3.003	4	4	1	7	1	12	8.9

[1] Density is equal to the number of individuals per square meter. Methods for calculation of metrics reported in Appendix P.

Notes: % = percent.
FL = Florida.
EPT = ephemeroptera-plecoptera-trichoptera.
HBI = Hisenhoff biotic index.

the exception of STC-Bio-1, which had the lowest score of 7, total taxa or taxa richness is similar across the Site 16 stations, with scores ranging from 14 (STC-Bio-R1) to 20 (STC-Bio-4). Total taxa at the Five Mile Creek station was 32. Invertebrate density at the Site 16 sampling stations varied widely, ranging from 14 individuals (N) per square meter (N/m^2) (STC-Bio-R1) to 420 N/m^2 (STC-Bio-1). Density at the Five Mile Creek station was 824 N/m^2. Percentage dominant taxon was higher at all Site 16 sampling stations than the Five Mile Creek station. STC-Bio-1 was highest with a score of 64 and STC-Bio-4 was lowest with a score of 20. Percent dominant taxon at the Five Mile Creek station was 11.

The Florida index metric scores were similar for all four Site 16 sampling stations ranging from 2 at STC-Bio-1 to 6 at STC-Bio-3, but were all lower than the Five Mile Creek station, which had a score of 12. Diversity as measured by the Shannon-Weaver index was also similar for all Site 16 sampling stations ranging from 1.626 at STC-Bio-1 to 3.282 at STC-Bio-4. The Shannon-Weaver index at the Five Mile Creek station was higher than all Site 16 sampling stations at 4.500.

Percent diptera ranged from a low of 2 at STC-Bio-1 to a high of 87 at STC-Bio-4. The score at the Five Mile Creek station fell within this range at 21. Percent chironomid metric scores were similar to percent diptera scores ranging from 2 at STC-Bio-1 to 86 at STC-Bio-4. The score at the Five Mile Creek station was 20. The percentage of EPT, which consists of the most pollutant sensitive benthic taxa (i.e., insect orders Ephemeroptera [mayflies], Plecoptera [stoneflies], and Trichoptera [caddisflies]) was negligible at all four Site 16 sampling stations compared to 10 percent EPT at Five Mile Creek.

With the exception of station STC-Bio-3 (1 percent), filter-collectors were not identified at any of the Site 16 stations. The percentage of filter-collectors at the Five Mile Creek station was considerably higher at 10. Shredders did not occur at sampling station STC-Bio-1; the highest percentage of shredders occurred at STC-Bio-3 with a score of 37. The Five Mile Creek and Sal Taylor Creek reference stations fell within that range at 16 and 17, respectively. Percent calcium dependent scores, which were zero at STC-Bio-1 and 2 at STC-Bio-3 and STC-Bio-4, were lower than the Florida regional reference (18). STC-Bio-R1, however, had a higher score of 26.

The Hilsenhoff biotic index rates the community on a scale of 1 (low pollution tolerance; high quality) to 10 (high pollution tolerance; low quality). STC-Bio-1 had the lowest quality score at 9.9. The metric scores for the Hilsenhoff biotic index were similar across the other stations (6.2 to 7.7), and were also similar to the Five Mile Creek regional reference (6.9).

The metric values were assigned bioassessment ranking scores, and total metric scores were calculated for each station. Total scores ranged from a low of 2 at STC-Bio-1 to a high of 20 at STC-Bio-3 (Appendix P). These scores were compared to both reference locations including the State of Florida regional reference, Five Mile Creek, and the reference station (STC-Bio-R1). The regional reference station, Five Mile Creek has substantially better habitat quality than the Site 16 sampling stations. Comparisons between the reference stations and the drainage ditches were conducted; however, due to differences in habitat and habitat quality, the results of the comparisons are inconclusive. The regional reference data are useful, however, to compare the Site 16 results with results for other streams in Florida.

The relationship between habitat quality and biological condition among all stations is illustrated as a line graph on Figure 5-2. Ninety-five percent confidence intervals were calculated for the data around the regression line to obtain the expected range of values for biological conditions given the level of habitat quality. In this manner, outliers were identified and attributed to causes other than habitat limitations.

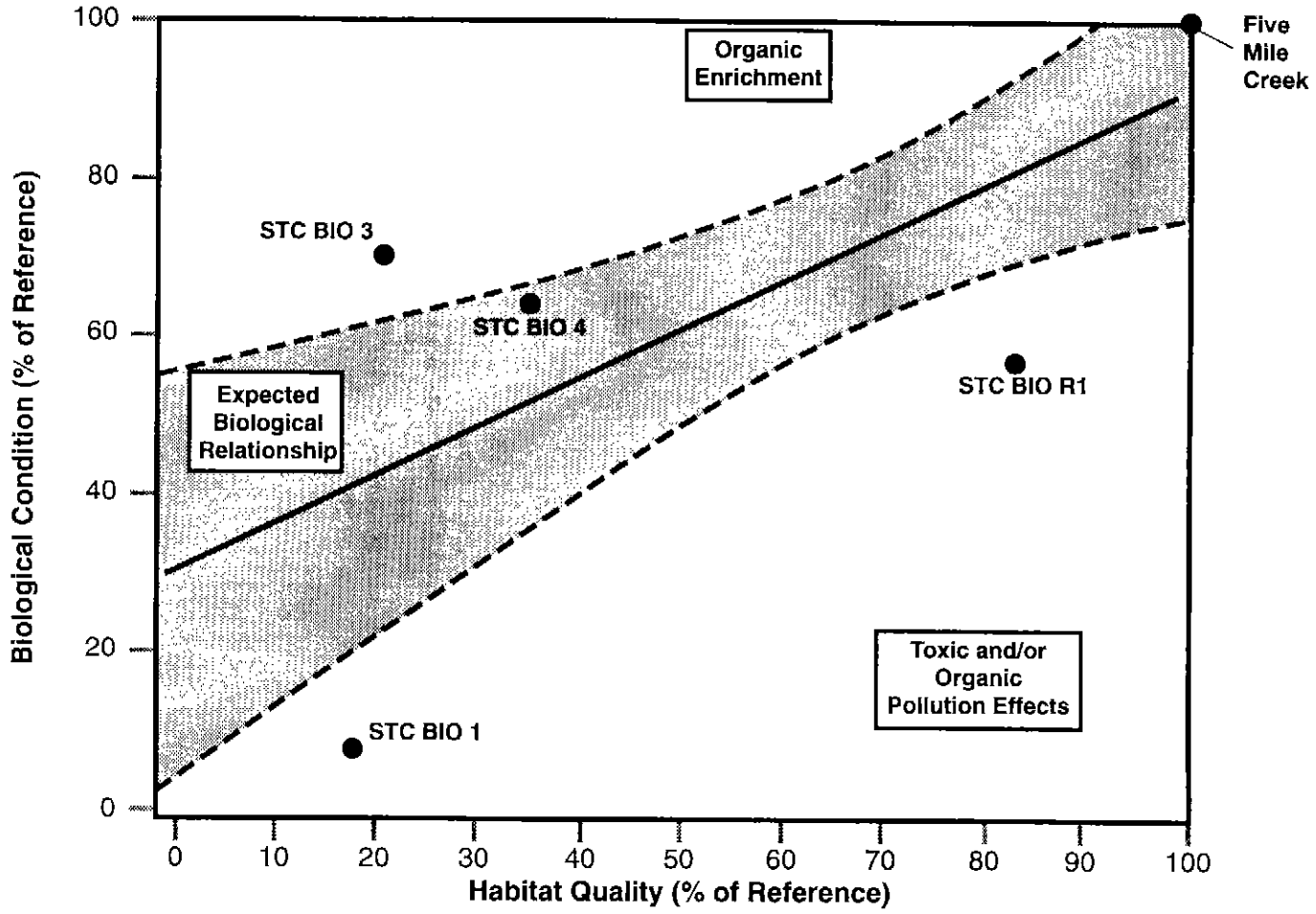
The biological and habitat scores were divided by the regional reference score for a percent comparability value. The regression analysis was performed and data for the stations were plotted. Station plots that fall within the 95 percent confidence interval lines indicate a predictable condition of the biological community in response to habitat quality. Stations that fall in the lower right-hand area frequently indicate the depression of biological conditions in habitat that has the capacity to support a healthy community. This situation is often indicative of toxic conditions resulting from poor water quality. Artificial (and usually temporary) elevations of biological conditions due to organic enrichment generally places stations in the upper part of the figure.

The only Site 16 sampling station that falls within the predictable condition of the biological community in consideration of habitat quality is station STC-Bio-4. Station STC-Bio-3 exhibited a higher condition of the benthic community than would be expected based on the quality of the habitat present. Station STC-Bio-R1 fell just below the lower 95 percent confidence interval indicating that the community is slightly impaired. Station STC-Bio-1 fell well below the lower 95 percent confidence interval indicating that the community is impaired. The macroinvertebrate community at STC-Bio-1 appears to be below the condition expected for the quality of the habitat present. However, it is important to note that those results were plotted against the regional reference for a percent comparability value. Had the data been normalized against the Sal Taylor Creek reference station, it is possible that none of the drainage ditch locations would fall below the 95 percent confidence interval.

5.2.5.2 Hester-Dendy Samples The Hester-Dendy artificial substrates primarily attract pioneer benthic species that colonize the samplers. These organisms originate from recruitment or drift from the benthic populations established in the stream. The artificial substrates are identical in comparison and surface area; community colonization is a function of the environmental conditions that existed during the sampling period. The metric values selected for analyses include total taxa, density, percent dominant taxon, Florida index, Shannon-Weaver index, percent diptera, percent chironomid, percent EPT index, percent filter-collectors, percent shredders, percent calcium dependent, and Hilsenhoff biotic index (HBI) (Table 5-5). The metric values calculated for the Hester-Dendy samples for each of the sampling stations are presented in Table 5-7 and Appendix P.

Hester-Dendy samplers were used at stations STC-Bio-1 and STC-Bio-4. Hester-Dendy data were not available for station STC-Bio-R1 because the sampler was exposed as a result of receding water levels. Given that the Hester-Dendy samplers were exposed due to low flow conditions and shallow water depth and that no standard of comparison exists, evaluation of the Hester-Dendy data was not conducted.

5.2.5.3 Ponar Samples The taxa identified from the ponar samples are indicative of the infaunal benthic community, although some epifaunal components are also



Source: Addendum to Aquatic Biological Sampling Services Conducted at NAS Cecil Field, Report from EA Engineering, June 1994.

FIGURE 5-2

RELATIONSHIP BETWEEN HABITAT QUALITY AND BIOLOGICAL CONDITION

BASELINE RISK ASSESSMENT, OPERABLE UNIT 7

NAS CECIL FIELD
JACKSONVILLE, FLORIDA

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represented. Station-to-station differences in the community may be due to variations in substrate composition and/or man-induced alterations on the population. Ponar dredge samples were taken at all Site 16 sampling stations (STC-Bio-1, STC-Bio-3, and STC-Bio-4). Because no State of Florida regional reference exists for this type of sampling equipment, all comparisons were made to the reference station, STC-Bio-R1.

The metric values selected for analyses include total taxa, density, percent dominant taxon, Florida index, Shannon-Weaver index, percent diptera, percent chironomid, percent EPT, percent filter-collectors, percent shredders, percent calcium dependent, and HBI (Table 5-5). The metric values calculated for the ponar samples for each of the sampling stations are included in Table 5-8 and Appendix P.

Total taxa was lowest at STC-Bio-1 with a score of 4. The remaining two ponar dredge sampling stations had similar scores (10 and 17), but were still lower than the reference (STC-Bio-R1), which had a score of 24. Density was lowest at STC-Bio-1 at 143 individuals per square meter (N/m^2). Density was similar at stations STC-Bio-4 and STC-Bio-3 with 530 and 731 N/m^2, respectively. The reference station had the highest density with 2,610 N/m^2. Percent dominant taxon for the Site 16 ponar dredge sampling stations ranged from 28 at STC-Bio-3 to 70 at STC-Bio-1. Percent dominant taxon for the reference station (STC-Bio-R1) fell within that range at 40.

The Florida index was low for all Site 16 ponar dredge sampling stations with scores ranging from 1 at STC-Bio-1 to 2 at STC-Bio-3 and STC-Bio-4. The reference station did not score much higher with a Florida index of 5. The Shannon-Weaver index was lowest at STC-Bio-1 with a score of 1.357. The remaining two stations had similar scores of 2.645 at STC-Bio-4 to 3.453 at STC-Bio-3. The Shannon-Weaver index at the reference station (STC-Bio-R1) fell within that range with a score of 3.003.

Percent diptera ranged from 10 at STC-Bio-1 to 87 at STC-Bio-4. The reference station (STC-Bio-R1) scored well below this range at 4, indicative of a low stress environment. Chironomids dominated the benthic community at STC-Bio-4 (81 percent) whereas the other Site 16 stations had scores of 10 percent at STC-Bio-1 and 39 percent at STC-Bio-3. Percent chironomid at the reference station (STC-Bio-R1) was low at 4. Percent EPT was zero (0) at all Site 16 ponar dredge sampling stations. At the reference station (STC-Bio-R1), percent EPT was low at 1. The variability in distribution among EPT and chironomids at the drainage ditch sampling locations is indicative of poor biotic condition.

Filter-collectors were not present at the Site 16 ponar dredge stations except for STC-Bio-3, which had a percentage of 8. The percentage of filter-collectors at the reference station (STC-Bio-R1) was comparable to STC-Bio-3 at 7. Percent shredders at all Site 16 sampling stations was low, ranging from 2 at STC-Bio-3 to 11 at STC-Bio-4. The reference station (STC-Bio-R1) fell below that range at 1. Percent calcium dependent scores were also low, ranging from zero at STC-Bio-1 and STC-Bio-4 to 14 at STC-Bio-3. The percent calcium dependent score at the reference station (STC-Bio-R1) was comparable to the highest score at 12.

The HBI was similar at all Site 16 ponar dredge sampling stations, ranging from 8.3 at STC-Bio-4 to 10 at STC-Bio-1 indicating a very pollutant-tolerant community. The reference station (STC-Bio-R1) fell within that range with a score of 8.9, also indicative of a pollutant-tolerant community.

5.2.6 Summary of Macroinvertebrate Study A review of the macroinvertebrate habitat quality parameter data suggests that habitat quality conditions throughout the drainage ditches east of Site 16 and the runways and the reference station represent a poor environment for many types of aquatic organisms. Furthermore, the highly variable conditions associated with ephemeral streams such as the drainage ditches, are not representative of aquatic habitat for which available bioassessment protocols were designed to evaluate; only certain types of aquatic taxa are well adapted to exploit these habitats. Ephemeral streams tend to have a distinctive faunal composition that overlaps little with nearby permanent aquatic environments (Ward, 1992).

Aquatic habitat conditions east of Site 16 are dissimilar enough to suggest that the biological data collected from the drainage ditches are not comparable to the regional data set. Five Mile Creek is cooler, more acidic, and has a lower conductivity than any of the stations evaluated in this study. Although the potential impacts of these differences in conditions were considered in the bioassessment procedure, the structure and function of aquatic macroinvertebrate communities that are adapted to the conditions found in the drainage ditches are anticipated to be dissimilar to those typical of systems with better habitat quality.

Taxa identified within the Site 16 drainage ditches indicate a stressed environment. The predominance of pulmonate gastropods at several of the Site 16 stations may be indicative of stressful physical conditions, particularly low dissolved oxygen. Because of their ability to use atmospheric air for respiration, pulmonate snails are commonly associated with anaerobic aquatic conditions typical of freshwater containing less than 1.0 mg/ℓ dissolved oxygen (Hart and Fuller, 1974). Aquatic macrophytes, which can provide a substrate for snails, were common at station STC-Bio-1, and were abundant at STC-Bio-R1. Midge larvae in the genera Chironomid and Procladius were among the dominant taxa collected at the Site 16 samples. Although the taxonomic samples were not identified to the species level, the hemolymph of many chironomid larvae ("bloodworms") contains hemoglobin, which allows them to endure low dissolved oxygen conditions.

Comparisons of the metrics between the Site 16 sampling stations indicate no clear trends in data. In addition, the absence of a reference location that is similar in habitat to the man-made drainage ditches limits the interpretation of the benthic results. Based on the metrics calculated for the dip net samples, the benthic communities at stations STC-Bio-1 and STC-Bio-R1 are below their respective expected conditions relative to the quality of habitat present. It is believed that STC-Bio-1 received drainage from OU 7 when it was operating and may be receiving contaminated groundwater infiltrating into the storm sewers. Station STC-Bio-4 is within the expected condition given the habitat quality, and the condition of the benthic community at station STC-Bio-3 is above the expected condition (Figure 5-2).

The benthic community results are also discussed in relation to the results for sediment toxicity testing and chemical analyses in the risk characterization for surface water and sediment at Site 16 in Subsection 6.2.4.

5.3 RARE, ENDANGERED, AND THREATENED SPECIES. Rare, endangered, and threatened species identified as potentially residing at NAS Cecil Field are listed in Table 5-9. The list is based on a review of available information including the Initial Assessment Study (Envirodyne Engineers, 1985), a rare and endangered plant survey report (Environmental Services and Permitting, Inc., 1990), and the Technical Memorandum for Supplemental Sampling at OUs 1, 2, and 7 (ABB-ES, 1992a).

Table 5-9
Rare, Endangered, and Threatened Flora and Fauna at or in the Vicinity of Naval Air Station (NAS) Cecil Field

Baseline Risk Assessment
Operable Unit 7, NAS Cecil Field
Jacksonville, Florida

Common Name	FGFWFC[1]	USFWS[2]	FDA[3]	Comments
Florida gopher frog (*Rana capito*)	SSC	C2		Possible resident at NAS Cecil Field. (Envirodyne Engineers, 1985).
American alligator (*Alligator mississippiensis*)	SSC	T(S/A)		Confirmed resident in Lake Fretwell at NAS Cecil Field (Envirodyne Engineers, 1985).
Eastern indigo snake (*Drymarchon corais couperi*)	T	T		Confirmed resident at NAS Cecil Field. (Envirodyne Engineers, 1985).
Gopher tortoise (*Gopherus polyphemus*)	SSC	C2		Confirmed resident at NAS Cecil Field. (Envirodyne Engineers, 1985).
Wood stork (*Mycteria americana*)	E	E		Suitable habitat for feeding may be present in shallow water areas at NAS Cecil Field (Envirodyne Engineers, 1985).
Southeastern kestrel (*Falco sparverius paulus*)	T	C2		Confirmed migrant (Envirodyne Engineers, 1985).
Arctic peregrine falcon (*Falco peregrinus tundrius*)	E	T		Confirmed migrant (Envirodyne Engineers, 1985).
Bald eagle (*Haliaeetus leucocephalus*)	T	E		Confirmed migrant (Envirodyne Engineers, 1985).
Sherman's fox squirrel (*Sciurus niger shermani*)	SSC	C2		Possible resident of pine woods. Confirmed resident of similar habitat at NAS Jacksonville. Not known to be a resident species at NAS Cecil Field (Envirodyne Engineers, 1985).
Florida black bear (*Ursus americanus floridanus*)	T	C2		Evidence of black bears reported in outlying areas in 1982 (Envirodyne Engineers, 1985).
Florida mouse (*Peromyscus 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).
Hooded pitcher plant (*Sarracenia minor*)			T	Found in wetlands at NAS Cecil Field, Operable Unit 2.

See notes at end of table.

Table 5-9 (Continued)
Rare, Endangered and Threatened Flora and Fauna at or in the Vicinity of NAS Cecil Field

Baseline Risk Assessment
Operable Unit 7, NAS Cecil Field
Jacksonville, Florida

Common Name	FGFWFC[1]	USFWS[2]	FDA[3]	Comments
Spoon-leaved sundew (*Drosera intermedia*)			T	Found at one location at Yellow Water Weapons area in drainage ditch (ESP, 1990).
Cinnamon fern (*Osmunda cinnamomea*)			CE	Found at NAS Cecil Field, Operable Unit 2 (CDM, 1994).
Royal fern (*Osmunda regalis*)			CE	Found in wetlands at NAS Cecil Field, Operable Unit 2 (CDM, 1994).
Bartram's ixia (*Salpingostylis coelestinum*)			E	Not encountered although appropriate habitat exists and associated plants were common (ESP, 1990).
Variable-leaf crown beard (*Verbesina heterophylla*)		C2		Found at one location at NAS Cecil Field in sandhill habitat (ESP, 1990).
Netted chain fern (*Woodwardia areolata*)			T	Found at NAS Cecil Field by ABB-ES ecologist.
Grass pink (*Calopogon tuberosus*)			T	Found at NAS Cecil Field by ABB-ES ecologist.

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

Notes:
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; any species that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.
E = endangered; any species that is in danger of extinction throughout all or a significant portion of its range.
ESP = Environmental Services and Permitting, Inc.
CE = commercially exploited.
ABB-ES = ABB Environmental Services, Inc.

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Hooded pitcher plant (*Sarracenia minor*)			T	Found in wetlands at NAS Cecil Field, Operable Unit 2.

See notes at end of table.

Table 5-9 (Continued)
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Variable-leaf crown beard (*Verbesina heterophylla*)		C2		Found at one location at NAS Cecil Field in sandhill habitat (ESP, 1990).
Netted chain fern (*Woodwardia areolata*)			T	Found at NAS Cecil Field by ABB-ES ecologist.
Grass pink (*Calopogon tuberosus*)			T	Found at NAS Cecil Field by ABB-ES ecologist.

[1] Florida Game and Fresh Water Fish Commission (list published in Section 39-27.003-005, Florida Administrative Code) (Wood, 1994).
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E = endangered; any species that is in danger of extinction throughout all or a significant portion of its range.
ESP = Environmental Services and Permitting, Inc.
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ABB-ES = ABB Environmental Services, Inc.

6.0 ECOLOGICAL RISK ASSESSMENT (ERA)

The ERA evaluates actual and potential adverse effects to ecological receptors associated with exposure(s) to contamination from Site 16. The ERA for OU 7 was completed in accordance with current guidance materials for ERAs at Superfund sites including the following:

- Risk Assessment Guidance for Superfund (USEPA 1989f)
- Ecological Assessment of Hazardous Waste Sites: A Field and Laboratory Reference (USEPA, 1989a)
- Ecological Assessment of Superfund Sites: An Overview (USEPA 1991a)

Recent risk assessment guidance including the USEPA "Eco Update" bulletins (USEPA, 1991b; 1992b; 1992c) and recent publications (e.g., Maughan, 1993; Suter, 1993) were also consulted.

The ERA for Site 16 is presented in Section 6.2. The general methodology for completing the ERA is included as Section 6.1. The ERA examines the potential or actual adverse effects to ecological receptors associated with exposures to contamination in surface water, sediment, and groundwater.

6.1 ECOLOGICAL ASSESSMENT METHODOLOGY. The following subsections describe the approach and methodologies for the ERA at OU 7. The assessment approach integrates both predictive and field measurement methodologies to assess risks. The decisions regarding overall risk to ecological receptors are based on the weight-of-evidence from the results of all components of the assessment methodology (i.e., an approach that integrates results of physical, biological, toxicological, and modeling studies to draw risk-based conclusions). The components are designed to provide measures of risks for different ecological receptors, exposure pathways, and potential adverse effects.

The ERA for OU 7 consists of the following elements:

- Problem formulation
- Selection of ECPCs
- Exposure assessment
- Ecological effects assessment
- Risk characterization
- Uncertainty analyses

Each of these components are discussed in the following subsections.

6.1.1 Problem Formulation Problem formulation is the initial step of the ERA process where the purpose and scope are defined. The problem formulation consists of identification of receptors (Paragraph 6.1.1.1), identification of exposure pathways for those receptors (Paragraph 6.1.1.2), and the assessment and measurement endpoints selected for the ERA (Paragraph 6.1.1.3).

6.1.1.1 Identification of Receptors Potential ecological receptors of contamination at Site 16 include terrestrial wildlife and aquatic life. Terrestrial wildlife species that may potentially use Site 16 include reptiles,

amphibians, birds, and mammals and are identified in Appendix O based on the types of available habitat. Ecological vegetative cover types, including those associated with the wetlands east of Site 16, are discussed in Section 5.1.

Potential aquatic receptors present in the drainage ditches and Sal Taylor Creek include fish, invertebrates, plants, algae, reptiles, and amphibians. Aquatic fish and macroinvertebrate species identified in the drainage ditches and Sal Taylor Creek during the field investigation are listed in Appendix P and are discussed in Section 5.2.

6.1.1.2 Identification of Exposure Pathways Exposure pathways are identified for two groups of ecological receptors: (1) terrestrial wildlife and (2) aquatic receptors. Exposure pathways are not identified for terrestrial invertebrates and plants at Site 16 because the developed area surrounding Site 16 does not provide suitable habitat for these ecological receptors. The exposure pathway includes a source of contamination, contaminated media (surface water, sediment, and groundwater) and an exposure route (e.g., drinking of contaminated surface water). Figure 6-1 presents a conceptual model of the contaminant pathway from the source to ecological receptors for Site 16. The exposure scenarios depicted in the conceptual model consider the source, environmental transport, partitioning of the contaminants between various environmental media, and identification of exposure routes.

Not all potential routes of exposure are presented in the contaminant pathway model. The model represents only those pathways that are evaluated in the ERA for Site 16. This approach focuses the risk evaluation on the pathways for which contaminant exposures are the highest and most likely to occur. It is also necessary to focus the assessment on those pathways for which there are adequate data in the literature (pertaining to the receptors, contaminant exposures, and toxicity) for completion of the risk analyses.

Terrestrial Wildlife. The exposure routes for terrestrial wildlife represent those pathways that are believed to contribute to the highest potential contaminant exposures. Potential exposures to terrestrial wildlife from surface soil contamination were not identified at OU 7. Site 16 is located in an area of mowed grass (approximately 22,000 square feet [ft^2]) within a larger industrial complex and is surrounded by paved roads, parking lots, and buildings. The mowed grass area is not anticipated to provide habitat for terrestrial wildlife. Exposure routes for terrestrial wildlife include ingestion of surface water and sediment from the drainage ditches that receive stormwater from Site 16 and other areas as well as ingestion of contaminated food items that bioconcentrate chemicals from the surface water and sediment.

Exposures related to dermal contact were not evaluated because it was assumed that fur, feathers, or chitinous exoskeleton limit the transfer of contamination across the dermis. Exposures related to inhalation were not evaluated because this pathway is generally considered an insignificant route of exposure except in atypical situations, such as following a spill or release.

Potential contaminant exposures for reptiles may occur in the drainage ditches, but were not evaluated due to a lack of availability of data relating contaminant exposures to adverse responses for reptiles.

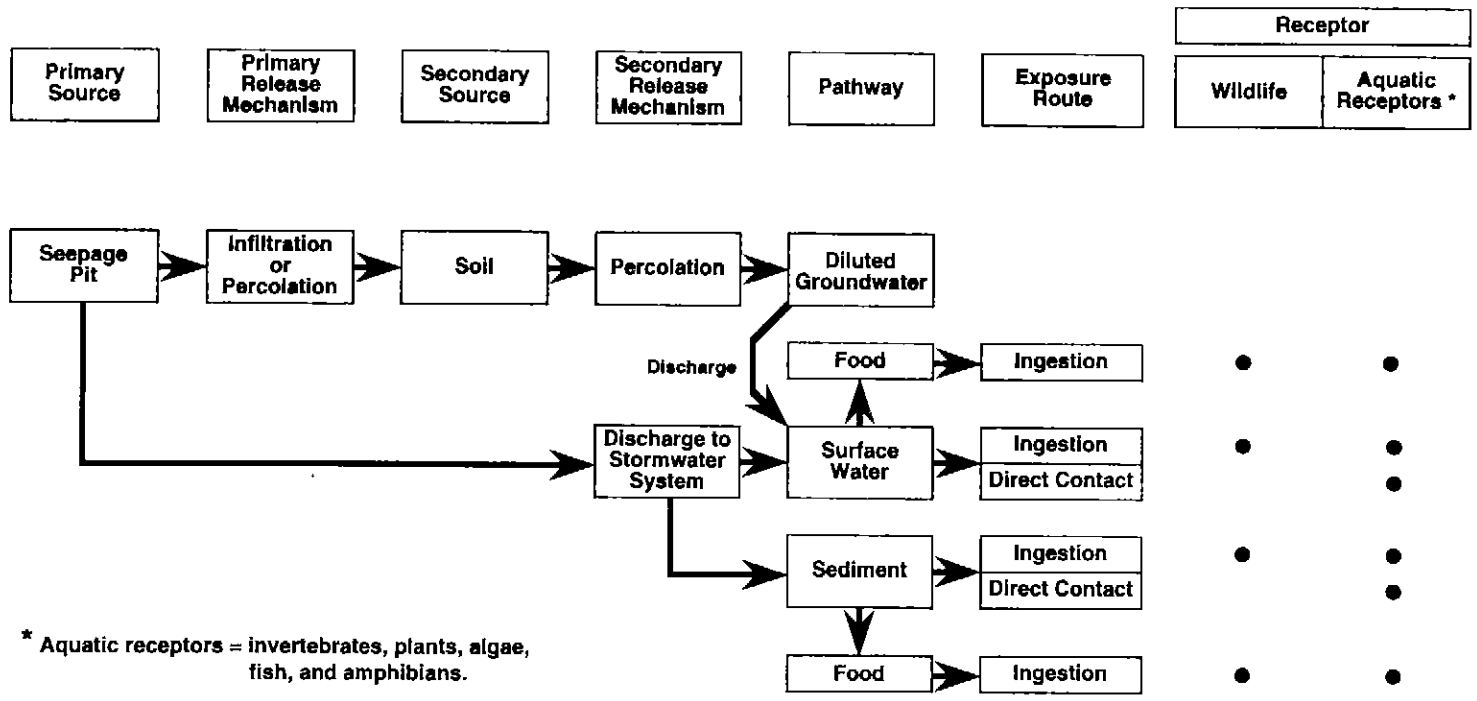

FIGURE 6-1

CONTAMINANT PATHWAY MODEL FOR ECOLOGICAL RECEPTORS

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Aquatic Receptors. Exposure pathways evaluated for aquatic receptors (including invertebrates, plants, amphibians, algae, and fish) include direct contact with the surface water, sediment, and groundwater (as it discharges to surface water). Aquatic life may also be exposed to contamination in sediment and food items as a result of ingestion; however, these pathways were not evaluated because ingestion toxicity data for aquatic organisms are generally not available.

6.1.1.3 Identification of Endpoints The endpoints selected for the ERA are listed in Table 6-1. Measurements of actual toxicity and adverse effects were completed where possible to decrease uncertainties and to measure the adverse effects associated with the mixture of contamination present in sediment. The endpoints for terrestrial wildlife and aquatic receptors are discussed separately. Both measurement and assessment endpoints are identified in Table 6-1. Assessment endpoints represent the ecological component to be protected, whereas the measurement endpoints approximate or provide a measure of the achievement of the assessment endpoint.

Terrestrial Wildlife. Maintenance of well-balanced terrestrial wildlife populations and communities within the habitat surrounding the drainage ditches is the assessment endpoint selected for terrestrial wildlife. Because long-term terrestrial wildlife population data at NAS Cecil Field are not available, a direct measurement of this assessment endpoint is not possible. The results of laboratory toxicity studies in the literature that relate the dose of a contaminant in an oral exposure with an adverse response to growth, reproduction, or survival of a test population (avian or mammalian species) are used as a measure of the assessment endpoint.

Aquatic Receptors. The assessment endpoint selected for aquatic receptors in the drainage ditches is the survival and maintenance of well-balanced benthic macroinvertebrate community structure and function. This endpoint is measured based on the results of the semi-quantitative benthic macroinvertebrate sampling described in Subsection 5.2.5. Toxicity testing (described in Paragraph 6.2.3.1) also provides a measure of the potential survival and reproduction of benthic macroinvertebrates in the sediment. Survival and maintenance of fish and aquatic plant populations is a second assessment endpoint for aquatic life. The survival and maintenance of fish, plant, and invertebrate populations are measured based on literature-reported concentrations of a contaminant in surface water or sediment in a laboratory or field toxicity test that is associated with adverse effects on reproduction, growth, or survival of a test population.

Figure 6-2 presents an illustration of the use of the weight-of-evidence approach for analysis of risks to aquatic receptors. This approach integrates the analytical sediment data, sediment toxicity testing results, and in situ benthic macroinvertebrate studies to evaluate risk to aquatic receptors.

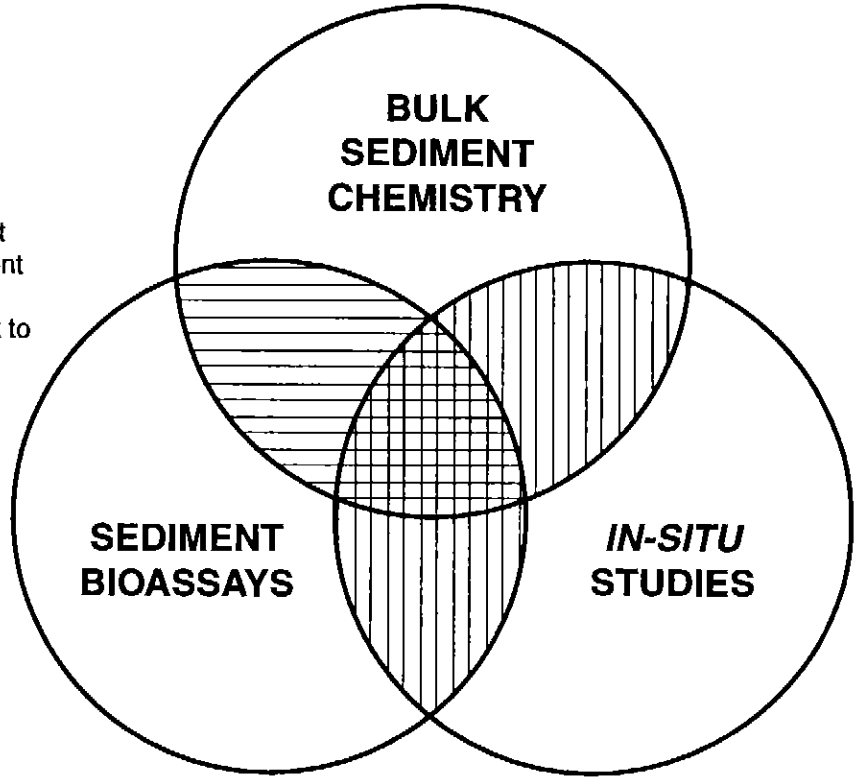
6.1.2 Selection of ECPCs ECPCs represent the analytes detected in media (surface water, sediment, and groundwater) that are considered in the risk assessment process. The ECPCs are assumed to be associated with activities at Site 16 that could present a potential risk to ecological receptors. The process for selection of ECPCs is depicted on Figure 6-3. Surface water and sediment ECPCs were selected separately for wildlife and aquatic receptors because available ECPC screening tools distinguish between these two groups of receptors. The reference (surface

Table 6-1
Ecological Assessment Endpoints

Baseline Risk Assessment
Operable Unit 7, NAS Cecil Field
Jacksonville, Florida

Media	Receptor	Assessment Endpoint	Measurement Endpoint
Surface water	Aquatic life (invertebrates, fish, plants, and amphibians).	Survival and maintenance of benthic macroinvertebrate community structure and function.	Direct measurement of macroinvertebrate community structure and function.
		Survival and maintenance of fish, macroinvertebrate, and aquatic plant populations.	Contaminant concentrations in surface water associated with adverse effects to growth, reproduction, or survival of aquatic organisms.
			Field sampling of fish for observation of health.
Sediment	Aquatic life (invertebrates, fish, plants, and amphibians).	Survival and maintenance of benthic macroinvertebrate community structure and function.	Field sampling and measurement of macroinvertebrate community structure and function.
			Toxicity testing of sediment.
		Survival and maintenance of fish, macroinvertebrate, and aquatic plant populations.	Field sampling of fish with observation of health.
			Contaminant concentrations in sediment associated with adverse effects to growth, reproduction, or survival of aquatic organisms.
Surface water and sediment	Terrestrial wildlife	Survival of wildlife populations and communities.	Oral contaminant exposure concentrations representing adverse effects to growth, reproduction, or survival of mammalian or avian laboratory test populations.

The cross-hatched area represents the best weight of evidence when using bulk sediment chemistry, sediment bioassays, and *in-situ* macroinvertebrate studies in evaluating risk to aquatic receptors.



SOURCE: Chapman, 1992.

FIGURE 6-2

"WEIGHT OF EVIDENCE" CONCEPTUAL RISK MODEL

BASELINE RISK ASSESSMENT
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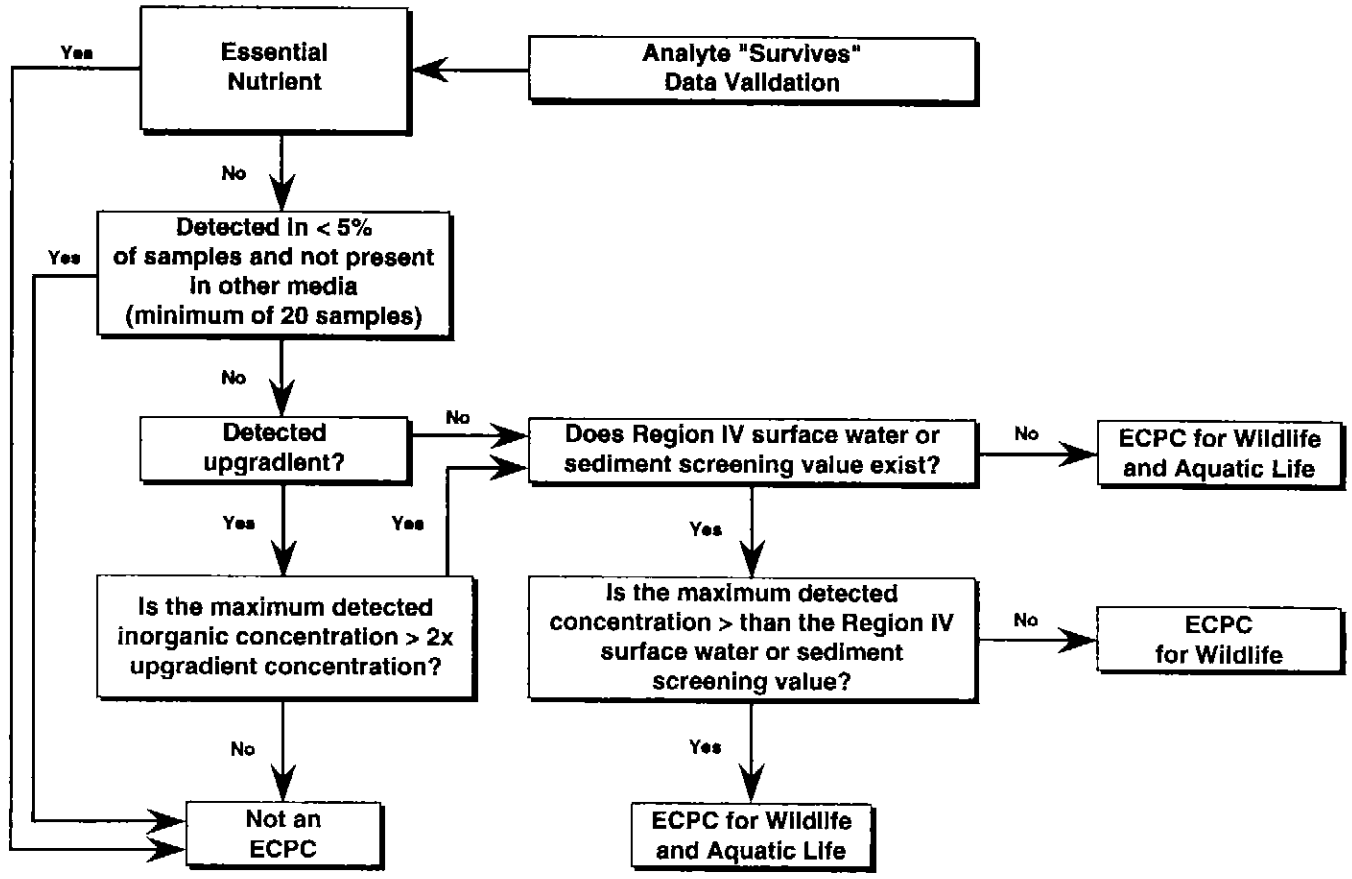

Notes:

ECPC = Ecological contaminant of potential concern

> = Greater than

< = Less than

FIGURE 6-3

ECOLOGICAL CONTAMINANT OF POTENTIAL CONCERN SELECTION PROCESS

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water, sediment, and groundwater) analyte concentrations used in the screening process are discussed in Section 3-4. The reference locations for surface water and sediment and groundwater sampling stations are depicted on Figures 3-4 and 3-5, respectively. The surface water and sediment reference sampling station (STC-SW/SD-R1) is located in Sal Taylor Creek northeast of Site 16. Reference analyte concentrations for groundwater were gathered from a cluster of four monitoring wells (CEF-16-13S, CEF-16-14D, CEF-16-15S, and CEF-16-16D) upgradient of Site 16.

Pursuant to USEPA (1989e) national guidance, analytical data for Site 16 at NAS Cecil Field were evaluated to determine their validity for use in the risk assessment. Analytes were not selected as ECPCs if the site concentrations were within 5 times (or 10 times for common sampling laboratory contaminants) the concentrations in associated trip blanks or method blanks. In addition, analytes in surface water, sediment, and groundwater were not selected as ECPCs if the analyte was detected in 5 percent or fewer of the samples analyzed and were not selected as ECPCs in any other media provided there was no reason to believe that the excluded chemical was a risk driver associated with the site. In accordance with USEPA Region IV guidance (USEPA, 1991c), if the maximum detected concentration of an inorganic analyte was less than 2 times the average inorganic concentration detected in the respective reference sample (surface water, sediment, or groundwater), the analyte was not selected as an ECPC.

All analytes in surface water and sediment retained as ECPCs after the first two steps were selected as ECPCs for terrestrial wildlife. ECPCs for aquatic receptors for surface water, sediment, and groundwater were selected based on an additional step in accordance with USEPA Region IV guidance (USEPA, 1991c; 1992h). Analytes in sediment were selected as ECPCs if the maximum detected concentration exceeded the USEPA Region IV screening value for sediment (USEPA, 1994g), exceeded 2 times the concentration in the reference station (inorganics only), or if a USEPA Region IV screening value was unavailable. Analytes in surface water and groundwater were retained as ECPCs for aquatic receptors if the maximum detected concentration exceeded the USEPA Region IV screening concentration (USEPA, 1992d), exceeded 2 times the concentration in the reference station (inorganics only), or if a screening value was not available.

Calcium, magnesium, potassium, and sodium were excluded as ECPCs for all media as they are considered to be essential nutrients and are only toxic at extremely elevated concentrations. Evidence suggests that there is little potential for toxic effects resulting from over-exposure to these essential nutrients. The highly controlled physiological regulatory mechanisms of these inorganics suggest that there is little, if any, potential for bioaccumulation, and available toxicity data demonstrate that high dietary intake of these nutrients are well-tolerated (NAS, 1977; NRC, 1982; 1984).

6.1.3 Exposure Assessment Exposure assessment is the process of estimating or measuring the amount of an ECPC in environmental media (surface water, sediment, or groundwater) to which an ecological receptor may be exposed via respective exposure routes (i.e., ingestion or direct contact; Figure 6-1). The following paragraphs discuss how contaminant exposures were estimated or measured for terrestrial wildlife and aquatic receptors.

6.1.3.1 Terrestrial Receptors Routes of exposure for terrestrial wildlife for which exposure concentrations were measured or estimated focused on the drainage ditches and include ingestion of surface water, incidental ingestion of sediment,

and ingestion of contaminated food. Concentrations of the surface water and sediment ECPCs measured in the drainage ditches were used to estimate the contaminant exposures for wildlife receptors.

To assess exposure, maximum and average EPCs were chosen for all analytes exceeding the ECPC selection criteria. The maximum detected concentration was used as the maximum EPC. The average of all samples, with a value of one-half the sample quantitation limit (SQL) assigned for all samples in which the analyte was not detected, was used to represent the average EPC. Both maximum and average EPCs are presented in each media-specific ECPC table. If no risk was calculated from exposure to the maximum EPC, then no average exposure scenarios were evaluated (i.e., if no risk was estimated at maximum EPCs, average exposure will result in even less risk).

The actual amount of an ECPC taken in by wildlife species as a result of indirect or direct ingestion is dependant upon a number of factors. To evaluate risk at Site 16, certain species are selected as representative wildlife species for evaluation in a food chain model. The representative wildlife species are described in the BRA (ABB-ES, 1994b) for Site 16 (Subsection 6.2.2). Table 6-2 summarizes how contaminant exposure concentrations were determined for ECPCs in surface water and sediment for the representative wildlife species evaluated in the food web model.

A total potential dietary exposure (PDE) is estimated for each representative wildlife species for each surface water and sediment ECPC according to the equations in Table 6-2. This model considers exposure concentrations of ECPCs in prey items, the amount of sediment and surface water that wildlife ingest, the receptor body weight, the rate of food ingestion, and the rate of water intake.

The concentrations of ECPCs in aquatic prey are estimated based on literature-reported bioconcentration factors (BCFs), which are the reported ratios of the ECPC in the aquatic organism to the concentration in surface water. The actual amount of an ECPC to which a wildlife species may be exposed as a result of direct or indirect ingestion is dependant on the habits of the species.

6.1.3.2 Aquatic Receptors Exposure concentrations for aquatic receptors are equal to the amount of the ECPCs measured in surface water and sediment at the sampling locations in the drainage ditches. Sediment samples were collected from the drainage ditches and Sal Taylor Creek (as described in Paragraph 6.1.4.2) for toxicity testing. These toxicity tests represent exposure of test organisms to the actual mixture of contamination in the sediment and provide a measurement of contaminant bioavailability from the sediment to the receptor.

6.1.4 Ecological Effects Assessment The ecological effects assessment describes the potential adverse effects associated with the identified ECPCs to ecological receptors and reflects the type of assessment endpoints selected. The methods used for identifying and characterizing ecological effects for ECPCs in surface water, sediment, and groundwater are described in the following subsections.

6.1.4.1 Surface Water and Sediment The measures of adverse ecological effects for terrestrial wildlife and aquatic receptors are discussed separately. Potential adverse ecological effects for terrestrial wildlife are estimated for

Table 6-2
Contaminant Exposure Models

Baseline Risk Assessment
Operable Unit 7, NAS 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:	Maximum: the maximum detected concentration of the ecological chemical of concern (ECPC). Average: the average of all the samples with a value of one-half the sample quantitation limit assigned for all samples in which the analyte was not detected.

Contaminant concentration in aquatic prey tissue (mg/kg):

$$\text{Aquatic prey contaminant concentration (mg/kg)} = [\text{BCF X Surface water contaminant concentration (mg/}\ell)]$$

where BCF = bioconcentration factor (mg/kg of contaminant in food item per mg/ℓ of contaminant in water).

Surface water exposure:

$$\text{Surface water contaminant exposure (mg/day)} = \text{Surface water contaminant concentration (mg/}\ell) \text{ X Water ingestion rate (}\ell\text{/day)}$$

Aquatic prey exposure:

$$\text{Aquatic prey exposure (mg/day)} = \text{\% diet as aquatic prey X } IR_{diet} \text{ (kg/day) X Aquatic prey contaminant concentration (mg/kg)}$$

where: IR_{diet} = food ingestion rate of receptor (kilograms 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 (kilograms) of receptor

Notes: mg/kg = milligrams per kilogram. ℓ/day = liters per day.
mg/ℓ = milligrams per liter. % = percent.
mg/day = milligrams per day. kg/day = kilograms per day.

each ECPC based on available literature information. Potential adverse effects for aquatic life are estimated based on the literature and direct measurements for the entire mixture of ECPCs.

Terrestrial Wildlife. Reference toxicity values (RTVs) were identified from the literature for each ECPC in surface water and sediment for the avian and mammalian representative wildlife species. The RTV relates the dose of a respective ECPC in an oral exposure with an adverse effect. For each ECPC identified and each representative wildlife species selected, two RTVs were identified. A lethal RTV represents the threshold for lethal effects and is based on the oral LD_{50} (oral dose lethal to 50 percent of a test population). The lethal RTV is one-fifth of the lowest reported LD_{50} value for the most closely related species. One-fifth of an oral LD_{50} value is considered to protect 99.9 percent of individuals in a test population from lethal effects (USEPA, 1986b). An assumption was made that the value represented by one-fifth of an oral LD_{50} would be protective of 99.9 percent of the individuals within the terrestrial wildlife populations at OU 7 and that this represents a level of acceptable risk.

A sublethal RTV, which represents a threshold for sublethal effects, is also identified. Sublethal effects are defined as those that impair or prevent reproduction or growth. The sublethal RTV reflects the assessment endpoint chosen as the basis for establishing risk (Paragraph 6.1.1.3).

The RTVs are assumed to be a measure of the goal for protection of the survival, growth, and reproduction of terrestrial wildlife populations. RTVs were derived separately for avian and mammalian species. If neither lethal or sublethal toxicity information was available for an ECPC, it was not possible to identify RTVs, and risks associated with the predicted exposure for the respective ECPC were not quantitatively evaluated. Wildlife RTVs are presented in Appendix U.

Aquatic Receptors. Potential adverse ecological effects associated with ECPCs in sediment from the drainage ditches were evaluated by use of toxicity testing of the sediment. Potential adverse ecological effects associated with ECPCs in surface water and sediment were evaluated based on the results of the quantitative sampling and analyses of benthic macroinvertebrate community structure and function. Effects associated with ECPCs in surface water were also evaluated by comparing the concentrations in surface water samples with available standards and reported toxicity benchmark values.

Sediment samples for toxicity testing were collected from two locations in the drainage ditches (STC-Tox-1 and STC-Tox-3) and one reference location in Sal Taylor Creek (STC-Tox-R1). The samples were collected concurrently with sediment samples for TCL and TAL analyses (STC-SD-1, STC-SD-3, and STC-SD-R1; Figure 3-4) and represent split samples. The results of the chemical analyses of the sediment can, therefore, be used to establish contaminant exposure concentrations and provide the means to interpret responses in the bioassays.

The toxicity of the sediment was evaluated by testing with a short-term chronic pore water test using the water flea (*Ceriodaphnia dubia*) and a 14-day survival test using an amphipod (a small crustacean, *Hyallela azteca*) (Springborn Laboratories, 1993). Appendix Q contains the protocols used in the *C. dubia* test and the *H. azteca* test. The methods described in the daphnid protocol are based on Method 1002.0 prescribed by USEPA (1989a). The methods described in the amphipod protocol meet the standard procedures cited in the American Society of

Testing Materials (ASTM) Guidelines for Conducting Sediment Toxicity Tests with Freshwater Invertebrates (ASTM, 1991).

Section 5.2 describes the sampling of the aquatic macroinvertebrate community at three sampling stations in the drainage ditches (STC-Bio-1, STC-Bio-3, and STC-Bio-4) and one reference location in Sal Taylor Creek (STC-Bio-R1). The reference location provides information on the status of the macroinvertebrate communities and the extent and type of sediment and surface water contamination in Sal Taylor Creek northeast of Site 16. The sampling stations coincide with the locations for the chemical analyses of surface water, sediment, and sediment toxicity testing samples, allowing for comparison of the results of the chemical analyses of surface water and sediment with the different measurements of the macroinvertebrate community structure and function. This comparison is discussed as part of the Risk Characterization (Subsection 6.1.5).

Available toxicity benchmarks for each of the ECPCs in surface water were identified. State of Florida surface water quality standards (Florida Legislature, 1995) and Federal ambient water quality criteria (AWQC) (USEPA, 1991e) were considered. Additional aquatic toxicity information for the ECPCs was obtained from searches of the USEPA Aquatic Information Retrieval (AQUIRE) computer database. Information on the AQUIRE database and search procedures are included in Appendix R. Sediment toxicity benchmarks selected for comparison to detected sediment concentrations include the National Oceanic and Atmospheric Administration (NOAA) Effects Range-Low (ER-L) and Effects Range-Medium (ER-M) sediment guidelines (Long and Morgan, 1993) and the FDEP probable effect level (PEL) and threshold effect level (TEL) sediment quality assessment guidelines (MacDonald, 1994).

6.1.4.2 Groundwater Potential adverse effects associated with groundwater ECPCs are available in the form of laboratory aquatic toxicity testing results for individual ECPCs. Aquatic toxicity information for the ECPCs was obtained from searches of the USEPA AQUIRE database. Information on the AQUIRE database and the search procedure are included in Appendix R. Additional toxicity benchmarks used to assess the potential for adverse effects from groundwater ECPCs include the State of Florida surface water quality standards (Florida Legislature, 1995) and Federal AWQC (USEPA, 1991e). These toxicity benchmarks are compared with the exposure concentrations of unfiltered groundwater ECPCs in Sal Taylor Creek (after dilution) and the wetlands. These benchmarks are prepared for concentrations of contaminants in surface water and are typically applied outside a mixing zone for permitted wastewater discharges.

The toxicity benchmarks used to evaluate the potential adverse effects of groundwater represent a worst-case scenario because they are the lowest concentration associated with adverse effects. The benchmarks do not account for dilution of groundwater discharging to surface water.

6.1.5 Risk Characterization The following paragraphs describe how risks are characterized for ecological receptors. Potential adverse effects to terrestrial wildlife and aquatic receptors are characterized for exposures to surface water and sediment. Risks for terrestrial wildlife resulting from exposure to contamination in the food chain are included. Risks are also characterized for aquatic receptors for exposures resulting from ECPCs in groundwater.

6.1.5.1 Surface Water and Sediment Risks associated with exposures to ECPCs in surface water and sediment were characterized separately for terrestrial wildlife and aquatic receptors.

Terrestrial Receptors. Risks for the representative wildlife species associated with ingestion of surface water, potentially contaminated aquatic life, and sediment are quantitatively evaluated using HQs, which are calculated for each ECPC by dividing the estimated contaminant exposure concentration (from Paragraph 6.1.3.1) by the RTV (from Paragraph 6.1.4.1). HIs are determined for each representative wildlife species by summing the HQs for all ECPCs. When the estimated exposure concentration is less than the respective RTV (i.e., HQ < 1), the contaminant exposure is assumed to fall below the range considered to be associated with adverse effects for growth, reproduction, and survival and no risks to the wildlife populations are assumed. When the ratio is greater than one (i.e., HQ or HI > 1), a discussion of the ecological significance is included and risk is assumed. When HIs are greater than 1, an evaluation of the HQs comprising the HI is completed.

Aquatic Receptors. Risks for aquatic receptors were characterized for each sampling location within the drainage ditches based on a weight-of-evidence evaluation of the following factors:

- Presence or absence of analytes in surface water and sediment samples
- Concentrations of analytes measured in surface water and sediment samples
- Responses of *H. azteca* and *C. dubia* in the sediment toxicity tests
- Measurements of the aquatic macroinvertebrate community structure and function
- Concentrations of ECPCs in surface water relative to reported toxicity of the ECPC in laboratory tests (AQUIRE information) and State of Florida surface water quality standards (Florida Legislature, 1995)
- Concentrations of ECPCs in sediment relative to NOAA ER-L and ER-M sediment guidelines (Long and Morgan, 1993)
- Physical and chemical factors in the aquatic environment (other than chemical contamination)

Because the sediment toxicity testing and chemical analytical samples were collected concurrently and split for the two separate analyses, the chemical analyses results for the sediment samples can be used to interpret the contaminant exposures for the test species (*H. azteca* and *C. dubia*) and the responses of the test population. Due to the small number of samples collected in the drainage ditches, linear regressions could not be completed to determine if a correlation exists between the concentration of an analyte in surface water or sediment samples and the adverse response in the toxicity test or metrics measured for the aquatic benthic macroinvertebrate community.

6.1.5.2 Groundwater Risks for aquatic life associated with exposures to ECPCs in groundwater as they discharge to Sal Taylor Creek and the wetlands adjacent to Site 16 were evaluated. A simple modeling effort was completed to determine

a dilution factor in groundwater entering Sal Taylor Creek. The modeling effort is described in Appendix T. Both surface water and groundwater were evaluated to help clarify the difference between current and future aquatic exposures, respectively. Predicted concentrations of the ECPCs in Sal Taylor Creek and the adjacent wetlands (resulting from discharge of groundwater to surface water) were compared to State of Florida surface water quality standards (Florida Legislature, 1995) and Federal AWQC (USEPA, 1991e). Where exposure concentrations exceed the standards or standards are unavailable, risks were characterized based on comparisons of the exposure concentrations with dose-response information from AQUIRE (Appendix R).

6.1.6 Uncertainty Analyses The general uncertainties associated with the ERA are outlined in Table 6-3. Specific uncertainties in the ERA process are identified and discussed for Site 16 in Subsection 6-2. The emphasis of the uncertainty analyses is to discuss the assumptions and data gaps of the ERA process that may influence the risk characterization results and assessment conclusions.

6.2 ECOLOGICAL ASSESSMENT FOR SITE 16. The following subsections describe the results for the ERA of contamination in surface water, sediment, and groundwater at Site 16. The ERA was completed according to the methodology described in Section 6.1. The ERA includes selection of ECPCs (Subsection 6.2.1), exposure assessment (Subsection 6.2.2), ecological effects assessment (Subsection 6.2.3), risk characterization (Subsection 6.2.4), and uncertainty analyses (Subsection 6.2.5). Each of these sections discusses surface water, sediment, and groundwater separately. It is unlikely that terrestrial receptors would be exposed to surface soil contamination because the majority of Site 16 is located in an industrial area with concrete and mowed grass.

6.2.1 Selection of ECPCs Analytes were determined to be an ECPC according to the process described in Subsection 6.1.2 and illustrated on Figure 6-3. ECPCs for surface water, sediment, and groundwater at Site 16 were selected as described in the following sections. ECPCs were selected separately for aquatic life and terrestrial wildlife for both surface water and sediment.

6.2.1.1 Surface Water Unfiltered surface water was sampled at three locations in the drainage ditches (STC-SW-1, STC-SW-3, and STC-SW-4) and one reference location northeast of Site 16 in Sal Taylor Creek (STC-SW-R1) (Figure 3-4). The analytes, frequency of detection, range of detected concentrations, average concentrations detected, reference concentrations, and USEPA Region IV water quality screening values are reported in Table 6-4.

Fifteen analytes were detected in these surface water samples. Of the 15 detected analytes, 2 volatiles (1,2-dichloroethene and trichloroethene) and 5 inorganics (cadmium, copper, iron, lead, and zinc) were identified as ECPCs for both aquatic life and terrestrial wildlife. One volatile (toluene) and one inorganic (beryllium) were selected as ECPCs for terrestrial wildlife only.

Table 6-3
Potential Sources of Uncertainty

Baseline Risk Assessment
Operable Unit 7, NAS Cecil Field
Jacksonville, Florida

Potential source	Direction of Effect	Justification
Uncertainties Associated with ECPC Selection Process		
Degradation of chemicals not considered	Overestimate	Risk estimates are based on recent chemical concentrations resulting from storm sewer discharges. Concentrations will tend to decrease over time from degradation and the formation of daughter products.
No evaluation of TIC data	Underestimate	Risk was not calculated for potential exposure to these compounds.
Uncertainties Associated with Exposure Assessment		
Food chain assumed to occur at site	Unknown	Occurrence of the food chain used in the models at the sites is unknown.
Food chain model exposure parameter assumptions	Unknown	Some exposure parameters are from the literature and some are estimated. Efforts were made to select exposure parameters representative of a variety of species or feeding guilds, so that exposure estimates would be representative of more than a single species.
Uncertain occurrence of receptors at sites	Unknown	Actual occurrence at the sites by receptors considered in the food chain models is uncertain.
Extrapolation from test species to representative wildlife species	Unknown	Species differ with respect to absorption, metabolism, distribution, and excretion of chemicals. The magnitude and direction of the difference will vary with each chemical.
Consumption of contaminated prey	Unknown	Toxicity to prey receptors may result in sickness or mortality. Fewer prey items would be available for predators. Predators may stop foraging in areas with reduced prey populations, or discriminate against, or conversely, select contaminated prey.
Limited evaluation of dermal or inhalation exposure pathways	Underestimate	The dermal and inhalation exposure pathways are generally considered insignificant due to protective fur, feathers, and chitinous exoskeletons, and the low concentration of contaminants under natural atmospheric conditions. However, under certain conditions, these exposure pathways may occur.
Maximum exposure scenarios	Overestimate	It is unlikely any receptor would be exposed concurrently to maximum concentrations of all ECPCs.
Missing RTV values	Underestimate	RTVs were not available in the literature for all compounds and receptor classes (i.e., small birds); therefore, these gaps may result in an underestimate of the total risk represented by the summary HI.
Use of unfiltered surface water samples	Overestimate	Measurement of ECPC concentrations in unfiltered samples includes both dissolved and particulate fractions. The dissolved fraction is considered to be the biologically available component.

See notes at end of table.

Table 6-3 (Continued)
Potential Sources of Uncertainty

Baseline Risk Assessment
Operable Unit 7, NAS Cecil Field
Jacksonville, Florida

Potential source	Direction of Effect	Justification
Uncertainties Associated with Effects		
Lack of toxicity information for reptile species	Unknown	Information is not available on the toxicity of contaminants to reptile species resulting from dietary or oral exposures. It is assumed that if mammals and birds are protected then reptiles should be protected also; therefore, reptiles were not evaluated in the risk assessment. However, reptiles may not be protected if they are more sensitive than mammals or birds.
Use of measurement endpoints	Overestimate	Although an attempt was made to have measurement endpoints reflect assessment endpoints, limited available ecotoxicological literature resulted in the selection of certain measurement endpoints that may overestimate assessment endpoints.
Lack of toxicity information for mammals or birds	Underestimate	Reference toxicity values for certain compounds and receptor groups were not available; thereby, underestimating the risk predicted by the summary HI.
Uncertainties Associated with Risk Characterization		
Risk evaluated for individual terrestrial receptors only	Overestimate	Effects on individual terrestrial organisms may occur with little population or community level effects. However, as the number of affected individuals increases, the likelihood of population-level effects increases.
Effect of decreased prey item populations on predatory receptors	Unknown	Adverse population effects to prey items may reduce the foraging population for predatory receptors, but may not necessarily adversely impact the population of predatory species.
Multiple conservative assumptions	Overestimate	Cumulative impact of multiple conservative assumptions yields high risk to ecological receptors, and may result in risk at background concentrations or the prediction of risks when there is no potential for adverse effects.
Summation of effects (HIs)	Unknown	The assumption that effects are additive ignores potential synergistic or antagonistic effects. It assumes similarity in mechanism of action, which is not the case for many substances. Compounds may induce toxic effects in different organs or systems.

Notes: ECPC = ecological contaminant of potential concern.
TIC = tentatively identified compounds.
RTVs = reference toxicity values.
HIs = hazard indices.

Table 6-4
Surface Water Ecological Chemicals of Potential Concern (ECPCs)

Baseline Risk Assessment
Operable Unit 7, NAS Cecil Field
Jacksonville, Florida

Analyte	Frequency of Detection[1]	Range of Detected Concentrations	Range of Reporting Limits	Mean of Detected Concentrations[2]	Screening Reference Concentration[3]	USEPA Region IV Water Quality Screening Values[4]	Chemical of Potential Concern[5]
Volatiles (µg/ℓ)							
1,2-Dichloroethene (total)	2/3	4 to 9	10 to 10	6.5	ND	NA	A/W
Toluene	1/3	2 to 2	10 to 10	2	ND	175	[6]W
Trichloroethene	2/3	8 to 20	10 to 10	14	ND	NA	A/W
Inorganics (µg/ℓ)							
Aluminum	3/3	292 to 490	200 to 200	384	696	87	[7]No
Barium	3/3	17.6 to 18.6	200 to 200	18.2	28.6	NA	[7]No
Beryllium	1/3	0.49 to 0.49	5 to 5	0.49	ND	0.53	[6]W
Cadmium	2/3	0.32 to 37.3	5 to 5	18.8	ND	0.63	A/W
Calcium	3/3	6,510 to 10,800	5,000 to 5,000	9,140	66,000	NA	[6,7]No
Copper	3/3	2.4 to 11.9	25 -25	6.4	ND	6.2	A/W
Iron	3/3	847 to 1,470	100 to 100	1,112	762	1,000	A/W
Lead	1/3	14.1 to 14.1	5 to 5	14.1	5.8	1.22	A/W
Magnesium	3/3	1,190 to 3,290	5,000 to 5,000	2,520	2,560	NA	[6]No
Manganese	1/3	9.6 to 9.6	15 to 15	9.6	14.8	NA	[7]No
Sodium	3/3	3,120 to 5,200	5,000 to 5,000	4,370	5,960	NA	[6,7]No
Zinc	3/3	25.4 to 68.4	20 to 20	39.8	36.8	55.9	A/W

See notes on next page.

Table 6-4 (Continued)
Surface Water Ecological Chemicals of Potential Concern (ECPCs)

Baseline Risk Assessment
Operable Unit 7, NAS Cecil Field
Jacksonville, Florida

Analyte	Frequency of Detection[1]	Range of Detected Concentrations	Range of Reporting Limits	Mean of Detected Concentrations[2]	Screening Reference Concentration[3]	USEPA Region IV Water Quality Screening Values[4]	Chemical of Potential Concern[5]

[1] Frequency of detection is the number of samples in which the analyte is detected divided by the total number of samples analyzed. Sample locations (STC-SW-1, STC-SW-3, and STC-SW-4) are depicted on Figure 3-4.
[2] The average of detected concentrations is the arithmetic mean of all samples in which the analyte was detected; it does not include those samples in which the analyte was not detected.
[3] The reference sample location is STC-SW-R1. The concentrations of analytes detected in the reference location are listed in Table 3-3. Two times the background concentration is calculated for inorganics.
[4] U S. Environmental Protection Agency (USEPA) Region IV Waste Management Division, freshwater water quality chronic screening values for hazardous waste sites (November 16, 1992, version). Values for cadmium, copper, lead, and zinc are based upon equations using the average measured hardness for surface water samples of 47 milligrams per liter (mg/ℓ) from Sal Taylor Creek, including STC-SW-R1, STC-SW-1, STC-SW-3, and STC-SW-4.
[5] A = ECPC for aquatic receptors.
W = ECPC for terrestrial receptors.
ECPC selection process is depicted on Figure 6-3.
[6] Analyte is an essential nutrient and is not present at toxic levels.
[7] Maximum detected concentration is less than 2 times the average background concentration for inorganics.
[8] Maximum analyte concentration is below the USEPA Region IV surface water screening value (USEPA, 1992d); therefore, the analyte will not be considered an ECPC for aquatic receptors.

Notes: μg/ℓ = micrograms per liter.
ND = not detected in the background samples.
NA = not available.

6.2.1.2 **Sediment** Sediment samples were collected at Site 16 concurrently at the same locations as the surface water samples (Figure 3-4). The analytes, frequency of detection, range of detected concentrations, average of detected concentrations, average reference concentrations, and respective sediment quality screening values are listed in Table 6-5. The sediment quality screening valves were derived from the lower of the threshold effects level (TEL) from the Florida Sediment Quality Assessment Guidelines (MacDonald and others, 1994) or the USEPA Region IV sediment screening values for hazardous waste sites (USEPA, 1994g).

Twenty analytes were detected in the sediment samples. Three volatiles (2-butanone, acetone, and toluene), 1 semivolatile (bis(2-ethylhexyl)phthalate), and 10 inorganics were identified as ECPCs for both terrestrial wildlife and aquatic receptors. Chromium, copper, and nickel were selected as ECPCs for terrestrial wildlife only.

TPH was detected in the Site 16 drainage ditch sediment at concentrations ranging from 214 mg/kg (STC-SD-4) to 1,920 mg/kg (STC-SD-1) (Table 6-6). Total organic carbon was also measured in samples from the drainage ditches at concentrations well above the reference station, STC-SD-R1 (4,820 mg/kg), ranging from 7,900 mg/kg (STC-SD-1) to 15,600 mg/kg (STC-SD-4).

6.2.1.3 **Groundwater** The monitoring well system installed at Site 16 to examine potential contamination to the groundwater is described in Section 3.3. The locations of the monitoring wells are shown on Figure 3-5. Data from 21 monitoring wells located within the identified plume (CEF-16-10S, CEF-16-12I, CEF-16-17S, CEF-16-18D, CEF-16-19S, CEF-16-20D, CEF-16-21S, CEF-16-22I, CEF-16-23D, CEF-16-24S, CEF-16-25D, CEF-16-27I, CEF-16-28D, CEF-16-32S, CEF-16-33D, CEF-16-38S, CEF-16-39I, CEF-16-40D, CEF-16-5S, CEF-16-7S, and CEF-16-9D) were used to evaluate groundwater conditions potentially contributing to surface water contamination in the Site 16 drainage ditches and the adjacent wetlands. Reference analyte concentrations for groundwater were gathered from a cluster of four monitoring wells (CEF-16-13S, CEF-16-14D, CEF-16-15S, and CEF-16-16D) upgradient of Site 16. Wells screened in the shallow, intermediate, and deep intervals of the surficial aquifer were included in the summary of groundwater data; groundwater from any of these three intervals could conceivably discharge to the Site 16 drainage ditches or wetlands (ABB-ES, 1995).

Groundwater in the surficial aquifer flows from Site 16 to the southeast toward the drainage ditches, wetlands, and Sal Taylor Creek. Aquatic receptors in the drainage ditches, wetlands, and Sal Taylor Creek may be exposed to groundwater contamination when it discharges to the surface water in the future. Analytes detected in the Site 16 surficial aquifer are screened as potential ECPCs. The unfiltered data for Site 16 are summarized in Table 6-7. Use of unfiltered groundwater data to estimate contaminant exposures is highly conservative because particulates in the groundwater are not likely to be discharged to surface water. Filtered data for inorganic analytes are presented in Table 6-8 because it is believed that these results represent those contaminants in the dissolved fraction, which could potentially discharge to Sal Taylor Creek and be bioavailable to aquatic life. Fourteen ECPCs were identified in Site 16 groundwater samples (Table 6-7). Five volatiles (1,1,1-trichloroethane, 1,1-dichloroethene, 1,2-dichloroethene, 4-methyl-2-pentanone, and trichloroethene), one semivolatile (bis(2-ethylhexyl)-phthalate), and eight inorganics were selected as ECPCs. Although both 1,1,1-trichloroethane and 1,1-dichloroethene were detected in less than 5 percent of the groundwater samples analyzed, they were retained as ECPCs because of their association with past waste disposal activities at Site 16.

Table 6-5
Sediment Ecological Chemicals of Potential Concern (ECPCs)

Baseline Risk Assessment
Operable Unit 7, NAS Cecil Field
Jacksonville, Florida

Analyte	Frequency of Detection[1]	Range of Detected Concentrations	Range of Reporting Limits	Mean of Detected Concentrations[2]	Screening Reference Concentration[3]	Sediment Quality Screening Value[4]	Chemical of Ecological Concern[5]
Volatiles (µg/kg)							
2-Butanone	2/3	3 to 5	13 to 19	4	ND	NA	A/W
Acetone	3/3	3 to 11	13 to 19	7.3	38	NA	A/W
Toluene	2/3	4 to 6	13 to 19	5	ND	NA	A/W
Semivolatiles (µg/kg)							
bis(2-Ethylhexyl)phthalate	2/3	8,200 to 12,000	6,500 to 24,000	10,100	ND	182	A/W
Inorganics (mg/kg)							
Aluminum	3/3	1,820 to 3,890	40 to 40	2,840	2200	NA	A/W
Barium	3/3	3 to 11.1	40 to 40	6.3	8.0	NA	A/W
Cadmium	1/3	4.6 to 4.6	1 to 1	4.6	ND	0.676	A/W
Calcium	2/3	142 to 436	1,000 to 1,000	289	11,300	NA	[6,7]No
Chromium	2/3	11.4 to 11.9	2 to 2	11.7	4.4	33	[8]W
Chromium, hexavalent[9]	1/1	0.99 to 0.99	0.01 to 0.01	0.99	NA	NA	A/W
Copper	3/3	2.8 to 13.5	5 to 5	9.3	2.0	18.7	[8]W
Iron	3/3	463 to 1,500	20 to 20	815	826	NA	A/W
Lead	3/3	4.7 to 30.6	1 to 1	21.7	14.4	21	A/W
Magnesium	2/3	60.1 to 138	1,000 to 1,000	99.1	202	NA	[6,7]No
Manganese	1/3	4.9 to 4.9	3 to 3	4.9	3.8	NA	A/W
Mercury	2/3	0.06 to 0.12	0.1 to 0.1	0.09	ND	0.1	A/W
Nickel	1/3	4.6 to 4.6	8 to 8	4.6	ND	15.9	[8]W
Sodium	1/3	21.2 to 21.2	1,000 to 1,000	21.2	ND	NA	[7]No
Vanadium	2/3	4.1 to 6.8	10 to 10	5.4	ND	NA	A/W
Zinc	3/3	19.5 to 109	4 to 4	68.4	21.8	68	A/W

See notes on next page.

Table 6-5 (Continued)
Sediment Ecological Chemicals of Potential Concern (ECPCs)

Baseline Risk Assessment
Operable Unit 7, NAS Cecil Field
Jacksonville, Florida

Analyte	Frequency of Detection[1]	Range of Detected Concentrations	Range of Reporting Limits	Mean of Detected Concentrations[2]	Screening Reference Concentration[3]	USEPA Region IV Sediment Quality Screening Values[4]	Chemical of Ecological Concern[5]

[1] Frequency of detection is the number of samples in which the analyte is detected divided by the total number of samples analyzed. Sample locations (STC-SD-1, STC-SD-3, and STC-SD-4) are depicted on Figure 3-4.
[2] The average of detected concentrations is the arithmetic mean of all samples in which the analyte was detected; it does not include those samples in which the analyte was not detected.
[3] The reference sample location is STC-SD-R1. The concentrations of analytes detected in the reference location are listed in Table 3-3. Two times the background concentration is calculated for inorganics.
[4] Sediment quality screening values are the lower of the threshold effects level (TEL) for the Florida Sediment Quality Assessment guidelines (MacDonald and others, 1994) or the U.S. Environmental Protection Agency (USEPA) Region IV Waste Management Division, sediment screening values for hazardous waste sites (February 16, 1994, version).
[5] A = ECPC for aquatic receptors.
W = ECPC for terrestrial wildlife.
ECPC selection process is depicted on Figure 6-3.
[6] Maximum detected concentration is less than 2 times the average background concentration for inorganics.
[7] Analyte is an essential nutrient and is not present at toxic levels.
[8] Maximum analyte concentration is below the USEPA Region IV sediment screening value (USEPA, 1994g); therefore, the analyte will not be considered as an ECPC for aquatic receptors.
[9] Hexavalent chromium was collected only at sampling station STC-SD-01.

Notes: μg/kg = micrograms per kilogram.
ND = not detected in the background samples.
NA = not available.
mg/kg = milligrams per kilogram.

Table 6-6
Total Petroleum Hydrocarbon (TPH) and
Total Organic Carbon (TOC) in Sediment

Baseline Risk Assessment
Operable Unit 7, NAS Cecil Field
Jacksonville, Florida

Sampling Location	TPH	TOC
STCSD1	1,920	7,900
STCSD3	1,030	11,900
STCSD4	214	15,600
STCSDR1	30.4	4,820

Note: All concentrations are reported in milligrams per kilogram (mg/kg).

Table 6-7
Groundwater Ecological Chemicals of Potential Concern (ECPCs)

Baseline Risk Assessment
Operable Unit 7, NAS Cecil Field
Jacksonville, Florida

Analyte	Frequency of Detection [1]	Range of Detected Concentrations	Range of Reporting Limits	Mean of Detected Concentrations [2]	Reference Screening Concentration [3]	USEPA Region IV Water Quality Screening Values[4]	Analyte ECPC? (Yes/No)
Volatiles (µg/ℓ)							
1,1,1-Trichloroethane	1/21	[5] 3,000 to [5] 3,000	1 to 830	3,000	ND	528	[6]Yes
1,1-Dichloroethane	1/21	1 to 1	1 to 420	1	ND	NA	[6]No
1,1-Dichloroethene	1/21	[5] 400 to [5] 400	1 to 625	400	ND	NA	[6]Yes
1,2-Dichloroethene (total)	2/21	270 to [5] 12,500	1 to 830	6,360	ND	NA	Yes
4-Methyl-2-pentanone	1/16	1 to 1	2 to 830	1	ND	NA	Yes
Trichloroethene	7/21	12 to [5] 630	1 to 830	238	ND	NA	Yes
Semivolatiles (µg/ℓ)							
2-Methylnaphthalene	1/21	[5] 2.75 to [5] 2.75	10 to 10	2.8	ND	NA	[8]No
Diethylphthalate	2/21	1 to 1	10 to 10	1	0.7	521	[7]No
Naphthalene	1/21	[5] 3.5 to [5] 3.5	10 to 10	3.5	ND	62	[7,8]No
Phenanthrene	1/21	3 to 3	10 to 10	3	ND	NA	[8]No
Phenol	3/21	0.8 to [5] 1.45	10 to 10	1.1	0.75	256	[7]No
bis(2-Ethylhexyl)phthalate	17/21	0.5 to [5] 20.5	10 to 17	5.7	1.0	0.3	Yes
Pesticides and PCBs (µg/ℓ)							
Endrin	1/20	0.02 to 0.02	0.01 to 0.1	0.02	ND	0.0023	[8]No

See notes at end of table.

Table 6-7 (Continued)
Groundwater Ecological Chemicals of Potential Concern (ECPCs)

Baseline Risk Assessment
Operable Unit 7, NAS Cecil Field
Jacksonville, Florida

Analyte	Frequency of Detection [1]	Range of Detected Concentrations	Range of Reporting Limits	Mean of Detected Concentrations [2]	Reference Screening Concentration [3]	USEPA Region IV Water Quality Screening Values[4]	Analyte ECPC? (Yes/No)
Inorganics (μg/ℓ)							
Aluminum	12/21	[5] 176 to [5] 7,970	200 to 200	1,480	1,500	87	Yes
Antimony	3/21	2.2 to [5] 16.1	60 to 60	7.3	ND	160	[7]No
Arsenic	10/21	3.6 to 56.2	10 to 10	13.2	6	190	[7]No
Barium	21/21	6.5 to 108	200 to 200	27.5	44.4	NA	Yes
Cadmium	1/21	[5] 3.3 to [5] 3.3	5 to 5	3.3	ND	0.61	[8]No
Calcium	21/21	603 to [5] 58,500	5,000 to 5,000	19,800	25,300	NA	[10]No
Chromium	4/21	2.2 to 7.9	10 to 10	4.8	17.6	107.6	[7,9]No
Cobalt	3/21	[5] 2.3 to 5.9	50 to 50	4.6	ND	NA	Yes
Copper	5/21	[5] 2.1 to 3.8	25 to 25	3	4.2	5.98	[7,9]No
Iron	20/20	[5] 260 to 9,150	100 to 100	1,830	1,550	1,000	Yes
Lead	1/21	[5] 2.55 to [4]2.55	3 to 3	2.6	ND	1.15	[8]No
Magnesium	21/21	254 to 28,000	5,000 to 5,000	8,190	5,910	NA	[10]No
Manganese	18/20	[5] 4.9 to 56.8	15 to 15	27.4	36.4	NA	Yes
Mercury	1/21	1 to 1	0.2 to 0.2	1	ND	0.012	[8]No
Nickel	2/21	[5] 11 to 12.5	40 to 40	11.8	ND	80.2	[7]No
Potassium	21/21	125 to [5] 4,470	5,000 to 5,000	806	1,170	NA	[10]No
Sodium	21/21	[5] 2,670 to [5] 31,-700	5,000 to 5,000	7,510	10,200	NA	[10]No

See notes at end of table.

Table 6-7 (Continued)
Groundwater Ecological Chemicals of Potential Concern (ECPCs)

Baseline Risk Assessment
Operable Unit 7, NAS Cecil Field
Jacksonville, Florida

Analyte	Frequency of Detection [1]	Range of Detected Concentrations	Range of Reporting Limits	Mean of Detected Concentrations [2]	Reference Screening Concentration [3]	USEPA Region IV Water Quality Screening Values[4]	Analyte ECPC? (Yes/No)
Inorganics (μg/ℓ) (continued)							
Thallium	3/21	6 to 6.3	10 to 10	6.2	ND	4.0	Yes
Vanadium	13/21	1.1 to 14.3	50 to 50	4.1	5.4	NA	Yes
Zinc	8/21	[5] 16.0 to 89.5	20 to 20	40.4	55.2	53.9	Yes

[1] Frequency of detection is the number of samples in which the analyte was detected divided by the total number of samples analyzed (16MW10S, 16MW12I, 16MW17S, 16MW18D, 16MW19S, 16MW20D, 16MW21S, 16MW22I, 16MW23D, 16MW24S, 16MW25D, 16MW27I, 16MW28D, 16MW32S, 16MW33D, 16MW38S, 16MW39I, 16MW40D, 16MW5S, 16MW7S, and 16MW9D, including duplicates at 16MW10, 16MW21S, 16MW28D, and 16MW40D). The data represent samples of unfiltered groundwater collected from the surficial aquifer.
[2] The average of detected concentrations is the arithmetic mean of all samples in which the analyte was detected. It does not include those samples in which the analyte was not detected.
[3] Upgradient reference samples include 16MW13S, 16MW14D, 16MW15S, and 16MW16D (Figure 3-5). Twice the average of detected concentrations is calculated for inorganic analytes.
[4] U.S. Environmental Protection Agency (USEPA) Region IV Waste Management Division, freshwater water quality chronic screening values for hazardous waste sites (November 16, 1992, version). Values for cadmium, chromium, copper, lead, nickel, and zinc are based upon equations using the average measured hardness for surface water samples of 45 milligrams per liter (mg/ℓ) from Sal Taylor Creek including STCSWR1, STCSW1, STCSW2, STCSW3, and STCSW4.
[5] Value is the average of a sample and its duplicate.
[6] Although the frequency of detection is less than or equal to 5 percent, the analyte will be evaluated in the ecological risk assessment (ERA) because of its high concentration and known association with past waste disposal activities at Site 16.
[7] Maximum detected concentration did not exceed the USEPA Region IV surface water quality standard and, therefore, will not be evaluated in the ERA.
[8] Frequency of detection was less than or equal to 5 percent and, therefore, the analyte will not be evaluated in the ERA.
[9] Maximum detected concentration did not exceed twice the arithmetic mean of detected concentrations at the background locations and, therefore, the analyte will not be evaluated in ERA.
[10] Analyte is an essential nutrient, is not present at toxic levels, and, except for magnesium, has a mean concentration that is less than twice the arithmetic mean of detected concentrations at the background locations; therefore, the analyte will not be evaluated in the ERA.

Notes: μg/ℓ = micrograms per liter.
ND = not detected in any background samples.
NA = not available.
PCBs = polychlorinated biphenyls.

Table 6-8
Filtered Groundwater Results

Baseline Risk Assessment
Operable Unit 7, NAS Cecil Field
Jacksonville, Florida

Analyte [1]	Frequency of Detection[2]	Range of Detected Concentrations	Range of Reporting Limits	Mean of Detected Concentrations[3]
Inorganics ($\mu g/\ell$)				
Aluminum	2/11	588 to [4]1,885	200 to 200	1,240
Antimony	11/11	3 to 9.8	60 to 60	6
Arsenic	4/11	3.3 to 52.4	10 to 10	24.3
Barium	11/11	6.3 to 32.6	200 to 200	20.3
Cadmium	1/11	[4]1.4 to [4]1.4	5 to 5	1.4
Calcium	11/11	560 to [4]56,900	5,000 to 5,000	17,500
Chromium	3/11	[4]3.65 to 13.6	10 to 10	7.3
Cobalt	4/11	2.4 to [4]13.6	50 to 50	6.9
Copper	1/11	5.4 to 5.4	25 to 25	5.4
Iron	9/10	172 to 5,340	100 to 100	1,290
Magnesium	11/11	276 to [4]26,200	5,000 to 5,000	5,940
Manganese	8/10	7.9 to [4]51.1	15 to 15	26.3
Nickel	1/11	12.1 to 12.1	40 to 40	12.1
Potassium	11/11	139 to [4]4,150	5,000 to 5,000	908
Sodium	11/11	2,880 to [4]34,000	5,000 to 5,000	8,770
Vanadium	3/11	2.7 to [4]9.4	50 to 50	5.3
Zinc	1/11	70.5 to 70.5	20 to 20	70.5

[1] Sample locations (CEF-16-10S, CEF-16-12I, CEF-16-20D, CEF-16-22I, CEF-16-27I, CEF-16-28D, CEF-16-32S, CEF-16-33D, CEF-16-5S, CEF-16-7S, and CEF-16-9D) are depicted on Figure 3-5.
[2] Frequency of detection is the number of samples in which the analyte is detected divided by the total number of samples analyzed.
[3] The average of detected concentrations is the arithmetic mean of all samples in which the analyte was detected; it does not include those samples in which the analyte was not detected.
[4] Value is the average of a sample and its duplicate.

Note: $\mu g/\ell$ = micrograms per liter.

6.2.2 **Exposure Assessment** The exposure assessment identifies exposure pathways and estimates the magnitude of contaminant exposures for ecological receptors for ECPCs in surface water, sediment, and groundwater. Exposure pathways were identified for aquatic and terrestrial receptors in the contaminant pathway model (Figure 6-1). Exposure pathways selected for the ERA are discussed in Subsection 6.1.3.

6.2.2.1 **Surface Water** Exposure concentrations for ECPCs in surface water are determined for both aquatic receptors and terrestrial wildlife. Exposure pathways for aquatic receptors and terrestrial wildlife are discussed in Paragraph 6.1.1.3 and are depicted on Figure 6-1.

Terrestrial Wildlife. Four species were selected as representative wildlife species for the purpose of evaluating risks associated with exposures to surface water and sediment contamination in the drainage ditches. These species serve as representatives in a model that predicts contaminant exposures for terrestrial species based on their position in the food chain. Life history information used to estimate exposures for each of the representative wildlife species is summarized in Table 6-9. The following four representative wildlife species were used for evaluation of contaminant exposures in the drainage ditches:

Eastern cottontail (Sylvilagus floridanus). The eastern cottontail is found in farmlands, pastures, open woodlands, edges of forests, and in swamps and marshes. This species represents small mammals at the drainage ditches that may come into contact with surface water as a result of ingestion. The eastern cottontail was selected to represent mammalian species that would be maximally exposed (receive higher doses as a result of their small body size).

Red-winged blackbird (Agelaius phoeniceus). The red-winged blackbird is often seen in marshes, burshy swamps, and along the edges of water. This species represents avian receptors that may come into contact with surface water in the drainage ditches as a result of ingestion. The red-winged blackbird was selected to represent avian species that would receive the highest dose as a result of its small body size.

Belted kingfisher (Megaceryle alcyon). This species represents a piscivorous (fish eating) avian species that may be exposed to contamination in surface water both as a result of direct ingestion and ingestion of aquatic prey. Aquatic prey (plants, invertebrates, and fish) may become contaminated as a result of accumulation of contaminants from the surface water and sediment.

Raccoon (Procyon lotor) The raccoon represents a mammalian omnivorous species that may be exposed to contamination in surface water both as a result of direct ingestion and ingestion of aquatic prey.

Contaminant exposures for each of the representative wildlife species related to the surface water ECPCs are estimated based on the equations in Table 6-2. Exposures evaluated for the representative wildlife species include ingestion of surface water and sediment and ingestion of aquatic life (which may concentrate the ECPCs from surface water and sediment). Potential exposures are estimated based upon the maximum concentrations of ECPCs in the surface water and sediment samples from the drainage ditches. As discussed in Subsection 6.1.3, a simple

Table 6-9
Wildlife Exposure Parameters

Baseline Risk Assessment
Operable Unit 7, NAS Cecil Field
Jacksonville, Florida

Representative Wildlife Species	Body Weight [7] (g)	Reported Diet	Soil/Sediment Ingestion (% of diet)	Assumed Diet for Exposure Assessment (% of diet)	Food Ingestion Rate (kg/day)	Water Intake Rate (l/day)	Home Range (acres)
Eastern cottontail (*Sylvilagus floridanus*)	[1] 1,189	Green vegetation in the summer; bark and twigs in the winter. [2]	[3] 3% sediment	94% plants 6% soil	[4] 0.079	[5] 0.12	[2] 7.39
Red-winged blackbird (*Agelaius phoeniceus*)	[8] 50	Mostly invertebrates, snails molluscs, and some fruits.	[6] 3% sediment	24% aquatic organisms 73% plants 3% sediment	[7] 0.008	[8] 0.008	[9] 1.04
Belted kingfisher (*Megaceryle alcyon*)	[9] 150	Mostly small fish; some crayfish, frogs, crabs, snakes, and insects. [9]	[10] 2% sediment	98% aquatic organisms 2% sediment	[7] 0.017	[8] 0.016	[2] 2.55
Raccoon (*Procyon lotor*)	[12] 3,990	Fleshy fruits, nuts, acorns, corn; also frogs, crayfish, and insects. [6]	[13] 7% sediment	93% aquatic organisms 7% sediment	[4] 0.214	[5] 0.34	[14] 267

[1] Average of adult males and adult females (U.S. Environmental Protection Agency [USEPA], 1993c).
[2] Wildlife exposure factors handbook (USEPA, 1993c).
[3] Sediment ingestion is assumed to be 50 percent of soil ingestion.
[4] By mammal equation based on body weight (Wt.) in kilograms (kg). Food ingestion (kilograms per day [kg/day]) = $0.0687 \times Wt^{0.822}$ (USEPA, 1993c).
[5] By mammal equation based on body Wt. in kg. Water ingestion (liters per day [ℓ/day]) = $0.099 \times Wt^{0.9}$ (USEPA, 1993c).
[6] Sediment ingestion for the red-winged blackbird is assumed to be 3 percent of the diet.
[7] By bird equation based on body Wt. in kg. Food ingestion (kg/day) = $0.0582 \times Wt^{0.651}$ (USEPA, 1993c).
[8] By bird equation based on body Wt. in kg. Water ingestion (ℓ/day) = $0.059 \times Wt^{0.67}$ (USEPA, 1993c).
[9] Theories (1991).
[10] Sediment ingestion for the kingfisher is assumed to be 2 percent of the diet.
[11] Pairs per feet of shoreline (Brooks & Davis, 1987).
[12] Median of mean weights for males and females in Alabama (USEPA, 1993c).
[13] Sediment ingestion for the raccoon is assumed to be 7 percent of the diet.
[14] Mean reported for adult females in May (USEPA, 1993c).

Notes: g = grams.
% = percent.

model is used to estimate potential contaminant exposures for each of the representative wildlife species for each of the surface water and sediment ECPCs. The BCFs used to predict the contaminant concentrations in aquatic prey for each ECPC are listed in Appendix S. The contaminant exposures (doses) calculated for each of the representative wildlife species for each of the ECPCs in surface water and sediment are presented in Appendix V.

Aquatic Receptors. Contaminant exposures related to direct contact with surface water are evaluated for aquatic receptors in the drainage ditches. Exposures are evaluated for each of the geographic sampling locations in the drainage ditches with the exposure concentrations assumed to be equal to the amount of an analyte detected in the surface water sample from the respective location. The concentrations of ECPCs detected in surface water from the drainage ditch sampling locations are provided in Paragraph 6.2.4.2.

6.2.2.2 **Sediment** Both aquatic receptors and terrestrial wildlife may be exposed to ECPCs in sediment. Exposure pathways for ECPCs in sediment are identified and described in Paragraph 6.1.1.3 and are depicted on Figure 6-1.

Terrestrial Wildlife. Routes of contaminant exposure evaluated for the representative wildlife species include (in addition to those identified for surface water in Paragraph 6.2.2.1) indirect ingestion of sediment (during foraging activities) and ingestion of contaminated food (aquatic organisms that have accumulated contamination from the surface water and sediment). Contaminant exposures for the representative wildlife species for each of the ECPCs are calculated based on the equations in Table 6-2. To estimate exposures for the representative wildlife species via the diet, a 1:1 ratio is assumed between the concentration of mercury in the sediment and in aquatic prey. The exposure concentrations calculated for the representative wildlife species for each of the ECPCs in surface water and sediment are presented in Appendix V.

Aquatic Receptors. Contaminant exposures related to direct contact with sediment are evaluated for aquatic receptors in the drainage ditches by the use of sediment toxicity tests, semi-quantitative benthic macroinvertebrate sampling, and screening against available sediment standards and criteria. Exposures are evaluated for each of the sampling locations in the drainage ditches with the exposure concentrations assumed to be equal to the amount of an analyte detected in the sediment sample from the respective location.

6.2.2.3 **Groundwater** Exposure concentrations for aquatic receptors in the Site 16 drainage ditches and wetlands related to the groundwater ECPCs were estimated based on the dilution potential of these systems. A simple modeling effort was completed to determine a dilution factor for groundwater entering Sal Taylor Creek via the Site 16 drainage ditches. The modeling effort, which is described in Appendix T, computes a dilution factor of 900 for groundwater discharge to Sal Taylor Creek. It is assumed that groundwater will not be diluted as it enters the wetlands adjacent to Site 16.

Potential ECPC exposure concentrations for groundwater discharging to both Sal Taylor Creek and the wetlands adjacent to Site 16 are provided in Table 6-10. Maximum and average exposure concentrations of groundwater in Sal Taylor Creek are calculated by dividing the respective maximum and average detected concentration in unfiltered groundwater by the dilution factor of 900. The

Table 6-10
Estimated Exposure Concentrations Associated with Groundwater Discharge to Sal Taylor Creek and Wetlands

Baseline Risk Assessment
Operable Unit 7, NAS Cecil Field
Jacksonville, Florida

ECPC	Sal Taylor Creek[1]		Wetlands[2]	
	Maximum Exposure Concentration	Average Exposure Concentration	Maximum Exposure Concentration	Average Exposure Concentration
Volatiles (μg/ℓ)				
1,1,1-Trichloroethane	3.33	3.33	3,000	3,000
1,1-Dichloroethene	0.44	0.44	400	400
1,2-Dichloroethene (total)	13.8	7.06	12,500	6,360
4-Methyl-2-pentanone	0.001	0.001	1.0	1.0
Trichloroethene	0.7	0.26	630	238
Semivolatiles (μg/ℓ)				
bis(2-Ethylhexyl)phthalate	0.02	0.006	20.5	5.7
Inorganics (μg/ℓ)				
Aluminum	8.85	1.65	7,970	1,480
Barium	0.12	0.03	108	27.5
Cobalt	0.006	0.005	5.9	4.6
Iron	10.17	2.03	9,150	1,830
Manganese	0.06	0.03	56.8	27.4
Thallium	0.007	0.007	6.3	6.2
Vanadium	0.02	0.005	14.3	4.1
Zinc	0.1	0.05	89.5	40.4

[1] Exposure concentrations calculated by dividing the maximum and average detected concentrations by a dilution factor of 900.
[2] Exposure concentrations equal to the maximum and average detected concentrations for unfiltered groundwater reported in Table 6-7.

Notes: ECPC = ecological chemical of potential concern.
μg/ℓ = micrograms per liter.

maximum and average exposure concentrations of groundwater in the wetlands adjacent to Site 16 are equal to the maximum and average detected concentration in unfiltered groundwater (Table 6-7).

6.2.3 Ecological Effects Assessment The ecological effects assessment describes the potential adverse effects to ecological receptors associated with exposure to the identified ECPCs. Potential or adverse effects for ecological receptors associated with surface water, sediment, and groundwater at Site 16 are described in the following paragraphs. The methodology for the ecological effects assessment is described in Paragraph 6.1.4.

6.2.3.1 Surface Water and Sediment Potential or actual adverse ecological effects associated with the ECPCs in surface water and sediment in the drainage ditches are discussed separately for terrestrial wildlife and aquatic receptors. Both predictive and field methods are used to evaluate effects as described in Paragraph 6.1.4.2.

Terrestrial Wildlife. Information on the toxicity of the surface water ECPCs to mammalian and avian test species is listed in Appendix U. Based on the available information in Appendix U, RTVs were selected for both lethal and sublethal effects, as described in Paragraph 6.1.4.2. The RTVs selected are listed in Appendices U and V. The RTVs are compared to the potential ECPC exposures for surface water and sediment to evaluate risks in Paragraphs 6.2.4.1 and 6.2.4.2.

Aquatic Receptors. Ecological effects for aquatic receptors are characterized based on the results of the quantitative sampling of the benthic macroinvertebrate community, the results of toxicity testing of sediment samples, and a review of available aquatic toxicity benchmark values for the surface water and sediment ECPCs. Risks for aquatic receptors are characterized based on a comparison of the benthic community results, toxicity testing results, and aquatic toxicity benchmarks with the occurrence and concentration of ECPCs at each of the sampling stations in the drainage ditches.

The results of the quantitative sampling and analyses of the benthic macroinvertebrate community at the drainage ditch sampling stations (STC-Bio-1, STC-Bio-3, and STC-Bio-4) and the reference station (STC-Bio-R1) are provided in Subsection 5.2.5. The absence of a reference location that is similar in habitat to the man-made drainage ditches limits the interpretation of the benthic macroinvertebrate results. A review of the data suggests that habitat quality conditions throughout the drainage ditches and the reference station in Sal Taylor Creek represent a poor environment for many types of aquatic organisms. Conditions at two of the sampling stations (STC-Bio-1 and the reference station, STC-Bio-R1) were poorer than expected given the quality of the habitat present.

Table 6-11 summarizes the results of the toxicity testing of the sediment samples. Results for *H. azteca* 14-day survival test were compared statistically to laboratory controls to determine significant results. Results for two of the four sampling stations were significant (Table 6-11). Mortality of 100 percent and 80 percent were observed for stations STC-Tox-1 and STC-Tox-3, respectively.

Table 6-11
Sediment Toxicity Testing Results

Baseline Risk Assessment
Operable Unit 7, NAS Cecil Field
Jacksonville, Florida

Sample Location	Waterflea (*Ceriodaphnia dubia*)		Amphipod (*Hyallela Azteca*)
	Survival (%)	Reproduction (offspring per adult)	Survival (%)
STC-Tox-1	90	15	[1]0
STC-Tox-3	[2]50	[2]7	[1]20
STC-Tox-R1	100	15	99

[1] Statistically different as compared to the reference control.
[2] Considered to be substantially different than reference or control (i.e., biologically significant).

Notes: Toxicity testing methods and results are described in Appendix Q.
% = percent.

The results for the C. dubia test are difficult to compare statistically to the control results. Ten replicates of the sediment elutriate are exposed to one C. dubia per replicate; therefore, percent survival is reported as a pass or fail result (i.e., either 0 or 100 percent survival). In general, test results are considered to be significant if there is less than 80 percent survival and less than 15 offspring per adult (Springborn Laboratories, 1994). Using this interpretation of the results, mortality was significant in C. dubia for station STC-Tox-3 at 50 percent. A reduced number of offspring of seven was observed at STC-Tox-3.

Complete information on the sediment toxicity testing is presented in Appendix Q. The toxicity testing results are considered in the weight-of-evidence evaluation of risks associated with sediment contamination in Subsection 6.2.4.2.

Information obtained from the USEPA AQUIRE database and AWQC documents on the aquatic toxicity of the surface water ECPCs is included in Appendix R and is summarized in Table 6-12. This information is used qualitatively to discuss the known aquatic toxicity of the ECPCs and their potential association with any adverse responses observed in the toxicity testing and macroinvertebrate communities.

A comparison of the aquatic toxicity benchmarks with the occurrence and concentration of surface water and sediment ECPCs at each of the sampling stations in the drainage ditches is provided in Table 6-13 and 6-14, respectively.

6.2.3.2 Groundwater The information for groundwater ECPCs available from the USEPA AQUIRE database and other literature sources is summarized in Table 6-12. The table provides a summary of the toxicity testing information available from the AQUIRE database search and literature-reported values and the range of concentrations associated with lethal and sublethal effects to fish, invertebrates, mollusks, amphibians, and algae. For each ECPC, the effect concentrations from AQUIRE and literature-reported values are compared with the exposure concentrations to evaluate potential risks (Paragraph 6.2.4.3).

Table 6-12
Toxicity of Site 16 Surface Water and Groundwater Ecological Chemicals of Potential Concern (ECPCs) to Aquatic Receptors

Baseline Risk Assessment
Operable Unit 7, NAS Cecil Field
Jacksonville, Florida

Analyte	Fish [1]		Invertebrates [1]		Molluscs [1]		Amphibians [1]		Algae and Aquatic Plants [1]
	Lethal	Sublethal	Lethal	Sublethal	Lethal	Sublethal	Lethal	Sublethal	Sublethal
Volatiles (μg/ℓ)									
1,1,1-Trichloroethane	7/4.0x10^4 to 1.05x10^5	4/1.11x10^5 to 1.21x10^5	2/5.4x10^3 to 5.3x10^5	2/1.3x10^3 to 2.4x10^3	–	–	–	–	–
1,1-Dichloroethene	3/7.4x10^4 to 1.08x10^5	1/2.8x10^3	1/7.9x10^4	1/1.16x10^4	–	–	–	–	3/4.1x10^5 to 7.98x10^5
1,2-Dichloroethene (total)	2/1.35x10^5 to 1.4x10^5	–	1/2.2x10^5	–	–	–	–	–	–
4-Methyl-2-pentanone	5/4.18x10^5 to 5.4x10^6	1/1.05x10^5	1/4.28x10^5	2/7.8x10^3 to 3.68x10^6	–	–	–	–	2/9.8x10^5 to 2.0x10^6
Trichloroethene	4/4.07x10^4 to 4.5x10^4	1/2.1x10^4	2/7.76x10^3 to 1.8x10^4	2/3.9x10^4 to 4.1x10^4	–	–	–	–	2/4.5x10^5 to 1.0x10^6
Semivolatiles (μg/ℓ)									
bis(2-ethylhexyl)phthalate	24/5.0 to 1.49x10^5	8/3.7 to 100	11/3.2 to 1.1x10^4	13/2.5 to 560	–	–	4/3.88x10^3 to 4.44x10^4	–	–
Inorganics (μg/ℓ)									
Aluminum[2]	6/3.28x10^3 to 3.5x10^4	–	7/7.4x10^2 to 3.82x10^4	–	2/3.06x10^4 to 5.55x10^4	–	–	–	–
Barium	3/6.62x10^4 to 2.91x10^6	–	6/4.6x10^4 to 3.98x10^6	2/8.9x10^3 to 1.45x10^4	–	–	–	–	2/2.5 x 10^4 to 2.6x10^4
Cobalt	6/11 to 1.02x10^5	–	6/790 to 1.2x10^4	8/12 to 4.47x10^5	–	–	1/1.75x10^4	–	1/8.13x10^3
Iron	3/3.02x10^3 to 5.17x10^3	3/460 to 8.8x10^4	–	1/ 1.0x10^3 to 1.91x10^3	–	–	–	–	1/3.7x10^3
Manganese	–	–	–	–	–	–	–	–	–
Thallium	–	–	–	–	–	–	–	–	–

See notes at end of table.

Table 6-12 (Continued)
Toxicity of Site 16 Surface Water and Groundwater Ecological Chemicals of Potential Concern (ECPCs) to Aquatic Receptors

Baseline Risk Assessment
Operable Unit 7, NAS Cecil Field
Jacksonville, Florida

Analyte	Fish[1]		Invertebrates[1]		Molluscs[1]		Amphibians[1]		Algae and Aquatic Plants[1]
	Lethal	Sublethal	Lethal	Sublethal	Lethal	Sublethal	Lethal	Sublethal	Sublethal
Inorganics (μg/ℓ)									
Vanadium	4/128 to 6.0×10^3	–	–	–	–	–	–	–	–

[1] Number of studies/range of concentrations.
[2] Information for aluminum is from U.S. Environmental Protection Agency (USEPA), 1988a.

Notes: With the exception of 1,1-dichloroethene, 1,2-dichloroethene, and trichloroethene, toxicity information for surface water and groundwater ECPCs was retrieved from Aquatic Information Retrieval (AQUIRE). All aquatic toxicity information is included as Appendix R. Aquatic toxicity data for beryllium, cadmium, copper, lead, mercury, silver, and zinc were gathered from corresponding ambient water quality criteria (AWQC) documents (USEPA) and are presented in Table 6-13.
μg/ℓ = micrograms per liter.

Table 6-13
Comparison of Concentrations of Ecological Chemicals of Potential Concern (ECPCs) in Surface Water of the Drainage Ditches Adjacent to Site 16 with Aquatic Toxicity Benchmarks

Baseline Risk Assessment
Operable Unit 7, NAS Cecil Field
Jacksonville, Florida

Analyte	Upstream Concentration[1]	STCSW1	STCSW3	STCSW4	AWQC[2]	Florida Surface Water Quality Standard[3] (µg/ℓ)	Lowest Reported Adverse Effect Concentration[4] (µg/ℓ)
Volatiles (µg/ℓ)							
1,2-Dichloroethene (total)	ND	ND	9 J	4 J	NA	NA	135,000
Trichloroethene	ND	ND	20	8 J	[5]21,900	80.7	7,760
Inorganics (µg/ℓ)							
Cadmium	ND	37.3	ND	0.32 J	1.1	0.63	5.0
Copper	ND	11.9 J	2.4 J	5 J	12	6.2	6.06
Iron	381	1,470	847	1,020	1,000	1,000	460
Lead	2.9 J	14.1	ND	ND	3.2	1.22	28.4
Zinc	18.4 J	68.4	25.7	25.4	110	55.9	37

[1] The reference location is STC-SW-R1 (Figure 3-4).
[2] Federal Ambient Water Quality Criteria (USEPA, 1991e).
[3] Chapter 62-302, Florida Administrative Code (January 1995); surface water quality standards for Class III freshwater.
[4] From Table 6-12.
[5] Ambient water quality criteria value shown is the lowest observed effect level (LOEL).

Notes: Results of analyses of surface water samples are included as Appendix A. Sample locations are depicted on Figure 3-4.

AWQC = ambient water quality criteria (guidance established under the Clean Water Act).
µg/ℓ = micrograms per liter.
ND = not detected.
NA = not available.
J = estimated value.

Table 6-14
Comparison of Drainage Ditch Sediment with Toxicity Benchmarks

Baseline Risk Assessment
Operable Unit 7, NAS Cecil Field
Jacksonville, Florida

Analyte[1]	Upstream Concentrations[2]	STCSD1	STCSD3	STCSD4	NOAA ER-L/ER-M[3]	State o f Florida PEL/TEL[4]
Volatiles (µg/kg)						
2-Butanone	ND	5 J	3 J	ND	NA	NA
Acetone	ND	11 J	8 J	3 J	NA	NA
Toluene	ND	4 J	6 J	ND	NA	NA
Semivolatiles (µg/kg)						
bis(2-ethylhexyl)phthalate	ND	12,000 J	8,200 J	ND	NA	2647 / 182
Inorganics (mg/kg)						
Aluminum	1,100	1,820	3,890	2,810	NA	NA
Barium	4.0 J	3 J	11.1 J	4.9 J	NA	NA
Cadmium	ND	4.6	ND	ND	5 / 9	4.21 / 0.676
Chromium	2.2	11.4	11.9	ND	80 / 145	160 / 52.3
Chromium, hexavalent	NA	0.99	NA	NA	NA	NA
Iron	413 J	482 J	1,500 J	463 J	NA	NA
Lead	7.2 J	29.9	30.6	4.7	35 / 110	112 / 30.2
Manganese	1.9 J	ND	4.9 J	ND	NA	NA
Mercury	ND	0.06 J	0.12 J	ND	0.15 / 1.3	0.696 / 0.13
Vanadium	1.8 J	ND	6.8 J	4.1 J	NA	NA
Zinc	10.9	76.8	109	19.5	120 / 270	271 / 124
TPH (mg/kg)	30.4	1,920	1,030	214	NA	NA

[1] Ecological chemicals of potential concern (ECPCs) for aquatic receptors from Table 6-5.
[2] The reference location is STC-SD-R1 (Figure 3-4).
[3] National Oceanic and Atmospheric Administration effects range-low (ER-L) and effects range-medium (ER-M) sediment values (Long and Morgan, 1990). ER-L (10th percentile) represents a lower threshold value, above which adverse effects on sensitive life stages and/or species begin. ER-M (50th percentile) represents a second threshold value, above which adverse effects on most species are frequently or always observed.
[4] Florida Department of Environmental Protection Sediment Quality Assessment Guidelines (MacDonald, 1994). Probable effects level (PEL) defines the lower limit of the range of contaminant concentrations associated with adverse biological effects. Threshold effects level (TEL) defines the upper limit of the range of contaminant concentrations not considered to represent significant hazards to aquatic organisms.

Notes: Results of analyses of sediment samples included in Appendix A. Sample locations are depicted in Figure 3-4.
NOAA = National Oceanic and Atmospheric Administration.
µg/kg = micrograms per kilogram.
ND = not detected.
J = estimated value.
NA = not available.
mg/kg = milligrams per kilogram.
TPH = total petroleum hydrocarbons.

6.2.4 Risk Characterization Risks are characterized for ECPCs in surface water and sediment of the drainage ditches for both terrestrial wildlife and aquatic receptors. Risks are also characterized for aquatic receptors in Sal Taylor Creek and the wetlands adjacent to Site 16 for groundwater ECPCs in Paragraph 6.2.4.3. Risks are characterized based upon the methodology provided in Subsection 6.1.5. The methodology represents an integrated approach using both field and theoretical methods to provide a measure of actual or potential risks.

6.2.4.1 Surface Water Potential risks associated with the ECPCs in surface water of the drainage ditches are characterized for both terrestrial wildlife and aquatic receptors. The risk characterization methodology is described in Paragraph 6.1.5.1. Risks for terrestrial wildlife are characterized by comparing predicted exposure concentrations for each ECPC with a respective RTV (estimated threshold for toxicity). Risks for aquatic life are characterized based on field measurements and comparison of exposure concentrations of the ECPCs in surface water samples with respective toxicity benchmarks or standards.

Terrestrial Wildlife. Risks for the representative wildlife species associated with ingestion of surface water, potentially contaminated aquatic life, and sediment are quantitatively evaluated using HQs, which are calculated for each ECPC for lethal and sublethal effects by dividing the estimated contaminant exposure concentration by the lethal and sublethal RTVs. Lethal and sublethal HIs are determined for each representative wildlife species by summing the HQs for all ECPCs.

The lethal and sublethal HIs and HQs calculated for each of the representative wildlife species for exposures related to both surface water and sediment ECPCs are provided in Appendix V. All of the HIs and HQs are less than 1, indicating no potential adverse effects to reproduction, growth, or survival for the representative wildlife species from exposure to the ECPCs in surface water at Site 16. Because the HIs for maximum exposure point concentrations did not exceed 1, it was not necessary to calculate the HQs associated with exposure to the average exposure point concentrations.

Lethal effect HIs ranged from 0.006 for the American robin to 0.22 for the raccoon, and sublethal effect HIs ranged from 0.013 for the American robin to 0.74 for the kingfisher.

Aquatic Receptors. Risks for aquatic receptors resulting from exposure to ECPCs in the surface water of the drainage ditches are characterized based on field measurements of the structure and function of the benthic macroinvertebrate communities. Risks are also characterized based upon comparison of the exposure concentrations of the ECPCs in surface water samples with respective toxicity benchmarks or standards.

There are no apparent trends in the status of the benthic macroinvertebrate community in the Site 16 drainage ditches. Conditions at two stations (STC-Bio-1 and the reference station, STC-Bio-R1) were poorer than expected given the quality of the habitat present. It could not be concluded that contamination in surface water from Site 16 was contributing to the poorer condition observed at the STC-Bio-1 sampling station.

Table 6-13 provides a comparison of the concentrations of the ECPCs detected in surface water samples from the drainage ditches with available toxicity benchmarks. Maximum concentrations of cadmium, copper, iron, lead, and zinc

exceeded the aquatic toxicity benchmarks. The concentration of lead measured in water samples from the reference location in Sal Taylor Creek also exceeded available benchmarks.

Concentrations of cadmium, copper, lead, and zinc are greater than the respective lowest reported adverse effect concentrations at one of the three sampling stations (STC-SW-1). Detected concentrations of iron ranging from 1,020 $\mu g/\ell$ to 1,470 $\mu g/\ell$ exceed the Federal AWQC of 1,000 $\mu g/\ell$ at two of the three sampling stations (STC-SW-1 and STC-SW-4).

Although concentrations of cadmium, copper, lead, iron, and zinc exceed available toxicity benchmarks, it is believed that the presence of these metals in the surface water of the drainage ditches is not site related. The ditches receive stormwater drainage from the runway area and much of the developed area west of the runways.

The risk characterization for aquatic receptors for both surface water and sediment contamination in the drainage ditches is summarized in Table 6-15.

6.2.4.2 Sediment Potential risks are characterized for contamination in sediment in the drainage ditches for both wildlife and aquatic receptors. The risk characterization methodology is described in Paragraph 6.1.5.1.

Terrestrial Wildlife. The lethal and sublethal HIs and HQs calculated for each of the representative wildlife species for exposures related to both surface water and sediment ECPCs are discussed in the previous section (Paragraph 6.2.4.1).

Aquatic receptors. Risks for aquatic receptors in the drainage ditches associated with ECPCs in sediment are characterized for each sampling location (STC-SD-1, STC-SD-3, and STC-SD-4) based on the approach outlined in Subsection 6.1.5. The sediment samples for toxicity testing and chemical analyses were gathered from a split sample of sediment. Sampling of the macroinvertebrate community was completed at the same location and time as the sediment sampling. This sampling design allows for comparison of the biological responses with the measured concentrations of analytes in the sediment samples. Fourteen analytes detected in sediment samples from Site 16 were selected as ECPCs for aquatic life. These ECPCs included 3 VOCs, 1 phthalic ester, and 10 inorganics. An evaluation of the weight-of-evidence from the biological and chemical data is summarized in Table 6-14 and discussed below.

The macroinvertebrate study indicated that the populations of invertebrates in the drainage ditches are generally poorly developed. It is difficult to discern from the macroinvertebrate sampling data (either the ponar or dip net), whether the lower metric scores in the drainage ditches are due to habitat differences, external influences, or a combination of the two. A review of the habitat quality parameter data (Table 5-4) suggests that habitat quality conditions throughout the drainage ditch, including the reference station, represent a stressful situation for many types of aquatic organisms. Furthermore, the highly variable conditions associated with ephemeral streams such as the drainage ditches are not representative of aquatic habitat for which available bioassessment protocols were designed to evaluate; only certain types of aquatic macroinvertebrates are adapted to live in these habitats.

Table 6-15
Aquatic Receptor Risk Characterization

Baseline Risk Assessment
Operable Unit 7, NAS Cecil Field
Jacksonville, Florida

Sampling Location	Biological Parameters		Contaminants Associated with Risk		Interpretation of Weight-of-Evidence
	Sediment Laboratory Toxicity Testing	Benthic Community Composition	Surface Water[1]	Sediment	
STC-SW/SD/BIO/TOX-1	100% amphipod mortality	Inconclusive	Cd, Cu, Pb, Fe, and Zn	TPH	Sediment toxicity to amphipods may be associated with exposure to TPH in sediment. An oily sheen and strong petroleum sediment odor was observed at this sampling station.
STC-SW/SD/BIO/TOX-3	50% waterflea mortality; 80% amphipod mortality; *C. dubia* reproduction depressed compared to reference	Inconclusive	Fe	TPH	Sediment toxicity to both amphipods and the water flea may be associated with exposure to TPH in sediment.
STC-SW/SD/BIO-4	Not tested	Inconclusive	Fe		No significant risks estimated.
STC-SW/SD-BIO/TOX-R1	No toxicity	Inconclusive			--

[1] Ecological chemicals of potential concern (ECPCs) that exceeded 2 times the reference concentration and also exceeded benchmarks.

Notes: % = percent.
Cd = cadmium.
Cu = copper.
Pb = lead.
Fe = iron.
Zn = zinc.
TPH = total petroleum hydrocarbon.

There are no apparent trends in the status of the benthic macroinvertebrate community in the drainage ditches and the reference station in Sal Taylor Creek. When compared to the regional reference, Five Mile Creek, conditions at two dip net stations (STC-Bio-1 and the reference location, STC-Bio-R1) were poorer than expected given the quality of the habitat present. It could not be concluded that contaminants in the sediment were contributing to the poorer condition observed in the drainage ditches. Factors possibly influencing the benthic community at STC-Bio-1 include petroleum sediment odor and an oily sheen noted on the surface water.

Sediment collected from two of the three stations (STC-Tox-1 and STC-Tox-3) in the drainage ditches was toxic to one or both of the test organisms in the laboratory bioassays. Sediment toxicity testing was not completed for the third sampling station (STC-Tox-4). Toxicity was not observed in the reference sediment sample (STC-Tox-R1). Significant mortality (100 percent) was observed in the amphipod test at station STC-Tox-1. Water flea and amphipod mortality of 50 and 80 percent, respectively, was observed at sampling station STC-Tox-3. In addition, reproduction in the water flea was reduced to seven offspring per adult in elutriate from station STC-Tox-03.

Based on the results of the laboratory sediment bioassays, impacts to the survival and reproduction of certain invertebrate receptors may be occurring in the drainage ditches. Associations between toxicity to invertebrate receptors may be attributable to elevated concentrations of TPH in sediment at STC-SD-1 and STC-SD-3. TPH was detected in sediment samples from all of the drainage ditch locations; however, elevated concentrations were detected at STC-SD-1 (1,920 mg/kg) and STC-SD-3 (1,030 mg/kg). Concentrations of TPH detected at STC-SD-4 (214 mg/kg) and the reference location, STC-SD-R1 (30.4 mg/kg), were substantially less than the stations where adverse results from the toxicity test were reported. Figure 6-4 includes a summary of TPH concentrations and toxicological results at the drainage ditch and reference sampling stations.

The TPH measurements, however, do not include all components of petroleum products. The measurement reflects mostly aliphatic hydrocarbons, which are less toxic than the aromatic or substituted hydrocarbons and trace contaminants or additives to petroleum. The TPH measurement also may not reflect exposures to the oil and subsequent physical impairment effects to aquatic life.

Because the composition of petroleum contamination is highly variable from site to site, no sediment quality guidelines are available for TPH; however, elevated concentrations of TPH are known to adversely affect aquatic organisms. An analysis of the effects of petroleum contamination on wetlands, fish, and wildlife suggests that although the long-term effects of petroleum contamination are poorly understood, impacts of oil contamination vary among species and among types of oil (Alexander, 1982). A recent study by Mahaney (1994) suggests that freshwater petroleum contamination may have significant effects on amphibian reproduction. This study found that engine crankcase oil adversely affected egg metamorphosis, hatching, and tadpole growth in the green treefrog (Hyla cinearea), a species likely to occur in the drainage ditches.

Although elevated concentrations of TPH were detected in the drainage ditches, it is believed that the presence of TPH in the sediment of the ditches is not site related. The ditches receive stormwater drainage from the runway area and much of the developed area west of the runways.

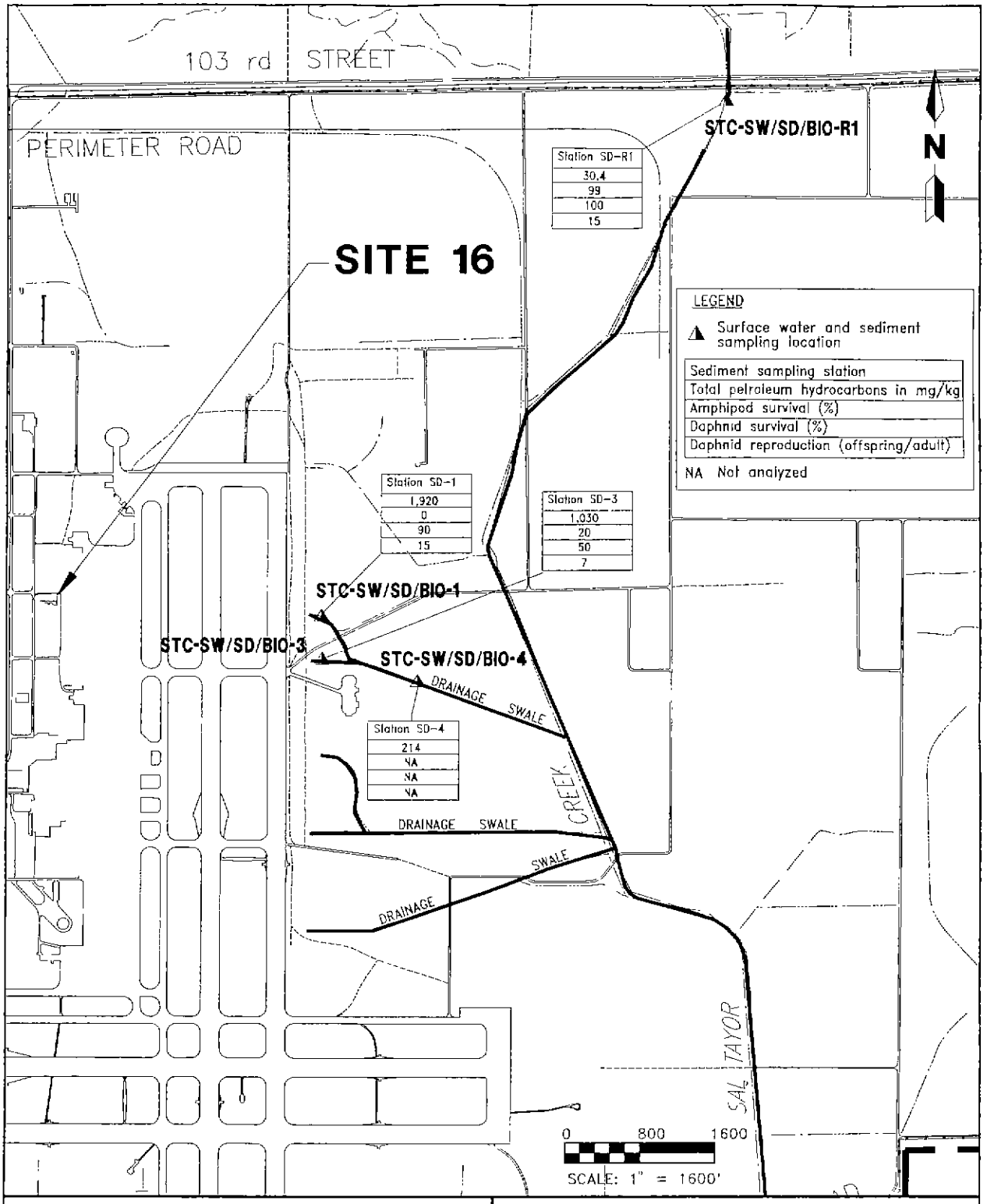

FIGURE 6-4
SUMMARY OF TPH CONCENTRATIONS AND TOXICOLOGICAL RESULTS AT THE DRAINAGE DITCH AND REFERENCE SAMPLING STATIONS

CECIL/SICRK/MAH-NP/02-13-95

BASELINE RISK ASSESSMENT, OPERABLE UNIT 7

NAS CECIL FIELD
JACKSONVILLE, FLORIDA

Table 6-14 presents the distribution of ECPCs detected in sediment samples from the Site 16 drainage ditches, detected reference concentrations, the NOAA ER-L and ER-M sediment values (Long and Morgan, 1990), and the FDEP PEL and TEL sediment quality assessment guidelines (MacDonald, 1994). A comparison of the lowest sediment toxicity benchmark values with site chemical data (Table 6-14) reveals that maximum detected concentrations of chromium, mercury, and zinc were less than the FDEP TELs. The TEL value defines the upper limit of the range of contaminant concentrations not considered to represent significant hazards to aquatic organisms. Sediment toxicity benchmark values are not available for the volatile ECPCs, aluminum, barium, hexavalent chromium, iron, manganese, vanadium, and TPH.

Because 2-butanone, acetone, and toluene are generally only toxic to aquatic receptors at concentrations hundreds of times higher than those detected in the ditches, it is unlikely that these VOCs are responsible for the observed toxicity in the sediment tests or benthic studies. These VOCs would likely be toxic at similar or higher concentrations in sediment because bioavailability, and resulting toxicity, is more limited in sediment than in surface water (see AQUIRE data presented in Appendix R).

Bis(2-ethylhexyl)phthalate was detected in samples from two of the three sampling stations at concentrations ranging from 8,200 μg/kg (STC-SD-3) to 12,000 μg/kg (STC-SD-1). These detections are not believed to be associated with Site 16.

Several inorganic results are elevated above reference concentrations. Aluminum and iron were detected at all three sampling stations; aluminum concentrations ranged from 1,820 mg/kg (STC-SD-1) to 3,890 mg/kg (STC-SD-3) and iron concentrations ranged from 463 mg/kg (STC-SD-4) to 1,500 mg/kg (STC-SD-3). Barium and vanadium were detected at two of the three drainage ditch sampling locations; barium concentrations ranged from 4.9 mg/kg (STC-SD-4) to 11.1 mg/kg (STC-SD-3) and vanadium concentrations ranged from 4.1 mg/kg (STC-SD-4) to 6.8 mg/kg (STC-SD-3). Manganese was detected at one of three stations (STC-SD-3) at an estimated concentration of 4.9 mg/kg. Sediment quality benchmarks are not available for any of these analytes.

In addition, the more toxic form of chromium, hexavalent chromium, was detected at sampling station STC-SD-1 at a concentration of 0.99 mg/kg. Hexavalent chromium was not measured at the other two sampling stations in the drainage ditches or the reference location in Sal Taylor Creek.

Based on the weight-of-evidence for each of the sampling locations (toxicity testing results, benthic community, and chemical analyses), the following statements concerning risks for aquatic life associated with sediment contamination can be made.

- Risks may be present to certain macroinvertebrate receptors at two of the three drainage ditch sampling stations (STC-SD-1 and STC-SD-3). For station STC-SD-1, risks are based on mortality of amphipods in sediment toxicity testing. At sampling station STC-SD-3, risks are based on toxicity of the sediment to amphipods and toxicity of the sediment elutriate to the water flea.

- Based on the results of the toxicity testing, the risks for aquatic life may be associated with elevated concentrations of TPH in the sediment.

- Analysis of the benthic community metrics relative to contaminant concentrations in surface water or sediment are inconclusive.

6.2.4.3 **Groundwater** Risks were evaluated for two potential pathways of future migration of groundwater contamination to surface water. These two paths include future discharge of groundwater contaminants to Sal Taylor Creek and to the nearby emergent wetlands (Figure 5-1). Exposure concentrations of groundwater ECPCs discharging to Sal Taylor Creek were predicted based on a dilution factor of 900 (Appendix T). No dilution was applied to concentrations of groundwater ECPCs discharging to the wetlands. Maximum and average exposure concentrations for the ECPCs in Site 16 groundwater were estimated for each migration path and compared to available toxicity benchmarks, including State of Florida surface water quality standards for Class III waters (Florida Legislature, 1995), AWQC (USEPA, 1991e), and aquatic toxicity benchmark values in Table 6-16. For comparison purposes, the detected concentrations of the analytes in the surface water samples from the drainage ditches are also presented. Benchmarks were not available to assess the potential aquatic toxicity of manganese.

Risks to aquatic receptors from exposures to groundwater in Sal Taylor Creek surface water are not predicted, based on a dilution factor of 900 (Appendix T). The exposure concentrations of all groundwater ECPCs in Sal Taylor Creek are less than the respective lowest aquatic toxicity benchmarks.

The predicted maximum concentrations (i.e., worst case scenario of groundwater discharging to the wetlands) of 1,1,1-trichloroethane, 1,2-dichloroethene, 4-methyl-2-pentanone, and thallium fall below the State of Florida surface water quality standards (Florida Legislature, 1995) and Federal AWQC (USEPA 1991e). These ECPCs are not considered to pose a potential risk for aquatic receptors in the wetlands, the drainage ditches, or Sal Taylor Creek. The predicted maximum concentrations of 1,1-dichloroethene, trichloroethene, barium, cobalt, and vanadium are less than the lowest reported concentrations associated with adverse effects to freshwater fish, invertebrates, mollusks, or algae. These ECPCs are also not considered to pose a risk to aquatic receptors.

Although predicted maximum concentrations of 1,1-dichloroethene and trichloroethene exceed the Florida surface water quality standards, the maximum detected concentrations of 400 $\mu g/\ell$ for 1,1-dichloroethene and 630 $\mu g/\ell$ for trichloroethene are well below their respective lowest reported adverse effect concentrations to aquatic life of 11,600 $\mu g/\ell$ and 7,760 $\mu g/\ell$. The Florida surface water quality standards for 1,1-dichloroethene and trichloroethene were not used for comparative purposes because these values are based on adverse effects to humans associated with consumption of the chemicals in fish.

The maximum concentration of bis(2-ethylhexyl)phthalate of 20.5 $\mu g/\ell$ exceeds both the Florida surface water quality standard (3.0 $\mu g/\ell$) and the lowest reported adverse effect concentration (2.5 $\mu g/\ell$); however, bis(2-ethylhexyl)phthalate does not appear to be associated with OU 7. Concentrations of bis(2-ethylhexyl)phthalate appear to originate in the intermediate aquifer and flow up into the surficial aquifer downgradient of the OU 7 source area (ABB-ES, 1995).

Of the eight inorganic ECPCs in Site 16 groundwater, predicted maximum concentrations in the wetlands of three analytes (aluminum, iron, and zinc) exceeded surface water toxicity benchmarks.

Table 6-16
Comparison of Unfiltered Groundwater Exposure Concentrations with Toxicity Benchmarks

Baseline Risk Assessment
Operable Unit 7, NAS Cecil Field
Jacksonville, Florida

Analyte	Maximum / Average Detected Concentration in Groundwater[1]	Maximum/Average Exposure Concentration in Sal Taylor Creek[2]	Florida Surface Water Quality Standard[3]	Federal AWQC[4]	AQUIRE and other sources[5] (lowest reported adverse effect concentration)	Concentrations Detected in Surface Water of Drainage Ditches[6]	Results of Comparison
Volatiles (µg/ℓ)							
1,1,1-Trichloroethane	3,000 / 3,000	3.33 / 3.33	173,000	NA	1,300	ND	Not exceeded
1,1-Dichloroethene	400 / 400	0.44 / 0.44	3.2	NA	11,600	ND	Not exceeded[7]
1,2-Dichloroethene (total)	12,500 / 6,360	13.8 / 7.06	NA	NA	135,000	4 to 9	Not exceeded
4-Methyl-2-pentanone	1.0 / 1.0	0.001 / 0.001	NA	NA	7,800	ND	Not exceeded
Trichloroethene	630 / 238	0.7 / 0.26	80.7	[8]21,900	7,760	8 to 20	Not exceeded[7]
Semivolatiles (µg/ℓ)							
bis(2-ethylhexyl)phthalate	20.5 / 5.7	0.02 / 0.006	3.0	[9]360	2.5	ND	Exceeded, wetlands
Inorganics (µg/ℓ)							
Aluminum	7,970 / 1,480	8.85 / 1.65	NA	87	742	292 to 490	Exceeded, wetlands
Barium	108 / 27.5	0.12 / 0.03	NA	NA	8,900	17.6 to 18.6	Not exceeded
Cobalt	5.9 / 4.6	0.006 / 0.005	NA	NA	11	ND	Not exceeded
Iron	9,150 / 1,830	10.17 / 2.03	1,000	1,000	460	847 to 1,470	Exceeded, wetlands
Manganese	56.8 / 27.4	0.06 / 0.03	NA	NA	NA	9.6	No TBV
Thallium	6.3 / 6.2	0.007 / 0.007	48	NA	NA	ND	Not exceeded
Vanadium	14.3 / 4.1	0.02 / 0.005	NA	NA	128	ND	Not exceeded
Zinc	89.5 / 40.4	0.1 / 0.05	53.9	110	NS	25.4 to 68.4	Exceeded, wetlands

See notes on next page.

Table 6-16 (Continued)
Comparison of Unfiltered Groundwater Exposure Concentrations with Toxicity Benchmarks

Baseline Risk Assessment
Operable Unit 7, NAS Cecil Field
Jacksonville, Florida

Analyte	Maximum / Average Detected Concentration in Groundwater[1]	Maximum/Average Exposure Concentration in Sal Taylor Creek[2]	Florida Surface Water Quality Standard[3]	Federal AWQC[4]	AQUIRE and other sources[5] (Lowest reported adverse effect concentration)	Concentrations Detected in Surface Waters of Drainage Ditches[6]	Results of Comparison

1 From ecological chemicals of potential concern (ECPCs) summary table for unfiltered groundwater. The maximum detected groundwater value is equal to the exposure concentration of groundwater in the wetlands.
2 A dilution factor of 900 is applied to the maximum and average detected groundwater concentration to derive the exposure concentration of groundwater in Sal Taylor Creek.
3 Florida Department of Environmental Protection Class III freshwater water quality standard, Chapter 62-302, Florida Administrative Code (FAC), surface water quality standards (Florida Legislature, 1995).
4 Federal ambient water quality criteria (AWQC); chronic values (U.S. Environmental Protection Agency [USEPA], 1988; 1991).
5 From results of Aquatic Information Retrieval (AQUIRE) search and other sources for toxicity of Site 16 groundwater ECPCs to aquatic receptors
6 From selection of ECPCs summary table for surface water.
7 The maximum detected concentration does not exceed the lowest reported adverse effect concentration. The Florida surface water quality standards for 1,1-dichloroethene and trichloroethene were not used for comparative purposes.
8 Value is the lowest observed effect level (LOEL).
9 Value is proposed criteria for bis(2-ethylhexyl)phthalate (Chapter 62-302, FAC, January 1995).

Notes: $\mu g/\ell$ = micrograms per liter.
NA = not available.
ND = not detected.
TBV = toxicity benchmark value.
NS = not searched.

Both the maximum and average concentrations of iron in groundwater exceed the Federal AWQC of 1,000 $\mu g/\ell$. Maximum concentrations of zinc in groundwater (89.5 $\mu g/\ell$) exceed the Florida surface water quality standard of 53.9 $\mu g/\ell$; however, the average concentration of zinc (40.4 $\mu g/\ell$) does not exceed the Florida standard. The presence of iron and zinc in the surficial aquifer samples is related to an upwelling of groundwater from the intermediate aquifer downgradient of the Site 16 source area. Iron and zinc concentrations in the surficial aquifer are not believed to represent contamination emanating from Site 16 (Chapter 4.0, ABB-ES, 1995).

Under current conditions, groundwater contamination from Site 16 is not discharging directly to the surface water of the drainage ditches. The transport of the leading edge of the plume to surface water of the ditches and Sal Taylor Creek is expected to take approximately 100 years (ABB-ES, 1995). Exposures to aluminum in surface water and subsequent risks for aquatic life are not currently occurring. However, some contaminated groundwater is interpreted to infiltrate the storm sewers and discharge to the drainage ditch.

The AWQC value of 87 $\mu g/\ell$ for aluminum may not be appropriate as a screening value because it is based on the protection of brook trout and striped bass. Neither of these sensitive species are present in the wetlands east of Site 16. The final chronic AWQC value of 748 $\mu g/\ell$ is a more appropriate screening value for aluminum because this value does not consider the brook trout or the striped bass toxicity data. The reported AWQC value for aluminum is applicable only for surface water with pH values of 6.5 to 9.0 as the value is based on toxicity tests where the pH of the water was between 6.5 and 9.0. Although information on the pH of the wetlands is not available, pH measurements of the drainage ditches ranged from 5.8 to 6.2 (Table 5-3). The toxicity of the aluminum that discharges with groundwater to the surface water of the wetlands will be dependant on the pH of the groundwater and surface water systems.

Aluminum was detected in 12 of 21 samples from groundwater monitoring wells at concentrations ranging from 176 to 7,970 $\mu g/\ell$. If the maximum detected concentration of aluminum in groundwater is transported to the surface water of the wetland, then the exposure concentration of 7,970 would exceed concentrations reported to be lethal to invertebrates and fish (Table 6-12). An average groundwater concentration of aluminum of 1,480 $\mu g/\ell$ also exceeds the concentration of 740 $\mu g/\ell$ reported to be lethal to cladocerans. The toxicity of aluminum is pH dependant. Because the pH of the surface water in the wetlands is unknown, it is not possible to predict the toxicity associated with aluminum in groundwater as it discharges to the wetlands.

When aluminum discharges with the groundwater plume into the drainage ditches or wetlands, the concentrations are expected to be lower. It is expected that the concentration of aluminum may decrease as it moves in groundwater through the subsurface soil (sand) of the surficial aquifer. In addition, the pH of groundwater is normally lower than that of surface water. Upon discharge of groundwater into surface water, an elevation of pH in the receiving system lowers the bioavailability of aluminum. Aluminum becomes more bioavailable in the dissolved phase with decreasing pH. Most importantly, aluminum in surface water, as measured by the total digestion analytical procedure, does not represent the fraction of the metal that is dissolved and biologically available and toxic to aquatic organisms. The dissolved concentration of aluminum in surface water would be lower than that measured as the total.

In summary, groundwater discharges to the surface water of Sal Taylor Creek do not pose a risk to aquatic receptors. However, risks associated with potential future exposures to bis(2-ethylhexyl)phthalate, aluminum, iron, and zinc are possible but unlikely for aquatic receptors in the wetlands under worst case conditions. Concentrations of bis(2-ethylhexyl)phthalate, iron, and zinc appear to originate in the intermediate aquifer and flow upward to the surficial aquifer; therefore, these detections are not believed to be associated with contamination from Site 16.

6.2.5 Uncertainty Analyses The general uncertainties associated with ERAs are outlined in Table 6-3. Below are some of the specific uncertainties associated with contamination at Site 16.

- The assumption that groundwater is not diluted as it discharges to the surface water of the Site 16 wetlands may underestimate the actual dilution. Estimates of exposure and associated risk may be overestimated.

- Surface water and sediment samples are not available from the wetlands adjacent to Site 16.

- An assumption has been made that organisms evaluated in the laboratory bioassays are as sensitive or more sensitive than organisms at the site.

- Effects of TPH on wildlife could not be evaluated because no mode of evaluation is available (i.e., no suitable reference toxicity values for petroleum contamination are available).

- The lack of aquatic toxicity benchmarks for some of the surface water, sediment, and groundwater ECPCs may result in an underestimation of risks for aquatic life.

- The lack of aquatic toxicity information for derivation of RTVs for the robin and the kingfisher may result in an underestimation of risks for birds resulting from exposures to ECPCs in the surface water and sediment of the drainage ditches.

- It is not possible to evaluate the effects of hexavalent chromium in sediment due to a lack of data from several of the sampling stations.

6.2.6 Summary of Assessment for Site 16 Potential risks for ecological receptors were evaluated for ECPCs in surface water, sediment, and groundwater at Site 16. Evaluation of contamination in surface water and sediment is based on the collection of three analytical samples from the drainage ditches. At each sampling station, surface water and sediment samples were analyzed to determine the extent and type of contamination. In addition, samples of the benthic macroinvertebrate community were collected. At two of the drainage ditch sampling stations, sediment samples were submitted for laboratory toxicity testing with two organisms including a water flea (*Ceriodaphnia dubia*) and an amphipod (*Hyallela azteca*). The results of the three analyses were evaluated in a weight-of-evidence approach to identify and characterize risks for aquatic receptors.

Sediment toxicity testing results indicate that risks may be present for certain types of macroinvertebrate receptors at two of the three sampling stations in the drainage ditches. Comparison of the adverse responses with the measurements of

ECPCs in surface water or sediment revealed that risks to aquatic receptors may be associated with elevated concentrations of TPH in sediment. Because the ditches receive stormwater drainage from the runway area and much of the developed area west of the runways, it is believed that the presence of TPH in the sediment of the drainage ditches is not site related.

Potential risks for terrestrial wildlife resulting from exposures to ECPCs in surface water and sediment were also evaluated. Exposures to ECPCs in surface water and sediment were evaluated based on a model that predicts the amount of contaminant exposure via direct ingestion of surface water, incidental ingestion of sediment, and ingestion in the diet. Comparison of predicted doses for representative wildlife species with doses representing thresholds for both lethal and sublethal effects (RTVs) is the basis of the risk evaluation. Risks were not identified for terrestrial wildlife resulting from exposures to ECPCs in surface water and sediment at the drainage ditches.

Potential risks for aquatic receptors were evaluated for exposures to ECPCs in groundwater. The concentration of ECPCs in unfiltered groundwater were estimated as they are discharged to both the wetlands downgradient of surficial groundwater flow for Site 16 and Sal Taylor Creek. The exposure concentrations of groundwater ECPCs in Sal Taylor Creek were estimated based on concentrations measured in groundwater samples. Migration of groundwater contamination to the wetlands assumed no dilution. Comparison of the average and maximum exposure concentrations of each ECPC with available criteria and toxicity benchmarks is the basis of the risk characterization. The risk characterization did not identify risks for aquatic receptors in Sal Taylor Creek associated with ECPCs in groundwater. However, risks associated with exposures to bis(2-ethylhexyl)phthalate, aluminum, iron, and zinc are possible for aquatic receptors in the wetlands. Concentrations of bis(2-ethylhexyl)phthalate, iron, and zinc appear to originate in the intermediate aquifer and flow upward to the surficial aquifer; therefore, these detections are not believed to be associated with Site 16.

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APPENDIX B

VALIDATED REMEDIAL INVESTIGATION AND BASELINE RISK ASSESSMENT DATA

NAS CECIL FIELD -- OPERABLE UNIT 7 -- SITE 16
GROUNDWATER -- VOLATILES

Lab Sample Number:	Q4203				Q4207				Q3531				Q4204			
Site	CECIL7				CECIL7				CECIL7				CECIL7			
Locator	CF16MW5S				CF16MW5ST				CF16MW7S				CF16MW9D			
Collect Date:	11-AUG-94				11-AUG-94				10-AUG-94				11-AUG-94			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP VOLATILES 90-SOW																
Chloromethane	2	U	ug/l	2	2	U	ug/l	2	33	U	ug/l	33	2	U	ug/l	2
Bromomethane	2	U	ug/l	2	2	U	ug/l	2	33	U	ug/l	33	2	U	ug/l	2
Vinyl chloride	2	U	ug/l	2	2	U	ug/l	2	33	U	ug/l	33	2	U	ug/l	2
Chloroethane	2	U	ug/l	2	2	U	ug/l	2	33	U	ug/l	33	2	U	ug/l	2
Methylene chloride	1	U	ug/l	1	1	U	ug/l	1	17	U	ug/l	17	1	U	ug/l	1
Acetone	2	U	ug/l	2	11		ug/l	2	33	U	ug/l	33	2	U	ug/l	2
Carbon disulfide	1	U	ug/l	1	1	U	ug/l	1	17	U	ug/l	17	1	U	ug/l	1
1,1-Dichloroethene	1	U	ug/l	1	1	U	ug/l	1	17	U	ug/l	17	1	U	ug/l	1
1,1-Dichloroethane	1	U	ug/l	1	1	U	ug/l	1	17	U	ug/l	17	1	U	ug/l	1
1,2-Dichloroethene (total)	1	U	ug/l	1	1	U	ug/l	1	270	J	ug/l	33	1	U	ug/l	1
Chloroform	1	U	ug/l	1	1	U	ug/l	1	17	U	ug/l	17	1	U	ug/l	1
1,2-Dichloroethane	1	U	ug/l	1	1	U	ug/l	1	17	U	ug/l	17	1	U	ug/l	1
2-Butanone	2	U	ug/l	2	2	U	ug/l	2	33	U	ug/l	33	2	U	ug/l	2
1,1,1-Trichloroethane	1	U	ug/l	1	1	U	ug/l	1	17	U	ug/l	17	1	U	ug/l	1
Carbon tetrachloride	1	U	ug/l	1	1	U	ug/l	1	17	U	ug/l	17	1	U	ug/l	1
Bromodichloromethane	1	U	ug/l	1	1	U	ug/l	1	17	U	ug/l	17	1	U	ug/l	1
1,2-Dichloropropane	1	U	ug/l	1	1	U	ug/l	1	17	U	ug/l	17	1	U	ug/l	1
cis-1,3-Dichloropropene	1	U	ug/l	1	1	U	ug/l	1	17	U	ug/l	17	1	U	ug/l	1
Trichloroethene	20	J	ug/l	2	1	U	ug/l	1	500	J	ug/l	33	20	J	ug/l	2
Dibromochloromethane	1	U	ug/l	1	1	U	ug/l	1	17	U	ug/l	17	1	U	ug/l	1
1,1,2-Trichloroethane	1	U	ug/l	1	1	U	ug/l	1	17	U	ug/l	17	1	U	ug/l	1
Benzene	1	U	ug/l	1	1	U	ug/l	1	17	U	ug/l	17	1	U	ug/l	1
trans-1,3-Dichloropropene	1	U	ug/l	1	1	U	ug/l	1	17	U	ug/l	17	1	U	ug/l	1
Bromoform	1	U	ug/l	1	1	U	ug/l	1	17	U	ug/l	17	1	U	ug/l	1
4-Methyl-2-pentanone	2	U	ug/l	2	2	U	ug/l	2	33	U	ug/l	33	2	U	ug/l	2
2-Hexanone	2	U	ug/l	2	2	U	ug/l	2	33	U	ug/l	33	2	U	ug/l	2
Tetrachloroethene	1	U	ug/l	1	1	U	ug/l	1	17	U	ug/l	17	1	U	ug/l	1
Toluene	1	U	ug/l	1	1	U	ug/l	1	17	U	ug/l	17	1	U	ug/l	1
1,1,2,2-Tetrachloroethane	1	U	ug/l	1	1	U	ug/l	1	17	U	ug/l	17	1	U	ug/l	1
Chlorobenzene	1	U	ug/l	1	1	U	ug/l	1	17	U	ug/l	17	1	U	ug/l	1
Ethylbenzene	1	U	ug/l	1	1	U	ug/l	1	17	U	ug/l	17	1	U	ug/l	1
Styrene	1	U	ug/l	1	1	U	ug/l	1	17	U	ug/l	17	1	U	ug/l	1
Xylenes (total)	1	U	ug/l	1	1	U	ug/l	1	17	U	ug/l	17	1	U	ug/l	1

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

NAS CECIL FIELD -- OPERABLE UNIT 7 -- SITE 16
GROUNDWATER -- VOLATILES

Lab Sample Number:	Q3528			Q3530			Q3533			Q3532		
Site	CECIL7			CECIL7			CECIL7			CECIL7		
Locator	CF16MW10S			CF16MW10SD			CF16MW10ST			CF16MW11DD		
Collect Date:	10-AUG-94			10-AUG-94			10-AUG-94			10-AUG-94		
	VALUE QUAL	UNITS	DL	VALUE QUAL	UNITS	DL	VALUE QUAL	UNITS	DL	VALUE QUAL	UNITS	DL
CLP VOLATILES 90-SOW												
Chloromethane	830 U	ug/l	830	830 U	ug/l	830	2 U	ug/l	2	2 U	ug/l	2
Bromomethane	830 U	ug/l	830	830 U	ug/l	830	2 U	ug/l	2	2 U	ug/l	2
Vinyl chloride	830 U	ug/l	830	830 U	ug/l	830	2 U	ug/l	2	2 U	ug/l	2
Chloroethane	830 U	ug/l	830	830 U	ug/l	830	2 U	ug/l	2	2 U	ug/l	2
Methylene chloride	420 U	ug/l	420	420 U	ug/l	420	1 U	ug/l	1	1 U	ug/l	1
Acetone	830 U	ug/l	830	830 U	ug/l	830	4	ug/l	2	2 U	ug/l	2
Carbon disulfide	420 U	ug/l	420	420 U	ug/l	420	1 U	ug/l	1	1 U	ug/l	1
1,1-Dichloroethene	420 U	ug/l	420	590	ug/l	830	1 U	ug/l	1	1 U	ug/l	1
1,1-Dichloroethane	420 U	ug/l	420	420 U	ug/l	420	1 U	ug/l	1	1 U	ug/l	1
1,2-Dichloroethene (total)	15000 J	ug/l	830	9900 J	ug/l	830	1 U	ug/l	1	1 U	ug/l	1
Chloroform	420 U	ug/l	420	420 U	ug/l	420	1 U	ug/l	1	1 U	ug/l	1
1,2-Dichloroethane	420 U	ug/l	420	420 U	ug/l	420	1 U	ug/l	1	1 U	ug/l	1
2-Butanone	830 U	ug/l	830	830 U	ug/l	830	2 U	ug/l	2	2 U	ug/l	2
1,1,1-Trichloroethane	1700 J	ug/l	830	4300 J	ug/l	830	1 U	ug/l	1	1 U	ug/l	1
Carbon tetrachloride	420 U	ug/l	420	420 U	ug/l	420	1 U	ug/l	1	1 U	ug/l	1
Bromodichloromethane	420 U	ug/l	420	420 U	ug/l	420	1 U	ug/l	1	1 U	ug/l	1
1,2-Dichloropropane	420 U	ug/l	420	420 U	ug/l	420	1 U	ug/l	1	1 U	ug/l	1
cis-1,3-Dichloropropene	420 U	ug/l	420	420 U	ug/l	420	1 U	ug/l	1	1 U	ug/l	1
Trichloroethene	570 J	ug/l	830	690 J	ug/l	830	1 U	ug/l	1	1 U	ug/l	1
Dibromochloromethane	420 U	ug/l	420	420 U	ug/l	420	1 U	ug/l	1	1 U	ug/l	1
1,1,2-Trichloroethane	420 U	ug/l	420	420 U	ug/l	420	1 U	ug/l	1	1 U	ug/l	1
Benzene	420 U	ug/l	420	420 U	ug/l	420	1 U	ug/l	1	1 U	ug/l	1
trans-1,3-Dichloropropene	420 U	ug/l	420	420 U	ug/l	420	1 U	ug/l	1	1 U	ug/l	1
Bromoform	420 U	ug/l	420	420 U	ug/l	420	1 U	ug/l	1	1 U	ug/l	1
4-Methyl-2-pentanone	830 U	ug/l	830	830 U	ug/l	830	2 U	ug/l	2	2 U	ug/l	2
2-Hexanone	830 U	ug/l	830	830 U	ug/l	830	2 U	ug/l	2	2 U	ug/l	2
Tetrachloroethene	420 U	ug/l	420	420 U	ug/l	420	1 U	ug/l	1	1 U	ug/l	1
Toluene	420 U	ug/l	420	420 U	ug/l	420	1 U	ug/l	1	1 U	ug/l	1
1,1,2,2-Tetrachloroethane	420 U	ug/l	420	420 U	ug/l	420	1 U	ug/l	1	1 U	ug/l	1
Chlorobenzene	420 U	ug/l	420	420 U	ug/l	420	1 U	ug/l	1	1 U	ug/l	1
Ethylbenzene	420 U	ug/l	420	420 U	ug/l	420	1 U	ug/l	1	1 U	ug/l	1
Styrene	420 U	ug/l	420	420 U	ug/l	420	1 U	ug/l	1	1 U	ug/l	1
Xylenes (total)	420 U	ug/l	420	420 U	ug/l	420	1 U	ug/l	1	1 U	ug/l	1

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NAS CECIL FIELD -- OPERABLE UNIT 7 -- SITE 16
GROUNDWATER -- VOLATILES

Lab Sample Number:	Q3532MS			Q3532MSD			Q4205			A00FB		
Site	CECIL7			CECIL7			CECIL7			CECIL7		
Locator	CF16MW11DDMS			CF16MW11DDMSD			CF16MW12I			CF16MW12IR		
Collect Date:	10-AUG-94			10-AUG-94			11-AUG-94			16-AUG-94		
	VALUE QUAL	UNITS	DL	VALUE QUAL	UNITS	DL	VALUE QUAL	UNITS	DL	VALUE QUAL	UNITS	DL
CLP VOLATILES 90-SOW												
Chloromethane	2 U	ug/l	2	2 U	ug/l	2	2 U	ug/l	2	2 U	ug/l	2
Bromomethane	2 U	ug/l	2	2 U	ug/l	2	2 U	ug/l	2	2 U	ug/l	2
Vinyl chloride	2 U	ug/l	2	2 U	ug/l	2	2 U	ug/l	2	2 U	ug/l	2
Chloroethane	2 U	ug/l	2	2 U	ug/l	2	2 U	ug/l	2	2 U	ug/l	2
Methylene chloride	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
Acetone	2 U	ug/l	2	2 U	ug/l	2	6 U	ug/l	6	2 U	ug/l	2
Carbon disulfide	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
1,1-Dichloroethene	10	ug/l	2	10	ug/l	2	1 U	ug/l	1	1 U	ug/l	1
1,1-Dichloroethane	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
1,2-Dichloroethene (total)	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
Chloroform	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
1,2-Dichloroethane	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
2-Butanone	2 U	ug/l	2	2 U	ug/l	2	2 U	ug/l	2	2 U	ug/l	2
1,1,1-Trichloroethane	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
Carbon tetrachloride	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
Bromodichloromethane	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
1,2-Dichloropropane	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
cis-1,3-Dichloropropene	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
Trichloroethene	11	ug/l	2	10	ug/l	2	1 U	ug/l	1	1 U	ug/l	1
Dibromochloromethane	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
1,1,2-Trichloroethane	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
Benzene	9	ug/l	2	9	ug/l	2	1 U	ug/l	1	1 U	ug/l	1
trans-1,3-Dichloropropene	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
Bromoform	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
4-Methyl-2-pentanone	2 U	ug/l	2	2 U	ug/l	2	2 U	ug/l	2	2 U	ug/l	2
2-Hexanone	2 U	ug/l	2	2 U	ug/l	2	2 U	ug/l	2	2 U	ug/l	2
Tetrachloroethene	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
Toluene	10	ug/l	2	10	ug/l	2	1 U	ug/l	1	1 U	ug/l	1
1,1,2,2-Tetrachloroethane	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
Chlorobenzene	10	ug/l	2	10	ug/l	2	1 U	ug/l	1	1 U	ug/l	1
Ethylbenzene	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
Styrene	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
Xylenes (total)	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 -- OPERABLE UNIT 7 -- SITE 16
GROUNDWATER -- VOLATILES

Lab Sample Number:	A00FD				P4911				P4913				P4912			
Site	CECIL7				CECIL7				CECIL7				CECIL7			
Locator	CF16MW12IRT				CF16MW13S				CF16MW14D				CF16MW15S			
Collect Date:	16-AUG-94				17-JUL-94				17-JUL-94				17-JUL-94			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP VOLATILES 90-SOW																
Chloromethane	2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2
Bromomethane	2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2
Vinyl chloride	2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2
Chloroethane	2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2
Methylene chloride	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Acetone	13		ug/l	2	2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2
Carbon disulfide	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
1,1-Dichloroethene	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
1,1-Dichloroethane	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
1,2-Dichloroethene (total)	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Chloroform	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
1,2-Dichloroethane	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
2-Butanone	2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2
1,1,1-Trichloroethane	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Carbon tetrachloride	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Bromodichloromethane	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
1,2-Dichloropropane	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
cis-1,3-Dichloropropene	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Trichloroethene	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Dibromochloromethane	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
1,1,2-Trichloroethane	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Benzene	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
trans-1,3-Dichloropropene	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Bromoform	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
4-Methyl-2-pentanone	2	U	ug/l	2	2	R	ug/l	2	2	R	ug/l	2	2	R	ug/l	2
2-Hexanone	2	U	ug/l	2	2	R	ug/l	2	2	R	ug/l	2	2	R	ug/l	2
Tetrachloroethene	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Toluene	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
1,1,2,2-Tetrachloroethane	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Chlorobenzene	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Ethylbenzene	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Styrene	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Xylenes (total)	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 -- OPERABLE UNIT 7 -- SITE 16
GROUNDWATER -- VOLATILES

Lab Sample Number:	P9355			P9360			P4910			P4917		
Site	CECIL7			CECIL7			CECIL7			CECIL7		
Locator	CF16MW16D			CF16MW16DT			CF16MW17S			CF16MW17ST		
Collect Date:	29-JUL-94			29-JUL-94			17-JUL-94			17-JUL-94		
	VALUE QUAL	UNITS	DL	VALUE QUAL	UNITS	DL	VALUE QUAL	UNITS	DL	VALUE QUAL	UNITS	DL
CLP VOLATILES 90-SOW												
Chloromethane	2 U	ug/l	2	2 U	ug/l	2	2 U	ug/l	2	2 U	ug/l	2
Bromomethane	2 U	ug/l	2	2 U	ug/l	2	2 U	ug/l	2	2 U	ug/l	2
Vinyl chloride	2 U	ug/l	2	2 U	ug/l	2	2 U	ug/l	2	2 U	ug/l	2
Chloroethane	2 U	ug/l	2	2 U	ug/l	2	2 U	ug/l	2	2 U	ug/l	2
Methylene chloride	2 U	ug/l	2	2	ug/l	2	1 U	ug/l	1	1 U	ug/l	1
Acetone	2 U	ug/l	2	17	ug/l	2	2 U	ug/l	2	2 U	ug/l	2
Carbon disulfide	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
1,1-Dichloroethene	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
1,1-Dichloroethane	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
1,2-Dichloroethene (total)	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
Chloroform	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
1,2-Dichloroethane	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
2-Butanone	2 U	ug/l	2	2 U	ug/l	2	2 U	ug/l	2	2 U	ug/l	2
1,1,1-Trichloroethane	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
Carbon tetrachloride	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
Bromodichloromethane	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
1,2-Dichloropropane	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
cis-1,3-Dichloropropene	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
Trichloroethene	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
Dibromochloromethane	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
1,1,2-Trichloroethane	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
Benzene	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
trans-1,3-Dichloropropene	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
Bromoform	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
4-Methyl-2-pentanone	2 U	ug/l	2	2 U	ug/l	2	2 R	ug/l	2	2 R	ug/l	2
2-Hexanone	2 U	ug/l	2	2 U	ug/l	2	2 R	ug/l	2	2 R	ug/l	2
Tetrachloroethene	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
Toluene	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
1,1,2,2-Tetrachloroethane	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
Chlorobenzene	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
Ethylbenzene	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
Styrene	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
Xylenes (total)	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 -- OPERABLE UNIT 7 -- SITE 16
GROUNDWATER -- VOLATILES

Lab Sample Number:	P3792				P3794				P9356				A00FC			
Site	CECIL7				CECIL7				CECIL7				CECIL7			
Locator	CF16MW18D				CF16MW18DT				CF16MW19S				CF16MW20D			
Collect Date:	14-JUL-94				14-JUL-94				29-JUL-94				16-AUG-94			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP VOLATILES 90-SOW																
Chloromethane	2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2
Bromomethane	2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2
Vinyl chloride	2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2
Chloroethane	2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2
Methylene chloride	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Acetone	2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2
Carbon disulfide	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
1,1-Dichloroethene	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
1,1-Dichloroethane	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
1,2-Dichloroethene (total)	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Chloroform	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
1,2-Dichloroethane	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
2-Butanone	2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2
1,1,1-Trichloroethane	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Carbon tetrachloride	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Bromodichloromethane	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
1,2-Dichloropropane	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
cis-1,3-Dichloropropene	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Trichloroethene	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Dibromochloromethane	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
1,1,2-Trichloroethane	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Benzene	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
trans-1,3-Dichloropropene	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Bromoform	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
4-Methyl-2-pentanone	2	R	ug/l	2	2	R	ug/l	2	2	U	ug/l	2	2	U	ug/l	2
2-Hexanone	2	R	ug/l	2	2	R	ug/l	2	2	U	ug/l	2	2	U	ug/l	2
Tetrachloroethene	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Toluene	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
1,1,2,2-Tetrachloroethane	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Chlorobenzene	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Ethylbenzene	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Styrene	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Xylenes (total)	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1

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

NAS CECIL FIELD -- OPERABLE UNIT 7 -- SITE 16
GROUNDWATER -- VOLATILES

Lab Sample Number:	P4914			P4916			P9358			P9361		
Site	CECIL7			CECIL7			CECIL7			CECIL7		
Locator	CF16MW21S			CF16MW21SD			CF16MW22I			CF16MW22IR		
Collect Date:	18-JUL-94			18-JUL-94			29-JUL-94			29-JUL-94		
	VALUE QUAL	UNITS	DL	VALUE QUAL	UNITS	DL	VALUE QUAL	UNITS	DL	VALUE QUAL	UNITS	DL
CLP VOLATILES 90-SOW												
Chloromethane	2 U	ug/l	2	2 U	ug/l	2	2 U	ug/l	2	2 U	ug/l	2
Bromomethane	2 U	ug/l	2	2 U	ug/l	2	2 U	ug/l	2	2 U	ug/l	2
Vinyl chloride	2 U	ug/l	2	2 U	ug/l	2	2 U	ug/l	2	2 U	ug/l	2
Chloroethane	2 U	ug/l	2	2 U	ug/l	2	2 U	ug/l	2	2 U	ug/l	2
Methylene chloride	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	2	ug/l	2
Acetone	2 U	ug/l	2	2 U	ug/l	2	2 U	ug/l	2	28	ug/l	2
Carbon disulfide	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
1,1-Dichloroethene	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
1,1-Dichloroethane	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
1,2-Dichloroethene (total)	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
Chloroform	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
1,2-Dichloroethane	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
2-Butanone	2 U	ug/l	2	2 U	ug/l	2	2 U	ug/l	2	2 U	ug/l	2
1,1,1-Trichloroethane	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
Carbon tetrachloride	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
Bromodichloromethane	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
1,2-Dichloropropane	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
cis-1,3-Dichloropropene	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
Trichloroethene	1 U	ug/l	1	1 U	ug/l	1	15	ug/l	2	1 U	ug/l	1
Dibromochloromethane	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
1,1,2-Trichloroethane	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
Benzene	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
trans-1,3-Dichloropropene	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
Bromoform	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
4-Methyl-2-pentanone	2 R	ug/l	2	2 R	ug/l	2	2 U	ug/l	2	2 U	ug/l	2
2-Hexanone	2 R	ug/l	2	2 R	ug/l	2	2 U	ug/l	2	2 U	ug/l	2
Tetrachloroethene	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
Toluene	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
1,1,2,2-Tetrachloroethane	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
Chlorobenzene	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
Ethylbenzene	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
Styrene	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
Xylenes (total)	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 -- OPERABLE UNIT 7 -- SITE 16
GROUNDWATER -- VOLATILES

Lab Sample Number:	P5958			P5958MS			P5958MSD			P5960		
Site	CECIL7			CECIL7			CECIL7			CECIL7		
Locator	CF16MW23D			CF16MW23DMS			CF16MW23DMSD			CF16MW23DT		
Collect Date:	20-JUL-94			20-JUL-94			20-JUL-94			20-JUL-94		
	VALUE QUAL	UNITS	DL	VALUE QUAL	UNITS	DL	VALUE QUAL	UNITS	DL	VALUE QUAL	UNITS	DL
CLP VOLATILES 90-SOW												
Chloromethane	2 U	ug/l	2	2 U	ug/l	2	2 U	ug/l	2	2 U	ug/l	2
Bromomethane	2 U	ug/l	2	2 U	ug/l	2	2 U	ug/l	2	2 U	ug/l	2
Vinyl chloride	2 U	ug/l	2	2 U	ug/l	2	2 U	ug/l	2	2 U	ug/l	2
Chloroethane	2 U	ug/l	2	2 U	ug/l	2	2 U	ug/l	2	2 U	ug/l	2
Methylene chloride	1 U	ug/l	1	1	ug/l	2	1 U	ug/l	1	1 U	ug/l	1
Acetone	2 U	ug/l	2	2 U	ug/l	2	2 U	ug/l	2	2 U	ug/l	2
Carbon disulfide	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
1,1-Dichloroethene	1 U	ug/l	1	11	ug/l	2	10	ug/l	2	1 U	ug/l	1
1,1-Dichloroethane	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
1,2-Dichloroethene (total)	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
Chloroform	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
1,2-Dichloroethane	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
2-Butanone	2 U	ug/l	2	2 U	ug/l	2	2 U	ug/l	2	2 U	ug/l	2
1,1,1-Trichloroethane	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
Carbon tetrachloride	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
Bromodichloromethane	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
1,2-Dichloropropane	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
cis-1,3-Dichloropropene	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
Trichloroethene	1 U	ug/l	1	10	ug/l	2	10	ug/l	2	1 U	ug/l	1
Dibromochloromethane	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
1,1,2-Trichloroethane	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
Benzene	1 U	ug/l	1	10	ug/l	2	10	ug/l	2	1 U	ug/l	1
trans-1,3-Dichloropropene	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
Bromoform	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
4-Methyl-2-pentanone	2 U	ug/l	2	2 U	ug/l	2	2 U	ug/l	2	2 U	ug/l	2
2-Hexanone	2 R	ug/l	2	2 U	ug/l	2	2 U	ug/l	2	2 R	ug/l	2
Tetrachloroethene	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
Toluene	1 U	ug/l	1	10	ug/l	2	9	ug/l	2	1 U	ug/l	1
1,1,2,2-Tetrachloroethane	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
Chlorobenzene	1 U	ug/l	1	10	ug/l	2	10	ug/l	2	1 U	ug/l	1
Ethylbenzene	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
Styrene	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
Xylenes (total)	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 -- OPER...E UNIT 7 -- SITE 16
GROUNDWATER -- VOLATILES

Lab Sample Number:	P3222			P3220			P3217			P3235		
Site	CECIL7			CECIL7			CECIL7			CECIL7		
Locator	CF16MW24S			CF16MW25D			CF16MW26DD			CF16MW26DDT		
Collect Date:	13-JUL-94			13-JUL-94			13-JUL-94			13-JUL-94		
	VALUE QUAL	UNITS	DL	VALUE QUAL	UNITS	DL	VALUE QUAL	UNITS	DL	VALUE QUAL	UNITS	DL
CLP VOLATILES 90-SOW												
Chloromethane	2 U	ug/l	2	2 U	ug/l	2	2 U	ug/l	2	2 U	ug/l	2
Bromomethane	2 U	ug/l	2	2 U	ug/l	2	2 U	ug/l	2	2 U	ug/l	2
Vinyl chloride	2 U	ug/l	2	2 U	ug/l	2	2 U	ug/l	2	2 U	ug/l	2
Chloroethane	2 U	ug/l	2	2 U	ug/l	2	2 U	ug/l	2	2 U	ug/l	2
Methylene chloride	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
Acetone	2 U	ug/l	2	2 U	ug/l	2	2 U	ug/l	2	2 U	ug/l	2
Carbon disulfide	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
1,1-Dichloroethene	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
1,1-Dichloroethane	1	ug/l	2	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
1,2-Dichloroethene (total)	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
Chloroform	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
1,2-Dichloroethane	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
2-Butanone	2 U	ug/l	2	2 U	ug/l	2	2 U	ug/l	2	2 U	ug/l	2
1,1,1-Trichloroethane	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
Carbon tetrachloride	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
Bromodichloromethane	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
1,2-Dichloropropane	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
cis-1,3-Dichloropropene	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
Trichloroethene	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
Dibromochloromethane	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
1,1,2-Trichloroethane	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
Benzene	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
trans-1,3-Dichloropropene	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
Bromoform	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
4-Methyl-2-pentanone	2 R	ug/l	2	2 R	ug/l	2	2 R	ug/l	2	2 R	ug/l	2
2-Hexanone	2 R	ug/l	2	2 R	ug/l	2	2 R	ug/l	2	2 R	ug/l	2
Tetrachloroethene	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
Toluene	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
1,1,2,2-Tetrachloroethane	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
Chlorobenzene	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
Ethylbenzene	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
Styrene	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
Xylenes (total)	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 -- OPERABLE UNIT 7 -- SITE 16
GROUNDWATER -- VOLATILES

Lab Sample Number:	Q2485				Q2494				Q2491				Q2492			
Site	CECIL7				CECIL7				CECIL7				CECIL7			
Locator	CF16MW27I				CF16MW27IT				CF16MW28D				CF16MW28DD			
Collect Date:	08-AUG-94				08-AUG-94				08-AUG-94				08-AUG-94			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP VOLATILES 90-SOW																
Chloromethane	2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2
Bromomethane	2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2
Vinyl chloride	2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2
Chloroethane	2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2
Methylene chloride	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Acetone	2	U	ug/l	2	4		ug/l	2	2	U	ug/l	2	2	U	ug/l	2
Carbon disulfide	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
1,1-Dichloroethene	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
1,1-Dichloroethane	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
1,2-Dichloroethene (total)	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Chloroform	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
1,2-Dichloroethane	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
2-Butanone	2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2
1,1,1-Trichloroethane	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Carbon tetrachloride	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Bromodichloromethane	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
1,2-Dichloropropane	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
cis-1,3-Dichloropropene	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Trichloroethene	12	J	ug/l	2	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Dibromochloromethane	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
1,1,2-Trichloroethane	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Benzene	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
trans-1,3-Dichloropropene	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Bromoform	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
4-Methyl-2-pentanone	2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2
2-Hexanone	2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2
Tetrachloroethene	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Toluene	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
1,1,2,2-Tetrachloroethane	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Chlorobenzene	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Ethylbenzene	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Styrene	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Xylenes (total)	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1

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UJ = REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED
R = RESULT IS REJECTED AND UNUSABLE

NAS CECIL FIELD -- OPERABLE UNIT 7 -- SITE 16
GROUNDWATER -- VOLATILES

Lab Sample Number:	Q0289				Q0292				Q0288				Q2493			
Site	CECIL7				CECIL7				CECIL7				CECIL7			
Locator	CF16MW29S				CF16MW30D				CF16MW31DD				CF16MW32S			
Collect Date:	02-AUG-94				02-AUG-94				02-AUG-94				08-AUG-94			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP VOLATILES 90-SOW																
Chloromethane	2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2	33	U	ug/l	33
Bromomethane	2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2	33	U	ug/l	33
Vinyl chloride	2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2	33	U	ug/l	33
Chloroethane	2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2	33	U	ug/l	33
Methylene chloride	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	17	U	ug/l	17
Acetone	2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2	33	U	ug/l	33
Carbon disulfide	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	17	U	ug/l	17
1,1-Dichloroethene	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	17	U	ug/l	17
1,1-Dichloroethane	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	17	U	ug/l	17
1,2-Dichloroethane (total)	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	17	U	ug/l	17
Chloroform	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	17	U	ug/l	17
1,2-Dichloroethane	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	17	U	ug/l	17
2-Butanone	2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2	33	U	ug/l	33
1,1,1-Trichloroethane	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	17	U	ug/l	17
Carbon tetrachloride	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	17	U	ug/l	17
Bromodichloromethane	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	17	U	ug/l	17
1,2-Dichloropropane	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	17	U	ug/l	17
cis-1,3-Dichloropropene	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	17	U	ug/l	17
Trichloroethene	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	470	J	ug/l	33
Dibromochloromethane	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	17	U	ug/l	17
1,1,2-Trichloroethane	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	17	U	ug/l	17
Benzene	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	17	U	ug/l	17
trans-1,3-Dichloropropene	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	17	U	ug/l	17
Bromoform	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	17	U	ug/l	17
4-Methyl-2-pentanone	2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2	33	U	ug/l	33
2-Hexanone	2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2	33	U	ug/l	33
Tetrachloroethene	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	17	U	ug/l	17
Toluene	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	17	U	ug/l	17
1,1,2,2-Tetrachloroethane	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	17	U	ug/l	17
Chlorobenzene	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	17	U	ug/l	17
Ethylbenzene	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	17	U	ug/l	17
Styrene	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	17	U	ug/l	17
Xylenes (total)	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	17	U	ug/l	17

U = NOT DETECTED J = ESTIMATED VALUE
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NAS CECIL FIELD -- OPERABLE UNIT 7 -- SITE 16
GROUNDWATER -- VOLATILES

Lab Sample Number:	Q2907				Q3527				Q2906				Q2908			
Site	CECIL7				CECIL7				CECIL7				CECIL7			
Locator	CF16MW33D				CF16MW33DR				CF16MW34DD				CF16MW34DDT			
Collect Date:	09-AUG-94				10-AUG-94				09-AUG-94				09-AUG-94			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP VOLATILES 90-SOW																
Chloromethane	2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2
Bromomethane	2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2
Vinyl chloride	2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2
Chloroethane	2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2
Methylene chloride	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Acetone	2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2	6		ug/l	2
Carbon disulfide	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
1,1-Dichloroethene	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
1,1-Dichloroethane	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
1,2-Dichloroethene (total)	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Chloroform	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
1,2-Dichloroethane	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
2-Butanone	2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2
1,1,1-Trichloroethane	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Carbon tetrachloride	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Bromodichloromethane	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
1,2-Dichloropropane	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
cis-1,3-Dichloropropene	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Trichloroethene	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Dibromochloromethane	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
1,1,2-Trichloroethane	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Benzene	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
trans-1,3-Dichloropropene	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Bromoform	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
4-Methyl-2-pentanone	2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2
2-Hexanone	2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2
Tetrachloroethene	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Toluene	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
1,1,2,2-Tetrachloroethane	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Chlorobenzene	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Ethylbenzene	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Styrene	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Xylenes (total)	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 -- OPERABLE UNIT 7 -- SITE 16
GROUNDWATER -- VOLATILES

Lab Sample Number:	Q0286				Q0293				Q0046				Q0050			
Site	CECIL7				CECIL7				CECIL7				CECIL7			
Locator	CF16MW35S				CF16MW35ST				CF16MW36I				CF16MW37D			
Collect Date:	02-AUG-94				02-AUG-94				01-AUG-94				01-AUG-94			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP VOLATILES 90-SOW																
Chloromethane	2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2
Bromomethane	2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2
Vinyl chloride	2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2
Chloroethane	2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2
Methylene chloride	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Acetone	2	U	ug/l	2	10		ug/l	2	2	U	ug/l	2	7	U	ug/l	7
Carbon disulfide	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
1,1-Dichloroethene	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
1,1-Dichloroethane	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
1,2-Dichloroethene (total)	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Chloroform	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
1,2-Dichloroethane	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
2-Butanone	2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2
1,1,1-Trichloroethane	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Carbon tetrachloride	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Bromodichloromethane	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
1,2-Dichloropropane	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
cis-1,3-Dichloropropene	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Trichloroethene	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Dibromochloromethane	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
1,1,2-Trichloroethane	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Benzene	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
trans-1,3-Dichloropropene	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Bromoform	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
4-Methyl-2-pentanone	2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2
2-Hexanone	2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2
Tetrachloroethene	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Toluene	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
1,1,2,2-Tetrachloroethane	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Chlorobenzene	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Ethylbenzene	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Styrene	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Xylenes (total)	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 -- OPERABLE UNIT 7 -- SITE 16
GROUNDWATER -- VOLATILES

Lab Sample Number:	Q0050MS			Q0050MSD			Q0044			Q0043		
Site	CECIL7			CECIL7			CECIL7			CECIL7		
Locator	CF16MW37DMS			CF16MW37DMSD			CF16MW38S			CF16MW39I		
Collect Date:	01-AUG-94			01-AUG-94			31-JUL-94			31-JUL-94		
	VALUE QUAL	UNITS	DL	VALUE QUAL	UNITS	DL	VALUE QUAL	UNITS	DL	VALUE QUAL	UNITS	DL
CLP VOLATILES 90-SOW												
Chloromethane	2 U	ug/l	2	2 U	ug/l	2	2 U	ug/l	2	2 U	ug/l	2
Bromomethane	2 U	ug/l	2	2 U	ug/l	2	2 U	ug/l	2	2 U	ug/l	2
Vinyl chloride	2 U	ug/l	2	2 U	ug/l	2	2 U	ug/l	2	2 U	ug/l	2
Chloroethane	2 U	ug/l	2	2 U	ug/l	2	2 U	ug/l	2	2 U	ug/l	2
Methylene chloride	1 U	ug/l	1	2	ug/l	2	1 U	ug/l	1	1 U	ug/l	1
Acetone	2 U	ug/l	2	8	ug/l	2	2 U	ug/l	2	2 U	ug/l	2
Carbon disulfide	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
1,1-Dichloroethene	11	ug/l	2	10	ug/l	2	1 U	ug/l	1	1 U	ug/l	1
1,1-Dichloroethane	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
1,2-Dichloroethene (total)	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
Chloroform	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
1,2-Dichloroethane	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
2-Butanone	2 U	ug/l	2	2 U	ug/l	2	2 U	ug/l	2	2 U	ug/l	2
1,1,1-Trichloroethane	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
Carbon tetrachloride	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
Bromodichloromethane	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
1,2-Dichloropropane	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
cis-1,3-Dichloropropene	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
Trichloroethene	9	ug/l	2	9	ug/l	2	1 U	ug/l	1	1 U	ug/l	1
Dibromochloromethane	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
1,1,2-Trichloroethane	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
Benzene	10	ug/l	2	10	ug/l	2	1 U	ug/l	1	1 U	ug/l	1
trans-1,3-Dichloropropene	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
Bromoform	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
4-Methyl-2-pentanone	2 U	ug/l	2	2 U	ug/l	2	2 U	ug/l	2	1 J	ug/l	2
2-Hexanone	2 U	ug/l	2	2 U	ug/l	2	2 U	ug/l	2	2 U	ug/l	2
Tetrachloroethene	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
Toluene	9	ug/l	2	9	ug/l	2	1 U	ug/l	1	1 U	ug/l	1
1,1,2,2-Tetrachloroethane	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
Chlorobenzene	10	ug/l	2	10	ug/l	2	1 U	ug/l	1	1 U	ug/l	1
Ethylbenzene	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
Styrene	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
Xylenes (total)	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 -- OPERABLE UNIT 7 -- SITE 16
GROUNDWATER -- VOLATILES

Lab Sample Number:	Q0041				Q0042				Q0052			
Site	CECIL7				CECIL7				CECIL7			
Locator	CF16MW40D				CF16MW40DD				CF16MW40DT			
Collect Date:	31-JUL-94				31-JUL-94				01-AUG-94			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP VOLATILES 90-SOW												
Chloromethane	2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2
Bromomethane	2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2
Vinyl chloride	2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2
Chloroethane	2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2
Methylene chloride	2	U	ug/l	2	1	U	ug/l	1	3		ug/l	2
Acetone	6	U	ug/l	6	2	U	ug/l	2	23		ug/l	2
Carbon disulfide	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
1,1-Dichloroethene	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
1,1-Dichloroethane	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
1,2-Dichloroethene (total)	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Chloroform	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
1,2-Dichloroethane	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
2-Butanone	2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2
1,1,1-Trichloroethane	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Carbon tetrachloride	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Bromodichloromethane	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
1,2-Dichloropropane	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
cis-1,3-Dichloropropene	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Trichloroethene	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Dibromochloromethane	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
1,1,2-Trichloroethane	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Benzene	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
trans-1,3-Dichloropropene	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Bromoform	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
4-Methyl-2-pentanone	2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2
2-Hexanone	2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2
Tetrachloroethene	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Toluene	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
1,1,2,2-Tetrachloroethane	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Chlorobenzene	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Ethylbenzene	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Styrene	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Xylenes (total)	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1

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

NAS CECIL FIELD -- OPL ..LE UNIT 7 -- SITE 16
GROUNDWATER -- SEMIVOLATILES

Lab Sample Number:	Q4203				Q3531				Q4204				Q3528			
Site	CECIL7				CECIL7				CECIL7				CECIL7			
Locator	CF16MW5S				CF16MW7S				CF16MW9D				CF16MW10S			
Collect Date:	11-AUG-94				10-AUG-94				11-AUG-94				10-AUG-94			
	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	4	J	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	.5	J	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 (1)	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 -- OPERABLE UNIT 7 -- SITE 16
GROUNDWATER -- SEMIVOLATILES

Lab Sample Number:	Q4203				Q3531				Q4204				Q3528			
Site	CECIL7				CECIL7				CECIL7				CECIL7			
Locator	CF16MW5S				CF16MW7S				CF16MW9D				CF16MW10S			
Collect Date:	11-AUG-94				10-AUG-94				11-AUG-94				10-AUG-94			
	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	2	J	ug/l	10	.5	J	ug/l	10	.7	J	ug/l	10	2	J	ug/l	10
Di-n-octylphthalate	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzo (b) fluoranthene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzo (k) fluoranthene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzo (a) pyrene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Indeno (1,2,3-cd) pyrene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Dibenz (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 -- OPERABLE UNIT 7 -- SITE 16
GROUNDWATER -- SEMIVOLATILES

Lab Sample Number:	Q3530			Q3532			Q3532MS			Q3532MSD		
Site	CECIL7			CECIL7			CECIL7			CECIL7		
Locator	CF16MW10SD			CF16MW11DD			CF16MW11DDMS			CF16MW11DDMSD		
Collect Date:	10-AUG-94			10-AUG-94			10-AUG-94			10-AUG-94		
	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	50	ug/l	10	57	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	52	ug/l	10	57	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	32	ug/l	10	35	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	35	ug/l	10	38	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	35	ug/l	10	38	ug/l	10
Naphthalene	3 J	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	63	ug/l	10	71	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	39	ug/l	10	46	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	71	ug/l	25	69	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	43	ug/l	10	49	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 -- OPERABLE UNIT 7 -- SITE 16
GROUNDWATER -- SEMIVOLATILES

Lab Sample Number:	Q3530				Q3532				Q3532MS				Q3532MSD			
Site	CECIL7				CECIL7				CECIL7				CECIL7			
Locator	CF16MW10SD				CF16MW11DD				CF16MW11DDMS				CF16MW11DDMSD			
Collect Date:	10-AUG-94				10-AUG-94				10-AUG-94				10-AUG-94			
	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 (1)	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	100		ug/l	25	110		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	42		ug/l	10	46		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	4	J	ug/l	10	6	J	ug/l	10	8	J	ug/l	10	12		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
Dibenz (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 -- OPERABLE UNIT 7 -- SITE 16
GROUNDWATER -- SEMIVOLATILES

Lab Sample Number:	Q4205			A00FB			P4911			P4913		
Site	CECIL7			CECIL7			CECIL7			CECIL7		
Locator	CF16MW12I			CF16MW12IR			CF16MW13S			CF16MW14D		
Collect Date:	11-AUG-94			16-AUG-94			17-JUL-94			17-JUL-94		
	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	.5 J	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	.5 J	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 -- OPERABLE UNIT 7 -- SITE 16
GROUNDWATER -- SEMIVOLATILES

Lab Sample Number:	Q4205				A00FB				P4911				P4913			
Site	CECIL7				CECIL7				CECIL7				CECIL7			
Locator	CF16MW12I				CF16MW12IR				CF16MW13S				CF16MW14D			
Collect Date:	11-AUG-94				16-AUG-94				17-JUL-94				17-JUL-94			
	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 (1)	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	1	J	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	3	J	ug/l	10	.7	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
Dibenz (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 -- OPERABLE UNIT 7 -- SITE 16
GROUNDWATER -- SEMIVOLATILES

Lab Sample Number:	P4912			P9355			P4910			P3792		
Site	CECIL7			CECIL7			CECIL7			CECIL7		
Locator	CF16MW15S			CF16MW16D			CF16MW17S			CF16MW18D		
Collect Date:	17-JUL-94			29-JUL-94			17-JUL-94			14-JUL-94		
	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL
CLP SEMIVOLATILES 90-SOW												
Phenol	1	J ug/l	10	10	U ug/l	10	1	J 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	.9	J ug/l	10	10	U ug/l	10	1	J 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 -- OPERABLE UNIT 7 -- SITE 16
GROUNDWATER -- SEMIVOLATILES

Lab Sample Number:	P4912				P9355				P4910				P3792			
Site	CECIL7				CECIL7				CECIL7				CECIL7			
Locator	CF16MW15S				CF16MW16D				CF16MW17S				CF16MW18D			
Collect Date:	17-JUL-94				29-JUL-94				17-JUL-94				14-JUL-94			
	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 (1)	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	3	J	ug/l	10
Di-n-octylphthalate	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzo (b) fluoranthene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzo (k) fluoranthene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzo (a) pyrene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Indeno (1,2,3-cd) pyrene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Dibenz (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 -- OPERABLE UNIT 7 -- SITE 16
GROUNDWATER -- SEMIVOLATILES

Lab Sample Number:	P9356			A00FC			P4914			P4916		
Site	CECIL7			CECIL7			CECIL7			CECIL7		
Locator	CF16MW19S			CF16MW20D			CF16MW21S			CF16MW21SD		
Collect Date:	29-JUL-94			16-AUG-94			18-JUL-94			18-JUL-94		
	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	.9 J	ug/l	10	2 J	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	1 J	ug/l	10	1 J	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 -- OPERABLE UNIT 7 -- SITE 16
GROUNDWATER -- SEMIVOLATILES

Lab Sample Number:	P9356				A00FC				P4914				P4916			
Site	CECIL7				CECIL7				CECIL7				CECIL7			
Locator	CF16MW19S				CF16MW20D				CF16MW21S				CF16MW21SD			
Collect Date:	29-JUL-94				16-AUG-94				18-JUL-94				18-JUL-94			
	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 (1)	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	3	J	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	2	J	ug/l	10	17	U	ug/l	17	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
Dibenz (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 -- OPE. .E UNIT 7 -- SITE 16
GROUNDWATER -- SEMIVOLATILES

Lab Sample Number:	P9358			P9361			P5958			P5958MS		
Site	CECIL7			CECIL7			CECIL7			CECIL7		
Locator	CF16MW22I			CF16MW22IR			CF16MW23D			CF16MW23DMS		
Collect Date:	29-JUL-94			29-JUL-94			20-JUL-94			20-JUL-94		
	VALUE QUAL	UNITS	DL	VALUE QUAL	UNITS	DL	VALUE QUAL	UNITS	DL	VALUE QUAL	UNITS	DL
CLP SEMIVOLATILES 90-SOW												
Phenol	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	54	ug/l	10
bis(2-Chloroethyl) ether	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Chlorophenol	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	50	ug/l	10
1,3-Dichlorobenzene	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,4-Dichlorobenzene	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	31	ug/l	10
1,2-Dichlorobenzene	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Methylphenol	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,2-oxybis(1-Chloropropane)	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
4-Methylphenol	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
N-Nitroso-di-n-propylamine	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	35	ug/l	10
Hexachloroethane	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Nitrobenzene	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Isophorone	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Nitrophenol	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,4-Dimethylphenol	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
bis(2-Chloroethoxy) methane	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,4-Dichlorophenol	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,2,4-Trichlorobenzene	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	32	ug/l	10
Naphthalene	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
4-Chloroaniline	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Hexachlorobutadiene	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
4-Chloro-3-methylphenol	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	69	ug/l	10
2-Methylnaphthalene	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Hexachlorocyclopentadiene	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,4,6-Trichlorophenol	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,4,5-Trichlorophenol	25 UJ	ug/l	25	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25
2-Chloronaphthalene	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Nitroaniline	25 UJ	ug/l	25	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25
Dimethylphthalate	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Acenaphthylene	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,6-Dinitrotoluene	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
3-Nitroaniline	25 UJ	ug/l	25	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25
Acenaphthene	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	39	ug/l	10
2,4-Dinitrophenol	25 UJ	ug/l	25	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25
4-Nitrophenol	25 UJ	ug/l	25	25 U	ug/l	25	25 U	ug/l	25	54	ug/l	25
Dibenzofuran	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,4-Dinitrotoluene	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	44	ug/l	10
Diethylphthalate	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
4-Chlorophenyl-phenylether	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Fluorene	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10

NAS CECIL FIELD -- OPERABLE UNIT 7 -- SITE 16
GROUNDWATER -- SEMIVOLATILES

Lab Sample Number:	P9358				P9361				P5958				P5958MS			
Site	CECIL7				CECIL7				CECIL7				CECIL7			
Locator	CF16MW22I				CF16MW22IR				CF16MW23D				CF16MW23DMS			
Collect Date:	29-JUL-94				29-JUL-94				20-JUL-94				20-JUL-94			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
4-Nitroaniline	25	UJ	ug/l	25	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25
4,6-Dinitro-2-methylphenol	25	UJ	ug/l	25	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25
N-Nitrosodiphenylamine (1)	10	UJ	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
4-Bromophenyl-phenylether	10	UJ	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Hexachlorobenzene	10	UJ	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Pentachlorophenol	25	UJ	ug/l	25	25	U	ug/l	25	25	U	ug/l	25	77		ug/l	25
Phenanthrene	10	UJ	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Anthracene	10	UJ	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Carbazole	10	UJ	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Di-n-butylphthalate	10	UJ	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Fluoranthene	10	UJ	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Pyrene	10	UJ	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	47		ug/l	10
Butylbenzylphthalate	10	UJ	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
3,3-Dichlorobenzidine	10	UJ	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzo (a) anthracene	10	UJ	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Chrysene	10	UJ	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
bis(2-Ethylhexyl) phthalate	9	J	ug/l	10	10	U	ug/l	10	7	J	ug/l	10	8	J	ug/l	10
Di-n-octylphthalate	10	UJ	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzo (b) fluoranthene	10	UJ	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzo (k) fluoranthene	10	UJ	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzo (a) pyrene	10	UJ	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	UJ	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Dibenz (a,h) anthracene	10	UJ	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzo (g,h,i) perylene	10	UJ	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 -- OPERABLE UNIT 7 -- SITE 16
GROUNDWATER -- SEMIVOLATILES

Lab Sample Number:	P5958MSD			P3222			P3220			P3217		
Site	CECIL7			CECIL7			CECIL7			CECIL7		
Locator	CF16MW23DMSD			CF16MW24S			CF16MW25D			CF16MW26DD		
Collect Date:	20-JUL-94			13-JUL-94			13-JUL-94			13-JUL-94		
	VALUE QUAL	UNITS	DL	VALUE QUAL	UNITS	DL	VALUE QUAL	UNITS	DL	VALUE QUAL	UNITS	DL
CLP SEMIVOLATILES 90-SOW												
Phenol	50	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	66	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	28	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	31	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	26	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	68	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	36	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	45	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	41	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 -- OPERABLE UNIT 7 -- SITE 16
GROUNDWATER -- SEMIVOLATILES

Lab Sample Number:	P5958MSD				P3222				P3220				P3217			
Site	CECIL7				CECIL7				CECIL7				CECIL7			
Locator	CF16MW23DMSD				CF16MW24S				CF16MW25D				CF16MW26DD			
Collect Date:	20-JUL-94				13-JUL-94				13-JUL-94				13-JUL-94			
	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 (1)	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	69		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	48		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	6	J	ug/l	10	10	U	ug/l	10	9	J	ug/l	10	1	J	ug/l	10
Di-n-octylphthalate	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzo (b) fluoranthene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzo (k) fluoranthene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzo (a) pyrene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Indeno (1,2,3-cd) pyrene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Dibenz (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 -- OPERABLE UNIT 7 -- SITE 16
GROUNDWATER -- SEMIVOLATILES

Lab Sample Number:	Q2485			Q2491			Q2492			Q0289		
Site	CECIL7			CECIL7			CECIL7			CECIL7		
Locator	CF16MW27I			CF16MW28D			CF16MW28DD			CF16MW29S		
Collect Date:	08-AUG-94			08-AUG-94			08-AUG-94			02-AUG-94		
	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 -- OPERABLE UNIT 7 -- SITE 16
GROUNDWATER -- SEMIVOLATILES

Lab Sample Number:	Q2485				Q2491				Q2492				Q0289			
Site	CECIL7				CECIL7				CECIL7				CECIL7			
Locator	CF16MW27I				CF16MW28D				CF16MW28DD				CF16MW29S			
Collect Date:	08-AUG-94				08-AUG-94				08-AUG-94				02-AUG-94			
	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 (1)	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	7	J	ug/l	10	3	J	ug/l	10	2	J	ug/l	10	7	J	ug/l	10
Di-n-octylphthalate	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzo (b) fluoranthene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzo (k) fluoranthene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzo (a) pyrene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Indeno (1,2,3-cd) pyrene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Dibenz (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 -- OPERABLE UNIT 7 -- SITE 16
GROUNDWATER -- SEMIVOLATILES

Lab Sample Number:	Q0292				Q0288				Q2493				Q2907			
Site	CECIL7				CECIL7				CECIL7				CECIL7			
Locator	CF16MW30D				CF16MW31DD				CF16MW32S				CF16MW33D			
Collect Date:	02-AUG-94				02-AUG-94				08-AUG-94				09-AUG-94			
	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 -- OPERABLE UNIT 7 -- SITE 16
GROUNDWATER -- SEMIVOLATILES

Lab Sample Number:	Q0292				Q0288				Q2493				Q2907			
Site	CECIL7				CECIL7				CECIL7				CECIL7			
Locator	CF16MW30D				CF16MW31DD				CF16MW32S				CF16MW33D			
Collect Date:	02-AUG-94				02-AUG-94				08-AUG-94				09-AUG-94			
	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 (1)	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	7	J	ug/l	10	5	J	ug/l	10	2	J	ug/l	10	8	J	ug/l	10
Di-n-octylphthalate	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzo (b) fluoranthene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzo (k) fluoranthene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzo (a) pyrene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Indeno (1,2,3-cd) pyrene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Dibenz (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 -- OPERABLE UNIT 7 -- SITE 16
GROUNDWATER -- SEMIVOLATILES

Lab Sample Number:	Q3527				Q2906				Q0286				Q0046			
Site	CECIL7				CECIL7				CECIL7				CECIL7			
Locator	CF16MW33DR				CF16MW34DD				CF16MW35S				CF16MW36I			
Collect Date:	10-AUG-94				09-AUG-94				02-AUG-94				01-AUG-94			
	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 -- OPERABLE UNIT 7 -- SITE 16
GROUNDWATER -- SEMIVOLATILES

Lab Sample Number:	Q3527				Q2906				Q0286				Q0046			
Site	CECIL7				CECIL7				CECIL7				CECIL7			
Locator	CF16MW33DR				CF16MW34DD				CF16MW35S				CF16MW36I			
Collect Date:	10-AUG-94				09-AUG-94				02-AUG-94				01-AUG-94			
	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 (1)	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	1	J	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		ug/l	10	10	U	ug/l	10	13		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
Dibenz (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 -- OPE..LE UNIT 7 -- SITE 16
GROUNDWATER -- SEMIVOLATILES

Lab Sample Number:	Q0050				Q0050MS				Q0050MSD				Q0044			
Site	CECIL7				CECIL7				CECIL7				CECIL7			
Locator	CF16MW37D				CF16MW37DMS				CF16MW37DMSD				CF16MW38S			
Collect Date:	01-AUG-94				01-AUG-94				01-AUG-94				31-JUL-94			
	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	46		ug/l	10	53		ug/l	10	.8	J	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	47		ug/l	10	54		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	30		ug/l	10	33		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	32		ug/l	10	37		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	34		ug/l	10	38		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	87		ug/l	10	98		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	42		ug/l	10	47		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	59		ug/l	25	62		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	48		ug/l	10	51		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 -- OPERABLE UNIT 7 -- SITE 16
GROUNDWATER -- SEMIVOLATILES

Lab Sample Number:	Q0050				Q0050MS				Q0050MSD				Q0044			
Site	CECIL7				CECIL7				CECIL7				CECIL7			
Locator	CF16MW37D				CF16MW37DMS				CF16MW37DMSD				CF16MW38S			
Collect Date:	01-AUG-94				01-AUG-94				01-AUG-94				31-JUL-94			
	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 (1)	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	90		ug/l	25	94		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	44		ug/l	10	45		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	13		ug/l	10	13		ug/l	10	14		ug/l	10	2	J	ug/l	10
Di-n-octylphthalate	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzo (b) fluoranthene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzo (k) fluoranthene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzo (a) pyrene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Indeno (1,2,3-cd) pyrene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Dibenz (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 -- OPER. UNIT 7 -- SITE 16
GROUNDWATER -- SEMIVOLATILES

Lab Sample Number:	Q0043			Q0041			Q0042		
Site	CECIL7			CECIL7			CECIL7		
Locator	CF16MW39I			CF16MW40D			CF16MW40DD		
Collect Date:	31-JUL-94			31-JUL-94			31-JUL-94		
	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
bis(2-Chloroethyl) ether	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Chlorophenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,3-Dichlorobenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,4-Dichlorobenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,2-Dichlorobenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Methylphenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,2-oxybis(1-Chloropropane)	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
4-Methylphenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
N-Nitroso-di-n-propylamine	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Hexachloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Nitrobenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Isophorone	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Nitrophenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,4-Dimethylphenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
bis(2-Chloroethoxy) methane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,4-Dichlorophenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,2,4-Trichlorobenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Naphthalene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
4-Chloroaniline	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Hexachlorobutadiene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
4-Chloro-3-methylphenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Methylnaphthalene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Hexachlorocyclopentadiene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,4,6-Trichlorophenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,4,5-Trichlorophenol	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25
2-Chloronaphthalene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Nitroaniline	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25
Dimethylphthalate	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Acenaphthylene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,6-Dinitrotoluene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
3-Nitroaniline	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25
Acenaphthene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,4-Dinitrophenol	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25
4-Nitrophenol	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25
Dibenzofuran	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,4-Dinitrotoluene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Diethylphthalate	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
4-Chlorophenyl-phenylether	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Fluorene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10

NAS CECIL FIELD -- OPERABLE UNIT 7 -- SITE 16
GROUNDWATER -- SEMIVOLATILES

Lab Sample Number:	Q0043				Q0041				Q0042			
Site	CECIL7				CECIL7				CECIL7			
Locator	CF16MW391				CF16MW400				CF16MW400D			
Collect Date:	31-JUL-94				31-JUL-94				31-JUL-94			
	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
4,6-Dinitro-2-methylphenol	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25
N-Nitrosodiphenylamine (1)	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
4-Bromophenyl-phenylether	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Hexachlorobenzene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Pentachlorophenol	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25
Phenanthrene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Anthracene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Carbazole	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Di-n-butylphthalate	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Fluoranthene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Pyrene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Butylbenzylphthalate	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
3,3-Dichlorobenzidine	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzo (a) anthracene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Chrysene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
bis(2-Ethylhexyl) phthalate	15		ug/l	10	7	J	ug/l	10	34		ug/l	10
Di-n-octylphthalate	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzo (b) fluoranthene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzo (k) fluoranthene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzo (a) pyrene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Indeno (1,2,3-cd) pyrene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Dibenz (a,h) anthracene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzo (g,h,i) perylene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10

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R = RESULT IS REJECTED AND UNUSABLE

NAS CECIL FIELD -- OPERABLE UNIT 7 -- SITE 16
GROUNDWATER -- PESTICIDES AND PCBs

Lab Sample Number:	Q4203				Q3531				Q4204				Q3528			
Site	CECIL7				CECIL7				CECIL7				CECIL7			
Locator	CF16MW5S				CF16MW7S				CF16MW9D				CF16MW10S			
Collect Date:	11-AUG-94				10-AUG-94				11-AUG-94				10-AUG-94			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP PESTICIDES/PCBS 90-SOW																
alpha-BHC	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
beta-BHC	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
delta-BHC	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
gamma-BHC (Lindane)	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
Heptachlor	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
Aldrin	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
Heptachlor epoxide	.02	UJ	ug/l	.02	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
Endosulfan I	.02	UJ	ug/l	.02	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
Dieldrin	.02	UJ	ug/l	.02	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1
4,4-DDE	.1	U	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1
Endrin	.018	J	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1
Endosulfan II	.01	UJ	ug/l	.01	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1
4,4-DDD	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1
Endosulfan sulfate	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1
4,4-DDT	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1
Methoxychlor	.5	UJ	ug/l	.5	.5	UJ	ug/l	.5	.5	UJ	ug/l	.5	.5	UJ	ug/l	.5
Endrin ketone	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1
Endrin aldehyde	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1
alpha-Chlordane	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
gamma-Chlordane	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
Toxaphene	5	UJ	ug/l	5	5	UJ	ug/l	5	5	UJ	ug/l	5	5	UJ	ug/l	5
Aroclor-1016	1	UJ	ug/l	1	1	UJ	ug/l	1	1	UJ	ug/l	1	1	UJ	ug/l	1
Aroclor-1221	2	UJ	ug/l	2	2	UJ	ug/l	2	2	UJ	ug/l	2	2	UJ	ug/l	2
Aroclor-1232	1	UJ	ug/l	1	1	UJ	ug/l	1	1	UJ	ug/l	1	1	UJ	ug/l	1
Aroclor-1242	1	UJ	ug/l	1	1	UJ	ug/l	1	1	UJ	ug/l	1	1	UJ	ug/l	1
Aroclor-1248	1	UJ	ug/l	1	1	UJ	ug/l	1	1	UJ	ug/l	1	1	UJ	ug/l	1
Aroclor-1254	1	UJ	ug/l	1	1	UJ	ug/l	1	1	UJ	ug/l	1	1	UJ	ug/l	1
Aroclor-1260	1	UJ	ug/l	1	1	UJ	ug/l	1	1	UJ	ug/l	1	1	UJ	ug/l	1

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NAS CECIL FIELD -- OPERABLE UNIT 7 -- SITE 16
GROUNDWATER -- PESTICIDES AND PCBs

Lab Sample Number:	Q3530				Q3532				Q3532MS				Q3532MSD			
Site	CECIL7				CECIL7				CECIL7				CECIL7			
Locator	CF16MW10SD				CF16MW11DD				CF16MW11DDMS				CF16MW11DDMSD			
Collect Date:	10-AUG-94				10-AUG-94				10-AUG-94				10-AUG-94			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP PESTICIDES/PCBS 90-SOW																
alpha-BHC	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
beta-BHC	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
delta-BHC	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
gamma-BHC (Lindane)	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.54		ug/l	.05	.57		ug/l	.05
Heptachlor	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.44		ug/l	.05	.53		ug/l	.05
Aldrin	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.47		ug/l	.05	.45		ug/l	.05
Heptachlor epoxide	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.003	J	ug/l	.05	.005	J	ug/l	.05
Endosulfan I	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
Dieldrin	.1	UJ	ug/l	.1	.1	U	ug/l	.1	1		ug/l	.1	1.1		ug/l	.1
4,4-DDE	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
Endrin	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.99		ug/l	.1	1		ug/l	.1
Endosulfan II	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
4,4-DDD	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
Endosulfan sulfate	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
4,4-DDT	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.87		ug/l	.1	.66		ug/l	.1
Methoxychlor	.5	UJ	ug/l	.5	.5	U	ug/l	.5	.5	U	ug/l	.5	.5	U	ug/l	.5
Endrin ketone	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
Endrin aldehyde	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
alpha-Chlordane	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
gamma-Chlordane	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
Toxaphene	5	UJ	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Aroclor-1016	1	UJ	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Aroclor-1221	2	UJ	ug/l	2	2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2
Aroclor-1232	1	UJ	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Aroclor-1242	1	UJ	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Aroclor-1248	1	UJ	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Aroclor-1254	1	UJ	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Aroclor-1260	1	UJ	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 -- OPERABLE UNIT 7 -- SITE 16
GROUNDWATER -- PESTICIDES AND PCBs

Lab Sample Number:	Q4205				A00FB				P4911				P4913			
Site	CECIL7				CECIL7				CECIL7				CECIL7			
Locator	CF16MW12I				CF16MW12IR				CF16MW13S				CF16MW14D			
Collect Date:	11-AUG-94				16-AUG-94				17-JUL-94				17-JUL-94			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP PESTICIDES/PCBS 90-SOW																
alpha-BHC	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
beta-BHC	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
delta-BHC	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
gamma-BHC (Lindane)	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
Heptachlor	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
Aldrin	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
Heptachlor epoxide	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
Endosulfan I	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
Dieldrin	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1
4,4-DDE	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1
Endrin	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1
Endosulfan II	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1
4,4-DDD	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1
Endosulfan sulfate	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1
4,4-DDT	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1
Methoxychlor	.5	UJ	ug/l	.5	.5	U	ug/l	.5	.5	UJ	ug/l	.5	.5	UJ	ug/l	.5
Endrin ketone	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1
Endrin aldehyde	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1
alpha-Chlordane	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
gamma-Chlordane	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
Toxaphene	5	UJ	ug/l	5	5	U	ug/l	5	5	UJ	ug/l	5	5	UJ	ug/l	5
Aroclor-1016	1	UJ	ug/l	1	1	U	ug/l	1	1	UJ	ug/l	1	1	UJ	ug/l	1
Aroclor-1221	2	UJ	ug/l	2	2	U	ug/l	2	2	UJ	ug/l	2	2	UJ	ug/l	2
Aroclor-1232	1	UJ	ug/l	1	1	U	ug/l	1	1	UJ	ug/l	1	1	UJ	ug/l	1
Aroclor-1242	1	UJ	ug/l	1	1	U	ug/l	1	1	UJ	ug/l	1	1	UJ	ug/l	1
Aroclor-1248	1	UJ	ug/l	1	1	U	ug/l	1	1	UJ	ug/l	1	1	UJ	ug/l	1
Aroclor-1254	1	UJ	ug/l	1	1	U	ug/l	1	1	UJ	ug/l	1	1	UJ	ug/l	1
Aroclor-1260	1	UJ	ug/l	1	1	U	ug/l	1	1	UJ	ug/l	1	1	UJ	ug/l	1

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NAS CECIL FIELD -- OPERABLE UNIT 7 -- SITE 16
GROUNDWATER -- PESTICIDES AND PCBs

Lab Sample Number:	P4912				P9355				P4910				P3792			
Site	CECIL7				CECIL7				CECIL7				CECIL7			
Locator	CF16MW15S				CF16MW16D				CF16MW17S				CF16MW18D			
Collect Date:	17-JUL-94				29-JUL-94				17-JUL-94				14-JUL-94			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP PESTICIDES/PCBS 90-SOW																
alpha-BHC	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
beta-BHC	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
delta-BHC	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
gamma-BHC (Lindane)	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
Heptachlor	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
Aldrin	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
Heptachlor epoxide	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
Endosulfan I	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
Dieldrin	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1
4,4-DDE	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1
Endrin	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1
Endosulfan II	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1
4,4-DDD	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1
Endosulfan sulfate	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1
4,4-DDT	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1
Methoxychlor	.5	UJ	ug/l	.5	.5	UJ	ug/l	.5	.5	UJ	ug/l	.5	.5	UJ	ug/l	.5
Endrin ketone	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1
Endrin aldehyde	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1
alpha-Chlordane	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
gamma-Chlordane	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
Toxaphene	5	UJ	ug/l	5	5	UJ	ug/l	5	5	UJ	ug/l	5	5	UJ	ug/l	5
Aroclor-1016	1	UJ	ug/l	1	1	UJ	ug/l	1	1	UJ	ug/l	1	1	UJ	ug/l	1
Aroclor-1221	2	UJ	ug/l	2	2	UJ	ug/l	2	2	UJ	ug/l	2	2	UJ	ug/l	2
Aroclor-1232	1	UJ	ug/l	1	1	UJ	ug/l	1	1	UJ	ug/l	1	1	UJ	ug/l	1
Aroclor-1242	1	UJ	ug/l	1	1	UJ	ug/l	1	1	UJ	ug/l	1	1	UJ	ug/l	1
Aroclor-1248	1	UJ	ug/l	1	1	UJ	ug/l	1	1	UJ	ug/l	1	1	UJ	ug/l	1
Aroclor-1254	1	UJ	ug/l	1	1	UJ	ug/l	1	1	UJ	ug/l	1	1	UJ	ug/l	1
Aroclor-1260	1	UJ	ug/l	1	1	UJ	ug/l	1	1	UJ	ug/l	1	1	UJ	ug/l	1

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

NAS CECIL FIELD -- OPERABLE UNIT 7 -- SITE 16
GROUNDWATER -- PESTICIDES AND PCBs

Lab Sample Number:	P9356				A00FC				P4914				P4916			
Site	CECIL7				CECIL7				CECIL7				CECIL7			
Locator	CF16MW19S				CF16MW20D				CF16MW21S				CF16MW21SD			
Collect Date:	29-JUL-94				16-AUG-94				18-JUL-94				18-JUL-94			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP PESTICIDES/PCBS 90-SOW																
alpha-BHC	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05	.05	R	ug/l	.05	.05	UJ	ug/l	.05
beta-BHC	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05	.05	R	ug/l	.05	.05	UJ	ug/l	.05
delta-BHC	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05	.05	R	ug/l	.05	.05	UJ	ug/l	.05
gamma-BHC (Lindane)	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05	.05	R	ug/l	.05	.05	UJ	ug/l	.05
Heptachlor	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05	.05	R	ug/l	.05	.05	UJ	ug/l	.05
Aldrin	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05	.05	R	ug/l	.05	.05	UJ	ug/l	.05
Heptachlor epoxide	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05	.05	R	ug/l	.05	.05	UJ	ug/l	.05
Endosulfan I	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05	.05	R	ug/l	.05	.05	UJ	ug/l	.05
Dieldrin	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1	.1	R	ug/l	.1	.1	UJ	ug/l	.1
4,4-DDE	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1	.1	R	ug/l	.1	.1	UJ	ug/l	.1
Endrin	.01	UJ	ug/l	.01	.1	UJ	ug/l	.1	.1	R	ug/l	.1	.1	UJ	ug/l	.1
Endosulfan II	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1	.1	R	ug/l	.1	.1	UJ	ug/l	.1
4,4-DDD	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1	.1	R	ug/l	.1	.1	UJ	ug/l	.1
Endosulfan sulfate	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1	.1	R	ug/l	.1	.1	UJ	ug/l	.1
4,4-DDT	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1	.1	R	ug/l	.1	.1	UJ	ug/l	.1
Methoxychlor	.5	UJ	ug/l	.5	.5	UJ	ug/l	.5	.5	R	ug/l	.5	.5	UJ	ug/l	.5
Endrin ketone	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1	.1	R	ug/l	.1	.1	UJ	ug/l	.1
Endrin aldehyde	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1	.1	R	ug/l	.1	.1	UJ	ug/l	.1
alpha-Chlordane	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05	.05	R	ug/l	.05	.05	UJ	ug/l	.05
gamma-Chlordane	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05	.05	R	ug/l	.05	.05	UJ	ug/l	.05
Toxaphene	5	UJ	ug/l	5	5	UJ	ug/l	5	5	R	ug/l	5	5	UJ	ug/l	5
Aroclor-1016	1	UJ	ug/l	1	1	UJ	ug/l	1	1	R	ug/l	1	1	UJ	ug/l	1
Aroclor-1221	2	UJ	ug/l	2	2	UJ	ug/l	2	2	R	ug/l	2	2	UJ	ug/l	2
Aroclor-1232	1	UJ	ug/l	1	1	UJ	ug/l	1	1	R	ug/l	1	1	UJ	ug/l	1
Aroclor-1242	1	UJ	ug/l	1	1	UJ	ug/l	1	1	R	ug/l	1	1	UJ	ug/l	1
Aroclor-1248	1	UJ	ug/l	1	1	UJ	ug/l	1	1	R	ug/l	1	1	UJ	ug/l	1
Aroclor-1254	1	UJ	ug/l	1	1	UJ	ug/l	1	1	R	ug/l	1	1	UJ	ug/l	1
Aroclor-1260	1	UJ	ug/l	1	1	UJ	ug/l	1	1	R	ug/l	1	1	UJ	ug/l	1

U = NOT DETECTED J = ESTIMATED VALUE
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NAS CECIL FIELD -- OPERABLE UNIT 7 -- SITE 16
GROUNDWATER -- PESTICIDES AND PCBs

Lab Sample Number:	P9358				P9361				P5958				P5958MS			
Site	CECIL7				CECIL7				CECIL7				CECIL7			
Locator	CF16MW221				CF16MW22IR				CF16MW23D				CF16MW23DMS			
Collect Date:	29-JUL-94				29-JUL-94				20-JUL-94				20-JUL-94			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP PESTICIDES/PCBS 90-SOW																
alpha-BHC	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
beta-BHC	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
delta-BHC	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
gamma-BHC (Lindane)	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05	.53		ug/l	.05
Heptachlor	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05	.49		ug/l	.05
Aldrin	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05	.52		ug/l	.05
Heptachlor epoxide	.05	UJ	ug/l	.05	.005	J	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
Endosulfan I	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
Dieldrin	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1	1.1		ug/l	.1
4,4-DDE	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
Endrin	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1	1.1		ug/l	.1
Endosulfan II	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
4,4-DDD	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
Endosulfan sulfate	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
4,4-DDT	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1	1.1		ug/l	.1
Methoxychlor	.5	UJ	ug/l	.5	.5	U	ug/l	.5	.5	U	ug/l	.5	.5	U	ug/l	.5
Endrin ketone	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
Endrin aldehyde	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
alpha-Chlordane	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
gamma-Chlordane	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
Toxaphene	5	UJ	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Aroclor-1016	1	UJ	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Aroclor-1221	2	UJ	ug/l	2	2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2
Aroclor-1232	1	UJ	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Aroclor-1242	1	UJ	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Aroclor-1248	1	UJ	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Aroclor-1254	1	UJ	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Aroclor-1260	1	UJ	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 -- OPERABLE UNIT 7 -- SITE 16
GROUNDWATER -- PESTICIDES AND PCBs

Lab Sample Number:	P5958MSD				P3222				P3220				P3217			
Site	CECIL7				CECIL7				CECIL7				CECIL7			
Locator	CF16MW23DMSD				CF16MW24S				CF16MW25D				CF16MW26DD			
Collect Date:	20-JUL-94				13-JUL-94				13-JUL-94				13-JUL-94			
	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	UJ	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
beta-BHC	.05	U	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
delta-BHC	.05	U	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
gamma-BHC (Lindane)	.58		ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
Heptachlor	.52		ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
Aldrin	.58		ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
Heptachlor epoxide	.05	U	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
Endosulfan I	.05	U	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
Dieldrin	1.3		ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1
4,4-DDE	.1	U	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1
Endrin	1.2		ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1
Endosulfan II	.1	U	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1
4,4-DDD	.1	U	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1
Endosulfan sulfate	.1	U	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1
4,4-DDT	1.1		ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1
Methoxychlor	.5	U	ug/l	.5	.5	UJ	ug/l	.5	.5	UJ	ug/l	.5	.5	UJ	ug/l	.5
Endrin ketone	.1	U	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1
Endrin aldehyde	.1	U	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1
alpha-Chlordane	.05	U	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
gamma-Chlordane	.05	U	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
Toxaphene	5	U	ug/l	5	5	UJ	ug/l	5	5	UJ	ug/l	5	5	UJ	ug/l	5
Aroclor-1016	1	U	ug/l	1	1	UJ	ug/l	1	1	UJ	ug/l	1	1	UJ	ug/l	1
Aroclor-1221	2	U	ug/l	2	2	UJ	ug/l	2	2	UJ	ug/l	2	2	UJ	ug/l	2
Aroclor-1232	1	U	ug/l	1	1	UJ	ug/l	1	1	UJ	ug/l	1	1	UJ	ug/l	1
Aroclor-1242	1	U	ug/l	1	1	UJ	ug/l	1	1	UJ	ug/l	1	1	UJ	ug/l	1
Aroclor-1248	1	U	ug/l	1	1	UJ	ug/l	1	1	UJ	ug/l	1	1	UJ	ug/l	1
Aroclor-1254	1	U	ug/l	1	1	UJ	ug/l	1	1	UJ	ug/l	1	1	UJ	ug/l	1
Aroclor-1260	1	U	ug/l	1	1	UJ	ug/l	1	1	UJ	ug/l	1	1	UJ	ug/l	1

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NAS CECIL FIELD -- OPERABLE UNIT 7 -- SITE 16
GROUNDWATER -- PESTICIDES AND PCBs

Lab Sample Number:	Q2485				Q2491				Q2492				Q0289			
Site	CECIL7				CECIL7				CECIL7				CECIL7			
Locator	CF16MW27I				CF16MW28D				CF16MW28DD				CF16MW29S			
Collect Date:	08-AUG-94				08-AUG-94				08-AUG-94				02-AUG-94			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP PESTICIDES/PCBS 90-SOW																
alpha-BHC	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	UJ	ug/l	.05
beta-BHC	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	UJ	ug/l	.05
delta-BHC	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	UJ	ug/l	.05
gamma-BHC (Lindane)	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	UJ	ug/l	.05
Heptachlor	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	UJ	ug/l	.05
Aldrin	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	UJ	ug/l	.05
Heptachlor epoxide	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	UJ	ug/l	.05
Endosulfan I	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	UJ	ug/l	.05
Dieldrin	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	UJ	ug/l	.1
4,4-DDE	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	UJ	ug/l	.1
Endrin	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	UJ	ug/l	.1
Endosulfan II	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	UJ	ug/l	.1
4,4-DDD	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	UJ	ug/l	.1
Endosulfan sulfate	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	UJ	ug/l	.1
4,4-DDT	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	UJ	ug/l	.1
Methoxychlor	.5	UJ	ug/l	.5	.5	U	ug/l	.5	.5	U	ug/l	.5	.5	UJ	ug/l	.5
Endrin ketone	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	UJ	ug/l	.1
Endrin aldehyde	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	UJ	ug/l	.1
alpha-Chlordane	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	UJ	ug/l	.05
gamma-Chlordane	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	UJ	ug/l	.05
Toxaphene	5	UJ	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	UJ	ug/l	5
Aroclor-1016	1	UJ	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	UJ	ug/l	1
Aroclor-1221	2	UJ	ug/l	2	2	U	ug/l	2	2	U	ug/l	2	2	UJ	ug/l	2
Aroclor-1232	1	UJ	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	UJ	ug/l	1
Aroclor-1242	1	UJ	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	UJ	ug/l	1
Aroclor-1248	1	UJ	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	UJ	ug/l	1
Aroclor-1254	1	UJ	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	UJ	ug/l	1
Aroclor-1260	1	UJ	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	UJ	ug/l	1

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

NAS CECIL FIELD -- OPERABLE UNIT 7 -- SITE 16
GROUNDWATER -- PESTICIDES AND PCBs

Lab Sample Number:	Q0292				Q0288				Q2493				Q2907			
Site	CECIL7				CECIL7				CECIL7				CECIL7			
Locator	CF16MW30D				CF16MW31DD				CF16MW32S				CF16MW33D			
Collect Date:	02-AUG-94				02-AUG-94				08-AUG-94				09-AUG-94			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP PESTICIDES/PCBS 90-SOW																
alpha-BHC	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05	.05	U	ug/l	.05
beta-BHC	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05	.05	U	ug/l	.05
delta-BHC	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05	.05	U	ug/l	.05
gamma-BHC (Lindane)	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05	.05	U	ug/l	.05
Heptachlor	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05	.05	U	ug/l	.05
Aldrin	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05	.05	U	ug/l	.05
Heptachlor epoxide	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05	.05	U	ug/l	.05
Endosulfan I	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05	.05	U	ug/l	.05
Dieldrin	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1	.1	U	ug/l	.1
4,4-DDE	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1	.1	U	ug/l	.1
Endrin	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1	.1	U	ug/l	.1
Endosulfan II	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1	.1	U	ug/l	.1
4,4-DDD	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1	.1	U	ug/l	.1
Endosulfan sulfate	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1	.1	U	ug/l	.1
4,4-DDT	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1	.1	U	ug/l	.1
Methoxychlor	.5	UJ	ug/l	.5	.5	UJ	ug/l	.5	.5	UJ	ug/l	.5	.5	U	ug/l	.5
Endrin ketone	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1	.1	U	ug/l	.1
Endrin aldehyde	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1	.1	U	ug/l	.1
alpha-Chlordane	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05	.05	U	ug/l	.05
gamma-Chlordane	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05	.05	U	ug/l	.05
Toxaphene	5	UJ	ug/l	5	5	UJ	ug/l	5	5	UJ	ug/l	5	5	U	ug/l	5
Aroclor-1016	1	UJ	ug/l	1	1	UJ	ug/l	1	1	UJ	ug/l	1	1	U	ug/l	1
Aroclor-1221	2	UJ	ug/l	2	2	UJ	ug/l	2	2	UJ	ug/l	2	2	U	ug/l	2
Aroclor-1232	1	UJ	ug/l	1	1	UJ	ug/l	1	1	UJ	ug/l	1	1	U	ug/l	1
Aroclor-1242	1	UJ	ug/l	1	1	UJ	ug/l	1	1	UJ	ug/l	1	1	U	ug/l	1
Aroclor-1248	1	UJ	ug/l	1	1	UJ	ug/l	1	1	UJ	ug/l	1	1	U	ug/l	1
Aroclor-1254	1	UJ	ug/l	1	1	UJ	ug/l	1	1	UJ	ug/l	1	1	U	ug/l	1
Aroclor-1260	1	UJ	ug/l	1	1	UJ	ug/l	1	1	UJ	ug/l	1	1	U	ug/l	1

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NAS CECIL FIELD -- OPE E UNIT 7 -- SITE 16
GROUNDWATER -- PESTICIDES AND PCBs

Lab Sample Number:	Q3527				Q2906				Q0286				Q0046			
Site	CECIL7				CECIL7				CECIL7				CECIL7			
Locator	CF16MW33DR				CF16MW34DD				CF16MW35S				CF16MW36I			
Collect Date:	10-AUG-94				09-AUG-94				02-AUG-94				01-AUG-94			
	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	UJ	ug/l	.05	.05	UJ	ug/l	.05
beta-BHC	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
delta-BHC	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
gamma-BHC (Lindane)	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
Heptachlor	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
Aldrin	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
Heptachlor epoxide	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
Endosulfan I	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
Dieldrin	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1
4,4-DDE	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1
Endrin	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1
Endosulfan II	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1
4,4-DDD	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1
Endosulfan sulfate	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1
4,4-DDT	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1
Methoxychlor	.5	U	ug/l	.5	.5	U	ug/l	.5	.5	UJ	ug/l	.5	.5	UJ	ug/l	.5
Endrin ketone	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1
Endrin aldehyde	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1
alpha-Chlordane	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
gamma-Chlordane	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
Toxaphene	5	U	ug/l	5	5	U	ug/l	5	5	UJ	ug/l	5	5	UJ	ug/l	5
Aroclor-1016	1	U	ug/l	1	1	U	ug/l	1	1	UJ	ug/l	1	1	UJ	ug/l	1
Aroclor-1221	2	U	ug/l	2	2	U	ug/l	2	2	UJ	ug/l	2	2	UJ	ug/l	2
Aroclor-1232	1	U	ug/l	1	1	U	ug/l	1	1	UJ	ug/l	1	1	UJ	ug/l	1
Aroclor-1242	1	U	ug/l	1	1	U	ug/l	1	1	UJ	ug/l	1	1	UJ	ug/l	1
Aroclor-1248	1	U	ug/l	1	1	U	ug/l	1	1	UJ	ug/l	1	1	UJ	ug/l	1
Aroclor-1254	1	U	ug/l	1	1	U	ug/l	1	1	UJ	ug/l	1	1	UJ	ug/l	1
Aroclor-1260	1	U	ug/l	1	1	U	ug/l	1	1	UJ	ug/l	1	1	UJ	ug/l	1

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NAS CECIL FIELD -- OPERABLE UNIT 7 -- SITE 16
GROUNDWATER -- PESTICIDES AND PCBs

Lab Sample Number:	Q0050				Q0050MS				Q0050MSD				Q0044			
Site	CECIL7				CECIL7				CECIL7				CECIL7			
Locator	CF16MW37D				CF16MW37DMS				CF16MW37DMSD				CF16MW38S			
Collect Date:	01-AUG-94				01-AUG-94				01-AUG-94				31-JUL-94			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP PESTICIDES/PCBS 90-SOW																
alpha-BHC	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	UJ	ug/l	.05
beta-BHC	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	UJ	ug/l	.05
delta-BHC	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	UJ	ug/l	.05
gamma-BHC (Lindane)	.05	UJ	ug/l	.05	.3		ug/l	.05	.36		ug/l	.05	.05	UJ	ug/l	.05
Heptachlor	.05	UJ	ug/l	.05	.35		ug/l	.05	.31		ug/l	.05	.05	UJ	ug/l	.05
Aldrin	.05	UJ	ug/l	.05	.28		ug/l	.05	.25		ug/l	.05	.05	UJ	ug/l	.05
Heptachlor epoxide	.05	UJ	ug/l	.05	.004	J	ug/l	.05	.05	U	ug/l	.05	.05	UJ	ug/l	.05
Endosulfan I	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	UJ	ug/l	.05
Dieldrin	.1	UJ	ug/l	.1	.74		ug/l	.1	.65		ug/l	.1	.1	UJ	ug/l	.1
4,4-DDE	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	UJ	ug/l	.1
Endrin	.1	UJ	ug/l	.1	.69		ug/l	.1	.67		ug/l	.1	.1	UJ	ug/l	.1
Endosulfan II	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	UJ	ug/l	.1
4,4-DDD	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	UJ	ug/l	.1
Endosulfan sulfate	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	UJ	ug/l	.1
4,4-DDT	.1	UJ	ug/l	.1	.54		ug/l	.1	.42		ug/l	.1	.1	UJ	ug/l	.1
Methoxychlor	.5	UJ	ug/l	.5	.5	U	ug/l	.5	.5	U	ug/l	.5	.5	UJ	ug/l	.5
Endrin ketone	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	UJ	ug/l	.1
Endrin aldehyde	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	UJ	ug/l	.1
alpha-Chlordane	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	UJ	ug/l	.05
gamma-Chlordane	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	UJ	ug/l	.05
Toxaphene	5	UJ	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	UJ	ug/l	5
Aroclor-1016	1	UJ	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	UJ	ug/l	1
Aroclor-1221	2	UJ	ug/l	2	2	U	ug/l	2	2	U	ug/l	2	2	UJ	ug/l	2
Aroclor-1232	1	UJ	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	UJ	ug/l	1
Aroclor-1242	1	UJ	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	UJ	ug/l	1
Aroclor-1248	1	UJ	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	UJ	ug/l	1
Aroclor-1254	1	UJ	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	UJ	ug/l	1
Aroclor-1260	1	UJ	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	UJ	ug/l	1

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NAS CECIL FIELD -- OPERABLE UNIT 7 -- SITE 16
GROUNDWATER -- PESTICIDES AND PCBs

Lab Sample Number:	Q0043				Q0041				Q0042			
Site	CECIL7				CECIL7				CECIL7			
Locator	CF16MW39I				CF16MW40D				CF16MW40DD			
Collect Date:	31-JUL-94				31-JUL-94				31-JUL-94			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP PESTICIDES/PCBS 90-SOW												
alpha-BHC	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
beta-BHC	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
delta-BHC	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
gamma-BHC (Lindane)	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
Heptachlor	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
Aldrin	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
Heptachlor epoxide	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
Endosulfan I	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
Dieldrin	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1
4,4-DDE	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1
Endrin	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1
Endosulfan II	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1
4,4-DDD	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1
Endosulfan sulfate	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1
4,4-DDT	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1
Methoxychlor	.5	UJ	ug/l	.5	.5	UJ	ug/l	.5	.5	UJ	ug/l	.5
Endrin ketone	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1
Endrin aldehyde	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1
alpha-Chlordane	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
gamma-Chlordane	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
Toxaphene	5	UJ	ug/l	5	5	UJ	ug/l	5	5	UJ	ug/l	5
Aroclor-1016	1	UJ	ug/l	1	1	UJ	ug/l	1	1	UJ	ug/l	1
Aroclor-1221	2	UJ	ug/l	2	2	UJ	ug/l	2	2	UJ	ug/l	2
Aroclor-1232	1	UJ	ug/l	1	1	UJ	ug/l	1	1	UJ	ug/l	1
Aroclor-1242	1	UJ	ug/l	1	1	UJ	ug/l	1	1	UJ	ug/l	1
Aroclor-1248	1	UJ	ug/l	1	1	UJ	ug/l	1	1	UJ	ug/l	1
Aroclor-1254	1	UJ	ug/l	1	1	UJ	ug/l	1	1	UJ	ug/l	1
Aroclor-1260	1	UJ	ug/l	1	1	UJ	ug/l	1	1	UJ	ug/l	1

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NAS CECIL FIELD -- OPERABLE UNIT 7 -- SITE 16
GROUNDWATER -- METALS AND CYANIDE

Lab Sample Number:	Q4203				Q4203F				Q3531				Q3531F			
Site	CECIL7				CECIL7				CECIL7				CECIL7			
Locator	CF16MW5S				CF16MW5SF				CF16MW7S				CF16MW7SF			
Collect Date:	11-AUG-94				11-AUG-94				10-AUG-94				10-AUG-94			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP METALS AND CYANIDE																
Aluminum	2420		ug/l	200	42.1	U	ug/l	200	188	U	ug/l	200	59.2	U	ug/l	200
Antimony	2	U	ug/l	60	3		ug/l	60	2	U	ug/l	60	4.3		ug/l	60
Arsenic	3.8		ug/l	10	3	U	ug/l	10	3	U	ug/l	10	3	U	ug/l	10
Barium	12		ug/l	200	15.4		ug/l	200	11		ug/l	200	11.8		ug/l	200
Beryllium	1	U	ug/l	5	1	U	ug/l	5	1	U	ug/l	5	1	U	ug/l	5
Cadmium	1	U	ug/l	5	1	U	ug/l	5	1	U	ug/l	5	1	U	ug/l	5
Calcium	7600	J	ug/l	5000	11000	J	ug/l	5000	16600		ug/l	5000	16300		ug/l	5000
Chromium	2	U	ug/l	10	2	U	ug/l	10	7.9		ug/l	10	4.7		ug/l	10
Cobalt	2	U	ug/l	50	2	U	ug/l	50	2	U	ug/l	50	2	U	ug/l	50
Copper	7	U	ug/l	25	3.1	U	ug/l	25	2.6	U	ug/l	25	2.6	U	ug/l	25
Iron	9150	J	ug/l	100	1020	J	ug/l	100	420	J	ug/l	100	172	J	ug/l	100
Lead	1	U	ug/l	3	1	U	ug/l	3	1	U	ug/l	3	1	U	ug/l	3
Magnesium	1230		ug/l	5000	1270		ug/l	5000	1920		ug/l	5000	2050		ug/l	5000
Manganese	4.1	U	ug/l	15	3	U	ug/l	15	3.6	U	ug/l	15	3.5	U	ug/l	15
Mercury	.2	U	ug/l	.2	.2	U	ug/l	.2	.2	U	ug/l	.2	.2	U	ug/l	.2
Nickel	14.1	U	ug/l	40	14.3	U	ug/l	40	16.8	U	ug/l	40	6	U	ug/l	40
Potassium	209	J	ug/l	5000	168	J	ug/l	5000	632	J	ug/l	5000	609	J	ug/l	5000
Selenium	4	U	ug/l	5	4	U	ug/l	5	4	U	ug/l	5	4	U	ug/l	5
Silver	1	U	ug/l	10	1	U	ug/l	10	1	U	ug/l	10	1	U	ug/l	10
Sodium	3910	J	ug/l	5000	2880	J	ug/l	5000	7290	J	ug/l	5000	7120	J	ug/l	5000
Thallium	6	U	ug/l	10	7.6	U	ug/l	10	6	U	ug/l	10	6	U	ug/l	10
Vanadium	14.3		ug/l	50	1	U	ug/l	50	1.4		ug/l	50	1	U	ug/l	50
Zinc	17.1	U	ug/l	20	10	U	ug/l	20	24.7	U	ug/l	20	21.4	U	ug/l	20
Cyanide	10	U	ug/l	10	-				10	U	ug/l	10	-			

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NAS CECIL FIELD -- OPL .LE UNIT 7 -- SITE 16
GROUNDWATER -- METALS AND CYANIDE

Lab Sample Number:	Q4204				Q4204F				Q3528				Q3528F			
Site	CECIL7				CECIL7				CECIL7				CECIL7			
Locator	CF16MW9D				CF16MW9DF				CF16MW10S				CF16MW10SF			
Collect Date:	11-AUG-94				11-AUG-94				10-AUG-94				10-AUG-94			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP METALS AND CYANIDE																
Aluminum	662	J	ug/l	200	73.7	U	ug/l	200	4830		ug/l	200	1440		ug/l	200
Antimony	2	U	ug/l	60	6.9		ug/l	60	2	U	ug/l	60	7.9		ug/l	60
Arsenic	3	U	ug/l	10	3	U	ug/l	10	3	U	ug/l	10	3	U	ug/l	10
Barium	108		ug/l	200	29.3		ug/l	200	23.9		ug/l	200	24.2		ug/l	200
Beryllium	1	U	ug/l	5	1	U	ug/l	5	1	U	ug/l	5	1	U	ug/l	5
Cadmium	1	U	ug/l	5	1	U	ug/l	5	2.4		ug/l	5	1.5		ug/l	5
Calcium	8030		ug/l	5000	8350		ug/l	5000	31800		ug/l	5000	31400		ug/l	5000
Chromium	2.2		ug/l	10	2	U	ug/l	10	4.3		ug/l	10	2.3		ug/l	10
Cobalt	2	U	ug/l	50	2	U	ug/l	50	2.3		ug/l	50	2.2		ug/l	50
Copper	4.4	U	ug/l	25	3.2	U	ug/l	25	4.8	U	ug/l	25	4.6	U	ug/l	25
Iron	736	J	ug/l	100	670	J	ug/l	100	907	J	ug/l	100	265	J	ug/l	100
Lead	1	U	ug/l	3	1	U	ug/l	3	1	U	ug/l	3	1	U	ug/l	3
Magnesium	2150		ug/l	5000	2390		ug/l	5000	2730		ug/l	5000	2710		ug/l	5000
Manganese	18.6		ug/l	15	19		ug/l	15	52.9		ug/l	15	41.6		ug/l	15
Mercury	.2	U	ug/l	.2	.2	U	ug/l	.2	.2	U	ug/l	.2	.2	U	ug/l	.2
Nickel	14.3	U	ug/l	40	15.4	U	ug/l	40	14.8	U	ug/l	40	10.8	U	ug/l	40
Potassium	707	J	ug/l	5000	751	J	ug/l	5000	4210	J	ug/l	5000	4170	J	ug/l	5000
Selenium	4	U	ug/l	5	4	U	ug/l	5	4	U	ug/l	5	4	U	ug/l	5
Silver	1	U	ug/l	10	1	U	ug/l	10	1	U	ug/l	10	1	U	ug/l	10
Sodium	6260	J	ug/l	5000	5780	J	ug/l	5000	30800	J	ug/l	5000	33800	J	ug/l	5000
Thallium	6	U	ug/l	10	6	U	ug/l	10	6	U	ug/l	10	6	U	ug/l	10
Vanadium	1.3		ug/l	50	1	U	ug/l	50	11.7		ug/l	50	9		ug/l	50
Zinc	40.8	U	ug/l	20	19.6	U	ug/l	20	46.7		ug/l	20	31	U	ug/l	20
Cyanide	10	U	ug/l	10	-				10	U	ug/l	10	-			

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NAS CECIL FIELD -- OPERABLE UNIT 7 -- SITE 16
GROUNDWATER -- METALS AND CYANIDE

Lab Sample Number:	Q3530				Q3530F				Q3532				Q3532F			
Site	CECIL7				CECIL7				CECIL7				CECIL7			
Locator	CF16MW10SD				CF16MW10SDF				CF16MW11DD				CF16MW11DDF			
Collect Date:	10-AUG-94				10-AUG-94				10-AUG-94				10-AUG-94			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP METALS AND CYANIDE																
Aluminum	11100		ug/l	200	2330		ug/l	200	44.7	U	ug/l	200	54.6	U	ug/l	200
Antimony	2	U	ug/l	60	6.2		ug/l	60	10.3		ug/l	60	12.6		ug/l	60
Arsenic	3	U	ug/l	10	3	U	ug/l	10	3	U	ug/l	10	3	U	ug/l	10
Barium	27.4		ug/l	200	23.9		ug/l	200	29.1		ug/l	200	30		ug/l	200
Beryllium	1	U	ug/l	5	1	U	ug/l	5	1	U	ug/l	5	1	U	ug/l	5
Cadmium	4.2		ug/l	5	1.3		ug/l	5	1	U	ug/l	5	1	U	ug/l	5
Calcium	34300		ug/l	5000	31000		ug/l	5000	63400		ug/l	5000	64200		ug/l	5000
Chromium	9.2		ug/l	10	2	U	ug/l	10	2	U	ug/l	10	2	U	ug/l	10
Cobalt	2.3		ug/l	50	2	U	ug/l	50	2	U	ug/l	50	2	U	ug/l	50
Copper	7.2	U	ug/l	25	6.1	U	ug/l	25	2.2	U	ug/l	25	2.4	U	ug/l	25
Iron	1750	J	ug/l	100	324	J	ug/l	100	124	J	ug/l	100	166	J	ug/l	100
Lead	3.6		ug/l	3	1	U	ug/l	3	1	U	ug/l	3	1	U	ug/l	3
Magnesium	3120		ug/l	5000	2740		ug/l	5000	28700		ug/l	5000	29200		ug/l	5000
Manganese	57.6		ug/l	15	38.1		ug/l	15	57.5		ug/l	15	59.2		ug/l	15
Mercury	.2	U	ug/l	.2	.2	U	ug/l	.2	.2	U	ug/l	.2	.2	U	ug/l	.2
Nickel	22.3	U	ug/l	40	25.8	U	ug/l	40	6	U	ug/l	40	10	U	ug/l	40
Potassium	4730	J	ug/l	5000	4120	J	ug/l	5000	941	J	ug/l	5000	910	J	ug/l	5000
Selenium	4	U	ug/l	5	4	U	ug/l	5	4	U	ug/l	5	4	U	ug/l	5
Silver	1	U	ug/l	10	1	U	ug/l	10	1	U	ug/l	10	1	U	ug/l	10
Sodium	32600	J	ug/l	5000	34200	J	ug/l	5000	8940	J	ug/l	5000	9280	J	ug/l	5000
Thallium	6.7	U	ug/l	10	6	U	ug/l	10	7.9	U	ug/l	10	6	U	ug/l	10
Vanadium	14.9		ug/l	50	9.8		ug/l	50	1	U	ug/l	50	1	U	ug/l	50
Zinc	50		ug/l	20	31.8	U	ug/l	20	13.6	U	ug/l	20	14.4	U	ug/l	20
Cyanide	10	U	ug/l	10	-				10	U	ug/l	10	-			

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NAS CECIL FIELD -- OPERABLE UNIT 7 -- SITE 16
GROUNDWATER -- METALS AND CYANIDE

Lab Sample Number:	Q4205			Q4205F			A00FB			A00FBF		
Site	CECIL7			CECIL7			CECIL7			CECIL7		
Locator	CF16MW12I			CF16MW12IF			CF16MW12IR			CF16MW12IRF		
Collect Date:	11-AUG-94			11-AUG-94			16-AUG-94			16-AUG-94		
	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL
CLP METALS AND CYANIDE												
Aluminum	1170 J	ug/l	200	303 U	ug/l	200	82.1	ug/l	200	160	ug/l	200
Antimony	2 U	ug/l	60	7.7	ug/l	60	2 U	ug/l	60	6.1	ug/l	60
Arsenic	56.2	ug/l	10	52.4	ug/l	10	3 U	ug/l	10	3 U	ug/l	10
Barium	20.2	ug/l	200	16.8	ug/l	200	1 U	ug/l	200	1 U	ug/l	200
Beryllium	1 U	ug/l	5	1 U	ug/l	5	1 U	ug/l	5	1 U	ug/l	5
Cadmium	1 U	ug/l	5	1 U	ug/l	5	1 U	ug/l	5	1 U	ug/l	5
Calcium	1330	ug/l	5000	1550	ug/l	5000	43	ug/l	5000	16.9	ug/l	5000
Chromium	2 U	ug/l	10	2 U	ug/l	10	2 U	ug/l	10	2 U	ug/l	10
Cobalt	5.9	ug/l	50	5.9	ug/l	50	2 U	ug/l	50	2 U	ug/l	50
Copper	5 U	ug/l	25	5 U	ug/l	25	2	ug/l	25	4.9	ug/l	25
Iron	5960 J	ug/l	100	5340 J	ug/l	100	12 U	ug/l	100	19.5	ug/l	100
Lead	1 U	ug/l	3	1 U	ug/l	3	1 U	ug/l	3	1 U	ug/l	3
Magnesium	836	ug/l	5000	832	ug/l	5000	14.1	ug/l	5000	5 U	ug/l	5000
Manganese	10.4	ug/l	15	10.5	ug/l	15	1 U	ug/l	15	1.4	ug/l	15
Mercury	.2 U	ug/l	.2	.2 U	ug/l	.2	.2 U	ug/l	.2	.2 U	ug/l	.2
Nickel	25.4 U	ug/l	40	13.1 U	ug/l	40	14.5	ug/l	40	9.8	ug/l	40
Potassium	325 J	ug/l	5000	352 J	ug/l	5000	18.4	ug/l	5000	19.1	ug/l	5000
Selenium	4 U	ug/l	5	4 U	ug/l	5	4 U	ug/l	5	4 U	ug/l	5
Silver	1 U	ug/l	10	1 U	ug/l	10	1 U	ug/l	10	1 U	ug/l	10
Sodium	6100 J	ug/l	5000	6550 J	ug/l	5000	113	ug/l	5000	140	ug/l	5000
Thallium	6 U	ug/l	10	6 U	ug/l	10	6.8	ug/l	10	6 U	ug/l	10
Vanadium	1.1	ug/l	50	1 U	ug/l	50	1 U	ug/l	50	1 U	ug/l	50
Zinc	34.6 U	ug/l	20	42.1 U	ug/l	20	6.6	ug/l	20	11.3	ug/l	20
Cyanide	10 U	ug/l	10	-			10 U	ug/l	10	-		

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NAS CECIL FIELD -- OPERABLE UNIT 7 -- SITE 16
GROUNDWATER -- METALS AND CYANIDE

Lab Sample Number:	P4911				P4913				P4912				P9355			
Site	CECIL7				CECIL7				CECIL7				CECIL7			
Locator	CF16MW13S				CF16MW14D				CF16MW15S				CF16MW16D			
Collect Date:	17-JUL-94				17-JUL-94				17-JUL-94				29-JUL-94			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP METALS AND CYANIDE																
Aluminum	1160	J	ug/l	200	342	J	ug/l	200	112	U	ug/l	200	171	U	ug/l	200
Antimony	2	U	ug/l	60	2	U	ug/l	60	2	U	ug/l	60	2	U	ug/l	60
Arsenic	3	U	ug/l	10	3	U	ug/l	10	3	U	ug/l	10	3		ug/l	10
Barium	24.7		ug/l	200	31.4		ug/l	200	8.5		ug/l	200	24.2		ug/l	200
Beryllium	1	U	ug/l	5	1	U	ug/l	5	1	U	ug/l	5	1	U	ug/l	5
Cadmium	1	U	ug/l	5	1	U	ug/l	5	1	U	ug/l	5	1	U	ug/l	5
Calcium	1390		ug/l	5000	9980		ug/l	5000	27000		ug/l	5000	12200	J	ug/l	5000
Chromium	2	U	ug/l	10	2	U	ug/l	10	2	U	ug/l	10	8.8		ug/l	10
Cobalt	2	U	ug/l	50	2	U	ug/l	50	2	U	ug/l	50	2	U	ug/l	50
Copper	2	U	ug/l	25	2	U	ug/l	25	2.1		ug/l	25	2	U	ug/l	25
Iron	868		ug/l	100	1030		ug/l	100	476		ug/l	100	717		ug/l	100
Lead	1	U	ug/l	3	1	U	ug/l	3	1	U	ug/l	3	1	U	ug/l	3
Magnesium	2230		ug/l	5000	3610		ug/l	5000	1260		ug/l	5000	4710		ug/l	5000
Manganese	4.7		ug/l	15	20.1		ug/l	15	23.9		ug/l	15	24.2		ug/l	15
Mercury	.2	U	ug/l	.2	.2	U	ug/l	.2	.2	U	ug/l	.2	.2	U	ug/l	.2
Nickel	2	U	ug/l	40	2	U	ug/l	40	2	U	ug/l	40	2	U	ug/l	40
Potassium	376		ug/l	5000	771	J	ug/l	5000	292		ug/l	5000	895		ug/l	5000
Selenium	4.2	J	ug/l	5	4	U	ug/l	5	4	U	ug/l	5	4	U	ug/l	5
Silver	1	U	ug/l	10	1	U	ug/l	10	1	U	ug/l	10	1	U	ug/l	10
Sodium	2940	J	ug/l	5000	5630	J	ug/l	5000	3500	J	ug/l	5000	8290		ug/l	5000
Thallium	6	U	ug/l	10	6	U	ug/l	10	6	U	ug/l	10	6	U	ug/l	10
Vanadium	2.6		ug/l	50	1	U	ug/l	50	2.7		ug/l	50	1	U	ug/l	50
Zinc	8.8	U	ug/l	20	27.6		ug/l	20	3	U	ug/l	20	21.6	U	ug/l	20
Cyanide	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	UJ	ug/l	10

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NAS CECIL FIELD -- OPL. LE UNIT 7 -- SITE 16
GROUNDWATER -- METALS AND CYANIDE

Lab Sample Number:	P9355C				P4910				P3792				P9356			
Site	CECIL7				CECIL7				CECIL7				CECIL7			
Locator	CF16MW16DC				CF16MW17S				CF16MW18D				CF16MW19S			
Collect Date:	29-JUL-94				17-JUL-94				14-JUL-94				29-JUL-94			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP METALS AND CYANIDE																
Aluminum	-				881	J	ug/l	200	581	J	ug/l	200	689		ug/l	200
Antimony	-				2	U	ug/l	60	2	U	ug/l	60	2	U	ug/l	60
Arsenic	-				3	U	ug/l	10	3.6	J	ug/l	10	3	U	ug/l	10
Barium	-				18.9		ug/l	200	37.7		ug/l	200	29.5		ug/l	200
Beryllium	-				1	U	ug/l	5	1	U	ug/l	5	1	U	ug/l	5
Cadmium	-				1	U	ug/l	5	1	U	ug/l	5	1	U	ug/l	5
Calcium	-				4270		ug/l	5000	36000		ug/l	5000	1680	J	ug/l	5000
Chromium	-				2	U	ug/l	10	2	U	ug/l	10	2	U	ug/l	10
Cobalt	-				2	U	ug/l	50	2	U	ug/l	50	2	U	ug/l	50
Copper	-				2	U	ug/l	25	3.8		ug/l	25	2	U	ug/l	25
Iron	-				1070		ug/l	100	1920		ug/l	100	2500		ug/l	100
Lead	-				1	U	ug/l	3	1	U	ug/l	3	1	U	ug/l	3
Magnesium	-				584		ug/l	5000	17900		ug/l	5000	1530		ug/l	5000
Manganese	-				10		ug/l	15	52.5		ug/l	15	5.5		ug/l	15
Mercury	-				.2	U	ug/l	.2	.2	U	ug/l	.2	.2	U	ug/l	.2
Nickel	-				2	U	ug/l	40	2	U	ug/l	40	2	U	ug/l	40
Potassium	-				125	J	ug/l	5000	786	J	ug/l	5000	1650		ug/l	5000
Selenium	-				4	U	ug/l	5	4	U	ug/l	5	4	U	ug/l	5
Silver	-				1	U	ug/l	10	1	U	ug/l	10	1	U	ug/l	10
Sodium	-				3000	J	ug/l	5000	6490	J	ug/l	5000	3510		ug/l	5000
Thallium	-				6	U	ug/l	10	6	U	ug/l	10	6	U	ug/l	10
Vanadium	-				2.5		ug/l	50	1.3		ug/l	50	1.6		ug/l	50
Zinc	-				12.1	U	ug/l	20	21.9		ug/l	20	27.7	J	ug/l	20
Cyanide	10	UJ	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	UJ	ug/l	10

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NAS CECIL FIELD -- OPERABLE UNIT 7 -- SITE 16
GROUNDWATER -- METALS AND CYANIDE

Lab Sample Number:	P9356C			A00FC			A00FCF			P4914		
Site	CECIL7			CECIL7			CECIL7			CECIL7		
Locator	CF16MW19SC			CF16MW20D			CF16MW20DF			CF16MW21S		
Collect Date:	29-JUL-94			16-AUG-94			16-AUG-94			18-JUL-94		
	VALUE QUAL	UNITS	DL	VALUE QUAL	UNITS	DL	VALUE QUAL	UNITS	DL	VALUE QUAL	UNITS	DL
CLP METALS AND CYANIDE												
Aluminum	-			349 U	ug/l	200	93.4 U	ug/l	200	1400 J	ug/l	200
Antimony	-			2 U	ug/l	60	5.9	ug/l	60	2 U	ug/l	60
Arsenic	-			4.4	ug/l	10	3.3	ug/l	10	3 U	ug/l	10
Barium	-			36.3	ug/l	200	32.6	ug/l	200	30.3	ug/l	200
Beryllium	-			1 U	ug/l	5	1 U	ug/l	5	1 U	ug/l	5
Cadmium	-			1 U	ug/l	5	1 U	ug/l	5	1 U	ug/l	5
Calcium	-			13500	ug/l	5000	13100	ug/l	5000	4780	ug/l	5000
Chromium	-			2 U	ug/l	10	2 U	ug/l	10	2 U	ug/l	10
Cobalt	-			2 U	ug/l	50	2 U	ug/l	50	2 U	ug/l	50
Copper	-			2.6 U	ug/l	25	2 U	ug/l	25	2.1	ug/l	25
Iron	-			1360 J	ug/l	100	1210 J	ug/l	100	281	ug/l	100
Lead	-			1 U	ug/l	3	1 U	ug/l	3	1 U	ug/l	3
Magnesium	-			3550	ug/l	5000	3500	ug/l	5000	381	ug/l	5000
Manganese	-			24.5	ug/l	15	22.6	ug/l	15	5.4	ug/l	15
Mercury	-			.2 U	ug/l	.2	.2 U	ug/l	.2	.2 U	ug/l	.2
Nickel	-			7.7 U	ug/l	40	13.1 U	ug/l	40	2 U	ug/l	40
Potassium	-			976 J	ug/l	5000	970 J	ug/l	5000	274	ug/l	5000
Selenium	-			4 U	ug/l	5	4 U	ug/l	5	4 U	ug/l	5
Silver	-			1 U	ug/l	10	1 U	ug/l	10	1 U	ug/l	10
Sodium	-			6550 J	ug/l	5000	6430 J	ug/l	5000	2600 J	ug/l	5000
Thallium	-			6 U	ug/l	10	6 U	ug/l	10	6 U	ug/l	10
Vanadium	-			1 U	ug/l	50	1 U	ug/l	50	4.1	ug/l	50
Zinc	-			10.6 U	ug/l	20	14.8 U	ug/l	20	17.7 U	ug/l	20
Cyanide	10 UJ	ug/l	10	10 U	ug/l	10	-			10 U	ug/l	10

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NAS CECIL FIELD -- OPERABLE UNIT 7 -- SITE 16
GROUNDWATER -- METALS AND CYANIDE

Lab Sample Number:	P4916			P9358			P9358C			P9358F		
Site	CECIL7			CECIL7			CECIL7			CECIL7		
Locator	CF16MW21SD			CF16MW221			CF16MW221C			CF16MW221F		
Collect Date:	18-JUL-94			29-JUL-94			29-JUL-94			29-JUL-94		
	VALUE QUAL	UNITS	DL	VALUE QUAL	UNITS	DL	VALUE QUAL	UNITS	DL	VALUE QUAL	UNITS	DL
CLP METALS AND CYANIDE												
Aluminum	996 J	ug/l	200	743	ug/l	200	-			588	ug/l	200
Antimony	2.1 J	ug/l	60	2 U	ug/l	60	-			5.2	ug/l	60
Arsenic	3 U	ug/l	10	37.9	ug/l	10	-			37.3	ug/l	10
Barium	30.6	ug/l	200	16.1	ug/l	200	-			9.9	ug/l	200
Beryllium	1 U	ug/l	5	1 U	ug/l	5	-			1 U	ug/l	5
Cadmium	1 U	ug/l	5	1 U	ug/l	5	-			1 U	ug/l	5
Calcium	4540	ug/l	5000	686 J	ug/l	5000	-			1590 J	ug/l	5000
Chromium	2 U	ug/l	10	2.4	ug/l	10	-			2 U	ug/l	10
Cobalt	2 U	ug/l	50	5.5	ug/l	50	-			5.7	ug/l	50
Copper	2.1	ug/l	25	2 U	ug/l	25	-			5.4	ug/l	25
Iron	239	ug/l	100	1160	ug/l	100	-			973	ug/l	100
Lead	1 U	ug/l	3	1 U	ug/l	3	-			1 U	ug/l	3
Magnesium	377	ug/l	5000	573	ug/l	5000	-			574	ug/l	5000
Manganese	4.4	ug/l	15	5.1	ug/l	15	-			7.9	ug/l	15
Mercury	.2 U	ug/l	.2	.2 U	ug/l	.2	-			.2 U	ug/l	.2
Nickel	2 U	ug/l	40	12.5	ug/l	40	-			12.1	ug/l	40
Potassium	297	ug/l	5000	177	ug/l	5000	-			247	ug/l	5000
Selenium	4 U	ug/l	5	4 U	ug/l	5	-			4 U	ug/l	5
Silver	1 U	ug/l	10	1 U	ug/l	10	-			1 U	ug/l	10
Sodium	2730 J	ug/l	5000	4980	ug/l	5000	-			6140	ug/l	5000
Thallium	6 U	ug/l	10	6.3	ug/l	10	-			6 U	ug/l	10
Vanadium	4	ug/l	50	3.3	ug/l	50	-			3.9	ug/l	50
Zinc	21.9	ug/l	20	13.9 U	ug/l	20	-			70.5 J	ug/l	20
Cyanide	10 U	ug/l	10	10 UJ	ug/l	10	10 UJ	ug/l	10	-		

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NAS CECIL FIELD -- OPERABLE UNIT 7 -- SITE 16
GROUNDWATER -- METALS AND CYANIDE

Lab Sample Number:	P9361				P9361C				P9361F				P5958			
Site	CECIL7				CECIL7				CECIL7				CECIL7			
Locator	CF16MW22IR				CF16MW22IRC				CF16MW22IRF				CF16MW23D			
Collect Date:	29-JUL-94				29-JUL-94				29-JUL-94				20-JUL-94			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP METALS AND CYANIDE																
Aluminum	45.3		ug/l	200	-				36.5		ug/l	200	76.5	U	ug/l	200
Antimony	2	U	ug/l	60	-				6.4		ug/l	60	2	U	ug/l	60
Arsenic	3	U	ug/l	10	-				3	U	ug/l	10	3	U	ug/l	10
Barium	1	U	ug/l	200	-				1	U	ug/l	200	41		ug/l	200
Beryllium	1	U	ug/l	5	-				1	U	ug/l	5	1	U	ug/l	5
Cadmium	1	U	ug/l	5	-				1	U	ug/l	5	1	U	ug/l	5
Calcium	36.5		ug/l	5000	-				173		ug/l	5000	54900		ug/l	5000
Chromium	2	U	ug/l	10	-				2	U	ug/l	10	2	U	ug/l	10
Cobalt	2	U	ug/l	50	-				2	U	ug/l	50	2	U	ug/l	50
Copper	2	U	ug/l	25	-				2	U	ug/l	25	2.3		ug/l	25
Iron	12	U	ug/l	100	-				12	U	ug/l	100	635		ug/l	100
Lead	1	U	ug/l	3	-				1	U	ug/l	3	1	U	ug/l	3
Magnesium	13.5		ug/l	5000	-				31.5		ug/l	5000	26000		ug/l	5000
Manganese	1	U	ug/l	15	-				1	U	ug/l	15	54		ug/l	15
Mercury	.2	U	ug/l	.2	-				.2	U	ug/l	.2	.2	U	ug/l	.2
Nickel	2	U	ug/l	40	-				2	U	ug/l	40	2	U	ug/l	40
Potassium	14	U	ug/l	5000	-				14	U	ug/l	5000	1210	J	ug/l	5000
Selenium	4	U	ug/l	5	-				4	U	ug/l	5	4	U	ug/l	5
Silver	1	U	ug/l	10	-				1	U	ug/l	10	1	U	ug/l	10
Sodium	132		ug/l	5000	-				215		ug/l	5000	8240	J	ug/l	5000
Thallium	6	U	ug/l	10	-				6	U	ug/l	10	6	U	ug/l	10
Vanadium	1	U	ug/l	50	-				1	U	ug/l	50	1	U	ug/l	50
Zinc	5		ug/l	20	-				11.1		ug/l	20	14.7	U	ug/l	20
Cyanide	10	U	ug/l	10	10	U	ug/l	10	-				10	U	ug/l	10

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NAS CECIL FIELD -- OPERABLE UNIT 7 -- SITE 16
GROUNDWATER -- METALS AND CYANIDE

Lab Sample Number:	P3222			P3220			P3217			Q2485		
Site	CECIL7			CECIL7			CECIL7			CECIL7		
Locator	CF16MW24S			CF16MW25D			CF16MW26DD			CF16MW27I		
Collect Date:	13-JUL-94			13-JUL-94			13-JUL-94			08-AUG-94		
	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL
CLP METALS AND CYANIDE												
Aluminum	867 J	ug/l	200	108 U	ug/l	200	113 U	ug/l	200	184 U	ug/l	200
Antimony	2 U	ug/l	60	3.5 J	ug/l	60	3.1 J	ug/l	60	2.2	ug/l	60
Arsenic	3 U	ug/l	10	7.9	ug/l	10	3 U	ug/l	10	4.7	ug/l	10
Barium	9.6	ug/l	200	22.3	ug/l	200	7	ug/l	200	6.5	ug/l	200
Beryllium	1 U	ug/l	5	1 U	ug/l	5	1 U	ug/l	5	1 U	ug/l	5
Cadmium	1 U	ug/l	5	1 U	ug/l	5	1 U	ug/l	5	1 U	ug/l	5
Calcium	1310	ug/l	5000	53200	ug/l	5000	9160	ug/l	5000	1050	ug/l	5000
Chromium	2 U	ug/l	10	2 U	ug/l	10	2 U	ug/l	10	2 U	ug/l	10
Cobalt	2 U	ug/l	50	2 U	ug/l	50	2 U	ug/l	50	2 U	ug/l	50
Copper	2 U	ug/l	25	3.1	ug/l	25	8	ug/l	25	2 U	ug/l	25
Iron	881	ug/l	100	308	ug/l	100	69.6	ug/l	100	2050 J	ug/l	100
Lead	1 U	ug/l	3	1 U	ug/l	3	1 U	ug/l	3	1 U	ug/l	3
Magnesium	797	ug/l	5000	28000	ug/l	5000	16000	ug/l	5000	410	ug/l	5000
Manganese	12.4	ug/l	15	56.1	ug/l	15	6.7	ug/l	15	9.4	ug/l	15
Mercury	.2 U	ug/l	.2	.2 U	ug/l	.2	.2 U	ug/l	.2	.2 U	ug/l	.2
Nickel	2 U	ug/l	40	2 U	ug/l	40	2 U	ug/l	40	10.8 U	ug/l	40
Potassium	274	ug/l	5000	966 J	ug/l	5000	39900 J	ug/l	5000	133 J	ug/l	5000
Selenium	4 U	ug/l	5	4 U	ug/l	5	4 U	ug/l	5	4 U	ug/l	5
Silver	1 U	ug/l	10	1 U	ug/l	10	1 U	ug/l	10	1 U	ug/l	10
Sodium	5760 J	ug/l	5000	6590 J	ug/l	5000	30600 J	ug/l	5000	3620 J	ug/l	5000
Thallium	6 U	ug/l	10	6 J	ug/l	10	6 U	ug/l	10	11.7 U	ug/l	10
Vanadium	1.9	ug/l	50	1.2 J	ug/l	50	1 U	ug/l	50	1 U	ug/l	50
Zinc	28.3	ug/l	20	20.6 U	ug/l	20	80.1	ug/l	20	18.4 U	ug/l	20
Cyanide	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10

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NAS CECIL FIELD -- OPERABLE UNIT 7 -- SITE 16
GROUNDWATER -- METALS AND CYANIDE

Lab Sample Number:	Q2485F			Q2491			Q2491F			Q2492		
Site	CECIL7			CECIL7			CECIL7			CECIL7		
Locator	CF16MW27IF			CF16MW28D			CF16MW28DF			CF16MW28DD		
Collect Date:	08-AUG-94			08-AUG-94			08-AUG-94			08-AUG-94		
	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL
CLP METALS AND CYANIDE												
Aluminum	78.8	U ug/l	200	41	U ug/l	200	49.4	U ug/l	200	69.8	U ug/l	200
Antimony	9.8	ug/l	60	2	U ug/l	60	3.8	ug/l	60	2	U ug/l	60
Arsenic	3	U ug/l	10	3	U ug/l	10	3	U ug/l	10	3	U ug/l	10
Barium	6.3	ug/l	200	34.5	ug/l	200	32.2	ug/l	200	33.2	ug/l	200
Beryllium	1	U ug/l	5	1	U ug/l	5	1	U ug/l	5	1	U ug/l	5
Cadmium	1	U ug/l	5	1	U ug/l	5	1	U ug/l	5	1	U ug/l	5
Calcium	560	ug/l	5000	60000	ug/l	5000	58500	ug/l	5000	56900	ug/l	5000
Chromium	2	U ug/l	10	2	U ug/l	10	2	U ug/l	10	2	U ug/l	10
Cobalt	2	U ug/l	50	2	U ug/l	50	2	U ug/l	50	2	U ug/l	50
Copper	2	U ug/l	25	4	U ug/l	25	2	U ug/l	25	2	U ug/l	25
Iron	1720	J ug/l	100	579	J ug/l	100	266	J ug/l	100	557	J ug/l	100
Lead	1	U ug/l	3	1	U ug/l	3	1	U ug/l	3	1	U ug/l	3
Magnesium	396	ug/l	5000	27300	ug/l	5000	26800	ug/l	5000	26100	ug/l	5000
Manganese	9.8	ug/l	15	54.3	ug/l	15	53.2	ug/l	15	52.6	ug/l	15
Mercury	.2	U ug/l	.2	.2	U ug/l	.2	.2	U ug/l	.2	.2	U ug/l	.2
Nickel	10.9	U ug/l	40	7.9	U ug/l	40	6	U ug/l	40	6	U ug/l	40
Potassium	139	J ug/l	5000	949	J ug/l	5000	953	J ug/l	5000	914	J ug/l	5000
Selenium	4	U ug/l	5	4	U ug/l	5	4	U ug/l	5	4	U ug/l	5
Silver	1	U ug/l	10	1	U ug/l	10	1	U ug/l	10	1	U ug/l	10
Sodium	3670	J ug/l	5000	10200	J ug/l	5000	10200	J ug/l	5000	10000	J ug/l	5000
Thallium	6	U ug/l	10	6.9	U ug/l	10	6	U ug/l	10	6	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	27.4	U ug/l	20	11.1	U ug/l	20	10.9	U ug/l	20	18	U ug/l	20
Cyanide	-			10	U ug/l	10	-			10	U ug/l	10

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NAS CECIL FIELD -- OPERABLE UNIT 7 -- SITE 16
GROUNDWATER -- METALS AND CYANIDE

Lab Sample Number:	Q2492F				Q0289				Q0289C				Q0292			
Site	CECIL7				CECIL7				CECIL7				CECIL7			
Locator	CF16MW28DDF				CF16MW29S				CF16MW29SC				CF16MW30D			
Collect Date:	08-AUG-94				02-AUG-94				02-AUG-94				02-AUG-94			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP METALS AND CYANIDE																
Aluminum	37.1	U	ug/l	200	610		ug/l	200	-				350		ug/l	200
Antimony	6.6		ug/l	60	2	U	ug/l	60	-				2	U	ug/l	60
Arsenic	3	U	ug/l	10	3	U	ug/l	10	-				10.7		ug/l	10
Barium	31		ug/l	200	4.7		ug/l	200	-				68.4		ug/l	200
Beryllium	1	U	ug/l	5	1	U	ug/l	5	-				1	U	ug/l	5
Cadmium	1	U	ug/l	5	1	U	ug/l	5	-				1	U	ug/l	5
Calcium	55300		ug/l	5000	557	U	ug/l	5000	-				26800	J	ug/l	5000
Chromium	2	U	ug/l	10	2.1		ug/l	10	-				2	U	ug/l	10
Cobalt	2	U	ug/l	50	2	U	ug/l	50	-				2	U	ug/l	50
Copper	2.2	U	ug/l	25	2	U	ug/l	25	-				2	U	ug/l	25
Iron	184	J	ug/l	100	1410		ug/l	100	-				1480		ug/l	100
Lead	1	U	ug/l	3	1	U	ug/l	3	-				1	U	ug/l	3
Magnesium	25500		ug/l	5000	286		ug/l	5000	-				13600		ug/l	5000
Manganese	49		ug/l	15	8.2		ug/l	15	-				49.3		ug/l	15
Mercury	.2	U	ug/l	.2	.2	U	ug/l	.2	-				.2	U	ug/l	.2
Nickel	6	U	ug/l	40	2	U	ug/l	40	-				2	U	ug/l	40
Potassium	908	J	ug/l	5000	128		ug/l	5000	-				939		ug/l	5000
Selenium	4	U	ug/l	5	4	U	ug/l	5	-				4	U	ug/l	5
Silver	1	U	ug/l	10	1	U	ug/l	10	-				1	U	ug/l	10
Sodium	9860	J	ug/l	5000	4900		ug/l	5000	-				7130		ug/l	5000
Thallium	8	U	ug/l	10	6	U	ug/l	10	-				6	U	ug/l	10
Vanadium	1	U	ug/l	50	1	U	ug/l	50	-				1.3		ug/l	50
Zinc	40.1	U	ug/l	20	7.2	U	ug/l	20	-				23.2	U	ug/l	20
Cyanide	-				10	UJ	ug/l	10	10	UJ	ug/l	10	10	UJ	ug/l	10

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NAS CECIL FIELD -- OPERABLE UNIT 7 -- SITE 16
GROUNDWATER -- METALS AND CYANIDE

Lab Sample Number:	Q0292C				Q0288				Q0288C				Q2493			
Site	CECIL7				CECIL7				CECIL7				CECIL7			
Locator	CF16MW30DC				CF16MW31DD				CF16MW31DDC				CF16MW32S			
Collect Date:	02-AUG-94				02-AUG-94				02-AUG-94				08-AUG-94			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP METALS AND CYANIDE																
Aluminum	-				199	U	ug/l	200	-				292	U	ug/l	200
Antimony	-				2	U	ug/l	60	-				2	U	ug/l	60
Arsenic	-				3	U	ug/l	10	-				3	U	ug/l	10
Barium	-				41.8		ug/l	200	-				19.5		ug/l	200
Beryllium	-				1	U	ug/l	5	-				1	U	ug/l	5
Cadmium	-				1	U	ug/l	5	-				1	U	ug/l	5
Calcium	-				63200	J	ug/l	5000	-				1400		ug/l	5000
Chromium	-				9.8		ug/l	10	-				2	U	ug/l	10
Cobalt	-				2	U	ug/l	50	-				2	U	ug/l	50
Copper	-				8.2		ug/l	25	-				2.1	U	ug/l	25
Iron	-				361		ug/l	100	-				886	R	ug/l	100
Lead	-				1	U	ug/l	3	-				1	U	ug/l	3
Magnesium	-				26600		ug/l	5000	-				309		ug/l	5000
Manganese	-				53.8		ug/l	15	-				20.9	R	ug/l	15
Mercury	-				.2	U	ug/l	.2	-				1		ug/l	.2
Nickel	-				2	U	ug/l	40	-				6	U	ug/l	40
Potassium	-				1190		ug/l	5000	-				859	J	ug/l	5000
Selenium	-				4	U	ug/l	5	-				4	U	ug/l	5
Silver	-				1	U	ug/l	10	-				1	U	ug/l	10
Sodium	-				11600		ug/l	5000	-				7030	J	ug/l	5000
Thallium	-				6	U	ug/l	10	-				6	U	ug/l	10
Vanadium	-				1	U	ug/l	50	-				3.5	U	ug/l	50
Zinc	-				48.6	J	ug/l	20	-				25.5	U	ug/l	20
Cyanide	10	UJ	ug/l	10	10	UJ	ug/l	10	10	UJ	ug/l	10	10	U	ug/l	10

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NAS CECIL FIELD -- OPERABLE UNIT 7 -- SITE 16
GROUNDWATER -- METALS AND CYANIDE

Lab Sample Number:	Q2493F				Q2907				Q2907F				Q3527			
Site	CECIL7				CECIL7				CECIL7				CECIL7			
Locator	CF16MW32SF				CF16MW33D				CF16MW33DF				CF16MW33DR			
Collect Date:	08-AUG-94				09-AUG-94				09-AUG-94				10-AUG-94			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP METALS AND CYANIDE																
Aluminum	143	U	ug/l	200	93.8	U	ug/l	200	34.6	U	ug/l	200	73.4		ug/l	200
Antimony	5.6		ug/l	60	2	U	ug/l	60	4.9		ug/l	60	2	U	ug/l	60
Arsenic	3	U	ug/l	10	4.3		ug/l	10	4.3		ug/l	10	3	U	ug/l	10
Barium	15.7		ug/l	200	32.4		ug/l	200	29.4		ug/l	200	1.1		ug/l	200
Beryllium	1	U	ug/l	5	1	U	ug/l	5	1	U	ug/l	5	1	U	ug/l	5
Cadmium	1	U	ug/l	5	1	U	ug/l	5	1	U	ug/l	5	1	U	ug/l	5
Calcium	1320		ug/l	5000	55400		ug/l	5000	50900		ug/l	5000	28.3		ug/l	5000
Chromium	13.6		ug/l	10	2	U	ug/l	10	2	U	ug/l	10	2	U	ug/l	10
Cobalt	2.4		ug/l	50	2	U	ug/l	50	2	U	ug/l	50	2	U	ug/l	50
Copper	2.1	U	ug/l	25	3.8	U	ug/l	25	2.3	U	ug/l	25	2	U	ug/l	25
Iron	17600	R	ug/l	100	435	J	ug/l	100	46.9	U	ug/l	100	19.3		ug/l	100
Lead	1	U	ug/l	3	1	U	ug/l	3	1	U	ug/l	3	1	U	ug/l	3
Magnesium	276		ug/l	5000	27200		ug/l	5000	25200		ug/l	5000	9.4		ug/l	5000
Manganese	135	R	ug/l	15	56.8		ug/l	15	49.6		ug/l	15	1.2		ug/l	15
Mercury	.2	U	ug/l	.2	.2	U	ug/l	.2	.2	U	ug/l	.2	.2	U	ug/l	.2
Nickel	6	U	ug/l	40	8.5	U	ug/l	40	6	U	ug/l	40	6	U	ug/l	40
Potassium	854	J	ug/l	5000	831	J	ug/l	5000	821	J	ug/l	5000	14	U	ug/l	5000
Selenium	4	U	ug/l	5	4	U	ug/l	5	4	U	ug/l	5	4	U	ug/l	5
Silver	1	U	ug/l	10	1	U	ug/l	10	1	U	ug/l	10	1	U	ug/l	10
Sodium	6430	J	ug/l	5000	8020	J	ug/l	5000	7380	J	ug/l	5000	116		ug/l	5000
Thallium	6	U	ug/l	10	6	U	ug/l	10	6	U	ug/l	10	6	U	ug/l	10
Vanadium	2.7		ug/l	50	1	U	ug/l	50	1	U	ug/l	50	1	U	ug/l	50
Zinc	19.8	U	ug/l	20	89.5		ug/l	20	34.6	U	ug/l	20	8.8		ug/l	20
Cyanide	-				10	U	ug/l	10	-				10	U	ug/l	10

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R = RESULT IS REJECTED AND UNUSABLE

NAS CECIL FIELD -- OPERABLE UNIT 7 -- SITE 16
GROUNDWATER -- METALS AND CYANIDE

Lab Sample Number:	Q3527F			Q2906			Q2906F			Q0286		
Site	CECIL7			CECIL7			CECIL7			CECIL7		
Locator	CF16MW33DRF			CF16MW34DD			CF16MW34DDF			CF16MW35S		
Collect Date:	10-AUG-94			09-AUG-94			09-AUG-94			02-AUG-94		
	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL
CLP METALS AND CYANIDE												
Aluminum	56.1	ug/l	200	137 U	ug/l	200	45.7 U	ug/l	200	304	ug/l	200
Antimony	4.8	ug/l	60	2 U	ug/l	60	8.1	ug/l	60	2 U	ug/l	60
Arsenic	3 U	ug/l	10	3 U	ug/l	10	3 U	ug/l	10	3.3	ug/l	10
Barium	1 U	ug/l	200	31.2	ug/l	200	28	ug/l	200	16	ug/l	200
Beryllium	1 U	ug/l	5	1 U	ug/l	5	1 U	ug/l	5	1 U	ug/l	5
Cadmium	1 U	ug/l	5	1 U	ug/l	5	1 U	ug/l	5	1 U	ug/l	5
Calcium	44.3	ug/l	5000	61400	ug/l	5000	55800	ug/l	5000	2530 J	ug/l	5000
Chromium	6.3	ug/l	10	2 U	ug/l	10	2 U	ug/l	10	2 U	ug/l	10
Cobalt	2 U	ug/l	50	2 U	ug/l	50	2 U	ug/l	50	2 U	ug/l	50
Copper	2.1	ug/l	25	5.1 U	ug/l	25	2.3 U	ug/l	25	2 U	ug/l	25
Iron	12 U	ug/l	100	444 J	ug/l	100	47.2 U	ug/l	100	2460	ug/l	100
Lead	1 U	ug/l	3	1 U	ug/l	3	1 U	ug/l	3	1 U	ug/l	3
Magnesium	5.6	ug/l	5000	26800	ug/l	5000	25200	ug/l	5000	711	ug/l	5000
Manganese	1 U	ug/l	15	44	ug/l	15	36.9	ug/l	15	140	ug/l	15
Mercury	.2 U	ug/l	.2	.2 U	ug/l	.2	.2 U	ug/l	.2	.2 U	ug/l	.2
Nickel	9.4	ug/l	40	9.3 U	ug/l	40	8.5 U	ug/l	40	2 U	ug/l	40
Potassium	14 U	ug/l	5000	853 J	ug/l	5000	806 J	ug/l	5000	260	ug/l	5000
Selenium	4 U	ug/l	5	4 U	ug/l	5	4 U	ug/l	5	4 U	ug/l	5
Silver	1 U	ug/l	10	1 U	ug/l	10	1 U	ug/l	10	1 U	ug/l	10
Sodium	191	ug/l	5000	8050 J	ug/l	5000	7750 J	ug/l	5000	14600	ug/l	5000
Thallium	6 U	ug/l	10	6.7 U	ug/l	10	6.8 U	ug/l	10	6 U	ug/l	10
Vanadium	1 U	ug/l	50	1 U	ug/l	50	1 U	ug/l	50	1.6	ug/l	50
Zinc	17.4	ug/l	20	98.5	ug/l	20	33.4 U	ug/l	20	6.6 U	ug/l	20
Cyanide	-			10 U	ug/l	10	-			10 UJ	ug/l	10

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NAS CECIL FIELD -- OPE. .E UNIT 7 -- SITE 16
GROUNDWATER -- METALS AND CYANIDE

Lab Sample Number:	Q0286C				Q0046				Q0046C				Q0050			
Site	CECIL7				CECIL7				CECIL7				CECIL7			
Locator	CF16MW35SC				CF16MW36I				CF16MW36IC				CF16MW37D			
Collect Date:	02-AUG-94				01-AUG-94				01-AUG-94				01-AUG-94			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP METALS AND CYANIDE																
Aluminum	-				154	U	ug/l	200	-				60.6	U	ug/l	200
Antimony	-				2	U	ug/l	60	-				2	U	ug/l	60
Arsenic	-				4.5		ug/l	10	-				3	U	ug/l	10
Barium	-				11.8		ug/l	200	-				35.1		ug/l	200
Beryllium	-				1	U	ug/l	5	-				1	U	ug/l	5
Cadmium	-				1	U	ug/l	5	-				1	U	ug/l	5
Calcium	-				479	J	ug/l	5000	-				54300	J	ug/l	5000
Chromium	-				2	U	ug/l	10	-				2	U	ug/l	10
Cobalt	-				2	U	ug/l	50	-				2	U	ug/l	50
Copper	-				2	U	ug/l	25	-				2	U	ug/l	25
Iron	-				2510		ug/l	100	-				299		ug/l	100
Lead	-				1	U	ug/l	3	-				1	U	ug/l	3
Magnesium	-				480		ug/l	5000	-				26200		ug/l	5000
Manganese	-				21.6		ug/l	15	-				45.5		ug/l	15
Mercury	-				.2	U	ug/l	.2	-				.2	U	ug/l	.2
Nickel	-				2	U	ug/l	40	-				2	U	ug/l	40
Potassium	-				173		ug/l	5000	-				939		ug/l	5000
Selenium	-				4	U	ug/l	5	-				4	U	ug/l	5
Silver	-				1	U	ug/l	10	-				1	U	ug/l	10
Sodium	-				5570		ug/l	5000	-				8620		ug/l	5000
Thallium	-				6	U	ug/l	10	-				6	U	ug/l	10
Vanadium	-				1	U	ug/l	50	-				1	U	ug/l	50
Zinc	-				11.6	U	ug/l	20	-				6.4	U	ug/l	20
Cyanide	10	UJ	ug/l	10	10	UJ	ug/l	10	10	UJ	ug/l	10	10	UJ	ug/l	10

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NAS CECIL FIELD -- OPERABLE UNIT 7 -- SITE 16
GROUNDWATER -- METALS AND CYANIDE

Lab Sample Number:	Q0050C				Q0044				Q0044C				Q0043			
Site	CECIL7				CECIL7				CECIL7				CECIL7			
Locator	CF16MW37DC				CF16MW38S				CF16MW38SC				CF16MW39I			
Collect Date:	01-AUG-94				31-JUL-94				31-JUL-94				31-JUL-94			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP METALS AND CYANIDE																
Aluminum	-				443		ug/l	200	-				123	U	ug/l	200
Antimony	-				2	U	ug/l	60	-				2	U	ug/l	60
Arsenic	-				3	U	ug/l	10	-				5		ug/l	10
Barium	-				14.7		ug/l	200	-				16.8		ug/l	200
Beryllium	-				1	U	ug/l	5	-				1	U	ug/l	5
Cadmium	-				1	U	ug/l	5	-				1	U	ug/l	5
Calcium	-				7770	J	ug/l	5000	-				603	J	ug/l	5000
Chromium	-				2	U	ug/l	10	-				2	U	ug/l	10
Cobalt	-				2	U	ug/l	50	-				2	U	ug/l	50
Copper	-				2	U	ug/l	25	-				2	U	ug/l	25
Iron	-				363		ug/l	100	-				5180		ug/l	100
Lead	-				1	U	ug/l	3	-				1	U	ug/l	3
Magnesium	-				254		ug/l	5000	-				843		ug/l	5000
Manganese	-				5.5		ug/l	15	-				9.7		ug/l	15
Mercury	-				.2	U	ug/l	.2	-				.2	U	ug/l	.2
Nickel	-				2	U	ug/l	40	-				2	U	ug/l	40
Potassium	-				321		ug/l	5000	-				333		ug/l	5000
Selenium	-				4	U	ug/l	5	-				4	U	ug/l	5
Silver	-				1	U	ug/l	10	-				1	U	ug/l	10
Sodium	-				13000		ug/l	5000	-				5860		ug/l	5000
Thallium	-				6.3		ug/l	10	-				6	U	ug/l	10
Vanadium	-				5.6		ug/l	50	-				1	U	ug/l	50
Zinc	-				14.6	U	ug/l	20	-				67.2	J	ug/l	20
Cyanide	10	UJ	ug/l	10	10	UJ	ug/l	10	10	UJ	ug/l	10	10	UJ	ug/l	10

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NAS CECIL FIELD -- OPERABLE UNIT 7 -- SITE 16
GROUNDWATER -- METALS AND CYANIDE

Lab Sample Number:	Q0043C				Q0041				Q0041C				Q0042			
Site	CECIL7				CECIL7				CECIL7				CECIL7			
Locator	CF16MW39IC				CF16MW40D				CF16MW40DC				CF16MW40DD			
Collect Date:	31-JUL-94				31-JUL-94				31-JUL-94				31-JUL-94			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP METALS AND CYANIDE																
Aluminum	-				251		ug/l	200	-				80.1	U	ug/l	200
Antimony	-				2	U	ug/l	60	-				2	U	ug/l	60
Arsenic	-				3.4		ug/l	10	-				3	U	ug/l	10
Barium	-				35.2		ug/l	200	-				34.3		ug/l	200
Beryllium	-				1	U	ug/l	5	-				1	U	ug/l	5
Cadmium	-				1	U	ug/l	5	-				1	U	ug/l	5
Calcium	-				55300	J	ug/l	5000	-				54100	J	ug/l	5000
Chromium	-				2	U	ug/l	10	-				2	U	ug/l	10
Cobalt	-				2	U	ug/l	50	-				2	U	ug/l	50
Copper	-				4.2		ug/l	25	-				2.7		ug/l	25
Iron	-				303		ug/l	100	-				239		ug/l	100
Lead	-				1	U	ug/l	3	-				1	U	ug/l	3
Magnesium	-				28100		ug/l	5000	-				27600		ug/l	5000
Manganese	-				49.9		ug/l	15	-				47.9		ug/l	15
Mercury	-				.2	U	ug/l	.2	-				.2	U	ug/l	.2
Nickel	-				2	U	ug/l	40	-				2		ug/l	40
Potassium	-				737		ug/l	5000	-				716		ug/l	5000
Selenium	-				4	U	ug/l	5	-				4	U	ug/l	5
Silver	-				1	U	ug/l	10	-				1	U	ug/l	10
Sodium	-				7020		ug/l	5000	-				6880		ug/l	5000
Thallium	-				6	U	ug/l	10	-				6	U	ug/l	10
Vanadium	-				1	U	ug/l	50	-				1	U	ug/l	50
Zinc	-				38.8	J	ug/l	20	-				22.5	U	ug/l	20
Cyanide	10	UJ	ug/l	10	10	UJ	ug/l	10	10	UJ	ug/l	10	10	UJ	ug/l	10

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NAS CECIL FIELD -- OPERABLE UNIT 7 -- SITE 16
GROUNDWATER -- METALS AND CYANIDE

Lab Sample Number:		Q0042C		
Site		CECIL7		
Locator		CF16MW40DDC		
Collect Date:		31-JUL-94		
	VALUE	QUAL UNITS		DL
CLP METALS AND CYANIDE				
Aluminum	*			
Antimony	*			
Arsenic	*			
Barium	*			
Beryllium	*			
Cadmium	*			
Calcium	*			
Chromium	*			
Cobalt	*			
Copper	*			
Iron	*			
Lead	*			
Magnesium	*			
Manganese	*			
Mercury	*			
Nickel	*			
Potassium	*			
Selenium	*			
Silver	*			
Sodium	*			
Thallium	*			
Vanadium	*			
Zinc	*			
Cyanide	10	UJ	ug/l	10

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NAS CECIL FIELD -- OPERABLE UNIT 7 -- SITE 16
GROUNDWATER -- GENERAL CHEMISTRY

Lab Sample Number:	Q4191				Q3486				Q4193				Q3482			
Site	CECIL7				CECIL7				CECIL7				CECIL7			
Locator	CF16MW5S				CF16MW7S				CF16MW9D				CF16MW10S			
Collect Date:	11-AUG-94				10-AUG-94				11-AUG-94				10-AUG-94			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
Alkalinity, Bicarbonate	32		mg/l	10	36		mg/l	10	33		mg/l	10	130		mg/l	10
Alkalinity, Carbonate	10	U	mg/l	10	10	U	mg/l	10	10	U	mg/l	10	10	U	mg/l	10
Alkalinity, Total	32		mg/l	10	36		mg/l	10	33		mg/l	10	130		mg/l	10
Chloride	4		mg/l	2	10		mg/l	2	9		mg/l	2	18		mg/l	2
Hexavalent chromium	.04	UJ	mg/l	.04	.02	U	mg/l	.02	.02	UJ	mg/l	.02	.02	U	mg/l	.02
Hardness	48		mg/l	5	48		mg/l	5	24		mg/l	5	100		mg/l	5
Sulfate	11		mg/l	5	18		mg/l	5	5	U	mg/l	5	32		mg/l	5
Sulfide	1		mg/l	1	1	U	mg/l	1	1	U	mg/l	1	1		mg/l	1
Total Dissolved Solids	34		mg/l	10	150		mg/l	10	50		mg/l	10	390		mg/l	20
Total petroleum hydrocarbons	.5	U	mg/l	.5	.5	U	mg/l	.5	.5	U	mg/l	.5	.5	U	mg/l	.5
Total organic carbon	-		mg/l		-		mg/l		2		mg/l	1	15		mg/l	1

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NAS CECIL FIELD -- OU LE UNIT 7 -- SITE 16
GROUNDWATER -- GENERAL CHEMISTRY

Lab Sample Number:	Q3485				Q3492				Q4195				A00F9			
Site	CECIL7				CECIL7				CECIL7				CECIL7			
Locator	CF16MW10SD				CF16MW11DD				CF16MW12I				CF16MW12IR			
Collect Date:	10-AUG-94				10-AUG-94				11-AUG-94				16-AUG-94			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
Alkalinity, Bicarbonate	120		mg/l	10	260		mg/l	10	15		mg/l	10	10	U	mg/l	10
Alkalinity, Carbonate	10	U	mg/l	10	10	U	mg/l	10	10	U	mg/l	10	10	U	mg/l	10
Alkalinity, Total	120		mg/l	10	260		mg/l	10	15		mg/l	10	10	U	mg/l	10
Chloride	24		mg/l	2	10		mg/l	2	8		mg/l	2	2	U	mg/l	2
Hexavalent chromium	.02	U	mg/l	.02	.02	U	mg/l	.02	.02	UJ	mg/l	.02	.02	U	mg/l	.02
Hardness	92		mg/l	5	250		mg/l	5	5	U	mg/l	5	5	U	mg/l	5
Sulfate	32		mg/l	5	5	U	mg/l	5	7		mg/l	5	5	U	mg/l	5
Sulfide	1		mg/l	1	1	U	mg/l	1	1	U	mg/l	1	1	U	mg/l	1
Total Dissolved Solids	330		mg/l	20	270		mg/l	10	46		mg/l	10	23		mg/l	10
Total petroleum hydrocarbons	.5	U	mg/l	.5	.5		mg/l	.5	.5	U	mg/l	.5	.5	U	mg/l	.5
Total organic carbon	14		mg/l	1	3		mg/l	1	-		mg/l		-		mg/l	

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NAS CECIL FIELD -- OPERABLE UNIT 7 -- SITE 16
GROUNDWATER -- GENERAL CHEMISTRY

Lab Sample Number:	P4918				P4920				P4919				P9349			
Site	CECIL7				CECIL7				CECIL7				CECIL7			
Locator	CF16MW13S				CF16MW14D				CF16MW15S				CF16MW16D			
Collect Date:	17-JUL-94				17-JUL-94				17-JUL-94				29-JUL-94			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
Alkalinity, Bicarbonate	10	U	mg/l	10	52		mg/l	10	88		mg/l	10	48		mg/l	10
Alkalinity, Carbonate	10	U	mg/l	10	10	U	mg/l	10	10	U	mg/l	10	10	U	mg/l	10
Alkalinity, Total	10	U	mg/l	10	52		mg/l	10	88		mg/l	10	48		mg/l	10
Chloride	5	J	mg/l	2	8	J	mg/l	2	3	J	mg/l	2	12		mg/l	2
Hexavalent chromium	-		mg/l		-		mg/l		-		mg/l		.02	U	mg/l	.02
Hardness	25	U	mg/l	25	30	J	mg/l	5	76	J	mg/l	5	42		mg/l	5
Sulfate	15		mg/l	5	7		mg/l	5	10		mg/l	5	5	U	mg/l	5
Sulfide	2		mg/l	1	1		mg/l	1	1	U	mg/l	1	1	U	mg/l	1
Total Dissolved Solids	80		mg/l	10	92		mg/l	10	120		mg/l	10	99		mg/l	10
Total petroleum hydrocarbons	.5	U	mg/l	.5	.5	U	mg/l	.5	1.3		mg/l	.5	.5	U	mg/l	.5
Total organic carbon	-		mg/l		-		mg/l		-		mg/l		-		mg/l	

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NAS CECIL FIELD -- OP[illegible]LE UNIT 7 -- SITE 16
GROUNDWATER -- GENERAL CHEMISTRY

Lab Sample Number:	P4915				P3786				P9350				A00FA			
Site	CECIL7				CECIL7				CECIL7				CECIL7			
Locator	CF16MW17S				CF16MW18D				CF16MW19S				CF16MW20D			
Collect Date:	17-JUL-94				14-JUL-94				29-JUL-94				16-AUG-94			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
Alkalinity, Bicarbonate	10	U	mg/l	10	200		mg/l	10	10	U	mg/l	10	48		mg/l	10
Alkalinity, Carbonate	10	U	mg/l	10	10	U	mg/l	10	10	U	mg/l	10	10	U	mg/l	10
Alkalinity, Total	10	U	mg/l	10	200		mg/l	10	10	U	mg/l	10	48		mg/l	10
Chloride	6	J	mg/l	2	8	J	mg/l	2	4		mg/l	2	10		mg/l	2
Hexavalent chromium	-		mg/l		.02	U	mg/l	.02	.02	U	mg/l	.02	.02	U	mg/l	.02
Hardness	30	J	mg/l	5	180	J	mg/l	5	10		mg/l	5	80		mg/l	5
Sulfate	12		mg/l	5	5	U	mg/l	5	12		mg/l	5	5	U	mg/l	5
Sulfide	1		mg/l	1	1	U	mg/l	1	1		mg/l	1	1	U	mg/l	1
Total Dissolved Solids	52		mg/l	10	210		mg/l	10	69		mg/l	10	97		mg/l	10
Total petroleum hydrocarbons	.5	U	mg/l	.5	.5	U	mg/l	.5	.5	U	mg/l	.5	1.4		mg/l	.5
Total organic carbon	21		mg/l	1	1	U	mg/l	1	-		mg/l		-		mg/l	

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NAS CECIL FIELD -- OPERABLE UNIT 7 -- SITE 16
GROUNDWATER -- GENERAL CHEMISTRY

Lab Sample Number:	P4921				P4922				P9351				P9352			
Site	CECIL7				CECIL7				CECIL7				CECIL7			
Locator	CF16MW21S				CF16MW21SDD				CF16MW22I				CF16MW22IR			
Collect Date:	18-JUL-94				18-JUL-94				29-JUL-94				29-JUL-94			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
Alkalinity, Bicarbonate	10	U	mg/l	10	10	U	mg/l	10	10	U	mg/l	10	10	U	mg/l	10
Alkalinity, Carbonate	10	U	mg/l	10	10	U	mg/l	10	10	U	mg/l	10	10	U	mg/l	10
Alkalinity, Total	10	U	mg/l	10	10	U	mg/l	10	10	U	mg/l	10	10	U	mg/l	10
Chloride	12	J	mg/l	2	12	J	mg/l	2	7		mg/l	2	2	U	mg/l	2
Hexavalent chromium	.1	U	mg/l	.1	.1	U	mg/l	.1	.02	U	mg/l	.02	.02	U	mg/l	.02
Hardness	25	U	mg/l	25	25	U	mg/l	25	5	U	mg/l	5	5	U	mg/l	5
Sulfate	66		mg/l	5	64		mg/l	5	5		mg/l	5	5	U	mg/l	5
Sulfide	2		mg/l	1	2		mg/l	1	1	U	mg/l	1	1		mg/l	1
Total Dissolved Solids	150		mg/l	10	120		mg/l	10	48		mg/l	10	12	*	mg/l	10
Total petroleum hydrocarbons	.5	U	mg/l	.5	.5	U	mg/l	.5	.5	U	mg/l	.5	.5	U	mg/l	.5
Total organic carbon	-		mg/l		-		mg/l		-		mg/l		-		mg/l	

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UJ = REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED
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NAS CECIL FIELD -- OPERABLE UNIT 7 -- SITE 16
GROUNDWATER -- GENERAL CHEMISTRY

Lab Sample Number:	P6110				P3203				P3195				P3187			
Site	CECIL7				CECIL7				CECIL7				CECIL7			
Locator	CF16MW23D				CF16MW24S				CF16MW25D				CF16MW26DD			
Collect Date:	20-JUL-94				13-JUL-94				13-JUL-94				13-JUL-94			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
Alkalinity, Bicarbonate	240		mg/l	10	10	U	mg/l	10	260		mg/l	10	230		mg/l	10
Alkalinity, Carbonate	10	U	mg/l	10	10	U	mg/l	10	10	U	mg/l	10	10	U	mg/l	10
Alkalinity, Total	240		mg/l	10	10	U	mg/l	10	260		mg/l	10	230		mg/l	10
Chloride	16	J	mg/l	2	34	J	mg/l	2	9	J	mg/l	2	10	J	mg/l	2
Hexavalent chromium	.02	U	mg/l	.02	.02	U	mg/l	.02	.02	U	mg/l	.02	.02	U	mg/l	.02
Hardness	250	J	mg/l	5	60	J	mg/l	12	260	J	mg/l	5	230	J	mg/l	5
Sulfate	5	U	mg/l	5	26		mg/l	5	5	U	mg/l	5	5	U	mg/l	5
Sulfide	1	U	mg/l	1	1	U	mg/l	1	1	U	mg/l	1	1	U	mg/l	1
Total Dissolved Solids	260		mg/l	10	86		mg/l	10	280		mg/l	10	260		mg/l	10
Total petroleum hydrocarbons	.5	U	mg/l	.5	.5	U	mg/l	.5	.5		mg/l	.5	.5	U	mg/l	.5
Total organic carbon	-		mg/l		-		mg/l		-		mg/l		-		mg/l	

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NAS CECIL FIELD -- OPERABLE UNIT 7 -- SITE 16
GROUNDWATER -- GENERAL CHEMISTRY

Lab Sample Number:	Q2343				Q2346				Q2348				Q0250			
Site	CECIL7				CECIL7				CECIL7				CECIL7			
Locator	CF16MW27I				CF16MW28D				CF16MW28DD				CF16MW29S			
Collect Date:	08-AUG-94				08-AUG-94				08-AUG-94				02-AUG-94			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
Alkalinity, Bicarbonate	16		mg/l	10	260		mg/l	10	250		mg/l	10	10	U	mg/l	10
Alkalinity, Carbonate	10	U	mg/l	10	10	U	mg/l	10	10	U	mg/l	10	10	U	mg/l	10
Alkalinity, Total	16		mg/l	10	260		mg/l	10	250		mg/l	10	10	U	mg/l	10
Chloride	4	J	mg/l	2	13	J	mg/l	2	12	J	mg/l	2	85	J	mg/l	2
Hexavalent chromium	.02	U	mg/l	.02	.02	U	mg/l	.02	.02	U	mg/l	.02	1	UJ	mg/l	1
Hardness	6		mg/l	5	240		mg/l	5	240		mg/l	5	120	U	mg/l	120
Sulfate	9		mg/l	5	5	U	mg/l	5	5	U	mg/l	5	78		mg/l	5
Sulfide	1		mg/l	1	1		mg/l	1	1		mg/l	1	1	U	mg/l	1
Total Dissolved Solids	39		mg/l	10	290		mg/l	10	270		mg/l	10	180		mg/l	50
Total petroleum hydrocarbons	.5	U	mg/l	.5	.5	U	mg/l	.5	.5	U	mg/l	.5	.5	U	mg/l	.5
Total organic carbon	3		mg/l	1	-		mg/l		-		mg/l		3		mg/l	1

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NAS CECIL FIELD -- OPERABLE UNIT 7 -- SITE 16
GROUNDWATER -- GENERAL CHEMISTRY

Lab Sample Number:	Q0253				Q0248				Q2349				Q2902			
Site	CECIL7				CECIL7				CECIL7				CECIL7			
Locator	CF16MW30D				CF16MW31DD				CF16MW32S				CF16MW33D			
Collect Date:	02-AUG-94				02-AUG-94				08-AUG-94				09-AUG-94			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
Alkalinity, Bicarbonate	130		mg/l	10	250		mg/l	10	17		mg/l	10	250		mg/l	10
Alkalinity, Carbonate	10	U	mg/l	10	10	U	mg/l	10	10	U	mg/l	10	10	U	mg/l	10
Alkalinity, Total	130		mg/l	10	250		mg/l	10	17		mg/l	10	250		mg/l	10
Chloride	10	J	mg/l	2	15	J	mg/l	2	6	J	mg/l	2	10		mg/l	2
Hexavalent chromium	.02	UJ	mg/l	.02	.02	UJ	mg/l	.02	.02	U	mg/l	.02	.02	U	mg/l	.02
Hardness	120		mg/l	5	260		mg/l	5	22		mg/l	5	230		mg/l	5
Sulfate	5	U	mg/l	5	11		mg/l	5	5		mg/l	5	5	U	mg/l	5
Sulfide	1		mg/l	1	1		mg/l	1	1		mg/l	1	1	U	mg/l	1
Total Dissolved Solids	140		mg/l	10	260		mg/l	10	50		mg/l	10	260		mg/l	10
Total petroleum hydrocarbons	.5	U	mg/l	.5	.5		mg/l	.5	.5	U	mg/l	.5	.5	U	mg/l	.5
Total organic carbon	1		mg/l	1	4		mg/l	1	-		mg/l		-		mg/l	

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NAS CECIL FIELD -- OPERABLE UNIT 7 -- SITE 16
GROUNDWATER -- GENERAL CHEMISTRY

Lab Sample Number:	Q3476				Q2901				Q0246				Q0089			
Site	CECIL7				CECIL7				CECIL7				CECIL7			
Locator	CF16MW33DR				CF16MW34DD				CF16MW35S				CF16MW36I			
Collect Date:	10-AUG-94				09-AUG-94				02-AUG-94				01-AUG-94			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
Alkalinity, Bicarbonate	10	U	mg/l	10	250		mg/l	10	15		mg/l	10	10	U	mg/l	10
Alkalinity, Carbonate	10	U	mg/l	10	10	U	mg/l	10	10	U	mg/l	10	10	U	mg/l	10
Alkalinity, Total	10	U	mg/l	10	250		mg/l	10	15		mg/l	10	10	U	mg/l	10
Chloride	2	U	mg/l	2	11		mg/l	2	30	J	mg/l	2	9		mg/l	2
Hexavalent chromium	.02	U	mg/l	.02	.02	U	mg/l	.02	.1	UJ	mg/l	.1	.02	U	mg/l	.02
Hardness	5	U	mg/l	5	250		mg/l	5	25	U	mg/l	25	5	U	mg/l	5
Sulfate	5	U	mg/l	5	21		mg/l	5	35		mg/l	5	5	U	mg/l	5
Sulfide	1	U	mg/l	1	1	U	mg/l	1	2		mg/l	1	1		mg/l	1
Total Dissolved Solids	10	U	mg/l	10	280		mg/l	10	180		mg/l	10	34		mg/l	10
Total petroleum hydrocarbons	.5	U	mg/l	.5	.5	U	mg/l	.5	.9		mg/l	.5	.5	U	mg/l	.5
Total organic carbon	-		mg/l		-		mg/l		-		mg/l		-		mg/l	

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NAS CECIL FIELD -- OPERABLE UNIT 7 -- SITE 16
GROUNDWATER -- GENERAL CHEMISTRY

Lab Sample Number:	Q0100				Q0088				Q0085				Q0077			
Site	CECIL7				CECIL7				CECIL7				CECIL7			
Locator	CF16MW37D				CF16MW38S				CF16MW39I				CF16MW40D			
Collect Date:	01-AUG-94				31-JUL-94				31-JUL-94				31-JUL-94			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
Alkalinity, Bicarbonate	250		mg/l	10	32		mg/l	10	10		mg/l	10	250		mg/l	10
Alkalinity, Carbonate	10	U	mg/l	10	10	U	mg/l	10	10	U	mg/l	10	10	U	mg/l	10
Alkalinity, Total	250		mg/l	10	32		mg/l	10	10		mg/l	10	250		mg/l	10
Chloride	12		mg/l	2	13		mg/l	2	9		mg/l	2	9		mg/l	2
Hexavalent chromium	.02	U	mg/l	.02	-		mg/l		-		mg/l		-		mg/l	
Hardness	-		mg/l		50	U	mg/l	50	5	U	mg/l	5	230		mg/l	5
Sulfate	5	U	mg/l	5	17		mg/l	5	5	U	mg/l	5	5	U	mg/l	5
Sulfide	-		mg/l		1		mg/l	1	1		mg/l	1	2		mg/l	1
Total Dissolved Solids	260		mg/l	10	82		mg/l	10	31		mg/l	10	260		mg/l	10
Total petroleum hydrocarbons	-		mg/l		.5	U	mg/l	.5	.5	U	mg/l	.5	.5	U	mg/l	.5
Total organic carbon	-		mg/l		-		mg/l		2		mg/l	1	-		mg/l	

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NAS CECIL FIELD -- OPERABLE UNIT 7 -- SITE 16
GROUNDWATER -- GENERAL CHEMISTRY

Lab Sample Number:	Q0082				P3208				P3210			
Site	CECIL7				CECIL7				CECIL7			
Locator	CF16MW40DD				CF16OF				CF16SC			
Collect Date:	31-JUL-94				13-JUL-94				13-JUL-94			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
Alkalinity, Bicarbonate	260		mg/l	10	10	U	mg/l	10	110		mg/l	10
Alkalinity, Carbonate	10	U	mg/l	10	10	U	mg/l	10	10	U	mg/l	10
Alkalinity, Total	260		mg/l	10	10	U	mg/l	10	110		mg/l	10
Chloride	10		mg/l	2	2	UJ	mg/l	2	7	J	mg/l	2
Hexavalent chromium	-		mg/l		.02	U	mg/l	.02	.02	U	mg/l	.02
Hardness	220		mg/l	5	5	U	mg/l	5	120	J	mg/l	5
Sulfate	5	U	mg/l	5	5	U	mg/l	5	25		mg/l	5
Sulfide	1	U	mg/l	1	1	U	mg/l	1	1	U	mg/l	1
Total Dissolved Solids	250		mg/l	10	10	U	mg/l	10	170		mg/l	10
Total petroleum hydrocarbons	.5	U	mg/l	.5	.5	U	mg/l	.5	.5	U	mg/l	.5
Total organic carbon	-		mg/l		1	U	mg/l	1	1	U	mg/l	1

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NAS CECIL FIELD -- OPERABLE UNIT 7 -- SITE 16
SURFACE SOIL -- VOLATILES

Lab Sample Number:	Q4540				Q4541				Q4542				Q4543			
Site	CECIL7				CECIL7				CECIL7				CECIL7			
Locator	CF16SS1				CF16SS2				CF16SS3				CF16SS4			
Collect Date:	12-AUG-94				12-AUG-94				12-AUG-94				12-AUG-94			
	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	12	U	ug/kg	12	11	U	ug/kg	11	11	U	ug/kg	11
Bromomethane	11	U	ug/kg	11	12	U	ug/kg	12	11	U	ug/kg	11	11	U	ug/kg	11
Vinyl chloride	11	U	ug/kg	11	12	U	ug/kg	12	11	U	ug/kg	11	11	U	ug/kg	11
Chloroethane	11	U	ug/kg	11	12	U	ug/kg	12	11	U	ug/kg	11	11	U	ug/kg	11
Methylene chloride	5	U	ug/kg	5	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6
Acetone	12	U	ug/kg	12	12	U	ug/kg	12	11	U	ug/kg	11	19	U	ug/kg	19
Carbon disulfide	5	U	ug/kg	5	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6
1,1-Dichloroethene	5	U	ug/kg	5	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6
1,1-Dichloroethane	5	U	ug/kg	5	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6
1,2-Dichloroethene (total)	5	U	ug/kg	5	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6
Chloroform	5	U	ug/kg	5	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6
1,2-Dichloroethane	5	U	ug/kg	5	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6
2-Butanone	11	U	ug/kg	11	12	U	ug/kg	12	11	U	ug/kg	11	11	U	ug/kg	11
1,1,1-Trichloroethane	5	U	ug/kg	5	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6
Carbon tetrachloride	5	U	ug/kg	5	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6
Bromodichloromethane	5	U	ug/kg	5	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6
1,2-Dichloropropane	5	U	ug/kg	5	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6
cis-1,3-Dichloropropene	5	U	ug/kg	5	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6
Trichloroethene	5	U	ug/kg	5	33		ug/kg	12	150		ug/kg	11	6	U	ug/kg	6
Dibromochloromethane	5	U	ug/kg	5	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6
1,1,2-Trichloroethane	5	U	ug/kg	5	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6
Benzene	5	U	ug/kg	5	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6
trans-1,3-Dichloropropene	5	U	ug/kg	5	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6
Bromoform	5	U	ug/kg	5	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6
4-Methyl-2-pentanone	11	U	ug/kg	11	12	U	ug/kg	12	11	U	ug/kg	11	11	U	ug/kg	11
2-Hexanone	11	U	ug/kg	11	12	U	ug/kg	12	11	U	ug/kg	11	11	U	ug/kg	11
Tetrachloroethene	5	U	ug/kg	5	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6
Toluene	5	U	ug/kg	5	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6
1,1,2,2-Tetrachloroethane	5	U	ug/kg	5	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6
Chlorobenzene	5	U	ug/kg	5	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6
Ethylbenzene	5	U	ug/kg	5	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6
Styrene	5	U	ug/kg	5	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6
Xylenes (total)	5	U	ug/kg	5	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6

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NAS CECIL FIELD -- OH. .LE UNIT 7 -- SITE 16
SURFACE SOIL -- VOLATILES

Lab Sample Number:	Q4544			Q4545			Q4546			Q4547		
Site	CECIL7			CECIL7			CECIL7			CECIL7		
Locator	CF16SS5			CF16SS6			CF16SS7			CF16SS8		
Collect Date:	12-AUG-94			12-AUG-94			12-AUG-94			12-AUG-94		
	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	11	U ug/kg	11	11	U ug/kg	11	11	U ug/kg	11
Bromomethane	11	U ug/kg	11	11	U ug/kg	11	11	U ug/kg	11	11	U ug/kg	11
Vinyl chloride	11	U ug/kg	11	11	U ug/kg	11	11	U ug/kg	11	11	U ug/kg	11
Chloroethane	11	U ug/kg	11	11	U ug/kg	11	11	U ug/kg	11	11	U ug/kg	11
Methylene chloride	6	U ug/kg	6	6	U ug/kg	6	6	U ug/kg	6	6	U ug/kg	6
Acetone	11	U ug/kg	11	11	U ug/kg	11	11	U ug/kg	11	11	U ug/kg	11
Carbon disulfide	6	U ug/kg	6	6	U ug/kg	6	6	U ug/kg	6	6	U ug/kg	6
1,1-Dichloroethene	6	U ug/kg	6	6	U ug/kg	6	6	U ug/kg	6	6	U ug/kg	6
1,1-Dichloroethane	6	U ug/kg	6	6	U ug/kg	6	6	U ug/kg	6	6	U ug/kg	6
1,2-Dichloroethane (total)	6	U ug/kg	6	6	U ug/kg	6	6	U ug/kg	6	8	ug/kg	11
Chloroform	6	U ug/kg	6	6	U ug/kg	6	6	U ug/kg	6	6	U ug/kg	6
1,2-Dichloroethane	6	U ug/kg	6	6	U ug/kg	6	6	U ug/kg	6	6	U ug/kg	6
2-Butanone	11	U ug/kg	11	11	U ug/kg	11	11	U ug/kg	11	11	U ug/kg	11
1,1,1-Trichloroethane	6	U ug/kg	6	6	U ug/kg	6	6	U ug/kg	6	6	U ug/kg	6
Carbon tetrachloride	6	U ug/kg	6	6	U ug/kg	6	6	U ug/kg	6	6	U ug/kg	6
Bromodichloromethane	6	U ug/kg	6	6	U ug/kg	6	6	U ug/kg	6	6	U ug/kg	6
1,2-Dichloropropane	6	U ug/kg	6	6	U ug/kg	6	6	U ug/kg	6	6	U ug/kg	6
cis-1,3-Dichloropropene	6	U ug/kg	6	6	U ug/kg	6	6	U ug/kg	6	6	U ug/kg	6
Trichloroethene	6	U ug/kg	6	3	J ug/kg	11	6	U ug/kg	6	70	ug/kg	11
Dibromochloromethane	6	U ug/kg	6	6	U ug/kg	6	6	U ug/kg	6	6	U ug/kg	6
1,1,2-Trichloroethane	6	U ug/kg	6	6	U ug/kg	6	6	U ug/kg	6	6	U ug/kg	6
Benzene	6	U ug/kg	6	6	U ug/kg	6	6	U ug/kg	6	6	U ug/kg	6
trans-1,3-Dichloropropene	6	U ug/kg	6	6	U ug/kg	6	6	U ug/kg	6	6	U ug/kg	6
Bromoform	6	U ug/kg	6	6	U ug/kg	6	6	U ug/kg	6	6	U ug/kg	6
4-Methyl-2-pentanone	11	U ug/kg	11	11	U ug/kg	11	11	U ug/kg	11	11	U ug/kg	11
2-Hexanone	11	U ug/kg	11	11	U ug/kg	11	11	U ug/kg	11	11	U ug/kg	11
Tetrachloroethene	6	U ug/kg	6	6	U ug/kg	6	6	U ug/kg	6	6	U ug/kg	6
Toluene	6	U ug/kg	6	6	U ug/kg	6	6	U ug/kg	6	6	U ug/kg	6
1,1,2,2-Tetrachloroethane	6	U ug/kg	6	6	U ug/kg	6	6	U ug/kg	6	6	U ug/kg	6
Chlorobenzene	6	U ug/kg	6	6	U ug/kg	6	6	U ug/kg	6	6	U ug/kg	6
Ethylbenzene	6	U ug/kg	6	6	U ug/kg	6	6	U ug/kg	6	6	U ug/kg	6
Styrene	6	U ug/kg	6	6	U ug/kg	6	6	U ug/kg	6	6	U ug/kg	6
Xylenes (total)	6	U ug/kg	6	6	U ug/kg	6	6	U ug/kg	6	6	U ug/kg	6

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NAS CECIL FIELD -- OPERABLE UNIT 7 -- SITE 16
SURFACE SOIL -- VOLATILES

Lab Sample Number:	Q4548				Q4549				Q4550				Q4538			
Site	CECIL7				CECIL7				CECIL7				CECIL7			
Locator	CF16SS8D				CF16SS9				CF16SS10				CF16SS1R			
Collect Date:	12-AUG-94				12-AUG-94				12-AUG-94				12-AUG-94			
	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	11	U	ug/kg	11	11	U	ug/kg	11	2	U	ug/l	2
Bromomethane	11	U	ug/kg	11	11	U	ug/kg	11	11	U	ug/kg	11	2	U	ug/l	2
Vinyl chloride	11	U	ug/kg	11	11	U	ug/kg	11	11	U	ug/kg	11	2	U	ug/l	2
Chloroethane	11	U	ug/kg	11	11	U	ug/kg	11	11	U	ug/kg	11	2	U	ug/l	2
Methylene chloride	5	U	ug/kg	5	6	U	ug/kg	6	5	U	ug/kg	5	1	U	ug/l	1
Acetone	11	U	ug/kg	11	11	U	ug/kg	11	11	U	ug/kg	11	2	U	ug/l	2
Carbon disulfide	5	U	ug/kg	5	6	U	ug/kg	6	5	U	ug/kg	5	1	U	ug/l	1
1,1-Dichloroethene	5	U	ug/kg	5	6	U	ug/kg	6	5	U	ug/kg	5	1	U	ug/l	1
1,1-Dichloroethane	5	U	ug/kg	5	6	U	ug/kg	6	5	U	ug/kg	5	1	U	ug/l	1
1,2-Dichloroethene (total)	5		ug/kg	11	6	U	ug/kg	6	5	U	ug/kg	5	1	U	ug/l	1
Chloroform	5	U	ug/kg	5	6	U	ug/kg	6	5	U	ug/kg	5	1	U	ug/l	1
1,2-Dichloroethane	5	U	ug/kg	5	6	U	ug/kg	6	5	U	ug/kg	5	1	U	ug/l	1
2-Butanone	11	U	ug/kg	11	11	U	ug/kg	11	11	U	ug/kg	11	2	U	ug/l	2
1,1,1-Trichloroethane	5	U	ug/kg	5	6	U	ug/kg	6	5	U	ug/kg	5	1	U	ug/l	1
Carbon tetrachloride	5	U	ug/kg	5	6	U	ug/kg	6	5	U	ug/kg	5	1	U	ug/l	1
Bromodichloromethane	5	U	ug/kg	5	6	U	ug/kg	6	5	U	ug/kg	5	1	U	ug/l	1
1,2-Dichloropropane	5	U	ug/kg	5	6	U	ug/kg	6	5	U	ug/kg	5	1	U	ug/l	1
cis-1,3-Dichloropropene	5	U	ug/kg	5	6	U	ug/kg	6	5	U	ug/kg	5	1	U	ug/l	1
Trichloroethene	48		ug/kg	11	8		ug/kg	11	6		ug/kg	11	1	U	ug/l	1
Dibromochloromethane	5	U	ug/kg	5	6	U	ug/kg	6	5	U	ug/kg	5	1	U	ug/l	1
1,1,2-Trichloroethane	5	U	ug/kg	5	6	U	ug/kg	6	5	U	ug/kg	5	1	U	ug/l	1
Benzene	5	U	ug/kg	5	6	U	ug/kg	6	5	U	ug/kg	5	1	U	ug/l	1
trans-1,3-Dichloropropene	5	U	ug/kg	5	6	U	ug/kg	6	5	U	ug/kg	5	1	U	ug/l	1
Bromoform	5	U	ug/kg	5	6	U	ug/kg	6	5	U	ug/kg	5	1	U	ug/l	1
4-Methyl-2-pentanone	11	U	ug/kg	11	11	U	ug/kg	11	11	U	ug/kg	11	2	U	ug/l	2
2-Hexanone	11	U	ug/kg	11	11	U	ug/kg	11	11	U	ug/kg	11	2	R	ug/l	2
Tetrachloroethene	5	U	ug/kg	5	6	U	ug/kg	6	5	U	ug/kg	5	1	U	ug/l	1
Toluene	5	U	ug/kg	5	6	U	ug/kg	6	5	U	ug/kg	5	1	U	ug/l	1
1,1,2,2-Tetrachloroethane	5	U	ug/kg	5	6	U	ug/kg	6	5	U	ug/kg	5	1	U	ug/l	1
Chlorobenzene	5	U	ug/kg	5	6	U	ug/kg	6	5	U	ug/kg	5	1	U	ug/l	1
Ethylbenzene	5	U	ug/kg	5	6	U	ug/kg	6	5	U	ug/kg	5	1	U	ug/l	1
Styrene	5	U	ug/kg	5	6	U	ug/kg	6	5	U	ug/kg	5	1	U	ug/l	1
Xylenes (total)	5	U	ug/kg	5	6	U	ug/kg	6	5	U	ug/kg	5	1	U	ug/l	1

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

NAS CECIL FIELD -- OPL LE UNIT 7 -- SITE 16
SURFACE SOIL -- VOLATILES

Lab Sample Number:	Q4539				Q4541MS				Q4541MSD			
Site	CECIL7				CECIL7				CECIL7			
Locator	CF16SS1T				CF16SS2MS				CF16SS2MSD			
Collect Date:	12-AUG-94				12-AUG-94				12-AUG-94			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP VOLATILES 90-SOW												
Chloromethane	2	U	ug/l	2	12	U	ug/kg	12	12	U	ug/kg	12
Bromomethane	2	U	ug/l	2	12	U	ug/kg	12	12	U	ug/kg	12
Vinyl chloride	2	U	ug/l	2	12	U	ug/kg	12	12	U	ug/kg	12
Chloroethane	2	U	ug/l	2	12	U	ug/kg	12	12	U	ug/kg	12
Methylene chloride	1	U	ug/l	1	6	U	ug/kg	6	6	U	ug/kg	6
Acetone	2	U	ug/l	2	12	U	ug/kg	12	8	U	ug/kg	8
Carbon disulfide	1	U	ug/l	1	6	U	ug/kg	6	6	U	ug/kg	6
1,1-Dichloroethene	1	U	ug/l	1	59		ug/kg	12	56		ug/kg	12
1,1-Dichloroethane	1	U	ug/l	1	6	U	ug/kg	6	6	U	ug/kg	6
1,2-Dichloroethene (total)	1	U	ug/l	1	6	U	ug/kg	6	6	U	ug/kg	6
Chloroform	1	U	ug/l	1	6	U	ug/kg	6	6	U	ug/kg	6
1,2-Dichloroethane	1	U	ug/l	1	6	U	ug/kg	6	6	U	ug/kg	6
2-Butanone	2	U	ug/l	2	12	U	ug/kg	12	12	U	ug/kg	12
1,1,1-Trichloroethane	1	U	ug/l	1	6	U	ug/kg	6	6	U	ug/kg	6
Carbon tetrachloride	1	U	ug/l	1	6	U	ug/kg	6	6	U	ug/kg	6
Bromodichloromethane	1	U	ug/l	1	6	U	ug/kg	6	6	U	ug/kg	6
1,2-Dichloropropane	1	U	ug/l	1	6	U	ug/kg	6	6	U	ug/kg	6
cis-1,3-Dichloropropene	1	U	ug/l	1	6	U	ug/kg	6	6	U	ug/kg	6
Trichloroethene	1	U	ug/l	1	94		ug/kg	12	100		ug/kg	12
Dibromochloromethane	1	U	ug/l	1	6	U	ug/kg	6	6	U	ug/kg	6
1,1,2-Trichloroethane	1	U	ug/l	1	6	U	ug/kg	6	6	U	ug/kg	6
Benzene	1	U	ug/l	1	60		ug/kg	12	60		ug/kg	12
trans-1,3-Dichloropropene	1	U	ug/l	1	6	U	ug/kg	6	6	U	ug/kg	6
Bromoform	1	U	ug/l	1	6	U	ug/kg	6	6	U	ug/kg	6
4-Methyl-2-pentanone	2	U	ug/l	2	12	U	ug/kg	12	12	U	ug/kg	12
2-Hexanone	2	R	ug/l	2	12	U	ug/kg	12	12	U	ug/kg	12
Tetrachloroethene	1	U	ug/l	1	6	U	ug/kg	6	6	U	ug/kg	6
Toluene	1	U	ug/l	1	61		ug/kg	12	65		ug/kg	12
1,1,2,2-Tetrachloroethane	1	U	ug/l	1	6	U	ug/kg	6	6	U	ug/kg	6
Chlorobenzene	1	U	ug/l	1	54		ug/kg	12	54		ug/kg	12
Ethylbenzene	1	U	ug/l	1	6	U	ug/kg	6	6	U	ug/kg	6
Styrene	1	U	ug/l	1	6	U	ug/kg	6	6	U	ug/kg	6
Xylenes (total)	1	U	ug/l	1	6	U	ug/kg	6	6	U	ug/kg	6

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NAS CECIL FIELD -- OPERABLE UNIT 7 -- SITE 16
SURFACE SOIL -- SEMIVOLATILES

Lab Sample Number:	Q4540				Q4541				Q4541RE				Q4542			
Site	CECIL7				CECIL7				CECIL7				CECIL7			
Locator	CF16SS1				CF16SS2				CF16SS2RE				CF16SS3			
Collect Date:	12-AUG-94				12-AUG-94				12-AUG-94				12-AUG-94			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP SEMIVOLATILES 90-SOW																
Phenol	360	U	ug/kg	360	380	U	ug/kg	380	380	U	ug/kg	380	370	U	ug/kg	370
bis(2-Chloroethyl) ether	360	U	ug/kg	360	380	U	ug/kg	380	380	U	ug/kg	380	370	U	ug/kg	370
2-Chlorophenol	360	U	ug/kg	360	380	U	ug/kg	380	380	U	ug/kg	380	370	U	ug/kg	370
1,3-Dichlorobenzene	360	U	ug/kg	360	380	U	ug/kg	380	380	U	ug/kg	380	370	U	ug/kg	370
1,4-Dichlorobenzene	360	U	ug/kg	360	380	U	ug/kg	380	380	U	ug/kg	380	370	U	ug/kg	370
1,2-Dichlorobenzene	360	U	ug/kg	360	380	U	ug/kg	380	380	U	ug/kg	380	370	U	ug/kg	370
2-Methylphenol	360	U	ug/kg	360	380	U	ug/kg	380	380	U	ug/kg	380	370	U	ug/kg	370
2,2-oxybis(1-Chloropropane)	360	U	ug/kg	360	380	U	ug/kg	380	380	U	ug/kg	380	370	U	ug/kg	370
4-Methylphenol	360	U	ug/kg	360	380	U	ug/kg	380	380	U	ug/kg	380	370	U	ug/kg	370
N-Nitroso-di-n-propylamine	360	U	ug/kg	360	380	U	ug/kg	380	380	U	ug/kg	380	370	U	ug/kg	370
Hexachloroethane	360	U	ug/kg	360	380	U	ug/kg	380	380	U	ug/kg	380	370	U	ug/kg	370
Nitrobenzene	360	U	ug/kg	360	380	U	ug/kg	380	380	U	ug/kg	380	370	U	ug/kg	370
Isophorone	360	U	ug/kg	360	380	U	ug/kg	380	380	U	ug/kg	380	370	U	ug/kg	370
2-Nitrophenol	360	U	ug/kg	360	380	U	ug/kg	380	380	U	ug/kg	380	370	U	ug/kg	370
2,4-Dimethylphenol	360	U	ug/kg	360	380	U	ug/kg	380	380	U	ug/kg	380	370	U	ug/kg	370
bis(2-Chloroethoxy) methane	360	U	ug/kg	360	380	U	ug/kg	380	380	U	ug/kg	380	370	U	ug/kg	370
2,4-Dichlorophenol	360	U	ug/kg	360	380	U	ug/kg	380	380	U	ug/kg	380	370	U	ug/kg	370
1,2,4-Trichlorobenzene	360	U	ug/kg	360	380	U	ug/kg	380	380	U	ug/kg	380	370	U	ug/kg	370
Naphthalene	360	U	ug/kg	360	380	U	ug/kg	380	380	U	ug/kg	380	370	U	ug/kg	370
4-Chloroaniline	360	U	ug/kg	360	380	U	ug/kg	380	380	U	ug/kg	380	370	U	ug/kg	370
Hexachlorobutadiene	360	U	ug/kg	360	380	U	ug/kg	380	380	U	ug/kg	380	370	U	ug/kg	370
4-Chloro-3-methylphenol	360	U	ug/kg	360	380	U	ug/kg	380	380	U	ug/kg	380	370	U	ug/kg	370
2-Methylnaphthalene	360	U	ug/kg	360	380	U	ug/kg	380	380	U	ug/kg	380	370	U	ug/kg	370
Hexachlorocyclopentadiene	360	U	ug/kg	360	380	U	ug/kg	380	380	U	ug/kg	380	370	U	ug/kg	370
2,4,6-Trichlorophenol	360	U	ug/kg	360	380	U	ug/kg	380	380	U	ug/kg	380	370	U	ug/kg	370
2,4,5-Trichlorophenol	880	U	ug/kg	880	930	U	ug/kg	930	930	U	ug/kg	930	890	U	ug/kg	890
2-Chloronaphthalene	360	U	ug/kg	360	380	U	ug/kg	380	380	U	ug/kg	380	370	U	ug/kg	370
2-Nitroaniline	880	U	ug/kg	880	930	U	ug/kg	930	930	U	ug/kg	930	890	U	ug/kg	890
Dimethylphthalate	360	U	ug/kg	360	380	U	ug/kg	380	380	U	ug/kg	380	370	U	ug/kg	370
Acenaphthylene	360	U	ug/kg	360	380	U	ug/kg	380	380	U	ug/kg	380	370	U	ug/kg	370
2,6-Dinitrotoluene	360	U	ug/kg	360	380	U	ug/kg	380	380	U	ug/kg	380	370	U	ug/kg	370
3-Nitroaniline	880	U	ug/kg	880	930	U	ug/kg	930	930	U	ug/kg	930	890	U	ug/kg	890
Acenaphthene	360	U	ug/kg	360	380	U	ug/kg	380	380	U	ug/kg	380	51	J	ug/kg	370
2,4-Dinitrophenol	880	U	ug/kg	880	930	U	ug/kg	930	930	U	ug/kg	930	890	U	ug/kg	890
4-Nitrophenol	880	U	ug/kg	880	930	U	ug/kg	930	930	U	ug/kg	930	890	U	ug/kg	890
Dibenzofuran	360	U	ug/kg	360	380	U	ug/kg	380	380	U	ug/kg	380	370	U	ug/kg	370
2,4-Dinitrotoluene	360	U	ug/kg	360	380	U	ug/kg	380	380	U	ug/kg	380	370	U	ug/kg	370
Diethylphthalate	360	U	ug/kg	360	380	U	ug/kg	380	380	U	ug/kg	380	370	U	ug/kg	370
4-Chlorophenyl-phenylether	360	U	ug/kg	360	380	U	ug/kg	380	380	U	ug/kg	380	370	U	ug/kg	370
Fluorene	360	U	ug/kg	360	380	U	ug/kg	380	380	U	ug/kg	380	43	J	ug/kg	370
4-Nitroaniline	880	U	ug/kg	880	930	U	ug/kg	930	930	U	ug/kg	930	890	U	ug/kg	890
4,6-Dinitro-2-methylphenol	880	U	ug/kg	880	930	U	ug/kg	930	930	U	ug/kg	930	890	U	ug/kg	890
N-Nitrosodiphenylamine (1)	360	U	ug/kg	360	380	U	ug/kg	380	380	U	ug/kg	380	370	U	ug/kg	370
4-Bromophenyl-phenylether	360	U	ug/kg	360	380	U	ug/kg	380	380	U	ug/kg	380	370	U	ug/kg	370
Hexachlorobenzene	360	U	ug/kg	360	380	U	ug/kg	380	380	U	ug/kg	380	370	U	ug/kg	370
Pentachlorophenol	880	U	ug/kg	880	930	U	ug/kg	930	930	U	ug/kg	930	890	U	ug/kg	890
Phenanthrene	360	U	ug/kg	360	380	U	ug/kg	380	380	U	ug/kg	380	560		ug/kg	370
Anthracene	360	U	ug/kg	360	380	U	ug/kg	380	380	U	ug/kg	380	89	J	ug/kg	370
Carbazole	360	U	ug/kg	360	380	U	ug/kg	380	380	U	ug/kg	380	79	J	ug/kg	370
Di-n-butylphthalate	390	U	ug/kg	390	450	U	ug/kg	450	700	U	ug/kg	700	370	U	ug/kg	370

NAS CECIL FIELD -- OPERABLE UNIT 7 -- SITE 16
SURFACE SOIL -- SEMIVOLATILES

Lab Sample Number:	Q4540				Q4541				Q4541RE				Q4542			
Site	CECIL7				CECIL7				CECIL7				CECIL7			
Locator	CF16SS1				CF16SS2				CF16SS2RE				CF16SS3			
Collect Date:	12-AUG-94				12-AUG-94				12-AUG-94				12-AUG-94			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
Fluoranthene	360	U	ug/kg	360	380	U	ug/kg	380	380	U	ug/kg	380	870		ug/kg	370
Pyrene	360	U	ug/kg	360	380	U	ug/kg	380	24	J	ug/kg	380	600		ug/kg	370
Butylbenzylphthalate	360	U	ug/kg	360	380	U	ug/kg	380	380	U	ug/kg	380	69	J	ug/kg	370
3,3-Dichlorobenzidine	360	U	ug/kg	360	380	U	ug/kg	380	380	U	ug/kg	380	370	U	ug/kg	370
Benzo (a) anthracene	360	U	ug/kg	360	380	U	ug/kg	380	380	U	ug/kg	380	420		ug/kg	370
Chrysene	360	U	ug/kg	360	380	U	ug/kg	380	380	U	ug/kg	380	360	J	ug/kg	370
bis(2-Ethylhexyl) phthalate	360	U	ug/kg	360	380	U	ug/kg	380	380	U	ug/kg	380	450	U	ug/kg	450
Di-n-octylphthalate	360	U	ug/kg	360	380	U	ug/kg	380	380	U	ug/kg	380	370	U	ug/kg	370
Benzo (b) fluoranthene	23	J	ug/kg	360	23	J	ug/kg	380	30	J	ug/kg	380	620		ug/kg	370
Benzo (k) fluoranthene	360	U	ug/kg	360	380	U	ug/kg	380	380	U	ug/kg	380	180	J	ug/kg	370
Benzo (a) pyrene	360	U	ug/kg	360	380	U	ug/kg	380	380	U	ug/kg	380	310	J	ug/kg	370
Indeno (1,2,3-cd) pyrene	360	U	ug/kg	360	380	U	ug/kg	380	380	U	ug/kg	380	190	J	ug/kg	370
Dibenz (a,h) anthracene	360	U	ug/kg	360	380	U	ug/kg	380	380	U	ug/kg	380	52	J	ug/kg	370
Benzo (g,h,i) perylene	360	U	ug/kg	360	380	U	ug/kg	380	380	U	ug/kg	380	130	J	ug/kg	370

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NAS CECIL FIELD -- OPERABLE UNIT 7 -- SITE 16
SURFACE SOIL -- SEMIVOLATILES

Lab Sample Number:	Q4543				Q4544				Q4545				Q4546			
Site	CECIL7				CECIL7				CECIL7				CECIL7			
Locator	CF16SS4				CF16SS5				CF16SS6				CF16SS7			
Collect Date:	12-AUG-94				12-AUG-94				12-AUG-94				12-AUG-94			
	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	370	U	ug/kg	370	380	U	ug/kg	380	380	U	ug/kg	380
bis(2-Chloroethyl) ether	380	U	ug/kg	380	370	U	ug/kg	370	380	U	ug/kg	380	380	U	ug/kg	380
2-Chlorophenol	380	U	ug/kg	380	370	U	ug/kg	370	380	U	ug/kg	380	380	U	ug/kg	380
1,3-Dichlorobenzene	380	U	ug/kg	380	370	U	ug/kg	370	380	U	ug/kg	380	380	U	ug/kg	380
1,4-Dichlorobenzene	380	U	ug/kg	380	370	U	ug/kg	370	380	U	ug/kg	380	380	U	ug/kg	380
1,2-Dichlorobenzene	380	U	ug/kg	380	370	U	ug/kg	370	380	U	ug/kg	380	380	U	ug/kg	380
2-Methylphenol	380	U	ug/kg	380	370	U	ug/kg	370	380	U	ug/kg	380	380	U	ug/kg	380
2,2-oxybis(1-Chloropropane)	380	U	ug/kg	380	370	U	ug/kg	370	380	U	ug/kg	380	380	U	ug/kg	380
4-Methylphenol	380	U	ug/kg	380	370	U	ug/kg	370	380	U	ug/kg	380	380	U	ug/kg	380
N-Nitroso-di-n-propylamine	380	U	ug/kg	380	370	U	ug/kg	370	380	U	ug/kg	380	380	U	ug/kg	380
Hexachloroethane	380	U	ug/kg	380	370	U	ug/kg	370	380	U	ug/kg	380	380	U	ug/kg	380
Nitrobenzene	380	U	ug/kg	380	370	U	ug/kg	370	380	U	ug/kg	380	380	U	ug/kg	380
Isophorone	380	U	ug/kg	380	370	U	ug/kg	370	380	U	ug/kg	380	380	U	ug/kg	380
2-Nitrophenol	380	U	ug/kg	380	370	U	ug/kg	370	380	U	ug/kg	380	380	U	ug/kg	380
2,4-Dimethylphenol	380	U	ug/kg	380	370	U	ug/kg	370	380	U	ug/kg	380	380	U	ug/kg	380
bis(2-Chloroethoxy) methane	380	U	ug/kg	380	370	U	ug/kg	370	380	U	ug/kg	380	380	U	ug/kg	380
2,4-Dichlorophenol	380	U	ug/kg	380	370	U	ug/kg	370	380	U	ug/kg	380	380	U	ug/kg	380
1,2,4-Trichlorobenzene	380	U	ug/kg	380	370	U	ug/kg	370	380	U	ug/kg	380	380	U	ug/kg	380
Naphthalene	380	U	ug/kg	380	370	U	ug/kg	370	380	U	ug/kg	380	380	U	ug/kg	380
4-Chloroaniline	380	U	ug/kg	380	370	U	ug/kg	370	380	U	ug/kg	380	380	U	ug/kg	380
Hexachlorobutadiene	380	U	ug/kg	380	370	U	ug/kg	370	380	U	ug/kg	380	380	U	ug/kg	380
4-Chloro-3-methylphenol	380	U	ug/kg	380	370	U	ug/kg	370	380	U	ug/kg	380	380	U	ug/kg	380
2-Methylnaphthalene	380	U	ug/kg	380	370	U	ug/kg	370	380	U	ug/kg	380	380	U	ug/kg	380
Hexachlorocyclopentadiene	380	U	ug/kg	380	370	U	ug/kg	370	380	U	ug/kg	380	380	U	ug/kg	380
2,4,6-Trichlorophenol	380	U	ug/kg	380	370	U	ug/kg	370	380	U	ug/kg	380	380	U	ug/kg	380
2,4,5-Trichlorophenol	910	U	ug/kg	910	890	U	ug/kg	890	910	U	ug/kg	910	910	U	ug/kg	910
2-Chloronaphthalene	380	U	ug/kg	380	370	U	ug/kg	370	380	U	ug/kg	380	380	U	ug/kg	380
2-Nitroaniline	910	U	ug/kg	910	890	U	ug/kg	890	910	U	ug/kg	910	910	U	ug/kg	910
Dimethylphthalate	380	U	ug/kg	380	370	U	ug/kg	370	380	U	ug/kg	380	380	U	ug/kg	380
Acenaphthylene	380	U	ug/kg	380	370	U	ug/kg	370	380	U	ug/kg	380	380	U	ug/kg	380
2,6-Dinitrotoluene	380	U	ug/kg	380	370	U	ug/kg	370	380	U	ug/kg	380	380	U	ug/kg	380
3-Nitroaniline	910	U	ug/kg	910	890	U	ug/kg	890	910	U	ug/kg	910	910	U	ug/kg	910
Acenaphthene	380	U	ug/kg	380	370	U	ug/kg	370	380	U	ug/kg	380	32	J	ug/kg	380
2,4-Dinitrophenol	910	U	ug/kg	910	890	U	ug/kg	890	910	U	ug/kg	910	910	U	ug/kg	910
4-Nitrophenol	910	U	ug/kg	910	890	U	ug/kg	890	910	U	ug/kg	910	910	U	ug/kg	910
Dibenzofuran	380	U	ug/kg	380	370	U	ug/kg	370	380	U	ug/kg	380	380	U	ug/kg	380
2,4-Dinitrotoluene	380	U	ug/kg	380	370	U	ug/kg	370	380	U	ug/kg	380	380	U	ug/kg	380
Diethylphthalate	380	U	ug/kg	380	370	U	ug/kg	370	380	U	ug/kg	380	380	U	ug/kg	380
4-Chlorophenyl-phenylether	380	U	ug/kg	380	370	U	ug/kg	370	380	U	ug/kg	380	380	U	ug/kg	380
Fluorene	380	U	ug/kg	380	370	U	ug/kg	370	380	U	ug/kg	380	26	J	ug/kg	380

NAS CECIL FIELD -- OPERABLE UNIT 7 -- SITE 16
SURFACE SOIL -- SEMIVOLATILES

Lab Sample Number:	Q4543				Q4544				Q4545				Q4546			
Site	CECIL7				CECIL7				CECIL7				CECIL7			
Locator	CF16SS4				CF16SS5				CF16SS6				CF16SS7			
Collect Date:	12-AUG-94				12-AUG-94				12-AUG-94				12-AUG-94			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
4-Nitroaniline	910	U	ug/kg	910	890	U	ug/kg	890	910	U	ug/kg	910	910	U	ug/kg	910
4,6-Dinitro-2-methylphenol	910	U	ug/kg	910	890	U	ug/kg	890	910	U	ug/kg	910	910	U	ug/kg	910
N-Nitrosodiphenylamine (1)	380	U	ug/kg	380	370	U	ug/kg	370	380	U	ug/kg	380	380	U	ug/kg	380
4-Bromophenyl-phenylether	380	U	ug/kg	380	370	U	ug/kg	370	380	U	ug/kg	380	380	U	ug/kg	380
Hexachlorobenzene	380	U	ug/kg	380	370	U	ug/kg	370	380	U	ug/kg	380	380	U	ug/kg	380
Pentachlorophenol	910	U	ug/kg	910	890	U	ug/kg	890	910	U	ug/kg	910	910	U	ug/kg	910
Phenanthrene	74	J	ug/kg	380	370	U	ug/kg	370	380	U	ug/kg	380	270	J	ug/kg	380
Anthracene	380	U	ug/kg	380	370	U	ug/kg	370	380	U	ug/kg	380	46	J	ug/kg	380
Carbazole	380	U	ug/kg	380	370	U	ug/kg	370	380	U	ug/kg	380	65	J	ug/kg	380
Di-n-butylphthalate	380	U	ug/kg	380	370	U	ug/kg	370	450	U	ug/kg	450	460	U	ug/kg	460
Fluoranthene	100	J	ug/kg	380	41	J	ug/kg	370	380	U	ug/kg	380	450		ug/kg	380
Pyrene	64	J	ug/kg	380	27	J	ug/kg	370	380	U	ug/kg	380	280	J	ug/kg	380
Butylbenzylphthalate	380	U	ug/kg	380	77	J	ug/kg	370	380	U	ug/kg	380	140	J	ug/kg	380
3,3-Dichlorobenzidine	380	U	ug/kg	380	370	U	ug/kg	370	380	U	ug/kg	380	380	U	ug/kg	380
Benzo (a) anthracene	380	U	ug/kg	380	370	U	ug/kg	370	380	U	ug/kg	380	200	J	ug/kg	380
Chrysene	40	J	ug/kg	380	26	J	ug/kg	370	380	U	ug/kg	380	210	J	ug/kg	380
bis(2-Ethylhexyl) phthalate	380	U	ug/kg	380	370	U	ug/kg	370	380	U	ug/kg	380	380	U	ug/kg	380
Di-n-octylphthalate	380	U	ug/kg	380	370	U	ug/kg	370	380	U	ug/kg	380	380	U	ug/kg	380
Benzo (b) fluoranthene	38	J	ug/kg	380	34	J	ug/kg	370	380	U	ug/kg	380	320	J	ug/kg	380
Benzo (k) fluoranthene	380	U	ug/kg	380	370	U	ug/kg	370	380	U	ug/kg	380	100	J	ug/kg	380
Benzo (a) pyrene	380	U	ug/kg	380	370	U	ug/kg	370	380	U	ug/kg	380	180	J	ug/kg	380
Indeno (1,2,3-cd) pyrene	380	U	ug/kg	380	370	U	ug/kg	370	380	U	ug/kg	380	120	J	ug/kg	380
Dibenz (a,h) anthracene	380	U	ug/kg	380	370	U	ug/kg	370	380	U	ug/kg	380	29	J	ug/kg	380
Benzo (g,h,i) perylene	380	U	ug/kg	380	370	U	ug/kg	370	380	U	ug/kg	380	100	J	ug/kg	380

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

NAS CECIL FIELD -- OPERABLE UNIT 7 -- SITE 16
SURFACE SOIL -- SEMIVOLATILES

Lab Sample Number:	Q4547			Q4548			Q4549			Q4550		
Site	CECIL7			CECIL7			CECIL7			CECIL7		
Locator	CF16SS8			CF16SS8D			CF16SS9			CF16SS10		
Collect Date:	12-AUG-94			12-AUG-94			12-AUG-94			12-AUG-94		
	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL
CLP SEMIVOLATILES 90-SOW												
Phenol	370	U ug/kg	370	360	U ug/kg	360	370	U ug/kg	370	360	U ug/kg	360
bis(2-Chloroethyl) ether	370	U ug/kg	370	360	U ug/kg	360	370	U ug/kg	370	360	U ug/kg	360
2-Chlorophenol	370	U ug/kg	370	360	U ug/kg	360	370	U ug/kg	370	360	U ug/kg	360
1,3-Dichlorobenzene	370	U ug/kg	370	360	U ug/kg	360	370	U ug/kg	370	360	U ug/kg	360
1,4-Dichlorobenzene	370	U ug/kg	370	360	U ug/kg	360	370	U ug/kg	370	360	U ug/kg	360
1,2-Dichlorobenzene	370	U ug/kg	370	360	U ug/kg	360	370	U ug/kg	370	360	U ug/kg	360
2-Methylphenol	370	U ug/kg	370	360	U ug/kg	360	370	U ug/kg	370	360	U ug/kg	360
2,2-oxybis(1-Chloropropane)	370	U ug/kg	370	360	U ug/kg	360	370	U ug/kg	370	360	U ug/kg	360
4-Methylphenol	370	U ug/kg	370	360	U ug/kg	360	370	U ug/kg	370	360	U ug/kg	360
N-Nitroso-di-n-propylamine	370	U ug/kg	370	360	U ug/kg	360	370	U ug/kg	370	360	U ug/kg	360
Hexachloroethane	370	U ug/kg	370	360	U ug/kg	360	370	U ug/kg	370	360	U ug/kg	360
Nitrobenzene	370	U ug/kg	370	360	U ug/kg	360	370	U ug/kg	370	360	U ug/kg	360
Isophorone	370	U ug/kg	370	360	U ug/kg	360	370	U ug/kg	370	360	U ug/kg	360
2-Nitrophenol	370	U ug/kg	370	360	U ug/kg	360	370	U ug/kg	370	360	U ug/kg	360
2,4-Dimethylphenol	370	U ug/kg	370	360	U ug/kg	360	370	U ug/kg	370	360	U ug/kg	360
bis(2-Chloroethoxy) methane	370	U ug/kg	370	360	U ug/kg	360	370	U ug/kg	370	360	U ug/kg	360
2,4-Dichlorophenol	370	U ug/kg	370	360	U ug/kg	360	370	U ug/kg	370	360	U ug/kg	360
1,2,4-Trichlorobenzene	370	U ug/kg	370	360	U ug/kg	360	370	U ug/kg	370	360	U ug/kg	360
Naphthalene	370	U ug/kg	370	360	U ug/kg	360	370	U ug/kg	370	28	J ug/kg	360
4-Chloroaniline	370	U ug/kg	370	360	U ug/kg	360	370	U ug/kg	370	360	U ug/kg	360
Hexachlorobutadiene	370	U ug/kg	370	360	U ug/kg	360	370	U ug/kg	370	360	U ug/kg	360
4-Chloro-3-methylphenol	370	U ug/kg	370	360	U ug/kg	360	370	U ug/kg	370	360	U ug/kg	360
2-Methylnaphthalene	370	U ug/kg	370	360	U ug/kg	360	370	U ug/kg	370	360	U ug/kg	360
Hexachlorocyclopentadiene	370	U ug/kg	370	360	U ug/kg	360	370	U ug/kg	370	360	U ug/kg	360
2,4,6-Trichlorophenol	370	U ug/kg	370	360	U ug/kg	360	370	U ug/kg	370	360	U ug/kg	360
2,4,5-Trichlorophenol	890	U ug/kg	890	880	U ug/kg	880	900	U ug/kg	900	880	U ug/kg	880
2-Chloronaphthalene	370	U ug/kg	370	360	U ug/kg	360	370	U ug/kg	370	360	U ug/kg	360
2-Nitroaniline	890	U ug/kg	890	880	U ug/kg	880	900	U ug/kg	900	880	U ug/kg	880
Dimethylphthalate	370	U ug/kg	370	360	U ug/kg	360	370	U ug/kg	370	360	U ug/kg	360
Acenaphthylene	370	U ug/kg	370	360	U ug/kg	360	31	J ug/kg	370	360	U ug/kg	360
2,6-Dinitrotoluene	370	U ug/kg	370	360	U ug/kg	360	370	U ug/kg	370	360	U ug/kg	360
3-Nitroaniline	890	U ug/kg	890	880	U ug/kg	880	900	U ug/kg	900	880	U ug/kg	880
Acenaphthene	370	U ug/kg	370	360	U ug/kg	360	370	U ug/kg	370	82	J ug/kg	360
2,4-Dinitrophenol	890	U ug/kg	890	880	U ug/kg	880	900	U ug/kg	900	880	U ug/kg	880
4-Nitrophenol	890	U ug/kg	890	880	U ug/kg	880	900	U ug/kg	900	880	U ug/kg	880
Dibenzofuran	370	U ug/kg	370	360	U ug/kg	360	370	U ug/kg	370	44	J ug/kg	360
2,4-Dinitrotoluene	370	U ug/kg	370	360	U ug/kg	360	370	U ug/kg	370	360	U ug/kg	360
Diethylphthalate	370	U ug/kg	370	360	U ug/kg	360	370	U ug/kg	370	360	U ug/kg	360
4-Chlorophenyl-phenylether	370	U ug/kg	370	360	U ug/kg	360	370	U ug/kg	370	360	U ug/kg	360
Fluorene	370	U ug/kg	370	360	U ug/kg	360	370	U ug/kg	370	97	J ug/kg	360

NAS CECIL FIELD -- OPERABLE UNIT 7 -- SITE 16
SURFACE SOIL -- SEMIVOLATILES

Lab Sample Number:	Q4547				Q4548				Q4549				Q4550			
Site	CECIL7				CECIL7				CECIL7				CECIL7			
Locator	CF16SS8				CF16SS8D				CF16SS9				CF16SS10			
Collect Date:	12-AUG-94				12-AUG-94				12-AUG-94				12-AUG-94			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
4-Nitroaniline	890	U	ug/kg	890	880	U	ug/kg	880	900	U	ug/kg	900	880	U	ug/kg	880
4,6-Dinitro-2-methylphenol	890	U	ug/kg	890	880	U	ug/kg	880	900	U	ug/kg	900	880	U	ug/kg	880
N-Nitrosodiphenylamine (1)	370	U	ug/kg	370	360	U	ug/kg	360	370	U	ug/kg	370	360	U	ug/kg	360
4-Bromophenyl-phenylether	370	U	ug/kg	370	360	U	ug/kg	360	370	U	ug/kg	370	360	U	ug/kg	360
Hexachlorobenzene	370	U	ug/kg	370	360	U	ug/kg	360	370	U	ug/kg	370	360	U	ug/kg	360
Pentachlorophenol	890	U	ug/kg	890	880	U	ug/kg	880	900	U	ug/kg	900	880	U	ug/kg	880
Phenanthrene	35	J	ug/kg	370	43	J	ug/kg	360	44	J	ug/kg	370	740		ug/kg	360
Anthracene	370	U	ug/kg	370	360	U	ug/kg	360	370	U	ug/kg	370	170	J	ug/kg	360
Carbazole	370	U	ug/kg	370	360	U	ug/kg	360	370	U	ug/kg	370	140	J	ug/kg	360
Di-n-butylphthalate	570	U	ug/kg	570	420	U	ug/kg	420	370	U	ug/kg	370	440	U	ug/kg	440
Fluoranthene	67	J	ug/kg	370	70	J	ug/kg	360	80	J	ug/kg	370	850		ug/kg	360
Pyrene	43	J	ug/kg	370	47	J	ug/kg	360	57	J	ug/kg	370	530		ug/kg	360
Butylbenzylphthalate	36	J	ug/kg	370	28	J	ug/kg	360	97	J	ug/kg	370	54	J	ug/kg	360
3,3-Dichlorobenzidine	370	U	ug/kg	370	360	U	ug/kg	360	370	U	ug/kg	370	360	U	ug/kg	360
Benzo (a) anthracene	370	U	ug/kg	370	360	U	ug/kg	360	370	U	ug/kg	370	400		ug/kg	360
Chrysene	33	J	ug/kg	370	36	J	ug/kg	360	52	J	ug/kg	370	330	J	ug/kg	360
bis(2-Ethylhexyl) phthalate	370	U	ug/kg	370	360	U	ug/kg	360	370	U	ug/kg	370	360	U	ug/kg	360
Di-n-octylphthalate	370	U	ug/kg	370	360	U	ug/kg	360	370	U	ug/kg	370	360	U	ug/kg	360
Benzo (b) fluoranthene	47	J	ug/kg	370	52	J	ug/kg	360	130	J	ug/kg	370	490		ug/kg	360
Benzo (k) fluoranthene	21	J	ug/kg	370	19	J	ug/kg	360	44	J	ug/kg	370	170	J	ug/kg	360
Benzo (a) pyrene	27	J	ug/kg	370	31	J	ug/kg	360	82	J	ug/kg	370	290	J	ug/kg	360
Indeno (1,2,3-cd) pyrene	370	U	ug/kg	370	18	J	ug/kg	360	62	J	ug/kg	370	150	J	ug/kg	360
Dibenz (a,h) anthracene	370	U	ug/kg	370	360	U	ug/kg	360	370	U	ug/kg	370	44	J	ug/kg	360
Benzo (g,h,i) perylene	18	J	ug/kg	370	360	U	ug/kg	360	82	J	ug/kg	370	140	J	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 -- OPERABLE UNIT 7 -- SITE 16
SURFACE SOIL -- SEMIVOLATILES

Lab Sample Number:	Q4538				Q4541MS				Q4541MSD				Q4541REMS			
Site	CECIL7				CECIL7				CECIL7				CECIL7			
Locator	CF16SS1R				CF16SS2MS				CF16SS2MSD				CF16SS2REMS			
Collect Date:	12-AUG-94				12-AUG-94				12-AUG-94				12-AUG-94			
	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	2000		ug/kg	380	64	J	ug/kg	380	1900		ug/kg	380
bis(2-Chloroethyl) ether	10	U	ug/l	10	380	U	ug/kg	380	380	U	ug/kg	380	380	U	ug/kg	380
2-Chlorophenol	10	U	ug/l	10	1900		ug/kg	380	18	J	ug/kg	380	2000		ug/kg	380
1,3-Dichlorobenzene	10	U	ug/l	10	380	U	ug/kg	380	380	U	ug/kg	380	380	U	ug/kg	380
1,4-Dichlorobenzene	10	U	ug/l	10	1200		ug/kg	380	340	J	ug/kg	380	1300		ug/kg	380
1,2-Dichlorobenzene	10	U	ug/l	10	380	U	ug/kg	380	380	U	ug/kg	380	380	U	ug/kg	380
2-Methylphenol	10	U	ug/l	10	380	U	ug/kg	380	380	U	ug/kg	380	380	U	ug/kg	380
2,2-oxybis(1-Chloropropane)	10	U	ug/l	10	380	U	ug/kg	380	380	U	ug/kg	380	380	U	ug/kg	380
4-Methylphenol	10	U	ug/l	10	380	U	ug/kg	380	380	U	ug/kg	380	380	U	ug/kg	380
N-Nitroso-di-n-propylamine	10	U	ug/l	10	1300		ug/kg	380	380	U	ug/kg	380	1300		ug/kg	380
Hexachloroethane	10	U	ug/l	10	380	U	ug/kg	380	380	U	ug/kg	380	380	U	ug/kg	380
Nitrobenzene	10	U	ug/l	10	380	U	ug/kg	380	380	U	ug/kg	380	380	U	ug/kg	380
Isophorone	10	U	ug/l	10	380	U	ug/kg	380	380	U	ug/kg	380	380	U	ug/kg	380
2-Nitrophenol	10	U	ug/l	10	380	U	ug/kg	380	380	U	ug/kg	380	380	U	ug/kg	380
2,4-Dimethylphenol	10	U	ug/l	10	380	U	ug/kg	380	380	U	ug/kg	380	380	U	ug/kg	380
bis(2-Chloroethoxy) methane	10	U	ug/l	10	380	U	ug/kg	380	380	U	ug/kg	380	380	U	ug/kg	380
2,4-Dichlorophenol	10	U	ug/l	10	380	U	ug/kg	380	380	U	ug/kg	380	380	U	ug/kg	380
1,2,4-Trichlorobenzene	10	U	ug/l	10	1400		ug/kg	380	480		ug/kg	380	1400		ug/kg	380
Naphthalene	10	U	ug/l	10	380	U	ug/kg	380	380	U	ug/kg	380	380	U	ug/kg	380
4-Chloroaniline	10	U	ug/l	10	380	U	ug/kg	380	380	U	ug/kg	380	380	U	ug/kg	380
Hexachlorobutadiene	10	U	ug/l	10	380	U	ug/kg	380	380	U	ug/kg	380	380	U	ug/kg	380
4-Chloro-3-methylphenol	10	U	ug/l	10	2600		ug/kg	380	160	J	ug/kg	380	2700		ug/kg	380
2-Methylnaphthalene	10	U	ug/l	10	380	U	ug/kg	380	380	U	ug/kg	380	380	U	ug/kg	380
Hexachlorocyclopentadiene	10	U	ug/l	10	380	U	ug/kg	380	380	U	ug/kg	380	380	U	ug/kg	380
2,4,6-Trichlorophenol	10	U	ug/l	10	380	U	ug/kg	380	380	U	ug/kg	380	380	U	ug/kg	380
2,4,5-Trichlorophenol	25	U	ug/l	25	930	U	ug/kg	930	930	U	ug/kg	930	930	U	ug/kg	930
2-Chloronaphthalene	10	U	ug/l	10	380	U	ug/kg	380	380	U	ug/kg	380	380	U	ug/kg	380
2-Nitroaniline	25	U	ug/l	25	930	U	ug/kg	930	930	U	ug/kg	930	930	U	ug/kg	930
Dimethylphthalate	10	U	ug/l	10	380	U	ug/kg	380	380	U	ug/kg	380	380	U	ug/kg	380
Acenaphthylene	10	U	ug/l	10	380	U	ug/kg	380	380	U	ug/kg	380	380	U	ug/kg	380
2,6-Dinitrotoluene	10	U	ug/l	10	380	U	ug/kg	380	380	U	ug/kg	380	380	U	ug/kg	380
3-Nitroaniline	25	U	ug/l	25	930	U	ug/kg	930	930	U	ug/kg	930	930	U	ug/kg	930
Acenaphthene	10	U	ug/l	10	1600		ug/kg	380	150	J	ug/kg	380	1700		ug/kg	380
2,4-Dinitrophenol	25	U	ug/l	25	930	U	ug/kg	930	930	U	ug/kg	930	930	U	ug/kg	930
4-Nitrophenol	25	U	ug/l	25	2500		ug/kg	930	930	U	ug/kg	930	2300		ug/kg	930
Dibenzofuran	10	U	ug/l	10	380	U	ug/kg	380	380	U	ug/kg	380	380	U	ug/kg	380
2,4-Dinitrotoluene	10	U	ug/l	10	1800		ug/kg	380	380	U	ug/kg	380	1700		ug/kg	380
Diethylphthalate	10	U	ug/l	10	380	U	ug/kg	380	380	U	ug/kg	380	380	U	ug/kg	380
4-Chlorophenyl-phenylether	10	U	ug/l	10	380	U	ug/kg	380	380	U	ug/kg	380	380	U	ug/kg	380
Fluorene	10	U	ug/l	10	380	U	ug/kg	380	380	U	ug/kg	380	380	U	ug/kg	380

NAS CECIL FIELD -- OPERABLE UNIT 7 -- SITE 16
SURFACE SOIL -- SEMIVOLATILES

Lab Sample Number:	Q4538				Q4541MS				Q4541MSD				Q4541REMS			
Site	CECIL7				CECIL7				CECIL7				CECIL7			
Locator	CF16SS1R				CF16SS2MS				CF16SS2MSD				CF16SS2REMS			
Collect Date:	12-AUG-94				12-AUG-94				12-AUG-94				12-AUG-94			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
4-Nitroaniline	25	U	ug/l	25	930	U	ug/kg	930	930	U	ug/kg	930	930	U	ug/kg	930
4,6-Dinitro-2-methylphenol	25	U	ug/l	25	930	U	ug/kg	930	930	U	ug/kg	930	930	U	ug/kg	930
N-Nitrosodiphenylamine (1)	10	U	ug/l	10	380	U	ug/kg	380	380	U	ug/kg	380	19	J	ug/kg	380
4-Bromophenyl-phenylether	10	U	ug/l	10	380	U	ug/kg	380	380	U	ug/kg	380	380	U	ug/kg	380
Hexachlorobenzene	10	U	ug/l	10	380	U	ug/kg	380	380	U	ug/kg	380	380	U	ug/kg	380
Pentachlorophenol	25	U	ug/l	25	2700		ug/kg	930	930	U	ug/kg	930	2900		ug/kg	930
Phenanthrene	10	U	ug/l	10	380	U	ug/kg	380	380	U	ug/kg	380	380	U	ug/kg	380
Anthracene	10	U	ug/l	10	380	U	ug/kg	380	380	U	ug/kg	380	380	U	ug/kg	380
Carbazole	10	U	ug/l	10	380	U	ug/kg	380	380	U	ug/kg	380	380	U	ug/kg	380
Di-n-butylphthalate	10	U	ug/l	10	380	U	ug/kg	380	380	U	ug/kg	380	760	U	ug/kg	760
Fluoranthene	10	U	ug/l	10	380	U	ug/kg	380	380	U	ug/kg	380	380	U	ug/kg	380
Pyrene	10	U	ug/l	10	1600		ug/kg	380	1200		ug/kg	380	1800		ug/kg	380
Butylbenzylphthalate	10	U	ug/l	10	24	J	ug/kg	380	380	U	ug/kg	380	380	U	ug/kg	380
3,3-Dichlorobenzidine	10	U	ug/l	10	380	U	ug/kg	380	380	U	ug/kg	380	380	U	ug/kg	380
Benzo (a) anthracene	10	U	ug/l	10	380	U	ug/kg	380	380	U	ug/kg	380	380	U	ug/kg	380
Chrysene	10	U	ug/l	10	380	U	ug/kg	380	380	U	ug/kg	380	19	J	ug/kg	380
bis(2-Ethylhexyl) phthalate	2	J	ug/l	10	380	U	ug/kg	380	380	U	ug/kg	380	380	U	ug/kg	380
Di-n-octylphthalate	10	U	ug/l	10	380	U	ug/kg	380	380	U	ug/kg	380	380	U	ug/kg	380
Benzo (b) fluoranthene	10	U	ug/l	10	380	U	ug/kg	380	380	U	ug/kg	380	31	J	ug/kg	380
Benzo (k) fluoranthene	10	U	ug/l	10	380	U	ug/kg	380	380	U	ug/kg	380	33	J	ug/kg	380
Benzo (a) pyrene	10	U	ug/l	10	380	U	ug/kg	380	380	U	ug/kg	380	380	U	ug/kg	380
Indeno (1,2,3-cd) pyrene	10	U	ug/l	10	380	U	ug/kg	380	380	U	ug/kg	380	380	U	ug/kg	380
Dibenz (a,h) anthracene	10	U	ug/l	10	380	U	ug/kg	380	380	U	ug/kg	380	380	U	ug/kg	380
Benzo (g,h,i) perylene	10	U	ug/l	10	380	U	ug/kg	380	380	U	ug/kg	380	380	U	ug/kg	380

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

NAS CECIL FIELD -- OPERABLE UNIT 7 -- SITE 16
SURFACE SOIL -- SEMIVOLATILES

Lab Sample Number:		Q4541REMSD		
Site		CECIL7		
Locator		CF16SS2REMSD		
Collect Date:		12-AUG-94		
	VALUE	QUAL	UNITS	DL
CLP SEMIVOLATILES 90-SOW				
Phenol	1800		ug/kg	380
bis(2-Chloroethyl) ether	380	U	ug/kg	380
2-Chlorophenol	1900		ug/kg	380
1,3-Dichlorobenzene	380	U	ug/kg	380
1,4-Dichlorobenzene	1200		ug/kg	380
1,2-Dichlorobenzene	380	U	ug/kg	380
2-Methylphenol	380	U	ug/kg	380
2,2-oxybis(1-Chloropropane)	380	U	ug/kg	380
4-Methylphenol	380	U	ug/kg	380
N-Nitroso-di-n-propylamine	1200		ug/kg	380
Hexachloroethane	380	U	ug/kg	380
Nitrobenzene	380	U	ug/kg	380
Isophorone	380	U	ug/kg	380
2-Nitrophenol	380	U	ug/kg	380
2,4-Dimethylphenol	380	U	ug/kg	380
bis(2-Chloroethoxy) methane	380	U	ug/kg	380
2,4-Dichlorophenol	380	U	ug/kg	380
1,2,4-Trichlorobenzene	1200		ug/kg	380
Naphthalene	380	U	ug/kg	380
4-Chloroaniline	380	U	ug/kg	380
Hexachlorobutadiene	380	U	ug/kg	380
4-Chloro-3-methylphenol	2400		ug/kg	380
2-Methylnaphthalene	380	U	ug/kg	380
Hexachlorocyclopentadiene	380	U	ug/kg	380
2,4,6-Trichlorophenol	380	U	ug/kg	380
2,4,5-Trichlorophenol	930	U	ug/kg	930
2-Chloronaphthalene	380	U	ug/kg	380
2-Nitroaniline	930	U	ug/kg	930
Dimethylphthalate	380	U	ug/kg	380
Acenaphthylene	380	U	ug/kg	380
2,6-Dinitrotoluene	380	U	ug/kg	380
3-Nitroaniline	930	U	ug/kg	930
Acenaphthene	1500		ug/kg	380
2,4-Dinitrophenol	930	U	ug/kg	930
4-Nitrophenol	1900		ug/kg	930
Dibenzofuran	380	U	ug/kg	380
2,4-Dinitrotoluene	1400		ug/kg	380
Diethylphthalate	380	U	ug/kg	380
4-Chlorophenyl-phenylether	380	U	ug/kg	380
Fluorene	380	U	ug/kg	380

NAS CECIL FIELD -- OPERABLE UNIT 7 -- SITE 16
SURFACE SOIL -- SEMIVOLATILES

Lab Sample Number:	Q4541REMSD			
Site	CECIL7			
Locator	CF16SS2REMSD			
Collect Date:	12-AUG-94			
	VALUE	QUAL	UNITS	DL
4-Nitroaniline	930	U	ug/kg	930
4,6-Dinitro-2-methylphenol	930	U	ug/kg	930
N-Nitrosodiphenylamine (1)	380	U	ug/kg	380
4-Bromophenyl-phenylether	380	U	ug/kg	380
Hexachlorobenzene	380	U	ug/kg	380
Pentachlorophenol	2200		ug/kg	930
Phenanthrene	26	J	ug/kg	380
Anthracene	380	U	ug/kg	380
Carbazole	380	U	ug/kg	380
Di-n-butylphthalate	1100	U	ug/kg	1100
Fluoranthene	380	U	ug/kg	380
Pyrene	1600		ug/kg	380
Butylbenzylphthalate	380	U	ug/kg	380
3,3-Dichlorobenzidine	380	U	ug/kg	380
Benzo (a) anthracene	380	U	ug/kg	380
Chrysene	25	J	ug/kg	380
bis(2-Ethylhexyl) phthalate	380	U	ug/kg	380
Di-n-octylphthalate	380	U	ug/kg	380
Benzo (b) fluoranthene	43	J	ug/kg	380
Benzo (k) fluoranthene	45	J	ug/kg	380
Benzo (a) pyrene	380	U	ug/kg	380
Indeno (1,2,3-cd) pyrene	380	U	ug/kg	380
Dibenz (a,h) anthracene	380	U	ug/kg	380
Benzo (g,h,i) perylene	380	U	ug/kg	380

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NAS CECIL FIELD -- OPERABLE UNIT 7 -- SITE 16
SURFACE SOIL -- PESTICIDES AND PCBs

Lab Sample Number:	Q4540				Q4541				Q4542				Q4543			
Site	CECIL7				CECIL7				CECIL7				CECIL7			
Locator	CF16SS1				CF16SS2				CF16SS3				CF16SS4			
Collect Date:	12-AUG-94				12-AUG-94				12-AUG-94				12-AUG-94			
	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	U	ug/kg	2	1.9	U	ug/kg	1.9	1.9	U	ug/kg	1.9
beta-BHC	1.9	U	ug/kg	1.9	2	U	ug/kg	2	1.9	U	ug/kg	1.9	1.9	U	ug/kg	1.9
delta-BHC	1.9	U	ug/kg	1.9	2	U	ug/kg	2	1.9	U	ug/kg	1.9	1.9	U	ug/kg	1.9
gamma-BHC (Lindane)	1.9	U	ug/kg	1.9	2	U	ug/kg	2	1.9	U	ug/kg	1.9	1.9	U	ug/kg	1.9
Heptachlor	1.9	U	ug/kg	1.9	2	U	ug/kg	2	1.9	U	ug/kg	1.9	1.9	U	ug/kg	1.9
Aldrin	1.9	U	ug/kg	1.9	2	U	ug/kg	2	1.9	U	ug/kg	1.9	1.9	U	ug/kg	1.9
Heptachlor epoxide	1.9	U	ug/kg	1.9	2	U	ug/kg	2	1.9	U	ug/kg	1.9	1.9	U	ug/kg	1.9
Endosulfan I	1.9	U	ug/kg	1.9	2	U	ug/kg	2	1.9	U	ug/kg	1.9	1.9	U	ug/kg	1.9
Dieldrin	3.6	U	ug/kg	3.6	3.8	U	ug/kg	3.8	3.7	U	ug/kg	3.7	3.7	U	ug/kg	3.7
4,4-DDE	3.6	U	ug/kg	3.6	.33	J	ug/kg	4	.5	U	ug/kg	4	3.7	U	ug/kg	3.7
Endrin	3.6	U	ug/kg	3.6	.4	U	ug/kg	4	3.7	U	ug/kg	3.7	3.7	U	ug/kg	3.7
Endosulfan II	3.6	U	ug/kg	3.6	3.8	U	ug/kg	3.8	3.7	U	ug/kg	3.7	3.7	U	ug/kg	3.7
4,4-DDD	3.6	U	ug/kg	3.6	3.8	U	ug/kg	3.8	3.7	U	ug/kg	3.7	3.7	U	ug/kg	3.7
Endosulfan sulfate	3.6	U	ug/kg	3.6	3.8	U	ug/kg	3.8	3.7	U	ug/kg	3.7	3.7	U	ug/kg	3.7
4,4-DDT	3.6	U	ug/kg	3.6	3.8	U	ug/kg	3.8	3.7	U	ug/kg	3.7	3.7	U	ug/kg	3.7
Methoxychlor	19	U	ug/kg	19	20	U	ug/kg	20	19	U	ug/kg	19	19	U	ug/kg	19
Endrin ketone	3.6	U	ug/kg	3.6	3.8	U	ug/kg	3.8	3.7	U	ug/kg	3.7	3.7	U	ug/kg	3.7
Endrin aldehyde	3.6	U	ug/kg	3.6	3.8	U	ug/kg	3.8	3.7	U	ug/kg	3.7	3.7	U	ug/kg	3.7
alpha-Chlordane	1.9	U	ug/kg	1.9	2	U	ug/kg	2	1.9	U	ug/kg	1.9	.6	J	ug/kg	2
gamma-Chlordane	1.9	U	ug/kg	1.9	2	U	ug/kg	2	1.9	U	ug/kg	1.9	.2	U	ug/kg	2
Toxaphene	190	U	ug/kg	190	200	U	ug/kg	200	190	U	ug/kg	190	190	U	ug/kg	190
Aroclor-1016	36	U	ug/kg	36	38	U	ug/kg	38	37	U	ug/kg	37	37	U	ug/kg	37
Aroclor-1221	73	U	ug/kg	73	78	U	ug/kg	78	74	U	ug/kg	74	76	U	ug/kg	76
Aroclor-1232	36	U	ug/kg	36	38	U	ug/kg	38	37	U	ug/kg	37	37	U	ug/kg	37
Aroclor-1242	36	U	ug/kg	36	38	U	ug/kg	38	37	U	ug/kg	37	37	U	ug/kg	37
Aroclor-1248	36	U	ug/kg	36	38	U	ug/kg	38	37	U	ug/kg	37	37	U	ug/kg	37
Aroclor-1254	36	U	ug/kg	36	38	U	ug/kg	38	37	U	ug/kg	37	37	U	ug/kg	37
Aroclor-1260	36	U	ug/kg	36	5.5	J	ug/kg	38	37	U	ug/kg	37	37	U	ug/kg	37

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NAS CECIL FIELD -- OU UNIT 7 -- SITE 16
SURFACE SOIL -- PESTICIDES AND PCBs

Lab Sample Number:	Q4544			Q4545			Q4546			Q4547		
Site	CECIL7			CECIL7			CECIL7			CECIL7		
Locator	CF16SS5			CF16SS6			CF16SS7			CF16SS8		
Collect Date:	12-AUG-94			12-AUG-94			12-AUG-94			12-AUG-94		
	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	1.9	U ug/kg	1.9	1.9	U ug/kg	1.9	1.9	U ug/kg	1.9
beta-BHC	1.9	U ug/kg	1.9	1.9	U ug/kg	1.9	1.9	U ug/kg	1.9	1.9	U ug/kg	1.9
delta-BHC	1.9	U ug/kg	1.9	1.9	U ug/kg	1.9	1.9	U ug/kg	1.9	1.9	U ug/kg	1.9
gamma-BHC (Lindane)	1.9	U ug/kg	1.9	1.9	U ug/kg	1.9	1.9	U ug/kg	1.9	1.9	U ug/kg	1.9
Heptachlor	1.9	U ug/kg	1.9	1.9	U ug/kg	1.9	1.9	U ug/kg	1.9	1.9	U ug/kg	1.9
Aldrin	1.9	U ug/kg	1.9	1.9	U ug/kg	1.9	1.9	U ug/kg	1.9	1.9	U ug/kg	1.9
Heptachlor epoxide	1.9	U ug/kg	1.9	1.9	U ug/kg	1.9	1.9	U ug/kg	1.9	2	U ug/kg	2
Endosulfan I	1.9	U ug/kg	1.9	1.9	U ug/kg	1.9	1.9	U ug/kg	1.9	1.9	U ug/kg	1.9
Dieldrin	3.7	U ug/kg	3.7	3.7	U ug/kg	3.7	3.8	U ug/kg	3.8	3.7	U ug/kg	3.7
4,4-DDE	.32	J ug/kg	4	1.4	J ug/kg	4	.41	J ug/kg	4	.8	J ug/kg	4
Endrin	3.7	U ug/kg	3.7	3.7	U ug/kg	3.7	3.8	U ug/kg	3.8	3.7	U ug/kg	3.7
Endosulfan II	3.7	U ug/kg	3.7	3.7	U ug/kg	3.7	3.8	U ug/kg	3.8	3.7	U ug/kg	3.7
4,4-DDD	3.7	U ug/kg	3.7	3.7	U ug/kg	3.7	3.8	U ug/kg	3.8	4	U ug/kg	4
Endosulfan sulfate	3.7	U ug/kg	3.7	3.7	U ug/kg	3.7	.27	J ug/kg	4	3.7	U ug/kg	3.7
4,4-DDT	3.7	U ug/kg	3.7	.8	U ug/kg	4	3.8	U ug/kg	3.8	3.7	U ug/kg	3.7
Methoxychlor	19	U ug/kg	19	19	U ug/kg	19	19	U ug/kg	19	19	U ug/kg	19
Endrin ketone	3.7	U ug/kg	3.7	3.7	U ug/kg	3.7	3.8	U ug/kg	3.8	3.7	U ug/kg	3.7
Endrin aldehyde	3.7	U ug/kg	3.7	3.7	U ug/kg	3.7	3.8	U ug/kg	3.8	3.7	U ug/kg	3.7
alpha-Chlordane	1.9	U ug/kg	1.9	1.9	U ug/kg	1.9	1	J ug/kg	2	23	ug/kg	2
gamma-Chlordane	1.9	U ug/kg	1.9	1.9	U ug/kg	1.9	2	U ug/kg	2	27	ug/kg	2
Toxaphene	190	U ug/kg	190	190	U ug/kg	190	190	U ug/kg	190	190	U ug/kg	190
Aroclor-1016	37	U ug/kg	37	37	U ug/kg	37	38	U ug/kg	38	37	U ug/kg	37
Aroclor-1221	74	U ug/kg	74	76	U ug/kg	76	76	U ug/kg	76	74	U ug/kg	74
Aroclor-1232	37	U ug/kg	37	37	U ug/kg	37	38	U ug/kg	38	37	U ug/kg	37
Aroclor-1242	37	U ug/kg	37	37	U ug/kg	37	38	U ug/kg	38	37	U ug/kg	37
Aroclor-1248	37	U ug/kg	37	37	U ug/kg	37	38	U ug/kg	38	37	U ug/kg	37
Aroclor-1254	37	U ug/kg	37	37	U ug/kg	37	38	U ug/kg	38	37	U ug/kg	37
Aroclor-1260	37	U ug/kg	37	37	U ug/kg	37	23	J ug/kg	38	37	U ug/kg	37

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NAS CECIL FIELD -- OPERABLE UNIT 7 -- SITE 16
SURFACE SOIL -- PESTICIDES AND PCBs

Lab Sample Number:	Q4548				Q4549				Q4550				Q4538			
Site	CECIL7				CECIL7				CECIL7				CECIL7			
Locator	CF16SS8D				CF16SS9				CF16SS10				CF16SS1R			
Collect Date:	12-AUG-94				12-AUG-94				12-AUG-94				12-AUG-94			
	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	1.9	U	ug/kg	1.9	1.9	U	ug/kg	1.9	.05	U	ug/l	.05
beta-BHC	1.9	U	ug/kg	1.9	1.9	U	ug/kg	1.9	1.9	U	ug/kg	1.9	.05	U	ug/l	.05
delta-BHC	1.9	U	ug/kg	1.9	1.9	U	ug/kg	1.9	1.9	U	ug/kg	1.9	.05	U	ug/l	.05
gamma-BHC (Lindane)	1.9	U	ug/kg	1.9	1.9	U	ug/kg	1.9	1.9	U	ug/kg	1.9	.05	U	ug/l	.05
Heptachlor	1.9	U	ug/kg	1.9	1.9	U	ug/kg	1.9	1.9	U	ug/kg	1.9	.05	U	ug/l	.05
Aldrin	1.9	U	ug/kg	1.9	1.9	U	ug/kg	1.9	1.9	U	ug/kg	1.9	.05	U	ug/l	.05
Heptachlor epoxide	2	U	ug/kg	2	1.9	U	ug/kg	1.9	1.9	U	ug/kg	1.9	.05	U	ug/l	.05
Endosulfan I	1.9	U	ug/kg	1.9	1.9	U	ug/kg	1.9	1.9	U	ug/kg	1.9	.05	U	ug/l	.05
Dieldrin	3.6	U	ug/kg	3.6	3.7	U	ug/kg	3.7	3.6	U	ug/kg	3.6	.1	U	ug/l	.1
4,4-DDE	.87	J	ug/kg	4	3.1	J	ug/kg	4	.36	J	ug/kg	4	.1	U	ug/l	.1
Endrin	.5	U	ug/kg	4	3.7	U	ug/kg	3.7	3.6	U	ug/kg	3.6	.1	U	ug/l	.1
Endosulfan II	3.6	U	ug/kg	3.6	3.7	U	ug/kg	3.7	3.6	U	ug/kg	3.6	.01	U	ug/l	.1
4,4-DDD	9.7		ug/kg	4	3.7	U	ug/kg	3.7	3.6	U	ug/kg	3.6	.1	U	ug/l	.1
Endosulfan sulfate	3.6	U	ug/kg	3.6	3.7	U	ug/kg	3.7	3.6	U	ug/kg	3.6	.1	U	ug/l	.1
4,4-DDT	3.6	U	ug/kg	3.6	3.7	U	ug/kg	3.7	3.6	U	ug/kg	3.6	.1	U	ug/l	.1
Methoxychlor	19	U	ug/kg	19	19	U	ug/kg	19	19	U	ug/kg	19	.5	U	ug/l	.5
Endrin ketone	3.6	U	ug/kg	3.6	3.7	U	ug/kg	3.7	3.6	U	ug/kg	3.6	.1	U	ug/l	.1
Endrin aldehyde	3.6	U	ug/kg	3.6	3.7	U	ug/kg	3.7	3.6	U	ug/kg	3.6	.1	U	ug/l	.1
alpha-Chlordane	29		ug/kg	2	1.9	U	ug/kg	1.9	1.9		ug/kg	2	.05	U	ug/l	.05
gamma-Chlordane	33		ug/kg	2	.2	U	ug/kg	2	2	U	ug/kg	2	.05	U	ug/l	.05
Toxaphene	190	U	ug/kg	190	190	U	ug/kg	190	190	U	ug/kg	190	5	U	ug/l	5
Aroclor-1016	36	U	ug/kg	36	37	U	ug/kg	37	36	U	ug/kg	36	1	U	ug/l	1
Aroclor-1221	73	U	ug/kg	73	75	U	ug/kg	75	73	U	ug/kg	73	2	U	ug/l	2
Aroclor-1232	36	U	ug/kg	36	37	U	ug/kg	37	36	U	ug/kg	36	1	U	ug/l	1
Aroclor-1242	36	U	ug/kg	36	37	U	ug/kg	37	36	U	ug/kg	36	1	U	ug/l	1
Aroclor-1248	36	U	ug/kg	36	37	U	ug/kg	37	36	U	ug/kg	36	1	U	ug/l	1
Aroclor-1254	36	U	ug/kg	36	37	U	ug/kg	37	36	U	ug/kg	36	1	U	ug/l	1
Aroclor-1260	36	U	ug/kg	36	33	J	ug/kg	37	23	J	ug/kg	36	1	U	ug/l	1

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NAS CECIL FIELD -- OPERABLE UNIT 7 -- SITE 16
SURFACE SOIL -- PESTICIDES AND PCBs

Lab Sample Number:	Q4541MS				Q4541MSD			
Site	CECIL7				CECIL7			
Locator	CF16SS2MS				CF16SS2MSD			
Collect Date:	12-AUG-94				12-AUG-94			
	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
beta-BHC	2	U	ug/kg	2	2	U	ug/kg	2
delta-BHC	2	U	ug/kg	2	2	U	ug/kg	2
gamma-BHC (Lindane)	18		ug/kg	2	17		ug/kg	2
Heptachlor	17		ug/kg	2	17		ug/kg	2
Aldrin	16		ug/kg	2	16		ug/kg	2
Heptachlor epoxide	2	U	ug/kg	2	2	U	ug/kg	2
Endosulfan I	2	U	ug/kg	2	2	U	ug/kg	2
Dieldrin	34		ug/kg	4	33		ug/kg	4
4,4-DDE	.2	U	ug/kg	4	3.8	U	ug/kg	3.8
Endrin	35		ug/kg	4	32		ug/kg	4
Endosulfan II	3.8	U	ug/kg	3.8	3.8	U	ug/kg	3.8
4,4-DDD	3.8	U	ug/kg	3.8	3.8	U	ug/kg	3.8
Endosulfan sulfate	3.8	U	ug/kg	3.8	3.8	U	ug/kg	3.8
4,4-DDT	31		ug/kg	4	29		ug/kg	4
Methoxychlor	20	U	ug/kg	20	20	U	ug/kg	20
Endrin ketone	3.8	U	ug/kg	3.8	3.8	U	ug/kg	3.8
Endrin aldehyde	3.8	U	ug/kg	3.8	3.8	U	ug/kg	3.8
alpha-Chlordane	2	U	ug/kg	2	2	U	ug/kg	2
gamma-Chlordane	2	U	ug/kg	2	2	U	ug/kg	2
Toxaphene	200	U	ug/kg	200	200	U	ug/kg	200
Aroclor-1016	38	U	ug/kg	38	38	U	ug/kg	38
Aroclor-1221	78	U	ug/kg	78	78	U	ug/kg	78
Aroclor-1232	38	U	ug/kg	38	38	U	ug/kg	38
Aroclor-1242	38	U	ug/kg	38	38	U	ug/kg	38
Aroclor-1248	38	U	ug/kg	38	38	U	ug/kg	38
Aroclor-1254	38	U	ug/kg	38	38	U	ug/kg	38
Aroclor-1260	38	U	ug/kg	38	38	U	ug/kg	38

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NAS CECIL FIELD -- OPERABLE UNIT 7 -- SITE 16
SURFACE SOIL -- METALS AND CYANIDE

Lab Sample Number:	Q4540			Q4541			Q4542			Q4543		
Site	CECIL7			CECIL7			CECIL7			CECIL7		
Locator	CF16SS1			CF16SS2			CF16SS3			CF16SS4		
Collect Date:	12-AUG-94			12-AUG-94			12-AUG-94			12-AUG-94		
	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL
CLP METALS AND CYANIDE												
Aluminum	932	mg/kg	40	2310	mg/kg	40	2350	mg/kg	40	3560	mg/kg	40
Antimony	.45 U	mg/kg	12	.49 U	mg/kg	12	.45 U	mg/kg	12	.45 U	mg/kg	12
Arsenic	.69 U	mg/kg	2	.7 U	mg/kg	2	1.1 U	mg/kg	2	.89 U	mg/kg	2
Barium	1.7	mg/kg	40	3.3	mg/kg	40	6.2	mg/kg	40	8.7	mg/kg	40
Beryllium	.22 U	mg/kg	1	.23 U	mg/kg	1	.22 U	mg/kg	1	.23 U	mg/kg	1
Cadmium	.22 U	mg/kg	1	.23 U	mg/kg	1	.7	mg/kg	1	.23 U	mg/kg	1
Calcium	13000	mg/kg	1000	5270	mg/kg	1000	3830	mg/kg	1000	2090	mg/kg	1000
Chromium	1.8	mg/kg	2	3.4	mg/kg	2	9.7	mg/kg	2	4.5	mg/kg	2
Cobalt	.45 U	mg/kg	10	.47 U	mg/kg	10	.49	mg/kg	10	.54	mg/kg	10
Copper	.45 U	mg/kg	5	.86	mg/kg	5	1.5	mg/kg	5	1.3	mg/kg	5
Iron	207	mg/kg	20	491	mg/kg	20	637	mg/kg	20	1030	mg/kg	20
Lead	3.9 J	mg/kg	.6	6 J	mg/kg	.6	32.1 J	mg/kg	.6	7.3 J	mg/kg	.6
Magnesium	119	mg/kg	1000	88.4	mg/kg	1000	123	mg/kg	1000	127	mg/kg	1000
Manganese	2.9	mg/kg	3	7.8	mg/kg	3	8.4	mg/kg	3	5.6	mg/kg	3
Mercury	.11 U	mg/kg	.1	.12 U	mg/kg	.1	.12 U	mg/kg	.1	.12 U	mg/kg	.1
Nickel	.45 U	mg/kg	8	.81 J	mg/kg	8	1.3	mg/kg	8	1.7	mg/kg	8
Potassium	15.5 UJ	mg/kg	1000	24.7 J	mg/kg	1000	37.6 J	mg/kg	1000	56.1 J	mg/kg	1000
Selenium	.89 U	mg/kg	1	.94 U	mg/kg	1	.9 U	mg/kg	1	.91 U	mg/kg	1
Silver	.22 U	mg/kg	2	.23 U	mg/kg	2	.22 U	mg/kg	2	.23 U	mg/kg	2
Sodium	174	mg/kg	1000	143	mg/kg	1000	163	mg/kg	1000	171	mg/kg	1000
Thallium	1.9 U	mg/kg	2	1.4 U	mg/kg	2	1.3 U	mg/kg	2	1.4 U	mg/kg	2
Vanadium	1.2	mg/kg	10	2.6	mg/kg	10	2.9	mg/kg	10	3.7	mg/kg	10
Zinc	3.2 U	mg/kg	4	11.7	mg/kg	4	16.2	mg/kg	4	9.7	mg/kg	4
Cyanide	.52 U	mg/kg	.5	.54 U	mg/kg	.5	.59 U	mg/kg	.5	.57 U	mg/kg	.5

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NAS CECIL FIELD -- OP[illegible]E UNIT 7 -- SITE 16
SURFACE SOIL -- METALS AND CYANIDE

Lab Sample Number:	Q4544			Q4545			Q4546			Q4547		
Site	CECIL7			CECIL7			CECIL7			CECIL7		
Locator	CF16SS5			CF16SS6			CF16SS7			CF16SS8		
Collect Date:	12-AUG-94			12-AUG-94			12-AUG-94			12-AUG-94		
	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL
CLP METALS AND CYANIDE												
Aluminum	5040	mg/kg	40	1560	mg/kg	40	2110	mg/kg	40	4920	mg/kg	40
Antimony	.45 U	mg/kg	12	.46 U	mg/kg	12	.49 U	mg/kg	12	.45 U	mg/kg	12
Arsenic	.94 U	mg/kg	2	.91 U	mg/kg	2	.86 U	mg/kg	2	1.4 U	mg/kg	2
Barium	6.5	mg/kg	40	7	mg/kg	40	7.3	mg/kg	40	5.6	mg/kg	40
Beryllium	.22 U	mg/kg	1	.23 U	mg/kg	1	.24 U	mg/kg	1	.23 U	mg/kg	1
Cadmium	.22 U	mg/kg	1	.23 U	mg/kg	1	.94	mg/kg	1	.23	mg/kg	1
Calcium	3020	mg/kg	1000	1510	mg/kg	1000	2450	mg/kg	1000	5820	mg/kg	1000
Chromium	6.5	mg/kg	2	2.4	mg/kg	2	10.1	mg/kg	2	9	mg/kg	2
Cobalt	.71	mg/kg	10	.46 U	mg/kg	10	.49 U	mg/kg	10	.61	mg/kg	10
Copper	1.2	mg/kg	5	.81	mg/kg	5	3.1	mg/kg	5	1.2	mg/kg	5
Iron	976	mg/kg	20	418	mg/kg	20	506	mg/kg	20	735	mg/kg	20
Lead	15.4 J	mg/kg	.6	4 J	mg/kg	.6	29.5 J	mg/kg	.6	15 J	mg/kg	.6
Magnesium	169	mg/kg	1000	92.4	mg/kg	1000	66	mg/kg	1000	156	mg/kg	1000
Manganese	10.1	mg/kg	3	4.8	mg/kg	3	10.6	mg/kg	3	8.1	mg/kg	3
Mercury	.11 U	mg/kg	.1	.1 U	mg/kg	.1	.13 U	mg/kg	.1	.11 U	mg/kg	.1
Nickel	2.1	mg/kg	8	1	mg/kg	8	2.6	mg/kg	8	1.5	mg/kg	8
Potassium	93.7 J	mg/kg	1000	24.7 J	mg/kg	1000	30.8 J	mg/kg	1000	72.8 J	mg/kg	1000
Selenium	.9 U	mg/kg	1	.92 U	mg/kg	1	.98 U	mg/kg	1	.91 U	mg/kg	1
Silver	.22 U	mg/kg	2	.23 U	mg/kg	2	.24 U	mg/kg	2	.23 U	mg/kg	2
Sodium	153	mg/kg	1000	178	mg/kg	1000	192	mg/kg	1000	158	mg/kg	1000
Thallium	1.3 U	mg/kg	2	1.4 U	mg/kg	2	1.5 U	mg/kg	2	1.4 U	mg/kg	2
Vanadium	5	mg/kg	10	1.9	mg/kg	10	2.7	mg/kg	10	4.1	mg/kg	10
Zinc	17.6	mg/kg	4	5.6 U	mg/kg	4	25.2	mg/kg	4	10.6	mg/kg	4
Cyanide	.58 U	mg/kg	.5	.55 U	mg/kg	.5	.59 U	mg/kg	.5	.58 U	mg/kg	.5

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NAS CECIL FIELD -- OPERABLE UNIT 7 -- SITE 16
SURFACE SOIL -- METALS AND CYANIDE

Lab Sample Number:	Q4548				Q4549				Q4550				Q4538			
Site	CECIL7				CECIL7				CECIL7				CECIL7			
Locator	CF16SS8D				CF16SS9				CF16SS10				CF16SS1R			
Collect Date:	12-AUG-94				12-AUG-94				12-AUG-94				12-AUG-94			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP METALS AND CYANIDE																
Aluminum	6980		mg/kg	40	1890		mg/kg	40	2040		mg/kg	40	51.6		ug/l	200
Antimony	.43	U	mg/kg	12	.45	U	mg/kg	12	.44	U	mg/kg	12	7.2		ug/l	60
Arsenic	.72	U	mg/kg	2	.97	U	mg/kg	2	1.3	U	mg/kg	2	3	U	ug/l	10
Barium	6.7		mg/kg	40	6.6		mg/kg	40	4.2		mg/kg	40	1.1		ug/l	200
Beryllium	.22	U	mg/kg	1	.22	U	mg/kg	1	.22	U	mg/kg	1	1	U	ug/l	5
Cadmium	.47		mg/kg	1	.56		mg/kg	1	.9		mg/kg	1	1	U	ug/l	5
Calcium	4650		mg/kg	1000	2950		mg/kg	1000	994		mg/kg	1000	86.4		ug/l	5000
Chromium	17		mg/kg	2	7.7		mg/kg	2	5.6		mg/kg	2	2	U	ug/l	10
Cobalt	.75		mg/kg	10	.45	U	mg/kg	10	.44	U	mg/kg	10	2	U	ug/l	50
Copper	2		mg/kg	5	2.9		mg/kg	5	1.9		mg/kg	5	2	U	ug/l	25
Iron	942		mg/kg	20	392		mg/kg	20	539		mg/kg	20	47.5		ug/l	100
Lead	39.8	J	mg/kg	.6	23.2	J	mg/kg	.6	12.3	J	mg/kg	.6	1	U	ug/l	3
Magnesium	189		mg/kg	1000	107		mg/kg	1000	80		mg/kg	1000	28.5		ug/l	5000
Manganese	7.2		mg/kg	3	4.8		mg/kg	3	14		mg/kg	3	1	U	ug/l	15
Mercury	.12	U	mg/kg	.1	.1	U	mg/kg	.1	.12	U	mg/kg	.1	.2	U	ug/l	.2
Nickel	2.6		mg/kg	8	1.3		mg/kg	8	1.7		mg/kg	8	2	U	ug/l	40
Potassium	99	J	mg/kg	1000	21.7	J	mg/kg	1000	32.2	J	mg/kg	1000	32.7		ug/l	5000
Selenium	.87	U	mg/kg	1	.9	U	mg/kg	1	.88	U	mg/kg	1	4	U	ug/l	5
Silver	.22	U	mg/kg	2	.22	U	mg/kg	2	.4	J	mg/kg	2	1	U	ug/l	10
Sodium	160		mg/kg	1000	150		mg/kg	1000	159		mg/kg	1000	117		ug/l	5000
Thallium	1.3	U	mg/kg	2	1.3	U	mg/kg	2	1.3	U	mg/kg	2	7.4		ug/l	10
Vanadium	5		mg/kg	10	2		mg/kg	10	2.1		mg/kg	10	1	U	ug/l	50
Zinc	15.6		mg/kg	4	10.9		mg/kg	4	9.4		mg/kg	4	4.8		ug/l	20
Cyanide	.57	U	mg/kg	.5	.58	U	mg/kg	.5	.54	U	mg/kg	.5	10	U	ug/l	10

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NAS CECIL FIELD -- OP_ _E UNIT 7 -- SITE 16
SURFACE SOIL -- METALS AND CYANIDE

Lab Sample Number:	Q4538F
Site	CECIL7
Locator	CF16SS1RF
Collect Date:	12-AUG-94

	VALUE	QUAL	UNITS	DL
CLP METALS AND CYANIDE				
Aluminum	51.7	U	ug/l	200
Antimony	7.4		ug/l	60
Arsenic	3	U	ug/l	10
Barium	1	U	ug/l	200
Beryllium	1	U	ug/l	5
Cadmium	1	U	ug/l	5
Calcium	81.6		ug/l	5000
Chromium	2	U	ug/l	10
Cobalt	2	U	ug/l	50
Copper	2	U	ug/l	25
Iron	12	U	ug/l	100
Lead	1	U	ug/l	3
Magnesium	16.9	U	ug/l	5000
Manganese	1	U	ug/l	15
Mercury	.2	U	ug/l	.2
Nickel	2	U	ug/l	40
Potassium	24.6		ug/l	5000
Selenium	4	U	ug/l	5
Silver	1	U	ug/l	10
Sodium	120	U	ug/l	5000
Thallium	6	U	ug/l	10
Vanadium	1	U	ug/l	50
Zinc	14	U	ug/l	20
Cyanide	*			

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NAS CECIL FIELD -- OPERABLE UNIT 7 -- SITE 16
SURFACE SOIL -- TOTAL DISSOLVED SOLIDS & TOTAL PETROLEUM HYDROCARBONS

Lab Sample Number:	Q4509				Q4510				Q4511				Q4512			
Site	CECIL7				CECIL7				CECIL7				CECIL7			
Locator	CF16SS1				CF16SS2				CF16SS3				CF16SS4			
Collect Date:	12-AUG-94				12-AUG-94				12-AUG-94				12-AUG-94			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
Total dissolved solids	-				-				-				-			
Total petroleum hydrocarbons	11	U	mg/kg	11	170		mg/kg	12	85		mg/kg	11	16		mg/kg	11

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NAS CECIL FIELD -- OP[illegible]LE UNIT 7 -- SITE 16
SURFACE SOIL -- TOTAL DISSOLVED SOLIDS & TOTAL PETROLEUM HYDROCARBONS

Lab Sample Number:	Q4514			Q4515			Q4517			Q4518		
Site	CECIL7			CECIL7			CECIL7			CECIL7		
Locator	CF16SS5			CF16SS6			CF16SS7			CF16SS8		
Collect Date:	12-AUG-94			12-AUG-94			12-AUG-94			12-AUG-94		
	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL
Total dissolved solids	-			-			-			-		
Total petroleum hydrocarbons	49	mg/kg	11	18	mg/kg	11	12 U	mg/kg	12	11	mg/kg	11

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NAS CECIL FIELD -- OPERABLE UNIT 7 -- SITE 16
SURFACE SOIL -- TOTAL DISSOLVED SOLIDS & TOTAL PETROLEUM HYDROCARBONS

Lab Sample Number:	Q4519			Q4520			Q4522			Q4508		
Site	CECIL7			CECIL7			CECIL7			CECIL7		
Locator	CF16SS8D			CF16SS9			CF16SS10			CF16SS1R		
Collect Date:	12-AUG-94			12-AUG-94			12-AUG-94			12-AUG-94		
	VALUE QUAL	UNITS	DL	VALUE QUAL	UNITS	DL	VALUE QUAL	UNITS	DL	VALUE QUAL	UNITS	DL
Total dissolved solids	-			-			-			-		
Total petroleum hydrocarbons	42	mg/kg	11	18	mg/kg	10	14	mg/kg	11	.5 U	mg/l	.5

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R = RESULT IS REJECTED AND UNUSABLE

NAS CECIL FIELD -- OPERABLE UNIT 7 -- SITE 16
SUBSURFACE SOIL -- VOLATILES

Lab Sample Number:	A008K				A008KMS				A008KMSD				A008L			
Site	CECIL7				CECIL7				CECIL7				CECIL7			
Locator	CF16SB1S0				CF16SB1S0MS				CF16SB1S0MSD				CF16SB1S6			
Collect Date:	14-AUG-94				14-AUG-94				14-AUG-94				14-AUG-94			
	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	11	U	ug/kg	11	11	U	ug/kg	11	12	U	ug/kg	12
Bromomethane	11	U	ug/kg	11	11	U	ug/kg	11	11	U	ug/kg	11	12	U	ug/kg	12
Vinyl chloride	11	U	ug/kg	11	11	U	ug/kg	11	11	U	ug/kg	11	12	U	ug/kg	12
Chloroethane	11	U	ug/kg	11	11	U	ug/kg	11	11	U	ug/kg	11	12	U	ug/kg	12
Methylene chloride	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	6	U	ug/kg	6
Acetone	27	U	ug/kg	27	11	U	ug/kg	11	14	U	ug/kg	14	12	U	ug/kg	12
Carbon disulfide	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	6	U	ug/kg	6
1,1-Dichloroethene	5	U	ug/kg	5	47		ug/kg	11	50		ug/kg	11	6	U	ug/kg	6
1,1-Dichloroethane	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	6	U	ug/kg	6
1,2-Dichloroethene (total)	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	6	U	ug/kg	6
Chloroform	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	6	U	ug/kg	6
1,2-Dichloroethane	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	6	U	ug/kg	6
2-Butanone	11	U	ug/kg	11	11	U	ug/kg	11	11	U	ug/kg	11	12	U	ug/kg	12
1,1,1-Trichloroethane	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	6	U	ug/kg	6
Carbon tetrachloride	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	6	U	ug/kg	6
Bromodichloromethane	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	6	U	ug/kg	6
1,2-Dichloropropane	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	6	U	ug/kg	6
cis-1,3-Dichloropropene	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	6	U	ug/kg	6
Trichloroethene	5	U	ug/kg	5	47		ug/kg	11	51		ug/kg	11	6	U	ug/kg	6
Dibromochloromethane	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	6	U	ug/kg	6
1,1,2-Trichloroethane	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	6	U	ug/kg	6
Benzene	5	U	ug/kg	5	52		ug/kg	11	55		ug/kg	11	6	U	ug/kg	6
trans-1,3-Dichloropropene	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	6	U	ug/kg	6
Bromoform	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	6	U	ug/kg	6
4-Methyl-2-pentanone	11	U	ug/kg	11	11	U	ug/kg	11	11	U	ug/kg	11	12	U	ug/kg	12
2-Hexanone	11	U	ug/kg	11	11	U	ug/kg	11	11	U	ug/kg	11	12	U	ug/kg	12
Tetrachloroethene	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	6	U	ug/kg	6
Toluene	5	U	ug/kg	5	50		ug/kg	11	53		ug/kg	11	6	U	ug/kg	6
1,1,2,2-Tetrachloroethane	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	6	U	ug/kg	6
Chlorobenzene	5	U	ug/kg	5	49		ug/kg	11	52		ug/kg	11	6	U	ug/kg	6
Ethylbenzene	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	6	U	ug/kg	6
Styrene	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	6	U	ug/kg	6
Xylenes (total)	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	6	U	ug/kg	6

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

NAS CECIL FIELD -- OPERABLE UNIT 7 -- SITE 16
SUBSURFACE SOIL -- VOLATILES

Lab Sample Number:	A008N				A008O				A008P				A008S			
Site	CECIL7				CECIL7				CECIL7				CECIL7			
Locator	CF16SB2S2				CF16SB2S4				CF16SB3S0				CF16SB3S6			
Collect Date:	15-AUG-94				15-AUG-94				15-AUG-94				15-AUG-94			
	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	12	U	ug/kg	12	54	U	ug/kg	54	12	U	ug/kg	12
Bromomethane	11	U	ug/kg	11	12	U	ug/kg	12	54	U	ug/kg	54	12	U	ug/kg	12
Vinyl chloride	11	U	ug/kg	11	12	U	ug/kg	12	54	U	ug/kg	54	12	U	ug/kg	12
Chloroethane	11	U	ug/kg	11	12	U	ug/kg	12	54	U	ug/kg	54	12	U	ug/kg	12
Methylene chloride	6	U	ug/kg	6	6	U	ug/kg	6	27	U	ug/kg	27	6	U	ug/kg	6
Acetone	11	U	ug/kg	11	14	U	ug/kg	14	75	U	ug/kg	75	200		ug/kg	12
Carbon disulfide	6	U	ug/kg	6	6	U	ug/kg	6	27	U	ug/kg	27	6	U	ug/kg	6
1,1-Dichloroethene	6	U	ug/kg	6	6	U	ug/kg	6	27	U	ug/kg	27	6	U	ug/kg	6
1,1-Dichloroethane	6	U	ug/kg	6	6	U	ug/kg	6	27	U	ug/kg	27	6	U	ug/kg	6
1,2-Dichloroethene (total)	6	U	ug/kg	6	6	U	ug/kg	6	27	U	ug/kg	27	6	U	ug/kg	6
Chloroform	6	U	ug/kg	6	6	U	ug/kg	6	27	U	ug/kg	27	6	U	ug/kg	6
1,2-Dichloroethane	6	U	ug/kg	6	6	U	ug/kg	6	27	U	ug/kg	27	6	U	ug/kg	6
2-Butanone	11	U	ug/kg	11	12	U	ug/kg	12	54	U	ug/kg	54	12	U	ug/kg	12
1,1,1-Trichloroethane	6	U	ug/kg	6	6	U	ug/kg	6	27	U	ug/kg	27	6	U	ug/kg	6
Carbon tetrachloride	6	U	ug/kg	6	6	U	ug/kg	6	27	U	ug/kg	27	6	U	ug/kg	6
Bromodichloromethane	6	U	ug/kg	6	6	U	ug/kg	6	27	U	ug/kg	27	6	U	ug/kg	6
1,2-Dichloropropane	6	U	ug/kg	6	6	U	ug/kg	6	27	U	ug/kg	27	6	U	ug/kg	6
cis-1,3-Dichloropropene	6	U	ug/kg	6	6	U	ug/kg	6	27	U	ug/kg	27	6	U	ug/kg	6
Trichloroethene	6	U	ug/kg	6	6	U	ug/kg	6	650		ug/kg	54	49		ug/kg	12
Dibromochloromethane	6	U	ug/kg	6	6	U	ug/kg	6	27	U	ug/kg	27	6	U	ug/kg	6
1,1,2-Trichloroethane	6	U	ug/kg	6	6	U	ug/kg	6	27	U	ug/kg	27	6	U	ug/kg	6
Benzene	6	U	ug/kg	6	6	U	ug/kg	6	27	U	ug/kg	27	6	U	ug/kg	6
trans-1,3-Dichloropropene	6	U	ug/kg	6	6	U	ug/kg	6	27	U	ug/kg	27	6	U	ug/kg	6
Bromoform	6	U	ug/kg	6	6	U	ug/kg	6	27	U	ug/kg	27	6	U	ug/kg	6
4-Methyl-2-pentanone	11	U	ug/kg	11	12	U	ug/kg	12	54	U	ug/kg	54	12	U	ug/kg	12
2-Hexanone	11	U	ug/kg	11	12	U	ug/kg	12	54	U	ug/kg	54	12	U	ug/kg	12
Tetrachloroethene	6	U	ug/kg	6	6	U	ug/kg	6	27	U	ug/kg	27	6	U	ug/kg	6
Toluene	6	U	ug/kg	6	6	U	ug/kg	6	27	U	ug/kg	27	6	U	ug/kg	6
1,1,2,2-Tetrachloroethane	6	U	ug/kg	6	6	U	ug/kg	6	27	U	ug/kg	27	6	U	ug/kg	6
Chlorobenzene	6	U	ug/kg	6	6	U	ug/kg	6	27	U	ug/kg	27	6	U	ug/kg	6
Ethylbenzene	6	U	ug/kg	6	6	U	ug/kg	6	27	U	ug/kg	27	6	U	ug/kg	6
Styrene	6	U	ug/kg	6	6	U	ug/kg	6	27	U	ug/kg	27	6	U	ug/kg	6
Xylenes (total)	6	U	ug/kg	6	6	U	ug/kg	6	27	U	ug/kg	27	6	U	ug/kg	6

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

NAS CECIL FIELD -- OPERABLE UNIT 7 -- SITE 16
SUBSURFACE SOIL -- VOLATILES

Lab Sample Number:	A008T				A008TMS				A008TMSD				A008U			
Site	CECIL7				CECIL7				CECIL7				CECIL7			
Locator	CF16SB4S2				CF16SB4S2MS				CF16SB4S2MSD				CF16SB4S6			
Collect Date:	15-AUG-94				15-AUG-94				15-AUG-94				15-AUG-94			
	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	11	U	ug/kg	11	11	U	ug/kg	11	12	U	ug/kg	12
Bromomethane	11	U	ug/kg	11	11	U	ug/kg	11	11	U	ug/kg	11	12	U	ug/kg	12
Vinyl chloride	11	U	ug/kg	11	11	U	ug/kg	11	11	U	ug/kg	11	12	U	ug/kg	12
Chloroethane	11	U	ug/kg	11	11	U	ug/kg	11	11	U	ug/kg	11	12	U	ug/kg	12
Methylene chloride	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	6	U	ug/kg	6
Acetone	20	U	ug/kg	20	4	J	ug/kg	11	6	J	ug/kg	11	40	U	ug/kg	40
Carbon disulfide	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	6	U	ug/kg	6
1,1-Dichloroethene	5	U	ug/kg	5	50		ug/kg	11	53		ug/kg	11	6	U	ug/kg	6
1,1-Dichloroethane	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	6	U	ug/kg	6
1,2-Dichloroethene (total)	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	6	U	ug/kg	6
Chloroform	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	6	U	ug/kg	6
1,2-Dichloroethane	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	6	U	ug/kg	6
2-Butanone	11	U	ug/kg	11	11	U	ug/kg	11	11	U	ug/kg	11	12	U	ug/kg	12
1,1,1-Trichloroethane	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	6	U	ug/kg	6
Carbon tetrachloride	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	6	U	ug/kg	6
Bromodichloromethane	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	6	U	ug/kg	6
1,2-Dichloropropane	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	6	U	ug/kg	6
cis-1,3-Dichloropropene	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	6	U	ug/kg	6
Trichloroethene	5	U	ug/kg	5	48		ug/kg	11	50		ug/kg	11	6	U	ug/kg	6
Dibromochloromethane	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	6	U	ug/kg	6
1,1,2-Trichloroethane	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	6	U	ug/kg	6
Benzene	5	U	ug/kg	5	55		ug/kg	11	56		ug/kg	11	6	U	ug/kg	6
trans-1,3-Dichloropropene	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	6	U	ug/kg	6
Bromoform	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	6	U	ug/kg	6
4-Methyl-2-pentanone	11	U	ug/kg	11	11	U	ug/kg	11	11	U	ug/kg	11	12	U	ug/kg	12
2-Hexanone	11	U	ug/kg	11	11	U	ug/kg	11	11	U	ug/kg	11	12	U	ug/kg	12
Tetrachloroethene	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	6	U	ug/kg	6
Toluene	5	U	ug/kg	5	53		ug/kg	11	55		ug/kg	11	6	U	ug/kg	6
1,1,2,2-Tetrachloroethane	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	6	U	ug/kg	6
Chlorobenzene	5	U	ug/kg	5	50		ug/kg	11	53		ug/kg	11	6	U	ug/kg	6
Ethylbenzene	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	6	U	ug/kg	6
Styrene	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	6	U	ug/kg	6
Xylenes (total)	5	U	ug/kg	5	5	U	ug/kg	5	5	U	ug/kg	5	6	U	ug/kg	6

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

NAS CECIL FIELD -- OPERABLE UNIT 7 -- SITE 16
SUBSURFACE SOIL -- VOLATILES

Lab Sample Number:	A008V				A008W				A008X				A008Y			
Site	CECIL7				CECIL7				CECIL7				CECIL7			
Locator	CF16SB5S2				CF16SB5S2D				CF16SB5S6				CF16SB6S2			
Collect Date:	15-AUG-94				15-AUG-94				15-AUG-94				15-AUG-94			
	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	11	U	ug/kg	11	12	U	ug/kg	12	11	U	ug/kg	11
Bromomethane	11	U	ug/kg	11	11	U	ug/kg	11	12	U	ug/kg	12	11	U	ug/kg	11
Vinyl chloride	11	U	ug/kg	11	11	U	ug/kg	11	12	U	ug/kg	12	11	U	ug/kg	11
Chloroethane	11	U	ug/kg	11	11	U	ug/kg	11	12	U	ug/kg	12	11	U	ug/kg	11
Methylene chloride	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6	6		ug/kg	11
Acetone	12	U	ug/kg	12	27	U	ug/kg	27	17	U	ug/kg	17	11	U	ug/kg	11
Carbon disulfide	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6
1,1-Dichloroethene	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6
1,1-Dichloroethane	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6
1,2-Dichloroethene (total)	6	U	ug/kg	6	3	J	ug/kg	11	6	U	ug/kg	6	6	U	ug/kg	6
Chloroform	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6
1,2-Dichloroethane	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6
2-Butanone	11	U	ug/kg	11	11	U	ug/kg	11	12	U	ug/kg	12	11	U	ug/kg	11
1,1,1-Trichloroethane	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6
Carbon tetrachloride	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6
Bromodichloromethane	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6
1,2-Dichloropropane	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6
cis-1,3-Dichloropropene	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6
Trichloroethene	100		ug/kg	11	130		ug/kg	11	6	U	ug/kg	6	6	U	ug/kg	6
Dibromochloromethane	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6
1,1,2-Trichloroethane	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6
Benzene	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6
trans-1,3-Dichloropropene	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6
Bromoform	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6
4-Methyl-2-pentanone	11	U	ug/kg	11	11	U	ug/kg	11	12	U	ug/kg	12	11	U	ug/kg	11
2-Hexanone	11	U	ug/kg	11	11	U	ug/kg	11	12	U	ug/kg	12	11	U	ug/kg	11
Tetrachloroethene	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6
Toluene	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6
1,1,2,2-Tetrachloroethane	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6
Chlorobenzene	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6
Ethylbenzene	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6
Styrene	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6
Xylenes (total)	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6

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

NAS CECIL FIELD -- OPERABLE UNIT 7 -- SITE 16
SUBSURFACE SOIL -- VOLATILES

Lab Sample Number:	A0090				A0091				A0092				A001F			
Site	CECIL7				CECIL7				CECIL7				CECIL7			
Locator	CF16SB6S4				CF16SB6S4R				CF16SB6S4RT				CF16SB7S2			
Collect Date:	15-AUG-94				15-AUG-94				15-AUG-94				16-AUG-94			
	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	2	U	ug/l	2	2	U	ug/l	2	19	U	ug/kg	19
Bromomethane	12	U	ug/kg	12	2	U	ug/l	2	2	U	ug/l	2	19	U	ug/kg	19
Vinyl chloride	12	U	ug/kg	12	2	U	ug/l	2	2	U	ug/l	2	19	U	ug/kg	19
Chloroethane	12	U	ug/kg	12	2	U	ug/l	2	2	U	ug/l	2	19	U	ug/kg	19
Methylene chloride	6	U	ug/kg	6	1	U	ug/l	1	1	U	ug/l	1	9	U	ug/kg	9
Acetone	150	U	ug/kg	150	2	U	ug/l	2	13	J	ug/l	2	19	U	ug/kg	19
Carbon disulfide	6	U	ug/kg	6	1	U	ug/l	1	1	U	ug/l	1	9	U	ug/kg	9
1,1-Dichloroethene	6	U	ug/kg	6	1	U	ug/l	1	1	U	ug/l	1	9	U	ug/kg	9
1,1-Dichloroethane	6	U	ug/kg	6	1	U	ug/l	1	1	U	ug/l	1	9	U	ug/kg	9
1,2-Dichloroethene (total)	6	U	ug/kg	6	1	U	ug/l	1	1	U	ug/l	1	270		ug/kg	19
Chloroform	6	U	ug/kg	6	1	U	ug/l	1	1	U	ug/l	1	9	U	ug/kg	9
1,2-Dichloroethane	6	U	ug/kg	6	1	U	ug/l	1	1	U	ug/l	1	9	U	ug/kg	9
2-Butanone	12	U	ug/kg	12	2	U	ug/l	2	2	U	ug/l	2	19	U	ug/kg	19
1,1,1-Trichloroethane	6	U	ug/kg	6	1	U	ug/l	1	1	U	ug/l	1	9	U	ug/kg	9
Carbon tetrachloride	6	U	ug/kg	6	1	U	ug/l	1	1	U	ug/l	1	9	U	ug/kg	9
Bromodichloromethane	6	U	ug/kg	6	1	U	ug/l	1	1	U	ug/l	1	9	U	ug/kg	9
1,2-Dichloropropane	6	U	ug/kg	6	1	U	ug/l	1	1	U	ug/l	1	9	U	ug/kg	9
cis-1,3-Dichloropropene	6	U	ug/kg	6	1	U	ug/l	1	1	U	ug/l	1	9	U	ug/kg	9
Trichloroethene	6	U	ug/kg	6	1	U	ug/l	1	1	U	ug/l	1	28		ug/kg	19
Dibromochloromethane	6	U	ug/kg	6	1	U	ug/l	1	1	U	ug/l	1	9	U	ug/kg	9
1,1,2-Trichloroethane	6	U	ug/kg	6	1	U	ug/l	1	1	U	ug/l	1	9	U	ug/kg	9
Benzene	6	U	ug/kg	6	1	U	ug/l	1	1	U	ug/l	1	9	U	ug/kg	9
trans-1,3-Dichloropropene	6	U	ug/kg	6	1	U	ug/l	1	1	U	ug/l	1	9	U	ug/kg	9
Bromoform	6	U	ug/kg	6	1	U	ug/l	1	1	U	ug/l	1	9	U	ug/kg	9
4-Methyl-2-pentanone	12	U	ug/kg	12	2	U	ug/l	2	2	U	ug/l	2	19	U	ug/kg	19
2-Hexanone	12	U	ug/kg	12	2	U	ug/l	2	2	U	ug/l	2	19	U	ug/kg	19
Tetrachloroethene	6	U	ug/kg	6	1	U	ug/l	1	1	U	ug/l	1	9	U	ug/kg	9
Toluene	6	U	ug/kg	6	1	U	ug/l	1	1	U	ug/l	1	9	U	ug/kg	9
1,1,2,2-Tetrachloroethane	6	U	ug/kg	6	1	U	ug/l	1	1	U	ug/l	1	9	U	ug/kg	9
Chlorobenzene	6	U	ug/kg	6	1	U	ug/l	1	1	U	ug/l	1	9	U	ug/kg	9
Ethylbenzene	6	U	ug/kg	6	1	U	ug/l	1	1	U	ug/l	1	9	U	ug/kg	9
Styrene	6	U	ug/kg	6	1	U	ug/l	1	1	U	ug/l	1	9	U	ug/kg	9
Xylenes (total)	6	U	ug/kg	6	1	U	ug/l	1	1	U	ug/l	1	9	U	ug/kg	9

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

NAS CECIL FIELD -- OPERABLE UNIT 7 -- SITE 16
SUBSURFACE SOIL -- VOLATILES

Lab Sample Number:	A001H				A001I				A001J				A001K			
Site	CECIL7				CECIL7				CECIL7				CECIL7			
Locator	CF16SB7S2D				CF16SB7S4				CF16SB8S2				CF16SB8S4			
Collect Date:	16-AUG-94				16-AUG-94				16-AUG-94				16-AUG-94			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP VOLATILES 90-SOW																
Chloromethane	23	U	ug/kg	23	28	U	ug/kg	28	11	U	ug/kg	11	12	U	ug/kg	12
Bromomethane	23	U	ug/kg	23	28	U	ug/kg	28	11	U	ug/kg	11	12	U	ug/kg	12
Vinyl chloride	23	U	ug/kg	23	28	U	ug/kg	28	11	U	ug/kg	11	12	U	ug/kg	12
Chloroethane	23	U	ug/kg	23	28	U	ug/kg	28	11	U	ug/kg	11	12	U	ug/kg	12
Methylene chloride	8	J	ug/kg	23	10	J	ug/kg	28	5	J	ug/kg	11	6		ug/kg	12
Acetone	23	U	ug/kg	23	28	U	ug/kg	28	13	U	ug/kg	13	21	U	ug/kg	21
Carbon disulfide	11	U	ug/kg	11	14	U	ug/kg	14	6	U	ug/kg	6	6	U	ug/kg	6
1,1-Dichloroethene	11	U	ug/kg	11	14	U	ug/kg	14	6	U	ug/kg	6	6	U	ug/kg	6
1,1-Dichloroethane	11	U	ug/kg	11	14	U	ug/kg	14	6	U	ug/kg	6	6	U	ug/kg	6
1,2-Dichloroethene (total)	430		ug/kg	23	81		ug/kg	28	6	U	ug/kg	6	6	U	ug/kg	6
Chloroform	11	U	ug/kg	11	14	U	ug/kg	14	6	U	ug/kg	6	6	U	ug/kg	6
1,2-Dichloroethane	11	U	ug/kg	11	14	U	ug/kg	14	6	U	ug/kg	6	6	U	ug/kg	6
2-Butanone	23	U	ug/kg	23	28	U	ug/kg	28	11	U	ug/kg	11	12	U	ug/kg	12
1,1,1-Trichloroethane	11	U	ug/kg	11	14	U	ug/kg	14	6	U	ug/kg	6	6	U	ug/kg	6
Carbon tetrachloride	11	U	ug/kg	11	14	U	ug/kg	14	6	U	ug/kg	6	6	U	ug/kg	6
Bromodichloromethane	11	U	ug/kg	11	14	U	ug/kg	14	6	U	ug/kg	6	6	U	ug/kg	6
1,2-Dichloropropane	11	U	ug/kg	11	14	U	ug/kg	14	6	U	ug/kg	6	6	U	ug/kg	6
cis-1,3-Dichloropropene	11	U	ug/kg	11	14	U	ug/kg	14	6	U	ug/kg	6	6	U	ug/kg	6
Trichloroethene	18		ug/kg	23	350		ug/kg	28	3	J	ug/kg	11	6	U	ug/kg	6
Dibromochloromethane	11	U	ug/kg	11	14	U	ug/kg	14	6	U	ug/kg	6	6	U	ug/kg	6
1,1,2-Trichloroethane	11	U	ug/kg	11	14	U	ug/kg	14	6	U	ug/kg	6	6	U	ug/kg	6
Benzene	11	U	ug/kg	11	14	U	ug/kg	14	6	U	ug/kg	6	6	U	ug/kg	6
trans-1,3-Dichloropropene	11	U	ug/kg	11	14	U	ug/kg	14	6	U	ug/kg	6	6	U	ug/kg	6
Bromoform	11	U	ug/kg	11	14	U	ug/kg	14	6	U	ug/kg	6	6	U	ug/kg	6
4-Methyl-2-pentanone	23	U	ug/kg	23	28	U	ug/kg	28	11	U	ug/kg	11	12	U	ug/kg	12
2-Hexanone	23	U	ug/kg	23	28	U	ug/kg	28	11	U	ug/kg	11	12	U	ug/kg	12
Tetrachloroethene	11	U	ug/kg	11	14	U	ug/kg	14	6	U	ug/kg	6	6	U	ug/kg	6
Toluene	11	U	ug/kg	11	14	U	ug/kg	14	6	U	ug/kg	6	6	U	ug/kg	6
1,1,2,2-Tetrachloroethane	11	U	ug/kg	11	14	U	ug/kg	14	6	U	ug/kg	6	6	U	ug/kg	6
Chlorobenzene	11	U	ug/kg	11	14	U	ug/kg	14	6	U	ug/kg	6	6	U	ug/kg	6
Ethylbenzene	11	U	ug/kg	11	14	U	ug/kg	14	6	U	ug/kg	6	6	U	ug/kg	6
Styrene	11	U	ug/kg	11	14	U	ug/kg	14	6	U	ug/kg	6	6	U	ug/kg	6
Xylenes (total)	11	U	ug/kg	11	14	U	ug/kg	14	6	U	ug/kg	6	6	U	ug/kg	6

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

NAS CECIL FIELD -- OPERABLE UNIT 7 -- SITE 16
SUBSURFACE SOIL -- VOLATILES

Lab Sample Number:	A00I0				A00IM				A00IT				A00J0			
Site	CECIL7				CECIL7				CECIL7				CECIL7			
Locator	CF16SB9S4				CF16SB9S6				CF16SB10S2				CF16SB10S2D			
Collect Date:	16-AUG-94				16-AUG-94				16-AUG-94				16-AUG-94			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP VOLATILES 90-SOW																
Chloromethane	20	U	ug/kg	20	12	U	ug/kg	12	11	U	ug/kg	11	11	U	ug/kg	11
Bromomethane	20	U	ug/kg	20	12	U	ug/kg	12	11	U	ug/kg	11	11	U	ug/kg	11
Vinyl chloride	20	U	ug/kg	20	12	U	ug/kg	12	11	U	ug/kg	11	11	U	ug/kg	11
Chloroethane	20	U	ug/kg	20	12	U	ug/kg	12	11	U	ug/kg	11	11	U	ug/kg	11
Methylene chloride	10	U	ug/kg	10	5	J	ug/kg	12	6	U	ug/kg	6	2	J	ug/kg	11
Acetone	220		ug/kg	20	210	J	ug/kg	12	15	U	ug/kg	15	11	U	ug/kg	11
Carbon disulfide	10	U	ug/kg	10	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6
1,1-Dichloroethene	10	U	ug/kg	10	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6
1,1-Dichloroethane	10	U	ug/kg	10	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6
1,2-Dichloroethene (total)	10	U	ug/kg	10	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6
Chloroform	10	U	ug/kg	10	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6
1,2-Dichloroethane	10	U	ug/kg	10	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6
2-Butanone	20	U	ug/kg	20	12	U	ug/kg	12	11	U	ug/kg	11	11	U	ug/kg	11
1,1,1-Trichloroethane	10	U	ug/kg	10	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6
Carbon tetrachloride	10	U	ug/kg	10	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6
Bromodichloromethane	10	U	ug/kg	10	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6
1,2-Dichloropropane	10	U	ug/kg	10	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6
cis-1,3-Dichloropropene	10	U	ug/kg	10	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6
Trichloroethene	10	U	ug/kg	10	6	U	ug/kg	6	2	J	ug/kg	11	18		ug/kg	11
Dibromochloromethane	10	U	ug/kg	10	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6
1,1,2-Trichloroethane	10	U	ug/kg	10	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6
Benzene	10	U	ug/kg	10	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6
trans-1,3-Dichloropropene	10	U	ug/kg	10	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6
Bromoform	10	U	ug/kg	10	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6
4-Methyl-2-pentanone	20	U	ug/kg	20	12	U	ug/kg	12	11	U	ug/kg	11	11	U	ug/kg	11
2-Hexanone	20	U	ug/kg	20	12	U	ug/kg	12	11	U	ug/kg	11	11	U	ug/kg	11
Tetrachloroethene	10	U	ug/kg	10	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6
Toluene	10	U	ug/kg	10	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6
1,1,2,2-Tetrachloroethane	10	U	ug/kg	10	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6
Chlorobenzene	10	U	ug/kg	10	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6
Ethylbenzene	10	U	ug/kg	10	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6
Styrene	10	U	ug/kg	10	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6
Xylenes (total)	10	U	ug/kg	10	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6

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

NAS CECIL FIELD -- OPERABLE UNIT 7 -- SITE 16
SUBSURFACE SOIL -- VOLATILES

Lab Sample Number:	A00J6				A00KE				A00KEMS				A00KEMSD			
Site	CECIL7				CECIL7				CECIL7				CECIL7			
Locator	CF16SB10S4				CF16SB11S2				CF16SB11S2MS				CF16SB11S2MSD			
Collect Date:	16-AUG-94				16-AUG-94				16-AUG-94				16-AUG-94			
	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	12	U	ug/kg	12	12	U	ug/kg	12
Bromomethane	12	U	ug/kg	12	12	U	ug/kg	12	12	U	ug/kg	12	12	U	ug/kg	12
Vinyl chloride	12	U	ug/kg	12	12	U	ug/kg	12	12	U	ug/kg	12	12	U	ug/kg	12
Chloroethane	12	U	ug/kg	12	12	U	ug/kg	12	12	U	ug/kg	12	12	U	ug/kg	12
Methylene chloride	5	J	ug/kg	12	8		ug/kg	12	6		ug/kg	12	5	J	ug/kg	12
Acetone	68	U	ug/kg	68	33	U	ug/kg	33	19	U	ug/kg	19	16	U	ug/kg	16
Carbon disulfide	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6
1,1-Dichloroethene	6	U	ug/kg	6	6	U	ug/kg	6	62		ug/kg	12	61		ug/kg	12
1,1-Dichloroethane	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6
1,2-Dichloroethene (total)	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6
Chloroform	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6
1,2-Dichloroethane	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6
2-Butanone	12	U	ug/kg	12	12	U	ug/kg	12	12	U	ug/kg	12	12	U	ug/kg	12
1,1,1-Trichloroethane	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6
Carbon tetrachloride	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6
Bromodichloromethane	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6
1,2-Dichloropropane	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6
cis-1,3-Dichloropropene	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6
Trichloroethene	110		ug/kg	12	3	J	ug/kg	12	62		ug/kg	12	60		ug/kg	12
Dibromochloromethane	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6
1,1,2-Trichloroethane	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6
Benzene	6	U	ug/kg	6	6	U	ug/kg	6	66		ug/kg	12	64		ug/kg	12
trans-1,3-Dichloropropene	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6
Bromoform	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6
4-Methyl-2-pentanone	12	U	ug/kg	12	12	U	ug/kg	12	12	U	ug/kg	12	12	U	ug/kg	12
2-Hexanone	12	U	ug/kg	12	12	U	ug/kg	12	12	U	ug/kg	12	12	U	ug/kg	12
Tetrachloroethene	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6
Toluene	6	U	ug/kg	6	6	U	ug/kg	6	67		ug/kg	12	68		ug/kg	12
1,1,2,2-Tetrachloroethane	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6
Chlorobenzene	6	U	ug/kg	6	6	U	ug/kg	6	63		ug/kg	12	61		ug/kg	12
Ethylbenzene	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6
Styrene	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6
Xylenes (total)	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6	6	U	ug/kg	6

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

NAS CECIL FIELD -- OPERABLE UNIT 7 -- SITE 16
SUBSURFACE SOIL -- VOLATILES

Lab Sample Number:	A00KG				A00KM				A00KJ				A00BD			
Site	CECIL7				CECIL7				CECIL7				CECIL7			
Locator	CF16SB11S6				CF16SB11S6R				CF16SB11S6RT				CF16SB12S2			
Collect Date:	16-AUG-94				16-AUG-94				16-AUG-94				13-AUG-94			
	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	2	U	ug/l	2	2	U	ug/l	2	12	U	ug/kg	12
Bromomethane	12	U	ug/kg	12	2	U	ug/l	2	2	U	ug/l	2	12	U	ug/kg	12
Vinyl chloride	12	U	ug/kg	12	2	U	ug/l	2	2	U	ug/l	2	12	U	ug/kg	12
Chloroethane	12	U	ug/kg	12	2	U	ug/l	2	2	U	ug/l	2	12	U	ug/kg	12
Methylene chloride	6		ug/kg	12	1	U	ug/l	1	1	U	ug/l	1	6	U	ug/kg	6
Acetone	120	U	ug/kg	120	2	U	ug/l	2	9	J	ug/l	2	46		ug/kg	12
Carbon disulfide	6	U	ug/kg	6	1	U	ug/l	1	1	U	ug/l	1	6	U	ug/kg	6
1,1-Dichloroethene	6	U	ug/kg	6	1	U	ug/l	1	1	U	ug/l	1	6	U	ug/kg	6
1,1-Dichloroethane	6	U	ug/kg	6	1	U	ug/l	1	1	U	ug/l	1	6	U	ug/kg	6
1,2-Dichloroethene (total)	6	U	ug/kg	6	1	U	ug/l	1	1	U	ug/l	1	6	U	ug/kg	6
Chloroform	6	U	ug/kg	6	1	U	ug/l	1	1	U	ug/l	1	6	U	ug/kg	6
1,2-Dichloroethane	6	U	ug/kg	6	1	U	ug/l	1	1	U	ug/l	1	6	U	ug/kg	6
2-Butanone	12	U	ug/kg	12	2	U	ug/l	2	2	U	ug/l	2	6	J	ug/kg	12
1,1,1-Trichloroethane	6	U	ug/kg	6	1	U	ug/l	1	1	U	ug/l	1	6	U	ug/kg	6
Carbon tetrachloride	6	U	ug/kg	6	1	U	ug/l	1	1	U	ug/l	1	6	U	ug/kg	6
Bromodichloromethane	6	U	ug/kg	6	1	U	ug/l	1	1	U	ug/l	1	6	U	ug/kg	6
1,2-Dichloropropane	6	U	ug/kg	6	1	U	ug/l	1	1	U	ug/l	1	6	U	ug/kg	6
cis-1,3-Dichloropropene	6	U	ug/kg	6	1	U	ug/l	1	1	U	ug/l	1	6	U	ug/kg	6
Trichloroethene	6	U	ug/kg	6	1	U	ug/l	1	1	U	ug/l	1	6	U	ug/kg	6
Dibromochloromethane	6	U	ug/kg	6	1	U	ug/l	1	1	U	ug/l	1	6	U	ug/kg	6
1,1,2-Trichloroethane	6	U	ug/kg	6	1	U	ug/l	1	1	U	ug/l	1	6	U	ug/kg	6
Benzene	6	U	ug/kg	6	1	U	ug/l	1	1	U	ug/l	1	6	U	ug/kg	6
trans-1,3-Dichloropropene	6	U	ug/kg	6	1	U	ug/l	1	1	U	ug/l	1	6	U	ug/kg	6
Bromoform	6	U	ug/kg	6	1	U	ug/l	1	1	U	ug/l	1	6	U	ug/kg	6
4-Methyl-2-pentanone	12	U	ug/kg	12	2	U	ug/l	2	2	U	ug/l	2	12	U	ug/kg	12
2-Hexanone	12	U	ug/kg	12	2	U	ug/l	2	2	U	ug/l	2	12	U	ug/kg	12
Tetrachloroethene	6	U	ug/kg	6	1	U	ug/l	1	1	U	ug/l	1	6	U	ug/kg	6
Toluene	6	U	ug/kg	6	1	U	ug/l	1	1	U	ug/l	1	6	U	ug/kg	6
1,1,2,2-Tetrachloroethane	6	U	ug/kg	6	1	U	ug/l	1	1	U	ug/l	1	6	U	ug/kg	6
Chlorobenzene	6	U	ug/kg	6	1	U	ug/l	1	1	U	ug/l	1	6	U	ug/kg	6
Ethylbenzene	6	U	ug/kg	6	1	U	ug/l	1	1	U	ug/l	1	6	U	ug/kg	6
Styrene	6	U	ug/kg	6	1	U	ug/l	1	1	U	ug/l	1	6	U	ug/kg	6
Xylenes (total)	6	U	ug/kg	6	1	U	ug/l	1	1	U	ug/l	1	6	U	ug/kg	6

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

NAS CECIL FIELD -- OPERABLE UNIT 7 -- SITE 16
SUBSURFACE SOIL -- VOLATILES

Lab Sample Number:		A008F		
Site		CECIL7		
Locator		CF16SB12S6		
Collect Date:		13-AUG-94		
	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	6	U	ug/kg	6
Acetone	26	U	ug/kg	26
Carbon disulfide	6	U	ug/kg	6
1,1-Dichloroethene	6	U	ug/kg	6
1,1-Dichloroethane	6	U	ug/kg	6
1,2-Dichloroethene (total)	6	U	ug/kg	6
Chloroform	6	U	ug/kg	6
1,2-Dichloroethane	6	U	ug/kg	6
2-Butanone	12	U	ug/kg	12
1,1,1-Trichloroethane	6	U	ug/kg	6
Carbon tetrachloride	6	U	ug/kg	6
Bromodichloromethane	6	U	ug/kg	6
1,2-Dichloropropane	6	U	ug/kg	6
cis-1,3-Dichloropropene	6	U	ug/kg	6
Trichloroethene	6	U	ug/kg	6
Dibromochloromethane	6	U	ug/kg	6
1,1,2-Trichloroethane	6	U	ug/kg	6
Benzene	6	U	ug/kg	6
trans-1,3-Dichloropropene	6	U	ug/kg	6
Bromoform	6	U	ug/kg	6
4-Methyl-2-pentanone	12	U	ug/kg	12
2-Hexanone	12	U	ug/kg	12
Tetrachloroethene	6	U	ug/kg	6
Toluene	6	U	ug/kg	6
1,1,2,2-Tetrachloroethane	6	U	ug/kg	6
Chlorobenzene	6	U	ug/kg	6
Ethylbenzene	6	U	ug/kg	6
Styrene	6	U	ug/kg	6
Xylenes (total)	6	U	ug/kg	6

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

NAS CECIL FIELD -- OPERABLE UNIT 7 -- SITE 16
SUBSURFACE SOIL -- SEMIVOLATILES

Lab Sample Number:	A008K				A008KMS				A008KMSD				A008L			
Site	CECIL7				CECIL7				CECIL7				CECIL7			
Locator	CF16SB1S0				CF16SB1S0MS				CF16SB1S0MSD				CF16SB1S6			
Collect Date:	14-AUG-94				14-AUG-94				14-AUG-94				14-AUG-94			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP SEMIVOLATILES 90-SOW																
Phenol	360	U	ug/kg	360	1800		ug/kg	360	2300		ug/kg	360	400	U	ug/kg	400
bis(2-Chloroethyl) ether	360	U	ug/kg	360	360	U	ug/kg	360	360	U	ug/kg	360	400	U	ug/kg	400
2-Chlorophenol	360	U	ug/kg	360	1800		ug/kg	360	2400		ug/kg	360	400	U	ug/kg	400
1,3-Dichlorobenzene	360	U	ug/kg	360	360	U	ug/kg	360	360	U	ug/kg	360	400	U	ug/kg	400
1,4-Dichlorobenzene	360	U	ug/kg	360	1200		ug/kg	360	1600		ug/kg	360	400	U	ug/kg	400
1,2-Dichlorobenzene	360	U	ug/kg	360	360	U	ug/kg	360	360	U	ug/kg	360	400	U	ug/kg	400
2-Methylphenol	360	U	ug/kg	360	360	U	ug/kg	360	360	U	ug/kg	360	400	U	ug/kg	400
2,2-oxybis(1-Chloropropane)	360	U	ug/kg	360	360	U	ug/kg	360	360	U	ug/kg	360	400	U	ug/kg	400
4-Methylphenol	360	U	ug/kg	360	360	U	ug/kg	360	360	U	ug/kg	360	400	U	ug/kg	400
N-Nitroso-di-n-propylamine	360	U	ug/kg	360	1200		ug/kg	360	1700		ug/kg	360	400	U	ug/kg	400
Hexachloroethane	360	U	ug/kg	360	360	U	ug/kg	360	360	U	ug/kg	360	400	U	ug/kg	400
Nitrobenzene	360	U	ug/kg	360	360	U	ug/kg	360	360	U	ug/kg	360	400	U	ug/kg	400
Isophorone	360	U	ug/kg	360	360	U	ug/kg	360	360	U	ug/kg	360	400	U	ug/kg	400
2-Nitrophenol	360	U	ug/kg	360	360	U	ug/kg	360	360	U	ug/kg	360	400	U	ug/kg	400
2,4-Dimethylphenol	360	U	ug/kg	360	360	U	ug/kg	360	360	U	ug/kg	360	400	U	ug/kg	400
bis(2-Chloroethoxy) methane	360	U	ug/kg	360	360	U	ug/kg	360	360	U	ug/kg	360	400	U	ug/kg	400
2,4-Dichlorophenol	360	U	ug/kg	360	360	U	ug/kg	360	360	U	ug/kg	360	400	U	ug/kg	400
1,2,4-Trichlorobenzene	360	U	ug/kg	360	1200		ug/kg	360	1700		ug/kg	360	400	U	ug/kg	400
Naphthalene	360	U	ug/kg	360	360	U	ug/kg	360	360	U	ug/kg	360	400	U	ug/kg	400
4-Chloroaniline	360	U	ug/kg	360	360	U	ug/kg	360	360	U	ug/kg	360	400	U	ug/kg	400
Hexachlorobutadiene	360	U	ug/kg	360	360	U	ug/kg	360	360	U	ug/kg	360	400	U	ug/kg	400
4-Chloro-3-methylphenol	360	U	ug/kg	360	2300		ug/kg	360	2900		ug/kg	360	400	U	ug/kg	400
2-Methylnaphthalene	360	U	ug/kg	360	360	U	ug/kg	360	360	U	ug/kg	360	400	U	ug/kg	400
Hexachlorocyclopentadiene	360	U	ug/kg	360	360	U	ug/kg	360	360	U	ug/kg	360	400	U	ug/kg	400
2,4,6-Trichlorophenol	360	U	ug/kg	360	360	U	ug/kg	360	360	U	ug/kg	360	400	U	ug/kg	400
2,4,5-Trichlorophenol	870	U	ug/kg	870	870	U	ug/kg	870	870	U	ug/kg	870	980	U	ug/kg	980
2-Chloronaphthalene	360	U	ug/kg	360	360	U	ug/kg	360	360	U	ug/kg	360	400	U	ug/kg	400
2-Nitroaniline	870	U	ug/kg	870	870	U	ug/kg	870	870	U	ug/kg	870	980	U	ug/kg	980
Dimethylphthalate	360	U	ug/kg	360	360	U	ug/kg	360	360	U	ug/kg	360	400	U	ug/kg	400
Acenaphthylene	360	U	ug/kg	360	360	U	ug/kg	360	360	U	ug/kg	360	400	U	ug/kg	400
2,6-Dinitrotoluene	360	U	ug/kg	360	360	U	ug/kg	360	360	U	ug/kg	360	400	U	ug/kg	400
3-Nitroaniline	870	U	ug/kg	870	870	U	ug/kg	870	870	U	ug/kg	870	980	U	ug/kg	980
Acenaphthene	360	U	ug/kg	360	1400		ug/kg	360	1800		ug/kg	360	400	U	ug/kg	400
2,4-Dinitrophenol	870	U	ug/kg	870	870	U	ug/kg	870	870	U	ug/kg	870	980	U	ug/kg	980
4-Nitrophenol	870	U	ug/kg	870	2400		ug/kg	870	2600		ug/kg	870	980	U	ug/kg	980
Dibenzofuran	360	U	ug/kg	360	360	U	ug/kg	360	360	U	ug/kg	360	400	U	ug/kg	400
2,4-Dinitrotoluene	360	U	ug/kg	360	1600		ug/kg	360	1900		ug/kg	360	400	U	ug/kg	400
Diethylphthalate	360	U	ug/kg	360	360	U	ug/kg	360	360	U	ug/kg	360	400	U	ug/kg	400
4-Chlorophenyl-phenylether	360	U	ug/kg	360	360	U	ug/kg	360	360	U	ug/kg	360	400	U	ug/kg	400
Fluorene	360	U	ug/kg	360	360	U	ug/kg	360	360	U	ug/kg	360	400	U	ug/kg	400
4-Nitroaniline	870	U	ug/kg	870	870	U	ug/kg	870	870	U	ug/kg	870	980	U	ug/kg	980
4,6-Dinitro-2-methylphenol	870	U	ug/kg	870	870	U	ug/kg	870	870	U	ug/kg	870	980	U	ug/kg	980
N-Nitrosodiphenylamine (1)	360	U	ug/kg	360	360	U	ug/kg	360	360	U	ug/kg	360	400	U	ug/kg	400
4-Bromophenyl-phenylether	360	U	ug/kg	360	360	U	ug/kg	360	360	U	ug/kg	360	400	U	ug/kg	400
Hexachlorobenzene	360	U	ug/kg	360	360	U	ug/kg	360	360	U	ug/kg	360	400	U	ug/kg	400
Pentachlorophenol	870	U	ug/kg	870	2300		ug/kg	870	2300		ug/kg	870	980	U	ug/kg	980
Phenanthrene	360	U	ug/kg	360	360	U	ug/kg	360	360	U	ug/kg	360	400	U	ug/kg	400
Anthracene	360	U	ug/kg	360	360	U	ug/kg	360	360	U	ug/kg	360	400	U	ug/kg	400
Carbazole	360	U	ug/kg	360	360	U	ug/kg	360	360	U	ug/kg	360	400	U	ug/kg	400
Di-n-butylphthalate	360	U	ug/kg	360	360	U	ug/kg	360	360	U	ug/kg	360	400	U	ug/kg	400

NAS CECIL FIELD -- OPERABLE UNIT 7 -- SITE 16
SUBSURFACE SOIL -- SEMIVOLATILES

Lab Sample Number:	A008K				A008KMS				A008KMSD				A008L			
Site	CECIL7				CECIL7				CECIL7				CECIL7			
Locator	CF16SB1S0				CF16SB1S0MS				CF16SB1S0MSD				CF16SB1S6			
Collect Date:	14-AUG-94				14-AUG-94				14-AUG-94				14-AUG-94			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
Fluoranthene	360	U	ug/kg	360	360	U	ug/kg	360	360	U	ug/kg	360	400	U	ug/kg	400
Pyrene	360	U	ug/kg	360	1400		ug/kg	360	1500		ug/kg	360	400	U	ug/kg	400
Butylbenzylphthalate	360	U	ug/kg	360	360	U	ug/kg	360	360	U	ug/kg	360	400	U	ug/kg	400
3,3-Dichlorobenzidine	360	U	ug/kg	360	360	U	ug/kg	360	360	U	ug/kg	360	400	U	ug/kg	400
Benzo (a) anthracene	360	U	ug/kg	360	360	U	ug/kg	360	360	U	ug/kg	360	400	U	ug/kg	400
Chrysene	360	U	ug/kg	360	360	U	ug/kg	360	360	U	ug/kg	360	400	U	ug/kg	400
bis(2-Ethylhexyl) phthalate	29	J	ug/kg	360	48	J	ug/kg	360	56	J	ug/kg	360	49	J	ug/kg	400
Di-n-octylphthalate	360	U	ug/kg	360	360	U	ug/kg	360	360	U	ug/kg	360	400	U	ug/kg	400
Benzo (b) fluoranthene	360	U	ug/kg	360	25	J	ug/kg	360	360	U	ug/kg	360	400	U	ug/kg	400
Benzo (k) fluoranthene	360	U	ug/kg	360	24	J	ug/kg	360	360	U	ug/kg	360	400	U	ug/kg	400
Benzo (a) pyrene	360	U	ug/kg	360	360	U	ug/kg	360	360	U	ug/kg	360	400	U	ug/kg	400
Indeno (1,2,3-cd) pyrene	360	U	ug/kg	360	360	U	ug/kg	360	360	U	ug/kg	360	400	U	ug/kg	400
Dibenz (a,h) anthracene	360	U	ug/kg	360	360	U	ug/kg	360	360	U	ug/kg	360	400	U	ug/kg	400
Benzo (g,h,i) perylene	360	U	ug/kg	360	360	U	ug/kg	360	360	U	ug/kg	360	400	U	ug/kg	400

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

NAS CECIL FIELD -- OPERABLE UNIT 7 -- SITE 16
SUBSURFACE SOIL -- SEMIVOLATILES

Lab Sample Number:	A008N			A008O			A008P			A008S		
Site	CECIL7			CECIL7			CECIL7			CECIL7		
Locator	CF16SB2S2			CF16SB2S4			CF16SB3S0			CF16SB3S6		
Collect Date:	15-AUG-94			15-AUG-94			15-AUG-94			15-AUG-94		
	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	390 U	ug/kg	390	360 U	ug/kg	360	400 U	ug/kg	400
bis(2-Chloroethyl) ether	380 U	ug/kg	380	390 U	ug/kg	390	360 U	ug/kg	360	400 U	ug/kg	400
2-Chlorophenol	380 U	ug/kg	380	390 U	ug/kg	390	360 U	ug/kg	360	400 U	ug/kg	400
1,3-Dichlorobenzene	380 U	ug/kg	380	390 U	ug/kg	390	360 U	ug/kg	360	400 U	ug/kg	400
1,4-Dichlorobenzene	380 U	ug/kg	380	390 U	ug/kg	390	360 U	ug/kg	360	400 U	ug/kg	400
1,2-Dichlorobenzene	380 U	ug/kg	380	390 U	ug/kg	390	360 U	ug/kg	360	400 U	ug/kg	400
2-Methylphenol	380 U	ug/kg	380	390 U	ug/kg	390	360 U	ug/kg	360	400 U	ug/kg	400
2,2-oxybis(1-Chloropropane)	380 U	ug/kg	380	390 U	ug/kg	390	360 U	ug/kg	360	400 U	ug/kg	400
4-Methylphenol	380 U	ug/kg	380	390 U	ug/kg	390	360 U	ug/kg	360	400 U	ug/kg	400
N-Nitroso-di-n-propylamine	380 U	ug/kg	380	390 U	ug/kg	390	360 U	ug/kg	360	400 U	ug/kg	400
Hexachloroethane	380 U	ug/kg	380	390 U	ug/kg	390	360 U	ug/kg	360	400 U	ug/kg	400
Nitrobenzene	380 U	ug/kg	380	390 U	ug/kg	390	360 U	ug/kg	360	400 U	ug/kg	400
Isophorone	380 U	ug/kg	380	390 U	ug/kg	390	360 U	ug/kg	360	400 U	ug/kg	400
2-Nitrophenol	380 U	ug/kg	380	390 U	ug/kg	390	360 U	ug/kg	360	400 U	ug/kg	400
2,4-Dimethylphenol	380 U	ug/kg	380	390 U	ug/kg	390	360 U	ug/kg	360	400 U	ug/kg	400
bis(2-Chloroethoxy) methane	380 U	ug/kg	380	390 U	ug/kg	390	360 U	ug/kg	360	400 U	ug/kg	400
2,4-Dichlorophenol	380 U	ug/kg	380	390 U	ug/kg	390	360 U	ug/kg	360	400 U	ug/kg	400
1,2,4-Trichlorobenzene	380 U	ug/kg	380	390 U	ug/kg	390	360 U	ug/kg	360	400 U	ug/kg	400
Naphthalene	380 U	ug/kg	380	390 U	ug/kg	390	360 U	ug/kg	360	400 U	ug/kg	400
4-Chloroaniline	380 U	ug/kg	380	390 U	ug/kg	390	360 U	ug/kg	360	400 U	ug/kg	400
Hexachlorobutadiene	380 U	ug/kg	380	390 U	ug/kg	390	360 U	ug/kg	360	400 U	ug/kg	400
4-Chloro-3-methylphenol	380 U	ug/kg	380	390 U	ug/kg	390	360 U	ug/kg	360	400 U	ug/kg	400
2-Methylnaphthalene	380 U	ug/kg	380	390 U	ug/kg	390	360 U	ug/kg	360	400 U	ug/kg	400
Hexachlorocyclopentadiene	380 U	ug/kg	380	390 U	ug/kg	390	360 U	ug/kg	360	400 U	ug/kg	400
2,4,6-Trichlorophenol	380 U	ug/kg	380	390 U	ug/kg	390	360 U	ug/kg	360	400 U	ug/kg	400
2,4,5-Trichlorophenol	920 U	ug/kg	920	940 U	ug/kg	940	870 U	ug/kg	870	980 U	ug/kg	980
2-Chloronaphthalene	380 U	ug/kg	380	390 U	ug/kg	390	360 U	ug/kg	360	400 U	ug/kg	400
2-Nitroaniline	920 U	ug/kg	920	940 U	ug/kg	940	870 U	ug/kg	870	980 U	ug/kg	980
Dimethylphthalate	380 U	ug/kg	380	390 U	ug/kg	390	360 U	ug/kg	360	400 U	ug/kg	400
Acenaphthylene	380 U	ug/kg	380	390 U	ug/kg	390	360 U	ug/kg	360	400 U	ug/kg	400
2,6-Dinitrotoluene	380 U	ug/kg	380	390 U	ug/kg	390	360 U	ug/kg	360	400 U	ug/kg	400
3-Nitroaniline	920 U	ug/kg	920	940 U	ug/kg	940	870 U	ug/kg	870	980 U	ug/kg	980
Acenaphthene	380 U	ug/kg	380	390 U	ug/kg	390	360 U	ug/kg	360	400 U	ug/kg	400
2,4-Dinitrophenol	920 U	ug/kg	920	940 U	ug/kg	940	870 U	ug/kg	870	980 U	ug/kg	980
4-Nitrophenol	920 U	ug/kg	920	940 U	ug/kg	940	870 U	ug/kg	870	980 U	ug/kg	980
Dibenzofuran	380 U	ug/kg	380	390 U	ug/kg	390	360 U	ug/kg	360	400 U	ug/kg	400
2,4-Dinitrotoluene	380 U	ug/kg	380	390 U	ug/kg	390	360 U	ug/kg	360	400 U	ug/kg	400
Diethylphthalate	380 U	ug/kg	380	390 U	ug/kg	390	360 U	ug/kg	360	400 U	ug/kg	400
4-Chlorophenyl-phenylether	380 U	ug/kg	380	390 U	ug/kg	390	360 U	ug/kg	360	400 U	ug/kg	400
Fluorene	380 U	ug/kg	380	390 U	ug/kg	390	360 U	ug/kg	360	400 U	ug/kg	400

NAS CECIL FIELD -- OPERABLE UNIT 7 -- SITE 16
SUBSURFACE SOIL -- SEMIVOLATILES

Lab Sample Number:	A008N				A008O				A008P				A008S			
Site	CECIL7				CECIL7				CECIL7				CECIL7			
Locator	CF16S02S2				CF16S02S4				CF16S03S0				CF16S03S6			
Collect Date:	15-AUG-94				15-AUG-94				15-AUG-94				15-AUG-94			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
4-Nitroaniline	920	U	ug/kg	920	940	U	ug/kg	940	870	U	ug/kg	870	980	U	ug/kg	980
4,6-Dinitro-2-methylphenol	920	U	ug/kg	920	940	U	ug/kg	940	870	U	ug/kg	870	980	U	ug/kg	980
N-Nitrosodiphenylamine (1)	380	U	ug/kg	380	390	U	ug/kg	390	360	U	ug/kg	360	400	U	ug/kg	400
4-Bromophenyl-phenylether	380	U	ug/kg	380	390	U	ug/kg	390	360	U	ug/kg	360	400	U	ug/kg	400
Hexachlorobenzene	380	U	ug/kg	380	390	U	ug/kg	390	360	U	ug/kg	360	400	U	ug/kg	400
Pentachlorophenol	920	U	ug/kg	920	940	U	ug/kg	940	870	U	ug/kg	870	980	U	ug/kg	980
Phenanthrene	380	U	ug/kg	380	390	U	ug/kg	390	360	U	ug/kg	360	400	U	ug/kg	400
Anthracene	380	U	ug/kg	380	390	U	ug/kg	390	360	U	ug/kg	360	400	U	ug/kg	400
Carbazole	380	U	ug/kg	380	390	U	ug/kg	390	360	U	ug/kg	360	400	U	ug/kg	400
Di-n-butylphthalate	380	U	ug/kg	380	540	U	ug/kg	540	360	U	ug/kg	360	430	U	ug/kg	430
Fluoranthene	380	U	ug/kg	380	390	U	ug/kg	390	360	U	ug/kg	360	400	U	ug/kg	400
Pyrene	380	U	ug/kg	380	390	U	ug/kg	390	360	U	ug/kg	360	400	U	ug/kg	400
Butylbenzylphthalate	380	U	ug/kg	380	390	U	ug/kg	390	360	U	ug/kg	360	400	U	ug/kg	400
3,3-Dichlorobenzidine	380	U	ug/kg	380	390	U	ug/kg	390	360	U	ug/kg	360	400	U	ug/kg	400
Benzo (a) anthracene	380	U	ug/kg	380	390	U	ug/kg	390	360	U	ug/kg	360	400	U	ug/kg	400
Chrysene	380	U	ug/kg	380	390	U	ug/kg	390	360	U	ug/kg	360	400	U	ug/kg	400
bis(2-Ethylhexyl) phthalate	32	J	ug/kg	380	23	J	ug/kg	390	46	J	ug/kg	360	400	U	ug/kg	400
Di-n-octylphthalate	380	U	ug/kg	380	390	U	ug/kg	390	360	U	ug/kg	360	400	U	ug/kg	400
Benzo (b) fluoranthene	380	U	ug/kg	380	390	U	ug/kg	390	35	J	ug/kg	360	400	U	ug/kg	400
Benzo (k) fluoranthene	380	U	ug/kg	380	390	U	ug/kg	390	360	U	ug/kg	360	400	U	ug/kg	400
Benzo (a) pyrene	380	U	ug/kg	380	390	U	ug/kg	390	20	J	ug/kg	360	400	U	ug/kg	400
Indeno (1,2,3-cd) pyrene	380	U	ug/kg	380	390	U	ug/kg	390	20	J	ug/kg	360	400	U	ug/kg	400
Dibenz (a,h) anthracene	380	U	ug/kg	380	390	U	ug/kg	390	360	U	ug/kg	360	400	U	ug/kg	400
Benzo (g,h,i) perylene	380	U	ug/kg	380	390	U	ug/kg	390	19	J	ug/kg	360	400	U	ug/kg	400

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

NAS CECIL FIELD -- OPERABLE UNIT 7 -- SITE 16
SUBSURFACE SOIL -- SEMIVOLATILES

Lab Sample Number:	A008T				A008TMS				A008TMSD				A008U			
Site	CECIL7				CECIL7				CECIL7				CECIL7			
Locator	CF16SB4S2				CF16SB4S2MS				CF16SB4S2MSD				CF16SB4S6			
Collect Date:	15-AUG-94				15-AUG-94				15-AUG-94				15-AUG-94			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP SEMIVOLATILES 90-SOW																
Phenol	360	U	ug/kg	360	2300		ug/kg	360	2200		ug/kg	360	400	U	ug/kg	400
bis(2-Chloroethyl) ether	360	U	ug/kg	360	360	U	ug/kg	360	360	U	ug/kg	360	400	U	ug/kg	400
2-Chlorophenol	360	U	ug/kg	360	2400		ug/kg	360	2300		ug/kg	360	400	U	ug/kg	400
1,3-Dichlorobenzene	360	U	ug/kg	360	360	U	ug/kg	360	360	U	ug/kg	360	400	U	ug/kg	400
1,4-Dichlorobenzene	360	U	ug/kg	360	1600		ug/kg	360	1500		ug/kg	360	400	U	ug/kg	400
1,2-Dichlorobenzene	360	U	ug/kg	360	360	U	ug/kg	360	360	U	ug/kg	360	400	U	ug/kg	400
2-Methylphenol	360	U	ug/kg	360	360	U	ug/kg	360	360	U	ug/kg	360	400	U	ug/kg	400
2,2-oxybis(1-Chloropropane)	360	U	ug/kg	360	360	U	ug/kg	360	360	U	ug/kg	360	400	U	ug/kg	400
4-Methylphenol	360	U	ug/kg	360	360	U	ug/kg	360	360	U	ug/kg	360	400	U	ug/kg	400
N-Nitroso-di-n-propylamine	360	U	ug/kg	360	1600		ug/kg	360	1500		ug/kg	360	400	U	ug/kg	400
Hexachloroethane	360	U	ug/kg	360	360	U	ug/kg	360	360	U	ug/kg	360	400	U	ug/kg	400
Nitrobenzene	360	U	ug/kg	360	360	U	ug/kg	360	360	U	ug/kg	360	400	U	ug/kg	400
Isophorone	360	U	ug/kg	360	360	U	ug/kg	360	360	U	ug/kg	360	400	U	ug/kg	400
2-Nitrophenol	360	U	ug/kg	360	360	U	ug/kg	360	360	U	ug/kg	360	400	U	ug/kg	400
2,4-Dimethylphenol	360	U	ug/kg	360	360	U	ug/kg	360	360	U	ug/kg	360	400	U	ug/kg	400
bis(2-Chloroethoxy) methane	360	U	ug/kg	360	360	U	ug/kg	360	360	U	ug/kg	360	400	U	ug/kg	400
2,4-Dichlorophenol	360	U	ug/kg	360	360	U	ug/kg	360	360	U	ug/kg	360	400	U	ug/kg	400
1,2,4-Trichlorobenzene	360	U	ug/kg	360	1700		ug/kg	360	1700		ug/kg	360	400	U	ug/kg	400
Naphthalene	360	U	ug/kg	360	360	U	ug/kg	360	360	U	ug/kg	360	400	U	ug/kg	400
4-Chloroaniline	360	U	ug/kg	360	360	U	ug/kg	360	360	U	ug/kg	360	400	U	ug/kg	400
Hexachlorobutadiene	360	U	ug/kg	360	360	U	ug/kg	360	360	U	ug/kg	360	400	U	ug/kg	400
4-Chloro-3-methylphenol	360	U	ug/kg	360	2800		ug/kg	360	2800		ug/kg	360	400	U	ug/kg	400
2-Methylnaphthalene	360	U	ug/kg	360	360	U	ug/kg	360	360	U	ug/kg	360	400	U	ug/kg	400
Hexachlorocyclopentadiene	360	U	ug/kg	360	360	U	ug/kg	360	360	U	ug/kg	360	400	U	ug/kg	400
2,4,6-Trichlorophenol	360	U	ug/kg	360	360	U	ug/kg	360	360	U	ug/kg	360	400	U	ug/kg	400
2,4,5-Trichlorophenol	870	U	ug/kg	870	870	U	ug/kg	870	870	U	ug/kg	870	960	U	ug/kg	960
2-Chloronaphthalene	360	U	ug/kg	360	360	U	ug/kg	360	360	U	ug/kg	360	400	U	ug/kg	400
2-Nitroaniline	870	U	ug/kg	870	870	U	ug/kg	870	870	U	ug/kg	870	960	U	ug/kg	960
Dimethylphthalate	360	U	ug/kg	360	360	U	ug/kg	360	360	U	ug/kg	360	400	U	ug/kg	400
Acenaphthylene	360	U	ug/kg	360	360	U	ug/kg	360	360	U	ug/kg	360	400	U	ug/kg	400
2,6-Dinitrotoluene	360	U	ug/kg	360	360	U	ug/kg	360	360	U	ug/kg	360	400	U	ug/kg	400
3-Nitroaniline	870	U	ug/kg	870	870	U	ug/kg	870	870	U	ug/kg	870	960	U	ug/kg	960
Acenaphthene	360	U	ug/kg	360	1800		ug/kg	360	1800		ug/kg	360	400	U	ug/kg	400
2,4-Dinitrophenol	870	U	ug/kg	870	870	U	ug/kg	870	870	U	ug/kg	870	960	U	ug/kg	960
4-Nitrophenol	870	U	ug/kg	870	2600		ug/kg	870	2500		ug/kg	870	960	U	ug/kg	960
Dibenzofuran	360	U	ug/kg	360	360	U	ug/kg	360	360	U	ug/kg	360	400	U	ug/kg	400
2,4-Dinitrotoluene	360	U	ug/kg	360	1700		ug/kg	360	1800		ug/kg	360	400	U	ug/kg	400
Diethylphthalate	360	U	ug/kg	360	360	U	ug/kg	360	360	U	ug/kg	360	400	U	ug/kg	400
4-Chlorophenyl-phenylether	360	U	ug/kg	360	360	U	ug/kg	360	360	U	ug/kg	360	400	U	ug/kg	400
Fluorene	360	U	ug/kg	360	360	U	ug/kg	360	360	U	ug/kg	360	400	U	ug/kg	400

NAS CECIL FIELD -- OPERABLE UNIT 7 -- SITE 16
SUBSURFACE SOIL -- SEMIVOLATILES

Lab Sample Number:	A008T				A008TMS				A008TMSD				A008U			
Site	CECIL7				CECIL7				CECIL7				CECIL7			
Locator	CF16SB4S2				CF16SB4S2MS				CF16SB4S2MSD				CF16SB4S6			
Collect Date:	15-AUG-94				15-AUG-94				15-AUG-94				15-AUG-94			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
4-Nitroaniline	870	U	ug/kg	870	870	U	ug/kg	870	870	U	ug/kg	870	960	U	ug/kg	960
4,6-Dinitro-2-methylphenol	870	U	ug/kg	870	870	U	ug/kg	870	870	U	ug/kg	870	960	U	ug/kg	960
N-Nitrosodiphenylamine (1)	360	U	ug/kg	360	360	U	ug/kg	360	360	U	ug/kg	360	400	U	ug/kg	400
4-Bromophenyl-phenylether	360	U	ug/kg	360	360	U	ug/kg	360	360	U	ug/kg	360	400	U	ug/kg	400
Hexachlorobenzene	360	U	ug/kg	360	360	U	ug/kg	360	360	U	ug/kg	360	400	U	ug/kg	400
Pentachlorophenol	870	U	ug/kg	870	3000		ug/kg	870	2900		ug/kg	870	960	U	ug/kg	960
Phenanthrene	360	U	ug/kg	360	360	U	ug/kg	360	360	U	ug/kg	360	400	U	ug/kg	400
Anthracene	360	U	ug/kg	360	360	U	ug/kg	360	360	U	ug/kg	360	400	U	ug/kg	400
Carbazole	360	U	ug/kg	360	360	U	ug/kg	360	360	U	ug/kg	360	400	U	ug/kg	400
Di-n-butylphthalate	430	U	ug/kg	430	470		ug/kg	360	260	J	ug/kg	360	480	U	ug/kg	480
Fluoranthene	360	U	ug/kg	360	360	U	ug/kg	360	360	U	ug/kg	360	400	U	ug/kg	400
Pyrene	360	U	ug/kg	360	1600		ug/kg	360	1600		ug/kg	360	400	U	ug/kg	400
Butylbenzylphthalate	360	U	ug/kg	360	360	U	ug/kg	360	360	U	ug/kg	360	400	U	ug/kg	400
3,3-Dichlorobenzidine	360	U	ug/kg	360	360	U	ug/kg	360	360	U	ug/kg	360	400	U	ug/kg	400
Benzo (a) anthracene	360	U	ug/kg	360	360	U	ug/kg	360	360	U	ug/kg	360	400	U	ug/kg	400
Chrysene	360	U	ug/kg	360	360	U	ug/kg	360	360	U	ug/kg	360	400	U	ug/kg	400
bis(2-Ethylhexyl) phthalate	360	U	ug/kg	360	25	J	ug/kg	360	25	J	ug/kg	360	400	U	ug/kg	400
Di-n-octylphthalate	360	U	ug/kg	360	360	U	ug/kg	360	360	U	ug/kg	360	400	U	ug/kg	400
Benzo (b) fluoranthene	360	U	ug/kg	360	360	U	ug/kg	360	360	U	ug/kg	360	400	U	ug/kg	400
Benzo (k) fluoranthene	360	U	ug/kg	360	360	U	ug/kg	360	360	U	ug/kg	360	400	U	ug/kg	400
Benzo (a) pyrene	360	U	ug/kg	360	360	U	ug/kg	360	360	U	ug/kg	360	400	U	ug/kg	400
Indeno (1,2,3-cd) pyrene	360	U	ug/kg	360	360	U	ug/kg	360	360	U	ug/kg	360	400	U	ug/kg	400
Dibenz (a,h) anthracene	360	U	ug/kg	360	360	U	ug/kg	360	360	U	ug/kg	360	400	U	ug/kg	400
Benzo (g,h,i) perylene	360	U	ug/kg	360	360	U	ug/kg	360	360	U	ug/kg	360	400	U	ug/kg	400

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

NAS CECIL FIELD -- OPERABLE UNIT 7 -- SITE 16
SUBSURFACE SOIL -- SEMIVOLATILES

Lab Sample Number:	A008V				A008W				A008X				A008Y			
Site	CECIL7				CECIL7				CECIL7				CECIL7			
Locator	CF16SB5S2				CF16SB5S2D				CF16SB5S6				CF16SB6S2			
Collect Date:	15-AUG-94				15-AUG-94				15-AUG-94				15-AUG-94			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP SEMIVOLATILES 90-SOW																
Phenol	370	U	ug/kg	370	370	U	ug/kg	370	390	U	ug/kg	390	380	U	ug/kg	380
bis(2-Chloroethyl) ether	370	U	ug/kg	370	370	U	ug/kg	370	390	U	ug/kg	390	380	U	ug/kg	380
2-Chlorophenol	370	U	ug/kg	370	370	U	ug/kg	370	390	U	ug/kg	390	380	U	ug/kg	380
1,3-Dichlorobenzene	370	U	ug/kg	370	370	U	ug/kg	370	390	U	ug/kg	390	380	U	ug/kg	380
1,4-Dichlorobenzene	370	U	ug/kg	370	370	U	ug/kg	370	390	U	ug/kg	390	380	U	ug/kg	380
1,2-Dichlorobenzene	370	U	ug/kg	370	370	U	ug/kg	370	390	U	ug/kg	390	380	U	ug/kg	380
2-Methylphenol	370	U	ug/kg	370	370	U	ug/kg	370	390	U	ug/kg	390	380	U	ug/kg	380
2,2-oxybis(1-Chloropropane)	370	U	ug/kg	370	370	U	ug/kg	370	390	U	ug/kg	390	380	U	ug/kg	380
4-Methylphenol	370	U	ug/kg	370	370	U	ug/kg	370	390	U	ug/kg	390	380	U	ug/kg	380
N-Nitroso-di-n-propylamine	370	U	ug/kg	370	370	U	ug/kg	370	390	U	ug/kg	390	380	U	ug/kg	380
Hexachloroethane	370	U	ug/kg	370	370	U	ug/kg	370	390	U	ug/kg	390	380	U	ug/kg	380
Nitrobenzene	370	U	ug/kg	370	370	U	ug/kg	370	390	U	ug/kg	390	380	U	ug/kg	380
Isophorone	370	U	ug/kg	370	370	U	ug/kg	370	390	U	ug/kg	390	380	U	ug/kg	380
2-Nitrophenol	370	U	ug/kg	370	370	U	ug/kg	370	390	U	ug/kg	390	380	U	ug/kg	380
2,4-Dimethylphenol	370	U	ug/kg	370	370	U	ug/kg	370	390	U	ug/kg	390	380	U	ug/kg	380
bis(2-Chloroethoxy) methane	370	U	ug/kg	370	370	U	ug/kg	370	390	U	ug/kg	390	380	U	ug/kg	380
2,4-Dichlorophenol	370	U	ug/kg	370	370	U	ug/kg	370	390	U	ug/kg	390	380	U	ug/kg	380
1,2,4-Trichlorobenzene	370	U	ug/kg	370	370	U	ug/kg	370	390	U	ug/kg	390	380	U	ug/kg	380
Naphthalene	370	U	ug/kg	370	370	U	ug/kg	370	390	U	ug/kg	390	380	U	ug/kg	380
4-Chloroaniline	370	U	ug/kg	370	370	U	ug/kg	370	390	U	ug/kg	390	380	U	ug/kg	380
Hexachlorobutadiene	370	U	ug/kg	370	370	U	ug/kg	370	390	U	ug/kg	390	380	U	ug/kg	380
4-Chloro-3-methylphenol	370	U	ug/kg	370	370	U	ug/kg	370	390	U	ug/kg	390	380	U	ug/kg	380
2-Methylnaphthalene	370	U	ug/kg	370	370	U	ug/kg	370	390	U	ug/kg	390	380	U	ug/kg	380
Hexachlorocyclopentadiene	370	U	ug/kg	370	370	U	ug/kg	370	390	U	ug/kg	390	380	U	ug/kg	380
2,4,6-Trichlorophenol	370	U	ug/kg	370	370	U	ug/kg	370	390	U	ug/kg	390	380	U	ug/kg	380
2,4,5-Trichlorophenol	890	U	ug/kg	890	900	U	ug/kg	900	950	U	ug/kg	950	920	U	ug/kg	920
2-Chloronaphthalene	370	U	ug/kg	370	370	U	ug/kg	370	390	U	ug/kg	390	380	U	ug/kg	380
2-Nitroaniline	890	U	ug/kg	890	900	U	ug/kg	900	950	U	ug/kg	950	920	U	ug/kg	920
Dimethylphthalate	370	U	ug/kg	370	370	U	ug/kg	370	390	U	ug/kg	390	380	U	ug/kg	380
Acenaphthylene	370	U	ug/kg	370	370	U	ug/kg	370	390	U	ug/kg	390	380	U	ug/kg	380
2,6-Dinitrotoluene	370	U	ug/kg	370	370	U	ug/kg	370	390	U	ug/kg	390	380	U	ug/kg	380
3-Nitroaniline	890	U	ug/kg	890	900	U	ug/kg	900	950	U	ug/kg	950	920	U	ug/kg	920
Acenaphthene	370	U	ug/kg	370	370	U	ug/kg	370	390	U	ug/kg	390	380	U	ug/kg	380
2,4-Dinitrophenol	890	U	ug/kg	890	900	U	ug/kg	900	950	U	ug/kg	950	920	U	ug/kg	920
4-Nitrophenol	890	U	ug/kg	890	900	U	ug/kg	900	950	U	ug/kg	950	920	U	ug/kg	920
Dibenzofuran	370	U	ug/kg	370	370	U	ug/kg	370	390	U	ug/kg	390	380	U	ug/kg	380
2,4-Dinitrotoluene	370	U	ug/kg	370	370	U	ug/kg	370	390	U	ug/kg	390	380	U	ug/kg	380
Diethylphthalate	370	U	ug/kg	370	370	U	ug/kg	370	390	U	ug/kg	390	380	U	ug/kg	380
4-Chlorophenyl-phenylether	370	U	ug/kg	370	370	U	ug/kg	370	390	U	ug/kg	390	380	U	ug/kg	380
Fluorene	370	U	ug/kg	370	370	U	ug/kg	370	390	U	ug/kg	390	380	U	ug/kg	380

NAS CECIL FIELD -- OPERABLE UNIT 7 -- SITE 16
SUBSURFACE SOIL -- SEMIVOLATILES

Lab Sample Number:	A008V				A008W				A008X				A008Y			
Site	CECIL7				CECIL7				CECIL7				CECIL7			
Locator	CF16SB5S2				CF16SB5S2D				CF16SB5S6				CF16SB6S2			
Collect Date:	15-AUG-94				15-AUG-94				15-AUG-94				15-AUG-94			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
4-Nitroaniline	890	U	ug/kg	890	900	U	ug/kg	900	950	U	ug/kg	950	920	U	ug/kg	920
4,6-Dinitro-2-methylphenol	890	U	ug/kg	890	900	U	ug/kg	900	950	U	ug/kg	950	920	U	ug/kg	920
N-Nitrosodiphenylamine (1)	370	U	ug/kg	370	370	U	ug/kg	370	390	U	ug/kg	390	380	U	ug/kg	380
4-Bromophenyl-phenylether	370	U	ug/kg	370	370	U	ug/kg	370	390	U	ug/kg	390	380	U	ug/kg	380
Hexachlorobenzene	370	U	ug/kg	370	370	U	ug/kg	370	390	U	ug/kg	390	380	U	ug/kg	380
Pentachlorophenol	890	U	ug/kg	890	900	U	ug/kg	900	950	U	ug/kg	950	920	U	ug/kg	920
Phenanthrene	370	U	ug/kg	370	370	U	ug/kg	370	390	U	ug/kg	390	380	U	ug/kg	380
Anthracene	370	U	ug/kg	370	370	U	ug/kg	370	390	U	ug/kg	390	380	U	ug/kg	380
Carbazole	370	U	ug/kg	370	370	U	ug/kg	370	390	U	ug/kg	390	380	U	ug/kg	380
Di-n-butylphthalate	370	U	ug/kg	370	370	U	ug/kg	370	390	U	ug/kg	390	380	U	ug/kg	380
Fluoranthene	370	U	ug/kg	370	370	U	ug/kg	370	390	U	ug/kg	390	380	U	ug/kg	380
Pyrene	370	U	ug/kg	370	370	U	ug/kg	370	390	U	ug/kg	390	380	U	ug/kg	380
Butylbenzylphthalate	370	U	ug/kg	370	370	U	ug/kg	370	390	U	ug/kg	390	21	J	ug/kg	380
3,3-Dichlorobenzidine	370	U	ug/kg	370	370	U	ug/kg	370	390	U	ug/kg	390	380	U	ug/kg	380
Benzo (a) anthracene	370	U	ug/kg	370	370	U	ug/kg	370	390	U	ug/kg	390	380	U	ug/kg	380
Chrysene	370	U	ug/kg	370	370	U	ug/kg	370	390	U	ug/kg	390	380	U	ug/kg	380
bis(2-Ethylhexyl) phthalate	370	U	ug/kg	370	370	U	ug/kg	370	390	U	ug/kg	390	380	U	ug/kg	380
Di-n-octylphthalate	370	U	ug/kg	370	370	U	ug/kg	370	390	U	ug/kg	390	380	U	ug/kg	380
Benzo (b) fluoranthene	370	U	ug/kg	370	370	U	ug/kg	370	390	U	ug/kg	390	380	U	ug/kg	380
Benzo (k) fluoranthene	370	U	ug/kg	370	370	U	ug/kg	370	390	U	ug/kg	390	380	U	ug/kg	380
Benzo (a) pyrene	370	U	ug/kg	370	370	U	ug/kg	370	390	U	ug/kg	390	380	U	ug/kg	380
Indeno (1,2,3-cd) pyrene	370	U	ug/kg	370	370	U	ug/kg	370	390	U	ug/kg	390	380	U	ug/kg	380
Dibenz (a,h) anthracene	370	U	ug/kg	370	370	U	ug/kg	370	390	U	ug/kg	390	380	U	ug/kg	380
Benzo (g,h,i) perylene	370	U	ug/kg	370	370	U	ug/kg	370	390	U	ug/kg	390	380	U	ug/kg	380

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

NAS CECIL FIELD -- OPERABLE UNIT 7 -- SITE 16
SUBSURFACE SOIL -- SEMIVOLATILES

Lab Sample Number:	A0090				A0091				A001F				A001H			
Site	CECIL7				CECIL7				CECIL7				CECIL7			
Locator	CF16SB6S4				CF16SB6S4R				CF16SB7S2				CF16SB7S2D			
Collect Date:	15-AUG-94				15-AUG-94				16-AUG-94				16-AUG-94			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP SEMIVOLATILES 90-SOW																
Phenol	390	U	ug/kg	390	10	U	ug/l	10	370	U	ug/kg	370	380	U	ug/kg	380
bis(2-Chloroethyl) ether	390	U	ug/kg	390	10	U	ug/l	10	370	U	ug/kg	370	380	U	ug/kg	380
2-Chlorophenol	390	U	ug/kg	390	10	U	ug/l	10	370	U	ug/kg	370	380	U	ug/kg	380
1,3-Dichlorobenzene	390	U	ug/kg	390	10	U	ug/l	10	370	U	ug/kg	370	380	U	ug/kg	380
1,4-Dichlorobenzene	390	U	ug/kg	390	10	U	ug/l	10	370	U	ug/kg	370	380	U	ug/kg	380
1,2-Dichlorobenzene	390	U	ug/kg	390	10	U	ug/l	10	370	U	ug/kg	370	380	U	ug/kg	380
2-Methylphenol	390	U	ug/kg	390	10	U	ug/l	10	370	U	ug/kg	370	380	U	ug/kg	380
2,2-oxybis(1-Chloropropane)	390	U	ug/kg	390	10	U	ug/l	10	370	U	ug/kg	370	380	U	ug/kg	380
4-Methylphenol	390	U	ug/kg	390	10	U	ug/l	10	370	U	ug/kg	370	380	U	ug/kg	380
N-Nitroso-di-n-propylamine	390	U	ug/kg	390	10	U	ug/l	10	370	U	ug/kg	370	380	U	ug/kg	380
Hexachloroethane	390	U	ug/kg	390	10	U	ug/l	10	370	U	ug/kg	370	380	U	ug/kg	380
Nitrobenzene	390	U	ug/kg	390	10	U	ug/l	10	370	U	ug/kg	370	380	U	ug/kg	380
Isophorone	390	U	ug/kg	390	10	U	ug/l	10	370	U	ug/kg	370	380	U	ug/kg	380
2-Nitrophenol	390	U	ug/kg	390	10	U	ug/l	10	370	U	ug/kg	370	380	U	ug/kg	380
2,4-Dimethylphenol	390	U	ug/kg	390	10	U	ug/l	10	370	U	ug/kg	370	380	U	ug/kg	380
bis(2-Chloroethoxy) methane	390	U	ug/kg	390	10	U	ug/l	10	370	U	ug/kg	370	380	U	ug/kg	380
2,4-Dichlorophenol	390	U	ug/kg	390	10	U	ug/l	10	370	U	ug/kg	370	380	U	ug/kg	380
1,2,4-Trichlorobenzene	390	U	ug/kg	390	10	U	ug/l	10	370	U	ug/kg	370	380	U	ug/kg	380
Naphthalene	390	U	ug/kg	390	10	U	ug/l	10	370	U	ug/kg	370	380	U	ug/kg	380
4-Chloroaniline	390	U	ug/kg	390	10	U	ug/l	10	370	U	ug/kg	370	380	U	ug/kg	380
Hexachlorobutadiene	390	U	ug/kg	390	10	U	ug/l	10	370	U	ug/kg	370	380	U	ug/kg	380
4-Chloro-3-methylphenol	390	U	ug/kg	390	10	U	ug/l	10	370	U	ug/kg	370	380	U	ug/kg	380
2-Methylnaphthalene	390	U	ug/kg	390	10	U	ug/l	10	370	U	ug/kg	370	380	U	ug/kg	380
Hexachlorocyclopentadiene	390	U	ug/kg	390	10	U	ug/l	10	370	U	ug/kg	370	380	U	ug/kg	380
2,4,6-Trichlorophenol	390	U	ug/kg	390	10	U	ug/l	10	370	U	ug/kg	370	380	U	ug/kg	380
2,4,5-Trichlorophenol	940	U	ug/kg	940	25	U	ug/l	25	900	U	ug/kg	900	910	U	ug/kg	910
2-Chloronaphthalene	390	U	ug/kg	390	10	U	ug/l	10	370	U	ug/kg	370	380	U	ug/kg	380
2-Nitroaniline	940	U	ug/kg	940	25	U	ug/l	25	900	U	ug/kg	900	910	U	ug/kg	910
Dimethylphthalate	390	U	ug/kg	390	10	U	ug/l	10	370	U	ug/kg	370	380	U	ug/kg	380
Acenaphthylene	390	U	ug/kg	390	10	U	ug/l	10	370	U	ug/kg	370	380	U	ug/kg	380
2,6-Dinitrotoluene	390	U	ug/kg	390	10	U	ug/l	10	370	U	ug/kg	370	380	U	ug/kg	380
3-Nitroaniline	940	U	ug/kg	940	25	U	ug/l	25	900	U	ug/kg	900	910	U	ug/kg	910
Acenaphthene	390	U	ug/kg	390	10	U	ug/l	10	370	U	ug/kg	370	380	U	ug/kg	380
2,4-Dinitrophenol	940	U	ug/kg	940	25	U	ug/l	25	900	U	ug/kg	900	910	U	ug/kg	910
4-Nitrophenol	940	U	ug/kg	940	25	U	ug/l	25	900	U	ug/kg	900	910	U	ug/kg	910
Dibenzofuran	390	U	ug/kg	390	10	U	ug/l	10	370	U	ug/kg	370	380	U	ug/kg	380
2,4-Dinitrotoluene	390	U	ug/kg	390	10	U	ug/l	10	370	U	ug/kg	370	380	U	ug/kg	380
Diethylphthalate	390	U	ug/kg	390	10	U	ug/l	10	370	U	ug/kg	370	380	U	ug/kg	380
4-Chlorophenyl-phenylether	390	U	ug/kg	390	10	U	ug/l	10	370	U	ug/kg	370	380	U	ug/kg	380
Fluorene	390	U	ug/kg	390	10	U	ug/l	10	370	U	ug/kg	370	380	U	ug/kg	380

NAS CECIL FIELD -- OPERABLE UNIT 7 -- SITE 16
SUBSURFACE SOIL -- SEMIVOLATILES

Lab Sample Number:	A0090				A0091				A00IF				A00IH			
Site	CECIL7				CECIL7				CECIL7				CECIL7			
Locator	CF16SB6S4				CF16SB6S4R				CF16SB7S2				CF16SB7S2D			
Collect Date:	15-AUG-94				15-AUG-94				16-AUG-94				16-AUG-94			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
4-Nitroaniline	940	U	ug/kg	940	25	U	ug/l	25	900	U	ug/kg	900	910	U	ug/kg	910
4,6-Dinitro-2-methylphenol	940	U	ug/kg	940	25	U	ug/l	25	900	U	ug/kg	900	910	U	ug/kg	910
N-Nitrosodiphenylamine (1)	390	U	ug/kg	390	10	U	ug/l	10	370	U	ug/kg	370	380	U	ug/kg	380
4-Bromophenyl-phenylether	390	U	ug/kg	390	10	U	ug/l	10	370	U	ug/kg	370	380	U	ug/kg	380
Hexachlorobenzene	390	U	ug/kg	390	10	U	ug/l	10	370	U	ug/kg	370	380	U	ug/kg	380
Pentachlorophenol	940	U	ug/kg	940	25	U	ug/l	25	900	U	ug/kg	900	910	U	ug/kg	910
Phenanthrene	390	U	ug/kg	390	10	U	ug/l	10	370	U	ug/kg	370	380	U	ug/kg	380
Anthracene	390	U	ug/kg	390	10	U	ug/l	10	370	U	ug/kg	370	380	U	ug/kg	380
Carbazole	390	U	ug/kg	390	10	U	ug/l	10	370	U	ug/kg	370	380	U	ug/kg	380
Di-n-butylphthalate	390	U	ug/kg	390	.8	J	ug/l	20	370	U	ug/kg	370	380	U	ug/kg	380
Fluoranthene	390	U	ug/kg	390	10	U	ug/l	10	19	J	ug/kg	370	28	J	ug/kg	380
Pyrene	390	U	ug/kg	390	10	U	ug/l	10	22	J	ug/kg	370	24	J	ug/kg	380
Butylbenzylphthalate	390	U	ug/kg	390	10	U	ug/l	10	30	J	ug/kg	370	380	U	ug/kg	380
3,3-Dichlorobenzidine	390	U	ug/kg	390	10	U	ug/l	10	370	U	ug/kg	370	380	U	ug/kg	380
Benzo (a) anthracene	390	U	ug/kg	390	10	U	ug/l	10	370	U	ug/kg	370	380	U	ug/kg	380
Chrysene	390	U	ug/kg	390	10	U	ug/l	10	370	U	ug/kg	370	380	U	ug/kg	380
bis(2-Ethylhexyl) phthalate	390	U	ug/kg	390	.6	J	ug/l	20	370	U	ug/kg	370	380	U	ug/kg	380
Di-n-octylphthalate	390	U	ug/kg	390	10	U	ug/l	10	370	U	ug/kg	370	380	U	ug/kg	380
Benzo (b) fluoranthene	390	U	ug/kg	390	10	U	ug/l	10	30	J	ug/kg	370	31	J	ug/kg	380
Benzo (k) fluoranthene	390	U	ug/kg	390	10	U	ug/l	10	370	U	ug/kg	370	380	U	ug/kg	380
Benzo (a) pyrene	390	U	ug/kg	390	10	U	ug/l	10	370	U	ug/kg	370	380	U	ug/kg	380
Indeno (1,2,3-cd) pyrene	390	U	ug/kg	390	10	U	ug/l	10	370	U	ug/kg	370	380	U	ug/kg	380
Dibenz (a,h) anthracene	390	U	ug/kg	390	10	U	ug/l	10	370	U	ug/kg	370	380	U	ug/kg	380
Benzo (g,h,i) perylene	390	U	ug/kg	390	10	U	ug/l	10	370	U	ug/kg	370	380	U	ug/kg	380

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

NAS CECIL FIELD -- OPERABLE UNIT 7 -- SITE 16
SUBSURFACE SOIL -- SEMIVOLATILES

Lab Sample Number:	A001I				A001J				A001K				A001O			
Site	CECIL7				CECIL7				CECIL7				CECIL7			
Locator	CF16SB7S4				CF16SB8S2				CF16SB8S4				CF16SB9S4			
Collect Date:	16-AUG-94				16-AUG-94				16-AUG-94				16-AUG-94			
	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	370	U	ug/kg	370	390	U	ug/kg	390	390	U	ug/kg	390
bis(2-Chloroethyl) ether	380	U	ug/kg	380	370	U	ug/kg	370	390	U	ug/kg	390	390	U	ug/kg	390
2-Chlorophenol	380	U	ug/kg	380	370	U	ug/kg	370	390	U	ug/kg	390	390	U	ug/kg	390
1,3-Dichlorobenzene	380	U	ug/kg	380	370	U	ug/kg	370	390	U	ug/kg	390	390	U	ug/kg	390
1,4-Dichlorobenzene	380	U	ug/kg	380	370	U	ug/kg	370	390	U	ug/kg	390	390	U	ug/kg	390
1,2-Dichlorobenzene	380	U	ug/kg	380	370	U	ug/kg	370	390	U	ug/kg	390	390	U	ug/kg	390
2-Methylphenol	380	U	ug/kg	380	370	U	ug/kg	370	390	U	ug/kg	390	390	U	ug/kg	390
2,2-oxybis(1-Chloropropane)	380	U	ug/kg	380	370	U	ug/kg	370	390	U	ug/kg	390	390	U	ug/kg	390
4-Methylphenol	380	U	ug/kg	380	370	U	ug/kg	370	390	U	ug/kg	390	390	U	ug/kg	390
N-Nitroso-di-n-propylamine	380	U	ug/kg	380	370	U	ug/kg	370	390	U	ug/kg	390	390	U	ug/kg	390
Hexachloroethane	380	U	ug/kg	380	370	U	ug/kg	370	390	U	ug/kg	390	390	U	ug/kg	390
Nitrobenzene	380	U	ug/kg	380	370	U	ug/kg	370	390	U	ug/kg	390	390	U	ug/kg	390
Isophorone	380	U	ug/kg	380	370	U	ug/kg	370	390	U	ug/kg	390	390	U	ug/kg	390
2-Nitrophenol	380	U	ug/kg	380	370	U	ug/kg	370	390	U	ug/kg	390	390	U	ug/kg	390
2,4-Dimethylphenol	380	U	ug/kg	380	370	U	ug/kg	370	390	U	ug/kg	390	390	U	ug/kg	390
bis(2-Chloroethoxy) methane	380	U	ug/kg	380	370	U	ug/kg	370	390	U	ug/kg	390	390	U	ug/kg	390
2,4-Dichlorophenol	380	U	ug/kg	380	370	U	ug/kg	370	390	U	ug/kg	390	390	U	ug/kg	390
1,2,4-Trichlorobenzene	380	U	ug/kg	380	370	U	ug/kg	370	390	U	ug/kg	390	390	U	ug/kg	390
Naphthalene	380	U	ug/kg	380	370	U	ug/kg	370	390	U	ug/kg	390	390	U	ug/kg	390
4-Chloroaniline	380	U	ug/kg	380	370	U	ug/kg	370	390	U	ug/kg	390	390	U	ug/kg	390
Hexachlorobutadiene	380	U	ug/kg	380	370	U	ug/kg	370	390	U	ug/kg	390	390	U	ug/kg	390
4-Chloro-3-methylphenol	380	U	ug/kg	380	370	U	ug/kg	370	390	U	ug/kg	390	390	U	ug/kg	390
2-Methylnaphthalene	380	U	ug/kg	380	370	U	ug/kg	370	390	U	ug/kg	390	390	U	ug/kg	390
Hexachlorocyclopentadiene	380	U	ug/kg	380	370	U	ug/kg	370	390	U	ug/kg	390	390	U	ug/kg	390
2,4,6-Trichlorophenol	380	U	ug/kg	380	370	U	ug/kg	370	390	U	ug/kg	390	390	U	ug/kg	390
2,4,5-Trichlorophenol	910	U	ug/kg	910	890	U	ug/kg	890	940	U	ug/kg	940	950	U	ug/kg	950
2-Chloronaphthalene	380	U	ug/kg	380	370	U	ug/kg	370	390	U	ug/kg	390	390	U	ug/kg	390
2-Nitroaniline	910	U	ug/kg	910	890	U	ug/kg	890	940	U	ug/kg	940	950	U	ug/kg	950
Dimethylphthalate	380	U	ug/kg	380	29	J	ug/kg	370	390	U	ug/kg	390	390	U	ug/kg	390
Acenaphthylene	380	U	ug/kg	380	370	U	ug/kg	370	390	U	ug/kg	390	390	U	ug/kg	390
2,6-Dinitrotoluene	380	U	ug/kg	380	370	U	ug/kg	370	390	U	ug/kg	390	390	U	ug/kg	390
3-Nitroaniline	910	U	ug/kg	910	890	U	ug/kg	890	940	U	ug/kg	940	950	U	ug/kg	950
Acenaphthene	380	U	ug/kg	380	370	U	ug/kg	370	390	U	ug/kg	390	390	U	ug/kg	390
2,4-Dinitrophenol	910	U	ug/kg	910	890	U	ug/kg	890	940	U	ug/kg	940	950	U	ug/kg	950
4-Nitrophenol	910	U	ug/kg	910	890	U	ug/kg	890	940	U	ug/kg	940	950	U	ug/kg	950
Dibenzofuran	380	U	ug/kg	380	370	U	ug/kg	370	390	U	ug/kg	390	390	U	ug/kg	390
2,4-Dinitrotoluene	380	U	ug/kg	380	370	U	ug/kg	370	390	U	ug/kg	390	390	U	ug/kg	390
Diethylphthalate	380	U	ug/kg	380	370	U	ug/kg	370	390	U	ug/kg	390	390	U	ug/kg	390
4-Chlorophenyl-phenylether	380	U	ug/kg	380	370	U	ug/kg	370	390	U	ug/kg	390	390	U	ug/kg	390
Fluorene	380	U	ug/kg	380	370	U	ug/kg	370	390	U	ug/kg	390	390	U	ug/kg	390

NAS CECIL FIELD -- OPERABLE UNIT 7 -- SITE 16
SUBSURFACE SOIL -- SEMIVOLATILES

Lab Sample Number:	A001I				A001J				A001K				A001Q			
Site	CECIL7				CECIL7				CECIL7				CECIL7			
Locator	CF16SB7S4				CF16SB8S2				CF16SB8S4				CF16SB9S4			
Collect Date:	16-AUG-94				16-AUG-94				16-AUG-94				16-AUG-94			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
4-Nitroaniline	910	U	ug/kg	910	890	U	ug/kg	890	940	U	ug/kg	940	950	U	ug/kg	950
4,6-Dinitro-2-methylphenol	910	U	ug/kg	910	890	U	ug/kg	890	940	U	ug/kg	940	950	U	ug/kg	950
N-Nitrosodiphenylamine (1)	380	U	ug/kg	380	370	U	ug/kg	370	390	U	ug/kg	390	390	U	ug/kg	390
4-Bromophenyl-phenylether	380	U	ug/kg	380	370	U	ug/kg	370	390	U	ug/kg	390	390	U	ug/kg	390
Hexachlorobenzene	380	U	ug/kg	380	370	U	ug/kg	370	390	U	ug/kg	390	390	U	ug/kg	390
Pentachlorophenol	910	U	ug/kg	910	890	U	ug/kg	890	940	U	ug/kg	940	950	U	ug/kg	950
Phenanthrene	380	U	ug/kg	380	370	U	ug/kg	370	390	U	ug/kg	390	390	U	ug/kg	390
Anthracene	380	U	ug/kg	380	370	U	ug/kg	370	390	U	ug/kg	390	390	U	ug/kg	390
Carbazole	380	U	ug/kg	380	370	U	ug/kg	370	390	U	ug/kg	390	390	U	ug/kg	390
Di-n-butylphthalate	380	U	ug/kg	380	490	U	ug/kg	490	410	U	ug/kg	410	730	U	ug/kg	730
Fluoranthene	380	U	ug/kg	380	370	U	ug/kg	370	390	U	ug/kg	390	390	U	ug/kg	390
Pyrene	380	U	ug/kg	380	370	U	ug/kg	370	390	U	ug/kg	390	390	U	ug/kg	390
Butylbenzylphthalate	380	U	ug/kg	380	95	J	ug/kg	370	390	U	ug/kg	390	390	U	ug/kg	390
3,3-Dichlorobenzidine	380	U	ug/kg	380	370	U	ug/kg	370	390	U	ug/kg	390	390	U	ug/kg	390
Benzo (a) anthracene	380	U	ug/kg	380	370	U	ug/kg	370	390	U	ug/kg	390	390	U	ug/kg	390
Chrysene	380	U	ug/kg	380	370	U	ug/kg	370	390	U	ug/kg	390	390	U	ug/kg	390
bis(2-Ethylhexyl) phthalate	380	U	ug/kg	380	600		ug/kg	370	390	U	ug/kg	390	390	U	ug/kg	390
Di-n-octylphthalate	380	U	ug/kg	380	370	U	ug/kg	370	390	U	ug/kg	390	390	U	ug/kg	390
Benzo (b) fluoranthene	23	J	ug/kg	380	25	J	ug/kg	370	390	U	ug/kg	390	390	U	ug/kg	390
Benzo (k) fluoranthene	380	U	ug/kg	380	370	U	ug/kg	370	390	U	ug/kg	390	390	U	ug/kg	390
Benzo (a) pyrene	380	U	ug/kg	380	370	U	ug/kg	370	390	U	ug/kg	390	390	U	ug/kg	390
Indeno (1,2,3-cd) pyrene	380	U	ug/kg	380	370	U	ug/kg	370	390	U	ug/kg	390	390	U	ug/kg	390
Dibenz (a,h) anthracene	380	U	ug/kg	380	370	U	ug/kg	370	390	U	ug/kg	390	390	U	ug/kg	390
Benzo (g,h,i) perylene	380	U	ug/kg	380	370	U	ug/kg	370	390	U	ug/kg	390	390	U	ug/kg	390

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

NAS CECIL FIELD -- OPERABLE UNIT 7 -- SITE 16
SUBSURFACE SOIL -- SEMIVOLATILES

Lab Sample Number:	A001M				A001T				A00J0				A00J6			
Site	CECIL7				CECIL7				CECIL7				CECIL7			
Locator	CF16SB9S6				CF16SB10S2				CF16SB10S2D				CF16SB10S4			
Collect Date:	16-AUG-94				16-AUG-94				16-AUG-94				16-AUG-94			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP SEMIVOLATILES 90-SOW																
Phenol	400	U	ug/kg	400	370	U	ug/kg	370	380	U	ug/kg	380	390	U	ug/kg	390
bis(2-Chloroethyl) ether	400	U	ug/kg	400	370	U	ug/kg	370	380	U	ug/kg	380	390	U	ug/kg	390
2-Chlorophenol	400	U	ug/kg	400	370	U	ug/kg	370	380	U	ug/kg	380	390	U	ug/kg	390
1,3-Dichlorobenzene	400	U	ug/kg	400	370	U	ug/kg	370	380	U	ug/kg	380	390	U	ug/kg	390
1,4-Dichlorobenzene	400	U	ug/kg	400	370	U	ug/kg	370	380	U	ug/kg	380	390	U	ug/kg	390
1,2-Dichlorobenzene	400	U	ug/kg	400	370	U	ug/kg	370	380	U	ug/kg	380	390	U	ug/kg	390
2-Methylphenol	400	U	ug/kg	400	370	U	ug/kg	370	380	U	ug/kg	380	390	U	ug/kg	390
2,2-oxybis(1-Chloropropane)	400	U	ug/kg	400	370	U	ug/kg	370	380	U	ug/kg	380	390	U	ug/kg	390
4-Methylphenol	400	U	ug/kg	400	370	U	ug/kg	370	380	U	ug/kg	380	390	U	ug/kg	390
N-Nitroso-di-n-propylamine	400	U	ug/kg	400	370	U	ug/kg	370	380	U	ug/kg	380	390	U	ug/kg	390
Hexachloroethane	400	U	ug/kg	400	370	U	ug/kg	370	380	U	ug/kg	380	390	U	ug/kg	390
Nitrobenzene	400	U	ug/kg	400	370	U	ug/kg	370	380	U	ug/kg	380	390	U	ug/kg	390
Isophorone	400	U	ug/kg	400	370	U	ug/kg	370	380	U	ug/kg	380	390	U	ug/kg	390
2-Nitrophenol	400	U	ug/kg	400	370	U	ug/kg	370	380	U	ug/kg	380	390	U	ug/kg	390
2,4-Dimethylphenol	400	U	ug/kg	400	370	U	ug/kg	370	380	U	ug/kg	380	390	U	ug/kg	390
bis(2-Chloroethoxy) methane	400	U	ug/kg	400	370	U	ug/kg	370	380	U	ug/kg	380	390	U	ug/kg	390
2,4-Dichlorophenol	400	U	ug/kg	400	370	U	ug/kg	370	380	U	ug/kg	380	390	U	ug/kg	390
1,2,4-Trichlorobenzene	400	U	ug/kg	400	370	U	ug/kg	370	380	U	ug/kg	380	390	U	ug/kg	390
Naphthalene	400	U	ug/kg	400	370	U	ug/kg	370	380	U	ug/kg	380	390	U	ug/kg	390
4-Chloroaniline	400	U	ug/kg	400	370	U	ug/kg	370	380	U	ug/kg	380	390	U	ug/kg	390
Hexachlorobutadiene	400	U	ug/kg	400	370	U	ug/kg	370	380	U	ug/kg	380	390	U	ug/kg	390
4-Chloro-3-methylphenol	400	U	ug/kg	400	370	U	ug/kg	370	380	U	ug/kg	380	390	U	ug/kg	390
2-Methylnaphthalene	400	U	ug/kg	400	370	U	ug/kg	370	380	U	ug/kg	380	390	U	ug/kg	390
Hexachlorocyclopentadiene	400	U	ug/kg	400	370	U	ug/kg	370	380	U	ug/kg	380	390	U	ug/kg	390
2,4,6-Trichlorophenol	400	U	ug/kg	400	370	U	ug/kg	370	380	U	ug/kg	380	390	U	ug/kg	390
2,4,5-Trichlorophenol	960	U	ug/kg	960	900	U	ug/kg	900	910	U	ug/kg	910	950	U	ug/kg	950
2-Chloronaphthalene	400	U	ug/kg	400	370	U	ug/kg	370	380	U	ug/kg	380	390	U	ug/kg	390
2-Nitroaniline	960	U	ug/kg	960	900	U	ug/kg	900	910	U	ug/kg	910	950	U	ug/kg	950
Dimethylphthalate	400	U	ug/kg	400	370	U	ug/kg	370	380	U	ug/kg	380	390	U	ug/kg	390
Acenaphthylene	400	U	ug/kg	400	370	U	ug/kg	370	380	U	ug/kg	380	390	U	ug/kg	390
2,6-Dinitrotoluene	400	U	ug/kg	400	370	U	ug/kg	370	380	U	ug/kg	380	390	U	ug/kg	390
3-Nitroaniline	960	U	ug/kg	960	900	U	ug/kg	900	910	U	ug/kg	910	950	U	ug/kg	950
Acenaphthene	400	U	ug/kg	400	370	U	ug/kg	370	380	U	ug/kg	380	390	U	ug/kg	390
2,4-Dinitrophenol	960	U	ug/kg	960	900	U	ug/kg	900	910	U	ug/kg	910	950	U	ug/kg	950
4-Nitrophenol	960	U	ug/kg	960	900	U	ug/kg	900	910	U	ug/kg	910	950	U	ug/kg	950
Dibenzofuran	400	U	ug/kg	400	370	U	ug/kg	370	380	U	ug/kg	380	390	U	ug/kg	390
2,4-Dinitrotoluene	400	U	ug/kg	400	370	U	ug/kg	370	380	U	ug/kg	380	390	U	ug/kg	390
Diethylphthalate	400	U	ug/kg	400	370	U	ug/kg	370	380	U	ug/kg	380	390	U	ug/kg	390
4-Chlorophenyl-phenylether	400	U	ug/kg	400	370	U	ug/kg	370	380	U	ug/kg	380	390	U	ug/kg	390
Fluorene	400	U	ug/kg	400	370	U	ug/kg	370	380	U	ug/kg	380	390	U	ug/kg	390

NAS CECIL FIELD -- OPERABLE UNIT 7 -- SITE 16
SUBSURFACE SOIL -- SEMIVOLATILES

Lab Sample Number:	A00IM				A00IT				A00J0				A00J6			
Site	CECIL7				CECIL7				CECIL7				CECIL7			
Locator	CF16SB9S6				CF16SB10S2				CF16SB10S2D				CF16SB10S4			
Collect Date:	16-AUG-94				16-AUG-94				16-AUG-94				16-AUG-94			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
4-Nitroaniline	960	U	ug/kg	960	900	U	ug/kg	900	910	U	ug/kg	910	950	U	ug/kg	950
4,6-Dinitro-2-methylphenol	960	U	ug/kg	960	900	U	ug/kg	900	910	U	ug/kg	910	950	U	ug/kg	950
N-Nitrosodiphenylamine (1)	400	U	ug/kg	400	370	U	ug/kg	370	380	U	ug/kg	380	390	U	ug/kg	390
4-Bromophenyl-phenylether	400	U	ug/kg	400	370	U	ug/kg	370	380	U	ug/kg	380	390	U	ug/kg	390
Hexachlorobenzene	400	U	ug/kg	400	370	U	ug/kg	370	380	U	ug/kg	380	390	U	ug/kg	390
Pentachlorophenol	960	U	ug/kg	960	900	U	ug/kg	900	910	U	ug/kg	910	950	U	ug/kg	950
Phenanthrene	400	U	ug/kg	400	370	U	ug/kg	370	380	U	ug/kg	380	390	U	ug/kg	390
Anthracene	400	U	ug/kg	400	370	U	ug/kg	370	380	U	ug/kg	380	390	U	ug/kg	390
Carbazole	400	U	ug/kg	400	370	U	ug/kg	370	380	U	ug/kg	380	390	U	ug/kg	390
Di-n-butylphthalate	430	U	ug/kg	430	370	U	ug/kg	370	420	U	ug/kg	420	420	U	ug/kg	420
Fluoranthene	400	U	ug/kg	400	370	U	ug/kg	370	380	U	ug/kg	380	390	U	ug/kg	390
Pyrene	400	U	ug/kg	400	370	U	ug/kg	370	380	U	ug/kg	380	390	U	ug/kg	390
Butylbenzylphthalate	400	U	ug/kg	400	370	U	ug/kg	370	380	U	ug/kg	380	390	U	ug/kg	390
3,3-Dichlorobenzidine	400	U	ug/kg	400	370	U	ug/kg	370	380	U	ug/kg	380	390	U	ug/kg	390
Benzo (a) anthracene	400	U	ug/kg	400	370	U	ug/kg	370	380	U	ug/kg	380	390	U	ug/kg	390
Chrysene	400	U	ug/kg	400	370	U	ug/kg	370	380	U	ug/kg	380	390	U	ug/kg	390
bis(2-Ethylhexyl) phthalate	400	U	ug/kg	400	370	U	ug/kg	370	380	U	ug/kg	380	390	U	ug/kg	390
Di-n-octylphthalate	400	U	ug/kg	400	370	U	ug/kg	370	380	U	ug/kg	380	390	U	ug/kg	390
Benzo (b) fluoranthene	400	U	ug/kg	400	370	U	ug/kg	370	380	U	ug/kg	380	390	U	ug/kg	390
Benzo (k) fluoranthene	400	U	ug/kg	400	370	U	ug/kg	370	380	U	ug/kg	380	390	U	ug/kg	390
Benzo (a) pyrene	400	U	ug/kg	400	370	U	ug/kg	370	380	U	ug/kg	380	390	U	ug/kg	390
Indeno (1,2,3-cd) pyrene	400	U	ug/kg	400	370	U	ug/kg	370	380	U	ug/kg	380	390	U	ug/kg	390
Dibenz (a,h) anthracene	400	U	ug/kg	400	370	U	ug/kg	370	380	U	ug/kg	380	390	U	ug/kg	390
Benzo (g,h,i) perylene	400	U	ug/kg	400	370	U	ug/kg	370	380	U	ug/kg	380	390	U	ug/kg	390

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

NAS CECIL FIELD -- OPERABLE UNIT 7 -- SITE 16
SUBSURFACE SOIL -- SEMIVOLATILES

Lab Sample Number:	A00KE				A00KEMS				A00KEMSD				A00KG			
Site	CECIL7				CECIL7				CECIL7				CECIL7			
Locator	CF16SB11S2				CF16SB11S2MS				CF16SB11S2MSD				CF16SB11S6			
Collect Date:	16-AUG-94				16-AUG-94				16-AUG-94				16-AUG-94			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP SEMIVOLATILES 90-SOW																
Phenol	20	J	ug/kg	380	1300		ug/kg	380	1600		ug/kg	380	33	J	ug/kg	410
bis(2-Chloroethyl) ether	380	U	ug/kg	380	380	U	ug/kg	380	380	U	ug/kg	380	410	U	ug/kg	410
2-Chlorophenol	380	U	ug/kg	380	1300		ug/kg	380	1700		ug/kg	380	410	U	ug/kg	410
1,3-Dichlorobenzene	380	U	ug/kg	380	380	U	ug/kg	380	380	U	ug/kg	380	410	U	ug/kg	410
1,4-Dichlorobenzene	380	U	ug/kg	380	820		ug/kg	380	1000		ug/kg	380	410	U	ug/kg	410
1,2-Dichlorobenzene	380	U	ug/kg	380	380	U	ug/kg	380	380	U	ug/kg	380	410	U	ug/kg	410
2-Methylphenol	380	U	ug/kg	380	380	U	ug/kg	380	380	U	ug/kg	380	410	U	ug/kg	410
2,2-oxybis(1-Chloropropane)	380	U	ug/kg	380	380	U	ug/kg	380	380	U	ug/kg	380	410	U	ug/kg	410
4-Methylphenol	380	U	ug/kg	380	380	U	ug/kg	380	380	U	ug/kg	380	410	U	ug/kg	410
N-Nitroso-di-n-propylamine	380	U	ug/kg	380	840		ug/kg	380	1100		ug/kg	380	410	U	ug/kg	410
Hexachloroethane	380	U	ug/kg	380	380	U	ug/kg	380	380	U	ug/kg	380	410	U	ug/kg	410
Nitrobenzene	380	U	ug/kg	380	380	U	ug/kg	380	380	U	ug/kg	380	410	U	ug/kg	410
Isophorone	380	U	ug/kg	380	380	U	ug/kg	380	380	U	ug/kg	380	410	U	ug/kg	410
2-Nitrophenol	380	U	ug/kg	380	380	U	ug/kg	380	380	U	ug/kg	380	410	U	ug/kg	410
2,4-Dimethylphenol	380	U	ug/kg	380	380	U	ug/kg	380	380	U	ug/kg	380	410	U	ug/kg	410
bis(2-Chloroethoxy) methane	380	U	ug/kg	380	380	U	ug/kg	380	380	U	ug/kg	380	410	U	ug/kg	410
2,4-Dichlorophenol	380	U	ug/kg	380	380	U	ug/kg	380	380	U	ug/kg	380	410	U	ug/kg	410
1,2,4-Trichlorobenzene	380	U	ug/kg	380	920		ug/kg	380	1200		ug/kg	380	410	U	ug/kg	410
Naphthalene	380	U	ug/kg	380	380	U	ug/kg	380	380	U	ug/kg	380	410	U	ug/kg	410
4-Chloroaniline	380	U	ug/kg	380	380	U	ug/kg	380	380	U	ug/kg	380	410	U	ug/kg	410
Hexachlorobutadiene	380	U	ug/kg	380	380	U	ug/kg	380	380	U	ug/kg	380	410	U	ug/kg	410
4-Chloro-3-methylphenol	380	U	ug/kg	380	2100		ug/kg	380	2600		ug/kg	380	410	U	ug/kg	410
2-Methylnaphthalene	380	U	ug/kg	380	380	U	ug/kg	380	380	U	ug/kg	380	410	U	ug/kg	410
Hexachlorocyclopentadiene	380	U	ug/kg	380	380	U	ug/kg	380	380	U	ug/kg	380	410	U	ug/kg	410
2,4,6-Trichlorophenol	380	U	ug/kg	380	380	U	ug/kg	380	380	U	ug/kg	380	410	U	ug/kg	410
2,4,5-Trichlorophenol	930	U	ug/kg	930	930	U	ug/kg	930	930	U	ug/kg	930	990	U	ug/kg	990
2-Chloronaphthalene	380	U	ug/kg	380	380	U	ug/kg	380	380	U	ug/kg	380	410	U	ug/kg	410
2-Nitroaniline	930	U	ug/kg	930	930	U	ug/kg	930	930	U	ug/kg	930	990	U	ug/kg	990
Dimethylphthalate	380	U	ug/kg	380	380	U	ug/kg	380	380	U	ug/kg	380	410	U	ug/kg	410
Acenaphthylene	380	U	ug/kg	380	380	U	ug/kg	380	380	U	ug/kg	380	410	U	ug/kg	410
2,6-Dinitrotoluene	380	U	ug/kg	380	380	U	ug/kg	380	380	U	ug/kg	380	410	U	ug/kg	410
3-Nitroaniline	930	U	ug/kg	930	930	U	ug/kg	930	930	U	ug/kg	930	990	U	ug/kg	990
Acenaphthene	380	U	ug/kg	380	1300		ug/kg	380	1700		ug/kg	380	410	U	ug/kg	410
2,4-Dinitrophenol	930	U	ug/kg	930	930	U	ug/kg	930	930	U	ug/kg	930	990	U	ug/kg	990
4-Nitrophenol	930	U	ug/kg	930	1300		ug/kg	930	1800		ug/kg	930	990	U	ug/kg	990
Dibenzofuran	380	U	ug/kg	380	380	U	ug/kg	380	380	U	ug/kg	380	410	U	ug/kg	410
2,4-Dinitrotoluene	380	U	ug/kg	380	1100		ug/kg	380	1400		ug/kg	380	410	U	ug/kg	410
Diethylphthalate	380	U	ug/kg	380	380	U	ug/kg	380	380	U	ug/kg	380	410	U	ug/kg	410
4-Chlorophenyl-phenylether	380	U	ug/kg	380	380	U	ug/kg	380	380	U	ug/kg	380	410	U	ug/kg	410
Fluorene	380	U	ug/kg	380	380	U	ug/kg	380	380	U	ug/kg	380	410	U	ug/kg	410

NAS CECIL FIELD -- OPERABLE UNIT 7 -- SITE 16
SUBSURFACE SOIL -- SEMIVOLATILES

Lab Sample Number:	A00KE				A00KEMS				A00KEMSD				A00KG			
Site	CECIL7				CECIL7				CECIL7				CECIL7			
Locator	CF16SB11S2				CF16SB11S2MS				CF16SB11S2MSD				CF16SB11S6			
Collect Date:	16-AUG-94				16-AUG-94				16-AUG-94				16-AUG-94			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
4-Nitroaniline	930	U	ug/kg	930	930	U	ug/kg	930	930	U	ug/kg	930	990	U	ug/kg	990
4,6-Dinitro-2-methylphenol	930	U	ug/kg	930	930	U	ug/kg	930	930	U	ug/kg	930	990	U	ug/kg	990
N-Nitrosodiphenylamine (1)	380	U	ug/kg	380	380	U	ug/kg	380	380	U	ug/kg	380	410	U	ug/kg	410
4-Bromophenyl-phenylether	380	U	ug/kg	380	380	U	ug/kg	380	380	U	ug/kg	380	410	U	ug/kg	410
Hexachlorobenzene	380	U	ug/kg	380	380	U	ug/kg	380	380	U	ug/kg	380	410	U	ug/kg	410
Pentachlorophenol	930	U	ug/kg	930	2500		ug/kg	930	3200		ug/kg	930	990	U	ug/kg	990
Phenanthrene	380	U	ug/kg	380	380	U	ug/kg	380	380	U	ug/kg	380	410	U	ug/kg	410
Anthracene	380	U	ug/kg	380	380	U	ug/kg	380	380	U	ug/kg	380	410	U	ug/kg	410
Carbazole	380	U	ug/kg	380	380	U	ug/kg	380	380	U	ug/kg	380	410	U	ug/kg	410
Di-n-butylphthalate	380	U	ug/kg	380	380	U	ug/kg	380	380	U	ug/kg	380	410	U	ug/kg	410
Fluoranthene	380	U	ug/kg	380	380	U	ug/kg	380	21	J	ug/kg	380	410	U	ug/kg	410
Pyrene	380	U	ug/kg	380	1100		ug/kg	380	1000		ug/kg	380	410	U	ug/kg	410
Butylbenzylphthalate	380	U	ug/kg	380	380	U	ug/kg	380	380	U	ug/kg	380	410	U	ug/kg	410
3,3-Dichlorobenzidine	380	U	ug/kg	380	380	U	ug/kg	380	380	U	ug/kg	380	410	U	ug/kg	410
Benzo (a) anthracene	380	U	ug/kg	380	380	U	ug/kg	380	380	U	ug/kg	380	410	U	ug/kg	410
Chrysene	380	U	ug/kg	380	380	U	ug/kg	380	380	U	ug/kg	380	410	U	ug/kg	410
bis(2-Ethylhexyl) phthalate	380	U	ug/kg	380	380	U	ug/kg	380	380	U	ug/kg	380	410	U	ug/kg	410
Di-n-octylphthalate	380	U	ug/kg	380	380	U	ug/kg	380	380	U	ug/kg	380	410	U	ug/kg	410
Benzo (b) fluoranthene	380	U	ug/kg	380	380	U	ug/kg	380	380	U	ug/kg	380	410	U	ug/kg	410
Benzo (k) fluoranthene	380	U	ug/kg	380	380	U	ug/kg	380	380	U	ug/kg	380	410	U	ug/kg	410
Benzo (a) pyrene	380	U	ug/kg	380	380	U	ug/kg	380	380	U	ug/kg	380	410	U	ug/kg	410
Indeno (1,2,3-cd) pyrene	380	U	ug/kg	380	380	U	ug/kg	380	380	U	ug/kg	380	410	U	ug/kg	410
Dibenz (a,h) anthracene	380	U	ug/kg	380	380	U	ug/kg	380	380	U	ug/kg	380	410	U	ug/kg	410
Benzo (g,h,i) perylene	380	U	ug/kg	380	380	U	ug/kg	380	380	U	ug/kg	380	410	U	ug/kg	410

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

NAS CECIL FIELD -- OPERABLE UNIT 7 -- SITE 16
SUBSURFACE SOIL -- SEMIVOLATILES

Lab Sample Number:	A00KM				A008D				A008F			
Site	CECIL7				CECIL7				CECIL7			
Locator	CF16SB11S6R				CF16SB12S2				CF16SB12S6			
Collect Date:	16-AUG-94				13-AUG-94				13-AUG-94			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP SEMIVOLATILES 90-SOW												
Phenol	10	U	ug/l	10	410	U	ug/kg	410	390	U	ug/kg	390
bis(2-Chloroethyl) ether	10	U	ug/l	10	410	U	ug/kg	410	390	U	ug/kg	390
2-Chlorophenol	10	U	ug/l	10	410	U	ug/kg	410	390	U	ug/kg	390
1,3-Dichlorobenzene	10	U	ug/l	10	410	U	ug/kg	410	390	U	ug/kg	390
1,4-Dichlorobenzene	10	U	ug/l	10	410	U	ug/kg	410	390	U	ug/kg	390
1,2-Dichlorobenzene	10	U	ug/l	10	410	U	ug/kg	410	390	U	ug/kg	390
2-Methylphenol	10	U	ug/l	10	410	U	ug/kg	410	390	U	ug/kg	390
2,2-oxybis(1-Chloropropane)	10	U	ug/l	10	410	U	ug/kg	410	390	U	ug/kg	390
4-Methylphenol	10	U	ug/l	10	410	U	ug/kg	410	390	U	ug/kg	390
N-Nitroso-di-n-propylamine	10	U	ug/l	10	410	U	ug/kg	410	390	U	ug/kg	390
Hexachloroethane	10	U	ug/l	10	410	U	ug/kg	410	390	U	ug/kg	390
Nitrobenzene	10	U	ug/l	10	410	U	ug/kg	410	390	U	ug/kg	390
Isophorone	10	U	ug/l	10	410	U	ug/kg	410	390	U	ug/kg	390
2-Nitrophenol	10	U	ug/l	10	410	U	ug/kg	410	390	U	ug/kg	390
2,4-Dimethylphenol	10	U	ug/l	10	410	U	ug/kg	410	390	U	ug/kg	390
bis(2-Chloroethoxy) methane	10	U	ug/l	10	410	U	ug/kg	410	390	U	ug/kg	390
2,4-Dichlorophenol	10	U	ug/l	10	410	U	ug/kg	410	390	U	ug/kg	390
1,2,4-Trichlorobenzene	10	U	ug/l	10	410	U	ug/kg	410	390	U	ug/kg	390
Naphthalene	10	U	ug/l	10	410	U	ug/kg	410	390	U	ug/kg	390
4-Chloroaniline	10	U	ug/l	10	410	U	ug/kg	410	390	U	ug/kg	390
Hexachlorobutadiene	10	U	ug/l	10	410	U	ug/kg	410	390	U	ug/kg	390
4-Chloro-3-methylphenol	10	U	ug/l	10	410	U	ug/kg	410	390	U	ug/kg	390
2-Methylnaphthalene	10	U	ug/l	10	410	U	ug/kg	410	21	J	ug/kg	390
Hexachlorocyclopentadiene	10	U	ug/l	10	410	U	ug/kg	410	390	U	ug/kg	390
2,4,6-Trichlorophenol	10	U	ug/l	10	410	U	ug/kg	410	390	U	ug/kg	390
2,4,5-Trichlorophenol	25	U	ug/l	25	990	U	ug/kg	990	940	U	ug/kg	940
2-Chloronaphthalene	10	U	ug/l	10	410	U	ug/kg	410	390	U	ug/kg	390
2-Nitroaniline	25	U	ug/l	25	990	U	ug/kg	990	940	U	ug/kg	940
Dimethylphthalate	10	U	ug/l	10	410	U	ug/kg	410	390	U	ug/kg	390
Acenaphthylene	10	U	ug/l	10	410	U	ug/kg	410	390	U	ug/kg	390
2,6-Dinitrotoluene	10	U	ug/l	10	410	U	ug/kg	410	390	U	ug/kg	390
3-Nitroaniline	25	U	ug/l	25	990	U	ug/kg	990	940	U	ug/kg	940
Acenaphthene	10	U	ug/l	10	410	U	ug/kg	410	390	U	ug/kg	390
2,4-Dinitrophenol	25	U	ug/l	25	990	U	ug/kg	990	940	U	ug/kg	940
4-Nitrophenol	25	U	ug/l	25	990	U	ug/kg	990	940	U	ug/kg	940
Dibenzofuran	10	U	ug/l	10	410	U	ug/kg	410	390	U	ug/kg	390
2,4-Dinitrotoluene	10	U	ug/l	10	410	U	ug/kg	410	390	U	ug/kg	390
Diethylphthalate	10	U	ug/l	10	410	U	ug/kg	410	23	J	ug/kg	390
4-Chlorophenyl-phenylether	10	U	ug/l	10	410	U	ug/kg	410	390	U	ug/kg	390
Fluorene	10	U	ug/l	10	410	U	ug/kg	410	390	U	ug/kg	390

NAS CECIL FIELD -- OPERABLE UNIT 7 -- SITE 16
SUBSURFACE SOIL -- SEMIVOLATILES

Lab Sample Number:	A00KM				A008D				A008F			
Site	CECIL7				CECIL7				CECIL7			
Locator	CF16SB11S6R				CF16SB12S2				CF16SB12S6			
Collect Date:	16-AUG-94				13-AUG-94				13-AUG-94			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
4-Nitroaniline	25	U	ug/l	25	990	U	ug/kg	990	940	U	ug/kg	940
4,6-Dinitro-2-methylphenol	25	U	ug/l	25	990	U	ug/kg	990	940	U	ug/kg	940
N-Nitrosodiphenylamine (1)	10	U	ug/l	10	410	U	ug/kg	410	390	U	ug/kg	390
4-Bromophenyl-phenylether	10	U	ug/l	10	410	U	ug/kg	410	390	U	ug/kg	390
Hexachlorobenzene	10	U	ug/l	10	410	U	ug/kg	410	390	U	ug/kg	390
Pentachlorophenol	25	U	ug/l	25	990	U	ug/kg	990	940	U	ug/kg	940
Phenanthrene	10	U	ug/l	10	410	U	ug/kg	410	390	U	ug/kg	390
Anthracene	10	U	ug/l	10	410	U	ug/kg	410	390	U	ug/kg	390
Carbazole	10	U	ug/l	10	410	U	ug/kg	410	390	U	ug/kg	390
Di-n-butylphthalate	.7	J	ug/l	10	410	U	ug/kg	410	390	U	ug/kg	390
Fluoranthene	10	U	ug/l	10	410	U	ug/kg	410	28	J	ug/kg	390
Pyrene	10	U	ug/l	10	410	U	ug/kg	410	21	J	ug/kg	390
Butylbenzylphthalate	10	U	ug/l	10	410	U	ug/kg	410	750		ug/kg	390
3,3-Dichlorobenzidine	10	U	ug/l	10	410	U	ug/kg	410	390	U	ug/kg	390
Benzo (a) anthracene	10	U	ug/l	10	410	U	ug/kg	410	390	U	ug/kg	390
Chrysene	10	U	ug/l	10	410	U	ug/kg	410	46	J	ug/kg	390
bis(2-Ethylhexyl) phthalate	3	J	ug/l	10	29	J	ug/kg	410	57	J	ug/kg	390
Di-n-octylphthalate	10	U	ug/l	10	410	U	ug/kg	410	390	U	ug/kg	390
Benzo (b) fluoranthene	10	U	ug/l	10	32	J	ug/kg	410	49	J	ug/kg	390
Benzo (k) fluoranthene	10	U	ug/l	10	410	U	ug/kg	410	390	U	ug/kg	390
Benzo (a) pyrene	10	U	ug/l	10	410	U	ug/kg	410	21	J	ug/kg	390
Indeno (1,2,3-cd) pyrene	10	U	ug/l	10	410	U	ug/kg	410	390	U	ug/kg	390
Dibenz (a,h) anthracene	10	U	ug/l	10	410	U	ug/kg	410	390	U	ug/kg	390
Benzo (g,h,i) perylene	10	U	ug/l	10	21	J	ug/kg	410	390	U	ug/kg	390

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

NAS CECIL FIELD -- OPERABLE UNIT 7 -- SITE 16
SUBSURFACE SOIL -- PESTICIDES AND PCBs

Lab Sample Number:	A008K				A008KMS				A008KMSD				A008L			
Site	CECIL7				CECIL7				CECIL7				CECIL7			
Locator	CF16SB1S0				CF16SB1S0MS				CF16SB1S0MSD				CF16SB1S6			
Collect Date:	14-AUG-94				14-AUG-94				14-AUG-94				14-AUG-94			
	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	1.8	U	ug/kg	1.8	2.1	U	ug/kg	2.1
beta-BHC	1.8	U	ug/kg	1.8	1.8	U	ug/kg	1.8	1.8	U	ug/kg	1.8	2.1	U	ug/kg	2.1
delta-BHC	1.8	U	ug/kg	1.8	1.8	U	ug/kg	1.8	1.8	U	ug/kg	1.8	2.1	U	ug/kg	2.1
gamma-BHC (Lindane)	1.8	U	ug/kg	1.8	15		ug/kg	2	33		ug/kg	2	2.1	U	ug/kg	2.1
Heptachlor	1.8	U	ug/kg	1.8	14		ug/kg	2	28		ug/kg	2	2.1	U	ug/kg	2.1
Aldrin	1.8	U	ug/kg	1.8	15		ug/kg	2	29		ug/kg	2	2.1	U	ug/kg	2.1
Heptachlor epoxide	1.8	U	ug/kg	1.8	1.8	U	ug/kg	1.8	1.8	U	ug/kg	1.8	2.1	U	ug/kg	2.1
Endosulfan I	1.8	U	ug/kg	1.8	1.8	U	ug/kg	1.8	1.8	U	ug/kg	1.8	2.1	U	ug/kg	2.1
Dieldrin	3.6	U	ug/kg	3.6	30		ug/kg	4	60		ug/kg	4	4	U	ug/kg	4
4,4-DDE	3.6	U	ug/kg	3.6	3.6	U	ug/kg	3.6	3.6	U	ug/kg	3.6	4	U	ug/kg	4
Endrin	3.6	U	ug/kg	3.6	29		ug/kg	4	59		ug/kg	4	4	U	ug/kg	4
Endosulfan II	3.6	U	ug/kg	3.6	3.6	U	ug/kg	3.6	3.6	U	ug/kg	3.6	4	U	ug/kg	4
4,4-DDD	3.6	U	ug/kg	3.6	3.6	U	ug/kg	3.6	3.6	U	ug/kg	3.6	4	U	ug/kg	4
Endosulfan sulfate	3.6	U	ug/kg	3.6	3.6	U	ug/kg	3.6	3.6	U	ug/kg	3.6	4	U	ug/kg	4
4,4-DDT	3.6	U	ug/kg	3.6	30		ug/kg	4	60		ug/kg	4	4	U	ug/kg	4
Methoxychlor	18	U	ug/kg	18	18	U	ug/kg	18	18	U	ug/kg	18	21	U	ug/kg	21
Endrin ketone	3.6	U	ug/kg	3.6	3.6	U	ug/kg	3.6	3.6	U	ug/kg	3.6	4	U	ug/kg	4
Endrin aldehyde	3.6	U	ug/kg	3.6	3.6	U	ug/kg	3.6	3.6	U	ug/kg	3.6	4	U	ug/kg	4
alpha-Chlordane	1.8	U	ug/kg	1.8	1.8	U	ug/kg	1.8	1.8	U	ug/kg	1.8	2.1	U	ug/kg	2.1
gamma-Chlordane	1.8	U	ug/kg	1.8	.09	U	ug/kg	2	1.8	U	ug/kg	1.8	2.1	U	ug/kg	2.1
Toxaphene	180	U	ug/kg	180	180	U	ug/kg	180	180	U	ug/kg	180	210	U	ug/kg	210
Aroclor-1016	36	U	ug/kg	36	36	U	ug/kg	36	36	U	ug/kg	36	40	U	ug/kg	40
Aroclor-1221	73	U	ug/kg	73	73	U	ug/kg	73	73	U	ug/kg	73	82	U	ug/kg	82
Aroclor-1232	36	U	ug/kg	36	36	U	ug/kg	36	36	U	ug/kg	36	40	U	ug/kg	40
Aroclor-1242	36	U	ug/kg	36	36	U	ug/kg	36	36	U	ug/kg	36	40	U	ug/kg	40
Aroclor-1248	36	U	ug/kg	36	36	U	ug/kg	36	36	U	ug/kg	36	40	U	ug/kg	40
Aroclor-1254	36	U	ug/kg	36	36	U	ug/kg	36	36	U	ug/kg	36	40	U	ug/kg	40
Aroclor-1260	36	U	ug/kg	36	36	U	ug/kg	36	36	U	ug/kg	36	40	U	ug/kg	40

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

NAS CECIL FIELD -- OPERABLE UNIT 7 -- SITE 16
SUBSURFACE SOIL -- PESTICIDES AND PCBs

Lab Sample Number:	A008N				A008O				A008P				A008S			
Site	CECIL7				CECIL7				CECIL7				CECIL7			
Locator	CF16SB2S2				CF16SB2S4				CF16SB3S0				CF16SB3S6			
Collect Date:	15-AUG-94				15-AUG-94				15-AUG-94				15-AUG-94			
	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	U	ug/kg	2	1.8	U	ug/kg	1.8	2.1	U	ug/kg	2.1
beta-BHC	1.9	U	ug/kg	1.9	2	U	ug/kg	2	1.8	U	ug/kg	1.8	2.1	U	ug/kg	2.1
delta-BHC	1.9	U	ug/kg	1.9	2	U	ug/kg	2	1.8	U	ug/kg	1.8	2.1	U	ug/kg	2.1
gamma-BHC (Lindane)	1.9	U	ug/kg	1.9	2	U	ug/kg	2	1.8	U	ug/kg	1.8	2.1	U	ug/kg	2.1
Heptachlor	1.9	U	ug/kg	1.9	2	U	ug/kg	2	1.8	U	ug/kg	1.8	2.1	U	ug/kg	2.1
Aldrin	1.9	U	ug/kg	1.9	2	U	ug/kg	2	1.8	U	ug/kg	1.8	2.1	U	ug/kg	2.1
Heptachlor epoxide	1.9	U	ug/kg	1.9	2	U	ug/kg	2	1.8	U	ug/kg	1.8	2.1	U	ug/kg	2.1
Endosulfan I	1.9	U	ug/kg	1.9	2	U	ug/kg	2	1.8	U	ug/kg	1.8	2.1	U	ug/kg	2.1
Dieldrin	3.8	U	ug/kg	3.8	3.9	U	ug/kg	3.9	3.6	U	ug/kg	3.6	4	U	ug/kg	4
4,4-DDE	3.8	U	ug/kg	3.8	3.9	U	ug/kg	3.9	.27	J	ug/kg	4	4	U	ug/kg	4
Endrin	3.8	U	ug/kg	3.8	3.9	U	ug/kg	3.9	3.6	U	ug/kg	3.6	4	U	ug/kg	4
Endosulfan II	3.8	U	ug/kg	3.8	3.9	U	ug/kg	3.9	3.6	U	ug/kg	3.6	4	U	ug/kg	4
4,4-DDD	3.8	U	ug/kg	3.8	3.9	U	ug/kg	3.9	3.6	U	ug/kg	3.6	4	U	ug/kg	4
Endosulfan sulfate	3.8	U	ug/kg	3.8	3.9	U	ug/kg	3.9	3.6	U	ug/kg	3.6	4	U	ug/kg	4
4,4-DDT	3.8	U	ug/kg	3.8	3.9	U	ug/kg	3.9	3.6	U	ug/kg	3.6	4	U	ug/kg	4
Methoxychlor	19	U	ug/kg	19	20	U	ug/kg	20	18	U	ug/kg	18	21	U	ug/kg	21
Endrin ketone	3.8	U	ug/kg	3.8	3.9	U	ug/kg	3.9	3.6	U	ug/kg	3.6	4	U	ug/kg	4
Endrin aldehyde	3.8	U	ug/kg	3.8	3.9	U	ug/kg	3.9	3.6	U	ug/kg	3.6	4	U	ug/kg	4
alpha-Chlordane	1.9	U	ug/kg	1.9	2	U	ug/kg	2	1.8	U	ug/kg	1.8	2.1	U	ug/kg	2.1
gamma-Chlordane	1.9	U	ug/kg	1.9	2	U	ug/kg	2	1.8	U	ug/kg	1.8	2.1	U	ug/kg	2.1
Toxaphene	190	U	ug/kg	190	200	U	ug/kg	200	180	U	ug/kg	180	210	U	ug/kg	210
Aroclor-1016	38	U	ug/kg	38	39	U	ug/kg	39	36	U	ug/kg	36	40	U	ug/kg	40
Aroclor-1221	77	U	ug/kg	77	79	U	ug/kg	79	73	U	ug/kg	73	81	U	ug/kg	81
Aroclor-1232	38	U	ug/kg	38	39	U	ug/kg	39	36	U	ug/kg	36	40	U	ug/kg	40
Aroclor-1242	38	U	ug/kg	38	39	U	ug/kg	39	36	U	ug/kg	36	40	U	ug/kg	40
Aroclor-1248	38	U	ug/kg	38	39	U	ug/kg	39	36	U	ug/kg	36	40	U	ug/kg	40
Aroclor-1254	38	U	ug/kg	38	39	U	ug/kg	39	36	U	ug/kg	36	40	U	ug/kg	40
Aroclor-1260	38	U	ug/kg	38	39	U	ug/kg	39	36	U	ug/kg	36	40	U	ug/kg	40

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NAS CECIL FIELD -- OPERABLE UNIT 7 -- SITE 16
SUBSURFACE SOIL -- PESTICIDES AND PCBs

Lab Sample Number:	A008T				A008TMS				A008TMSD				A008U			
Site	CECIL7				CECIL7				CECIL7				CECIL7			
Locator	CF16SB4S2				CF16SB4S2MS				CF16SB4S2MSD				CF16SB4S6			
Collect Date:	15-AUG-94				15-AUG-94				15-AUG-94				15-AUG-94			
	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	1.8	U	ug/kg	1.8	2	U	ug/kg	2
beta-BHC	1.8	U	ug/kg	1.8	1.8	U	ug/kg	1.8	1.8	U	ug/kg	1.8	2	U	ug/kg	2
delta-BHC	1.8	U	ug/kg	1.8	1.8	U	ug/kg	1.8	1.8	U	ug/kg	1.8	2	U	ug/kg	2
gamma-BHC (Lindane)	1.8	U	ug/kg	1.8	13		ug/kg	2	16		ug/kg	2	2	U	ug/kg	2
Heptachlor	1.8	U	ug/kg	1.8	14		ug/kg	2	17		ug/kg	2	2	U	ug/kg	2
Aldrin	1.8	U	ug/kg	1.8	14		ug/kg	2	17		ug/kg	2	2	U	ug/kg	2
Heptachlor epoxide	1.8	U	ug/kg	1.8	1.8	U	ug/kg	1.8	1.8	U	ug/kg	1.8	2	U	ug/kg	2
Endosulfan I	1.8	U	ug/kg	1.8	1.8	U	ug/kg	1.8	1.8	U	ug/kg	1.8	2	U	ug/kg	2
Dieldrin	3.6	U	ug/kg	3.6	28		ug/kg	4	32		ug/kg	4	4	U	ug/kg	4
4,4-DDE	3.6	U	ug/kg	3.6	3.6	U	ug/kg	3.6	3.6	U	ug/kg	3.6	4	U	ug/kg	4
Endrin	3.6	U	ug/kg	3.6	29		ug/kg	4	32		ug/kg	4	4	U	ug/kg	4
Endosulfan II	3.6	U	ug/kg	3.6	3.6	U	ug/kg	3.6	3.6	U	ug/kg	3.6	4	U	ug/kg	4
4,4-DDD	3.6	U	ug/kg	3.6	3.6	U	ug/kg	3.6	3.6	U	ug/kg	3.6	4	U	ug/kg	4
Endosulfan sulfate	3.6	U	ug/kg	3.6	3.6	U	ug/kg	3.6	3.6	U	ug/kg	3.6	4	U	ug/kg	4
4,4-DDT	3.6	U	ug/kg	3.6	26		ug/kg	4	31		ug/kg	4	.31	J	ug/kg	4
Methoxychlor	18	U	ug/kg	18	18	U	ug/kg	18	18	U	ug/kg	18	20	U	ug/kg	20
Endrin ketone	3.6	U	ug/kg	3.6	3.6	U	ug/kg	3.6	3.6	U	ug/kg	3.6	4	U	ug/kg	4
Endrin aldehyde	3.6	U	ug/kg	3.6	3.6	U	ug/kg	3.6	3.6	U	ug/kg	3.6	4	U	ug/kg	4
alpha-Chlordane	1.8	U	ug/kg	1.8	1.8	U	ug/kg	1.8	1.8	U	ug/kg	1.8	2	U	ug/kg	2
gamma-Chlordane	1.8	U	ug/kg	1.8	1.8	U	ug/kg	1.8	1.8	U	ug/kg	1.8	2	U	ug/kg	2
Toxaphene	180	U	ug/kg	180	180	U	ug/kg	180	180	U	ug/kg	180	200	U	ug/kg	200
Aroclor-1016	36	U	ug/kg	36	36	U	ug/kg	36	36	U	ug/kg	36	40	U	ug/kg	40
Aroclor-1221	73	U	ug/kg	73	73	U	ug/kg	73	73	U	ug/kg	73	81	U	ug/kg	81
Aroclor-1232	36	U	ug/kg	36	36	U	ug/kg	36	36	U	ug/kg	36	40	U	ug/kg	40
Aroclor-1242	36	U	ug/kg	36	36	U	ug/kg	36	36	U	ug/kg	36	40	U	ug/kg	40
Aroclor-1248	36	U	ug/kg	36	36	U	ug/kg	36	36	U	ug/kg	36	40	U	ug/kg	40
Aroclor-1254	36	U	ug/kg	36	36	U	ug/kg	36	36	U	ug/kg	36	40	U	ug/kg	40
Aroclor-1260	36	U	ug/kg	36	36	U	ug/kg	36	36	U	ug/kg	36	40	U	ug/kg	40

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NAS CECIL FIELD -- OPERABLE UNIT 7 -- SITE 16
SUBSURFACE SOIL -- PESTICIDES AND PCBs

Lab Sample Number:	A008V			A008W			A008X			A008Y		
Site	CECIL7			CECIL7			CECIL7			CECIL7		
Locator	CF16SB5S2			CF16SB5S2D			CF16SB5S6			CF16SB6S2		
Collect Date:	15-AUG-94			15-AUG-94			15-AUG-94			15-AUG-94		
	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	1.9	U ug/kg	1.9	2	U ug/kg	2	2	U ug/kg	2
beta-BHC	1.9	U ug/kg	1.9	1.9	U ug/kg	1.9	2	U ug/kg	2	2	U ug/kg	2
delta-BHC	1.9	U ug/kg	1.9	1.9	U ug/kg	1.9	2	U ug/kg	2	2	U ug/kg	2
gamma-BHC (Lindane)	1.9	U ug/kg	1.9	1.9	U ug/kg	1.9	2	U ug/kg	2	2	U ug/kg	2
Heptachlor	1.9	U ug/kg	1.9	1.9	U ug/kg	1.9	2	U ug/kg	2	2	U ug/kg	2
Aldrin	1.9	U ug/kg	1.9	1.9	U ug/kg	1.9	2	U ug/kg	2	2	U ug/kg	2
Heptachlor epoxide	1.9	U ug/kg	1.9	1.9	U ug/kg	1.9	2	U ug/kg	2	1.5	J ug/kg	2
Endosulfan I	1.9	U ug/kg	1.9	1.9	U ug/kg	1.9	2	U ug/kg	2	2	U ug/kg	2
Dieldrin	3.7	U ug/kg	3.7	3.7	U ug/kg	3.7	3.9	U ug/kg	3.9	3.8	U ug/kg	3.8
4,4-DDE	4	ug/kg	4	4.4	ug/kg	4	.68	J ug/kg	4	3.8	U ug/kg	3.8
Endrin	3.7	U ug/kg	3.7	3.7	U ug/kg	3.7	3.9	U ug/kg	3.9	3.8	U ug/kg	3.8
Endosulfan II	3.7	U ug/kg	3.7	3.7	U ug/kg	3.7	3.9	U ug/kg	3.9	3.8	U ug/kg	3.8
4,4-DDD	.7	U ug/kg	.7	.5	U ug/kg	.5	3.9	U ug/kg	3.9	3.1	J ug/kg	4
Endosulfan sulfate	3.7	U ug/kg	3.7	3.7	U ug/kg	3.7	3.9	U ug/kg	3.9	3.8	U ug/kg	3.8
4,4-DDT	.8	U ug/kg	.8	3.7	U ug/kg	3.7	3.9	U ug/kg	3.9	3.8	U ug/kg	3.8
Methoxychlor	19	U ug/kg	19	19	U ug/kg	19	20	U ug/kg	20	20	U ug/kg	20
Endrin ketone	3.7	U ug/kg	3.7	3.7	U ug/kg	3.7	3.9	U ug/kg	3.9	3.8	U ug/kg	3.8
Endrin aldehyde	3.7	U ug/kg	3.7	3.7	U ug/kg	3.7	3.9	U ug/kg	3.9	3.8	U ug/kg	3.8
alpha-Chlordane	1.3	J ug/kg	2	1.2	J ug/kg	2	2	U ug/kg	2	1.7	J ug/kg	2
gamma-Chlordane	1.4	J ug/kg	2	1.3	J ug/kg	2	2	U ug/kg	2	3.5	ug/kg	2
Toxaphene	190	U ug/kg	190	190	U ug/kg	190	200	U ug/kg	200	200	U ug/kg	200
Aroclor-1016	37	U ug/kg	37	37	U ug/kg	37	39	U ug/kg	39	38	U ug/kg	38
Aroclor-1221	74	U ug/kg	74	75	U ug/kg	75	80	U ug/kg	80	77	U ug/kg	77
Aroclor-1232	37	U ug/kg	37	37	U ug/kg	37	39	U ug/kg	39	38	U ug/kg	38
Aroclor-1242	37	U ug/kg	37	37	U ug/kg	37	39	U ug/kg	39	38	U ug/kg	38
Aroclor-1248	37	U ug/kg	37	37	U ug/kg	37	39	U ug/kg	39	38	U ug/kg	38
Aroclor-1254	37	U ug/kg	37	37	U ug/kg	37	39	U ug/kg	39	38	U ug/kg	38
Aroclor-1260	37	U ug/kg	37	37	U ug/kg	37	39	U ug/kg	39	38	U ug/kg	38

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NAS CECIL FIELD -- OPERABLE UNIT 7 -- SITE 16
SUBSURFACE SOIL -- PESTICIDES AND PCBs

Lab Sample Number:	A0090				A0091				A00IF				A00IH		
Site	CECIL7				CECIL7				CECIL7				CECIL7		
Locator	CF16SB6S4				CF16SB6S4R				CF16SB7S2				CF16SB7S2D		
Collect Date:	15-AUG-94				15-AUG-94				16-AUG-94				16-AUG-94		
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP PESTICIDES/PCBS 90-SOW																
alpha-BHC	2	UJ	ug/kg	2	.05	U	ug/l	.05	1.9	U	ug/kg	1.9	1.9	U	ug/kg	1.9
beta-BHC	2	UJ	ug/kg	2	.05	U	ug/l	.05	1.9	U	ug/kg	1.9	1.9	U	ug/kg	1.9
delta-BHC	2	UJ	ug/kg	2	.05	U	ug/l	.05	1.9	U	ug/kg	1.9	1.9	U	ug/kg	1.9
gamma-BHC (Lindane)	2	UJ	ug/kg	2	.05	U	ug/l	.05	1.9	U	ug/kg	1.9	1.9	U	ug/kg	1.9
Heptachlor	2	UJ	ug/kg	2	.05	U	ug/l	.05	1.9	U	ug/kg	1.9	1.9	U	ug/kg	1.9
Aldrin	2	UJ	ug/kg	2	.05	U	ug/l	.05	1.9	U	ug/kg	1.9	1.9	U	ug/kg	1.9
Heptachlor epoxide	2	UJ	ug/kg	2	.05	U	ug/l	.05	.36	R	ug/kg	2	.5	U	ug/kg	.5
Endosulfan I	2	UJ	ug/kg	2	.05	U	ug/l	.05	1.9	U	ug/kg	1.9	1.9	U	ug/kg	1.9
Dieldrin	3.9	UJ	ug/kg	3.9	.1	U	ug/l	.1	3.7	U	ug/kg	3.7	3.8	U	ug/kg	3.8
4,4-DDE	3.9	UJ	ug/kg	3.9	.1	U	ug/l	.1	1.2	J	ug/kg	4	1.3	J	ug/kg	4
Endrin	3.9	UJ	ug/kg	3.9	.1	U	ug/l	.1	3.7	U	ug/kg	3.7	.3	U	ug/kg	.3
Endosulfan II	3.9	UJ	ug/kg	3.9	.01	R	ug/l	.2	3.7	U	ug/kg	3.7	3.8	U	ug/kg	3.8
4,4-DDD	3.9	UJ	ug/kg	3.9	.1	U	ug/l	.1	2	U	ug/kg	2	2	U	ug/kg	2
Endosulfan sulfate	3.9	UJ	ug/kg	3.9	.1	U	ug/l	.1	3.7	U	ug/kg	3.7	3.8	U	ug/kg	3.8
4,4-DDT	3.9	UJ	ug/kg	3.9	.1	U	ug/l	.1	3.7	U	ug/kg	3.7	3.8	U	ug/kg	3.8
Methoxychlor	20	UJ	ug/kg	20	.5	U	ug/l	.5	19	U	ug/kg	19	19	U	ug/kg	19
Endrin ketone	3.9	UJ	ug/kg	3.9	.1	U	ug/l	.1	3.7	U	ug/kg	3.7	3.8	U	ug/kg	3.8
Endrin aldehyde	3.9	UJ	ug/kg	3.9	.1	U	ug/l	.1	3.7	U	ug/kg	3.7	3.8	U	ug/kg	3.8
alpha-Chlordane	2	UJ	ug/kg	2	.05	U	ug/l	.05	8.2		ug/kg	2	9.3		ug/kg	2
gamma-Chlordane	2	UJ	ug/kg	2	.05	U	ug/l	.05	8.7		ug/kg	2	10		ug/kg	2
Toxaphene	200	UJ	ug/kg	200	5	U	ug/l	5	190	U	ug/kg	190	190	U	ug/kg	190
Aroclor-1016	39	UJ	ug/kg	39	1	U	ug/l	1	37	U	ug/kg	37	38	U	ug/kg	38
Aroclor-1221	79	UJ	ug/kg	79	2	U	ug/l	2	76	U	ug/kg	76	76	U	ug/kg	76
Aroclor-1232	39	UJ	ug/kg	39	1	U	ug/l	1	37	U	ug/kg	37	38	U	ug/kg	38
Aroclor-1242	39	UJ	ug/kg	39	1	U	ug/l	1	37	U	ug/kg	37	38	U	ug/kg	38
Aroclor-1248	39	UJ	ug/kg	39	1	U	ug/l	1	37	U	ug/kg	37	38	U	ug/kg	38
Aroclor-1254	39	UJ	ug/kg	39	1	U	ug/l	1	14	J	ug/kg	37	16	J	ug/kg	38
Aroclor-1260	39	UJ	ug/kg	39	1	U	ug/l	1	37	U	ug/kg	37	38	U	ug/kg	38

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

NAS CECIL FIELD -- OPERABLE UNIT 7 -- SITE 16
SUBSURFACE SOIL -- PESTICIDES AND PCBs

Lab Sample Number:	A001I				A001J				A001K				A001O			
Site	CECIL7				CECIL7				CECIL7				CECIL7			
Locator	CF16SB7S4				CF16SB8S2				CF16SB8S4				CF16SB9S4			
Collect Date:	16-AUG-94				16-AUG-94				16-AUG-94				16-AUG-94			
	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	1.9	U	ug/kg	1.9	2	U	ug/kg	2	2	U	ug/kg	2
beta-BHC	1.9	U	ug/kg	1.9	1.9	U	ug/kg	1.9	2	U	ug/kg	2	2	U	ug/kg	2
delta-BHC	1.9	U	ug/kg	1.9	1.9	U	ug/kg	1.9	2	U	ug/kg	2	2	U	ug/kg	2
gamma-BHC (Lindane)	1.9	U	ug/kg	1.9	1.9	U	ug/kg	1.9	2	U	ug/kg	2	2	U	ug/kg	2
Heptachlor	1.9	U	ug/kg	1.9	1.9	U	ug/kg	1.9	2	U	ug/kg	2	2	U	ug/kg	2
Aldrin	1.9	U	ug/kg	1.9	1.9	U	ug/kg	1.9	2	U	ug/kg	2	2	U	ug/kg	2
Heptachlor epoxide	1.9	U	ug/kg	1.9	.73	R	ug/kg	2	2	U	ug/kg	2	2	U	ug/kg	2
Endosulfan I	1.9	U	ug/kg	1.9	1.9	U	ug/kg	1.9	2	U	ug/kg	2	2	U	ug/kg	2
Dieldrin	3.7	U	ug/kg	3.7	3.7	U	ug/kg	3.7	3.9	U	ug/kg	3.9	3.9	U	ug/kg	3.9
4,4-DDE	.95	J	ug/kg	4	.83	J	ug/kg	4	3.9	U	ug/kg	3.9	3.9	U	ug/kg	3.9
Endrin	3.7	U	ug/kg	3.7	3.7	U	ug/kg	3.7	3.9	U	ug/kg	3.9	3.9	U	ug/kg	3.9
Endosulfan II	3.7	U	ug/kg	3.7	3.7	U	ug/kg	3.7	3.9	U	ug/kg	3.9	3.9	U	ug/kg	3.9
4,4-DDD	.99	J	ug/kg	4	3.7	U	ug/kg	3.7	3.9	U	ug/kg	3.9	3.9	U	ug/kg	3.9
Endosulfan sulfate	3.7	U	ug/kg	3.7	3.7	U	ug/kg	3.7	3.9	U	ug/kg	3.9	3.9	U	ug/kg	3.9
4,4-DDT	3.7	U	ug/kg	3.7	3.7	U	ug/kg	3.7	3.9	U	ug/kg	3.9	3.9	U	ug/kg	3.9
Methoxychlor	19	U	ug/kg	19	19	U	ug/kg	19	20	U	ug/kg	20	20	U	ug/kg	20
Endrin ketone	3.7	U	ug/kg	3.7	3.7	U	ug/kg	3.7	3.9	U	ug/kg	3.9	3.9	U	ug/kg	3.9
Endrin aldehyde	3.7	U	ug/kg	3.7	3.7	U	ug/kg	3.7	3.9	U	ug/kg	3.9	3.9	U	ug/kg	3.9
alpha-Chlordane	3.4		ug/kg	2	19		ug/kg	2	2	U	ug/kg	2	2	U	ug/kg	2
gamma-Chlordane	3.2		ug/kg	2	22		ug/kg	2	2	U	ug/kg	2	2	U	ug/kg	2
Toxaphene	190	U	ug/kg	190	190	U	ug/kg	190	200	U	ug/kg	200	200	U	ug/kg	200
Aroclor-1016	37	U	ug/kg	37	37	U	ug/kg	37	39	U	ug/kg	39	39	U	ug/kg	39
Aroclor-1221	76	U	ug/kg	76	74	U	ug/kg	74	79	U	ug/kg	79	80	U	ug/kg	80
Aroclor-1232	37	U	ug/kg	37	37	U	ug/kg	37	39	U	ug/kg	39	39	U	ug/kg	39
Aroclor-1242	37	U	ug/kg	37	37	U	ug/kg	37	39	U	ug/kg	39	39	U	ug/kg	39
Aroclor-1248	37	U	ug/kg	37	30	J	ug/kg	33	39	U	ug/kg	39	39	U	ug/kg	39
Aroclor-1254	37	U	ug/kg	37	37	U	ug/kg	37	39	U	ug/kg	39	39	U	ug/kg	39
Aroclor-1260	5.2	J	ug/kg	37	49		ug/kg	37	39	U	ug/kg	39	39	U	ug/kg	39

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NAS CECIL FIELD -- OPERABLE UNIT 7 -- SITE 16
SUBSURFACE SOIL -- PESTICIDES AND PCBs

Lab Sample Number:	A00IM				A00IT				A00J0				A00J6			
Site	CECIL7				CECIL7				CECIL7				CECIL7			
Locator	CF16SB9S6				CF16SB10S2				CF16SB10S20				CF16SB10S4			
Collect Date:	16-AUG-94				16-AUG-94				16-AUG-94				16-AUG-94			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP PESTICIDES/PCBS 90-SOW																
alpha-BHC	2	UJ	ug/kg	2	1.9	U	ug/kg	1.9	1.9	U	ug/kg	1.9	2	U	ug/kg	2
beta-BHC	2	UJ	ug/kg	2	1.9	U	ug/kg	1.9	1.9	U	ug/kg	1.9	2	U	ug/kg	2
delta-BHC	2	UJ	ug/kg	2	1.9	U	ug/kg	1.9	1.9	U	ug/kg	1.9	2	U	ug/kg	2
gamma-BHC (Lindane)	2	UJ	ug/kg	2	1.9	U	ug/kg	1.9	1.9	U	ug/kg	1.9	2	U	ug/kg	2
Heptachlor	2	UJ	ug/kg	2	1.9	U	ug/kg	1.9	1.9	U	ug/kg	1.9	2	U	ug/kg	2
Aldrin	2	UJ	ug/kg	2	1.9	U	ug/kg	1.9	1.9	U	ug/kg	1.9	2	U	ug/kg	2
Heptachlor epoxide	2	UJ	ug/kg	2	1.9	U	ug/kg	1.9	1.9	U	ug/kg	1.9	2	U	ug/kg	2
Endosulfan I	2	UJ	ug/kg	2	1.9	U	ug/kg	1.9	1.9	U	ug/kg	1.9	2	U	ug/kg	2
Dieldrin	4	UJ	ug/kg	4	3.7	U	ug/kg	3.7	3.8	U	ug/kg	3.8	3.9	U	ug/kg	3.9
4,4-DDE	4	UJ	ug/kg	4	3.7	U	ug/kg	3.7	3.8	U	ug/kg	3.8	3.9	U	ug/kg	3.9
Endrin	4	UJ	ug/kg	4	3.7	U	ug/kg	3.7	3.8	U	ug/kg	3.8	3.9	U	ug/kg	3.9
Endosulfan II	4	UJ	ug/kg	4	3.7	U	ug/kg	3.7	3.8	U	ug/kg	3.8	3.9	U	ug/kg	3.9
4,4-DDD	4	UJ	ug/kg	4	3.7	U	ug/kg	3.7	3.8	U	ug/kg	3.8	3.9	U	ug/kg	3.9
Endosulfan sulfate	4	UJ	ug/kg	4	3.7	U	ug/kg	3.7	3.8	U	ug/kg	3.8	3.9	U	ug/kg	3.9
4,4-DDT	4	UJ	ug/kg	4	3.7	U	ug/kg	3.7	3.8	U	ug/kg	3.8	3.9	U	ug/kg	3.9
Methoxychlor	20	UJ	ug/kg	20	19	U	ug/kg	19	19	U	ug/kg	19	20	U	ug/kg	20
Endrin ketone	4	UJ	ug/kg	4	3.7	U	ug/kg	3.7	3.8	U	ug/kg	3.8	3.9	U	ug/kg	3.9
Endrin aldehyde	4	UJ	ug/kg	4	3.7	U	ug/kg	3.7	3.8	U	ug/kg	3.8	3.9	U	ug/kg	3.9
alpha-Chlordane	2	UJ	ug/kg	2	1.9	U	ug/kg	1.9	1.9	U	ug/kg	1.9	2	U	ug/kg	2
gamma-Chlordane	2	UJ	ug/kg	2	1.9	U	ug/kg	1.9	1.9	U	ug/kg	1.9	2	U	ug/kg	2
Toxaphene	200	UJ	ug/kg	200	190	U	ug/kg	190	190	U	ug/kg	190	200	U	ug/kg	200
Aroclor-1016	40	UJ	ug/kg	40	37	U	ug/kg	37	38	U	ug/kg	38	39	U	ug/kg	39
Aroclor-1221	81	UJ	ug/kg	81	76	U	ug/kg	76	76	U	ug/kg	76	79	U	ug/kg	79
Aroclor-1232	40	UJ	ug/kg	40	37	U	ug/kg	37	38	U	ug/kg	38	39	U	ug/kg	39
Aroclor-1242	40	UJ	ug/kg	40	37	U	ug/kg	37	38	U	ug/kg	38	39	U	ug/kg	39
Aroclor-1248	40	UJ	ug/kg	40	37	U	ug/kg	37	13	J	ug/kg	38	39	U	ug/kg	39
Aroclor-1254	40	UJ	ug/kg	40	37	U	ug/kg	37	38	U	ug/kg	38	39	U	ug/kg	39
Aroclor-1260	40	UJ	ug/kg	40	8.6	J	ug/kg	37	8.6	J	ug/kg	38	3.1	J	ug/kg	39

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NAS CECIL FIELD -- OPERABLE UNIT 7 -- SITE 16
SUBSURFACE SOIL -- PESTICIDES AND PCBs

Lab Sample Number:	A00KE				A00KEMS				A00KEMSD				A00KM			
Site	CECIL7				CECIL7				CECIL7				CECIL7			
Locator	CF16SB11S2				CF16SB11S2MS				CF16SB11S2MSD				CF16SB11S6R			
Collect Date:	16-AUG-94				16-AUG-94				16-AUG-94				16-AUG-94			
	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	1.9	U	ug/kg	1.9	1.9	U	ug/kg	1.9	.05	UJ	ug/l	.05
beta-BHC	1.9	U	ug/kg	1.9	1.9	U	ug/kg	1.9	1.9	U	ug/kg	1.9	.05	UJ	ug/l	.05
delta-BHC	1.9	U	ug/kg	1.9	1.9	U	ug/kg	1.9	1.9	U	ug/kg	1.9	.05	UJ	ug/l	.05
gamma-BHC (Lindane)	1.9	U	ug/kg	1.9	14		ug/kg	2	11		ug/kg	2	.05	UJ	ug/l	.05
Heptachlor	1.9	U	ug/kg	1.9	18		ug/kg	2	16		ug/kg	2	.05	UJ	ug/l	.05
Aldrin	1.9	U	ug/kg	1.9	13		ug/kg	2	10		ug/kg	2	.05	UJ	ug/l	.05
Heptachlor epoxide	1.9	U	ug/kg	1.9	1.9	U	ug/kg	1.9	.5	U	ug/kg	.5	.05	UJ	ug/l	.05
Endosulfan I	1.9	U	ug/kg	1.9	1.9	U	ug/kg	1.9	1.9	U	ug/kg	1.9	.05	UJ	ug/l	.05
Dieldrin	3.9	U	ug/kg	3.9	27		ug/kg	4	20		ug/kg	4	.1	UJ	ug/l	.1
4,4-DDE	.88	J	ug/kg	4	.4	U	ug/kg	.4	.4	U	ug/kg	.4	.1	UJ	ug/l	.1
Endrin	3.9	U	ug/kg	3.9	33		ug/kg	4	27		ug/kg	4	.1	UJ	ug/l	.1
Endosulfan II	3.9	U	ug/kg	3.9	3.9	U	ug/kg	3.9	3.9	U	ug/kg	3.9	.1	UJ	ug/l	.1
4,4-DDD	3.9	U	ug/kg	3.9	3.9	U	ug/kg	3.9	3.9	U	ug/kg	3.9	.1	UJ	ug/l	.1
Endosulfan sulfate	3.9	U	ug/kg	3.9	3.9	U	ug/kg	3.9	3.9	U	ug/kg	3.9	.1	UJ	ug/l	.1
4,4-DDT	3.9	U	ug/kg	3.9	28		ug/kg	4	23		ug/kg	4	.1	UJ	ug/l	.1
Methoxychlor	19	U	ug/kg	19	19	U	ug/kg	19	19	U	ug/kg	19	.5	UJ	ug/l	.5
Endrin ketone	3.9	U	ug/kg	3.9	3.9	U	ug/kg	3.9	3.9	U	ug/kg	3.9	.1	UJ	ug/l	.1
Endrin aldehyde	3.9	U	ug/kg	3.9	3.9	U	ug/kg	3.9	3.9	U	ug/kg	3.9	.1	UJ	ug/l	.1
alpha-Chlordane	1.9	U	ug/kg	1.9	1.9	U	ug/kg	1.9	1.9	U	ug/kg	1.9	.05	UJ	ug/l	.05
gamma-Chlordane	1.9	U	ug/kg	1.9	1.9	U	ug/kg	1.9	1.9	U	ug/kg	1.9	.05	UJ	ug/l	.05
Toxaphene	190	U	ug/kg	190	190	U	ug/kg	190	190	U	ug/kg	190	5	UJ	ug/l	5
Aroclor-1016	39	U	ug/kg	39	39	U	ug/kg	39	39	U	ug/kg	39	1	UJ	ug/l	1
Aroclor-1221	78	U	ug/kg	78	78	U	ug/kg	78	78	U	ug/kg	78	2	UJ	ug/l	2
Aroclor-1232	39	U	ug/kg	39	39	U	ug/kg	39	39	U	ug/kg	39	1	UJ	ug/l	1
Aroclor-1242	39	U	ug/kg	39	39	U	ug/kg	39	39	U	ug/kg	39	1	UJ	ug/l	1
Aroclor-1248	39	U	ug/kg	39	39	U	ug/kg	39	39	U	ug/kg	39	1	UJ	ug/l	1
Aroclor-1254	39	U	ug/kg	39	39	U	ug/kg	39	39	U	ug/kg	39	1	UJ	ug/l	1
Aroclor-1260	39	U	ug/kg	39	39	U	ug/kg	39	39	U	ug/kg	39	1	UJ	ug/l	1

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NAS CECIL FIELD -- OPERABLE UNIT 7 -- SITE 16
SUBSURFACE SOIL -- PESTICIDES AND PCBs

Lab Sample Number:	A008D				A008F			
Site	CECIL7				CECIL7			
Locator	CF16SB12S2				CF16SB12S6			
Collect Date:	13-AUG-94				13-AUG-94			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP PESTICIDES/PCBS 90-SOW								
alpha-BHC	2.1	U	ug/kg	2.1	2	U	ug/kg	2
beta-BHC	2.1	U	ug/kg	2.1	2	U	ug/kg	2
delta-BHC	2.1	U	ug/kg	2.1	2	U	ug/kg	2
gamma-BHC (Lindane)	2.1	U	ug/kg	2.1	2	U	ug/kg	2
Heptachlor	2.1	U	ug/kg	2.1	2	U	ug/kg	2
Aldrin	2.1	U	ug/kg	2.1	2	U	ug/kg	2
Heptachlor epoxide	2.1	U	ug/kg	2.1	2	U	ug/kg	2
Endosulfan I	2.1	U	ug/kg	2.1	2	U	ug/kg	2
Dieldrin	4.1	U	ug/kg	4.1	3.9	U	ug/kg	3.9
4,4-DDE	4.1	U	ug/kg	4.1	.3	U	ug/kg	4
Endrin	4.1	U	ug/kg	4.1	3.9	U	ug/kg	3.9
Endosulfan II	4.1	U	ug/kg	4.1	3.9	U	ug/kg	3.9
4,4-DDD	4.1	U	ug/kg	4.1	3.9	U	ug/kg	3.9
Endosulfan sulfate	4.1	U	ug/kg	4.1	3.9	U	ug/kg	3.9
4,4-DDT	4.1	U	ug/kg	4.1	3.9	U	ug/kg	3.9
Methoxychlor	21	U	ug/kg	21	20	U	ug/kg	20
Endrin ketone	4.1	U	ug/kg	4.1	3.9	U	ug/kg	3.9
Endrin aldehyde	4.1	U	ug/kg	4.1	3.9	U	ug/kg	3.9
alpha-Chlordane	2.1	U	ug/kg	2.1	2	U	ug/kg	2
gamma-Chlordane	1	J	ug/kg	2	1.2	J	ug/kg	2
Toxaphene	210	U	ug/kg	210	200	U	ug/kg	200
Aroclor-1016	41	U	ug/kg	41	39	U	ug/kg	39
Aroclor-1221	83	U	ug/kg	83	79	U	ug/kg	79
Aroclor-1232	41	U	ug/kg	41	39	U	ug/kg	39
Aroclor-1242	41	U	ug/kg	41	39	U	ug/kg	39
Aroclor-1248	41	U	ug/kg	41	39	U	ug/kg	39
Aroclor-1254	49		ug/kg	41	66		ug/kg	39
Aroclor-1260	41	U	ug/kg	41	39	U	ug/kg	39

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R - RESULT IS REJECTED AND UNUSABLE

NAS CECIL FIELD -- OPERABLE UNIT 7 -- SITE 16
SUBSURFACE SOIL -- METALS AND CYANIDE

Lab Sample Number:	A008K				A008L				A008N				A008O			
Site	CECIL7				CECIL7				CECIL7				CECIL7			
Locator	CF16SB1S0				CF16SB1S6				CF16SB2S2				CF16SB2S4			
Collect Date:	14-AUG-94				14-AUG-94				15-AUG-94				15-AUG-94			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP METALS AND CYANIDE																
Aluminum	1230		mg/kg	40	7320		mg/kg	40	882		mg/kg	140	8550		mg/kg	40
Antimony	.43	U	mg/kg	12	.5	U	mg/kg	12	.47	U	mg/kg	12	.47	U	mg/kg	12
Arsenic	.86	U	mg/kg	2	.81	U	mg/kg	2	.75	U	mg/kg	2	1.2	U	mg/kg	2
Barium	1.6		mg/kg	40	6.2		mg/kg	40	1.8		mg/kg	40	9.3		mg/kg	40
Beryllium	.22	U	mg/kg	1	.25	U	mg/kg	1	.23	U	mg/kg	1	.24	U	mg/kg	1
Cadmium	.22	U	mg/kg	1	.25	U	mg/kg	1	.23	U	mg/kg	1	.24	U	mg/kg	1
Calcium	3820		mg/kg	1000	617		mg/kg	1000	426		mg/kg	1000	358		mg/kg	1000
Chromium	1.8		mg/kg	2	9.9		mg/kg	2	1.6		mg/kg	2	14.2		mg/kg	2
Cobalt	.43	U	mg/kg	10	1		mg/kg	10	.47	U	mg/kg	10	.75		mg/kg	10
Copper	.58		mg/kg	5	.95	J	mg/kg	5	.63		mg/kg	5	.59		mg/kg	5
Iron	191		mg/kg	20	549		mg/kg	20	242		mg/kg	20	2230		mg/kg	20
Lead	2.7	J	mg/kg	.6	5.8	J	mg/kg	.6	1.7	J	mg/kg	.6	7.6	J	mg/kg	.6
Magnesium	65.2		mg/kg	1000	74.7		mg/kg	1000	39.7		mg/kg	1000	141		mg/kg	1000
Manganese	2.8		mg/kg	3	4.6		mg/kg	3	4.6		mg/kg	3	3.5		mg/kg	3
Mercury	.11	U	mg/kg	.1	.12	U	mg/kg	.1	.12	U	mg/kg	.1	.12	U	mg/kg	.1
Nickel	.48		mg/kg	8	2.3		mg/kg	8	.69	J	mg/kg	8	2.6		mg/kg	8
Potassium	14.9	UJ	mg/kg	1000	61.8	J	mg/kg	1000	18.8	UJ	mg/kg	1000	80.1	J	mg/kg	1000
Selenium	.87	U	mg/kg	1	.99	U	mg/kg	1	.94	U	mg/kg	1	.95	U	mg/kg	1
Silver	.22	U	mg/kg	2	.25	U	mg/kg	2	.23	U	mg/kg	2	.24	U	mg/kg	2
Sodium	142		mg/kg	1000	176		mg/kg	1000	115	U	mg/kg	1000	179		mg/kg	1000
Thallium	1.3	U	mg/kg	2	1.5	U	mg/kg	2	1.4	U	mg/kg	2	1.4	U	mg/kg	2
Vanadium	1.3		mg/kg	10	7.2		mg/kg	10	1.3		mg/kg	10	9.3		mg/kg	10
Zinc	4.6	U	mg/kg	4	4.4	U	mg/kg	4	3.9	U	mg/kg	4	3.5	U	mg/kg	4
Cyanide	-				.59	U	mg/kg	.5	.56	U	mg/kg	.5	.55	U	mg/kg	.5

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

NAS CECIL FIELD -- OPERABLE UNIT 7 -- SITE 16
SUBSURFACE SOIL -- METALS AND CYANIDE

Lab Sample Number:	A008P				A008S				A008T				A008U			
Site	CECIL7				CECIL7				CECIL7				CECIL7			
Locator	CF16SB3S0				CF16SB3S6				CF16SB4S2				CF16SB4S6			
Collect Date:	15-AUG-94				15-AUG-94				15-AUG-94				15-AUG-94			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP METALS AND CYANIDE																
Aluminum	2520		mg/kg	40	9790		mg/kg	40	1660		mg/kg	40	15300		mg/kg	40
Antimony	.44	U	mg/kg	12	.72	U	mg/kg	12	.44	U	mg/kg	12	.64	U	mg/kg	12
Arsenic	.81	U	mg/kg	2	.73	U	mg/kg	2	.66	U	mg/kg	2	.81		mg/kg	2
Barium	3.6		mg/kg	40	9.7		mg/kg	40	2.1	U	mg/kg	40	13.9		mg/kg	40
Beryllium	.22	U	mg/kg	1	.24	U	mg/kg	1	.22	U	mg/kg	1	.24	U	mg/kg	1
Cadmium	.22	U	mg/kg	1	.24	U	mg/kg	1	.22	U	mg/kg	1	.24	U	mg/kg	1
Calcium	8550		mg/kg	1000	211	U	mg/kg	1000	464		mg/kg	1000	110	U	mg/kg	1000
Chromium	3.8		mg/kg	2	12.5		mg/kg	2	1.7	J	mg/kg	2	14.5		mg/kg	2
Cobalt	.49		mg/kg	10	1.3		mg/kg	10	.44	U	mg/kg	10	1		mg/kg	10
Copper	.44	U	mg/kg	5	.49	UJ	mg/kg	5	.44	UJ	mg/kg	5	.99	J	mg/kg	5
Iron	605		mg/kg	20	1090		mg/kg	20	318		mg/kg	20	2710		mg/kg	20
Lead	7.6	J	mg/kg	.6	6.8	J	mg/kg	.6	1.6	J	mg/kg	.6	7.9	J	mg/kg	.6
Magnesium	124		mg/kg	1000	181		mg/kg	1000	39.7	U	mg/kg	1000	339		mg/kg	1000
Manganese	5.3		mg/kg	3	4.5		mg/kg	3	3.2		mg/kg	3	5		mg/kg	3
Mercury	.1	U	mg/kg	.1	.12	J	mg/kg	.1	.11	U	mg/kg	.1	.11	U	mg/kg	.1
Nickel	1.1		mg/kg	8	3.2	J	mg/kg	8	.44	UJ	mg/kg	8	5	J	mg/kg	8
Potassium	38.6	J	mg/kg	1000	105	J	mg/kg	1000	14.1	UJ	mg/kg	1000	202	J	mg/kg	1000
Selenium	.87	U	mg/kg	1	.97	UJ	mg/kg	1	.88	UJ	mg/kg	1	.97	UJ	mg/kg	1
Silver	.22	U	mg/kg	2	.24	U	mg/kg	2	.22	U	mg/kg	2	.24	U	mg/kg	2
Sodium	162		mg/kg	1000	176	U	mg/kg	1000	167	U	mg/kg	1000	315	U	mg/kg	1000
Thallium	1.3	U	mg/kg	2	1.5	UJ	mg/kg	2	1.3	UJ	mg/kg	2	2.6	J	mg/kg	2
Vanadium	3.2		mg/kg	10	7.6		mg/kg	10	1.6		mg/kg	10	10.6		mg/kg	10
Zinc	4.4	U	mg/kg	4	3.3	U	mg/kg	4	2.1	U	mg/kg	4	3.9	U	mg/kg	4
Cyanide	.53	U	mg/kg	.5	2	J	mg/kg	.5	.52	U	mg/kg	.5	.54	U	mg/kg	.5

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NAS CECIL FIELD -- OPERABLE UNIT 7 -- SITE 16
SUBSURFACE SOIL -- METALS AND CYANIDE

Lab Sample Number:	A008V				A008W				A008X				A008Y			
Site	CECIL7				CECIL7				CECIL7				CECIL7			
Locator	CF16SB5S2				CF16SB5S2D				CF16SB5S6				CF16SB6S2			
Collect Date:	15-AUG-94				15-AUG-94				15-AUG-94				15-AUG-94			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP METALS AND CYANIDE																
Aluminum	921		mg/kg	40	911		mg/kg	40	8310		mg/kg	40	1080		mg/kg	40
Antimony	.45	U	mg/kg	12	.45	U	mg/kg	12	.47	U	mg/kg	12	.46	U	mg/kg	12
Arsenic	.67	U	mg/kg	2	.67	U	mg/kg	2	1.1		mg/kg	2	.7	U	mg/kg	2
Barium	4.2		mg/kg	40	4.1		mg/kg	40	8.7		mg/kg	40	1.7	U	mg/kg	40
Beryllium	.22	U	mg/kg	1	.22	U	mg/kg	1	.24	U	mg/kg	1	.23	U	mg/kg	1
Cadmium	.22	U	mg/kg	1	.22	U	mg/kg	1	.24	U	mg/kg	1	.23	U	mg/kg	1
Calcium	468		mg/kg	1000	501		mg/kg	1000	233	U	mg/kg	1000	304		mg/kg	1000
Chromium	1.1	J	mg/kg	2	1.7	J	mg/kg	2	8.7		mg/kg	2	3.6	J	mg/kg	2
Cobalt	.45	U	mg/kg	10	.45	U	mg/kg	10	.7	J	mg/kg	10	.46	U	mg/kg	10
Copper	.51	J	mg/kg	5	.54	J	mg/kg	5	.47	UJ	mg/kg	5	.46	UJ	mg/kg	5
Iron	285	J	mg/kg	20	563	J	mg/kg	20	1290		mg/kg	20	215		mg/kg	20
Lead	2.5	J	mg/kg	.6	2.3	J	mg/kg	.6	6.1	J	mg/kg	.6	1.7	J	mg/kg	.6
Magnesium	40.6	U	mg/kg	1000	40.7	U	mg/kg	1000	174		mg/kg	1000	28.7	U	mg/kg	1000
Manganese	5.6		mg/kg	3	7.7		mg/kg	3	5		mg/kg	3	2.8		mg/kg	3
Mercury	.1	U	mg/kg	.1	.11	U	mg/kg	.1	.11	U	mg/kg	.1	.11	U	mg/kg	.1
Nickel	.45	UJ	mg/kg	8	.45	UJ	mg/kg	8	2.6	J	mg/kg	8	1.4	J	mg/kg	8
Potassium	11.1	UJ	mg/kg	1000	10.2	UJ	mg/kg	1000	101	J	mg/kg	1000	12.1	UJ	mg/kg	1000
Selenium	.89	UJ	mg/kg	1	.9	UJ	mg/kg	1	.95	UJ	mg/kg	1	.93	UJ	mg/kg	1
Silver	.22	U	mg/kg	2	.22	U	mg/kg	2	.24	U	mg/kg	2	.23	U	mg/kg	2
Sodium	146	U	mg/kg	1000	127	U	mg/kg	1000	334	U	mg/kg	1000	132	U	mg/kg	1000
Thallium	1.3	UJ	mg/kg	2	1.3	UJ	mg/kg	2	1.4	UJ	mg/kg	2	1.4	UJ	mg/kg	2
Vanadium	1.1	J	mg/kg	10	1.1	J	mg/kg	10	6.4		mg/kg	10	1.1	J	mg/kg	10
Zinc	4.1	U	mg/kg	4	3.7	U	mg/kg	4	2.5	U	mg/kg	4	2.3	U	mg/kg	4
Cyanide	.57	U	mg/kg	.5	.58	U	mg/kg	.5	.58	U	mg/kg	.5	.55	U	mg/kg	.5

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NAS CECIL FIELD -- OPERABLE UNIT 7 -- SITE 16
SUBSURFACE SOIL -- METALS AND CYANIDE

Lab Sample Number:	A0090				A0091				A0091F				A001F			
Site	CECIL7				CECIL7				CECIL7				CECIL7			
Locator	CF16SB6S4				CF16SB6S4R				CF16SB6S4RF				CF16SB7S2			
Collect Date:	15-AUG-94				15-AUG-94				15-AUG-94				16-AUG-94			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP METALS AND CYANIDE																
Aluminum	8080		mg/kg	40	34.3		ug/l	200	27.6		ug/l	200	2480		mg/kg	40
Antimony	.47	U	mg/kg	12	5.2	J	ug/l	60	6.9		ug/l	60	.44	U	mg/kg	12
Arsenic	.7	U	mg/kg	2	3	U	ug/l	10	3	U	ug/l	10	.66	U	mg/kg	2
Barium	12.9		mg/kg	40	2		ug/l	200	1.3		ug/l	200	3.9		mg/kg	40
Beryllium	.23	U	mg/kg	1	1	U	ug/l	5	1	U	ug/l	5	.22	U	mg/kg	1
Cadmium	.23	U	mg/kg	1	1	U	ug/l	5	1	U	ug/l	5	.22	U	mg/kg	1
Calcium	374		mg/kg	1000	33.5		ug/l	5000	65.7		ug/l	5000	2940		mg/kg	1000
Chromium	8.1	J	mg/kg	2	2	U	ug/l	10	2	U	ug/l	10	5	J	mg/kg	2
Cobalt	.72	J	mg/kg	10	2	U	ug/l	50	2	U	ug/l	50	.44	U	mg/kg	10
Copper	.54	J	mg/kg	5	2	U	ug/l	25	2	U	ug/l	25	.78	J	mg/kg	5
Iron	1230		mg/kg	20	12	U	ug/l	100	12	U	ug/l	100	560		mg/kg	20
Lead	4.7	J	mg/kg	.6	1	U	ug/l	3	1	U	ug/l	3	8.3	J	mg/kg	.6
Magnesium	172		mg/kg	1000	17.2	J	ug/l	5000	6.7		ug/l	5000	82.4	U	mg/kg	1000
Manganese	4.4		mg/kg	3	1	U	ug/l	15	1	U	ug/l	15	6.2		mg/kg	3
Mercury	.11	U	mg/kg	.1	.2	U	ug/l	.2	.2	U	ug/l	.2	.12	J	mg/kg	.1
Nickel	2.2	J	mg/kg	8	2	U	ug/l	40	2	U	ug/l	40	1.1	J	mg/kg	8
Potassium	83.8	J	mg/kg	1000	22.9	J	ug/l	5000	21.4	J	ug/l	5000	38.4	J	mg/kg	1000
Selenium	.94	UJ	mg/kg	1	4	U	ug/l	5	4	U	ug/l	5	.88	UJ	mg/kg	1
Silver	.23	U	mg/kg	2	1	U	ug/l	10	1	U	ug/l	10	.22	U	mg/kg	2
Sodium	332	U	mg/kg	1000	93.9	J	ug/l	5000	129	J	ug/l	5000	133	U	mg/kg	1000
Thallium	1.4	UJ	mg/kg	2	8.8		ug/l	10	7.4		ug/l	10	1.3	UJ	mg/kg	2
Vanadium	7.7		mg/kg	10	1	U	ug/l	50	1	U	ug/l	50	3.1		mg/kg	10
Zinc	2.3	U	mg/kg	4	1.1		ug/l	20	12.9		ug/l	20	5.3	U	mg/kg	4
Cyanide	.57	U	mg/kg	.5	-				-				.61	U	mg/kg	.5

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NAS CECIL FIELD -- OPERABLE UNIT 7 -- SITE 16
SUBSURFACE SOIL -- METALS AND CYANIDE

Lab Sample Number:	A001H				A001I				A001J				A001K			
Site	CECIL7				CECIL7				CECIL7				CECIL7			
Locator	CF16SB7S2D				CF16SB7S4				CF16SB8S2				CF16SB8S4			
Collect Date:	16-AUG-94				16-AUG-94				16-AUG-94				16-AUG-94			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP METALS AND CYANIDE																
Aluminum	2240		mg/kg	40	4170		mg/kg	40	2190		mg/kg	40	7650		mg/kg	40
Antimony	.47	U	mg/kg	12	.45	U	mg/kg	12	.45	U	mg/kg	12	.5	U	mg/kg	12
Arsenic	.82	J	mg/kg	2	.68	U	mg/kg	2	.67	U	mg/kg	2	.71	U	mg/kg	2
Barium	3.9		mg/kg	40	5.5		mg/kg	40	4.9		mg/kg	40	9		mg/kg	40
Beryllium	.22	U	mg/kg	1	.23	U	mg/kg	1	.22	U	mg/kg	1	.24	U	mg/kg	1
Cadmium	.22	U	mg/kg	1	.23	U	mg/kg	1	.93		mg/kg	1	.24	U	mg/kg	1
Calcium	3160		mg/kg	1000	1620		mg/kg	1000	1430		mg/kg	1000	262	U	mg/kg	1000
Chromium	4.5	J	mg/kg	2	7.8	J	mg/kg	2	19.5		mg/kg	2	8.6	J	mg/kg	2
Cobalt	.45	U	mg/kg	10	.45	U	mg/kg	10	.45	U	mg/kg	10	.68		mg/kg	10
Copper	.9	J	mg/kg	5	1	J	mg/kg	5	2.1	J	mg/kg	5	.47	UJ	mg/kg	5
Iron	401		mg/kg	20	815		mg/kg	20	471		mg/kg	20	1170		mg/kg	20
Lead	8.5	J	mg/kg	.6	9.2	J	mg/kg	.6	55		mg/kg	.6	5.1	J	mg/kg	.6
Magnesium	65.4	U	mg/kg	1000	88.6	U	mg/kg	1000	65.1	U	mg/kg	1000	175		mg/kg	1000
Manganese	7		mg/kg	3	5.8		mg/kg	3	4.4		mg/kg	3	5.9		mg/kg	3
Mercury	.14	J	mg/kg	.1	.13	J	mg/kg	.1	.12	J	mg/kg	.1	.12	U	mg/kg	.1
Nickel	.69	J	mg/kg	8	1.4	J	mg/kg	8	1.1	J	mg/kg	8	2.5	J	mg/kg	8
Potassium	33.7	J	mg/kg	1000	44.6	J	mg/kg	1000	25.8	UJ	mg/kg	1000	85.8	J	mg/kg	1000
Selenium	.9	UJ	mg/kg	1	.9	UJ	mg/kg	1	.9	UJ	mg/kg	1	.95	UJ	mg/kg	1
Silver	.22	U	mg/kg	2	.23	U	mg/kg	2	.22	U	mg/kg	2	.24	U	mg/kg	2
Sodium	149	U	mg/kg	1000	160	U	mg/kg	1000	124	U	mg/kg	1000	169	U	mg/kg	1000
Thallium	1.3	UJ	mg/kg	2	1.4	UJ	mg/kg	2	1.3	UJ	mg/kg	2	1.4	UJ	mg/kg	2
Vanadium	2.1		mg/kg	10	4.1		mg/kg	10	2		mg/kg	10	7.3		mg/kg	10
Zinc	5.7	U	mg/kg	4	6.7	U	mg/kg	4	25.8		mg/kg	4	4.4	U	mg/kg	4
Cyanide	.54	U	mg/kg	.5	.56	U	mg/kg	.5	.53	U	mg/kg	.5	.57	U	mg/kg	.5

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NAS CECIL FIELD -- OPERABLE UNIT 7 -- SITE 16
SUBSURFACE SOIL -- METALS AND CYANIDE

Lab Sample Number:	A00I0				A00IM				A00IT				A00J0			
Site	CECIL7				CECIL7				CECIL7				CECIL7			
Locator	CF16SB9S4				CF16SB9S6				CF16SB10S2				CF16SB10S2D			
Collect Date:	16-AUG-94				16-AUG-94				16-AUG-94				16-AUG-94			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP METALS AND CYANIDE																
Aluminum	14700		mg/kg	40	13700		mg/kg	40	1670	J	mg/kg	40	4490	J	mg/kg	40
Antimony	.48	U	mg/kg	12	.48	U	mg/kg	12	.46	U	mg/kg	12	.46	U	mg/kg	12
Arsenic	1.9	J	mg/kg	2	.72	U	mg/kg	2	.69	U	mg/kg	2	.68	U	mg/kg	2
Barium	12.6		mg/kg	40	15.6		mg/kg	40	2.9		mg/kg	40	6.3		mg/kg	40
Beryllium	.24	U	mg/kg	1	.24	U	mg/kg	1	.23	U	mg/kg	1	.23	U	mg/kg	1
Cadmium	.24	U	mg/kg	1	.24	U	mg/kg	1	.23	U	mg/kg	1	.23	U	mg/kg	1
Calcium	216	U	mg/kg	1000	128	U	mg/kg	1000	372		mg/kg	1000	398		mg/kg	1000
Chromium	15.3		mg/kg	2	15.9		mg/kg	2	2.3	J	mg/kg	2	4.3	J	mg/kg	2
Cobalt	.96		mg/kg	10	1.5		mg/kg	10	.46	U	mg/kg	10	.7		mg/kg	10
Copper	.74	J	mg/kg	5	.79	J	mg/kg	5	.46	UJ	mg/kg	5	.46	UJ	mg/kg	5
Iron	4420		mg/kg	20	1810		mg/kg	20	309	J	mg/kg	20	625	J	mg/kg	20
Lead	8.9	J	mg/kg	.6	9.4	J	mg/kg	.6	2.4	J	mg/kg	.6	3.2	J	mg/kg	.6
Magnesium	327		mg/kg	1000	297		mg/kg	1000	51	U	mg/kg	1000	126		mg/kg	1000
Manganese	4.2		mg/kg	3	4.7		mg/kg	3	3.4		mg/kg	3	4.2		mg/kg	3
Mercury	.13	U	mg/kg	.1	.13	U	mg/kg	.1	.12	U	mg/kg	.1	.11	U	mg/kg	.1
Nickel	3.8	J	mg/kg	8	3.8	J	mg/kg	8	.46	UJ	mg/kg	8	1.3	J	mg/kg	8
Potassium	189	J	mg/kg	1000	165	J	mg/kg	1000	22	UJ	mg/kg	1000	53.8	J	mg/kg	1000
Selenium	.96	UJ	mg/kg	1	.96	UJ	mg/kg	1	.92	UJ	mg/kg	1	.91	UJ	mg/kg	1
Silver	.24	U	mg/kg	2	.24	U	mg/kg	2	.23	U	mg/kg	2	.23	U	mg/kg	2
Sodium	202	U	mg/kg	1000	216	U	mg/kg	1000	131	U	mg/kg	1000	174	U	mg/kg	1000
Thallium	1.4	UJ	mg/kg	2	1.4	UJ	mg/kg	2	1.4	UJ	mg/kg	2	1.4	UJ	mg/kg	2
Vanadium	17		mg/kg	10	10.3		mg/kg	10	1.6		mg/kg	10	3.7		mg/kg	10
Zinc	3.5	U	mg/kg	4	3.3	U	mg/kg	4	2.2	U	mg/kg	4	2.2	U	mg/kg	4
Cyanide	.6	U	mg/kg	.5	.58	U	mg/kg	.5	.53	U	mg/kg	.5	.52	U	mg/kg	.5

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NAS CECIL FIELD -- OPERABLE UNIT 7 -- SITE 16
SUBSURFACE SOIL -- METALS AND CYANIDE

Lab Sample Number:	A00J6				A00KE				A00KG				A00KM			
Site	CECIL7				CECIL7				CECIL7				CECIL7			
Locator	CF16SB10S4				CF16SB11S2				CF16SB11S6				CF16SB11S6R			
Collect Date:	16-AUG-94				16-AUG-94				16-AUG-94				16-AUG-94			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP METALS AND CYANIDE																
Aluminum	14900		mg/kg	40	3180		mg/kg	40	11900		mg/kg	40	42.9		ug/l	200
Antimony	.47	U	mg/kg	12	.65	UJ	mg/kg	12	1	UJ	mg/kg	12	3.6		ug/l	60
Arsenic	.71	U	mg/kg	2	.75		mg/kg	2	.74	U	mg/kg	2	3	U	ug/l	10
Barium	12.1		mg/kg	40	4.3		mg/kg	40	4.9		mg/kg	40	1.4		ug/l	200
Beryllium	.24	U	mg/kg	1	.23	U	mg/kg	1	.25	U	mg/kg	1	1	U	ug/l	5
Cadmium	.24	U	mg/kg	1	.23	U	mg/kg	1	.25	U	mg/kg	1	1	U	ug/l	5
Calcium	326		mg/kg	1000	608		mg/kg	1000	597		mg/kg	1000	118		ug/l	5000
Chromium	15.8		mg/kg	2	5	J	mg/kg	2	12.1	J	mg/kg	2	2	U	ug/l	10
Cobalt	.92		mg/kg	10	.84		mg/kg	10	.96		mg/kg	10	2	U	ug/l	50
Copper	.47	UJ	mg/kg	5	.69		mg/kg	5	.79		mg/kg	5	2	U	ug/l	25
Iron	1830		mg/kg	20	354		mg/kg	20	777		mg/kg	20	36.4		ug/l	100
Lead	10.3	J	mg/kg	.6	4		mg/kg	.6	7.7		mg/kg	.6	1	U	ug/l	3
Magnesium	267		mg/kg	1000	64.5		mg/kg	1000	222		mg/kg	1000	25.1		ug/l	5000
Manganese	4.8		mg/kg	3	4.3		mg/kg	3	4.1		mg/kg	3	1	U	ug/l	15
Mercury	.12	U	mg/kg	.1	.11	U	mg/kg	.1	.13	U	mg/kg	.1	.2	U	ug/l	.2
Nickel	3.5	J	mg/kg	8	1.1		mg/kg	8	2.6		mg/kg	8	2	U	ug/l	40
Potassium	172	J	mg/kg	1000	33.6	J	mg/kg	1000	94.6		mg/kg	1000	14.5		ug/l	5000
Selenium	.95	UJ	mg/kg	1	.92	U	mg/kg	1	.98	U	mg/kg	1	4	U	ug/l	5
Silver	.24	U	mg/kg	2	.23	U	mg/kg	2	.25	U	mg/kg	2	1	U	ug/l	10
Sodium	198	U	mg/kg	1000	142	J	mg/kg	1000	170	J	mg/kg	1000	139		ug/l	5000
Thallium	1.4	UJ	mg/kg	2	1.4	U	mg/kg	2	2.1		mg/kg	2	6	U	ug/l	10
Vanadium	16.7		mg/kg	10	3.3		mg/kg	10	7.8		mg/kg	10	1	U	ug/l	50
Zinc	2.7	U	mg/kg	4	2.4	U	mg/kg	4	2.4	U	mg/kg	4	6.1		ug/l	20
Cyanide	.61	U	mg/kg	.5	.57	U	mg/kg	.5	.66	U	mg/kg	.5	10	U	ug/l	10

U = NOT DETECTED J = ESTIMATED VALUE
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NAS CECIL FIELD -- OPERABLE UNIT 7 -- SITE 16
SUBSURFACE SOIL -- METALS AND CYANIDE

Lab Sample Number:	A00KMF				A008D				A008F			
Site	CECIL7				CECIL7				CECIL7			
Locator	CF16SB11S6RF				CF16SB12S2				CF16SB12S6			
Collect Date:	16-AUG-94				13-AUG-94				13-AUG-94			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP METALS AND CYANIDE												
Aluminum	31.1	U	ug/l	200	2520		mg/kg	40	1580		mg/kg	40
Antimony	6.4	J	ug/l	60	.5	U	mg/kg	12	.47	U	mg/kg	12
Arsenic	3	U	ug/l	10	.75	U	mg/kg	2	.7	U	mg/kg	2
Barium	1	U	ug/l	200	3.7		mg/kg	40	3.2		mg/kg	40
Beryllium	1	U	ug/l	5	.25	U	mg/kg	1	.23	U	mg/kg	1
Cadmium	1	U	ug/l	5	.25	U	mg/kg	1	.23	U	mg/kg	1
Calcium	585		ug/l	5000	9810		mg/kg	1000	45500		mg/kg	1000
Chromium	2	U	ug/l	10	3.4		mg/kg	2	4.8		mg/kg	2
Cobalt	2	U	ug/l	50	.5	U	mg/kg	10	.47	U	mg/kg	10
Copper	2	U	ug/l	25	.82		mg/kg	5	.81		mg/kg	5
Iron	28.9		ug/l	100	647		mg/kg	20	431		mg/kg	20
Lead	1	U	ug/l	3	2.9	J	mg/kg	.6	2.2	J	mg/kg	.6
Magnesium	27.3	U	ug/l	5000	134		mg/kg	1000	300		mg/kg	1000
Manganese	1.1		ug/l	15	6.1		mg/kg	3	8		mg/kg	3
Mercury	.2	U	ug/l	.2	.13	U	mg/kg	.1	.12	U	mg/kg	.1
Nickel	2	U	ug/l	40	1.4		mg/kg	8	1.3		mg/kg	8
Potassium	28.9	J	ug/l	5000	46.7	J	mg/kg	1000	42.5	J	mg/kg	1000
Selenium	4	U	ug/l	5	1	U	mg/kg	1	.94	U	mg/kg	1
Silver	1	U	ug/l	10	.25	U	mg/kg	2	.23	U	mg/kg	2
Sodium	166	U	ug/l	5000	161		mg/kg	1000	781		mg/kg	1000
Thallium	6	U	ug/l	10	1.5	U	mg/kg	2	1.4	U	mg/kg	2
Vanadium	1	U	ug/l	50	2.9		mg/kg	10	2.7		mg/kg	10
Zinc	19.9	U	ug/l	20	3.4	U	mg/kg	4	9.4		mg/kg	4
Cyanide	-				1.7	J	mg/kg	.5	.53	U	mg/kg	.5

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NAS CECIL FIELD -- OPERABLE UNIT 7 -- SITE 16
SUBSURFACE SOIL -- TOTAL SOLIDS, TPH & TOC

Lab Sample Number:	A0071				A0072				A0073				A0075			
Site	CECIL7				CECIL7				CECIL7				CECIL7			
Locator	CF16SB1S0				CF16SB1S6				CF16SB2S2				CF16SB2S4			
Collect Date:	14-AUG-94				14-AUG-94				15-AUG-94				15-AUG-94			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
Solids, Total (TS)	91.4		%	.5	82.2		%	.5	87.6		%	.5	83.6		%	.5
Total petroleum hydrocarbons	11	U	mg/kg	11	12	U	mg/kg	12	11	U	mg/kg	11	12	U	mg/kg	12
Total organic carbon	-				-				-				-			

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NAS CECIL FIELD -- OPERABLE UNIT 7 -- SITE 16
SUBSURFACE SOIL -- TOTAL SOLIDS, TPH & TOC

Lab Sample Number:	A0079			A007B			A007E			A007F		
Site	CECIL7			CECIL7			CECIL7			CECIL7		
Locator	CF16SB3S0			CF16SB3S6			CF16SB4S2			CF16SB4S6		
Collect Date:	15-AUG-94			15-AUG-94			15-AUG-94			15-AUG-94		
	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL
Solids, Total (TS)	91.6	%	.5	81.2	%	.5	91.8	%	.5	83.4	%	.5
Total petroleum hydrocarbons	32	mg/kg	11	12 U	mg/kg	12	11 U	mg/kg	11	12 U	mg/kg	12
Total organic carbon	-			-			-			-		

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NAS CECIL FIELD -- OPERABLE UNIT 7 -- SITE 16
SUBSURFACE SOIL -- TOTAL SOLIDS, TPH & TOC

Lab Sample Number:	A007G				A007H				A007K				A007L			
Site	CECIL7				CECIL7				CECIL7				CECIL7			
Locator	CF16SB5S2				CF16SB5S2D				CF16SB5S6				CF16SB6S2			
Collect Date:	15-AUG-94				15-AUG-94				15-AUG-94				15-AUG-94			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
Solids, Total (TS)	90		%	.5	90.5		%	.5	85.7		%	.5	87.7		%	.5
Total petroleum hydrocarbons	11	U	mg/kg	11	11	U	mg/kg	11	12	U	mg/kg	12	11	U	mg/kg	11
Total organic carbon	-				-				-				-			

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NAS CECIL FIELD -- OPE. .LE UNIT 7 -- SITE 16
SUBSURFACE SOIL -- TOTAL SOLIDS, TPH & TOC

Lab Sample Number:	A007M				A007P				A00FO				A00FQ			
Site	CECIL7				CECIL7				CECIL7				CECIL7			
Locator	CF16SB6S4				CF16SB6S4R				CF16SB7S2				CF16SB7S2D			
Collect Date:	15-AUG-94				15-AUG-94				16-AUG-94				16-AUG-94			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
Solids, Total (TS)	84.3		%	.5	-				88.8		%	.5	89		%	.5
Total petroleum hydrocarbons	12	U	mg/kg	12	.5	U	mg/l	.5	17		mg/kg	11	11	U	mg/kg	11
Total organic carbon	-				-				-				-			

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NAS CECIL FIELD -- OPERABLE UNIT 7 -- SITE 16
SUBSURFACE SOIL -- TOTAL SOLIDS, TPH & TOC

Lab Sample Number:	A00FR			A00FT			A00FV			A00FY		
Site	CECIL7			CECIL7			CECIL7			CECIL7		
Locator	CF16SB7S4			CF16SB8S2			CF16SB8S4			CF16SB9S4		
Collect Date:	16-AUG-94			16-AUG-94			16-AUG-94			16-AUG-94		
	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL
Solids, Total (TS)	88.4	%	.5	89.8	%	.5	85.1	%	.5	84.2	%	.5
Total petroleum hydrocarbons	11 U	mg/kg	11	11 U	mg/kg	11	12 U	mg/kg	12	12 U	mg/kg	12
Total organic carbon	-			-			-			-		

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NAS CECIL FIELD -- OPERABLE UNIT 7 -- SITE 16
SUBSURFACE SOIL -- TOTAL SOLIDS, TPH & TOC

Lab Sample Number:	A00FX				A00FZ				A00G1				A00G2			
Site	CECIL7				CECIL7				CECIL7				CECIL7			
Locator	CF16SB9S6				CF16SB10S2				CF16SB10S2D				CF16SB10S4			
Collect Date:	16-AUG-94				16-AUG-94				16-AUG-94				16-AUG-94			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
Solids, Total (TS)	83.4		%	.5	88.6		%	.5	88		%	.5	83		%	.5
Total petroleum hydrocarbons	12	U	mg/kg	12	11	U	mg/kg	11	11	U	mg/kg	11	12	U	mg/kg	12
Total organic carbon	-				-				-				-			

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NAS CECIL FIELD -- OPERABLE UNIT 7 -- SITE 16
SUBSURFACE SOIL -- TOTAL SOLIDS, TPH & TOC

Lab Sample Number:	A00K5			A00K7			A00K8			A006Z		
Site	CECIL7			CECIL7			CECIL7			CECIL7		
Locator	CF16SB11S2			CF16SB11S6			CF16SB11S6R			CF16SB12S2		
Collect Date:	16-AUG-94			16-AUG-94			16-AUG-94			13-AUG-94		
	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL
Solids, Total (TS)	86.8	%	.5	78.1	%	.5	-			94.1	%	.5
Total petroleum hydrocarbons	68	mg/kg	12	21	mg/kg	13	.5 U	mg/l	.5	100	mg/kg	11
Total organic carbon	-			-			-			-		

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NAS CECIL FIELD -- OPERABLE UNIT 7 -- SITE 16
SUBSURFACE SOIL -- TOTAL SOLIDS, TPH & TOC

Lab Sample Number:	A0070			02101			02102			02103		
Site	CECIL7			CECIL7			CECIL7			CECIL7		
Locator	CF16SB12S6			CF16MS188			CF16MS3525			CF16MS4535		
Collect Date:	13-AUG-94			13-JUN-94			13-JUN-94			14-JUN-94		
	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL
Solids, Total (TS)	92.9	%	.5	80.1	%	.5	81.8	%	.5	80.3	%	.5
Total petroleum hydrocarbons	450	mg/kg	27	-			-			-		
Total organic carbon	-			5200	mg/kg	100	330	mg/kg	100	790	mg/kg	100

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NAS CECIL FIELD -- OPERABLE UNIT 7 -- SITE 16
SUBSURFACE SOIL -- TOTAL SOLIDS, TPH & TOC

Lab Sample Number:	02105		
Site	CECIL7		
Locator	CF16MS8878		
Collect Date:	14-JUN-94		
	VALUE QUAL	UNITS	DL
Solids, Total (TS)	78.6	%	.5
Total petroleum hydrocarbons	-		
Total organic carbon	940	mg/kg	100

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NAS CECIL FIELD
SURFACE WATER / SEDIMENT

Lab Sample Number:	90050008				70383-8				90050007				70383-7			
Site	CECIL				CECIL				CECIL				CECIL			
Locator	STCSD1				STCSD1				STCSD3				STCSD3			
Collect Date:	22-JUN-93				22-JUN-93				22-JUN-93				22-JUN-93			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP VOLATILES 90-SOW																
Chloromethane	-				15	U	ug/kg	15	-				19	U	ug/kg	19
Bromomethane	-				15	U	ug/kg	15	-				19	U	ug/kg	19
Vinyl chloride	-				15	U	ug/kg	15	-				19	U	ug/kg	19
Chloroethane	-				15	U	ug/kg	15	-				19	U	ug/kg	19
Methylene chloride	-				15	U	ug/kg	15	-				19	U	ug/kg	19
Acetone	-				11	J	ug/kg	15	-				8	J	ug/kg	19
Carbon disulfide	-				15	U	ug/kg	15	-				19	U	ug/kg	19
1,1-Dichloroethene	-				15	U	ug/kg	15	-				19	U	ug/kg	19
1,1-Dichloroethane	-				15	U	ug/kg	15	-				19	U	ug/kg	19
1,2-Dichloroethene (total)	-				15	U	ug/kg	15	-				19	U	ug/kg	19
Chloroform	-				15	U	ug/kg	15	-				19	U	ug/kg	19
1,2-Dichloroethane	-				15	U	ug/kg	15	-				19	U	ug/kg	19
2-Butanone	-				5	J	ug/kg	15	-				3	J	ug/kg	19
1,1,1-Trichloroethane	-				15	U	ug/kg	15	-				19	U	ug/kg	19
Carbon tetrachloride	-				15	U	ug/kg	15	-				19	U	ug/kg	19
Bromodichloromethane	-				15	U	ug/kg	15	-				19	U	ug/kg	19
1,2-Dichloropropane	-				15	U	ug/kg	15	-				19	U	ug/kg	19
cis-1,3-Dichloropropene	-				15	U	ug/kg	15	-				19	U	ug/kg	19
Trichloroethene	-				15	U	ug/kg	15	-				19	U	ug/kg	19
Dibromochloromethane	-				15	U	ug/kg	15	-				19	U	ug/kg	19
1,1,2-Trichloroethane	-				15	U	ug/kg	15	-				19	U	ug/kg	19
Benzene	-				15	U	ug/kg	15	-				19	U	ug/kg	19
trans-1,3-Dichloropropene	-				15	U	ug/kg	15	-				19	U	ug/kg	19
Bromoform	-				15	U	ug/kg	15	-				19	U	ug/kg	19
4-Methyl-2-pentanone	-				15	U	ug/kg	15	-				19	U	ug/kg	19
2-Hexanone	-				15	U	ug/kg	15	-				19	U	ug/kg	19
Tetrachloroethene	-				15	U	ug/kg	15	-				19	U	ug/kg	19
Toluene	-				4	J	ug/kg	15	-				6	J	ug/kg	19
1,1,2,2-Tetrachloroethane	-				15	U	ug/kg	15	-				19	U	ug/kg	19
Chlorobenzene	-				15	U	ug/kg	15	-				19	U	ug/kg	19
Ethylbenzene	-				15	U	ug/kg	15	-				19	U	ug/kg	19
Styrene	-				15	U	ug/kg	15	-				19	U	ug/kg	19
Xylenes (total)	-				15	U	ug/kg	15	-				19	U	ug/kg	19
CLP SEMIVOLATILES 90-SOW																
Phenol	24000	UJ	ug/kg	24000	-				16000	UJ	ug/kg	16000	-			
bis(2-Chloroethyl) ether	24000	UJ	ug/kg	24000	-				16000	UJ	ug/kg	16000	-			
2-Chlorophenol	24000	UJ	ug/kg	24000	-				16000	UJ	ug/kg	16000	-			
1,3-Dichlorobenzene	24000	UJ	ug/kg	24000	-				16000	UJ	ug/kg	16000	-			
1,4-Dichlorobenzene	24000	UJ	ug/kg	24000	-				16000	UJ	ug/kg	16000	-			
1,2-Dichlorobenzene	24000	UJ	ug/kg	24000	-				16000	UJ	ug/kg	16000	-			
2-Methylphenol	24000	UJ	ug/kg	24000	-				16000	UJ	ug/kg	16000	-			
2,2-oxybis(1-Chloropropane)	24000	UJ	ug/kg	24000	-				16000	UJ	ug/kg	16000	-			
4-Methylphenol	24000	UJ	ug/kg	24000	-				16000	UJ	ug/kg	16000	-			
N-Nitroso-di-n-propylamine	24000	UJ	ug/kg	24000	-				16000	UJ	ug/kg	16000	-			
Hexachloroethane	24000	UJ	ug/kg	24000	-				16000	UJ	ug/kg	16000	-			
Nitrobenzene	24000	UJ	ug/kg	24000	-				16000	UJ	ug/kg	16000	-			
Isophorone	24000	UJ	ug/kg	24000	-				16000	UJ	ug/kg	16000	-			
2-Nitrophenol	24000	UJ	ug/kg	24000	-				16000	UJ	ug/kg	16000	-			
2,4-Dimethylphenol	24000	UJ	ug/kg	24000	-				16000	UJ	ug/kg	16000	-			

NAS CECIL FIELD
SURFACE WATER / SEDIMENT

Lab Sample Number:	90050008				70383-8			90050007				70383-7		
Site	CECIL				CECIL			CECIL				CECIL		
Locator	STCSD1				STCSD1			STCSD3				STCSD3		
Collect Date:	22-JUN-93				22-JUN-93			22-JUN-93				22-JUN-93		
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
bis(2-Chloroethoxy) methane	24000	UJ	ug/kg	24000	-				16000	UJ	ug/kg	16000	-			
2,4-Dichlorophenol	24000	UJ	ug/kg	24000	-				16000	UJ	ug/kg	16000	-			
1,2,4-Trichlorobenzene	24000	UJ	ug/kg	24000	-				16000	UJ	ug/kg	16000	-			
Naphthalene	24000	UJ	ug/kg	24000	-				16000	UJ	ug/kg	16000	-			
4-Chloroaniline	24000	UJ	ug/kg	24000	-				16000	UJ	ug/kg	16000	-			
Hexachlorobutadiene	24000	UJ	ug/kg	24000	-				16000	UJ	ug/kg	16000	-			
4-Chloro-3-methylphenol	24000	UJ	ug/kg	24000	-				16000	UJ	ug/kg	16000	-			
2-Methylnaphthalene	24000	UJ	ug/kg	24000	-				16000	UJ	ug/kg	16000	-			
Hexachlorocyclopentadiene	24000	UJ	ug/kg	24000	-				16000	UJ	ug/kg	16000	-			
2,4,6-Trichlorophenol	24000	UJ	ug/kg	24000	-				16000	UJ	ug/kg	16000	-			
2,4,5-Trichlorophenol	58000	UJ	ug/kg	58000	-				38000	UJ	ug/kg	38000	-			
2-Chloronaphthalene	24000	UJ	ug/kg	24000	-				16000	UJ	ug/kg	16000	-			
2-Nitroaniline	58000	UJ	ug/kg	58000	-				38000	UJ	ug/kg	38000	-			
Dimethylphthalate	24000	UJ	ug/kg	24000	-				16000	UJ	ug/kg	16000	-			
Acenaphthylene	24000	UJ	ug/kg	24000	-				16000	UJ	ug/kg	16000	-			
2,6-Dinitrotoluene	24000	UJ	ug/kg	24000	-				16000	UJ	ug/kg	16000	-			
3-Nitroaniline	58000	UJ	ug/kg	58000	-				38000	UJ	ug/kg	38000	-			
Acenaphthene	24000	UJ	ug/kg	24000	-				16000	UJ	ug/kg	16000	-			
2,4-Dinitrophenol	58000	UJ	ug/kg	58000	-				38000	UJ	ug/kg	38000	-			
4-Nitrophenol	58000	UJ	ug/kg	58000	-				38000	UJ	ug/kg	38000	-			
Dibenzofuran	24000	UJ	ug/kg	24000	-				16000	UJ	ug/kg	16000	-			
2,4-Dinitrotoluene	24000	UJ	ug/kg	24000	-				16000	UJ	ug/kg	16000	-			
Diethylphthalate	24000	UJ	ug/kg	24000	-				16000	UJ	ug/kg	16000	-			
4-Chlorophenyl-phenylether	24000	UJ	ug/kg	24000	-				16000	UJ	ug/kg	16000	-			
Fluorene	24000	UJ	ug/kg	24000	-				16000	UJ	ug/kg	16000	-			
4-Nitroaniline	58000	UJ	ug/kg	58000	-				38000	UJ	ug/kg	38000	-			
4,6-Dinitro-2-methylphenol	58000	UJ	ug/kg	58000	-				38000	UJ	ug/kg	38000	-			
N-Nitrosodiphenylamine (1)	24000	UJ	ug/kg	24000	-				16000	UJ	ug/kg	16000	-			
4-Bromophenyl-phenylether	24000	UJ	ug/kg	24000	-				16000	UJ	ug/kg	16000	-			
Hexachlorobenzene	24000	UJ	ug/kg	24000	-				16000	UJ	ug/kg	16000	-			
Pentachlorophenol	58000	UJ	ug/kg	58000	-				38000	UJ	ug/kg	38000	-			
Phenanthrene	24000	UJ	ug/kg	24000	-				16000	UJ	ug/kg	16000	-			
Anthracene	24000	UJ	ug/kg	24000	-				16000	UJ	ug/kg	16000	-			
Carbazole	24000	UJ	ug/kg	24000	-				16000	UJ	ug/kg	16000	-			
Di-n-butylphthalate	24000	UJ	ug/kg	24000	-				16000	UJ	ug/kg	16000	-			
Fluoranthene	24000	UJ	ug/kg	24000	-				16000	UJ	ug/kg	16000	-			
Pyrene	24000	UJ	ug/kg	24000	-				16000	UJ	ug/kg	16000	-			
Butylbenzylphthalate	24000	UJ	ug/kg	24000	-				16000	UJ	ug/kg	16000	-			
3,3-Dichlorobenzidine	24000	UJ	ug/kg	24000	-				16000	UJ	ug/kg	16000	-			
Benzo (a) anthracene	24000	UJ	ug/kg	24000	-				16000	UJ	ug/kg	16000	-			
Chrysene	24000	UJ	ug/kg	24000	-				16000	UJ	ug/kg	16000	-			
bis(2-Ethylhexyl) phthalate	12000	J	ug/kg	24000	-				8200	J	ug/kg	16000	-			
Di-n-octylphthalate	24000	UJ	ug/kg	24000	-				16000	UJ	ug/kg	16000	-			
Benzo (b) fluoranthene	24000	UJ	ug/kg	24000	-				16000	UJ	ug/kg	16000	-			
Benzo (k) fluoranthene	24000	UJ	ug/kg	24000	-				16000	UJ	ug/kg	16000	-			
Benzo (a) pyrene	24000	UJ	ug/kg	24000	-				16000	UJ	ug/kg	16000	-			
Indeno (1,2,3-cd) pyrene	24000	UJ	ug/kg	24000	-				16000	UJ	ug/kg	16000	-			
Dibenz (a,h) anthracene	24000	UJ	ug/kg	24000	-				16000	UJ	ug/kg	16000	-			
Benzo (g,h,i) perylene	24000	UJ	ug/kg	24000	-				16000	UJ	ug/kg	16000	-			
CLP PESTICIDES/PCBS 90-SOW																
alpha-BHC	26	U	ug/kg	26	-				30	U	ug/kg	30	-			

NAS CECIL FIELD
SURFACE WATER / SEDIMENT

Lab Sample Number:	90050008				70383-8				90050007				70383-7			
Site	CECIL				CECIL				CECIL				CECIL			
Locator	STCSD1				STCSD1				STCSD3				STCSD3			
Collect Date:	22-JUN-93				22-JUN-93				22-JUN-93				22-JUN-93			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
beta-BHC	26	U	ug/kg	26	-				30	U	ug/kg	30	-			
delta-BHC	26	U	ug/kg	26	-				30	U	ug/kg	30	-			
gamma-BHC (Lindane)	26	U	ug/kg	26	-				30	U	ug/kg	30	-			
Heptachlor	26	U	ug/kg	26	-				30	U	ug/kg	30	-			
Aldrin	26	U	ug/kg	26	-				30	U	ug/kg	30	-			
Heptachlor epoxide	26	U	ug/kg	26	-				30	U	ug/kg	30	-			
Endosulfan I	26	U	ug/kg	26	-				30	U	ug/kg	30	-			
Dieldrin	50	U	ug/kg	50	-				59	U	ug/kg	59	-			
4,4-DDE	50	U	ug/kg	50	-				59	U	ug/kg	59	-			
Endrin	50	U	ug/kg	50	-				59	U	ug/kg	59	-			
Endosulfan II	50	U	ug/kg	50	-				59	U	ug/kg	59	-			
4,4-DDD	50	U	ug/kg	50	-				59	U	ug/kg	59	-			
Endosulfan sulfate	50	U	ug/kg	50	-				59	U	ug/kg	59	-			
4,4-DDT	50	U	ug/kg	50	-				59	U	ug/kg	59	-			
Methoxychlor	260	U	ug/kg	260	-				300	U	ug/kg	300	-			
Endrin ketone	50	U	ug/kg	50	-				59	U	ug/kg	59	-			
Endrin aldehyde	50	U	ug/kg	50	-				59	U	ug/kg	59	-			
alpha-Chlordane	26	U	ug/kg	26	-				30	U	ug/kg	30	-			
gamma-Chlordane	26	U	ug/kg	26	-				30	U	ug/kg	30	-			
Toxaphene	2600	U	ug/kg	2600	-				3000	U	ug/kg	3000	-			
Aroclor-1016	500	U	ug/kg	500	-				590	U	ug/kg	590	-			
Aroclor-1221	2600	U	ug/kg	2600	-				1200	U	ug/kg	1200	-			
Aroclor-1232	500	U	ug/kg	500	-				590	U	ug/kg	590	-			
Aroclor-1242	500	U	ug/kg	500	-				590	U	ug/kg	590	-			
Aroclor-1248	500	U	ug/kg	500	-				590	U	ug/kg	590	-			
Aroclor-1254	500	U	ug/kg	500	-				590	U	ug/kg	590	-			
Aroclor-1260	500	U	ug/kg	500	-				590	U	ug/kg	590	-			
CLP METALS AND CYANIDE																
Aluminum	1820		mg/kg	40	-				3890		mg/kg	40	-			
Antimony	6	U	mg/kg	12	-				8.7	U	mg/kg	12	-			
Arsenic	.57	U	mg/kg	2	-				.96	U	mg/kg	2	-			
Barium	3	J	mg/kg	40	-				11.1	J	mg/kg	40	-			
Beryllium	.08	U	mg/kg	1	-				.12	U	mg/kg	1	-			
Cadmium	4.6		mg/kg	1	-				3.6	U	mg/kg	1	-			
Calcium	128	U	mg/kg	1000	-				436	J	mg/kg	1000	-			
Chromium	11.4		mg/kg	2	-				11.9		mg/kg	2	-			
Cobalt	1.4	U	mg/kg	10	-				2.1	U	mg/kg	10	-			
Copper	11.5		mg/kg	5	-				13.5		mg/kg	5	-			
Iron	482	J	mg/kg	20	-				1500	J	mg/kg	20	-			
Lead	29.9		mg/kg	1	-				30.6		mg/kg	1	-			
Magnesium	60.1	J	mg/kg	1000	-				138	J	mg/kg	1000	-			
Manganese	1.4	U	mg/kg	3	-				4.9	J	mg/kg	3	-			
Mercury	.06	J	mg/kg	.1	-				.12	J	mg/kg	.1	-			
Nickel	2.7	U	mg/kg	8	-				4.6	J	mg/kg	8	-			
Potassium	116	U	mg/kg	1000	-				169	U	mg/kg	1000	-			
Selenium	.48	U	mg/kg	1	-				.7	U	mg/kg	1	-			
Silver	.72	U	mg/kg	2	-				1	U	mg/kg	2	-			
Sodium	19.2	U	mg/kg	1000	-				28.1	U	mg/kg	1000	-			
Thallium	.39	U	mg/kg	2	-				.58	U	mg/kg	2	-			
Vanadium	2.1	U	mg/kg	10	-				6.8	J	mg/kg	10	-			
Zinc	76.8		mg/kg	4	-				109		mg/kg	4	-			

NAS CECIL FIELD
SURFACE WATER / SEDIMENT

Lab Sample Number:	90050008				70383-8				90050007				70383-7			
Site	CECIL				CECIL				CECIL				CECIL			
Locator	STCSD1				STCSD1				STCSD3				STCSD3			
Collect Date:	22-JUN-93				22-JUN-93				22-JUN-93				22-JUN-93			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
Cyanide	.45	U	mg/kg	1	-				.66	U	mg/kg	1	-			

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

NAS CECIL FIELD
SURFACE WATER / SEDIMENT

Lab Sample Number:	90050006			70383-6			90050003			70383-3		
Site	CECIL			CECIL			CECIL			CECIL		
Locator	STCSD4			STCSD4			STCSW1			STCSW1		
Collect Date:	22-JUN-93			22-JUN-93			22-JUN-93			22-JUN-93		
	VALUE QUAL	UNITS	DL	VALUE QUAL	UNITS	DL	VALUE QUAL	UNITS	DL	VALUE QUAL	UNITS	DL
CLP VOLATILES 90-SOW												
Chloromethane	-			13 U	ug/kg	13	-			10 U	ug/l	10
Bromomethane	-			13 U	ug/kg	13	-			10 U	ug/l	10
Vinyl chloride	-			13 U	ug/kg	13	-			10 U	ug/l	10
Chloroethane	-			13 U	ug/kg	13	-			10 U	ug/l	10
Methylene chloride	-			13 U	ug/kg	13	-			10 U	ug/l	10
Acetone	-			3 J	ug/kg	13	-			10 U	ug/l	10
Carbon disulfide	-			13 U	ug/kg	13	-			10 U	ug/l	10
1,1-Dichloroethene	-			13 U	ug/kg	13	-			10 U	ug/l	10
1,1-Dichloroethane	-			13 U	ug/kg	13	-			10 U	ug/l	10
1,2-Dichloroethene (total)	-			13 U	ug/kg	13	-			10 U	ug/l	10
Chloroform	-			13 U	ug/kg	13	-			10 U	ug/l	10
1,2-Dichloroethane	-			13 U	ug/kg	13	-			10 U	ug/l	10
2-Butanone	-			13 U	ug/kg	13	-			10 U	ug/l	10
1,1,1-Trichloroethane	-			13 U	ug/kg	13	-			10 U	ug/l	10
Carbon tetrachloride	-			13 U	ug/kg	13	-			10 U	ug/l	10
Bromodichloromethane	-			13 U	ug/kg	13	-			10 U	ug/l	10
1,2-Dichloropropane	-			13 U	ug/kg	13	-			10 U	ug/l	10
cis-1,3-Dichloropropene	-			13 U	ug/kg	13	-			10 U	ug/l	10
Trichloroethene	-			13 U	ug/kg	13	-			10 U	ug/l	10
Dibromochloromethane	-			13 U	ug/kg	13	-			10 U	ug/l	10
1,1,2-Trichloroethane	-			13 U	ug/kg	13	-			10 U	ug/l	10
Benzene	-			13 U	ug/kg	13	-			10 U	ug/l	10
trans-1,3-Dichloropropene	-			13 U	ug/kg	13	-			10 U	ug/l	10
Bromoform	-			13 U	ug/kg	13	-			10 U	ug/l	10
4-Methyl-2-pentanone	-			13 U	ug/kg	13	-			10 U	ug/l	10
2-Hexanone	-			13 U	ug/kg	13	-			10 U	ug/l	10
Tetrachloroethene	-			13 U	ug/kg	13	-			10 U	ug/l	10
Toluene	-			13 U	ug/kg	13	-			2 J	ug/l	10
1,1,2,2-Tetrachloroethane	-			13 U	ug/kg	13	-			10 U	ug/l	10
Chlorobenzene	-			13 U	ug/kg	13	-			10 U	ug/l	10
Ethylbenzene	-			13 U	ug/kg	13	-			10 U	ug/l	10
Styrene	-			13 U	ug/kg	13	-			10 U	ug/l	10
Xylenes (total)	-			13 U	ug/kg	13	-			10 U	ug/l	10
CLP SEMIVOLATILES 90-SOW												
Phenol	6500 U	ug/kg	6500	-			10 U	ug/l	10	-		
bis(2-Chloroethyl) ether	6500 U	ug/kg	6500	-			10 U	ug/l	10	-		
2-Chlorophenol	6500 U	ug/kg	6500	-			10 U	ug/l	10	-		
1,3-Dichlorobenzene	6500 U	ug/kg	6500	-			10 U	ug/l	10	-		
1,4-Dichlorobenzene	6500 U	ug/kg	6500	-			10 U	ug/l	10	-		

NAS CECIL FIELD
SURFACE WATER / SEDIMENT

Lab Sample Number:	90050006				70383-6				90050003				70383-3			
Site	CECIL				CECIL				CECIL				CECIL			
Locator	STCSD4				STCSD4				STCSW1				STCSW1			
Collect Date:	22-JUN-93				22-JUN-93				22-JUN-93				22-JUN-93			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
1,2-Dichlorobenzene	6500	U	ug/kg	6500	-				10	U	ug/l	10	-			
2-Methylphenol	6500	U	ug/kg	6500	-				10	U	ug/l	10	-			
2,2-oxybis(1-Chloropropane)	6500	U	ug/kg	6500	-				10	U	ug/l	10	-			
4-Methylphenol	6500	U	ug/kg	6500	-				10	U	ug/l	10	-			
N-Nitroso-di-n-propylamine	6500	U	ug/kg	6500	-				10	U	ug/l	10	-			
Hexachloroethane	6500	U	ug/kg	6500	-				10	U	ug/l	10	-			
Nitrobenzene	6500	U	ug/kg	6500	-				10	U	ug/l	10	-			
Isophorone	6500	U	ug/kg	6500	-				10	U	ug/l	10	-			
2-Nitrophenol	6500	U	ug/kg	6500	-				10	U	ug/l	10	-			
2,4-Dimethylphenol	6500	U	ug/kg	6500	-				10	U	ug/l	10	-			
bis(2-Chloroethoxy) methane	6500	U	ug/kg	6500	-				10	U	ug/l	10	-			
2,4-Dichlorophenol	6500	U	ug/kg	6500	-				10	U	ug/l	10	-			
1,2,4-Trichlorobenzene	6500	U	ug/kg	6500	-				10	U	ug/l	10	-			
Naphthalene	6500	U	ug/kg	6500	-				10	U	ug/l	10	-			
4-Chloroaniline	6500	U	ug/kg	6500	-				10	U	ug/l	10	-			
Hexachlorobutadiene	6500	U	ug/kg	6500	-				10	U	ug/l	10	-			
4-Chloro-3-methylphenol	6500	U	ug/kg	6500	-				10	U	ug/l	10	-			
2-Methylnaphthalene	6500	U	ug/kg	6500	-				10	U	ug/l	10	-			
Hexachlorocyclopentadiene	6500	U	ug/kg	6500	-				10	U	ug/l	10	-			
2,4,6-Trichlorophenol	6500	U	ug/kg	6500	-				10	U	ug/l	10	-			
2,4,5-Trichlorophenol	16000	U	ug/kg	16000	-				25	U	ug/l	25	-			
2-Chloronaphthalene	6500	U	ug/kg	6500	-				10	U	ug/l	10	-			
2-Nitroaniline	16000	U	ug/kg	16000	-				25	U	ug/l	25	-			
Dimethylphthalate	6500	U	ug/kg	6500	-				10	U	ug/l	10	-			
Acenaphthylene	6500	U	ug/kg	6500	-				10	U	ug/l	10	-			
2,6-Dinitrotoluene	6500	U	ug/kg	6500	-				10	U	ug/l	10	-			
3-Nitroaniline	16000	U	ug/kg	16000	-				25	U	ug/l	25	-			
Acenaphthene	6500	U	ug/kg	6500	-				10	U	ug/l	10	-			
2,4-Dinitrophenol	16000	U	ug/kg	16000	-				25	U	ug/l	25	-			
4-Nitrophenol	16000	U	ug/kg	16000	-				25	U	ug/l	25	-			
Dibenzofuran	6500	U	ug/kg	6500	-				10	U	ug/l	10	-			
2,4-Dinitrotoluene	6500	U	ug/kg	6500	-				10	U	ug/l	10	-			
Diethylphthalate	6500	U	ug/kg	6500	-				10	U	ug/l	10	-			
4-Chlorophenyl-phenylether	6500	U	ug/kg	6500	-				10	U	ug/l	10	-			
Fluorene	6500	U	ug/kg	6500	-				10	U	ug/l	10	-			
4-Nitroaniline	16000	U	ug/kg	16000	-				25	U	ug/l	25	-			
4,6-Dinitro-2-methylphenol	16000	U	ug/kg	16000	-				25	U	ug/l	25	-			
N-Nitrosodiphenylamine (1)	6500	U	ug/kg	6500	-				10	U	ug/l	10	-			
4-Bromophenyl-phenylether	6500	U	ug/kg	6500	-				10	U	ug/l	10	-			
Hexachlorobenzene	6500	U	ug/kg	6500	-				10	U	ug/l	10	-			
Pentachlorophenol	16000	U	ug/kg	16000	-				25	U	ug/l	25	-			
Phenanthrene	6500	U	ug/kg	6500	-				10	U	ug/l	10	-			
Anthracene	6500	U	ug/kg	6500	-				10	U	ug/l	10	-			
Carbazole	6500	U	ug/kg	6500	-				10	U	ug/l	10	-			
Di-n-butylphthalate	6500	U	ug/kg	6500	-				10	U	ug/l	10	-			
Fluoranthene	6500	U	ug/kg	6500	-				10	U	ug/l	10	-			
Pyrene	6500	U	ug/kg	6500	-				10	U	ug/l	10	-			
Butylbenzylphthalate	6500	U	ug/kg	6500	-				10	U	ug/l	10	-			
3,3-Dichlorobenzidine	6500	U	ug/kg	6500	-				10	U	ug/l	10	-			
Benzo (a) anthracene	6500	U	ug/kg	6500	-				10	U	ug/l	10	-			
Chrysene	6500	U	ug/kg	6500	-				10	U	ug/l	10	-			
bis(2-Ethylhexyl) phthalate	6500	U	ug/kg	6500	-				10	U	ug/l	10	-			

NAS CECIL FIELD
SURFACE WATER / SEDIMENT

Lab Sample Number:	90050006				70383-6				90050003				70383-3			
Site	CECIL				CECIL				CECIL				CECIL			
Locator	STCSD4				STCSD4				STCSW1				STCSW1			
Collect Date:	22-JUN-93				22-JUN-93				22-JUN-93				22-JUN-93			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
Di-n-octylphthalate	6500	U	ug/kg	6500	-				10	U	ug/l	10	-			
Benzo (b) fluoranthene	6500	U	ug/kg	6500	-				10	U	ug/l	10	-			
Benzo (k) fluoranthene	6500	U	ug/kg	6500	-				10	U	ug/l	10	-			
Benzo (a) pyrene	6500	U	ug/kg	6500	-				10	U	ug/l	10	-			
Indeno (1,2,3-cd) pyrene	6500	U	ug/kg	6500	-				10	U	ug/l	10	-			
Dibenz (a,h) anthracene	6500	U	ug/kg	6500	-				10	U	ug/l	10	-			
Benzo (g,h,i) perylene	6500	U	ug/kg	6500	-				10	U	ug/l	10	-			
CLP PESTICIDES/PCBS 90-SOW																
alpha-BHC	11	U	ug/kg	11	-				.05	U	ug/l	.05	-			
beta-BHC	11	U	ug/kg	11	-				.05	U	ug/l	.05	-			
delta-BHC	11	U	ug/kg	11	-				.05	U	ug/l	.05	-			
gamma-BHC (Lindane)	11	U	ug/kg	11	-				.05	U	ug/l	.05	-			
Heptachlor	11	U	ug/kg	11	-				.05	U	ug/l	.05	-			
Aldrin	11	U	ug/kg	11	-				.05	U	ug/l	.05	-			
Heptachlor epoxide	11	U	ug/kg	11	-				.05	U	ug/l	.05	-			
Endosulfan I	11	U	ug/kg	11	-				.05	U	ug/l	.05	-			
Dieldrin	22	U	ug/kg	22	-				.1	U	ug/l	.1	-			
4,4-DDE	22	U	ug/kg	22	-				.1	U	ug/l	.1	-			
Endrin	22	U	ug/kg	22	-				.1	U	ug/l	.1	-			
Endosulfan II	22	U	ug/kg	22	-				.1	U	ug/l	.1	-			
4,4-DDD	22	U	ug/kg	22	-				.1	U	ug/l	.1	-			
Endosulfan sulfate	22	U	ug/kg	22	-				.1	U	ug/l	.1	-			
4,4-DDT	22	U	ug/kg	22	-				.1	U	ug/l	.1	-			
Methoxychlor	110	U	ug/kg	110	-				.5	U	ug/l	.5	-			
Endrin ketone	22	U	ug/kg	22	-				.1	U	ug/l	.1	-			
Endrin aldehyde	22	U	ug/kg	22	-				.1	U	ug/l	.1	-			
alpha-Chlordane	11	U	ug/kg	11	-				.05	U	ug/l	.05	-			
gamma-Chlordane	11	U	ug/kg	11	-				.05	U	ug/l	.05	-			
Toxaphene	1100	U	ug/kg	1100	-				5	U	ug/l	5	-			
Aroclor-1016	220	U	ug/kg	220	-				1	U	ug/l	1	-			
Aroclor-1221	880	U	ug/kg	880	-				10	U	ug/l	10	-			
Aroclor-1232	220	U	ug/kg	220	-				1	U	ug/l	1	-			
Aroclor-1242	220	U	ug/kg	220	-				1	U	ug/l	1	-			
Aroclor-1248	220	U	ug/kg	220	-				1	U	ug/l	1	-			
Aroclor-1254	220	U	ug/kg	220	-				1	U	ug/l	1	-			
Aroclor-1260	220	U	ug/kg	220	-				1	U	ug/l	1	-			
CLP METALS AND CYANIDE																
Aluminum	2810		mg/kg	40	-				490		ug/l	200	-			
Antimony	5.9	U	mg/kg	12	-				20.2	U	ug/l	60	-			
Arsenic	.48	U	mg/kg	2	-				2.4	UJ	ug/l	10	-			
Barium	4.9	J	mg/kg	40	-				18.6	J	ug/l	200	-			
Beryllium	.08	U	mg/kg	1	-				.49	J	ug/l	5	-			
Cadmium	1.1	U	mg/kg	1	-				37.3		ug/l	5	-			
Calcium	142	J	mg/kg	1000	-				6510		ug/l	5000	-			
Chromium	3.7	U	mg/kg	2	-				2.5	U	ug/l	10	-			
Cobalt	1.4	U	mg/kg	10	-				4.8	U	ug/l	50	-			
Copper	2.8	J	mg/kg	5	-				11.9	J	ug/l	25	-			
Iron	463	J	mg/kg	20	-				1470		ug/l	100	-			
Lead	4.7		mg/kg	1	-				14.1		ug/l	5	-			
Magnesium	48.2	U	mg/kg	1000	-				1190	J	ug/l	5000	-			

NAS CECIL FIELD
SURFACE WATER / SEDIMENT

Lab Sample Number:	90050006				70383-6				90050003				70383-3			
Site	CECIL				CECIL				CECIL				CECIL			
Locator	STCSD4				STCSD4				STCSW1				STCSW1			
Collect Date:	22-JUN-93				22-JUN-93				22-JUN-93				22-JUN-93			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
Manganese	1.4	U	mg/kg	3	-				8	U	ug/l	15	-			
Mercury	.02	UJ	mg/kg	.1	-				.08	U	ug/l	.2	-			
Nickel	2.7	U	mg/kg	8	-				9.2	U	ug/l	40	-			
Potassium	114	U	mg/kg	1000	-				393	UJ	ug/l	5000	-			
Selenium	.47	U	mg/kg	1	-				1.6	U	ug/l	5	-			
Silver	.71	U	mg/kg	2	-				.14	U	ug/l	10	-			
Sodium	21.2	J	mg/kg	1000	-				3120	J	ug/l	5000	-			
Thallium	.39	U	mg/kg	2	-				1.3	U	ug/l	10	-			
Vanadium	4.1	J	mg/kg	10	-				2.2	U	ug/l	50	-			
Zinc	19.5		mg/kg	4	-				68.4		ug/l	20	-			
Cyanide	.44	U	mg/kg	1	-				3	U	ug/l	10	-			

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

NAS CECIL FIELD
SURFACE WATER / SEDIMENT

Lab Sample Number:	90050002				70383-2				90050001				70383-1			
Site	CECIL				CECIL				CECIL				CECIL			
Locator	STCSW3				STCSW3				STCSW4				STCSW4			
Collect Date:	22-JUN-93				22-JUN-93				22-JUN-93				22-JUN-93			
	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
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)	-				9	J	ug/l	10	-				4	J	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	-				20		ug/l	10	-				8	J	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
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	-			

NAS CECIL FIELD
SURFACE WATER / SEDIMENT

Lab Sample Number:	90050002				70383-2				90050001				70383-1			
Site	CECIL				CECIL				CECIL				CECIL			
Locator	STCSW3				STCSW3				STCSW4				STCSW4			
Collect Date:	22-JUN-93				22-JUN-93				22-JUN-93				22-JUN-93			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
1,2-Dichlorobenzene	10	U	ug/l	10	-				10	U	ug/l	10	-			
2-Methylphenol	10	U	ug/l	10	-				10	U	ug/l	10	-			
2,2-oxybis(1-Chloropropane)	10	U	ug/l	10	-				10	U	ug/l	10	-			
4-Methylphenol	10	U	ug/l	10	-				10	U	ug/l	10	-			
N-Nitroso-di-n-propylamine	10	U	ug/l	10	-				10	U	ug/l	10	-			
Hexachloroethane	10	U	ug/l	10	-				10	U	ug/l	10	-			
Nitrobenzene	10	U	ug/l	10	-				10	U	ug/l	10	-			
Isophorone	10	U	ug/l	10	-				10	U	ug/l	10	-			
2-Nitrophenol	10	U	ug/l	10	-				10	U	ug/l	10	-			
2,4-Dimethylphenol	10	U	ug/l	10	-				10	U	ug/l	10	-			
bis(2-Chloroethoxy) methane	10	U	ug/l	10	-				10	U	ug/l	10	-			
2,4-Dichlorophenol	10	U	ug/l	10	-				10	U	ug/l	10	-			
1,2,4-Trichlorobenzene	10	U	ug/l	10	-				10	U	ug/l	10	-			
Naphthalene	10	U	ug/l	10	-				10	U	ug/l	10	-			
4-Chloroaniline	10	U	ug/l	10	-				10	U	ug/l	10	-			
Hexachlorobutadiene	10	U	ug/l	10	-				10	U	ug/l	10	-			
4-Chloro-3-methylphenol	10	U	ug/l	10	-				10	U	ug/l	10	-			
2-Methylnaphthalene	10	U	ug/l	10	-				10	U	ug/l	10	-			
Hexachlorocyclopentadiene	10	U	ug/l	10	-				10	U	ug/l	10	-			
2,4,6-Trichlorophenol	10	U	ug/l	10	-				10	U	ug/l	10	-			
2,4,5-Trichlorophenol	25	U	ug/l	25	-				25	U	ug/l	25	-			
2-Chloronaphthalene	10	U	ug/l	10	-				10	U	ug/l	10	-			
2-Nitroaniline	25	U	ug/l	25	-				25	U	ug/l	25	-			
Dimethylphthalate	10	U	ug/l	10	-				10	U	ug/l	10	-			
Acenaphthylene	10	U	ug/l	10	-				10	U	ug/l	10	-			
2,6-Dinitrotoluene	10	U	ug/l	10	-				10	U	ug/l	10	-			
3-Nitroaniline	25	U	ug/l	25	-				25	U	ug/l	25	-			
Acenaphthene	10	U	ug/l	10	-				10	U	ug/l	10	-			
2,4-Dinitrophenol	25	U	ug/l	25	-				25	U	ug/l	25	-			
4-Nitrophenol	25	U	ug/l	25	-				25	U	ug/l	25	-			
Dibenzofuran	10	U	ug/l	10	-				10	U	ug/l	10	-			
2,4-Dinitrotoluene	10	U	ug/l	10	-				10	U	ug/l	10	-			
Diethylphthalate	10	U	ug/l	10	-				10	U	ug/l	10	-			
4-Chlorophenyl-phenylether	10	U	ug/l	10	-				10	U	ug/l	10	-			
Fluorene	10	U	ug/l	10	-				10	U	ug/l	10	-			
4-Nitroaniline	25	U	ug/l	25	-				25	U	ug/l	25	-			
4,6-Dinitro-2-methylphenol	25	U	ug/l	25	-				25	U	ug/l	25	-			
N-Nitrosodiphenylamine (1)	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	-			

NAS CECIL FIELD
SURFACE WATER / SEDIMENT

Lab Sample Number:	90050002				70383-2				90050001				70383-1			
Site	CECIL				CECIL				CECIL				CECIL			
Locator	STCSW3				STCSW3				STCSW4				STCSW4			
Collect Date:	22-JUN-93				22-JUN-93				22-JUN-93				22-JUN-93			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
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	-			
Dibenz (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	-			
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	-				10	U	ug/l	10	-			
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	-			
CLP METALS AND CYANIDE																
Aluminum	292		ug/l	200	-				369		ug/l	200	-			
Antimony	20.2	U	ug/l	60	-				20.2	U	ug/l	60	-			
Arsenic	1.7	UJ	ug/l	10	-				1.7	UJ	ug/l	10	-			
Barium	18.5	J	ug/l	200	-				17.6	J	ug/l	200	-			
Beryllium	.23	U	ug/l	5	-				.23	U	ug/l	5	-			
Cadmium	.17	U	ug/l	5	-				.32	J	ug/l	5	-			
Calcium	10800		ug/l	5000	-				10100		ug/l	5000	-			
Chromium	2.5	U	ug/l	10	-				2.5	U	ug/l	10	-			
Cobalt	4.8	U	ug/l	50	-				4.8	U	ug/l	50	-			
Copper	2.4	J	ug/l	25	-				5	J	ug/l	25	-			
Iron	847		ug/l	100	-				1020		ug/l	100	-			
Lead	1.9	U	ug/l	5	-				2.9	U	ug/l	5	-			
Magnesium	3290	J	ug/l	5000	-				3080	J	ug/l	5000	-			

NAS CECIL FIELD
SURFACE WATER / SEDIMENT

Lab Sample Number:	90050002				70383-2				90050001				70383-1			
Site	CECIL				CECIL				CECIL				CECIL			
Locator	STCSW3				STCSW3				STCSW4				STCSW4			
Collect Date:	22-JUN-93				22-JUN-93				22-JUN-93				22-JUN-93			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
Manganese	8	U	ug/l	15	-				9.6	J	ug/l	15	-			
Mercury	.08	U	ug/l	.2	-				.08	U	ug/l	.2	-			
Nickel	9.2	U	ug/l	40	-				9.2	U	ug/l	40	-			
Potassium	393	UJ	ug/l	5000	-				393	UJ	ug/l	5000	-			
Selenium	1.6	U	ug/l	5	-				1.6	U	ug/l	5	-			
Silver	.14	UJ	ug/l	10	-				.14	UJ	ug/l	10	-			
Sodium	5200		ug/l	5000	-				4800	J	ug/l	5000	-			
Thallium	1.3	U	ug/l	10	-				1.3	U	ug/l	10	-			
Vanadium	2.6	U	ug/l	50	-				2.4	U	ug/l	50	-			
Zinc	25.7		ug/l	20	-				25.4		ug/l	20	-			
Cyanide	3	U	ug/l	10	-				3	U	ug/l	10	-			

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

APPENDIX C

BACKGROUND SAMPLING PROGRAM

Background Concentrations for Analytes in Surface Soil

Remedial Investigation
Operable Unit 7
NAS Cecil Field, Jacksonville, Florida

Analyte	Frequency of Detection[1]	Range of Reporting Limits	Range of Detected Concentrations (*)[2]	Mean of Detected Concentrations[3]
Volatiles (µg/kg)				
No Analytes Detected				
Semivolatiles (µg/kg)				
Di-n-butylphthalate	1/14	350 - 390	34	34
Diethylphthalate	1/14	350 - 390	19	19
Phenol	3/14	350 - 390	23 - 190	88.3
bis(2-Ethylhexyl)phthalate	5/14	350 - 390	17 - 52	42.3
Pesticides/PCBs (µg/kg)				
4,4-DDE	3/14	3 - 4	0.21 - 0.51	0.33
Endosulfan II	1/14	3.5 - 4	0.33	0.33
Endrin	1/14	0.7 - 3.85	1.085*	1.085
Endrin aldehyde	1/14	0.3 - 4	0.45	0.45
Inorganics (mg/kg)				
Aluminum	14/14	40 - 40	183 - 24,000	5,050
Arsenic	2/14	2 - 2	1.2* - 2.2	1.7
Barium	12/14	40 - 40	2.1 - 16.35*	5.9
Calcium	4/14	1,000 - 1,000	211 - 269	229
Chromium	5/14	2 - 2	2.3 - 24.9	12.9
Iron	14/14	20 - 20	69.6 - 7,140	1,396
Lead	13/14	1 - 1	2.3 - 10.45*	4.7
Magnesium	12/14	1,000 - 1,000	24.4 - 375.5*	115
Manganese	14/14	3 - 3	2.5 - 10.9	5.5
Nickel	4/14	8 - 8	1.5 - 5.65*	3.6
Potassium	4/14	1,000 - 1,000	69.7 - 236	155
Vanadium	14/14	10 - 10	1.3 - 30.7	6.6

Background Concentrations for Analytes in Surface Soil

Remedial Investigation
Operable Unit 7
NAS Cecil Field, Jacksonville, Florida

Analyte	Frequency of Detection[1]	Range of Reporting Limits	Range of Detected Concentrations (*)[2]	Mean of Detected Concentrations[3]

[1] Frequency of detection is the number of samples in which the analyte was detected divided by the total number of samples analyzed (excluding rejected values).
[2] Value indicated by asterisk is the average of a sample and its duplicate. For nondetect values, 1/2 the CRQL/CRDL is used as a surrogate.
[3] The mean of detected concentrations is the arithmetic mean of all samples in which the analyte was detected; it does not include those samples with a "U" or "UJ" validation qualifer for that analyte.

Sample locations include: CEFBSS01, CEFBSS02, CEFBSS03, CEFBSS04, CEFBSS05, CEFBBSS06, CEFBBSS07, CEFBBSS08, CEFBBSS10, CEFBBSS11, CEFBBSS12, CEFBBSS13, CEFBBSS14, CEFBBSS15
Duplicate samples include: CEFBSS02D

Notes: mg/kg = milligrams per kilograms.
µg/kg = micrograms per kilograms.

Background Concentrations for Analytes in Subsurface Soil

Remedial Investigation
Operable Unit 7
NAS Cecil Field, Jacksonville, Florida

Analyte	Frequency of Detection[1]	Range of Reporting Limits	Range of Detected Concentrations (*)[2]	Mean of Detected Concentrations[3]
Volatiles (µg/kg)				
No Analytes Detected				
Semivolatiles (µg/kg)				
Pentachlorophenol	3/18	820 - 950	180 - 420	320
Pesticides/PCBs (µg/kg)				
4,4-DDD	1/18	3.4 - 4	0.68	0.68
4,4-DDT	1/18	2.1 - 4	0.73	0.73
Aroclor-1260	1/18	34 - 40	9.7	9.7
Inorganics (mg/kg)				
Aluminum	18/18	40 - 40	628.5* - 15,600	5,615
Arsenic	2/18	2 - 2	0.65 - 0.98	0.82
Barium	11/18	40 - 40	2.2 - 12.2*	7.7
Calcium	8/18	1,000 - 1,000	102 - 277	160
Chromium	14/18	2 - 2	1.6* - 17.4	7.5
Copper	1/18	5 - 5	0.58	0.58
Iron	18/18	20 - 20	104 - 5,660	1,419
Lead	15/18	1 - 1	1.6 - 18.8	6.6
Magnesium	10/18	1,000 - 1,000	60.1 - 255.75*	134
Manganese	5/18	3 - 3	3.2 - 4.5	3.9
Mercury	1/18	0.1 - 0.1	0.55	0.55
Nickel	5/18	8 - 8	1.8 - 3.9	2.7
Potassium	10/18	1,000 - 1,000	17 - 158	76.4
Sodium	6/18	1,000 - 1,000	117 - 225	156
Vanadium	10/18	10 - 10	1.4 - 15.1	7.7

[1] Frequency of detection is the number of samples in which the analyte was detected divided by the total number of samples analyzed (excluding rejected values).
[2] Value indicated by asterisk is the average of a sample and its duplicate. For nondetect values, 1/2 the CRQL/CRDL is used as a surrogate.
[3] The mean of detected concentrations is the arithmetic mean of all samples in which the analyte was detected; it does not include those samples with a "U" or "UJ" validation qualifier for that analyte.

Sample locations include:CFBBMS1S0, CFBBMS1S6, CFBBMS2S2, CFBBMS2S6, CFBBMS3I2, CFBBMS3I6, CFBBMS4S2, CFBBMS4S4, CFBBMS5S2, CFBBMS5S6, CFBBMS6I0, CFBBMS6I6, CFBBMS7S0, CFBBMS7S4, CFBBMS8S2, CFBBMS8S6, CFBBMS9I0, and CFBBMS9I6
Duplicate samples include: CFBBMS7S0D

Notes: mg/kg = milligrams per kilograms.
µg/kg = micrograms per kilograms.

Background Concentrations for Analytes in Unfiltered Groundwater

Remedial Investigation
Operable Unit 7
NAS Cecil Field, Jacksonville, Florida

Analyte	Frequency of Detection[1]	Range of Reporting Limits	Range of Detected Concentrations (*)[2]	Mean of Detected Concentrations[3]
Volatiles (µg/l)				
No Analytes Detected				
Semivolatiles (µg/l)				
Phenol	1/3	10 - 10	0.8	0.8
bis(2-Ethylhexyl) phthalate	2/3	10 - 10	1 - 2	1.5
Pesticides/PCBs (µg/l)				
No Analytes Detected				
Inorganics (µg/l)				
Aluminum	2/3	200 - 200	1,960 - 15,200	8,580
Arsenic	2/3	10 - 10	1 - 6.6	3.8
Barium	3/3	200 - 200	11 - 29.8	21
Calcium	3/3	5,000 - 5,000	918 - 67,200	23,559
Cobalt	1/3	50 - 50	9.9	9.9
Iron	2/3	100 - 100	720 - 1,780	1,250
Lead	1/3	3 - 3	6.3	6.3
Magnesium	2/3	5,000 - 5,000	1,200 - 5,620	3,410
Manganese	1/3	15 - 15	49.5	49.5
Nickel	1/3	40 - 40	19	19
Potassium	1/3	5,000 - 5,000	1,960	1,960
Selenium	1/3	5 - 5	2	2
Sodium	3/3	5,000 - 5,000	2,970 - 8,760	6,210

[1] Frequency of detection is the number of samples in which the analyte was detected divided by the total number of samples analyzed (excluding rejected values).
[2] Value indicated by asterisk is the average of a sample and its duplicate. For nondetect values, 1/2 the CRQL/CRDL is used as a surrogate.
[3] The mean of detected concentrations is the arithmetic mean of all samples in which the analyte was detected; it does not include those samples with a "U" or "UJ" validation qualifier for that analyte.

Sample locations include: CF3MW8S, CF3MW9I, and CF3MW10D

Notes: µg/l = micrograms per liter.

Background Concentrations for Analytes in Surface Water

Remedial Investigation
Operable Unit 7
NAS Cecil Field, Jacksonville, Florida

Analyte	Frequency of Detection[1]	Range of Reporting Limits	Range of Detected Concentrations (*)[2]	Mean of Detected Concentrations[3]
Volatiles (µg/l)				
Dibromochloromethane	1/1	2 - 2	2	2
Bromodichloromethane	1/1	1 - 1	5	5
Chloroform	1/1	2 - 2	7	7
Methylene chloride	1/1	2 - 2	3	3
Semivolatiles (µg/l)				
No Analytes Detected				
Pesticides/PCBs (µg/l)				
Endosulfan I	1/1	0.05 - 0.05	0.008	0.008
Inorganics (µg/l)				
Barium	1/1	200 - 200	27.8	27.8
Calcium	1/1	5,000 - 5,000	23,200	23,200
Copper	1/1	25 - 25	2.3	2.3
Iron	1/1	100 - 100	455	455
Magnesium	1/1	5,000 - 5,000	6,050	6,050
Manganese	1/1	15 - 15	17.8	17.8
Potassium	1/1	5,000 - 5,000	2,690	2,690
Sodium	1/1	5,000 - 5,000	19,000	19,000
Vanadium	1/1	50 - 50	1.4	1.4

[1] Frequency of detection is the number of samples in which the analyte was detected divided by the total number of samples analyzed (excluding rejected values).
[2] Value indicated by asterisk is the average of a sample and its duplicate. For nondetect values, 1/2 the CRQL/CRDL is used as a surrogate.
[3] The mean of detected concentrations is the arithmetic mean of all samples in which the analyte was detected; it does not include those samples with a "U" or "UJ" validation qualifier for that analyte.

Notes: The average of a sample and its duplicate is used for all table calculations.

Sample locations include: CF3SW2

µg/l = micrograms per liter.

Background Concentrations for Analytes in Sediment

Remedial Investigation
Operable Unit 7
NAS Cecil Field, Jacksonville, Florida

Analyte	Frequency of Detection[1]	Range of Reporting Limits	Range of Detected Concentrations (*)[2]	Mean of Detected Concentrations[3]
Volatiles (µg/kg)				
No Analytes Detected				
Semivolatiles (µg/kg)				
No Analytes Detected				
Pesticides/PCBs (µg/kg)				
No Analytes Detected				
Inorganics (mg/kg)				
Aluminum	1/1	40 - 40	568	568
Calcium	1/1	1,000 - 1,000	520	520
Iron	1/1	20 - 20	263	263
Lead	1/1	0.6 - 0.6	2.9	2.9
Magnesium	1/1	1,000 - 1,000	49.8	49.8
Manganese	1/1	3 - 3	4.3	4.3
Vanadium	1/1	10 - 10	1.1	1.1

[1] Frequency of detection is the number of samples in which the analyte was detected divided by the total number of samples analyzed (excluding rejected values).
[2] Value indicated by asterisk is the average of a sample and its duplicate. For nondetect values, 1/2 the CRQL/CRDL is used as a surrogate.
[3] The mean of detected concentrations is the arithmetic mean of all samples in which the analyte was detected; it does not include those samples with a "U" or "UJ" validation qualifierfor that analyte.

Notes: The average of a sample and its duplicate is used for all table calculations.

Sample locations include: CF3SD2

µg/kg = micrograms per kilograms.
mg/kg = milligrams per kilograms.

APPENDIX I

U.S. ENVIRONMENTAL PROTECTION AGENCY (USEPA) REGION III AND FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION (FDEP) CONTAMINANT OF CONCERN SCREENING GUIDANCE, AND FLORIDA SOIL CLEAN-UP GOALS, FLORIDA GROUNDWATER GUIDANCE CONCENTRATIONS

United States
Environmental Protection Agency

Region III
Philadelphia, PA 19107

EPA/903/R-93-001
January 1993

Region III
Technical Guidance Manual
Risk Assessment

Selecting Exposure Routes and Contaminants of Concern by Risk-Based Screening

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EPA
Region III

Hazardous Waste Management Division
Office of Superfund Programs
January 1993

Human health risk assessment includes effort-intensive steps which require many detailed calculations by experts. Most baseline risk assessments are dominated by a few chemicals and a few routes of exposure. Effort expended on minor contaminants and exposure routes, i.e., those which do not influence overall risk, is essentially wasted. This guidance is intended to identify and focus on dominant contaminants of concern and exposure routes at the earliest feasible point in the baseline risk assessment. Use of these methods will decrease effort and time spent assessing risk, without loss of protectiveness. This guidance is not intended for other risk assessment activities, such as determining preliminary remediation goals.

SELECTING CONTAMINANTS AND EXPOSURE ROUTES OF CONCERN

Most samples from hazardous waste sites are analyzed for 103 target compounds and analytes recommended by the EPA Superfund program. Semi-volatile analysis can detect additional tentatively identified compounds not on the target lists. Special analytical services procedures, if used, may find still more contaminants. The combined number of contaminants detected at a site sometimes exceeds one hundred.

While EPA considers it necessary to gather information on many contaminants, very little of this data actually influences the overall quantitative assessment of health risk. For most sites, baseline risk assessments are dominated by a few contaminants and a few routes of exposure. The remaining tens, or hundreds, of detected contaminants have a minimal influence on total risk. This small impact is lost by rounding. Entire environmental media may contain not a single contaminant at a concentration which could adversely affect public health. Quantitative risk calculations using data from such "risk-free" media have no effect on the overall risk estimate for the site.

The EPA baseline risk assessment process at several points requires careful data evaluation by scientific experts. These evaluations, which are contaminant-specific, include: (1) statistical comparisons between site-related and background samples, (2) special handling of undetected contaminants, (3) calculation of toxicity equivalence, (4) evaluation of frequency of detection, and (5) comparison with ARARs. Because overall risk is usually driven by a few contaminants and exposure routes, effort spent in detailed evaluation of minor contaminants and routes of exposure is essentially wasted. For some sites, this wasted effort exceeds 90% of the total.

The baseline risk assessment process can be made more efficient by focusing on dominant contaminants and routes of exposure at the earliest feasible stage. The mechanisms recommended for this are (1) a re-ordering of the process of eliminating contaminants and routes of exposure, and (2) use of a risk-based concentration screen. Appropriately used, this process can dramatically reduce the effort of risk assessment, while not changing the result significantly.

EXISTING GUIDANCE

Chapter 5 of "RAGS IA" (Risk Assessment Guidance for Superfund, Volume I, Human Health Evaluation Manual (Part A); EPA, 1989) provides a detailed procedure for evaluating data for a baseline risk assessment. This

procedure includes steps by which the risk assessor selects contaminants of concern in each exposure medium. These steps are summarized in Table 1.

There are two major limitations to the RAGS procedure. First, the eliminating step (a concentration toxicity screen) comes late in the process. Many of the preceding steps (e.g., evaluation of quantitation limits, comparison with background, calculation of toxicity equivalence, and evaluation of frequency of detection) are contaminant- and medium-specific. They require the sustained attention of an expert, and cannot be automated. If the contaminant is eliminated, this work is wasted.

The second limitation is that the concentration toxicity screen compares only relative risk among contaminants in the same medium. While very efficient at selecting dominant contaminants in each medium, this method does not evaluate significance of total risk for the medium. Thus, the concentration toxicity screen can eliminate contaminants, but not routes of exposure.

RECOMMENDED METHODOLOGY

This guidance makes two changes intended to remove the limitations in existing guidance. These recommendations are intended for baseline risk assessments.

1. **Re-ordering of steps.** The eliminating screen is moved forward in the data evaluation process to a point immediately following data quality evaluation. The new process is shown in Table 2. Effort-intensive steps such as evaluation of quantitation limits and comparison with background now follow the eliminating screen. The steps are divided into four categories: data quality evaluation, initial data set reduction, re-inclusion of special cases, and optional final data set reduction.

The data quality evaluation steps (evaluating appropriateness of methods and qualifiers, significance of blank contamination, and need for special analyses) should be done as described in RAGS IA, Chapter 5. Next, the risk assessor should consult with the RPM to discuss the use of the risk-based concentration table (described in item [2] below) as a screening mechanism. With the RPM's approval, the risk assessor should reduce the data set and document the rationale for eliminating contaminants and routes of exposure from further analysis.

After the initial data set reduction, the risk assessor and RPM should consider re-including specific contaminants on the basis of historical data, toxicity, mobility, persistence, bioaccumulation, special exposure routes, special treatability problems, or exceedance of ARARs. These activities should proceed as described in Section 5.9 of RAGS IA.

Finally, optional further reductions in the data set may be justified, based on the status of a contaminant as an essential nutrient, low frequency of detection, or no statistical difference between site and background levels. These evaluations, the most complicated and contaminant-specific, are saved for last.

2. **Screening by risk-based concentrations.** The screening method is changed from the relative concentration toxicity screen of RAGS IA to an absolute comparison of risk. This is done by means of a table of risk-based concentrations (Appendix I). This table contains levels of nearly 600 contaminants in air, drinking water, fish tissue, and soil, which correspond to a systemic hazard quotient of 0.1 or a lifetime cancer risk of 10^{-6}. The risk-based concentrations were developed using protective default exposure scenarios suggested by EPA (1991) and the best available reference doses and carcinogenic potency slopes (see the table for sources), and represent relatively protective environmental concentrations at which EPA would typically not take action.

The risk-based concentration screen is used as follows:

(a) The risk assessor extracts the maximum concentration of each substance detected in each medium.

(b) If the maximum concentration exceeds the risk-based concentration for that medium, the contaminant is retained for risk assessment, for all routes of exposure involving that medium. Otherwise the contaminant is dropped for that medium.

(c) If a specific contaminant does not exceed its risk-based concentration for any medium, the contaminant is dropped from the risk assessment.

(d) If no contaminant in a specific medium exceeds its risk-based concentration in the medium, it is dropped from the risk assessment.

(e) All contaminants and exposure routes which are dropped are kept on a sub-list and considered for re-inclusion, based on special properties.

(f) If the risk assessor wants to include a route of exposure not covered in the risk-based concentration table, the equations provided in Appendix I can serve as the basis for new risk

based concentrations. Similarly, the risk assessor can use the same equations to calculate alternate risk levels (i.e., other than a systemic hazard quotient of 0.1 and lifetime cancer risk of 10^{-6}) to be the basis for screening.

SUMMARY

The process by which contaminants and exposure routes are selected in quantitative risk assessment can be made less effort-intensive by two simple changes. First, high-effort steps should be postponed until later in the selection process, because performing these operations on trivial contaminants and exposure routes is pointless. Second, changing from a relative concentration toxicity screen to an absolute risk-based concentration screen improves the risk assessor's ability to focus on dominant contaminants and exposure routes at an earlier stage.

REFERENCES

EPA, 1991. Human Health Evaluation Manual, Supplemental Guidance: "Standard Default Exposure Factors". OSWER Directive 9285.6-03, Office of Emergency and Remedial Response, March 25, 1991.

EPA, 1989. Risk Assessment Guidance for Superfund, Volume I, Human Health Evaluation Manual (Part A). Office of Emergency and Remedial Response, December, 1989. EPA/540/1-89/002.

For additional information, call (215) 597-6682.

Approved by: _____

Thomas C. Voltaggio, Director
Hazardous Waste Management Division

Table 1. Summary of existing EPA guidance on selecting contaminants of concern (EPA, 1989, chapter 5)
Section 5.1: Combining data from site investigations
1. Determine if methods are appropriate
2. Evaluate quantitation limits
3. Determine if qualifiers are appropriate
4. Determine if significant blank contamination exists
5. Determine if special analyses for tentatively identified compounds are needed
6. Compare site samples to background
Section 5.9: Further reduction in the number of chemicals (optional)
7. Consult with RPM
8. Document rationale for eliminating chemicals
9. Examine historical information
10. Consider exceptional toxicity, mobility, persistence, or bioaccumulation
11. Consider special exposure routes
12. Consider special treatability problems
13. Determine if contaminants exceed ARARs
14. Group chemicals by class, evaluate toxicity equivalence
15. Evaluate frequency of detection
16. Evaluate essentiality
17. Use a concentration toxicity screen

Table 2. EPA Region III guidance on selecting contaminants and exposure routes of concern
A. Data quality evaluation
1. Determine if methods are appropriate 2. Determine if qualifiers are appropriate 3. Determine if significant blank contamination exists 4. Determine if special analyses for tentatively identified compounds are needed
B. Reduce data set using risk-based concentration screen
5. Consult with RPM 6. Use risk-based concentration table to screen contaminants and exposure routes of concern 7. Document rationale for eliminating chemicals and exposure routes
C. Consider re-including eliminated chemicals and routes, based on:
8. Historical information 9. Exceptional toxicity, mobility, persistence, or bioaccumulation 10. Special exposure routes 11. Special treatability problems 12. ARARs exceedance 13. Toxicity equivalence of chemical class (*e.g.*, CDD/CDFs, PAHs)
D. Make further specific reductions in data set (optional)
14. Evaluate essentiality 15. Evaluate frequency of detection 16. Compare site samples to background

Appendix I:
EPA Region III Risk-Based Screening Table
Background Information

General: Separate carcinogenic and non-carcinogenic risk-based concentrations were calculated for each compound for each pathway. The concentration in the table is the lower of the two, rounded to two significant figures. The following terms and values were used in the calculations:

VARIABLE	UNITS	VALUE	LABEL
1-General:			
Carcinogenic potency slope oral	kg-d/mg	*	CPSo
Carcinogenic potency slope inhaled	kg-d/mg	*	CPSi
Reference dose oral	mg/kg/d	*	RfDo
Reference dose inhaled	mg/kg/d	*	RfDi
Target cancer risk	unitless	1.00e-06	TR
Target hazard quotient	unitless	0.1	THQ
Body weight, adult	kg	70	BWa
Body weight, age 1-6	kg	15	BWc
Averaging time carcinogens	d	25550	ATc
Averaging time non-carcinogens	d	ED x 365	ATn
Inhalation, adult	m3/d	20	IRAa
Inhalation, child	m3/d	12	IRAc
Inhalation factor, age adjusted	m3-y/kg-d	11.66	IFAadj
Tap water ingestion, adult	L/d	2	IRWa
Tap water ingestion, child	L/d	1	IRWc
Tap water ingestion factor, age adjusted	L-y/kg-d	1.09	IFWadj
Fish ingestion	g/d	54	IRF
Soil ingestion, adult	mg/d	100	IRSa
Soil ingestion, child	mg/d	200	IRSc
Soil ingestion factor, age adjusted	mg-y/kg-d	114.29	IFSadj
2-Residential			
Exposure frequency, residential	d/y	350	EFr
Exposure duration, residential	y	30	EDtot

VARIABLE	UNITS	VALUE	LABEL
Exposure duration, age 1-6	y	6	EDc
Volatilization factor	L/m3	0.5	VF
3-Occupational			
Exposure frequency, occupational	d/y	250	EFo
Exposure duration, occupational	y	25	EDo
* = Contaminant-specific toxicity parameters			

The priority among sources of toxicological constants was as follows: (1) IRIS, (2) HEAST, (3) HEAST alternative method, (4) ECAO-Cincinnati, (5) withdrawn from IRIS, (6) withdrawn from HEAST, and (7) other EPA documents. Each source was used only if numbers from higher-priority sources were unavailable.

Algorithms:

1. Age-adjusted factors: Because contact rates with tap water, ambient air, and residential soil are different for children and adults, carcinogenic risks during the first 30 years of life were calculated using age-adjusted factors. These factors approximated the integrated exposure from birth until age 30 by combining contact rates, body weights, and exposure durations for two age groups - small children and adults. The age-adjusted factor for soil was obtained from RAGS IB; the others were developed by analogy.

a. Air inhalation ($[m^3 \cdot y]/[kg \cdot d]$):

$$IFAadj = \frac{EDc \cdot IRAc}{BWc} + \frac{(EDtot - EDc) \cdot IRAa}{BWa}$$

b. Tap water ingestion ($[L \cdot y]/[kg \cdot d]$):

$$IFWadj = \frac{EDc \cdot IRWc}{BWc} + \frac{(EDtot - EDc) \cdot IRWa}{BWa}$$

c. Soil ingestion ($[mg \cdot y]/[kg \cdot d]$):

$$IFSadj = \frac{EDc \cdot IRSc}{BWc} + \frac{(EDtot - EDc) \cdot IRSa}{BWa}$$

2. Residential water use ($\mu g/L$). Volatilization terms were calculated only for compounds with "***" in the "VOC" column. Compounds having a Henry's Law constant greater than 10^{-5} were considered volatile. The list may be incomplete, but is unlikely to include false positives. The equations and the volatilization factor (VF, above) were obtained from RAGS IB. Oral potency slopes and reference doses were used for both oral and inhaled exposures for volatile compounds lacking inhalation values. Inhaled potency slopes were substituted for unavailable oral potency slopes only for volatile compounds; inhaled RfDs were substituted for unavailable oral RfDs for both volatile and non-volatile compounds.

a. Carcinogens: Calculations were based on combined childhood and adult exposure.

$$\frac{TR \cdot ATc \cdot 1000\frac{ug}{mg}}{EFr \cdot ([VF \cdot IFAadj \cdot CPSi] + [IFWadj \cdot CPSo])}$$

b. Non-carcinogens: Calculations were based on adult exposure.

$$\frac{THQ \cdot BWa \cdot ATn \cdot 1000\frac{ug}{mg}}{EFr \cdot EDtot \cdot \left(\frac{VF \cdot IRAa}{RfDi} + \frac{IRWa}{RfDo}\right)}$$

3. Air ($\mu g/m^3$). Oral potency slopes and references were used where inhalation values were not available.

a. Carcinogens: Calculations were based on combined childhood and adult exposure.

$$\frac{TR \cdot ATc \cdot 1000\frac{ug}{mg}}{EFr \cdot IFAadj \cdot CPSi}$$

b. Non-carcinogens: Calculations were based on adult exposure.

$$\frac{THQ \cdot RfDi \cdot BWa \cdot ATn \cdot 1000\frac{ug}{mg}}{EFr \cdot EDtot \cdot IRAa}$$

4. Fish (mg/kg)

a. Carcinogens: Calculations were based on adult exposure.

$$\frac{TR \cdot BWa \cdot ATc}{EFr \cdot EDtot \cdot \frac{IRF}{1000\frac{g}{kg}} \cdot CPSo}$$

b. Non-carcinogens: Calculations were based on adult exposure.

$$\frac{THQ \cdot RfDo \cdot BWa \cdot ATn}{EFr \cdot EDtot \cdot \frac{IRF}{1000\frac{g}{kg}}}$$

5. Soil commercial/industrial (mg/kg): The default exposure assumption that only 50% of incidental soil ingestion occurs at work has been omitted. Calculations were based on adult occupational exposure.

a. Carcinogens:

$$\frac{TR \cdot BWa \cdot ATc}{EFo \cdot EDo \cdot \frac{IRSa}{10^6 \frac{mg}{kg}} \cdot CPSo}$$

b. Non-carcinogens:

$$\frac{THQ \cdot RfDo \cdot BWa \cdot ATn}{EFo \cdot EDo \cdot \frac{IRSa}{10^6 \frac{mg}{kg}}}$$

6. Soil residential (mg/kg):

a. Carcinogens: Calculations were based on combined childhood and adult exposure.

$$\frac{TR \cdot ATc}{EFr \cdot \frac{IFSadj}{10^6 \frac{mg}{kg}} \cdot CPSo}$$

b. Non-carcinogens: Calculations were based on childhood exposure only.

$$\frac{THQ \cdot RfDo \cdot BWc \cdot ATn}{EFr \cdot EDc \cdot \frac{IRSc}{10^6 \frac{mg}{kg}}}$$

EPA Region III COC Screening Table: R.L. Smith (18-Mar-94)

Sources: i=IRIS h=HEAST a=HEAST alt. w=Withdrawn from IRIS or HEAST c=EPA-ECAO o=Other EPA documents *F=final D=draft P=proposed T=tentative / c=carcinogen n=noncarcinogen*

Contaminant	CAS	RfDo mg/kg/d	RfDi mg/kg/d	CPSo kg•d/mg	CPSi kg•d/mg	VOC	MCL mg/L	Tap water µg/L	Ambient air µg/m3	Fish mg/kg	Industrial soil mg/kg	Residential soil mg/kg
Acephate	30560191	4.00E-03 i		8.70E-03 i				7.7 c	0.72 c	0.36 c	330 c	31 n
Acetaldehyde	75070		2.57E-03 i		7.70E-03 i			9.4 n	0.81 c			
Acetochlor	34256821	2.00E-02 i						73 n	7.3 n	2.7 n	2000 n	160 n
Acetone	67641	1.00E-01 i						370 n	37 n	14 n	10000 n	780 n
Acetone cyanohydrin	75865	7.00E-02 h	2.86E-03 h					260 n	1 n	9.5 n	7200 n	550 n
Acetonitrile	75078	6.00E-03 i	1.43E-02 h					22 n	5.2 n	0.81 n	610 n	47 n
Acetophenone	98862	1.00E-01 i	5.71E-06 w			•••		0.0042 n	0.0021 n	14 n	10000 n	780 n
Acifluorfen	62476599	1.30E-02 i						47 n	4.7 n	1.8 n	1300 n	100 n
Acrolein	107028	2.00E-02 h	5.71E-06 i					73 n	0.0021 n	2.7 n	2000 n	160 n
Acrylamide	79061	2.00E-04 i		4.50E+00 i	4.55E+00 i			0.015 c	0.0014 c	0.0007 c	0.64 c	0.14 c
Acrylic acid	79107	8.00E-02 i	8.57E-05 i					290 n	0.031 n	11 n	8200 n	630 n
Acrylonitrile	107131		5.71E-04 i	5.40E-01 i	2.38E-01 i			0.12 c	0.026 c	0.0058 c	5.3 c	1.2 c
Alachlor	15972608	1.00E-02 i		8.00E-02 h			0.002 F	0.84 c	0.078 c	0.039 c	36 c	8 c
Alar	1596845	1.50E-01 i						550 n	55 n	20 n	15000 n	1200 n
Aldicarb	116063	1.00E-03 i					0.007 D	3.7 n	0.37 n	0.14 n	100 n	7.8 n
Aldicarb sulfone	1646884	1.00E-03 i					0.007 D	3.7 n	0.37 n	0.14 n	100 n	7.8 n
Aldrin	309002	3.00E-05 i		1.70E+01 i	1.71E+01 i			0.004 c	0.00037 c	0.00019 c	0.17 c	0.038 c
Ally	74223646	2.50E-01 i						910 n	91 n	34 n	26000 n	2000 n
Allyl alcohol	107186	5.00E-03 i						18 n	1.8 n	0.68 n	510 n	39 n
Allyl chloride	107051	5.00E-02 w	2.86E-04 i					180 n	0.1 n	6.8 n	5100 n	390 n
Aluminum	7429905	2.90E+00 o						11000 n	1100 n	390 n	300000 n	23000 n
Aluminum phosphide	20859738	4.00E-04 i						1.5 n	0.15 n	0.054 n	41 n	3.1 n
Amdro	67485294	3.00E-04 i						1.1 n	0.11 n	0.041 n	31 n	2.3 n
Ametryn	834128	9.00E-03 i						33 n	3.3 n	1.2 n	920 n	70 n
m-Aminophenol	591275	7.00E-02 h						260 n	26 n	9.5 n	7200 n	550 n
4-Aminopyridine	504245	2.00E-05 h						0.073 n	0.0073 n	0.0027 n	2 n	0.16 n
Amitraz	33089611	2.50E-03 i						9.1 n	0.91 n	0.34 n	260 n	20 n
Ammonia	7664417		2.86E-02 i					100 n	10 n			
Ammonium sulfamate	7773060	2.00E-01 i						730 n	73 n	27 n	20000 n	1600 n
Aniline	62533		2.86E-04 i	5.70E-03 i				1 n	0.1 n	0.55 c	500 c	110 c
Antimony and compounds	7440360	4.00E-04 i					0.006 F	1.5 n	0.15 n	0.054 n	41 n	3.1 n
Antimony pentoxide	1314609	5.00E-04 h						1.8 n	0.18 n	0.068 n	51 n	3.9 n
Antimony potassium tartrate	304610	9.00E-04 h						3.3 n	0.33 n	0.12 n	92 n	7 n
Antimony tetroxide	1332316	4.00E-04 h						1.5 n	0.15 n	0.054 n	41 n	3.1 n
Antimony trioxide	1309644	4.00E-04 h						1.5 n	0.15 n	0.054 n	41 n	3.1 n
Apollo	74115245	1.30E-02 i						47 n	4.7 n	1.8 n	1300 n	100 n
Aramite	140578	5.00E-02 h		2.50E-02 i	2.49E-02 i			2.7 c	0.25 c	0.13 c	110 c	26 c
Arsenic	7440382	3.00E-04 i					0.05 *	1.1 n	0.11 n	0.041 n	31 n	2.3 n
Arsenic ([illegible]cinogen)	744032	3.00E-04		[illegible]5E+00 i	1.51E+01 i		0.05 *	0.038 c	0.00041 c	0.0018 c	1.6 c	0.17 c

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Assure	76578148	9.00E-03 i						33 n	3.3 n	1.2 n	920 n	70 n
Asulam	3337711	5.00E-02 i						180 n	18 n	6.8 n	5100 n	390 n
Atrazine	1912249	3.50E-02 i		2.22E-01 h			0.003 F	0.3 c	0.028 c	0.014 c	13 c	2.9 c
Avermectin B1	65195553	4.00E-04 i						1.5 n	0.15 n	0.054 n	41 n	3.1 n
Azobenzene	103333			1.10E-01 i	1.08E-01 i			0.61 c	0.058 c	0.029 c	26 c	5.8 c
Barium and compounds	7440393	7.00E-02 i	1.43E-04 h				2 F	260 n	0.052 n	9.5 n	7200 n	550 n
Baygon	114261	4.00E-03 i						15 n	1.5 n	0.54 n	410 n	31 n
Bayleton	43121433	3.00E-02 i						110 n	11 n	4.1 n	3100 n	230 n
Baythroid	68359375	2.50E-02 i						91 n	9.1 n	3.4 n	2600 n	200 n
Benefin	1861401	3.00E-01 i						1100 n	110 n	41 n	31000 n	2300 n
Benomyl	17804352	5.00E-02 i						180 n	18 n	6.8 n	5100 n	390 n
Bentazon	25057890	2.50E-03 i						9.1 n	0.91 n	0.34 n	260 n	20 n
Benzaldehyde	100527	1.00E-01 i				***		61 n	37 n	14 n	10000 n	780 n
Benzene	71432		1.43E-04 e	2.90E-02 i	2.90E-02 i	***	0.005 F	0.087 n	0.052 n	0.11 c	99 c	22 c
Benzidine	92875	3.00E-03 i		2.30E+02 i	2.35E+02 i			0.00029 c	0.00003 c	0.00001 c	0.012 c	0.0028 c
Benzoic acid	65850	4.00E+00 i						15000 n	1500 n	540 n	410000 n	31000 n
Benzotrichloride	98077			1.30E+01 i				0.0052 c	0.00048 c	0.00024 c	0.22 c	0.049 c
Benzyl alcohol	100516	3.00E-01 h						1100 n	110 n	41 n	31000 n	2300 n
Benzyl chloride	100447			1.70E-01 i		***		0.062 c	0.037 c	0.019 c	17 c	3.8 c
Beryllium and compounds	7440417	5.00E-03 i		4.30E+00 i	8.40E+00 i		0.004 F	0.016 c	0.00075 c	0.00073 c	0.67 c	0.15 c
Bidrin	141662	1.00E-04 i						0.37 n	0.037 n	0.014 n	10 n	0.78 n
Biphenthrin (Talstar)	82657043	1.50E-02 i						55 n	5.5 n	2 n	1500 n	120 n
1,1-Biphenyl	92524	5.00E-02 i						180 n	18 n	6.8 n	5100 n	390 n
Bis(2-chloroethyl)ether	111444			1.10E+00 i	1.16E+00 i	***		0.0092 c	0.0054 c	0.0029 c	2.6 c	0.58 c
Bis(2-chloroisopropyl)ether	39638329	4.00E-02 i		7.00E-02 h	3.50E-02 h	***		0.26 c	0.18 c	0.045 c	41 c	9.1 c
Bis(chloromethyl)ether	542881			2.20E+02 i	2.17E+02 i	***		0.00005 c	0.00003 c	0.00001 c	0.013 c	0.0029 c
Bis(2-chloro-1-methylethyl)ether				7.00E-02 w	7.00E-02 w			0.96 c	0.089 c	0.045 c	41 c	9.1 c
Bis(2-ethylhexyl)phthalate (DEHP)	117817	2.00E-02 i		1.40E-02 i			0.006 F	4.8 c	0.45 c	0.23 c	200 c	46 c
Bisphenol A	80057	5.00E-02 i						180 n	18 n	6.8 n	5100 n	390 n
Boron (and borates)	7440428	9.00E-02 i	5.71E-03 h					330 n	2.1 n	12 n	9200 n	700 n
Boron trifluoride	7637072		2.00E-04 h					0.73 n	0.073 n			
Bromodichloromethane	75274	2.00E-02 i		6.20E-02 i		***	0.1 T	0.17 c	0.1 c	0.051 c	46 c	10 c
Bromoethene	593602				1.10E-01 h	***		0.096 c	0.057 c			
Bromoform (tribromomethane)	75252	2.00E-02 i		7.90E-03 i	3.85E-03 i	***	0.1 T	2.4 c	1.6 c	0.4 c	360 c	81 c
Bromomethane	74839	1.40E-03 i	1.43E-03 i			***		0.87 n	0.52 n	0.19 n	140 n	11 n
4-Bromophenyl phenyl ether	101553	5.80E-02 o						210 n	21 n	7.8 n	5900 n	450 n
Bromophos	2104963	5.00E-03 h						18 n	1.8 n	0.68 n	510 n	39 n
Bromoxynil	1689845	2.00E-02 i						73 n	7.3 n	2.7 n	2000 n	160 n
Bromoxynil octanoate	1689992	2.00E-02 i						73 n	7.3 n	2.7 n	2000 n	160 n

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1,3-Butadiene	106990				9.80E-01 i	***		0.011 c	0.0064 c			
1-Butanol	71363	1.00E-01 i						370 n	37 n	14 n	10000 n	780 n
Butyl benzyl phthalate	85687	2.00E-01 i					0.1 P	730 n	73 n	27 n	20000 n	1600 n
Butylate	2008415	5.00E-02 i						180 n	18 n	6.8 n	5100 n	390 n
sec-Butylbenzene	135988	1.00E-02 e				***	0.002 F	6.1 n	3.7 n	1.4 n	1000 n	78 n
tert-Butylbenzene	104518	1.00E-02 e				***	0.002 F	6.1 n	3.7 n	1.4 n	1000 n	78 n
Butylphthalyl butylglycolate	85701	1.00E+00 i						3700 n	370 n	140 n	100000 n	7800 n
Cacodylic acid	75605	3.00E-03 h						11 n	1.1 n	0.41 n	310 n	23 n
Cadmium and compounds	7440439	5.00E-04 i			6.30E+00 i		0.005 F	1.8 n	0.00099 c	0.068 n	51 n	3.9 n
Caprolactam	105602	5.00E-01 i						1800 n	180 n	68 n	51000 n	3900 n
Captafol	2425061	2.00E-03 i		8.60E-03 h				7.3 n	0.73 c	0.27 n	200 n	16 n
Captan	133062	1.30E-01 i		3.50E-03 h				19 c	1.8 c	0.9 c	820 c	180 c
Carbaryl	63252	1.00E-01 i						370 n	37 n	14 n	10000 n	780 n
Carbazole	86748			2.00E-02 h				3.4 c	0.31 c	0.16 c	140 c	32 c
Carbofuran	1563662	5.00E-03 i					0.04 F	18 n	1.8 n	0.68 n	510 n	39 n
Carbon disulfide	75150	1.00E-01 i	2.86E-03 h			***		2.1 n	1 n	14 n	10000 n	780 n
Carbon tetrachloride	56235	7.00E-04 i	5.71E-04 e	1.30E-01 i	5.25E-02 i	***	0.005 F	0.16 c	0.12 c	0.024 c	22 c	4.9 c
Carbosulfan	55285148	1.00E-02 i						37 n	3.7 n	1.4 n	1000 n	78 n
Carboxin	5234684	1.00E-01 i						370 n	37 n	14 n	10000 n	780 n
Chloral	75876	2.00E-03 i						7.3 n	0.73 n	0.27 n	200 n	16 n
Chloramben	133904	1.50E-02 i						55 n	5.5 n	2 n	1500 n	120 n
Chloranil	118752			4.03E-01 h				0.17 c	0.016 c	0.0078 c	7.1 c	1.6 c
Chlordane	57749	6.00E-05 i		1.30E+00 i	1.29E+00 i		0.002 F	0.052 c	0.0049 c	0.0024 c	2.2 c	0.47 n
Chlorimuron-ethyl	90982324	2.00E-02 i						73 n	7.3 n	2.7 n	2000 n	160 n
Chlorine dioxide	10049044		5.71E-05 i					0.21 n	0.021 n			
Chloroacetaldehyde	107200	6.90E-03 o						25 n	2.5 n	0.93 n	710 n	54 n
Chloroacetic acid	79118	2.00E-03 h						7.3 n	0.73 n	0.27 n	200 n	16 n
2-Chloroacetophenone	532274		8.57E-06 i					0.031 n	0.0031 n			
4-Chloroaniline	106478	4.00E-03 i						15 n	1.5 n	0.54 n	410 n	31 n
Chlorobenzene	108907	2.00E-02 i	5.71E-03 h			***	0.1 F	3.9 n	2.1 n	2.7 n	2000 n	160 n
Chlorobenzilate	510156	2.00E-02 i		2.70E-01 h	2.70E-01 h			0.25 c	0.023 c	0.012 c	11 c	2.4 c
p-Chlorobenzoic acid	74113	2.00E-01 h						730 n	73 n	27 n	20000 n	1600 n
4-Chlorobenzotrifluoride	98566	2.00E-02 h						73 n	7.3 n	2.7 n	2000 n	160 n
2-Chloro-1,3-butadiene	126998	2.00E-02 h	2.00E-03 h			***		1.4 n	0.73 n	2.7 n	2000 n	160 n
1-Chlorobutane	109693	4.00E-01 h				***		240 n	150 n	54 n	41000 n	3100 n
Chlorodifluoromethane	75456		1.43e+01 i			***	0.002 F	8700 n	5200 n			
Chloroethane	75003	2.00E-02 e	2.86E+00 i			***		71 n	1000 n	2.7 n	2000 n	160 n
2-Chloroethyl vinyl ether	110758	2.50E-02 o				***		15 n	9.1 n	3.4 n	2600 n	200 n
Chloroform	67663	1.00E-02 i		6.10E-03 i	8.05E-02 i	***	0.1 T	0.15 c	0.078 c	0.52 c	470 c	78 n

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Chloromethane	74873			1.30E-02 h	6.30E-03 h	***		1.4 c	0.99 c	0.24 c	220 c	49 c
4-Chloro-2,2-methylaniline hydrochloride	3165933			4.60E-01 h				0.15 c	0.014 c	0.0069 c	6.2 c	1.4 c
4-Chloro-2-methylaniline	95692			5.80E-01 h				0.12 c	0.011 c	0.0054 c	4.9 c	1.1 c
beta-Chloronaphthalene	91587	8.00E-02 i						290 n	29 n	11 n	8200 n	630 n
o-Chloronitrobenzene	88733			2.50E-02 h		***		0.42 c	0.25 c	0.13 c	110 c	26 c
p-Chloronitrobenzene	121733			1.80E-02 h		***		0.59 c	0.35 c	0.18 c	160 c	35 c
2-Chlorophenol	95578	5.00E-03 i						18 n	1.8 n	0.68 n	510 n	39 n
2-Chloropropane	75296		2.86E-02 h			***		17 n	10 n			
Chlorothalonil	1897456	1.50E-02 i		1.10E-02 h				6.1 c	0.57 c	0.29 c	260 c	58 c
o-Chlorotoluene	95498	2.00E-02 i				***		12 n	7.3 n	2.7 n	2000 n	160 n
Chlorpropham	101213	2.00E-01 i						730 n	73 n	27 n	20000 n	1600 n
Chlorpyrifos	2921882	3.00E-03 i						11 n	1.1 n	0.41 n	310 n	23 n
Chlorpyrifos-methyl	5598130	1.00E-02 h						37 n	3.7 n	1.4 n	1000 n	78 n
Chlorsulfuron	64902723	5.00E-02 i						180 n	18 n	6.8 n	5100 n	390 n
Chlorthiophos	60238564	8.00E-04 h						2.9 n	0.29 n	0.11 n	82 n	6.3 n
Chromium III and compounds	16065831	1.00E+00 i	5.71E-07 w				0.1 F	3700 n	0.00021 n	140 n	100000 n	7800 n
Chromium VI and compounds	7440473	5.00E-03 i			4.20E+01 i		0.1 F	18 n	0.00015 c	0.68 n	510 n	39 n
Coal tar	8001589				2.20E+00 w				0.0028 c			
Coke Oven Emissions	8007452				2.17E+00 i				0.0029 c			
Copper and compounds	7440508	3.71E-02 h						140 n	14 n	5 n	3800 n	290 n
Crotonaldehyde	123739	1.00E-02 w		1.90E+00 h	1.90E+00 w			0.035 c	0.0033 c	0.0017 c	1.5 c	0.34 c
Cumene	98828	4.00E-02 i	2.57E-03 h					150 n	0.94 n	5.4 n	4100 n	310 n
Cyanides:							0.2 P					
Barium cyanide	542621	1.00E-01 h						370 n	37 n	14 n	10000 n	780 n
Calcium cyanide	592018	4.00E-02 i						150 n	15 n	5.4 n	4100 n	310 n
Copper cyanide	544923	5.00E-03 i						18 n	1.8 n	0.68 n	510 n	39 n
Cyanazine	21725462	2.00E-03 h		8.40E-01 h				0.08 c	0.0075 c	0.0038 c	3.4 c	0.76 c
Cyanogen	460195	4.00E-02 i						150 n	15 n	5.4 n	4100 n	310 n
Cyanogen bromide	506683	9.00E-02 i						330 n	33 n	12 n	9200 n	700 n
Cyanogen chloride	506774	5.00E-02 i						180 n	18 n	6.8 n	5100 n	390 n
Free cyanide	57125	2.00E-02 i						73 n	7.3 n	2.7 n	2000 n	160 n
Hydrogen cyanide	74908	2.00E-02 i						73 n	7.3 n	2.7 n	2000 n	160 n
Potassium cyanide	151508	5.00E-02 i						180 n	18 n	6.8 n	5100 n	390 n
Potassium silver cyanide	506616	2.00E-01 i						730 n	73 n	27 n	20000 n	1600 n
Silver cyanide	506649	1.00E-01 i						370 n	37 n	14 n	10000 n	780 n
Sodium cyanide	143339	4.00E-02 i						150 n	15 n	5.4 n	4100 n	310 n
Zinc cyanide	557211	5.00E-02 i						180 n	18 n	6.8 n	5100 n	390 n
Cyclohexanone	108941	5.00E+00 i				***		3000 n	1800 n	680 n	510000 n	39000 n
Cyclohexlamine	108918	2.00E-01 i						730 n	73 n	27 n	20000 n	1600 n

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Cyhalothrin/Karate	68085858	5.00E-03 i						18 n	1.8 n	0.68 n	510 n	39 n
Cypermethrin	52315078	1.00E-02 i						37 n	3.7 n	1.4 n	1000 n	78 n
Cyromazine	66215278	7.50E-03 i						27 n	2.7 n	1 n	770 n	59 n
Dacthal	1861321	5.00E-01 i						1800 n	180 n	68 n	51000 n	3900 n
Dalapon	75990	3.00E-02 i					0.2 F	110 n	11 n	4.1 n	3100 n	230 n
Danitol	39515418	5.00E-04 w						1.8 n	0.18 n	0.068 n	51 n	3.9 n
DDD	72548			2.40E-01 i				0.28 c	0.026 c	0.013 c	12 c	2.7 c
DDE	72559			3.40E-01 i				0.2 c	0.018 c	0.0093 c	8.4 c	1.9 c
DDT	50293	5.00E-04 i		3.40E-01 i	3.40E-01 i			0.2 c	0.018 c	0.0093 c	8.4 c	1.9 c
Decabromodiphenyl ether	1163195	1.00E-02 i				***		6.1 n	3.7 n	1.4 n	1000 n	78 n
Demeton	8065483	4.00E-05 i						0.15 n	0.015 n	0.0054 n	4.1 n	0.31 n
Diallate	2303164			6.10E-02 h		***		0.17 c	0.1 c	0.052 c	47 c	10 c
Diazinon	333415	9.00E-04 h						3.3 n	0.33 n	0.12 n	92 n	7 n
1,4-Dibromobenzene	106376	1.00E-02 i				***		6.1 n	3.7 n	1.4 n	1000 n	78 n
Dibromochloromethane	124481	2.00E-02 i		8.40E-02 i		***	0.1 T	0.13 c	0.075 c	0.038 c	34 c	7.6 c
1,2-Dibromo-3-chloropropane	96128		5.71E-05 i	1.40E+00 h	6.90E-07 h	***	0.0002 F	0.035 n	0.021 n	0.0023 c	2 c	0.46 c
1,2-Dibromoethane	106934		5.71E-05 h	8.50E+01 i	7.70E-01 i	***	0.00005 F	0.00075 c	0.0081 c	0.00004 c	0.034 c	0.0075 c
Dibutyl phthalate	84742	1.00E-01 i						370 n	37 n	14 n	10000 n	780 n
Dicamba	1918009	3.00E-02 i						110 n	11 n	4.1 n	3100 n	230 n
1,2-Dichlorobenzene	95501	9.00E-02 i	5.71E-02 h			***	0.6 F	37 n	21 n	12 n	9200 n	700 n
1,3-Dichlorobenzene	541731	8.90E-02 o				***	0.6 F	54 n	32 n	12 n	9100 n	700 n
1,4-Dichlorobenzene	106467		2.29E-01 i	2.40E-02 h		***	0.075 F	0.44 c	0.26 c	0.13 c	120 c	27 c
3,3'-Dichlorobenzidine	91941			4.50E-01 i				0.15 c	0.014 c	0.007 c	6.4 c	1.4 c
1,4-Dichloro-2-butene	764410				9.30E+00 h	***		0.0011 c	0.00067 c			
Dichlorodifluoromethane	75718	2.00E-01 i	5.71E-02 h			***		39 n	21 n	27 n	20000 n	1600 n
1,1-Dichloroethane	75343	1.00E-01 h	1.43E-01 h			***		81 n	52 n	14 n	10000 n	780 n
1,2-Dichloroethane (EDC)	107062		2.86E-03 a	9.10E-02 i	9.10E-02 i	***	0.005 F	0.12 c	0.069 c	0.035 c	31 c	7 c
1,1-Dichloroethylene	75354	9.00E-03 i		6.00E-01 i	1.75E-01 i	***	0.007 F	0.044 c	0.036 c	0.0053 c	4.8 c	1.1 c
1,2-Dichloroethylene (cis)	156592	1.00E-02 h				***	0.07 F	6.1 n	3.7 n	1.4 n	1000 n	78 n
1,2-Dichloroethylene (trans)	156605	2.00E-02 i				***	0.1 F	12 n	7.3 n	2.7 n	2000 n	160 n
1,2-Dichloroethylene (mixture)	540590	9.00E-03 h						5.5 n	3.3 n	1.2 n	920 n	70 n
2,4-Dichlorophenol	120832	3.00E-03 i						11 n	1.1 n	0.41 n	310 n	23 n
2,4-Dichlorophenoxyacetic Acid (2,4-D)	94757	1.00E-02 i				***	0.07 F	6.1 n	3.7 n	1.4 n	1000 n	78 n
4-(2,4-Dichlorophenoxy)butyric Acid	94826	8.00E-03 i						29 n	2.9 n	1.1 n	820 n	63 n
1,2-Dichloropropane	78875		1.14E-03 i	6.80E-02 h		***	0.005 F	0.16 c	0.092 c	0.046 c	42 c	9.4 c
2,3-Dichloropropanol	616239	3.00E-03 i						11 n	1.1 n	0.41 n	310 n	23 n
1,3-Dichloropropene	542756	3.00E-04 i	5.71E-03 i	1.80E-01 h	1.30E-01 h	***		0.077 c	0.048 c	0.018 c	16 c	2.3 n
Dichlorvos	62737	5.00E-04 i		2.90E-01 i				0.23 c	0.022 c	0.011 c	9.9 c	2.2 c
Dicofol	115322			4.40E-01 w				0.15 c	0.014 c	0.0072 c	6.5 c	1.5 c

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Contaminant	CAS	RfDo mg/kg/d	RfDi mg/kg/d	CPSo kg•d/mg	CPSi kg•d/mg	VOC	MCL mg/L	Tap water µg/L	Ambient air µg/m3	Fish mg/kg	Industrial soil mg/kg	Residential soil mg/kg
Dicyclopentadiene	77736	3.00E-02 h	5.71E-05 h			***		0.042 n	0.021 n	4.1 n	3100 n	230 n
Dieldrin	60571	5.00E-05 i		1.60E+01 i	1.61E+01 i			0.0042 c	0.00039 c	0.0002 c	0.18 c	0.04 c
Diesel emissions			1.43E-03 i					5.2 n	0.52 n			
Diethyl phthalate	84662	8.00E-01 i						2900 n	290 n	110 n	82000 n	6300 n
Diethylene glycol, monobutyl ether	112345		5.71E-03 h					21 n	2.1 n			
Diethylene glycol, monoethyl ether	111900	2.00E+00 h						7300 n	730 n	270 n	200000 n	16000 n
Diethylforamide	617845	1.10E-02 h						40 n	4 n	1.5 n	1100 n	86 n
Di(2-ethylhexyl)adipate	103231	6.00E-01 i		1.20E-03 i			0.4 F	56 c	5.2 c	2.6 c	2400 c	530 c
Diethylstilbestrol	56531			4.70E+03 h				0.00001 c	1E-06 c	7E-07 c	0.00061 c	0.00014 c
Difenzoquat (Avenge)	43222486	8.00E-02 i						290 n	29 n	11 n	8200 n	630 n
Diflubenzuron	35367385	2.00E-02 i						73 n	7.3 n	2.7 n	2000 n	160 n
Diisopropyl methylphosphonate (DIMP)	1445756	8.00E-02 i						290 n	29 n	11 n	8200 n	630 n
Dimethipin	55290647	2.00E-02 i						73 n	7.3 n	2.7 n	2000 n	160 n
Dimethoate	60515	2.00E-04 i						0.73 n	0.073 n	0.027 n	20 n	1.6 n
3,3'-Dimethoxybenzidine	119904			1.40E-02 h				4.8 c	0.45 c	0.23 c	200 c	46 c
Dimethyl phthalate	131113	1.00E+01 h						37000 n	3700 n	1400 n	1000000 n	78000 n
Dimethyl terephthalate	120616	1.00E-01 i						370 n	37 n	14 n	10000 n	780 n
Dimethylamine	124403		5.71E-06 w					0.021 n	0.0021 n			
2,4-Dimethylaniline hydrochloride	21436964			5.80E-01 h				0.12 c	0.011 c	0.0054 c	4.9 c	1.1 c
2,4-Dimethylaniline	95681			7.50E-01 h				0.09 c	0.0083 c	0.0042 c	3.8 c	0.85 c
N-N-Dimethylaniline	121697	2.00E-03 i						7.3 n	0.73 n	0.27 n	200 n	16 n
3,3'-Dimethylbenzidine	119937			9.20E+00 h				0.0073 c	0.00068 c	0.00034 c	0.31 c	0.069 c
N,N-Dimethylformamide	68122	1.00E-01 h	8.57E-03 i					370 n	3.1 n	14 n	10000 n	780 n
1,1-Dimethylhydrazine	57147			2.60E+00 h	3.50E+00 h			0.026 c	0.0018 c	0.0012 c	1.1 c	0.25 c
1,2-Dimethylhydrazine	540738			3.70E+01 w	3.70E+01 w			0.0018 c	0.00017 c	0.00009 c	0.077 c	0.017 c
2,4-Dimethylphenol	105679	2.00E-02 i						73 n	7.3 n	2.7 n	2000 n	160 n
2,6-Dimethylphenol	576261	6.00E-04 i						2.2 n	0.22 n	0.081 n	61 n	4.7 n
3,4-Dimethylphenol	95658	1.00E-03 i						3.7 n	0.37 n	0.14 n	100 n	7.8 n
1,2-Dinitrobenzene	528290	4.00E-04 h						1.5 n	0.15 n	0.054 n	41 n	3.1 n
1,3-Dinitrobenzene	99650	1.00E-04 i						0.37 n	0.037 n	0.014 n	10 n	0.78 n
1,4-Dinitrobenzene	100254	4.00E-04 h						1.5 n	0.15 n	0.054 n	41 n	3.1 n
4,6-Dinitro-o-cyclohexyl phenol	131895	2.00E-03 i						7.3 n	0.73 n	0.27 n	200 n	16 n
2,4-Dinitrophenol	51285	2.00E-03 i						7.3 n	0.73 n	0.27 n	200 n	16 n
Dinitrotoluene mixture				6.80E-01 i				0.099 c	0.0092 c	0.0046 c	4.2 c	0.94 c
2,4-Dinitrotoluene	121142	2.00E-03 i						7.3 n	0.73 n	0.27 n	200 n	16 n
2,6-Dinitrotoluene	606202	1.00E-03 h						3.7 n	0.37 n	0.14 n	100 n	7.8 n
Dinoseb	88857	1.00E-03 i					0.007 F	3.7 n	0.37 n	0.14 n	100 n	7.8 n
di-n-Octyl phthalate	117840	2.00E-02 h						73 n	7.3 n	2.7 n	2000 n	160 n
1,4-Dioxane	123911			1.10E-02 i				6.1 c	0.57 c	0.29 c	260 c	58 c

EPA Region III COC Screening Table: R.L [illegible] (18-Mar-94)

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Contaminant	CAS	RfDo mg/kg/d	RfDi mg/kg/d	CPSo kg•d/mg	CPSi kg•d/mg	VOC	MCL mg/L	Tap water µg/L	Ambient air µg/m3	Fish mg/kg	Industrial soil mg/kg	Residential soil mg/kg
Diphenamid	957517	3.00E-02 i						110 n	11 n	4.1 n	3100 n	230 n
Diphenylamine	122394	2.50E-02 i						91 n	9.1 n	3.4 n	2600 n	200 n
1,2-Diphenylhydrazine	122667			8.00E-01 i	7.70E-01 i			0.084 c	0.0081 c	0.0039 c	3.6 c	0.8 c
Diquat	85007	2.20E-03 i					0.02 F	8 n	0.8 n	0.3 n	220 n	17 n
Direct black 38	1937377			8.60E+00 h				0.0078 c	0.00073 c	0.00037 c	0.33 c	0.074 c
Direct blue 6	2602462			8.10E+00 h				0.0083 c	0.00077 c	0.00039 c	0.35 c	0.079 c
Direct brown 95	16071866			9.30E+00 h				0.0072 c	0.00067 c	0.00034 c	0.31 c	0.069 c
Disulfoton	298044	4.00E-05 i						0.15 n	0.015 n	0.0054 n	4.1 n	0.31 n
1,4-Dithiane	505293	1.00E-02 i						37 n	3.7 n	1.4 n	1000 n	78 n
Diuron	330541	2.00E-03 i						7.3 n	0.73 n	0.27 n	200 n	16 n
Dodine	2439103	4.00E-03 i						15 n	1.5 n	0.54 n	410 n	31 n
Endosulfan	115297	6.00E-03 h						22 n	2.2 n	0.81 n	610 n	47 n
Endothall	145733	2.00E-02 i					0.1 F	73 n	7.3 n	2.7 n	2000 n	160 n
Endrin	72208	3.00E-04 i					0.002 F	1.1 n	0.11 n	0.041 n	31 n	2.3 n
Epichlorohydrin	106898	2.00E-03 h	2.86E-04 i	9.90E-03 i	4.20E-03 i			6.8 c	0.1 n	0.27 n	200 n	16 n
1,2-Epoxybutane	106887		5.71E-03 i					21 n	2.1 n			
Ethephon (2-chloroethyl phosphonic acid)	16672870	5.00E-03 i						18 n	1.8 n	0.68 n	510 n	39 n
Ethion	563122	5.00E-04 i						1.8 n	0.18 n	0.068 n	51 n	3.9 n
2-Ethoxyethanol acetate	111159	3.00E-01 h						1100 n	110 n	41 n	31000 n	2300 n
2-Ethoxyethanol	110805	4.00E-01 h	5.71E-02 i					1500 n	21 n	54 n	41000 n	3100 n
Ethyl acrylate	140885			4.80E-02 h				1.4 c	0.13 c	0.066 c	60 c	13 c
EPTC (S-Ethyl dipropylthiocarbamate)	759944	2.50E-02 i						91 n	9.1 n	3.4 n	2600 n	200 n
Ethyl ether	60297	2.00E-01 i				***		120 n	73 n	27 n	20000 n	1600 n
Ethyl methacrylate	97632	9.00E-02 h						330 n	33 n	12 n	9200 n	700 n
Ethyl acetate	141786	9.00E-01 i						3300 n	330 n	120 n	92000 n	7000 n
Ethylbenzene	100414	1.00E-01 i	2.86E-01 i			***	0.7 F	130 n	100 n	14 n	10000 n	780 n
Ethylene cyanohydrin	109784	3.00E-01 h						1100 n	110 n	41 n	31000 n	2300 n
Ethylene diamine	107153	2.00E-02 h						73 n	7.3 n	2.7 n	2000 n	160 n
Ethylene glycol	107211	2.00E+00 i						7300 n	730 n	270 n	200000 n	16000 n
Ethylene glycol, monobutyl ether	111762		5.71E-03 h					21 n	2.1 n			
Ethylene oxide	75218			1.02E+00 h	3.50E-01 h			0.066 c	0.018 c	0.0031 c	2.8 c	0.63 c
Ethylene thiourea (ETU)	96457	8.00E-05 i		6.00E-01 h				0.11 c	0.01 c	0.0053 c	4.8 c	0.63 n
Ethyl p-nitrophenyl phenylphosphorothioate	2104645	1.00E-05 i						0.037 n	0.0037 n	0.0014 n	1 n	0.078 n
Ethylnitrosourea	759739			1.40E+02 w				0.00048 c	0.00005 c	0.00002 c	0.02 c	0.0046 c
Ethylphthalyl ethyl glycolate	84720	3.00E+00 i						11000 n	1100 n	410 n	310000 n	23000 n
Express	10120	8.00E-03 i						29 n	2.9 n	1.1 n	820 n	63 n
Fenamiphos	22224926	2.50E-04 i						0.91 n	0.091 n	0.034 n	26 n	2 n
Fluometuron	2164172	1.30E-02 i						47 n	4.7 n	1.8 n	1300 n	100 n
Fluoride	7782414	6.00E-02 i						220 n	22 n	8.1 n	6100 n	470 n

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Fluoridone	59756604	8.00E-02 i						290 n	29 n	11 n	8200 n	630 n
Flurprimidol	56425913	2.00E-02 i						73 n	7.3 n	2.7 n	2000 n	160 n
Flutolanil	66332965	6.00E-02 i						220 n	22 n	8.1 n	6100 n	470 n
Fluvalinate	69409945	1.00E-02 i						37 n	3.7 n	1.4 n	1000 n	78 n
Folpet	133073	1.00E-01 i		3.50E-03 i				19 c	1.8 c	0.9 c	820 c	180 c
Fomesafen	72178020			1.90E-01 i				0.35 c	0.033 c	0.017 c	15 c	3.4 c
Fonofos	944229	2.00E-03 i						7.3 n	0.73 n	0.27 n	200 n	16 n
Formaldehyde	50000	2.00E-01 i			4.55E-02 i			730 n	0.14 c	27 n	20000 n	1600 n
Formic Acid	64186	2.00E+00 h						7300 n	730 n	270 n	200000 n	16000 n
Fosetyl-al	39148248	3.00E+00 i						11000 n	1100 n	410 n	310000 n	23000 n
Furan	110009	1.00E-03 i						3.7 n	0.37 n	0.14 n	100 n	7.8 n
Furazolidone	67458			3.80E+00 h				0.018 c	0.0016 c	0.00083 c	0.75 c	0.17 c
Furfural	98011	3.00E-03 i	1.43E-02 h					11 n	5.2 n	0.41 n	310 n	23 n
Furium	531828			5.00E+01 h				0.0013 c	0.00013 c	0.00006 c	0.057 c	0.013 c
Furmecyclox	60568050			3.00E-02 i				2.2 c	0.21 c	0.11 c	95 c	21 c
Glufosinate-ammonium	77182822	4.00E-04 i						1.5 n	0.15 n	0.054 n	41 n	3.1 n
Glycidaldehyde	765344	4.00E-04 i	2.86E-04 h					1.5 n	0.1 n	0.054 n	41 n	3.1 n
Glyphosate	1071836	1.00E-01 i					0.7 F	370 n	37 n	14 n	10000 n	780 n
Haloxyfop-methyl	69806402	5.00E-05 i						0.18 n	0.018 n	0.0068 n	5.1 n	0.39 n
Harmony	79277273	1.30E-02 i						47 n	4.7 n	1.8 n	1300 n	100 n
HCH (alpha)	319846			6.30E+00 i	6.30E+00 i			0.011 c	0.00099 c	0.0005 c	0.45 c	0.1 c
HCH (beta)	319857			1.80E+00 i	1.80E+00 i			0.037 c	0.0035 c	0.0018 c	1.6 c	0.35 c
HCH (gamma) Lindane	58899	3.00E-04 i		1.30E+00 h			0.0002 F	0.052 c	0.0048 c	0.0024 c	2.2 c	0.49 c
HCH-technical	608731			1.80E+00 i	1.79E+00 i			0.037 c	0.0035 c	0.0018 c	1.6 c	0.35 c
Heptachlor	76448	5.00E-04 i		4.50E+00 i	4.55E+00 i	***	0.0004 F	0.0023 c	0.0014 c	0.0007 c	0.64 c	0.14 c
Heptachlor epoxide	1024573	1.30E-05 i		9.10E+00 i	9.10E+00 i	***	0.0002 F	0.0012 c	0.00069 c	0.00035 c	0.31 c	0.07 c
Hexabromobenzene	87821	2.00E-03 i				***		1.2 n	0.73 n	0.27 n	200 n	16 n
Hexachlorobenzene	118741	8.00E-04 i		1.60E+00 i	1.61E+00 i	***	0.001 F	0.0066 c	0.0039 c	0.002 c	1.8 c	0.4 c
Hexachlorobutadiene	87683	2.00E-04 h		7.80E-02 i	7.70E-02 i	***		0.12 n	0.073 n	0.027 n	20 n	1.6 n
Hexachlorocyclopentadiene	77474	7.00E-03 i	2.00E-05 h			***	0.05 F	0.015 n	0.0073 n	0.95 n	720 n	55 n
Hexachlorodibenzo-p-dioxin mixture	19408743			6.20E+03 i	4.55E+03 i			0.00001 c	1E-06 c	5E-07 c	0.00046 c	0.0001 c
Hexachloroethane	67721	1.00E-03 i		1.40E-02 i	1.40E-02 i	***		0.61 n	0.37 n	0.14 n	100 n	7.8 n
Hexachlorophene	70304	3.00E-04 i						1.1 n	0.11 n	0.041 n	31 n	2.3 n
Hexahydro-1,3,5-trinitro-1,3,5-triazine	121824	3.00E-03 i		1.10E-01 i				0.61 c	0.057 c	0.029 c	26 c	5.8 c
n-Hexane	110543	6.00E-02 h	5.71E-02 i			***		35 n	21 n	8.1 n	6100 n	470 n
Hexazinone	51235042	3.30E-02 i						120 n	12 n	4.5 n	3400 n	260 n
Hydrazine, hydrazine sulfate	302012			3.00E+00 i	1.71E+01 i			0.022 c	0.00037 c	0.0011 c	0.95 c	0.21 c
Hydrogen chloride	7647010		2.00E-03 i					7.3 n	0.73 n			
Hydrogen sulfide	7783064	3.00E-03 i	2.57E-04 i					11 n	0.094 n	0.41 n	310 n	23 n

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Hydroquinone	123319	4.00E-02 h						150 n	15 n	5.4 n	4100 n	310 n
Imazalil	35554440	1.30E-02 i						47 n	4.7 n	1.8 n	1300 n	100 n
Imazaquin	81335377	2.50E-01 i						910 n	91 n	34 n	26000 n	2000 n
Iprodione	36734197	4.00E-02 i						150 n	15 n	5.4 n	4100 n	310 n
Isobutanol	78831	3.00E-01 i				...		180 n	110 n	41 n	31000 n	2300 n
Isophorone	78591	2.00E-01 i		9.50E-04 i				71 c	6.6 c	3.3 c	3000 c	670 c
Isopropalin	33820530	1.50E-02 i						55 n	5.5 n	2 n	1500 n	120 n
Isopropyl methyl phosphonic acid	1832548	1.00E-01 i						370 n	37 n	14 n	10000 n	780 n
Isoxaben	82558507	5.00E-02 i						180 n	18 n	6.8 n	5100 n	390 n
Kepone	143500			1.80E+01 o				0.0037 c	0.00035 c	0.00018 c	0.16 c	0.035 c
Lactofen	77501634	2.00E-03 i						7.3 n	0.73 n	0.27 n	200 n	16 n
Lead (tetraethyl)	78002	1.00E-07 i						0.00037 n	0.00004 n	0.00001 n	0.01 n	0.00078 n
Linuron	330552	2.00E-03 i						7.3 n	0.73 n	0.27 n	200 n	16 n
Lithium	7439932	2.00E-02 o						73 n	7.3 n	2.7 n	2000 n	160 n
Londax	83056996	2.00E-01 i						730 n	73 n	27 n	20000 n	1600 n
Malathion	121755	2.00E-02 i						73 n	7.3 n	2.7 n	2000 n	160 n
Maleic anhydride	108316	1.00E-01 i						370 n	37 n	14 n	10000 n	780 n
Maleic hydrazide	123331	5.00E-01 i						1800 n	180 n	68 n	51000 n	3900 n
Malononitrile	109773	2.00E-05 h						0.073 n	0.0073 n	0.0027 n	2 n	0.16 n
Mancozeb	8018017	3.00E-02 h						110 n	11 n	4.1 n	3100 n	230 n
Maneb	12427382	5.00E-03 i						18 n	1.8 n	0.68 n	510 n	39 n
Manganese and compounds	7439965	5.00E-03 i	1.43e-05 i					18 n	0.0052 n	0.68 n	510 n	39 n
Mephosfolan	950107	9.00E-05 h						0.33 n	0.033 n	0.012 n	9.2 n	0.7 n
Mepiquat chloride	24307264	3.00E-02 i						110 n	11 n	4.1 n	3100 n	230 n
Mercury (inorganic)	7439976	3.00E-04 h	8.57E-05 h				0.002 F	1.1 n	0.031 n	0.041 n	31 n	2.3 n
Mercury (methyl)	22967926	3.00E-04 i					0.002 F	1.1 n	0.11 n	0.041 n	31 n	2.3 n
Merphos	150505	3.00E-05 i						0.11 n	0.011 n	0.0041 n	3.1 n	0.23 n
Merphos oxide	78488	3.00E-05 i						0.11 n	0.011 n	0.0041 n	3.1 n	0.23 n
Metalaxyl	57837191	6.00E-02 i						220 n	22 n	8.1 n	6100 n	470 n
Methacrylonitrile	126987	1.00E-04 i	2.00E-04 h					0.37 n	0.073 n	0.014 n	10 n	0.78 n
Methamidophos	10265926	5.00E-05 i						0.18 n	0.018 n	0.0068 n	5.1 n	0.39 n
Methanol	67561	5.00E-01 i						1800 n	180 n	68 n	51000 n	3900 n
Methidathion	950378	1.00E-03 i						3.7 n	0.37 n	0.14 n	100 n	7.8 n
Methomyl	16752775	2.50E-02 i						91 n	9.1 n	3.4 n	2600 n	200 n
Methoxychlor	72435	5.00E-03 i					0.04 F	18 n	1.8 n	0.68 n	510 n	39 n
2-Methoxyethanol acetate	110496	2.00E-03 h						7.3 n	0.73 n	0.27 n	200 n	16 n
2-Methoxyethanol	109864	1.00E-03 h	5.71E-03 i					3.7 n	2.1 n	0.14 n	100 n	7.8 n
2-Methoxy-5-nitroaniline	99592			4.60E-02 h				1.5 c	0.14 c	0.069 c	62 c	14 c
Methyl aceta	79209	1.00E+00 h						3700 n	370 n	140 n	100000 n	7800 n

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Methyl acrylate	96333	3.00E-02 h						110 n	11 n	4.1 n	3100 n	230 n
2-Methylaniline hydrochloride	636215			1.80E-01 h				0.37 c	0.035 c	0.018 c	16 c	3.5 c
2-Methylaniline	95534			2.40E-01 h				0.28 c	0.026 c	0.013 c	12 c	2.7 c
Methyl chlorocarbonate	79221	1.00E+00 w						3700 n	370 n	140 n	100000 n	7800 n
4-(2-Methyl-4-chlorophenoxy) butyric acid	94815	1.00E-02 i						37 n	3.7 n	1.4 n	1000 n	78 n
2-Methyl-4-chlorophenoxyacetic acid	94746	5.00E-04 i						1.8 n	0.18 n	0.068 n	51 n	3.9 n
2-(2-Methyl-14-chlorophenoxy)propionic acid	93652	1.00E-03 i						3.7 n	0.37 n	0.14 n	100 n	7.8 n
Methylcyclohexane	108872		8.57E-01 h					3100 n	310 n			
Methylene bromide	74953	1.00E-02 h				***		6.1 n	3.7 n	1.4 n	1000 n	78 n
Methylene chloride	75092	6.00E-02 i	8.57E-01 h	7.50E-03 i	1.64E-03 i	***	0.005 F	4.1 c	3.8 c	0.42 c	380 c	85 c
4,4'-Methylene bis(2-chloroaniline)	101144	7.00E-04 h		1.30E-01 h	1.30E-01 h			0.52 c	0.048 c	0.024 c	22 c	4.9 c
4,4'-Methylenebisbenzeneamine	101779			2.50E-01 h				0.27 c	0.025 c	0.013 c	11 c	2.6 c
4,4'-Methylene bis(N,N'-dimethyl)aniline	101611			4.60E-02 i				1.5 c	0.14 c	0.069 c	62 c	14 c
4,4'-Methylenediphenyl isocyanate	101688		5.71E-06 h			***		0.0035 n	0.0021 n			
Methyl ethyl ketone	78933	6.00E-01 i	2.86E-01 i					2200 n	100 n	81 n	61000 n	4700 n
Methyl hydrazine	60344			1.10E+00 h				0.061 c	0.0057 c	0.0029 c	2.6 c	0.58 c
Methyl isobutyl ketone	108101	5.00E-02 h	2.29E-02 h					180 n	8.4 n	6.8 n	5100 n	390 n
Methyl methacrylate	80626	8.00E-02 h						290 n	29 n	11 n	8200 n	630 n
2-Methyl-5-nitroaniline	99558			3.30E-02 h				2 c	0.19 c	0.096 c	87 c	19 c
Methyl parathion	298000	2.50E-04 i						0.91 n	0.091 n	0.034 n	26 n	2 n
2-Methylphenol (o-cresol)	95487	5.00E-02 i						180 n	18 n	6.8 n	5100 n	390 n
3-Methylphenol (m-cresol)	103394	5.00E-02 i						180 n	18 n	6.8 n	5100 n	390 n
4-Methylphenol (p-cresol)	106445	5.00E-03 h						18 n	1.8 n	0.68 n	510 n	39 n
Methyl styrene (mixture)	25013154	6.00E-03 h	1.14E-02 h			***		6 n	4.2 n	0.81 n	610 n	47 n
Methyl styrene (alpha)	98839	7.00E-02 h				***		43 n	26 n	9.5 n	7200 n	550 n
Methyl tertbutyl ether (MTBE)	1634044	5.00E-03 e	8.57E-01 i			***		18 n	310 n	0.68 n	510 n	39 n
Metolaclor (Dual)	51218452	1.50E-01 i						550 n	55 n	20 n	15000 n	1200 n
Metribuzin	21807649	2.50E-02 i						91 n	9.1 n	3.4 n	2600 n	200 n
Mirex	2385855	2.00E-04 i		1.80E+00 h				0.037 c	0.0035 c	0.0018 c	1.6 c	0.35 c
Molinate	2212671	2.00E-03 i						7.3 n	0.73 n	0.27 n	200 n	16 n
Molybdenum	7439987	5.00E-03 i						18 n	1.8 n	0.68 n	510 n	39 n
Monochloramine	10599903	1.00E-01 i						370 n	37 n	14 n	10000 n	780 n
Naled	300765	2.00E-03 i						7.3 n	0.73 n	0.27 n	200 n	16 n
Napropamide	15299997	1.00E-01 i						370 n	37 n	14 n	10000 n	780 n
Nickel refinery dust					8.40E-01 i				0.0075 c			
Nickel (soluble salts)	7440020	2.00E-02 i					0.1 F	73 n	7.3 n	2.7 n	2000 n	160 n
Nickel subsulfide	12035722				1.70E+00 i				0.0037 c			
Nitrapyrin	1929824	1.50E-03 w						5.5 n	0.55 n	0.2 n	150 n	12 n
Nitrate	14797558	1.60E+00 i					10 F	5800 n	580 n	220 n	160000 n	11000 n

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Contaminant	CAS	RfDo mg/kg/d	RfDi mg/kg/d	CPSo kg•d/mg	CPSi kg•d/mg	VOC	MCL mg/L	Tap water µg/L	Ambient air µg/m3	Fish mg/kg	Industrial soil mg/kg	Residential soil mg/kg
Nitric Oxide	10102439	1.00E-01 i						370 n	37 n	14 n	10000 n	780 n
Nitrite	14797650	1.00E-01 i					1 F	370 n	37 n	14 n	10000 n	780 n
2-Nitroaniline	88744	6.00E-05 w	5.71E-05 h					0.22 n	0.021 n	0.0081 n	6.1 n	0.47 n
3-Nitroaniline	99092	3.00E-03 o						11 n	1.1 n	0.41 n	310 n	23 n
4-Nitroaniline	100016	3.00E-03 o						11 n	1.1 n	0.41 n	310 n	23 n
Nitrobenzene	98953	5.00E-04 i	5.71E-04 h			***		0.34 n	0.21 n	0.068 n	51 n	3.9 n
Nitrofurantoin	67209	7.00E-02 h						260 n	26 n	9.5 n	7200 n	550 n
Nitrofurazone	59870			1.50E+00 h	9.40E+00 h			0.045 c	0.00067 c	0.0021 c	1.9 c	0.43 c
Nitrogen dioxide	10102440	1.00E+00 i						3700 n	370 n	140 n	100000 n	7800 n
Nitroguanidine	556887	1.00E-01 i						370 n	37 n	14 n	10000 n	780 n
4-Nitrophenol	100027	6.20E-02 o						230 n	23 n	8.4 n	6300 n	480 n
2-Nitropropane	79469		5.71E-03 i		9.40E+00 h			21 n	0.00067 c			
N-Nitrosodi-n-butylamine	924163			5.40E+00 i	5.60E+00 i			0.012 c	0.0011 c	0.00058 c	0.53 c	0.12 c
N-Nitrosodiethanolamine	1116547			2.80E+00 i				0.024 c	0.0022 c	0.0011 c	1 c	0.23 c
N-Nitrosodiethylamine	55185			1.50E+02 i	1.51E+02 i			0.00045 c	0.00004 c	0.00002 c	0.019 c	0.0043 c
N-Nitrosodimethylamine	62759			5.10E+01 i	4.90E+01 i			0.0013 c	0.00013 c	0.00006 c	0.056 c	0.013 c
N-Nitrosodiphenylamine	86306			4.90E-03 i				14 c	1.3 c	0.64 c	580 c	130 c
N-Nitroso di-n-propylamine	621647			7.00E+00 i				0.0096 c	0.00089 c	0.00045 c	0.41 c	0.091 c
N-Nitroso-N-methylethylamine	10595956			2.20E+01 i				0.0031 c	0.00028 c	0.00014 c	0.13 c	0.029 c
N-Nitrosopyrrolidine	930552			2.10E+00 i	2.13E+00 i			0.032 c	0.0029 c	0.0015 c	1.4 c	0.3 c
m-Nitrotoluene	99081	1.00E-02 h				***		6.1 n	3.7 n	1.4 n	1000 n	78 n
o-Nitrotoluene	88722	1.00E-02 h				***		6.1 n	3.7 n	1.4 n	1000 n	78 n
p-Nitrotoluene	99990	1.00E-02 h				***		6.1 n	3.7 n	1.4 n	1000 n	78 n
Norflurazon	27314132	4.00E-02 i						150 n	15 n	5.4 n	4100 n	310 n
NuStar	85509199	7.00E-04 i						2.6 n	0.26 n	0.095 n	72 n	5.5 n
Octabromodiphenyl ether	32536520	3.00E-03 i						11 n	1.1 n	0.41 n	310 n	23 n
Octahydro-1357-tetranitro-1357-tetrazocine	2691410	5.00E-02 i						180 n	18 n	6.8 n	5100 n	390 n
Octamethylpyrophosphoramide	152169	2.00E-03 h						7.3 n	0.73 n	0.27 n	200 n	16 n
Oryzalin	19044883	5.00E-02 i						180 n	18 n	6.8 n	5100 n	390 n
Oxadiazon	19666309	5.00E-03 i						18 n	1.8 n	0.68 n	510 n	39 n
Oxamyl	23135220	2.50E-02 i					0.2 F	91 n	9.1 n	3.4 n	2600 n	200 n
Oxyfluorfen	42874033	3.00E-03 i						11 n	1.1 n	0.41 n	310 n	23 n
Paclobutrazol	76738620	1.30E-02 i						47 n	4.7 n	1.8 n	1300 n	100 n
Paraquat	1910425	4.50E-03 i						16 n	1.6 n	0.61 n	460 n	35 n
Parathion	56382	6.00E-03 h						22 n	2.2 n	0.81 n	610 n	47 n
Pebulate	1114712	5.00E-02 h						180 n	18 n	6.8 n	5100 n	190 n
Pendimethalin	40487421	4.00E-02 i						150 n	15 n	5.4 n	4100 n	310 n
Pentabromo-6-chloro cyclohexane	87843			2.30E-02 h				2.9 c	0.27 c	0.14 c	120 c	28 c
Pentabromodiphenyl ether	32534819	2.00E-03 i						7.3 n	0.73 n	0.27 n	200 n	16 n

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Pentachlorobenzene	608935	8.00E-04 i				***		0.49 n	0.29 n	0.11 n	82 n	6.3 n
Pentachloronitrobenzene	82688	3.00E-03 i		2.60E-01 h		***		0.041 c	0.024 c	0.012 c	11 c	2.5 c
Pentachlorophenol	87865	3.00E-02 i		1.20E-01 i			0.001 F	0.56 c	0.052 c	0.026 c	24 c	5.3 c
Permethrin	52645531	5.00E-02 i						180 n	18 n	6.8 n	5100 n	390 n
Phenmedipham	13684634	2.50E-01 i						910 n	91 n	34 n	26000 n	2000 n
Phenol	108952	6.00E-01 i						2200 n	220 n	81 n	61000 n	4700 n
m-Phenylenediamine	108452	6.00E-03 i						22 n	2.2 n	0.81 n	610 n	47 n
o-Phenylenediamine	95545	6.00E-03 h						22 n	2.2 n	0.81 n	610 n	47 n
p-Phenylenediamine	106503	1.90E-01 h						690 n	69 n	26 n	19000 n	1500 n
Phenylmercuric acetate	62384	8.00E-05 i						0.29 n	0.029 n	0.011 n	8.2 n	0.63 n
2-Phenylphenol	90437			1.94E-03 h				35 c	3.2 c	1.6 c	1500 c	330 c
Phorate	298022	2.00E-04 h						0.73 n	0.073 n	0.027 n	20 n	1.6 n
Phosmet	732116	2.00E-02 i						73 n	7.3 n	2.7 n	2000 n	160 n
Phosphine	7803512	3.00E-04 i	8.57E-06 h					1.1 n	0.0031 n	0.041 n	31 n	2.3 n
Phosphorus (white)	7723140	2.00E-05 i						0.073 n	0.0073 n	0.0027 n	2 n	0.16 n
p-Phthalic acid	100210	1.00E+00 h						3700 n	370 n	140 n	100000 n	7800 n
Phthalic anhydride	85449	2.00E+00 i	3.43E-01 h					7300 n	130 n	270 n	200000 n	16000 n
Picloram	1918021	7.00E-02 i					0.5 F	260 n	26 n	9.5 n	7200 n	550 n
Pirimiphos-methyl	29232937	1.00E-02 i						37 n	3.7 n	1.4 n	1000 n	78 n
Polybrominated biphenyls		7.00E-06 h		8.90E+00 h				0.0076 c	0.0007 c	0.00035 c	0.32 c	0.055 n
Polychlorinated biphenyls (PCBs)	1336363			7.70E+00 i			0.0005 F	0.0087 c	0.00081 c	0.00041 c	0.37 c	0.083 c
Aroclor 1016	12674112	7.00E-05 i						0.26 n	0.026 n	0.0095 n	7.2 n	0.55 n
Polychlorinated terphenyls (PCTs)				4.50E+00 e				0.015 c	0.0014 c	0.0007 c	0.64 c	0.14 c
Polynuclear aromatic hydrocarbons												
Acenaphthene	83329	6.00E-02 i						220 n	22 n	8.1 n	6100 n	470 n
Anthracene	120127	3.00E-01 i						1100 n	110 n	41 n	31000 n	2300 n
Benzo[a]pyrene	50328			7.30E+00 i	6.10E+00 h		0.0002 F	0.0092 c	0.001 c	0.00043 c	0.39 c	0.088 c
Benzo[b]fluoranthene	205992			7.30E-01 e	6.10E-01 e		0.0002 P	0.092 c	0.01 c	0.0043 c	3.9 c	0.88 c
Benzo[k]fluoranthene	207089			7.30E-02 e	6.10E-02 e		0.0002 P	0.92 c	0.1 c	0.043 c	39 c	8.8 c
Benz[a]anthracene	56553			7.30E-01 e	6.10E-01 e		0.0001 P	0.092 c	0.01 c	0.0043 c	3.9 c	0.88 c
Chrysene	218019			7.30E-03 e	6.10E-03 e		0.0002 P	9.2 c	1 c	0.43 c	390 c	88 c
Dibenz[ah]anthracene	53703			7.30E+00 e	6.10E+00 e		0.0003 P	0.0092 c	0.001 c	0.00043 c	0.39 c	0.088 c
Fluoranthene	206440	4.00E-02 i						150 n	15 n	5.4 n	4100 n	310 n
Fluorene	86737	4.00E-02 i						150 n	15 n	5.4 n	4100 n	310 n
Indeno[1,2,3-cd]pyrene	193395			7.30E-01 e	6.10E-01 e		0.0004 P	0.092 c	0.01 c	0.0043 c	3.9 c	0.88 c
Naphthalene	91203	4.00E-02 w						150 n	15 n	5.4 n	4100 n	310 n
Pyrene	129000	3.00E-02 i						110 n	11 n	4.1 n	3100 n	230 n
Prochloraz	67747095	9.00E-03 i		1.50E-01 i				0.45 c	0.042 c	0.021 c	19 c	4.3 c
Profluralin	26399360	6.00E-03 h						22 n	2.2 n	0.81 n	610 n	47 n

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Prometon	1610180	1.50E-02 i						55 n	5.5 n	2 n	1500 n	120 n
Prometryn	7287196	4.00E-03 i						15 n	1.5 n	0.54 n	410 n	31 n
Pronamide	23950585	7.50E-02 i						270 n	27 n	10 n	7700 n	590 n
Propachlor	1918167	1.30E-02 i						47 n	4.7 n	1.8 n	1300 n	100 n
Propanil	709988	5.00E-03 i						18 n	1.8 n	0.68 n	510 n	39 n
Propargite	2312358	2.00E-02 i						73 n	7.3 n	2.7 n	2000 n	160 n
Propargyl alcohol	107197	2.00E-03 i						7.3 n	0.73 n	0.27 n	200 n	16 n
Propazine	139402	2.00E-02 i						73 n	7.3 n	2.7 n	2000 n	160 n
Propham	122429	2.00E-02 i						73 n	7.3 n	2.7 n	2000 n	160 n
Propiconazole	60207901	1.30E-02 i						47 n	4.7 n	1.8 n	1300 n	100 n
Propylene glycol	57556	2.00E+01 h						73000 n	7300 n	2700 n	1000000 n	160000 n
Propylene glycol, monoethyl ether	52125538	7.00E-01 h						2600 n	260 n	95 n	72000 n	5500 n
Propylene glycol, monomethyl ether	107982	7.00E-01 h	5.71E-01 i					2600 n	210 n	95 n	72000 n	5500 n
Propylene oxide	75569		8.57E-03 i	2.40E-01 i	1.29E-02 i			0.28 c	0.49 c	0.013 c	12 c	2.7 c
Pursuit	81335775	2.50E-01 i						910 n	91 n	34 n	26000 n	2000 n
Pydrin	51630581	2.50E-02 i						91 n	9.1 n	3.4 n	2600 n	200 n
Pyridine	110861	1.00E-03 i						3.7 n	0.37 n	0.14 n	100 n	7.8 n
Quinalphos	13593038	5.00E-04 i						1.8 n	0.18 n	0.068 n	51 n	3.9 n
Quinoline	91225			1.20E+01 h				0.0056 c	0.00052 c	0.00026 c	0.24 c	0.053 c
Resmethrin	10463868	3.00E-02 i						110 n	11 n	4.1 n	3100 n	230 n
Ronnel	299843	5.00E-02 h						180 n	18 n	6.8 n	5100 n	390 n
Rotenone	83794	4.00E-03 i						15 n	1.5 n	0.54 n	410 n	31 n
Savey	78587050	2.50E-02 i						91 n	9.1 n	3.4 n	2600 n	200 n
Selenious Acid	7783008	5.00E-03 i						18 n	1.8 n	0.68 n	510 n	39 n
Selenium	7782492	5.00E-03 i					0.05 F	18 n	1.8 n	0.68 n	510 n	39 n
Selenourea	630104	5.00E-03 h						18 n	1.8 n	0.68 n	510 n	39 n
Sethoxydim	74051802	9.00E-02 i						330 n	33 n	12 n	9200 n	700 n
Silver and compounds	7440224	5.00E-03 i						18 n	1.8 n	0.68 n	510 n	39 n
Simazine	122349	5.00E-03 i		1.20E-01 h			0.004 F	0.56 c	0.052 c	0.026 c	24 c	5.3 c
Sodium azide	26628228	4.00E-03 i						15 n	1.5 n	0.54 n	410 n	31 n
Sodium diethyldithiocarbamate	148185	3.00E-02 i		2.70E-01 h				0.25 c	0.023 c	0.012 c	11 c	2.4 c
Sodium fluoroacetate	62748	2.00E-05 i						0.073 n	0.0073 n	0.0027 n	2 n	0.16 n
Sodium metavanadate	13718268	1.00E-03 h						3.7 n	0.37 n	0.14 n	100 n	7.8 n
Strontium, stable	7440246	6.00E-01 i						2200 n	220 n	81 n	61000 n	4700 n
Strychnine	57249	3.00E-04 i						1.1 n	0.11 n	0.041 n	31 n	2.3 n
Styrene	100425	2.00E-01 i	2.86E-01 i			***	0.1 F	160 n	100 n	27 n	20000 n	1600 n
Systhane	88671890	2.50E-02 i						91 n	9.1 n	3.4 n	2600 n	200 n
2,3,7,8-TCDD (dioxin)	1746016			1.50E+05 h	1.50E+05 h		3E-08 F	5E-07 c	4E-08 c	2E-08 c	0.00002 c	4.30E-06 c
Tebuthiuron	34014181	7.00E-02 i						260 n	26 n	9.5 n	7200 n	550 n

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Temephos	3383968	2.00E-02 h						73 n	7.3 n	2.7 n	2000 n	160 n
Terbacil	5902512	1.30E-02 i						47 n	4.7 n	1.8 n	1300 n	100 n
Terbufos	13071799	2.50E-05 h						0.091 n	0.0091 n	0.0034 n	2.6 n	0.2 n
Terbutryn	886500	1.00E-03 i						3.7 n	0.37 n	0.14 n	100 n	7.8 n
1,2,4,5-Tetrachlorobenzene	95943	3.00E-04 i				***		0.18 n	0.11 n	0.041 n	31 n	2.3 n
1,1,1,2-Tetrachloroethane	630206	3.00E-02 i		2.60E-02 i	2.59E-02 i	***		0.41 c	0.24 c	0.12 c	110 c	25 c
1,1,2,2-Tetrachloroethane	630206			2.00E-01 i	2.03E-01 i	***		0.052 c	0.031 c	0.016 c	14 c	3.2 c
Tetrachloroethylene (PCE)	127184	1.00E-02 i		5.20E-02 e	2.03E-03 e	***	0.005 F	1.1 c	3.1 c	0.061 c	55 c	12 c
2,3,4,6-Tetrachlorophenol	58902	3.00E-02 i						110 n	11 n	4.1 n	3100 n	230 n
p,a,a,a-Tetrachlorotoluene	5216251			2.00E+01 h		***		0.00053 c	0.00031 c	0.00016 c	0.14 c	0.032 c
Tetrachlorovinphos	961115	3.00E-02 i		2.40E-02 h				2.8 c	0.26 c	0.13 c	120 c	27 c
Tetraethyldithiopyrophosphate	3689245	5.00E-04 i						1.8 n	0.18 n	0.068 n	51 n	3.9 n
Thallic oxide	1314325	7.00E-05 h						0.26 n	0.026 n	0.0095 n	7.2 n	0.55 n
Thallium							0.002 F					
Thallium acetate	563688	9.00E-05 i						0.33 n	0.033 n	0.012 n	9.2 n	0.7 n
Thallium carbonate	6533739	8.00E-05 i						0.29 n	0.029 n	0.011 n	8.2 n	0.63 n
Thallium chloride	7791120	8.00E-05 i						0.29 n	0.029 n	0.011 n	8.2 n	0.63 n
Thallium nitrate	10102451	9.00E-05 i						0.33 n	0.033 n	0.012 n	9.2 n	0.7 n
Thallium selenite	12039520	9.00E-05 w						0.33 n	0.033 n	0.012 n	9.2 n	0.7 n
Thallium sulfate	7446186	8.00E-05 i						0.29 n	0.029 n	0.011 n	8.2 n	0.63 n
Thiobencarb	28249776	1.00E-02 i						37 n	3.7 n	1.4 n	1000 n	78 n
2-(Thiocyanomethylthio)-benzothiazole	21564170	3.00E-02 h						110 n	11 n	4.1 n	3100 n	230 n
Thiofanox	39196184	3.00E-04 h						1.1 n	0.11 n	0.041 n	31 n	2.3 n
Thiophanate-methyl	23564058	8.00E-02 i						290 n	29 n	11 n	8200 n	630 n
Thiram	137268	5.00E-03 i						18 n	1.8 n	0.68 n	510 n	39 n
Tin and compounds		6.00E-01 h						2200 n	220 n	81 n	61000 n	4700 n
Toluene	108883	2.00E-01 i	1.14E-01 w			***	1 F	75 n	42 n	27 n	20000 n	1600 n
Toluene-2,4-diamine	95807			3.20E+00 h				0.021 c	0.002 c	0.00099 c	0.89 c	0.2 c
Toluene-2,5-diamine	95705	6.00E-01 h						2200 n	220 n	81 n	61000 n	4700 n
Toluene-2,6-diamine	823405	2.00E-01 h						730 n	73 n	27 n	20000 n	1600 n
p-Toluidine	106490			1.90E-01 h				0.35 c	0.033 c	0.017 c	15 c	3.4 c
Toxaphene	8001352			1.10E+00 i	1.12E+00 i		0.003 F	0.061 c	0.0056 c	0.0029 c	2.6 c	0.58 c
Tralomethrin	66841256	7.50E-03 i						27 n	2.7 n	1 n	770 n	59 n
Triallate	2303175	1.30E-02 i						47 n	4.7 n	1.8 n	1300 n	100 n
Triasulfuron	82097505	1.00E-02 i						37 n	3.7 n	1.4 n	1000 n	78 n
1,2,4-Tribromobenzene	615543	5.00E-03 i				***		3 n	1.8 n	0.68 n	510 n	39 n
Tributyltin oxide (TBTO)	56359	3.00E-05 i						0.11 n	0.011 n	0.0041 n	3.1 n	0.23 n
2,4,6-Trichloroaniline hydrochloride	33663502			2.90E-02 h				2.3 c	0.22 c	0.11 c	99 c	22 c
2,4,6-Trichloroaniline	634935			3.40E-02 h				2 c	0.18 c	0.093 c	84 c	19 c

EPA Region III COC Screening Table: R.L. Smith (18-Mar-94)

Sources: i=IRIS h=HEAST a=HEAST alt. w=Withdrawn from IRIS or HEAST e=EPA-ECAO o=Other EPA documents *F=final D=draft P=proposed T=tentative | c=carcinogen n=noncarcinogen*

Contaminant	CAS	RfDo mg/kg/d	RfDi mg/kg/d	CPSo kg•d/mg	CPSi kg•d/mg	VOC	MCL mg/L	Tap water µg/L	Ambient air µg/m3	Fish mg/kg	Industrial soil mg/kg	Residential soil mg/kg
1,2,4-Trichlorobenzene	120821	1.00E-02 i	2.57E-03 h			***	0.07 F	1.8 n	0.94 n	1.4 n	1000 n	78 n
1,1,1-Trichloroethane	71556	9.00E-02 w	2.86E-01 w			***	0.2 F	130 n	100 n	12 n	9200 n	700 n
1,1,2-Trichloroethane	79005	4.00E-03 i		5.70E-02 i	5.60E-02 i	***	0.005 F	0.19 c	0.11 c	0.055 c	50 c	11 c
Trichloroethylene (TCE)	79016	6.00E-03 a		1.10E-02 w	6.00E-03 a	***	0.005 F	1.6 c	1 c	0.29 c	260 c	47 n
Trichlorofluoromethane	75694	3.00E-01 i	2.00E-01 h			***		130 n	73 n	41 n	31000 n	2300 n
2,4,5-Trichlorophenol	95954	1.00E-01 i						370 n	37 n	14 n	10000 n	780 n
2,4,6-Trichlorophenol	88062			1.10E-02 i	1.09E-02 i			6.1 c	0.57 c	0.29 c	260 c	58 c
2,4,5-Trichlorophenoxyacetic acid	93765	1.00E-02 i					0.05 F	37 n	3.7 n	1.4 n	1000 n	78 n
2-(2,4,5-Trichlorophenoxy)propionic acid	93721	8.00E-03 i						29 n	2.9 n	1.1 n	820 n	63 n
1,1,2-Trichloropropane	598776	5.00E-03 i				***		3 n	1.8 n	0.68 n	510 n	39 n
1,2,3-Trichloropropane	96184	6.00E-03 i				***		3.7 n	2.2 n	0.81 n	610 n	47 n
1,2,3-TCP as carcinogen	96184			2.70E+00 a		***		0.0039 c	0.0023 c	0.0012 c	1.1 c	0.24 c
1,2,3-Trichloropropene	96195	5.00E-03 h				***		3 n	1.8 n	0.68 n	510 n	39 n
1,1,2-Trichloro-1,2,2-trifluoroethane	76131	3.00E+01 i	8.57E+00 h			***		5900 n	3100 n	4100 n	1000000 n	230000 n
Tridiphane	58138082	3.00E-03 i						11 n	1.1 n	0.41 n	310 n	23 n
Triethylamine	121448		2.00E-03 i					7.3 n	0.73 n			
Trifluralin	1582098	7.50E-03 i		7.70E-03 i				8.7 c	0.81 c	0.41 c	370 c	59 n
1,2,4-Trimethylbenzene	95636	5.00e-04 a				***	0.002 F	0.3 n	0.18 n	0.068 n	51 n	3.9 n
1,3,5-Trimethylbenzene	108678	4.00e-04 a				***	0.002 F	0.24 n	0.15 n	0.054 n	41 n	3.1 n
Trimethyl phosphate	512561			3.70E-02 h				1.8 c	0.17 c	0.085 c	77 c	17 c
1,3,5-Trinitrobenzene	99354	5.00E-05 i						0.18 n	0.018 n	0.0068 n	5.1 n	0.39 n
Trinitrophenylmethylnitramine	479458	1.00E-02 h						37 n	3.7 n	1.4 n	1000 n	78 n
2,4,6-Trinitrotoluene	118967	5.00E-04 i		3.00E-02 i				1.8 n	0.18 n	0.068 n	51 n	3.9 n
Uranium (soluble salts)	7440611	3.00E-03 i						11 n	1.1 n	0.41 n	310 n	23 n
Vanadium	7440622	7.00E-03 h						26 n	2.6 n	0.95 n	720 n	55 n
Vanadium pentoxide	1314621	9.00E-03 i						33 n	3.3 n	1.2 n	920 n	70 n
Vanadium sulfate	36907423	2.00E-02 h						73 n	7.3 n	2.7 n	2000 n	160 n
Vernam	1929777	1.00E-03 i						3.7 n	0.37 n	0.14 n	100 n	7.8 n
Vinclozolin	50471448	2.50E-02 i						91 n	9.1 n	3.4 n	2600 n	200 n
Vinyl acetate	108054	1.00E+00 h	5.71E-02 i					3700 n	21 n	140 n	100000 n	7800 n
Vinyl bromide	593602		8.57E-04 i			***		0.52 n	0.31 n			
Vinyl chloride	75014			1.90E+00 h	3.00E-01 h	***	0.002 F	0.019 c	0.021 c	0.0017 c	1.5 c	0.34 c
Warfarin	81812	3.00E-04 i						1.1 n	0.11 n	0.041 n	31 n	2.3 n
m-Xylene	108323	2.00E+00 h	2.00E-01 w			***	10 F	140 n	73 n	270 n	200000 n	16000 n
o-Xylene	95476	2.00E+00 h	2.00E-01 w			***	10 F	140 n	73 n	270 n	200000 n	16000 n
p-Xylene	106423		8.57E-02 w			***	10 F	52 n	31 n			
Xylene (mixed)	1330207	2.00E+00 i				***	10 F	1200 n	730 n	270 n	200000 n	16000 n
Zinc	7440666	3.00E-01 i						1100 n	110 n	41 n	31000 n	2300 n
Zinc phosphide	1314847	3.00E-04 i						1.1 n	0.11 n	0.041 n	31 n	2.3 n

Sources: i=IRIS h=HEAST a=HEAST alt. w=Withdrawn from IRIS or HEAST e=EPA-ECAO o=Other EPA documents *F=final D=draft P=proposed T=tentative | c=carcinogen n=noncarcinogen*

Contaminant	CAS	RfDo mg/kg/d	RfDi mg/kg/d	CPSo kg•d/mg	CPSi kg•d/mg	VOC	MCL mg/L	Tap water µg/L	Ambient air µg/m3	Fish mg/kg	Industrial soil mg/kg	Residential soil mg/kg
Zineb	12122677	5.00E-02 *i*						180 *n*	18 *n*	6.8 *n*	5100 *n*	390 *n*

Florida Department of

Memorandum

Environmental Protection

TO: District Directors
Waste Program Administrators

FROM: John M. Ruddell, Director JMR
Division of Waste Management

DATE: September 29, 1995

SUBJECT: **Soil Cleanup Goals for Florida**

Attached, please find the soil cleanup goals that should be used when making cleanup decisions. These cleanup goals were developed by Dr. Stephen M. Roberts (UF toxicologist under contract to FDEP). The health-based cleanup goals (residential and industrial) are based on human toxicity using generalized exposure assumptions and are applicable to the upper two feet of soil. If the industrial scenario is warranted, the site should have a deed restriction for the more restrictive land use. If there is ground water contamination above Florida standards and minimum criteria or if there was a recent discharge, the leachability-based cleanup goals should also be considered using the applicable direct contact scenario (residential and industrial). The lowest of the two should be the final cleanup goal for the upper two feet of soil. For soil below two feet, the leachability-based goal should be applied if the parameters of concern are detected above the Florida criteria. In addition, until further notice and where appropriate, the metals should pass TCLP as an indication not only that the soil is not a hazardous waste, but also that the soil will not act as a source of groundwater contamination.

If any of the levels is below site-specific background or the QA acceptable Method Detection Limit (MDL), any of the latter two will suffice.

Site-specific soil characteristics such as porosity, carbon content, moisture content, and dry bulk density are needed to refine acceptable soil concentrations based on site-specific parameters.

If you have any questions, please call Ligia Mora-Applegate at SC 278-3935.

JMR/lm-a

Attachment

cc: Doug Jones
Bill Hinkley
Jim Crane
Satish Kastury

BUREAU OF WASTE CLEANUP

SEP 2 5 1995

TECHNICAL REVIEW SECTION

Soil Cleanup Goals

Based on Direct Exposure and Migration to Groundwater

September 27, 1995

The appended Table 1 contains acceptable soil concentrations for over 200 chemicals commonly found as contaminants at sites in Florida. Soil cleanup goal concentrations based on direct exposure have been calculated using exposure assumptions consistent with both residential and commercial/industrial land use, and are presented in Table 1. For situations in which there is evidence that soil may be serving as a source of contamination for groundwater, soil cleanup goal concentrations for organic chemicals based on leaching from soil to groundwater are also provided in this table.

For evaluation of direct exposure to contaminants in soils, intake from incidental ingestion, dermal contact, and inhalation is considered. Soil concentrations are calculated using the following equation:

$$Cs = \frac{TR \times BW \times AT}{EF \times ED \times FC \times [A + B + C]}$$

When calculating soil concentrations based on potential carcinogenicity:

- the ingestion component, A = $\left(SF_o \times IR_o \times 10^{-6} kg / mg\right)$
- the dermal component, B = $\left(SF_d \times SA \times AF \times DA \times 10^{-6} kg / mg\right)$
- and the inhalation component, C = $\left(SF_i \times IR_i \times \left(\frac{1}{VF} + \frac{1}{PEF}\right)\right)$

When calculating soil concentrations based on potential non-cancer health effects:

- the ingestion component, A = $\left(\frac{1}{RfD_o} \times IR_o \times 10^{-6} kg / mg\right)$
- the dermal component, B = $\left(\frac{1}{RfD_d} \times SA \times AF \times DA \times 10^{-6} kg / mg\right)$
- and the inhalation component, C = $\left(\frac{1}{RfD_i} \times IR_i \times \left(\frac{1}{VF} + \frac{1}{PEF}\right)\right)$

The equation variables and assumptions are summarized in Table 2. For most chemicals in Table 1, toxicity criteria (reference doses and slope factors) can be taken from IRIS (Integrated Risk Information System, USEPA). When toxicity criteria are unavailable from IRIS, other sources (e.g. HEAST, ECAO, OPP, and the toxicological literature) were used. Intake from all

routes should be assumed to contribute to toxic endpoints that are systemic in nature. For toxic endpoints that are route-specific (e.g. carcinogenicity from inhalation of hexavalent chromium), only the relevant intake pathway is included in the calculation of the soil cleanup goal. Dermal toxicity criteria were derived using route-to-route extrapolation from available criteria for other routes; for some chemicals, inhalation toxicity criteria can also be derived using this method. For carcinogens, soil cleanup goal concentrations should be calculated for both carcinogenic and non-carcinogenic health effects. Only the lower of the two value is shown in Table 1. These values are intended to be applicable only to soil contamination within 2 feet of land surface.

For leaching of organic contaminants from soil to groundwater, the following equation was used to calculate a soil cleanup goal:

$$Cs = Cw\left[K_d + \frac{(\theta_w + \theta_a H')}{\rho_b}\right]$$

The variables and assumed values are summarized below:

Variable	Definition	Assumed Value
Cw	target soil leachate concentration (mg/L)	chemical-specific
K_d	soil-water partition coefficient (cm^3/g)	K_{oc} x f_{oc} (organics)
qw	water-filled soil porosity (L_{water}/L_{soil})	0.3
qa	air-filled soil porosity (L_{air}/L_{soil})	0.13
rb	dry soil bulk density (kg/L)	1.5
Koc	organic carbon partition coefficient (cm^3/g)	chemical-specific
f_{oc}	organic carbon content of soil (g/g)	0.002 (0.2%)
H'	dimensionless Henry's Law constant	chemical-specific

Soil concentrations based on partitioning to groundwater are not calculated in the same way for inorganics, and for some organic chemicals the necessary physical-chemical characteristics may be unavailable. Soil cleanup goals for this latter group of chemicals may become available in future updates.

Some risk-based values presented in Table 1 may be less than natural background concentrations for the chemicals in the soils. In such cases, the background concentration would represent a reasonable cleanup goal. Similarly, if the risk based value is less than the Method of Detection Limit (MDL), the MDL would become the operational cleanup goal for practical reasons.

The values in Table 1 were calculated using generic assumptions regarding exposure and soil characteristics and are intended to be broadly applicable to sites in Florida. In some situations it may be desirable to utilize site-specific assumptions in the development of cleanup goals for contaminants in soils. For example, site-specific soil characteristics might be used to refine estimates of acceptable soil concentrations based on both direct contact and leachability. The use of more limited exposure assumptions should be considered in the development of soil cleanup goals only when they can be reasonably assured to reflect both current and plausible future land use.

It is important to recognize that acceptable soil concentrations for individual chemicals will change over time in response to new information regarding the toxicity of the chemical, improvement in exposure modeling, etc. Accordingly, this list will be updated periodically to ensure that the most current information is available.

Table 1. SELECTED SOIL CLEAN-UP GOALS *

Current as of September 27, 1995

All values are presented in mg/kg (ppm)

Chemical Name	CAS	Residential	Industrial	Leaching **
Acenaphthene	83-32-9	2800	30000	2.0
Acenaphthylene	208-96-8	670	5600	11
Acetone	67-64-1	260	1800	1.4
Acrolein	107-02-8	0.4	2.7	0.3
Acrylonitrile	107-13-1	0.1	0.2	0.02
Alachlor	15972-60-8	14	56	NC
Aldrin	309-00-2	0.06	0.2	0.05
Aluminum	7429-90-5	75000	†	NC
Anthracene	120-12-7	20000	300000	890
Antimony	7440-36-0	26	220	NC
Arsenic	7440-38-2	0.7	3.1	NC
Atrazine	1912-24-9	4.9	20	0.02
Barium	7440-39-3	5200	84000	NC
Benzene	71-43-2	1.4	2.0	0.003
Benzo(a)anthracene	56-55-3	1.4	4.9	29
Benzo(a)pyrene	50-32-8	0.1	0.5	3.7
Benzo(b)fluoranthene	205-99-2	1.4	5.0	71
Benzo(g,h,i)perylene	191-24-2	14	50	320
Benzo(k)fluoranthene	207-08-9	14	48	44
Benzoic acid	65-85-0	130000	†	56
Beryllium	7440-41-7	0.2‡	1.0‡	NC
Bis(2-chloroethoxy)methane	111-91-1	170	3000	0.03
Bis(2-chloroethyl)ether	111-44-4	0.5	0.9	0.005
Bis(2-ethylhexyl)phthalate (DEHP)	117-81-7	48	110	11
Boron	7440-42-8	7000	180000	NC
Bromodichloromethane	75-27-4	0.7	1.0 ~~01~~	0.002
Bromoform	75-25-2	65	130	0.02
Butanone, 2- (MEK)	78-93-3	2200	15000	8.7
Butyl benzyl phthalate, N-	85-68-7	15000	310000	960
Cadmium	7440-43-9	37	600	NC
Carbaryl	63-25-2	7600	150000	4.6
Carbazole	86-74-8	42	120	0.4

Table 1. SELECTED SOIL CLEAN-UP GOALS *

Current as of September 27, 1995

All values are presented in mg/kg (ppm)

Chemical Name	CAS	Residential	Industrial	Leaching **
Carbofuran	1563-66-2	380	7700	0.1
Carbon disulfide	75-15-0	5.2	34	2.5
Carbon tetrachloride	56-23-5	0.6	0.8	0.02
Chlordane	57-74-9	0.8	3.0	2.1
Chloro-m-cresol, p-	59-50-7	140000	†	42
Chloroaniline, 4-	106-47-8	240	3300	0.08
Chlorobenzene	108-90-7	44	300	0.6
Chloroethylvinylether, 2-	110-75-8	100	690	0.002
Chloroform	67-66-3	0.6	0.8	0.02
Chloromethane	74-87-3	0.2	0.3	0.01
Chloronaphthalene, beta-	91-58-7	560	4000	57
Chlorophenol, 2-	95-57-8	280	3700	0.3
Chlorpyrifos	2921-88-2	190	2900	2.6
Chromium (hexavalent)	18540-29-9	290	430	NC
Chromium (trivalent)	16065-83-1	66000	540000	NC
Chrysene	218-01-9	140	500	31
Cobalt	7440-48-4	4700	110000	NC
Coumaphos	56-72-4	19	410	NC
Cyanide	57-12-5	1600	40000	NC
DDD, 4,4'-	72-54-8	4.5	17	0.2
DDE, 4,4'-	72-55-9	3.0	11	0.2
DDT, 4,4'-	50-29-3	3.1	12	0.5
Dalapon	75-99-0	1900	28000	0.4
Demeton	8065-48-3	3.1	64	NC
Di-n-Butylphthalate	84-74-2	7300	140000	23
Di-n-Octylphthalate	117-84-0	1500	32000	†
Diazinon	333-41-5	66	1300	0.04
Dibenz(a,h)anthracene	53-70-3	0.1	0.5	7.2
Dibenzofuran	132-64-9	240	3500	NC
Dibromochloromethane	124-48-1	1.2	1.7	0.004
Dibromoethane, 1,2- (EDB)	106-93-4	0.01	0.04	0.00006
Dicamba	1918-00-9	1700	23000	0.7

Table 1. SELECTED SOIL CLEAN-UP GOALS *

Current as of September 27, 1995

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Chemical Name	CAS	Residential	Industrial	Leaching **
Dichlorobenzene, 1,2-	95-50-1	820	6000	5.8
Dichlorobenzene, 1,3-	541-73-1	1700	13000	0.4
Dichlorobenzene, 1,4-	106-46-7	7.5	11	0.9
Dichloroethane, 1,1-	75-34-3	310	2100	2.3
Dichloroethane, 1,2- (EDC)	107-06-2	0.7	1.0	0.008
Dichloroethene, 1,1-	75-35-4	0.1	0.1	0.03
Dichloroethene, cis-1,2-	156-59-2	26	180	0.2
Dichloroethene, trans-1,2-	156-60-5	62	430	0.3
Dichlorophenol, 2,4-	120-83-2	220	4000	0.02
Dichlorophenoxy acetic acid, 2,4-	94-75-7	110	800	0.2
Dichlorophenoxy) butyric acid, 4-(2,4-	94-82-6	610	13000	NC
Dichloroprop	120-36-5	3.8	15	NC
Dichloropropane, 1,2-	78-87-5	0.8	1.2	0.02
Dichloropropene, 1,3-	542-75-6	0.3	0.4	0.003
Dichlorvos	62-73-7	3.8	15	0.0003
Dicofol (Kelthane)	115-32-2	2.5	10	NC
Dieldrin	60-57-1	0.07	0.3	0.02
Diethylphthalate	84-66-2	56000	970000	20
Dimethylformamide, N,N-	68-12-2	1800	27000	1.5
Dimethylphenol, 2,4-	105-67-9	1200	16000	1.8
Dimethylphthalate	131-11-3	630000	†	200
Dinitrotoluene, 2,4-	121-14-2	130	2000	0.0006
Dinitrotoluene, 2,6-	606-20-2	71	1300	0.0006
Dinoseb	88-85-7	43	470	0.4
Disulfoton	298-04-4	2.8	50	0.01
Diuron	330-54-1	130	2100	0.1
Endosulfan	115-29-7	390	5900	0.7
Endrin	72-20-8	23	470	0.4
Endrin aldehyde	7421-93-4	23	480	0.05
Ethoprop	13194-48-4	1.2	25	NC
Ethyl chloride	75-00-3	8200	56000	0.6
Ethyl dipropylthiocarbamate, S- (EPTC)	759-94-4	1900	38000	NC

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Current as of September 27, 1995

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Chemical Name	CAS	Residential	Industrial	Leaching **
Ethyl p-nitrophenyl phenylphosphorothioate	2104-64-5	0.8	15	0.008
Ethylbenzene	100-41-4	1400	10000	0.2
Fenamiphos	22224-92-6	19	410	0.06
Fensulfothion	115-90-2	19	410	NC
Fenthion	55-38-9	3.8	80	NC
Fluoranthene	206-44-0	2900	48000	280
Fluorene	86-73-7	2400	30000	45
Fluoride	16984-58-8	4700	120000	NC
Guthion (Azinphos-methyl)	86-50-0	120	2500	0.1
Heptachlor	76-44-8	0.2	0.5	0.06
Heptachlor epoxide	1024-57-3	0.1	0.3	0.03
Hexachlorobenzene	118-74-1	0.6	1.6	0.8
Hexachlorobutadiene	87-68-3	3.1	4.9	2.1
Hexachlorocyclohexane, alpha-	319-84-6	0.2	0.6	0.002
Hexachlorocyclohexane, beta-	319-85-7	0.6	2.3	0.005
Hexachlorocyclohexane, delta-	319-86-8	23	470	0.007
Hexachlorocyclohexane, gamma-	58-89-9	0.8	3.0	0.006
Hexachloroethane	67-72-1	27	120	0.4
Hexane, n-	110-54-3	76	510	1.0
Hexazinone	51235-04-2	2500	52000	NC
Indeno(1,2,3-cd)pyrene	193-39-5	1.4	5.0	17
Lead	7439-92-1	500	1000	NC
Linuron	330-55-2	150	3200	NC
Lithium	743-99-32	1600	40000	NC
Malathion	121-75-5	1500	23000	1.1
Manganese	7439-96-5	370	5500	NC
Mercury	7439-97-6	23	480	NC
Merphos	150-50-5	2.3	48	NC
Mesurol (Methiocarb)	2032-65-7	310	4600	NC
Methomyl	16752-77-5	1900	41000	0.5
Methoxychlor	72-43-5	380	7800	62
Methyl parathion	298-00-0	19	350	0.1

Table 1. SELECTED SOIL CLEAN-UP GOALS *

Current as of September 27, 1995

All values are presented in mg/kg (ppm)

Chemical Name	CAS	Residential	Industrial	Leaching **
Methyl tert-butyl ether	1634-04-4	3800	27000	0.1
Methyl-2-pentanone, 4- (MIBK)	108-10-1	520	3700	1.1
Methyl-4-chlorophenoxy acetic acid, 2-	94-74-6	38	800	NC
Methyl-4-chlorophenoxy propionic acid, 2-	93-65-2	77	1600	NC
Methylene chloride	75-09-2	16	23	0.01
Methylnaphthalene, 1-	90-12-0	930	8400	NC
Methylnaphthalene, 2-	91-57-6	960	8800	NC
Methylphenol, 2- (o-cresol)	95-48-7	2600	32000	1.1
Methylphenol, 3- (m-cresol)	108-39-4	3400	55000	4.2
Methylphenol, 4- (p-cresol)	106-44-5	340	5500	0.4
Metribuzin	21087-64-9	1900	42000	NC
Mevinphos	7786-34-7	19	420	NC
Mirex	2385-85-5	0.4	0.8	0.01
Molybdenum	7439-98-7	390	9600	NC
Monuron	150-68-5	9.6	190	NC
Naled	300-76-5	150	3200	NC
Naphthalene	91-20-3	1300	12000	0.1
Nickel	7440-02-0	1500	26000	NC
Nickel subsulfide	12035-72-2	7000	10000	NC
Nitrate	14797-55-8	120000	†	NC
Nitrite	14797-65-0	7800	200000	NC
Nitroaniline, o-	88-74-4	4.0	73	0.02
Nitroaniline, p-	100-01-6	230	4700	NC
Nitrobenzene	98-95-3	22	250	0.04
Nitroso-di-n-propylamine, N-	621-64-7	0.02	0.03	0.009
Nitrosodimethylamine, N-	62-75-9	0.003	0.004	0.02
Nitrosodiphenylamine, N-	86-30-6	73	130	0.06
Oxamyl	23135-22-0	1900	42000	NC
Parathion	56-38-2	450	9000	3.9
Pentachlorophenol	87-86-5	5.4	12	0.01
Phenanthrene	85-01-8	1700	21000	2.8
Phenol	108-95-2	34000	440000	0.02

Table 1. SELECTED SOIL CLEAN-UP GOALS *

Current as of September 27, 1995

All values are presented in mg/kg (ppm)

Chemical Name	CAS	Residential	Industrial	Leaching **
Phorate	298-02-2	14	240	0.05
Polychlorinated biphenyls (PCBs)	1336-36-3	0.9	3.5	44
Propazine	139-40-2	1500	32000	2.3
Pyrene	129-00-0	2200	41000	290
Pyridine	110-86-1	0.5	3.2	0.02
Ronnel	299-84-3	3700	71000	NC
Selenium	7782-49-2	390	9900	NC
Silver	7440-22-4	390	9000	NC
Sodium diethyldithiocarbamate	148-18-5	4.1	17	NC
Strontium	7440-24-6	47000	†	NC
Styrene	100-42-5	4100	34000	2.0
Tetrachloroethane, 1,1,1,2-	630-20-6	5.9	8.9	0.003
Tetrachloroethane, 1,1,2,2-	79-34-5	0.9	1.4	0.0007
Tetrachloroethene (PCE)	127-18-4	12	28	0.03
Tetrachlorvinphos (Stirophos)	961-11-5	45	180	NC
Tetraethyl dithiopyrophosphate	3689-24-5	34	590	0.06
Tetraethylpyrophosphate (TEPP)	107-49-3	2.5	51	NC
Tin	7440-31-5	44000	670000	NC
Tokuthion	34643-46-4	68	1400	NC
Toluene	108-88-3	520	3500	0.2
Toxaphene	8001-35-2	0.9	3.0	0.04
Trichlorobenzene, 1,2,4-	120-82-1	590	8200	2.3
Trichloroethane, 1,1,1-	71-55-6	610	4300	0.9
Trichloroethane, 1,1,2-	79-00-5	2.0	3.0	0.02
Trichloroethene (TCE)	79-01-6	6.5	9.3	0.01
Trichlorofluoromethane	75-69-4	6.6	44	400
Trichlorophenol, 2,4,5-	95-95-4	7100	130000	0.1
Trichlorophenol, 2,4,6-	88-06-2	87	280	0.08
Trichlorophenoxy acetic acid, 2,4,5-	93-76-5	760	15000	NC
Trichlorophenoxy propionic acid, 2,4,5	93-72-1	610	13000	2.7
Trimethylbenzene, 1,2,3-	526-73-8	6.7	51	0.2
Trimethylbenzene, 1,2,4-	95-63-6	6.2	47	0.2

Table 1. SELECTED SOIL CLEAN-UP GOALS *

Current as of September 27, 1995

All values are presented in mg/kg (ppm)

Chemical Name	CAS	Residential	Industrial	Leaching **
Trimethylbenzene, 1,3,5-	108-67-8	3.7	27	0.1
Uranium, natural	7440-61-1	120	410	NC
Vanadium	7440-62-2	490	4800	NC
Vinyl acetate	108-05-4	180	1200	0.5
Vinyl chloride	75-01-4	0.005	0.007	0.005
Xylene, total	1330-20-7	13000	92000	0.1
Zinc	7440-66-6	23000	560000	NC

* Soil cleanup goals in these tables are based on human toxicity using generalized exposure assumptions. Some tabulated soil cleanup goals may be less than the minimum detection limit (MDL) for that chemical in soils; in such cases the MDL would be the applicable cleanup goal.

** TCLP for metals applies as appropriate.

NC = No Value Calculated

TCLP = Toxicity Leaching Characteristic Leaching Procedure.

† = Number exceeds 1E+06.

‡ = Based on dermal absorption of 0.0001

Table 2. Variables and Assumptions for Calculating Soil Cleanup Goals Based on Direct Exposure to Soil

Variable	Child Resident[1] (age 1-6 years)	Aggregate Resident[2] (age 1 - 30 yrs)	On-Site Worker[3]
BW (body weight)	15 kg	59 kg	70 kg
IRo (ingestion rate, oral)	200 mg/kg	120 mg/day	50 mg/day
IRi (inhalation rate)	10 m^3/day	15 m^3/day	20 m^3/day
FC (fraction from contam. source)	1.0 (100%)	1.0 (100%)	1.0 (100%)
EF (exposure frequency)	350 days/yr	350 days/yr	250 days/yr
ED (exposure duration)	6 yrs	30 yrs	25 yrs
SA (surface area of skin exposed)	1,800 cm^2/day	4,855 cm^2/day	2,300 cm^2/day
AF (adherence factor)	0.2 mg/cm^2	0.2 mg/cm^2	0.6 mg/cm2
AT (averaging time)			
• non-carcinogens	2,190 days	10,950	9,125 days
• carcinogens	25,550 days	25,550 days	25,550 days

[1] used in calculating soil cleanup goals based on non-cancer health effects for a residential scenario

[2] used in calculating soil cleanup goals based on potential carcinogenicity for a residential scenario.

[3] used in calculating soil cleanup goals based on both cancer and non-cancer health effects for commercial/industrial land use.

Variable	
TR (target risk)	1 x 10^{-6} for carcinogens; hazard quotient of 1.0 for non-carcinogens
DA (dermal absorption)	0.01 for organics; 0.001 for inorganics[4]
PEF (particulate emission factor)	1.24 E+09 m^3/kg
VF (volatilization factor)	compound specific[5]
SF (slope factor)	compound and route specific
RfD (reference dose)	compound and route specific

[4] based upon Region IV guidance

[5] refer to *Technical Background Document for Draft Soil Screening Level Guidance*, EPA 540/R-94/018, July 1994, for the method of calculation.

FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

GROUND WATER GUIDANCE CONCENTRATIONS

June 1994

CHAPTER 6

GUIDANCE CONCENTRATIONS INDEX

GUIDANCE CONCENTRATIONS

CAS #	PARAMETER	CONCENTRATION ug/L	CHAPTER
A			
83-32-9	Acenaphthene	20	Organoleptic
208-96-8	Acenaphthylene	10	Systemic Toxicant
30560-19-1	Acephate	7.5	Carcinogen
67-64-1	Acetone	700	Systemic Toxicant
75-05-8	Acetonitrile	500	Systemic Toxicant
98-86-2	Acetophenone	700	Systemic Toxicant
5094-66-6	Acifluorfen (Blazer)	4	Carcinogen
107-02-8	Acrolein (Propenal)	110	Organoleptic
79-06-1	Acrylamide (2-Propeneamide)	1	Carcinogen
107-13-1	Acrylonitrile	8	Carcinogen
15972-60-8	Alachlor	2	Primary Standard
116-06-3	Aldicarb (Temik)	7	Systemic Toxicant
1646-88-4	Aldicarb sulfone	7	Systemic Toxicant
1646-87-3	Aldicarb sulfoxide	10	Systemic Toxicant
309-00-2	Aldrin	0.05	Carcinogen
107-18-6	Allyl alcohol	250	Systemic Toxicant
7429-90-5	Aluminum	200	Secondary Standard
834-12-8	Ametryn	63	Systemic Toxicant
62-53-3	Aniline	6	Carcinogen
120-12-7	Anthracene	2,100	Systemic Toxicant
7440-36-0	Antimony	6	Primary Standard
7440-38-2	Arsenic	50	Primary Standard
1912-24-9	Atrazine	3	Primary Standard
103-33-3	Azobenzene	4	Carcinogen

GUIDANCE CONCENTRATIONS

CAS #	PARAMETER	CONCENTRATION ug/L	CHAPTER
B			
7440-39-3	Barium	2,000	Primary Standard
114-26-1	Baygon (Propoxur)	28	Systemic Toxicant
17804-35-2	Benomyl	350	Systemic Toxicant
25057-89-0	Bentazon	17.5	Systemic Toxicant
100-52-7	Benzaldehyde	700	Systemic Toxicant
71-43-2	Benzene	1	Primary Standard
92-87-5	Benzidine	250	Carcinogen
56-55-3	Benzo(a)anthracene	4	Carcinogen
50-32-8	Benzo(a)pyrene	0.2	Primary Standard
205-99-2	Benzo(b)fluoranthene	4	Carcinogen
191-24-2	Benzo(g,h,i)perylene	10	Systemic Toxicant
65-85-0	Benzoic acid	28,000	Systemic Toxicant
207-08-9	Benzo(k)fluoranthene	4	Carcinogen
100-51-6	Benzyl alcohol	2,100	Systemic Toxicant
100-44-7	Benzyl chloride	0.5	Carcinogen
7440-41-7	Beryllium	4	Primary Standard
319-84-6	BHC (alpha-Hexachlorocyclohexane)	0.05	Carcinogen
319-85-7	BHC (beta-Hexachlorocyclohexane)	0.1	Carcinogen
319-86-8	BHC (delta-Hexachlorocyclohexane)	0.05	Systemic Toxicant
141-66-2	Bidrin	1	Systemic Toxicant
92-52-4	1,1-Biphenyl	0.5	Organoleptic
111-91-1	Bis (2-Chloroethoxy) methane	10	Systemic Toxicant
111-44-4	Bis(chloroethyl) ether (BCEE)	1.5	Carcinogen
39638-32-9	Bis(2-Chloroisopropyl) ether	7.5	Carcinogen
542-88-1	Bis(chloromethyl) ether (Dichloromethyl ether, BCME)	10	Carcinogen
80-05-7	Bisphenol A	350	Systemic Toxicant
5094-66-6	Blazer (Acifluorfen)	4	Carcinogen

GUIDANCE CONCENTRATIONS

CAS #	PARAMETER	CONCENTRATION ug/L	CHAPTER
7440-42-8	Boron (and Borates)	630	Systemic Toxicant
1897-45-6	Bravo (Chlorthalonil)	3.18	Carcinogen
314-40-9	Bromacil	90	Systemic Toxicant
75-27-4	Bromodichloromethane	0.6	Carcinogen
75-25-2	Bromoform	4	Carcinogen
101-55-3	p-Bromodiphenyl ether	10	Systemic Toxicant
74-83-9	Bromomethane (Methyl bromide)	10	Systemic Toxicant
1689-84-5	Bromoxynil	140	Systemic Toxicant
71-36-3	n-Butanol (1-Butanol)	700	Systemic Toxicant
78-93-3	2-Butanone (Methyl ethyl ketone)	4,200	Systemic Toxicant
123-86-4	n-Butyl acetate	2,500	Organoleptic
2008-41-5	Butylate	350	Systemic Toxicant
85-68-7	Butyl benzyl phthalate	1,400	Systemic Toxicant
85-70-1	Butylphthalyl butylglycolate	7,000	Systemic Toxicant
C			
7440-43-9	Cadmium	5	Primary Standard
2425-06-1	Captafol	100	Carcinogen
133-06-2	Captan	250	Carcinogen
63-25-2	Carbaryl (Sevin)	700	Systemic Toxicant
86-74-8	Carbazole	7.5	Carcinogen
1563-66-2	Carbofuran	40	Primary Standard
108-95-2	Carbolic acid (Phenol)	10	Organoleptic
75-15-0	Carbon disulfide	700	Systemic Toxicant
56-23-5	Carbon tetrachloride (Tetrachloromethane)	3	Primary Standard
5234-68-4	Carboxin	700	Systemic Toxicant
75-69-4	CFC 11 (Trichlorofluoromethane)	2,100	Systemic Toxicant

GUIDANCE CONCENTRATIONS

CAS #	PARAMETER	CONCENTRATION ug/L	CHAPTER
75-71-8	CFC 12 (Dichlorodifluoromethane)	1400	Systemic Toxicant
133-90-4	Chloramben	105	Systemic Toxicant
57-74-9	Chlordane	2	Primary Standard
16887-00-6	Chloride	250,000	Secondary Standard
506-77-4	Chlorine cyanide	350	Systemic Toxicant
79-11-8	Chloroacetic acid	14	Systemic Toxicant
106-47-8	p-Chloroaniline	28	Systemic Toxicant
510-15-6	Chlorobenzilate	0.13	Carcinogen
106-89-8	1-Chloro-2,3-epoxypropane (Epichlorohydrin)	3	Carcinogen
75-00-3	Chloroethane (Ethyl chloride)	140	Systemic Toxicant
75-01-4	Chloroethylene (Vinyl Chloride)	1	Primary Standard
110-75-8	2-Chloroethyl vinyl ether (Vinyl 2-chloroethyl ether)	1	Systemic Toxicant
67-66-3	Chloroform	6	Carcinogen
74-87-3	Chloromethane (Methyl chloride)	2.7	Carcinogen
59-50-7	4-chloro-3-methyl phenol	3,000	Organoleptic
94-74-6	4-Chloro-2-methylphenoxy acetic acid (MCPA)	1,000	Systemic Toxicant
91-58-7	2-Chloronaphthalene	560	Systemic Toxicant
121-73-3	p-Chloronitrobenzene	250	Carcinogen
95-57-8	2-Chlorophenol	35	Systemic Toxicant
108-43-0	3-Chlorophenol	10	Organoleptic
106-48-9	4-Chlorophenol	5.5	Organoleptic
7005-72-3	4-Chlorophenylphenyl ether	10	Systemic Toxicant
76-06-2	Chloropicrin	7.3	Organoleptic
95-49-8	o-Chlorotoluene	140	Systemic Toxicant
2921-88-2	Chlorpyrifos	21	Systemic Toxicant
5598-13-0	Chlorpyriphos-methyl	70	Systemic Toxicant
1897-45-6	Chlorthalonil (Bravo)	3.18	Carcinogen
16065-83-1	Chromium	100	Primary Standard
218-01-9	Chrysene	5	Carcinogen

GUIDANCE CONCENTRATIONS

CAS #	PARAMETER	CONCENTRATION µg/L	CHAPTER
7440-50-8	Copper	1,000	Secondary Standard
108-39-4	m-Cresol	350	Systemic Toxicant
95-48-7	o-Cresol	350	Systemic Toxicant
106-44-5	p-Cresol	35	Systemic Toxicant
98-82-8	Cumene (Isopropyl benzene)	0.8	Organoleptic
21725-46-2	Cyanazine	14	Systemic Toxicant
57-12-5	Cyanide	200	Primary Standard
460-19-5	Cyanogen	10,000	Systemic Toxicant
108-94-1	Cyclohexanone	35,000	Systemic Toxicant
108-91-8	Cyclohexylamine	5,000	Systemic Toxicant
52315-07-8	Cypermethrin	70	Systemic Toxicant
D			
94-75-7	2,4-D (2,4-Dichlorophenoxyacetic acid)	70	Primary Standard
1861-32-1	Dacthal (DCPA)	3,500	Systemic Toxicant
75-99-0	Dalapon (2,2-Dichloropropionic acid)	200	Primary Standard
72-54-8	DDD (p,p'-Dichlorodiphenyl dichlorethane)	0.1	Carcinogen
72-55-9	DDE (p,p'-Dichlorodiphenyl dichloroethylene)	0.1	Carcinogen
50-29-3	DDT (p,p'-Dichlorodiphenyl trichloroethane)	0.1	Carcinogen
2303-16-4	Diallate	0.57	Carcinogen
333-41-5	Diazinon	6.3	Systemic Toxicant
53-70-3	Dibenzo(a,h)anthracene	7.5	Carcinogen
124-48-1	Dibromochloromethane	1	Carcinogen
96-12-8	Dibromochloropropane (DBCP)	0.2	Primary Standard
106-93-4	1,2-Dibromoethane (EDB, Ethylene Dibromide)	0.02	Primary Standard
84-74-2	Dibutyl phthalate (Di-n-butyl phthalate)	700	Systemic Toxicant
1918-00-9	Dicamba	210	Systemic Toxicant

GUIDANCE CONCENTRATIONS

CAS #	PARAMETER	CONCENTRATION µg/L	CHAPTER
95-50-1	1,2-Dichlorobenzene (o-Dichlorobenzene)	600	Primary Standard
541-73-1	1,3-Dichlorobenzene (m-Dichlorobenzene)	10	Organoleptic
106-46-7	1,4-Dichlorobenzene (p-Dichlorobenzene)	75	Primary Standard
91-94-1	3,3'-Dichlorobenzidine	7.5	Carcinogen
75-71-8	Dichlorodifluoromethane (CFC 12)	1400	Systemic Toxicant
75-34-3	1,1-Dichloroethane	700	Systemic Toxicant
107-06-2	1,2-Dichloroethane (Ethylene dichloride)	3	Primary Standard
75-35-4	1,1-Dichloroethylene (Vinylidene chloride)	7	Primary Standard
156-59-2	cis-1,2-Dichloroethylene	70	Primary Standard
156-60-5	trans-1,2-Dichloroethylene	100	Primary Standard
75-09-2	Dichloromethane (Methylene chloride)	5	Primary Standard
542-88-1	Dichloromethyl ether (Bis(chloromethyl)ether, BCME)	10	Carcinogen
576-24-9	2,3-Dichlorophenol	10	Organoleptic
120-83-2	2,4-Dichlorophenol	4	Organoleptic
583-78-8	2,5-Dichlorophenol	10	Organoleptic
87-65-0	2,6-Dichlorophenol	4	Organoleptic
95-77-2	3,4-Dichlorophenol	10	Organoleptic
78-87-5	1,2-Dichloropropane	5	Primary Standard
542-75-6	1,3-Dichloropropene (DCP, Telone)	1	Carcinogen
62-73-7	Dichlorvos	0.1	Carcinogen
60-57-1	Dieldrin	0.1	Carcinogen
103-23-1	Di(2-ethylhexyl) adipate	400	Primary Standard
117-81-7	Di(2-ethylhexyl) phthalate	6	Primary Standard
84-66-2	Diethyl phthalate	5,600	Systemic Toxicant
56-53-1	Diethylstilbesterol	100	Carcinogen
60-51-5	Dimethoate	5	Systemic Toxicant
119-90-4	3,3'-Dimethoxybenzidine	250	Carcinogen
70-38-2	Dimethrin	2,000	Systemic Toxicant
121-69-7	N-N-Dimethylaniline	12,500	Systemic Toxicant

GUIDANCE CONCENTRATIONS

CAS #	PARAMETER	CONCENTRATION ug/L	CHAPTER
119-93-7	3,3'-Dimethylbenzidine	250	Carcinogen
68-12-2	N-N-Dimethylformamide	700	Systemic Toxicant
105-67-9	2,4-Dimethylphenol (m-Xylenol)	400	Organoleptic
131-11-3	Dimethyl phthalate	70,000	Systemic Toxicant
84-74-2	Di-n-butyl phthalate (Dibutyl phthalate)	700	Systemic Toxicant
99-65-0	m-Dinitrobenzene (3-Dinitrobenzene)	50	Systemic Toxicant
528-29-0	o-Dinitrobenzene	200	Systemic Toxicant
100-25-4	p-Dinitrobenzene	50	Systemic Toxicant
131-89-5	4,6-Dinitro-o-cyclohexyl phenol	500	Systemic Toxicant
51-28-5	2,4-Dinitrophenol	30	Systemic Toxicant
	Dinitrotoluene mixture 2,4- + 2,6-	0.2	Carcinogen
117-84-0	Di-n-octyl phthalate	140	Systemic Toxicant
88-85-7	Dinoseb	7	Primary Standard
123-91-1	1,4-Dioxane	5	Carcinogen
1746-01-6	Dioxin (2,3,7,8-TCDD)	0.000003	Carcinogen
957-51-7	Diphenamid	210	Systemic Toxicant
122-39-4	Diphenylamine	175	Systemic Toxicant
122-66-7	1,2-Diphenylhydrazine	10	Carcinogen
85-00-7	Diquat	20	Primary Standard
298-04-4	Disulfoton	0.5	Systemic Toxicant
330-54-1	Diuron	14	Systemic Toxicant
E			
166-93-4	EDB (Ethylene dibromide, 1,2-Dibromoethane)	0.02	Primary Standard
115-29-7	Endosulfan	0.35	Systemic Toxicant
1031-07-8	Endosulfan sulfate	0.3	Systemic Toxicant
145-73-3	Endothall	100	Primary Standard

GUIDANCE CONCENTRATIONS

CAS #	PARAMETER	CONCENTRATION ug/L	CHAPTER
72-20-8	Endrin	2	Primary Standard
7421-93-4	Endrin aldehyde	0.1	Systemic Toxicant
106-89-8	Epichlorohydrin (1-Chloro-2,3-epoxypropane)	3	Carcinogen
563-12-2	Ethion	3.5	Systemic Toxicant
110-80-5	2-Ethoxyethanol	25,000	Systemic Toxicant
140-88-5	Ethyl acrylate	5,000	Organoleptic
100-41-4	Ethylbenzene	700	Primary Standard
100-41-4	Ethylbenzene	30	Secondary Standard
75-00-3	Ethyl chloride (Chloroethane)	140	Systemic Toxicant
107-15-3	Ethylene diamine	10,000	Systemic Toxicant
107-06-2	Ethylene dichloride (1,2-Dichloroethane)	3	Primary Standard
107-21-1	Ethylene glycol	14,000	Systemic Toxicant
75-21-8	Ethylene oxide (1,2-Epoxyethane)	10	Carcinogen
96-45-7	Ethylene thiourea (2-Imadazoli-dinethione)	15	Carcinogen
60-29-7	Ethyl ether	750	Organoleptic
97-63-2	Ethyl methacrylate	630	Systemic Toxicant
84-72-0	Ethylphthalyl ethylglycolate	21,000	Systemic Toxicant
2104-64-5	Ethyl p-nitrophenyl phenylphosphorothioate (EPN)	0.2	Systemic Toxicant
F			
22224-92-6	Fenamiphos	1.75	Systemic Toxicant
2164-17-2	Fluometuron	91	Systemic Toxicant
206-44-0	Fluoranthene (Idryl)	280	Systemic Toxicant
86-73-7	Fluorene	280	Systemic Toxicant
7782-41-4	Fluoride	4,000	Primary Standard
7782-41-4	Fluoride	2,000	Secondary Standard
944-22-9	Fonofos	14	Systemic Toxicant
50-00-0	Formaldehyde	600	Organoleptic
64-18-6	Formic acid	14,000	Systemic Toxicant

GUIDANCE CONCENTRATIONS

CAS #	PARAMETER	CONCENTRATION ug/L	CHAPTER
G			
1071-83-6	Glyphosate (Roundup)	700	Primary Standard
14127-62-9	Gross Alpha	15 pCi/L	Primary Standard
H			
76-44-8	Heptachlor	0.4	Primary Standard
1024-57-3	Heptachlor Epoxide	0.2	Primary Standard
118-74-1	Hexachlorobenzene (HCB)	1	Primary Standard
87-68-3	Hexachlorobutadiene	15	Carcinogen
319-84-6	alpha-Hexachlorocyclohexane (BHC)	0.05	Carcinogen
319-85-7	beta-Hexachlorocyclohexane (BHC)	0.1	Carcinogen
319-86-8	delta-Hexachlorocyclohexane (BHC)	0.05	Systemic Toxicant
58-89-9	gamma-Hexachlorocyclohexane (Lindane)	0.2	Primary Standard
77-47-4	Hexachlorocyclopentadiene	50	Primary Standard
19408-74-3	Hexachlorodibenzo-p-dioxin	0.00025	Carcinogen
67-72-1	Hexachloroethane	10	Carcinogen
70-30-4	Hexachlorophene	6	Systemic Toxicant
121-82-4	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	10	Carcinogen
110-54-3	n-Hexane	10	Organoleptic
51235-04-2	Hexazinone (Velpar)	231	Systemic Toxicant
74-90-8	Hydrogen cyanide	10,000	Systemic Toxicant
123-31-9	Hydroquinone	280	Systemic Toxicant
I			
206-44-0	Idryl (Fluoranthene)	280	Systemic Toxicant
96-45-7	2 Imadazoli-dinethione (Ethylene thiourea)	15	Carcinogen
193-39-5	Indeno(1,2,3-cd)pyrene	7.5	Carcinogen

GUIDANCE CONCENTRATIONS

CAS #	PARAMETER	CONCENTRATION ug/L	CHAPTER
36734-19-7	Iprodione	280	Systemic Toxicant
7439-89-6	Iron	300	Secondary Standard
78-83-1	Isobutyl alcohol	2,100	Systemic Toxicant
78-59-1	Isophorone	40	Carcinogen
33820-53-0	Isopropalin	105	Systemic Toxicant
98-82-8	Isopropyl benzene (Cumene)	0.8	Organoleptic
L			
7439-92-1	Lead	15	Primary Standard
58-89-9	Lindane (gamma-Hexachlorocyclohexane)	0.2	Primary Standard
330-55-2	Linuron	14	Systemic Toxicant
M			
121-75-5	Malathion	140	Systemic Toxicant
12427-38-2	Maneb	75	Systemic Toxicant
7439-96-5	Manganese	50	Secondary Standard
94-74-6	MCPA (4-Chloro-2-methylphenoxy acetic acid)	1,000	Systemic Toxicant
7439-97-6	Mercury	2	Primary Standard
57837-19-1	Metalaxyl	420	Systemic Toxicant
126-98-7	Methacrylonitrile	50	Systemic Toxicant
10265-92-6	Methamidophos	5	Systemic Toxicant
67-56-1	Methanol	5,000	Systemic Toxicant
16752-77-5	Methomyl	175	Systemic Toxicant
72-43-5	Methoxychlor	40	Primary Standard
99-59-2	2-Methoxy-5-nitroaniline	50	Carcinogen
79-20-9	Methyl acetate	5,000	Organoleptic
95-53-4	2-Methylaniline (o-Toluidine)	50	Carcinogen
74-83-9	Methyl bromide (Bromomethane)	10	Systemic Toxicant

GUIDANCE CONCENTRATIONS

CAS #	PARAMETER	CONCENTRATION µg/L	CHAPTER
74-87-3	Methyl chloride (Chloromethane)	2.7	Carcinogen
101-14-4	4,4'-Methylene-bis(2-chloroaniline)	50	Carcinogen
75-09-2	Methylene chloride (Dichloromethane)	5	Primary Standard
78-93-3	Methyl ethyl ketone (2-Butanone)	4,200	Systemic Toxicant
60-34-4	Methyl hydrazine	10	Carcinogen
108-10-1	Methyl isobutyl ketone (4-Methyl-2-pentanone)	350	Systemic Toxicant
80-62-6	Methyl methacrylate	25	Organoleptic
298-00-0	Methyl parathion	10	Systemic Toxicant
95-48-7	2-Methylphenol (o-Cresol)	350	Systemic Toxicant
108-39-4	3-Methylphenol (m-Cresol)	350	Systemic Toxicant
106-44-5	4-Methylphenol (p-Cresol)	35	Systemic Toxicant
51218-45-2	Metolachlor	1,050	Systemic Toxicant
21087-64-9	Metribuzin	175	Systemic Toxicant
2385-85-5	Mirex	0.1	Carcinogen
7439-98-7	Molybdenum	35	Systemic Toxicant
108-90-7	Monochlorobenzene	100	Primary Standard
1634-04-4	MTBE (Methyl tertiary-butyl ether)	50	Organoleptic
N			
300-76-5	Naled	14	Systemic Toxicant
91-20-3	Naphthalene	6.8	Organoleptic
7440-02-0	Nickel	100	Primary Standard
14797-55-8	Nitrate (as N)	10,000	Primary Standard
	Total Nitrate + Nitrite (as N)	10,000	Primary Standard
10102-43-9	Nitric oxide	10,000	Systemic Toxicant
14797-65-0	Nitrite (as N)	1,000	Primary Standard
88-74-4	o-Nitroaniline (2-Nitroaniline)	7.5	Systemic Toxicant
98-95-3	Nitrobenzene	9.5	Systemic Toxicant

GUIDANCE CONCENTRATIONS

CAS #	PARAMETER	CONCENTRATION ug/L	CHAPTER
10102-44-0	Nitrogen dioxide	7,000	Systemic Toxicant
88-75-5	o-Nitrophenol (2-Nitrophenol)	20	Systemic Toxicant
100-02-7	p-Nitrophenol (4-Nitrophenol)	15	Systemic Toxicant
55-18-5	N-Nitrosodiethylamine	4	Carcinogen
62-75-9	N-Nitrosodimethylamine	7.5	Carcinogen
924-16-3	N-Nitroso-di-n-butylamine	4	Carcinogen
621-64-7	N-Nitrosodi-n-propylamine	4	Carcinogen
86-30-6	N-Nitrosodiphenylamine	7	Carcinogen
10595-95-6	N-Nitroso-n-methylethylamine	7.5	Carcinogen
930-55-2	N-Nitrosopyrrolidine	4	Carcinogen
27314-13-2	Norflurazon	280	Systemic Toxicant
O			
152-16-9	Octomethylpyrophosphoramide	1,000	Systemic Toxicant
19044-88-3	Oryzalin	350	Systemic Toxicant
23135-22-0	Oxamyl	200	Primary Standard
19666-30-9	Oxadiazon	35	Systemic Toxicant
P			
1910-42-5	Paraquat	31.5	Systemic Toxicant
56-38-2	Parathion	42	Systemic Toxicant
40487-42-1	Pendimethalin	280	Systemic Toxicant
608-93-5	Pentachlorobenzene	5.6	Systemic Toxicant
82-68-8	Pentachloronitrobenzene	15	Carcinogen
87-86-5	Pentachlorophenol	1	Primary Standard
127-18-4	Perchloroethylene (Tetrachloroethylene)	3	Primary Standard
52645-53-1	Permethrin	350	Systemic Toxicant

GUIDANCE CONCENTRATIONS

CAS #	PARAMETER	CONCENTRATION ug/L	CHAPTER
C-006	pH	6.5 - 8.5	Secondary Standard
85-01-8	Phenanthrene	10	Systemic Toxicant
108-95-2	Phenol (Carbolic acid)	10	Organoleptic
106-50-3	p-Phenylenediamine	1,330	Systemic Toxicant
90-43-7	2-Phenylphenol	18	Carcinogen
298-02-2	Phorate	1.4	Systemic Toxicant
732-11-6	Phosmet	140	Systemic Toxicant
7803-51-2	Phosphine	125	Systemic Toxicant
85-44-9	Phthalic anhydride	14,000	Systemic Toxicant
1918-02-1	Picloram	500	Primary Standard
1336-36-3	Polychlorinated biphenyl (PCB)	0.5	Primary Standard
1610-18-0	Prometon	105	Systemic Toxicant
7287-19-6	Prometryn	28	Systemic Toxicant
23950-58-5	Pronamide	525	Systemic Toxicant
1918-16-7	Propachlor	91	Systemic Toxicant
139-40-2	Propazine	140	Systemic Toxicant
107-02-8	Propenal (Acrolein)	110	Organoleptic
79-06-1	2-Propeneamide (Acrylamide)	1	Carcinogen
122-42-9	Propham	140	Systemic Toxicant
114-26-1	Propoxur (Baygon)	28	Systemic Toxicant
75-56-9	Propylene oxide	5,000	Carcinogen
129-00-0	Pyrene	210	Systemic Toxicant
100-86-1	Pyridine	7	Systemic Toxicant
R			
7440-14-4	Radium	5 pCi/L	Primary Standard
121-82-4	RDX (Hexahydro-1,3,5-trinitro-1,3,5-triazine)	10	Carcinogen
83-79-4	Rotenone	28	Systemic Toxicant
1071-83-6	Roundup (Glyphosphate)	700	Primary Standard

GUIDANCE CONCENTRATIONS

CAS #	PARAMETER	CONCENTRATION ug/L	CHAPTER
S			
7782-49-2	Selenium	50	Primary Standard
63-25-2	Sevin (Carbaryl)	700	Systemic Toxicant
7440-22-4	Silver	100	Secondary Standard
93-72-1	Silvex (2,4,5-TP)	50	Primary Standard
122-34-9	Simazine	4	Primary Standard
7440-28-0	Sodium	160,000	Primary Standard
7440-24-6	Strontium	4,200	Systemic Toxicant
100-42-5	Styrene (Vinyl benzene)	100	Primary Standard
14808-79-8	Sulfate	250,000	Secondary Standard
T			
93-76-5	2,4,5-T (2,4,5-Trichlorophenoxyacetic acid)	70	Systemic Toxicant
1746-01-6	2,3,7,8-TCDD (Dioxin)	0.000003	Carcinogen
34014-18-1	Tebuthiuron	490	Systemic Toxicant
542-75-6	Telone (DCP, 1,3-Dichloropropene)	1	Carcinogen
116-06-3	Temik (Aldicarb)	7	Systemic Toxicant
5902-51-2	Terbacil	91	Systemic Toxicant
13071-79-9	Terbufos	0.18	Systemic Toxicant
95-94-3	1,2,4,5-Tetrachlorobenzene	4	Systemic Toxicant
630-20-6	1,1,1,2-Tetrachloroethane	1	Carcinogen
79-34-5	1,1,2,2-Tetrachloroethane	0.2	Carcinogen
127-18-4	Tetrachloroethylene (Perchloroethylene)	3	Primary Standard
56-23-5	Tetrachloromethane (Carbon tetrachloride)	3	Primary Standard
58-90-2	2,3,4,6-Tetrachlorophenol	210	Systemic Toxicant
3689-24-5	Tetraethyldithiopyrophosphate	3.5	Systemic Toxicant
7440-28-0	Thallium	2	Primary Standard

GUIDANCE CONCENTRATIONS

CAS #	PARAMETER	CONCENTRATION µg/L	CHAPTER
21564-17-0	2-(Thiocyanomethylthio)-Benzothiazole	210	Systemic Toxicant
137-26-8	Thiram	35	Systemic Toxicant
	Tin and compounds	4,200	Systemic Toxicant
108-88-3	Toluene	1,000	Primary Standard
108-88-3	Toluene	40	Secondary Standard
95-80-7	Toluene-2,4-diamine	100	Carcinogen
95-53-4	o-Toluidine (2-Methylaniline)	50	Carcinogen
106-49-0	p-Toluidine	150	Carcinogen
C-010	Total Dissolved Solids (TDS)	500000	Secondary Standard
8001-35-2	Toxaphene	3	Primary Standard
93-72-1	2,4,5-TP (Silvex)	50	Primary Standard
120-82-1	1,2,4-Trichlorobenzene	70	Primary Standard
71-55-6	1,1,1-Trichloroethane	200	Primary Standard
79-00-5	1,1,2-Trichloroethane	5	Primary Standard
79-01-6	Trichloroethylene (Trichloroethene, TCE)	3	Primary Standard
75-69-4	Trichlorofluoromethane (CFC 11)	2,100	Systemic Toxicant
95-95-4	2,4,5-Trichlorophenol	4	Organoleptic
88-06-2	2,4,6-Trichlorophenol	10	Carcinogen
93-72-1	(2,4,5-Trichlorophenoxy)propionic acid (2,4,5-TP)	50	Primary Standard
96-18-4	1,2,3-Trichloropropane	42	Systemic Toxicant
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	500,000	Systemic Toxicant
1582-09-8	Trifluralin	5	Carcinogen
	Trihalomethanes, Total	100	Primary Standard
	Trimethyl benzenes	10	Organoleptic
512-56-1	Trimethyl phosphate	50	Carcinogen
99-35-4	1,3,5-Trinitrobenzene	60	Systemic Toxicant
118-96-7	2,4,6-Trinitrotoluene	10	Carcinogen
786-19-6	Trithion	12	Systemic Toxicant

GUIDANCE CONCENTRATIONS

CAS #	PARAMETER	CONCENTRATION ug/L	CHAPTER
V			
7440-62-2	Vanadium	49	Systemic Toxicant
51235-04-2	Velpar (Hexazinone)	231	Systemic Toxicant
108-05-4	Vinyl acetate	250	Organoleptic
75-01-4	Vinyl Chloride (Chloroethylene)	1	Primary Standard
110-75-8	Vinyl 2-chloroethyl ether (2-Chloroethyl vinyl ether)	1	Systemic Toxicant
X			
1330-20-7	Xylenes (total)	10,000	Primary Standard
1330-20-7	Xylenes (total)	20	Secondary Standard
105-67-9	m-Xylenol (2,4-Dimethylphenol)	400	Organoleptic
Z			
7440-66-6	Zinc	5,000	Secondary Standard
12122-67-7	Zineb	350	Systemic Toxicant

APPENDIX E

DERIVATION OF PARTICULATE EMISSIONS FACTOR

INTRODUCTION

This evaluation has been conducted to estimate levels of site contaminants that would occur in ambient air as a result of wind erosion at Naval Air Station (NAS) Cecil Field. To estimate atmospheric concentrations of fugitive air contaminants, a three step modelling process was conducted. In the first step, respirable particle-phase emission rates are calculated. In the second, contaminant emission rates on a unit area basis are calculated. In the third phase, downwind ambient concentrations are estimated using air dispersion modeling. Each of these steps are discussed below. This modeling has been conducted for a theoretical site with characteristics similar to those of NAS Cecil Field. The ambient air PM10 concentration associated with the modelled scenario is approximately 20 micrograms per cubic meter ($\mu g/m^3$) (see Step 3). Calculations for the theoretical site are shown in the attached tables (Table E-1).

STEP 1: ESTIMATION OF PM10 EMISSIONS FROM WIND EROSION

Emission rates for particle-phase contaminants were estimated using equations developed by the U.S. Environmental Protection Agency (USEPA) for wind erosion by Cowherd et al. (1985). Airborne respirable particulate matter is defined as particles with an aerodynamic diameter less than or equal to 10 micrometers (μm) and is denoted with the symbol PM_{10}. Ambient air concentrations were then estimated using air dispersion modeling.

The equations presented in Cowherd et al. (1985) are intended to provide a methodology for rapid assessment of the inhalation exposure to respirable particulate emissions from surface contamination sites under emergency situations. Consequently, the models are based on a number of simplifying assumptions and yield order-of-magnitude estimates of atmospheric concentrations. The results of this quantitative assessment of potential inhalation exposure at this site should be reviewed with this fact in mind.

For estimating emissions from wind erosion for surface areas not completely covered by vegetation, two emission factor equations have been developed by Cowherd et al. (1985). Selection of the appropriate equation depends on whether the contaminated site's surface material is classified as having a "limited reservoir" or an unlimited reservoir of erodible surface particles. The critical feature of unlimited erosion potential is that contaminated soil is entrained at a lower wind velocity than for the limited case. Surface soils containing a high percentage of silts and lacking either vegetation or large non-erodible elements are assumed to contain an unlimited reservoir of surface erodible particles. This is based on the aggregate size distribution of surface particles, which is best determined with a sieve size analysis. In the absence of such an analysis at NAS Cecil Field, an unlimited reservoir was assumed. The application of the unlimited reservoir model to this site represents a conservative case as the surface soils are unlikely to contain a large percentage of silts because of the geological age of the soils (i.e., the majority of the silts have already been eroded).

A conservative estimate of the PM_{10} emission rate (E_{10}) for the contaminated surface with unlimited erosion potential was calculated using an emission factor derived by Gillette (1981) based on field measurements of highly erodible soil. The following equation was used:

$$E_{10} = 1x10^{-5} (1-V) \left(\frac{[u]}{u_t}\right)^3 F(x)$$

where:

E_{10}	= PM_{10} emission factor for wind erosion (g/m^2-sec)
$1x10^{-5}$	= empirical constant (g/m^2-sec)
V	= fraction of the contaminated surface area with continuous vegetative cover
[u]	= mean annual wind speed (m/s)
u_t	= threshold value of wind speed at 7 m (m/s)
F(x)	= function to estimate unlimited erosion
x	= dimensionless ratio = 0.886 $u_t/[u]$.

and:

$$u_t = \frac{1}{0.4} \times \ln\frac{z}{z_0} \times u^*$$

where:

u^*	= friction velocity
z	= height above surface (m)
z_0	= roughness height (m)

For values of x greater then 2:

$$F(x)=0.18 (8 x^3 + 12 x) e^{-x^2}$$

All parameters in the above equation were calculated from site-specific data where possible. The values used in estimating the emission factor for wind erosion are given in Step 1 of Table E-1. The PM_{10} emission rate estimated for the wind erosion of the excavation scenario can be found in Step 2 of the table.

STEP 2. ESTIMATION OF CONTAMINANT EMISSION RATES

Contaminant-specific emission rates were estimated from (1) the PM_{10} emission rates, (2) the hypothetical mass fraction of each contaminant in surface soil, and (3) the exposed surface area of the contaminated soil. Contaminant emission rates of respirable particles were determined using the following equation:

$$Q_{10} = 1 \times f \times E_{10} \times A$$

where:

Q_{10}	= contaminant emission rate as PM_{10} (ug/sec)
f	= mass fraction of contaminant in PM_{10} emissions (mg contaminant/kg PM_{10})
E_{10}	= PM_{10} emission rate (g PM_{10}/m^2-sec)

A = contaminated surface area (m^2)
1 = conversion factor (1000 ug contaminant/mg contaminant)*(kg PM_{10}/1000 g PM_{10})

The values for f were estimated by assuming that the mass fraction of the contaminant in the inhalable particles emitted (PM_{10}) is equal to the mass fraction of the contaminant in the soil. The surface area available for wind erosion was assumed to be the area of the site (see Assumption column from Step 2). The value of Q_{10} calculated for each scenario can be found in Step 3 of the table.

STEP 3. AIRBORNE CONTAMINANT CONCENTRATION

Air dispersion modeling is used to predict off-site contaminant air concentrations based on the PM_{10} emission rate. Many different forms of dispersion models exist for a variety of applications. For this situation, the box model was selected because it is most appropriate to use when receptors are less than 100 meters from the edge of an area source. The model overpredicts concentrations by a factor of approximately four to six when compared with the Gaussian dispersion model, ISCST, for the "downwind distances" to exposure points of interest in this assessment (McCarthy and Burbank, 1990). The box model is a good screening model for a public health risk assessment because the concentrations estimated with the box model are protective of public health. If no risk is indicated using box model concentrations, the potential for adverse impacts to public health are considered negligible.

The box model is a basic analytical and physical model representing diffusion and convection from an area source. The box encloses the area source and is bounded by the ground as its base and the mixing height (H) of the mean vertical displacement of emissions, which is a function of atmospheric stability and downwind distance to the point of exposure. Within the box, mixing is assumed to be complete. The box has a width (W) equal to the width of the area source and the box is aligned so that its length lies in the direction of the wind, which passes through its end with a constant velocity (U). The ventilation rate, defined as the volume of air passing through the box, is equal to U x H x W. The downwind mixing height (H) of the box is determined from the following equation presented by Pasquill (1975) for neutral stability:

$$X = 6.25 \times z_0 \left[\left(\frac{H}{z_0}\right) \ln\left(\frac{H}{z_0}\right) - 1.58 \left(\frac{H}{z_0}\right) + 1.58 \right]$$

where:
X = downwind distance from the leading edge of the area source to the receptor (m)
H = downwind mixing height (m)
z_0 = roughness height (m)

The roughness height, z_0, was selected to be 0.02 meters based on the roughness height of grassland provided by Cowherd et al. (1985). This roughness height provides a more conservative estimate of emissions than assuming non-vegetated conditions. The downwind distance to the receptor is measured to the closest exposure points for potentially exposed populations. For the purposes of this

evaluation, a distance of 1 meter was assumed (the receptor is at the source). The ambient 24-hour contaminant concentration (C_{10}) was estimated by the following box model equation:

$$C_{10} = \frac{Q_{10} \times a}{U \times H \times W}$$

where:

C_{10} = concentration of contaminant at distance X (ug/m^3)
Q_{10} = particle-phase emission rate from wind erosion (ug/sec)
a = fraction of 24 hours during which emissions occur
U = average wind speed (m/sec)
H = downwind mixing height (m)
W = width of area perpendicular to wind (m)

The input values for this equation are shown in Step 3 in Table E-1. This results in a conservative estimate of the 24-hour average concentration of contaminants to which an individual may be exposed to at the contaminant source on days in which wind erosion occurs. This concentration, the downwind contaminant concentration resulting from wind erosion, per unit of contaminant soil concentration (C_{10}) is multiplied by the concentration of each human health contaminant of potential concern (HHCPC) to obtain downwind contaminant concentrations. The estimated airborne contaminant concentrations resulting from wind erosion for the HHCPCs in the exposure scenario are presented in tabular form in Step 3 of Table E-1.

The particulate emission factor (PEF) relates the contaminant concentration in soil with the concentration of respirable particles (PM_{10}) in the air due to fugitive dust emissions from surface contamination. The PEF is site-specific and independent of the type of contaminants present at the site. The PEF is calculated by dividing the soil contaminant concentration (μg/kg) by the concentration in the air (μg/m^3) to give the PEF (m^3/kg). This PEF is applied to chemical-specific soil concentrations to estimate dust-related chemical concentrations in air for the risk calculation spreadsheets.

This PEF is associated with a PM_{10} concentration of roughly 17 μg/m^3.

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USEPA 1988, "Supplement B to Compilation of Air Pollutant Emissions Factors, Volume I: Stationary Point and Area Sources," USEPA Office of Air Quality Planning and Standards, AP-42, September.

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TABLE E-1
PARTICULATE CONCENTRATIONS FROM WIND EROSION – CALCULATION OF PARTICULATE EMISSIONS FACTOR

PURPOSE:

TO CALCULATE THE CONCENTRATIONS OF PM 10 EMISSIONS FOR CHEMICALS WHEN EMISSIONS ARE FROM UNLIMITED WIND EROSION USING THE BOX MODEL FOR AIR DISPERSION

STEPS LISTED IN THIS LOTUS SPREADSHEET

(1) CALCULATE PM10 EMISSION RATE FROM WIND EROSION (COWHERD, 1985)

(2) CALCULATE CONTAMINANT EMISSION RATE

(3) CALCULATE AIRBORNE CONTAMINANT CONCENTRATIONS

SOURCES:

Cowherd, 1985. Rapid Assessment of Exposure to Particulate Emissions from Surface Contamination Sites.

Pasquill, 1975. The Dispersion of Materials in the Atmospheric Boundary Layer – The Basis for Generalization.

USEPA, 1988. Supplement B to Compilation of Air Pollutant Emissions Factors, Volume I: Stationary Point and Area Sources.

STEP 1: CALCULATE PM 10 EMISSIONS FROM WIND EROSION

UNLIMITED EROSION POTENTIAL

$$E10 = 1.0E-5\ (1-V)\ ([u]/ut)^3\ F(x)$$ Cowherd, Eqn 4-4

where:

E10 = PM10 emission factor (g/m²-s)
1.0E-5 = empirical constant
V = fraction of the contaminated surface area with continuous vegetative cover
[u] = mean annual wind speed (m/s) (Cowherd, Table 4-1)
ut = threshold value of wind speed at 7 m (m/s)
F(x) = function plotted in Cowherd, Fig. 4-3
x = dimentionless ratio = 0.886 ut/[u]

$$ut = (1/0.4)\ \ln(z/zo)\ u^*$$ Cowherd Eqn. 4-3

where:

z = height above surface (m)
zo = roughness height (m)
u* = friction velocity (m/s)

for x > 2:

$$F(x) = 8\ (8x^3 + 12x)\ \exp(-x^2)$$ Cowherd, Appendix B

VARIABLE	VALUE	UNITS	SOURCE
z	7.00	m	Cowherd
zo	0.02	m	Cowherd, Figure 3-6
u*	0.63	m/s	assumption
ut	9.14	m/s	calculated here
[u]	3.8	m/s	Cowherd, Table 4-1, Jacksonville, FloridaBoston, MA
x	2.13		calculated here
F(x)	0.20		calculated here or Cowherd, Figure 4-3
V	0.5	fraction	assumption based on site visit
E10	5.68E-06	g/m²-s	calculated here

STEP 2: CALCULATE CONTAMINANT EMISSION RATE

Q10 = f x E10 x A Cowherd Eqn.

where:

Q10 = contaminant emission rate (μg contaminant/s)

f = fraction of PM 10 with contaminant (mg contaminant/kg PM10)
(assumed to equal soil concentration in mg contaminant/kg soil)

E10 = PM 10 emission rate (g PM 10 /m²-s)

A = area (m²)

1 = conversion (1000 μg contaminant/ mg contaminant) * (kg PM 10 / 1000 g PM 10)

At f = 1 mg contaminant / kg PM10:

Area = 33600.00 m^2

ACTIVITY	E10 (g/m²-s)	Q10 (μg/s)	ASSUMPTION
Wind Erosion	5.68E-08	1.91E-03	