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NAS CECIL FIELD, FL
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TECHNICAL MEMORANDUM FOR NO FURTHER ACTION AT POTENTIAL SOURCE OF CONTAMINATION 42 FORMER BOILER HOUSE/STEAM PLANT AND GENERAL STOREHOUSE NAS CECIL FIELD FL

3/27/2002

TETRA TECH NUS INC

Technical Memorandum
for
No Further Action

Potential Source of Contamination 42
Former Boiler House/Steam Plant and General Storehouse

Naval Air Station Cecil Field
Jacksonville, Florida

Southern Division
Naval Facilities Engineering Command

Contract Number N62467-94-D-0888

Contract Task Order 0078

March 2002

100104/P

TECHNICAL MEMORANDUM FOR NO FURTHER ACTION

PSC 42, FORMER BOILER HOUSE/STEAM PLANT GENERAL STOREHOUSE

NAVAL AIR STATION CECIL FIELD JACKSONVILLE, FLORIDA

COMPREHENSIVE LONG-TERM ENVIRONMENTAL ACTION NAVY (CLEAN) CONTRACT

Submitted to:
Southern Division
Naval Facilities Engineering Command
2155 Eagle Drive
North Charleston, South Carolina 29406

Submitted by:
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CONTRACT NUMBER N62467-94-D-0888
CONTRACT TASK ORDER 0078

MARCH 2002

PREPARED UNDER THE SUPERVISION OF:

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The professional opinions rendered in this decision document identified as Technical Memorandum for No Further Action, Potential Source of Contamination 42, Naval Air Station Cecil Field, Jacksonville, Florida were developed in accordance with commonly accepted procedures consistent with applicable standards of practice. Decision documents are based on information obtained from others and under the supervision of the signing engineer. If conditions are determined to exist differently than those described in this document, then the undersigned professional engineer should be notified to evaluate the effects of any additional information on this project described in this report.

Mark Speranza

Mark Speranza, P.E.
Professional Engineer No. PE0050304

Date: 3/27/02

Mark Speranza

CERTIFICATION OF TECHNICAL
DATA CONFORMITY

The Contractor, Tetra Tech NUS, Inc., hereby certifies that, to the best of its knowledge and belief, the technical data delivered herewith under Contract No. N62467-94-D-0888 are complete and accurate and comply with all requirements of this contract.

DATE: March 29, 2002

COMPANY CERTIFICATION AUTHORIZATION NUMBER: 7988
Tetra Tech NUS, Inc.
661 Andersen Drive
Pittsburgh, PA 15220

NAME AND TITLE OF CERTIFYING OFFICIAL: Mark Speranza, P.E.
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ACRONYMS

ABB-ES	ABB Environmental Services, Inc.
ATSDR	Agency for Toxic Substances and Disease Registry
BaP	Benzo(a)pyrene
BaPEq	Benzo(a)pyrene equivalents
BCT	BRAC Cleanup Team
bgs	Below ground surface
BRAC	Base Realignment and Closure
CCME	Canadian Council of Ministers of the Environment
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CLEAN	Comprehensive Long-Term Environmental Action Navy
COPC	Chemical of potential concern
CPAH	Carcinogenic polynuclear aromatic hydrocarbon
CTO	Contract Task Order
EBS	Environmental Baseline Survey
EISOPQAM	Environmental Investigations Standard Operating Procedures and Quality Assurance Manual
ESV	Ecological screening value
FAC	Florida Administrative Code
FDEP	Florida Department of Environmental Protection
FL-PRO	Florida Petroleum Residual Organics
GCTL	Groundwater cleanup target level
HLA	Harding Lawson Associates
HQ	Hazard Quotient
IBDS	Inorganic Background Data Set
ID	Inside diameter
LOAEL	Lowest-observed-effects level
MHSPE	Ministry of Housing, Spatial Planning, and Environment
NAGS	Naval Air Gunnery School
NAS	Naval Air Station
NCP	National Oil and Hazardous Substance Pollution Contingency Plan
NOAEL	No-observed-adverse-effects level
ORNL	Oak Ridge National Laboratory
ORP	Oxidation/reduction potential
OU	Operable Unit
PAH	Polynuclear aromatic hydrocarbon

PRE	Preliminary risk evaluation
PSC	Potential Source of Contamination
PVC	Polyvinyl chloride
QA/QC	Quality assurance/quality control
RAC	Remedial Action Contractor
RI	Remedial Investigation
SAOR	Sampling and Analysis Outline and Report
SCTL	Soil Cleanup Target Level
SOUTHNAVFACENGCOM	Southern Division Naval Facilities Engineering Command
SVOC	Semivolatile organic compound
TAL	Target Analyte List
TCL	Target Compound List
TEF	Toxicity equivalent factor
TRPH	Total recoverable petroleum hydrocarbons
TRV	Toxicity reference value
TtNUS	Tetra Tech NUS, Inc.
U.S. EPA	United States Environmental Protection Agency
UCL	Upper confidence limit (95 percent)
YWWA	Yellow Water Weapons Area

1.0 INTRODUCTION

This Technical Memorandum for Potential Source of Contamination (PSC) 42, Former Boiler House/Steam Plant and General Storehouse, at Naval Air Station (NAS) Cecil Field, has been prepared by Tetra Tech NUS, Inc. (TtNUS) for the Department of the Navy Southern Division, Naval Facilities Engineering Command (SOUTHNAVFACENGCOM). The work was conducted under the Comprehensive Long-Term Environmental Action Navy (CLEAN) Program, Contract Number N62467-94-D-0888, Contract Task Order (CTO) 0078. The Base Realignment and Closure (BRAC) Cleanup Team (BCT) elected to delineate, excavate, and dispose of soil at PSC 42 that is contaminated with polynuclear aromatic hydrocarbons (PAHs), metals, and total recoverable petroleum hydrocarbons (TRPH).

TtNUS performed 12 sampling events at PSC 42 between April 1999 and April 2001 to supplement the results of previous investigations and to delineate the extent of contaminated soil. The results of these field investigations were used to develop a Dig and Haul Package (remedial design plan) for a removal action consisting of excavation and off-site disposal of the contaminated soil. The removal action at PSC 42 was conducted under an Action Memorandum (TtNUS, 2001) in accordance with Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) requirements for a time-critical removal, as identified in Section 300.415(b)(4)(1) of the National Oil and Hazardous Substance Pollution Contingency Plan (NCP).

This technical memorandum presents information from the previous investigations and summarizes the related field operations, results, conclusions, and recommendations of the PSC investigation conducted by TtNUS during 1999-2000 and the activities related to the removal action as described in the Source Removal Report for PSC 42 (CH2M Hill, 2001). The results of the investigations and the subsequent removal action at PSC 42 indicate that no further action is needed at this site.

2.0 SITE DESCRIPTION

2.1 PHYSICAL SETTING

PSC 42 consists of the former Boiler House/Steam Plant and General Storehouse and immediate vicinity in the Yellow Water Weapons Area (YWWA) (Figures 2-1 and 2-2). The site is on Former "B" Street, near former Mariner Street. The site is flat and currently overgrown with vegetation and is surrounded by undeveloped or overgrown land. The area is in a former industrial setting, and the reuse plan identifies this area for educational uses.

2.2 SITE HISTORY

The steam plant and storehouse buildings serviced the Naval Air Gunnery School (NAGS), which occupied much of the southwestern portion of YWWA during the late 1940s and early 1950s. The steam plant and storehouse were demolished about 40 years ago, along with most of the other NAGS facilities. Currently, all that remains of the structures are the foundations of the two buildings. The storehouse foundation is fairly intact, but the steam plant foundation is largely broken up. Other concrete rubble is on or near the steam plant foundation. A coal pocket for coal storage was located on the eastern side of the steam plant. A railroad spur once served the buildings, but it was removed decades ago. A small block structure, Building 311, is located at the western end of the steam plant foundation. This building was built in 1959 and was used for munitions storage.

There is little information on the operations history of the steam plant and storehouse because the buildings were demolished in the late 1950s or early 1960s. The storehouse appears to have had a solid slab foundation and a loading dock along the railroad siding. The steam plant also appears to have had a solid foundation. Based on the presence of the coal pocket and the lack of fuel tanks on existing drawings or aerial photos, it is presumed that coal was used to fire the boilers. The railroad spur that serviced the buildings also appears to have been removed during the NAGS demolition.

2.3 SITE GEOLOGY AND HYDROGEOLOGY

PSC 42 is located approximately 0.8 mile north of the area of contaminated groundwater associated with Operable Unit (OU) 10, Site 21. No site-specific subsurface investigation was performed as part of the PSC 42 investigation; however, the geologic and hydrogeologic characteristics of the site are expected to be similar to those described in the RI Report for OU 10, Site 21 (TtNUS, 2001).

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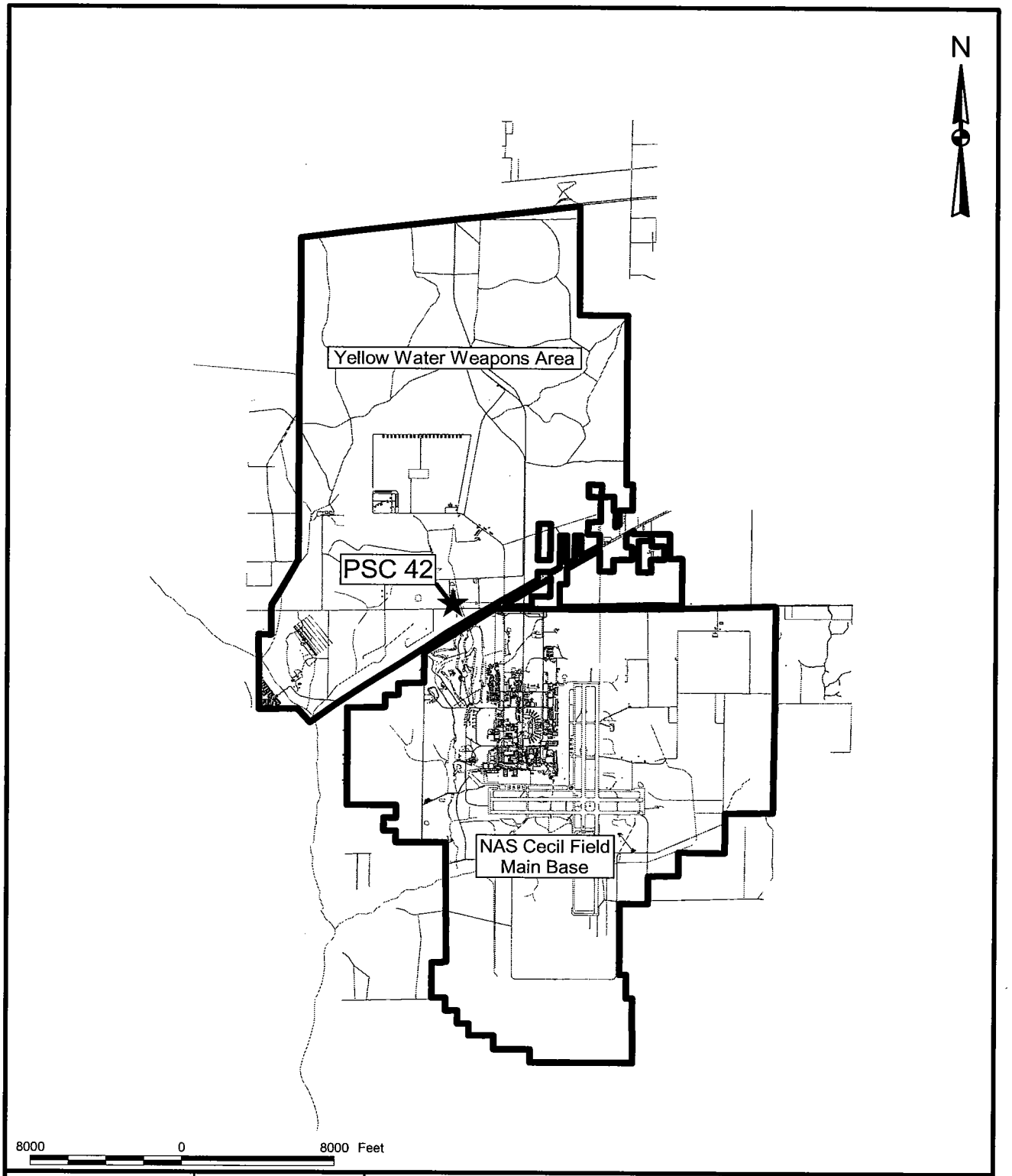
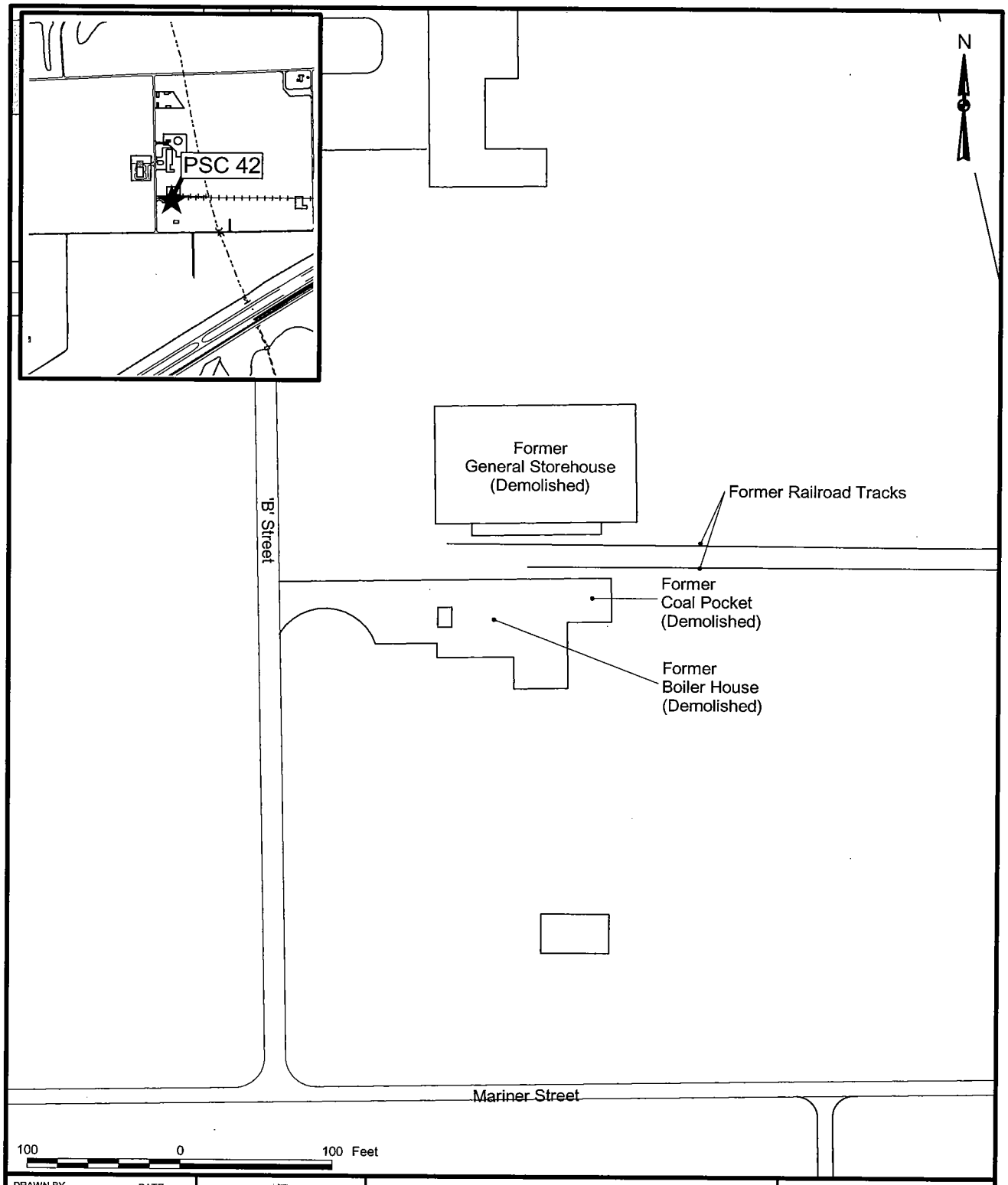


DRAWN BY MJJ	DATE 08May00	GENERAL LOCATION MAP PSC 42, YWWA STEAM PLANT TECHNICAL MEMORANDUM NAVAL AIR STATION CECIL FIELD JACKSONVILLE, FLORIDA	CONTRACT NUMBER 0039
CHECKED BY	DATE		APPROVED BY DATE
COST/SCHEDULE-AREA			APPROVED BY DATE
SCALE AS NOTED			DRAWING NO. FIGURE 2-1 / REV 0

P:\GIS\NAS_CecilField\psc42_techmemo.apr 27Sept01 MJJ Site Location Map Layout



DRAWN BY MJJ	DATE 08May00	SITE LAYOUT MAP PSC 42, YWWA STEAM PLANT TECHNICAL MEMORANDUM NAVAL AIR STATION CECIL FIELD JACKSONVILLE, FLORIDA	CONTRACT NUMBER 0039
CHECKED BY	DATE		APPROVED BY DATE
COST/SCHEDULE-AREA			APPROVED BY DATE
SCALE AS NOTED			DRAWING NO. FIGURE 2-2 / REV 0

P:\GIS\NAS_CecilField\psc42_techmemo.apr 27Sept01 MJJ Facility Location Layout

3.0 PREVIOUS INVESTIGATIONS

Environmental investigations at PSC 42 began in 1993 as part of the base-wide Environmental Baseline Survey (EBS) (ABB-ES, 1994). No specific environmental problems were identified in the report. The report speculated on the presence of an underground storage tank, but none was ever found. The EBS recommended additional evaluation for the area. A Phase II Sampling and Analysis program was conducted by ABB-ES. The results of the investigation were presented in the Sampling and Analysis Outline and Report (SAOR) for the Yellow Water Weapons Area (HLA, 1999). The investigation identified soil sample locations containing benzo(a)pyrene (BaP), arsenic, and barium at levels that exceeded the Florida Department of Environmental Protection (FDEP) soil cleanup target levels (SCTLs). All groundwater concentrations were less than FDEP criteria or site-specific inorganic background data set values in a well installed at the site (HLA, 1998). No specific conclusions about PSC 42 were made in the SAOR. The site was designated as PSC 42 in January 1999.

A summary of sampling locations and detected contaminants exceeding criteria from previous investigations is shown on Figure 3-1.

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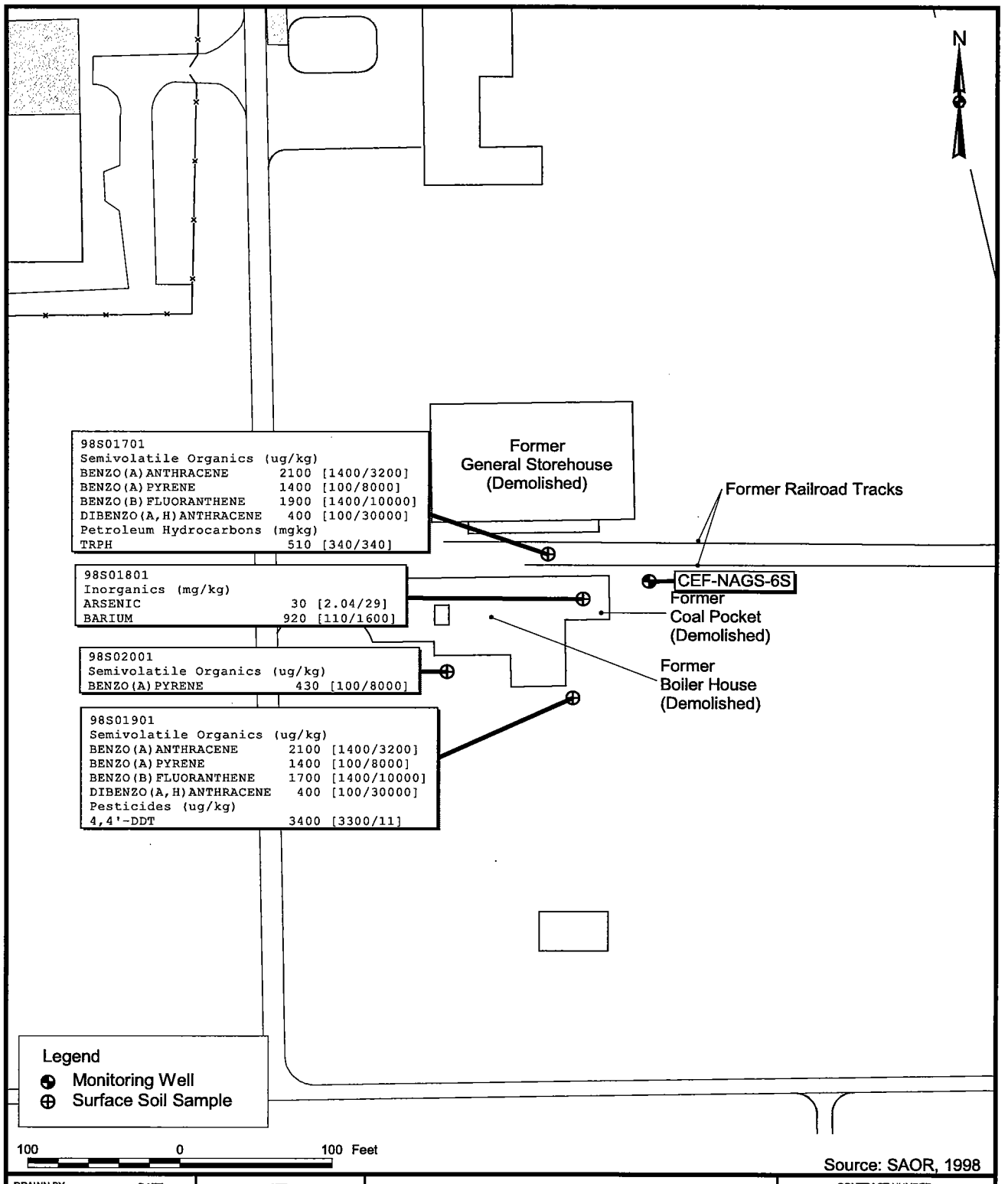

DRAWN BY MJJ	DATE 08May00	PREVIOUS SAMPLE LOCATIONS AND EXCEEDANCE MAP PSC 42, YWWA STEAM PLANT TECHNICAL MEMORANDUM NAVAL AIR STATION CECIL FIELD JACKSONVILLE, FLORIDA	CONTRACT NUMBER 0039
CHECKED BY	DATE		APPROVED BY / DATE
COST/SCHEDULE-AREA			APPROVED BY / DATE
SCALE AS NOTED			DRAWING NO. FIGURE 3-1 / REV 0

P:\GIS\NAS_CecilField\psc42_techmemo.apr 04Oct01 MJJ Previous Sample Layout

4.0 FIELD INVESTIGATION

TtNUS conducted 12 sampling and analysis events at PSC 42 between April 1999 and April 2001 to delineate the extent of PAH-, TRPH-, and metals-contaminated soil. The field investigation was performed in accordance with the PSC 42 Sampling and Analysis Work Plans (TtNUS, 1999, TtNUS, 2000, and TtNUS, 2001a). A total of 149 soil samples were collected over the 12 phases of the investigation to delineate the horizontal and vertical extent of contamination. In addition, two monitoring wells were installed to evaluate groundwater at the site. Surface and subsurface soil samples collected and analyses performed over the 12 phases of the investigation are summarized in Table 4-1. Soil and groundwater sample locations are shown on Figure 4-1.

Based on the results of Phase I soil sampling, two shallow monitoring wells were installed near the locations of soil samples with the highest contaminant concentrations. Well CEF-P42-01S was installed within the former railroad bed near sample CEF-P42-SS-002, which had the highest concentrations of several PAHs and TRPH. CEF-P42-02S was installed in the former coal pocket near the CEF-P42-SS-006 location, which had the highest concentrations of 1- and 2-methylnaphthalene, naphthalene, arsenic, and chromium. Both wells were screened from 5 to 15 feet below ground surface (bgs) with 10-foot long 0.010-inch slotted screens. Well construction materials consisted of certified-clean 2-inch inside diameter (ID), flush-threaded polyvinyl chloride (PVC) screen and riser. Samples from these wells were collected using low-flow techniques on September 9, 1999. Groundwater from CEF-P42-01S was analyzed for PAHs and TRPH, and groundwater from CEF-P42-02S was analyzed for PAHs, TRPH, arsenic, barium, chromium, and antimony.

Over the 12 phases of sampling, 19 field duplicate soil samples and one field duplicate groundwater sample were collected for quality assurance/ quality control (QA/QC) purposes. Sampling locations are shown on Figure 4-1, and analytical results are discussed in Section 5.0 and are included in Appendix A.

Surface soil samples were collected as grab samples using plastic, disposable trowels. Subsurface soil samples were collected using stainless-steel shovels and/or hand augers. Soil and groundwater sampling activities were performed in accordance with the procedures described in the U.S. Environmental Protection Agency (U.S. EPA) Region IV Environmental Investigations Standard Operating Procedures and Quality Assurance Manual (EISOPQAM) (U.S. EPA Region IV, 1996) and the NAS Cecil Field Base-Wide Generic Work Plan (TtNUS, 1998). As agreed by the BCT, no rinsate or trip blanks were collected. In addition, field blanks were not collected because the decontamination of sampling equipment was minimal.

Analytical methods for soil and groundwater samples collected as part of this investigation include U.S. EPA Method SW-846 8310 for PAHs, U.S. EPA Method SW-846 8081A for Target Compound List (TCL) Pesticides, Florida Petroleum Range Organics (FL-PRO) Method for TRPH, and U.S. EPA Method SW-846 6010B for Target Analyte List (TAL) inorganics. Specific analyses conducted on the 149 samples collected as part of the PSC investigation are presented in Table 4-1. Accutest Southeast in Jacksonville, Florida performed the analyses.

TABLE 4-1

POTENTIAL SOURCE OF CONTAMINATION SOIL SAMPLING AND ANALYSIS
PSC 42, YELLOW WATER STEAM PLANT
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA
PAGE 1 OF 3

PHASE	SAMPLE # CEF-P42-	LOCATION	ANALYSIS			
			PAHs	PESTICIDES	TRPH	METALS
1	SS-001-01	Between rail lines (west)	X	-	X	X
	SS-002-01	Between rail lines (middle)	X	-	X	X
	SS-003-01	Between rail lines (east)	X	-	X	X
	SS-004-01	NEW corner of coalpocket	X	-	X	X
	SS-005-01	SE corner of coal pocket	X	-	X	X
	SS-006-01	SW corner of coal pocket	X	-	X	X
	SS-007-01	50 feet E of 98S01801	X	-	X	X
	SS-008-01	15 feet E of 98S01801	X	X	X	X
	SS-009-01	15 feet S of 98S01801	X	X	X	X
	SS-010-01	15 feet W of 98S01801	X	X	X	X
	SS-011-01	50 feet SW of 98S02001	X	-	X	X
	SS-012-01	15 feet south of 98S02001	X	-	X	X
	SS-013-01	15 feet east of 98S02001	X	-	X	X
	SS-014-01	15 feet W of 98S02201	X	-	X	X
	SS-015-01	W of boiler house	X	-	X	X
2	SS-101-01	15 feet N of SS-001	X	-	X	X[1]
	SS-102-01	10 feet SE of SE corner of former storehouse	X	-	X	X[2]
	SS-103-01	N edge of rail line, SE of SS-102	X	-	X	X[2]
	SS-104-01	Within rail line, S of SS-103	X	-	X	X[2]
	SS-105-01	S edge of rail line, S of SS-104	X	-	X	X[2]
	SS-106-01	15 feet E of SS-005	X	-	X	X[2]
	SS-107-01	15 feet S of SS-005	X	-	X	X[2]
	SS-108-01	Midway between SS-107 and SS-109	X	-	X	X[2]
	SS-109-01	15 feet E of SS-007	X	-	-	X[1]
	SS-110-01	15 feet S of SS-007	X	-	-	X[1]
	SS-111-01	Midway between SS-110 and SS-112	X	-	-	X[2]
	SS-112-01	15 feet S of SS-009	X	-	-	X[2]
	SS-113-01	15 feet W of SS-009	X	-	-	X[2]
	SS-114-01	15 feet W of SS-010	X	-	-	-
	SS-115-01	15 feet W of SS-015	X	-	-	-
	SS-116-01	Midway between SS-110 and SS-117	X	-	X	X[1]
	SS-117-01	15 feet west of SS-001	X	-	-	-
	SS-118-02	At SS-002-01	X	-	X	-
	SS-119-02	At SS-006-01	X	-	X	X[2]
3	SS-201-01	15 feet N of SS-102	X	-	-	X[2]
	SS-202-01	15 feet E of SS-102	X	-	-	X[2]
	SS-203-01	15 feet E of SS-103	X	-	-	X[2]
	SS-204-01	25 feet E of SS-104	X	-	-	X[2]
	SS-205-01	15 feet E of SS-105	X	-	-	X[2]
	SS-206-01	15 feet E of SS 106	X	-	-	X[2]
	SS-207-01	15 feet E of SS 107	X	-	-	X[2]
	SS-208-01	15 feet S of SS-107	X	-	-	X[2]
	SS-209-01	15 feet W of SS-108	X	-	-	X[2]
	SS-210-01	15 feet S of SS-108	X	-	-	X[2]
	SS-211-01	15 feet W of SS-113	-	-	-	X[2]
	SS-212-01	15 feet S of SS-113	-	-	-	X[2]
	SS-213-01	Middle of foundation, S of rail line	X	X	X	X[2]
	SU-214-03	At SS-006-01/119-02	-	-	-	X[2]
4	SS-301A-01	Approximately 103 feet E of SS-207	X	-	X	X[2]
	SS-302A-01	Within rail line, 35 feet N of SS-301	X	-	X	X[2]
	SS-303A-01	Within rail line, 15 feet N of SS-301	X	-	X	X[2]
	SS-304A-01	Approximately 35 feet N of SS-303	X	-	X	X[2]
	SS-301-01	30 feet S of SS-301A	X	-	X	X[2]
	SS-302-01	30 feet S of SS-302A	X	-	X	X[2]
	SS-303-01	30 feet S of SS-303A	X	-	X	X[2]
	SS-304-01	30 feet S of SS-304A	X	-	X	X[2]

TABLE 4-1

POTENTIAL SOURCE OF CONTAMINATION SOIL SAMPLING AND ANALYSIS
PSC 42, YELLOW WATER STEAM PLANT
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA
PAGE 2 OF 3

PHASE	SAMPLE # CEF-P42-	LOCATION	ANALYSIS			
			PAHs	PESTICIDES	TRPH	METALS
5	SS-401-01	25 feet E of SS-101	X	-	X	X[1]
	SS-402-01	35 feet E and 30 feet S of NW corner of foundation	X	-	X	X[1]
	SS-408-01	50 feet NE of SS-201	X	-	X	X[1]
	SS-409-01	50 feet NE of SS-408	X	-	X	X[1]
	SS-410-01	50 feet NE of SS-203	X	-	X	X[1]
	SS-411-01	50 feet NE of SS-410	X	-	X	X[1]
	SS-412-01	40 feet E of SS-203	X	-	X	X[1]
	SS-413-01	50 feet E of SS-204, within rail line	X	-	X	X[1]
	SS-414-01	50 feet E of SS-205	X	-	X	X[1]
	SS-415-01	50 feet SE of SS-206	X	-	X	X[1]
	SS-416-01	50 feet SE of SS-415	X	-	X	X[1]
	SS-417-01	50 feet SE of SS-208	X	-	X	X[1]
	SS-418-01	50 feet SE of SS-417	X	-	X	X[1]
	SS-419-01	25 feet S of SS-209	X	-	X	X[1]
	SS-420-01	25 feet S of SS-419	X	-	X	X[1]
	SS-421-01	50 feet S of SS-420	X	-	X	X[1]
6	SS-502-01	30 feet W of SS-402	X	-	X	X[3]
	SS-503-01	25 feet E of SS-412	X	-	-	X[3]
	SS-504-01	25 feet E of SS-414	X	-	-	X[3]
	SS-505-01	20 feet S of SS-504	X	-	-	X[3]
	SS-506-01	25 feet E of SS-415	X	-	-	X[3]
	SS-507-01	30 feet N of SS-408	X	-	-	-
	SS-508-01	30 feet E of SS-408	X	-	-	-
7	SS-601-01	15 feet S and 20 feet E of NE corner of foundation, beneath concrete	X	-	X	X[4]
	SS-602-01	50 feet E of SS-601, beneath concrete	X	-	X	X[4]
	SS-603-01	50 feet E of SS-602, beneath concrete	X	-	X	X[4]
	SS-604-01	45 feet S of SS-601, beneath concrete	X	-	X	X[4]
	SS-605-01	45 feet S of SS-602, beneath concrete	X	-	X	X[4]
	SS-606-01	45 feet S of SS-603, beneath concrete	X	-	X	X[4]
	SS-607-02	At SS-402 location, beneath concrete	X	-	X	-
	SS-608-01	15 feet N of SS-402, beneath concrete	X	-	X	-
	SS-609-01	15 feet E of 402, beneath concrete	X	-	X	-
	SS-610-01	15 feet S of SS-402, beneath concrete	X	-	X	-
	SS-611-01	15 feet W of SS-402, beneath concrete	X	-	X	-
	SS-612-02	At SS-106-01	X	-	X	-
	SS-613-02	At SS-213, beneath concrete	X	-	X	X[4]
	SU-614-04	At SS-006-01/119-02/SU-214-03	X	-	-	X[4]
	SS-615-02	At SS-203-01	X	-	-	X[4]
	SS-616-01	25 feet N and 25 feet E of SS-601	X	-	X	X[4]
	SS-617-01	50 feet E of SS-616	X	-	X	X[4]
	SS-618-01	At SS-206-01	X	-	-	-
	SS-619-01	At SS-201-01	X	-	X	-
	SS-620-01	At SS-205-01	X	-	-	-
8	SS-701-02	At SS-201-01/SS-619-01	X	-	X	X[4]
	SU-702-03	At SS-201-01/619-01/701-02	X	-	X	X[4]
	SU-703-03	At SS-203-01/615-02	X	-	-	X[4]
	SS-704-02	At SS-205-01/620-01	X	-	X	X[4]
	SU-705-03	At SS-205-01/620-01/704-02	X	-	X	X[4]
	SS-706-02	At SS-206-01/618-01	X	-	-	-
	SU-707-03	At SS-206-01/618-01/706-02	X	-	-	-
	SU-708-03	At SS-213-01	X	-	X	X[4]
	SS-709-01	22 feet E & 6 feet S of SS-116, beneath concrete	X	-	X	X[4]
	SS-710-01	55 feet E of SS-709, beneath concrete	X	-	X	X[4]
	SS-711-01	55 feet E of SS-710, beneath concrete	X	-	X	X[4]
	SS-712-01	23 feet E & 23 feet S of SS-709, beneath concrete	X	-	X	X[4]
	SS-713-01	55 feet E of SS-712 , beneath concrete	X	-	X	X[4]
	SS-714-01	25 feet S of SS-713-01, beneath concrete	X	-	X	X[4]

TABLE 4-1

POTENTIAL SOURCE OF CONTAMINATION SOIL SAMPLING AND ANALYSIS
PSC 42, YELLOW WATER STEAM PLANT
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA
PAGE 3 OF 3

PHASE	SAMPLE # CEF-P42-	LOCATION	ANALYSIS			
			PAHs	PESTICIDES	TRPH	METALS
9	SS-801-01	15 feet N of SS-502	X	-		
	SS-802-01	15 feet W of SS-502	X	-	-	-
	SS-803-01	15 feet S of SS-502	X	-	-	-
	SS-804-01	15 feet N of SS-101	X	-	-	-
	SS-805-01	15 feet W of SS-101	X	-	-	-
	SS-806-02	At SS-101-01	X	-	-	-
	SS-807-02	At SS-008-01	X	-	-	X[5]
	SS-808-03	At SS-003-01/807-02	X	-	-	X[5]
	SS-809-02	At SS-009-01	-	-	-	-
	SS-810-02	At SS-007-01	X	-	-	X[6]
	SS-813-02	At SS-003-01	X	-	X	-
	SS-814-02	At SS-210-01	X	-	-	-
	SS-815-03	At SS-210-01/814-02	X	-	-	-
	SS-816-02	At SS-005-01	X	-	X	-
	SS-818-02	At SS-106-01	-	-	-	-
	SS-820-02	At SS-004-01	X	-	-	-
	SU-821-04	At SS-006-01/119-02/SU-214-03	X	-	-	-
	SS-823-02	At SS-207-01	X	-	X	-
	SS-826-02	At SS-414-01	X	-	-	X[5]
	SS-827-02	At SS-102-01	X	-	-	-
	SS-828-02	At SS-103-01	X	-	-	-
	SS-829-02	At SS-104-01	X	-	-	-
	SS-832-02	At SS-208-01	X	-	-	-
10	SS-901-01	30 feet NE of SS-801	X	-	-	-
	SS-902-01	40 feet N of SS-801	X	-	-	-
	SS-903-01	30 feet W of SS-801	X	-	-	-
	SS-904-01	60 feet W of SS-801	X	-	-	-
	SS-905-01	30 feet W of SS-802	X	-	-	-
	SS-906-01	60 feet W of SS-802	X	-	-	-
	SS-907-02	At SS-801-01	X	-	-	-
	SU-908-03	At SS-801-01/907-02	X	-	-	-
	SU-909-04	At SS-801-01/907-02/SU-908-03	X	-	-	-
	SS-910-02	At SS-802-01	X	-	-	-
	SU-911-03	At SS-802-01/910-02	X	-	-	-
	SU-912-04	At SS-802-01/910-02/SU-911-03	X	-	-	-
	SU-913-03	At SS-007-01/810-02	-	-	-	X[3]
11	SS-914-05	At SS-801-01/907-02/SU-908-03/909-04	X	-	-	-
12	SS-915-01	At SS-301-01	-	-	-	X[7]

PAHs = Polynuclear aromatic hydrocarbons.
TRPH = Total recoverable petroleum hydrocarbons.
1 Arsenic, barium, chromium, lead, and antimony.
2 Arsenic, barium, chromium, and antimony.
3 Arsenic.
4 Arsenic, barium, and antimony.
5 Arsenic and antimony.
6 Antimony.
7 Hexavalent chromium and associated oxidation/reduction parameters.

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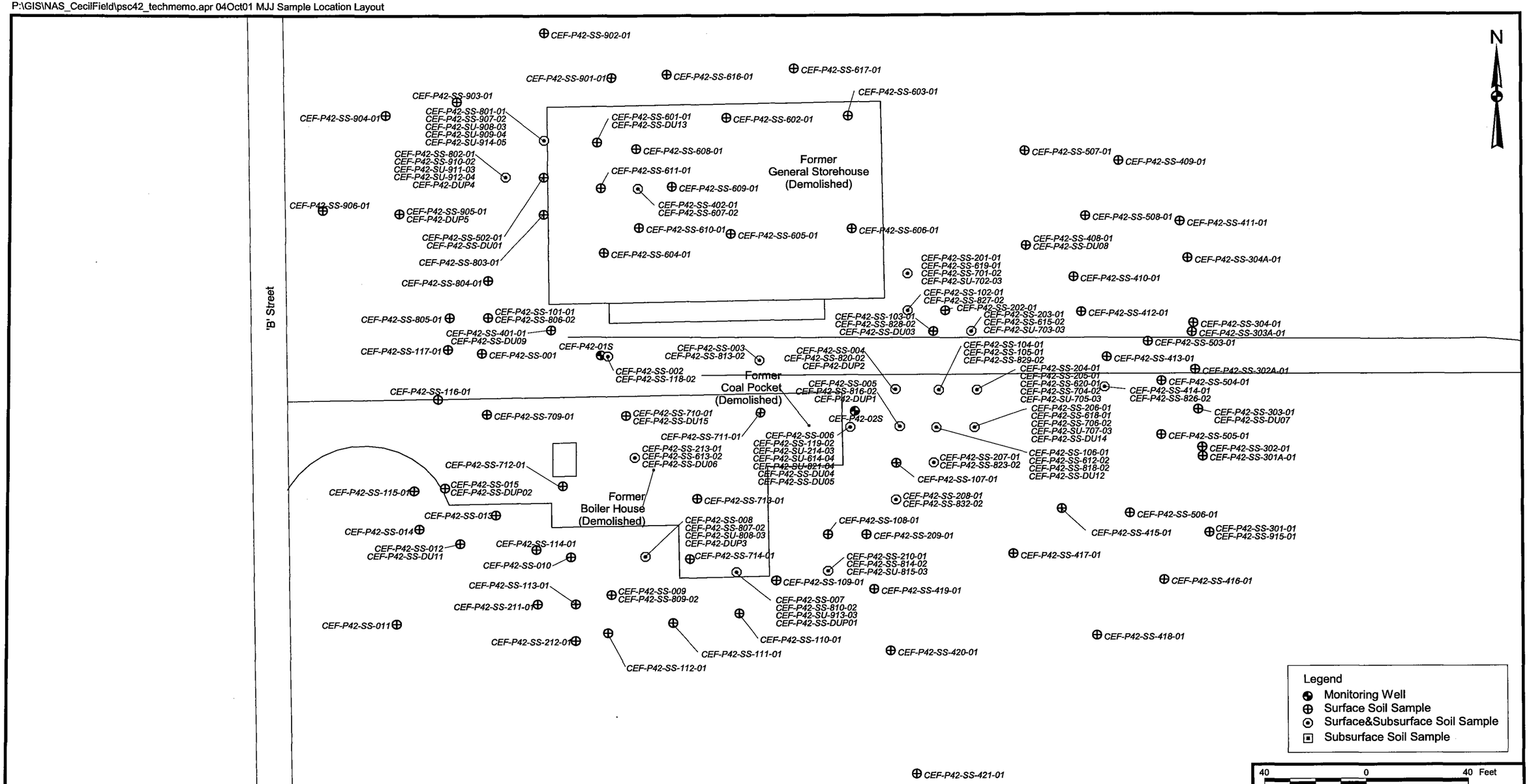
P:\GIS\NAS_CecilField\psc42_techmemo.apr 04Oct01 MJJ Sample Location Layout



NO.	DATE	REVISIONS	BY	CHKD	APPD	REFERENCES

DRAWN BY MJJ	DATE 06Sept00
CHECKED BY	DATE
COST/SCHED-AREA	
SCALE AS NOTED	

SAMPLE LOCATIONS
PSC 42, YWWA STEAM PLANT
TECHNICAL MEMORANDUM
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

CONTRACT NO. 0039	
APPROVED BY	DATE
APPROVED BY	DATE
DRAWING NO. FIGURE 4-1	REV. 0

5.0 NATURE AND EXTENT OF CONTAMINATION

Analytical results for the soil samples collected during the twelve-phased field investigation are shown on Tables 5-1 through 5-3, and complete laboratory data are included in Appendix A. Tables 5-1 and 5-2 also compare analytical results to the FDEP SCTLs for residential direct exposure and leachability to groundwater. The criterion used for these comparisons was the more restrictive of these criteria. Table 5-3 provides comparisons of inorganic analytical data to FDEP SCTLs and also the site-specific Cecil Field Inorganic Background Data Set (IBDS) values for inorganic analytes (HLA, 1998). The criterion used for these comparisons is the lesser of the residential and leachability SCTLs and the greater of that concentration and the IBDS value. Table 5-4 presents groundwater data collected as part of the PSC investigation. Table 5-5 provides a summary of the positive detections for the soil samples collected at PSC 42, the frequencies and ranges of detected concentrations, the locations of the maximum detections, and the averages of the positive detections.

Results of the sampling and analysis identified the horizontal and vertical extent of PAH, TRPH, and metals contamination at the site. It was decided that soil samples with concentrations greater than three times the FDEP residential SCTL or greater than the FDEP soil leachability based on groundwater criteria would be excavated. This would result in a 95 percent upper confidence level (UCL) value of less than the SCTL for the contaminants of concern (see Section 6.1). Based on the analytical results and the application of these conditions, an Action Memorandum (dig and haul package) was prepared for excavation of the delineated areas of PAHs, TRPH, and metals contamination. Eleven excavation areas were delineated, and the estimated excavation volume for the 11 excavations, each ranging from 1 foot deep to the water table (estimated at 6 feet bgs), was approximately 1,390 cubic yards.

Sample CEF-P42-SS-301-01 had a chromium concentration of 257 mg/kg, which is greater than the FDEP leachability to groundwater SCTL of 28 mg/kg. However, this criterion is for hexavalent chromium only, and the analysis performed on the sample was for total chromium, including trivalent and hexavalent forms of the analyte. In March 2001, this location was resampled as CEF-P42-SS-915-01 and was analyzed for total chromium, hexavalent chromium, and additional parameters including oxidation/reduction potential (ORP), pH, sulfide, and iron (II). The additional parameters, recommended in the hexavalent chromium analytical method, were used to provide information about the oxidation/reduction condition of the soil. CEF-P42-SS-915-01 had a total chromium concentration of 3 mg/kg, and hexavalent chromium was not detected in the sample at a detection limit of 20 mg/kg. ORP and pH results suggested that the soil was under reducing conditions, which favors the existence of chromium in the trivalent, rather than the hexavalent, oxidation state. Because the total and hexavalent chromium concentrations in CEF-P42-SS-915-01 were less than the leachability SCTL for hexavalent chromium, no further investigation or action is required at this sample location.

The excavation limits and locations where sample results exceeded three times the FDEP residential SCTL or exceeded leachability criteria are shown in Figure 5-1.

TABLE 5-1

SOIL ANALYTICAL DATA
PAHs AND TRPH
PSC 42, FORMER BOILER HOUSE/STEAM PLANT AND GENERAL STOREHOUSE
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA
PAGE 1 OF 27

PARAMETER	FDEP RESIDENTIAL SCTL*	FDEP LEACHABILITY SCTL*	CEF-P42-					
			SS-001-01	SS-002-01	SS-003-01	SS-004-01	SS-005-01	SS-006-01
POLYNUCLEAR AROMATIC HYDROCARBONS (ug/kg)								
1-METHYLNAPHTHALENE	68,000	2,200	144	18200	100 U	5140	110 U	45900
2-METHYLNAPHTHALENE	83,000	6,100	110 U	16200	424	2290	44300	19200
ACENAPHTHENE	1,900,000	2,100	110 U	36700	315	110 U	110 U	110 U
ACENAPHTHYLENE	1,100,000	27,000	156	110 U	100 U	110 U	4400	4021
ANTHRACENE	18,000,000	2,500,000	110 U	1220	100 U	205	328	276
BENZO(A)ANTHRACENE	1,400	3,200	16 U	2990	228	16 U	16 U	247
BENZO(A)PYRENE	100	8,000	179	4330	387	16 U	16 U	16 U
BENZO(B)FLUORANTHENE	1,400	10,000	163	1490	387	16 U	16 U	226
BENZO(G,H,I)PERYLENE	2,300,000	32,000,000	16 U	3260	161	16 U	16 U	16 U
BENZO(K)FLUORANTHENE	15,000	25,000	16 U	1360	16 U	16 U	16 U	16 U
CHRYSENE	140,000	77,000	16 U	618	505	361	16 U	16 U
DIBENZO(A,H)ANTHRACENE	100	30,000	16 U	3170	16 U	16 U	16 U	16 U
FLUORANTHENE	2,900,000	1,200,000	864	4500	809	1480	1950	480
FLUORENE	2,200,000	160,000	110 U	110 U	131	110 U	110 U	110 U
INDENO(1,2,3-CD)PYRENE	1,500	28,000	16 U	3260	338	16 U	16 U	16 U
NAPHTHALENE	40,000	1,700	110 U	1650	100 U	9800	20300	47500
PHENANTHRENE	2,000,000	250,000	110 U	29100	294	6240	13000	110 U
PYRENE	2,200,000	880,000	16 U	3752	741	1290	2260	708
TOTAL RECOVERABLE PETROLEUM HYDROCARBONS (TRPH) (mg/kg)								
TRPH	340	340	73	1870	487	187	343	293

TABLE 5-1

SOIL ANALYTICAL DATA
PAHs AND TRPH
PSC 42, FORMER BOILER HOUSE/STEAM PLANT AND GENERAL STOREHOUSE
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA
PAGE 2 OF 27

PARAMETER	FDEP RESIDENTIAL SCTL*	FDEP LEACHABILITY SCTL*	CEF-P42-					
			SS-007-01		SS-008-01	SS-009-01	SS-010-01	SS-011-01
			Sample	Duplicate				
POLYNUCLEAR AROMATIC HYDROCARBONS (ug/kg)								
1-METHYLNAPHTHALENE	68,000	2,200	462 J	110 UJ	392	110 U	100 U	110 U
2-METHYLNAPHTHALENE	83,000	6,100	803 J	333 J	2220	110 U	632	110 U
ACENAPHTHENE	1,900,000	2,100	110 UJ	238 J	1470	110 U	499	110 U
ACENAPHTHYLENE	1,100,000	27,000	1620 J	110 U	110 U	110 U	112	110 U
ANTHRACENE	18,000,000	2,500,000	271 J	110 UJ	401	110 U	100 U	110 U
BENZO(A)ANTHRACENE	1,400	3,200	1330 J	105 J	954	16 U	354	16 U
BENZO(A)PYRENE	100	8,000	806 J	492 J	1390	16 U	740	16 U
BENZO(B)FLUORANTHENE	1,400	10,000	2360 J (1)	383 J (1)	969	16 U	404	16 U
BENZO(G,H,I)PERYLENE	2,300,000	32,000,000	478 J	259 J	805	16 U	455	16 U
BENZO(K)FLUORANTHENE	15,000	25,000	1420 J	16 J	127	16 U	160	16 U
CHRYSENE	140,000	77,000	2127 J	16 UJ	16 U	16 U	16 U	16 U
DIBENZO(A,H)ANTHRACENE	100	30,000	16 U	16 U	16 U	16 U	16 U	16 U
FLUORANTHENE	2,900,000	1,200,000	3970 J	470 J	2350	16 U	893	137
FLUORENE	2,200,000	160,000	347 J	110 UJ	578	110 U	226	110 U
INDENO(1,2,3-CD)PYRENE	1,500	28,000	1160 J	244 J	16 U	16 U	16 U	16 U
NAPHTHALENE	40,000	1,700	207 J	110 UJ	300	110 U	100 U	110 U
PHENANTHRENE	2,000,000	250,000	1180 J	278 J	2380	110 U	635	110 U
PYRENE	2,200,000	880,000	3000 J	604 J	2610	16 U	961	16 U
TOTAL RECOVERABLE PETROLEUM HYDROCARBONS (TRPH) (mg/kg)								
TRPH	340	340	110	122	221	79.3	100	153

TABLE 5-1

SOIL ANALYTICAL DATA
PAHs AND TRPH
PSC 42, FORMER BOILER HOUSE/STEAM PLANT AND GENERAL STOREHOUSE
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA
PAGE 3 OF 27

PARAMETER	FDEP RESIDENTIAL SCTL*	FDEP LEACHABILITY SCTL*	CEF-P42-					
			SS-012-01	SS-013-01	SS-014-01	SS-015-01		SS-101-01
						Sample	Duplicate	
POLYNUCLEAR AROMATIC HYDROCARBONS (ug/kg)								
1-METHYLNAPHTHALENE	68,000	2,200	100 U	100 U	100 U	110 U	100 U	37 U
2-METHYLNAPHTHALENE	83,000	6,100	100 U	100 U	100 U	221	214	640
ACENAPHTHENE	1,900,000	2,100	100 U	100 U	100 U	110 U	137 J	1100
ACENAPHTHYLENE	1,100,000	27,000	100 U	100 U	100 U	110 UJ	100 U	75 U
ANTHRACENE	18,000,000	2,500,000	100 U	100 U	100 U	110 U	100 U	240
BENZO(A)ANTHRACENE	1,400	3,200	16 U	16 U	16 U	16 UJ	101 J	390
BENZO(A)PYRENE	100	8,000	16 U	143	16 U	225	273	350
BENZO(B)FLUORANTHENE	1,400	10,000	16 U	16 U	16 U	16 UJ	116 J	410
BENZO(G,H,I)PERYLENE	2,300,000	32,000,000	16 U	16 U	16 U	16 UJ	135 J	270
BENZO(K)FLUORANTHENE	15,000	25,000	16 U	16 U	16 U	16 UJ	121 J	210
CHRYSENE	140,000	77,000	16 U	16 U	16 U	16 U	16 U	360
DIBENZO(A,H)ANTHRACENE	100	30,000	16 U	16 U	16 U	16 U	16 U	35
FLUORANTHENE	2,900,000	1,200,000	16 U	2070	16 U	178 J	384 J	1200
FLUORENE	2,200,000	160,000	100 U	100 U	100 U	100 U	100 U	52
INDENO(1,2,3-CD)PYRENE	1,500	28,000	16 U	16 U	16 U	16 U	16 U	150
NAPHTHALENE	40,000	1,700	100 U	100 U	100 U	111 J	100 UJ	220
PHENANTHRENE	2,000,000	250,000	100 U	100 U	100 U	110 U	100 U	720
PYRENE	2,200,000	880,000	16 U	337	16 U	104 J	218 J	800
TOTAL RECOVERABLE PETROLEUM HYDROCARBONS (TRPH) (mg/kg)								
TRPH	340	340	44 U	81.7	43 U	78.3	86.2	94 U

TABLE 5-1

SOIL ANALYTICAL DATA
PAHs AND TRPH
PSC 42, FORMER BOILER HOUSE/STEAM PLANT AND GENERAL STOREHOUSE
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA
PAGE 4 OF 27

PARAMETER	FDEP RESIDENTIAL SCTL*	FDEP LEACHABILITY SCTL*	CEF-P42-					
			SS-102-01	SS-103-01		SS-104-01	SS-105-01	SS-106-01
				Sample	Duplicate			
POLYNUCLEAR AROMATIC HYDROCARBONS (ug/kg)								
1-METHYLNAPHTHALENE	68,000	2,200	2500	3000	3300	19000	8300	24000
2-METHYLNAPHTHALENE	83,000	6,100	8100	9100	9900	36000	21000	51000
ACENAPHTHENE	1,900,000	2,100	3000	7900 J	3600 J	2400	1500	2400
ACENAPHTHYLENE	1,100,000	27,000	1200	1600	1900	6700	3100	8400
ANTHRACENE	18,000,000	2,500,000	580	2300 J	1200 J	650	390	840
BENZO(A)ANTHRACENE	1,400	3,200	1100	3000 J	1400 J	750	410	710
BENZO(A)PYRENE	100	8,000	1400	2800 J	1400 J	1100	460	650
BENZO(B)FLUORANTHENE	1,400	10,000	1600	3100 J	1800 J	1500	650	970
BENZO(G,H,I)PERYLENE	2,300,000	32,000,000	850	1700 J	980 J	350	160	350
BENZO(K)FLUORANTHENE	15,000	25,000	780	1600 J	890 J	2000	1100	1900
CHRYSENE	140,000	77,000	1200	2600 J	1200 J	770	250	370
DIBENZO(A,H)ANTHRACENE	100	30,000	35	64	48	48	9.3 U	58
FLUORANTHENE	2,900,000	1,200,000	5100	11000 J	6100 J	6900	3500	6900
FLUORENE	2,200,000	160,000	190	640 J	260 J	720	7.4 U	7.7 U
INDENO(1,2,3-CD)PYRENE	1,500	28,000	740	1400 J	770 J	120	41	40
NAPHTHALENE	40,000	1,700	2800	2700	4000	15000	8900	28000
PHENANTHRENE	2,000,000	250,000	3700	7500	4600	9000	4000	11000
PYRENE	2,200,000	880,000	2900	6800 J	3700 J	2200	830	1600
TOTAL RECOVERABLE PETROLEUM HYDROCARBONS (TRPH) (mg/kg)								
TRPH	340	340	175	156	101	271	157	341

TABLE 5-1

SOIL ANALYTICAL DATA
PAHs AND TRPH
PSC 42, FORMER BOILER HOUSE/STEAM PLANT AND GENERAL STOREHOUSE
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA
PAGE 5 OF 27

PARAMETER	FDEP RESIDENTIAL SCTL*	FDEP LEACHABILITY SCTL*	CEF-P42-					
			SS-107-01	SS-108-01	SS-109-01	SS-110-01	SS-111-01	SS-112-01
POLYNUCLEAR AROMATIC HYDROCARBONS (ug/kg)								
1-METHYLNAPHTHALENE	68,000	2,200	340	38	47	64	100	420
2-METHYLNAPHTHALENE	83,000	6,100	1900	760	94	220	280	1700
ACENAPHTHENE	1,900,000	2,100	1300	970	36 U	210	130	1100
ACENAPHTHYLENE	1,100,000	27,000	160	77	74 U	75 U	74 U	260
ANTHRACENE	18,000,000	2,500,000	280	240	5.4 U	34	9.9	150
BENZO(A)ANTHRACENE	1,400	3,200	540	410	24	92	23	290
BENZO(A)PYRENE	100	8,000	530	430	29	110	30	290 J
BENZO(B)FLUORANTHENE	1,400	10,000	670	550	66	170	76	420
BENZO(G,H,I)PERYLENE	2,300,000	32,000,000	320	340	37	90	22	230
BENZO(K)FLUORANTHENE	15,000	25,000	310	260	26	79	30	180
CHRYSENE	140,000	77,000	570	410	27	89	22	230
DIBENZO(A,H)ANTHRACENE	100	30,000	19	20	9 U	11	9.2 U	18
FLUORANTHENE	2,900,000	1,200,000	1900	1200	78	270	100	1200
FLUORENE	2,200,000	160,000	70	51	7.2 U	7.5 U	7.4 U	42
INDENO(1,2,3-CD)PYRENE	1,500	28,000	300	330	20	58	25	170
NAPHTHALENE	40,000	1,700	470	130	61	91	190	690
PHENANTHRENE	2,000,000	250,000	1100	730	25	120	75	810
PYRENE	2,200,000	880,000	1200	810	45	170	19	770
TOTAL RECOVERABLE PETROLEUM HYDROCARBONS (TRPH) (mg/kg)								
TRPH	340	340	94 U	96 U	NA	NA	NA	NA

TABLE 5-1

SOIL ANALYTICAL DATA
PAHs AND TRPH
PSC 42, FORMER BOILER HOUSE/STEAM PLANT AND GENERAL STOREHOUSE
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA
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PARAMETER	FDEP RESIDENTIAL SCTL*	FDEP LEACHABILITY SCTL*	CEF-P42-					
			SS-113-01	SS-114-01	SS-115-01	SS-116-01	SS-117-01	SS-118-02
POLYNUCLEAR AROMATIC HYDROCARBONS (ug/kg)								
1-METHYLNAPHTHALENE	68,000	2,200	220	50 U	35 U	36 U	36 U	51
2-METHYLNAPHTHALENE	83,000	6,100	790	200	35 U	36 U	36 U	170
ACENAPHTHENE	1,900,000	2,100	430	36 U	35 U	46	36 U	36 U
ACENAPHTHYLENE	1,100,000	27,000	390	74 U	71 U	72 U	73 U	73 U
ANTHRACENE	18,000,000	2,500,000	28	5.4 U	5.3 U	5.4 U	5.4 U	5.4 U
BENZO(A)ANTHRACENE	1,400	3,200	100	18	15	22	5.4 U	10
BENZO(A)PYRENE	100	8,000	130 J	15 J	14 J	39 J	5.4 UJ	8.9 J
BENZO(B)FLUORANTHENE	1,400	10,000	220	26	24	65	5.4 U	25
BENZO(G,H,I)PERYLENE	2,300,000	32,000,000	130	17	16	49	7.3 U	11
BENZO(K)FLUORANTHENE	15,000	25,000	88	17	11	28	5.4 U	7.3
CHRYSENE	140,000	77,000	110	15	18	29	5.4 U	6
DIBENZO(A,H)ANTHRACENE	100	30,000	9.5 U	9 U	8.8 U	8.9 U	9 U	9 U
FLUORANTHENE	2,900,000	1,200,000	480	79	40	57	73 U	55
FLUORENE	2,200,000	160,000	16	7 U	7.1 U	7.2 U	7.3 U	7.3 U
INDENO(1,2,3-CD)PYRENE	1,500	28,000	73	7.4	11	40	5.4 U	5.4 U
NAPHTHALENE	40,000	1,700	350	52	35 U	36 U	36 U	160
PHENANTHRENE	2,000,000	250,000	260	43	15	16	5.4 U	47
PYRENE	2,200,000	880,000	280	45	32	48	7.3 U	24
TOTAL RECOVERABLE PETROLEUM HYDROCARBONS (TRPH) (mg/kg)								
TRPH	340	340	NA	NA	NA	88 U	NA	93 U

TABLE 5-1

SOIL ANALYTICAL DATA
PAHs AND TRPH
PSC 42, FORMER BOILER HOUSE/STEAM PLANT AND GENERAL STOREHOUSE
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA
PAGE 7 OF 27

PARAMETER	FDEP RESIDENTIAL SCTL*	FDEP LEACHABILITY SCTL*	CEF-P42-					
			SS-119-02		SS-201-01	SS-202-01	SS-203-01	SS-204-01
			Sample	Duplicate				
POLYNUCLEAR AROMATIC HYDROCARBONS (ug/kg)								
1-METHYLNAPHTHALENE	68,000	2,200	2700	2800	2100 J	640 J	3000 J	5500
2-METHYLNAPHTHALENE	83,000	6,100	8100	7200	23000 J	3000 J	10000 J	21000
ACENAPHTHENE	1,900,000	2,100	620	520	31000 J	1700 J	1800 J	4700
ACENAPHTHYLENE	1,100,000	27,000	960	880	5500 J	570 J	2200 J	3900
ANTHRACENE	18,000,000	2,500,000	120	110	9500 J	390 J	350 J	650
BENZO(A)ANTHRACENE	1,400	3,200	120	100	13000 J	600 J	180 J	1900
BENZO(A)PYRENE	100	8,000	89 J	66 J	12000 J	790 J	960 J	1500
BENZO(B)FLUORANTHENE	1,400	10,000	140	98	12000 J	820 J	1000 J	2000
BENZO(G,H,I)PERYLENE	2,300,000	32,000,000	47	54	8200 J	480 J	520 J	940
BENZO(K)FLUORANTHENE	15,000	25,000	41	34	8400 J	400 J	900 J	1100
CHRYSENE	140,000	77,000	68	54	15000 J	750 J	880 J	2000
DIBENZO(A,H)ANTHRACENE	100	30,000	9.2 U	9.3 U	170 J	9.3 UJ	35 J	240
FLUORANTHENE	2,900,000	1,200,000	860	910	45000 J	2500 J	3300 J	15000
FLUORENE	2,200,000	160,000	73	58	2700 J	82 J	58 J	760
INDENO(1,2,3-CD)PYRENE	1,500	28,000	5.6 U	5.6 U	7000 J	400 J	370 J	600
NAPHTHALENE	40,000	1,700	2800	2500	2900 J	990 J	4300 J	19000
PHENANTHRENE	2,000,000	250,000	1400	1200	32000 J	1700 J	3300 J	9400
PYRENE	2,200,000	880,000	150	130	27000 J	1200 J	1800 J	3000
TOTAL RECOVERABLE PETROLEUM HYDROCARBONS (TRPH) (mg/kg)								
TRPH	340	340	94 U	94 U	NA	NA	NA	NA

TABLE 5-1

SOIL ANALYTICAL DATA
PAHs AND TRPH
PSC 42, FORMER BOILER HOUSE/STEAM PLANT AND GENERAL STOREHOUSE
NAVAL AIR STATION CECIL FIELD
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PARAMETER	FDEP RESIDENTIAL SCTL*	FDEP LEACHABILITY SCTL*	CEF-P42-					
			SS-205-01	SS-206-01	SS-207-01	SS-208-01	SS-209-01	SS-210-01
POLYNUCLEAR AROMATIC HYDROCARBONS (ug/kg)								
1-METHYLNAPHTHALENE	68,000	2,200	11000 J	26000 J	27000 J	1000 J	180 J	290 J
2-METHYLNAPHTHALENE	83,000	6,100	44000 J	64000 J	61000 J	4200 J	740 J	1600 J
ACENAPHTHENE	1,900,000	2,100	28000 J	9400 J	6800 J	3400 J	640 J	1900 J
ACENAPHTHYLENE	1,100,000	27,000	6900 J	15400 UJ	8100 J	640 J	120 J	150 J
ANTHRACENE	18,000,000	2,500,000	9500 J	1200 J	1300 J	570 J	99 J	410 J
BENZO(A)ANTHRACENE	1,400	3,200	12000 J	1500 J	1400 J	1700 J	390 J	870 J
BENZO(A)PYRENE	100	8,000	11000 J	1800 J	1800 J	2500 J	890 J	940 J
BENZO(B)FLUORANTHENE	1,400	10,000	12000 J	2600 J	2100 J	1200 J	1500 J	980 J
BENZO(G,H,I)PERYLENE	2,300,000	32,000,000	6000 J	1500 J	690 J	2000 J	710 J	580 J
BENZO(K)FLUORANTHENE	15,000	25,000	5900 J	1080 UJ	2800 J	1200 J	710 J	480 J
CHRYSENE	140,000	77,000	12000 J	1300 J	1100 J	1600 J	510 J	920 J
DIBENZO(A,H)ANTHRACENE	100	30,000	320 J	1800 UJ	190 J	170 J	13 J	29 J
FLUORANTHENE	2,900,000	1,200,000	45000 J	12000 J	24000 J	3900 J	920 J	2400 J
FLUORENE	2,200,000	160,000	3700 J	1080 UJ	1700 J	71 J	18 J	87 J
INDENO(1,2,3-CD)PYRENE	1,500	28,000	5800 J	180 J	220 J	1600 J	700 J	460 J
NAPHTHALENE	40,000	1,700	21000 J	32000 J	32000 J	1000 J	240 J	290 J
PHENANTHRENE	2,000,000	250,000	36000 J	14000 J	15000 J	2100 J	320 J	1400 J
PYRENE	2,200,000	880,000	27000 J	3400 J	3900 J	2500 J	1100 J	1500 J
TOTAL RECOVERABLE PETROLEUM HYDROCARBONS (TRPH) (mg/kg)								
TRPH	340	340	NA	NA	NA	NA	NA	NA

TABLE 5-1

SOIL ANALYTICAL DATA
PAHs AND TRPH
PSC 42, FORMER BOILER HOUSE/STEAM PLANT AND GENERAL STOREHOUSE
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA
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PARAMETER	FDEP RESIDENTIAL SCTL*	FDEP LEACHABILITY SCTL*	CEF-P42-					
			SS-213-01		SS-301-01	SS-301A-01	SS-302-01	SS-302A-01
			Sample	Duplicate				
POLYNUCLEAR AROMATIC HYDROCARBONS (ug/kg)								
1-METHYLNAPHTHALENE	68,000	2,200	1100 J	2100 J	76 U	73 UJ	76 U	70 UJ
2-METHYLNAPHTHALENE	83,000	6,100	5400 J (1)	23000 J (3)	81.5	73 UJ	148	686 J
ACENAPHTHENE	1,900,000	2,100	7100 J	35000 J	265	73 UJ	76 U	70 UJ
ACENAPHTHYLENE	1,100,000	27,000	860 J	3100 J	97.8	73 UJ	76 U	70 UJ
ANTHRACENE	18,000,000	2,500,000	1600 J	8400 J	76 U	73 UJ	76 U	70 UJ
BENZO(A)ANTHRACENE	1,400	3,200	3300 J	17000 J	106	17.7 J	11 U	10 UJ
BENZO(A)PYRENE	100	8,000	3300 J (1)	11000 J (1)	168	11 UJ	11 U	10 UJ
BENZO(B)FLUORANTHENE	1,400	10,000	3700 J (1)	13000 J (1)	198	49.3 J	11 U	10 UJ
BENZO(G,H,I)PERYLENE	2,300,000	32,000,000	2500 J	6100 J	95	26.5 J	21	10 UJ
BENZO(K)FLUORANTHENE	15,000	25,000	1800 J	7100 J	70.1	27.8 J	39.1	10 UJ
CHRYSENE	140,000	77,000	3000 J	15000 J	155	23.9 J	48.2	10 UJ
DIBENZO(A,H)ANTHRACENE	100	30,000	110 J (1)	380 J (1)	17.4	11 UJ	11 U	10 UJ
FLUORANTHENE	2,900,000	1,200,000	9800 J	50000 J	485	416 J	217	10 UJ
FLUORENE	2,200,000	160,000	400 J	1700 J	76 U	73 UJ	76 U	70 UJ
INDENO(1,2,3-CD)PYRENE	1,500	28,000	2100 J (1)	5300 J (1)	68.7	11 UJ	11 U	10 UJ
NAPHTHALENE	40,000	1,700	690 J	1100 J	86	73 UJ	76 U	70 UJ
PHENANTHRENE	2,000,000	250,000	5700 J	27000 J	76 U	134 J	76 U	70 UJ
PYRENE	2,200,000	880,000	6300 J	33000 J	208	48.6 J	14.3	10 UJ
TOTAL RECOVERABLE PETROLEUM HYDROCARBONS (TRPH) (mg/kg)								
TRPH	340	340	709 J	625 J	96 U	92 U	94 U	92.4

TABLE 5-1

SOIL ANALYTICAL DATA
PAHs AND TRPH
PSC 42, FORMER BOILER HOUSE/STEAM PLANT AND GENERAL STOREHOUSE
NAVAL AIR STATION CECIL FIELD
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PARAMETER	FDEP RESIDENTIAL SCTL*	FDEP LEACHABILITY SCTL*	CEF-P42-				
			SS-303-01		SS-303A-01	SS-304-01	304A-01
			Sample	Duplicate			
POLYNUCLEAR AROMATIC HYDROCARBONS (ug/kg)							
1-METHYLNAPHTHALENE	68,000	2,200	73 U	74 U	72 U	131	72 U
2-METHYLNAPHTHALENE	83,000	6,100	106	74	191	84.6	72 U
ACENAPHTHENE	1,900,000	2,100	103 J	74 U	630	450	72 U
ACENAPHTHYLENE	1,100,000	27,000	73 U	74 U	72 U	722	72 U
ANTHRACENE	18,000,000	2,500,000	73 U	74 U	72 U	72 U	72 U
BENZO(A)ANTHRACENE	1,400	3,200	66 J	22.4 J	95	26	11 U
BENZO(A)PYRENE	100	8,000	60.2 J	12.8 J	173	15.3	11 U
BENZO(B)FLUORANTHENE	1,400	10,000	57.9 J	16.9 J	178	80	14.5
BENZO(G,H,I)PERYLENE	2,300,000	32,000,000	33.7 J	11 U	81.8	16.6	11 U
BENZO(K)FLUORANTHENE	15,000	25,000	46.4 J	21.5 J	33.8	49.4	77
CHRYSENE	140,000	77,000	78.5 J	22.8 J	100	17	11 U
DIBENZO(A,H)ANTHRACENE	100	30,000	11 U	11 U	11 U	11 U	11 U
FLUORANTHENE	2,900,000	1,200,000	268 J	87.4 J	566	117	118
FLUORENE	2,200,000	160,000	73 U	74 U	72 U	155	72 U
INDENO(1,2,3-CD)PYRENE	1,500	28,000	40.6 J	11 U	11 U	15.9	11 U
NAPHTHALENE	40,000	1,700	73 U	74 U	72 U	199	72 U
PHENANTHRENE	2,000,000	250,000	87 J	74 U	72 U	192	2260
PYRENE	2,200,000	880,000	167 J	28 J	131	48	12.2
TOTAL RECOVERABLE PETROLEUM HYDROCARBONS (TRPH) (mg/kg)							
TRPH	340	340	93 U	93 U	101	91 U	88.6 J

TABLE 5-1

SOIL ANALYTICAL DATA
PAHs AND TRPH
PSC 42, FORMER BOILER HOUSE/STEAM PLANT AND GENERAL STOREHOUSE
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA
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PARAMETER	FDEP RESIDENTIAL SCTL*	FDEP LEACHABILITY SCTL*	CEF-P42-					
			SS-401-01		SS-402-01	SS-408-01		SS-409-01
			Sample	Duplicate		Sample	Duplicate	
POLYNUCLEAR AROMATIC HYDROCARBONS (ug/kg)								
1-METHYLNAPHTHALENE	68,000	2,200	199 J	110 J	53900	942 J	72 UJ	72 U
2-METHYLNAPHTHALENE	83,000	6,100	71 UJ	107 J	57800	704 J	279 J	72 U
ACENAPHTHENE	1,900,000	2,100	142	123	62600	830 J	72 UJ	72 U
ACENAPHTHYLENE	1,100,000	27,000	71 U	73 U	10900	72 U	72 U	72 U
ANTHRACENE	18,000,000	2,500,000	86.3 J	73 UJ	43700	625 J	72 UJ	72 U
BENZO(A)ANTHRACENE	1,400	3,200	290	192	69200	1110 J	23.2 J	55.9
BENZO(A)PYRENE	100	8,000	194	134	6050	2940 J (1)	18.9 J (1)	11 U
BENZO(B)FLUORANTHENE	1,400	10,000	283	228	17200	746 J	18.1 J	46.9
BENZO(G,H,I)PERYLENE	2,300,000	32,000,000	144	125	24900	210 J	18.3 J	11 U
BENZO(K)FLUORANTHENE	15,000	25,000	182 J	80 J	110 U	398 J	15 J	34.2
CHRYSENE	140,000	77,000	336	261	3810	1010 J	100 J	69.2
DIBENZO(A,H)ANTHRACENE	100	30,000	11 U	11 U	26400	197 J (1)	11 UJ (1)	11 U
FLUORANTHENE	2,900,000	1,200,000	1120 J	667 J	110 U	3280 J	111 J	249
FLUORENE	2,200,000	160,000	71 U	73 U	33200	228 J	72 UJ	72 U
INDENO(1,2,3-CD)PYRENE	1,500	28,000	190	144	18000	11 U	11 U	11 U
NAPHTHALENE	40,000	1,700	71 U	73 U	47800	111 J	72 J	72 U
PHENANTHRENE	2,000,000	250,000	466 J	211 J	82200	1760 J	72 U	72 U
PYRENE	2,200,000	880,000	578	419	129000	1880 J	87.2	110
TOTAL RECOVERABLE PETROLEUM HYDROCARBONS (TRPH) (mg/kg)								
TRPH	340	340	90 U	92 U	35500	140	184	90 U

TABLE 5-1

SOIL ANALYTICAL DATA
PAHs AND TRPH
PSC 42, FORMER BOILER HOUSE/STEAM PLANT AND GENERAL STOREHOUSE
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA
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PARAMETER	FDEP RESIDENTIAL SCTL*	FDEP LEACHABILITY SCTL*	CEF-P42-					
			SS-410-01	SS-411-01	SS-412-01	SS-413-01	SS-414-01	SS-415-01
POLYNUCLEAR AROMATIC HYDROCARBONS (ug/kg)								
1-METHYLNAPHTHALENE	68,000	2,200	123	70 U	1990	131	1600	174
2-METHYLNAPHTHALENE	83,000	6,100	85.3	70 U	2150	276	622	311
ACENAPHTHENE	1,900,000	2,100	72 U	70 U	76 U	70 U	2420	130
ACENAPHTHYLENE	1,100,000	27,000	72 U	70 U	76 U	70 U	1860	70 U
ANTHRACENE	18,000,000	2,500,000	72 U	70 U	76 U	70 U	698	70 U
BENZO(A)ANTHRACENE	1,400	3,200	174	10 U	148	19.7	3380	348
BENZO(A)PYRENE	100	8,000	105	10 U	30	12.6	3810	265
BENZO(B)FLUORANTHENE	1,400	10,000	175	10 U	327	34.2	6790	469
BENZO(G,H,I)PERYLENE	2,300,000	32,000,000	97.2	10 U	92.6	10 U	2880	226
BENZO(K)FLUORANTHENE	15,000	25,000	82.4	10 U	88.2	10 U	2700	151
CHRYSENE	140,000	77,000	189	10 U	195	26.4	2820	404
DIBENZO(A,H)ANTHRACENE	100	30,000	11 U	10 U	34.6	10 U	306	17.6
FLUORANTHENE	2,900,000	1,200,000	552	10 U	1510	228	8490	1080
FLUORENE	2,200,000	160,000	72 U	70 U	76 U	70 U	130	70 U
INDENO(1,2,3-CD)PYRENE	1,500	28,000	108	10 U	277	10 U	3330	271
NAPHTHALENE	40,000	1,700	72 U	70 U	637	92.4	1160	179
PHENANTHRENE	2,000,000	250,000	253	70 U	720	152	2280	492
PYRENE	2,200,000	880,000	300	10 U	184	28	5600	611
TOTAL RECOVERABLE PETROLEUM HYDROCARBONS (TRPH) (mg/kg)								
TRPH	340	340	90 U	88 U	279	88 U	248	86.6 J

TABLE 5-1

SOIL ANALYTICAL DATA
PAHs AND TRPH
PSC 42, FORMER BOILER HOUSE/STEAM PLANT AND GENERAL STOREHOUSE
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA
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PARAMETER	FDEP RESIDENTIAL SCTL*	FDEP LEACHABILITY SCTL*	CEF-P42-					
			SS-416-01	SS-417-01	SS-418-01	SS-419-01	SS-420-01	SS-421-01
POLYNUCLEAR AROMATIC HYDROCARBONS (ug/kg)								
1-METHYLNAPHTHALENE	68,000	2,200	74 U	78 U	69 U	70 U	85 U	88 U
2-METHYLNAPHTHALENE	83,000	6,100	74 U	78 U	69 U	79.9	85 U	88 U
ACENAPHTHENE	1,900,000	2,100	74 U	78 U	69 U	70 U	85 U	88 U
ACENAPHTHYLENE	1,100,000	27,000	74 U	78 U	69 U	70 U	85 U	88 U
ANTHRACENE	18,000,000	2,500,000	74 U	78 U	69 U	70 U	85 U	88 U
BENZO(A)ANTHRACENE	1,400	3,200	41.3	109	10 U	24.6	29.4	13 U
BENZO(A)PYRENE	100	8,000	32.4	60.6	10 U	20.1	13 U	13 U
BENZO(B)FLUORANTHENE	1,400	10,000	105	134	10 U	64.4	66.2	13 U
BENZO(G,H,I)PERYLENE	2,300,000	32,000,000	29	45.5	10 U	17.2	13 U	13 U
BENZO(K)FLUORANTHENE	15,000	25,000	31.4	56.8	10 U	16.1	16.5	13 U
CHRYSENE	140,000	77,000	11 U	119	10 U	39	35	13 U
DIBENZO(A,H)ANTHRACENE	100	30,000	11 U	12 U	10 U	10 U	13 U	13 U
FLUORANTHENE	2,900,000	1,200,000	259	373	10 U	120	201	13 U
FLUORENE	2,200,000	160,000	74 U	78 U	69 U	70 U	85 U	88 U
INDENO(1,2,3-CD)PYRENE	1,500	28,000	11 U	55.1	10 U	25.2	13 U	13 U
NAPHTHALENE	40,000	1,700	74 U	78 U	69 U	70 U	85 U	88 U
PHENANTHRENE	2,000,000	250,000	74 U	187	69 U	70 U	85 U	88 U
PYRENE	2,200,000	880,000	135	205	10 U	60.2	53.2	13 U
TOTAL RECOVERABLE PETROLEUM HYDROCARBONS (TRPH) (mg/kg)								
TRPH	340	340	77.8 J	98 U	88 U	89 U	110 U	110 U

TABLE 5-1

SOIL ANALYTICAL DATA
PAHs AND TRPH
PSC 42, FORMER BOILER HOUSE/STEAM PLANT AND GENERAL STOREHOUSE
NAVAL AIR STATION CECIL FIELD
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PARAMETER	FDEP RESIDENTIAL SCTL*	FDEP LEACHABILITY SCTL*	CEF-P42-					
			SS-502-01		SS-504-01	SS-505-01	SS-507-01	SS-508-01
			Sample	Duplicate				
POLYNUCLEAR AROMATIC HYDROCARBONS (ug/kg)								
1-METHYLNAPHTHALENE	68,000	2,200	74 U	73 U	74 U	74 U	74 U	71 U
2-METHYLNAPHTHALENE	83,000	6,100	171 J	380 J	74 U	156	74 U	259
ACENAPHTHENE	1,900,000	2,100	75.9 J	261 J	74 U	74 U	74 U	115
ACENAPHTHYLENE	1,100,000	27,000	261 J	73 UJ	74 U	104	74 U	71 U
ANTHRACENE	18,000,000	2,500,000	74 U	73 U	74 U	74 U	74 U	71 U
BENZO(A)ANTHRACENE	1,400	3,200	223 J	392 J	11 U	11.1	26	246
BENZO(A)PYRENE	100	8,000	97.4 J (1)	347 J (1)	11 U	11 U	11 U	164
BENZO(B)FLUORANTHENE	1,400	10,000	225 J	454 J	11 U	11 U	15.8	210
BENZO(G,H,I)PERYLENE	2,300,000	32,000,000	89.3 J	246 J	11 U	11 U	11.5	99.9
BENZO(K)FLUORANTHENE	15,000	25,000	87.7 J	202 J	11 U	11 U	32.6	95.6
CHRYSENE	140,000	77,000	305	476	11 U	62.2	35.4	266
DIBENZO(A,H)ANTHRACENE	100	30,000	11 U	11 U	11 U	11 U	11 U	11 U
FLUORANTHENE	2,900,000	1,200,000	871 J	1450 J	20.4	19.5	81.6	756
FLUORENE	2,200,000	160,000	74 U	73 U	74 U	74 U	74 U	71 U
INDENO(1,2,3-CD)PYRENE	1,500	28,000	128 J	238 J	11 U	11 U	11 U	116
NAPHTHALENE	40,000	1,700	74 U	73 U	74 U	74 U	74 U	71 U
PHENANTHRENE	2,000,000	250,000	319	268	74 U	74 U	74 U	356
PYRENE	2,200,000	880,000	486	754	16.4	11 U	50.6	515
TOTAL RECOVERABLE PETROLEUM HYDROCARBONS (TRPH) (mg/kg)								
TRPH	340	340	260	41.2	NA	NA	NA	NA

TABLE 5-1

SOIL ANALYTICAL DATA
PAHs AND TRPH
PSC 42, FORMER BOILER HOUSE/STEAM PLANT AND GENERAL STOREHOUSE
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA
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PARAMETER	FDEP RESIDENTIAL SCTL*	FDEP LEACHABILITY SCTL*	CEF-P42-					
			SS-601-01		SS-602-01	SS-603-01	SS-604-01	SS-605-01
			Sample	Duplicate				
POLYNUCLEAR AROMATIC HYDROCARBONS (ug/kg)								
1-METHYLNAPHTHALENE	68,000	2,200	380 U	350 U	410 U	390 U	380 U	380 U
2-METHYLNAPHTHALENE	83,000	6,100	380 U	350 U	410 U	390 U	380 U	380 U
ACENAPHTHENE	1,900,000	2,100	380 U	350 U	410 U	390 U	380 U	380 U
ACENAPHTHYLENE	1,100,000	27,000	770 U	700 U	820 U	790 U	760 U	770 U
ANTHRACENE	18,000,000	2,500,000	380 U	350 U	410 U	390 U	380 U	380 U
BENZO(A)ANTHRACENE	1,400	3,200	77 U	70 U	82 U	79 U	76 U	154 U
BENZO(A)PYRENE	100	8,000	77 U	70 U	82 U	79 U	76 U	77 U
BENZO(B)FLUORANTHENE	1,400	10,000	77 U	70 U	82 U	79 U	76 U	23.4 J
BENZO(G,H,I)PERYLENE	2,300,000	32,000,000	77 U	70 U	82 U	79 U	76 U	77 U
BENZO(K)FLUORANTHENE	15,000	25,000	77 U	70 U	82 U	79 U	76 U	77 U
CHRYSENE	140,000	77,000	77 U	70 U	82 U	79 U	76 U	28.1 J
DIBENZO(A,H)ANTHRACENE	100	30,000	77 U	70 U	82 U	79 U	76 U	77 U
FLUORANTHENE	2,900,000	1,200,000	380 U	350 U	410 U	390 U	380 U	380 U
FLUORENE	2,200,000	160,000	380 U	350 U	410 U	390 U	380 U	380 U
INDENO(1,2,3-CD)PYRENE	1,500	28,000	77 U	70 U	82 U	79 U	76 U	77 U
NAPHTHALENE	40,000	1,700	380 U	350 U	410 U	390 U	380 U	380 U
PHENANTHRENE	2,000,000	250,000	380 U	350 U	410 U	390 U	380 U	380 U
PYRENE	2,200,000	880,000	380 U	350 U	410 U	390 U	380 U	380 U
TOTAL RECOVERABLE PETROLEUM HYDROCARBONS (TRPH) (mg/kg)								
TRPH	340	340	96 U	87 U	100 U	99 U	96 U	96 U

TABLE 5-1

SOIL ANALYTICAL DATA
PAHs AND TRPH
PSC 42, FORMER BOILER HOUSE/STEAM PLANT AND GENERAL STOREHOUSE
NAVAL AIR STATION CECIL FIELD
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PARAMETER	FDEP RESIDENTIAL SCTL*	FDEP LEACHABILITY SCTL*	CEF-P42-					
			SS-606-01	SS-607-02	SS-608-01	SS-609-01	SS-610-01	SS-611-01
POLYNUCLEAR AROMATIC HYDROCARBONS (ug/kg)								
1-METHYLNAPHTHALENE	68,000	2,200	390 U	360 U	380 U	360 U	350 U	360 U
2-METHYLNAPHTHALENE	83,000	6,100	390 U	360 U	380 U	360 U	350 U	360 U
ACENAPHTHENE	1,900,000	2,100	390 U	360 U	380 U	360 U	350 U	360 U
ACENAPHTHYLENE	1,100,000	27,000	780 U	730 U	750 U	720 U	700 U	720 U
ANTHRACENE	18,000,000	2,500,000	390 U	360 U	380 U	360 U	350 U	360 U
BENZO(A)ANTHRACENE	1,400	3,200	78 U	146 U	75 U	72 U	159	72 U
BENZO(A)PYRENE	100	8,000	78 U	73 U	75 U	72 U	131	72 U
BENZO(B)FLUORANTHENE	1,400	10,000	23 J	19.9 J	75 U	72 U	146	72 U
BENZO(G,H,I)PERYLENE	2,300,000	32,000,000	78 U	73 U	75 U	72 U	114	72 U
BENZO(K)FLUORANTHENE	15,000	25,000	12.1 J	73 U	75 U	72 U	105	28 J
CHRYSENE	140,000	77,000	23.9 J	73 U	75 U	72 U	155	72 U
DIBENZO(A,H)ANTHRACENE	100	30,000	78 U	73 U	75 U	72 U	70 U	72 U
FLUORANTHENE	2,900,000	1,200,000	390 U	360 U	380 U	360 U	265 J	360 U
FLUORENE	2,200,000	160,000	390 U	360 U	380 U	360 U	350 U	360 U
INDENO(1,2,3-CD)PYRENE	1,500	28,000	78 U	73 U	75 U	72 U	133	72 U
NAPHTHALENE	40,000	1,700	390 U	360 U	380 U	360 U	350 U	360 U
PHENANTHRENE	2,000,000	250,000	390 U	360 U	380 U	360 U	42.8 J	360 U
PYRENE	2,200,000	880,000	390 U	360 U	380 U	360 U	196 J	360 U
TOTAL RECOVERABLE PETROLEUM HYDROCARBONS (TRPH) (mg/kg)								
TRPH	340	340	97 U	91 U	94 U	90 U	87 U	90 U

TABLE 5-1

SOIL ANALYTICAL DATA
PAHs AND TRPH
PSC 42, FORMER BOILER HOUSE/STEAM PLANT AND GENERAL STOREHOUSE
NAVAL AIR STATION CECIL FIELD
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PARAMETER	FDEP RESIDENTIAL SCTL*	FDEP LEACHABILITY SCTL*	CEF-P42-					
			SS-612-02		SS-613-02	SS-615-02	SS-616-01	SS-617-01
			Sample	Duplicate				
POLYNUCLEAR AROMATIC HYDROCARBONS (ug/kg)								
1-METHYLNAPHTHALENE	68,000	2,200	180 U	180 U	90200	531	360 U	360 U
2-METHYLNAPHTHALENE	83,000	6,100	180 U	180 U	**187000**	397	360 U	360 U
ACENAPHTHENE	1,900,000	2,100	180 U	180 U	**239000**	180 U	360 U	360 U
ACENAPHTHYLENE	1,100,000	27,000	180 U	180 U	76000 U	180 U	720 U	720 U
ANTHRACENE	18,000,000	2,500,000	180 U	180 U	240000	180 U	360 U	360 U
BENZO(A)ANTHRACENE	1,400	3,200	27 U	26 U	**93600**	43.9	72 U	72 U
BENZO(A)PYRENE	100	8,000	27 U	26 U	**55800**	42.7	72 U	72 U
BENZO(B)FLUORANTHENE	1,400	10,000	27 U	26 U	**44200**	62.5	72 U	72 U
BENZO(G,H,I)PERYLENE	2,300,000	32,000,000	27 U	26 U	21500	39.9	72 U	72 U
BENZO(K)FLUORANTHENE	15,000	25,000	27 U	26 U	**33600**	32.4	72 U	72 U
CHRYSENE	140,000	77,000	27 U	26 U	**83200**	77.7	72 U	72 U
DIBENZO(A,H)ANTHRACENE	100	30,000	27 U	26 U	7600 U	27 U	72 U	72 U
FLUORANTHENE	2,900,000	1,200,000	27 U	26 U	248000	310	360 U	360 U
FLUORENE	2,200,000	160,000	180 U	180 U	53100	180 U	360 U	360 U
INDENO(1,2,3-CD)PYRENE	1,500	28,000	27 U	26 U	**29400**	27 U	72 U	72 U
NAPHTHALENE	40,000	1,700	180 U	180 U	**68700**	180 U	360 U	360 U
PHENANTHRENE	2,000,000	250,000	180 U	180 U	216000	315	360 U	360 U
PYRENE	2,200,000	880,000	27 U	26 U	165000	80.1	360 U	360 U
TOTAL RECOVERABLE PETROLEUM HYDROCARBONS (TRPH) (mg/kg)								
TRPH	340	340	17.7	28.5	**19700**	NA	90 U	90 U

TABLE 5-1

SOIL ANALYTICAL DATA
PAHs AND TRPH
PSC 42, FORMER BOILER HOUSE/STEAM PLANT AND GENERAL STOREHOUSE
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA
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PARAMETER	FDEP RESIDENTIAL SCTL*	FDEP LEACHABILITY SCTL*	CEF-P42-					
			SS-618-01	SS-619-01	SS-620-01	SS-701-02	SU-702-03	SS-704-02
POLYNUCLEAR AROMATIC HYDROCARBONS (ug/kg)								
1-METHYLNAPHTHALENE	68,000	2,200	200 U	190 U	1180	350 U	NA	340 U
2-METHYLNAPHTHALENE	83,000	6,100	269	1090	5700	350 U	NA	340 U
ACENAPHTHENE	1,900,000	2,100	200 U	733	2430	350 U	NA	340 U
ACENAPHTHYLENE	1,100,000	27,000	200 U	190 U	180 U	710 U	NA	690 U
ANTHRACENE	18,000,000	2,500,000	200 U	372	1640	350 U	NA	340 U
BENZO(A)ANTHRACENE	1,400	3,200	30 U	1260	2720	71 U	NA	69 U
BENZO(A)PYRENE	100	8,000	30 U	2160	3900	71 U	NA	69 U
BENZO(B)FLUORANTHENE	1,400	10,000	185	1570	2720	71 U	NA	69 U
BENZO(G,H,I)PERYLENE	2,300,000	32,000,000	30 U	1020	1810	71 U	NA	69 U
BENZO(K)FLUORANTHENE	15,000	25,000	30 U	674	1210	71 U	NA	69 U
CHRYSENE	140,000	77,000	30 U	1840	3310	71 U	NA	69 U
DIBENZO(A,H)ANTHRACENE	100	30,000	30 U	46.3	58.5	71 U	NA	69 U
FLUORANTHENE	2,900,000	1,200,000	102	4660	10400	350 U	NA	340 U
FLUORENE	2,200,000	160,000	200 U	190 U	180 U	350 U	NA	340 U
INDENO(1,2,3-CD)PYRENE	1,500	28,000	30 U	1010	1490	71 U	NA	69 U
NAPHTHALENE	40,000	1,700	200 U	190 U	1600	350 U	NA	340 U
PHENANTHRENE	2,000,000	250,000	200 U	1720	6380	350 U	NA	340 U
PYRENE	2,200,000	880,000	56.5	2640	7000	350 U	NA	340 U
TOTAL RECOVERABLE PETROLEUM HYDROCARBONS (TRPH) (mg/kg)								
TRPH	340	340	NA	1100	NA	7.49 J	8.7 U	8.6 U

TABLE 5-1

SOIL ANALYTICAL DATA
PAHs AND TRPH
PSC 42, FORMER BOILER HOUSE/STEAM PLANT AND GENERAL STOREHOUSE
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA
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PARAMETER	FDEP RESIDENTIAL SCTL*	FDEP LEACHABILITY SCTL*	CEF-P42-					
			SS-706-02	SU-707-03	SS-709-01	SS-710-01		SU-702-03
						Sample	Duplicate	
POLYNUCLEAR AROMATIC HYDROCARBONS (ug/kg)								
1-METHYLNAPHTHALENE	68,000	2,200	370 U	NA	360 U	410 U	390 U	350 U
2-METHYLNAPHTHALENE	83,000	6,100	370 U	NA	360 U	410 U	390 U	350 U
ACENAPHTHENE	1,900,000	2,100	370 U	NA	360 U	410 U	390 U	350 U
ACENAPHTHYLENE	1,100,000	27,000	740 U	NA	730 U	820 U	770 U	700 U
ANTHRACENE	18,000,000	2,500,000	370 U	NA	360 U	410 U	390 U	350 U
BENZO(A)ANTHRACENE	1,400	3,200	74 U	NA	47.9 J	82 U	77 U	70 U
BENZO(A)PYRENE	100	8,000	74 U	NA	236	82 U	77 U	70 U
BENZO(B)FLUORANTHENE	1,400	10,000	74 U	NA	149	82 U	77 U	70 U
BENZO(G,H,I)PERYLENE	2,300,000	32,000,000	74 U	NA	424	82 U	77 U	70 U
BENZO(K)FLUORANTHENE	15,000	25,000	74 U	NA	98.4	82 U	77 U	70 U
CHRYSENE	140,000	77,000	74 U	NA	25.5 J	82 U	77 U	70 U
DIBENZO(A,H)ANTHRACENE	100	30,000	74 U	NA	73 U	82 U	77 U	70 U
FLUORANTHENE	2,900,000	1,200,000	370 U	NA	360 U	410 U	390 U	350 U
FLUORENE	2,200,000	160,000	370 U	NA	360 U	410 U	390 U	350 U
INDENO(1,2,3-CD)PYRENE	1,500	28,000	74 U	NA	470	82 U	77 U	70 U
NAPHTHALENE	40,000	1,700	370 U	NA	360 U	410 U	390 U	350 U
PHENANTHRENE	2,000,000	250,000	370 U	NA	360 U	410 U	390 U	350 U
PYRENE	2,200,000	880,000	370 U	NA	360 U	410 U	390 U	350 U
TOTAL RECOVERABLE PETROLEUM HYDROCARBONS (TRPH) (mg/kg)								
TRPH	340	340	NA	9.2 U	14.3	92. J	10.4	NA

TABLE 5-1

SOIL ANALYTICAL DATA
PAHs AND TRPH
PSC 42, FORMER BOILER HOUSE/STEAM PLANT AND GENERAL STOREHOUSE
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA
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PARAMETER	FDEP RESIDENTIAL SCTL*	FDEP LEACHABILITY SCTL*	CEF-P42-					
			SU-703-03	SU-705-03	SU-707-03		SS-711-01	SS-712-01
					Sample	Duplicate		
POLYNUCLEAR AROMATIC HYDROCARBONS (ug/kg)								
1-METHYLNAPHTHALENE	68,000	2,200	350 U	340 U	360 U	370 U	380 U	400 U
2-METHYLNAPHTHALENE	83,000	6,100	350 U	340 U	360 U	370 U	380 U	400 U
ACENAPHTHENE	1,900,000	2,100	350 U	340 U	360 U	370 U	380 U	400 U
ACENAPHTHYLENE	1,100,000	27,000	700 U	690 U	730 U	740 U	760 U	810 U
ANTHRACENE	18,000,000	2,500,000	350 U	340 U	360 U	370 U	380 U	400 U
BENZO(A)ANTHRACENE	1,400	3,200	70 U	69 U	33.9 J	74 U	76 U	81 U
BENZO(A)PYRENE	100	8,000	70 U	69 U	22.5 J	74 U	76 U	81 U
BENZO(B)FLUORANTHENE	1,400	10,000	70 U	69 U	25.4 J	74 U	76 U	81 U
BENZO(G,H,I)PERYLENE	2,300,000	32,000,000	70 U	69 U	23.3 J	74 U	76 U	81 U
BENZO(K)FLUORANTHENE	15,000	25,000	70 U	69 U	19.2 J	74 U	76 U	81 U
CHRYSENE	140,000	77,000	70 U	69 U	33.5 J	74 U	76 U	81 U
DIBENZO(A,H)ANTHRACENE	100	30,000	70 U	69 U	73 U	74 U	76 U	81 U
FLUORANTHENE	2,900,000	1,200,000	350 U	340 U	360 U	370 U	380 U	400 U
FLUORENE	2,200,000	160,000	350 U	340 U	360 U	370 U	380 U	400 U
INDENO(1,2,3-CD)PYRENE	1,500	28,000	70 U	69 U	21.2 J	74 U	76 U	81 U
NAPHTHALENE	40,000	1,700	350 U	340 U	360 U	370 U	380 U	400 U
PHENANTHRENE	2,000,000	250,000	350 U	340 U	360 U	370 U	380 U	400 U
PYRENE	2,200,000	880,000	350 U	340 U	360 U	370 U	380 U	400 U
TOTAL RECOVERABLE PETROLEUM HYDROCARBONS (TRPH) (mg/kg)								
TRPH	340	340	NA	NA	NA	NA	9.41 J	15.5

TABLE 5-1

SOIL ANALYTICAL DATA
PAHs AND TRPH
PSC 42, FORMER BOILER HOUSE/STEAM PLANT AND GENERAL STOREHOUSE
NAVAL AIR STATION CECIL FIELD
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PARAMETER	FDEP RESIDENTIAL SCTL*	FDEP LEACHABILITY SCTL*	CEF-P42-					
			SS-713-01	SS-714-01	SS-801-01	SS-802-01	SS-803-01	SS-804-01
POLYNUCLEAR AROMATIC HYDROCARBONS (ug/kg)								
1-METHYLNAPHTHALENE	68,000	2,200	360 U	390 U	40000	50400	4770 J	370 U
2-METHYLNAPHTHALENE	83,000	6,100	360 U	390 U	49800	59300	6320	370 U
ACENAPHTHENE	1,900,000	2,100	360 U	390 U	45700	72000	5310 J	370 U
ACENAPHTHYLENE	1,100,000	27,000	720 U	790 U	73000 U	77000 U	12000 U	740 U
ANTHRACENE	18,000,000	2,500,000	360 U	390 U	37000 U	41100	5900 U	370 U
BENZO(A)ANTHRACENE	1,400	3,200	72 U	118	62500	68300	7340	247
BENZO(A)PYRENE	100	8,000	72 U	86.2	33600	37700	4430	173
BENZO(B)FLUORANTHENE	1,400	10,000	72 U	70.1 J	33400	41500	4660	169
BENZO(G,H,I)PERYLENE	2,300,000	32,000,000	72 U	72.2 J	13400	17000	2460	96.1
BENZO(K)FLUORANTHENE	15,000	25,000	72 U	46.7 J	23700	29000	2990	125
CHRYSENE	140,000	77,000	72 U	106	50800	55400	6070	219 J
DIBENZO(A,H)ANTHRACENE	100	30,000	72 U	79 U	3780 J	5180 J	665 J	74 U
FLUORANTHENE	2,900,000	1,200,000	360 U	273 J	135000	173000	16300	565
FLUORENE	2,200,000	160,000	360 U	390 U	37000 U	38000 U	5900 U	370 U
INDENO(1,2,3-CD)PYRENE	1,500	28,000	72 U	74.2 J	21500	26200	3740	134
NAPHTHALENE	40,000	1,700	360 U	390 U	37000 U	38000 U	5900 U	370 U
PHENANTHRENE	2,000,000	250,000	360 U	145 J	77500	146000	10600	331 J
PYRENE	2,200,000	880,000	360 U	183 J	89400	110000	11000	429
TOTAL RECOVERABLE PETROLEUM HYDROCARBONS (TRPH) (mg/kg)								
TRPH	340	340	8.26 J	13.9	NA	NA	NA	NA

TABLE 5-1

SOIL ANALYTICAL DATA
PAHs AND TRPH
PSC 42, FORMER BOILER HOUSE/STEAM PLANT AND GENERAL STOREHOUSE
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA
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PARAMETER	FDEP RESIDENTIAL SCTL*	FDEP LEACHABILITY SCTL*	CEF-P42-					
			SS-805-01	SS-806-02	SS-807-02		SU-808-03	SS-810-02
					Sample	Duplicate		
POLYNUCLEAR AROMATIC HYDROCARBONS (ug/kg)								
1-METHYLNAPHTHALENE	68,000	2,200	370 U	350 U	390 UJ	530 J	350 UJ	170 J
2-METHYLNAPHTHALENE	83,000	6,100	370 U	350 U	390 UJ	685 J	350 UJ	239 J
ACENAPHTHENE	1,900,000	2,100	370 U	350 U	390 UJ	886 J	350 UJ	415
ACENAPHTHYLENE	1,100,000	27,000	740 U	690 U	770 U	720 U	700 UJ	690 U
ANTHRACENE	18,000,000	2,500,000	370 U	350 U	390 U	2900 U	350 UJ	350 U
BENZO(A)ANTHRACENE	1,400	3,200	99.2	69 U	77 UJ	803 J	140 J	526
BENZO(A)PYRENE	100	8,000	49 J	69 U	77 UJ (1)	807 J (1)	102 J	540
BENZO(B)FLUORANTHENE	1,400	10,000	56.4 J	69 U	77 UJ	544 J	69 J	751
BENZO(G,H,I)PERYLENE	2,300,000	32,000,000	35.6 J	69 U	77 UJ	676 J	35.3 J	689
BENZO(K)FLUORANTHENE	15,000	25,000	36.9 J	69 U	77 UJ	278 J	52.6 J	335
CHRYSENE	140,000	77,000	72.4 J	350 U	390 UJ	920 J	118 J	661
DIBENZO(A,H)ANTHRACENE	100	30,000	74 U	69 U	77 U	570 U	70 UJ	550 U
FLUORANTHENE	2,900,000	1,200,000	370 U	350 U	390 UJ	2200 J	334 J	848
FLUORENE	2,200,000	160,000	370 U	350 U	390 U	114 J	350 UJ	350 U
INDENO(1,2,3-CD)PYRENE	1,500	28,000	43.1 J	69 U	77 UJ	465 J	68.6 J	410
NAPHTHALENE	40,000	1,700	370 U	350 U	390 UJ	456 J	350 UJ	151 J
PHENANTHRENE	2,000,000	250,000	370 U	350 U	390 UJ	1760 J	204 J	256 J
PYRENE	2,200,000	880,000	370 U	350 U	390 UJ	1550 J	218 J	859
TOTAL RECOVERABLE PETROLEUM HYDROCARBONS (TRPH) (mg/kg)								
TRPH	340	340	NA	NA	NA	NA	NA	NA

TABLE 5-1

SOIL ANALYTICAL DATA
PAHs AND TRPH
PSC 42, FORMER BOILER HOUSE/STEAM PLANT AND GENERAL STOREHOUSE
NAVAL AIR STATION CECIL FIELD
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PARAMETER	FDEP RESIDENTIAL SCTL*	FDEP LEACHABILITY SCTL*	CEF-P42-				
			SS-813-02	SS-814-02	SU-815-03	SS-816-02	
						Sample	Duplicate
POLYNUCLEAR AROMATIC HYDROCARBONS (ug/kg)							
1-METHYLNAPHTHALENE	68,000	2,200	350 U	1800 U	4560 J	350 U	92.6 J
2-METHYLNAPHTHALENE	83,000	6,100	350 U	1800 U	3600 UJ	350 U	146 J
ACENAPHTHENE	1,900,000	2,100	350 U	1800 U	3600 UJ	350 U	350 U
ACENAPHTHYLENE	1,100,000	27,000	700 U	3600 U	14000 UJ	690 U	700 U
ANTHRACENE	18,000,000	2,500,000	350 U	1800 U	3600 UJ	350 U	350 U
BENZO(A)ANTHRACENE	1,400	3,200	70 U	360 U	720 UJ	69 U	70 U
BENZO(A)PYRENE	100	8,000	70 U	360 U	720 UJ	69 U	27 J
BENZO(B)FLUORANTHENE	1,400	10,000	70 U	360 U	720 UJ	69 U	70 U
BENZO(G,H,I)PERYLENE	2,300,000	32,000,000	70 U	360 U	720 UJ	69 U	27.5 J
BENZO(K)FLUORANTHENE	15,000	25,000	70 U	360 U	720 UJ	69 U	70 U
CHRYSENE	140,000	77,000	350 U	1800 U	3600 UJ	350 U	350 U
DIBENZO(A,H)ANTHRACENE	100	30,000	70 U	360 U	720 UJ	69 U	70 U
FLUORANTHENE	2,900,000	1,200,000	350 U	1800 U	3600 UJ	350 U	88.4 J
FLUORENE	2,200,000	160,000	350 U	1800 U	7200 UJ	350 U	350 U
INDENO(1,2,3-CD)PYRENE	1,500	28,000	70 U	360 U	720 UJ	69 U	18.5 J
NAPHTHALENE	40,000	1,700	350 U	1800 U	3600 UJ	350 U	132 J
PHENANTHRENE	2,000,000	250,000	350 U	1800 U	3600 UJ	350 U	80.5 J
PYRENE	2,200,000	880,000	350 U	1800 U	14000 UJ	350 U	58.3 J
TOTAL RECOVERABLE PETROLEUM HYDROCARBONS (TRPH) (mg/kg)							
TRPH	340	340	18.1	NA	NA	8.05 J	23

TABLE 5-1

SOIL ANALYTICAL DATA
PAHs AND TRPH
PSC 42, FORMER BOILER HOUSE/STEAM PLANT AND GENERAL STOREHOUSE
NAVAL AIR STATION CECIL FIELD
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PARAMETER	FDEP RESIDENTIAL SCTL*	FDEP LEACHABILITY SCTL*	CEF-P42-					
			SS-820-02		SU-821-04	SS-823-02	SS-826-02	SS-827-02
			Sample	Duplicate				
POLYNUCLEAR AROMATIC HYDROCARBONS (ug/kg)								
1-METHYLNAPHTHALENE	68,000	2,200	340 U	350 U	350 U	340 U	340 U	340 U
2-METHYLNAPHTHALENE	83,000	6,100	340 U	350 U	350 U	340 U	340 U	340 U
ACENAPHTHENE	1,900,000	2,100	340 U	350 U	350 U	340 U	340 U	340 U
ACENAPHTHYLENE	1,100,000	27,000	680 U	690 U	700 U	690 U	690 U	680 U
ANTHRACENE	18,000,000	2,500,000	340 U	350 U	350 U	340 U	340 U	340 U
BENZO(A)ANTHRACENE	1,400	3,200	68 U	69 U	70 U	27.6 J	69 U	68 U
BENZO(A)PYRENE	100	8,000	68 U	69 U	70 U	26.4 J	69 U	21.6 J
BENZO(B)FLUORANTHENE	1,400	10,000	68 U	69 U	70 U	16.9 J	69 U	68 U
BENZO(G,H,I)PERYLENE	2,300,000	32,000,000	68 U	69 U	70 U	41.8 J	69 U	26.1 J
BENZO(K)FLUORANTHENE	15,000	25,000	68 U	69 U	70 U	25.3 J	69 U	68 U
CHRYSENE	140,000	77,000	340 U	350 U	350 U	22.6 J	340 U	24.9 J
DIBENZO(A,H)ANTHRACENE	100	30,000	68 U	69 U	70 U	69 U	69 U	68 U
FLUORANTHENE	2,900,000	1,200,000	340 U	350 U	350 U	340 U	340 U	340 U
FLUORENE	2,200,000	160,000	340 U	350 U	350 U	340 U	340 U	340 U
INDENO(1,2,3-CD)PYRENE	1,500	28,000	68 U	69 U	70 U	22.5 J	69 U	17.4 J
NAPHTHALENE	40,000	1,700	340 U	350 U	350 U	340 U	340 U	340 U
PHENANTHRENE	2,000,000	250,000	340 U	350 U	350 U	340 U	340 U	340 U
PYRENE	2,200,000	880,000	340 U	350 U	350 U	340 U	340 U	340 U
TOTAL RECOVERABLE PETROLEUM HYDROCARBONS (TRPH) (mg/kg)								
TRPH	340	340	NA	NA	NA	8.44 J	NA	NA

TABLE 5-1

SOIL ANALYTICAL DATA
PAHs AND TRPH
PSC 42, FORMER BOILER HOUSE/STEAM PLANT AND GENERAL STOREHOUSE
NAVAL AIR STATION CECIL FIELD
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PARAMETER	FDEP RESIDENTIAL SCTL*	FDEP LEACHABILITY SCTL*	CEF-P42-					
			SS-828-02	SS-829-02	SS-832-02	SS-901-01	SS-902-01	SS-903-01
POLYNUCLEAR AROMATIC HYDROCARBONS (ug/kg)								
1-METHYLNAPHTHALENE	68,000	2,200	350 U	340 U	340 U	360 U	380 U	360 U
2-METHYLNAPHTHALENE	83,000	6,100	350 U	340 U	340 U	360 U	380 U	360 U
ACENAPHTHENE	1,900,000	2,100	350 U	340 U	340 U	360 U	380 U	360 U
ACENAPHTHYLENE	1,100,000	27,000	690 U	680 U	680 U	720 U	750 U	720 U
ANTHRACENE	18,000,000	2,500,000	350 U	340 U	340 U	360 U	380 U	360 U
BENZO(A)ANTHRACENE	1,400	3,200	69 U	68 U	68 U	375	224	72 U
BENZO(A)PYRENE	100	8,000	69 U	68 U	68 U	261	142	72 U
BENZO(B)FLUORANTHENE	1,400	10,000	69 U	68 U	68 U	166	105	72 U
BENZO(G,H,I)PERYLENE	2,300,000	32,000,000	69 U	68 U	68 U	180	75.2	72 U
BENZO(K)FLUORANTHENE	15,000	25,000	69 U	68 U	68 U	109	94	72 U
CHRYSENE	140,000	77,000	350 U	340 U	340 U	243 J	168 J	360 U
DIBENZO(A,H)ANTHRACENE	100	30,000	69 U	68 U	68 U	72 U	75 U	72 U
FLUORANTHENE	2,900,000	1,200,000	350 U	340 U	340 U	723	542	360 U
FLUORENE	2,200,000	160,000	350 U	340 U	340 U	360 U	380 U	360 U
INDENO(1,2,3-CD)PYRENE	1,500	28,000	69 U	68 U	68 U	232	119	72 U
NAPHTHALENE	40,000	1,700	350 U	340 U	340 U	360 U	380 U	360 U
PHENANTHRENE	2,000,000	250,000	350 U	340 U	340 U	584	338 J	360 U
PYRENE	2,200,000	880,000	350 U	340 U	340 U	560	470	360 U
TOTAL RECOVERABLE PETROLEUM HYDROCARBONS (TRPH) (mg/kg)								
TRPH	340	340	NA	NA	NA	NA	NA	NA

TABLE 5-1

SOIL ANALYTICAL DATA
PAHs AND TRPH
PSC 42, FORMER BOILER HOUSE/STEAM PLANT AND GENERAL STOREHOUSE
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA
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PARAMETER	FDEP RESIDENTIAL SCTL*	FDEP LEACHABILITY SCTL*	CEF-P42-					
			SS-904-01	SS-905-01		SS-906-01	SS-907-02	SU-908-03
				Sample	Duplicate			
POLYNUCLEAR AROMATIC HYDROCARBONS (ug/kg)								
1-METHYLNAPHTHALENE	68,000	2,200	360 U	380 U	380 U	370 U	318 J	340 U
2-METHYLNAPHTHALENE	83,000	6,100	360 U	380 U	380 U	370 U	422	340 U
ACENAPHTHENE	1,900,000	2,100	360 U	380 U	380 U	370 U	370 U	340 U
ACENAPHTHYLENE	1,100,000	27,000	720 U	760 U	760 U	740 U	740 U	690 U
ANTHRACENE	18,000,000	2,500,000	360 U	380 U	380 U	370 U	370 U	340 U
BENZO(A)ANTHRACENE	1,400	3,200	140 U	76 U	76 U	74 U	593	250
BENZO(A)PYRENE	100	8,000	72 U	76 U	76 U	74 U	641	214
BENZO(B)FLUORANTHENE	1,400	10,000	72 U	76 U	76 U	74 U	369	144
BENZO(G,H,I)PERYLENE	2,300,000	32,000,000	72 U	76 U	76 U	74 U	376	110
BENZO(K)FLUORANTHENE	15,000	25,000	72 U	76 U	76 U	74 U	255	107
CHRYSENE	140,000	77,000	360 U	380 U	380 U	370 U	475	245 J
DIBENZO(A,H)ANTHRACENE	100	30,000	72 U	76 U	76 U	74 U	44.6 J	69 U
FLUORANTHENE	2,900,000	1,200,000	360 U	380 U	380 U	370 U	1000	406
FLUORENE	2,200,000	160,000	360 U	380 U	380 U	370 U	370 U	340 U
INDENO(1,2,3-CD)PYRENE	1,500	28,000	72 U	76 U	76 U	74 U	576	149
NAPHTHALENE	40,000	1,700	360 U	380 U	380 U	370 U	370 U	340 U
PHENANTHRENE	2,000,000	250,000	360 U	380 U	380 U	370 U	400	340 U
PYRENE	2,200,000	880,000	360 U	380 U	380 U	370 U	701	333 J
TOTAL RECOVERABLE PETROLEUM HYDROCARBONS (TRPH) (mg/kg)								
TRPH	340	340	NA	NA	NA	NA	NA	NA

TABLE 5-1

SOIL ANALYTICAL DATA
PAHs AND TRPH
PSC 42, FORMER BOILER HOUSE/STEAM PLANT AND GENERAL STOREHOUSE
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA
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PARAMETER	FDEP RESIDENTIAL SCTL*	FDEP LEACHABILITY SCTL*	CEF-P42-					
			SU-909-04	SS-910-02		SU-911-03	SU-912-04	SU-914-05
				Sample	Duplicate			
POLYNUCLEAR AROMATIC HYDROCARBONS (ug/kg)								
1-METHYLNAPHTHALENE	68,000	2,200	2700	360 U	360 U	350 U	360 U	190 U
2-METHYLNAPHTHALENE	83,000	6,100	5070	360 U	360 U	350 U	360 U	190 U
ACENAPHTHENE	1,900,000	2,100	5110	360 U	360 U	1100 U	360 U	22.6 J
ACENAPHTHYLENE	1,100,000	27,000	5500 U	720 U	720 U	690 U	730 U	190 U
ANTHRACENE	18,000,000	2,500,000	2530 J	360 U	360 U	350 U	360 U	44.6 J
BENZO(A)ANTHRACENE	1,400	3,200	4940	72 U	72 U	69 U	73 U	183
BENZO(A)PYRENE	100	8,000	3570	72 U	72 U	69 U	73 U	101
BENZO(B)FLUORANTHENE	1,400	10,000	2640	72 U	72 U	69 U	73 U	156
BENZO(G,H,I)PERYLENE	2,300,000	32,000,000	1490	72 U	72 U	69 U	73 U	111
BENZO(K)FLUORANTHENE	15,000	25,000	1710	72 U	72 U	69 U	73 U	86.1
CHRYSENE	140,000	77,000	5010	360 U	360 U	350 U	360 U	152
DIBENZO(A,H)ANTHRACENE	100	30,000	550 U	72 U	72 U	69 U	73 U	66.3
FLUORANTHENE	2,900,000	1,200,000	12700	360 U	360 U	350 U	360 U	403
FLUORENE	2,200,000	160,000	2700 U	360 U	360 U	350 U	360 U	6.4 J
INDENO(1,2,3-CD)PYRENE	1,500	28,000	2070	72 U	72 U	69 U	73 U	100
NAPHTHALENE	40,000	1,700	2700 U	360 U	360 U	350 U	360 U	190 U
PHENANTHRENE	2,000,000	250,000	10700	360 U	360 U	350 U	360 U	207
PYRENE	2,200,000	880,000	9210	360 U	360 U	350 U	360 U	296
TOTAL RECOVERABLE PETROLEUM HYDROCARBONS (TRPH) (mg/kg)								
TRPH	340	340	NA	NA	NA	NA	NA	NA

U = Not detected at or above associated detection limit.
J = Estimated concentration.

* FDEP soil cleanup target level, FAC 62-777 (FDEP, 1999).

Black shading = Concentration greater than leachability SCTL or 3 times greater than residential SCTL.
Grey shading = Concentration greater than the 1 times but less than 3 times residential SCTL.
1 For duplicate samples, the average value was used to compare with criteria.

TABLE 5-2

SOIL ANALYTICAL DATA
PESTICIDES
PSC 42, FORMER BOILER HOUSE/STEAM PLANT AND GENERAL STOREHOUSE
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

PARAMETER	FDEP RESIDENTIAL SCTL*	FDEP LEACHABILITY SCTL*	CEF-P42-				
			SS-008-01	SS-009-01	SS-010-01	SS-213-01	
						Sample	Duplicate
4,4'-DDD	4,600	4,000	70 UJ	7.3 UJ	14 UJ	180 UJ	180 UJ
4,4'-DDE	3,300	18,000	70 UJ	7.3 UJ	14 UJ	76 J	180 UJ
4,4'-DDT	3,300	11,000	342 J	7.3 UJ	14 UJ	60 J	180 UJ
ALDRIN	70	500	35 U	3.7 U	7.1 U	89 UJ	90 UJ
ALPHA-BHC	200	0.3	35 U	3.7 U	7.1 U	89 UJ	90 UJ
ALPHA-CHLORDANE	3,100**	9,600**	70 U	7.3 U	14 U	180 UJ	180 UJ
BETA-BHC	600	1	35 U	3.7 U	7.1 U	89 UJ	90 UJ
DELTA-BHC	22,000	200	35 U	3.7 U	7.1 U	89 UJ	90 UJ
DIELDRIN	70	4	35 UJ	3.7 UJ	7.1 UJ	89 UJ	90 UJ
ENDOSULFAN I	41,0000***	3,800***	35 UJ	3.7 UJ	7.1 UJ	89 UJ	90 UJ
ENDOSULFAN II	41,0000***	3,800***	70 UJ	7.3 UJ	14 UJ	180 UJ	180 UJ
ENDOSULFAN SULFATE	NS	NS	70 UJ	7.3 UJ	14 UJ	180 UJ	180 UJ
ENDRIN	21,000	1,000	70 U	7.3 U	14 U	180 UJ	180 UJ
ENDRIN ALDEHYDE	NS	NS	70 U	7.3 U	14 U	180 UJ	180 UJ
ENDRIN KETONE	NS	NS	70 UJ	7.3 UJ	14 UJ	180 UJ	180 UJ
GAMMA-BHC (LINDANE)	700	9	35 U	3.7 U	7.1 U	89 UJ	90 UJ
GAMMA-CHLORDANE	3,100**	9,600**	70 U	7.3 U	14 U	180 UJ	180 UJ
HEPTACHLOR	200	23,000	35 U	3.7 U	7.1 U	89 UJ	90 UJ
HEPTACHLOR EPOXIDE	100	600	35 U	3.7 U	7.1 U	89 UJ	90 UJ
METHOXYCHLOR	370,000	160,000	140 UJ	15 UJ	28 UJ	360 UJ	360 UJ
TOXAPHENE	1,000	31,000	3500 U	370 U	710 U	8900 UJ	9000 UJ

All concentrations in ug/kg.
U = Not detected at or above associated detection limit.
J = Estimated concentration.
* FDEP soil cleanup target level, FAC 62-777 (FDEP, 1999).
** SCTL for total chlordane.
*** SCTL for Endosulfan.

TABLE 5-3

SOIL ANALYTICAL DATA
INORGANIC ANALYTES
PSC 42, FORMER BOILER HOUSE/STEAM PLANT AND GENERAL STOREHOUSE
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA
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PARAMETER	FDEP RESIDENTIAL SCTL*	FDEP LEACHABILITY SCTL*	IBDS VALUE**	CEF-P42-					
				SS-001-01	SS-002-01	SS-003-01	SS-004-01	SS-005-01	SS-006-01
ALUMINUM	72,000	***	4,430	455	1610	979	1770	1010	984
ANTIMONY	26	5	9.44	1 U	2.7	0.59 U	0.5 U	0.81 U	5.2
ARSENIC	0.8	29	2.04	0.86 U	3.7	1.4 U	7	7.8	10.3
BARIUM	110	1,600	14.4	14.9	54.6	31.9	33.3	53.1	114
BERYLLIUM	120	63	0.35	0.12 U	0.34 U	0.16 U	0.3 U	0.44 U	0.68 U
CADMIUM	75	8	1.72	0.02 U	0.12 U	0.04 U	0.02 U	0.11 U	0.22 U
CHROMIUM	210****	38****	7.75	2.6	4.8	1.7	3.4 U	9.9	16.8
COBALT	4,700	***	3.11	0.57	1.1	0.36 U	0.94	1.5	2
COPPER	110	***	5.97	3	8.4	4.6	10.7	14.5	16.6
IRON	23,000	***	1,490	10400	2560	758	3100	2780	4950
LEAD	400	***	197	34.7	55.2	17.9	23.4	127	56.1
MANGANESE	1,600	***	22	29.2	16.1	6.5	5.1	12.1	27.2
MERCURY	3	2	0.16	0.04 U	0.04 U	0.04 U	0.05 U	0.05 U	0.05 U
NICKEL	110	130	3.89	1.9	2.6	1.4	2.8	3.1	4.1
SELENIUM	390	5	1.68	0.6	0.44	0.32 U	1.1	0.97	1.5
SILVER	390	17	2.13	1.8	0.55 U	0.27 U	0.53 U	0.26 U	0.47 U
VANADIUM	15	980	6.3	0.88	4.1	1.6	6.9	7.1	7.1
ZINC	23,000	6,000	37	22.9	60.1	34.4	10.4	168	92.1

TABLE 5-3

SOIL ANALYTICAL DATA
INORGANIC ANALYTES
PSC 42, FORMER BOILER HOUSE/STEAM PLANT AND GENERAL STOREHOUSE
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA
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PARAMETER	FDEP RESIDENTIAL SCTL*	FDEP LEACHABILITY SCTL*	IBDS VALUE**	CEF-P42-					
				SS-007-01		SS-008-01	SS-009-01	SS-010-01	SS-011-01
				Sample	Duplicate				
ALUMINUM	72,000	***	4,430	1750	1810	2950	3320	1900	766
ANTIMONY	26	5	9.44	4.2 U (1)	5.9 (1)	10.3	1.9 U	3.3	2.9
ARSENIC	0.8	29	2.04	3.1	3.5	6.8	7.6	3.7	0.75 U
BARIUM	110	1,600	14.4	40.1	39	66.1	122	36.1	28.8
BERYLLIUM	120	63	0.35	0.27 U	0.23 U	0.47 U	0.52 U	0.19 U	0.13 U
CADMIUM	75	8	1.72	0.29 U	0.26 U	0.71	0.23 U	0.11 U	0.11 U
CHROMIUM	210****	38****	7.75	3.6	4.3	10.5	5.3	5.4	2
COBALT	4,700	***	3.11	0.88	0.91	1.9	1.8	0.83 U	0.28 U
COPPER	110	***	5.97	9	9.1	18.4	23.1	8	4.1
IRON	23,000	***	1,490	1770	2650	5580	4220	1580	633
LEAD	400	***	197	49.7	54.4	224	67.6	105	39.8
MANGANESE	1,600	***	22	74.1	103	353	54.7	38.2	32.7
MERCURY	3	2	0.16	0.04 U	0.04 U	0.04 U	0.05 U	0.04 U	0.04 U
NICKEL	110	130	3.89	3.3	3.4	10.9	5.3	2.2	1.6
SELENIUM	390	5	1.68	0.74	0.75	1.3	1.1	1	0.33 U
SILVER	390	17	2.13	0.23 U	0.31 U	0.33 U	1.9	0.16 U	0.45 U
VANADIUM	15	980	6.3	2.7	3	5.1	6.2	2.9	1.3
ZINC	23,000	6,000	37	131	154	494	105	142	51.1

TABLE 5-3

SOIL ANALYTICAL DATA
INORGANIC ANALYTES
PSC 42, FORMER BOILER HOUSE/STEAM PLANT AND GENERAL STOREHOUSE
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA
PAGE 3 OF 20

PARAMETER	FDEP RESIDENTIAL SCTL*	FDEP LEACHABILITY SCTL*	IBDS VALUE**	CEF-P42-					
				SS-012-01	SS-013-01	SS-014-01	SS-015-01		SS-101-01
							Sample	Duplicate	
ALUMINUM	72,000	***	4,430	654	1120	30.9	547	520	NA
ANTIMONY	26	5	9.44	0.43 U	2.8	0.34 U	0.75 U	0.75 U	0.8
ARSENIC	0.8	29	2.04	0.29 U	1.1 U	0.28 U	0.58 U	0.6 U	0.47 U
BARIUM	110	1,600	14.4	11.4	27.4	8.9	17.9	18.9	10.3 U
BERYLLIUM	120	63	0.35	0.06 U	0.15 U	0.04 U	0.11 U	0.15 U	NA
CADMIUM	75	8	1.72	0.02 U	0.14 U	0.02 U	0.05 U	0.03 U	NA
CHROMIUM	210****	38****	7.75	0.98 U	2.7	0.19 U	0.98 U	1 U	0.46 U
COBALT	4,700	***	3.11	0.05 U	0.45 U	0.04	0.42 U	0.38 U	NA
COPPER	110	***	5.97	2.1	4.1	1.6	2.8	3.2	NA
IRON	23,000	***	1,490	259	1080	24.6	806	1300	NA
LEAD	400	***	197	10.1	44.5	0.51	12.6	14.2	6.9 J
MANGANESE	1,600	***	22	2.8	54.7	0.78	7.3	10.1	NA
MERCURY	3	2	0.16	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	NA
NICKEL	110	130	3.89	0.67 U	1.8	0.09 U	0.91	1.1	NA
SELENIUM	390	5	1.68	0.4	0.55	0.32 U	0.39	0.36	NA
SILVER	390	17	2.13	0.34 U	0.19 U	0.08 U	0.31 U	0.15 U	NA
VANADIUM	15	980	6.3	0.99	1.9	0.25 U	1.5	1.3	NA
ZINC	23,000	6,000	37	6.6	94.5	1.7 U	17.5	19.2	NA

TABLE 5-3

SOIL ANALYTICAL DATA
INORGANIC ANALYTES
PSC 42, FORMER BOILER HOUSE/STEAM PLANT AND GENERAL STOREHOUSE
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA
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PARAMETER	FDEP RESIDENTIAL SCTL*	FDEP LEACHABILITY SCTL*	IBDS VALUE**	CEF-P42-					
				SS-102-01	SS-103-01		SS-104-01	SS-105-01	SS-106-01
					Sample	Duplicate			
ALUMINUM	72,000	***	4,430	NA	NA	NA	NA	NA	NA
ANTIMONY	26	5	9.44	0.35 U	0.38 U	0.18 U	1 U	0.41 U	0.51 U
ARSENIC	0.8	29	2.04	2.7 U	2.2 U	0.79 U	4.4 J	4.8 J	12.2 J
BARIUM	110	1,600	14.4	63.8	32.8	17.4	44.6	30.9	76
BERYLLIUM	120	63	0.35	NA	NA	NA	NA	NA	NA
CADMIUM	75	8	1.72	NA	NA	NA	NA	NA	NA
CHROMIUM	210****	38****	7.75	4.5 J	7.5 J	1.5 U	3.3 J	3.1 J	9.3 J
COBALT	4,700	***	3.11	NA	NA	NA	NA	NA	NA
COPPER	110	***	5.97	NA	NA	NA	NA	NA	NA
IRON	23,000	***	1,490	NA	NA	NA	NA	NA	NA
LEAD	400	***	197	NA	NA	NA	NA	NA	NA
MANGANESE	1,600	***	22	NA	NA	NA	NA	NA	NA
MERCURY	3	2	0.16	NA	NA	NA	NA	NA	NA
NICKEL	110	130	3.89	NA	NA	NA	NA	NA	NA
SELENIUM	390	5	1.68	NA	NA	NA	NA	NA	NA
SILVER	390	17	2.13	NA	NA	NA	NA	NA	NA
VANADIUM	15	980	6.3	NA	NA	NA	NA	NA	NA
ZINC	23,000	6,000	37	NA	NA	NA	NA	NA	NA

TABLE 5-3

SOIL ANALYTICAL DATA
INORGANIC ANALYTES
PSC 42, FORMER BOILER HOUSE/STEAM PLANT AND GENERAL STOREHOUSE
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA
PAGE 5 OF 20

PARAMETER	FDEP RESIDENTIAL SCTL*	FDEP LEACHABILITY SCTL*	IBDS VALUE**	CEF-P42-					
				SS-107-01	SS-108-01	SS-109-01	SS-110-01	SS-111-01	SS-112-01
ALUMINUM	72,000	***	4,430	NA	NA	NA	NA	NA	NA
ANTIMONY	26	5	9.44	1.3 U	1.4 U	0.5	2.8	0.79 U	1.3 U
ARSENIC	0.8	29	2.04	6 J	3.3 J	0.57 U	1.7 U	1.5 U	1.5 U
BARIUM	110	1,600	14.4	26.7	68.4	18.9	29.2	29.7	44.4
BERYLLIUM	120	63	0.35	NA	NA	NA	NA	NA	NA
CADMIUM	75	8	1.72	NA	NA	NA	NA	NA	NA
CHROMIUM	210****	38****	7.75	4.2 J	5 J	2 J	3.4 J	5.4 J	3.1 J
COBALT	4,700	***	3.11	NA	NA	NA	NA	NA	NA
COPPER	110	***	5.97	NA	NA	NA	NA	NA	NA
IRON	23,000	***	1,490	NA	NA	NA	NA	NA	NA
LEAD	400	***	197	NA	NA	16.5 J	51.3 J	NA	NA
MANGANESE	1,600	***	22	NA	NA	NA	NA	NA	NA
MERCURY	3	2	0.16	NA	NA	NA	NA	NA	NA
NICKEL	110	130	3.89	NA	NA	NA	NA	NA	NA
SELENIUM	390	5	1.68	NA	NA	NA	NA	NA	NA
SILVER	390	17	2.13	NA	NA	NA	NA	NA	NA
VANADIUM	15	980	6.3	NA	NA	NA	NA	NA	NA
ZINC	23,000	6,000	37	NA	NA	NA	NA	NA	NA

TABLE 5-3

SOIL ANALYTICAL DATA
INORGANIC ANALYTES
PSC 42, FORMER BOILER HOUSE/STEAM PLANT AND GENERAL STOREHOUSE
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA
PAGE 6 OF 20

PARAMETER	FDEP RESIDENTIAL SCTL*	FDEP LEACHABILITY SCTL*	IBDS VALUE**	CEF-P42-					
				SS-103-01		SS-201-01	SS-202-01	SS-203-01	SS-204-01
				Sample	Duplicate				
ALUMINUM	72,000	***	4,430	NA	NA	NA	NA	NA	NA
ANTIMONY	26	5	9.44	1 U (1)	7 J (1)	0.64 U	0.32 U	0.77 U	0.76 U
ARSENIC	0.8	29	2.04	4.8 J	19.4 J	0.83 U	0.54 U	10.8	7.9
BARIUM	110	1,600	14.4	12.1	31.4	36.5	17.2	211	49.8
BERYLLIUM	120	63	0.35	NA	A	NA	NA	NA	NA
CADMIUM	75	8	1.72	NA	NA	NA	NA	NA	NA
CHROMIUM	210****	38****	7.75	17.5 J (1)	45.8 J (1)	3.8 U	1.9 U	5.6	4 U
COBALT	4,700	***	3.11	NA	NA	NA	NA	NA	NA
COPPER	110	***	5.97	NA	NA	NA	NA	NA	NA
IRON	23,000	***	1,490	NA	NA	NA	NA	NA	NA
LEAD	400	***	197	NA	NA	NA	NA	NA	NA
MANGANESE	1,600	***	22	NA	NA	NA	NA	NA	NA
MERCURY	3	2	0.16	NA	NA	NA	NA	NA	NA
NICKEL	110	130	3.89	NA	NA	NA	NA	NA	NA
SELENIUM	390	5	1.68	NA	NA	NA	NA	NA	NA
SILVER	390	17	2.13	NA	NA	NA	NA	NA	NA
VANADIUM	15	980	6.3	NA	NA	NA	NA	NA	NA
ZINC	23,000	6,000	37	NA	NA	NA	NA	NA	NA

TABLE 5-3

SOIL ANALYTICAL DATA
INORGANIC ANALYTES
PSC 42, FORMER BOILER HOUSE/STEAM PLANT AND GENERAL STOREHOUSE
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PARAMETER	FDEP RESIDENTIAL SCTL*	FDEP LEACHABILITY SCTL*	IBDS VALUE**	CEF-P42-					
				SS-205-01	SS-206-01	SS-207-01	SS-208-01	SS-209-01	SS-210-01
ALUMINUM	72,000	***	4,430	NA	NA	NA	NA	NA	NA
ANTIMONY	26	5	9.44	0.89 U	1.1 U	1.9 U	1.1 U	6.4	0.79 U
ARSENIC	0.8	29	2.04	7.2	8.7	15.7	9.8	5.1	2 U
BARIUM	110	1,600	14.4	62.4	57.9	25.3	21.9	50.7	25.1
BERYLLIUM	120	63	0.35	NA	NA	NA	NA	NA	NA
CADMIUM	75	8	1.72	NA	NA	NA	NA	NA	NA
CHROMIUM	210****	38****	7.75	4.8 U	5.1 U	3 U	3.5 U	7.3	3.5 U
COBALT	4,700	***	3.11	NA	NA	NA	NA	NA	NA
COPPER	110	***	5.97	NA	NA	NA	NA	NA	NA
IRON	23,000	***	1,490	NA	NA	NA	NA	NA	NA
LEAD	400	***	197	NA	NA	NA	NA	NA	NA
MANGANESE	1,600	***	22	NA	NA	NA	NA	NA	NA
MERCURY	3	2	0.16	NA	NA	NA	NA	NA	NA
NICKEL	110	130	3.89	NA	NA	NA	NA	NA	NA
SELENIUM	390	5	1.68	NA	NA	NA	NA	NA	NA
SILVER	390	17	2.13	NA	NA	NA	NA	NA	NA
VANADIUM	15	980	6.3	NA	NA	NA	NA	NA	NA
ZINC	23,000	6,000	37	NA	NA	NA	NA	NA	NA

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SOIL ANALYTICAL DATA
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PARAMETER	FDEP RESIDENTIAL SCTL*	FDEP LEACHABILITY SCTL*	IBDS VALUE**	CEF-P42-					
				SS-211-01	SS-212-01	SS-213-01		SU-214-03	
						Sample	Duplicate	Sample	Duplicate
ALUMINUM	72,000	***	4,430	NA	NA	NA	NA	NA	NA
ANTIMONY	26	5	9.44	3	1.8 U	49	61.1	0.54 U	0.49 U
ARSENIC	0.8	29	2.04	1.3 U	0.46 U	13.6	20.2	30.1	28.3
BARIUM	110	1,600	14.4	49.9	27.3	291	442	7.3	5.2
BERYLLIUM	120	63	0.35	NA	NA	NA	NA	NA	NA
CADMIUM	75	8	1.72	NA	NA	NA	NA	NA	NA
CHROMIUM	210****	38****	7.75	3.7 U	1.7 U	26.9	37	6	3 U
COBALT	4,700	***	3.11	NA	NA	NA	NA	NA	NA
COPPER	110	***	5.97	NA	NA	NA	NA	NA	NA
IRON	23,000	***	1,490	NA	NA	NA	NA	NA	NA
LEAD	400	***	197	NA	NA	NA	NA	NA	NA
MANGANESE	1,600	***	22	NA	NA	NA	NA	NA	NA
MERCURY	3	2	0.16	NA	NA	NA	NA	NA	NA
NICKEL	110	130	3.89	NA	NA	NA	NA	NA	NA
SELENIUM	390	5	1.68	NA	NA	NA	NA	NA	NA
SILVER	390	17	2.13	NA	NA	NA	NA	NA	NA
VANADIUM	15	980	6.3	NA	NA	NA	NA	NA	NA
ZINC	23,000	6,000	37	NA	NA	NA	NA	NA	NA

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SOIL ANALYTICAL DATA
INORGANIC ANALYTES
PSC 42, FORMER BOILER HOUSE/STEAM PLANT AND GENERAL STOREHOUSE
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PARAMETER	FDEP RESIDENTIAL SCTL*	FDEP LEACHABILITY SCTL*	IBDS VALUE**	CEF-P42-					
				SS-301-01	SS-301A-01	SS-302-01	SS-302A-01	SS-303-01	
								Sample	Duplicate
ALUMINUM	72,000	***	4,430	NA	NA	NA	NA	NA	NA
ANTIMONY	26	5	9.44	NA	0.25 U	NA	0.28 U	NA	NA
ARSENIC	0.8	29	2.04	0.57 U	0.86	0.69 U	0.66	0.63 U	0.59 U
BARIUM	110	1,600	14.4	19.7	12.8	9.3	8.8	2.8	2.2
BERYLLIUM	120	63	0.35	NA	NA	NA	NA	NA	NA
CADMIUM	75	8	1.72	NA	NA	NA	NA	NA	NA
CHROMIUM	210****	38****	7.75	257 (2)	3	2.6	1.7	4	2.8
COBALT	4,700	***	3.11	NA	NA	NA	NA	NA	NA
COPPER	110	***	5.97	NA	NA	NA	NA	NA	NA
IRON	23,000	***	1,490	NA	NA	NA	NA	NA	NA
LEAD	400	***	197	250	NA	637	NA	8.4	9.4
MANGANESE	1,600	***	22	NA	NA	NA	NA	NA	NA
MERCURY	3	2	0.16	NA	NA	NA	NA	NA	NA
NICKEL	110	130	3.89	NA	NA	NA	NA	NA	NA
SELENIUM	390	5	1.68	NA	NA	NA	NA	NA	NA
SILVER	390	17	2.13	NA	NA	NA	NA	NA	NA
VANADIUM	15	980	6.3	NA	NA	NA	NA	NA	NA
ZINC	23,000	6,000	37	NA	NA	NA	NA	NA	NA

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SOIL ANALYTICAL DATA
INORGANIC ANALYTES
PSC 42, FORMER BOILER HOUSE/STEAM PLANT AND GENERAL STOREHOUSE
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PARAMETER	FDEP RESIDENTIAL SCTL*	FDEP LEACHABILITY SCTL*	IBDS VALUE**	CEF-P42-					
				SS-303A-01	SS-304-01	SS-304A-01	SS-401-01		SS-402-01
							Sample	Duplicate	
ALUMINUM	72,000	***	4,430	NA	NA	NA	NA	NA	NA
ANTIMONY	26	5	9.44	0.26 U	NA	0.26 U	2.7	2.8	0.94
ARSENIC	0.8	29	2.04	0.47	0.49 U	0.38 U	1.7 U	2.1 U	5.6
BARIUM	110	1,600	14.4	7.3	2	5.3	29.8	39.8	70.8
BERYLLIUM	120	63	0.35	NA	NA	NA	NA	NA	NA
CADMIUM	75	8	1.72	NA	NA	NA	NA	NA	NA
CHROMIUM	210****	38****	7.75	1.5	0.98 U	0.57	3.3 J	4 J	8.2 J
COBALT	4,700	***	3.11	NA	NA	NA	NA	NA	NA
COPPER	110	***	5.97	NA	NA	NA	NA	NA	NA
IRON	23,000	***	1,490	NA	NA	NA	NA	NA	NA
LEAD	400	***	197	NA	5.9	NA	39.3 J	52.2 J	75.4 J
MANGANESE	1,600	***	22	NA	NA	NA	NA	NA	NA
MERCURY	3	2	0.16	NA	NA	NA	NA	NA	NA
NICKEL	110	130	3.89	NA	NA	NA	NA	NA	NA
SELENIUM	390	5	1.68	NA	NA	NA	NA	NA	NA
SILVER	390	17	2.13	NA	NA	NA	NA	NA	NA
VANADIUM	15	980	6.3	NA	NA	NA	NA	NA	NA
ZINC	23,000	6,000	37	NA	NA	NA	NA	NA	NA

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SOIL ANALYTICAL DATA
INORGANIC ANALYTES
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PARAMETER	FDEP RESIDENTIAL SCTL*	FDEP LEACHABILITY SCTL*	IBDS VALUE**	CEF-P42-					
				SS-408-01		SS-409-01	SS-410-01	SS-411-01	SS-412-01
				Sample	Duplicate				
ALUMINUM	72,000	***	4,430	NA	NA	NA	NA	NA	NA
ANTIMONY	26	5	9.44	0.98	0.62	0.25 U	0.28 U	0.25 U	0.34
ARSENIC	0.8	29	2.04	0.66 U	0.37 U	0.36 U	0.61 U	0.36 U	5.9
BARIUM	110	1,600	14.4	18.6	11.7 U	11.7 U	8.1 U	4.5 U	45.8
BERYLLIUM	120	63	0.35	NA	NA	NA	NA	NA	NA
CADMIUM	75	8	1.72	NA	NA	NA	NA	NA	NA
CHROMIUM	210****	38****	7.75	18.4 J	3.5 J	0.72 U	1 U	0.44 U	3 J
COBALT	4,700	***	3.11	NA	NA	NA	NA	NA	NA
COPPER	110	***	5.97	NA	NA	NA	NA	NA	NA
IRON	23,000	***	1,490	NA	NA	NA	NA	NA	NA
LEAD	400	***	197	137 J	27 J	3.5 J	6.5 J	1.9 J	11.8 J
MANGANESE	1,600	***	22	NA	NA	NA	NA	NA	NA
MERCURY	3	2	0.16	NA	NA	NA	NA	NA	NA
NICKEL	110	130	3.89	NA	NA	NA	NA	NA	NA
SELENIUM	390	5	1.68	NA	NA	NA	NA	NA	NA
SILVER	390	17	2.13	NA	NA	NA	NA	NA	NA
VANADIUM	15	980	6.3	NA	NA	NA	NA	NA	NA
ZINC	23,000	6,000	37	NA	NA	NA	NA	NA	NA

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SOIL ANALYTICAL DATA
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PARAMETER	FDEP RESIDENTIAL SCTL*	FDEP LEACHABILITY SCTL*	IBDS VALUE**	CEF-P42-					
				SS-413-01	SS-414-01	SS-415-01	SS-416-01	SS-417-01	SS-418-01
ALUMINUM	72,000	***	4,430	NA	NA	NA	NA	NA	NA
ANTIMONY	26	5	9.44	0.25 U	5.3	1.6	0.27 U	4.3	0.26 U
ARSENIC	0.8	29	2.04	0.36 U	10.6	3	0.68 U	2 U	0.38 U
BARIUM	110	1,600	14.4	6 U	82.3	40.1	14.6	24.3	6.1 U
BERYLLIUM	120	63	0.35	NA	NA	NA	NA	NA	NA
CADMIUM	75	8	1.72	NA	NA	NA	NA	NA	NA
CHROMIUM	210****	38****	7.75	0.88 U	7.4 J	3.8 J	1.1 J	5.2 J	0.28 U
COBALT	4,700	***	3.11	NA	NA	NA	NA	NA	NA
COPPER	110	***	5.97	NA	NA	NA	NA	NA	NA
IRON	23,000	***	1,490	NA	NA	NA	NA	NA	NA
LEAD	400	***	197	1.5 J	93.7 J	46.7 J	18.1 J	37.2 J	3.4 J
MANGANESE	1,600	***	22	NA	NA	NA	NA	NA	NA
MERCURY	3	2	0.16	NA	NA	NA	NA	NA	NA
NICKEL	110	130	3.89	NA	NA	NA	NA	NA	NA
SELENIUM	390	5	1.68	NA	NA	NA	NA	NA	NA
SILVER	390	17	2.13	NA	NA	NA	NA	NA	NA
VANADIUM	15	980	6.3	NA	NA	NA	NA	NA	NA
ZINC	23,000	6,000	37	NA	NA	NA	NA	NA	NA

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SOIL ANALYTICAL DATA
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PARAMETER	FDEP RESIDENTIAL SCTL*	FDEP LEACHABILITY SCTL*	IBDS VALUE**	CEF-P42-					
				SS-419-01	SS-420-01	SS-421-01	SS-502-01		SS-503-01
							Sample	Duplicate	
ALUMINUM	72,000	***	4,430	NA	NA	NA	NA	NA	NA
ANTIMONY	26	5	9.44	0.39	0.4	0.32 U	1.2 U	0.6 U	0.34 U
ARSENIC	0.8	29	2.04	0.54 U	0.48 U	0.46 U	1.7	1.6	0.97
BARIUM	110	1,600	14.4	15	12.8 U	6.7 U	35	8.2	11.9
BERYLLIUM	120	63	0.35	NA	NA	NA	NA	NA	NA
CADMIUM	75	8	1.72	NA	NA	NA	NA	NA	NA
CHROMIUM	210****	38****	7.75	1.4 J	1 U	0.25 U	5.7 J	3 J	1.4 J
COBALT	4,700	***	3.11	NA	NA	NA	NA	NA	NA
COPPER	110	***	5.97	NA	NA	NA	NA	NA	NA
IRON	23,000	***	1,490	NA	NA	NA	NA	NA	NA
LEAD	400	***	197	6.7 J	7 J	2.1 J	173 J	54.4 J	5.4 J
MANGANESE	1,600	***	22	NA	NA	NA	NA	NA	NA
MERCURY	3	2	0.16	NA	NA	NA	NA	NA	NA
NICKEL	110	130	3.89	NA	NA	NA	NA	NA	NA
SELENIUM	390	5	1.68	NA	NA	NA	NA	NA	NA
SILVER	390	17	2.13	NA	NA	NA	NA	NA	NA
VANADIUM	15	980	6.3	NA	NA	NA	NA	NA	NA
ZINC	23,000	6,000	37	NA	NA	NA	NA	NA	NA

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SOIL ANALYTICAL DATA
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PARAMETER	FDEP RESIDENTIAL SCTL*	FDEP LEACHABILITY SCTL*	IBDS VALUE**	CEF-P42-					
				SS-504-01	SS-505-01	SS-506-01	SS-601-01		SS-602-01
							Sample	Duplicate	
ALUMINUM	72,000	***	4,430	NA	NA	NA	NA	NA	NA
ANTIMONY	26	5	9.44	0.24 U	0.28 U	0.27 U	0.28 U	0.27 U	0.3 U
ARSENIC	0.8	29	2.04	0.35 U	0.41 U	0.97	0.4 U	0.38 U	0.43 U
BARIUM	110	1,600	14.4	3.9	6.2	8.5	2.9	2.5	3.7
BERYLLIUM	120	63	0.35	NA	NA	NA	NA	NA	NA
CADMIUM	75	8	1.72	NA	NA	NA	NA	NA	NA
CHROMIUM	210****	38****	7.75	4 J	1.4 J	0.85 U	NA	NA	NA
COBALT	4,700	***	3.11	NA	NA	NA	NA	NA	NA
COPPER	110	***	5.97	NA	NA	NA	NA	NA	NA
IRON	23,000	***	1,490	NA	NA	NA	NA	NA	NA
LEAD	400	***	197	5.2 J	24.1 J	48.1 J	NA	NA	NA
MANGANESE	1,600	***	22	NA	NA	NA	NA	NA	NA
MERCURY	3	2	0.16	NA	NA	NA	NA	NA	NA
NICKEL	110	130	3.89	NA	NA	NA	NA	NA	NA
SELENIUM	390	5	1.68	NA	NA	NA	NA	NA	NA
SILVER	390	17	2.13	NA	NA	NA	NA	NA	NA
VANADIUM	15	980	6.3	NA	NA	NA	NA	NA	NA
ZINC	23,000	6,000	37	NA	NA	NA	NA	NA	NA

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SOIL ANALYTICAL DATA
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PARAMETER	FDEP RESIDENTIAL SCTL*	FDEP LEACHABILITY SCTL*	IBDS VALUE**	CEF-P42-					
				SS-603-01	SS-604-01	SS-605-01	SS-606-01	SS-613-02	SU-614-04
ALUMINUM	72,000	***	4,430	NA	NA	NA	NA	NA	NA
ANTIMONY	26	5	9.44	0.29 U	1.2 U	0.28 U	0.26 U	11.4	0.26 U
ARSENIC	0.8	29	2.04	0.42 U	0.41 U	0.41 U	0.38 U	5.8	0.67 U
BARIUM	110	1,600	14.4	3	1.9	11.5	25.7	129	7.3
BERYLLIUM	120	63	0.35	NA	NA	NA	NA	NA	NA
CADMIUM	75	8	1.72	NA	NA	NA	NA	NA	NA
CHROMIUM	210****	38****	7.75	NA	NA	NA	NA	NA	NA
COBALT	4,700	***	3.11	NA	NA	NA	NA	NA	NA
COPPER	110	***	5.97	NA	NA	NA	NA	NA	NA
IRON	23,000	***	1,490	NA	NA	NA	NA	NA	NA
LEAD	400	***	197	NA	NA	NA	NA	NA	NA
MANGANESE	1,600	***	22	NA	NA	NA	NA	NA	NA
MERCURY	3	2	0.16	NA	NA	NA	NA	NA	NA
NICKEL	110	130	3.89	NA	NA	NA	NA	NA	NA
SELENIUM	390	5	1.68	NA	NA	NA	NA	NA	NA
SILVER	390	17	2.13	NA	NA	NA	NA	NA	NA
VANADIUM	15	980	6.3	NA	NA	NA	NA	NA	NA
ZINC	23,000	6,000	37	NA	NA	NA	NA	NA	NA

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SOIL ANALYTICAL DATA
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PARAMETER	FDEP RESIDENTIAL SCTL*	FDEP LEACHABILITY SCTL*	IBDS VALUE**	CEF-P42-				
				SS-615-02	SS-616-01	SS-617-01	SS-701-02	SU-702-03
ALUMINUM	72,000	***	4,430	NA	NA	NA	NA	NA
ANTIMONY	26	5	9.44	0.25 U	0.27 U	0.28 U	0.25 U	0.24 U
ARSENIC	0.8	29	2.04	6.3	0.39 U	0.4 U	0.37 U	0.35 U
BARIUM	110	1,600	14.4	26.6	5.3	4.7	2.5	2.7
BERYLLIUM	120	63	0.35	NA	NA	NA	NA	NA
CADMIUM	75	8	1.72	NA	NA	NA	NA	NA
CHROMIUM	210****	38****	7.75	NA	NA	NA	NA	NA
COBALT	4,700	***	3.11	NA	NA	NA	NA	NA
COPPER	110	***	5.97	NA	NA	NA	NA	NA
IRON	23,000	***	1,490	NA	NA	NA	NA	NA
LEAD	400	***	197	NA	NA	NA	NA	NA
MANGANESE	1,600	***	22	NA	NA	NA	NA	NA
MERCURY	3	2	0.16	NA	NA	NA	NA	NA
NICKEL	110	130	3.89	NA	NA	NA	NA	NA
SELENIUM	390	5	1.68	NA	NA	NA	NA	NA
SILVER	390	17	2.13	NA	NA	NA	NA	NA
VANADIUM	15	980	6.3	NA	NA	NA	NA	NA
ZINC	23,000	6,000	37	NA	NA	NA	NA	NA

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SOIL ANALYTICAL DATA
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PARAMETER	FDEP RESIDENTIAL SCTL*	FDEP LEACHABILITY SCTL*	IBDS VALUE**	CEF-P42-					
				SU-703-03		SS-704-02	SS-709-01	SS-710-01	
				Sample	Duplicate			Sample	Duplicate
ALUMINUM	72,000	***	4,430	NA	NA	NA	NA	NA	NA
ANTIMONY	26	5	9.44	0.25 U	0.25 U	0.25 U	0.26 U	0.29 U	0.27 U
ARSENIC	0.8	29	2.04	0.35 U	0.36 U	0.36 U	0.37 U	0.42 U	0.39 U
BARIUM	110	1,600	14.4	3.2	2.1	3.6	2.9	8.9	23.9
BERYLLIUM	120	63	0.35	NA	NA	NA	NA	NA	NA
CADMIUM	75	8	1.72	NA	NA	NA	NA	NA	NA
CHROMIUM	210****	38****	7.75	NA	NA	NA	NA	NA	NA
COBALT	4,700	***	3.11	NA	NA	NA	NA	NA	NA
COPPER	110	***	5.97	NA	NA	NA	NA	NA	NA
IRON	23,000	***	1,490	NA	NA	NA	NA	NA	NA
LEAD	400	***	197	NA	NA	NA	NA	NA	NA
MANGANESE	1,600	***	22	NA	NA	NA	NA	NA	NA
MERCURY	3	2	0.16	NA	NA	NA	NA	NA	NA
NICKEL	110	130	3.89	NA	NA	NA	NA	NA	NA
SELENIUM	390	5	1.68	NA	NA	NA	NA	NA	NA
SILVER	390	17	2.13	NA	NA	NA	NA	NA	NA
VANADIUM	15	980	6.3	NA	NA	NA	NA	NA	NA
ZINC	23,000	6,000	37	NA	NA	NA	NA	NA	NA

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SOIL ANALYTICAL DATA
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PARAMETER	FDEP RESIDENTIAL SCTL*	FDEP LEACHABILITY SCTL*	IBDS VALUE**	CEF-P42-					
				SS-711-01	SS-712-01	SS-713-01	SS-714-01	SS-807-02	
								Sample	Duplicate
ALUMINUM	72,000	***	4,430	NA	NA	NA	NA	NA	NA
ANTIMONY	26	5	9.44	0.25 U	0.28 U	0.26 U	0.46 U	0.27 U (1)	14.7 J (1)
ARSENIC	0.8	29	2.04	0.37 U	0.41 U	0.37 U	0.39 U	42.1 J	4.2 J
BARIUM	110	1,600	14.4	4.3	7.2	4.3	12.9	NA	NA
BERYLLIUM	120	63	0.35	NA	NA	NA	NA	NA	NA
CADMIUM	75	8	1.72	NA	NA	NA	NA	NA	NA
CHROMIUM	210****	38****	7.75	NA	NA	NA	NA	NA	NA
COBALT	4,700	***	3.11	NA	NA	NA	NA	NA	NA
COPPER	110	***	5.97	NA	NA	NA	NA	NA	NA
IRON	23,000	***	1,490	NA	NA	NA	NA	NA	NA
LEAD	400	***	197	NA	NA	NA	NA	NA	NA
MANGANESE	1,600	***	22	NA	NA	NA	NA	NA	NA
MERCURY	3	2	0.16	NA	NA	NA	NA	NA	NA
NICKEL	110	130	3.89	NA	NA	NA	NA	NA	NA
SELENIUM	390	5	1.68	NA	NA	NA	NA	NA	NA
SILVER	390	17	2.13	NA	NA	NA	NA	NA	NA
VANADIUM	15	980	6.3	NA	NA	NA	NA	NA	NA
ZINC	23,000	6,000	37	NA	NA	NA	NA	NA	NA

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SOIL ANALYTICAL DATA
INORGANIC ANALYTES
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PARAMETER	FDEP RESIDENTIAL SCTL*	FDEP LEACHABILITY SCTL*	IBDS VALUE**	CEF-P42-				
				SU-808-03	SS-809-02	SS-810-02	SS-816-02	
							Sample	Duplicate
ALUMINUM	72,000	***	4,430	NA	NA	NA	NA	NA
ANTIMONY	26	5	9.44	0.9 U	NA	6.4 J	NA	NA
ARSENIC	0.8	29	2.04	0.35 U	1.9 J	NA	1.4 J (1)	3.3 J (1)
BARIUM	110	1,600	14.4	NA	NA	NA	NA	NA
BERYLLIUM	120	63	0.35	NA	NA	NA	NA	NA
CADMIUM	75	8	1.72	NA	NA	NA	NA	NA
CHROMIUM	210****	38****	7.75	NA	NA	NA	NA	NA
COBALT	4,700	***	3.11	NA	NA	NA	NA	NA
COPPER	110	***	5.97	NA	NA	NA	NA	NA
IRON	23,000	***	1,490	NA	NA	NA	NA	NA
LEAD	400	***	197	NA	NA	NA	NA	NA
MANGANESE	1,600	***	22	NA	NA	NA	NA	NA
MERCURY	3	2	0.16	NA	NA	NA	NA	NA
NICKEL	110	130	3.89	NA	NA	NA	NA	NA
SELENIUM	390	5	1.68	NA	NA	NA	NA	NA
SILVER	390	17	2.13	NA	NA	NA	NA	NA
VANADIUM	15	980	6.3	NA	NA	NA	NA	NA
ZINC	23,000	6,000	37	NA	NA	NA	NA	NA

TABLE 5-3

SOIL ANALYTICAL DATA
INORGANIC ANALYTES
PSC 42, FORMER BOILER HOUSE/STEAM PLANT AND GENERAL STOREHOUSE
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA
PAGE 20 OF 20

PARAMETER	FDEP RESIDENTIAL SCTL*	FDEP LEACHABILITY SCTL*	IBDS VALUE**	CEF-P42-				
				SS-818-02	SS-823-02	SS-826-02	SU-913-03	SS-915-01
ALUMINUM	72,000	***	4,430	NA	NA	NA	NA	NA
ANTIMONY	26	5	9.44	NA	NA	0.25 U	3.7	NA
ARSENIC	0.8	29	2.04	0.36 U	0.36 U	0.37 U	NA	NA
BARIUM	110	1,600	14.4	NA	NA	NA	NA	NA
BERYLLIUM	120	63	0.35	NA	NA	NA	NA	NA
CADMIUM	75	8	1.72	NA	NA	NA	NA	NA
CHROMIUM	210****	38****	7.75	NA	NA	NA	NA	3.0 ***
COBALT	4,700	***	3.11	NA	NA	NA	NA	NA
COPPER	110	***	5.97	NA	NA	NA	NA	NA
IRON	23,000	***	1,490	NA	NA	NA	NA	NA
LEAD	400	***	197	NA	NA	NA	NA	NA
MANGANESE	1,600	***	22	NA	NA	NA	NA	NA
MERCURY	3	2	0.16	NA	NA	NA	NA	NA
NICKEL	110	130	3.89	NA	NA	NA	NA	NA
SELENIUM	390	5	1.68	NA	NA	NA	NA	NA
SILVER	390	17	2.13	NA	NA	NA	NA	NA
VANADIUM	15	980	6.3	NA	NA	NA	NA	NA
ZINC	23,000	6,000	37	NA	NA	NA	NA	NA

U = Not detected at or above associated detection limit.
J = Estimated concentration.
All concentrations in mg/kg.

* FDEP soil cleanup target level, FAC 62-777 (FDEP, 1999).
** NAS Cecil Field Inorganic Background Data Set (HLA, 1998).
*** Hexavalent chromium result - 20 U mg/kg.

Black shading = Concentration greater than leachability SCTL or 3 times greater than SCTL (lesser of residential or IBDS value).
Grey shading = Concentration greater than the 1 times but less than 3 times SCTL (lesser of residential or IBDS value).
1 For duplicate samples, the average value was used to compare with criteria.
2 Sample CEF-P42-SS-301-01 was resampled as CEF-P42-SS-915-01 and analyzed for total and hexavalent chromium.

TABLE 5-4

GROUNDWATER ANALYTICAL DATA
PSC 42, FORMER BOILER HOUSE/STEAM PLANT AND GENERAL STOREHOUSE
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

PARAMETER	FDEP GCTL*	IBDS VALUE**	CEF-P42-GW-01S	CEF-P42-GW-02S	
				Sample	Duplicate
POLYNUCLEAR AROMATIC HYDROCARBONS (ug/L)					
1-METHYLNAPHTHALENE	20	NA	1 U	1 U	1 U
2-METHYLNAPHTHALENE	20	NA	1 U	1 U	1 U
ACENAPHTHENE	20	NA	1 U	1 U	1 U
ACENAPHTHYLENE	210	NA	2 U	2 U	2 U
ANTHRACENE	2100	NA	0.15 U	0.15 U	0.15 U
BENZO(A)ANTHRACENE	0.2	NA	0.15 U	0.15 U	0.15 U
BENZO(A)PYRENE	0.2	NA	0.15 U	0.15 U	0.15 U
BENZO(B)FLUORANTHENE	0.2	NA	0.2 U	0.2 U	0.2 U
BENZO(G,H,I)PERYLENE	210	NA	0.2 U	0.2 U	0.2 U
BENZO(K)FLUORANTHENE	0.5	NA	0.15 U	0.15 U	0.15 U
CHRYSENE	4.8	NA	0.15 U	0.15 U	0.15 U
DIBENZO(A,H)ANTHRACENE	0.2	NA	0.25 U	0.25 U	0.25 U
FLUORANTHENE	280	NA	0.2 U	0.2 U	0.2 U
FLUORENE	280	NA	0.2 U	0.2 U	0.2 U
INDENO(1,2,3-CD)PYRENE	0.2	NA	0.15 U	0.15 U	0.15 U
NAPHTHALENE	20	NA	1 U	1 U	1 U
PHENANTHRENE	210	NA	0.15 U	0.15 U	0.15 U
PYRENE	210	NA	0.2 U	0.2 U	0.2 U
TOTAL RECOVERABLE PETROLEUM HYDROCARBONS (TRPH) (mg/L)					
TRPH	5	NA	0.5 U	0.5 U	0.5 U
INORGANICS (ug/L)					
ANTIMONY	6	44.5	4	2.4 U	2.4 U
ARSENIC	50	7.1	3.4 U	3.4 U	3.4 U
BARIUM	2,000	88.2	37.0	48.6	49.5
CHROMIUM	100	18	16.9 U	15.8 U	16.4 U

U = Not detected at or above associated detection limit.
* FDEP groundwater cleanup target level, FAC 62-777 (FDEP, 1999).
** NAS Cecil Field Inorganic Background Data Set (HLA, 1998).

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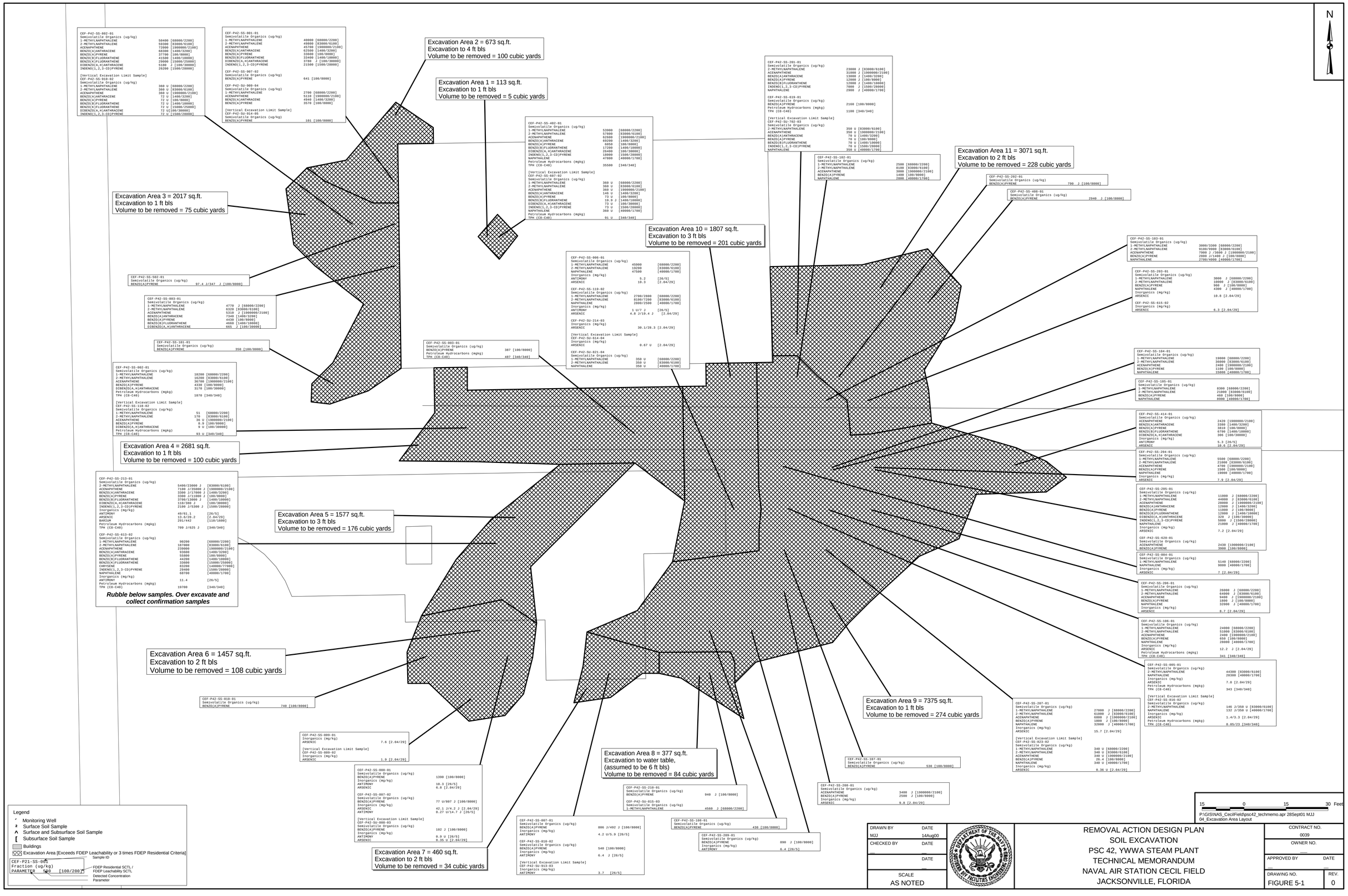

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CHECKED BY	DATE
	DATE
SCALE AS NOTED	

REMOVAL ACTION DESIGN PLAN
SOIL EXCAVATION
PSC 42, YWWA STEAM PLANT
TECHNICAL MEMORANDUM
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

CONTRACT NO. 0039	
OWNER NO.	
APPROVED BY	DATE
DRAWING NO. FIGURE 5-1	REV. 0

6.0 RISK EVALUATION / DETERMINATION OF CLEANUP CONCENTRATION

6.1 HUMAN HEALTH RISKS

Soil sampling at PSC 42 identified concentrations of PAHs, TRPH, and metals (antimony, arsenic, barium, and chromium) in excess of FDEP residential SCTLs. The exceedance of a criterion by an individual sample does not necessarily indicate a significant exceedance of a target risk level. Exposure to a contaminant in the soil is a result of exposure to an area, not an individual sampling location; therefore, the entire data set was used to determine post-excavation exposure concentrations. The exposure concentration is best represented by the 95 percent UCL. Pre-remediation UCLs are presented in Table 6-1.

Because carcinogenic PAHs (CPAHs) were detected at concentrations greater than the residential SCTLs, the BCT agreed that CPAHs should be regarded as a family of compounds and their concentrations should be defined in terms of BaP equivalents (BaPEq). Total BaPEq concentrations were derived for each sample using the U.S. EPA toxicity equivalent factors (TEFs) (U.S. EPA, 1995). If a specific CPAH within a sample was not detected, one-half its detection limit was used in the calculation of BaPEq. If no CPAHs were detected within a sample, one-half the detection limit of BaP was used in the calculation.

Soil samples with concentrations greater than leachability SCTLs or three times greater than residential SCTLs were excavated and disposed in a permitted solid waste disposal facility. The fill used to backfill the excavation was certified clean fill brought in from the Coxwell's Crystal Springs Pit. Data from the fill were used to calculate post-excavation concentrations for BaPEqs, TRPH, antimony, arsenic, barium, and chromium by replacing pre-excavation concentrations with concentrations in the fill, or one-half the detection limit if the analyte was not detected in the fill (Table 6-2). Post-excavation concentrations of BaPEqs, TRPH, antimony, arsenic, barium, and chromium were less than their respective residential SCTLs; therefore, a human health preliminary risk evaluation (PRE) is not required.

6.2 ECOLOGICAL RISKS

A screening-level ecological risk assessment was conducted to evaluate the potential risks to ecological receptors at PSC 42. Steps 1 through 3A of the ecological risk assessment were conducted in accordance with the following documents: U.S. EPA Ecological Risk Assessment Guidance for Superfund (U.S. EPA, 1997), U.S. EPA Region IV Ecological Risk Assessment Bulletins – Supplement to RAGs (U.S. EPA, 1999), U.S. EPA Amended Guidance on Ecological Risk Assessment at Military Bases (U.S.

EPA, 2000b), and the Navy Policy for Conducting Ecological Risk Assessments (Department of the Navy, 1999). Steps 1 through 3A consist of the following:

Step 1	Screening-Level Problem Formulation and Ecological Effects Evaluation
Step 2	Screening-Level Exposure Estimate and Risk Calculation
Step 3A	Refinement of Preliminary Chemicals of Potential Concern (COPCs)

6.2.1 Step 1: Screening-Level Problem Formulation and Ecological Effects Evaluation

PSC 42 was previously part of the Public Works Area of the former Naval Air Gunnery School, which closed decades ago. Buildings including a general storehouse and boiler house have been demolished and the area is now overgrown (see Figure 2-2). A railroad spur ran between the storehouse and boiler building, and a coal storage area (coal pocket) was located east of the boiler house. The surrounding area consists of mature pine flatwoods. Slash pine (*Pinus elliottii)*, loblolly pine (*Pinus taeda*), oaks, sweetgum (*Liquidambar styracliflua*), and black cherry (*Pinus serotina*) can be found in the overstory. Virginia creeper (*Parthenocissus quinquefolia*), poison ivy (*Rhus* spp.), smilax (*Smilax psuedo-china*), and wild grape (*Vitis rotundifolia*) are commonly found in the understory. Several hundred feet east of PSC 42 is a small stream that is approximately 1 to 2 feet wide with a slight flow.

The preliminary assessment endpoints for this ecological risk assessment were the protection of terrestrial biota from adverse effects of chemicals on growth, survival, and reproduction. The preliminary measurement endpoints were chemical concentrations in surface soil associated with adverse effects on growth, survival, and reproduction of soil-dwelling organisms.

6.2.2 Step 2: Screening-Level Exposure Estimate and Risk Calculation

Maximum concentrations of analytes detected in surface soil were compared to conservative ecological screening values (ESVs). Analytes whose maximum concentrations did not exceed ESVs were dropped from further consideration, and those that exceeded ESVs (or did not have ESVs) were retained as ecological COPCs. The ESVs used for the initial screening were the lowest of those established by U.S. EPA Region IV (U.S. EPA, 1999, U.S. EPA, 2001). This ERA was conducted only using the samples that remained after excavation. Figure 6-1 presents the surface soil sample results that exceed the ESVs based on post-excavation soil data. The soil samples were collected over an area of approximately 400 feet by 280 feet or approximately 2.5 acres (see Figure 4-1).

6.2.2.1 Screening Results – Surface Soil

Six semivolatile organic compounds (SVOCs) [anthracene, benzo(a)pyrene, fluoranthene, naphthalene, phenanthrene, pyrene], total PAHs, and six inorganic analytes (aluminum, antimony, chromium, iron, lead, and zinc) were retained as COPCs in surface soil because the maximum detected concentration exceeded the Region IV ecological screening values. Ten SVOCs [1-methylnaphthalene, 2-methylnaphthalene, benzo(a)anthracene, benzo(g,h,i)perylene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, fluorene, and ideno(1,2,3-cd)pyrene] were retained as COPCs in surface soil because Region IV screening levels were not available for these compounds (Table 6-3).

6.2.3 Step 3A: Refinement of Preliminary Contaminants of Potential Concern

Subsequent to the initial screening, other factors were considered to further refine COPCs. These factors included food-chain modeling, habitat quality, area use factors, toxicological evaluation of COPCs, frequency of detection, background concentrations, and comparisons of COPCs to alternate guidelines (U.S. EPA, 1997, and U.S. EPA, 2001; Department of the Navy, 1999).

Food-chain modeling was conducted to investigate potential risks to representative receptors from ingested doses of COPCs that are known to bioaccumulate or biomagnify (U.S. EPA, 2001). The food chain modeling was included in this step prior to the scientific management decision point based on approval of the BCT. Note that some of the assumptions used in the food chain models are conservative. The methods used to model the doses that representative receptors could receive, as well as the selection of toxicity reference values (TRVs) and the calculation sheets for the food-chain model, are described and presented in Appendix C. The assessment endpoints associated with the food-chain modeling were the protection of vermivorous birds and mammals from adverse effects of COPCs on growth, survival, and reproduction. The associated measurement endpoints were doses of COPCs associated with adverse effects on growth, survival, and reproduction of these receptor groups. Note that the assessment and measurement endpoints for the protection of terrestrial biota (Section 6.2.1) are also evaluated in step 3A.

The IBDS was developed to represent facility-wide background concentrations of metals at NAS Cecil Field (HLA, 1998). Surface soil IBDS values for COPCs at PSC 42 are shown in Table 6-3. Concentrations of metals in surface soil at PSC 42 were compared to these IBDS values in Step 3A.

Concentrations of COPCs also were compared to alternate (usually less conservative) guidelines in Step 3A of this assessment. These alternate guidelines are presented in Appendix C of this report. The use of

guidelines that are less conservative than Region IV ESVs values provides balance to the conservative screening-level assessment.

6.2.3.1 Results of Terrestrial Food-Chain Modeling

Using maximum concentrations, the least shrew had a Hazard Quotient (HQ) greater than 1.0 for chromium and lead. The northern mockingbird had HQs greater than 1.0 for chromium, lead, and zinc (Table 6-4).

Using average concentrations, the least shrew did not have an HQ greater than 1.0 (Table 6-5). The northern mockingbird had an HQ greater than 1.0 for lead based on the no-observed-adverse-effects level (NOAEL), but no HQ greater than 1.0 based on the lowest-observed-adverse-effects level (LOAEL) (Table 6-5).

6.2.3.2 Step 3A Discussion

6.2.3.2.1 Soil Plants and Invertebrates

PAHs

Several PAHs were retained as COPCs because there were no Region IV screening levels available for those chemicals, and several PAHs were retained as COPCs because their maximum concentrations exceeded the Region IV screening levels. The screening level is the Dutch Target Value, which is indicative of the soil quality level that is ultimately desired (MHSPE, 1994) and is, therefore, very conservative. However, the Dutch Intermediate Value for total PAHs is 20.5 mg/kg, which is more than twice the maximum PAH concentration at PSC 42 (8.97 mg/kg).

In addition, the maximum total PAH concentration is less than the alternate benchmark of 20 mg/kg for soil phytotoxicity (Efroymson et al., 1997). Therefore, the total PAHs in the soil are expected to pose low risks to ecological receptors.

Aluminum

Aluminum was retained as a COPC because the maximum detected concentration (1,120 mg/kg) exceeded the Region IV screening level of 50 mg/kg. This screening level was based on one plant study in which the establishment of white clover in a silt loam (pH 5.0) was reduced approximately 30 percent by the addition of 50 ppm of aluminum sulfate (Efroymson et al., 1997). The aluminum that was applied to the soil in this study would most likely be more available than aluminum in the soil at the site because it is

unlikely that the aluminum at the site was disposed as an aluminum salt. Therefore, the screening level is very conservative. No other toxicity data for aluminum in soil were located.

As summarized in Venugopal and Luckey (1978), aluminum is not readily absorbed through the skin of mammals. Gastrointestinal absorption of ingested aluminum is poor due to the transformation of aluminum salts into insoluble aluminum phosphate. Another factor in the lack of accumulation of aluminum in animals with age, or the absence of any increase in tissue levels of aluminum following fairly high dietary intake, may be that certain organisms possess a homeostatic mechanism for this element. For most terrestrial organisms (e.g., mammals and birds), aluminum compounds are generally not harmful and are considered to be toxicologically inert, except in cases of high experimental doses or prolonged inhalation (Venugopal and Luckey, 1978).

In addition, the maximum detection of aluminum was less than the IBDS value for aluminum of 4,430 mg/kg (Table 6-3). For these reasons, risks from aluminum are expected to be negligible.

Antimony

This inorganic chemical was retained as a COPC because the maximum detected concentration (4.3 mg/kg) exceeded the COPC screening level of 3.5 mg/kg. The screening level for antimony is based on one plant study that listed unspecified toxic effects on plants grown in a surface soil with the addition of 5 ppm antimony. Because the antimony that was applied in the study was most likely more bioavailable than antimony in soil, potential risks to ecological receptors from antimony are expected to be low. Therefore, antimony is not a risk driver for this exposure pathway.

Chromium

Chromium (total) was retained as a COPC because the maximum detected concentration (257 mg/kg) exceeded the Region IV screening level of 0.4 mg/kg, which was based on an earthworm study in which potassium dichromate [Cr(IV)] was added to the soil as a solution (Efroymson et al., 1997). However, chromium typically occurs in soil as Cr(III) (ATSDR, 2000), which is stable in most soil types (CCME, 1997) and is typically thought to be nontoxic (Eisler, 1986). It is likely that most, if not all, the chromium that was detected in the soil samples at the site was Cr(III). With the exception of the maximum detection, the concentrations of total chromium detected at PSC 42 were less than alternate guidelines and toxicity data from earthworm and plant data presented in Appendix C. The maximum detection is bounded within approximately 50 feet to the north, west, and south by concentrations of less than 4 mg/kg (see Figure 6-1). Also, the HQs for the least shrew and northern mockingbird in the food-chain models based on average concentrations, were less than 1.0. Therefore, potential risks to

ecological receptors from chromium in the soil are expected to be low, so chromium is not a risk driver for the site.

Iron

Iron was retained as a COPC because the maximum detected concentration (10,400 mg/kg) exceeded the Region IV screening level of 200 mg/kg [Oak Ridge National Laboratory (ORNL) benchmark for soil microorganisms and microbial processes)]. However, iron is an essential nutrient and one of the most common elements in the earth's crust being (fourth most abundant). Potential risks are expected to be low because most iron in surface soil is not bioavailable, and no evidence suggests that it will bioaccumulate or biomagnify in organisms. For these reasons, iron is not a risk driver for the site.

Lead

Lead was retained as a COPC because the maximum detected concentration (637 mg/kg) exceeded the Region IV screening level of 50 mg/kg (ORNL benchmark for plants). Although lead was detected in all 30 surface soil samples, the detected concentrations only significantly exceeded the screening level in two samples (CEF-P42-SS-301-01 and CEF-P42-SS-301-02). Those two locations were the only ones greater than the IBDS values for NAS Cecil Field (197 mg/kg). The high lead concentrations are expected to be confined to a small area because the two greatest detections are bounded within 50 feet to the north, west, and south by samples with lead detections of less than 50 mg/kg (see Figure 6-1). The lead concentration detected in sample CEF-P42-SS-301-01 (250 mg/kg) was less than the ORNL benchmark for earthworms (500 mg/kg), as presented in Appendix C. Also, the average LOAEL HQ in the food-chain models was greater than 1 only for the northern mockingbird (HQ=2.0). This HQ is not considered to be significant when the two samples that exceeded the site background level are in a small area (see Figure 6-1).

Zinc

Zinc was retained as a COPC because the maximum detected concentration (94.5 mg/kg) exceeded the Region IV screening level of 50 mg/kg (ORNL benchmark for plants). All the studies used to develop this benchmark consisted of adding zinc to soil as a solution, which is expected to be more bioavailable than the zinc in the soil at the sites (Efroymson et al., 1997). In addition, the maximum concentration of zinc is less than most of the alternate benchmarks and toxicity data presented in Appendix C. The sample with the maximum detection is bounded by samples (with detections of less than 20 mg/kg) or by the excavated area (see Figure 6-1). Also, none of the HQs for the average food-chain model exceeded 1.0. Therefore, potential risks to ecological receptors from zinc in the soil are expected to be low, so zinc is not a risk driver for the site.

6.2.4 Screening-Level and Step 3A Uncertainty Analysis

Uncertainties are associated with most steps of a screening-level ecological risk assessment from selecting endpoints, collecting data, and evaluating toxicity. The following topics summarize some of the uncertainties associated with the assessment that was conducted for PSC 42.

Assessment and Measurement Endpoints: Measurement endpoints were used to evaluate the assessment endpoints based on measurements pertaining to representative species or other indicators. There is uncertainty in this prediction because the species or indicators may not accurately represent the assessment endpoints. Species for measurement endpoints are deliberately selected to have higher exposures to the site contaminants, by having small home ranges, high ingestion rates, and low body weights.

Exposure Characterization: The contaminant dose to terrestrial wildlife was calculated using an equation that incorporates ingestion rates, body weights, bioaccumulation factors, and other exposure factors. Because these exposure factors were obtained from literature studies or predicted using various equations, there is uncertainty when they are applied to other sites. There is also uncertainty in the chemical concentration data used for exposure estimates.

Ecological Effects Data: There is uncertainty in some of the ecological effects data because they are typically developed in a laboratory for species that may or may not be present at the site. In addition, for soil, often only a few studies are available or the guideline value is based on highly variable data.

Risk Characterization: Risks are projected if an HQ is greater than or equal to unity regardless of the magnitude of the HQ. Also, there is uncertainty in how the predicted risks to a species at the site translate into risk to the population in the area as a whole.

6.2.5 Ecological Risk Summary and Conclusions

A screening-level ecological risk assessment was performed for PSC 42. Organic and inorganic chemicals were detected in the surface soil at maximum concentrations that exceeded conservative screening levels and, therefore, they were selected as COPCs. These COPCs were assessed in a less conservative Step 3A evaluation.

The results of the Step 3A analysis indicate that all the chemicals detected in the surface soil at PSC 42 present negligible or low risks to ecological receptors. Therefore, no additional investigations for ecological receptors are proposed for this site.

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TABLE 6-1

SOIL SAMPLE PRE-REMEDIATION CONCENTRATIONS
PSC 42, FORMER BOILER HOUSE/STEAM PLANT AND GENERAL STOREHOUSE
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA
PAGE 1 OF 4

SAMPLE NUMBER	PRE-REMEDIATION					
	BaPEq	TRPH	Arsenic	Chromium	Barium	Antimony
MIN	2.7000	4.3000	0.1000	0.1000	1.9000	0.1000
MAX	76,739.00	35,500.00	42.10	257.00	367.00	55.00
MEAN	2,426.87	805.04	3.10	7.36	32.11	1.88
t 0.95, n-1	0.21634769	0.189803	0.2250829	0.20056914	0.22757987	0.21423743
STANDARD DEVIATION	9,808.89	4,475.16	6.00	30.01	48.23	6.04
COEFFICIENT OF VARIATION	4.04	5.56	1.93	4.08	1.50	3.22
n	140	81	102	73	92	96
UCL $_{0.95}$	2,606.22	899.42	3.24	8.06	33.25	2.01
Goal	100.00	340.00	2.04	210.00	110.00	26.00
remediation level	50	44	0.13	1.7	2.3	0.12
SS-613-02	76739	19700	5.8	-	129	11.4
SS-802	56825	-	-	-	-	-
SS-801	49408	-	-	-	-	-
SS-201	15469	-	0.4	1.9	36.5	0.3
SS-205	14371	-	7.2	2.4	62.4	0.5
SS-213	9668.5	667	16.9	31.9	367	55
SS-402	42894	35500	5.6	8.2	70.8	0.94
SS-803	6705	-	-	-	-	-
SS-002	8288	1870	3.7	4.8	54.6	2.7
SS-620	4667	-	-	-	-	-
SS-414	5834	248	10.6	7.4	82.3	5.3
SU-909-04	4832	-	-	-	-	-
SS-208	2990	-	9.8	1.8	21.9	0.6
SS-619	2599	1100	-	-	-	-
SS-103	2744	129	0.4	7.5	25.1	0.1
SS-206	3135	-	8.7	2.6	57.9	0.6
SS-207	2391	-	15.7	1.5	25.3	1
SS-204	2203	-	7.9	2	49.8	0.4
SS-408	1678.5	162	0.2	11	18.6	0.8
SS-102	1788	175	1.4	4.5	63.8	0.2
SS-008	1592	221	6.8	10.5	66.1	10.3
SS-104	1406	271	4.4	3.3	44.6	0.5
SS-203	1160	-	10.8	5.6	211	0.4
SS-210	1206	-	1	1.8	25.1	0.4
SS-209	1170	-	5.1	7.3	50.7	6.4
SS-807-02	683	-	42.1	-	-	14.7
SS-202	981	-	0.3	1	17.2	0.2
SS-106	899	341	12.2	9.3	76	0.3
SS-007	944	116	3.3	4	40	5.9
SS-907-02	842	-	-	-	-	-
SS-810-02	988	-	-	-	-	6.4
SS-107	704	47	6	4.2	26.7	0.7
SS-105	586	157	4.8	3.1	30.9	0.2
SS-108	582	48	3.3	5	68.4	0.7
SS-101	482	47	0.2	0.2	5.2	0.8
SS-003	491	487	0.7	1.7	31.9	0.3
SU-815-03	360	-	-	-	-	-
SS-010	826	100	3.7	5.4	36.1	3.3
SS-112	384	-	0.8	3.1	44.4	0.7
SS-415	393	86.6	3	3.8	40.1	1.6
SS-901	376	-	-	-	-	-

TABLE 6-1

SOIL SAMPLE PRE-REMEDIATION CONCENTRATIONS
PSC 42, FORMER BOILER HOUSE/STEAM PLANT AND GENERAL STOREHOUSE
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA
PAGE 2 OF 4

SAMPLE NUMBER	PRE-REMEDIATION					
	BaPEq	TRPH	Arsenic	Chromium	Barium	Antimony
MIN	2.7000	4.3000	0.1000	0.1000	1.9000	0.1000
MAX	76,739.00	35,500.00	42.10	257.00	367.00	55.00
MEAN	2,426.87	805.04	3.10	7.36	32.11	1.88
t 0.95, n-1	0.21634769	0.189803	0.2250829	0.20056914	0.22757987	0.21423743
STANDARD DEVIATION	9,808.89	4,475.16	6.00	30.01	48.23	6.04
COEFFICIENT OF VARIATION	4.04	5.56	1.93	4.08	1.50	3.22
n	140	81	102	73	92	96
UCL $_{0.95}$	2,606.22	899.42	3.24	8.06	33.25	2.01
Goal	100.00	340.00	2.04	210.00	110.00	26.00
remediation level	50	44	0.13	1.7	2.3	0.12
SS-709	341	14.3	0.2	-	2.9	0.1
SS-502	312.5	155	1.7	4.4	21.6	0.3
SU-908-03	305	-	-	-	-	-
SS-814-02	180	-	-	-	-	-
SS-001	205	73	0.43	2.6	14.9	0.5
SS-303A	207	101	0.47	1.5	7.3	0.1
SS-804	266	-	-	-	-	-
SS-301	224	48	0.3	257	19.7	-
SS-401	237.5	45	0.9	3.7	34.8	2.8
SS-508	228	-	-	-	-	-
SS-902	226	-	-	-	-	-
SS-610	211	44	-	-	-	-
SS-113	175	-	1.5	2.3	31.3	0.2
SS-110	154	-	0.9	3.4	29.2	2.8
SS-410	157	45	0.3	0.5	4.1	0.1
SU-808-03	165	-	0.2	-	-	0.5
SS-015	270	82	0.3	0.5	18.4	0.4
SU-914-05	212	-	-	-	-	-
SS-119-02	106	47	12.1	17.5	21.8	7
SS-714	153	13.9	0.2	-	12.9	0.2
SS-417	97	49	1	5.2	24.3	4.3
SS-805	106	-	-	-	-	-
SS-615-02	69	-	6.3	-	26.6	0.1
SS-602	41	50	0.2	-	3.7	0.2
SS-712	41	15.5	0.2	-	7.2	0.1
SS-603	40	50	0.2	-	3	0.2
SS-116	57	44	0.2	0.5	4.3	0.1
SS-606	88	49	0.2	-	25.7	0.1
SS-710	38	9.8	0.2	-	16.4	0.1
SS-604	38	48	0.2	-	1.9	0.6
SS-605	89	48	0.2	-	11.5	0.1
SS-608	38	47	-	-	-	-
SS-711	38	9.41	0.2	-	4.3	0.1
SS-905	38	-	-	-	-	-
SS-607-02	87	46	-	-	-	-
SS-706-02	37	-	-	-	-	-
SS-906	37	-	-	-	-	-
SU-912-04	37	-	-	-	-	-
SS-303	53	47	0.3	3.4	2.5	-
SS-609	36	45	-	-	-	-
SS-611	83	45	-	-	-	-

TABLE 6-1

SOIL SAMPLE PRE-REMEDIATION CONCENTRATIONS
PSC 42, FORMER BOILER HOUSE/STEAM PLANT AND GENERAL STOREHOUSE
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

SAMPLE NUMBER	PRE-REMEDIATION					
	BaPEq	TRPH	Arsenic	Chromium	Barium	Antimony
MIN	2.7000	4.3000	0.1000	0.1000	1.9000	0.1000
MAX	76,739.00	35,500.00	42.10	257.00	367.00	55.00
MEAN	2,426.87	805.04	3.10	7.36	32.11	1.88
t 0.95, n-1	0.21634769	0.189803	0.2250829	0.20056914	0.22757987	0.21423743
STANDARD DEVIATION	9,808.89	4,475.16	6.00	30.01	48.23	6.04
COEFFICIENT OF VARIATION	4.04	5.56	1.93	4.08	1.50	3.22
n	140	81	102	73	92	96
UCL $_{0.95}$	2,606.22	899.42	3.24	8.06	33.25	2.01
Goal	100.00	340.00	2.04	210.00	110.00	26.00
remediation level	50	44	0.13	1.7	2.3	0.12
SS-616	36	45	0.2	-	5.3	0.1
SS-617	36	45	0.2	-	4.7	0.1
SS-701-02	36	7.49	0.2	-	2.5	0.1
SS-713	36	8.26	0.2	-	4.3	0.1
SS-903	36	-	-	-	-	-
SS-904	36	-	-	-	-	-
SS-910-02	36	-	-	-	-	-
SS-601	35	44	0.2	-	2.7	0.1
SS-704-02	35	4.3	0.2		3.6	0.1
SS-806	35	-	-	-	-	-
SS-813-02	35	18.1	-	-	-	-
SS-826-02	35	-	0.2	-	-	0.1
SS-828-02	35	-	-	-	-	-
SU-702-03	35	4.4	0.2	-	-	0.1
SU-703-03	35	-	0.2	-	-	0.1
SU-705-03	35	-	-	-	-	-
SU-821-04	35	-	-	-	-	-
SU-911-03	35	-	-	-	-	-
SS-820-02	35	-	-	-	-	-
SS-829-02	34	-	-	-	-	-
SS-832-02	34	-	-	-	-	-
SS-416	53	77.8	0.3	1.1	14.6	0.1
SS-111	47.3	-	0.8	5.4	29.7	0.4
SS-412	141	279	5.9	3	45.8	0.34
SS-109	44.8	-	0.3	2	18.9	0.5
SS-816-02	75	15.5	2.4	-	-	-
SS-823-02	68	8.44	0.2	-	-	-
SU-707-03	68	4.6	0.2	-	2.1	0.1
SS-827-02	65	-	-	-	-	-
SS-419	37	45	0.3	1.4	15	0.39
SS-304	34	46	0.3	0.5	2	-
SS-114	25	-	-	-	-	-
SS-618	52	-	-	-	-	-
SS-115	24	-	-	-	-	-
SS-612-02	13	23.1	-	-	-	-
SS-413	24	44	0.2	0.4	3	0.1
SS-118-02	18	47	-	-	-	-
SS-004	18.8	187	7	1.7	33.3	0.3
SS-005	8	343	7.8	9.9	53.1	0.4
SS-006	64	293	10.3	16.8	114	5.2
SS-009	8	79.3	7.6	5.3	122	1

TABLE 6-1

SOIL SAMPLE PRE-REMEDIATION CONCENTRATIONS
PSC 42, FORMER BOILER HOUSE/STEAM PLANT AND GENERAL STOREHOUSE
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

SAMPLE NUMBER	PRE-REMEDIATION					
	BaPEq	TRPH	Arsenic	Chromium	Barium	Antimony
MIN	2.7000	4.3000	0.1000	0.1000	1.9000	0.1000
MAX	76,739.00	35,500.00	42.10	257.00	367.00	55.00
MEAN	2,426.87	805.04	3.10	7.36	32.11	1.88
t 0.95, n-1	0.21634769	0.189803	0.2250829	0.20056914	0.22757987	0.21423743
STANDARD DEVIATION	9,808.89	4,475.16	6.00	30.01	48.23	6.04
COEFFICIENT OF VARIATION	4.04	5.56	1.93	4.08	1.50	3.22
n	140	81	102	73	92	96
UCL $_{0.95}$	2,606.22	899.42	3.24	8.06	33.25	2.01
Goal	**100.00**	**340.00**	**2.04**	**210.00**	**110.00**	**26.00**
remediation level	**50**	**44**	**0.13**	**1.7**	**2.3**	**0.12**
SS-011	8	153	0.4	2	28.8	2.9
SS-012	8	22	0.2	0.5	11.4	0.2
SS-013	153	81.7	0.6	2.7	27.4	2.8
SS-014	8	22	0.1	0.1	8.9	0.2
SS-420	23	55	0.2	0.5	6.4	0.4
SS-421	6.5	55	0.2	0.1	3.4	0.2
SS-301A	19	46	0.86	3	12.8	0.1
SS-302	13	47	0.4	2.6	9.3	-
SS-304A	14	88.6	0.2	0.57	5.3	0.1
SS-409	22	45	0.2	0.4	5.9	0.1
SS-504	5.5	-	0.2	4	3.9	0.1
SS-505	13	-	0.2	1.4	6.2	0.1
SS-507	16	-	-	-	-	-
SS-302A	5	92.4	0.66	1.7	8.8	0.1
SS-411	5	44	0.2	0.2	2.3	0.1
SS-418	5	44	0.2	0.1	3.1	0.1
SS-117	2.7	-	-	-	-	-
SS-211	-	-	0.7	1.9	49.9	3
SS-212	-	-	0.2	0.9	27.3	0.9
SS-503	-	-	0.97	1.4	11.9	0.2
SS-506	-	-	0.97	0.4	8.5	0.1
SS-809-02	-	-	1.9	-	-	-
SS-818-02	-	-	0.2	-	-	-
SU-214-03	-	-	29.2	6	6.3	0.3
SU-614-04	-	-	0.3	-	-	0.1
SU-913-03	-	-	-	-	-	3.7

BaPEq = Benzo(a)pyrene equivalents.
Bolded samples were excavated.

TRPH = Total recoverable petroleum hydrocarbons.
- = Not analyzed.

TABLE 6-2

SOIL SAMPLE POST-REMEDIATION CONCENTRATIONS
PSC 42, FORMER BOILER HOUSE/STEAM PLANT AND GENERAL STOREHOUSE
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA
PAGE 1 OF 4

SAMPLE NUMBER	POST-REMEDIATION					
	BaPEq	TRPH	Arsenic	Chromium	Barium	Antimony
MIN	1.8000	4.3000	0.1000	0.1000	0.5000	0.1000
MAX	393.00	279.00	5.90	257.00	49.90	4.30
MEAN	60.26	48.45	0.89	5.89	8.69	1.32
t 0.95, n-1	0.24099484	0.22951836	0.26129771	0.20810531	0.27687995	0.31576649
STANDARD DEVIATION	89.43	36.67	0.83	29.62	11.84	1.23
COEFFICIENT OF VARIATI	1.48	0.76	0.92	5.03	1.36	0.93
n	140	82	102	74	92	96
UCL 0.95	62.08	49.38	0.91	6.60	9.03	1.36
Goal	100.00	340.00	2.04	210.00	110.00	26.00
remediation level	1.8	44	1.5	3.1	0.5	2.5
SS-613-02	1.8	44	1.5	-	0.5	2.5
SS-802	1.8	-	-	-	-	-
SS-801	1.8	-	-	-	-	-
SS-201	1.8	-	1.5	3.1	0.5	2.5
SS-205	1.8	-	1.5	3.1	0.5	2.5
SS-213	1.8	44	1.5	3.1	0.5	2.5
SS-402	1.8	44	1.5	3.1	0.5	2.5
SS-803	1.8	-	-	-	-	-
SS-002	1.8	44	1.5	3.1	0.5	2.5
SS-620	1.8	-	-	-	-	-
SS-414	1.8	44	1.5	3.1	0.5	2.5
SU-909-04	1.8	-	-	-	-	-
SS-208	1.8	-	1.5	3.1	0.5	2.5
SS-619	1.8	44	-	-	-	-
SS-103	1.8	44	1.5	3.1	0.5	2.5
SS-206	1.8	-	1.5	3.1	0.5	2.5
SS-207	1.8	-	1.5	3.1	0.5	2.5
SS-204	1.8	-	1.5	3.1	0.5	2.5
SS-408	1.8	44	1.5	3.1	0.5	2.5
SS-102	1.8	44	1.5	3.1	0.5	2.5
SS-008	1.8	44	1.5	3.1	0.5	2.5
SS-104	1.8	44	1.5	3.1	0.5	2.5
SS-203	1.8	-	1.5	3.1	0.5	2.5
SS-210	1.8	-	1.5	3.1	0.5	2.5
SS-209	1.8	-	1.5	3.1	0.5	2.5
SS-807-02	1.8	-	1.5	-	-	2.5
SS-202	1.8	-	1.5	3.1	0.5	2.5
SS-106	1.8	44	1.5	3.1	0.5	2.5
SS-007	1.8	44	1.5	3.1	0.5	2.5
SS-907-02	1.8	-	-	-	-	-
SS-810-02	1.8	-	-	-	-	2.5
SS-107	1.8	44	1.5	3.1	0.5	2.5
SS-105	1.8	44	1.5	3.1	0.5	2.5
SS-108	1.8	44	1.5	3.1	0.5	2.5
SS-101	1.8	44	1.5	3.1	0.5	2.5
SS-003	1.8	44	1.5	3.1	0.5	2.5
SU-815-03	1.8	-	-	-	-	-
SS-010	1.8	44	1.5	3.1	0.5	2.5
SS-112	384	-	0.8	3.1	44.4	0.7
SS-415	393	86.6	3	3.8	40.1	1.6
SS-901	376	-	-	-	-	-

TABLE 6-2

SOIL SAMPLE POST-REMEDIATION CONCENTRATIONS
PSC 42, FORMER BOILER HOUSE/STEAM PLANT AND GENERAL STOREHOUSE
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

SAMPLE NUMBER	POST-REMEDIATION					
	BaPEq	TRPH	Arsenic	Chromium	Barium	Antimony
MIN	1.8000	4.3000	0.1000	0.1000	0.5000	0.1000
MAX	393.00	279.00	5.90	257.00	49.90	4.30
MEAN	60.26	48.45	0.89	5.89	8.69	1.32
t 0.95, n-1	0.24099484	0.22951836	0.26129771	0.20810531	0.27687995	0.31576649
STANDARD DEVIATION	89.43	36.67	0.83	29.62	11.84	1.23
COEFFICIENT OF VARIATI	1.48	0.76	0.92	5.03	1.36	0.93
n	140	82	102	74	92	96
UCL 0.95	62.08	49.38	0.91	6.60	9.03	1.36
Goal remediation level	100.00 1.8	340.00 44	2.04 1.5	210.00 3.1	110.00 0.5	26.00 2.5
SS-709	341	14.3	0.2		2.9	0.1
SS-502	312.5	155	1.7	4.4	21.6	0.3
SU-908-03	305	-	-			-
SS-814-02	180	-	-			-
SS-001	205	73	0.43	2.6	14.9	0.5
SS-303A	207	101	0.47	1.5	7.3	0.1
SS-804	266	-	-	-	-	-
SS-301	224	48	0.3	257	19.7	-
SS-401	237.5	45	0.9	3.7	34.8	2.8
SS-508	228	-	-	-	-	-
SS-902	226	-	-	-	-	-
SS-610	211	44	-	-	-	-
SS-113	175	-	1.5	2.3	31.3	0.2
SS-110	154	-	0.9	3.4	29.2	2.8
SS-410	157	45	0.3	0.5	4.1	0.1
SU-808-03	165	-	0.2	-	-	0.5
SS-015	270	82	0.3	0.5	18.4	0.4
SU-914-05	212	-	-	-	-	-
SS-119-02	1.8	44	1.5	3.1	0.5	2.5
SS-714	153	13.9	0.2		12.9	0.2
SS-417	97	49	1	5.2	24.3	4.3
SS-805	106	-	-	-	-	-
SS-615-02	1.8	44	1.5	3.1	0.5	2.5
SS-602	41	50	0.2	-	3.7	0.2
SS-712	41	15.5	0.2	-	7.2	0.1
SS-603	40	50	0.2	-	3	0.2
SS-116	57	44	0.2	0.5	4.3	0.1
SS-606	88	49	0.2	-	25.7	0.1
SS-710	38	9.8	0.2	-	16.4	0.1
SS-604	38	48	0.2	-	1.9	0.6
SS-605	89	48	0.2	-	11.5	0.1
SS-608	38	47	-	-	-	-
SS-711	38	9.41	0.2		4.3	0.1
SS-905	38	-	-	-	-	-
SS-607-02	87	46	-	-	-	-
SS-706-02	37	-	-	-	-	-
SS-906	37	-	-	-	-	-
SU-912-04	37	-	-	-	-	-
SS-303	53	47	0.3	3.4	2.5	-
SS-609	36	45	-	-	-	-
SS-611	83	45	-	-	-	-

TABLE 6-2

SOIL SAMPLE POST-REMEDIATION CONCENTRATIONS
PSC 42, FORMER BOILER HOUSE/STEAM PLANT AND GENERAL STOREHOUSE
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA
PAGE 3 OF 4

SAMPLE NUMBER	POST-REMEDIATION					
	BaPEq	TRPH	Arsenic	Chromium	Barium	Antimony
MIN	1.8000	4.3000	0.1000	0.1000	0.5000	0.1000
MAX	393.00	279.00	5.90	257.00	49.90	4.30
MEAN	60.26	48.45	0.89	5.89	8.69	1.32
t 0.95, n-1	0.24099484	0.22951836	0.26129771	0.20810531	0.27687995	0.31576649
STANDARD DEVIATION	89.43	36.67	0.83	29.62	11.84	1.23
COEFFICIENT OF VARIATI	1.48	0.76	0.92	5.03	1.36	0.93
n	140	82	102	74	92	96
UCL 0.95	62.08	49.38	0.91	6.60	9.03	1.36
Goal	100.00	340.00	2.04	210.00	110.00	26.00
remediation level	1.8	44	1.5	3.1	0.5	2.5
SS-616	36	45	0.2	-	5.3	0.1
SS-617	36	45	0.2	-	4.7	0.1
SS-701-02	36	7.49	0.2	-	2.5	0.1
SS-713	36	8.26	0.2	-	4.3	0.1
SS-903	36	-	-	-	-	-
SS-904	36	-	-	-	-	-
SS-910-02	36	-	-	-	-	-
SS-601	35	44	0.2		2.7	0.1
SS-704-02	35	4.3	0.2		3.6	0.1
SS-806	35	-	-	-	-	-
SS-813-02	35	18.1	-	-	-	-
SS-826-02	35	-	0.2	-	-	0.1
SS-828-02	35	-	-	-	-	-
SU-702-03	35	4.4	0.2	-	-	0.1
SU-703-03	35	-	0.2	-	-	0.1
SU-705-03	35	-	-	-	-	-
SU-821-04	35	-	-	-	-	-
SU-911-03	35	-	-	-	-	-
SS-820-02	35	-	-	-	-	-
SS-829-02	34	-	-	-	-	-
SS-832-02	34	-	-	-	-	-
SS-416	53	77.8	0.3	1.1	14.6	0.1
SS-111	47.3	-	0.8	5.4	29.7	0.4
SS-412	141	279	5.9	3	45.8	0.34
SS-109	44.8	-	0.3	2	18.9	0.5
SS-816-02	75	15.5	2.4	-	-	-
SS-823-02	68	8.44	0.2	-	-	-
SU-707-03	68	4.6	0.2	-	2.1	0.1
SS-827-02	65	-	-	-	-	-
SS-419	37	45	0.3	1.4	15	0.39
SS-304	34	46	0.3	0.5	2	-
SS-114	25	-	-	-	-	-
SS-618	52	-	-	-	-	-
SS-115	24	-	-	-	-	-
SS-612-02	13	23.1	-	-	-	-
SS-413	24	44	0.2	0.4	3	0.1
SS-118-02	18	47	-	-	-	-
SS-004	1.8	44	1.5	3.1	0.5	2.5
SS-005	1.8	44	1.5	3.1	0.5	2.5
SS-006	1.8	44	1.5	3.1	0.5	2.5
SS-009	1.8	44	1.5	3.1	0.5	2.5

TABLE 6-2

SOIL SAMPLE POST-REMEDIATION CONCENTRATIONS
PSC 42, FORMER BOILER HOUSE/STEAM PLANT AND GENERAL STOREHOUSE
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA
PAGE 4 OF 4

SAMPLE NUMBER	POST-REMEDIATION					
	BaPEq	TRPH	Arsenic	Chromium	Barium	Antimony
MIN	1.8000	4.3000	0.1000	0.1000	0.5000	0.1000
MAX	393.00	279.00	5.90	257.00	49.90	4.30
MEAN	60.26	48.45	0.89	5.89	8.69	1.32
t 0.95, n-1	0.24099484	0.22951836	0.26129771	0.20810531	0.27687995	0.31576649
STANDARD DEVIATION	89.43	36.67	0.83	29.62	11.84	1.23
COEFFICIENT OF VARIATI	1.48	0.76	0.92	5.03	1.36	0.93
n	140	82	102	74	92	96
UCL 0.95	62.08	49.38	0.91	6.60	9.03	1.36
Goal	100.00	340.00	2.04	210.00	110.00	26.00
remediation level	1.8	44	1.5	3.1	0.5	2.5
SS-011	8	153	0.4	2	28.8	2.9
SS-012	8	22	0.2	0.5	11.4	0.2
SS-013	153	81.7	0.6	2.7	27.4	2.8
SS-014	8	22	0.1	0.1	8.9	0.2
SS-420	23	55	0.2	0.5	6.4	0.4
SS-421	6.5	55	0.2	0.1	3.4	0.2
SS-301A	19	46	0.86	3	12.8	0.1
SS-302	13	47	0.4	2.6	9.3	-
SS-304A	14	88.6	0.2	0.57	5.3	0.1
SS-409	22	45	0.2	0.4	5.9	0.1
SS-504	5.5	-	0.2	4	3.9	0.1
SS-505	13	-	0.2	1.4	6.2	0.1
SS-507	16	-	-	-	-	-
SS-302A	5	92.4	0.66	1.7	8.8	0.1
SS-411	5	44	0.2	0.2	2.3	0.1
SS-418	5	44	0.2	0.1	3.1	0.1
SS-117	2.7	-	-	-	-	-
SS-211	-	-	0.7	1.9	49.9	3
SS-212	-	-	0.2	0.9	27.3	0.9
SS-503	-	-	0.97	1.4	11.9	0.2
SS-506	-	-	0.97	0.4	8.5	0.1
SS-809-02	-	-	1.9	-	-	-
SS-818-02	-	-	0.2	-	-	-
SU-214-03	-	-	1.5	3.1	0.5	2.5
SU-614-04	-	-	0.3	-	-	0.1
SU-913-03	-	-	-	-	-	3.7

BaPEq = Benzo(a)pyrene equivalents.
Bolded samples were excavated.

TRPH = Total recoverable petroleum hydrocarbons.
- = Not analyzed.

TABLE 6-3

SELECTION OF CONTAMINANTS OF POTENTIAL CONCERN IN SURFACE SOIL (POST-EXCAVATION)
PSC 42, FORMER BOILER HOUSE/STEAM PLANT AND GENERAL STOREHOUSE
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

Parameter	Frequency of Detection[1]	Range of Detection[1]		Range of Detection Limits	Location of Maximum	IBDS Value[3]	EPA Region IV Screening Value[4]	Maximum Hazard Quotient	Selected as COPC (Yes/No?)
		Minimum	Maximum[2]						
Semivolatile Organics (ug/kg)									
1-Methylnaphthalene	12/66	47	1990	35 - 410	CEF-P42-SS-412-01	NA	NA	NA	Yes
2-Methylnaphthalene	21/66	74	2150	35 - 410	CEF-P42-SS-412-01	NA	NA	NA	Yes
Acenaphthene	13/66	46	1100	35 - 410	CEF-P42-SS-112-01	NA	20000	0.1	No
Anthracene	5/66	9.9	150	5.3 - 410	CEF-P42-SS-112-01	NA	100	1.5	Yes
Benzo(a)anthracene	34/66	11.1	375	5.4 - 154	CEF-P42-SS-901-01	NA	NA	NA	Yes
Benzo(a)pyrene	31/66	12.6	290	5.4 - 82	CEF-P42-SS-112-01	NA	100	2.9	Yes
Benzo(b)fluoranthene	37/66	14.5	469	5.4 - 82	CEF-P42-SS-415-01	NA	NA	NA	Yes
Benzo(g,h,i)perylene	31/66	11.5	424	7.3 - 82	CEF-P42-SS-709-01	NA	NA	NA	Yes
Benzo(k)fluoranthene	36/66	11	182	5.4 - 82	CEF-P42-SS-401-01	NA	NA	NA	Yes
Chrysene	35/66	15	404	5.4 - 380	CEF-P42-SS-415-01	NA	NA	NA	Yes
Dibenzo(a,h)anthracene	5/66	11	34.6	8.8 - 82	CEF-P42-SS-412-01	NA	NA	NA	Yes
Fluoranthene	38/66	19.5	2070	10 - 410	CEF-P42-SS-013-01	NA	100	20.7	Yes
Fluorene	3/66	16	155	7 - 410	CEF-P42-SS-304-01	NA	NA	NA	Yes
Indeno(1,2,3-cd)pyrene	25/66	7.4	470	5.4 - 82	CEF-P42-SS-709-01	NA	NA	NA	Yes
Naphthalene	12/66	52	690	35 - 410	CEF-P42-SS-112-01	NA	100	6.9	Yes
Phenanthrene	24/66	15	2260	5.4 - 410	CEF-P42-SS-304A-01	NA	100	22.6	Yes
Pyrene	35/66	12.2	770	7.3 - 410	CEF-P42-SS-112-01	NA	100	7.7	Yes
Total PAHs	44/66	28	8970	NA	CEF-P42-SS-112-01	NA	1000	9.0	Yes
Inorganics (mg/kg)									
Aluminum	6/6	30.9	1120	0	CEF-P42-SS-013-01	4430	50	22.4	Yes
Antimony	11/49	0.34	4.3	0.24 - 1.8	CEF-P42-SS-417-01	9.44	3.5	1.2	Yes
Arsenic	8/53	0.47	5.9	0.28 - 2.1	CEF-P42-SS-412-01	2.04	10	0.6	No
Barium	45/53	1.9	49.9	4.5 - 12.8	CEF-P42-SS-211-01	14.4	165	0.3	No
Chromium	25/40	0.57	257	0.19 - 3.7	CEF-P42-SS-301-01	7.75	0.4	643	Yes
Cobalt	2/6	0.04	0.57	0.05 - 0.45	CEF-P42-SS-001-01	3.11	20	0.03	No
Copper	6/6	1.6	4.1	0	CEF-P42-SS-011-01, CEF-P42-SS-013-01	5.97	40	0.1	No
Iron	6/6	24.6	10400	0	CEF-P42-SS-001-01	1490	200	52.0	Yes
Lead	30/30	0.51	637	0	CEF-P42-SS-302-01	197	50	12.7	Yes
Manganese	6/6	0.78	54.7	0	CEF-P42-SS-013-01	22	100	0.5	No
Nickel	4/6	0.91	1.9	0.09 - 0.67	CEF-P42-SS-001-01	3.89	30	0.1	No
Selenium	4/6	0.36	0.6	0.32 - 0.33	CEF-P42-SS-001-01	1.68	0.81	0.7	No
Silver	1/6	1.8	1.8	0.08 - 0.45	CEF-P42-SS-001-01	2.13	2	0.9	No
Vanadium	5/6	0.88	1.9	0.25	CEF-P42-SS-013-01	6.3	2	1.0	No
Zinc	5/6	6.6	94.5	1.7	CEF-P42-SS-013-01	37	50	1.9	Yes

1 The sample and duplicate were counted as two separate samples when determining the minimum and maximum detected concentrations but were only counted as one sample when determining the frequency of detection and average of all samples (where applicable).
2 The maximum detected concentration was used for screening purposes.
3 NAS Cecil Field Inorganic Background Data Set (HLA, 1998).
4 U.S.EPA Region IV Ecological Screening Values (U.S. EPA,1999).

Shading indicates that the chemical was retained as a COPC.
COPC - Chemical of potential concern.
NA - Not Available.
PAHs - Polynuclear aromatic hydrocarbons.

TABLE 6-4

TERRESTRIAL WILDLIFE MODEL - AVERAGE HQs
PSC 42, FORMER BOILER HOUSE/STEAM PLANT AND GENERAL STOREHOUSE
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

Parameter	Least Shrew HQ_{NOAEL}	Least Shrew HQ_{LOAEL}	Northern Mockingbird HQ_{NOAEL}	Northern Mockingbird HQ_{LOAEL}
Chromium	1.2E-01	3.0E-02	4.3E-01	8.7E-02
Lead	2.5E-01	2.5E-02	2.0E+00	2.0E-01
Zinc	6.6E-02	3.3E-02	9.1E-01	1.0E-01

Cells are shaded if the HQ is greater than 1.0.
This table only presents the HQs for bioaccumulative compounds that were retained as COPCs after the Step 2: Screening-Level Risk Assessment and had EEQs greater than 1.0 using the maximum input parameters.

HQ - Hazard quotient.
NOAEL - No-observed-adverse-effects level.
LOAEL - Lowest-observed-adverse-effects level.

TABLE 6-5

TERRESTRIAL WILDLIFE MODEL - MAXIMUM HQs
PSC 42, FORMER BOILER HOUSE/STEAM PLANT AND GENERAL STOREHOUSE
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

Parameter	Least Shrew HQ_{NOAEL}	Least Shrew HQ_{LOAEL}	Northern Mockingbird HQ_{NOAEL}	Northern Mockingbird HQ_{LOAEL}
Chromium	2.5E+01	6.3E+00	1.0E+02	2.1E+01
Lead	1.3E+01	1.3E+00	1.1E+02	1.1E+01
Zinc	7.4E-01	3.7E-01	1.0E+01	1.2E+00

Cells are shaded if the HQ is greater than 1.0.
This table only presents the HQs for bioaccumulative compounds that were retained as COPCs after the Step 2: Screening-Level Risk Assessment.

HQ - Hazard quotient.
NOAEL - No-observed-adverse-effects level.
LOAEL - Lowest-observed-adverse-effects level.

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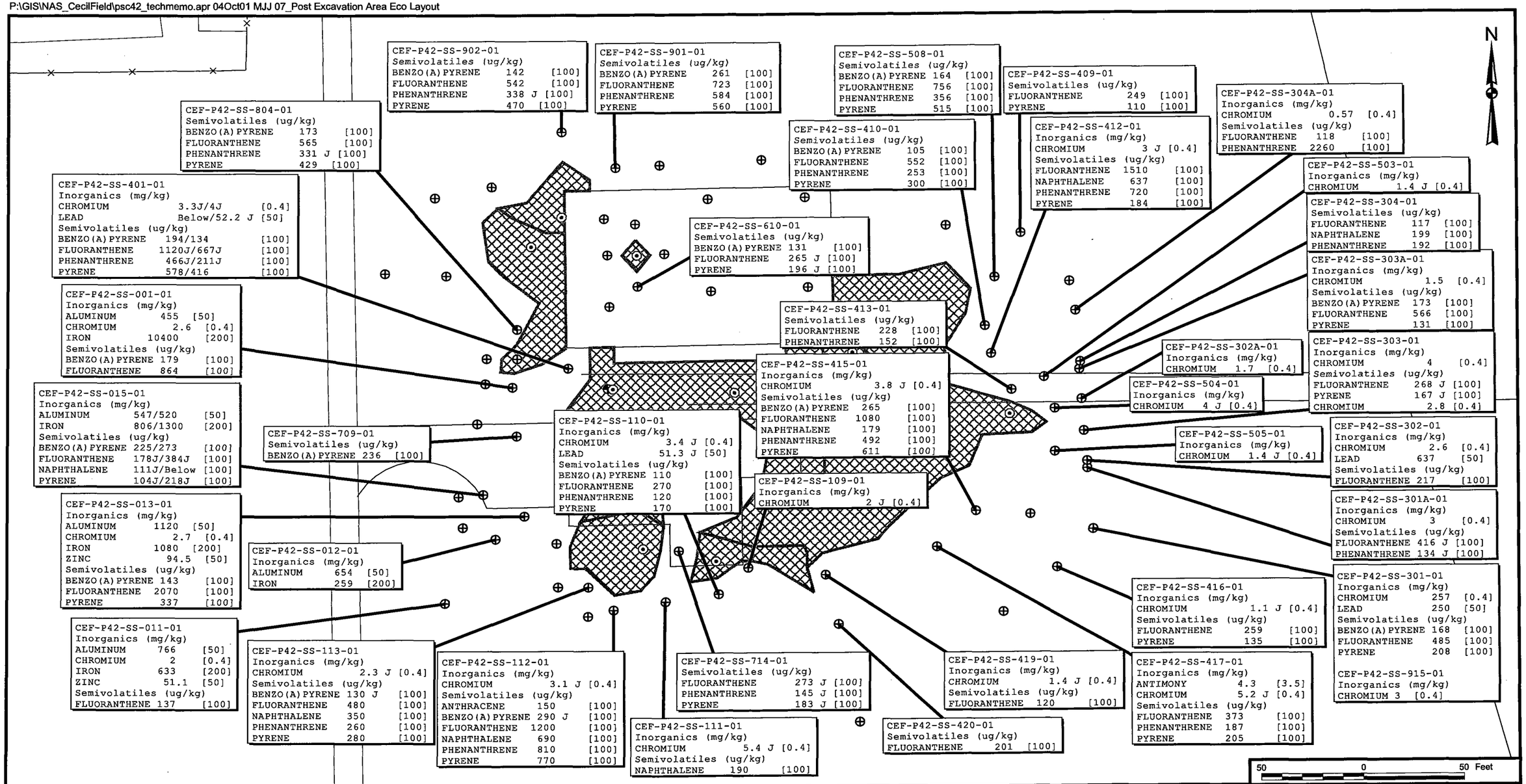
P:\GIS\NAS_CecilField\psc42_techmemo.apr 04Oct01 MJJ 07_Post Excavation Area Eco Layout



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MJJ	12Jul01
CHECKED BY	DATE
COST/SCHED-AREA	
SCALE	AS NOTED

REMOVAL ACTION DESIGN PLAN
SAMPLES EXCEEDING ECOLOGIC CRITERIA
POST SOIL EXCAVATION
PSC 42, YWWA STEAM PLANT
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

CONTRACT NO. 0039	
APPROVED BY	DATE
APPROVED BY	DATE
DRAWING NO. FIGURE 6-1	REV. 0

7.0 REMEDIAL ACTIVITIES

The Navy's Remedial Action Contractor (RAC), CH2M Hill Constructors, Inc. (CH2M Hill), conducted a source removal at PSC 42, the Former Boiler House/Steam Plant and General Storehouse, from March 5 through 23, 2001. A total of 2,420.36 tons of contaminated soil were excavated. The depth of the excavation was hand measured as outlined in the Removal Action Design Package, included as part of the Action Memorandum for PSC 42 (TtNUS, 2001). The excavated soil was transported and disposed off site the same day that the soil removal occurred. Figure 5-1 presents the areas of excavation at PSC 42. Soil was excavated using a hydraulic track excavator and was directly loaded into tarp-covered dump trucks for transportation and disposal. The soil was characterized prior to disposal by the RAC. The excavated soil was transported by Beaver Bulk Trucking to the Broadhurst Landfill in Jessup, Georgia (CH2M Hill, 2001).

The material used to backfill the excavation was certified clean fill brought in from the Coxwell's Crystal Springs Pit. When excavation and backfill activities were completed, the site was graded and seeded with a mixture of bahia and rye grass. No confirmatory soil sampling was performed based on the specifications outlined in the Removal Action Design Package for PSC 42 (TtNUS, 2001).

Detailed information on the remedial activities, including photographs, laboratory results, copies of the soil manifests, certificates of disposal, and certificate of clean fill, is provided in the Source Removal Report (CH2M Hill, 2001).

8.0 CONCLUSIONS AND RECOMMENDATIONS

8.1 CONCLUSIONS

Conclusions pertaining to PSC 42 are as follows:

- Areas of soil where BaPEqs, TRPH, antimony, arsenic, barium, and chromium concentrations were greater than the leachability SCTL or three times that residential SCTL have been excavated and disposed at a permitted solid waste disposal facility. This resulted in site-wide 95 percent UCL concentrations below residential SCTLs for these contaminants, which allows for unrestricted reuse of the site.

- The excavated area was restored to pre-excavation conditions with clean fill material.

- The results of the screening-level ecological risk assessment indicated that contaminants remaining at the site after excavation pose negligible or low risks to ecological receptors.

- Since the removal action has been conducted, no contaminants or pathways pose a threat to the public health, welfare, or the environment.

8.2 RECOMMENDATIONS

The removal action conducted at PSC 42 met the requirements of the Action Memorandum, is protective of human health and the environment, and utilized permanent solutions for the site. Because the removal action is complete, no further action is warranted. The final recommendation is no further action. No land use controls are required because the removal action was conducted to meet residential SCTLs. Unrestricted reuse of the site is permitted.

It is also recommended that the color classification of PSC 42 be changed from Grey to Dark Green to denote that releases of hazardous substances have occurred and remedial actions have been taken to protect human health and the environment.

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APPENDIX A

ANALYTICAL LABORATORY RESULTS

SOIL DATA

Tetra Tech NUS **INTERNAL CORRESPONDENCE**

PITT-06-9-200

TO: **MR. M. SPERANZA** **DATE: JUNE 24, 1999**

FROM: **JUSTIN ORBICH** **CC: DV FILE**

SUBJECT: **ORGANIC DATA VALIDATION – PAH/PEST/TPH**
CTO 078 – NAS CECIL FIELD
SDG F4049

SAMPLES: 17/Solid

CEF-P42-SS-001	CEF-P42-SS-002
CEF-P42-SS-003	CEF-P42-SS-004
CEF-P42-SS-005	CEF-P42-SS-006
CEF-P42-SS-007	CEF-P42-SS-008
CEF-P42-SS-009	CEF-P42-SS-010
CEF-P42-SS-011	CEF-P42-SS-012
CEF-P42-SS-013	CEF-P42-SS-014
CEF-P42-SS-015	CEF-P42-SS-DUP01
CEF-P42-SS-DUP02	

OVERVIEW

The sample set for CTO 078, SDG F4049, Naval Air Station (NAS) Cecil Field; Florida consists of seventeen (17) solid environmental samples. The environmental samples were analyzed for Polynuclear Aromatic Hydrocarbon (PAH) plus 1-methylnaphthalene and 2-methylnaphthalene, pesticide, and Total Petroleum Hydrocarbons (TPH) organic compounds. Two (2) field duplicate pairs (CEF-P42-SS-007/CEF-P42-SS-DUP01 and CEF-P42-SS-015/CEF-P42-SS-DUP02) were included within this SDG.

The samples were collected by Tetra Tech, NUS on April 26th, 1999 and analyzed by Accutest Laboratories. All analyses were performed in accordance with Naval Facilities Engineering Service Center (NFESC) Quality Assurance/Quality Control (QA/QC) criteria and analyzed according to SW 846 Method 8310, 8081A, and FLORIDA-PRO analytical and reporting protocols. The data in this SDG was validated with regard to the following parameters:

- Data Completeness
- Holding Times
- Initial/continuing calibrations
- Laboratory method/field quality control blank results
- Detection Limits
- Field Duplicate Precision

The symbol (*) indicates that all quality control criteria were met for this parameter. Problems affecting data quality are discussed below; documentation supporting these findings is presented in Appendix C. Qualified analytical results are presented in Appendix A.

MEMO TO: MR. M. SPERANZA
DATE: JUNE 24, 1999 – PAGE 2

PAH FRACTION

Several field duplicate Relative Percent Differences (RPDs) exceeded the 50% quality control limits. The positive and nondetected results were qualified as estimated (J) and (UJ), respectively.

It should be noted in sample CEF-P42-SS-007, an elevated detection limit was reported due to a 5X dilution for fluoranthene.

It should be noted the laboratory did not account for percent solids on the Form Is in the reporting limits. The laboratory was notified and in return amended the Form Is and the electronic data to account for the percent solids in the reporting results.

PESTICIDE FRACTION

The continuing calibration %Ds exceeded the 15% quality control limits for 4,4'-DDE, 4,4'-DDD, 4,4'-DDE, Dieldrin, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin ketone, and Methoxychlor on 5/5/99 at 0252 on both columns. The positive and nondetected results were qualified as estimate (J) and (UJ), respectively, in all samples.

The continuing calibration %Ds exceeded the 15% quality control limits for Heptachlor epoxide, gamma-Chlordane, alpha-Chlordane, and Endrin aldehyde on 5/5/99 at 0252 on column II. No action was warranted since only nondetected results were reported, and the %Ds were within the quality control limits on column I.

TPH FRACTION

The continuing calibration %D exceeded the 25% quality control limit for TPH (C8-C40) on 4/30/99 at 0406 on column I. No action was warranted since only nondetected results were reported and, the %D was within the quality control limit on column II.

In the following samples, elevated detection limits were reported due to a 5X dilution.

CEF-P42-SS-001	CEF-P42-SS-007
CEF-P42-SS-009	CEF-P42-SS-010
CEF-P42-SS-011	CEF-P42-SS-012
CEF-P42-SS-013	CEF-P42-SS-014
CEF-P42-SS-015	CEF-P42-SS-DUP01
CEF-P42-SS-DUP02	

In samples CEF-P42-SS-004, CEF-P42-SS-005, CEF-P42-SS-006, and CEF-P42-SS-008, elevated detection limits were reported due to a 10X dilution.

In samples CEF-P42-SS-003, elevated detection limits were reported due to 20X dilution.

In samples CEF-P42-SS-002, elevated detection limits were reported due to 50X dilution.

ADDITIONAL COMMENTS

Several inconsistencies were noted between the Form Is and the electronic data. For the purpose of maintaining consistency, the electronic data was amended to reflect the Form Is.

MEMO TO: MR. M. SPERANZA
DATE: JUNE 24, 1999 – PAGE 3

EXECUTIVE SUMMARY

Laboratory performance: Several pesticide and TPH continuing calibration %Ds exceeded the quality control limits.

Other Factors Affecting Data Quality: Several inconsistencies were noted between the Form Is and the electronic data. Several TPH samples reported elevated detection limits due to dilutions.

The data for these analyses were reviewed with reference to the EPA Functional Guidelines for Organic Data Validation (February, 1994), and the NFESC guidelines "Navy Installation Restoration Program Laboratory Quality Assurance Guide" (February, 1996). The text of this report has been formulated to address only those problems affecting data quality.

"I attest that the data referenced herein was validated according to the agreed upon validation criteria as specified in the NFESC Guidelines and the Quality Assurance Project Plan (QAPP)."

Justin Orbich

Chemist/Data Validator
Tetra Tech, NUS

for Joseph A. Samchuck

Data Validation Quality Assurance Officer
Tetra Tech, NUS

Attachments:
1. Appendix A - Qualified Analytical Results
2. Appendix B - Results as reported by the Laboratory
3. Appendix C - Support Documentation

DATA QUALIFIER DEFINITIONS:

U	-	Value is a nondetected result as reported by the laboratory and should not be considered present.
J	-	Positive result is estimated as a result of a value below the CRQL or a technical noncompliance.
UJ	-	Nondetected result is considered to be estimated as a result of technical noncompliances.

Qualifier Codes:

A = Lab Blank Contamination
B = Field Blank Contamination
C = Calibration (i.e., % RSDs, %Ds, ICVs, CCVs, RPDs, RRFs, etc.) Noncompliance
D = MS/MSD Noncompliance
E = LCS/LCSD Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = GFAA PDS - GFAA MSA's $r < 0.995$
K = ICP Interference - include ICSAB % R's
L = Instrument Calibration Range Exceedance
M = Sample Preservation
N = Internal Standard Noncompliance
O = Poor Instrument Performance (i.e., base-time drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can encompass a number of issues)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = Pest/PCD% between columns for positive results
V = Non-linear calibrations, tuning $r < 0.995$ (correlation coefficient)
W = EMPC result
X = Signal to noise response drop

APPENDIX A

Qualified Analytical Results

CTO078 - NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F4049

SAMPLE NUMBER:	CEF-P42-SS-001			CEF-P42-SS-002			CEF-P42-SS-003			CEF-P42-SS-004		
SAMPLE DATE:	04/26/99			04/26/99			04/26/99			04/26/99		
LABORATORY ID:	F4049-1			F4049-2			F4049-3			F4049-4		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	94.5 %			96.4 %			95.7 %			92.7 %		
UNITS:	UG/KG			UG/KG			UG/KG			UG/KG		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
POLYNUCLEAR AROMATIC HYDROCARBONS												
1-METHYLNAPHTHALENE	144			18200			100	U		5140		
2-METHYLNAPHTHALENE	110	U		16200			424			2290		
ACENAPHTHENE	110	U		36700			315			110	U	
ACENAPHTHYLENE	156			110	U		100	U		110	U	
ANTHRACENE	110	U		1220			100	U		205		
BENZO(A)ANTHRACENE	16	U		2990			228			16	U	
BENZO(A)PYRENE	179			4330			387			16	U	
BENZO(B)FLUORANTHENE	163			1490			387			16	U	
BENZO(G,H,I)PERYLENE	16	U		3260			161			16	U	
BENZO(K)FLUORANTHENE	16	U		1360			16	U		16	U	
CHRYSENE	16	U		618			505			361		
DIBENZO(A,H)ANTHRACENE	16	U		3170			16	U		16	U	
FLUORANTHENE	864			4500			809			1480		
FLUORENE	110	U		110	U		131			110	U	
INDENO(1,2,3-CD)PYRENE	16	U		3260			338			16	U	
NAPHTHALENE	110	U		1650			100	U		9800		
PHENANTHRENE	110	U		29100			294			6240		
PYRENE	16	U		3752			741			1290		

CTO078 - NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F4049

SAMPLE NUMBER:	CEF-P42-SS-005			CEF-P42-SS-006			CEF-P42-SS-007			CEF-P42-SS-008		
SAMPLE DATE:	04/26/99			04/26/99			04/26/99			04/26/99		
LABORATORY ID:	F4049-5			F4049-6			F4049-7			F4049-8		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	91.2 %			90.6 %			94.2 %			93.3 %		
UNITS:	UG/KG			UG/KG			UG/KG			UG/KG		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
POLYNUCLEAR AROMATIC HYDROCARBONS												
1-METHYLNAPHTHALENE	110	U		45900			462	J	G	392		
2-METHYLNAPHTHALENE	44300			19200			803	J	G	2220		
ACENAPHTHENE	110	U		110	U		110	UJ	G	1470		
ACENAPHTHYLENE	4400			4021			1620	J	G	110	U	
ANTHRACENE	328			276			271	J	G	401		
BENZO(A)ANTHRACENE	16	U		247			1330	J	G	954		
BENZO(A)PYRENE	16	U		16	U		806	J	G	1390		
BENZO(B)FLUORANTHENE	16	U		226			2360	J	G	969		
BENZO(G,H,I)PERYLENE	16	U		16	U		478	J	G	805		
BENZO(K)FLUORANTHENE	16	U		16	U		1420	J	G	127		
CHRYSENE	16	U		16	U		2127	J	G	16	U	
DIBENZO(A,H)ANTHRACENE	16	U		16	U		16	U		16	U	
FLUORANTHENE	1950			480			3970	J	G	2350		
FLUORENE	110	U		110	U		347	J	G	578		
INDENO(1,2,3-CD)PYRENE	16	U		16	U		1160	J	G	16	U	
NAPHTHALENE	20300			47500			207	J	G	300		
PHENANTHRENE	13000			110	U		1180	J	G	2380		
PYRENE	2260			708			3000	J	G	2610		

CTO078 - NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F4049

SAMPLE NUMBER:	CEF-P42-SS-009			CEF-P42-SS-010			CEF-P42-SS-011			CEF-P42-SS-012		
SAMPLE DATE:	04/26/99			04/26/99			04/26/99			04/26/99		
LABORATORY ID:	F4049-9			F4049-10			F4049-11			F4049-12		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	91.7 %			94.8 %			93.7 %			94.8 %		
UNITS:	UG/KG			UG/KG			UG/KG			UG/KG		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
POLYNUCLEAR AROMATIC HYDROCARBONS												
1-METHYLNAPHTHALENE	110	U		100	U		110	U		100	U	
2-METHYLNAPHTHALENE	110	U		632			110	U		100	U	
ACENAPHTHENE	110	U		499			110	U		100	U	
ACENAPHTHYLENE	110	U		112			110	U		100	U	
ANTHRACENE	110	U		100	U		110	U		100	U	
BENZO(A)ANTHRACENE	16	U		354			16	U		16	U	
BENZO(A)PYRENE	16	U		740			16	U		16	U	
BENZO(B)FLUORANTHENE	16	U		404			16	U		16	U	
BENZO(G,H,I)PERYLENE	16	U		455			16	U		16	U	
BENZO(K)FLUORANTHENE	16	U		160			16	U		16	U	
CHRYSENE	16	U		16	U		16	U		16	U	
DIBENZO(A,H)ANTHRACENE	16	U		16	U		16	U		16	U	
FLUORANTHENE	16	U		893			137			16	U	
FLUORENE	110	U		226			110	U		100	U	
INDENO(1,2,3-CD)PYRENE	16	U		16	U		16	U		16	U	
NAPHTHALENE	110	U		100	U		110	U		100	U	
PHENANTHRENE	110	U		635			110	U		100	U	
PYRENE	16	U		961			16	U		16	U	

CTO078 - NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F4049

SAMPLE NUMBER:	CEF-P42-SS-013			CEF-P42-SS-014			CEF-P42-SS-015			CEF-P42-SS-DUP01		
SAMPLE DATE:	04/26/99			04/26/99			04/26/99			04/26/99		
LABORATORY ID:	F4049-13			F4049-14			F4049-15			F4049-16		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	95.5 %			96.4 %			94.0 %			94.2 %		
UNITS:	UG/KG			UG/KG			UG/KG			UG/KG		
FIELD DUPLICATE OF:										CEF-P42-SS-007		
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
POLYNUCLEAR AROMATIC HYDROCARBONS												
1-METHYLNAPHTHALENE	100	U		100	U		110	U		110	UJ	G
2-METHYLNAPHTHALENE	100	U		100	U		221			333	J	G
ACENAPHTHENE	100	U		100	U		110	U		238	J	G
ACENAPHTHYLENE	100	U		100	U		110	UJ	G	110	U	
ANTHRACENE	100	U		100	U		110	U		110	UJ	G
BENZO(A)ANTHRACENE	16	U		16	U		16	UJ	G	105	J	G
BENZO(A)PYRENE	143			16	U		225			492	J	G
BENZO(B)FLUORANTHENE	16	U		16	U		16	UJ	G	383	J	G
BENZO(G,H,I)PERYLENE	16	U		16	U		16	UJ	G	259	J	G
BENZO(K)FLUORANTHENE	16	U		16	U		16	UJ	G	16	J	G
CHRYSENE	16	U		16	U		16	U		16	UJ	G
DIBENZO(A,H)ANTHRACENE	16	U		16	U		16	U		16	U	
FLUORANTHENE	2070			16	U		178	J	G	470	J	G
FLUORENE	100	U		100	U		100	U		110	UJ	G
INDENO(1,2,3-CD)PYRENE	16	U		16	U		16	U		244	J	G
NAPHTHALENE	100	U		100	U		111	J	G	110	UJ	G
PHENANTHRENE	100	U		100	U		110	U		278	J	G
PYRENE	337			16	U		104	J	G	604	J	G

CTO078 - NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F4049

SAMPLE NUMBER:	CEF-P42-SS-DUP02											
SAMPLE DATE:	04/26/99			/ /			/ /			/ /		
LABORATORY ID:	F4049-17											
QC_TYPE:	NORMAL											
% SOLIDS:	95.4 %			100.0 %			100.0 %			100.0 %		
UNITS:	UG/KG											
FIELD DUPLICATE OF:	CEF-P42-SS-015											
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
POLYNUCLEAR AROMATIC HYDROCARBONS												
1-METHYLNAPHTHALENE	100	U										
2-METHYLNAPHTHALENE	214											
ACENAPHTHENE	137	J	G									
ACENAPHTHYLENE	100	U										
ANTHRACENE	100	U										
BENZO(A)ANTHRACENE	101	J	G									
BENZO(A)PYRENE	273											
BENZO(B)FLUORANTHENE	116	J	G									
BENZO(G,H,I)PERYLENE	135	J	G									
BENZO(K)FLUORANTHENE	121	J	G									
CHRYSENE	16	U										
DIBENZO(A,H)ANTHRACENE	16	U										
FLUORANTHENE	384	J	G									
FLUORENE	100	U										
INDENO(1,2,3-CD)PYRENE	16	U										
NAPHTHALENE	100	UJ	G									
PHENANTHRENE	100	U										
PYRENE	218	J	G									

CTO078 - NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F4049

SAMPLE NUMBER:	CEF-P42-SS-008			CEF-P42-SS-009			CEF-P42-SS-010					
SAMPLE DATE:	04/26/99			04/26/99			04/26/99			/ /		
LABORATORY ID:	F4049-8			F4049-9			F4049-10					
QC_TYPE:	NORMAL			NORMAL			NORMAL					
% SOLIDS:	94.6 %			90.7 %			93.8 %			100.0 %		
UNITS:	UG/KG			UG/KG			UG/KG					
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
PESTICIDES/PCBs												
4,4'-DDD	70	UJ	C	7.3	UJ	C	14	UJ	C			
4,4'-DDE	70	UJ	C	7.3	UJ	C	14	UJ	C			
4,4'-DDT	342	J	C	7.3	UJ	C	14	UJ	C			
ALDRIN	35	U		3.7	U		7.1	U				
ALPHA-BHC	35	U		3.7	U		7.1	U				
ALPHA-CHLORDANE	70	U		7.3	U		14	U				
BETA-BHC	35	U		3.7	U		7.1	U				
DELTA-BHC	35	U		3.7	U		7.1	U				
DIELDRIN	35	UJ	C	3.7	UJ	C	7.1	UJ	C			
ENDOSULFAN I	35	UJ	C	3.7	UJ	C	7.1	UJ	C			
ENDOSULFAN II	70	UJ	C	7.3	UJ	C	14	UJ	C			
ENDOSULFAN SULFATE	70	UJ	C	7.3	UJ	C	14	UJ	C			
ENDRIN	70	U		7.3	U		14	U				
ENDRIN ALDEHYDE	70	U		7.3	U		14	U				
ENDRIN KETONE	70	UJ	C	7.3	UJ	C	14	UJ	C			
GAMMA-BHC (LINDANE)	35	U		3.7	U		7.1	U				
GAMMA-CHLORDANE	70	U		7.3	U		14	U				
HEPTACHLOR	35	U		3.7	U		7.1	U				
HEPTACHLOR EPOXIDE	35	U		3.7	U		7.1	U				
METHOXYCHLOR	140	UJ	C	15	UJ	C	28	UJ	C			
TOXAPHENE	3500	U		370	U		710	U				

CTO078 - NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F4049

SAMPLE NUMBER:	CEF-P42-SS-001			CEF-P42-SS-002			CEF-P42-SS-003			CEF-P42-SS-004		
SAMPLE DATE:	04/26/99			04/26/99			04/26/99			04/26/99		
LABORATORY ID:	F4049-1			F4049-2			F4049-3			F4049-4		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	94.7 %			96.4 %			97.4 %			92.4 %		
UNITS:	MG/KG			MG/KG			MG/KG			MG/KG		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
PETROLEUM HYDROCARBONS												
TPH (C8-C40)	73			1870			487			187		

CTO078 - NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F4049

SAMPLE NUMBER:	CEF-P42-SS-005			CEF-P42-SS-006			CEF-P42-SS-007			CEF-P42-SS-008		
SAMPLE DATE:	04/26/99			04/26/99			04/26/99			04/26/99		
LABORATORY ID:	F4049-5			F4049-6			F4049-7			F4049-8		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	91.1 %			89.6 %			94.0 %			94.6 %		
UNITS:	MG/KG			MG/KG			MG/KG			MG/KG		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
PETROLEUM HYDROCARBONS												
TPH (C8-C40)	343			293			110			221		

CTO078 - NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F4049

SAMPLE NUMBER:	CEF-P42-SS-009			CEF-P42-SS-010			CEF-P42-SS-011			CEF-P42-SS-012		
SAMPLE DATE:	04/26/99			04/26/99			04/26/99			04/26/99		
LABORATORY ID:	F4049-9			F4049-10			F4049-11			F4049-12		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	90.7 %			93.8 %			93.8 %			94.0 %		
UNITS:	MG/KG			MG/KG			MG/KG			MG/KG		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
PETROLEUM HYDROCARBONS												
TPH (C8-C40)	79.3			100			153			44	U	

CTO078 - NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F4049

SAMPLE NUMBER:	CEF-P42-SS-013			CEF-P42-SS-014			CEF-P42-SS-015			CEF-P42-SS-DUP01		
SAMPLE DATE:	04/26/99			04/26/99			04/26/99			04/26/99		
LABORATORY ID:	F4049-13			F4049-14			F4049-15			F4049-16		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	95.0 %			96.4 %			95.1 %			94.6 %		
UNITS:	MG/KG			MG/KG			MG/KG			MG/KG		
FIELD DUPLICATE OF:										CEF-P42-SS-007		
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
PETROLEUM HYDROCARBONS												
TPH (C8-C40)	81.7			43	U		78.3			122		

CTO078 - NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F4049

SAMPLE NUMBER:	CEF-P42-SS-DUP02											
SAMPLE DATE:	04/26/99			/ /			/ /			/ /		
LABORATORY ID:	F4049-17											
QC_TYPE:	NORMAL											
% SOLIDS:	92.6 %			100.0 %			100.0 %			100.0 %		
UNITS:	MG/KG											
FIELD DUPLICATE OF:	CEF-P42-SS-015											
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
PETROLEUM HYDROCARBONS												
TPH (C8-C40)	86.2											

APPENDIX B

Results as Reported by the Laboratory

Report of Analysis

Client Sample ID:	CEF-P42-SS-001		
Lab Sample ID:	F4049-1	**Date Sampled:**	04/26/99
Matrix:	SO - Soil	**Date Received:**	04/27/99
Method:	SW846 8310	**Percent Solids:**	94.5
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]		1	06/08/99	AMA	05/10/99	M:OP1199	M:OP1199
Run #2							

CAS No.	Compound	Result	RDL	Units	Q
83-32-9	Acenaphthene	ND	110	ug/kg	
208-96-8	Acenaphthylene	156	110	ug/kg	
120-12-7	Anthracene	ND	110	ug/kg	
56-55-3	Benzo (a) anthracene	ND	16	ug/kg	
50-32-8	Benzo (a) pyrene	179	16	ug/kg	
205-99-2	Benzo (b) fluoranthene	163	16	ug/kg	
191-24-2	Benzo (g,h,i) perylene	ND	16	ug/kg	
207-08-9	Benzo (k) fluoranthene	ND	16	ug/kg	
218-01-9	Chrysene	ND	16	ug/kg	
53-70-3	Dibenz(a,h)anthracene	ND	16	ug/kg	
206-44-0	Fluoranthene	864	16	ug/kg	
86-73-7	Fluorene	ND	110	ug/kg	
193-39-5	Indeno (1,2,3-cd) pyrene	ND	16	ug/kg	
90-12-0	1-Methylnaphthalene	144	110	ug/kg	
91-57-6	2-Methylnaphthalene	ND	110	ug/kg	
91-20-3	Naphthalene	ND	110	ug/kg	
85-01-8	Phenanthrene	ND	110	ug/kg	
129-00-0	Pyrene	ND	16	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	38%		20-130%

(a) Analyzed by Accutest NE HRS I.D.# E87579

ND = Not detected
RDL = Reported Detection Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-P42-SS-002	**Date Sampled:**	04/26/99
Lab Sample ID:	F4049-2	**Date Received:**	04/27/99
Matrix:	SO - Soil	**Percent Solids:**	93.9
Method:	SW846 8310		
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]		1	06/08/99	AMA	05/10/99	M:OP1199	M:OP1199
Run #2							

CAS No.	Compound	Result	RDL	Units	Q
83-32-9	Acenaphthene [b]	36700	110	ug/kg	
208-96-8	Acenaphthylene	ND	110	ug/kg	
120-12-7	Anthracene	1220	110	ug/kg	
56-55-3	Benzo (a) anthracene	2990	16	ug/kg	
50-32-8	Benzo (a) pyrene [b]	4330	16	ug/kg	
205-99-2	Benzo (b) fluoranthene	1490	16	ug/kg	
191-24-2	Benzo (g,h,i) perylene	3260	16	ug/kg	
207-08-9	Benzo (k) fluoranthene	1360	16	ug/kg	
218-01-9	Chrysene	618	16	ug/kg	
53-70-3	Dibenz(a,h)anthracene	3170	16	ug/kg	
206-44-0	Fluoranthene [b]	4500	16	ug/kg	
86-73-7	Fluorene	ND	110	ug/kg	
193-39-5	Indeno (1,2,3-cd) pyrene	3260	16	ug/kg	
90-12-0	1-Methylnaphthalene [b]	18200	110	ug/kg	
91-57-6	2-Methylnaphthalene [b]	16200	110	ug/kg	
91-20-3	Naphthalene	1650	110	ug/kg	
85-01-8	Phenanthrene [b]	29100	110	ug/kg	
129-00-0	Pyrene [b]	3750	16	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	63%		20-130%

(a) Analyzed by Accutest NE HRS I.D.# E87579
(b) Estimated value, concentration exceeds linear calibration range.

ND = Not detected
RDL = Reported Detection Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-P42-SS-003		
Lab Sample ID:	F4049-3	**Date Sampled:**	04/26/99
Matrix:	SO - Soil	**Date Received:**	04/27/99
Method:	SW846 8310	**Percent Solids:**	95.7
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1		1	06/08/99	AMA	05/10/99	M:OP1199	M:OP1199
Run #2							

CAS No.	Compound	Result	RDL	Units	Q
83-32-9	Acenaphthene	315	100	ug/kg	
208-96-8	Acenaphthylene	ND	100	ug/kg	
120-12-7	Anthracene	ND	100	ug/kg	
56-55-3	Benzo (a) anthracene	228	16	ug/kg	
50-32-8	Benzo (a) pyrene	387	16	ug/kg	
205-99-2	Benzo (b) fluoranthene	387	16	ug/kg	
191-24-2	Benzo (g,h,i) perylene	161	16	ug/kg	
207-08-9	Benzo (k) fluoranthene	ND	16	ug/kg	
218-01-9	Chrysene	505	16	ug/kg	
53-70-3	Dibenz(a,h)anthracene	ND	16	ug/kg	
206-44-0	Fluoranthene	809	16	ug/kg	
86-73-7	Fluorene	131	100	ug/kg	
193-39-5	Indeno (1,2,3-cd) pyrene	338	16	ug/kg	
90-12-0	1-Methylnaphthalene	ND	100	ug/kg	
91-57-6	2-Methylnaphthalene	424	100	ug/kg	
91-20-3	Naphthalene	ND	100	ug/kg	
85-01-8	Phenanthrene	294	100	ug/kg	
129-00-0	Pyrene	741	16	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	79%		20-130%

ND = Not detected
RDL = Reported Detection Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-P42-SS-004		
Lab Sample ID:	F4049-4	**Date Sampled:**	04/26/99
Matrix:	SO - Soil	**Date Received:**	04/27/99
Method:	SW846 8310	**Percent Solids:**	92.7
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1		1	06/08/99	AMA	05/10/99	M:OP1199	M:OP1199
Run #2							

CAS No.	Compound	Result	RDL	Units	Q
83-32-9	Acenaphthene	ND	110	ug/kg	
208-96-8	Acenaphthylene	ND	110	ug/kg	
120-12-7	Anthracene	205	110	ug/kg	
56-55-3	Benzo (a) anthracene	ND	16	ug/kg	
50-32-8	Benzo (a) pyrene	ND	16	ug/kg	
205-99-2	Benzo (b) fluoranthene	ND	16	ug/kg	
191-24-2	Benzo (g,h,i) perylene	ND	16	ug/kg	
207-08-9	Benzo (k) fluoranthene	ND	16	ug/kg	
218-01-9	Chrysene	361	16	ug/kg	
53-70-3	Dibenz(a,h)anthracene	ND	16	ug/kg	
206-44-0	Fluoranthene	1480	16	ug/kg	
86-73-7	Fluorene	ND	110	ug/kg	
193-39-5	Indeno (1,2,3-cd) pyrene	ND	16	ug/kg	
90-12-0	1-Methylnaphthalene [a]	5140	110	ug/kg	
91-57-6	2-Methylnaphthalene	2290	110	ug/kg	
91-20-3	Naphthalene [a]	9800	110	ug/kg	
85-01-8	Phenanthrene [a]	6240	110	ug/kg	
129-00-0	Pyrene	1290	16	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	86%		20-130%

(a) Estimated value, concentration exceeds linear calibration range.

ND = Not detected
RDL = Reported Detection Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-P42-SS-005		
Lab Sample ID:	F4049-5	**Date Sampled:**	04/26/99
Matrix:	SO - Soil	**Date Received:**	04/27/99
Method:	SW846 8310	**Percent Solids:**	91.2
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1		1	06/08/99	AMA	05/10/99	M:OP1199	M:OP1199
Run #2							

CAS No.	Compound	Result	RDL	Units	Q
83-32-9	Acenaphthene	ND	110	ug/kg	
208-96-8	Acenaphthylene [a]	4400	110	ug/kg	
120-12-7	Anthracene	328	110	ug/kg	
56-55-3	Benzo (a) anthracene	ND	16	ug/kg	
50-32-8	Benzo (a) pyrene	ND	16	ug/kg	
205-99-2	Benzo (b) fluoranthene	ND	16	ug/kg	
191-24-2	Benzo (g,h,i) perylene	ND	16	ug/kg	
207-08-9	Benzo (k) fluoranthene	ND	16	ug/kg	
218-01-9	Chrysene	ND	16	ug/kg	
53-70-3	Dibenz(a,h)anthracene	ND	16	ug/kg	
206-44-0	Fluoranthene	1950	16	ug/kg	
86-73-7	Fluorene	ND	110	ug/kg	
193-39-5	Indeno (1,2,3-cd) pyrene	ND	16	ug/kg	
90-12-0	1-Methylnaphthalene	ND	110	ug/kg	
91-57-6	2-Methylnaphthalene [a]	44300	110	ug/kg	
91-20-3	Naphthalene [a]	20300	110	ug/kg	
85-01-8	Phenanthrene [a]	13000	110	ug/kg	
129-00-0	Pyrene	2260	16	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	48%		20-130%

(a) Estimated value, concentration exceeds linear calibration range.

ND = Not detected
RDL = Reported Detection Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-P42-SS-006		
Lab Sample ID:	F4049-6	**Date Sampled:**	04/26/99
Matrix:	SO - Soil	**Date Received:**	04/27/99
Method:	SW846 8310	**Percent Solids:**	90.6
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1		1	06/08/99	AMA	05/10/99	M:OP1199	M:OP1199
Run #2							

CAS No.	Compound	Result	RDL	Units	Q
83-32-9	Acenaphthene	ND	110	ug/kg	
208-96-8	Acenaphthylene	4020	110	ug/kg	
120-12-7	Anthracene	276	110	ug/kg	
56-55-3	Benzo (a) anthracene	247	16	ug/kg	
50-32-8	Benzo (a) pyrene	ND	16	ug/kg	
205-99-2	Benzo (b) fluoranthene	226	16	ug/kg	
191-24-2	Benzo (g,h,i) perylene	ND	16	ug/kg	
207-08-9	Benzo (k) fluoranthene	ND	16	ug/kg	
218-01-9	Chrysene	ND	16	ug/kg	
53-70-3	Dibenz(a,h)anthracene	ND	16	ug/kg	
206-44-0	Fluoranthene	480	16	ug/kg	
86-73-7	Fluorene	ND	110	ug/kg	
193-39-5	Indeno (1,2,3-cd) pyrene	ND	16	ug/kg	
90-12-0	1-Methylnaphthalene [a]	45900	110	ug/kg	
91-57-6	2-Methylnaphthalene [a]	19200	110	ug/kg	
91-20-3	Naphthalene [a]	47500	110	ug/kg	
85-01-8	Phenanthrene	ND	110	ug/kg	
129-00-0	Pyrene	708	16	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	19%		20-150%

(a) Estimated value, concentration exceeds linear calibration range.

ND = Not detected
RDL = Reported Detection Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-P42-SS-007		
Lab Sample ID:	F4049-7	**Date Sampled:**	04/26/99
Matrix:	SO - Soil	**Date Received:**	04/27/99
Method:	SW846 8310	**Percent Solids:**	94.2
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1		1	06/08/99	AMA	05/10/99	M:OP1199	M:OP1199
Run #2		5	06/08/99	AMA	05/10/99	M:OP1199	M:OP1199

CAS No.	Compound	Result	RDL	Units	Q
83-32-9	Acenaphthene	ND	110	ug/kg	
208-96-8	Acenaphthylene	1620	110	ug/kg	
120-12-7	Anthracene	271	110	ug/kg	
56-55-3	Benzo (a) anthracene	1330	16	ug/kg	
50-32-8	Benzo (a) pyrene	806	16	ug/kg	
205-99-2	Benzo (b) fluoranthene	2360	16	ug/kg	
191-24-2	Benzo (g,h,i) perylene	478	16	ug/kg	
207-08-9	Benzo (k) fluoranthene	1420	16	ug/kg	
218-01-9	Chrysene	2130	16	ug/kg	
53-70-3	Dibenz(a,h)anthracene	ND	16	ug/kg	
206-44-0	Fluoranthene	3970 [a]	530	ug/kg	
86-73-7	Fluorene	347	110	ug/kg	
193-39-5	Indeno (1,2,3-cd) pyrene	1160	16	ug/kg	
90-12-0	1-Methylnaphthalene	462	110	ug/kg	
91-57-6	2-Methylnaphthalene	803	110	ug/kg	
91-20-3	Naphthalene	207	110	ug/kg	
85-01-8	Phenanthrene	1180	110	ug/kg	
129-00-0	Pyrene	3000	16	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	192% [b]	80%	20-130%

(a) Result is from Run# 2
(b) Outside control limits due to matrix interference.

ND = Not detected
RDL = Reported Detection Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-P42-SS-008		
Lab Sample ID:	F4049-8	**Date Sampled:**	04/26/99
Matrix:	SO - Soil	**Date Received:**	04/27/99
Method:	SW846 8310	**Percent Solids:**	93.3
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1		1	06/08/99	AMA	05/10/99	M:OP1199	M:OP1199
Run #2							

CAS No.	Compound	Result	RDL	Units	Q
83-32-9	Acenaphthene	1470	110	ug/kg	
208-96-8	Acenaphthylene	ND	110	ug/kg	
120-12-7	Anthracene	401	110	ug/kg	
56-55-3	Benzo (a) anthracene	954	16	ug/kg	
50-32-8	Benzo (a) pyrene	1390	16	ug/kg	
205-99-2	Benzo (b) fluoranthene	969	16	ug/kg	
191-24-2	Benzo (g,h,i) perylene	805	16	ug/kg	
207-08-9	Benzo (k) fluoranthene	127	16	ug/kg	
218-01-9	Chrysene	ND	16	ug/kg	
53-70-3	Dibenz(a,h)anthracene	ND	16	ug/kg	
206-44-0	Fluoranthene	2350	16	ug/kg	
86-73-7	Fluorene	578	110	ug/kg	
193-39-5	Indeno (1,2,3-cd) pyrene	ND	16	ug/kg	
90-12-0	1-Methylnaphthalene	392	110	ug/kg	
91-57-6	2-Methylnaphthalene	2220	110	ug/kg	
91-20-3	Naphthalene	300	110	ug/kg	
85-01-8	Phenanthrene	2380	110	ug/kg	
129-00-0	Pyrene	2610	16	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	26%		20-150%

ND = Not detected
RDL = Reported Detection Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-P42-SS-009		
Lab Sample ID:	F4049-9	**Date Sampled:**	04/26/99
Matrix:	SO - Soil	**Date Received:**	04/27/99
Method:	SW846 8310	**Percent Solids:**	91.7
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1		1	06/08/99	AMA	05/10/99	M:OP1199	M:OP1199
Run #2							

CAS No.	Compound	Result	RDL	Units	Q
83-32-9	Acenaphthene	ND	110	ug/kg	
208-96-8	Acenaphthylene	ND	110	ug/kg	
120-12-7	Anthracene	ND	110	ug/kg	
56-55-3	Benzo (a) anthracene	ND	16	ug/kg	
50-32-8	Benzo (a) pyrene	ND	16	ug/kg	
205-99-2	Benzo (b) fluoranthene	ND	16	ug/kg	
191-24-2	Benzo (g,h,i) perylene	ND	16	ug/kg	
207-08-9	Benzo (k) fluoranthene	ND	16	ug/kg	
218-01-9	Chrysene	ND	16	ug/kg	
53-70-3	Dibenz(a,h)anthracene	ND	16	ug/kg	
206-44-0	Fluoranthene	ND	16	ug/kg	
86-73-7	Fluorene	ND	110	ug/kg	
193-39-5	Indeno (1,2,3-cd) pyrene	ND	16	ug/kg	
90-12-0	1-Methylnaphthalene	ND	110	ug/kg	
91-57-6	2-Methylnaphthalene	ND	110	ug/kg	
91-20-3	Naphthalene	ND	110	ug/kg	
85-01-8	Phenanthrene	ND	110	ug/kg	
129-00-0	Pyrene	ND	16	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	40%		20-100%

ND = Not detected
RDL = Reported Detection Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-P42-SS-010		
Lab Sample ID:	F4049-10	**Date Sampled:**	04/26/99
Matrix:	SO - Soil	**Date Received:**	04/27/99
Method:	SW846 8310	**Percent Solids:**	94.8
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1		1	06/08/99	AMA	05/10/99	M:OP1199	M:OP1199
Run #2							

CAS No.	Compound	Result	RDL	Units	Q
83-32-9	Acenaphthene	499	100	ug/kg	
208-96-8	Acenaphthylene	112	100	ug/kg	
120-12-7	Anthracene	ND	100	ug/kg	
56-55-3	Benzo (a) anthracene	354	16	ug/kg	
50-32-8	Benzo (a) pyrene	740	16	ug/kg	
205-99-2	Benzo (b) fluoranthene	404	16	ug/kg	
191-24-2	Benzo (g,h,i) perylene	455	16	ug/kg	
207-08-9	Benzo (k) fluoranthene	160	16	ug/kg	
218-01-9	Chrysene	ND	16	ug/kg	
53-70-3	Dibenz(a,h)anthracene	ND	16	ug/kg	
206-44-0	Fluoranthene	893	16	ug/kg	
86-73-7	Fluorene	226	100	ug/kg	
193-39-5	Indeno (1,2,3-cd) pyrene	ND	16	ug/kg	
90-12-0	1-Methylnaphthalene	ND	100	ug/kg	
91-57-6	2-Methylnaphthalene	632	100	ug/kg	
91-20-3	Naphthalene	ND	100	ug/kg	
85-01-8	Phenanthrene	635	100	ug/kg	
129-00-0	Pyrene	961	16	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	9.9%		20-130%

ND = Not detected
RDL = Reported Detection Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-P42-SS-011		
Lab Sample ID:	F4049-11	**Date Sampled:**	04/26/99
Matrix:	SO - Soil	**Date Received:**	04/27/99
Method:	SW846 8310	**Percent Solids:**	93.7
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1		1	06/08/99	AMA	05/10/99	M:OP1199	M:OP1199
Run #2							

CAS No.	Compound	Result	RDL	Units	Q
83-32-9	Acenaphthene	ND	110	ug/kg	
208-96-8	Acenaphthylene	ND	110	ug/kg	
120-12-7	Anthracene	ND	110	ug/kg	
56-55-3	Benzo (a) anthracene	ND	16	ug/kg	
50-32-8	Benzo (a) pyrene	ND	16	ug/kg	
205-99-2	Benzo (b) fluoranthene	ND	16	ug/kg	
191-24-2	Benzo (g,h,i) perylene	ND	16	ug/kg	
207-08-9	Benzo (k) fluoranthene	ND	16	ug/kg	
218-01-9	Chrysene	ND	16	ug/kg	
53-70-3	Dibenz(a,h)anthracene	ND	16	ug/kg	
206-44-0	Fluoranthene	137	16	ug/kg	
86-73-7	Fluorene	ND	110	ug/kg	
193-39-5	Indeno (1,2,3-cd) pyrene	ND	16	ug/kg	
90-12-0	1-Methylnaphthalene	ND	110	ug/kg	
91-57-6	2-Methylnaphthalene	ND	110	ug/kg	
91-20-3	Naphthalene	ND	110	ug/kg	
85-01-8	Phenanthrene	ND	110	ug/kg	
129-00-0	Pyrene	ND	16	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	71%		20-110%

ND = Not detected
RDL = Reported Detection Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-P42-SS-012		
Lab Sample ID:	F4049-12	**Date Sampled:**	04/26/99
Matrix:	SO - Soil	**Date Received:**	04/27/99
Method:	SW846 8310	**Percent Solids:**	94.8
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1		1	06/08/99	AMA	05/10/99	M:OP1199	M:OP1199
Run #2							

CAS No.	Compound	Result	RDL	Units	Q
83-32-9	Acenaphthene	ND	100	ug/kg	
208-96-8	Acenaphthylene	ND	100	ug/kg	
120-12-7	Anthracene	ND	100	ug/kg	
56-55-3	Benzo (a) anthracene	ND	16	ug/kg	
50-32-8	Benzo (a) pyrene	ND	16	ug/kg	
205-99-2	Benzo (b) fluoranthene	ND	16	ug/kg	
191-24-2	Benzo (g,h,i) perylene	ND	16	ug/kg	
207-08-9	Benzo (k) fluoranthene	ND	16	ug/kg	
218-01-9	Chrysene	ND	16	ug/kg	
53-70-3	Dibenz(a,h)anthracene	ND	16	ug/kg	
206-44-0	Fluoranthene	ND	16	ug/kg	
86-73-7	Fluorene	ND	100	ug/kg	
193-39-5	Indeno (1,2,3-cd) pyrene	ND	16	ug/kg	
90-12-0	1-Methylnaphthalene	ND	100	ug/kg	
91-57-6	2-Methylnaphthalene	ND	100	ug/kg	
91-20-3	Naphthalene	ND	100	ug/kg	
85-01-8	Phenanthrene	ND	100	ug/kg	
129-00-0	Pyrene	ND	16	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	58%		20-110%

ND = Not detected
RDL = Reported Detection Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-P42-SS-013		
Lab Sample ID:	F4049-13	**Date Sampled:**	04/26/99
Matrix:	SO - Soil	**Date Received:**	04/27/99
Method:	SW846 8310	**Percent Solids:**	95.5
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1		1	06/08/99	AMA	05/10/99	M:OP1199	M:OP1199
Run #2							

CAS No.	Compound	Result	RDL	Units	Q
83-32-9	Acenaphthene	ND	100	ug/kg	
208-96-8	Acenaphthylene	ND	100	ug/kg	
120-12-7	Anthracene	ND	100	ug/kg	
56-55-3	Benzo (a) anthracene	ND	16	ug/kg	
50-32-8	Benzo (a) pyrene	143	16	ug/kg	
205-99-2	Benzo (b) fluoranthene	ND	16	ug/kg	
191-24-2	Benzo (g,h,i) perylene	ND	16	ug/kg	
207-08-9	Benzo (k) fluoranthene	ND	16	ug/kg	
218-01-9	Chrysene	ND	16	ug/kg	
53-70-3	Dibenz(a,h)anthracene	ND	16	ug/kg	
206-44-0	Fluoranthene	2070	16	ug/kg	
86-73-7	Fluorene	ND	100	ug/kg	
193-39-5	Indeno (1,2,3-cd) pyrene	ND	16	ug/kg	
90-12-0	1-Methylnaphthalene	ND	100	ug/kg	
91-57-6	2-Methylnaphthalene	ND	100	ug/kg	
91-20-3	Naphthalene	ND	100	ug/kg	
85-01-8	Phenanthrene	ND	100	ug/kg	
129-00-0	Pyrene	337	16	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	92%		20-110%

ND = Not detected
RDL = Reported Detection Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-P42-SS-014		
Lab Sample ID:	F4049-14	**Date Sampled:**	04/26/99
Matrix:	SO - Soil	**Date Received:**	04/27/99
Method:	SW846 8310	**Percent Solids:**	96.4
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1		1	06/08/99	AMA	05/10/99	M:OP1199	M:OP1199
Run #2							

CAS No.	Compound	Result	RDL	Units	Q
83-32-9	Acenaphthene	ND	100	ug/kg	
208-96-8	Acenaphthylene	ND	100	ug/kg	
120-12-7	Anthracene	ND	100	ug/kg	
56-55-3	Benzo (a) anthracene	ND	16	ug/kg	
50-32-8	Benzo (a) pyrene	ND	16	ug/kg	
205-99-2	Benzo (b) fluoranthene	ND	16	ug/kg	
191-24-2	Benzo (g,h,i) perylene	ND	16	ug/kg	
207-08-9	Benzo (k) fluoranthene	ND	16	ug/kg	
218-01-9	Chrysene	ND	16	ug/kg	
53-70-3	Dibenz(a,h)anthracene	ND	16	ug/kg	
206-44-0	Fluoranthene	ND	120	ug/kg	
86-73-7	Fluorene	ND	100	ug/kg	
193-39-5	Indeno (1,2,3-cd) pyrene	ND	16	ug/kg	
90-12-0	1-Methylnaphthalene	ND	100	ug/kg	
91-57-6	2-Methylnaphthalene	ND	100	ug/kg	
91-20-3	Naphthalene	ND	100	ug/kg	
85-01-8	Phenanthrene	ND	100	ug/kg	
129-00-0	Pyrene	ND	16	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	72%		20-130%

ND = Not detected
RDL = Reported Detection Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-P42-SS-015		
Lab Sample ID:	F4049-15	**Date Sampled:**	04/26/99
Matrix:	SO - Soil	**Date Received:**	04/27/99
Method:	SW846 8310	**Percent Solids:**	94.0
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1		1	06/08/99	AMA	05/10/99	M:OP1199	M:OP1199
Run #2							

CAS No.	Compound	Result	RDL	Units	Q
83-32-9	Acenaphthene	ND	110	ug/kg	
208-96-8	Acenaphthylene	ND	110	ug/kg	
120-12-7	Anthracene	ND	110	ug/kg	
56-55-3	Benzo (a) anthracene	ND	16	ug/kg	
50-32-8	Benzo (a) pyrene	225	16	ug/kg	
205-99-2	Benzo (b) fluoranthene	ND	16	ug/kg	
191-24-2	Benzo (g,h,i) perylene	ND	16	ug/kg	
207-08-9	Benzo (k) fluoranthene	ND	16	ug/kg	
218-01-9	Chrysene	ND	16	ug/kg	
53-70-3	Dibenz(a,h)anthracene	ND	16	ug/kg	
206-44-0	Fluoranthene	178	16	ug/kg	
86-73-7	Fluorene	ND	110	ug/kg	
193-39-5	Indeno (1,2,3-cd) pyrene	ND	16	ug/kg	
90-12-0	1-Methylnaphthalene	ND	110	ug/kg	
91-57-6	2-Methylnaphthalene	221	110	ug/kg	
91-20-3	Naphthalene	111	110	ug/kg	
85-01-8	Phenanthrene	ND	110	ug/kg	
129-00-0	Pyrene	104	16	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	56%		20-120%

ND = Not detected
RDL = Reported Detection Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-P42-SS-DUP01		
Lab Sample ID:	F4049-16	**Date Sampled:**	04/26/99
Matrix:	SO - Soil	**Date Received:**	04/27/99
Method:	SW846 8310	**Percent Solids:**	94.2
Project:	TETRPAPT: NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1		1	06/08/99	JFH	05/10/99	OP1199	OP1199
Run #2							

CAS No.	Compound	Result	RDL	Units	Q
					90 6-24-99
83-32-9	Acenaphthene	238	~~100~~ 110	ug/kg	
208-96-8	Acenaphthylene	ND	~~100~~ 110	ug/kg	
120-12-7	Anthracene	ND	~~100~~ 110	ug/kg	
56-55-3	Benzo (a) anthracene	105	~~100~~ 16	ug/kg	
50-32-8	Benzo (a) pyrene	492	~~100~~ 16	ug/kg	
205-99-2	Benzo (b) fluoranthene	383	~~100~~ 16	ug/kg	
191-24-2	Benzo (g,h,i) perylene	259	~~100~~ 16	ug/kg	
207-08-9	Benzo (k) fluoranthene	100	~~100~~ 16	ug/kg	
218-01-9	Chrysene	ND	~~100~~ 16	ug/kg	
53-70-3	Dibenz(a,h)anthracene	ND	~~100~~ 16	ug/kg	
206-44-0	Fluoranthene	470	~~100~~ 16	ug/kg	
86-73-7	Fluorene	ND	~~100~~ 110	ug/kg	
193-39-5	Indeno (1,2,3-cd) pyrene	244	~~100~~ 16	ug/kg	
90-12-0	1-Methylnaphthalene	ND	~~100~~ 110	ug/kg	
91-57-6	2-Methylnaphthalene	333	~~100~~ 110	ug/kg	
91-20-3	Naphthalene	ND	~~100~~ 110	ug/kg	
85-01-8	Phenanthrene	278	~~100~~ 110	ug/kg	
129-00-0	Pyrene	604	~~100~~ 16	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	64%		20-130%

ND = Not detected
RDL = Reported Detection Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-P42-SS-DUP02		
Lab Sample ID:	F4049-17	**Date Sampled:**	04/26/99
Matrix:	SO - Soil	**Date Received:**	04/27/99
Method:	SW846 8310	**Percent Solids:**	95.4
Project:	TETRPAPT: NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1		1	06/08/99	JFH	05/10/99	OP1199	OP1199
Run #2							

CAS No.	Compound	Result	RDL	Units	Q
83-32-9	Acenaphthene	137	100	ug/kg	
208-96-8	Acenaphthylene	ND	100	ug/kg	
120-12-7	Anthracene	ND	100	ug/kg	
56-55-3	Benzo (a) anthracene	101	~~100~~ 16	ug/kg	
50-32-8	Benzo (a) pyrene	273	100	ug/kg	
205-99-2	Benzo (b) fluoranthene	116	100	ug/kg	
191-24-2	Benzo (g,h,i) perylene	135	100	ug/kg	
207-08-9	Benzo (k) fluoranthene	121	100	ug/kg	
218-01-9	Chrysene	ND	100	ug/kg	
53-70-3	Dibenz(a,h)anthracene	ND	100	ug/kg	
206-44-0	Fluoranthene	384	~~100~~	ug/kg	
86-73-7	Fluorene	ND	100	ug/kg	
193-39-5	Indeno (1,2,3-cd) pyrene	ND	~~100~~ 16	ug/kg	
90-12-0	1-Methylnaphthalene	ND	100	ug/kg	
91-57-6	2-Methylnaphthalene	214	100	ug/kg	
91-20-3	Naphthalene	ND	100	ug/kg	
85-01-8	Phenanthrene	ND	100	ug/kg	
129-00-0	Pyrene	218	~~100~~ 16	ug/kg	

90 6-24-99

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	56%		20-130%

ND = Not detected
RDL = Reported Detection Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-P42-SS-008		
Lab Sample ID:	F4049-8	**Date Sampled:**	04/26/99
Matrix:	SO - Soil	**Date Received:**	04/27/99
Method:	SW846 3550B/8081A	**Percent Solids:**	94.6
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	MN03407.D	20	05/05/99	SKW	04/30/99	OP789	GMN143
Run #2							

Pesticide TCL List

CAS No.	Compound	Result	RDL	Units	Q
309-00-2	Aldrin	ND	35	ug/kg	
319-84-6	alpha-BHC	ND	35	ug/kg	
319-85-7	beta-BHC	ND	35	ug/kg	
319-86-8	delta-BHC	ND	35	ug/kg	
58-89-9	gamma-BHC (Lindane)	ND	35	ug/kg	
5103-71-9	alpha-Chlordane	ND	70	ug/kg	
5103-74-2	gamma-Chlordane	ND	70	ug/kg	
60-57-1	Dieldrin	ND	35	ug/kg	
72-54-8	4,4'-DDD	ND	70	ug/kg	
72-55-9	4,4'-DDE	ND	70	ug/kg	
50-29-3	4,4'-DDT	342	70	ug/kg	
72-20-8	Endrin	ND	70	ug/kg	
1031-07-8	Endosulfan sulfate	ND	70	ug/kg	
7421-93-4	Endrin aldehyde	ND	70	ug/kg	
53494-70-5	Endrin ketone	ND	70	ug/kg	
959-98-8	Endosulfan-I	ND	35	ug/kg	
33213-65-9	Endosulfan-II	ND	70	ug/kg	
76-44-8	Heptachlor	ND	35	ug/kg	
1024-57-3	Heptachlor epoxide	ND	35	ug/kg	
72-43-5	Methoxychlor	ND	140	ug/kg	
8001-35-2	Toxaphene	ND	3500	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	101%		40-150%
2051-24-3	Decachlorobiphenyl	179% [b]		30-160%

(a) All hits confirmed by dual column analysis.
(b) Outside control limits due to dilution.

ND = Not detected
RDL = Reported Detection Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-P42-SS-009		
Lab Sample ID:	F4049-9	**Date Sampled:**	04/26/99
Matrix:	SO - Soil	**Date Received:**	04/27/99
Method:	SW846 3550B/8081A	**Percent Solids:**	90.7
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	MN03387.D	2	05/05/99	SKW	04/30/99	OP789	GMN142
Run #2							

Pesticide TCL List

CAS No.	Compound	Result	RDL	Units	Q
309-00-2	Aldrin	ND	3.7	ug/kg	
319-84-6	alpha-BHC	ND	3.7	ug/kg	
319-85-7	beta-BHC	ND	3.7	ug/kg	
319-86-8	delta-BHC	ND	3.7	ug/kg	
58-89-9	gamma-BHC (Lindane)	ND	3.7	ug/kg	
5103-71-9	alpha-Chlordane	ND	7.3	ug/kg	
5103-74-2	gamma-Chlordane	ND	7.3	ug/kg	
60-57-1	Dieldrin	ND	3.7	ug/kg	
72-54-8	4,4'-DDD	ND	7.3	ug/kg	
72-55-9	4,4'-DDE	ND	7.3	ug/kg	
50-29-3	4,4'-DDT	ND	7.3	ug/kg	
72-20-8	Endrin	ND	7.3	ug/kg	
1031-07-8	Endosulfan sulfate	ND	7.3	ug/kg	
7421-93-4	Endrin aldehyde	ND	7.3	ug/kg	
53494-70-5	Endrin ketone	ND	7.3	ug/kg	
959-98-8	Endosulfan-I	ND	3.7	ug/kg	
33213-65-9	Endosulfan-II	ND	7.3	ug/kg	
76-44-8	Heptachlor	ND	3.7	ug/kg	
1024-57-3	Heptachlor epoxide	ND	3.7	ug/kg	
72-43-5	Methoxychlor	ND	15	ug/kg	
8001-35-2	Toxaphene	ND	370	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	92%		40-150%
2051-24-3	Decachlorobiphenyl	159%		30-160%

(a) Dilution required due to matrix interference.

ND = Not detected
RDL = Reported Detection Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-P42-SS-010		
Lab Sample ID:	F4049-10	**Date Sampled:**	04/26/99
Matrix:	SO - Soil	**Date Received:**	04/27/99
Method:	SW846 3550B/8081A	**Percent Solids:**	93.8
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	MN03388.D	4	05/05/99	SKW	04/30/99	OP789	GMN142
Run #2							

Pesticide TCL List

CAS No.	Compound	Result	RDL	Units	Q
309-00-2	Aldrin	ND	7.1	ug/kg	
319-84-6	alpha-BHC	ND	7.1	ug/kg	
319-85-7	beta-BHC	ND	7.1	ug/kg	
319-86-8	delta-BHC	ND	7.1	ug/kg	
58-89-9	gamma-BHC (Lindane)	ND	7.1	ug/kg	
5103-71-9	alpha-Chlordane	ND	14	ug/kg	
5103-74-2	gamma-Chlordane	ND	14	ug/kg	
60-57-1	Dieldrin	ND	7.1	ug/kg	
72-54-8	4,4'-DDD	ND	14	ug/kg	
72-55-9	4,4'-DDE	ND	14	ug/kg	
50-29-3	4,4'-DDT	ND	14	ug/kg	
72-20-8	Endrin	ND	14	ug/kg	
1031-07-8	Endosulfan sulfate	ND	14	ug/kg	
7421-93-4	Endrin aldehyde	ND	14	ug/kg	
53494-70-5	Endrin ketone	ND	14	ug/kg	
959-98-8	Endosulfan-I	ND	7.1	ug/kg	
33213-65-9	Endosulfan-II	ND	14	ug/kg	
76-44-8	Heptachlor	ND	7.1	ug/kg	
1024-57-3	Heptachlor epoxide	ND	7.1	ug/kg	
72-43-5	Methoxychlor	ND	28	ug/kg	
8001-35-2	Toxaphene	ND	710	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	84%		40-150%
2051-24-3	Decachlorobiphenyl	162% [b]		30-160%

(a) Dilution required due to matrix interference.
(b) Outside control limits due to dilution.

ND = Not detected
RDL = Reported Detection Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-P42-SS-001		
Lab Sample ID:	F4049-1	**Date Sampled:**	04/26/99
Matrix:	SO - Soil	**Date Received:**	04/27/99
Method:	FLORIDA-PRO	**Percent Solids:**	94.7
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	P03786.D	5	04/30/99	SKW	04/27/99	OP784	GOP182
Run #2							

CAS No.	Compound	Result	RDL	Units	Q
	TPH (C8-C40)	73.0	44	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	98%		40-140%

ND = Not detected
RDL = Reported Detection Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-P42-SS-002		
Lab Sample ID:	F4049-2	**Date Sampled:**	04/26/99
Matrix:	SO - Soil	**Date Received:**	04/27/99
Method:	FLORIDA-PRO	**Percent Solids:**	96.4
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	P03754.D	50	04/29/99	SKW	04/27/99	OP784	GOP181
Run #2							

CAS No.	Compound	Result	RDL	Units	Q
	TPH (C8-C40)	1870	430	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	0% [a]		40-140%

(a) Outside control limits due to dilution.

ND = Not detected
RDL = Reported Detection Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-P42-SS-003		
Lab Sample ID:	F4049-3	**Date Sampled:**	04/26/99
Matrix:	SO - Soil	**Date Received:**	04/27/99
Method:	FLORIDA-PRO	**Percent Solids:**	97.4
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	P03755.D	20	04/29/99	SKW	04/27/99	OP784	GOP181
Run #2							

CAS No.	Compound	Result	RDL	Units	Q
	TPH (C8-C40)	487	170	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	97%		40-140%

ND = Not detected
RDL = Reported Detection Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-P42-SS-004		
Lab Sample ID:	F4049-4	**Date Sampled:**	04/26/99
Matrix:	SO - Soil	**Date Received:**	04/27/99
Method:	FLORIDA-PRO	**Percent Solids:**	92.4
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	P03756.D	10	04/29/99	SKW	04/27/99	OP784	GOP181
Run #2							

CAS No.	Compound	Result	RDL	Units	Q
	TPH (C8-C40)	187	90	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	107%		40-140%

ND = Not detected
RDL = Reported Detection Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-P42-SS-005		
Lab Sample ID:	F4049-5	**Date Sampled:**	04/26/99
Matrix:	SO - Soil	**Date Received:**	04/27/99
Method:	FLORIDA-PRO	**Percent Solids:**	91.1
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	P03757.D	10	04/29/99	SKW	04/27/99	OP784	GOP181
Run #2							

CAS No.	Compound	Result	RDL	Units	Q
	TPH (C8-C40)[c]	343	92	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	121%		40-140%

ND = Not detected
RDL = Reported Detection Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-P42-SS-006		
Lab Sample ID:	F4049-6	**Date Sampled:**	04/26/99
Matrix:	SO - Soil	**Date Received:**	04/27/99
Method:	FLORIDA-PRO	**Percent Solids:**	89.6
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	P03759.D	10	04/29/99	SKW	04/27/99	OP784	GOP181
Run #2							

CAS No.	Compound	Result	RDL	Units	Q
	TPH (C8-C40)	293	93	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	106%		40-140%

ND = Not detected
RDL = Reported Detection Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-P42-SS-007		
Lab Sample ID:	F4049-7	**Date Sampled:**	04/26/99
Matrix:	SO - Soil	**Date Received:**	04/27/99
Method:	FLORIDA-PRO	**Percent Solids:**	94.0
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	P03760.D	5	04/29/99	SKW	04/27/99	OP784	GOP181
Run #2							

CAS No.	Compound	Result	RDL	Units	Q
	TPH (C8-C40)	110	44	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	105%		40-140%

ND = Not detected
RDL = Reported Detection Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-P42-SS-008		
Lab Sample ID:	F4049-8	**Date Sampled:**	04/26/99
Matrix:	SO - Soil	**Date Received:**	04/27/99
Method:	FLORIDA-PRO	**Percent Solids:**	94.6
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	P03763.D	10	04/29/99	SKW	04/27/99	OP784	GOP181
Run #2							

CAS No.	Compound	Result	RDL	Units	Q
	TPH (C8-C40)	221	88	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	108%		40-140%

ND = Not detected
RDL = Reported Detection Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-P42-SS-009		
Lab Sample ID:	F4049-9	**Date Sampled:**	04/26/99
Matrix:	SO - Soil	**Date Received:**	04/27/99
Method:	FLORIDA-PRO	**Percent Solids:**	90.7
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	P03787.D	5	04/30/99	SKW	04/27/99	OP784	GOP182
Run #2							

CAS No.	Compound	Result	RDL	Units	Q
	TPH (C8-C40)	79.3	46	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	108%		40-140%

ND = Not detected
RDL = Reported Detection Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-P42-SS-010		
Lab Sample ID:	F4049-10	**Date Sampled:**	04/26/99
Matrix:	SO - Soil	**Date Received:**	04/27/99
Method:	FLORIDA-PRO	**Percent Solids:**	93.8
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	P03765.D	5	04/29/99	SKW	04/27/99	OP784	GOP181
Run #2							

CAS No.	Compound	Result	RDL	Units	Q
	TPH (C8-C40)	100	44	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	105%		40-140%

ND = Not detected
RDL = Reported Detection Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-P42-SS-011		
Lab Sample ID:	F4049-11	**Date Sampled:**	04/26/99
Matrix:	SO - Soil	**Date Received:**	04/27/99
Method:	FLORIDA-PRO	**Percent Solids:**	93.8
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	P03779.D	5	04/30/99	SKW	04/27/99	OP784	GOP182
Run #2							

CAS No.	Compound	Result	RDL	Units	Q
	TPH (C8-C40)	153	44	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	114%		40-140%

ND = Not detected
RDL = Reported Detection Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-P42-SS-012		
Lab Sample ID:	F4049-12	**Date Sampled:**	04/26/99
Matrix:	SO - Soil	**Date Received:**	04/27/99
Method:	FLORIDA-PRO	**Percent Solids:**	94.0
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	P03780.D	5	04/30/99	SKW	04/27/99	OP784	GOP182
Run #2							

CAS No.	Compound	Result	RDL	Units	Q
	TPH (C8-C40)	ND	44	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	113%		40-140%

ND = Not detected
RDL = Reported Detection Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-P42-SS-013		
Lab Sample ID:	F4049-13	**Date Sampled:**	04/26/99
Matrix:	SO - Soil	**Date Received:**	04/27/99
Method:	FLORIDA-PRO	**Percent Solids:**	95.0
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	P03781.D	5	04/30/99	SKW	04/27/99	OP784	GOP182
Run #2							

CAS No.	Compound	Result	RDL	Units	Q
	TPH (C8-C40)	81.7	44	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	104%		40-140%

ND = Not detected
RDL = Reported Detection Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-P42-SS-014		
Lab Sample ID:	F4049-14	**Date Sampled:**	04/26/99
Matrix:	SO - Soil	**Date Received:**	04/27/99
Method:	FLORIDA-PRO	**Percent Solids:**	96.4
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	P03782.D	5	04/30/99	SKW	04/27/99	OP784	GOP182
Run #2							

CAS No.	Compound	Result	RDL	Units	Q
	TPH (C8-C40)	ND	43	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	106%		40-140%

ND = Not detected
RDL = Reported Detection Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-P42-SS-015		
Lab Sample ID:	F4049-15	**Date Sampled:**	04/26/99
Matrix:	SO - Soil	**Date Received:**	04/27/99
Method:	FLORIDA-PRO	**Percent Solids:**	95.1
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	P03783.D	5	04/30/99	SKW	04/27/99	OP784	GOP182
Run #2							

CAS No.	Compound	Result	RDL	Units	Q
	TPH (C8-C40)	78.3	44	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	122%		40-140%

ND = Not detected
RDL = Reported Detection Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-P42-SS-DUP01		
Lab Sample ID:	F4049-16	**Date Sampled:**	04/26/99
Matrix:	SO - Soil	**Date Received:**	04/27/99
Method:	FLORIDA-PRO	**Percent Solids:**	94.6
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	P03784.D	5	04/30/99	SKW	04/27/99	OP784	GOP182
Run #2							

CAS No.	Compound	Result	RDL	Units	Q
	TPH (C8-C40)	122	44	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	114%		40-140%

0126

ND = Not detected
RDL = Reported Detection Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-P42-SS-DUP02		
Lab Sample ID:	F4049-17	**Date Sampled:**	04/26/99
Matrix:	SO - Soil	**Date Received:**	04/27/99
Method:	FLORIDA-PRO	**Percent Solids:**	92.6
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	P03785.D	5	04/30/99	SKW	04/27/99	OP784	GOP182
Run #2							

CAS No.	Compound	Result	RDL	Units	Q
	TPH (C8-C40)	86.2	45	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	118%		40-140%

ND = Not detected
RDL = Reported Detection Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Tetra Tech NUS **INTERNAL CORRESPONDENCE**

PITT-06-9-111

TO:	**M. SPERANZA**	**DATE:**	**JUNE 28, 1999**
FROM:	**GRETCHEN PHIPPS**	**COPIES:**	**DV FILE**

SUBJECT: **INORGANIC DATA VALIDATION – TAL METALS**
CTO 078 - CECIL FIELD
SDG – F4049

SAMPLES: 17/Soil/

CEF-P42-SS-001	CEF-P42-SS-002	CEF-P42-SS-003
CEF-P42-SS-004	CEF-P42-SS-005	CEF-P42-SS-006
CEF-P42-SS-007	CEF-P42-SS-008	CEF-P42-SS-009
CEF-P42-SS-010	CEF-P42-SS-011	CEF-P42-SS-012
CEF-P42-SS-013	CEF-P42-SS-014	CEF-P42-SS-015
CEF-P42-SS-DUP01	CEF-P42-SSDUP02	

Overview

The sample set for CTO 078, Cecil Field, SDG F4049, consists of seventeen (17) soil environmental samples. Two field duplicate pairs (CEF-P42-SS-007 / CEF-P42-SS-DUP01 and CEF-P42-SS-015 / CEF-P42-SS-DUP02) were included within this SDG.

All samples were analyzed for target analyte list (TAL) metals. The samples were collected by Tetra Tech NUS on April 26, 1999 and analyzed by Accutest Laboratory under Naval Facilities Engineering Service Center (NFESC) Quality Assurance / Quality Control (QA / QC) criteria. All metals analyses, with the exception of mercury, were conducted using SW 846 method 6010B. Mercury analyses were conducted using SW 846 method 7471A.

The data was evaluated based on the following parameters:

- Data Completeness
- Holding Times
- Calibration Verifications
- Laboratory Blank Analyses
- Field Duplicate Precision

- All quality control criteria were met for this parameter.

Laboratory Blank Analyses

The following contaminant was present in a laboratory method / preparation blanks at the following maximum concentration:

Affected samples: All

Analyte	Maximum Concentration	Action Level(soil)
Antimony	4.2µg/L	2.1 mg/kg
Arsenic	4.9µg/L	2.45 mg/kg
Barium	0.52µg/L	0.26 mg/kg
Beryllium	1.9µg/L	0.95 mg/kg
Cadmium	0.71µg/L	0.355 mg/kg
Calcium(1)	5.6 mg/kg	28.0 mg/kg
Chromium	3.2µg/L	1.6 mg/kg
Cobalt	0.98µg/L	0.49 mg/kg
Iron	32.9µg/L	16.45 mg/kg
Magnesium	41.3µg/L	20.65 mg/kg
Manganese(1)	0.13 mg/kg	0.65 mg/kg
Nickel(1)	0.14 mg/kg	0.70 mg/kg
Potassium(1)	8.1 mg/kg	40.5 mg/kg
Silver	1.2µg/L	0.6 mg/kg
Thallium	4.8µg/L	2.4 mg/kg
Vanadium	0.96µg/L	0.48 mg/kg
Zinc(1)	0.54 mg/kg	2.7 mg/kg

(1) Maximum concentration present in a soil preparation blank.

An action level of 5X the maximum concentration has been used to evaluate the sample data for blank contamination. Sample aliquot, percent solids and dilution factors were taken into consideration when determining blank contamination. Positive results less than the blank action level for antimony, arsenic, beryllium, cadmium, chromium, cobalt, magnesium, nickel, potassium, silver, vanadium and zinc were qualified, "U", as a result of blank contamination. No action was required for lead as all results reported for the remaining analytes were either greater than the action level or nondetected.

Notes

The Contract Required Detection Limit (CRDL) Percent Recovery (%Rs) for arsenic, chromium and thallium were >120% quality control limit. However, no validation action was required.

The mercury result was listed twice on the Form 1 for sample CEF-P42-SS-007. The Form 1 was amended by the data reviewer.

A comparison of field duplicate pairs (CEF-P42-SS-007 / CEF-P42-SS-DUP01 and CEF-P42-SS-015 / CEF-P42-SS-DUP02) was included in Appendix C.

Executive Summary

Laboratory Performance: Several analytes were present in the laboratory method / preparation blanks.

Other Factors Affecting Data Quality: None.

The data for these analyses were reviewed with reference to the "National Functional Guidelines for Inorganic Review", February 1994 and the NFESC document entitles "Navy Installation Restoration Laboratory Quality Assurance Guide." (NFESC 2/96).

The text of this report has been formulated to address only those problem areas affecting data quality.

"I attest that the data referenced herein were validated according to the agreed upon validation criteria as specified in the NFESC Guidelines and the Quality Assurance Project Plan (QAPP)."

Gretchen A. Phipps

Tetra Tech NUS
Gretchen A. Phipps

Tetra Tech NUS
Joseph A. Samchuck
Quality Control Officer

Attachments:

1. Appendix A - Qualified Analytical Data
2. Appendix B - Results as reported by the Laboratory
3. Appendix C - Support Documentation

CTO078 - NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F4049

SAMPLE NUMBER:	CEF-P42-SS-001			CEF-P42-SS-002			CEF-P42-SS-003			CEF-P42-SS-004		
SAMPLE DATE:	04/26/99			04/26/99			04/26/99			04/26/99		
LABORATORY ID:	F4049-1			F4049-2			F4049-3			F4049-4		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	94.7 %			96.4 %			97.4 %			92.4 %		
UNITS:	MG/KG			MG/KG			MG/KG			MG/KG		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
INORGANICS												
ALUMINUM	455			1610			979			1770		
ANTIMONY	1.0	U	A	2.7			0.59	U	A	0.50	U	A
ARSENIC	0.86	U	A	3.7			1.4	U	A	7.0		
BARIUM	14.9			54.6			31.9			33.3		
BERYLLIUM	0.12	U	A	0.34	U	A	0.16	U	A	0.30	U	A
CADMIUM	0.02	U		0.12	U	A	0.04	U	A	0.02	U	
CALCIUM	292			929			1360			625		
CHROMIUM	2.6			4.8			1.7			3.4	U	A
COBALT	0.57			1.1			0.36	U	A	0.94		
COPPER	3.0			8.4			4.6			10.7		
IRON	10400			2560			758			3100		
LEAD	34.7			55.2			17.9			23.4		
MAGNESIUM	52.0			127			78.8			115		
MANGANESE	29.2			16.1			6.5			5.1		
MERCURY	0.04	U		0.04	U		0.04	U		0.05	U	
NICKEL	1.9			2.6			1.4			2.8		
POTASSIUM	35.5	U	A	81.4			33.5	U	A	98.5		
SELENIUM	0.60			0.44			0.32	U		1.1		
SILVER	1.8			0.55	U	A	0.27	U	A	0.53	U	A
SODIUM	363			373			328			374		
THALLIUM	0.43	U		0.43	U		0.42	U		0.44	U	
VANADIUM	0.88			4.1			1.6			6.9		
ZINC	22.9			60.1			34.4			10.4		

CTO078 - NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F4049

SAMPLE NUMBER:	CEF-P42-SS-005			CEF-P42-SS-006			CEF-P42-SS-007			CEF-P42-SS-008		
SAMPLE DATE:	04/26/99			04/26/99			04/26/99			04/26/99		
LABORATORY ID:	F4049-5			F4049-6			F4049-7			F4049-8		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	91.1 %			89.6 %			94.0 %			94.6 %		
UNITS:	MG/KG			MG/KG			MG/KG			MG/KG		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
INORGANICS												
ALUMINUM	1010			984			1750			2950		
ANTIMONY	0.81	U	A	5.2			4.2	U	A	10.3		
ARSENIC	7.8			10.3			3.1			6.8		
BARIUM	53.1			114			40.1			66.1		
BERYLLIUM	0.44	U	A	0.68	U	A	0.27	U	A	0.47	U	A
CADMIUM	0.11	U	A	0.22	U	A	0.29	U	A	0.71		
CALCIUM	814			1580			2470			6520		
CHROMIUM	9.9			16.8			3.6			10.5		
COBALT	1.5			2.0			0.88			1.9		
COPPER	14.5			16.6			9.0			18.4		
IRON	2780			4950			1770			5580		
LEAD	127			56.1			49.7			224		
MAGNESIUM	148			217			350			1780		
MANGANESE	12.1			27.2			74.1			353		
MERCURY	0.05	U		0.05	U		0.04	U		0.04	U	
NICKEL	3.1			4.1			3.3			10.9		
POTASSIUM	134			193			68.6			245		
SELENIUM	0.97			1.5			0.74			1.3		
SILVER	0.26	U	A	0.47	U	A	0.23	U	A	0.33	U	A
SODIUM	401			417			323			454		
THALLIUM	0.45	U		0.46	U		0.44	U		0.43	U	
VANADIUM	7.1			7.1			2.7			5.1		
ZINC	168			92.1			131			494		

CTO078 - NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F4049

SAMPLE NUMBER:	CEF-P42-SS-013			CEF-P42-SS-014			CEF-P42-SS-015			CEF-P42-SS-DUP01		
SAMPLE DATE:	04/26/99			04/26/99			04/26/99			04/26/99		
LABORATORY ID:	F4049-13			F4049-14			F4049-15			F4049-16		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	95.0 %			96.4 %			95.1 %			94.6 %		
UNITS:	MG/KG			MG/KG			MG/KG			MG/KG		
FIELD DUPLICATE OF:										CEF-P42-SS-007		
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
INORGANICS												
ALUMINUM	1120			30.9			547			1810		
ANTIMONY	2.8			0.34	U		0.75	U	A	5.9		
ARSENIC	1.1	U	A	0.28	U		0.58	U	A	3.5		
BARIUM	27.4			8.9			17.9			39.0		
BERYLLIUM	0.15	U	A	0.04	U	A	0.11	U	A	0.23	U	A
CADMIUM	0.14	U	A	0.02	U	A	0.05	U	A	0.26	U	A
CALCIUM	1580			234			1390			2880		
CHROMIUM	2.7			0.19	U	A	0.98	U	A	4.3		
COBALT	0.45	U	A	0.04			0.42	U	A	0.91		
COPPER	4.1			1.6			2.8			9.1		
IRON	1080			24.6			806			2650		
LEAD	44.5			0.51			12.6			54.4		
MAGNESIUM	216			14.4	U	A	70.0			400		
MANGANESE	54.7			0.78			7.3			103		
MERCURY	0.04	U		0.04	U		0.04	U		0.04	U	
NICKEL	1.8			0.09	U		0.91			3.4		
POTASSIUM	65.1			15.0	U	A	47.3			82.6		
SELENIUM	0.55			0.32	U		0.39			0.75		
SILVER	0.19	U	A	0.08	U		0.31	U	A	0.31	U	A
SODIUM	397			337			305			347		
THALLIUM	0.43	U		0.43	U		0.43	U		0.43	U	
VANADIUM	1.9			0.25	U	A	1.5			3.0		
ZINC	94.5			1.7	U	A	17.5			154		

CTO078 - NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F4049

SAMPLE NUMBER:	CEF-P42-SS-DUP02											
SAMPLE DATE:	04/26/99			/ /			/ /			/ /		
LABORATORY ID:	F4049-17											
QC_TYPE:	NORMAL											
% SOLIDS:	92.6 %			100.0 %			100.0 %			100.0 %		
UNITS:	MG/KG											
FIELD DUPLICATE OF:	CEF-P42-SS-015											
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
INORGANICS												
ALUMINUM	520											
ANTIMONY	0.75	U	A									
ARSENIC	0.60	U	A									
BARIUM	18.9											
BERYLLIUM	0.15	U	A									
CADMIUM	0.03	U	A									
CALCIUM	1200											
CHROMIUM	1.0	U	A									
COBALT	0.38	U	A									
COPPER	3.2											
IRON	1300											
LEAD	14.2											
MAGNESIUM	70.7											
MANGANESE	10.1											
MERCURY	0.04	U										
NICKEL	1.1											
POTASSIUM	45.7											
SELENIUM	0.36											
SILVER	0.15	U	A									
SODIUM	342											
THALLIUM	0.44	U										
VANADIUM	1.3											
ZINC	19.2											

APPENIDX A
QUALIFIED ANALYTICAL RESULTS

Qualifier Codes:

A = Lab Blank Contamination
B = Field Blank Contamination
C = Calibration (i.e., % RSDs, %Ds, ICVs, CCVs, RPDs, RRFs, etc.) Noncompliance
D = MS/MSD Noncompliance
E = LCS/LCSD Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = GFAA PDS - GFAA MSA's $r < 0.995$
K = ICP Interference - include ICSAB % R's
L = Instrument Calibration Range Exceedance
M = Sample Preservation
N = Internal Standard Noncompliance
O = Poor Instrument Performance (i.e., base-time drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can encompass a number of issues)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = Pest/PCD% between columns for positive results
V = Non-linear calibrations, tuning $r < 0.995$ (correlation coefficient)
W = EMPC result
X = Signal to noise response drop

APPENDIX B
RESULTS AS REPORTED BY THE LABORATORY

Report of Analysis

Client Sample ID:	CEF-P42-SS-001		
Lab Sample ID:	F4049-1	**Date Sampled:**	04/26/99
Matrix:	SO - Soil	**Date Received:**	04/27/99
		Percent Solids:	94.7
Project:	NAS Cecil Field-PSC 42		

Metals Analysis

Analyte	Result	RDL	Units	DF	Prep	Analyzed	By	Method
Aluminum	455	21.1	mg/kg	1	05/03/99	05/03/99	JK	SW846 6010A
Antimony	1.0 B	6.3	mg/kg	1	05/03/99	05/03/99	JK	SW846 6010A
Arsenic	0.86 B	1.1	mg/kg	1	05/03/99	05/03/99	JK	SW846 6010A
Barium	14.9 B	21.1	mg/kg	1	05/03/99	05/03/99	JK	SW846 6010A
Beryllium	0.12 B	0.53	mg/kg	1	05/03/99	05/03/99	JK	SW846 6010A
Cadmium	0.02 U	0.42	mg/kg	1	05/03/99	05/03/99	JK	SW846 6010A
Calcium	292 B	528	mg/kg	1	05/03/99	05/03/99	JK	SW846 6010A
Chromium	2.6	1.1	mg/kg	1	05/03/99	05/03/99	JK	SW846 6010A
Cobalt	0.57 B	5.3	mg/kg	1	05/03/99	05/03/99	JK	SW846 6010A
Copper	3.0	2.6	mg/kg	1	05/03/99	05/03/99	JK	SW846 6010A
Iron	10400	10.6	mg/kg	1	05/03/99	05/03/99	JK	SW846 6010A
Lead	34.7	10.6	mg/kg	1	05/03/99	05/03/99	JK	SW846 6010A
Magnesium	52.0 B	528	mg/kg	1	05/03/99	05/03/99	JK	SW846 6010A
Manganese	29.2	1.6	mg/kg	1	05/03/99	05/03/99	JK	SW846 6010A
Mercury	0.04 U	0.18	mg/kg	1	04/28/99	04/30/99	JK	SW846 7471A
Nickel	1.9 B	4.2	mg/kg	1	05/03/99	05/03/99	JK	SW846 6010A
Potassium	35.5 B	528	mg/kg	1	05/03/99	05/03/99	JK	SW846 6010A
Selenium	0.60 B	10.6	mg/kg	1	05/03/99	05/03/99	JK	SW846 6010A
Silver	1.8	1.1	mg/kg	1	05/03/99	05/03/99	JK	SW846 6010A
Sodium	363 B	528	mg/kg	1	05/03/99	05/03/99	JK	SW846 6010A
Thallium	0.43 U	1.1	mg/kg	1	05/03/99	05/03/99	JK	SW846 6010A
Vanadium	0.88 B	5.3	mg/kg	1	05/03/99	05/03/99	JK	SW846 6010A
Zinc	22.9	2.1	mg/kg	1	05/03/99	05/03/99	JK	SW846 6010A

RDL = Reported Detection Limit

Report of Analysis

Client Sample ID:	CEF-P42-SS-002		
Lab Sample ID:	F4049-2	**Date Sampled:**	04/26/99
Matrix:	SO - Soil	**Date Received:**	04/27/99
		Percent Solids:	96.4
Project:	NAS Cecil Field-PSC 42		

Metals Analysis

Analyte	Result	RDL	Units	DF	Prep	Analyzed	By	Method
Aluminum	1610	20.7	mg/kg	1	05/03/99	05/03/99	JK	SW846 6010A
Antimony	2.7 B	6.2	mg/kg	1	05/03/99	05/03/99	JK	SW846 6010A
Arsenic	3.7	1.0	mg/kg	1	05/03/99	05/03/99	JK	SW846 6010A
Barium	54.6	20.7	mg/kg	1	05/03/99	05/03/99	JK	SW846 6010A
Beryllium	0.34 B	0.52	mg/kg	1	05/03/99	05/03/99	JK	SW846 6010A
Cadmium	0.12 B	0.41	mg/kg	1	05/03/99	05/03/99	JK	SW846 6010A
Calcium	929	519	mg/kg	1	05/03/99	05/03/99	JK	SW846 6010A
Chromium	4.8	1.0	mg/kg	1	05/03/99	05/03/99	JK	SW846 6010A
Cobalt	1.1 B	5.2	mg/kg	1	05/03/99	05/03/99	JK	SW846 6010A
Copper	8.4	2.6	mg/kg	1	05/03/99	05/03/99	JK	SW846 6010A
Iron	2560	10.4	mg/kg	1	05/03/99	05/03/99	JK	SW846 6010A
Lead	55.2	10.4	mg/kg	1	05/03/99	05/03/99	JK	SW846 6010A
Magnesium	127 B	519	mg/kg	1	05/03/99	05/03/99	JK	SW846 6010A
Manganese	16.1	1.6	mg/kg	1	05/03/99	05/03/99	JK	SW846 6010A
Mercury	0.04 U	0.17	mg/kg	1	04/28/99	04/30/99	JK	SW846 7471A
Nickel	2.6 B	4.1	mg/kg	1	05/03/99	05/03/99	JK	SW846 6010A
Potassium	81.4 B	519	mg/kg	1	05/03/99	05/03/99	JK	SW846 6010A
Selenium	0.44 B	10.4	mg/kg	1	05/03/99	05/03/99	JK	SW846 6010A
Silver	0.55 B	1.0	mg/kg	1	05/03/99	05/03/99	JK	SW846 6010A
Sodium	373 B	519	mg/kg	1	05/03/99	05/03/99	JK	SW846 6010A
Thallium	0.43 U	1.0	mg/kg	1	05/03/99	05/03/99	JK	SW846 6010A
Vanadium	4.1 B	5.2	mg/kg	1	05/03/99	05/03/99	JK	SW846 6010A
Zinc	60.1	2.1	mg/kg	1	05/03/99	05/03/99	JK	SW846 6010A

RDL = Reported Detection Limit

Report of Analysis

Client Sample ID:	CEF-P42-SS-003		
Lab Sample ID:	F4049-3	**Date Sampled:**	04/26/99
Matrix:	SO - Soil	**Date Received:**	04/27/99
		Percent Solids:	97.4
Project:	NAS Cecil Field-PSC 42		

Metals Analysis

Analyte	Result	RDL	Units	DF	Prep	Analyzed	By	Method
Aluminum	979	20.5	mg/kg	1	05/03/99	05/03/99	JK	SW846 6010A
Antimony	0.59 B	6.2	mg/kg	1	05/03/99	05/03/99	JK	SW846 6010A
Arsenic	1.4	1.0	mg/kg	1	05/03/99	05/03/99	JK	SW846 6010A
Barium	31.9	20.5	mg/kg	1	05/03/99	05/03/99	JK	SW846 6010A
Beryllium	0.16 B	0.51	mg/kg	1	05/03/99	05/03/99	JK	SW846 6010A
Cadmium	0.04 B	0.41	mg/kg	1	05/03/99	05/03/99	JK	SW846 6010A
Calcium	1360	513	mg/kg	1	05/03/99	05/03/99	JK	SW846 6010A
Chromium	1.7	1.0	mg/kg	1	05/03/99	05/03/99	JK	SW846 6010A
Cobalt	0.36 B	5.1	mg/kg	1	05/03/99	05/03/99	JK	SW846 6010A
Copper	4.6	2.6	mg/kg	1	05/03/99	05/03/99	JK	SW846 6010A
Iron	758	10.3	mg/kg	1	05/03/99	05/03/99	JK	SW846 6010A
Lead	17.9	10.3	mg/kg	1	05/03/99	05/03/99	JK	SW846 6010A
Magnesium	78.8 B	513	mg/kg	1	05/03/99	05/03/99	JK	SW846 6010A
Manganese	6.5	1.5	mg/kg	1	05/03/99	05/03/99	JK	SW846 6010A
Mercury	0.04 U	0.17	mg/kg	1	04/28/99	04/30/99	JK	SW846 7471A
Nickel	1.4 B	4.1	mg/kg	1	05/03/99	05/03/99	JK	SW846 6010A
Potassium	33.5 B	513	mg/kg	1	05/03/99	05/03/99	JK	SW846 6010A
Selenium	0.32 U	10.3	mg/kg	1	05/03/99	05/03/99	JK	SW846 6010A
Silver	0.27 B	1.0	mg/kg	1	05/03/99	05/03/99	JK	SW846 6010A
Sodium	328 B	513	mg/kg	1	05/03/99	05/03/99	JK	SW846 6010A
Thallium	0.42 U	1.0	mg/kg	1	05/03/99	05/03/99	JK	SW846 6010A
Vanadium	1.6 B	5.1	mg/kg	1	05/03/99	05/03/99	JK	SW846 6010A
Zinc	34.4	2.1	mg/kg	1	05/03/99	05/03/99	JK	SW846 6010A

RDL = Reported Detection Limit

Report of Analysis

Client Sample ID:	CEF-P42-SS-004		
Lab Sample ID:	F4049-4	**Date Sampled:**	04/26/99
Matrix:	SO - Soil	**Date Received:**	04/27/99
		Percent Solids:	92.4
Project:	NAS Cecil Field-PSC 42		

Metals Analysis

Analyte	Result	RDL	Units	DF	Prep	Analyzed	By	Method
Aluminum	1770	21.6	mg/kg	1	05/03/99	05/03/99	JK	SW846 6010A
Antimony	0.50 B	6.5	mg/kg	1	05/03/99	05/03/99	JK	SW846 6010A
Arsenic	7.0	1.1	mg/kg	1	05/03/99	05/03/99	JK	SW846 6010A
Barium	33.3	21.6	mg/kg	1	05/03/99	05/03/99	JK	SW846 6010A
Beryllium	0.30 B	0.54	mg/kg	1	05/03/99	05/03/99	JK	SW846 6010A
Cadmium	0.02 U	0.43	mg/kg	1	05/03/99	05/03/99	JK	SW846 6010A
Calcium	625	541	mg/kg	1	05/03/99	05/03/99	JK	SW846 6010A
Chromium	3.4	1.1	mg/kg	1	05/03/99	05/03/99	JK	SW846 6010A
Cobalt	0.94 B	5.4	mg/kg	1	05/03/99	05/03/99	JK	SW846 6010A
Copper	10.7	2.7	mg/kg	1	05/03/99	05/03/99	JK	SW846 6010A
Iron	3100	10.8	mg/kg	1	05/03/99	05/03/99	JK	SW846 6010A
Lead	23.4	10.8	mg/kg	1	05/03/99	05/03/99	JK	SW846 6010A
Magnesium	115 B	541	mg/kg	1	05/03/99	05/03/99	JK	SW846 6010A
Manganese	5.1	1.6	mg/kg	1	05/03/99	05/03/99	JK	SW846 6010A
Mercury	0.05 U	0.18	mg/kg	1	04/28/99	04/30/99	JK	SW846 7471A
Nickel	2.8 B	4.3	mg/kg	1	05/03/99	05/03/99	JK	SW846 6010A
Potassium	98.5 B	541	mg/kg	1	05/03/99	05/03/99	JK	SW846 6010A
Selenium	1.1 B	10.8	mg/kg	1	05/03/99	05/03/99	JK	SW846 6010A
Silver	0.53 B	1.1	mg/kg	1	05/03/99	05/03/99	JK	SW846 6010A
Sodium	374 B	541	mg/kg	1	05/03/99	05/03/99	JK	SW846 6010A
Thallium	0.44 U	1.1	mg/kg	1	05/03/99	05/03/99	JK	SW846 6010A
Vanadium	6.9	5.4	mg/kg	1	05/03/99	05/03/99	JK	SW846 6010A
Zinc	10.4	2.2	mg/kg	1	05/03/99	05/03/99	JK	SW846 6010A

RDL = Reported Detection Limit

Report of Analysis

Client Sample ID:	CEF-P42-SS-005		
Lab Sample ID:	F4049-5	**Date Sampled:**	04/26/99
Matrix:	SO - Soil	**Date Received:**	04/27/99
		Percent Solids:	91.1
Project:	NAS Cecil Field-PSC 42		

Metals Analysis

Analyte	Result	RDL	Units	DF	Prep	Analyzed	By	Method
Aluminum	1010	22.0	mg/kg	1	05/03/99	05/03/99	JK	SW846 6010A
Antimony	0.81 B	6.6	mg/kg	1	05/03/99	05/03/99	JK	SW846 6010A
Arsenic	7.8	1.1	mg/kg	1	05/03/99	05/03/99	JK	SW846 6010A
Barium	53.1	22.0	mg/kg	1	05/03/99	05/03/99	JK	SW846 6010A
Beryllium	0.44 B	0.55	mg/kg	1	05/03/99	05/03/99	JK	SW846 6010A
Cadmium	0.11 B	0.44	mg/kg	1	05/03/99	05/03/99	JK	SW846 6010A
Calcium	814	549	mg/kg	1	05/03/99	05/03/99	JK	SW846 6010A
Chromium	9.9	1.1	mg/kg	1	05/03/99	05/03/99	JK	SW846 6010A
Cobalt	1.5 B	5.5	mg/kg	1	05/03/99	05/03/99	JK	SW846 6010A
Copper	14.5	2.7	mg/kg	1	05/03/99	05/03/99	JK	SW846 6010A
Iron	2780	11.0	mg/kg	1	05/03/99	05/03/99	JK	SW846 6010A
Lead	127	11.0	mg/kg	1	05/03/99	05/03/99	JK	SW846 6010A
Magnesium	148 B	549	mg/kg	1	05/03/99	05/03/99	JK	SW846 6010A
Manganese	12.1	1.6	mg/kg	1	05/03/99	05/03/99	JK	SW846 6010A
Mercury	0.05 U	0.18	mg/kg	1	04/28/99	04/30/99	JK	SW846 7471A
Nickel	3.1 B	4.4	mg/kg	1	05/03/99	05/03/99	JK	SW846 6010A
Potassium	134 B	549	mg/kg	1	05/03/99	05/03/99	JK	SW846 6010A
Selenium	0.97 B	11.0	mg/kg	1	05/03/99	05/03/99	JK	SW846 6010A
Silver	0.26 B	1.1	mg/kg	1	05/03/99	05/03/99	JK	SW846 6010A
Sodium	401 B	549	mg/kg	1	05/03/99	05/03/99	JK	SW846 6010A
Thallium	0.45 U	1.1	mg/kg	1	05/03/99	05/03/99	JK	SW846 6010A
Vanadium	7.1	5.5	mg/kg	1	05/03/99	05/03/99	JK	SW846 6010A
Zinc	168	2.2	mg/kg	1	05/03/99	05/03/99	JK	SW846 6010A

RDL = Reported Detection Limit

Report of Analysis

Client Sample ID:	CEF-P42-SS-006		
Lab Sample ID:	F4049-6	**Date Sampled:**	04/26/99
Matrix:	SO - Soil	**Date Received:**	04/27/99
		Percent Solids:	89.6
Project:	NAS Cecil Field-PSC 42		

Metals Analysis

Analyte	Result	RDL	Units	DF	Prep	Analyzed	By	Method
Aluminum	984	22.3	mg/kg	1	05/03/99	05/03/99	JK	SW846 6010A
Antimony	5.2 B	6.7	mg/kg	1	05/03/99	05/03/99	JK	SW846 6010A
Arsenic	10.3	1.1	mg/kg	1	05/03/99	05/03/99	JK	SW846 6010A
Barium	114	22.3	mg/kg	1	05/03/99	05/03/99	JK	SW846 6010A
Beryllium	0.68	0.56	mg/kg	1	05/03/99	05/03/99	JK	SW846 6010A
Cadmium	0.22 B	0.45	mg/kg	1	05/03/99	05/03/99	JK	SW846 6010A
Calcium	1580	558	mg/kg	1	05/03/99	05/03/99	JK	SW846 6010A
Chromium	16.8	1.1	mg/kg	1	05/03/99	05/03/99	JK	SW846 6010A
Cobalt	2.0 B	5.6	mg/kg	1	05/03/99	05/03/99	JK	SW846 6010A
Copper	16.6	2.8	mg/kg	1	05/03/99	05/03/99	JK	SW846 6010A
Iron	4950	11.2	mg/kg	1	05/03/99	05/03/99	JK	SW846 6010A
Lead	56.1	11.2	mg/kg	1	05/03/99	05/03/99	JK	SW846 6010A
Magnesium	217 B	558	mg/kg	1	05/03/99	05/03/99	JK	SW846 6010A
Manganese	27.2	1.7	mg/kg	1	05/03/99	05/03/99	JK	SW846 6010A
Mercury	0.05 U	0.19	mg/kg	1	04/28/99	04/30/99	JK	SW846 7471A
Nickel	4.1 B	4.5	mg/kg	1	05/03/99	05/03/99	JK	SW846 6010A
Potassium	193 B	558	mg/kg	1	05/03/99	05/03/99	JK	SW846 6010A
Selenium	1.5 B	11.2	mg/kg	1	05/03/99	05/03/99	JK	SW846 6010A
Silver	0.47 B	1.1	mg/kg	1	05/03/99	05/03/99	JK	SW846 6010A
Sodium	417 B	558	mg/kg	1	05/03/99	05/03/99	JK	SW846 6010A
Thallium	0.46 U	1.1	mg/kg	1	05/03/99	05/03/99	JK	SW846 6010A
Vanadium	7.1	5.6	mg/kg	1	05/03/99	05/03/99	JK	SW846 6010A
Zinc	92.1	2.2	mg/kg	1	05/03/99	05/03/99	JK	SW846 6010A

RDL = Reported Detection Limit

Report of Analysis

Client Sample ID:	CEF-P42-SS-007		
Lab Sample ID:	F4049-7	**Date Sampled:**	04/26/99
Matrix:	SO - Soil	**Date Received:**	04/27/99
		Percent Solids:	94.0
Project:	NAS Cecil Field-PSC 42		

Metals Analysis

Analyte	Result	RDL	Units	DF	Prep	Analyzed	By	Method
Aluminum	1750	21.3	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Antimony	4.2 B	6.4	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Arsenic	3.1	1.1	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Barium	40.1	21.3	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Beryllium	0.27 B	0.53	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Cadmium	0.29 B	0.43	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Calcium	2470	532	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Chromium	3.6	1.1	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Cobalt	0.88 B	5.3	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Copper	9.0	2.7	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Iron	1770	10.6	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Lead	49.7	10.6	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Magnesium	350 B	532	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Manganese	74.1	1.6	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
~~Mercury~~	~~0.04 U~~	~~0.18~~	~~mg/kg~~	~~1~~	~~04/28/99~~	~~04/30/99~~	~~JK~~	~~SW846 7471A~~
Mercury	0.04 U	0.18	mg/kg	1	04/28/99	04/30/99	JK	SW846 7471A
Nickel	3.3 B	4.3	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Potassium	68.6 B	532	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Selenium	0.74 B	10.6	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Silver	0.23 B	1.1	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Sodium	323 B	532	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Thallium	0.44 U	1.1	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Vanadium	2.7 B	5.3	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Zinc	131	2.1	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A

GAO 6-11-99

RDL = Reported Detection Limit

Report of Analysis

Client Sample ID:	CEF-P42-SS-008		
Lab Sample ID:	F4049-8	**Date Sampled:**	04/26/99
Matrix:	SO - Soil	**Date Received:**	04/27/99
		Percent Solids:	94.6
Project:	NAS Cecil Field-PSC 42		

Metals Analysis

Analyte	Result	RDL	Units	DF	Prep	Analyzed	By	Method
Aluminum	2950	21.1	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Antimony	10.3	6.3	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Arsenic	6.8	1.1	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Barium	66.1	21.1	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Beryllium	0.47 B	0.53	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Cadmium	0.71	0.42	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Calcium	6520	529	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Chromium	10.5	1.1	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Cobalt	1.9 B	5.3	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Copper	18.4	2.6	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Iron	5580	10.6	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Lead	224	10.6	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Magnesium	1780	529	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Manganese	353	1.6	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Mercury	0.04 U	0.18	mg/kg	1	04/28/99	04/30/99	JK	SW846 7471A
Nickel	10.9	4.2	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Potassium	245 B	529	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Selenium	1.3 B	10.6	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Silver	0.33 B	1.1	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Sodium	454 B	529	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Thallium	0.43 U	1.1	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Vanadium	5.1 B	5.3	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Zinc	494	2.1	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A

RDL = Reported Detection Limit

Report of Analysis

Client Sample ID:	CEF-P42-SS-009		
Lab Sample ID:	F4049-9	**Date Sampled:**	04/26/99
Matrix:	SO - Soil	**Date Received:**	04/27/99
		Percent Solids:	90.7
Project:	NAS Cecil Field-PSC 42		

Metals Analysis

Analyte	Result	RDL	Units	DF	Prep	Analyzed	By	Method
Aluminum	3320	22.1	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Antimony	1.9 B	6.6	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Arsenic	7.6	1.1	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Barium	122	22.1	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Beryllium	0.52 B	0.55	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Cadmium	0.23 B	0.44	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Calcium	3300	551	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Chromium	5.3	1.1	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Cobalt	1.8 B	5.5	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Copper	23.1	2.8	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Iron	4220	11.0	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Lead	67.6	11.0	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Magnesium	403 B	551	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Manganese	54.7	1.7	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Mercury	0.05 U	0.18	mg/kg	1	04/28/99	04/30/99	JK	SW846 7471A
Nickel	5.3	4.4	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Potassium	230 B	551	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Selenium	1.1 B	11.0	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Silver	1.9	1.1	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Sodium	326 B	551	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Thallium	0.45 U	1.1	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Vanadium	6.2	5.5	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Zinc	105	2.2	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A

RDL = Reported Detection Limit

Report of Analysis

Client Sample ID:	CEF-P42-SS-010		
Lab Sample ID:	F4049-10	**Date Sampled:**	04/26/99
Matrix:	SO - Soil	**Date Received:**	04/27/99
		Percent Solids:	93.8
Project:	NAS Cecil Field-PSC 42		

Metals Analysis

Analyte	Result	RDL	Units	DF	Prep	Analyzed	By	Method
Aluminum	1900	21.3	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Antimony	3.3 B	6.4	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Arsenic	3.7	1.1	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Barium	36.1	21.3	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Beryllium	0.19 B	0.53	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Cadmium	0.11 B	0.43	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Calcium	6680	533	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Chromium	5.4	1.1	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Cobalt	0.83 B	5.3	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Copper	8.0	2.7	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Iron	1580	10.7	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Lead	105	10.7	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Magnesium	234 B	533	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Manganese	38.2	1.6	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Mercury	0.04 U	0.18	mg/kg	1	04/28/99	04/30/99	JK	SW846 7471A
Nickel	2.2 B	4.3	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Potassium	91.3 B	533	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Selenium	1.0 B	10.7	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Silver	0.16 B	1.1	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Sodium	350 B	533	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Thallium	0.44 U	1.1	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Vanadium	2.9 B	5.3	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Zinc	142	2.1	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A

RDL = Reported Detection Limit

Report of Analysis

Client Sample ID:	CEF-P42-SS-011		
Lab Sample ID:	F4049-11	**Date Sampled:**	04/26/99
Matrix:	SO - Soil	**Date Received:**	04/27/99
		Percent Solids:	93.8
Project:	NAS Cecil Field-PSC 42		

Metals Analysis

Analyte	Result	RDL	Units	DF	Prep	Analyzed	By	Method
Aluminum	766	21.3	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Antimony	2.9 B	6.4	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Arsenic	0.75 B	1.1	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Barium	28.8	21.3	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Beryllium	0.13 B	0.53	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Cadmium	0.11 B	0.43	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Calcium	722	533	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Chromium	2.0	1.1	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Cobalt	0.28 B	5.3	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Copper	4.1	2.7	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Iron	633	10.7	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Lead	39.8	10.7	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Magnesium	160 B	533	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Manganese	32.7	1.6	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Mercury	0.04 U	0.18	mg/kg	1	04/28/99	04/30/99	JK	SW846 7471A
Nickel	1.6 B	4.3	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Potassium	41.0 B	533	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Selenium	0.33 U	10.7	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Silver	0.45 B	1.1	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Sodium	410 B	533	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Thallium	0.44 U	1.1	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Vanadium	1.3 B	5.3	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Zinc	51.1	2.1	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A

RDL = Reported Detection Limit

Report of Analysis

Client Sample ID:	CEF-P42-SS-012		
Lab Sample ID:	F4049-12	**Date Sampled:**	04/26/99
Matrix:	SO - Soil	**Date Received:**	04/27/99
		Percent Solids:	94.0
Project:	NAS Cecil Field-PSC 42		

Metals Analysis

Analyte	Result	RDL	Units	DF	Prep	Analyzed	By	Method
Aluminum	654	21.3	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Antimony	0.43 B	6.4	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Arsenic	0.29 U	1.1	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Barium	11.4 B	21.3	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Beryllium	0.06 B	0.53	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Cadmium	0.02 B	0.43	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Calcium	1410	532	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Chromium	0.98 B	1.1	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Cobalt	0.05 B	5.3	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Copper	2.1 B	2.7	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Iron	259	10.6	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Lead	10.1 B	10.6	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Magnesium	48.4 B	532	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Manganese	2.8	1.6	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Mercury	0.04 U	0.18	mg/kg	1	04/28/99	04/30/99	JK	SW846 7471A
Nickel	0.67 B	4.3	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Potassium	21.0 B	532	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Selenium	0.40 B	10.6	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Silver	0.34 B	1.1	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Sodium	356 B	532	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Thallium	0.44 U	1.1	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Vanadium	0.99 B	5.3	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Zinc	6.6	2.1	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A

RDL = Reported Detection Limit

Report of Analysis

Client Sample ID:	CEF-P42-SS-015		
Lab Sample ID:	F4049-15	**Date Sampled:**	04/26/99
Matrix:	SO - Soil	**Date Received:**	04/27/99
		Percent Solids:	95.1
Project:	NAS Cecil Field-PSC 42		

Metals Analysis

Analyte	Result	RDL	Units	DF	Prep	Analyzed By		Method
Aluminum	547	21.0	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Antimony	0.75 B	6.3	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Arsenic	0.58 B	1.1	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Barium	17.9 B	21.0	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Beryllium	0.11 B	0.53	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Cadmium	0.05 B	0.42	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Calcium	1390	526	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Chromium	0.98 B	1.1	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Cobalt	0.42 B	5.3	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Copper	2.8	2.6	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Iron	806	10.5	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Lead	12.6	10.5	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Magnesium	70.0 B	526	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Manganese	7.3	1.6	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Mercury	0.04 U	0.18	mg/kg	1	04/30/99	04/30/99	JK	SW846 7471A
Nickel	0.91 B	4.2	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Potassium	47.3 B	526	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Selenium	0.39 B	10.5	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Silver	0.31 B	1.1	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Sodium	305 B	526	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Thallium	0.43 U	1.1	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Vanadium	1.5 B	5.3	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Zinc	17.5	2.1	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A

RDL = Reported Detection Limit

Report of Analysis

Client Sample ID:	CEF-P42-SS-DUP01		
Lab Sample ID:	F4049-16	**Date Sampled:**	04/26/99
Matrix:	SO - Soil	**Date Received:**	04/27/99
		Percent Solids:	94.6
Project:	NAS Cecil Field-PSC 42		

Metals Analysis

Analyte	Result	RDL	Units	DF	Prep	Analyzed	By	Method
Aluminum	1810	21.1	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Antimony	5.9 B	6.3	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Arsenic	3.5	1.1	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Barium	39.0	21.1	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Beryllium	0.23 B	0.53	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Cadmium	0.26 B	0.42	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Calcium	2880	529	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Chromium	4.3	1.1	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Cobalt	0.91 B	5.3	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Copper	9.1	2.6	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Iron	2650	10.6	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Lead	54.4	10.6	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Magnesium	400 B	529	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Manganese	103	1.6	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Mercury	0.04 U	0.18	mg/kg	1	04/30/99	04/30/99	JK	SW846 7471A
Nickel	3.4 B	4.2	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Potassium	82.6 B	529	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Selenium	0.75 B	10.6	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Silver	0.31 B	1.1	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Sodium	347 B	529	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Thallium	0.43 U	1.1	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Vanadium	3.0 B	5.3	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Zinc	154	2.1	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A

RDL = Reported Detection Limit

Report of Analysis

Client Sample ID:	CEF-P42-SS-013		
Lab Sample ID:	F4049-13	**Date Sampled:**	04/26/99
Matrix:	SO - Soil	**Date Received:**	04/27/99
		Percent Solids:	95.0
Project:	NAS Cecil Field-PSC 42		

Metals Analysis

Analyte	Result	RDL	Units	DF	Prep	Analyzed	By	Method
Aluminum	1120	21.1	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Antimony	2.8 B	6.3	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Arsenic	1.1	1.1	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Barium	27.4	21.1	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Beryllium	0.15 B	0.53	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Cadmium	0.14 B	0.42	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Calcium	1580	526	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Chromium	2.7	1.1	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Cobalt	0.45 B	5.3	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Copper	4.1	2.6	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Iron	1080	10.5	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Lead	44.5	10.5	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Magnesium	216 B	526	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Manganese	54.7	1.6	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Mercury	0.04 U	0.18	mg/kg	1	04/30/99	04/30/99	JK	SW846 7471A
Nickel	1.8 B	4.2	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Potassium	65.1 B	526	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Selenium	0.55 B	10.5	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Silver	0.19 B	1.1	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Sodium	397 B	526	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Thallium	0.43 U	1.1	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Vanadium	1.9 B	5.3	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Zinc	94.5	2.1	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A

RDL = Reported Detection Limit

Report of Analysis

Client Sample ID:	CEF-P42-SS-014		
Lab Sample ID:	F4049-14	**Date Sampled:**	04/26/99
Matrix:	SO - Soil	**Date Received:**	04/27/99
		Percent Solids:	96.4
Project:	NAS Cecil Field-PSC 42		

Metals Analysis

Analyte	Result	RDL	Units	DF	Prep	Analyzed	By	Method
Aluminum	30.9	20.7	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Antimony	0.34 U	6.2	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Arsenic	0.28 U	1.0	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Barium	8.9 B	20.7	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Beryllium	0.04 B	0.52	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Cadmium	0.02 B	0.41	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Calcium	234 B	519	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Chromium	0.19 B	1.0	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Cobalt	0.04 U	5.2	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Copper	1.6 B	2.6	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Iron	24.6	10.4	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Lead	0.51 B	10.4	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Magnesium	14.4 B	519	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Manganese	0.78 B	1.6	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Mercury	0.04 U	0.17	mg/kg	1	04/30/99	04/30/99	JK	SW846 7471A
Nickel	0.09 U	4.1	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Potassium	15.0 B	519	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Selenium	0.32 U	10.4	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Silver	0.08 U	1.0	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Sodium	337 B	519	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Thallium	0.43 U	1.0	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Vanadium	0.25 B	5.2	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Zinc	1.7 B	2.1	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A

RDL = Reported Detection Limit

Report of Analysis

Client Sample ID:	CEF-P42-SS-DUP02		
Lab Sample ID:	F4049-17	**Date Sampled:**	04/26/99
Matrix:	SO - Soil	**Date Received:**	04/27/99
		Percent Solids:	92.6
Project:	NAS Cecil Field-PSC 42		

Metals Analysis

Analyte	Result	RDL	Units	DF	Prep	Analyzed	By	Method
Aluminum	520	21.6	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Antimony	0.75 B	6.5	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Arsenic	0.60 B	1.1	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Barium	18.9 B	21.6	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Beryllium	0.15 B	0.54	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Cadmium	0.03 B	0.43	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Calcium	1200	540	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Chromium	1.0 B	1.1	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Cobalt	0.38 B	5.4	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Copper	3.2	2.7	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Iron	1300	10.8	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Lead	14.2	10.8	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Magnesium	70.7 B	540	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Manganese	10.1	1.6	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Mercury	0.04 U	0.18	mg/kg	1	04/30/99	04/30/99	JK	SW846 7471A
Nickel	1.1 B	4.3	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Potassium	45.7 B	540	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Selenium	0.36 B	10.8	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Silver	0.15 B	1.1	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Sodium	342 B	540	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Thallium	0.44 U	1.1	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Vanadium	1.3 B	5.4	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A
Zinc	19.2	2.2	mg/kg	1	05/04/99	05/04/99	JK	SW846 6010A

RDL = Reported Detection Limit

Tetra Tech NUS **INTERNAL CORRESPONDENCE**

PITT-07-9-238

TO: **MR. M. SPERANZA** **DATE: AUGUST 9, 1999**

FROM: **JUSTIN ORBICH** **CC: DV FILE**

SUBJECT: **ORGANIC DATA VALIDATION –PAH/TPH**
CTO 078 – NAS CECIL FIELD
SDG F4433

SAMPLES: 21/Solid

CEF-P42-SS-101-01*	CEF-P42-SS-102-01*
CEF-P42-SS-103-01*	CEF-P42-SS-104-01*
CEF-P42-SS-105-01*	CEF-P42-SS-106-01*
CEF-P42-SS-107-01*	CEF-P42-SS-108-01*
CEF-P42-SS-109-01	CEF-P42-SS-110-01
CEF-P42-SS-111-01	CEF-P42-SS-112-01
CEF-P42-SS-113-01	CEF-P42-SS-114-01
CEF-P42-SS-115-01	CEF-P42-SS-116-01
CEF-P42-SS-117-01	CEF-P42-SS-118-02*
CEF-P42-SS-119-02*	CEF-P42-SS-DU03*
CEF-P42-SS-DU04*	

OVERVIEW

The sample set for CTO 078, SDG F4433, Naval Air Station (NAS) Cecil Field; Florida consists of twenty-one (21) solid environmental samples. The environmental samples were analyzed for Target Compound List (TCL) Polynuclear Aromatic Hydrocarbon (PAH) organic compounds. The samples designated (*) were also analyzed for Total Petroleum Hydrocarbon (TPH) organic compounds. Two (2) field duplicate pairs (CEF-P42-SS-103-01/CEF-P42-SS-DU03 and CEF-P42-SS-119-02/CEF-P42-SS-DU04) were included within this SDG.

The samples were collected by Tetra Tech, NUS on July 21st, 1999 and analyzed by Accutest Laboratories. The PAH samples were analyzed by Accutest Southeast subcontracted Lab. All analyses were performed in accordance with Naval Facilities Engineering Service Center (NFESC) Quality Assurance/Quality Control (QA/QC) criteria and analyzed according to SW 846 Method 8310 and FLORIDA-PRO analytical and reporting protocols. The data in this SDG was validated with regard to the following parameters:

- Data Completeness
- Holding Times
- Initial/continuing calibrations
- Laboratory method/field quality control blank results
- Detection Limits
- Field Duplicate Precision

The symbol (*) indicates that all quality control criteria were met for this parameter. Problems affecting data quality are discussed below; documentation supporting these findings is presented in Appendix C. Qualified analytical results are presented in Appendix A.

PAH FRACTION

The continuing calibration Percent Differences (%Ds) exceeded the 15% quality control limit for benzo(a)pyrene. The positive and nondetected results were qualified as estimated (J) and (UJ), respectively, in the affected samples.

The field duplicate pair (CEF-P42-SS-103-01/CEF-P42-SS-DU03) Percent Relative Percent Differences (%RPDs) exceeded the 50% quality control limits for the solid matrix. The positive results were qualified as estimated (J), in the aforementioned pair.

TPH FRACTION

All quality control parameters were met for this fraction.

EXECUTIVE SUMMARY

Laboratory performance: The continuing calibration %Ds exceeded the 15% quality control limit.

Other Factors Affecting Data Quality: The field duplicate pair (CEF-P42-SS-103-01/CEF-P42-SS-DU03) RPDs exceeded 50% for several compounds.

MEMO TO: MR. M. SPERANZA
DATE: AUGUST 9, 1999 – PAGE 3

The data for these analyses were reviewed with reference to the EPA Functional Guidelines for Organic Data Validation (February, 1994), and the NFESC guidelines "Navy Installation Restoration Program Laboratory Quality Assurance Guide" (February, 1996). The text of this report has been formulated to address only those problems affecting data quality.

"I attest that the data referenced herein was validated according to the agreed upon validation criteria as specified in the NFESC Guidelines and the Quality Assurance Project Plan (QAPP)."

Justin Orbich

Chemist/Data Validator
Tetra Tech, NUS

Joseph A. Samchuck

Data Validation Quality Assurance Officer
Tetra Tech, NUS

Attachments:
1. Appendix A - Qualified Analytical Results
2. Appendix B - Results as reported by the Laboratory
3. Appendix C - Support Documentation

DATA QUALIFIER DEFINITIONS:

U - Value is a nondetected result as reported by the laboratory and should not be considered present.

J - Positive result is estimated as a result of a value below the CRQL or a technical noncompliance.

Qualifier Codes:

A = Lab Blank Contamination
B = Field Blank Contamination
C = Calibration (i.e., % RSDs, %Ds, ICVs, CCVs, RPDs, RRFs, etc.) Noncompliance
D = MS/MSD Noncompliance
E = LCS/LCSD Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = GFAA PDS - GFAA MSA's $r < 0.995$
K = ICP Interference - include ICSAB % R's
L = Instrument Calibration Range Exceedance
M = Sample Preservation
N = Internal Standard Noncompliance
O = Poor Instrument Performance (i.e., base-time drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can encompass a number of issues)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = Pest/PCB D% between columns for positive results
V = Non-linear calibrations, tuning $r < 0.995$ (correlation coefficient)
W = EMPC result
X = Signal to noise response drop
Y = % Solid content is less than 30%

APPENDIX A

Qualified Analytical Results

CTO078 - NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F4433

SAMPLE NUMBER:	CEF-P42-SS-101-01			CEF-P42-SS-102-01			CEF-P42-SS-103-01			CEF-P42-SS-104-01		
SAMPLE DATE:	07/01/99			07/01/99			07/01/99			07/01/99		
LABORATORY ID:	F4433-1			F4433-2			F4433-3			F4433-4		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	88.9 %			86.8 %			87.7 %			87.9 %		
UNITS:	UG/KG			UG/KG			UG/KG			UG/KG		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
POLYNUCLEAR AROMATIC HYDROCARBONS												
1-METHYLNAPHTHALENE	37	U		2500			3000			19000		
2-METHYLNAPHTHALENE	640			8100			9100			36000		
ACENAPHTHENE	1100			3000			7900	J	G	2400		
ACENAPHTHYLENE	75	U		1200			1600			6700		
ANTHRACENE	240			580			2300	J	G	650		
BENZO(A)ANTHRACENE	390			1100			3000	J	G	750		
BENZO(A)PYRENE	350			1400			2800	J	G	1100		
BENZO(B)FLUORANTHENE	410			1600			3100	J	G	1500		
BENZO(G,H,I)PERYLENE	270			850			1700	J	G	350		
BENZO(K)FLUORANTHENE	210			780			1600	J	G	2000		
CHRYSENE	360			1200			2600	J	G	770		
DIBENZO(A,H)ANTHRACENE	35			35			64			48		
FLUORANTHENE	1200			5100			11000	J	G	6900		
FLUORENE	52			190			640	J	G	720		
INDENO(1,2,3-CD)PYRENE	150			740			1400	J	G	120		
NAPHTHALENE	220			2800			2700			15000		
PHENANTHRENE	720			3700			7500			9000		
PYRENE	800			2900			6800	J	G	2200		

CTO078 - NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F4433

SAMPLE NUMBER:	CEF-P42-SS-105-01			CEF-P42-SS-106-01			CEF-P42-SS-107-01			CEF-P42-SS-108-01		
SAMPLE DATE:	07/01/99			07/01/99			07/01/99			07/01/99		
LABORATORY ID:	F4433-5			F4433-6			F4433-7			F4433-8		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	87.9 %			86.8 %			89.1 %			86.8 %		
UNITS:	UG/KG			UG/KG			UG/KG			UG/KG		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
POLYNUCLEAR AROMATIC HYDROCARBONS												
1-METHYLNAPHTHALENE	8300			24000			340			38		
2-METHYLNAPHTHALENE	21000			51000			1900			760		
ACENAPHTHENE	1500			2400			1300			970		
ACENAPHTHYLENE	3100			8400			160			77		
ANTHRACENE	390			840			280			240		
BENZO(A)ANTHRACENE	410			710			540			410		
BENZO(A)PYRENE	460			650			530			430		
BENZO(B)FLUORANTHENE	650			970			670			550		
BENZO(G,H,I)PERYLENE	160			350			320			340		
BENZO(K)FLUORANTHENE	1100			1900			310			260		
CHRYSENE	250			370			570			410		
DIBENZO(A,H)ANTHRACENE	9.3	U		58			19			20		
FLUORANTHENE	3500			6900			1900			1200		
FLUORENE	7.4	U		7.7	U		70			51		
INDENO(1,2,3-CD)PYRENE	41			40			300			330		
NAPHTHALENE	8900			28000			470			130		
PHENANTHRENE	4000			11000			1100			730		
PYRENE	830			1600			1200			810		

CTO078 - NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F4433

SAMPLE NUMBER:	CEF-P42-SS-109-01			CEF-P42-SS-110-01			CEF-P42-SS-111-01			CEF-P42-SS-112-01		
SAMPLE DATE:	07/01/99			07/01/99			07/01/99			07/01/99		
LABORATORY ID:	F4433-9			F4433-10			F4433-11			F4433-12		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	87.9 %			86.5 %			89.1 %			89.5 %		
UNITS:	UG/KG			UG/KG			UG/KG			UG/KG		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
POLYNUCLEAR AROMATIC HYDROCARBONS												
1-METHYLNAPHTHALENE	47			64			100			420		
2-METHYLNAPHTHALENE	94			220			280			1700		
ACENAPHTHENE	36	U		210			130			1100		
ACENAPHTHYLENE	74	U		75	U		74	U		260		
ANTHRACENE	5.4	U		34			9.9			150		
BENZO(A)ANTHRACENE	24			92			23			290		
BENZO(A)PYRENE	29			110			30			290	J	C
BENZO(B)FLUORANTHENE	66			170			76			420		
BENZO(G,H,I)PERYLENE	37			90			22			230		
BENZO(K)FLUORANTHENE	26			79			30			180		
CHRYSENE	27			89			22			230		
DIBENZO(A,H)ANTHRACENE	9	U		11			9.2	U		18		
FLUORANTHENE	78			270			100			1200		
FLUORENE	7.2	U		7.5	U		7.4	U		42		
INDENO(1,2,3-CD)PYRENE	20			58			25			170		
NAPHTHALENE	61			91			190			690		
PHENANTHRENE	25			120			75			810		
PYRENE	45			170			19			770		

CTO078 - NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F4433

SAMPLE NUMBER:	CEF-P42-SS-113-01			CEF-P42-SS-114-01			CEF-P42-SS-115-01			CEF-P42-SS-116-01		
SAMPLE DATE:	07/01/99			07/01/99			07/01/99			07/01/99		
LABORATORY ID:	F4433-13			F4433-14			F4433-15			F4433-16		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	86.6 %			91.5 %			93.1 %			90.8 %		
UNITS:	UG/KG			UG/KG			UG/KG			UG/KG		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
POLYNUCLEAR AROMATIC HYDROCARBONS												
1-METHYLNAPHTHALENE	220			50	U		35	U		36	U	
2-METHYLNAPHTHALENE	790			200			35	U		36	U	
ACENAPHTHENE	430			36	U		35	U		46		
ACENAPHTHYLENE	390			74	U		71	U		72	U	
ANTHRACENE	28			5.4	U		5.3	U		5.4	U	
BENZO(A)ANTHRACENE	100			18			15			22		
BENZO(A)PYRENE	130	J	C	15	J	C	14	J	C	39	J	C
BENZO(B)FLUORANTHENE	220			26			24			65		
BENZO(G,H,I)PERYLENE	130			17			16			49		
BENZO(K)FLUORANTHENE	88			17			11			28		
CHRYSENE	110			15			18			29		
DIBENZO(A,H)ANTHRACENE	9.5	U		9	U		8.8	U		8.9	U	
FLUORANTHENE	480			79			40			57		
FLUORENE	16			7	U		7.1	U		7.2	U	
INDENO(1,2,3-CD)PYRENE	73			7.4			11			40		
NAPHTHALENE	350			52			35	U		36	U	
PHENANTHRENE	260			43			15			16		
PYRENE	280			45			32			48		

CTO078 - NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F4433

SAMPLE NUMBER:	CEF-P42-SS-117-01			CEF-P42-SS-118-02			CEF-P42-SS-119-02			CEF-P42-SS-DU03		
SAMPLE DATE:	07/01/99			07/01/99			07/01/99			07/01/99		
LABORATORY ID:	F4433-17			F4433-18			F4433-19			F4433-20		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	91.7 %			89.6 %			88.3 %			90.1 %		
UNITS:	UG/KG			UG/KG			UG/KG			UG/KG		
FIELD DUPLICATE OF:										CEF-P42-SS-103-01		
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
POLYNUCLEAR AROMATIC HYDROCARBONS												
1-METHYLNAPHTHALENE	36	U		51			2700			3300		
2-METHYLNAPHTHALENE	36	U		170			8100			9900		
ACENAPHTHENE	36	U		36	U		620			3600	J	G
ACENAPHTHYLENE	73	U		73	U		960			1900		
ANTHRACENE	5.4	U		5.4	U		120			1200	J	G
BENZO(A)ANTHRACENE	5.4	U		10			120			1400	J	G
BENZO(A)PYRENE	5.4	UJ	C	8.9	J	C	89	J	C	1400	J	CG
BENZO(B)FLUORANTHENE	5.4	U		25			140			1800	J	G
BENZO(G,H,I)PERYLENE	7.3	U		11			47			980	J	G
BENZO(K)FLUORANTHENE	5.4	U		7.3			41			890	J	G
CHRYSENE	5.4	U		6			68			1200	J	G
DIBENZO(A,H)ANTHRACENE	9	U		9	U		9.2	U		48		
FLUORANTHENE	73	U		55			860			6100	J	G
FLUORENE	7.3	U		7.3	U		73			260	J	G
INDENO(1,2,3-CD)PYRENE	5.4	U		5.4	U		5.6	U		770	J	G
NAPHTHALENE	36	U		160			2800			4000		
PHENANTHRENE	5.4	U		47			1400			4600		
PYRENE	7.3	U		24			150			3700	J	G

CTO078 - NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F4433

SAMPLE NUMBER:	CEF-P42-SS-DU04			
SAMPLE DATE:	07/01/99	/ /	/ /	/ /
LABORATORY ID:	F4433-21			
QC_TYPE:	NORMAL			
% SOLIDS:	88.2 %	100.0 %	100.0 %	100.0 %
UNITS:	UG/KG			
FIELD DUPLICATE OF:	CEF-P42-SS-119-02			

	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
POLYNUCLEAR AROMATIC HYDROCARBONS												
1-METHYLNAPHTHALENE	2800											
2-METHYLNAPHTHALENE	7200											
ACENAPHTHENE	520											
ACENAPHTHYLENE	880											
ANTHRACENE	110											
BENZO(A)ANTHRACENE	100											
BENZO(A)PYRENE	66	J	C									
BENZO(B)FLUORANTHENE	98											
BENZO(G,H,I)PERYLENE	54											
BENZO(K)FLUORANTHENE	34											
CHRYSENE	54											
DIBENZO(A,H)ANTHRACENE	9.3	U										
FLUORANTHENE	910											
FLUORENE	58											
INDENO(1,2,3-CD)PYRENE	5.6	U										
NAPHTHALENE	2500											
PHENANTHRENE	1200											
PYRENE	130											

CTO078 - NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F4433

SAMPLE NUMBER:	CEF-P42-SS-101-01			CEF-P42-SS-102-01			CEF-P42-SS-103-01			CEF-P42-SS-104-01		
SAMPLE DATE:	07/01/99			07/01/99			07/01/99			07/01/99		
LABORATORY ID:	F4433-1			F4433-2			F4433-3			F4433-4		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	88.9 %			86.8 %			87.7 %			87.9 %		
UNITS:	MG/KG			MG/KG			MG/KG			MG/KG		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
PETROLEUM HYDROCARBONS												
TPH (C8-C40)	94	U		175			156			271		

CTO078 - NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F4433

SAMPLE NUMBER:	CEF-P42-SS-105-01			CEF-P42-SS-106-01			CEF-P42-SS-107-01			CEF-P42-SS-108-01		
SAMPLE DATE:	07/01/99			07/01/99			07/01/99			07/01/99		
LABORATORY ID:	F4433-5			F4433-6			F4433-7			F4433-8		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	87.9 %			86.8 %			89.1 %			86.8 %		
UNITS:	MG/KG			MG/KG			MG/KG			MG/KG		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
PETROLEUM HYDROCARBONS												
TPH (C8-C40)	157			341			94	U		96	U	

CTO078 - NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F4433

SAMPLE NUMBER:	CEF-P42-SS-118-02			CEF-P42-SS-119-02			CEF-P42-SS-DU03			CEF-P42-SS-DU04		
SAMPLE DATE:	07/01/99			07/01/99			07/01/99			07/01/99		
LABORATORY ID:	F4433-18			F4433-19			F4433-20			F4433-21		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	89.6 %			88.3 %			90.1 %			88.2 %		
UNITS:	MG/KG			MG/KG			MG/KG			MG/KG		
FIELD DUPLICATE OF:							CEF-P42-SS-103-01			CEF-P42-SS-119-02		
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
PETROLEUM HYDROCARBONS												
TPH (C8-C40)	93	U		94	U		101			94	U	

APPENDIX B

Results as Reported by the Laboratory

Report of Analysis

Client Sample ID:	CEF-P42-SS-101-01		
Lab Sample ID:	F4433-1	**Date Sampled:**	07/01/99
Matrix:	SO - Soil	**Date Received:**	07/02/99
Method:	EPA 8310	**Percent Solids:**	88.9
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]		1	07/17/99	SUB	n/a	n/a	R6944
Run #2							

CAS No.	Compound	Result	RDL	Units	Q
83-32-9	Acenaphthene	1100	37	ug/kg	
208-96-8	Acenaphthylene	ND	75	ug/kg	
120-12-7	Anthracene	240	28	ug/kg	
56-55-3	Benzo(a)anthracene	390	28	ug/kg	
50-32-8	Benzo(a)pyrene	350	28	ug/kg	
205-99-2	Benzo(b)fluoranthene	410	28	ug/kg	
191-24-2	Benzo(g,h,i)perylene	270	7.4	ug/kg	
207-08-9	Benzo(k)fluoranthene	210	28	ug/kg	
218-01-9	Chrysene	360	28	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	35	9.2	ug/kg	
206-44-0	Fluoranthene	1200	37	ug/kg	
86-73-7	Fluorene	52	7.4	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	150	5.5	ug/kg	
91-20-3	Naphthalene	220	37	ug/kg	
90-12-0	1-Methylnaphthalene	ND	37	ug/kg	
91-57-6	2-Methylnaphthalene	640	180	ug/kg	
85-01-8	Phenanthrene	720	28	ug/kg	
129-00-0	Pyrene	800	37	ug/kg	

(a) Analyzed By Accutest Southeast Subcontract Lab.

ND = Not detected
RDL = Reported Detection Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-P42-SS-102-01		
Lab Sample ID:	F4433-2	**Date Sampled:**	07/01/99
Matrix:	SO - Soil	**Date Received:**	07/02/99
Method:	EPA 8310	**Percent Solids:**	86.8
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]		1	07/17/99	SUB	n/a	n/a	R6944
Run #2							

CAS No.	Compound	Result	RDL	Units	Q
83-32-9	Acenaphthene	3000	750	ug/kg	
208-96-8	Acenaphthylene	1200	75	ug/kg	
120-12-7	Anthracene	580	110	ug/kg	
56-55-3	Benzo(a)anthracene	1100	110	ug/kg	
50-32-8	Benzo(a)pyrene	1400	110	ug/kg	
205-99-2	Benzo(b)fluoranthene	1600	110	ug/kg	
191-24-2	Benzo(g,h,i)perylene	850	150	ug/kg	
207-08-9	Benzo(k)fluoranthene	780	110	ug/kg	
218-01-9	Chrysene	1200	110	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	35	9.4	ug/kg	
206-44-0	Fluoranthene	5100	150	ug/kg	
86-73-7	Fluorene	190	7.5	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	740	110	ug/kg	
91-20-3	Naphthalene	2800	750	ug/kg	
90-12-0	1-Methylnaphthalene	2500	750	ug/kg	
91-57-6	2-Methylnaphthalene	8100	750	ug/kg	
85-01-8	Phenanthrene	3700	110	ug/kg	
129-00-0	Pyrene	2900	150	ug/kg	

(a) Analyzed By Accutest Southeast Subcontract Lab.

00122

ND = Not detected
RDL = Reported Detection Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-P42-SS-103-01		
Lab Sample ID:	F4433-3	**Date Sampled:**	07/01/99
Matrix:	SO - Soil	**Date Received:**	07/02/99
Method:	EPA 8310	**Percent Solids:**	87.7
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]		1	07/17/99	SUB	n/a	n/a	R6944
Run #2							

CAS No.	Compound	Result	RDL	Units	Q
83-32-9	Acenaphthene	7900	1800	ug/kg	
208-96-8	Acenaphthylene	1600	74	ug/kg	
120-12-7	Anthracene	2300	280	ug/kg	
56-55-3	Benzo(a)anthracene	3000	280	ug/kg	
50-32-8	Benzo(a)pyrene	2800	280	ug/kg	
205-99-2	Benzo(b)fluoranthene	3100	280	ug/kg	
191-24-2	Benzo(g,h,i)perylene	1700	370	ug/kg	
207-08-9	Benzo(k)fluoranthene	1600	280	ug/kg	
218-01-9	Chrysene	2600	280	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	64	9.2	ug/kg	
206-44-0	Fluoranthene	11000	370	ug/kg	
86-73-7	Fluorene	640	370	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	1400	280	ug/kg	
91-20-3	Naphthalene	2700	1800	ug/kg	
90-12-0	1-Methylnaphthalene	3000	1800	ug/kg	
91-57-6	2-Methylnaphthalene	9100	1800	ug/kg	
85-01-8	Phenanthrene	7500	280	ug/kg	
129-00-0	Pyrene	6800	370	ug/kg	

(a) Analyzed By Accutest Southeast Subcontract Lab.

00129

ND = Not detected
RDL = Reported Detection Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-P42-SS-104-01		
Lab Sample ID:	F4433-4	**Date Sampled:**	07/01/99
Matrix:	SO - Soil	**Date Received:**	07/02/99
Method:	EPA 8310	**Percent Solids:**	87.9
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]		1	07/17/99	SUB	n/a	n/a	R6944
Run #2							

CAS No.	Compound	Result	RDL	Units	Q
83-32-9	Acenaphthene	2400	38	ug/kg	
208-96-8	Acenaphthylene	6700	75	ug/kg	
120-12-7	Anthracene	650	5.6	ug/kg	
56-55-3	Benzo(a)anthracene	750	560	ug/kg	
50-32-8	Benzo(a)pyrene	1100	560	ug/kg	
205-99-2	Benzo(b)fluoranthene	1500	750	ug/kg	
191-24-2	Benzo(g,h,i)perylene	350	25	ug/kg	
207-08-9	Benzo(k)fluoranthene	2000	6.0	ug/kg	
218-01-9	Chrysene	770	5.0	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	48	9.4	ug/kg	
206-44-0	Fluoranthene	6900	750	ug/kg	
86-73-7	Fluorene	720	7.0	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	120	5.6	ug/kg	
91-20-3	Naphthalene	15000	3800	ug/kg	
90-12-0	1-Methylnaphthalene	19000	3800	ug/kg	
91-57-6	2-Methylnaphthalene	36000	3800	ug/kg	
85-01-8	Phenanthrene	9000	560	ug/kg	
129-00-0	Pyrene	2200	750	ug/kg	

(a) Analyzed By Accutest Southeast Subcontract Lab.

00136

ND = Not detected
RDL = Reported Detection Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-P42-SS-105-01		
Lab Sample ID:	F4433-5	**Date Sampled:**	07/01/99
Matrix:	SO - Soil	**Date Received:**	07/02/99
Method:	EPA 8310	**Percent Solids:**	87.9
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]		1	07/17/99	SUB	n/a	n/a	R6944
Run #2							

CAS No.	Compound	Result	RDL	Units	Q
83-32-9	Acenaphthene	1500	37	ug/kg	
208-96-8	Acenaphthylene	3100	74	ug/kg	
120-12-7	Anthracene	390	280	ug/kg	
56-55-3	Benzo(a)anthracene	410	280	ug/kg	
50-32-8	Benzo(a)pyrene	460	280	ug/kg	
205-99-2	Benzo(b)fluoranthene	650	280	ug/kg	
191-24-2	Benzo(g,h,i)perylene	160	7.4	ug/kg	
207-08-9	Benzo(k)fluoranthene	1100	5.5	ug/kg	
218-01-9	Chrysene	250	5.5	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	9.3	ug/kg	
206-44-0	Fluoranthene	3500	370	ug/kg	
86-73-7	Fluorene	ND	7.4	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	41	5.5	ug/kg	
91-20-3	Naphthalene	8900	1800	ug/kg	
90-12-0	1-Methylnaphthalene	8300	1800	ug/kg	
91-57-6	2-Methylnaphthalene	21000	1800	ug/kg	
85-01-8	Phenanthrene	4000	280	ug/kg	
129-00-0	Pyrene	830	370	ug/kg	

(a) Analyzed By Accutest Southeast Subcontract Lab.

00143

ND = Not detected
RDL = Reported Detection Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-P42-SS-106-01		
Lab Sample ID:	F4433-6	**Date Sampled:**	07/01/99
Matrix:	SO - Soil	**Date Received:**	07/02/99
Method:	EPA 8310	**Percent Solids:**	86.8
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]		1	07/17/99	SUB	n/a	n/a	R6944
Run #2							

CAS No.	Compound	Result	RDL	Units	Q
83-32-9	Acenaphthene	2400	38	ug/kg	
208-96-8	Acenaphthylene	8400	7700	ug/kg	
120-12-7	Anthracene	840	580	ug/kg	
56-55-3	Benzo(a)anthracene	710	5.8	ug/kg	
50-32-8	Benzo(a)pyrene	650	580	ug/kg	
205-99-2	Benzo(b)fluoranthene	970	580	ug/kg	
191-24-2	Benzo(g,h,i)perylene	350	7.7	ug/kg	
207-08-9	Benzo(k)fluoranthene	1900	5.8	ug/kg	
218-01-9	Chrysene	370	5.8	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	58	9.6	ug/kg	
206-44-0	Fluoranthene	6900	770	ug/kg	
86-73-7	Fluorene	ND	7.7	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	40	5.8	ug/kg	
91-20-3	Naphthalene	28000	3800	ug/kg	
90-12-0	1-Methylnaphthalene	24000	3800	ug/kg	
91-57-6	2-Methylnaphthalene	51000	3800	ug/kg	
85-01-8	Phenanthrene	11000	580	ug/kg	
129-00-0	Pyrene	1600	770	ug/kg	

(a) Analyzed By Accutest Southeast Subcontract Lab.

00150

ND = Not detected
RDL = Reported Detection Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-P42-SS-107-01		
Lab Sample ID:	F4433-7	**Date Sampled:**	07/01/99
Matrix:	SO - Soil	**Date Received:**	07/02/99
Method:	EPA 8310	**Percent Solids:**	89.1
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]		1	07/17/99	SUB	n/a	n/a	R6944
Run #2							

CAS No.	Compound	Result	RDL	Units	Q
83-32-9	Acenaphthene	1300	38	ug/kg	
208-96-8	Acenaphthylene	160	75	ug/kg	
120-12-7	Anthracene	280	56	ug/kg	
56-55-3	Benzo(a)anthracene	540	56	ug/kg	
50-32-8	Benzo(a)pyrene	530	56	ug/kg	
205-99-2	Benzo(b)fluoranthene	670	56	ug/kg	
191-24-2	Benzo(g,h,i)perylene	320	7.5	ug/kg	
207-08-9	Benzo(k)fluoranthene	310	56	ug/kg	
218-01-9	Chrysene	570	56	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	19	9.4	ug/kg	
206-44-0	Fluoranthene	1900	75	ug/kg	
86-73-7	Fluorene	70	7.5	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	300	56	ug/kg	
91-20-3	Naphthalene	470	38	ug/kg	
90-12-0	1-Methylnaphthalene	340	38	ug/kg	
91-57-6	2-Methylnaphthalene	1900	380	ug/kg	
85-01-8	Phenanthrene	1100	56	ug/kg	
129-00-0	Pyrene	1200	75	ug/kg	

(a) Analyzed By Accutest Southeast Subcontract Lab.

00157

ND = Not detected
RDL = Reported Detection Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-P42-SS-108-01		
Lab Sample ID:	F4433-8	**Date Sampled:**	07/01/99
Matrix:	SO - Soil	**Date Received:**	07/02/99
Method:	EPA 8310	**Percent Solids:**	86.8
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]		1	07/17/99	SUB	n/a	n/a	R6944
Run #2							

CAS No.	Compound	Result	RDL	Units	Q
83-32-9	Acenaphthene	970	38	ug/kg	
208-96-8	Acenaphthylene	77	77	ug/kg	
120-12-7	Anthracene	240	57	ug/kg	
56-55-3	Benzo(a)anthracene	410	57	ug/kg	
50-32-8	Benzo(a)pyrene	430	57	ug/kg	
205-99-2	Benzo(b)fluoranthene	550	57	ug/kg	
191-24-2	Benzo(g,h,i)perylene	340	7.6	ug/kg	
207-08-9	Benzo(k)fluoranthene	260	57	ug/kg	
218-01-9	Chrysene	410	57	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	20	9.5	ug/kg	
206-44-0	Fluoranthene	1200	76	ug/kg	
86-73-7	Fluorene	51	7.6	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	330	57	ug/kg	
91-20-3	Naphthalene	130	38	ug/kg	
90-12-0	1-Methylnaphthalene	38	38	ug/kg	
91-57-6	2-Methylnaphthalene	760	380	ug/kg	
85-01-8	Phenanthrene	730	57	ug/kg	
129-00-0	Pyrene	810	76	ug/kg	

(a) Analyzed By Accutest Southeast Subcontract Lab.

00164

ND = Not detected
RDL = Reported Detection Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-P42-SS-109-01		
Lab Sample ID:	F4433-9	**Date Sampled:**	07/01/99
Matrix:	SO - Soil	**Date Received:**	07/02/99
Method:	EPA 8310	**Percent Solids:**	87.9
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]		1	07/17/99	SUB	n/a	n/a	R6944
Run #2							

CAS No.	Compound	Result	RDL	Units	Q
83-32-9	Acenaphthene	ND	36	ug/kg	
208-96-8	Acenaphthylene	ND	74	ug/kg	
120-12-7	Anthracene	ND	5.4	ug/kg	
56-55-3	Benzo(a)anthracene	24	5.4	ug/kg	
50-32-8	Benzo(a)pyrene	29	5.4	ug/kg	
205-99-2	Benzo(b)fluoranthene	66	5.4	ug/kg	
191-24-2	Benzo(g,h,i)perylene	37	7.2	ug/kg	
207-08-9	Benzo(k)fluoranthene	26	5.4	ug/kg	
218-01-9	Chrysene	27	5.4	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	9.0	ug/kg	
206-44-0	Fluoranthene	78	7.2	ug/kg	
86-73-7	Fluorene	ND	7.2	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	20	5.4	ug/kg	
91-20-3	Naphthalene	61	36	ug/kg	
90-12-0	1-Methylnaphthalene	47	36	ug/kg	
91-57-6	2-Methylnaphthalene	94	36	ug/kg	
85-01-8	Phenanthrene	25	5.4	ug/kg	
129-00-0	Pyrene	45	7.2	ug/kg	

(a) Analyzed By Accutest Southeast Subcontract Lab.

ND = Not detected
RDL = Reported Detection Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-P42-SS-110-01		
Lab Sample ID:	F4433-10	**Date Sampled:**	07/01/99
Matrix:	SO - Soil	**Date Received:**	07/02/99
Method:	EPA 8310	**Percent Solids:**	86.5
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]		1	07/17/99	SUB	n/a	n/a	R6944
Run #2							

CAS No.	Compound	Result	RDL	Units	Q
83-32-9	Acenaphthene	210	38	ug/kg	
208-96-8	Acenaphthylene	ND	75	ug/kg	
120-12-7	Anthracene	34	5.6	ug/kg	
56-55-3	Benzo(a)anthracene	92	5.6	ug/kg	
50-32-8	Benzo(a)pyrene	110	5.6	ug/kg	
205-99-2	Benzo(b)fluoranthene	170	5.6	ug/kg	
191-24-2	Benzo(g,h,i)perylene	90	7.5	ug/kg	
207-08-9	Benzo(k)fluoranthene	79	5.6	ug/kg	
218-01-9	Chrysene	89	5.6	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	11	9.4	ug/kg	
206-44-0	Fluoranthene	270	7.5	ug/kg	
86-73-7	Fluorene	ND	7.5	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	58	5.6	ug/kg	
91-20-3	Naphthalene	91	38	ug/kg	
90-12-0	1-Methylnaphthalene	64	38	ug/kg	
91-57-6	2-Methylnaphthalene	220	38	ug/kg	
85-01-8	Phenanthrene	120	5.6	ug/kg	
129-00-0	Pyrene	170	15	ug/kg	

(a) Analyzed By Accutest Southeast Subcontract Lab.

ND = Not detected
RDL = Reported Detection Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-P42-SS-111-01		
Lab Sample ID:	F4433-11	**Date Sampled:**	07/01/99
Matrix:	SO - Soil	**Date Received:**	07/02/99
Method:	EPA 8310	**Percent Solids:**	89.1
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]		1	07/17/99	SUB	n/a	n/a	R6944
Run #2							

CAS No.	Compound	Result	RDL	Units	Q
83-32-9	Acenaphthene	130	37	ug/kg	
208-96-8	Acenaphthylene	ND	74	ug/kg	
120-12-7	Anthracene	9.9	5.6	ug/kg	
56-55-3	Benzo(a)anthracene	23	5.6	ug/kg	
50-32-8	Benzo(a)pyrene	30	5.6	ug/kg	
205-99-2	Benzo(b)fluoranthene	76	5.6	ug/kg	
191-24-2	Benzo(g,h,i)perylene	22	7.4	ug/kg	
207-08-9	Benzo(k)fluoranthene	30	5.6	ug/kg	
218-01-9	Chrysene	22	5.6	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	9.2	ug/kg	
206-44-0	Fluoranthene	100	7.4	ug/kg	
86-73-7	Fluorene	ND	7.4	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	25	5.6	ug/kg	
91-20-3	Naphthalene	190	37	ug/kg	
90-12-0	1-Methylnaphthalene	100	37	ug/kg	
91-57-6	2-Methylnaphthalene	280	37	ug/kg	
85-01-8	Phenanthrene	75	5.6	ug/kg	
129-00-0	Pyrene	19	7.4	ug/kg	

(a) Analyzed By Accutest Southeast Subcontract Lab.

ND = Not detected
RDL = Reported Detection Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

CTO078 - NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F4049

SAMPLE NUMBER:	CEF-P42-SS-009			CEF-P42-SS-010			CEF-P42-SS-011			CEF-P42-SS-012		
SAMPLE DATE:	04/26/99			04/26/99			04/26/99			04/26/99		
LABORATORY ID:	F4049-9			F4049-10			F4049-11			F4049-12		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	90.7 %			93.8 %			93.8 %			94.0 %		
UNITS:	MG/KG			MG/KG			MG/KG			MG/KG		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
INORGANICS												
ALUMINUM	3320			1900			766			654		
ANTIMONY	1.9	U	A	3.3			2.9			0.43	U	A
ARSENIC	7.6			3.7			0.75	U	A	0.29	U	
BARIUM	122			36.1			28.8			11.4		
BERYLLIUM	0.52	U	A	0.19	U	A	0.13	U	A	0.06	U	A
CADMIUM	0.23	U	A	0.11	U	A	0.11	U	A	0.02	U	A
CALCIUM	3300			6680			722			1410		
CHROMIUM	5.3			5.4			2.0			0.98	U	A
COBALT	1.8			0.83	U	A	0.28	U	A	0.05	U	A
COPPER	23.1			8.0			4.1			2.1		
IRON	4220			1580			633			259		
LEAD	67.6			105			39.8			10.1		
MAGNESIUM	403			234			160			48.4		
MANGANESE	54.7			38.2			32.7			2.8		
MERCURY	0.05	U		0.04	U		0.04	U		0.04	U	
NICKEL	5.3			2.2			1.6			0.67	U	A
POTASSIUM	230			91.3			41.0	U	A	21.0	U	A
SELENIUM	1.1			1.0			0.33	U		0.40		
SILVER	1.9			0.16	U	A	0.45	U	A	0.34	U	A
SODIUM	326			350			410			356		
THALLIUM	0.45	U		0.44	U		0.44	U		0.44	U	
VANADIUM	6.2			2.9			1.3			0.99		
ZINC	105			142			51.1			6.6		

Report of Analysis

Client Sample ID:	CEF-P42-SS-112-01		
Lab Sample ID:	F4433-12	**Date Sampled:**	07/01/99
Matrix:	SO - Soil	**Date Received:**	07/02/99
Method:	EPA 8310	**Percent Solids:**	89.5
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]		1	07/17/99	SUB	n/a	n/a	R6944
Run #2							

CAS No.	Compound	Result	RDL	Units	Q
83-32-9	Acenaphthene	1100	37	ug/kg	
208-96-8	Acenaphthylene	260	74	ug/kg	
120-12-7	Anthracene	150	5.6	ug/kg	
56-55-3	Benzo(a)anthracene	290	28	ug/kg	
50-32-8	Benzo(a)pyrene	290	28	ug/kg	
205-99-2	Benzo(b)fluoranthene	420	28	ug/kg	
191-24-2	Benzo(g,h,i)perylene	230	7.4	ug/kg	
207-08-9	Benzo(k)fluoranthene	180	5.6	ug/kg	
218-01-9	Chrysene	230	28	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	18	9.2	ug/kg	
206-44-0	Fluoranthene	1200	37	ug/kg	
86-73-7	Fluorene	42	7.4	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	170	5.6	ug/kg	
91-20-3	Naphthalene	690	37	ug/kg	
90-12-0	1-Methylnaphthalene	420	37	ug/kg	
91-57-6	2-Methylnaphthalene	1700	180	ug/kg	
85-01-8	Phenanthrene	810	28	ug/kg	
129-00-0	Pyrene	770	37	ug/kg	

(a) Analyzed By Accutest Southeast Subcontract Lab.

ND = Not detected
RDL = Reported Detection Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-P42-SS-113-01		
Lab Sample ID:	F4433-13	**Date Sampled:**	07/01/99
Matrix:	SO - Soil	**Date Received:**	07/02/99
Method:	EPA 8310	**Percent Solids:**	86.6
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]		1	07/17/99	SUB	n/a	n/a	R6944
Run #2							

CAS No.	Compound	Result	RDL	Units	Q
83-32-9	Acenaphthene	430	38	ug/kg	
208-96-8	Acenaphthylene	390	76	ug/kg	
120-12-7	Anthracene	28	5.7	ug/kg	
56-55-3	Benzo(a)anthracene	100	5.7	ug/kg	
50-32-8	Benzo(a)pyrene	130	5.7	ug/kg	
205-99-2	Benzo(b)fluoranthene	220	5.7	ug/kg	
191-24-2	Benzo(g,h,i)perylene	130	7.6	ug/kg	
207-08-9	Benzo(k)fluoranthene	88	5.7	ug/kg	
218-01-9	Chrysene	110	5.7	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	9.5	ug/kg	
206-44-0	Fluoranthene	480	38	ug/kg	
86-73-7	Fluorene	16	7.6	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	73	5.7	ug/kg	
91-20-3	Naphthalene	350	38	ug/kg	
90-12-0	1-Methylnaphthalene	220	38	ug/kg	
91-57-6	2-Methylnaphthalene	790	190	ug/kg	
85-01-8	Phenanthrene	260	28	ug/kg	
129-00-0	Pyrene	280	38	ug/kg	

(a) Analyzed By Accutest Southeast Subcontract Lab.

ND = Not detected
RDL = Reported Detection Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-P42-SS-114-01		
Lab Sample ID:	F4433-14	**Date Sampled:**	07/01/99
Matrix:	SO - Soil	**Date Received:**	07/02/99
Method:	EPA 8310	**Percent Solids:**	91.5
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]		1	07/17/99	SUB	n/a	n/a	R6944
Run #2							

CAS No.	Compound	Result	RDL	Units	Q
83-32-9	Acenaphthene	ND	36	ug/kg	
208-96-8	Acenaphthylene	ND	74	ug/kg	
120-12-7	Anthracene	ND	5.4	ug/kg	
56-55-3	Benzo(a)anthracene	18	5.4	ug/kg	
50-32-8	Benzo(a)pyrene	15	5.4	ug/kg	
205-99-2	Benzo(b)fluoranthene	26	5.4	ug/kg	
191-24-2	Benzo(g,h,i)perylene	17	7.2	ug/kg	
207-08-9	Benzo(k)fluoranthene	17	5.4	ug/kg	
218-01-9	Chrysene	15	5.4	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	9.0	ug/kg	
206-44-0	Fluoranthene	79	7.0	ug/kg	
86-73-7	Fluorene	ND	7.0	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	7.4	14	ug/kg	
91-20-3	Naphthalene	52	33	ug/kg	
90-12-0	1-Methylnaphthalene	ND	50	ug/kg	
91-57-6	2-Methylnaphthalene	200	50	ug/kg	
85-01-8	Phenanthrene	43	21	ug/kg	
129-00-0	Pyrene	45	9.0	ug/kg	

(a) Analyzed By Accutest Southeast Subcontract Lab.

ND = Not detected
RDL = Reported Detection Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-P42-SS-115-01		
Lab Sample ID:	F4433-15	**Date Sampled:**	07/01/99
Matrix:	SO - Soil	**Date Received:**	07/02/99
Method:	EPA 8310	**Percent Solids:**	93.1
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]		1	07/17/99	SUB	n/a	n/a	R6944
Run #2							

CAS No.	Compound	Result	RDL	Units	Q
83-32-9	Acenaphthene	ND	35	ug/kg	
208-96-8	Acenaphthylene	ND	71	ug/kg	
120-12-7	Anthracene	ND	5.3	ug/kg	
56-55-3	Benzo(a)anthracene	15	5.3	ug/kg	
50-32-8	Benzo(a)pyrene	14	5.3	ug/kg	
205-99-2	Benzo(b)fluoranthene	24	5.3	ug/kg	
191-24-2	Benzo(g,h,i)perylene	16	7.1	ug/kg	
207-08-9	Benzo(k)fluoranthene	11	5.3	ug/kg	
218-01-9	Chrysene	18	5.3	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	8.8	ug/kg	
206-44-0	Fluoranthene	40	7.1	ug/kg	
86-73-7	Fluorene	ND	7.1	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	11	5.3	ug/kg	
91-20-3	Naphthalene	ND	35	ug/kg	
90-12-0	1-Methylnaphthalene	ND	35	ug/kg	
91-57-6	2-Methylnaphthalene	ND	35	ug/kg	
85-01-8	Phenanthrene	15	5.3	ug/kg	
129-00-0	Pyrene	32	7.1	ug/kg	

(a) Analyzed By Accutest Southeast Subcontract Lab.

ND = Not detected
RDL = Reported Detection Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-P42-SS-116-01		
Lab Sample ID:	F4433-16	**Date Sampled:**	07/01/99
Matrix:	SO - Soil	**Date Received:**	07/02/99
Method:	EPA 8310	**Percent Solids:**	90.8
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]		1	07/17/99	SUB	n/a	n/a	R6944
Run #2							

CAS No.	Compound	Result	RDL	Units	Q
83-32-9	Acenaphthene	46	36	ug/kg	
208-96-8	Acenaphthylene	ND	72	ug/kg	
120-12-7	Anthracene	ND	5.4	ug/kg	
56-55-3	Benzo(a)anthracene	22	5.4	ug/kg	
50-32-8	Benzo(a)pyrene	39	5.4	ug/kg	
205-99-2	Benzo(b)fluoranthene	65	5.4	ug/kg	
191-24-2	Benzo(g,h,i)perylene	49	7.2	ug/kg	
207-08-9	Benzo(k)fluoranthene	28	5.4	ug/kg	
218-01-9	Chrysene	29	5.4	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	8.9	ug/kg	
206-44-0	Fluoranthene	57	7.2	ug/kg	
86-73-7	Fluorene	ND	7.2	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	40	5.4	ug/kg	
91-20-3	Naphthalene	ND	36	ug/kg	
90-12-0	1-Methylnaphthalene	ND	36	ug/kg	
91-57-6	2-Methylnaphthalene	ND	36	ug/kg	
85-01-8	Phenanthrene	16	5.4	ug/kg	
129-00-0	Pyrene	48	7.2	ug/kg	

(a) Analyzed By Accutest Southeast Subcontract Lab.

ND = Not detected
RDL = Reported Detection Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-P42-SS-117-01		
Lab Sample ID:	F4433-17	**Date Sampled:**	07/01/99
Matrix:	SO - Soil	**Date Received:**	07/02/99
Method:	EPA 8310	**Percent Solids:**	91.7
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]		1	07/17/99	SUB	n/a	n/a	R6944
Run #2							

CAS No.	Compound	Result	RDL	Units	Q
83-32-9	Acenaphthene	ND	36	ug/kg	
208-96-8	Acenaphthylene	ND	73	ug/kg	
120-12-7	Anthracene	ND	5.4	ug/kg	
56-55-3	Benzo(a)anthracene	ND	5.4	ug/kg	
50-32-8	Benzo(a)pyrene	ND	5.4	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	5.4	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	7.3	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	5.4	ug/kg	
218-01-9	Chrysene	ND	5.4	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	9.0	ug/kg	
206-44-0	Fluoranthene	ND	73	ug/kg	
86-73-7	Fluorene	ND	7.3	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	5.4	ug/kg	
91-20-3	Naphthalene	ND	36	ug/kg	
90-12-0	1-Methylnaphthalene	ND	36	ug/kg	
91-57-6	2-Methylnaphthalene	ND	36	ug/kg	
85-01-8	Phenanthrene	ND	5.4	ug/kg	
129-00-0	Pyrene	ND	7.3	ug/kg	

(a) Analyzed By Accutest Southeast Subcontract Lab.

ND = Not detected
RDL = Reported Detection Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-P42-SS-118-02		
Lab Sample ID:	F4433-18	**Date Sampled:**	07/01/99
Matrix:	SO - Soil	**Date Received:**	07/02/99
Method:	EPA 8310	**Percent Solids:**	89.6
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]		1	07/17/99	SUB	n/a	n/a	R6944
Run #2							

CAS No.	Compound	Result	RDL	Units	Q
83-32-9	Acenaphthene	ND	36	ug/kg	
208-96-8	Acenaphthylene	ND	73	ug/kg	
120-12-7	Anthracene	ND	5.4	ug/kg	
56-55-3	Benzo(a)anthracene	10	5.4	ug/kg	
50-32-8	Benzo(a)pyrene	8.9	5.4	ug/kg	
205-99-2	Benzo(b)fluoranthene	25	5.4	ug/kg	
191-24-2	Benzo(g,h,i)perylene	11	7.3	ug/kg	
207-08-9	Benzo(k)fluoranthene	7.3	5.4	ug/kg	
218-01-9	Chrysene	6.0	5.4	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	9.0	ug/kg	
206-44-0	Fluoranthene	55	7.3	ug/kg	
86-73-7	Fluorene	ND	7.3	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	5.4	ug/kg	
91-20-3	Naphthalene	160	36	ug/kg	
90-12-0	1-Methylnaphthalene	51	36	ug/kg	
91-57-6	2-Methylnaphthalene	170	36	ug/kg	
85-01-8	Phenanthrene	47	5.4	ug/kg	
129-00-0	Pyrene	24	7.3	ug/kg	

(a) Analyzed By Accutest Southeast Subcontract Lab.

ND = Not detected
RDL = Reported Detection Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-P42-SS-119-02		
Lab Sample ID:	F4433-19	**Date Sampled:**	07/01/99
Matrix:	SO - Soil	**Date Received:**	07/02/99
Method:	EPA 8310	**Percent Solids:**	88.3
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]		1	07/17/99	SUB	n/a	n/a	R6944
Run #2							

CAS No.	Compound	Result	RDL	Units	Q
83-32-9	Acenaphthene	620	38	ug/kg	
208-96-8	Acenaphthylene	960	75	ug/kg	
120-12-7	Anthracene	120	5.6	ug/kg	
56-55-3	Benzo(a)anthracene	120	5.6	ug/kg	
50-32-8	Benzo(a)pyrene	89	5.6	ug/kg	
205-99-2	Benzo(b)fluoranthene	140	5.6	ug/kg	
191-24-2	Benzo(g,h,i)perylene	47	7.5	ug/kg	
207-08-9	Benzo(k)fluoranthene	41	5.6	ug/kg	
218-01-9	Chrysene	68	5.6	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	9.2	ug/kg	
206-44-0	Fluoranthene	860	150	ug/kg	
86-73-7	Fluorene	73	7.5	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	5.6	ug/kg	
91-20-3	Naphthalene	2800	750	ug/kg	
90-12-0	1-Methylnaphthalene	2700	750	ug/kg	
91-57-6	2-Methylnaphthalene	8100	750	ug/kg	
85-01-8	Phenanthrene	1400	110	ug/kg	
129-00-0	Pyrene	150	7.5	ug/kg	

(a) Analyzed By Accutest Southeast Subcontract Lab.

ND = Not detected
RDL = Reported Detection Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

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Report of Analysis

Client Sample ID:	CEF-P42-SS-DU03		
Lab Sample ID:	F4433-20	**Date Sampled:**	07/01/99
Matrix:	SO - Soil	**Date Received:**	07/02/99
Method:	EPA 8310	**Percent Solids:**	90.1
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]		1	07/17/99	SUB	n/a	n/a	R6944
Run #2							

CAS No.	Compound	Result	RDL	Units	Q
83-32-9	Acenaphthene	3600	1800	ug/kg	
208-96-8	Acenaphthylene	1900	74	ug/kg	
120-12-7	Anthracene	1200	280	ug/kg	
56-55-3	Benzo(a)anthracene	1400	280	ug/kg	
50-32-8	Benzo(a)pyrene	1400	280	ug/kg	
205-99-2	Benzo(b)fluoranthene	1800	280	ug/kg	
191-24-2	Benzo(g,h,i)perylene	980	370	ug/kg	
207-08-9	Benzo(k)fluoranthene	890	280	ug/kg	
218-01-9	Chrysene	1200	280	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	48	9.2	ug/kg	
206-44-0	Fluoranthene	6100	370	ug/kg	
86-73-7	Fluorene	260	7.4	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	770	280	ug/kg	
91-20-3	Naphthalene	4000	1800	ug/kg	
90-12-0	1-Methylnaphthalene	3300	1800	ug/kg	
91-57-6	2-Methylnaphthalene	9900	1800	ug/kg	
85-01-8	Phenanthrene	4600	280	ug/kg	
129-00-0	Pyrene	3700	370	ug/kg	

(a) Analyzed By Accutest Southeast Subcontract Lab.

ND = Not detected
RDL = Reported Detection Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-P42-SS-DU04		
Lab Sample ID:	F4433-21	**Date Sampled:**	07/01/99
Matrix:	SO - Soil	**Date Received:**	07/02/99
Method:	EPA 8310	**Percent Solids:**	88.2
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]		1	07/17/99	SUB	n/a	n/a	R6944
Run #2							

CAS No.	Compound	Result	RDL	Units	Q
83-32-9	Acenaphthene	520	38	ug/kg	
208-96-8	Acenaphthylene	880	75	ug/kg	
120-12-7	Anthracene	110	5.6	ug/kg	
56-55-3	Benzo(a)anthracene	100	5.6	ug/kg	
50-32-8	Benzo(a)pyrene	66	5.6	ug/kg	
205-99-2	Benzo(b)fluoranthene	98	5.6	ug/kg	
191-24-2	Benzo(g,h,i)perylene	54	7.5	ug/kg	
207-08-9	Benzo(k)fluoranthene	34	5.6	ug/kg	
218-01-9	Chrysene	54	5.6	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	9.3	ug/kg	
206-44-0	Fluoranthene	910	150	ug/kg	
86-73-7	Fluorene	58	7.5	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	5.6	ug/kg	
91-20-3	Naphthalene	2500	750	ug/kg	
90-12-0	1-Methylnaphthalene	2800	750	ug/kg	
91-57-6	2-Methylnaphthalene	7200	750	ug/kg	
85-01-8	Phenanthrene	1200	110	ug/kg	
129-00-0	Pyrene	130	7.5	ug/kg	

(a) Analyzed By Accutest Southeast Subcontract Lab.

ND = Not detected
RDL = Reported Detection Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

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Report of Analysis

Client Sample ID:	CEF-P42-SS-101-01		
Lab Sample ID:	F4433-1	**Date Sampled:**	07/01/99
Matrix:	SO - Soil	**Date Received:**	07/02/99
Method:	FLORIDA-PRO	**Percent Solids:**	88.9
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP04384.D	1	07/08/99	SKW	07/08/99	OP879	GOP214
Run #2							

CAS No.	Compound	Result	RDL	Units	Q
	TPH (C8-C40)	ND	94	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	99%		40-140%

ND = Not detected
RDL = Reported Detection Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

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Report of Analysis

Client Sample ID:	CEF-P42-SS-102-01		
Lab Sample ID:	F4433-2	**Date Sampled:**	07/01/99
Matrix:	SO - Soil	**Date Received:**	07/02/99
Method:	FLORIDA-PRO	**Percent Solids:**	86.8
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP04385.D	1	07/08/99	SKW	07/08/99	OP879	GOP214
Run #2							

CAS No.	Compound	Result	RDL	Units	Q
	TPH (C8-C40)	175	96	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	108%		40-140%

ND = Not detected
RDL = Reported Detection Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

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Report of Analysis

Client Sample ID:	CEF-P42-SS-103-01		
Lab Sample ID:	F4433-3	**Date Sampled:**	07/01/99
Matrix:	SO - Soil	**Date Received:**	07/02/99
Method:	FLORIDA-PRO	**Percent Solids:**	87.7
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP04386.D	1	07/08/99	SKW	07/08/99	OP879	GOP214
Run #2							

CAS No.	Compound	Result	RDL	Units	Q
	TPH (C8-C40)	156	95	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	107%		40-140%

ND = Not detected
RDL = Reported Detection Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

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Report of Analysis

Client Sample ID:	CEF-P42-SS-104-01		
Lab Sample ID:	F4433-4	**Date Sampled:**	07/01/99
Matrix:	SO - Soil	**Date Received:**	07/02/99
Method:	FLORIDA-PRO	**Percent Solids:**	87.9
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP04389.D	1	07/08/99	SKW	07/08/99	OP879	GOP214
Run #2							

CAS No.	Compound	Result	RDL	Units	Q
	TPH (C8-C40)	271	95	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	104%		40-140%

ND = Not detected
RDL = Reported Detection Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

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Report of Analysis

Client Sample ID:	CEF-P42-SS-105-01		
Lab Sample ID:	F4433-5	**Date Sampled:**	07/01/99
Matrix:	SO - Soil	**Date Received:**	07/02/99
Method:	FLORIDA-PRO	**Percent Solids:**	87.9
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP04390.D	1	07/08/99	SKW	07/08/99	OP879	GOP214
Run #2							

CAS No.	Compound	Result	RDL	Units	Q
	TPH (C8-C40)	157	95	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	102%		40-140%

ND = Not detected
RDL = Reported Detection Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

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Report of Analysis

Client Sample ID:	CEF-P42-SS-106-01		
Lab Sample ID:	F4433-6	**Date Sampled:**	07/01/99
Matrix:	SO - Soil	**Date Received:**	07/02/99
Method:	FLORIDA-PRO	**Percent Solids:**	86.8
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP04392.D	1	07/08/99	SKW	07/08/99	OP879	GOP214
Run #2							

CAS No.	Compound	Result	RDL	Units	Q
	TPH (C8-C40)	341	99	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	104%		40-140%

ND = Not detected
RDL = Reported Detection Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

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Report of Analysis

Client Sample ID:	CEF-P42-SS-107-01		
Lab Sample ID:	F4433-7	**Date Sampled:**	07/01/99
Matrix:	SO - Soil	**Date Received:**	07/02/99
Method:	FLORIDA-PRO	**Percent Solids:**	89.1
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP04393.D	1	07/08/99	SKW	07/08/99	OP879	GOP214
Run #2							

CAS No.	Compound	Result	RDL	Units	Q
	TPH (C8-C40)	ND	94	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	108%		40-140%

ND = Not detected
RDL = Reported Detection Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

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Report of Analysis

Client Sample ID:	CEF-P42-SS-108-01		
Lab Sample ID:	F4433-8	**Date Sampled:**	07/01/99
Matrix:	SO - Soil	**Date Received:**	07/02/99
Method:	FLORIDA-PRO	**Percent Solids:**	86.8
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP04394.D	1	07/08/99	SKW	07/08/99	OP879	GOP214
Run #2							

CAS No.	Compound	Result	RDL	Units	Q
	TPH (C8-C40)	ND	96	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	104%		40-140%

ND = Not detected
RDL = Reported Detection Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

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Report of Analysis

Client Sample ID:	CEF-P42-SS-118-02		
Lab Sample ID:	F4433-18	**Date Sampled:**	07/01/99
Matrix:	SO - Soil	**Date Received:**	07/02/99
Method:	FLORIDA-PRO	**Percent Solids:**	89.6
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP04395.D	1	07/08/99	SKW	07/08/99	OP879	GOP214
Run #2							

CAS No.	Compound	Result	RDL	Units	Q
	TPH (C8-C40)	ND	93	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	101%		40-140%

ND = Not detected
RDL = Reported Detection Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

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Report of Analysis

Client Sample ID:	CEF-P42-SS-119-02		
Lab Sample ID:	F4433-19	**Date Sampled:**	07/01/99
Matrix:	SO - Soil	**Date Received:**	07/02/99
Method:	FLORIDA-PRO	**Percent Solids:**	88.3
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP04396.D	1	07/09/99	SKW	07/08/99	OP879	GOP214
Run #2							

CAS No.	Compound	Result	RDL	Units	Q
	TPH (C8-C40)	ND	94	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	106%		40-140%

ND = Not detected
RDL = Reported Detection Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

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Report of Analysis

Client Sample ID:	CEF-P42-SS-DU03		
Lab Sample ID:	F4433-20	**Date Sampled:**	07/01/99
Matrix:	SO - Soil	**Date Received:**	07/02/99
Method:	FLORIDA-PRO	**Percent Solids:**	90.1
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP04397.D	1	07/09/99	SKW	07/08/99	OP879	GOP214
Run #2							

CAS No.	Compound	Result	RDL	Units	Q
	TPH (C8-C40)	101	92	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	103%		40-140%

ND = Not detected
RDL = Reported Detection Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

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Report of Analysis

Client Sample ID:	CEF-P42-SS-DU04		
Lab Sample ID:	F4433-21	**Date Sampled:**	07/01/99
Matrix:	SO - Soil	**Date Received:**	07/02/99
Method:	FLORIDA-PRO	**Percent Solids:**	88.2
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP04398.D	1	07/09/99	SKW	07/08/99	OP879	GOP214
Run #2							

CAS No.	Compound	Result	RDL	Units	Q
	TPH (C8-C40)	ND	94	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	101%		40-140%

ND = Not detected
RDL = Reported Detection Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

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Tetra Tech NUS **INTERNAL CORRESPONDENCE**

PITT-07-9-241

TO:	**M. SPERANZA**	**DATE:**	**AUGUST 9, 1999**
FROM:	**JENNIFER MALLE**	**COPIES:**	**DV FILE**

SUBJECT: **INORGANIC DATA VALIDATION-SELECTED METALS**
CTO 078 – CECIL FIELD
SDG – F4433

SAMPLES: 13/SOIL/

CEF-P42-SS-102-01	CEF-P42-SS-103-01	CEF-P42-SS-104-01
CEF-P42-SS-105-01	CEF-P42-SS-106-01	CEF-P42-SS-107-01
CEF-P42-SS-108-01	CEF-P42-SS-111-01	CEF-P42-SS-112-01
CEF-P42-SS-113-01	CEF-P42-SS-119-02	CEF-P42-SS-DU03
CEF-P42-SS-DU04		

Overview

The sample set for CTO 078, Cecil Field, SDG F4433, consists of thirteen (13) soil environmental samples. Two (2) duplicate pairs (CEF-P42-SS-103-01 / CEF-P42-SS-DU03 and CEF-P42-SS-119-02 / CEF-P42-SS-DU04) were included within this SDG.

The samples were analyzed for selected metals, including, antimony, arsenic, barium and chromium. The samples were collected by Tetra Tech NUS on July 1, 1999 and analyzed by Accutest Laboratory under Naval Facilities Engineering Service Center (NFESC) Quality Assurance/Quality Control (QA/QC) criteria. All metal analyses were conducted using SW846 method 6010B.

The data was evaluated based on the following parameters:

- Data Completeness
- * Holding Times
- * Initial and Continuing Calibration Recoveries
- Laboratory Blank Analyses
- Field Duplicates
- * Detection Limits

* - All quality control criteria were met for this parameter.

The following contaminants were detected in the laboratory method/preparation blanks at the following maximum concentrations:

Analyte	Maximum Concentration	Action Level (soil)
Antimony	4.8 ug/L	2.4 mg/kg
Arsenic	5.0 ug/L	2.5 mg/kg
Barium	0.9 ug/L	0.45 mg/kg
Chromium	3.4 ug/L	1.7 mg/kg

An action level of 5x the maximum concentration has been used to evaluate the sample data for blank contamination. Sample aliquot, percent solids and dilution factors were taken into consideration when evaluating for blank contamination. Positive results less than the action levels for antimony, arsenic and chromium have been qualified as a nondetect, "U". No validation action was taken for barium as the results were all above the action level.

Field Duplicate Precision

The Relative Percent Difference (RPD) for field duplicate pairs CEF-P42-SS-103-01 / CEF-P42-SS-DU03 and CEF-P42-SS-119-02 / CEF-P42-SS-DU04 were >50% quality control limit for arsenic, antimony and chromium. All positive reported values for arsenic and chromium have been qualified as an estimated quantity, "J".

Notes

Six (6) Form 1's were missing from the data package. The laboratory was notified and the missing data was provided.

Two (2) pages of the preparation logs were missing. The laboratory was contacted and the missing data was provided.

Executive Summary

Laboratory Performance: Arsenic, barium and chromium were detected in the laboratory / preparation blanks.

Other Factors Affecting Data Quality: Field duplicate imprecision was noted for arsenic and chromium.

The data for these analyses were reviewed with reference to the "National Functional Guidelines for Inorganic Review", February 1994 and the NFESC document entitled "Navy Installation Restoration Laboratory Quality Assurance Guide " (NFESC 2/96).

The text of this report has been formulated to address only those problem areas affecting data quality.

"I attest that the data referenced herein were validated according to the agreed upon validation criteria as specified in the NFESC Guidelines and the Quality Assurance Project Plan (QAPP)."

Jennifer Malle

Tetra Tech NUS
Jennifer Malle
Environmental Scientist

Tetra Tech NUS
Joseph A. Samchuck
Quality Assurance Officer

Attachments:
1. Appendix A - Qualified Analytical Results
2. Appendix B - Results as reported by the Laboratory
3. Appendix C - Support Documentation.

APPENDIX A

Qualified Analytical Results

Qualifier Codes:

A = Lab Blank Contamination
B = Field Blank Contamination
C = Calibration (i.e., % RSDs, %Ds, ICVs, CCVs, RPDs, RRFs, etc.) Noncompliance
D = MS/MSD Noncompliance
E = LCS/LCSD Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = GFAA PDS - GFAA MSA's $r < 0.995$
K = ICP Interference - include ICSAB % R's
L = Instrument Calibration Range Exceedance
M = Sample Preservation
N = Internal Standard Noncompliance
O = Poor Instrument Performance (i.e., base-time drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can encompass a number of issues)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = Pest/PCB D% between columns for positive results
V = Non-linear calibrations, tuning $r < 0.995$ (correlation coefficient)
W = EMPC result
X = Signal to noise response drop
Y = % Solid content is less than 30%

CTO078 - NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F4433

SAMPLE NUMBER:	CEF-P42-SS-102-01			CEF-P42-SS-103-01			CEF-P42-SS-104-01			CEF-P42-SS-105-01		
SAMPLE DATE:	07/01/99			07/01/99			07/01/99			07/01/99		
LABORATORY ID:	F4433-2			F4433-3			F4433-4			F4433-5		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	86.8 %			87.7 %			87.9 %			87.9 %		
UNITS:	MG/KG			MG/KG			MG/KG			MG/KG		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
INORGANICS												
ANTIMONY	0.35	U	A	0.38	U	A	1.0	U	A	0.41	U	A
ARSENIC	2.7	U	A	2.2	U	A	4.4	J	G	4.8	J	G
BARIUM	63.8			32.8			44.6			30.9		
CHROMIUM	4.5	J	G	7.5	J	G	3.3	J	G	3.1	J	G

CTO078 - NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F4433

SAMPLE NUMBER:	CEF-P42-SS-106-01			CEF-P42-SS-107-01			CEF-P42-SS-108-01			CEF-P42-SS-111-01		
SAMPLE DATE:	07/01/99			07/01/99			07/01/99			07/01/99		
LABORATORY ID:	F4433-6			F4433-7			F4433-8			F4433-11		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	86.8 %			89.1 %			86.8 %			89.1 %		
UNITS:	MG/KG			MG/KG			MG/KG			MG/KG		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
INORGANICS												
ANTIMONY	0.51	U	A	1.3	U	A	1.4	U	A	0.79	U	A
ARSENIC	12.2	J	G	6.0	J	G	3.3	J	G	1.5	U	A
BARIUM	76.0			26.7			68.4			29.7		
CHROMIUM	9.3	J	G	4.2	J	G	5.0	J	G	5.4	J	G

CTO078 - NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F4433

SAMPLE NUMBER:	CEF-P42-SS-112-01			CEF-P42-SS-113-01			CEF-P42-SS-119-02			CEF-P42-SS-DU03		
SAMPLE DATE:	07/01/99			07/01/99			07/01/99			07/01/99		
LABORATORY ID:	F4433-12			F4433-13			F4433-19			F4433-20		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	89.5 %			86.6 %			88.3 %			90.1 %		
UNITS:	MG/KG			MG/KG			MG/KG			MG/KG		
FIELD DUPLICATE OF:										CEF-P42-SS-103-01		
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
INORGANICS												
ANTIMONY	1.3	U	A	0.27	U	A	1.0	U	A	0.18	U	
ARSENIC	1.5	U	A	3.0	J	G	4.8	J	G	0.79	U	A
BARIUM	44.4			31.3			12.1			17.4		
CHROMIUM	3.1	J	G	2.3	J	G	17.5	J	G	1.5	U	A

CTO078 - NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F4433

SAMPLE NUMBER:	CEF-P42-SS-DU04			
SAMPLE DATE:	07/01/99	/ /	/ /	/ /
LABORATORY ID:	F4433-21			
QC_TYPE:	NORMAL			
% SOLIDS:	88.2 %	100.0 %	100.0 %	100.0 %
UNITS:	MG/KG			
FIELD DUPLICATE OF:	CEF-P42-SS-119-02			

	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
INORGANICS												
ANTIMONY	7.0	J	G									
ARSENIC	19.4	J	G									
BARIUM	31.4											
CHROMIUM	45.8	J	G									

APPENDIX B

Results as Reported by the Laboratory

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-P42-SS-102-01		
Lab Sample ID:	F4433-2	**Date Sampled:**	07/01/99
Matrix:	SO - Soil	**Date Received:**	07/02/99
		Percent Solids:	86.8
Project:	NAS Cecil Field-PSC 42		

Metals Analysis

Analyte	Result	RDL	Units	DF	Prep	Analyzed	By	Method
Antimony	0.35 B	5.9	mg/kg	1	07/06/99	07/07/99	JK	SW846 6010A
Arsenic	2.7	0.98	mg/kg	1	07/06/99	07/07/99	JK	SW846 6010A
Barium	63.8	19.5	mg/kg	1	07/06/99	07/07/99	JK	SW846 6010A
Chromium	4.5	0.98	mg/kg	1	07/06/99	07/07/99	JK	SW846 6010A

RDL = Reported Detection Limit

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Report of Analysis

Client Sample ID:	CEF-P42-SS-103-01		
Lab Sample ID:	F4433-3	**Date Sampled:**	07/01/99
Matrix:	SO - Soil	**Date Received:**	07/02/99
		Percent Solids:	87.7
Project:	NAS Cecil Field-PSC 42		

Metals Analysis

Analyte	Result	RDL	Units	DF	Prep	Analyzed	By	Method
Antimony	0.38 B	6.5	mg/kg	1	07/06/99	07/07/99	JK	SW846 6010A
Arsenic	2.2	1.1	mg/kg	1	07/06/99	07/07/99	JK	SW846 6010A
Barium	32.8	21.7	mg/kg	1	07/06/99	07/07/99	JK	SW846 6010A
Chromium	7.5	1.1	mg/kg	1	07/06/99	07/07/99	JK	SW846 6010A

RDL = Reported Detection Limit

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ACCUTEST

Report of Analysis

Client Sample ID:	CEF-P42-SS-104-01		
Lab Sample ID:	F4433-4	**Date Sampled:**	07/01/99
Matrix:	SO - Soil	**Date Received:**	07/02/99
		Percent Solids:	87.9
Project:	NAS Cecil Field-PSC 42		

Metals Analysis

Analyte	Result	RDL	Units	DF	Prep	Analyzed	By	Method
Antimony	1.0 B	4.9	mg/kg	1	07/06/99	07/07/99	JK	SW846 6010A
Arsenic	4.4	0.82	mg/kg	1	07/06/99	07/07/99	JK	SW846 6010A
Barium	44.6	16.4	mg/kg	1	07/06/99	07/07/99	JK	SW846 6010A
Chromium	3.3	0.82	mg/kg	1	07/06/99	07/07/99	JK	SW846 6010A

RDL = Reported Detection Limit

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-P42-SS-105-01		
Lab Sample ID:	F4433-5	**Date Sampled:**	07/01/99
Matrix:	SO - Soil	**Date Received:**	07/02/99
		Percent Solids:	87.9
Project:	NAS Cecil Field-PSC 42		

Metals Analysis

Analyte	Result	RDL	Units	DF	Prep	Analyzed	By	Method
Antimony	0.41 B	6.8	mg/kg	1	07/12/99	07/14/99	JK	SW846 6010A
Arsenic	4.8	1.1	mg/kg	1	07/12/99	07/14/99	JK	SW846 6010A
Barium	30.9	22.8	mg/kg	1	07/12/99	07/14/99	JK	SW846 6010A
Chromium	3.1	1.1	mg/kg	1	07/12/99	07/14/99	JK	SW846 6010A

RDL = Reported Detection Limit

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Report of Analysis

Client Sample ID:	CEF-P42-SS-106-01		
Lab Sample ID:	F4433-6	**Date Sampled:**	07/01/99
Matrix:	SO - Soil	**Date Received:**	07/02/99
		Percent Solids:	86.8
Project:	NAS Cecil Field-PSC 42		

Metals Analysis

Analyte	Result	RDL	Units	DF	Prep	Analyzed	By	Method
Antimony	0.51 B	6.9	mg/kg	1	07/12/99	07/14/99	JK	SW846 6010A
Arsenic	12.2	1.2	mg/kg	1	07/12/99	07/14/99	JK	SW846 6010A
Barium	76.0	23.0	mg/kg	1	07/12/99	07/14/99	JK	SW846 6010A
Chromium	9.3	1.2	mg/kg	1	07/12/99	07/14/99	JK	SW846 6010A

RDL = Reported Detection Limit

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Report of Analysis

Client Sample ID:	CEF-P42-SS-107-01		
Lab Sample ID:	F4433-7	**Date Sampled:**	07/01/99
Matrix:	SO - Soil	**Date Received:**	07/02/99
		Percent Solids:	89.1
Project:	NAS Cecil Field-PSC 42		

Metals Analysis

Analyte	Result	RDL	Units	DF	Prep	Analyzed	By	Method
Antimony	1.3 B	6.7	mg/kg	1	07/12/99	07/14/99	JK	SW846 6010A
Arsenic	6.0	1.1	mg/kg	1	07/12/99	07/14/99	JK	SW846 6010A
Barium	26.7	22.4	mg/kg	1	07/12/99	07/14/99	JK	SW846 6010A
Chromium	4.2	1.1	mg/kg	1	07/12/99	07/14/99	JK	SW846 6010A

RDL = Reported Detection Limit

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Report of Analysis

Client Sample ID: CEF-P42-SS-108-01
Lab Sample ID: F4433-8
Matrix: SO - Soil
Project: NAS Cecil Field-PSC 42

Date Sampled: 07/01/99
Date Received: 07/02/99
Percent Solids: 86.8

Metals Analysis

Analyte	Result	RDL	Units	DF	Prep	Analyzed	By	Method
Antimony	1.4 B	6.5	mg/kg	1	07/20/99	07/21/99	K	SW846 6010A
Arsenic	3.3	1.1	mg/kg	1	07/20/99	07/21/99	K	SW846 6010A
Barium	68.4	21.7	mg/kg	1	07/20/99	07/21/99	K	SW846 6010A
Chromium	5.0	1.1	mg/kg	1	07/20/99	07/21/99	K	SW846 6010A

RDL = Reported Detection Limit

Report of Analysis

Client Sample ID: CEF-P42-SS-111-01
Lab Sample ID: F4433-11
Matrix: SO - Soil
Project: NAS Cecil Field-PSC 42

Date Sampled: 07/01/99
Date Received: 07/02/99
Percent Solids: 89.1

Metals Analysis

Analyte	Result	RDL	Units	DF	Prep	Analyzed	By	Method
Antimony	0.79 B	6.1	mg/kg	1	07/20/99	07/21/99	K	SW846 6010A
Arsenic	1.5	1.0	mg/kg	1	07/20/99	07/21/99	K	SW846 6010A
Barium	29.7	20.2	mg/kg	1	07/20/99	07/21/99	K	SW846 6010A
Chromium	5.4	1.0	mg/kg	1	07/20/99	07/21/99	K	SW846 6010A

RDL = Reported Detection Limit

Report of Analysis

Client Sample ID: CEF-P42-SS-112-01
Lab Sample ID: F4433-12
Matrix: SO - Soil
Project: NAS Cecil Field-PSC 42

Date Sampled: 07/01/99
Date Received: 07/02/99
Percent Solids: 89.5

Metals Analysis

Analyte	Result	RDL	Units	DF	Prep	Analyzed	By	Method
Antimony	1.3 B	5.6	mg/kg	1	07/20/99	07/21/99	JK	SW846 6010A
Arsenic	1.5	0.94	mg/kg	1	07/20/99	07/21/99	JK	SW846 6010A
Barium	44.4	18.8	mg/kg	1	07/20/99	07/21/99	JK	SW846 6010A
Chromium	3.1	0.94	mg/kg	1	07/20/99	07/21/99	JK	SW846 6010A

RDL = Reported Detection Limit

Report of Analysis

Client Sample ID: CEF-P42-SS-113-01
Lab Sample ID: F4433-13
Matrix: SO - Soil
Project: NAS Cecil Field-PSC 42

Date Sampled: 07/01/99
Date Received: 07/02/99
Percent Solids: 86.6

Metals Analysis

Analyte	Result	RDL	Units	DF	Prep	Analyzed	By	Method
Antimony	0.27 B	5.0	mg/kg	1	07/20/99	07/21/99	JK	SW846 6010A
Arsenic	3.0	0.84	mg/kg	1	07/20/99	07/21/99	JK	SW846 6010A
Barium	31.3	16.7	mg/kg	1	07/20/99	07/21/99	JK	SW846 6010A
Chromium	2.3	0.84	mg/kg	1	07/20/99	07/21/99	JK	SW846 6010A

RDL = Reported Detection Limit

Report of Analysis

Client Sample ID: CEF-P42-SS-119-02
Lab Sample ID: F4433-19
Matrix: SO - Soil
Project: NAS Cecil Field-PSC 42

Date Sampled: 07/01/99
Date Received: 07/02/99
Percent Solids: 88.3

Metals Analysis

Analyte	Result	RDL	Units	DF	Prep	Analyzed	By	Method
Antimony	1.0 B	5.0	mg/kg	1	07/20/99	07/21/99	JK	SW846 6010A
Arsenic	4.8	0.83	mg/kg	1	07/20/99	07/21/99	JK	SW846 6010A
Barium	12.1 B	16.7	mg/kg	1	07/20/99	07/21/99	JK	SW846 6010A
Chromium	17.5	0.83	mg/kg	1	07/20/99	07/21/99	JK	SW846 6010A

RDL = Reported Detection Limit

Report of Analysis

Client Sample ID:	CEF-P42-SS-DU03		
Lab Sample ID:	F4433-20	**Date Sampled:**	07/01/99
Matrix:	SO - Soil	**Date Received:**	07/02/99
		Percent Solids:	90.1
Project:	NAS Cecil Field-PSC 42		

Metals Analysis

Analyte	Result	RDL	Units	DF	Prep	Analyzed	By	Method
Antimony	0.18 U	4.4	mg/kg	1	07/20/99	07/21/99	JK	SW846 6010A
Arsenic	0.79	0.74	mg/kg	1	07/20/99	07/21/99	JK	SW846 6010A
Barium	17.4	14.7	mg/kg	1	07/20/99	07/21/99	JK	SW846 6010A
Chromium	1.5	0.74	mg/kg	1	07/20/99	07/21/99	JK	SW846 6010A

RDL = Reported Detection Limit

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-P42-SS-DU04		
Lab Sample ID:	F4433-21	**Date Sampled:**	07/01/99
Matrix:	SO - Soil	**Date Received:**	07/02/99
		Percent Solids:	88.2
Project:	NAS Cecil Field-PSC 42		

Metals Analysis

Analyte	Result	RDL	Units	DF	Prep	Analyzed	By	Method
Antimony	7.0	6.6	mg/kg	1	07/26/99	07/26/99	JK	SW846 6010A
Arsenic	19.4	1.1	mg/kg	1	07/26/99	07/26/99	JK	SW846 6010A
Barium	31.4	22.0	mg/kg	1	07/26/99	07/26/99	JK	SW846 6010A
Chromium	45.8	1.1	mg/kg	1	07/26/99	07/26/99	JK	SW846 6010A

RDL = Reported Detection Limit

DDD21 A
LRW

Tetra Tech NUS **INTERNAL CORRESPONDENCE**

TO:	**M. SPERANZA**	**DATE:**	**APRIL 6, 2001**
FROM:	**ERIN M. FAUST**	**COPIES:**	**DV FILE**

SUBJECT: **INORGANIC DATA VALIDATION – CHROMIUM AND MISCELLANEOUS PARAMETERS**
CTO-078 NAS CECIL FIELD
SAMPLE DELIVERY GROUP (SDG) – F9206

SAMPLES: 1/Soil/

CEF-P42-SS-915-01

Overview

The sample set for CTO 078, NAS Cecil Field, SDG F9206, consists of one (1) soil environmental sample.

The sample was analyzed for total chromium, hexavalent chromium, oxidation-reduction potential (ORP), pH, sulfide and ferrous iron. The sample was collected by TetraTech NUS on March 15, 2001 and analyzed by Accutest Laboratory under Naval Facilities Engineering Service Center (NFESC) Quality Assurance/Quality Control (QA/QC) criteria. Total chromium analyses were conducted using SW 846 method 6010B. Hexavalent chromium analyses were conducted using SW 846 methods 3060 and 7196A. ORP analyses were conducted using ASTM method E1498-76M. Analyses for pH were conducted using SW 846 method 9045. Sulfide analyses were conducted using SW 846 method 9031. Ferrous iron analyses were conducted using Standard Methods 18th ed. method 3500.

These data were evaluated based on the following parameters:

- * Data Completeness
- Holding Times
- * Calibration Recoveries
- Laboratory Blank Analyses
- * Detection Limits

* - All quality control criteria were met for this parameter.

Holding Times

The holding time for pH analyses was exceeded. Analyses for pH should be performed immediately. Samples were analyzed for pH three days after they were received at the laboratory. The result reported for pH was qualified as estimated, "J".

Laboratory Blank Analyses

The following contaminants were detected in the laboratory method blanks at the following maximum concentrations:

Analyte	Maximum Concentration	Action Level
Chromium	0.70 µg/L	0.35 mg/kg

An action level of 5X the maximum concentration was used to evaluate the sample data for blank contamination. Sample aliquot, dilution factors and percent solids, if applicable, were taken into consideration when evaluation for blank contamination. The result reported for chromium was greater than the action level; therefore no qualification action was required.

Two matrix spikes were performed for hexavalent chromium at two different levels. The percent recovery for the lower of the two matrix spikes was 0%. The percent recovery for the higher of the two matrix spikes was < 75% quality control limit. Results from other parameters suggest that if hexavalent chromium was present in the sample, it would most likely undergo reduction. Even if all of the chromium present in the sample is hexavalent chromium, the amount in the sample is less than the regulatory action level, therefore, the nondetected result reported for hexavalent chromium was not rejected but qualified as estimated, "UJ".

Notes

The result for ferrous iron was reported in mg/L units. The laboratory was contacted on April 6, 2001 to determine the conversion factor from mg/L units to mg/kg units. Harry Behzadi from Accutest stated that the solid sample was put through a deionized (DI) water leach and then analyzed as a liquid. The DI leaching procedure started with 10g of sample and produced 100ml of leachate. The result was adjusted to reflect this factor and reported in mg/kg units.

Executive Summary

Laboratory Performance: Chromium was present in the laboratory method blanks. The holding time was exceeded for pH analysis.

Other Factors Affecting Data Quality: None.

The data for these analyses were reviewed with reference to the "National Functional Guidelines for Inorganic Review", February 1994 and the NFESC document entitled "Navy IRCDQM" (September 1999).

The text of this report has been formulated to address only those problem areas affecting data quality.

"I attest that the data referenced herein were validated according to the agreed upon validation criteria as specified in the NFESC Guidelines and the Quality Assurance Project Plan (QAPP)."

Tetra Tech NUS
Erin M. Faust
Environmental Scientist

TetraTech NUS
Joseph A. Samchuck
Quality Assurance Officer

Attachments:

1. Appendix A - Qualified Analytical Results
2. Appendix B - Results as reported by the Laboratory
3. Appendix C - Support Documentation

APPENDIX A
QUALIFIED ANALYTICAL RESULTS

Qualifier Codes:

A = Lab Blank Contamination
B = Field Blank Contamination
C = Calibration (i.e., % RSDs, %Ds, ICVs, CCVs, RPDs, RRFs, etc.) Noncompliance
D = MS/MSD Noncompliance
E = LCS/LCSD Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = GFAA PDS - GFAA MSA's $r < 0.995$
K = ICP Interference - include ICSAB % R's
L = Instrument Calibration Range Exceedance
M = Sample Preservation
N = Internal Standard Noncompliance
O = Poor Instrument Performance (i.e., base-time drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can encompass a number of issues)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = Pest/PCD% between columns for positive results
V = Non-linear calibrations, tuning $r < 0.995$ (correlation coefficient)
W = EMPC result
X = Signal to noise response drop
Y = Percent solids <30%
Z = Uncertainty at 2 sigma deviation is less than sample activity

CTO078-NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F9206

SAMPLE NUMBER:	CEF-P42-SS-915-01			
SAMPLE DATE:	03/15/01	/ /	/ /	/ /
LABORATORY ID:	F9206-1			
QC_TYPE:	NORMAL			
% SOLIDS:	87.8 %	100.0 %	100.0 %	100.0 %
UNITS:	MG/KG			
FIELD DUPLICATE OF:				

	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
INORGANICS												
CHROMIUM	3.0											

CTO078-NAS CECIL FIELD
WATER DATA
Accutest, NJ
SDG: F9206

SAMPLE NUMBER:	CEF-P42-SS-915-01											
SAMPLE DATE:	03/15/01			/ /			/ /			/ /		
LABORATORY ID:	F9206-1											
QC_TYPE:	NORMAL											
% SOLIDS:	87.8 %			100.0 %			100.0 %			100.0 %		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
MISCELLANEOUS PARAMETERS												
FERROUS IRON(MG/KG)	11.4	U										
HEXAVALENT CHROMIUM(MG/KG)	20.0	UJ	D									
OXIDATION REDUCTION POTENTIAL(MV)	281											
PH(SU)	4.8	J	H									
SULFIDE(MG/KG)	2.28	U										

APPENDIX B
RESULTS AS REPORTED BY THE LABORATORY

Report of Analysis

Client Sample ID:	CEF-P42-SS-915-01		
Lab Sample ID:	F9206-1	**Date Sampled:**	03/15/01
Matrix:	SO - Soil	**Date Received:**	03/16/01
		Percent Solids:	87.8
Project:	NAS Cecil Field 0039		

Metals Analysis

Analyte	Result	RL	IDL	Units	DF	Prep	Analyzed	By	Method
Chromium	3.0	1.1	0.039	mg/kg	1	03/19/01	03/20/01	JK	SW846 6010B

RL = Reporting Limit
IDL = Instrument Detection Limit

U = Indicates a result < IDL
B = Indicates a result >= IDL but < RL

Report of Analysis

Client Sample ID:	CEF-P42-SS-915-01		
Lab Sample ID:	F9206-1	**Date Sampled:**	03/15/01
Matrix:	SO - Soil	**Date Received:**	03/16/01
		Percent Solids:	87.8
Project:	NAS Cecil Field 0039		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed By		Method
Chromium, Hexavalent	<20	20	mg/kg	10	03/16/01	SJL	SW846 3060/7196A
Solids, Percent	87.8		%	1	03/18/01	SJL	EPA 160.3 M

RL = Reporting Limit

Report of Analysis

Client Sample ID:	CEF-P42-SS-915-01		
Lab Sample ID:	F9206-1A	**Date Sampled:**	03/15/01
Matrix:	SO - Soil	**Date Received:**	03/16/01
		Percent Solids:	87.8
Project:	NAS Cecil Field 0039		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed By		Method
Iron, Ferrous	<1.1	1.1	mg/l	1	03/20/01	SJL	SM18 3500FED
Redox Potential Vs H2	281		mv	1	03/20/01	SJL	ASTM E1498-76M
Sulfide	<2.3	2.3	mg/kg	1	03/22/01	AL	SW846 9031
pH	4.8		su	1	03/19/01	TCF	SW846 9045

RL = Reporting Limit

Tetra Tech NUS **INTERNAL CORRESPONDENCE**

PITT-10-9-075

TO: **MR. M. SPERANZA** **DATE: OCTOBER 13, 1999**

FROM: **JUSTIN ORBICH** **CC: DV FILE**

SUBJECT: **ORGANIC DATA VALIDATION – PAH/PEST/TPH**
CTO 078 – NAS CECIL FIELD
SDG F4870

SAMPLES: 12/Solid

CEF-P42-SS-201-01	CEF-P42-SS-202-01
CEF-P42-SS-203-01	CEF-P42-SS-205-01
CEF-P42-SS-206-01	CEF-P42-SS-207-01
CEF-P42-SS-208-01	CEF-P42-SS-209-01
CEF-P42-SS-210-01	CEF-P42-SS-213-01*
CEF-P42-SS-DU06*	CEF-P42-SS-204-01

OVERVIEW

The sample set for CTO 078, SDG F4870 Naval Air Station (NAS) Cecil Field; Florida consists of eleven (11) solid environmental samples. The samples were analyzed for Polynuclear Aromatic Hydrocarbon (PAH), pesticide, and Total Petroleum Hydrocarbon (TPH) organic compounds. The samples designated (*) were also analyzed for pesticide and TPH organic compounds only. One (1) field duplicate pair (CEF-P42-SS-213-01/CEF-P42-SU-DU06) was included within this SDG.

The samples were collected by Tetra Tech, NUS on September 7th, 1999 and analyzed by Accutest Laboratories. All analyses were performed in accordance with Naval Facilities Engineering Service Center (NFESC) Quality Assurance/Quality Control (QA/QC) criteria and analyzed according to SW 846 Method 8310, 8081A, and FLORIDA-PRO analytical and reporting protocols. The data in this SDG was validated with regard to the following parameters:

- Data Completeness
- * Holding Times
- * Initial/continuing calibrations
- * Laboratory method/field quality control blank results
- * Detection Limits
- Surrogate Recovery
- Field Duplicate Precision
- Surrogate Recoveries

The symbol (*) indicates that all quality control criteria were met for this parameter. Problems affecting data quality are discussed below; documentation supporting these findings is presented in Appendix C. Qualified analytical results are presented in Appendix A.

PAH FRACTION

The surrogate Percent Recoveries were below ten percent (10%) for p-Terphenyl and benzo(e)pyrene. The positive and nondetected results were qualified as estimated (J) and rejected (UR), in samples CEF-P42-SS-205-01, CEF-P42-SS-206-01, and CEF-P42-SS-207-01.

It should be noted the laboratory analyzed all the samples at a dilution due to high levels of target compounds.

It should be noted the laboratory analyzed the field duplicate at a 200X dilution, while the associated sample was analyzed at a 50X dilution. The RPD results were biased high.

The field duplicate pair (CEF-P42-SS-213-01/CEF-P42-SU-DU06) Relative Percent Differences (RPDs) exceed the 50% quality control limit. The positive results were qualified as estimated (J).

Due to laboratory oversight, sample CEF-P42-SS-204-01 was not analyzed until 10/8/99. We did not receive the Form I until 10/12/99, and the electronic data was not received until 10/13/99.

PESTICIDE FRACTION

All surrogate Percent Recoveries were outside the quality control limits for either one or more than one. The diluted results were reported, however, the extraction efficiency could not be determined. The positive and nondetected results were qualified as estimated (J) and (UJ), respectively.

The field duplicate pair (CEF-P42-SS-213-01/CEF-P42-SU-DU06) Relative Percent Differences (RPDs) exceed the 50% quality control limit. The positive results were qualified as estimated (J).

It should be noted the laboratory analyzed samples CEF-P42-SS-213-01 and CEF-P42-SS-DU06 at a 50X dilution.

TPH FRACTION

The surrogate Percent Recoveries were below ten percent (10%) for o-Terphenyl. The positive results were qualified as estimated (J), in samples CEF-P42-SS-213-01 and CEF-P42-SS-DU06.

It should be noted the laboratory analyzed samples CEF-P42-SS-213-01 and CEF-P42-SS-DU06 at a 40X dilution.

EXECUTIVE SUMMARY

Laboratory performance: Sample CEF-P42-SS-204-01 was not analyzed until 10/8/99.

Other Factors Affecting Data Quality: In the PAH, pesticide, and TPH fractions, the surrogate %Rs were below zero percent. The samples were analyzed at a dilution. The field duplicate pair RPDs exceeded the 50% quality control limit.

MEMO TO: MR. M. SPERANZA
DATE: OCTOBER 11, 1999 – PAGE 3

The data for these analyses were reviewed with reference to the EPA Functional Guidelines for Organic Data Validation (February, 1994), and the NFESC guidelines "Navy Installation Restoration Chemical Data Quality Manual" (June 1998). The text of this report has been formulated to address only those problems affecting data quality.

"I attest that the data referenced herein was validated according to the agreed upon validation criteria as specified in the NFESC Guidelines and the Quality Assurance Project Plan (QAPP)."

Justin Orbich

Chemist/Data Validator
Tetra Tech, NUS

Joseph A. Samchuck

Data Validation Quality Assurance Officer
Tetra Tech, NUS

Attachments:
1. Appendix A - Qualified Analytical Results
2. Appendix B - Results as reported by the Laboratory
3. Appendix C - Support Documentation

Qualifier Codes:

A = Lab Blank Contamination
B = Field Blank Contamination
C = Calibration (i.e., % RSDs, %Ds, ICVs, CCVs, RPDs, RRFs, etc.) Noncompliance
D = MS/MSD Noncompliance
E = LCS/LCSD Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = GFAA PDS - GFAA MSA's $r < 0.995$
K = ICP Interference - include ICSAB % R's
L = Instrument Calibration Range Exceedance
M = Sample Preservation
N = Internal Standard Noncompliance
O = Poor Instrument Performance (i.e., base-time drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can encompass a number of issues)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = Pest/PCB D% between columns for positive results
V = Non-linear calibrations, tuning $r < 0.995$ (correlation coefficient)
W = EMPC result
X = Signal to noise response drop
Y = % Solid content is less than 30%

DATA QUALIFIER DEFINITIONS:

U	-	Value is a nondetected result as reported by the laboratory and should not be considered present.
J	-	Positive result is estimated as a result of a value below the CRQL or a technical noncompliance.
UJ	-	Nondetected result is considered to be estimated as a result of technical noncompliances.
UR	-	Compound was rejected due to severe technical.

APPENDIX A

Qualified Analytical Results

CTO078 - NAS CECIL FIELD
WATER DATA
Accutest, NJ
SDG: F4870

SAMPLE NUMBER:	CEF-P42-SS-204-01			
SAMPLE DATE:	09/07/99	/ /	/ /	/ /
LABORATORY ID:	F4870-4			
QC_TYPE:	NORMAL			
% SOLIDS:	0.0 %	100.0 %	100.0 %	100.0 %
UNITS:	UG/KG			
FIELD DUPLICATE OF:				

	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
POLYNUCLEAR AROMATIC HYDROCARBONS												
1-METHYLNAPHTHALENE	5500											
2-METHYLNAPHTHALENE	21000											
ACENAPHTHENE	4700											
ACENAPHTHYLENE	3900											
ANTHRACENE	650											
BENZO(A)ANTHRACENE	1900											
BENZO(A)PYRENE	1500											
BENZO(B)FLUORANTHENE	2000											
BENZO(G,H,I)PERYLENE	940											
BENZO(K)FLUORANTHENE	1100											
CHRYSENE	2000											
DIBENZO(A,H)ANTHRACENE	240											
FLUORANTHENE	15000											
FLUORENE	760											
INDENO(1,2,3-CD)PYRENE	600											
NAPHTHALENE	19000											
PHENANTHRENE	9400											
PYRENE	3000											

CTO078 - NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F4870

SAMPLE NUMBER:	CEF-P42-SS-201-01			CEF-P42-SS-202-01			CEF-P42-SS-203-01			CEF-P42-SS-205-01		
SAMPLE DATE:	09/07/99			09/07/99			09/07/99			09/07/99		
LABORATORY ID:	F4870-1			F4870-2			F4870-3			F4870-5		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	92.9 %			94.9 %			92.8 %			87.1 %		
UNITS:	UG/KG			UG/KG			UG/KG			UG/KG		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
POLYNUCLEAR AROMATIC HYDROCARBONS												
1-METHYLNAPHTHALENE	2100	J	R	640	J	R	3000	J	R	11000	J	R
2-METHYLNAPHTHALENE	23000	J	R	3000	J	R	10000	J	R	44000	J	R
ACENAPHTHENE	31000	J	R	1700	J	R	1800	J	R	28000	J	R
ACENAPHTHYLENE	5500	J	R	570	J	R	2200	J	R	6900	J	R
ANTHRACENE	9500	J	R	390	J	R	350	J	R	9500	J	R
BENZO(A)ANTHRACENE	13000	J	R	600	J	R	180	J	R	12000	J	R
BENZO(A)PYRENE	12000	J	R	790	J	R	960	J	R	11000	J	R
BENZO(B)FLUORANTHENE	12000	J	R	820	J	R	1000	J	R	12000	J	R
BENZO(G,H,I)PERYLENE	8200	J	R	480	J	R	520	J	R	6000	J	R
BENZO(K)FLUORANTHENE	8400	J	R	400	J	R	900	J	R	5900	J	R
CHRYSENE	15000	J	R	750	J	R	880	J	R	12000	J	R
DIBENZO(A,H)ANTHRACENE	170	J	R	9.3	UJ	R	35	J	R	320	J	R
FLUORANTHENE	45000	J	R	2500	J	R	3300	J	R	45000	J	R
FLUORENE	2700	J	R	82	J	R	58	J	R	3700	J	R
INDENO(1,2,3-CD)PYRENE	7000	J	R	400	J	R	370	J	R	5800	J	R
NAPHTHALENE	2900	J	R	990	J	R	4300	J	R	21000	J	R
PHENANTHRENE	32000	J	R	1700	J	R	3300	J	R	36000	J	R
PYRENE	27000	J	R	1200	J	R	1800	J	R	27000	J	R

CTO078 - NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F4870

SAMPLE NUMBER:	CEF-P42-SS-206-01			CEF-P42-SS-207-01			CEF-P42-SS-208-01			CEF-P42-SS-209-01		
SAMPLE DATE:	09/07/99			09/07/99			09/07/99			09/07/99		
LABORATORY ID:	F4870-6			F4870-7			F4870-8			F4870-9		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	83.6 %			94.7 %			94.6 %			93.8 %		
UNITS:	UG/KG			UG/KG			UG/KG			UG/KG		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
POLYNUCLEAR AROMATIC HYDROCARBONS												
1-METHYLNAPHTHALENE	26000	J	R	27000	J	R	1000	J	R	180	J	R
2-METHYLNAPHTHALENE	64000	J	R	61000	J	R	4200	J	R	740	J	R
ACENAPHTHENE	9400	J	R	6800	J	R	3400	J	R	640	J	R
ACENAPHTHYLENE	15400	UJ	R	8100	J	R	640	J	R	120	J	R
ANTHRACENE	1200	J	R	1300	J	R	570	J	R	99	J	R
BENZO(A)ANTHRACENE	1500	J	R	1400	J	R	1700	J	R	390	J	R
BENZO(A)PYRENE	1800	J	R	1800	J	R	2500	J	R	890	J	R
BENZO(B)FLUORANTHENE	2600	J	R	2100	J	R	1200	J	R	1500	J	R
BENZO(G,H,I)PERYLENE	1500	J	R	690	J	R	2000	J	R	710	J	R
BENZO(K)FLUORANTHENE	1080	UJ	R	2800	J	R	1200	J	R	710	J	R
CHRYSENE	1300	J	R	1100	J	R	1600	J	R	510	J	R
DIBENZO(A,H)ANTHRACENE	1800	UJ	R	190	J	R	170	J	R	13	J	R
FLUORANTHENE	12000	J	R	24000	J	R	3900	J	R	920	J	R
FLUORENE	1080	UJ	R	1700	J	R	71	J	R	18	J	R
INDENO(1,2,3-CD)PYRENE	180	J	R	220	J	R	1600	J	R	700	J	R
NAPHTHALENE	32000	J	R	32000	J	R	1000	J	R	240	J	R
PHENANTHRENE	14000	J	R	15000	J	R	2100	J	R	320	J	R
PYRENE	3400	J	R	3900	J	R	2500	J	R	1100	J	R

CTO078 - NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F4870

SAMPLE NUMBER:	CEF-P42-SS-210-01			CEF-P42-SS-213-01			CEF-P42-SS-DU06					
SAMPLE DATE:	09/07/99			09/07/99			09/07/99			/ /		
LABORATORY ID:	F4870-10			F4870-13			F4870-16					
QC_TYPE:	NORMAL			NORMAL			NORMAL					
% SOLIDS:	95.4 %			93.3 %			93.0 %			100.0 %		
UNITS:	UG/KG			UG/KG			UG/KG					
FIELD DUPLICATE OF:							CEF-P42-SS-213-01					
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
POLYNUCLEAR AROMATIC HYDROCARBONS												
1-METHYLNAPHTHALENE	290	J	R	1100	J	GR	2100	J	GR			
2-METHYLNAPHTHALENE	1600	J	R	5400	J	GR	23000	J	GR			
ACENAPHTHENE	1900	J	R	7100	J	GR	35000	J	GR			
ACENAPHTHYLENE	150	J	R	860	J	GR	3100	J	GR			
ANTHRACENE	410	J	R	1600	J	GR	8400	J	GR			
BENZO(A)ANTHRACENE	870	J	R	3300	J	GR	17000	J	GR			
BENZO(A)PYRENE	940	J	R	3300	J	GR	11000	J	GR			
BENZO(B)FLUORANTHENE	980	J	R	3700	J	GR	13000	J	GR			
BENZO(G,H,I)PERYLENE	580	J	R	2500	J	GR	6100	J	GR			
BENZO(K)FLUORANTHENE	480	J	R	1800	J	GR	7100	J	GR			
CHRYSENE	920	J	R	3000	J	GR	15000	J	GR			
DIBENZO(A,H)ANTHRACENE	29	J	R	110	J	GR	380	J	GR			
FLUORANTHENE	2400	J	R	9800	J	GR	50000	J	GR			
FLUORENE	87	J	R	400	J	GR	1700	J	GR			
INDENO(1,2,3-CD)PYRENE	460	J	R	2100	J	GR	5300	J	GR			
NAPHTHALENE	290	J	R	690	J	R	1100	J	R			
PHENANTHRENE	1400	J	R	5700	J	GR	27000	J	GR			
PYRENE	1500	J	R	6300	J	GR	33000	J	GR			

CTO078 - NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F4870

SAMPLE NUMBER:	CEF-P42-SS-213-01			CEF-P42-SS-DU06								
SAMPLE DATE:	09/07/99			09/07/99			/ /			/ /		
LABORATORY ID:	F4870-13			F4870-16								
QC_TYPE:	NORMAL			NORMAL								
% SOLIDS:	93.3 %			93.0 %			100.0 %			100.0 %		
UNITS:	UG/KG			UG/KG								
FIELD DUPLICATE OF:				CEF-P42-SS-213-01								
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
PESTICIDES/PCBs												
4,4'-DDD	180	UJ	R	180	UJ	R						
4,4'-DDE	76	J	GR	180	UJ	R						
4,4'-DDT	60	J	GR	180	UJ	R						
ALDRIN	89	UJ	R	90	UJ	R						
ALPHA-BHC	89	UJ	R	90	UJ	R						
ALPHA-CHLORDANE	180	UJ	R	180	UJ	R						
BETA-BHC	89	UJ	R	90	UJ	R						
DELTA-BHC	89	UJ	R	90	UJ	R						
DIELDRIN	89	UJ	R	90	UJ	R						
ENDOSULFAN I	89	UJ	R	90	UJ	R						
ENDOSULFAN II	180	UJ	R	180	UJ	R						
ENDOSULFAN SULFATE	180	UJ	R	180	UJ	R						
ENDRIN	180	UJ	R	180	UJ	R						
ENDRIN ALDEHYDE	180	UJ	R	180	UJ	R						
ENDRIN KETONE	180	UJ	R	180	UJ	R						
GAMMA-BHC (LINDANE)	89	UJ	R	90	UJ	R						
GAMMA-CHLORDANE	180	UJ	R	180	UJ	R						
HEPTACHLOR	89	UJ	R	90	UJ	R						
HEPTACHLOR EPOXIDE	89	UJ	R	90	UJ	R						
METHOXYCHLOR	360	UJ	R	360	UJ	R						
TOXAPHENE	8900	UJ	R	9000	UJ	R						

CTO078 - NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F4870

SAMPLE NUMBER:	CEF-P42-SS-213-01			CEF-P42-SS-DU06								
SAMPLE DATE:	09/07/99			09/07/99			/ /			/ /		
LABORATORY ID:	F4870-13			F4870-16								
QC_TYPE:	NORMAL			NORMAL								
% SOLIDS:	93.3 %			93.0 %			100.0 %			100.0 %		
UNITS:	MG/KG			MG/KG								
FIELD DUPLICATE OF:				CEF-P42-SS-213-01								
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
PETROLEUM HYDROCARBONS												
TPH (C8-C40)	709	J	R	625	J	R						

APPENDIX B

Results as Reported by the Laboratory

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-P42-SS-201-01		
Lab Sample ID:	F4870-1	**Date Sampled:**	09/07/99
Matrix:	SO - Soil	**Date Received:**	09/09/99
Method:	EPA 8310	**Percent Solids:**	92.9
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]		1	09/19/99	SUB	n/a	n/a	R7106
Run #2							

CAS No.	Compound	Result	RDL	Units	Q
83-32-9	Acenaphthene	31000	7200	ug/kg	
208-96-8	Acenaphthylene	5500	72	ug/kg	
120-12-7	Anthracene	9500	1100	ug/kg	
56-55-3	Benzo(a)anthracene	13000	1100	ug/kg	
50-32-8	Benzo(a)pyrene	12000	1100	ug/kg	
205-99-2	Benzo(b)fluoranthene	12000	1100	ug/kg	
191-24-2	Benzo(g,h,i)perylene	8200	1400	ug/kg	
207-08-9	Benzo(k)fluoranthene	8400	1100	ug/kg	
218-01-9	Chrysene	15000	1100	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	170	9.0	ug/kg	
206-44-0	Fluoranthene	45000	1400	ug/kg	
86-73-7	Fluorene	2700	1100	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	7000	1100	ug/kg	
91-20-3	Naphthalene	2900	36	ug/kg	
90-12-0	1-Methylnaphthalene	2100	36	ug/kg	
91-57-6	2-Methylnaphthalene	23000	7200	ug/kg	
85-01-8	Phenanthrene	32000	1100	ug/kg	
129-00-0	Pyrene	27000	1400	ug/kg	

(a) Analyzed By Accutest Southeast Subcontract Lab.

ND = Not detected
RDL = Reported Detection Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

000015

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-P42-SS-202-01		
Lab Sample ID:	F4870-2	**Date Sampled:**	09/07/99
Matrix:	SO - Soil	**Date Received:**	09/09/99
Method:	EPA 8310	**Percent Solids:**	94.9
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]		1	09/19/99	SUB	n/a	n/a	R7106
Run #2							

CAS No.	Compound	Result	RDL	Units	Q
83-32-9	Acenaphthene	1700	44	ug/kg	
208-96-8	Acenaphthylene	570	88	ug/kg	
120-12-7	Anthracene	390	66	ug/kg	
56-55-3	Benzo(a)anthracene	600	66	ug/kg	
50-32-8	Benzo(a)pyrene	790	66	ug/kg	
205-99-2	Benzo(b)fluoranthene	820	66	ug/kg	
191-24-2	Benzo(g,h,i)perylene	480	88	ug/kg	
207-08-9	Benzo(k)fluoranthene	400	66	ug/kg	
218-01-9	Chrysene	750	66	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	0.0	8.8	ug/kg	
206-44-0	Fluoranthene	2500	88	ug/kg	
86-73-7	Fluorene	82	6.6	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	400	66	ug/kg	
91-20-3	Naphthalene	990	44	ug/kg	
90-12-0	1-Methylnaphthalene	640	44	ug/kg	
91-57-6	2-Methylnaphthalene	3000	44	ug/kg	
85-01-8	Phenanthrene	1700	6.6	ug/kg	
129-00-0	Pyrene	1200	8.8	ug/kg	

(a) Analyzed By Accutest Southeast Subcontract Lab.

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N = Indicates presumptive evidence of a compound

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Report of Analysis

Client Sample ID:	CEF-P42-SS-203-01		
Lab Sample ID:	F4870-3	**Date Sampled:**	09/07/99
Matrix:	SO - Soil	**Date Received:**	09/09/99
Method:	EPA 8310	**Percent Solids:**	92.8
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]		1	09/19/99	SUB	n/a	n/a	R7106
Run #2							

CAS No.	Compound	Result	RDL	Units	Q
83-32-9	Acenaphthene	1800	450	ug/kg	
208-96-8	Acenaphthylene	2200	90	ug/kg	
120-12-7	Anthracene	350	68	ug/kg	
56-55-3	Benzo(a)anthracene	180	68	ug/kg	
50-32-8	Benzo(a)pyrene	960	68	ug/kg	
205-99-2	Benzo(b)fluoranthene	1000	68	ug/kg	
191-24-2	Benzo(g,h,i)perylene	520	90	ug/kg	
207-08-9	Benzo(k)fluoranthene	900	68	ug/kg	
218-01-9	Chrysene	880	68	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	35	9.0	ug/kg	
206-44-0	Fluoranthene	3300	90	ug/kg	
86-73-7	Fluorene	58	6.8	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	370	68	ug/kg	
91-20-3	Naphthalene	4300	450	ug/kg	
90-12-0	1-Methylnaphthalene	3000	450	ug/kg	
91-57-6	2-Methylnaphthalene	10000	450	ug/kg	
85-01-8	Phenanthrene	3300	68	ug/kg	
129-00-0	Pyrene	1800	90	ug/kg	

(a) Analyzed By Accutest Southeast Subcontract Lab.

ND = Not detected
RDL = Reported Detection Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

000009

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-P42-SS-205-01		
Lab Sample ID:	F4870-5	**Date Sampled:**	09/07/99
Matrix:	SO - Soil	**Date Received:**	09/09/99
Method:	EPA 8310	**Percent Solids:**	87.1
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]		1	09/19/99	SUB	n/a	n/a	R7107
Run #2							

CAS No.	Compound	Result	RDL	Units	Q
83-32-9	Acenaphthene	28000	7400	ug/kg	
208-96-8	Acenaphthylene	6900	74	ug/kg	
120-12-7	Anthracene	9500	1100	ug/kg	
56-55-3	Benzo(a)anthracene	12000	1100	ug/kg	
50-32-8	Benzo(a)pyrene	11000	1100	ug/kg	
205-99-2	Benzo(b)fluoranthene	12000	1100	ug/kg	
191-24-2	Benzo(g,h,i)perylene	6000	1500	ug/kg	
207-08-9	Benzo(k)fluoranthene	5900	1100	ug/kg	
218-01-9	Chrysene	12000	1100	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	320	9.3	ug/kg	
206-44-0	Fluoranthene	45000	1500	ug/kg	
86-73-7	Fluorene	3700	1100	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	5800	1100	ug/kg	
91-20-3	Naphthalene	21000	7400	ug/kg	
90-12-0	1-Methylnaphthalene	11000	7400	ug/kg	
91-57-6	2-Methylnaphthalene	44000	7400	ug/kg	
85-01-8	Phenanthrene	36000	1100	ug/kg	
129-00-0	Pyrene	27000	1500	ug/kg	

(a) Analyzed By Accutest Southeast Subcontract Lab.

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RDL = Reported Detection Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

000012

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-P42-SS-206-01		
Lab Sample ID:	F4870-6	**Date Sampled:**	09/07/99
Matrix:	SO - Soil	**Date Received:**	09/09/99
Method:	EPA 8310	**Percent Solids:**	83.6
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]		1	09/19/99	SUB	n/a	n/a	R7107
Run #2							

CAS No.	Compound	Result	RDL	Units	Q
83-32-9	Acenaphthene	9400	7200	ug/kg	
208-96-8	Acenaphthylene	ND	15000	ug/kg	
120-12-7	Anthracene	1200	1100	ug/kg	
56-55-3	Benzo(a)anthracene	1500	1100	ug/kg	
50-32-8	Benzo(a)pyrene	1800	1100	ug/kg	
205-99-2	Benzo(b)fluoranthene	2600	1100	ug/kg	
191-24-2	Benzo(g,h,i)perylene	1500	1400	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	1100	ug/kg	
218-01-9	Chrysene	1300	1100	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	1800	ug/kg	
206-44-0	Fluoranthene	12000	1400	ug/kg	
86-73-7	Fluorene	ND	1100	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	180	5.4	ug/kg	
91-20-3	Naphthalene	32000	7200	ug/kg	
90-12-0	1-Methylnaphthalene	26000	7200	ug/kg	
91-57-6	2-Methylnaphthalene	64000	7200	ug/kg	
85-01-8	Phenanthrene	14000	1100	ug/kg	
129-00-0	Pyrene	3400	1400	ug/kg	

(a) Analyzed By Accutest Southeast Subcontract Lab.

ND = Not detected
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J = Indicates an estimated value
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Report of Analysis

Client Sample ID:	CEF-P42-SS-207-01		
Lab Sample ID:	F4870-7	**Date Sampled:**	09/07/99
Matrix:	SO - Soil	**Date Received:**	09/09/99
Method:	EPA 8310	**Percent Solids:**	94.7
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]		1	09/19/99	SUB	n/a	n/a	R7107
Run #2							

CAS No.	Compound	Result	RDL	Units	Q
83-32-9	Acenaphthene	6800	4400	ug/kg	
208-96-8	Acenaphthylene	8100	70	ug/kg	
120-12-7	Anthracene	1300	660	ug/kg	
56-55-3	Benzo(a)anthracene	1400	660	ug/kg	
50-32-8	Benzo(a)pyrene	1800	660	ug/kg	
205-99-2	Benzo(b)fluoranthene	2100	660	ug/kg	
191-24-2	Benzo(g,h,i)perylene	690	7.0	ug/kg	
207-08-9	Benzo(k)fluoranthene	2800	660	ug/kg	
218-01-9	Chrysene	1100	660	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	190	8.8	ug/kg	
206-44-0	Fluoranthene	24000	880	ug/kg	
86-73-7	Fluorene	1700	660	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	220	660	ug/kg	
91-20-3	Naphthalene	32000	4400	ug/kg	
90-12-0	1-Methylnaphthalene	27000	4400	ug/kg	
91-57-6	2-Methylnaphthalene	61000	4400	ug/kg	
85-01-8	Phenanthrene	15000	660	ug/kg	
129-00-0	Pyrene	3900	880	ug/kg	

(a) Analyzed By Accutest Southeast Subcontract Lab.

ND = Not detected
RDL = Reported Detection Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

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Report of Analysis

Client Sample ID:	CEF-P42-SS-208-01		
Lab Sample ID:	F4870-8	**Date Sampled:**	09/07/99
Matrix:	SO - Soil	**Date Received:**	09/09/99
Method:	EPA 8310	**Percent Solids:**	94.6
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]		1	09/19/99	SUB	n/a	n/a	R7107
Run #2							

CAS No.	Compound	Result	RDL	Units	Q
83-32-9	Acenaphthene	3400	900	ug/kg	
208-96-8	Acenaphthylene	640	72	ug/kg	
120-12-7	Anthracene	570	140	ug/kg	
56-55-3	Benzo(a)anthracene	1700	140	ug/kg	
50-32-8	Benzo(a)pyrene	2500	140	ug/kg	
205-99-2	Benzo(b)fluoranthene	1200	140	ug/kg	
191-24-2	Benzo(g,h,i)perylene	2000	180	ug/kg	
207-08-9	Benzo(k)fluoranthene	1200	140	ug/kg	
218-01-9	Chrysene	1600	140	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	170	9.0	ug/kg	
206-44-0	Fluoranthene	3900	180	ug/kg	
86-73-7	Fluorene	71	5.4	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	1600	140	ug/kg	
91-20-3	Naphthalene	1000	900	ug/kg	
90-12-0	1-Methylnaphthalene	1000	900	ug/kg	
91-57-6	2-Methylnaphthalene	4200	900	ug/kg	
85-01-8	Phenanthrene	2100	140	ug/kg	
129-00-0	Pyrene	2500	180	ug/kg	

(a) Analyzed By Accutest Southeast Subcontract Lab.

ND = Not detected
RDL = Reported Detection Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-P42-SS-209-01		
Lab Sample ID:	F4870-9	**Date Sampled:**	09/07/99
Matrix:	SO - Soil	**Date Received:**	09/09/99
Method:	EPA 8310	**Percent Solids:**	93.8
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]		1	09/19/99	SUB	n/a	n/a	R7107
Run #2							

CAS No.	Compound	Result	RDL	Units	Q
83-32-9	Acenaphthene	640	360	ug/kg	
208-96-8	Acenaphthylene	120	73	ug/kg	
120-12-7	Anthracene	99	54	ug/kg	
56-55-3	Benzo(a)anthracene	390	54	ug/kg	
50-32-8	Benzo(a)pyrene	890	54	ug/kg	
205-99-2	Benzo(b)fluoranthene	1500	54	ug/kg	
191-24-2	Benzo(g,h,i)perylene	710	72	ug/kg	
207-08-9	Benzo(k)fluoranthene	710	54	ug/kg	
218-01-9	Chrysene	510	54	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	13	9.0	ug/kg	
206-44-0	Fluoranthene	920	72	ug/kg	
86-73-7	Fluorene	18	5.4	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	700	54	ug/kg	
91-20-3	Naphthalene	240	36	ug/kg	
90-12-0	1-Methylnaphthalene	180	36	ug/kg	
91-57-6	2-Methylnaphthalene	740	360	ug/kg	
85-01-8	Phenanthrene	320	54	ug/kg	
129-00-0	Pyrene	1100	72	ug/kg	

(a) Analyzed By Accutest Southeast Subcontract Lab.

ND = Not detected
RDL = Reported Detection Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

000020

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-P42-SS-210-01		
Lab Sample ID:	F4870-10	**Date Sampled:**	09/07/99
Matrix:	SO - Soil	**Date Received:**	09/09/99
Method:	EPA 8310	**Percent Solids:**	95.4
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]		1	09/19/99	SUB	n/a	n/a	R7107
Run #2							

CAS No.	Compound	Result	RDL	Units	Q
83-32-9	Acenaphthene	1900	350	ug/kg	
208-96-8	Acenaphthylene	150	71	ug/kg	
120-12-7	Anthracene	410	53	ug/kg	
56-55-3	Benzo(a)anthracene	870	53	ug/kg	
50-32-8	Benzo(a)pyrene	940	53	ug/kg	
205-99-2	Benzo(b)fluoranthene	980	53	ug/kg	
191-24-2	Benzo(g,h,i)perylene	580	70	ug/kg	
207-08-9	Benzo(k)fluoranthene	480	53	ug/kg	
218-01-9	Chrysene	920	53	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	29	8.8	ug/kg	
206-44-0	Fluoranthene	2400	70	ug/kg	
86-73-7	Fluorene	87	53	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	460	53	ug/kg	
91-20-3	Naphthalene	290	35	ug/kg	
90-12-0	1-Methylnaphthalene	290	35	ug/kg	
91-57-6	2-Methylnaphthalene	1600	350	ug/kg	
85-01-8	Phenanthrene	1400	53	ug/kg	
129-00-0	Pyrene	1500	70	ug/kg	

(a) Analyzed By Accutest Southeast Subcontract Lab.

ND = Not detected
RDL = Reported Detection Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-P42-SS-213-01		
Lab Sample ID:	F4870-13	**Date Sampled:**	09/07/99
Matrix:	SO - Soil	**Date Received:**	09/09/99
Method:	EPA 8310	**Percent Solids:**	93.3
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]		1	09/19/99	SUB	n/a	n/a	R7107
Run #2							

CAS No.	Compound	Result	RDL	Units	Q
83-32-9	Acenaphthene	7100	1700	ug/kg	
208-96-8	Acenaphthylene	860	70	ug/kg	
120-12-7	Anthracene	1600	260	ug/kg	
56-55-3	Benzo(a)anthracene	3300	260	ug/kg	
50-32-8	Benzo(a)pyrene	3300	260	ug/kg	
205-99-2	Benzo(b)fluoranthene	3700	260	ug/kg	
191-24-2	Benzo(g,h,i)perylene	2500	340	ug/kg	
207-08-9	Benzo(k)fluoranthene	1800	260	ug/kg	
218-01-9	Chrysene	3000	260	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	110	8.6	ug/kg	
206-44-0	Fluoranthene	9800	340	ug/kg	
86-73-7	Fluorene	400	260	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	2100	260	ug/kg	
91-20-3	Naphthalene	690	34	ug/kg	
90-12-0	1-Methylnaphthalene	1100	34	ug/kg	
91-57-6	2-Methylnaphthalene	5400	1700	ug/kg	
85-01-8	Phenanthrene	5700	260	ug/kg	
129-00-0	Pyrene	6300	340	ug/kg	

(a) Analyzed By Accutest Southeast Subcontract Lab.

ND = Not detected
RDL = Reported Detection Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-P42-SS-DU06		
Lab Sample ID:	F4870-16	**Date Sampled:**	09/07/99
Matrix:	SO - Soil	**Date Received:**	09/09/99
Method:	EPA 8310	**Percent Solids:**	93.0
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]		1	09/19/99	SUB	n/a	n/a	R7107
Run #2							

CAS No.	Compound	Result	RDL	Units	Q
83-32-9	Acenaphthene	35000	7100	ug/kg	
208-96-8	Acenaphthylene	3100	70	ug/kg	
120-12-7	Anthracene	8400	1100	ug/kg	
56-55-3	Benzo(a)anthracene	17000	1100	ug/kg	
50-32-8	Benzo(a)pyrene	11000	1100	ug/kg	
205-99-2	Benzo(b)fluoranthene	13000	1100	ug/kg	
191-24-2	Benzo(g,h,i)perylene	6100	1400	ug/kg	
207-08-9	Benzo(k)fluoranthene	7100	1100	ug/kg	
218-01-9	Chrysene	15000	1100	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	380	9.0	ug/kg	
206-44-0	Fluoranthene	50000	1400	ug/kg	
86-73-7	Fluorene	1700	5.4	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	5300	1100	ug/kg	
91-20-3	Naphthalene	1100	35	ug/kg	
90-12-0	1-Methylnaphthalene	2100	35	ug/kg	
91-57-6	2-Methylnaphthalene	23000	7100	ug/kg	
85-01-8	Phenanthrene	27000	1100	ug/kg	
129-00-0	Pyrene	33000	1400	ug/kg	

(a) Analyzed By Accutest Southeast Subcontract Lab.

ND = Not detected
RDL = Reported Detection Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

000231 A

ACCUTEST.

Report of Analysis

Client Sample ID:	CEF-P42-SS-204-01		
Lab Sample ID:	F4870-4	**Date Sampled:**	09/07/99
Matrix:	SO - Soil	**Date Received:**	09/09/99
Method:	EPA 8310	**Percent Solids:**	94.2
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]		1	10/08/99	SUB	n/a	n/a	R7135
Run #2							

CAS No.	Compound	Result	RDL	Units	Q
83-32-9	Acenaphthene	4700	3600	ug/kg	
208-96-8	Acenaphthylene	3900	7100	ug/kg	
120-12-7	Anthracene	650	530	ug/kg	
56-55-3	Benzo(a)anthracene	1900	530	ug/kg	
50-32-8	Benzo(a)pyrene	1500	530	ug/kg	
205-99-2	Benzo(b)fluoranthene	2000	530	ug/kg	
191-24-2	Benzo(g,h,i)perylene	940	710	ug/kg	
207-08-9	Benzo(k)fluoranthene	1100	530	ug/kg	
218-01-9	Chrysene	2000	530	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	240	890	ug/kg	
206-44-0	Fluoranthene	15000	710	ug/kg	
86-73-7	Fluorene	760	530	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	600	530	ug/kg	
91-20-3	Naphthalene	13000	3600	ug/kg	
90-12-0	1-Methylnaphthalene	5500	3600	ug/kg	
91-57-6	2-Methylnaphthalene	21000	3600	ug/kg	
85-01-8	Phenanthrene	9400	710	ug/kg	
129-00-0	Pyrene	3000	530	ug/kg	

(a) Analyzed By Accutest Southeast Subcontract Lab.

ND = Not detected
RDL = Reported Detection Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-P42-SS-213-01		
Lab Sample ID:	F4870-13	**Date Sampled:**	09/07/99
Matrix:	SO - Soil	**Date Received:**	09/09/99
Method:	SW846 3550B/8081A	**Percent Solids:**	93.3
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	ST00587.D	50	09/18/99	SKW	09/13/99	OP982	GST22
Run #2							

Pesticide TCL List

CAS No.	Compound	Result	RDL	Units	Q
309-00-2	Aldrin	ND	89	ug/kg	
319-84-6	alpha-BHC	ND	89	ug/kg	
319-85-7	beta-BHC	ND	89	ug/kg	
319-86-8	delta-BHC	ND	89	ug/kg	
58-89-9	gamma-BHC (Lindane)	ND	89	ug/kg	
5103-71-9	alpha-Chlordane	ND	180	ug/kg	
5103-74-2	gamma-Chlordane	ND	180	ug/kg	
60-57-1	Dieldrin	ND	89	ug/kg	
72-54-8	4,4'-DDD	ND	180	ug/kg	
72-55-9	4,4'-DDE	76.2	180	ug/kg	J
50-29-3	4,4'-DDT	60.0	180	ug/kg	J
72-20-8	Endrin	ND	180	ug/kg	
1031-07-8	Endosulfan sulfate	ND	180	ug/kg	
7421-93-4	Endrin aldehyde	ND	180	ug/kg	
53494-70-5	Endrin ketone	ND	180	ug/kg	
959-98-8	Endosulfan-I	ND	89	ug/kg	
33213-65-9	Endosulfan-II	ND	180	ug/kg	
76-44-8	Heptachlor	ND	89	ug/kg	
1024-57-3	Heptachlor epoxide	ND	89	ug/kg	
72-43-5	Methoxychlor	ND	360	ug/kg	
8001-35-2	Toxaphene	ND	8900	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	0% [b]		40-150%
2051-24-3	Decachlorobiphenyl	0% [b]		30-160%

(a) Dilution required due to matrix interference.
(b) Outside control limits due to dilution.

ND = Not detected
RDL = Reported Detection Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

000028

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-P42-SS-DU06		
Lab Sample ID:	F4870-16	**Date Sampled:**	09/07/99
Matrix:	SO - Soil	**Date Received:**	09/09/99
Method:	SW846 3550B/8081A	**Percent Solids:**	93.0
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	ST00588.D	50	09/18/99	SKW	09/13/99	OP982	GST22
Run #2							

Pesticide TCL List

CAS No.	Compound	Result	RDL	Units	Q
309-00-2	Aldrin	ND	90	ug/kg	
319-84-6	alpha-BHC	ND	90	ug/kg	
319-85-7	beta-BHC	ND	90	ug/kg	
319-86-8	delta-BHC	ND	90	ug/kg	
58-89-9	gamma-BHC (Lindane)	ND	90	ug/kg	
5103-71-9	alpha-Chlordane	ND	180	ug/kg	
5103-74-2	gamma-Chlordane	ND	180	ug/kg	
60-57-1	Dieldrin	ND	90	ug/kg	
72-54-8	4,4'-DDD	ND	180	ug/kg	
72-55-9	4,4'-DDE	ND	180	ug/kg	
50-29-3	4,4'-DDT	ND	180	ug/kg	
72-20-8	Endrin	ND	180	ug/kg	
1031-07-8	Endosulfan sulfate	ND	180	ug/kg	
7421-93-4	Endrin aldehyde	ND	180	ug/kg	
53494-70-5	Endrin ketone	ND	180	ug/kg	
959-98-8	Endosulfan-I	ND	90	ug/kg	
33213-65-9	Endosulfan-II	ND	180	ug/kg	
76-44-8	Heptachlor	ND	90	ug/kg	
1024-57-3	Heptachlor epoxide	ND	90	ug/kg	
72-43-5	Methoxychlor	ND	360	ug/kg	
8001-35-2	Toxaphene	ND	9000	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	0% [b]		40-150%
2051-24-3	Decachlorobiphenyl	0% [b]		30-160%

(a) Dilution required due to matrix interference.
(b) Outside control limits due to dilution.

ND = Not detected
RDL = Reported Detection Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

000231 C

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-P42-SS-213-01		
Lab Sample ID:	F4870-13	**Date Sampled:**	09/07/99
Matrix:	SO - Soil	**Date Received:**	09/09/99
Method:	FLORIDA-PRO	**Percent Solids:**	93.3
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP05248.D	40	09/20/99	ME	09/16/99	OP983	GOP251
Run #2							

CAS No.	Compound	Result	RDL	Units	Q
	TPH (C8-C40)	709	360	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	0% [a]		40-140%

(a) Outside control limits due to dilution.

ND = Not detected
RDL = Reported Detection Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

000027

ACCUTEST.

Report of Analysis

Client Sample ID:	CEF-P42-SS-DU06		
Lab Sample ID:	F4870-16	**Date Sampled:**	09/07/99
Matrix:	SO - Soil	**Date Received:**	09/09/99
Method:	FLORIDA-PRO	**Percent Solids:**	93.0
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP05251.D	40	09/20/99	ME	09/16/99	OP983	GOP251
Run #2							

CAS No.	Compound	Result	RDL	Units	Q
	TPH (C8-C40)	625	360	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	0% [a]		40-140%

(a) Outside control limits due to dilution.

ND = Not detected
RDL = Reported Detection Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

000031B

Tetra Tech NUS **INTERNAL CORRESPONDENCE**

PITT-10-9-083

TO:	**M. SPERANZA**	**DATE:**	**OCTOBER 12, 1999**
FROM:	**JENNIFER MALLE**	**COPIES:**	**DV FILE**

SUBJECT: **INORGANIC DATA VALIDATION-ANTIMONY, ARSENIC, BARIUM AND CHROMIUM**
CTO 078 – CECIL FIELD
SDG – F4870

SAMPLES: 16/Soil/

CEF-P42-SS-201-01	CEF-P42-SS-202-01	CEF-P42-SS-203-01
CEF-P42-SS-204-01	CEF-P42-SS-205-01	CEF-P42-SS-206-01
CEF-P42-SS-207-01	CEF-P42-SS-208-01	CEF-P42-SS-209-01
CEF-P42-SS-210-01	CEF-P42-SS-211-01	CEF-P42-SS-212-01
CEF-P42-SS-213-01	CEF-P42-SS-DU05	CEF-P42-SS-DU06
CEF-P42-SU-214-03		

Overview

The sample set for CTO 078, Cecil Field, SDG F4870, consists of sixteen (16) soil environmental samples. Two (2) field duplicate pairs (CEF-P42-SU-214-03 / CEF-P42-SS-DU05 and CEF-P42-SS-213-03/ CEF-P42-SS-DU06) were included within this SDG.

The samples were analyzed for antimony, arsenic, barium and chromium. The samples were collected by Tetra Tech NUS on September 7, 1999 and analyzed by Accutest Laboratory under Laboratory Naval Facilities Engineering Service Center (NFESC) Quality Assurance/Quality Control (QA/QC) criteria. Antimony, arsenic, barium and chromium analyses were conducted using SW846 method 6010B.

The data was evaluated based on the following parameters:

- * Data Completeness
- * Holding Times
- * Initial and Continuing Calibration Recoveries
- * Field Duplicate Precision
- Laboratory Blank Analyses
- * Detection Limits

* - All quality control criteria were met for this parameter.

The following contaminants were detected in the laboratory method/ preparation blanks at the following maximum concentrations:

Samples affected: All

Analyte	Maximum Concentration	Action Level (soil)
Antimony	5.2 ug/L	2.6 mg/kg
Arsenic	6.3 ug/L	3.15 mg/kg
Barium [1]	0.73 mg/kg	3.65 mg/kg
Chromium	9.3 ug/L	4.65 mg/kg

[1] Maximum concentration present in a soil preparation blank

An action level of 5x the maximum concentration has been used to evaluate the sample data for blank contamination. Sample aliquot, percent solids and dilution factors were taken into consideration when evaluating for blank contamination. Positive results less than the action level for antimony, arsenic, and chromium have been qualified as nondetected, "U", due to blank contamination. No action was needed for barium, as all reported results were greater than the action level.

Notes

A comparision of field duplicate pairs CEF-P42-SU-214-03 / CEF-P42-SS-DU05 and CEF-P42-SS-213-03/ CEF-P42-SS-DU06 is included in Appendix C.

The Contract Required Detection Limit (CRDL) Percent Recovery (%R) for antimony was < 80% quality control limits. However, no action was required.

Executive Summary

Laboratory Performance: Antimony, arsenic, barium and chromium were present in laboratory method/preparation blanks.

Other Factors Affecting Data Quality: None

The data for these analyses were reviewed with reference to the "National Functional Guidelines for Inorganic Review", February 1994 and the NFESC document entitled " Navy Installation Restoration Laboratory Quality Assurance Guide " (NFESC 2/96).

The text of this report has been formulated to address only those problem areas affecting data quality.

"I attest that the data referenced herein were validated according to the agreed upon validation criteria as specified in the NFESC Guidelines and the Quality Assurance Project Plan (QAPP)."

Tetra Tech NUS
Jennifer Malle
Environmental Scientist

Tetra Tech NUS
Joseph A. Samchuck
Quality Assurance Officer

Attachments:
1. Appendix A - Qualified Analytical Results
2. Appendix B - Results as reported by the Laboratory
3. Appendix C - Support Documentation.

APPENDIX A

Qualified Analytical Results

Qualifier Codes:

A = Lab Blank Contamination
B = Field Blank Contamination
C = Calibration (i.e., % RSDs, %Ds, ICVs, CCVs, RPDs, RRFs, etc.) Noncompliance
D = MS/MSD Noncompliance
E = LCS/LCSD Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = GFAA PDS - GFAA MSA's $r < 0.995$
K = ICP Interference - include ICSAB % R's
L = Instrument Calibration Range Exceedance
M = Sample Preservation
N = Internal Standard Noncompliance
O = Poor Instrument Performance (i.e., base-time drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can encompass a number of issues)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = Pest/PCB D% between columns for positive results
V = Non-linear calibrations, tuning $r < 0.995$ (correlation coefficient)
W = EMPC result
X = Signal to noise response drop
Y = % Solid content is less than 30%

CTO078 - NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F4870

SAMPLE NUMBER:	CEF-P42-SS-201-01			CEF-P42-SS-202-01			CEF-P42-SS-203-01			CEF-P42-SS-204-01		
SAMPLE DATE:	09/07/99			09/07/99			09/07/99			09/07/99		
LABORATORY ID:	F4870-1			F4870-2			F4870-3			F4870-4		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	92.9 %			94.9 %			92.8 %			94.2 %		
UNITS:	MG/KG			MG/KG			MG/KG			MG/KG		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
INORGANICS												
ANTIMONY	0.64	U	A	0.32	U	A	0.77	U	A	0.76	U	A
ARSENIC	0.83	U	A	0.54	U	A	10.8			7.9		
BARIUM	36.5			17.2			211			49.8		
CHROMIUM	3.8	U	A	1.9	U	A	5.6			4.0	U	A

CTO078 - NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F4870

SAMPLE NUMBER:	CEF-P42-SS-205-01			CEF-P42-SS-206-01			CEF-P42-SS-207-01			CEF-P42-SS-208-01		
SAMPLE DATE:	09/07/99			09/07/99			09/07/99			09/07/99		
LABORATORY ID:	F4870-5			F4870-6			F4870-7			F4870-8		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	87.1 %			83.6 %			94.7 %			94.6 %		
UNITS:	MG/KG			MG/KG			MG/KG			MG/KG		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
INORGANICS												
ANTIMONY	0.89	U	A	1.1	U	A	1.9	U	A	1.1	U	A
ARSENIC	7.2			8.7			15.7			9.8		
BARIUM	62.4			57.9			25.3			21.9		
CHROMIUM	4.8	U	A	5.1	U	A	3.0	U	A	3.5	U	A

CTO078 - NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F4870

SAMPLE NUMBER:	CEF-P42-SS-209-01			CEF-P42-SS-210-01			CEF-P42-SS-211-01			CEF-P42-SS-212-01		
SAMPLE DATE:	09/07/99			09/07/99			09/07/99			09/07/99		
LABORATORY ID:	F4870-9			F4870-10			F4870-11			F4870-12		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	93.8 %			95.4 %			94.6 %			95.1 %		
UNITS:	MG/KG			MG/KG			MG/KG			MG/KG		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
INORGANICS												
ANTIMONY	6.4			0.79	U	A	3.0			1.8	U	A
ARSENIC	5.1			2.0	U	A	1.3	U	A	0.46	U	A
BARIUM	50.7			25.1			49.9			27.3		
CHROMIUM	7.3			3.5	U	A	3.7	U	A	1.7	U	A

CTO078 - NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F4870

SAMPLE NUMBER:	CEF-P42-SS-213-01			CEF-P42-SS-DU05			CEF-P42-SS-DU06			CEF-P42-SU-214-03		
SAMPLE DATE:	09/07/99			09/07/99			09/07/99			09/07/99		
LABORATORY ID:	F4870-13			F4870-15			F4870-16			F4870-14		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	93.3 %			93.6 %			93.0 %			93.7 %		
UNITS:	MG/KG			MG/KG			MG/KG			MG/KG		
FIELD DUPLICATE OF:				CEF-P42-SU-214-03			CEF-P42-SS-213-01					
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
INORGANICS												
ANTIMONY	49.0			0.49	U	A	61.1			0.54	U	A
ARSENIC	13.6			28.3			20.2			30.1		
BARIUM	291			5.2			442			7.3		
CHROMIUM	26.9			3.0	U	A	37.0			6.0		

APPENDIX B

Results as Reported by the Laboratory

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-P42-SS-201-01		
Lab Sample ID:	F4870-1	**Date Sampled:**	09/07/99
Matrix:	SO - Soil	**Date Received:**	09/09/99
		Percent Solids:	92.9
Project:	NAS Cecil Field-PSC 42		

Metals Analysis

Analyte	Result	RDL	Units	DF	Prep	Analyzed	By	Method
Antimony	0.64 B	6.3	mg/kg	1	09/13/99	09/16/99	EP	SW846 6010A
Arsenic	0.83 B	1.0	mg/kg	1	09/13/99	09/16/99	EP	SW846 6010A
Barium	36.5	20.9	mg/kg	1	09/13/99	09/16/99	EP	SW846 6010A
Chromium	3.8	1.0	mg/kg	1	09/13/99	09/16/99	EP	SW846 6010A

RDL = Reported Detection Limit

000066

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-P42-SS-202-01		
Lab Sample ID:	F4870-2	**Date Sampled:**	09/07/99
Matrix:	SO - Soil	**Date Received:**	09/09/99
		Percent Solids:	94.9
Project:	NAS Cecil Field-PSC 42		

Metals Analysis

Analyte	Result	RDL	Units	DF	Prep	Analyzed By		Method
Antimony	0.32 B	6.2	mg/kg	1	09/13/99	09/16/99	EP	SW846 6010A
Arsenic	0.54 B	1.0	mg/kg	1	09/13/99	09/16/99	EP	SW846 6010A
Barium	17.2 B	20.7	mg/kg	1	09/13/99	09/16/99	EP	SW846 6010A
Chromium	1.9	1.0	mg/kg	1	09/13/99	09/16/99	EP	SW846 6010A

RDL = Reported Detection Limit

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Report of Analysis

Client Sample ID:	CEF-P42-SS-203-01		
Lab Sample ID:	F4870-3	**Date Sampled:**	09/07/99
Matrix:	SO - Soil	**Date Received:**	09/09/99
		Percent Solids:	92.8
Project:	NAS Cecil Field-PSC 42		

Metals Analysis

Analyte	Result	RDL	Units	DF	Prep	Analyzed By		Method
Antimony	0.77 B	6.5	mg/kg	1	09/13/99	09/16/99	EP	SW846 6010A
Arsenic	10.8	1.1	mg/kg	1	09/13/99	09/16/99	EP	SW846 6010A
Barium	211	21.6	mg/kg	1	09/13/99	09/16/99	EP	SW846 6010A
Chromium	5.6	1.1	mg/kg	1	09/13/99	09/16/99	EP	SW846 6010A

RDL = Reported Detection Limit

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-P42-SS-204-01		
Lab Sample ID:	F4870-4	**Date Sampled:**	09/07/99
Matrix:	SO - Soil	**Date Received:**	09/09/99
		Percent Solids:	94.2
Project:	NAS Cecil Field-PSC 42		

Metals Analysis

Analyte	Result	RDL	Units	DF	Prep	Analyzed By		Method
Antimony	0.76 B	6.8	mg/kg	1	09/13/99	09/16/99	EP	SW846 6010A
Arsenic	7.9	1.1	mg/kg	1	09/13/99	09/16/99	EP	SW846 6010A
Barium	49.8	22.6	mg/kg	1	09/13/99	09/16/99	EP	SW846 6010A
Chromium	4.0	1.1	mg/kg	1	09/13/99	09/16/99	EP	SW846 6010A

RDL = Reported Detection Limit

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Report of Analysis

Client Sample ID:	CEF-P42-SS-205-01		
Lab Sample ID:	F4870-5	**Date Sampled:**	09/07/99
Matrix:	SO - Soil	**Date Received:**	09/09/99
		Percent Solids:	87.1
Project:	NAS Cecil Field-PSC 42		

Metals Analysis

Analyte	Result	RDL	Units	DF	Prep	Analyzed	By	Method
Antimony	0.89 B	6.9	mg/kg	1	09/13/99	09/16/99	EP	SW846 6010A
Arsenic	7.2	1.1	mg/kg	1	09/13/99	09/16/99	EP	SW846 6010A
Barium	62.4	23.0	mg/kg	1	09/13/99	09/16/99	EP	SW846 6010A
Chromium	4.8	1.1	mg/kg	1	09/13/99	09/16/99	EP	SW846 6010A

RDL = Reported Detection Limit

000013

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-P42-SS-206-01		
Lab Sample ID:	F4870-6	**Date Sampled:**	09/07/99
Matrix:	SO - Soil	**Date Received:**	09/09/99
		Percent Solids:	83.6
Project:	NAS Cecil Field-PSC 42		

Metals Analysis

Analyte	Result	RDL	Units	DF	Prep	Analyzed	By	Method
Antimony	1.1 B	7.2	mg/kg	1	09/13/99	09/16/99	EP	SW846 6010A
Arsenic	8.7	1.2	mg/kg	1	09/13/99	09/16/99	EP	SW846 6010A
Barium	57.9	24.2	mg/kg	1	09/13/99	09/16/99	EP	SW846 6010A
Chromium	5.1	1.2	mg/kg	1	09/13/99	09/16/99	EP	SW846 6010A

RDL = Reported Detection Limit

000015

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-P42-SS-207-01		
Lab Sample ID:	F4870-7	**Date Sampled:**	09/07/99
Matrix:	SO - Soil	**Date Received:**	09/09/99
		Percent Solids:	94.7
Project:	NAS Cecil Field-PSC 42		

Metals Analysis

Analyte	Result	RDL	Units	DF	Prep	Analyzed	By	Method
Antimony	1.9 B	6.2	mg/kg	1	09/13/99	09/16/99	EP	SW846 6010A
Arsenic	15.7	1.0	mg/kg	1	09/13/99	09/16/99	EP	SW846 6010A
Barium	25.3	20.7	mg/kg	1	09/13/99	09/16/99	EP	SW846 6010A
Chromium	3.0	1.0	mg/kg	1	09/13/99	09/16/99	EP	SW846 6010A

RDL = Reported Detection Limit

000017

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Report of Analysis

Client Sample ID:	CEF-P42-SS-208-01		
Lab Sample ID:	F4870-8	**Date Sampled:**	09/07/99
Matrix:	SO - Soil	**Date Received:**	09/09/99
		Percent Solids:	94.6
Project:	NAS Cecil Field-PSC 42		

Metals Analysis

Analyte	Result	RDL	Units	DF	Prep	Analyzed	By	Method
Antimony	1.1 B	6.3	mg/kg	1	09/13/99	09/16/99	EP	SW846 6010A
Arsenic	9.8	1.1	mg/kg	1	09/13/99	09/16/99	EP	SW846 6010A
Barium	21.9	21.1	mg/kg	1	09/13/99	09/16/99	EP	SW846 6010A
Chromium	3.5	1.1	mg/kg	1	09/13/99	09/16/99	EP	SW846 6010A

RDL = Reported Detection Limit

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-P42-SS-209-01		
Lab Sample ID:	F4870-9	**Date Sampled:**	09/07/99
Matrix:	SO - Soil	**Date Received:**	09/09/99
		Percent Solids:	93.8
Project:	NAS Cecil Field-PSC 42		

Metals Analysis

Analyte	Result	RDL	Units	DF	Prep	Analyzed	By	Method
Antimony	6.4 B	6.7	mg/kg	1	09/13/99	09/16/99	EP	SW846 6010A
Arsenic	5.1	1.1	mg/kg	1	09/13/99	09/16/99	EP	SW846 6010A
Barium	50.7	22.2	mg/kg	1	09/13/99	09/16/99	EP	SW846 6010A
Chromium	7.3	1.1	mg/kg	1	09/13/99	09/16/99	EP	SW846 6010A

RDL = Reported Detection Limit

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-P42-SS-210-01		
Lab Sample ID:	F4870-10	**Date Sampled:**	09/07/99
Matrix:	SO - Soil	**Date Received:**	09/09/99
		Percent Solids:	95.4
Project:	NAS Cecil Field-PSC 42		

Metals Analysis

Analyte	Result	RDL	Units	DF	Prep	Analyzed	By	Method
Antimony	0.79 B	6.2	mg/kg	1	09/13/99	09/16/99	EP	SW846 6010A
Arsenic	2.0	1.0	mg/kg	1	09/13/99	09/16/99	EP	SW846 6010A
Barium	25.1	20.6	mg/kg	1	09/13/99	09/16/99	EP	SW846 6010A
Chromium	3.5	1.0	mg/kg	1	09/13/99	09/16/99	EP	SW846 6010A

RDL = Reported Detection Limit

000023

ACCUTEST.

Report of Analysis

Client Sample ID:	CEF-P42-SS-211-01		
Lab Sample ID:	F4870-11	**Date Sampled:**	09/07/99
Matrix:	SO - Soil	**Date Received:**	09/09/99
		Percent Solids:	94.6
Project:	NAS Cecil Field-PSC 42		

Metals Analysis

Analyte	Result	RDL	Units	DF	Prep	Analyzed	By	Method
Antimony	3.0 B	6.5	mg/kg	1	09/13/99	09/17/99	JK	SW846 6010A
Arsenic	1.3	1.1	mg/kg	1	09/13/99	09/17/99	JK	SW846 6010A
Barium	49.9	21.6	mg/kg	1	09/13/99	09/17/99	JK	SW846 6010A
Chromium	3.7	1.1	mg/kg	1	09/13/99	09/17/99	JK	SW846 6010A

RDL = Reported Detection Limit

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Report of Analysis

Client Sample ID:	CEF-P42-SS-212-01		
Lab Sample ID:	F4870-12	**Date Sampled:**	09/07/99
Matrix:	SO - Soil	**Date Received:**	09/09/99
		Percent Solids:	95.1
Project:	NAS Cecil Field-PSC 42		

Metals Analysis

Analyte	Result	RDL	Units	DF	Prep	Analyzed	By	Method
Antimony	1.8 B	6.2	mg/kg	1	09/13/99	09/17/99	JK	SW846 6010A
Arsenic	0.46 B	1.0	mg/kg	1	09/13/99	09/17/99	JK	SW846 6010A
Barium	27.3	20.8	mg/kg	1	09/13/99	09/17/99	JK	SW846 6010A
Chromium	1.7	1.0	mg/kg	1	09/13/99	09/17/99	JK	SW846 6010A

RDL = Reported Detection Limit

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Report of Analysis

Client Sample ID:	CEF-P42-SS-213-01		
Lab Sample ID:	F4870-13	**Date Sampled:**	09/07/99
Matrix:	SO - Soil	**Date Received:**	09/09/99
		Percent Solids:	93.3
Project:	NAS Cecil Field-PSC 42		

Metals Analysis

Analyte	Result	RDL	Units	DF	Prep	Analyzed	By	Method
Antimony	49.0	6.6	mg/kg	1	09/13/99	09/17/99	JK	SW846 6010A
Arsenic	13.6	1.1	mg/kg	1	09/13/99	09/17/99	JK	SW846 6010A
Barium	291	22.1	mg/kg	1	09/13/99	09/17/99	JK	SW846 6010A
Chromium	26.9	1.1	mg/kg	1	09/13/99	09/17/99	JK	SW846 6010A

RDL = Reported Detection Limit

000029

ACCUTEST.

Report of Analysis

Client Sample ID:	CEF-P42-SS-DU05		
Lab Sample ID:	F4870-15	**Date Sampled:**	09/07/99
Matrix:	SO - Soil	**Date Received:**	09/09/99
		Percent Solids:	93.6
Project:	NAS Cecil Field-PSC 42		

Metals Analysis

Analyte	Result	RDL	Units	DF	Prep	Analyzed	By	Method
Antimony	0.49 B	6.4	mg/kg	1	09/13/99	09/17/99	JK	SW846 6010A
Arsenic	28.3	1.1	mg/kg	1	09/13/99	09/17/99	JK	SW846 6010A
Barium	5.2 B	21.4	mg/kg	1	09/13/99	09/17/99	JK	SW846 6010A
Chromium	3.0	1.1	mg/kg	1	09/13/99	09/17/99	JK	SW846 6010A

RDL = Reported Detection Limit

ACCUTEST.

Report of Analysis

Client Sample ID:	CEF-P42-SS-DU06		
Lab Sample ID:	F4870-16	**Date Sampled:**	09/07/99
Matrix:	SO - Soil	**Date Received:**	09/09/99
		Percent Solids:	93.0
Project:	NAS Cecil Field-PSC 42		

Metals Analysis

Analyte	Result	RDL	Units	DF	Prep	Analyzed	By	Method
Antimony	61.1	6.8	mg/kg	1	09/13/99	09/17/99	JK	SW846 6010A
Arsenic	20.2	1.1	mg/kg	1	09/13/99	09/17/99	JK	SW846 6010A
Barium	442	22.6	mg/kg	1	09/13/99	09/17/99	JK	SW846 6010A
Chromium	37.0	1.1	mg/kg	1	09/13/99	09/17/99	JK	SW846 6010A

RDL = Reported Detection Limit

000031D

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-P42-SU-214-03		
Lab Sample ID:	F4870-14	**Date Sampled:**	09/07/99
Matrix:	SO - Soil	**Date Received:**	09/09/99
		Percent Solids:	93.7
Project:	NAS Cecil Field-PSC 42		

Metals Analysis

Analyte	Result	RDL	Units	DF	Prep	Analyzed	By	Method
Antimony	0.54 B	6.5	mg/kg	1	09/13/99	09/17/99	JK	SW846 6010A
Arsenic	30.1	1.1	mg/kg	1	09/13/99	09/17/99	JK	SW846 6010A
Barium	7.3 B	21.8	mg/kg	1	09/13/99	09/17/99	JK	SW846 6010A
Chromium	6.0	1.1	mg/kg	1	09/13/99	09/17/99	JK	SW846 6010A

RDL = Reported Detection Limit

000030

Tetra Tech NUS **INTERNAL CORRESPONDENCE**

PITT-11-9-004

TO: **MR. M. SPERANZA** **DATE: NOVEMBER 17, 1999**

FROM: **JUSTIN ORBICH** **CC: DV FILE**

SUBJECT: **ORGANIC DATA VALIDATION –TPH/PAH**
CTO 078 – NAS CECIL FIELD
SDG F5054

SAMPLES: 5/Soil

CEF-P42-SS-301-01
CEF-P42-SS-303-01
CEF-P42-SS-DU0701
CEF-P42-SS-302-01
CEF-P42-SS-304-01

OVERVIEW

The sample set for CTO 078, SDG F5054 Naval Air Station (NAS) Cecil Field; Florida consists of five (5) solid environmental samples. The samples were analyzed for Total Petroleum Hydrocarbon (TPH) and Polynuclear Aromatic Hydrocarbon (PAH) organic compounds. One (1) field duplicate pair (CEF-P42-SS-303-01/CEF-P42-SSDU0701) was included within this SDG.

The samples were collected by Tetra Tech, NUS on and October 11th, 1999 and analyzed by Accutest Laboratories. All analyses were performed in accordance with Naval Facilities Engineering Service Center (NFESC) Quality Assurance/Quality Control (QA/QC) criteria and analyzed according to SW 846 Method 8310 and FLORIDA-PRO analytical and reporting protocols. The data in this SDG was validated with regard to the following parameters:

* • Data Completeness
* • Holding Times
* • Initial/continuing calibrations
* • Laboratory method/field quality control blank results
* • Detection Limits
  • Field Duplicate Precision

The symbol (*) indicates that all quality control criteria were met for this parameter. Problems affecting data quality are discussed below; documentation supporting these findings is presented in Appendix C. Qualified analytical results are presented in Appendix A.

TPH FRACTION

All quality control parameters were met for this fraction

PAH FRACTION

The field duplicate pair (CEF-P42-SS-303-01/CEF-P42-SS-DU0701 exceeded the 50% quality control limits. The positive results were qualified as estimated (J).

ADDITIONAL COMMENTS

Positive results reported below the CRQL are qualified as estimated (J).

EXECUTIVE SUMMARY

Laboratory performance: None.

Other Factors Affecting Data Quality: The field duplicate pair exceeded the quality control limit for several compounds.

MEMO TO: MR. M. SPERANZA
DATE: NOVEMBER 17, 1999 – PAGE 3

The data for these analyses were reviewed with reference to the EPA Functional Guidelines for Organic Data Validation (February, 1994), and the NFESC "Navy Installation Restoration Program Laboratory Quality Assurance Guide" (February, 1996). The text of this report has been formulated to address only those problems affecting data quality.

"I attest that the data referenced herein was validated according to the agreed upon validation criteria as specified in the NFESC Guidelines and the Quality Assurance Project Plan (QAPP)."

Justin Orbich

Chemist/Data Validator
Tetra Tech, NUS

Joseph A. Samchuck

Data Validation Quality Assurance Officer
Tetra Tech, NUS

Attachments:
1. Appendix A - Qualified Analytical Results
2. Appendix B - Results as reported by the Laboratory
3. Appendix C - Support Documentation

DATA QUALIFIER DEFINITIONS:

U - Value is a nondetected result as reported by the laboratory and should not be considered present.

J - Positive result is estimated as a result of a value below the CRQL or a technical noncompliance.

APPENDIX A

Qualified Analytical Results

Qualifier Codes:

A = Lab Blank Contamination
B = Field Blank Contamination
C = Calibration (i.e., % RSDs, %Ds, ICVs, CCVs, RPDs, RRFs, etc.) Noncompliance
D = MS/MSD Noncompliance
E = LCS/LCSD Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = GFAA PDS - GFAA MSA's $r < 0.995$
K = ICP Interference - include ICSAB % R's
L = Instrument Calibration Range Exceedance
M = Sample Preservation
N = Internal Standard Noncompliance
O = Poor Instrument Performance (i.e., base-time drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can encompass a number of issues)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = Pest/PCB D% between columns for positive results
V = Non-linear calibrations, tuning $r < 0.995$ (correlation coefficient)
W = EMPC result
X = Signal to noise response drop
Y = % Solid content is less than 30%

CTO078 - NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F5054

SAMPLE NUMBER:	CEF-P42-SS-301-01			CEF-P42-SS-302-01			CEF-P42-SS-303-01			CEF-P42-SS-304-01		
SAMPLE DATE:	10/11/99			10/11/99			10/11/99			10/11/99		
LABORATORY ID:	F5054-1			F5054-2			F5054-3			F5054-4		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	87.0 %			88.0 %			89.6 %			91.6 %		
UNITS:	UG/KG			UG/KG			UG/KG			UG/KG		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
POLYNUCLEAR AROMATIC HYDROCARBONS												
1-METHYLNAPHTHALENE	76	U		76	U		73	U		131		
2-METHYLNAPHTHALENE	81.5			148			106			84.6		
ACENAPHTHENE	265			76	U		103	J	G	450		
ACENAPHTHYLENE	97.8			76	U		73	U		722		
ANTHRACENE	76	U		76	U		73	U		72	U	
BENZO(A)ANTHRACENE	106			11	U		66	J	G	26		
BENZO(A)PYRENE	168			11	U		60.2	J	G	15.3		
BENZO(B)FLUORANTHENE	198			11	U		57.9	J	G	80		
BENZO(G,H,I)PERYLENE	95			21			33.7	J	G	16.6		
BENZO(K)FLUORANTHENE	70.1			39.1			46.4	J	G	49.4		
CHRYSENE	155			48.2			78.5	J	G	17		
DIBENZO(A,H)ANTHRACENE	17.4			11	U		11	U		11	U	
FLUORANTHENE	485			217			268	J	G	117		
FLUORENE	76	U		76	U		73	U		155		
INDENO(1,2,3-CD)PYRENE	68.7			11	U		40.6	J	G	15.9		
NAPHTHALENE	86			76	U		73	U		199		
PHENANTHRENE	76	U		76	U		87	J	G	192		
PYRENE	208			14.3			167	J	G	48		

CTO078 - NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F5054

SAMPLE NUMBER:	CEF-P42-SS-DU0701			
SAMPLE DATE:	10/11/99	/ /	/ /	/ /
LABORATORY ID:	F5054-5			
QC_TYPE:	NORMAL			
% SOLIDS:	89.6 %	100.0 %	100.0 %	100.0 %
UNITS:	UG/KG			
FIELD DUPLICATE OF:	CEF-P46-SS-303-01			

	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
POLYNUCLEAR AROMATIC HYDROCARBONS												
1-METHYLNAPHTHALENE	74	U										
2-METHYLNAPHTHALENE	74											
ACENAPHTHENE	74	U										
ACENAPHTHYLENE	74	U										
ANTHRACENE	74	U										
BENZO(A)ANTHRACENE	22.4	J	G									
BENZO(A)PYRENE	12.8	J	G									
BENZO(B)FLUORANTHENE	16.9	J	G									
BENZO(G,H,I)PERYLENE	11	U										
BENZO(K)FLUORANTHENE	21.5	J	G									
CHRYSENE	22.8	J	G									
DIBENZO(A,H)ANTHRACENE	11	U										
FLUORANTHENE	87.4	J	G									
FLUORENE	74	U										
INDENO(1,2,3-CD)PYRENE	11	U										
NAPHTHALENE	74	U										
PHENANTHRENE	74	U										
PYRENE	28	J	G									

CTO078 - NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F5054

SAMPLE NUMBER:	CEF-P42-SS-301-01	CEF-P42-SS-302-01	CEF-P42-SS-303-01	CEF-P42-SS-304-01
SAMPLE DATE:	10/11/99	10/11/99	10/11/99	10/11/99
LABORATORY ID:	F5054-1	F5054-2	F5054-3	F5054-4
QC_TYPE:	NORMAL	NORMAL	NORMAL	NORMAL
% SOLIDS:	87.0 %	88.0 %	89.6 %	91.6 %
UNITS:	MG/KG	MG/KG	MG/KG	MG/KG
FIELD DUPLICATE OF:				

	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
PETROLEUM HYDROCARBONS												
TPH (C8-C40)	96	U		94	U		93	U		91	U	

CTO078 - NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F5054

SAMPLE NUMBER:	CEF-P42-SS-DU0701			
SAMPLE DATE:	10/11/99	/ /	/ /	/ /
LABORATORY ID:	F5054-5			
QC_TYPE:	NORMAL			
% SOLIDS:	89.6 %	100.0 %	100.0 %	100.0 %
UNITS:	MG/KG			
FIELD DUPLICATE OF:	CEF-P46-SS-303-01			

	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
PETROLEUM HYDROCARBONS												
TPH (C8-C40)	93	U										

APPENDIX B

Results as Reported by the Laboratory

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-P42-SS-301-01		
Lab Sample ID:	F5054-1	**Date Sampled:**	10/11/99
Matrix:	SO - Soil	**Date Received:**	10/12/99
Method:	SW846 8310	**Percent Solids:**	87.0
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	LC6550.D	1	10/26/99	AMA	10/23/99	M:OP1505	M:GLC44
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	265	76	ug/kg	
208-96-8	Acenaphthylene	97.8	76	ug/kg	
120-12-7	Anthracene	ND	76	ug/kg	
56-55-3	Benzo (a) anthracene	106	11	ug/kg	
50-32-8	Benzo (a) pyrene	168	11	ug/kg	
205-99-2	Benzo (b) fluoranthene	198	11	ug/kg	
191-24-2	Benzo (g,h,i) perylene	95.0	11	ug/kg	
207-08-9	Benzo (k) fluoranthene	70.1	11	ug/kg	
218-01-9	Chrysene	155	11	ug/kg	
53-70-3	Dibenz(a,h)anthracene	17.4	11	ug/kg	
206-44-0	Fluoranthene	485	11	ug/kg	
86-73-7	Fluorene	ND	76	ug/kg	
193-39-5	Indeno (1,2,3-cd) pyrene	68.7	11	ug/kg	
90-12-0	1-Methylnaphthalene	ND	76	ug/kg	
91-57-6	2-Methylnaphthalene	81.5	76	ug/kg	
91-20-3	Naphthalene	86.0	76	ug/kg	
85-01-8	Phenanthrene	ND	76	ug/kg	
129-00-0	Pyrene	208	11	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	87%		20-130%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

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ACCUTEST

Report of Analysis

Client Sample ID:	CEF-P42-SS-302-01		
Lab Sample ID:	F5054-2	**Date Sampled:**	10/11/99
Matrix:	SO - Soil	**Date Received:**	10/12/99
Method:	SW846 8310	**Percent Solids:**	88.0
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	LC6551.D	1	10/26/99	AMA	10/23/99	M:OP1505	M:GLC44
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	76	ug/kg	
208-96-8	Acenaphthylene	ND	76	ug/kg	
120-12-7	Anthracene	ND	76	ug/kg	
56-55-3	Benzo (a) anthracene	ND	11	ug/kg	
50-32-8	Benzo (a) pyrene	ND	11	ug/kg	
205-99-2	Benzo (b) fluoranthene	ND	11	ug/kg	
191-24-2	Benzo (g,h,i) perylene	21.0	11	ug/kg	
207-08-9	Benzo (k) fluoranthene	39.1	11	ug/kg	
218-01-9	Chrysene	48.2	11	ug/kg	
53-70-3	Dibenz(a,h)anthracene	ND	11	ug/kg	
206-44-0	Fluoranthene	217	11	ug/kg	
86-73-7	Fluorene	ND	76	ug/kg	
193-39-5	Indeno (1,2,3-cd) pyrene	ND	11	ug/kg	
90-12-0	1-Methylnaphthalene	ND	76	ug/kg	
91-57-6	2-Methylnaphthalene	148	76	ug/kg	
91-20-3	Naphthalene	ND	76	ug/kg	
85-01-8	Phenanthrene	ND	76	ug/kg	
129-00-0	Pyrene	14.3	11	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	84%		20-130%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-P42-SS-303-01		
Lab Sample ID:	F5054-3	**Date Sampled:**	10/11/99
Matrix:	SO - Soil	**Date Received:**	10/12/99
Method:	SW846 8310	**Percent Solids:**	89.6
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	LC6552.D	1	10/27/99	AMA	10/23/99	M:OP1505	M:GLC44
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	103	73	ug/kg	
208-96-8	Acenaphthylene	ND	73	ug/kg	
120-12-7	Anthracene	ND	73	ug/kg	
56-55-3	Benzo (a) anthracene	66.0	11	ug/kg	
50-32-8	Benzo (a) pyrene	60.2	11	ug/kg	
205-99-2	Benzo (b) fluoranthene	57.9	11	ug/kg	
191-24-2	Benzo (g,h,i) perylene	33.7	11	ug/kg	
207-08-9	Benzo (k) fluoranthene	46.4	11	ug/kg	
218-01-9	Chrysene	78.5	11	ug/kg	
53-70-3	Dibenz(a,h)anthracene	ND	11	ug/kg	
206-44-0	Fluoranthene	268	11	ug/kg	
86-73-7	Fluorene	ND	73	ug/kg	
193-39-5	Indeno (1,2,3-cd) pyrene	40.6	11	ug/kg	
90-12-0	1-Methylnaphthalene	ND	73	ug/kg	
91-57-6	2-Methylnaphthalene	106	73	ug/kg	
91-20-3	Naphthalene	ND	73	ug/kg	
85-01-8	Phenanthrene	87.0	73	ug/kg	
129-00-0	Pyrene	167	11	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	86%		20-130%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-P42-SS-304-01		
Lab Sample ID:	F5054-4	**Date Sampled:**	10/11/99
Matrix:	SO - Soil	**Date Received:**	10/12/99
Method:	SW846 8310	**Percent Solids:**	91.6
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	LC6553.D	1	10/27/99	AMA	10/23/99	M:OP1505	M:GLC44
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	450	72	ug/kg	
208-96-8	Acenaphthylene	722	72	ug/kg	
120-12-7	Anthracene	ND	72	ug/kg	
56-55-3	Benzo (a) anthracene	26.0	11	ug/kg	
50-32-8	Benzo (a) pyrene	15.3	11	ug/kg	
205-99-2	Benzo (b) fluoranthene	80.0	11	ug/kg	
191-24-2	Benzo (g,h,i) perylene	16.6	11	ug/kg	
207-08-9	Benzo (k) fluoranthene	49.4	11	ug/kg	
218-01-9	Chrysene	17.0	11	ug/kg	
53-70-3	Dibenz(a,h)anthracene	ND	11	ug/kg	
206-44-0	Fluoranthene	117	11	ug/kg	
86-73-7	Fluorene	155	72	ug/kg	
193-39-5	Indeno (1,2,3-cd) pyrene	15.9	11	ug/kg	
90-12-0	1-Methylnaphthalene	131	72	ug/kg	
91-57-6	2-Methylnaphthalene	84.6	72	ug/kg	
91-20-3	Naphthalene	199	72	ug/kg	
85-01-8	Phenanthrene	192	72	ug/kg	
129-00-0	Pyrene	48.0	11	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	112%		20-130%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-P42-SS-DU0701		
Lab Sample ID:	F5054-5	**Date Sampled:**	10/11/99
Matrix:	SO - Soil	**Date Received:**	10/12/99
Method:	SW846 8310	**Percent Solids:**	89.6
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	LC6554.D	1	10/27/99	AMA	10/23/99	M:OP1505	M:GLC44
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	74	ug/kg	
208-96-8	Acenaphthylene	ND	74	ug/kg	
120-12-7	Anthracene	ND	74	ug/kg	
56-55-3	Benzo (a) anthracene	22.4	11	ug/kg	
50-32-8	Benzo (a) pyrene	12.8	11	ug/kg	
205-99-2	Benzo (b) fluoranthene	16.9	11	ug/kg	
191-24-2	Benzo (g,h,i) perylene	ND	11	ug/kg	
207-08-9	Benzo (k) fluoranthene	21.5	11	ug/kg	
218-01-9	Chrysene	22.8	11	ug/kg	
53-70-3	Dibenz(a,h)anthracene	ND	11	ug/kg	
206-44-0	Fluoranthene	87.4	11	ug/kg	
86-73-7	Fluorene	ND	74	ug/kg	
193-39-5	Indeno (1,2,3-cd) pyrene	ND	11	ug/kg	
90-12-0	1-Methylnaphthalene	ND	74	ug/kg	
91-57-6	2-Methylnaphthalene	74.0	74	ug/kg	
91-20-3	Naphthalene	ND	74	ug/kg	
85-01-8	Phenanthrene	ND	74	ug/kg	
129-00-0	Pyrene	28.0	11	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	82%		20-130%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-P42-SS-301-01		
Lab Sample ID:	F5054-1	**Date Sampled:**	10/11/99
Matrix:	SO - Soil	**Date Received:**	10/12/99
Method:	FLORIDA-PRO	**Percent Solids:**	87.0
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP05553.D	1	10/14/99	ME	10/14/99	OP1025	GOP266
Run #2							

CAS No.	Compound	Result	RL	Units	Q
	TPH (C8-C40)	ND	96	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	104%		40-140%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-P42-SS-302-01		
Lab Sample ID:	F5054-2	**Date Sampled:**	10/11/99
Matrix:	SO - Soil	**Date Received:**	10/12/99
Method:	FLORIDA-PRO	**Percent Solids:**	88.0
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP05554.D	1	10/14/99	ME	10/14/99	OP1025	GOP266
Run #2							

CAS No.	Compound	Result	RL	Units	Q
	TPH (C8-C40)	ND	94	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	105%		40-140%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-P42-SS-303-01		
Lab Sample ID:	F5054-3	**Date Sampled:**	10/11/99
Matrix:	SO - Soil	**Date Received:**	10/12/99
Method:	FLORIDA-PRO	**Percent Solids:**	89.6
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP05555.D	1	10/14/99	ME	10/14/99	OP1025	GOP266
Run #2							

CAS No.	Compound	Result	RL	Units	Q
	TPH (C8-C40)	ND	93	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	106%		40-140%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-P42-SS-304-01		
Lab Sample ID:	F5054-4	**Date Sampled:**	10/11/99
Matrix:	SO - Soil	**Date Received:**	10/12/99
Method:	FLORIDA-PRO	**Percent Solids:**	91.6
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP05558.D	1	10/14/99	ME	10/14/99	OP1025	GOP266
Run #2							

CAS No.	Compound	Result	RL	Units	Q
	TPH (C8-C40)	ND	91	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	107%		40-140%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-P42-SS-DU0701		
Lab Sample ID:	F5054-5	**Date Sampled:**	10/11/99
Matrix:	SO - Soil	**Date Received:**	10/12/99
Method:	FLORIDA-PRO	**Percent Solids:**	89.6
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP05559.D	1	10/14/99	ME	10/14/99	OP1025	GOP266
Run #2							

CAS No.	Compound	Result	RL	Units	Q
	TPH (C8-C40)	ND	93	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	106%		40-140%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Tetra Tech NUS **INTERNAL CORRESPONDENCE**

PITT-11-09-019

TO: **M. SPERANZA** **DATE:** **NOVEMBER 10, 1999**

FROM: **GRETCHEN PHIPPS** **COPIES:** **DV FILE**

SUBJECT: **INORGANIC DATA VALIDATION – SELECT METALS**
CTO 078 - CECIL FIELD
SDGs – ~~F5053~~ AND F5054

SAMPLES: ~~**F5053**~~

6/Soils/

~~CEF-P49-SS-306-01~~ ~~CEF-P49-SS-307-01~~
~~CEF-P49-SS-308-01~~ ~~CEF-P49-SS-309-01~~
~~CEF-P49-SS-310-01~~ ~~CEF-P49-SS-311-01~~

F5054

5/Soils/

CEF-P42-SS-301-01 CEF-P42-SS-302-01
CEF-P42-SS-303-01 CEF-P42-SS-304-01
CEF-P42-SS-DU07

Overview

The sample set for CTO 078, Cecil Field, SDGs F5053 and F5054 consists of eleven (11) soil environmental samples. One (1) field duplicate pair (CEF-P42-SS-303-01 / CEF-P42-SS-DU07) was included within these SDGs.

All samples in SDG F5053 were analyzed for lead. All samples in SDG F5054 were analyzed for arsenic, barium, chromium and lead. The samples were collected by Tetra Tech NUS on October 11, 1999 and analyzed by Accutest Laboratory under Naval Facilities Engineering Service Center (NFESC) Quality Assurance / Quality Control (QA / QC) criteria. Metals analyses were conducted using SW 846 method 6010B.

The data was evaluated based on the following parameters:

* • Data Completeness
* • Holding Times
* • Calibration Verifications
  • Laboratory Blank Analyses
* • Detection Limits

Qualifier Codes:

A = Lab Blank Contamination
B = Field Blank Contamination
C = Calibration (i.e., % RSDs, %Ds, ICVs, CCVs, RPDs, RRFs, etc.) Noncompliance
D = MS/MSD Noncompliance
E = LCS/LCSD Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = GFAA PDS - GFAA MSA's $r < 0.995$
K = ICP Interference - include ICSAB % R's
L = Instrument Calibration Range Exceedance
M = Sample Preservation
N = Internal Standard Noncompliance
O = Poor Instrument Performance (i.e., base-time drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can encompass a number of issues)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = Pest/PCB D% between columns for positive results
V = Non-linear calibrations, tuning $r < 0.995$ (correlation coefficient)
W = EMPC result
X = Signal to noise response drop
Y = % Solid content is less than 30%

CTO078 - NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F5054

SAMPLE NUMBER:	CEF-P42-SS-301-01			CEF-P42-SS-302-01			CEF-P42-SS-303-01			CEF-P42-SS-304-01		
SAMPLE DATE:	10/11/99			10/11/99			10/11/99			10/11/99		
LABORATORY ID:	F5054-1			F5054-2			F5054-3			F5054-4		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	87.0 %			88.0 %			89.6 %			91.6 %		
UNITS:	MG/KG			MG/KG			MG/KG			MG/KG		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
INORGANICS												
ARSENIC	0.57	U	A	0.69	U	A	0.63	U	A	0.49	U	A
BARIUM	19.7			9.3			2.8			2.0		
CHROMIUM	257			2.6			4.0			0.98	U	A
LEAD	250			637			8.4			5.9		

CTO078 - NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F5054

SAMPLE NUMBER:	CEF-P42-SS-DU07											
SAMPLE DATE:	10/11/99			/ /			/ /			/ /		
LABORATORY ID:	F5054-5											
QC_TYPE:	NORMAL											
% SOLIDS:	89.6 %			100.0 %			100.0 %			100.0 %		
UNITS:	MG/KG											
FIELD DUPLICATE OF:	CEF-P46-SS-303-01											
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
INORGANICS												
ARSENIC	0.59	U	A									
BARIUM	2.2											
CHROMIUM	2.8											
LEAD	9.4											

APPENDIX B
RESULTS AS REPORTED BY THE LABORATORY

Tetra Tech NUS **INTERNAL CORRESPONDENCE**

TO:	**M. SPERANZA**	**DATE:**	**JANUARY 5, 2000**
FROM:	**GRETCHEN PHIPPS**	**COPIES:**	**DV FILE**

SUBJECT: **INORGANIC DATA VALIDATION – SELECT METALS**
CTO 078 - CECIL FIELD
SDGs – F5304

SAMPLES: 4/Soils/

CEF-P42-SS-301A-01 CEF-P42-SS-302A-01
CEF-P42-SS-303A-01 CEF-P42-SS-304A-01

Overview

The sample set for CTO 078, Cecil Field, SDG F5304 consists of four (4) soil environmental samples.

The samples were analyzed for antimony, arsenic, barium and chromium. The samples were collected by Tetra Tech NUS on November 16, 1999 and analyzed by Accutest Laboratory under Naval Facilities Engineering Service Center (NFESC) Quality Assurance / Quality Control (QA / QC) criteria. Metals analyses were conducted using SW 846 method 6010B.

The data was evaluated based on the following parameters:

* • Data Completeness
* • Holding Times
* • Calibration Verifications
• Laboratory Blank Analyses
* • Detection Limits

* - All quality control criteria were met for this parameter.

Laboratory Blank Analyses

The following contaminants were present in a laboratory method / preparation blanks at the following maximum concentration:

Analyte	Maximum Concentration	Action Level(soil)
Barium[1]	0.34 mg/kg	0.75 mg/kg
Chromium	0.65µg/L	0.325 mg/kg

[1] Maximum concentration present in a soil preparation blank.

An action level of 5X the maximum concentration has been used to evaluate the sample data for blank contamination. Sample aliquot, percent solids and dilution factors were taken into

consideration when determining blank contamination. No validation action was required as all results reported for barium and chromium were greater than the blank action levels.

Executive Summary

Laboratory Performance: Barium and chromium were present in the laboratory method / preparation blanks.

Other Factors Affecting Data Quality: None.

The data for these analyses were reviewed with reference to the "National Functional Guidelines for Inorganic Review", February 1994 and the NFESC document entitled "Navy Installation Restoration Laboratory Quality Assurance Guide." (NFESC 2/96).

The text of this report has been formulated to address only those problem areas affecting data quality.

"I attest that the data referenced herein were validated according to the agreed upon validation criteria as specified in the NFESC Guidelines and the Quality Assurance Project Plan (QAPP)."

Tetra Tech NUS
Gretchen A. Phipps

Tetra Tech NUS
Joseph A. Samchuck
Quality Control Officer

Attachments:

1. Appendix A - Qualified Analytical Data
2. Appendix B - Results as reported by the Laboratory
3. Appendix C - Support Documentation

APPENDIX A
QUALIFIED ANALYTICAL RESULTS

Qualifier Codes:

A = Lab Blank Contamination
B = Field Blank Contamination
C = Calibration (i.e., % RSDs, %Ds, ICVs, CCVs, RPDs, RRFs, etc.) Noncompliance
D = MS/MSD Noncompliance
E = LCS/LCSD Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = GFAA PDS - GFAA MSA's $r < 0.995$
K = ICP Interference - include ICSAB % R's
L = Instrument Calibration Range Exceedance
M = Sample Preservation
N = Internal Standard Noncompliance
O = Poor Instrument Performance (i.e., base-time drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can encompass a number of issues)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = Pest/PCB D% between columns for positive results
V = Non-linear calibrations, tuning $r < 0.995$ (correlation coefficient)
W = EMPC result
X = Signal to noise response drop
Y = % Solid content is less than 30%

CTO078 - CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F5304

SAMPLE NUMBER:	CEF-P42-SS-301A-01			CEF-P42-SS-302A-01			CEF-P42-SS-303A-01			CEF-P42-SS-304A-01		
SAMPLE DATE:	11/16/99			11/16/99			11/16/99			11/16/99		
LABORATORY ID:	F5304-1			F5304-2			F5304-3			F5304-4		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	90.4 %			90.7 %			90.1 %			89.8 %		
UNITS:	MG/KG			MG/KG			MG/KG			MG/KG		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
INORGANICS												
ANTIMONY	0.25	U		0.28	U		0.26	U		0.26	U	
ARSENIC	0.86			0.66			0.47			0.38	U	
BARIUM	12.8			8.8			7.3			5.3		
CHROMIUM	3.0			1.7			1.5			0.57		

APPENDIX B
RESULTS AS REPORTED BY THE LABORATORY

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-P42-SS-301A-01		
Lab Sample ID:	F5304-1	**Date Sampled:**	11/16/99
Matrix:	SO - Soil	**Date Received:**	11/17/99
		Percent Solids:	90.4
Project:	NAS Cecil Field-PSC 42		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By		Method
Antimony	0.25 U	6.3	mg/kg	1	11/18/99	11/19/99	JK	SW846 6010A
Arsenic	0.86 B	1.1	mg/kg	1	11/18/99	11/19/99	JK	SW846 6010A
Barium	12.8 B	21.1	mg/kg	1	11/18/99	11/19/99	JK	SW846 6010A
Chromium	3.0	1.1	mg/kg	1	11/18/99	11/19/99	JK	SW846 6010A

000004

RL = Reporting Limit

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-P42-SS-302A-01		
Lab Sample ID:	F5304-2	**Date Sampled:**	11/16/99
Matrix:	SO - Soil	**Date Received:**	11/17/99
		Percent Solids:	90.7
Project:	NAS Cecil Field-PSC 42		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method
Antimony	0.28 U	7.0	mg/kg	1	11/18/99	11/19/99	JK	SW846 6010A
Arsenic	0.66 B	1.2	mg/kg	1	11/18/99	11/19/99	JK	SW846 6010A
Barium	8.8 B	23.5	mg/kg	1	11/18/99	11/19/99	JK	SW846 6010A
Chromium	1.7	1.2	mg/kg	1	11/18/99	11/19/99	JK	SW846 6010A

000007

RL = Reporting Limit

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-P42-SS-303A-01		
Lab Sample ID:	F5304-3	**Date Sampled:**	11/16/99
Matrix:	SO - Soil	**Date Received:**	11/17/99
		Percent Solids:	90.1
Project:	NAS Cecil Field-PSC 42		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method
Antimony	0.26 U	6.4	mg/kg	1	11/18/99	11/19/99	JK	SW846 6010A
Arsenic	0.47 B	1.1	mg/kg	1	11/18/99	11/19/99	JK	SW846 6010A
Barium	7.3 B	21.3	mg/kg	1	11/18/99	11/19/99	JK	SW846 6010A
Chromium	1.5	1.1	mg/kg	1	11/18/99	11/19/99	JK	SW846 6010A

000010

RL = Reporting Limit

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-P42-SS-304A-01		
Lab Sample ID:	F5304-4	**Date Sampled:**	11/16/99
Matrix:	SO - Soil	**Date Received:**	11/17/99
		Percent Solids:	89.8
Project:	NAS Cecil Field-PSC 42		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method
Antimony	0.26 U	6.6	mg/kg	1	11/18/99	11/19/99	JK	SW846 6010A
Arsenic	0.38 U	1.1	mg/kg	1	11/18/99	11/19/99	JK	SW846 6010A
Barium	5.3 B	21.8	mg/kg	1	11/18/99	11/19/99	JK	SW846 6010A
Chromium	0.57 B	1.1	mg/kg	1	11/18/99	11/19/99	JK	SW846 6010A

000013

RL = Reporting Limit

Tetra Tech NUS **INTERNAL CORRESPONDENCE**

PITT-01-0-044

TO: **MARK SPERANZA** **DATE: FEBRAURY 9, 2000**

FROM: **JUSTIN ORBICH** **CC: DV FILE**

SUBJECT: **ORGANIC DATA VALIDATION –PAH/TPH**
CTO 078 – NAS CECIL FIELD
SDG F5304

SAMPLES: 4/Surface Soil

CEF-P42-SS-301A-01
CEF-P42-SS-302A-01
CEF-P42-SS-303A-01
CEF-P42-SS-304A-01

OVERVIEW

The sample set for CTO 078, SDG F5304 Naval Air Station (NAS) Cecil Field; Florida consists of four (4) surface soil environmental samples. The samples were analyzed for Polynuclear Aromatic Hydrocarbon (PAH) and Total Petroleum Hydrocarbon (TPH) organic compounds. No field duplicates were included within this SDG.

The samples were collected by Tetra Tech, NUS on and November 16th, 1999 and analyzed by Accutest Laboratories. All analyses were performed in accordance with Naval Facilities Engineering Service Center (NFESC) Quality Assurance/Quality Control (QA/QC) criteria and analyzed according to SW 846 Method 8310 and FLORIDA-PRO analytical and reporting protocols. The data in this SDG was validated with regard to the following parameters:

* • Data Completeness
• Holding Times
* • Initial/continuing calibrations
* • Laboratory method/field quality control blank results
* • Detection Limits

The symbol (*) indicates that all quality control criteria were met for this parameter. Problems affecting data quality are discussed below; documentation supporting these findings is presented in Appendix C. Qualified analytical results are presented in Appendix A.

PAH FRACTION

Samples CEF-P42-SS-301A-01 and CEF-P42-SS-302A-01 were extracted eighteen days after collection. The positive and nondetected results were qualified as estimated (J) and (UJ), respectively.

TPH FRACTION

All quality control parameters were met for this fraction.

MEMO TO: **MARK SPERANZA**
DATE: **FEBRUARY 9, 2000 – PAGE 2**

ADDITIONAL COMMENTS

Positive results reported below the reporting limit are qualified as estimated (J).

EXECUTIVE SUMMARY

Laboratory performance: Samples CEF-P42-SS-301A-01 and CEF-P42-SS-302A-01 were extracted eighteen days after collection.

Other Factors Affecting Data Quality: None.

MEMO TO: MARK SPERANZA
DATE: FEBRUARY 9, 2000 – PAGE 3

The data for these analyses were reviewed with reference to the EPA Functional Guidelines for Organic Data Validation (February, 1994), and the NFESC "Navy Installation Restoration Program Laboratory Quality Assurance Guide" (February, 1996). The text of this report has been formulated to address only those problems affecting data quality.

"I attest that the data referenced herein was validated according to the agreed upon validation criteria as specified in the NFESC Guidelines and the Quality Assurance Project Plan (QAPP)."

Justin Orbich

Chemist/Data Validator
Tetra Tech, NUS

Joseph A. Samchuck

Data Validation Quality Assurance Officer
Tetra Tech, NUS

Attachments:
1. Appendix A - Qualified Analytical Results
2. Appendix B - Results as reported by the Laboratory
3. Appendix C - Support Documentation

Qualifier Codes:

A = Lab Blank Contamination
B = Field Blank Contamination
C = Calibration (i.e., % RSDs, %Ds, ICVs, CCVs, RPDs, RRFs, etc.) Noncompliance
D = MS/MSD Noncompliance
E = LCS/LCSD Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = GFAA PDS - GFAA MSA's $r < 0.995$
K = ICP Interference - include ICSAB % R's
L = Instrument Calibration Range Exceedance
M = Sample Preservation
N = Internal Standard Noncompliance
O = Poor Instrument Performance (i.e., base-time drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can encompass a number of issues)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = Pest/PCB D% between columns for positive results
V = Non-linear calibrations, tuning $r < 0.995$ (correlation coefficient)
W = EMPC result
X = Signal to noise response drop
Y = % Solid content is less than 30%

DATA QUALIFIER DEFINITIONS:

U	-	Value is a nondetected result as reported by the laboratory and should not be considered present.
J	-	Positive result is estimated as a result of a value below the CRQL or a technical noncompliance.
UJ	-	Nondetected result is considered to be estimated as a result of technical noncompliances.

APPENDIX A

Qualified Analytical Results

CTO078 - CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F5304

SAMPLE NUMBER:	CEF-P42-SS-301A-01			CEF-P42-SS-302A-01			CEF-P42-SS-303A-01			CEF-P42-SS-304A-01		
SAMPLE DATE:	11/16/99			11/16/99			11/16/99			11/16/99		
LABORATORY ID:	F5304-1			F5304-2			F5304-3			F5304-4		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	90.4 %			90.7 %			90.1 %			89.8 %		
UNITS:	UG/KG			UG/KG			UG/KG			UG/KG		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
POLYNUCLEAR AROMATIC HYDROCARBONS												
1-METHYLNAPHTHALENE	73	UJ	H	70	UJ	H	72	U		72	U	
2-METHYLNAPHTHALENE	73	UJ	H	686	J	H	191			72	U	
ACENAPHTHENE	73	UJ	H	70	UJ	H	630			72	U	
ACENAPHTHYLENE	73	UJ	H	70	UJ	H	72	U		72	U	
ANTHRACENE	73	UJ	H	70	UJ	H	72	U		72	U	
BENZO(A)ANTHRACENE	17.7	J	H	10	UJ	H	95			11	U	
BENZO(A)PYRENE	11	UJ	H	10	UJ	H	173			11	U	
BENZO(B)FLUORANTHENE	49.3	J	H	10	UJ	H	178			14.5		
BENZO(G,H,I)PERYLENE	26.5	J	H	10	UJ	H	81.8			11	U	
BENZO(K)FLUORANTHENE	27.8	J	H	10	UJ	H	33.8			77		
CHRYSENE	23.9	J	H	10	UJ	H	100			11	U	
DIBENZO(A,H)ANTHRACENE	11	UJ	H	10	UJ	H	11	U		11	U	
FLUORANTHENE	416	J	H	10	UJ	H	566			118		
FLUORENE	73	UJ	H	70	UJ	H	72	U		72	U	
INDENO(1,2,3-CD)PYRENE	11	UJ	H	10	UJ	H	11	U		11	U	
NAPHTHALENE	73	UJ	H	70	UJ	H	72	U		72	U	
PHENANTHRENE	134	J	H	70	UJ	H	72	U		2260		
PYRENE	48.6	J	H	10	UJ	H	131			12.2		

CTO078 - CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F5304

SAMPLE NUMBER:	CEF-P42-SS-301A-01	CEF-P42-SS-302A-01	CEF-P42-SS-303A-01	CEF-P42-SS-304A-01
SAMPLE DATE:	11/16/99	11/16/99	11/16/99	11/16/99
LABORATORY ID:	F5304-1	F5304-2	F5304-3	F5304-4
QC_TYPE:	NORMAL	NORMAL	NORMAL	NORMAL
% SOLIDS:	90.4 %	90.7 %	90.1 %	89.8 %
UNITS:	MG/KG	MG/KG	MG/KG	MG/KG
FIELD DUPLICATE OF:				

	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
PETROLEUM HYDROCARBONS												
TPH (C8-C40)	92	U		92.4			101			88.6	J	P

APPENDIX B

Results as Reported by the Laboratory

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-P42-SS-301A-01		
Lab Sample ID:	F5304-1	**Date Sampled:**	11/16/99
Matrix:	SO - Soil	**Date Received:**	11/17/99
Method:	SW846 8310	**Percent Solids:**	90.4
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	LC7333.D	1	12/08/99	AMA	12/04/99	M:OP1578	M:GLC73
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	73	ug/kg	
208-96-8	Acenaphthylene	ND	73	ug/kg	
120-12-7	Anthracene	ND	73	ug/kg	
56-55-3	Benzo (a) anthracene	17.7	11	ug/kg	
50-32-8	Benzo (a) pyrene	ND	11	ug/kg	
205-99-2	Benzo (b) fluoranthene	49.3	11	ug/kg	
191-24-2	Benzo (g,h,i) perylene	26.5	11	ug/kg	
207-08-9	Benzo (k) fluoranthene	27.8	11	ug/kg	
218-01-9	Chrysene	23.9	11	ug/kg	
53-70-3	Dibenz(a,h)anthracene	ND	11	ug/kg	
206-44-0	Fluoranthene	416	11	ug/kg	
86-73-7	Fluorene	ND	73	ug/kg	
193-39-5	Indeno (1,2,3-cd) pyrene	ND	11	ug/kg	
90-12-0	1-Methylnaphthalene	ND	73	ug/kg	
91-57-6	2-Methylnaphthalene	ND	73	ug/kg	
91-20-3	Naphthalene	ND	73	ug/kg	
85-01-8	Phenanthrene	134	73	ug/kg	
129-00-0	Pyrene	48.6	11	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	57%		20-130%

000003

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-P42-SS-302A-01		
Lab Sample ID:	F5304-2	**Date Sampled:**	11/16/99
Matrix:	SO - Soil	**Date Received:**	11/17/99
Method:	SW846 8310	**Percent Solids:**	90.7
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	LC7334.D	1	12/08/99	AMA	12/04/99	M:OP1578	M:GLC73
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	70	ug/kg	
208-96-8	Acenaphthylene	ND	70	ug/kg	
120-12-7	Anthracene	ND	70	ug/kg	
56-55-3	Benzo (a) anthracene	ND	10	ug/kg	
50-32-8	Benzo (a) pyrene	ND	10	ug/kg	
205-99-2	Benzo (b) fluoranthene	ND	10	ug/kg	
191-24-2	Benzo (g,h,i) perylene	ND	10	ug/kg	
207-08-9	Benzo (k) fluoranthene	ND	10	ug/kg	
218-01-9	Chrysene	ND	10	ug/kg	
53-70-3	Dibenz(a,h)anthracene	ND	10	ug/kg	
206-44-0	Fluoranthene	ND	10	ug/kg	
86-73-7	Fluorene	ND	70	ug/kg	
193-39-5	Indeno (1,2,3-cd) pyrene	ND	10	ug/kg	
90-12-0	1-Methylnaphthalene	ND	70	ug/kg	
91-57-6	2-Methylnaphthalene	686	70	ug/kg	
91-20-3	Naphthalene	ND	70	ug/kg	
85-01-8	Phenanthrene	ND	70	ug/kg	
129-00-0	Pyrene	ND	10	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	112%		20-130%

C00006

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-P42-SS-303A-01		
Lab Sample ID:	F5304-3	**Date Sampled:**	11/16/99
Matrix:	SO - Soil	**Date Received:**	11/17/99
Method:	SW846 8310	**Percent Solids:**	90.1
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	LC7312.D	1	12/07/99	AMA	11/30/99	M:OP1578	M:GLC71
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	630	72	ug/kg	
208-96-8	Acenaphthylene	ND	72	ug/kg	
120-12-7	Anthracene	ND	72	ug/kg	
56-55-3	Benzo (a) anthracene	95.0	11	ug/kg	
50-32-8	Benzo (a) pyrene	173	11	ug/kg	
205-99-2	Benzo (b) fluoranthene	178	11	ug/kg	
191-24-2	Benzo (g,h,i) perylene	81.8	11	ug/kg	
207-08-9	Benzo (k) fluoranthene	33.8	11	ug/kg	
218-01-9	Chrysene	100	11	ug/kg	
53-70-3	Dibenz(a,h)anthracene	ND	11	ug/kg	
206-44-0	Fluoranthene	566	11	ug/kg	
86-73-7	Fluorene	ND	72	ug/kg	
193-39-5	Indeno (1,2,3-cd) pyrene	ND	11	ug/kg	
90-12-0	1-Methylnaphthalene	ND	72	ug/kg	
91-57-6	2-Methylnaphthalene	191	72	ug/kg	
91-20-3	Naphthalene	ND	72	ug/kg	
85-01-8	Phenanthrene	ND	72	ug/kg	
129-00-0	Pyrene	131	11	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	110%		20-130%

000009

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-P42-SS-304A-01		
Lab Sample ID:	F5304-4	**Date Sampled:**	11/16/99
Matrix:	SO - Soil	**Date Received:**	11/17/99
Method:	SW846 8310	**Percent Solids:**	89.8
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	LC7313.D	1	12/07/99	AMA	11/30/99	M:OP1578	M:GLC71
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	72	ug/kg	
208-96-8	Acenaphthylene	ND	72	ug/kg	
120-12-7	Anthracene	ND	72	ug/kg	
56-55-3	Benzo (a) anthracene	ND	11	ug/kg	
50-32-8	Benzo (a) pyrene	ND	11	ug/kg	
205-99-2	Benzo (b) fluoranthene	14.5	11	ug/kg	
191-24-2	Benzo (g,h,i) perylene	ND	11	ug/kg	
207-08-9	Benzo (k) fluoranthene	77.0	11	ug/kg	
218-01-9	Chrysene	ND	11	ug/kg	
53-70-3	Dibenz(a,h)anthracene	ND	11	ug/kg	
206-44-0	Fluoranthene	118	11	ug/kg	
86-73-7	Fluorene	ND	72	ug/kg	
193-39-5	Indeno (1,2,3-cd) pyrene	ND	11	ug/kg	
90-12-0	1-Methylnaphthalene	ND	72	ug/kg	
91-57-6	2-Methylnaphthalene	ND	72	ug/kg	
91-20-3	Naphthalene	ND	72	ug/kg	
85-01-8	Phenanthrene	2260	72	ug/kg	
129-00-0	Pyrene	12.2	11	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	104%		20-130%

000012

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-P42-SS-301A-01		
Lab Sample ID:	F5304-1	**Date Sampled:**	11/16/99
Matrix:	SO - Soil	**Date Received:**	11/17/99
Method:	FLORIDA-PRO	**Percent Solids:**	90.4
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP05848.D	1	11/20/99	ME	11/18/99	OP1093	GOP282
Run #2							

CAS No.	Compound	Result	RL	Units	Q
	TPH (C8-C40)	ND	92	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	102%		40-140%

000002

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-P42-SS-302A-01		
Lab Sample ID:	F5304-2	**Date Sampled:**	11/16/99
Matrix:	SO - Soil	**Date Received:**	11/17/99
Method:	FLORIDA-PRO	**Percent Solids:**	90.7
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP05849.D	1	11/20/99	ME	11/18/99	OP1093	GOP282
Run #2							

CAS No.	Compound	Result	RL	Units	Q
	TPH (C8-C40)	92.4	92	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	101%		40-140%

C00005

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-P42-SS-303A-01		
Lab Sample ID:	F5304-3	**Date Sampled:**	11/16/99
Matrix:	SO - Soil	**Date Received:**	11/17/99
Method:	FLORIDA-PRO	**Percent Solids:**	90.1
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP05850.D	1	11/20/99	ME	11/18/99	OP1093	GOP282
Run #2							

CAS No.	Compound	Result	RL	Units	Q
	TPH (C8-C40)	101	92	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	100%		40-140%

000008

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-P42-SS-304A-01		
Lab Sample ID:	F5304-4	**Date Sampled:**	11/16/99
Matrix:	SO - Soil	**Date Received:**	11/17/99
Method:	FLORIDA-PRO	**Percent Solids:**	89.8
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP05851.D	1	11/20/99	ME	11/18/99	OP1093	GOP282
Run #2							

CAS No.	Compound	Result	RL	Units	Q
	TPH (C8-C40)	88.6	93	mg/kg	J

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	96%		40-140%

000011

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Tetra Tech NUS **INTERNAL CORRESPONDENCE**

PITT-01-9-001

TO: **MARK SPERANZA** **DATE: FEBRUARY 9, 2000**

FROM: **JUSTIN ORBICH** **CC: DV FILE**

SUBJECT: **ORGANIC DATA VALIDATION – PAH/TPH**
CTO 078 – NAS CECIL FIELD
SDG F5338

SAMPLES: 19/Soil

CEF-P42-SS-401-01	CEF-P42-SS-402-01
CEF-P42-SS-408-01	CEF-P42-SS-409-01
CEF-P42-SS-410-01	CEF-P42-SS-411-01
CEF-P42-SS-412-01	CEF-P42-SS-413-01
CEF-P42-SS-414-01	CEF-P42-SS-415-01
CEF-P42-SS-416-01	CEF-P42-SS-417-01
CEF-P42-SS-418-01	CEF-P42-SS-419-01
CEF-P42-SS-420-01	CEF-P42-SS-421-01
CEF-P42-SS-DU08	CEF-P42-SS-DU09
CEF-P42-SS-116-01*	

OVERVIEW

The sample set for CTO 078, SDG F5338 Naval Air Station (NAS) Cecil Field; Florida consists of nineteen (19) soil environmental samples. The samples were analyzed for Polynuclear Aromatic Hydrocarbon (PAH) and Total Petroleum Hydrocarbon (TPH) organic compounds. The sample designated (*) was analyzed for TPH organic compounds only. Two (2) field duplicate pairs (CEF-P42-SS-408-01/CEF-P42-SS-DU08 and CEF-P42-SS-401-01/CEF-P42-SS-DU09) were included within this SDG.

The samples were collected by Tetra Tech, NUS on and November 18th and 19th, 1999 and analyzed by Accutest Laboratories. All analyses were performed in accordance with Naval Facilities Engineering Service Center (NFESC) Quality Assurance/Quality Control (QA/QC) criteria and analyzed according to SW 846 Method 8310 and FLORIDA-PRO analytical and reporting protocols. The data in this SDG was validated with regard to the following parameters:

- * Data Completeness
- * Holding Times
- * Initial/continuing calibrations
- * Laboratory method/field quality control blank results
- * Detection Limits
- Field Duplicate Precision

The symbol (*) indicates that all quality control criteria were met for this parameter. Problems affecting data quality are discussed below; documentation supporting these findings is presented in Appendix C. Qualified analytical results are presented in Appendix A.

MEMO TO: MR. M. SPERANZA
DATE: FEBRUARY 9, 2000 – PAGE 2

PAH FRACTION

The field duplicate Relative Percent Difference (RPD) exceeded the 50% quality control limits for several compounds. The positive and nondetected results were qualified as estimated (J) and (UJ), in the field duplicate pair, CEF-P42-SS-408-01/CEF-P42-SS-DU08.

The field duplicate RPD exceeded the 50% quality control limits for several compounds. The positive and nondetected results were qualified as estimated (J) and (UJ), in the field duplicate pair, CEF-P42-SS-401-01/CEF-P42-SS-DU09.

The surrogate Percent Recovery was zero percent for o-Tertphenyl in sample CEF-P42-SS-402-01. However, the sample was analyzed at a dilution. Therefore, no action was warranted since the surrogate was diluted out.

Sample CEF-P42-SS-402-01 was analyzed at a 10X and 20X dilution thus causing elevated reporting limits.

TPH FRACTION

The surrogate Percent Recovery was zero percent for o-Terphenyl in sample CEF-P42-SS-402-01. However, the sample was analyzed at a dilution. Therefore, no action was warranted since the surrogate was diluted out.

ADDITIONAL COMMENTS

Positive results reported below the reporting limit are qualified as estimated (J).

EXECUTIVE SUMMARY

Laboratory performance: None.

Other Factors Affecting Data Quality: Several PAH samples were analyzed at a dilution. Several compounds exceeded the percent difference between columns in the PAH fraction. Field duplicate impression was noted in samples, CEF-P42-SS-408-01/CEF-P42-SS-DU08 and CEF-P42-SS-401-01/CEF-P42-SS-DU09.

MEMO TO: MR. M. SPERANZA
DATE: FEBRUARY 9, 2000 – PAGE 3

The data for these analyses were reviewed with reference to the EPA Functional Guidelines for Organic Data Validation (February, 1994), and the NFESC "Navy Installation Restoration Program Laboratory Quality Assurance Guide" (February, 1996). The text of this report has been formulated to address only those problems affecting data quality.

"I attest that the data referenced herein was validated according to the agreed upon validation criteria as specified in the NFESC Guidelines and the Quality Assurance Project Plan (QAPP)."

Justin Orbich

Chemist/Data Validator
Tetra Tech, NUS

Joseph A. Samchuck

Data Validation Quality Assurance Officer
Tetra Tech, NUS

Attachments:
1. Appendix A - Qualified Analytical Results
2. Appendix B - Results as reported by the Laboratory
3. Appendix C - Support Documentation

DATA QUALIFIER DEFINITIONS:

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J	-	Positive result is estimated as a result of a value below the CRQL or a technical noncompliance.
UJ	-	Nondetected result is considered to be estimated as a result of technical noncompliances.

Qualifier Codes:

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X = Signal to noise response drop
Y = % Solid content is less than 30%

APPENDIX A

Qualified Analytical Results

CTO078-NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F5338

SAMPLE NUMBER:	CEF-P42-SS-401-01			CEF-P42-SS-402-01			CEF-P42-SS-408-01			CEF-P42-SS-409-01		
SAMPLE DATE:	11/19/99			11/19/99			11/18/99			11/18/99		
LABORATORY ID:	F5338-1			F5338-2			F5338-3			F5338-4		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	92.2 %			90.5 %			90.2 %			92.8 %		
UNITS:	UG/KG			UG/KG			UG/KG			UG/KG		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
POLYNUCLEAR AROMATIC HYDROCARBONS												
1-METHYLNAPHTHALENE	199	J	G	53900			942	J	G	72	U	
2-METHYLNAPHTHALENE	71	UJ	G	57800			704	J	G	72	U	
ACENAPHTHENE	142			62600			830	J	G	72	U	
ACENAPHTHYLENE	71	U		10900			72	U		72	U	
ANTHRACENE	86.3	J	G	43700			625	J	G	72	U	
BENZO(A)ANTHRACENE	290			69200			1110	J	G	55.9		
BENZO(A)PYRENE	194			6050			2940	J	G	11	U	
BENZO(B)FLUORANTHENE	283			17200			746	J	G	46.9		
BENZO(G,H,I)PERYLENE	144			24900			210	J	G	11	U	
BENZO(K)FLUORANTHENE	182	J	G	110	U		398	J	G	34.2		
CHRYSENE	336			3810			1010	J	G	69.2		
DIBENZO(A,H)ANTHRACENE	11	U		26400			197	J	G	11	U	
FLUORANTHENE	1120	J	G	110	U		3280	J	G	249		
FLUORENE	71	U		33200			228	J	G	72	U	
INDENO(1,2,3-CD)PYRENE	190			18000			11	U		11	U	
NAPHTHALENE	71	U		47800			111	J	G	72	U	
PHENANTHRENE	466	J	G	82200			1760	J	G	72	U	
PYRENE	578			129000			1880	J	G	110		

CTO078-NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F5338

SAMPLE NUMBER:	CEF-P42-SS-410-01			CEF-P42-SS-411-01			CEF-P42-SS-412-01			CEF-P42-SS-413-01		
SAMPLE DATE:	11/18/99			11/18/99			11/18/99			11/18/99		
LABORATORY ID:	F5338-5			F5338-6			F5338-7			F5338-8		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	92.3 %			94.3 %			87.2 %			94.6 %		
UNITS:	UG/KG			UG/KG			UG/KG			UG/KG		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
POLYNUCLEAR AROMATIC HYDROCARBONS												
1-METHYLNAPHTHALENE	123			70	U		1990			131		
2-METHYLNAPHTHALENE	85.3			70	U		2150			276		
ACENAPHTHENE	72	U		70	U		76	U		70	U	
ACENAPHTHYLENE	72	U		70	U		76	U		70	U	
ANTHRACENE	72	U		70	U		76	U		70	U	
BENZO(A)ANTHRACENE	174			10	U		148			19.7		
BENZO(A)PYRENE	105			10	U		30			12.6		
BENZO(B)FLUORANTHENE	175			10	U		327			34.2		
BENZO(G,H,I)PERYLENE	97.2			10	U		92.6			10	U	
BENZO(K)FLUORANTHENE	82.4			10	U		88.2			10	U	
CHRYSENE	189			10	U		195			26.4		
DIBENZO(A,H)ANTHRACENE	11	U		10	U		34.6			10	U	
FLUORANTHENE	552			10	U		1510			228		
FLUORENE	72	U		70	U		76	U		70	U	
INDENO(1,2,3-CD)PYRENE	108			10	U		277			10	U	
NAPHTHALENE	72	U		70	U		637			92.4		
PHENANTHRENE	253			70	U		720			152		
PYRENE	300			10	U		184			28		

CTO078-NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F5338

SAMPLE NUMBER:	CEF-P42-SS-414-01			CEF-P42-SS-415-01			CEF-P42-SS-416-01			CEF-P42-SS-417-01		
SAMPLE DATE:	11/18/99			11/18/99			11/18/99			11/18/99		
LABORATORY ID:	F5338-9			F5338-10			F5338-11			F5338-12		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	92.4 %			93.0 %			89.3 %			84.9 %		
UNITS:	UG/KG			UG/KG			UG/KG			UG/KG		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
POLYNUCLEAR AROMATIC HYDROCARBONS												
1-METHYLNAPHTHALENE	1600			174			74	U		78	U	
2-METHYLNAPHTHALENE	622			311			74	U		78	U	
ACENAPHTHENE	2420			130			74	U		78	U	
ACENAPHTHYLENE	1860			70	U		74	U		78	U	
ANTHRACENE	698			70	U		74	U		78	U	
BENZO(A)ANTHRACENE	3380			348			41.3			109		
BENZO(A)PYRENE	3810			265			32.4			60.6		
BENZO(B)FLUORANTHENE	6790			469			105			134		
BENZO(G,H,I)PERYLENE	2880			226			29			45.5		
BENZO(K)FLUORANTHENE	2700			151			31.4			56.8		
CHRYSENE	2820			404			11	U		119		
DIBENZO(A,H)ANTHRACENE	306			17.6			11	U		12	U	
FLUORANTHENE	8490			1080			259			373		
FLUORENE	130			70	U		74	U		78	U	
INDENO(1,2,3-CD)PYRENE	3330			271			11	U		55.1		
NAPHTHALENE	1160			179			74	U		78	U	
PHENANTHRENE	2280			492			74	U		187		
PYRENE	5600			611			135			205		

CTO078-NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F5338

SAMPLE NUMBER:	CEF-P42-SS-418-01	CEF-P42-SS-419-01	CEF-P42-SS-420-01	CEF-P42-SS-421-01
SAMPLE DATE:	11/18/99	11/18/99	11/19/99	11/19/99
LABORATORY ID:	F5338-13	F5338-14	F5338-15	F5338-16
QC_TYPE:	NORMAL	NORMAL	NORMAL	NORMAL
% SOLIDS:	94.5 %	93.2 %	76.4 %	75.2 %
UNITS:	UG/KG	UG/KG	UG/KG	UG/KG
FIELD DUPLICATE OF:				

	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
POLYNUCLEAR AROMATIC HYDROCARBONS												
1-METHYLNAPHTHALENE	69	U		70	U		85	U		88	U	
2-METHYLNAPHTHALENE	69	U		79.9			85	U		88	U	
ACENAPHTHENE	69	U		70	U		85	U		88	U	
ACENAPHTHYLENE	69	U		70	U		85	U		88	U	
ANTHRACENE	69	U		70	U		85	U		88	U	
BENZO(A)ANTHRACENE	10	U		24.6			29.4			13	U	
BENZO(A)PYRENE	10	U		20.1			13	U		13	U	
BENZO(B)FLUORANTHENE	10	U		64.4			66.2			13	U	
BENZO(G,H,I)PERYLENE	10	U		17.2			13	U		13	U	
BENZO(K)FLUORANTHENE	10	U		16.1			16.5			13	U	
CHRYSENE	10	U		39			35			13	U	
DIBENZO(A,H)ANTHRACENE	10	U		10	U		13	U		13	U	
FLUORANTHENE	10	U		120			201			13	U	
FLUORENE	69	U		70	U		85	U		88	U	
INDENO(1,2,3-CD)PYRENE	10	U		25.2			13	U		13	U	
NAPHTHALENE	69	U		70	U		85	U		88	U	
PHENANTHRENE	69	U		70	U		85	U		88	U	
PYRENE	10	U		60.2			53.2			13	U	

CTO078-NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F5338

SAMPLE NUMBER:	CEF-P42-SS-DU08			CEF-P42-SS-DU09								
SAMPLE DATE:	11/18/99			11/19/99			/ /			/ /		
LABORATORY ID:	F5338-21			F5338-22								
QC_TYPE:	NORMAL			NORMAL								
% SOLIDS:	90.5 %			90.5 %			100.0 %			100.0 %		
UNITS:	UG/KG			UG/KG								
FIELD DUPLICATE OF:	CEF-P42-SS-408-01			CEF-P42-SS-401-01								
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
POLYNUCLEAR AROMATIC HYDROCARBONS												
1-METHYLNAPHTHALENE	72	UJ	G	110	J	G						
2-METHYLNAPHTHALENE	279	J	G	107	J	G						
ACENAPHTHENE	72	UJ	G	123								
ACENAPHTHYLENE	72	U		73	U							
ANTHRACENE	72	UJ	G	73	UJ	G						
BENZO(A)ANTHRACENE	23.2	J	G	192								
BENZO(A)PYRENE	18.9	J	G	134								
BENZO(B)FLUORANTHENE	18.1	J	G	228								
BENZO(G,H,I)PERYLENE	18.3	J	G	125								
BENZO(K)FLUORANTHENE	15	J	G	80	J	G						
CHRYSENE	100	J	G	261								
DIBENZO(A,H)ANTHRACENE	11	UJ	G	11	U							
FLUORANTHENE	111	J	G	667	J	G						
FLUORENE	72	UJ	G	73	U							
INDENO(1,2,3-CD)PYRENE	11	U		144								
NAPHTHALENE	72	J	G	73	U							
PHENANTHRENE	72	U	G	211	J	G						
PYRENE	87.2		G	419								

CTO078-NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F5338

SAMPLE NUMBER:	CEF-P42-SS-116-01			CEF-P42-SS-401-01			CEF-P42-SS-402-01			CEF-P42-SS-408-01		
SAMPLE DATE:	11/19/99			11/19/99			11/19/99			11/18/99		
LABORATORY ID:	F5338-20			F5338-1			F5338-2			F5338-3		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	94.5 %			92.2 %			90.5 %			90.2 %		
UNITS:	MG/KG			MG/KG			MG/KG			MG/KG		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
PETROLEUM HYDROCARBONS												
TPH (C8-C40)	88	U		90	U		35500			140		

CTO078-NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F5338

SAMPLE NUMBER:	CEF-P42-SS-409-01			CEF-P42-SS-410-01			CEF-P42-SS-411-01			CEF-P42-SS-412-01		
SAMPLE DATE:	11/18/99			11/18/99			11/18/99			11/18/99		
LABORATORY ID:	F5338-4			F5338-5			F5338-6			F5338-7		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	92.8 %			92.3 %			94.3 %			87.2 %		
UNITS:	MG/KG			MG/KG			MG/KG			MG/KG		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
PETROLEUM HYDROCARBONS												
TPH (C8-C40)	90	U		90	U		88	U		279		

CTO078-NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F5338

SAMPLE NUMBER:	CEF-P42-SS-413-01			CEF-P42-SS-414-01			CEF-P42-SS-415-01			CEF-P42-SS-416-01		
SAMPLE DATE:	11/18/99			11/18/99			11/18/99			11/18/99		
LABORATORY ID:	F5338-8			F5338-9			F5338-10			F5338-11		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	94.6 %			92.4 %			93.0 %			89.3 %		
UNITS:	MG/KG			MG/KG			MG/KG			MG/KG		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
PETROLEUM HYDROCARBONS												
TPH (C8-C40)	88	U		248			86.6	J	P	77.8	J	P

CTO078-NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F5338

SAMPLE NUMBER:	CEF-P42-SS-417-01			CEF-P42-SS-418-01			CEF-P42-SS-419-01			CEF-P42-SS-420-01		
SAMPLE DATE:	11/18/99			11/18/99			11/18/99			11/19/99		
LABORATORY ID:	F5338-12			F5338-13			F5338-14			F5338-15		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	84.9 %			94.5 %			93.2 %			76.4 %		
UNITS:	MG/KG			MG/KG			MG/KG			MG/KG		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
PETROLEUM HYDROCARBONS												
TPH (C8-C40)	98	U		88	U		89	U		110	U	

CTO078-NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F5338

SAMPLE NUMBER:	CEF-P42-SS-421-01			CEF-P42-SS-DU08			CEF-P42-SS-DU09					
SAMPLE DATE:	11/19/99			11/18/99			11/19/99			/ /		
LABORATORY ID:	F5338-16			F5338-21			F5338-22					
QC_TYPE:	NORMAL			NORMAL			NORMAL					
% SOLIDS:	75.2 %			90.5 %			90.5 %			100.0 %		
UNITS:	MG/KG			MG/KG			MG/KG					
FIELD DUPLICATE OF:				CEF-P42-SS-408-01			CEF-P42-SS-401-01					
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
PETROLEUM HYDROCARBONS												
TPH (C8-C40)	110	U		184			92	U				

APPENDIX B

Results as Reported by the Laboratory

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-P42-SS-401-01		
Lab Sample ID:	F5338-1	**Date Sampled:**	11/19/99
Matrix:	SO - Soil	**Date Received:**	11/20/99
Method:	SW846 8310	**Percent Solids:**	92.2
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	LC7353.D	1	12/09/99	AMA	12/01/99	M:OP1582	M:GLC72
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	142	71	ug/kg	
208-96-8	Acenaphthylene	ND	71	ug/kg	
120-12-7	Anthracene	86.3	71	ug/kg	
56-55-3	Benzo (a) anthracene	290	11	ug/kg	
50-32-8	Benzo (a) pyrene	194	11	ug/kg	
205-99-2	Benzo (b) fluoranthene	283	11	ug/kg	
191-24-2	Benzo (g,h,i) perylene	144	11	ug/kg	
207-08-9	Benzo (k) fluoranthene	182	11	ug/kg	
218-01-9	Chrysene	336	11	ug/kg	
53-70-3	Dibenz(a,h)anthracene	ND	11	ug/kg	
206-44-0	Fluoranthene	1120	11	ug/kg	
86-73-7	Fluorene	ND	71	ug/kg	
193-39-5	Indeno (1,2,3-cd) pyrene	190	11	ug/kg	
90-12-0	1-Methylnaphthalene	199	71	ug/kg	
91-57-6	2-Methylnaphthalene	ND	71	ug/kg	
91-20-3	Naphthalene	ND	71	ug/kg	
85-01-8	Phenanthrene	466	71	ug/kg	
129-00-0	Pyrene	578	11	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	72%		20-130%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

000004

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-P42-SS-402-01		
Lab Sample ID:	F5338-2	**Date Sampled:**	11/19/99
Matrix:	SO - Soil	**Date Received:**	11/20/99
Method:	SW846 8310	**Percent Solids:**	90.5
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	LC7354.D	1	12/09/99	AMA	12/01/99	M:OP1582	M:GLC72
Run #2	LC7395.D	10	12/11/99	AMA	12/01/99	M:OP1582	M:GLC74
Run #3	LC7395A.D	20	12/11/99	AMA	12/01/99	M:OP1582	M:GLC74

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	62600 [a]	740	ug/kg	
208-96-8	Acenaphthylene	10900 [a]	740	ug/kg	
120-12-7	Anthracene	43700	730	ug/kg	
56-55-3	Benzo (a) anthracene	69200 [a]	110	ug/kg	
50-32-8	Benzo (a) pyrene	6050	110	ug/kg	
205-99-2	Benzo (b) fluoranthene	17200	110	ug/kg	
191-24-2	Benzo (g,h,i) perylene	24900	110	ug/kg	
207-08-9	Benzo (k) fluoranthene	ND	110	ug/kg	
218-01-9	Chrysene	3810	110	ug/kg	
53-70-3	Dibenz(a,h)anthracene	26400	110	ug/kg	
206-44-0	Fluoranthene	ND	110	ug/kg	
86-73-7	Fluorene	33200	730	ug/kg	
193-39-5	Indeno (1,2,3-cd) pyrene	18000	110	ug/kg	
90-12-0	1-Methylnaphthalene	53900 [a]	740	ug/kg	
91-57-6	2-Methylnaphthalene	57800 [a]	740	ug/kg	
91-20-3	Naphthalene	47800	730	ug/kg	
85-01-8	Phenanthrene	82200 [b]	1500	ug/kg	
129-00-0	Pyrene	129000 [b]	220	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Run# 3	Limits
84-15-1	o-Terphenyl	107%	0%	0% [c]	20-130%

(a) Result is from Run# 2
(b) Result is from Run# 3
(c) Outside control limits due to dilution.

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

000007

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-P42-SS-408-01		
Lab Sample ID:	F5338-3	**Date Sampled:**	11/18/99
Matrix:	SO - Soil	**Date Received:**	11/20/99
Method:	SW846 8310	**Percent Solids:**	90.2
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	LC7355.D	1	12/09/99	AMA	12/01/99	M:OP1582	M:GLC72
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	830	72	ug/kg	
208-96-8	Acenaphthylene	ND	72	ug/kg	
120-12-7	Anthracene	625	72	ug/kg	
56-55-3	Benzo (a) anthracene	1110	11	ug/kg	
50-32-8	Benzo (a) pyrene	2940	11	ug/kg	
205-99-2	Benzo (b) fluoranthene	746	11	ug/kg	
191-24-2	Benzo (g,h,i) perylene	210	11	ug/kg	
207-08-9	Benzo (k) fluoranthene	398	11	ug/kg	
218-01-9	Chrysene	1010	11	ug/kg	
53-70-3	Dibenz(a,h)anthracene	197	11	ug/kg	
206-44-0	Fluoranthene	3280	11	ug/kg	
86-73-7	Fluorene	228	72	ug/kg	
193-39-5	Indeno (1,2,3-cd) pyrene	ND	11	ug/kg	
90-12-0	1-Methylnaphthalene	942	72	ug/kg	
91-57-6	2-Methylnaphthalene	704	72	ug/kg	
91-20-3	Naphthalene	111	72	ug/kg	
85-01-8	Phenanthrene	1760	72	ug/kg	
129-00-0	Pyrene	1880	11	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	89%		20-130%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

000010

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-P42-SS-409-01		
Lab Sample ID:	F5338-4	**Date Sampled:**	11/18/99
Matrix:	SO - Soil	**Date Received:**	11/20/99
Method:	SW846 8310	**Percent Solids:**	92.8
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	LC7356.D	1	12/09/99	AMA	12/01/99	M:OP1582	M:GLC72
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	72	ug/kg	
208-96-8	Acenaphthylene	ND	72	ug/kg	
120-12-7	Anthracene	ND	72	ug/kg	
56-55-3	Benzo (a) anthracene	55.9	11	ug/kg	
50-32-8	Benzo (a) pyrene	ND	11	ug/kg	
205-99-2	Benzo (b) fluoranthene	46.9	11	ug/kg	
191-24-2	Benzo (g,h,i) perylene	ND	11	ug/kg	
207-08-9	Benzo (k) fluoranthene	34.2	11	ug/kg	
218-01-9	Chrysene	69.2	11	ug/kg	
53-70-3	Dibenz(a,h)anthracene	ND	11	ug/kg	
206-44-0	Fluoranthene	249	11	ug/kg	
86-73-7	Fluorene	ND	72	ug/kg	
193-39-5	Indeno (1,2,3-cd) pyrene	ND	11	ug/kg	
90-12-0	1-Methylnaphthalene	ND	72	ug/kg	
91-57-6	2-Methylnaphthalene	ND	72	ug/kg	
91-20-3	Naphthalene	ND	72	ug/kg	
85-01-8	Phenanthrene	ND	72	ug/kg	
129-00-0	Pyrene	110	11	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	66%		20-130%

000013

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-P42-SS-410-01		
Lab Sample ID:	F5338-5	**Date Sampled:**	11/18/99
Matrix:	SO - Soil	**Date Received:**	11/20/99
Method:	SW846 8310	**Percent Solids:**	92.3
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	LC7357.D	1	12/09/99	AMA	12/01/99	M:OP1582	M:GLC72
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	72	ug/kg	
208-96-8	Acenaphthylene	ND	72	ug/kg	
120-12-7	Anthracene	ND	72	ug/kg	
56-55-3	Benzo (a) anthracene	174	11	ug/kg	
50-32-8	Benzo (a) pyrene	105	11	ug/kg	
205-99-2	Benzo (b) fluoranthene	175	11	ug/kg	
191-24-2	Benzo (g,h,i) perylene	97.2	11	ug/kg	
207-08-9	Benzo (k) fluoranthene	82.4	11	ug/kg	
218-01-9	Chrysene	189	11	ug/kg	
53-70-3	Dibenz(a,h)anthracene	ND	11	ug/kg	
206-44-0	Fluoranthene	552	11	ug/kg	
86-73-7	Fluorene	ND	72	ug/kg	
193-39-5	Indeno (1,2,3-cd) pyrene	108	11	ug/kg	
90-12-0	1-Methylnaphthalene	123	72	ug/kg	
91-57-6	2-Methylnaphthalene	85.3	72	ug/kg	
91-20-3	Naphthalene	ND	72	ug/kg	
85-01-8	Phenanthrene	253	72	ug/kg	
129-00-0	Pyrene	300	11	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	67%		20-130%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

000016

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-P42-SS-411-01		
Lab Sample ID:	F5338-6	**Date Sampled:**	11/18/99
Matrix:	SO - Soil	**Date Received:**	11/20/99
Method:	SW846 8310	**Percent Solids:**	94.3
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	LC7358.D	1	12/10/99	AMA	12/01/99	M:OP1582	M:GLC72
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	70	ug/kg	
208-96-8	Acenaphthylene	ND	70	ug/kg	
120-12-7	Anthracene	ND	70	ug/kg	
56-55-3	Benzo (a) anthracene	ND	10	ug/kg	
50-32-8	Benzo (a) pyrene	ND	10	ug/kg	
205-99-2	Benzo (b) fluoranthene	ND	10	ug/kg	
191-24-2	Benzo (g,h,i) perylene	ND	10	ug/kg	
207-08-9	Benzo (k) fluoranthene	ND	10	ug/kg	
218-01-9	Chrysene	ND	10	ug/kg	
53-70-3	Dibenz(a,h)anthracene	ND	10	ug/kg	
206-44-0	Fluoranthene	ND	10	ug/kg	
86-73-7	Fluorene	ND	70	ug/kg	
193-39-5	Indeno (1,2,3-cd) pyrene	ND	10	ug/kg	
90-12-0	1-Methylnaphthalene	ND	70	ug/kg	
91-57-6	2-Methylnaphthalene	ND	70	ug/kg	
91-20-3	Naphthalene	ND	70	ug/kg	
85-01-8	Phenanthrene	ND	70	ug/kg	
129-00-0	Pyrene	ND	10	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	54%		20-130%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

000019

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-P42-SS-412-01		
Lab Sample ID:	F5338-7	**Date Sampled:**	11/18/99
Matrix:	SO - Soil	**Date Received:**	11/20/99
Method:	SW846 8310	**Percent Solids:**	87.2
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	LC7396.D	1	12/11/99	AMA	12/01/99	M:OP1582	M:GLC74
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	76	ug/kg	
208-96-8	Acenaphthylene	ND	76	ug/kg	
120-12-7	Anthracene	ND	76	ug/kg	
56-55-3	Benzo (a) anthracene	148	11	ug/kg	
50-32-8	Benzo (a) pyrene	30.0	11	ug/kg	
205-99-2	Benzo (b) fluoranthene	327	11	ug/kg	
191-24-2	Benzo (g,h,i) perylene	92.6	11	ug/kg	
207-08-9	Benzo (k) fluoranthene	88.2	11	ug/kg	
218-01-9	Chrysene	195	11	ug/kg	
53-70-3	Dibenz(a,h)anthracene	34.6	11	ug/kg	
206-44-0	Fluoranthene	1510	11	ug/kg	
86-73-7	Fluorene	ND	76	ug/kg	
193-39-5	Indeno (1,2,3-cd) pyrene	277	11	ug/kg	
90-12-0	1-Methylnaphthalene	1990	76	ug/kg	
91-57-6	2-Methylnaphthalene	2150	76	ug/kg	
91-20-3	Naphthalene	637	76	ug/kg	
85-01-8	Phenanthrene	720	76	ug/kg	
129-00-0	Pyrene	184	11	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	56%		20-130%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

000022

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-P42-SS-413-01		
Lab Sample ID:	F5338-8	**Date Sampled:**	11/18/99
Matrix:	SO - Soil	**Date Received:**	11/20/99
Method:	SW846 8310	**Percent Solids:**	94.6
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	LC7360.D	1	12/10/99	AMA	12/01/99	M:OP1582	M:GLC72
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	70	ug/kg	
208-96-8	Acenaphthylene	ND	70	ug/kg	
120-12-7	Anthracene	ND	70	ug/kg	
56-55-3	Benzo (a) anthracene	19.7	10	ug/kg	
50-32-8	Benzo (a) pyrene	12.6	10	ug/kg	
205-99-2	Benzo (b) fluoranthene	34.2	10	ug/kg	
191-24-2	Benzo (g,h,i) perylene	ND	10	ug/kg	
207-08-9	Benzo (k) fluoranthene	ND	10	ug/kg	
218-01-9	Chrysene	26.4	10	ug/kg	
53-70-3	Dibenz(a,h)anthracene	ND	10	ug/kg	
206-44-0	Fluoranthene	228	10	ug/kg	
86-73-7	Fluorene	ND	70	ug/kg	
193-39-5	Indeno (1,2,3-cd) pyrene	ND	10	ug/kg	
90-12-0	1-Methylnaphthalene	131	70	ug/kg	
91-57-6	2-Methylnaphthalene	276	70	ug/kg	
91-20-3	Naphthalene	92.4	70	ug/kg	
85-01-8	Phenanthrene	152	70	ug/kg	
129-00-0	Pyrene	28.0	10	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	52%		20-130%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

000025

Report of Analysis

Client Sample ID:	CEF-P42-SS-414-01		
Lab Sample ID:	F5338-9	**Date Sampled:**	11/18/99
Matrix:	SO - Soil	**Date Received:**	11/20/99
Method:	SW846 8310	**Percent Solids:**	n/a
Project:	TETRPAPT: NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	LC7361.D	1	12/10/99	CZ	12/01/99	OP1582	GLC72
Run #2	LC7397.D	5	12/11/99	CZ	12/01/99	OP1582	GLC74

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	2420	71	ug/kg	
208-96-8	Acenaphthylene	1860	71	ug/kg	
120-12-7	Anthracene	698	71	ug/kg	
56-55-3	Benzo (a) anthracene	3380	11	ug/kg	
50-32-8	Benzo (a) pyrene	3810	11	ug/kg	
205-99-2	Benzo (b) fluoranthene	6790	11	ug/kg	
191-24-2	Benzo (g,h,i) perylene	2880	11	ug/kg	
207-08-9	Benzo (k) fluoranthene	2700	11	ug/kg	
218-01-9	Chrysene	2820	11	ug/kg	
53-70-3	Dibenz(a,h)anthracene	306	11	ug/kg	
206-44-0	Fluoranthene	8490 [a]	53	ug/kg	
86-73-7	Fluorene	130	71	ug/kg	
193-39-5	Indeno (1,2,3-cd) pyrene	3330	11	ug/kg	
90-12-0	1-Methylnaphthalene	1600	71	ug/kg	
91-57-6	2-Methylnaphthalene	622	71	ug/kg	
91-20-3	Naphthalene	1160	71	ug/kg	
85-01-8	Phenanthrene	2280	71	ug/kg	
129-00-0	Pyrene	5600	11	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	59%	67%	20-130%

(a) Result is from Run# 2

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-P42-SS-415-01		
Lab Sample ID:	F5338-10	**Date Sampled:**	11/18/99
Matrix:	SO - Soil	**Date Received:**	11/20/99
Method:	SW846 8310	**Percent Solids:**	n/a
Project:	TETRPAPT: NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	LC7363.D	1	12/10/99	CZ	12/01/99	OP1582	GLC72
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	130	70	ug/kg	
208-96-8	Acenaphthylene	ND	70	ug/kg	
120-12-7	Anthracene	ND	70	ug/kg	
56-55-3	Benzo (a) anthracene	348	10	ug/kg	
50-32-8	Benzo (a) pyrene	265	10	ug/kg	
205-99-2	Benzo (b) fluoranthene	469	10	ug/kg	
191-24-2	Benzo (g,h,i) perylene	226	10	ug/kg	
207-08-9	Benzo (k) fluoranthene	151	10	ug/kg	
218-01-9	Chrysene	404	10	ug/kg	
53-70-3	Dibenz(a,h)anthracene	17.6	10	ug/kg	
206-44-0	Fluoranthene	1080	10	ug/kg	
86-73-7	Fluorene	ND	70	ug/kg	
193-39-5	Indeno (1,2,3-cd) pyrene	271	10	ug/kg	
90-12-0	1-Methylnaphthalene	174	70	ug/kg	
91-57-6	2-Methylnaphthalene	311	70	ug/kg	
91-20-3	Naphthalene	179	70	ug/kg	
85-01-8	Phenanthrene	492	70	ug/kg	
129-00-0	Pyrene	611	10	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	48%		20-130%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-P42-SS-416-01		
Lab Sample ID:	F5338-11	**Date Sampled:**	11/18/99
Matrix:	SO - Soil	**Date Received:**	11/20/99
Method:	SW846 8310	**Percent Solids:**	n/a
Project:	TETRPAPT: NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	LC7364.D	1	12/10/99	CZ	12/01/99	OP1582	GLC72
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	74	ug/kg	
208-96-8	Acenaphthylene	ND	74	ug/kg	
120-12-7	Anthracene	ND	74	ug/kg	
56-55-3	Benzo (a) anthracene	41.3	11	ug/kg	
50-32-8	Benzo (a) pyrene	32.4	11	ug/kg	
205-99-2	Benzo (b) fluoranthene	105	11	ug/kg	
191-24-2	Benzo (g,h,i) perylene	29.0	11	ug/kg	
207-08-9	Benzo (k) fluoranthene	31.4	11	ug/kg	
218-01-9	Chrysene	ND	11	ug/kg	
53-70-3	Dibenz(a,h)anthracene	ND	11	ug/kg	
206-44-0	Fluoranthene	259	11	ug/kg	
86-73-7	Fluorene	ND	74	ug/kg	
193-39-5	Indeno (1,2,3-cd) pyrene	ND	11	ug/kg	
90-12-0	1-Methylnaphthalene	ND	74	ug/kg	
91-57-6	2-Methylnaphthalene	ND	74	ug/kg	
91-20-3	Naphthalene	ND	74	ug/kg	
85-01-8	Phenanthrene	ND	74	ug/kg	
129-00-0	Pyrene	135	11	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	48%		20-130%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-P42-SS-417-01		
Lab Sample ID:	F5338-12	**Date Sampled:**	11/18/99
Matrix:	SO - Soil	**Date Received:**	11/20/99
Method:	SW846 8310	**Percent Solids:**	n/a
Project:	TETRPAPT: NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	LC7365.D	1	12/10/99	CZ	12/01/99	OP1582	GLC72
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	78	ug/kg	
208-96-8	Acenaphthylene	ND	78	ug/kg	
120-12-7	Anthracene	ND	78	ug/kg	
56-55-3	Benzo (a) anthracene	109	12	ug/kg	
50-32-8	Benzo (a) pyrene	60.6	12	ug/kg	
205-99-2	Benzo (b) fluoranthene	134	12	ug/kg	
191-24-2	Benzo (g,h,i) perylene	45.5	12	ug/kg	
207-08-9	Benzo (k) fluoranthene	56.8	12	ug/kg	
218-01-9	Chrysene	119	12	ug/kg	
53-70-3	Dibenz(a,h)anthracene	ND	12	ug/kg	
206-44-0	Fluoranthene	373	12	ug/kg	
86-73-7	Fluorene	ND	78	ug/kg	
193-39-5	Indeno (1,2,3-cd) pyrene	55.1	12	ug/kg	
90-12-0	1-Methylnaphthalene	ND	78	ug/kg	
91-57-6	2-Methylnaphthalene	ND	78	ug/kg	
91-20-3	Naphthalene	ND	78	ug/kg	
85-01-8	Phenanthrene	187	78	ug/kg	
129-00-0	Pyrene	205	12	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	48%		20-130%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-P42-SS-418-01		
Lab Sample ID:	F5338-13	**Date Sampled:**	11/18/99
Matrix:	SO - Soil	**Date Received:**	11/20/99
Method:	SW846 8310	**Percent Solids:**	n/a
Project:	TETRPAPT: NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	LC7366.D	1	12/10/99	CZ	12/01/99	OP1582	GLC72
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	69	ug/kg	
208-96-8	Acenaphthylene	ND	69	ug/kg	
120-12-7	Anthracene	ND	69	ug/kg	
56-55-3	Benzo (a) anthracene	ND	10	ug/kg	
50-32-8	Benzo (a) pyrene	ND	10	ug/kg	
205-99-2	Benzo (b) fluoranthene	ND	10	ug/kg	
191-24-2	Benzo (g,h,i) perylene	ND	10	ug/kg	
207-08-9	Benzo (k) fluoranthene	ND	10	ug/kg	
218-01-9	Chrysene	ND	10	ug/kg	
53-70-3	Dibenz(a,h)anthracene	ND	10	ug/kg	
206-44-0	Fluoranthene	ND	10	ug/kg	
86-73-7	Fluorene	ND	69	ug/kg	
193-39-5	Indeno (1,2,3-cd) pyrene	ND	10	ug/kg	
90-12-0	1-Methylnaphthalene	ND	69	ug/kg	
91-57-6	2-Methylnaphthalene	ND	69	ug/kg	
91-20-3	Naphthalene	ND	69	ug/kg	
85-01-8	Phenanthrene	ND	69	ug/kg	
129-00-0	Pyrene	ND	10	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	49%		20-130%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-P42-SS-419-01		
Lab Sample ID:	F5338-14	**Date Sampled:**	11/18/99
Matrix:	SO - Soil	**Date Received:**	11/20/99
Method:	SW846 8310	**Percent Solids:**	n/a
Project:	TETRPAPT: NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	LC7367.D	1	12/10/99	CZ	12/01/99	OP1582	GLC72
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	70	ug/kg	
208-96-8	Acenaphthylene	ND	70	ug/kg	
120-12-7	Anthracene	ND	70	ug/kg	
56-55-3	Benzo (a) anthracene	24.6	10	ug/kg	
50-32-8	Benzo (a) pyrene	20.1	10	ug/kg	
205-99-2	Benzo (b) fluoranthene	64.4	10	ug/kg	
191-24-2	Benzo (g,h,i) perylene	17.2	10	ug/kg	
207-08-9	Benzo (k) fluoranthene	16.1	10	ug/kg	
218-01-9	Chrysene	39.0	10	ug/kg	
53-70-3	Dibenz(a,h)anthracene	ND	10	ug/kg	
206-44-0	Fluoranthene	120	10	ug/kg	
86-73-7	Fluorene	ND	70	ug/kg	
193-39-5	Indeno (1,2,3-cd) pyrene	25.2	10	ug/kg	
90-12-0	1-Methylnaphthalene	ND	70	ug/kg	
91-57-6	2-Methylnaphthalene	79.9	70	ug/kg	
91-20-3	Naphthalene	ND	70	ug/kg	
85-01-8	Phenanthrene	ND	70	ug/kg	
129-00-0	Pyrene	60.2	10	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	56%		20-130%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-P42-SS-420-01		
Lab Sample ID:	F5338-15	**Date Sampled:**	11/19/99
Matrix:	SO - Soil	**Date Received:**	11/20/99
Method:	SW846 8310	**Percent Solids:**	n/a
Project:	TETRPAPT: NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	LC7369.D	1	12/10/99	CZ	12/01/99	OP1582	GLC72
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	85	ug/kg	
208-96-8	Acenaphthylene	ND	85	ug/kg	
120-12-7	Anthracene	ND	85	ug/kg	
56-55-3	Benzo (a) anthracene	29.4	13	ug/kg	
50-32-8	Benzo (a) pyrene	ND	13	ug/kg	
205-99-2	Benzo (b) fluoranthene	66.2	13	ug/kg	
191-24-2	Benzo (g,h,i) perylene	ND	13	ug/kg	
207-08-9	Benzo (k) fluoranthene	16.5	13	ug/kg	
218-01-9	Chrysene	35.0	13	ug/kg	
53-70-3	Dibenz(a,h)anthracene	ND	13	ug/kg	
206-44-0	Fluoranthene	201	13	ug/kg	
86-73-7	Fluorene	ND	85	ug/kg	
193-39-5	Indeno (1,2,3-cd) pyrene	ND	13	ug/kg	
90-12-0	1-Methylnaphthalene	ND	85	ug/kg	
91-57-6	2-Methylnaphthalene	ND	85	ug/kg	
91-20-3	Naphthalene	ND	85	ug/kg	
85-01-8	Phenanthrene	ND	85	ug/kg	
129-00-0	Pyrene	53.2	13	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	61%		20-130%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-P42-SS-421-01		
Lab Sample ID:	F5338-16	**Date Sampled:**	11/19/99
Matrix:	SO - Soil	**Date Received:**	11/20/99
Method:	SW846 8310	**Percent Solids:**	n/a
Project:	TETRPAPT: NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	LC7370.D	1	12/10/99	CZ	12/01/99	OP1582	GLC72
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	88	ug/kg	
208-96-8	Acenaphthylene	ND	88	ug/kg	
120-12-7	Anthracene	ND	88	ug/kg	
56-55-3	Benzo (a) anthracene	ND	13	ug/kg	
50-32-8	Benzo (a) pyrene	ND	13	ug/kg	
205-99-2	Benzo (b) fluoranthene	ND	13	ug/kg	
191-24-2	Benzo (g,h,i) perylene	ND	13	ug/kg	
207-08-9	Benzo (k) fluoranthene	ND	13	ug/kg	
218-01-9	Chrysene	ND	13	ug/kg	
53-70-3	Dibenz(a,h)anthracene	ND	13	ug/kg	
206-44-0	Fluoranthene	ND	13	ug/kg	
86-73-7	Fluorene	ND	88	ug/kg	
193-39-5	Indeno (1,2,3-cd) pyrene	ND	13	ug/kg	
90-12-0	1-Methylnaphthalene	ND	88	ug/kg	
91-57-6	2-Methylnaphthalene	ND	88	ug/kg	
91-20-3	Naphthalene	ND	88	ug/kg	
85-01-8	Phenanthrene	ND	88	ug/kg	
129-00-0	Pyrene	ND	13	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	53%		20-130%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-P42-SS-DU08		
Lab Sample ID:	F5338-21	**Date Sampled:**	11/18/99
Matrix:	SO - Soil	**Date Received:**	11/20/99
Method:	SW846 8310	**Percent Solids:**	n/a
Project:	TETRPAPT: NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	LC7374.D	1	12/10/99	CZ	12/01/99	OP1584	GLC74
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	72	ug/kg	
208-96-8	Acenaphthylene	ND	72	ug/kg	
120-12-7	Anthracene	ND	72	ug/kg	
56-55-3	Benzo (a) anthracene	23.2	11	ug/kg	
50-32-8	Benzo (a) pyrene	18.9	11	ug/kg	
205-99-2	Benzo (b) fluoranthene	18.1	11	ug/kg	
191-24-2	Benzo (g,h,i) perylene	18.3	11	ug/kg	
207-08-9	Benzo (k) fluoranthene	15.0	11	ug/kg	
218-01-9	Chrysene	100	11	ug/kg	
53-70-3	Dibenz(a,h)anthracene	ND	11	ug/kg	
206-44-0	Fluoranthene	111	11	ug/kg	
86-73-7	Fluorene	ND	72	ug/kg	
193-39-5	Indeno (1,2,3-cd) pyrene	ND	11	ug/kg	
90-12-0	1-Methylnaphthalene	ND	72	ug/kg	
91-57-6	2-Methylnaphthalene	279	72	ug/kg	
91-20-3	Naphthalene	ND	72	ug/kg	
85-01-8	Phenanthrene	ND	72	ug/kg	
129-00-0	Pyrene	87.2	11	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	33%		20-130%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-P42-SS-DU09		
Lab Sample ID:	F5338-22	**Date Sampled:**	11/19/99
Matrix:	SO - Soil	**Date Received:**	11/20/99
Method:	SW846 8310	**Percent Solids:**	n/a
Project:	TETRPAPT: NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	LC7375.D	1	12/10/99	CZ	12/01/99	OP1584	GLC74
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	123	73	ug/kg	
208-96-8	Acenaphthylene	ND	73	ug/kg	
120-12-7	Anthracene	ND	73	ug/kg	
56-55-3	Benzo (a) anthracene	192	11	ug/kg	
50-32-8	Benzo (a) pyrene	134	11	ug/kg	
205-99-2	Benzo (b) fluoranthene	228	11	ug/kg	
191-24-2	Benzo (g,h,i) perylene	125	11	ug/kg	
207-08-9	Benzo (k) fluoranthene	80.0	11	ug/kg	
218-01-9	Chrysene	261	11	ug/kg	
53-70-3	Dibenz(a,h)anthracene	ND	11	ug/kg	
206-44-0	Fluoranthene	667	11	ug/kg	
86-73-7	Fluorene	ND	73	ug/kg	
193-39-5	Indeno (1,2,3-cd) pyrene	144	11	ug/kg	
90-12-0	1-Methylnaphthalene	110	73	ug/kg	
91-57-6	2-Methylnaphthalene	107	73	ug/kg	
91-20-3	Naphthalene	ND	73	ug/kg	
85-01-8	Phenanthrene	211	73	ug/kg	
129-00-0	Pyrene	419	11	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	66%		20-130%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

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Report of Analysis

Client Sample ID:	CEF-P42-SS-401-01		
Lab Sample ID:	F5338-1	**Date Sampled:**	11/19/99
Matrix:	SO - Soil	**Date Received:**	11/20/99
Method:	FLORIDA-PRO	**Percent Solids:**	92.2
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP05980.D	1	12/03/99	ME	12/01/99	OP1119	GOP288
Run #2							

CAS No.	Compound	Result	RL	Units	Q
	TPH (C8-C40)	ND	90	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	95%		40-140%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

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Report of Analysis

Client Sample ID:	CEF-P42-SS-402-01		
Lab Sample ID:	F5338-2	**Date Sampled:**	11/19/99
Matrix:	SO - Soil	**Date Received:**	11/20/99
Method:	FLORIDA-PRO	**Percent Solids:**	90.5
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP05996.D	80	12/03/99	ME	12/01/99	OP1119	GOP288
Run #2							

CAS No.	Compound	Result	RL	Units	Q
	TPH (C8-C40)	35500	7400	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	0% [a]		40-140%

(a) Outside control limits due to dilution.

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

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Report of Analysis

Client Sample ID:	CEF-P42-SS-408-01		
Lab Sample ID:	F5338-3	**Date Sampled:**	11/18/99
Matrix:	SO - Soil	**Date Received:**	11/20/99
Method:	FLORIDA-PRO	**Percent Solids:**	90.2
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP05983.D	1	12/03/99	ME	12/01/99	OP1119	GOP288
Run #2							

CAS No.	Compound	Result	RL	Units	Q
	TPH (C8-C40)	140	92	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	93%		40-140%

000009

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

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Report of Analysis

Client Sample ID:	CEF-P42-SS-409-01		
Lab Sample ID:	F5338-4	**Date Sampled:**	11/18/99
Matrix:	SO - Soil	**Date Received:**	11/20/99
Method:	FLORIDA-PRO	**Percent Solids:**	92.8
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP05984.D	1	12/03/99	ME	12/01/99	OP1119	GOP288
Run #2							

CAS No.	Compound	Result	RL	Units	Q
	TPH (C8-C40)	ND	90	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	92%		40-140%

000012

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-P42-SS-410-01		
Lab Sample ID:	F5338-5	**Date Sampled:**	11/18/99
Matrix:	SO - Soil	**Date Received:**	11/20/99
Method:	FLORIDA-PRO	**Percent Solids:**	92.3
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP05985.D	1	12/03/99	ME	12/01/99	OP1119	GOP288
Run #2							

CAS No.	Compound	Result	RL	Units	Q
	TPH (C8-C40)	ND	90	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	91%		40-140%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

000015

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-P42-SS-411-01		
Lab Sample ID:	F5338-6	**Date Sampled:**	11/18/99
Matrix:	SO - Soil	**Date Received:**	11/20/99
Method:	FLORIDA-PRO	**Percent Solids:**	94.3
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP05987.D	1	12/03/99	ME	12/01/99	OP1119	GOP288
Run #2							

CAS No.	Compound	Result	RL	Units	Q
	TPH (C8-C40)	ND	88	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	92%		40-140%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

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Report of Analysis

Client Sample ID:	CEF-P42-SS-412-01		
Lab Sample ID:	F5338-7	**Date Sampled:**	11/18/99
Matrix:	SO - Soil	**Date Received:**	11/20/99
Method:	FLORIDA-PRO	**Percent Solids:**	87.2
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP05988.D	1	12/03/99	ME	12/01/99	OP1119	GOP288
Run #2							

CAS No.	Compound	Result	RL	Units	Q
	TPH (C8-C40)	279	96	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	95%		40-140%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

000021

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-P42-SS-413-01		
Lab Sample ID:	F5338-8	**Date Sampled:**	11/18/99
Matrix:	SO - Soil	**Date Received:**	11/20/99
Method:	FLORIDA-PRO	**Percent Solids:**	94.6
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP05989.D	1	12/03/99	ME	12/01/99	OP1119	GOP288
Run #2							

CAS No.	Compound	Result	RL	Units	Q
	TPH (C8-C40)	ND	88	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	91%		40-140%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

000024

Report of Analysis

Client Sample ID:	CEF-P42-SS-414-01		
Lab Sample ID:	F5338-9	**Date Sampled:**	11/18/99
Matrix:	SO - Soil	**Date Received:**	11/20/99
Method:	FLORIDA-PRO	**Percent Solids:**	92.4
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP05990.D	1	12/03/99	ME	12/01/99	OP1119	GOP288
Run #2							

CAS No.	Compound	Result	RL	Units	Q
	TPH (C8-C40)	248	90	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	95%		40-140%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-P42-SS-415-01		
Lab Sample ID:	F5338-10	**Date Sampled:**	11/18/99
Matrix:	SO - Soil	**Date Received:**	11/20/99
Method:	FLORIDA-PRO	**Percent Solids:**	93.0
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP05991.D	1	12/03/99	ME	12/01/99	OP1119	GOP288
Run #2							

CAS No.	Compound	Result	RL	Units	Q
	TPH (C8-C40)	86.6	90	mg/kg	J

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	94%		40-140%

000062

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-P42-SS-416-01		
Lab Sample ID:	F5338-11	**Date Sampled:**	11/18/99
Matrix:	SO - Soil	**Date Received:**	11/20/99
Method:	FLORIDA-PRO	**Percent Solids:**	89.3
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP05992.D	1	12/03/99	ME	12/01/99	OP1119	GOP288
Run #2							

CAS No.	Compound	Result	RL	Units	Q
	TPH (C8-C40)	77.8	93	mg/kg	J

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	92%		40-140%

000065

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-P42-SS-417-01		
Lab Sample ID:	F5338-12	**Date Sampled:**	11/18/99
Matrix:	SO - Soil	**Date Received:**	11/20/99
Method:	FLORIDA-PRO	**Percent Solids:**	84.9
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP05993.D	1	12/03/99	ME	12/01/99	OP1119	GOP288
Run #2							

CAS No.	Compound	Result	RL	Units	Q
	TPH (C8-C40)	ND	98	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	96%		40-140%

000068

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-P42-SS-418-01		
Lab Sample ID:	F5338-13	**Date Sampled:**	11/18/99
Matrix:	SO - Soil	**Date Received:**	11/20/99
Method:	FLORIDA-PRO	**Percent Solids:**	94.5
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP05994.D	1	12/03/99	ME	12/01/99	OP1119	GOP288
Run #2							

CAS No.	Compound	Result	RL	Units	Q
	TPH (C8-C40)	ND	88	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	92%		40-140%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-P42-SS-419-01		
Lab Sample ID:	F5338-14	**Date Sampled:**	11/18/99
Matrix:	SO - Soil	**Date Received:**	11/20/99
Method:	FLORIDA-PRO	**Percent Solids:**	93.2
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP05997.D	1	12/03/99	ME	12/01/99	OP1119	GOP288
Run #2							

CAS No.	Compound	Result	RL	Units	Q
	TPH (C8-C40)	ND	89	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	95%		40-140%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-P42-SS-420-01		
Lab Sample ID:	F5338-15	**Date Sampled:**	11/19/99
Matrix:	SO - Soil	**Date Received:**	11/20/99
Method:	FLORIDA-PRO	**Percent Solids:**	76.4
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP05998.D	1	12/03/99	ME	12/01/99	OP1119	GOP288
Run #2							

CAS No.	Compound	Result	RL	Units	Q
	TPH (C8-C40)	ND	110	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	97%		40-140%

000077

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-P42-SS-421-01		
Lab Sample ID:	F5338-16	**Date Sampled:**	11/19/99
Matrix:	SO - Soil	**Date Received:**	11/20/99
Method:	FLORIDA-PRO	**Percent Solids:**	75.2
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP05999.D	1	12/03/99	ME	12/01/99	OP1119	GOP288
Run #2							

CAS No.	Compound	Result	RL	Units	Q
	TPH (C8-C40)	ND	110	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	95%		40-140%

000080

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-P42-SS-116-01		
Lab Sample ID:	F5338-20	**Date Sampled:**	11/19/99
Matrix:	SO - Soil	**Date Received:**	11/20/99
Method:	FLORIDA-PRO	**Percent Solids:**	94.5
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP06000.D	1	12/04/99	ME	12/01/99	OP1119	GOP288
Run #2							

CAS No.	Compound	Result	RL	Units	Q.
	TPH (C8-C40)	ND	88	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	97%		40-140%

000083

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-P42-SS-DU08		
Lab Sample ID:	F5338-21	**Date Sampled:**	11/18/99
Matrix:	SO - Soil	**Date Received:**	11/20/99
Method:	FLORIDA-PRO	**Percent Solids:**	90.5
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP06001.D	1	12/04/99	ME	12/01/99	OP1119	GOP288
Run #2							

CAS No.	Compound	Result	RL	Units	Q
	TPH (C8-C40)	184	92	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	95%		40-140%

C00086

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

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Report of Analysis

Client Sample ID:	CEF-P42-SS-DU09	**Date Sampled:**	11/19/99
Lab Sample ID:	F5338-22	**Date Received:**	11/20/99
Matrix:	SO - Soil	**Percent Solids:**	90.5
Method:	FLORIDA-PRO		
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP06002.D	1	12/04/99	ME	12/01/99	OP1119	GOP288
Run #2							

CAS No.	Compound	Result	RL	Units	Q
	TPH (C8-C40)	ND	92	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	97%		40-140%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

000026

Tetra Tech NUS **INTERNAL CORRESPONDENCE**

PITT-12-9-198

TO:	**M. SPERANZA**	**DATE:**	**DECEMBER 29, 1999**
FROM:	**GRETCHEN PHIPPS**	**COPIES:**	**DV FILE**

SUBJECT: **INORGANIC DATA VALIDATION – SELECT METALS**
CTO 078 - CECIL FIELD
SDGs – F5338

SAMPLES: 22/Soils/

CEF-P42-SS-101-01	CEF-P42-SS-109-01
CEF-P42-SS-110-01	CEF-P42-SS-116-01
CEF-P42-SS-401-01	CEF-P42-SS-402-01
CEF-P42-SS-408-01	CEF-P42-SS-409-01
CEF-P42-SS-410-01	CEF-P42-SS-411-01
CEF-P42-SS-412-01	CEF-P42-SS-413-01
CEF-P42-SS-414-01	CEF-P42-SS-415-01
CEF-P42-SS-416-01	CEF-P42-SS-417-01
CEF-P42-SS-418-01	CEF-P42-SS-419-01
CEF-P42-SS-420-01	CEF-P42-SS-421-01
CEF-P42-SS-DU08	CEF-P42-SS-DU09

Overview

The sample set for CTO 078, Cecil Field, SDG F5338 consists of twenty-two (22) soil environmental samples. Two (2) field duplicate pairs (CEF-P42-SS-408-01 / CEF-P42-SS-DU08 and CEF-P42-SS-401-01 / CEF-P42-SS-DU09) were included within this SDG.

The samples were analyzed for antimony, arsenic, barium, chromium and lead. The samples were collected by Tetra Tech NUS on November 18 and 19, 1999 and analyzed by Accutest Laboratory under Naval Facilities Engineering Service Center (NFESC) Quality Assurance / Quality Control (QA / QC) criteria. Metals analyses were conducted using SW 846 method 6010B.

The data was evaluated based on the following parameters:

* • Data Completeness
* • Holding Times
* • Calibration Verifications
• Laboratory Blank Analyses
• Field Duplicate Imprecision
* • Detection Limits

* - All quality control criteria were met for this parameter.

Laboratory Blank Analyses

The following contaminants were present in a laboratory method / preparation blanks at the following maximum concentration:

Analyte	Maximum Concentration	Action Level(soil)
Arsenic	5.4µg/L	2.7 mg/kg
Barium[1]	2.2 mg/kg	11.0 mg/kg
Chromium	1.9µg/L	0.95 mg/kg
Lead[1]	0.20 mg/kg	1.0 mg/kg

[1] Maximum concentration present in a soil preparation blank.

An action level of 5X the maximum concentration has been used to evaluate the sample data for blank contamination. Sample aliquot, percent solids and dilution factors were taken into consideration when determining blank contamination. Positive results less than the blank action levels for arsenic, barium and chromium were qualified, "U", as a result of blank contamination

Field Duplicate Imprecision

Field duplicate imprecision (>50%) was noted for chromium and lead. The positive results reported for chromium and lead were qualified as estimated, "J".

Executive Summary

Laboratory Performance: Several analytes were present in the laboratory method / preparation blanks.

Other Factors Affecting Data Quality: Field duplicate imprecision was noted for chromium and lead.

The data for these analyses were reviewed with reference to the "National Functional Guidelines for Inorganic Review", February 1994 and the NFESC document entitled "Navy Installation Restoration Laboratory Quality Assurance Guide." (NFESC 2/96).

The text of this report has been formulated to address only those problem areas affecting data quality.

"I attest that the data referenced herein were validated according to the agreed upon validation criteria as specified in the NFESC Guidelines and the Quality Assurance Project Plan (QAPP)."

Gretchen A Phipps

Tetra Tech NUS
Gretchen A. Phipps

Tetra Tech NUS
Joseph A. Samchuck
Quality Control Officer

Attachments:

1. Appendix A - Qualified Analytical Data
2. Appendix B - Results as reported by the Laboratory
3. Appendix C - Support Documentation

APPENDIX A
QUALIFIED ANALYTICAL RESULTS

Qualifier Codes:

A = Lab Blank Contamination
B = Field Blank Contamination
C = Calibration (i.e., % RSDs, %Ds, ICVs, CCVs, RPDs, RRFs, etc.) Noncompliance
D = MS/MSD Noncompliance
E = LCS/LCSD Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = GFAA PDS - GFAA MSA's $r < 0.995$
K = ICP Interference - include ICSAB % R's
L = Instrument Calibration Range Exceedance
M = Sample Preservation
N = Internal Standard Noncompliance
O = Poor Instrument Performance (i.e., base-time drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can encompass a number of issues)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = Pest/PCB D% between columns for positive results
V = Non-linear calibrations, tuning $r < 0.995$ (correlation coefficient)
W = EMPC result
X = Signal to noise response drop
Y = % Solid content is less than 30%

CTO078-NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F5338

SAMPLE NUMBER:	CEF-P42-SS-101-01			CEF-P42-SS-109-01			CEF-P42-SS-110-01			CEF-P42-SS-116-01		
SAMPLE DATE:	11/19/99			11/19/99			11/19/99			11/19/99		
LABORATORY ID:	F5338-17			F5338-18			F5338-19			F5338-20		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	78.6 %			92.0 %			89.0 %			94.5 %		
UNITS:	MG/KG			MG/KG			MG/KG			MG/KG		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
INORGANICS												
ANTIMONY	0.80			0.50			2.8			0.26	U	
ARSENIC	0.47	U	A	0.57	U	A	1.7	U	A	0.47	U	A
BARIUM	10.3	U	A	18.9			29.2			8.6	U	A
CHROMIUM	0.46	U	A	2.0	J	G	3.4	J	G	1.0	U	A
LEAD	6.9	J	G	16.5	J	G	51.3	J	G	6.3	J	G

CTO078-NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F5338

SAMPLE NUMBER:	CEF-P42-SS-401-01			CEF-P42-SS-402-01			CEF-P42-SS-408-01			CEF-P42-SS-409-01		
SAMPLE DATE:	11/19/99			11/19/99			11/18/99			11/18/99		
LABORATORY ID:	F5338-1			F5338-2			F5338-3			F5338-4		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	92.2 %			90.5 %			90.2 %			92.8 %		
UNITS:	MG/KG			MG/KG			MG/KG			MG/KG		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
INORGANICS												
ANTIMONY	2.7			0.94			0.98			0.25	U	
ARSENIC	1.7	U	A	5.6			0.66	U	A	0.36	U	
BARIUM	29.8			70.8			18.6			11.7	U	A
CHROMIUM	3.3	J	G	8.2	J	G	18.4	J	G	0.72	U	A
LEAD	39.3	J	G	75.4	J	G	137	J	G	3.5	J	G

CTO078-NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F5338

SAMPLE NUMBER:	CEF-P42-SS-410-01			CEF-P42-SS-411-01			CEF-P42-SS-412-01			CEF-P42-SS-413-01		
SAMPLE DATE:	11/18/99			11/18/99			11/18/99			11/18/99		
LABORATORY ID:	F5338-5			F5338-6			F5338-7			F5338-8		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	92.3 %			94.3 %			87.2 %			94.6 %		
UNITS:	MG/KG			MG/KG			MG/KG			MG/KG		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
INORGANICS												
ANTIMONY	0.28	U		0.25	U		0.34			0.25	U	
ARSENIC	0.61	U	A	0.36	U		5.9			0.36	U	
BARIUM	8.1	U	A	4.5	U	A	45.8			6.0	U	A
CHROMIUM	1.0	U	A	0.44	U	A	3.0	J	G	0.88	U	A
LEAD	6.5	J	G	1.9	J	G	11.8	J	G	1.5	J	G

CTO078-NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F5338

SAMPLE NUMBER:	CEF-P42-SS-414-01			CEF-P42-SS-415-01			CEF-P42-SS-416-01			CEF-P42-SS-417-01		
SAMPLE DATE:	11/18/99			11/18/99			11/18/99			11/18/99		
LABORATORY ID:	F5338-9			F5338-10			F5338-11			F5338-12		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	92.4 %			93.0 %			89.3 %			84.9 %		
UNITS:	MG/KG			MG/KG			MG/KG			MG/KG		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
INORGANICS												
ANTIMONY	5.3			1.6			0.27	U		4.3		
ARSENIC	10.6			3.0			0.68	U	A	2.0	U	A
BARIUM	82.3			40.1			14.6			24.3		
CHROMIUM	7.4	J	G	3.8	J	G	1.1	J	G	5.2	J	G
LEAD	93.7	J	G	46.7	J	G	18.1	J	G	37.2	J	G

CTO078-NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F5338

SAMPLE NUMBER:	CEF-P42-SS-418-01			CEF-P42-SS-419-01			CEF-P42-SS-420-01			CEF-P42-SS-421-01		
SAMPLE DATE:	11/18/99			11/18/99			11/19/99			11/19/99		
LABORATORY ID:	F5338-13			F5338-14			F5338-15			F5338-16		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	94.5 %			93.2 %			76.4 %			75.2 %		
UNITS:	MG/KG			MG/KG			MG/KG			MG/KG		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
INORGANICS												
ANTIMONY	0.26	U		0.39			0.40			0.32	U	
ARSENIC	0.38	U		0.54	U	A	0.48	U		0.46	U	
BARIUM	6.1	U	A	15.0			12.8	U	A	6.7	U	A
CHROMIUM	0.28	U	A	1.4	J	G	1.0	U	A	0.25	U	A
LEAD	3.4	J	G	6.7	J	G	7.0	J	G	2.1	J	G

CTO078-NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F5338

SAMPLE NUMBER:	CEF-P42-SS-DU08			CEF-P42-SS-DU09								
SAMPLE DATE:	11/18/99			11/19/99			/ /			/ /		
LABORATORY ID:	F5338-21			F5338-22								
QC_TYPE:	NORMAL			NORMAL								
% SOLIDS:	90.5 %			90.5 %			100.0 %			100.0 %		
UNITS:	MG/KG			MG/KG								
FIELD DUPLICATE OF:	CEF-P42-SS-408-01			CEF-P42-SS-401-01								
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
INORGANICS												
ANTIMONY	0.62			2.8								
ARSENIC	0.37	U		2.1	U	A						
BARIUM	11.7	U	A	39.8								
CHROMIUM	3.5	J	G	4.0	J	G						
LEAD	27.0	J	G	52.2	J	G						

APPENDIX B
RESULTS AS REPORTED BY THE LABORATORY

Report of Analysis

Client Sample ID:	CEF-P42-SS-101-01		
Lab Sample ID:	F5338-17	**Date Sampled:**	11/19/99
Matrix:	SO - Soil	**Date Received:**	11/20/99
		Percent Solids:	78.6
Project:	NAS Cecil Field-PSC 42		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method
Antimony	0.80 B	7.5	mg/kg	1	11/24/99	11/29/99	JK	SW846 6010A
Arsenic	0.47 B	1.2	mg/kg	1	11/24/99	11/29/99	JK	SW846 6010A
Barium	10.3 B	24.9	mg/kg	1	11/24/99	11/29/99	JK	SW846 6010A
Chromium	0.46 B	1.2	mg/kg	1	11/24/99	11/29/99	JK	SW846 6010A
Lead	6.9 B	12.5	mg/kg	1	11/24/99	11/29/99	JK	SW846 6010A

RL = Reporting Limit

Report of Analysis

Client Sample ID:	CEF-P42-SS-109-01		
Lab Sample ID:	F5338-18	**Date Sampled:**	11/19/99
Matrix:	SO - Soil	**Date Received:**	11/20/99
		Percent Solids:	92.0
Project:	NAS Cecil Field-PSC 42		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method
Antimony	0.50 B	6.2	mg/kg	1	11/24/99	11/29/99	JK	SW846 6010A
Arsenic	0.57 B	1.0	mg/kg	1	11/24/99	11/29/99	JK	SW846 6010A
Barium	18.9 B	20.5	mg/kg	1	11/24/99	11/29/99	JK	SW846 6010A
Chromium	2.0	1.0	mg/kg	1	11/24/99	11/29/99	JK	SW846 6010A
Lead	16.5	10.3	mg/kg	1	11/24/99	11/29/99	JK	SW846 6010A

RL = Reporting Limit

Report of Analysis

Client Sample ID:	CEF-P42-SS-110-01		
Lab Sample ID:	F5338-19	**Date Sampled:**	11/19/99
Matrix:	SO - Soil	**Date Received:**	11/20/99
		Percent Solids:	89.0
Project:	NAS Cecil Field-PSC 42		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method
Antimony	2.8 B	6.5	mg/kg	1	11/24/99	11/29/99	JK	SW846 6010A
Arsenic	1.7	1.1	mg/kg	1	11/24/99	11/29/99	JK	SW846 6010A
Barium	29.2	21.6	mg/kg	1	11/24/99	11/29/99	JK	SW846 6010A
Chromium	3.4	1.1	mg/kg	1	11/24/99	11/29/99	JK	SW846 6010A
Lead	51.3	10.8	mg/kg	1	11/24/99	11/29/99	JK	SW846 6010A

RL = Reporting Limit

Report of Analysis

Client Sample ID:	CEF-P42-SS-116-01		
Lab Sample ID:	F5338-20	**Date Sampled:**	11/19/99
Matrix:	SO - Soil	**Date Received:**	11/20/99
		Percent Solids:	94.5
Project:	NAS Cecil Field-PSC 42.		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By		Method
Antimony	0.26 U	6.5	mg/kg	1	11/24/99	11/29/99	JK	SW846 6010A
Arsenic	0.47 B	1.1	mg/kg	1	11/24/99	11/29/99	JK	SW846 6010A
Barium	8.6 B	21.8	mg/kg	1	11/24/99	11/29/99	JK	SW846 6010A
Chromium	1.0 B	1.1	mg/kg	1	11/24/99	11/29/99	JK	SW846 6010A
Lead	6.3 B	10.9	mg/kg	1	11/24/99	11/29/99	JK	SW846 6010A

RL = Reporting Limit

Report of Analysis

Client Sample ID:	CEF-P42-SS-401-01		
Lab Sample ID:	F5338-1	**Date Sampled:**	11/19/99
Matrix:	SO - Soil	**Date Received:**	11/20/99
		Percent Solids:	92.2
Project:	NAS Cecil Field-PSC 42		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method
Antimony	2.7 B	6.1	mg/kg	1	11/23/99	11/24/99	JK	SW846 6010A
Arsenic	1.7	1.0	mg/kg	1	11/23/99	11/24/99	JK	SW846 6010A
Barium	29.8	20.5	mg/kg	1	11/23/99	11/24/99	JK	SW846 6010A
Chromium	3.3	1.0	mg/kg	1	11/23/99	11/24/99	JK	SW846 6010A
Lead	39.3	10.2	mg/kg	1	11/23/99	11/24/99	JK	SW846 6010A

RL = Reporting Limit

Report of Analysis

Client Sample ID:	CEF-P42-SS-402-01		
Lab Sample ID:	F5338-2	**Date Sampled:**	11/19/99
Matrix:	SO - Soil	**Date Received:**	11/20/99
		Percent Solids:	90.5
Project:	NAS Cecil Field-PSC 42		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method
Antimony	0.94 B	6.5	mg/kg	1	11/23/99	11/24/99	JK	SW846 6010A
Arsenic	5.6	1.1	mg/kg	1	11/23/99	11/24/99	JK	SW846 6010A
Barium	70.8	21.7	mg/kg	1	11/23/99	11/24/99	JK	SW846 6010A
Chromium	8.2	1.1	mg/kg	1	11/23/99	11/24/99	JK	SW846 6010A
Lead	75.4	10.8	mg/kg	1	11/23/99	11/24/99	JK	SW846 6010A

RL = Reporting Limit

Report of Analysis

Client Sample ID:	CEF-P42-SS-408-01		
Lab Sample ID:	F5338-3	**Date Sampled:**	11/18/99
Matrix:	SO - Soil	**Date Received:**	11/20/99
		Percent Solids:	90.2
Project:	NAS Cecil Field-PSC 42		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method
Antimony	0.98 B	6.5	mg/kg	1	11/23/99	11/24/99	JK	SW846 6010A
Arsenic	0.66 B	1.1	mg/kg	1	11/23/99	11/24/99	JK	SW846 6010A
Barium	18.6 B	21.7	mg/kg	1	11/23/99	11/24/99	JK	SW846 6010A
Chromium	18.4	1.1	mg/kg	1	11/23/99	11/24/99	JK	SW846 6010A
Lead	137	10.9	mg/kg	1	11/23/99	11/24/99	JK	SW846 6010A

RL = Reporting Limit

Report of Analysis

Client Sample ID:	CEF-P42-SS-409-01		
Lab Sample ID:	F5338-4	**Date Sampled:**	11/18/99
Matrix:	SO - Soil	**Date Received:**	11/20/99
		Percent Solids:	92.8
Project:	NAS Cecil Field-PSC 42		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method
Antimony	0.25 U	6.3	mg/kg	1	11/23/99	11/24/99	JK	SW846 6010A
Arsenic	0.36 U	1.0	mg/kg	1	11/23/99	11/24/99	JK	SW846 6010A
Barium	11.7 B	20.9	mg/kg	1	11/23/99	11/24/99	JK	SW846 6010A
Chromium	0.72 B	1.0	mg/kg	1	11/23/99	11/24/99	JK	SW846 6010A
Lead	3.5 B	10.5	mg/kg	1	11/23/99	11/24/99	JK	SW846 6010A

CC0146

RL = Reporting Limit

Report of Analysis

Client Sample ID:	CEF-P42-SS-410-01		
Lab Sample ID:	F5338-5	**Date Sampled:**	11/18/99
Matrix:	SO - Soil	**Date Received:**	11/20/99
		Percent Solids:	92.3
Project:	NAS Cecil Field-PSC 42		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method
Antimony	0.28 U	6.9	mg/kg	1	11/23/99	11/24/99	JK	SW846 6010A
Arsenic	0.61 B	1.2	mg/kg	1	11/23/99	11/24/99	JK	SW846 6010A
Barium	8.1 B	23.1	mg/kg	1	11/23/99	11/24/99	JK	SW846 6010A
Chromium	1.0 B	1.2	mg/kg	1	11/23/99	11/24/99	JK	SW846 6010A
Lead	6.5 B	11.5	mg/kg	1	11/23/99	11/24/99	JK	SW846 6010A

RL = Reporting Limit

Report of Analysis

Client Sample ID:	CEF-P42-SS-411-01		
Lab Sample ID:	F5338-6	**Date Sampled:**	11/18/99
Matrix:	SO - Soil	**Date Received:**	11/20/99
		Percent Solids:	94.3
Project:	NAS Cecil Field-PSC 42		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method
Antimony	0.25 U	6.3	mg/kg	1	11/23/99	11/24/99	JK	SW846 6010A
Arsenic	0.36 U	1.0	mg/kg	1	11/23/99	11/24/99	JK	SW846 6010A
Barium	4.5 B	21.0	mg/kg	1	11/23/99	11/24/99	JK	SW846 6010A
Chromium	0.44 B	1.0	mg/kg	1	11/23/99	11/24/99	JK	SW846 6010A
Lead	1.9 B	10.5	mg/kg	1	11/23/99	11/24/99	JK	SW846 6010A

000148

RL = Reporting Limit

Report of Analysis

Client Sample ID:	CEF-P42-SS-412-01		
Lab Sample ID:	F5338-7	**Date Sampled:**	11/18/99
Matrix:	SO - Soil	**Date Received:**	11/20/99
		Percent Solids:	87.2
Project:	NAS Cecil Field-PSC 42		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method
Antimony	0.34 B	6.7	mg/kg	1	11/23/99	11/24/99	JK	SW846 6010A
Arsenic	5.9	1.1	mg/kg	1	11/23/99	11/24/99	JK	SW846 6010A
Barium	45.8	22.3	mg/kg	1	11/23/99	11/24/99	JK	SW846 6010A
Chromium	3.0	1.1	mg/kg	1	11/23/99	11/24/99	JK	SW846 6010A
Lead	11.8	11.1	mg/kg	1	11/23/99	11/24/99	JK	SW846 6010A

RL = Reporting Limit

Report of Analysis

Client Sample ID:	CEF-P42-SS-413-01		
Lab Sample ID:	F5338-8	**Date Sampled:**	11/18/99
Matrix:	SO - Soil	**Date Received:**	11/20/99
		Percent Solids:	94.6
Project:	NAS Cecil Field-PSC 42		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method
Antimony	0.25 U	6.3	mg/kg	1	11/23/99	11/24/99	JK	SW846 6010A
Arsenic	0.36 U	1.1	mg/kg	1	11/23/99	11/24/99	JK	SW846 6010A
Barium	6.0 B	21.1	mg/kg	1	11/23/99	11/24/99	JK	SW846 6010A
Chromium	0.88 B	1.1	mg/kg	1	11/23/99	11/24/99	JK	SW846 6010A
Lead	1.5 B	10.6	mg/kg	1	11/23/99	11/24/99	JK	SW846 6010A

000150

RL = Reporting Limit

Report of Analysis

Client Sample ID:	CEF-P42-SS-414-01		
Lab Sample ID:	F5338-9	**Date Sampled:**	11/18/99
Matrix:	SO - Soil	**Date Received:**	11/20/99
		Percent Solids:	92.4
Project:	NAS Cecil Field-PSC 42		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method
Antimony	5.3 B	6.2	mg/kg	1	11/24/99	11/29/99	JK	SW846 6010A
Arsenic	10.6	1.0	mg/kg	1	11/24/99	11/29/99	JK	SW846 6010A
Barium	82.3	20.8	mg/kg	1	11/24/99	11/29/99	JK	SW846 6010A
Chromium	7.4	1.0	mg/kg	1	11/24/99	11/29/99	JK	SW846 6010A
Lead	93.7	10.4	mg/kg	1	11/24/99	11/29/99	JK	SW846 6010A

000151

RL = Reporting Limit

Report of Analysis

Client Sample ID:	CEF-P42-SS-415-01		
Lab Sample ID:	F5338-10	**Date Sampled:**	11/18/99
Matrix:	SO - Soil	**Date Received:**	11/20/99
		Percent Solids:	93.0
Project:	NAS Cecil Field-PSC 42		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By		Method
Antimony	1.6 B	6.9	mg/kg	1	11/24/99	11/29/99	JK	SW846 6010A
Arsenic	3.0	1.1	mg/kg	1	11/24/99	11/29/99	JK	SW846 6010A
Barium	40.1	22.9	mg/kg	1	11/24/99	11/29/99	JK	SW846 6010A
Chromium	3.8	1.1	mg/kg	1	11/24/99	11/29/99	JK	SW846 6010A
Lead	46.7	11.4	mg/kg	1	11/24/99	11/29/99	JK	SW846 6010A

000152

RL = Reporting Limit

Report of Analysis

Client Sample ID:	CEF-P42-SS-416-01		
Lab Sample ID:	F5338-11	**Date Sampled:**	11/18/99
Matrix:	SO - Soil	**Date Received:**	11/20/99
		Percent Solids:	89.3
Project:	NAS Cecil Field-PSC 42 .		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method
Antimony	0.27 U	6.9	mg/kg	1	11/24/99	11/29/99	JK	SW846 6010A
Arsenic	0.68 B	1.1	mg/kg	1	11/24/99	11/29/99	JK	SW846 6010A
Barium	14.6 B	22.9	mg/kg	1	11/24/99	11/29/99	JK	SW846 6010A
Chromium	1.1 B	1.1	mg/kg	1	11/24/99	11/29/99	JK	SW846 6010A
Lead	18.1	11.4	mg/kg	1	11/24/99	11/29/99	JK	SW846 6010A

000153

RL = Reporting Limit

Report of Analysis

Client Sample ID:	CEF-P42-SS-417-01		
Lab Sample ID:	F5338-12	**Date Sampled:**	11/18/99
Matrix:	SO - Soil	**Date Received:**	11/20/99
		Percent Solids:	84.9
Project:	NAS Cecil Field-PSC 42		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By		Method
Antimony	4.3 B	7.4	mg/kg	1	11/24/99	11/29/99	JK	SW846 6010A
Arsenic	2.0	1.2	mg/kg	1	11/24/99	11/29/99	JK	SW846 6010A
Barium	24.3 B	24.8	mg/kg	1	11/24/99	11/29/99	JK	SW846 6010A
Chromium	5.2	1.2	mg/kg	1	11/24/99	11/29/99	JK	SW846 6010A
Lead	37.2	12.4	mg/kg	1	11/24/99	11/29/99	JK	SW846 6010A

RL = Reporting Limit

Report of Analysis

Client Sample ID:	CEF-P42-SS-418-01	**Date Sampled:**	11/18/99
Lab Sample ID:	F5338-13	**Date Received:**	11/20/99
Matrix:	SO - Soil	**Percent Solids:**	94.5
Project:	NAS Cecil Field-PSC 42		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method
Antimony	0.26 U	6.5	mg/kg	1	11/24/99	11/29/99	JK	SW846 6010A
Arsenic	0.38 U	1.1	mg/kg	1	11/24/99	11/29/99	JK	SW846 6010A
Barium	6.1 B	21.8	mg/kg	1	11/24/99	11/29/99	JK	SW846 6010A
Chromium	0.28 B	1.1	mg/kg	1	11/24/99	11/29/99	JK	SW846 6010A
Lead	3.4 B	10.9	mg/kg	1	11/24/99	11/29/99	JK	SW846 6010A

RL = Reporting Limit

Report of Analysis

Client Sample ID:	CEF-P42-SS-419-01		
Lab Sample ID:	F5338-14	**Date Sampled:**	11/18/99
Matrix:	SO - Soil	**Date Received:**	11/20/99
		Percent Solids:	93.2
Project:	NAS Cecil Field-PSC 42		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By		Method
Antimony	0.39 B	6.7	mg/kg	1	11/24/99	11/29/99	JK	SW846 6010A
Arsenic	0.54 B	1.1	mg/kg	1	11/24/99	11/29/99	JK	SW846 6010A
Barium	15.0 B	22.4	mg/kg	1	11/24/99	11/29/99	JK	SW846 6010A
Chromium	1.4	1.1	mg/kg	1	11/24/99	11/29/99	JK	SW846 6010A
Lead	6.7 B	11.2	mg/kg	1	11/24/99	11/29/99	JK	SW846 6010A

RL = Reporting Limit

Report of Analysis

Client Sample ID:	CEF-P42-SS-420-01		
Lab Sample ID:	F5338-15	**Date Sampled:**	11/19/99
Matrix:	SO - Soil	**Date Received:**	11/20/99
		Percent Solids:	76.4
Project:	NAS Cecil Field-PSC 42		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method
Antimony	0.40 B	8.3	mg/kg	1	11/24/99	11/29/99	JK	SW846 6010A
Arsenic	0.48 U	1.4	mg/kg	1	11/24/99	11/29/99	JK	SW846 6010A
Barium	12.8 B	27.6	mg/kg	1	11/24/99	11/29/99	JK	SW846 6010A
Chromium	1.0 B	1.4	mg/kg	1	11/24/99	11/29/99	JK	SW846 6010A
Lead	7.0 B	13.8	mg/kg	1	11/24/99	11/29/99	JK	SW846 6010A

RL = Reporting Limit

Report of Analysis

Client Sample ID:	CEF-P42-SS-421-01		
Lab Sample ID:	F5338-16	**Date Sampled:**	11/19/99
Matrix:	SO - Soil	**Date Received:**	11/20/99
		Percent Solids:	75.2
Project:	NAS Cecil Field-PSC 42		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method
Antimony	0.32 U	8.1	mg/kg	1	11/24/99	11/29/99	JK	SW846 6010A
Arsenic	0.46 U	1.3	mg/kg	1	11/24/99	11/29/99	JK	SW846 6010A
Barium	6.7 B	26.9	mg/kg	1	11/24/99	11/29/99	JK	SW846 6010A
Chromium	0.25 B	1.3	mg/kg	1	11/24/99	11/29/99	JK	SW846 6010A
Lead	2.1 B	13.4	mg/kg	1	11/24/99	11/29/99	JK	SW846 6010A

RL = Reporting Limit

Report of Analysis

Client Sample ID:	CEF-P42-SS-DU08		
Lab Sample ID:	F5338-21	**Date Sampled:**	11/18/99
Matrix:	SO - Soil	**Date Received:**	11/20/99
		Percent Solids:	90.5
Project:	NAS Cecil Field-PSC 42 -		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method
Antimony	0.62 B	6.4	mg/kg	1	11/24/99	11/29/99	JK	SW846 6010A
Arsenic	0.37 U	1.1	mg/kg	1	11/24/99	11/29/99	JK	SW846 6010A
Barium	11.7 B	21.2	mg/kg	1	11/24/99	11/29/99	JK	SW846 6010A
Chromium	3.5	1.1	mg/kg	1	11/24/99	11/29/99	JK	SW846 6010A
Lead	27.0	10.6	mg/kg	1	11/24/99	11/29/99	JK	SW846 6010A

RL = Reporting Limit

Report of Analysis

Client Sample ID:	CEF-P42-SS-DU09		
Lab Sample ID:	F5338-22	**Date Sampled:**	11/19/99
Matrix:	SO - Soil	**Date Received:**	11/20/99
		Percent Solids:	90.5
Project:	NAS Cecil Field-PSC 42-		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By		Method
Antimony	2.8 B	6.7	mg/kg	1	11/24/99	11/29/99	JK	SW846 6010A
Arsenic	2.1	1.1	mg/kg	1	11/24/99	11/29/99	JK	SW846 6010A
Barium	39.8	22.3	mg/kg	1	11/24/99	11/29/99	JK	SW846 6010A
Chromium	4.0	1.1	mg/kg	1	11/24/99	11/29/99	JK	SW846 6010A
Lead	52.2	11.2	mg/kg	1	11/24/99	11/29/99	JK	SW846 6010A

000163

RL = Reporting Limit

Tetra Tech NUS **INTERNAL CORRESPONDENCE**

PITT-02-0-150

TO: **MARK SPERANZA** **DATE: MARCH 8, 2000**

FROM: **JUSTIN ORBICH** **CC: DV FILE**

SUBJECT: **ORGANIC DATA VALIDATION – VOA/PAH**
CTO 078 – NAS CECIL FIELD
SDG F5688

SAMPLES: 6/Soil

CEF-P42-SS-502-01*	CEF-P42-SS-504-01
CEF-P42-SS-505-01	CEF-P42-SS-507-01
CEF-P42-SS-508-01	CEF-P42-SS-DU01*

OVERVIEW

The sample set for CTO 078, SDG F5688 Naval Air Station (NAS) Cecil Field; Florida consists of six (6) soil environmental samples. The samples were analyzed for Target Compound List Polynuclear Aromatic Hydrocarbon (PAH) organic compounds. The samples designated (*) were analyzed for Total Petroleum Hydrocarbon (TPH) organic compounds. One (1) field duplicate pair (CEF-P42-SS-502-01/CEF-P42-SS-DU01) was included within this SDG.

The samples were collected by Tetra Tech, NUS on and January 20th, 2000 and analyzed by Accutest Laboratories. All analyses were performed in accordance with Naval Facilities Engineering Service Center (NFESC) Quality Assurance/Quality Control (QA/QC) criteria and analyzed according to SW 846 Method 8310 and FLORIDA-PRO analytical and reporting protocols. The data in this SDG was validated with regard to the following parameters:

* • Data Completeness
* • Holding Times
* • Initial/continuing calibrations
* • Laboratory method/field quality control blank results
* • Detection Limits
* • Field Duplicate Precision

The symbol (*) indicates that all quality control criteria were met for this parameter. Problems affecting data quality are discussed below; documentation supporting these findings is presented in Appendix C. Qualified analytical results are presented in Appendix A.

PAH FRACTION

Field duplicate pair Relative Percent Differences (RPDs) exceeded the 50% quality control limit for several compounds. The positive and nondetected were qualified as estimated (J) and (UJ).

TPH FRACTION

Sample CEF-P42-SS-502-01 was analyzed at a 10X dilution. However, the associated duplicate, CEF-P42-SS-DU01, was analyzed at a 2X dilution.

The field duplicate pair Relative Percent Differences (RPDs) exceeded the 50% quality control limit for TPH. The positive and nondetected were qualified as estimated (J) and (UJ).

EXECUTIVE SUMMARY

Laboratory performance: None.

Other Factors Affecting Data Quality: The field duplicate pair RPDs exceeded the quality control limit for several compounds.

MEMO TO: **MR. M. SPERANZA**
DATE: **MARCH 8, 2000 – PAGE 3**

The data for these analyses were reviewed with reference to the EPA Functional Guidelines for Organic Data Validation (February, 1994), and the NFESC "Navy Installation Restoration Program Laboratory Quality Assurance Guide" (February, 1996). The text of this report has been formulated to address only those problems affecting data quality.

"I attest that the data referenced herein was validated according to the agreed upon validation criteria as specified in the NFESC Guidelines and the Quality Assurance Project Plan (QAPP)."

Justin Orbich

Chemist/Data Validator
Tetra Tech, NUS

Joseph A. Samchuck

Data Validation Quality Assurance Officer
Tetra Tech, NUS

Attachments:
1. Appendix A - Qualified Analytical Results
2. Appendix B - Results as reported by the Laboratory
3. Appendix C - Support Documentation

Qualifier Codes:

A = Lab Blank Contamination
B = Field Blank Contamination
C = Calibration (i.e., % RSDs, %Ds, ICVs, CCVs, RPDs, RRFs, etc.) Noncompliance
D = MS/MSD Noncompliance
E = LCS/LCSD Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = GFAA PDS - GFAA MSA's $r < 0.995$
K = ICP Interference - include ICSAB % R's
L = Instrument Calibration Range Exceedance
M = Sample Preservation
N = Internal Standard Noncompliance
O = Poor Instrument Performance (i.e., base-time drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can encompass a number of issues)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = Pest/PCB D% between columns for positive results
V = Non-linear calibrations, tuning $r < 0.995$ (correlation coefficient)
W = EMPC result
X = Signal to noise response drop
Y = % Solid content is less than 30%

DATA QUALIFIER DEFINITIONS:

U - Value is a nondetected result as reported by the laboratory and should not be considered present.

J - Positive result is estimated as a result of a value below the CRQL or a technical noncompliance.

APPENDIX A

Qualified Analytical Results

CTO078 - NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F5688

SAMPLE NUMBER:	CEF-P42-SS-502-01			CEF-P42-SS-504-01			CEF-P42-SS-505-01			CEF-P42-SS-507-01		
SAMPLE DATE:	01/20/00			01/20/00			01/20/00			01/20/00		
LABORATORY ID:	F5688-1			F5688-3			F5688-4			F5688-6		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	88.7 %			89.8 %			89.7 %			89.9 %		
UNITS:	UG/KG			UG/KG			UG/KG			UG/KG		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
POLYNUCLEAR AROMATIC HYDROCARBONS												
1-METHYLNAPHTHALENE	74	U		74	U		74	U		74	U	
2-METHYLNAPHTHALENE	171	J	G	74	U		156			74	U	
ACENAPHTHENE	75.9	J	G	74	U		74	U		74	U	
ACENAPHTHYLENE	261	J	G	74	U		104			74	U	
ANTHRACENE	74	U		74	U		74	U		74	U	
BENZO(A)ANTHRACENE	223	J	G	11	U		11.1			26		
BENZO(A)PYRENE	97.4	J	G	11	U		11	U		11	U	
BENZO(B)FLUORANTHENE	225	J	G	11	U		11	U		15.8		
BENZO(G,H,I)PERYLENE	89.3	J	G	11	U		11	U		11.5		
BENZO(K)FLUORANTHENE	87.7	J	G	11	U		11	U		32.6		
CHRYSENE	305			11	U		62.2			35.4		
DIBENZO(A,H)ANTHRACENE	11	U		11	U		11	U		11	U	
FLUORANTHENE	871	J	G	20.4			19.5			81.6		
FLUORENE	74	U		74	U		74	U		74	U	
INDENO(1,2,3-CD)PYRENE	128	J	G	11	U		11	U		11	U	
NAPHTHALENE	74	U		74	U		74	U		74	U	
PHENANTHRENE	319			74	U		74	U		74	U	
PYRENE	486			16.4			11	U		50.6		

CTO078 - NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F5688

SAMPLE NUMBER:	CEF-P42-SS-508-01			CEF-P42-SS-DU01			/ /			/ /		
SAMPLE DATE:	01/20/00			01/20/00								
LABORATORY ID:	F5688-7			F5688-8								
QC_TYPE:	NORMAL			NORMAL								
% SOLIDS:	93.7 %			89.9 %			100.0 %			100.0 %		
UNITS:	UG/KG			UG/KG								
FIELD DUPLICATE OF:				CEF-P42-SS-502-01								
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
POLYNUCLEAR AROMATIC HYDROCARBONS												
1-METHYLNAPHTHALENE	71	U		73	U							
2-METHYLNAPHTHALENE	259			380	J	G						
ACENAPHTHENE	115			261	J	G						
ACENAPHTHYLENE	71	U		73	UJ	G						
ANTHRACENE	71	U		73	U							
BENZO(A)ANTHRACENE	246			392	J	G						
BENZO(A)PYRENE	164			347	J	G						
BENZO(B)FLUORANTHENE	210			454	J	G						
BENZO(G,H,I)PERYLENE	99.9			246	J	G						
BENZO(K)FLUORANTHENE	95.6			202	J	G						
CHRYSENE	266			476								
DIBENZO(A,H)ANTHRACENE	11	U		11	U							
FLUORANTHENE	756			1450	J	G						
FLUORENE	71	U		73	U							
INDENO(1,2,3-CD)PYRENE	116			238	J	G						
NAPHTHALENE	71	U		73	U							
PHENANTHRENE	356			268								
PYRENE	515			754								

CTO078 - NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F5688

SAMPLE NUMBER:	CEF-P42-SS-502-01	CEF-P42-SS-DU01		
SAMPLE DATE:	01/20/00	01/20/00	/ /	/ /
LABORATORY ID:	F5688-1	F5688-8		
QC_TYPE:	NORMAL	NORMAL		
% SOLIDS:	88.7 %	89.9 %	100.0 %	100.0 %
UNITS:	MG/KG	MG/KG		
FIELD DUPLICATE OF:		CEF-P42-SS-502-01		

	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
PETROLEUM HYDROCARBONS												
TPH (C8-C40)	260			41.2								

APPENDIX B

Results as Reported by the Laboratory

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-P42-SS-502-01		
Lab Sample ID:	F5688-1	**Date Sampled:**	01/20/00
Matrix:	SO - Soil	**Date Received:**	01/21/00
Method:	SW846 8310	**Percent Solids:**	88.7
Project:	NAS Cecil Field-PSC 42 PO#N0039-P98655A-01		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	LC8370.D	1	02/03/00	AMA	01/26/00	M:OP1697	M:GLC96
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	75.9	74	ug/kg	
208-96-8	Acenaphthylene	261	74	ug/kg	
120-12-7	Anthracene	ND	74	ug/kg	
56-55-3	Benzo (a) anthracene	223	11	ug/kg	
50-32-8	Benzo (a) pyrene	97.4	11	ug/kg	
205-99-2	Benzo (b) fluoranthene	225	11	ug/kg	
191-24-2	Benzo (g,h,i) perylene	89.3	11	ug/kg	
207-08-9	Benzo (k) fluoranthene	87.7	11	ug/kg	
218-01-9	Chrysene	305	11	ug/kg	
53-70-3	Dibenz(a,h)anthracene	ND	11	ug/kg	
206-44-0	Fluoranthene	871	11	ug/kg	
86-73-7	Fluorene	ND	74	ug/kg	
193-39-5	Indeno (1,2,3-cd) pyrene	128	11	ug/kg	
90-12-0	1-Methylnaphthalene	ND	74	ug/kg	
91-57-6	2-Methylnaphthalene	171	74	ug/kg	
91-20-3	Naphthalene	ND	74	ug/kg	
85-01-8	Phenanthrene	319	74	ug/kg	
129-00-0	Pyrene	486	11	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	45%		20-130%

(a) Sample appears to contain particulate asphalt.

000093

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-P42-SS-504-01		
Lab Sample ID:	F5688-3	**Date Sampled:**	01/20/00
Matrix:	SO - Soil	**Date Received:**	01/21/00
Method:	SW846 8310	**Percent Solids:**	89.8
Project:	NAS Cecil Field-PSC 42 PO#N0039-P98655A-01		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	LC8371.D	1	02/03/00	AMA	01/26/00	M:OP1697	M:GLC96
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	74	ug/kg	
208-96-8	Acenaphthylene	ND	74	ug/kg	
120-12-7	Anthracene	ND	74	ug/kg	
56-55-3	Benzo (a) anthracene	ND	11	ug/kg	
50-32-8	Benzo (a) pyrene	ND	11	ug/kg	
205-99-2	Benzo (b) fluoranthene	ND	11	ug/kg	
191-24-2	Benzo (g,h,i) perylene	ND	11	ug/kg	
207-08-9	Benzo (k) fluoranthene	ND	11	ug/kg	
218-01-9	Chrysene	ND	11	ug/kg	
53-70-3	Dibenz(a,h)anthracene	ND	11	ug/kg	
206-44-0	Fluoranthene	20.4	11	ug/kg	
86-73-7	Fluorene	ND	74	ug/kg	
193-39-5	Indeno (1,2,3-cd) pyrene	ND	11	ug/kg	
90-12-0	1-Methylnaphthalene	ND	74	ug/kg	
91-57-6	2-Methylnaphthalene	ND	74	ug/kg	
91-20-3	Naphthalene	ND	74	ug/kg	
85-01-8	Phenanthrene	ND	74	ug/kg	
129-00-0	Pyrene	16.4	11	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	37%		20-130%

000096

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-P42-SS-505-01		
Lab Sample ID:	F5688-4	**Date Sampled:**	01/20/00
Matrix:	SO - Soil	**Date Received:**	01/21/00
Method:	SW846 8310	**Percent Solids:**	89.7
Project:	NAS Cecil Field-PSC 42 PO#N0039-P98655A-01		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	LC8372.D	1	02/03/00	AMA	01/26/00	M:OP1697	M:GLC96
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	74	ug/kg	
208-96-8	Acenaphthylene	104	74	ug/kg	
120-12-7	Anthracene	ND	74	ug/kg	
56-55-3	Benzo (a) anthracene	11.1	11	ug/kg	
50-32-8	Benzo (a) pyrene	ND	11	ug/kg	
205-99-2	Benzo (b) fluoranthene	ND	11	ug/kg	
191-24-2	Benzo (g,h,i) perylene	ND	11	ug/kg	
207-08-9	Benzo (k) fluoranthene	ND	11	ug/kg	
218-01-9	Chrysene	62.2	11	ug/kg	
53-70-3	Dibenz(a,h)anthracene	ND	11	ug/kg	
206-44-0	Fluoranthene	19.5	11	ug/kg	
86-73-7	Fluorene	ND	74	ug/kg	
193-39-5	Indeno (1,2,3-cd) pyrene	ND	11	ug/kg	
90-12-0	1-Methylnaphthalene	ND	74	ug/kg	
91-57-6	2-Methylnaphthalene	156	74	ug/kg	
91-20-3	Naphthalene	ND	74	ug/kg	
85-01-8	Phenanthrene	ND	74	ug/kg	
129-00-0	Pyrene	ND	11	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	44%		20-130%

(03398

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-P42-SS-507-01		
Lab Sample ID:	F5688-6	**Date Sampled:**	01/20/00
Matrix:	SO - Soil	**Date Received:**	01/21/00
Method:	SW846 8310	**Percent Solids:**	89.9
Project:	NAS Cecil Field-PSC 42 .PO#N0039-P98655A-01		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	LC8373.D	1	02/03/00	AMA	01/26/00	M:OP1697	M:GLC96
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	74	ug/kg	
208-96-8	Acenaphthylene	ND	74	ug/kg	
120-12-7	Anthracene	ND	74	ug/kg	
56-55-3	Benzo (a) anthracene	26.0	11	ug/kg	
50-32-8	Benzo (a) pyrene	ND	11	ug/kg	
205-99-2	Benzo (b) fluoranthene	15.8	11	ug/kg	
191-24-2	Benzo (g,h,i) perylene	11.5	11	ug/kg	
207-08-9	Benzo (k) fluoranthene	32.6	11	ug/kg	
218-01-9	Chrysene	35.4	11	ug/kg	
53-70-3	Dibenz(a,h)anthracene	ND	11	ug/kg	
206-44-0	Fluoranthene	81.6	11	ug/kg	
86-73-7	Fluorene	ND	74	ug/kg	
193-39-5	Indeno (1,2,3-cd) pyrene	ND	11	ug/kg	
90-12-0	1-Methylnaphthalene	ND	74	ug/kg	
91-57-6	2-Methylnaphthalene	ND	74	ug/kg	
91-20-3	Naphthalene	ND	74	ug/kg	
85-01-8	Phenanthrene	ND	74	ug/kg	
129-00-0	Pyrene	50.6	11	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	62%		20-130%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-P42-SS-508-01		
Lab Sample ID:	F5688-7	**Date Sampled:**	01/20/00
Matrix:	SO - Soil	**Date Received:**	01/21/00
Method:	SW846 8310	**Percent Solids:**	93.7
Project:	NAS Cecil Field-PSC 42 PO#N0039-P98655A-01		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	LC8374.D	1	02/03/00	AMA	01/26/00	M:OP1697	M:GLC96
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	115	71	ug/kg	
208-96-8	Acenaphthylene	ND	71	ug/kg	
120-12-7	Anthracene	ND	71	ug/kg	
56-55-3	Benzo (a) anthracene	246	11	ug/kg	
50-32-8	Benzo (a) pyrene	164	11	ug/kg	
205-99-2	Benzo (b) fluoranthene	210	11	ug/kg	
191-24-2	Benzo (g,h,i) perylene	99.9	11	ug/kg	
207-08-9	Benzo (k) fluoranthene	95.6	11	ug/kg	
218-01-9	Chrysene	266	11	ug/kg	
53-70-3	Dibenz(a,h)anthracene	ND	11	ug/kg	
206-44-0	Fluoranthene	756	11	ug/kg	
86-73-7	Fluorene	ND	71	ug/kg	
193-39-5	Indeno (1,2,3-cd) pyrene	116	11	ug/kg	
90-12-0	1-Methylnaphthalene	ND	71	ug/kg	
91-57-6	2-Methylnaphthalene	259	71	ug/kg	
91-20-3	Naphthalene	ND	71	ug/kg	
85-01-8	Phenanthrene	356	71	ug/kg	
129-00-0	Pyrene	515	11	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	36%		20-130%

000012

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-P42-SS-DU01		
Lab Sample ID:	F5688-8	**Date Sampled:**	01/20/00
Matrix:	SO - Soil	**Date Received:**	01/21/00
Method:	SW846 8310	**Percent Solids:**	89.9
Project:	NAS Cecil Field-PSC 42- PO#N0039-P98655A-01		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	LC8375.D	1	02/03/00	AMA	01/26/00	M:OP1697	M:GLC96
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	261	73	ug/kg	
208-96-8	Acenaphthylene	ND	73	ug/kg	
120-12-7	Anthracene	ND	73	ug/kg	
56-55-3	Benzo (a) anthracene	392	11	ug/kg	
50-32-8	Benzo (a) pyrene	347	11	ug/kg	
205-99-2	Benzo (b) fluoranthene	454	11	ug/kg	
191-24-2	Benzo (g,h,i) perylene	246	11	ug/kg	
207-08-9	Benzo (k) fluoranthene	202	11	ug/kg	
218-01-9	Chrysene	476	11	ug/kg	
53-70-3	Dibenz(a,h)anthracene	ND	11	ug/kg	
206-44-0	Fluoranthene	1450	11	ug/kg	
86-73-7	Fluorene	ND	73	ug/kg	
193-39-5	Indeno (1,2,3-cd) pyrene	238	11	ug/kg	
90-12-0	1-Methylnaphthalene	ND	73	ug/kg	
91-57-6	2-Methylnaphthalene	380	73	ug/kg	
91-20-3	Naphthalene	ND	73	ug/kg	
85-01-8	Phenanthrene	268	73	ug/kg	
129-00-0	Pyrene	754	11	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	59%		20-130%

000014

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-P42-SS-502-01		
Lab Sample ID:	F5688-1	**Date Sampled:**	01/20/00
Matrix:	SO - Soil	**Date Received:**	01/21/00
Method:	FLORIDA-PRO	**Percent Solids:**	88.7
Project:	NAS Cecil Field-PSC 42 PO#N0039-P98655A-01		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	OP06696.D	10	01/27/00	ME	01/25/00	OP1240	GOP315
Run #2							

CAS No.	Compound	Result	RL	Units	Q
	TPH (C8-C40)	260	94	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	87%		40-140%

(a) Spike recovery indicates possible matrix interference and/or sample nonhomogenity.

000002

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-P42-SS-DU01		
Lab Sample ID:	F5688-8	**Date Sampled:**	01/20/00
Matrix:	SO - Soil	**Date Received:**	01/21/00
Method:	FLORIDA-PRO	**Percent Solids:**	89.9
Project:	NAS Cecil Field-PSC 42 PO#N0039-P98655A-01		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP06699.D	2	01/27/00	ME	01/25/00	OP1240	GOP315
Run #2							

CAS No.	Compound	Result	RL	Units	Q
	TPH (C8-C40)	41.2	18	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	71%		40-140%

003013

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Tetra Tech NUS

INTERNAL CORRESPONDENCE

TO:	**M. SPERANZA**	**DATE:**	**MARCH 7, 2000**
FROM:	**GRETCHEN PHIPPS**	**COPIES:**	**DV FILE**

SUBJECT: **INORGANIC DATA VALIDATION – SELECT METALS**
CTO 078 - CECIL FIELD
SDGs – F5688

SAMPLES: 6/Soils/

CEF-P42-SS-502-01	CEF-P42-SS-503-01
CEF-P42-SS-504-01	CEF-P42-SS-505-01
CEF-P42-SS-506-01	CEF-P42-SS-DU01

Overview

The sample set for CTO 078, Cecil Field, SDG F5388 consists of six (6) soil environmental samples. One (1) field duplicate pair (CEF-P42-SS-502-01 / CEF-P42-SS-DU01) was included within this SDG.

The samples were analyzed for antimony, arsenic, barium, chromium and lead. The samples were collected by Tetra Tech NUS on January 20, 2000 and analyzed by Accutest Laboratory under Naval Facilities Engineering Service Center (NFESC) Quality Assurance / Quality Control (QA / QC) criteria. All metals analyses were conducted using SW 846 method 6010B.

The data was evaluated based on the following parameters:

* • Data Completeness
* • Holding Times
* • Calibration Verifications
• Laboratory Blank Analyses
• Field Duplicate Precision
* • Detection Limits

* - All quality control criteria were met for this parameter.

Laboratory Blank Analyses

The following contaminants were present in a laboratory method / preparation blanks at the following maximum concentrations:

Affected samples: All

Analyte	Maximum Concentration	Action Level
Antimony	4.2µg/L	2.1 mg/kg
Barium[1]	0.30 mg/kg	1.5 mg/kg
Chromium	1.8µg/L	0.9 mg/kg
Lead	1.8µg/L	0.9 mg/kg

(1) Maximum concentration present in a preparation blank.

An action level of 5X the maximum concentration has been used to evaluate the sample data for blank contamination. Sample aliquot, percent solids and dilution factors were taken into consideration when determining blank contamination. Positive results less than the blank action levels for antimony and chromium were qualified, "U", as a result of blank contamination.

Field Duplicate Precision

Field duplicate imprecision (>50% Relative Percent Difference) was noted for chromium and lead. The positive results reported for chromium and lead were qualified as estimated, "J".

Executive Summary

Laboratory Performance: Antimony, barium, chromium and lead were present in the laboratory blanks.

Other Factors Affecting Data Quality: Field duplicate imprecision was noted for chromium and lead.

The data for these analyses were reviewed with reference to the "National Functional Guidelines for Inorganic Review", February 1994 and the NFESC document entitled "Navy Installation Restoration Laboratory Quality Assurance Guide." (NFESC 2/96).

The text of this report has been formulated to address only those problem areas affecting data quality.

"I attest that the data referenced herein were validated according to the agreed upon validation criteria as specified in the NFESC Guidelines and the Quality Assurance Project Plan (QAPP)."

Gretchen A Phipps

Tetra Tech NUS
Gretchen A. Phipps

Tetra Tech NUS
Joseph A. Samchuck
Quality Control Officer

Attachments:

1. Appendix A - Qualified Analytical Data
2. Appendix B - Results as reported by the Laboratory
3. Appendix C - Support Documentation

APPENDIX A
QUALIFIED ANALYTICAL RESULTS

Qualifier Codes:

A = Lab Blank Contamination
B = Field Blank Contamination
C = Calibration (i.e., % RSDs, %Ds, ICVs, CCVs, RPDs, RRFs, etc.) Noncompliance
D = MS/MSD Noncompliance
E = LCS/LCSD Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = GFAA PDS - GFAA MSA's $r < 0.995$
K = ICP Interference - include ICSAB % R's
L = Instrument Calibration Range Exceedance
M = Sample Preservation
N = Internal Standard Noncompliance
O = Poor Instrument Performance (i.e., base-time drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can encompass a number of issues)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = Pest/PCB D% between columns for positive results
V = Non-linear calibrations, tuning $r < 0.995$ (correlation coefficient)
W = EMPC result
X = Signal to noise response drop
Y = % Solid content is less than 30%

CTO078 - NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F5688

SAMPLE NUMBER:	CEF-P42-SS-502-01			CEF-P42-SS-503-01			CEF-P42-SS-504-01			CEF-P42-SS-505-01		
SAMPLE DATE:	01/20/00			01/20/00			01/20/00			01/20/00		
LABORATORY ID:	F5688-1			F5688-2			F5688-3			F5688-4		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	88.7 %			89.8 %			89.8 %			89.7 %		
UNITS:	MG/KG			MG/KG			MG/KG			MG/KG		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
INORGANICS												
ANTIMONY	1.2	U	A	0.34	U	A	0.24	U		0.28	U	
ARSENIC	1.7			0.97			0.35	U		0.41	U	
BARIUM	35.0			11.9			3.9			6.2		
CHROMIUM	5.7	J	G	1.4	J	G	4.0	J	G	1.4	J	G
LEAD	173	J	G	5.4	J	G	5.2	J	G	24.1	J	G

CTO078 - NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F5688

SAMPLE NUMBER:	CEF-P42-SS-506-01			CEF-P42-SS-DU01								
SAMPLE DATE:	01/20/00			01/20/00			/ /			/ /		
LABORATORY ID:	F5688-5			F5688-8								
QC_TYPE:	NORMAL			NORMAL								
% SOLIDS:	90.4 %			89.9 %			100.0 %			100.0 %		
UNITS:	MG/KG			MG/KG								
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
INORGANICS												
ANTIMONY	0.27	U		0.6	U	A						
ARSENIC	0.97			1.6								
BARIUM	8.5			8.2								
CHROMIUM	0.85	U	A	3.0	J	G						
LEAD	48.1	J	G	54.4	J	G						

APPENDIX B
RESULTS AS REPORTED BY THE LABORATORY

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-P42-SS-502-01		
Lab Sample ID:	F5688-1	**Date Sampled:**	01/20/00
Matrix:	SO - Soil	**Date Received:**	01/21/00
		Percent Solids:	88.7
Project:	NAS Cecil Field-PSC 42 PO#N0039-P98655A-01		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method
Antimony	1.2 B	7.1	mg/kg	1	01/24/00	01/25/00	JK	SW846 6010A
Arsenic	1.7	1.2	mg/kg	1	01/24/00	01/25/00	JK	SW846 6010A
Barium	35.0	23.7	mg/kg	1	01/24/00	01/25/00	JK	SW846 6010A
Chromium	5.7	1.2	mg/kg	1	01/24/00	01/25/00	JK	SW846 6010A
Lead	173	11.9	mg/kg	1	01/24/00	01/25/00	JK	SW846 6010A

000004

RL = Reporting Limit

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-P42-SS-503-01		
Lab Sample ID:	F5688-2	**Date Sampled:**	01/20/00
Matrix:	SO - Soil	**Date Received:**	01/21/00
		Percent Solids:	89.8
Project:	NAS Cecil Field-PSC 42 PO#N0039-P98655A-01		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method
Antimony	0.34 B	6.9	mg/kg	1	01/24/00	01/25/00	JK	SW846 6010A
Arsenic	0.97 B	1.1	mg/kg	1	01/24/00	01/25/00	JK	SW846 6010A
Barium	11.9 B	23.0	mg/kg	1	01/24/00	01/25/00	JK	SW846 6010A
Chromium	1.4	1.1	mg/kg	1	01/24/00	01/25/00	JK	SW846 6010A
Lead	5.4 B	11.5	mg/kg	1	01/24/00	01/25/00	JK	SW846 6010A

000005

RL = Reporting Limit

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-P42-SS-504-01		
Lab Sample ID:	F5688-3	**Date Sampled:**	01/20/00
Matrix:	SO - Soil	**Date Received:**	01/21/00
		Percent Solids:	89.8
Project:	NAS Cecil Field-PSC 42 PO#N0039-P98655A-01		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method
Antimony	0.24 U	6.1	mg/kg	1	01/24/00	01/25/00	JK	SW846 6010A
Arsenic	0.35 U	1.0	mg/kg	1	01/24/00	01/25/00	JK	SW846 6010A
Barium	3.9 B	20.4	mg/kg	1	01/24/00	01/25/00	JK	SW846 6010A
Chromium	4.0	1.0	mg/kg	1	01/24/00	01/25/00	JK	SW846 6010A
Lead	5.2 B	10.2	mg/kg	1	01/24/00	01/25/00	JK	SW846 6010A

000057

RL = Reporting Limit

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-P42-SS-505-01		
Lab Sample ID:	F5688-4	**Date Sampled:**	01/20/00
Matrix:	SO - Soil	**Date Received:**	01/21/00
		Percent Solids:	89.7
Project:	NAS Cecil Field-PSC 42 PO#N0039-P98655A-01		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method
Antimony	0.28 U	7.1	mg/kg	1	01/27/00	01/28/00	JK	SW846 6010A
Arsenic	0.41 U	1.2	mg/kg	1	01/27/00	01/28/00	JK	SW846 6010A
Barium	6.2 B	23.7	mg/kg	1	01/27/00	01/28/00	JK	SW846 6010A
Chromium	1.4	1.2	mg/kg	1	01/27/00	01/28/00	JK	SW846 6010A
Lead	24.1	11.9	mg/kg	1	01/27/00	01/28/00	JK	SW846 6010A

RL = Reporting Limit

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-P42-SS-506-01		
Lab Sample ID:	F5688-5	**Date Sampled:**	01/20/00
Matrix:	SO - Soil	**Date Received:**	01/21/00
		Percent Solids:	90.4
Project:	NAS Cecil Field-PSC 42 .PO#N0039-P98655A-01		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method
Antimony	0.27 U	6.7	mg/kg	1	01/27/00	01/28/00	JK	SW846 6010A
Arsenic	0.97 B	1.1	mg/kg	1	01/27/00	01/28/00	JK	SW846 6010A
Barium	8.5 B	22.3	mg/kg	1	01/27/00	01/28/00	JK	SW846 6010A
Chromium	0.85 B	1.1	mg/kg	1	01/27/00	01/28/00	JK	SW846 6010A
Lead	48.1	11.2	mg/kg	1	01/27/00	01/28/00	JK	SW846 6010A

RL = Reporting Limit

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-P42-SS-DU01		
Lab Sample ID:	F5688-8	**Date Sampled:**	01/20/00
Matrix:	SO - Soil	**Date Received:**	01/21/00
		Percent Solids:	89.9
Project:	NAS Cecil Field-PSC 42 PO#N0039-P98655A-01		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method
Antimony	0.60 B	6.2	mg/kg	1	01/27/00	01/28/00	JK	SW846 6010A
Arsenic	1.6	1.0	mg/kg	1	01/27/00	01/28/00	JK	SW846 6010A
Barium	8.2 B	20.6	mg/kg	1	01/27/00	01/28/00	JK	SW846 6010A
Chromium	3.0	1.0	mg/kg	1	01/27/00	01/28/00	JK	SW846 6010A
Lead	54.4	10.3	mg/kg	1	01/27/00	01/28/00	JK	SW846 6010A

000015

RL = Reporting Limit

Tetra Tech NUS **INTERNAL CORRESPONDENCE**

PITT-04-0-052

TO: **MARK SPERANZA** **DATE: MAY 15, 2000**

FROM: **JUSTIN ORBICH** **CC: DV FILE**

SUBJECT: **ORGANIC DATA VALIDATION – PAH**
CTO 078 – NAS CECIL FIELD
SDG F6034

SAMPLES: 6/Surface Soil

CEF-P42-SS-612-02	CEF-P42-SS-615-02*
CEF-P42-SS-618-01*	CEF-P42-SS-619-01
CEF-P42-SS-620-01*	CEF-P42-SS-DU12

OVERVIEW

The sample set for CTO 078, SDG F6034 Naval Air Station (NAS) Cecil Field; Florida consists of six (6) surface soil environmental sample. The sample was analyzed for Target Compound List (TCL) Polynuclear Aromatic Hydrocarbon (PAH) plus 1-methylnaphthalene and 2-methylnaphthalene and Total Petroleum Hydrocarbon (TPH) organic compounds. The samples designated (*) were analyzed for PAH organic compounds only. One (1) field duplicate pair (CEF-P42-SS-612-02/CEF-P42-SS-DU12) was included within this SDG.

The samples were collected by Tetra Tech, NUS on March 10th, 2000 and analyzed by Accutest Laboratories. All analyses were performed in accordance with Naval Facilities Engineering Service Center (NFESC) Quality Assurance/Quality Control (QA/QC) criteria and analyzed according to SW 846 Method 8310 and FLORIDA-PRO analytical and reporting protocols. The data in this SDG was validated with regard to the following parameters:

* • Data Completeness
* • Holding Times
* • Initial/continuing calibrations
* • Laboratory method/field quality control blank results
* • Field Duplicate Results
* • Detection Limits

The symbol (*) indicates that all quality control criteria were met for this parameter. Problems affecting data quality are discussed below; documentation supporting these findings is presented in Appendix C. Qualified analytical results are presented in Appendix A.

PAH FRACTION

It should be noted that all the samples were analyzed at a 5X dilution thus causing elevated reporting limits.

MEMO TO: MARK SPERANZA
DATE: MAY 15, 2000 – PAGE 2

TPH FRACTION

Sample CEF-P42-SS-619-01 was analyzed at a 40X dilution.

Sample CEF-P42-SS-DU12 was analyzed at a 2X dilution.

EXECUTIVE SUMMARY

Laboratory performance: None.

Other Factors Affecting Data Quality: Several samples were analyzed at a dilution in both fractions.

MEMO TO: MARK SPERANZA
DATE: MAY 15, 2000 – PAGE 3

The data for these analyses were reviewed with reference to the EPA Functional Guidelines for Organic Data Validation (October, 1999), and the NFESC guidelines "Navy Installation Restoration Program Laboratory Quality Assurance Guide" (February, 1996). The text of this report has been formulated to address only those problems affecting data quality.

"I attest that the data referenced herein was validated according to the agreed upon validation criteria as specified in the NFESC Guidelines and the Quality Assurance Project Plan (QAPP)."

Justin Orbich

Chemist/Data Validator
Tetra Tech, NUS

Joseph A. Samchuck

Data Validation Quality Assurance Officer
Tetra Tech, NUS

Attachments:
1. Appendix A - Qualified Analytical Results
2. Appendix B - Results as reported by the Laboratory
3. Appendix C - Support Documentation

Qualifier Codes:

A = Lab Blank Contamination
B = Field Blank Contamination
C = Calibration (i.e., % RSDs, %Ds, ICVs, CCVs, RPDs, RRFs, etc.) Noncompliance
D = MS/MSD Noncompliance
E = LCS/LCSD Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = GFAA PDS - GFAA MSA's $r < 0.995$
K = ICP Interference - include ICSAB % R's
L = Instrument Calibration Range Exceedance
M = Sample Preservation
N = Internal Standard Noncompliance
O = Poor Instrument Performance (i.e., base-time drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can encompass a number of issues)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = Pest/PCB D% between columns for positive results
V = Non-linear calibrations, tuning $r < 0.995$ (correlation coefficient)
W = EMPC result
X = Signal to noise response drop
Y = % Solid content is less than 30%

DATA QUALIFIER DEFINITIONS:

U	-	Value is a nondetected result as reported by the laboratory and should not be considered present.
J	-	Positive result is estimated as a result of a value below the CRQL or a technical noncompliance.
UJ	-	Nondetected result is considered to be estimated as a result of technical noncompliances.

APPENDIX A

Qualified Analytical Results

CTO078-NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F6034

SAMPLE NUMBER:	CEF-P42-SS-612-02			CEF-P42-SS-615-02			CEF-P42-SS-618-01			CEF-P42-SS-619-01		
SAMPLE DATE:	03/10/00			03/10/00			03/10/00			03/10/00		
LABORATORY ID:	F6034-1			F6034-3			F6034-4			F6034-5		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	91.9 %			91.8 %			82.7 %			89.1 %		
UNITS:	UG/KG			UG/KG			UG/KG			UG/KG		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
POLYNUCLEAR AROMATIC HYDROCARBONS												
1-METHYLNAPHTHALENE	180	U		531			200	U		190	U	
2-METHYLNAPHTHALENE	180	U		397			269			1090		
ACENAPHTHENE	180	U		180	U		200	U		733		
ACENAPHTHYLENE	180	U		180	U		200	U		190	U	
ANTHRACENE	180	U		180	U		200	U		372		
BENZO(A)ANTHRACENE	27	U		43.9			30	U		1260		
BENZO(A)PYRENE	27	U		42.7			30	U		2160		
BENZO(B)FLUORANTHENE	27	U		62.5			185			1570		
BENZO(G,H,I)PERYLENE	27	U		39.9			30	U		1020		
BENZO(K)FLUORANTHENE	27	U		32.4			30	U		674		
CHRYSENE	27	U		77.7			30	U		1840		
DIBENZO(A,H)ANTHRACENE	27	U		27	U		30	U		46.3		
FLUORANTHENE	27	U		310			102			4660		
FLUORENE	180	U		180	U		200	U		190	U	
INDENO(1,2,3-CD)PYRENE	27	U		27	U		30	U		1010		
NAPHTHALENE	180	U		180	U		200	U		190	U	
PHENANTHRENE	180	U		315			200	U		1720		
PYRENE	27	U		80.1			56.5			2640		

CTO078-NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F6034

SAMPLE NUMBER:	CEF-P42-SS-620-01			CEF-P42-SS-DU12								
SAMPLE DATE:	03/10/00			03/10/00			/ /			/ /		
LABORATORY ID:	F6034-6			F6034-7								
QC_TYPE:	NORMAL			NORMAL								
% SOLIDS:	90.5 %			94.3 %			100.0 %			100.0 %		
UNITS:	UG/KG			UG/KG								
FIELD DUPLICATE OF:				CEF-P42-SS-612-02								
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
POLYNUCLEAR AROMATIC HYDROCARBONS												
1-METHYLNAPHTHALENE	1180			180	U							
2-METHYLNAPHTHALENE	5700			180	U							
ACENAPHTHENE	2430			180	U							
ACENAPHTHYLENE	180	U		180	U							
ANTHRACENE	1640			180	U							
BENZO(A)ANTHRACENE	2720			26	U							
BENZO(A)PYRENE	3900			26	U							
BENZO(B)FLUORANTHENE	2720			26	U							
BENZO(G,H,I)PERYLENE	1810			26	U							
BENZO(K)FLUORANTHENE	1210			26	U							
CHRYSENE	3310			26	U							
DIBENZO(A,H)ANTHRACENE	58.5			26	U							
FLUORANTHENE	10400			26	U							
FLUORENE	180	U		180	U							
INDENO(1,2,3-CD)PYRENE	1490			26	U							
NAPHTHALENE	1600			180	U							
PHENANTHRENE	6380			180	U							
PYRENE	7000			26	U							

CTO078-NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F6034

SAMPLE NUMBER:	CEF-P42-SS-612-02			CEF-P42-SS-619-01			CEF-P42-SS-DU12					
SAMPLE DATE:	03/10/00			03/10/00			03/10/00			/ /		
LABORATORY ID:	F6034-1			F6034-5			F6034-7					
QC_TYPE:	NORMAL			NORMAL			NORMAL					
% SOLIDS:	91.9 %			89.1 %			94.3 %			100.0 %		
UNITS:	MG/KG			MG/KG			MG/KG					
FIELD DUPLICATE OF:							CEF-P42-SS-612-02					
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
PETROLEUM HYDROCARBONS												
TPH (C8-C40)	17.7			1100			28.5					

APPENDIX B

Results as Reported by the Laboratory

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-P42-SS-612-02		
Lab Sample ID:	F6034-1	**Date Sampled:**	03/10/00
Matrix:	SO - Soil	**Date Received:**	03/13/00
Method:	SW846 8310	**Percent Solids:**	91.9
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	LC9273.D	5	03/30/00	AMA	03/22/00	M:OP1841	M:GLC129
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	180	ug/kg	
208-96-8	Acenaphthylene	ND	180	ug/kg	
120-12-7	Anthracene	ND	180	ug/kg	
56-55-3	Benzo (a) anthracene	ND	27	ug/kg	
50-32-8	Benzo (a) pyrene	ND	27	ug/kg	
205-99-2	Benzo (b) fluoranthene	ND	27	ug/kg	
191-24-2	Benzo (g,h,i) perylene	ND	27	ug/kg	
207-08-9	Benzo (k) fluoranthene	ND	27	ug/kg	
218-01-9	Chrysene	ND	27	ug/kg	
53-70-3	Dibenz(a,h)anthracene	ND	27	ug/kg	
206-44-0	Fluoranthene	ND	27	ug/kg	
86-73-7	Fluorene	ND	180	ug/kg	
193-39-5	Indeno (1,2,3-cd) pyrene	ND	27	ug/kg	
90-12-0	1-Methylnaphthalene	ND	180	ug/kg	
91-57-6	2-Methylnaphthalene	ND	180	ug/kg	
91-20-3	Naphthalene	ND	180	ug/kg	
85-01-8	Phenanthrene	ND	180	ug/kg	
129-00-0	Pyrene	ND	27	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	103%		20-130%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

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Report of Analysis

Client Sample ID:	CEF-P42-SS-615-02		
Lab Sample ID:	F6034-3	**Date Sampled:**	03/10/00
Matrix:	SO - Soil	**Date Received:**	03/13/00
Method:	SW846 8310	**Percent Solids:**	91.8
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	LC9274.D	5	03/30/00	AMA	03/22/00	M:OP1841	M:GLC129
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	180	ug/kg	
208-96-8	Acenaphthylene	ND	180	ug/kg	
120-12-7	Anthracene	ND	180	ug/kg	
56-55-3	Benzo (a) anthracene	43.9	27	ug/kg	
50-32-8	Benzo (a) pyrene [a]	42.7	27	ug/kg	
205-99-2	Benzo (b) fluoranthene	62.5	27	ug/kg	
191-24-2	Benzo (g,h,i) perylene	39.9	27	ug/kg	
207-08-9	Benzo (k) fluoranthene	32.4	27	ug/kg	
218-01-9	Chrysene	77.7	27	ug/kg	
53-70-3	Dibenz(a,h)anthracene	ND	27	ug/kg	
206-44-0	Fluoranthene	310	27	ug/kg	
86-73-7	Fluorene	ND	180	ug/kg	
193-39-5	Indeno (1,2,3-cd) pyrene	ND	27	ug/kg	
90-12-0	1-Methylnaphthalene	531	180	ug/kg	
91-57-6	2-Methylnaphthalene	397	180	ug/kg	
91-20-3	Naphthalene	ND	180	ug/kg	
85-01-8	Phenanthrene	315	180	ug/kg	
129-00-0	Pyrene	80.1	27	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	99%		20-130%

(a) Estimated value due to check standard >15% difference.

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

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Report of Analysis

Client Sample ID:	CEF-P42-SS-618-01		
Lab Sample ID:	F6034-4	**Date Sampled:**	03/10/00
Matrix:	SO - Soil	**Date Received:**	03/13/00
Method:	SW846 8310	**Percent Solids:**	82.7
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	LC9275.D	5	03/30/00	AMA	03/22/00	M:OP1841	M:GLC129
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	200	ug/kg	
208-96-8	Acenaphthylene	ND	200	ug/kg	
120-12-7	Anthracene	ND	200	ug/kg	
56-55-3	Benzo (a) anthracene	ND	30	ug/kg	
50-32-8	Benzo (a) pyrene	ND	30	ug/kg	
205-99-2	Benzo (b) fluoranthene	185	30	ug/kg	
191-24-2	Benzo (g,h,i) perylene	ND	30	ug/kg	
207-08-9	Benzo (k) fluoranthene	ND	30	ug/kg	
218-01-9	Chrysene	ND	30	ug/kg	
53-70-3	Dibenz(a,h)anthracene	ND	30	ug/kg	
206-44-0	Fluoranthene	102	30	ug/kg	
86-73-7	Fluorene	ND	200	ug/kg	
193-39-5	Indeno (1,2,3-cd) pyrene	ND	30	ug/kg	
90-12-0	1-Methylnaphthalene	ND	200	ug/kg	
91-57-6	2-Methylnaphthalene	269	200	ug/kg	
91-20-3	Naphthalene	ND	200	ug/kg	
85-01-8	Phenanthrene	ND	200	ug/kg	
129-00-0	Pyrene	56.5	30	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	89%		20-130%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

0007

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-P42-SS-619-01		
Lab Sample ID:	F6034-5	**Date Sampled:**	03/10/00
Matrix:	SO - Soil	**Date Received:**	03/13/00
Method:	SW846 8310	**Percent Solids:**	89.1
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	LC9276.D	5	03/31/00	AMA	03/22/00	M:OP1841	M:GLC129
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	733	190	ug/kg	
208-96-8	Acenaphthylene	ND	190	ug/kg	
120-12-7	Anthracene	372	190	ug/kg	
56-55-3	Benzo (a) anthracene	1260	28	ug/kg	
50-32-8	Benzo (a) pyrene [a]	2160	28	ug/kg	
205-99-2	Benzo (b) fluoranthene	1570	28	ug/kg	
191-24-2	Benzo (g,h,i) perylene	1020	28	ug/kg	
207-08-9	Benzo (k) fluoranthene	674	28	ug/kg	
218-01-9	Chrysene	1840	28	ug/kg	
53-70-3	Dibenz(a,h)anthracene	46.3	28	ug/kg	
206-44-0	Fluoranthene	4660	28	ug/kg	
86-73-7	Fluorene	ND	190	ug/kg	
193-39-5	Indeno (1,2,3-cd) pyrene	1010	28	ug/kg	
90-12-0	1-Methylnaphthalene	ND	190	ug/kg	
91-57-6	2-Methylnaphthalene	1090	190	ug/kg	
91-20-3	Naphthalene	ND	190	ug/kg	
85-01-8	Phenanthrene	1720	190	ug/kg	
129-00-0	Pyrene	2640	28	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	51%		20-130%

(a) Estimated value due to check standard >15% difference.

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

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Report of Analysis

Client Sample ID:	CEF-P42-SS-620-01		
Lab Sample ID:	F6034-6	**Date Sampled:**	03/10/00
Matrix:	SO - Soil	**Date Received:**	03/13/00
Method:	SW846 8310	**Percent Solids:**	90.5
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	LC9277.D	5	03/31/00	AMA	03/22/00	M:OP1841	M:GLC129
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	2430	180	ug/kg	
208-96-8	Acenaphthylene	ND	180	ug/kg	
120-12-7	Anthracene	1640	180	ug/kg	
56-55-3	Benzo (a) anthracene	2720	28	ug/kg	
50-32-8	Benzo (a) pyrene [a]	3900	28	ug/kg	
205-99-2	Benzo (b) fluoranthene	2720	28	ug/kg	
191-24-2	Benzo (g,h,i) perylene	1810	28	ug/kg	
207-08-9	Benzo (k) fluoranthene	1210	28	ug/kg	
218-01-9	Chrysene	3310	28	ug/kg	
53-70-3	Dibenz(a,h)anthracene	58.5	28	ug/kg	
206-44-0	Fluoranthene	10400	28	ug/kg	
86-73-7	Fluorene	ND	180	ug/kg	
193-39-5	Indeno (1,2,3-cd) pyrene	1490	28	ug/kg	
90-12-0	1-Methylnaphthalene	1180	180	ug/kg	
91-57-6	2-Methylnaphthalene	5700	180	ug/kg	
91-20-3	Naphthalene	1600	180	ug/kg	
85-01-8	Phenanthrene	6380	180	ug/kg	
129-00-0	Pyrene	7000	28	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	142%		20-130%

(a) Estimated value due to check standard >15% difference.

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

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Report of Analysis

Client Sample ID:	CEF-P42-SS-DU12		
Lab Sample ID:	F6034-7	**Date Sampled:**	03/10/00
Matrix:	SO - Soil	**Date Received:**	03/13/00
Method:	SW846 8310	**Percent Solids:**	94.3
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	LC9278.D	5	03/31/00	AMA	03/22/00	M:OP1841	M:GLC129
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	180	ug/kg	
208-96-8	Acenaphthylene	ND	180	ug/kg	
120-12-7	Anthracene	ND	180	ug/kg	
56-55-3	Benzo (a) anthracene	ND	26	ug/kg	
50-32-8	Benzo (a) pyrene	ND	26	ug/kg	
205-99-2	Benzo (b) fluoranthene	ND	26	ug/kg	
191-24-2	Benzo (g,h,i) perylene	ND	26	ug/kg	
207-08-9	Benzo (k) fluoranthene	ND	26	ug/kg	
218-01-9	Chrysene	ND	26	ug/kg	
53-70-3	Dibenz(a,h)anthracene	ND	26	ug/kg	
206-44-0	Fluoranthene	ND	26	ug/kg	
86-73-7	Fluorene	ND	180	ug/kg	
193-39-5	Indeno (1,2,3-cd) pyrene	ND	26	ug/kg	
90-12-0	1-Methylnaphthalene	ND	180	ug/kg	
91-57-6	2-Methylnaphthalene	ND	180	ug/kg	
91-20-3	Naphthalene	ND	180	ug/kg	
85-01-8	Phenanthrene	ND	180	ug/kg	
129-00-0	Pyrene	ND	26	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	96%		20-130%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-P42-SS-612-02		
Lab Sample ID:	F6034-1	**Date Sampled:**	03/10/00
Matrix:	SO - Soil	**Date Received:**	03/13/00
Method:	FLORIDA-PRO	**Percent Solids:**	91.9
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP07544.D	1	03/16/00	ME	03/15/00	OP1373	GOP345
Run #2							

CAS No.	Compound	Result	RL	Units	Q
	TPH (C8-C40)	17.7	9.0	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	91%		40-140%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

0002

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-P42-SS-619-01		
Lab Sample ID:	F6034-5	**Date Sampled:**	03/10/00
Matrix:	SO - Soil	**Date Received:**	03/13/00
Method:	FLORIDA-PRO	**Percent Solids:**	89.1
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP07547.D	40	03/16/00	ME	03/15/00	OP1373	GOP345
Run #2							

CAS No.	Compound	Result	RL	Units	Q
	TPH (C8-C40)	1100	370	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	0% [a]		40-140%

(a) Outside control limits due to dilution.

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

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ACCUTEST

Report of Analysis

Client Sample ID:	CEF-P42-SS-DU12		
Lab Sample ID:	F6034-7	**Date Sampled:**	03/10/00
Matrix:	SO - Soil	**Date Received:**	03/13/00
Method:	FLORIDA-PRO	**Percent Solids:**	94.3
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP07565.D	2	03/16/00	ME	03/15/00	OP1373	GOP345
Run #2							

CAS No.	Compound	Result	RL	Units	Q
	TPH (C8-C40)	28.5	18	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	90%		40-140%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

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Tetra Tech NUS **INTERNAL CORRESPONDENCE**

TO:	**M. SPERANZA**	**DATE:**	**MAY 15, 2000**
FROM:	**GRETCHEN PHIPPS**	**COPIES:**	**DV FILE**

SUBJECT: **ORGANIC DATA VALIDATION – PAHs AND TPHs**
CTO 078 - CECIL FIELD
SDG – F6085

SAMPLES: 15/Soils/

CEF-P42-SS-601-01	CEF-P42-SS-602-01
CEF-P42-SS-603-01	CEF-P42-SS-604-01
CEF-P42-SS-605-01	CEF-P42-SS-606-01
CEF-P42-SS-607-02	CEF-P42-SS-608-01
CEF-P42-SS-609-01	CEF-P42-SS-610-01
CEF-P42-SS-611-01	CEF-P42-SS-613-02
CEF-P42-SS-616-01	CEF-P42-SS-617-01
CEF-P42-SS-DU13	

Overview

The sample set for CTO 078, Cecil Field, SDG F6085 consists of fifteen (15) soil environmental samples. One (1) field duplicate pair (CEF-P42-SS-601-01 / CEF-P42-SS-DU13) was included within this SDG.

The samples were analyzed for polyaromatic hydrocarbons (PAHs) and total petroleum hydrocarbons (TPHs). The samples were collected by Tetra Tech NUS on March 17, 2000 and analyzed by Accutest Laboratory under Naval Facilities Engineering Service Center (NFESC) Quality Assurance / Quality Control (QA / QC) criteria. PAH analyses were conducted using SW 846 method 8310. TPH analyses were conducted using the Florida Pro method.

The data was evaluated based on the following parameters:

* • Data Completeness
* • Calibration Verifications
* • Holding Times
* • Laboratory Blank Analyses
* • Surrogate Recoveries
* • Field Duplicate Results
* • Detection Limits

* - All quality control criteria were met for this parameter.

Notes

All PAH analyses, with exception to sample CEF-P42-SS-613-02, were conducted at a 5X dilution. Therefore, the reporting limits were elevated.

The PAH analyses for sample CEF-P42-SS-613-02 were conducted at 500X dilution. The TPH analyses for sample CEF-P42-SS-613-02 were conducted at 50X dilution. All surrogates were dilution out of the sample. Therefore, the extraction efficiency could not be evaluated.

All results reported in the field duplicate pair were nondetected.

Executive Summary

Laboratory Performance: None.

Other Factors Affecting Data Quality: None.

The data for these analyses were reviewed with reference to the "National Functional Guidelines for Organic Review", October 1999 and the NFESC document entitles "Navy Installation Restoration Laboratory Quality Assurance Guide." (NFESC 2/96).

The text of this report has been formulated to address only those problem areas affecting data quality.

"I attest that the data referenced herein were validated according to the agreed upon validation criteria as specified in the NFESC Guidelines and the Quality Assurance Project Plan (QAPP)."

Gretchen A. Phipps

Tetra Tech NUS
Gretchen A. Phipps

Tetra Tech NUS
Joseph A. Samchuck
Quality Control Officer

Attachments:

1. Appendix A - Qualified Analytical Data
2. Appendix B - Results as reported by the Laboratory
3. Appendix C - Support Documentation

APPENDIX A
QUALIFIED ANALYTICAL RESULTS

Qualifier Codes:

A = Lab Blank Contamination
B = Field Blank Contamination
C = Calibration (i.e., % RSDs, %Ds, ICVs, CCVs, RPDs, RRFs, etc.) Noncompliance
D = MS/MSD Noncompliance
E = LCS/LCSD Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = GFAA PDS - GFAA MSA's $r < 0.995$
K = ICP Interference - include ICSAB % R's
L = Instrument Calibration Range Exceedance
M = Sample Preservation
N = Internal Standard Noncompliance
O = Poor Instrument Performance (i.e., base-time drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can encompass a number of issues)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = Pest/PCD% between columns for positive results
V = Non-linear calibrations, tuning $r < 0.995$ (correlation coefficient)
W = EMPC result
X = Signal to noise response drop

CTO078 - NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F6085

SAMPLE NUMBER:	CEF-P42-SS-601-01	CEF-P42-SS-602-01	CEF-P42-SS-603-01	CEF-P42-SS-604-01
SAMPLE DATE:	03/17/00	03/17/00	03/17/00	03/17/00
LABORATORY ID:	F6085-1	F6085-2	F6085-3	F6085-4
QC_TYPE:	NORMAL	NORMAL	NORMAL	NORMAL
% SOLIDS:	87.2 %	81.0 %	84.4 %	86.9 %
UNITS:	UG/KG	UG/KG	UG/KG	UG/KG
FIELD DUPLICATE OF:				

	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
POLYNUCLEAR AROMATIC HYDROCARBONS												
1-METHYLNAPHTHALENE	380	U		410	U		390	U		380	U	
2-METHYLNAPHTHALENE	380	U		410	U		390	U		380	U	
ACENAPHTHENE	380	U		410	U		390	U		380	U	
ACENAPHTHYLENE	770	U		820	U		790	U		760	U	
ANTHRACENE	380	U		410	U		390	U		380	U	
BENZO(A)ANTHRACENE	77	U		82	U		79	U		76	U	
BENZO(A)PYRENE	77	U		82	U		79	U		76	U	
BENZO(B)FLUORANTHENE	77	U		82	U		79	U		76	U	
BENZO(G,H,I)PERYLENE	77	U		82	U		79	U		76	U	
BENZO(K)FLUORANTHENE	77	U		82	U		79	U		76	U	
CHRYSENE	77	U		82	U		79	U		76	U	
DIBENZO(A,H)ANTHRACENE	77	U		82	U		79	U		76	U	
FLUORANTHENE	380	U		410	U		390	U		380	U	
FLUORENE	380	U		410	U		390	U		380	U	
INDENO(1,2,3-CD)PYRENE	77	U		82	U		79	U		76	U	
NAPHTHALENE	380	U		410	U		390	U		380	U	
PHENANTHRENE	380	U		410	U		390	U		380	U	
PYRENE	380	U		410	U		390	U		380	U	

CTO078 - NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F6085

SAMPLE NUMBER:	CEF-P42-SS-605-01			CEF-P42-SS-606-01			CEF-P42-SS-607-02			CEF-P42-SS-608-01		
SAMPLE DATE:	03/17/00			03/17/00			03/17/00			03/17/00		
LABORATORY ID:	F6085-5			F6085-6			F6085-7			F6085-8		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	87.0 %			86.1 %			91.7 %			88.9 %		
UNITS:	UG/KG			UG/KG			UG/KG			UG/KG		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
POLYNUCLEAR AROMATIC HYDROCARBONS												
1-METHYLNAPHTHALENE	380	U		390	U		360	U		380	U	
2-METHYLNAPHTHALENE	380	U		390	U		360	U		380	U	
ACENAPHTHENE	380	U		390	U		360	U		380	U	
ACENAPHTHYLENE	770	U		780	U		730	U		750	U	
ANTHRACENE	380	U		390	U		360	U		380	U	
BENZO(A)ANTHRACENE	154	U		78	U		146	U		75	U	
BENZO(A)PYRENE	77	U		78	U		73	U		75	U	
BENZO(B)FLUORANTHENE	23.4	J	P	23	J	P	19.9	J	P	75	U	
BENZO(G,H,I)PERYLENE	77	U		78	U		73	U		75	U	
BENZO(K)FLUORANTHENE	77	U		12.1	J	P	73	U		75	U	
CHRYSENE	28.1	J	P	23.9	J	P	73	U		75	U	
DIBENZO(A,H)ANTHRACENE	77	U		78	U		73	U		75	U	
FLUORANTHENE	380	U		390	U		360	U		380	U	
FLUORENE	380	U		390	U		360	U		380	U	
INDENO(1,2,3-CD)PYRENE	77	U		78	U		73	U		75	U	
NAPHTHALENE	380	U		390	U		360	U		380	U	
PHENANTHRENE	380	U		390	U		360	U		380	U	
PYRENE	380	U		390	U		360	U		380	U	

CTO078 - NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F6085

SAMPLE NUMBER:	CEF-P42-SS-609-01			CEF-P42-SS-610-01			CEF-P42-SS-611-01			CEF-P42-SS-613-02		
SAMPLE DATE:	03/17/00			03/17/00			03/17/00			03/17/00		
LABORATORY ID:	F6085-9			F6085-10			F6085-11			F6085-12		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	93.0 %			95.5 %			92.6 %			87.3 %		
UNITS:	UG/KG			UG/KG			UG/KG			UG/KG		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
POLYNUCLEAR AROMATIC HYDROCARBONS												
1-METHYLNAPHTHALENE	360	U		350	U		360	U		90200		
2-METHYLNAPHTHALENE	360	U		350	U		360	U		187000		
ACENAPHTHENE	360	U		350	U		360	U		239000		
ACENAPHTHYLENE	720	U		700	U		720	U		76000	U	
ANTHRACENE	360	U		350	U		360	U		240000		
BENZO(A)ANTHRACENE	72	U		159			72	U		93600		
BENZO(A)PYRENE	72	U		131			72	U		55800		
BENZO(B)FLUORANTHENE	72	U		146			72	U		44200		
BENZO(G,H,I)PERYLENE	72	U		114			72	U		21500		
BENZO(K)FLUORANTHENE	72	U		105			28	J	P	33600		
CHRYSENE	72	U		155			72	U		83200		
DIBENZO(A,H)ANTHRACENE	72	U		70	U		72	U		7600	U	
FLUORANTHENE	360	U		265	J	P	360	U		248000		
FLUORENE	360	U		350	U		360	U		53100		
INDENO(1,2,3-CD)PYRENE	72	U		133			72	U		29400		
NAPHTHALENE	360	U		350	U		360	U		68700		
PHENANTHRENE	360	U		42.8	J	P	360	U		216000		
PYRENE	360	U		196	J	P	360	U		165000		

CTO078 - NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F6085

SAMPLE NUMBER:	CEF-P42-SS-616-01			CEF-P42-SS-617-01			CEF-P42-SS-DU13			/ /		
SAMPLE DATE:	03/17/00			03/17/00			03/17/00					
LABORATORY ID:	F6085-13			F6085-14			F6085-15					
QC_TYPE:	NORMAL			NORMAL			NORMAL					
% SOLIDS:	92.4 %			92.8 %			95.7 %			100.0 %		
UNITS:	UG/KG			UG/KG			UG/KG					
FIELD DUPLICATE OF:							CEF-P45-SS-601-01					
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
POLYNUCLEAR AROMATIC HYDROCARBONS												
1-METHYLNAPHTHALENE	360	U		360	U		350	U				
2-METHYLNAPHTHALENE	360	U		360	U		350	U				
ACENAPHTHENE	360	U		360	U		350	U				
ACENAPHTHYLENE	720	U		720	U		700	U				
ANTHRACENE	360	U		360	U		350	U				
BENZO(A)ANTHRACENE	72	U		72	U		70	U				
BENZO(A)PYRENE	72	U		72	U		70	U				
BENZO(B)FLUORANTHENE	72	U		72	U		70	U				
BENZO(G,H,I)PERYLENE	72	U		72	U		70	U				
BENZO(K)FLUORANTHENE	72	U		72	U		70	U				
CHRYSENE	72	U		72	U		70	U				
DIBENZO(A,H)ANTHRACENE	72	U		72	U		70	U				
FLUORANTHENE	360	U		360	U		350	U				
FLUORENE	360	U		360	U		350	U				
INDENO(1,2,3-CD)PYRENE	72	U		72	U		70	U				
NAPHTHALENE	360	U		360	U		350	U				
PHENANTHRENE	360	U		360	U		350	U				
PYRENE	360	U		360	U		350	U				

CTO078 - NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F6085

SAMPLE NUMBER:	CEF-P42-SS-601-01			CEF-P42-SS-602-01			CEF-P42-SS-603-01			CEF-P42-SS-604-01		
SAMPLE DATE:	03/17/00			03/17/00			03/17/00			03/17/00		
LABORATORY ID:	F6085-1			F6085-2			F6085-3			F6085-4		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	87.2 %			81.0 %			84.4 %			86.9 %		
UNITS:	MG/KG			MG/KG			MG/KG			MG/KG		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
PETROLEUM HYDROCARBONS												
TPH (C8-C40)	96	U		100	U		99	U		96	U	

CTO078 - NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F6085

SAMPLE NUMBER:	CEF-P42-SS-605-01			CEF-P42-SS-606-01			CEF-P42-SS-607-02			CEF-P42-SS-608-01		
SAMPLE DATE:	03/17/00			03/17/00			03/17/00			03/17/00		
LABORATORY ID:	F6085-5			F6085-6			F6085-7			F6085-8		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	87.0 %			86.1 %			91.7 %			88.9 %		
UNITS:	MG/KG			MG/KG			MG/KG			MG/KG		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
PETROLEUM HYDROCARBONS												
TPH (C8-C40)	96	U		97	U		91	U		94	U	

CTO078 - NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F6085

SAMPLE NUMBER:	CEF-P42-SS-609-01			CEF-P42-SS-610-01			CEF-P42-SS-611-01			CEF-P42-SS-613-02		
SAMPLE DATE:	03/17/00			03/17/00			03/17/00			03/17/00		
LABORATORY ID:	F6085-9			F6085-10			F6085-11			F6085-12		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	93.0 %			95.5 %			92.6 %			87.3 %		
UNITS:	MG/KG			MG/KG			MG/KG			MG/KG		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
PETROLEUM HYDROCARBONS												
TPH (C8-C40)	90	U		87	U		90	U		19700		

CTO078 - NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F6085

SAMPLE NUMBER:	CEF-P42-SS-616-01			CEF-P42-SS-617-01			CEF-P42-SS-DU13					
SAMPLE DATE:	03/17/00			03/17/00			03/17/00			/ /		
LABORATORY ID:	F6085-13			F6085-14			F6085-15					
QC_TYPE:	NORMAL			NORMAL			NORMAL					
% SOLIDS:	92.4 %			92.8 %			95.7 %			100.0 %		
UNITS:	MG/KG			MG/KG			MG/KG					
FIELD DUPLICATE OF:							CEF-P45-SS-601-01					
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
PETROLEUM HYDROCARBONS												
TPH (C8-C40)	90	U		90	U		87	U				

APPENDIX B
RESULTS AS REPORTED BY THE LABORATORY

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-P42-SS-601-01		
Lab Sample ID:	F6085-1	**Date Sampled:**	03/17/00
Matrix:	SO - Soil	**Date Received:**	03/18/00
Method:	EPA 8310	**Percent Solids:**	87.2
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	AA000444.D	5	03/30/00	CCJ	03/25/00	OP1401	GAA24
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	380	ug/kg	
208-96-8	Acenaphthylene	ND	770	ug/kg	
120-12-7	Anthracene	ND	380	ug/kg	
56-55-3	Benzo(a)anthracene	ND	77	ug/kg	
50-32-8	Benzo(a)pyrene	ND	77	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	77	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	77	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	77	ug/kg	
218-01-9	Chrysene	ND	77	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	77	ug/kg	
206-44-0	Fluoranthene	ND	380	ug/kg	
86-73-7	Fluorene	ND	380	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	77	ug/kg	
91-20-3	Naphthalene	ND	380	ug/kg	
90-12-0	1-Methylnaphthalene	ND	380	ug/kg	
91-57-6	2-Methylnaphthalene	ND	380	ug/kg	
85-01-8	Phenanthrene	ND	380	ug/kg	
129-00-0	Pyrene	ND	380	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	62%		35-135%
92-94-4	p-Terphenyl	53%		50-150%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

000003

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-P42-SS-601-01		
Lab Sample ID:	F6085-1	**Date Sampled:**	03/17/00
Matrix:	SO - Soil	**Date Received:**	03/18/00
Method:	FLORIDA-PRO	**Percent Solids:**	87.2
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP07579.D	1	03/22/00	ME	03/21/00	OP1389	GOP346
Run #2							

CAS No.	Compound	Result	RL	Units	Q
	TPH (C8-C40)	ND	96	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	97%		40-140%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

000004

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-P42-SS-602-01		
Lab Sample ID:	F6085-2	**Date Sampled:**	03/17/00
Matrix:	SO - Soil	**Date Received:**	03/18/00
Method:	FLORIDA-PRO	**Percent Solids:**	81.0
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP07580.D	1	03/22/00	ME	03/21/00	OP1389	GOP346
Run #2							

CAS No.	Compound	Result	RL	Units	Q
	TPH (C8-C40)	ND	100	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	95%		40-140%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

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Report of Analysis

Client Sample ID:	CEF-P42-SS-603-01		
Lab Sample ID:	F6085-3	**Date Sampled:**	03/17/00
Matrix:	SO - Soil	**Date Received:**	03/18/00
Method:	FLORIDA-PRO	**Percent Solids:**	84.4
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP07581.D	1	03/22/00	ME	03/21/00	OP1389	GOP346
Run #2							

CAS No.	Compound	Result	RL	Units	Q
	TPH (C8-C40)	ND	99	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	102%		40-140%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-P42-SS-604-01		
Lab Sample ID:	F6085-4	**Date Sampled:**	03/17/00
Matrix:	SO - Soil	**Date Received:**	03/18/00
Method:	FLORIDA-PRO	**Percent Solids:**	86.9
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP07582.D	1	03/22/00	ME	03/21/00	OP1389	GOP346
Run #2							

CAS No.	Compound	Result	RL	Units	Q
	TPH (C8-C40)	ND	96	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	105%		40-140%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

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Report of Analysis

Client Sample ID:	CEF-P42-SS-605-01		
Lab Sample ID:	F6085-5	**Date Sampled:**	03/17/00
Matrix:	SO - Soil	**Date Received:**	03/18/00
Method:	FLORIDA-PRO	**Percent Solids:**	87.0
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP07583.D	1	03/22/00	ME	03/21/00	OP1389	GOP346
Run #2							

CAS No.	Compound	Result	RL	Units	Q
	TPH (C8-C40)	ND	96	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	98%		40-140%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

000016

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-P42-SS-606-01		
Lab Sample ID:	F6085-6	**Date Sampled:**	03/17/00
Matrix:	SO - Soil	**Date Received:**	03/18/00
Method:	FLORIDA-PRO	**Percent Solids:**	86.1
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP07584.D	1	03/22/00	ME	03/21/00	OP1389	GOP346
Run #2							

CAS No.	Compound	Result	RL	Units	Q
	TPH (C8-C40)	ND	97	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	98%		40-140%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

000019

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-P42-SS-607-02		
Lab Sample ID:	F6085-7	**Date Sampled:**	03/17/00
Matrix:	SO - Soil	**Date Received:**	03/18/00
Method:	FLORIDA-PRO	**Percent Solids:**	91.7
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP07585.D	1	03/22/00	ME	03/21/00	OP1389	GOP346
Run #2							

CAS No.	Compound	Result	RL	Units	Q
	TPH (C8-C40)	ND	91	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	105%		40-140%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-P42-SS-608-01		
Lab Sample ID:	F6085-8	**Date Sampled:**	03/17/00
Matrix:	SO - Soil	**Date Received:**	03/18/00
Method:	FLORIDA-PRO	**Percent Solids:**	88.9
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP07586.D	1	03/22/00	ME	03/21/00	OP1389	GOP346
Run #2							

CAS No.	Compound	Result	RL	Units	Q
	TPH (C8-C40)	ND	94	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	94%		40-140%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

000024

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-P42-SS-609-01		
Lab Sample ID:	F6085-9	**Date Sampled:**	03/17/00
Matrix:	SO - Soil	**Date Received:**	03/18/00
Method:	FLORIDA-PRO	**Percent Solids:**	93.0
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP07587.D	1	03/22/00	ME	03/21/00	OP1389	GOP346
Run #2							

CAS No.	Compound	Result	RL	Units	Q
	TPH (C8-C40)	ND	90	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	100%		40-140%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-P42-SS-610-01		
Lab Sample ID:	F6085-10	**Date Sampled:**	03/17/00
Matrix:	SO - Soil	**Date Received:**	03/18/00
Method:	FLORIDA-PRO	**Percent Solids:**	95.5
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP07589.D	1	03/22/00	ME	03/21/00	OP1389	GOP346
Run #2							

CAS No.	Compound	Result	RL	Units	Q
	TPH (C8-C40)	ND	87	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	99%		40-140%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

000028

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-P42-SS-611-01		
Lab Sample ID:	F6085-11	**Date Sampled:**	03/17/00
Matrix:	SO - Soil	**Date Received:**	03/18/00
Method:	FLORIDA-PRO	**Percent Solids:**	92.6
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP07590.D	1	03/22/00	ME	03/21/00	OP1389	GOP346
Run #2							

CAS No.	Compound	Result	RL	Units	Q
	TPH (C8-C40)	ND	90	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	99%		40-140%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-P42-SS-613-02		
Lab Sample ID:	F6085-12	**Date Sampled:**	03/17/00
Matrix:	SO - Soil	**Date Received:**	03/18/00
Method:	FLORIDA-PRO	**Percent Solids:**	87.3
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP07591.D	50	03/22/00	ME	03/21/00	OP1389	GOP346
Run #2							

CAS No.	Compound	Result	RL	Units	Q
	TPH (C8-C40)	19700	4800	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	0% [a]		40-140%

(a) Outside control limits due to dilution.

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-P42-SS-616-01		
Lab Sample ID:	F6085-13	**Date Sampled:**	03/17/00
Matrix:	SO - Soil	**Date Received:**	03/18/00
Method:	FLORIDA-PRO	**Percent Solids:**	92.4
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP07592.D	1	03/22/00	ME	03/21/00	OP1389	GOP346
Run #2							

CAS No.	Compound	Result	RL	Units	Q
	TPH (C8-C40)	ND	90	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	102%		40-140%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

000035

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-P42-SS-617-01		
Lab Sample ID:	F6085-14	**Date Sampled:**	03/17/00
Matrix:	SO - Soil	**Date Received:**	03/18/00
Method:	FLORIDA-PRO	**Percent Solids:**	92.8
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP07593.D	1	03/22/00	ME	03/21/00	OP1389	GOP346
Run #2							

CAS No.	Compound	Result	RL	Units	Q
	TPH (C8-C40)	ND	90	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	100%		40-140%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

000038

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-P42-SS-DU13		
Lab Sample ID:	F6085-15	**Date Sampled:**	03/17/00
Matrix:	SO - Soil	**Date Received:**	03/18/00
Method:	FLORIDA-PRO	**Percent Solids:**	95.7
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP07594.D	1	03/22/00	ME	03/21/00	OP1389	GOP346
Run #2							

CAS No.	Compound	Result	RL	Units	Q
	TPH (C8-C40)	ND	87	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	100%		40-140%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

000041

Tetra Tech NUS **INTERNAL CORRESPONDENCE**

TO:	**M. SPERANZA**	**DATE:**	**MAY 15, 2000**
FROM:	**GRETCHEN PHIPPS**	**COPIES:**	**DV FILE**

SUBJECT: **INORGANIC DATA VALIDATION – ANTIMONY, ARSENIC AND BARIUM**
CTO 078 - CECIL FIELD
SDG – F6034

SAMPLES: 2/Soils/

CEF-S42-SS-615-02 CEF-S42-SS-614-04

Overview

The sample set for CTO 078, Cecil Field, SDG F6034 consists of two (2) soil environmental samples.

All samples were analyzed for antimony, arsenic and barium. The samples were collected by Tetra Tech NUS on March 10, 2000 and analyzed by Accutest Laboratory under Naval Facilities Engineering Service Center (NFESC) Quality Assurance / Quality Control (QA / QC) criteria. Antimony, arsenic and barium analyses were conducted using SW 846 method 6010B.

The data was evaluated based on the following parameters:

- * Data Completeness
- * Holding Times
- * Calibration Verifications
- Laboratory Blank Analyses
- * Field Duplicate Results
- * Detection Limits

* - All quality control criteria were met for this parameter.

Laboratory Blank Analyses

The following contaminants were present in a laboratory method / preparation blanks at the following maximum concentrations:

Affected samples: All

Analyte	Maximum Concentration	Action Level
Antimony	2.7µg/L	1.35 mg/kg
Arsenic	3.7µg/L	1.85 mg/kg
Barium[1]	0.14 mg/kg	0.7 mg/kg

(1) Maximum concentration present in a preparation blank.

An action level of 5X the maximum concentration has been used to evaluate the sample data for blank contamination. Sample aliquot, percent solids and dilution factors were taken into consideration when determining blank contamination. Positive results less than the blank action levels for arsenic were qualified, "U", as a result of blank contamination.

Executive Summary

Laboratory Performance: Antimony, arsenic and barium were present in the laboratory blanks.

Other Factors Affecting Data Quality: None.

The data for these analyses were reviewed with reference to the "National Functional Guidelines for Inorganic Review", February 1994 and the NFESC document entitled "Navy Installation Restoration Laboratory Quality Assurance Guide." (NFESC 2/96).

The text of this report has been formulated to address only those problem areas affecting data quality.

"I attest that the data referenced herein were validated according to the agreed upon validation criteria as specified in the NFESC Guidelines and the Quality Assurance Project Plan (QAPP)."

Gretchen A. Phipps

Tetra Tech NUS
Gretchen A. Phipps

Tetra Tech NUS
Joseph A. Samchuck
Quality Control Officer

Attachments:

1. Appendix A - Qualified Analytical Data
2. Appendix B - Results as reported by the Laboratory
3. Appendix C - Support Documentation

APPENDIX A
QUALIFIED ANALYTICAL RESULTS

Qualifier Codes:

A = Lab Blank Contamination
B = Field Blank Contamination
C = Calibration (i.e., % RSDs, %Ds, ICVs, CCVs, RPDs, RRFs, etc.) Noncompliance
D = MS/MSD Noncompliance
E = LCS/LCSD Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = GFAA PDS - GFAA MSA's $r < 0.995$
K = ICP Interference - include ICSAB % R's
L = Instrument Calibration Range Exceedance
M = Sample Preservation
N = Internal Standard Noncompliance
O = Poor Instrument Performance (i.e., base-time drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can encompass a number of issues)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = Pest/PCD% between columns for positive results
V = Non-linear calibrations, tuning $r < 0.995$ (correlation coefficient)
W = EMPC result
X = Signal to noise response drop

CTO078-NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F6034

SAMPLE NUMBER:	CEF-P42-SS-615-02			CEF-P42-SU-614-04								
SAMPLE DATE:	03/10/00			03/10/00			/ /			/ /		
LABORATORY ID:	F6034-3			F6034-2								
QC_TYPE:	NORMAL			NORMAL								
% SOLIDS:	91.8 %			87.1 %			100.0 %			100.0 %		
UNITS:	MG/KG			MG/KG								
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
INORGANICS												
ANTIMONY	0.25	U		0.26	U							
ARSENIC	6.3			0.67	U	A						
BARIUM	26.6			7.3								

APPENDIX B
RESULTS AS REPORTED BY THE LABORATORY

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-P42-SS-615-02		
Lab Sample ID:	F6034-3	**Date Sampled:**	03/10/00
Matrix:	SO - Soil	**Date Received:**	03/13/00
		Percent Solids:	91.8
Project:	NAS Cecil Field-PSC 42		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By		Method
Antimony	0.25 U	6.3	mg/kg	1	03/21/00	03/22/00	JK	SW846 6010A
Arsenic	6.3	1.1	mg/kg	1	03/21/00	03/22/00	JK	SW846 6010A
Barium	26.6	21.2	mg/kg	1	03/21/00	03/22/00	JK	SW846 6010A

RL = Reporting Limit

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ACCUTEST

Report of Analysis

Client Sample ID:	CEF-P42-SU-614-04		
Lab Sample ID:	F6034-2	**Date Sampled:**	03/10/00
Matrix:	SO - Soil	**Date Received:**	03/13/00
		Percent Solids:	87.1
Project:	NAS Cecil Field-PSC 42		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method
Antimony	0.26 U	6.6	mg/kg	1	03/21/00	03/22/00	JK	SW846 6010A
Arsenic	0.67 B	1.1	mg/kg	1	03/21/00	03/22/00	JK	SW846 6010A
Barium	7.3 B	22.1	mg/kg	1	03/21/00	03/22/00	JK	SW846 6010A

RL = Reporting Limit

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Tetra Tech NUS **INTERNAL CORRESPONDENCE**

TO:	**M. SPERANZA**	**DATE:**	**MAY 11, 2000**
FROM:	**JENNIFER M. MALLE**	**COPIES:**	**DV FILE**

SUBJECT: **INORGANIC DATA VALIDATION –ANTIMONY, ARSENIC AND BARIUM**
CTO-078 NAS CECIL FIELD
SDG- F6085

SAMPLES: 10/Soil/

CEF-P42-SS-601-01	CEF-P42-SS-602-01	CEF-P42-SS-603-01
CEF-P42-SS-604-01	CEF-P42-SS-605-01	CEF-P42-SS-606-01
CEF-P42-SS-613-02	CEF-P42-SS-616-01	CEF-P42-SS-617-01
CEF-P42-SS-DU13		

Overview

The sample set for CTO 078, NAS Cecil Field, SDG F6085 includes ten (10) soil environmental samples. The field duplicate pair CEF-P42-SS-DU13/CEF-P45-SS-601-01 was included within this SDG.

All samples were analyzed for antimony, arsenic and barium. The samples were collected by Tetra Tech NUS on March 17, 2000 and analyzed by Accutest Laboratories in accordance with Naval Facilities Engineering Service Center (NFESC) Navy Installation Restoration Laboratory Quality Assurance Guide, (February 1996). Metal analyses were conducted under SW846 method 6010B.

The data was evaluated based on the following parameters:

* • Data Completeness
* • Holding Times
* • Initial and Continuing Calibration Verifications
• Laboratory Blank Analyses
* • Field Duplicate Precision
* • Detection Limits

* - All quality control criteria were met for this parameter.

Laboratory Blank Analyses

The following contaminants were detected in the laboratory method/ preparation blanks at the following maximum concentrations:

Affected samples : All

Analyte	Maximum Concentration	Action Level (soil)
Antimony	4.5 ug/L	2.25 mg/kg
Arsenic	3.7 ug/L	1.85 mg/kg
Barium [1]	0.14 mg/kg	0.70 mg/kg

[1] - Maximum concentration present in a soil preparation blank.

An action level of 5X the maximum concentration was used to evaluate the sample data for blank contamination. Sample aliquot, percent solids and dilution factors were taken into consideration in evaluation for blank contamination. Positive results less than the action level for antimony were qualified as nondetected, "U", due to blank contamination. Validation action was not required for arsenic and barium as results were either greater than the action level or nondetected.

Notes

A field duplicate summary table is included in Appendix C.

Executive Summary

Laboratory Performance: Antimony, arsenic and barium were present in the laboratory method/preparation blanks.

Other Factors Affecting Data Quality: None.

The data for these analyses were reviewed with reference to the "National Functional Guidelines for Inorganic Review", February 1994 and the NFESC document entitled "Navy Installation Restoration Laboratory Quality Assurance Guide" (NFESC 2/96).

The text of this report has been formulated to address only those problem areas affecting data quality.

"I attest that the data referenced herein were validated according to the agreed upon validation criteria as specified in the NFESC Guidelines and the Quality Assurance Project Plan (QAPP)."

Jennifer M. Malle

Tetra Tech NUS
Jennifer M. Malle
Environmental Scientist

Tetra Tech NUS
Joseph A. Samchuck
Quality Assurance Officer

Attachments:

1. Appendix A - Qualified Analytical Results
2. Appendix B - Results as reported by the Laboratory
3. Appendix C - Support Documentation

APPENDIX A

Qualified Analytical Results

Qualifier Codes:

A = Lab Blank Contamination
B = Field Blank Contamination
C = Calibration (i.e., % RSDs, %Ds, ICVs, CCVs, RPDs, RRFs, etc.) Noncompliance
D = MS/MSD Noncompliance
E = LCS/LCSD Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = GFAA PDS - GFAA MSA's $r < 0.995$
K = ICP Interference - include ICSAB % R's
L = Instrument Calibration Range Exceedance
M = Sample Preservation
N = Internal Standard Noncompliance
O = Poor Instrument Performance (i.e., base-time drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can encompass a number of issues)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = Pest/PCB D% between columns for positive results
V = Non-linear calibrations, tuning $r < 0.995$ (correlation coefficient)
W = EMPC result
X = Signal to noise response drop
Y = % Solid content is less than 30%

CTO079-NAS WHITING FIELD
SOIL DATA
Accutest, NJ
SDG: F6085

SAMPLE NUMBER:	CEF-P42-SS-601-01			CEF-P42-SS-602-01			CEF-P42-SS-603-01			CEF-P42-SS-604-01		
SAMPLE DATE:	03/17/00			03/17/00			03/17/00			03/17/00		
LABORATORY ID:	F6085-1			F6085-2			F6085-3			F6085-4		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	87.2 %			81.0 %			84.4 %			86.9 %		
UNITS:	MG/KG			MG/KG			MG/KG			MG/KG		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
INORGANICS												
ANTIMONY	0.28	U		0.30	U		0.29	U		1.2	U	A
ARSENIC	0.40	U		0.43	U		0.42	U		0.41	U	
BARIUM	2.9			3.7			3.0			1.9		

CTO079-NAS WHITING FIELD
SOIL DATA
Accutest, NJ
SDG: F6085

SAMPLE NUMBER:	CEF-P42-SS-605-01			CEF-P42-SS-606-01			CEF-P42-SS-613-02			CEF-P42-SS-616-01		
SAMPLE DATE:	03/17/00			03/17/00			03/17/00			03/17/00		
LABORATORY ID:	F6085-5			F6085-6			F6085-12			F6085-13		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	87.0 %			86.1 %			87.3 %			92.4 %		
UNITS:	MG/KG			MG/KG			MG/KG			MG/KG		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
INORGANICS												
ANTIMONY	0.28	U		0.26	U		11.4			0.27	U	
ARSENIC	0.41	U		0.38	U		5.8			0.39	U	
BARIUM	11.5			25.7			129			5.3		

CTO079-NAS WHITING FIELD
SOIL DATA
Accutest, NJ
SDG: F6085

SAMPLE NUMBER:	CEF-P42-SS-617-01			CEF-P42-SS-DU13								
SAMPLE DATE:	03/17/00			03/17/00			/ /			/ /		
LABORATORY ID:	F6085-14			F6085-15								
QC_TYPE:	NORMAL			NORMAL								
% SOLIDS:	92.8 %			95.7 %			100.0 %			100.0 %		
UNITS:	MG/KG			MG/KG								
FIELD DUPLICATE OF:				CEF-P45-SS-601-01								
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
INORGANICS												
ANTIMONY	0.28	U		0.27	U							
ARSENIC	0.40	U		0.38	U							
BARIUM	4.7			2.5								

APPENDIX B

Results as Reported by the Laboratory

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-P42-SS-601-01		
Lab Sample ID:	F6085-1	**Date Sampled:**	03/17/00
Matrix:	SO - Soil	**Date Received:**	03/18/00
		Percent Solids:	87.2
Project:	NAS Cecil Field-PSC 42		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method
Antimony	0.28 U	7.0	mg/kg	1	03/21/00	03/22/00	JK	SW846 6010A
Arsenic	0.40 U	1.2	mg/kg	1	03/21/00	03/22/00	JK	SW846 6010A
Barium	2.9 B	23.4	mg/kg	1	03/21/00	03/22/00	JK	SW846 6010A

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Report of Analysis

Client Sample ID:	CEF-P42-SS-602-01		
Lab Sample ID:	F6085-2	**Date Sampled:**	03/17/00
Matrix:	SO - Soil	**Date Received:**	03/18/00
		Percent Solids:	81.0
Project:	NAS Cecil Field-PSC 42		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method
Antimony	0.30 U	7.6	mg/kg	1	03/21/00	03/22/00	JK	SW846 6010A
Arsenic	0.43 U	1.3	mg/kg	1	03/21/00	03/22/00	JK	SW846 6010A
Barium	3.7 B	25.2	mg/kg	1	03/21/00	03/22/00	JK	SW846 6010A

RL = Reporting Limit

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-P42-SS-603-01		
Lab Sample ID:	F6085-3	**Date Sampled:**	03/17/00
Matrix:	SO - Soil	**Date Received:**	03/18/00
		Percent Solids:	84.4
Project:	NAS Cecil Field-PSC 42		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method
Antimony	0.29 U	7.3	mg/kg	1	03/21/00	03/22/00	JK	SW846 6010A
Arsenic	0.42 U	1.2	mg/kg	1	03/21/00	03/22/00	JK	SW846 6010A
Barium	3.0 B	24.2	mg/kg	1	03/21/00	03/22/00	JK	SW846 6010A

RL = Reporting Limit

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-P42-SS-604-01		
Lab Sample ID:	F6085-4	**Date Sampled:**	03/17/00
Matrix:	SO - Soil	**Date Received:**	03/18/00
		Percent Solids:	86.9
Project:	NAS Cecil Field-PSC 42		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method
Antimony	1.2 B	7.2	mg/kg	1	03/21/00	03/22/00	JK	SW846 6010A
Arsenic	0.41 U	1.2	mg/kg	1	03/21/00	03/22/00	JK	SW846 6010A
Barium	1.9 B	24.0	mg/kg	1	03/21/00	03/22/00	JK	SW846 6010A

RL = Reporting Limit

000014

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-P42-SS-605-01		
Lab Sample ID:	F6085-5	**Date Sampled:**	03/17/00
Matrix:	SO - Soil	**Date Received:**	03/18/00
		Percent Solids:	87.0
Project:	NAS Cecil Field-PSC 42		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method
Antimony	0.28 U	7.1	mg/kg	1	03/21/00	03/22/00	JK	SW846 6010A
Arsenic	0.41 U	1.2	mg/kg	1	03/21/00	03/22/00	JK	SW846 6010A
Barium	11.5 B	23.7	mg/kg	1	03/21/00	03/22/00	JK	SW846 6010A

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ACCUTEST

Report of Analysis

Client Sample ID:	CEF-P42-SS-606-01		
Lab Sample ID:	F6085-6	**Date Sampled:**	03/17/00
Matrix:	SO - Soil	**Date Received:**	03/18/00
		Percent Solids:	86.1
Project:	NAS Cecil Field-PSC 42		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By		Method
Antimony	0.26 U	6.6	mg/kg	1	03/21/00	03/22/00	JK	SW846 6010A
Arsenic	0.38 U	1.1	mg/kg	1	03/21/00	03/22/00	JK	SW846 6010A
Barium	25.7	22.1	mg/kg	1	03/21/00	03/22/00	JK	SW846 6010A

RL = Reporting Limit

000020

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-P42-SS-613-02		
Lab Sample ID:	F6085-12	**Date Sampled:**	03/17/00
Matrix:	SO - Soil	**Date Received:**	03/18/00
		Percent Solids:	87.3
Project:	NAS Cecil Field-PSC 42		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method
Antimony	11.4	6.7	mg/kg	1	03/22/00	03/23/00	JK	SW846 6010A
Arsenic	5.8	1.1	mg/kg	1	03/22/00	03/23/00	JK	SW846 6010A
Barium	129	22.2	mg/kg	1	03/22/00	03/23/00	JK	SW846 6010A

RL = Reporting Limit

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-P42-SS-616-01		
Lab Sample ID:	F6085-13	**Date Sampled:**	03/17/00
Matrix:	SO - Soil	**Date Received:**	03/18/00
		Percent Solids:	92.4
Project:	NAS Cecil Field-PSC 42		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method
Antimony	0.27 U	6.8	mg/kg	1	03/22/00	03/23/00	JK	SW846 6010A
Arsenic	0.39 U	1.1	mg/kg	1	03/22/00	03/23/00	JK	SW846 6010A
Barium	5.3 B	22.8	mg/kg	1	03/22/00	03/23/00	JK	SW846 6010A

RL = Reporting Limit

000036

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-P42-SS-617-01		
Lab Sample ID:	F6085-14	**Date Sampled:**	03/17/00
Matrix:	SO - Soil	**Date Received:**	03/18/00
		Percent Solids:	92.8
Project:	NAS Cecil Field-PSC 42		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method
Antimony	0.28 U	7.0	mg/kg	1	03/22/00	03/23/00	JK	SW846 6010A
Arsenic	0.40 U	1.2	mg/kg	1	03/22/00	03/23/00	JK	SW846 6010A
Barium	4.7 B	23.2	mg/kg	1	03/22/00	03/23/00	JK	SW846 6010A

RL = Reporting Limit

000039

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-P42-SS-DU13		
Lab Sample ID:	F6085-15	**Date Sampled:**	03/17/00
Matrix:	SO - Soil	**Date Received:**	03/18/00
		Percent Solids:	95.7
Project:	NAS Cecil Field-PSC 42		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method
Antimony	0.27 U	6.7	mg/kg	1	03/22/00	03/23/00	JK	SW846 6010A
Arsenic	0.38 U	1.1	mg/kg	1	03/22/00	03/23/00	JK	SW846 6010A
Barium	2.5 B	22.2	mg/kg	1	03/22/00	03/23/00	JK	SW846 6010A

RL = Reporting Limit

000042

Tetra Tech NUS **INTERNAL CORRESPONDENCE**

PITT-04-0-058

TO: **MARK SPERANZA** **DATE: MAY 15, 2000**

FROM: **JUSTIN ORBICH** **CC: DV FILE**

SUBJECT: **ORGANIC DATA VALIDATION – PAH/TPH**
CTO 078 – NAS CECIL FIELD
SDG F6274

SAMPLES: 15/Surface Soil

CEF-P42-SS-701-02
CEF-P42-SS-706-02*
CEF-P42-SS-710-01
CEF-P42-SS-712-01
CEF-P42-SS-714-01
CEF-P42-SS-DU15
CEF-P42-SU-703-03*
CEF-P42-SU-707-03*
CEF-P42-SS-704-02
CEF-P42-SS-709-01
CEF-P42-SS-711-01
CEF-P42-SS-713-01
CEF-P42-SS-DU14
CEF-P42-SU-702-03
CEF-P42-SU-705-03*

OVERVIEW

The sample set for CTO 078, SDG F6274 Naval Air Station (NAS) Cecil Field; Florida consists of fifteen (15) surface soil environmental samples. The samples were analyzed for Target Compound List (TCL) Polynuclear Aromatic Hydrocarbon (PAH) and Total Petroleum Hydrocarbon (TPH) organic compounds. The samples designated (*) were analyzed for PAH organic compounds only. Two (2) field duplicate pairs (CEF-P42-SU-707-03/CEF-P42-SS-DU14 and CEF-P42-SS-710-01/CEF-P42-SS-DU15) were included within this SDG.

The sample was collected by Tetra Tech, NUS on April 13th, 2000 and analyzed by Accutest Laboratories. All analyses were performed in accordance with Naval Facilities Engineering Service Center (NFESC) Quality Assurance/Quality Control (QA/QC) criteria and analyzed according to SW 846 Method 8310 and FLORIDA-PRO analytical and reporting protocols. The data in this SDG was validated with regard to the following parameters:

* • Data Completeness
* • Holding Times
* • Initial/continuing calibrations
* • Laboratory method/field quality control blank results
* • Field Duplicate Precision
* • Detection Limits

The symbol (*) indicates that all quality control criteria were met for this parameter. Problems affecting data quality are discussed below; documentation supporting these findings is presented in Appendix C. Qualified analytical results are presented in Appendix A.

MEMO TO: MARK SPERANZA
DATE: MAY 15, 2000 – PAGE 2

PAH FRACTION

All quality control parameters were met for this fraction.

TPH FRACTION

Sample CEF-P42-SS-DU14 for TPH does not have a corresponding duplicate sample. The Chain Of Custody (COC) did not indicate a sample was collected for TPH.

EXECUTIVE SUMMARY

Laboratory performance: None.

Other Factors Affecting Data Quality: None.

MEMO TO: MARK SPERANZA
DATE: MAY 15, 2000 – PAGE 3

The data for these analyses were reviewed with reference to the EPA Functional Guidelines for Organic Data Validation (October, 1999), and the NFESC guidelines "Navy Installation Restoration Program Laboratory Quality Assurance Guide" (February, 1996). The text of this report has been formulated to address only those problems affecting data quality.

"I attest that the data referenced herein was validated according to the agreed upon validation criteria as specified in the NFESC Guidelines and the Quality Assurance Project Plan (QAPP)."

Justin Orbich

Chemist/Data Validator
Tetra Tech, NUS

Joseph A. Samchuck

Data Validation Quality Assurance Officer
Tetra Tech, NUS

Attachments:
1. Appendix A - Qualified Analytical Results
2. Appendix B - Results as reported by the Laboratory
3. Appendix C - Support Documentation

DATA QUALIFIER DEFINITIONS:

U - Value is a nondetected result as reported by the laboratory and should not be considered present.

J - Positive result is estimated as a result of a value below the CRQL or a technical noncompliance.

Qualifier Codes:

A = Lab Blank Contamination
B = Field Blank Contamination
C = Calibration (i.e., % RSDs, %Ds, ICVs, CCVs, RPDs, RRFs, etc.) Noncompliance
D = MS/MSD Noncompliance
E = LCS/LCSD Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = GFAA PDS - GFAA MSA's $r < 0.995$
K = ICP Interference - include ICSAB % R's
L = Instrument Calibration Range Exceedance
M = Sample Preservation
N = Internal Standard Noncompliance
O = Poor Instrument Performance (i.e., base-time drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can encompass a number of issues)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = Pest/PCB D% between columns for positive results
V = Non-linear calibrations, tuning $r < 0.995$ (correlation coefficient)
W = EMPC result
X = Signal to noise response drop
Y = % Solid content is less than 30%

APPENDIX A

Qualified Analytical Results

CTO078 - NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F6274

SAMPLE NUMBER:	CEF-P42-SS-701-02			CEF-P42-SS-704-02			CEF-P42-SS-706-02			CEF-P42-SS-709-01		
SAMPLE DATE:	04/13/00			04/13/00			04/13/00			04/13/00		
LABORATORY ID:	F6274-1			F6274-4			F6274-6			F6274-8		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	94.4 %			97.0 %			89.7 %			91.5 %		
UNITS:	UG/KG			UG/KG			UG/KG			UG/KG		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
POLYNUCLEAR AROMATIC HYDROCARBONS												
1-METHYLNAPHTHALENE	350	U		340	U		370	U		360	U	
2-METHYLNAPHTHALENE	350	U		340	U		370	U		360	U	
ACENAPHTHENE	350	U		340	U		370	U		360	U	
ACENAPHTHYLENE	710	U		690	U		740	U		730	U	
ANTHRACENE	350	U		340	U		370	U		360	U	
BENZO(A)ANTHRACENE	71	U		69	U		74	U		47.9	J	P
BENZO(A)PYRENE	71	U		69	U		74	U		236		
BENZO(B)FLUORANTHENE	71	U		69	U		74	U		149		
BENZO(G,H,I)PERYLENE	71	U		69	U		74	U		424		
BENZO(K)FLUORANTHENE	71	U		69	U		74	U		98.4		
CHRYSENE	71	U		69	U		74	U		25.5	J	P
DIBENZO(A,H)ANTHRACENE	71	U		69	U		74	U		73	U	
FLUORANTHENE	350	U		340	U		370	U		360	U	
FLUORENE	350	U		340	U		370	U		360	U	
INDENO(1,2,3-CD)PYRENE	71	U		69	U		74	U		470		
NAPHTHALENE	350	U		340	U		370	U		360	U	
PHENANTHRENE	350	U		340	U		370	U		360	U	
PYRENE	350	U		340	U		370	U		360	U	

CTO078 - NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F6274

SAMPLE NUMBER:	CEF-P42-SS-710-01			CEF-P42-SS-711-01			CEF-P42-SS-712-01			CEF-P42-SS-713-01		
SAMPLE DATE:	04/13/00			04/13/00			04/13/00			04/13/00		
LABORATORY ID:	F6274-9			F6274-10			F6274-11			F6274-12		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	81.4 %			87.0 %			82.1 %			92.3 %		
UNITS:	UG/KG			UG/KG			UG/KG			UG/KG		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
POLYNUCLEAR AROMATIC HYDROCARBONS												
1-METHYLNAPHTHALENE	410	U		380	U		400	U		360	U	
2-METHYLNAPHTHALENE	410	U		380	U		400	U		360	U	
ACENAPHTHENE	410	U		380	U		400	U		360	U	
ACENAPHTHYLENE	820	U		760	U		810	U		720	U	
ANTHRACENE	410	U		380	U		400	U		360	U	
BENZO(A)ANTHRACENE	82	U		76	U		81	U		72	U	
BENZO(A)PYRENE	82	U		76	U		81	U		72	U	
BENZO(B)FLUORANTHENE	82	U		76	U		81	U		72	U	
BENZO(G,H,I)PERYLENE	82	U		76	U		81	U		72	U	
BENZO(K)FLUORANTHENE	82	U		76	U		81	U		72	U	
CHRYSENE	82	U		76	U		81	U		72	U	
DIBENZO(A,H)ANTHRACENE	82	U		76	U		81	U		72	U	
FLUORANTHENE	410	U		380	U		400	U		360	U	
FLUORENE	410	U		380	U		400	U		360	U	
INDENO(1,2,3-CD)PYRENE	82	U		76	U		81	U		72	U	
NAPHTHALENE	410	U		380	U		400	U		360	U	
PHENANTHRENE	410	U		380	U		400	U		360	U	
PYRENE	410	U		380	U		400	U		360	U	

CTO078 - NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F6274

SAMPLE NUMBER:	CEF-P42-SS-714-01			CEF-P42-SS-DU14			CEF-P42-SS-DU15			CEF-P42-SU-702-03		
SAMPLE DATE:	04/13/00			04/13/00			04/13/00			04/13/00		
LABORATORY ID:	F6274-13			F6274-14			F6274-15			F6274-2		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	84.5 %			90.4 %			86.1 %			95.3 %		
UNITS:	UG/KG			UG/KG			UG/KG			UG/KG		
FIELD DUPLICATE OF:				CEF-P42-SU-707-03			CEF-P42-SU-710-01					
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
POLYNUCLEAR AROMATIC HYDROCARBONS												
1-METHYLNAPHTHALENE	390	U		370	U		390	U		350	U	
2-METHYLNAPHTHALENE	390	U		370	U		390	U		350	U	
ACENAPHTHENE	390	U		370	U		390	U		350	U	
ACENAPHTHYLENE	790	U		740	U		770	U		700	U	
ANTHRACENE	390	U		370	U		390	U		350	U	
BENZO(A)ANTHRACENE	118			74	U		77	U		70	U	
BENZO(A)PYRENE	86.2			74	U		77	U		70	U	
BENZO(B)FLUORANTHENE	70.1	J	P	74	U		77	U		70	U	
BENZO(G,H,I)PERYLENE	72.2	J	P	74	U		77	U		70	U	
BENZO(K)FLUORANTHENE	46.7	J	P	74	U		77	U		70	U	
CHRYSENE	106			74	U		77	U		70	U	
DIBENZO(A,H)ANTHRACENE	79	U		74	U		77	U		70	U	
FLUORANTHENE	273	J	P	370	U		390	U		350	U	
FLUORENE	390	U		370	U		390	U		350	U	
INDENO(1,2,3-CD)PYRENE	74.2	J	P	74	U		77	U		70	U	
NAPHTHALENE	390	U		370	U		390	U		350	U	
PHENANTHRENE	145	J	P	370	U		390	U		350	U	
PYRENE	183	J	P	370	U		390	U		350	U	

CTO078 - NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F6274

SAMPLE NUMBER:	CEF-P42-SU-703-03			CEF-P42-SU-705-03			CEF-P42-SU-707-03					
SAMPLE DATE:	04/13/00			04/13/00			04/13/00			/ /		
LABORATORY ID:	F6274-3			F6274-5			F6274-7					
QC_TYPE:	NORMAL			NORMAL			NORMAL					
% SOLIDS:	95.6 %			96.3 %			91.2 %			100.0 %		
UNITS:	UG/KG			UG/KG			UG/KG					
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
POLYNUCLEAR AROMATIC HYDROCARBONS												
1-METHYLNAPHTHALENE	350	U		340	U		360	U				
2-METHYLNAPHTHALENE	350	U		340	U		360	U				
ACENAPHTHENE	350	U		340	U		360	U				
ACENAPHTHYLENE	700	U		690	U		730	U				
ANTHRACENE	350	U		340	U		360	U				
BENZO(A)ANTHRACENE	70	U		69	U		33.9	J	P			
BENZO(A)PYRENE	70	U		69	U		22.5	J	P			
BENZO(B)FLUORANTHENE	70	U		69	U		25.4	J	P			
BENZO(G,H,I)PERYLENE	70	U		69	U		23.3	J	P			
BENZO(K)FLUORANTHENE	70	U		69	U		19.2	J	P			
CHRYSENE	70	U		69	U		33.5	J	P			
DIBENZO(A,H)ANTHRACENE	70	U		69	U		73	U				
FLUORANTHENE	350	U		340	U		360	U				
FLUORENE	350	U		340	U		360	U				
INDENO(1,2,3-CD)PYRENE	70	U		69	U		21.2	J	P			
NAPHTHALENE	350	U		340	U		360	U				
PHENANTHRENE	350	U		340	U		360	U				
PYRENE	350	U		340	U		360	U				

CTO078 - NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F6274

SAMPLE NUMBER:	CEF-P42-SS-701-02			CEF-P42-SS-704-02			CEF-P42-SS-709-01			CEF-P42-SS-710-01		
SAMPLE DATE:	04/13/00			04/13/00			04/13/00			04/13/00		
LABORATORY ID:	F6274-1			F6274-4			F6274-8			F6274-9		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	94.4 %			97.0 %			91.5 %			81.4 %		
UNITS:	MG/KG			MG/KG			MG/KG			MG/KG		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
PETROLEUM HYDROCARBONS												
TPH (C8-C40)	7.49	J	P	8.6	U		14.3			9.2	J	P

CTO078 - NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F6274

SAMPLE NUMBER:	CEF-P42-SS-711-01			CEF-P42-SS-712-01			CEF-P42-SS-713-01			CEF-P42-SS-714-01		
SAMPLE DATE:	04/13/00			04/13/00			04/13/00			04/13/00		
LABORATORY ID:	F6274-10			F6274-11			F6274-12			F6274-13		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	87.0 %			82.1 %			92.3 %			84.5 %		
UNITS:	MG/KG			MG/KG			MG/KG			MG/KG		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
PETROLEUM HYDROCARBONS												
TPH (C8-C40)	9.41	J	P	15.5			8.26	J	P	13.9		

CTO078 - NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F6274

SAMPLE NUMBER:	CEF-P42-SS-DU14			CEF-P42-SS-DU15			CEF-P42-SU-702-03					
SAMPLE DATE:	04/13/00			04/13/00			04/13/00			/ /		
LABORATORY ID:	F6274-14			F6274-15			F6274-2					
QC_TYPE:	NORMAL			NORMAL			NORMAL					
% SOLIDS:	90.4 %			86.1 %			95.3 %			100.0 %		
UNITS:	MG/KG			MG/KG			MG/KG					
FIELD DUPLICATE OF:				CEF-P42-SS-710-01								
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
PETROLEUM HYDROCARBONS												
TPH (C8-C40)	9.2	U		10.4			8.7	U				

APPENDIX B

Results as Reported by the Laboratory

Report of Analysis

Client Sample ID:	CEF-P42-SS-701-02		
Lab Sample ID:	F6274-1	**Date Sampled:**	04/13/00
Matrix:	SO - Soil	**Date Received:**	04/14/00
Method:	EPA 8310	**Percent Solids:**	94.4
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	AA000757.D	1	04/17/00	CCJ	04/17/00	OP1456	GAA37
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	350	ug/kg	
208-96-8	Acenaphthylene	ND	710	ug/kg	
120-12-7	Anthracene	ND	350	ug/kg	
56-55-3	Benzo(a)anthracene	ND	71	ug/kg	
50-32-8	Benzo(a)pyrene	ND	71	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	71	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	71	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	71	ug/kg	
218-01-9	Chrysene	ND	71	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	71	ug/kg	
206-44-0	Fluoranthene	ND	350	ug/kg	
86-73-7	Fluorene	ND	350	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	71	ug/kg	
91-20-3	Naphthalene	ND	350	ug/kg	
90-12-0	1-Methylnaphthalene	ND	350	ug/kg	
91-57-6	2-Methylnaphthalene	ND	350	ug/kg	
85-01-8	Phenanthrene	ND	350	ug/kg	
129-00-0	Pyrene	ND	350	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	82%		35-135%
92-94-4	p-Terphenyl	86%		50-150%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-P42-SS-704-02		
Lab Sample ID:	F6274-4	**Date Sampled:**	04/13/00
Matrix:	SO - Soil	**Date Received:**	04/14/00
Method:	EPA 8310	**Percent Solids:**	97.0
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	AA000761.D	1	04/18/00	CCJ	04/17/00	OP1456	GAA37
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	340	ug/kg	
208-96-8	Acenaphthylene	ND	690	ug/kg	
120-12-7	Anthracene	ND	340	ug/kg	
56-55-3	Benzo(a)anthracene	ND	69	ug/kg	
50-32-8	Benzo(a)pyrene	ND	69	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	69	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	69	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	69	ug/kg	
218-01-9	Chrysene	ND	69	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	69	ug/kg	
206-44-0	Fluoranthene	ND	340	ug/kg	
86-73-7	Fluorene	ND	340	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	69	ug/kg	
91-20-3	Naphthalene	ND	340	ug/kg	
90-12-0	1-Methylnaphthalene	ND	340	ug/kg	
91-57-6	2-Methylnaphthalene	ND	340	ug/kg	
85-01-8	Phenanthrene	ND	340	ug/kg	
129-00-0	Pyrene	ND	340	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	79%		35-135%
92-94-4	p-Terphenyl	87%		50-150%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-P42-SS-706-02		
Lab Sample ID:	F6274-6	**Date Sampled:**	04/13/00
Matrix:	SO - Soil	**Date Received:**	04/14/00
Method:	EPA 8310	**Percent Solids:**	89.7
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	AA000763.D	1	04/18/00	CCJ	04/17/00	OP1456	GAA37
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	370	ug/kg	
208-96-8	Acenaphthylene	ND	740	ug/kg	
120-12-7	Anthracene	ND	370	ug/kg	
56-55-3	Benzo(a)anthracene	ND	74	ug/kg	
50-32-8	Benzo(a)pyrene	ND	74	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	74	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	74	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	74	ug/kg	
218-01-9	Chrysene	ND	74	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	74	ug/kg	
206-44-0	Fluoranthene	ND	370	ug/kg	
86-73-7	Fluorene	ND	370	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	74	ug/kg	
91-20-3	Naphthalene	ND	370	ug/kg	
90-12-0	1-Methylnaphthalene	ND	370	ug/kg	
91-57-6	2-Methylnaphthalene	ND	370	ug/kg	
85-01-8	Phenanthrene	ND	370	ug/kg	
129-00-0	Pyrene	ND	370	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	79%		35-135%
92-94-4	p-Terphenyl	86%		50-150%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-P42-SS-709-01		
Lab Sample ID:	F6274-8	**Date Sampled:**	04/13/00
Matrix:	SO - Soil	**Date Received:**	04/14/00
Method:	EPA 8310	**Percent Solids:**	91.5
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	AA000765.D	1	04/18/00	CCJ	04/17/00	OP1456	GAA37
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	360	ug/kg	
208-96-8	Acenaphthylene	ND	730	ug/kg	
120-12-7	Anthracene	ND	360	ug/kg	
56-55-3	Benzo(a)anthracene	47.9	73	ug/kg	J
50-32-8	Benzo(a)pyrene	236	73	ug/kg	
205-99-2	Benzo(b)fluoranthene	149	73	ug/kg	
191-24-2	Benzo(g,h,i)perylene	424	73	ug/kg	
207-08-9	Benzo(k)fluoranthene	98.4	73	ug/kg	
218-01-9	Chrysene	25.5	73	ug/kg	J
53-70-3	Dibenzo(a,h)anthracene	ND	73	ug/kg	
206-44-0	Fluoranthene	ND	360	ug/kg	
86-73-7	Fluorene	ND	360	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	470	73	ug/kg	
91-20-3	Naphthalene	ND	360	ug/kg	
90-12-0	1-Methylnaphthalene	ND	360	ug/kg	
91-57-6	2-Methylnaphthalene	ND	360	ug/kg	
85-01-8	Phenanthrene	ND	360	ug/kg	
129-00-0	Pyrene	ND	360	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	79%		35-135%
92-94-4	p-Terphenyl	84%		50-150%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-P42-SS-710-01		
Lab Sample ID:	F6274-9	**Date Sampled:**	04/13/00
Matrix:	SO - Soil	**Date Received:**	04/14/00
Method:	EPA 8310	**Percent Solids:**	81.4
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	AA000766.D	1	04/18/00	CCJ	04/17/00	OP1456	GAA37
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	410	ug/kg	
208-96-8	Acenaphthylene	ND	820	ug/kg	
120-12-7	Anthracene	ND	410	ug/kg	
56-55-3	Benzo(a)anthracene	ND	82	ug/kg	
50-32-8	Benzo(a)pyrene	ND	82	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	82	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	82	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	82	ug/kg	
218-01-9	Chrysene	ND	82	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	82	ug/kg	
206-44-0	Fluoranthene	ND	410	ug/kg	
86-73-7	Fluorene	ND	410	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	82	ug/kg	
91-20-3	Naphthalene	ND	410	ug/kg	
90-12-0	1-Methylnaphthalene	ND	410	ug/kg	
91-57-6	2-Methylnaphthalene	ND	410	ug/kg	
85-01-8	Phenanthrene	ND	410	ug/kg	
129-00-0	Pyrene	ND	410	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	77%		35-135%
92-94-4	p-Terphenyl	83%		50-150%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-P42-SS-711-01		
Lab Sample ID:	F6274-10	**Date Sampled:**	04/13/00
Matrix:	SO - Soil	**Date Received:**	04/14/00
Method:	EPA 8310	**Percent Solids:**	87.0
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	AA000767.D	1	04/18/00	CCJ	04/17/00	OP1456	GAA37
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	380	ug/kg	
208-96-8	Acenaphthylene	ND	760	ug/kg	
120-12-7	Anthracene	ND	380	ug/kg	
56-55-3	Benzo(a)anthracene	ND	76	ug/kg	
50-32-8	Benzo(a)pyrene	ND	76	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	76	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	76	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	76	ug/kg	
218-01-9	Chrysene	ND	76	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	76	ug/kg	
206-44-0	Fluoranthene	ND	380	ug/kg	
86-73-7	Fluorene	ND	380	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	76	ug/kg	
91-20-3	Naphthalene	ND	380	ug/kg	
90-12-0	1-Methylnaphthalene	ND	380	ug/kg	
91-57-6	2-Methylnaphthalene	ND	380	ug/kg	
85-01-8	Phenanthrene	ND	380	ug/kg	
129-00-0	Pyrene	ND	380	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	79%		35-135%
92-94-4	p-Terphenyl	85%		50-150%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-P42-SS-712-01		
Lab Sample ID:	F6274-11	**Date Sampled:**	04/13/00
Matrix:	SO - Soil	**Date Received:**	04/14/00
Method:	EPA 8310	**Percent Solids:**	82.1
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	AA000768.D	1	04/18/00	CCJ	04/17/00	OP1456	GAA37
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	400	ug/kg	
208-96-8	Acenaphthylene	ND	810	ug/kg	
120-12-7	Anthracene	ND	400	ug/kg	
56-55-3	Benzo(a)anthracene	ND	81	ug/kg	
50-32-8	Benzo(a)pyrene	ND	81	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	81	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	81	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	81	ug/kg	
218-01-9	Chrysene	ND	81	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	81	ug/kg	
206-44-0	Fluoranthene	ND	400	ug/kg	
86-73-7	Fluorene	ND	400	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	81	ug/kg	
91-20-3	Naphthalene	ND	400	ug/kg	
90-12-0	1-Methylnaphthalene	ND	400	ug/kg	
91-57-6	2-Methylnaphthalene	ND	400	ug/kg	
85-01-8	Phenanthrene	ND	400	ug/kg	
129-00-0	Pyrene	ND	400	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	87%		35-135%
92-94-4	p-Terphenyl	87%		50-150%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-P42-SS-713-01		
Lab Sample ID:	F6274-12	**Date Sampled:**	04/13/00
Matrix:	SO - Soil	**Date Received:**	04/14/00
Method:	EPA 8310	**Percent Solids:**	92.3
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	AA000769.D	1	04/18/00	CCJ	04/17/00	OP1456	GAA37
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	360	ug/kg	
208-96-8	Acenaphthylene	ND	720	ug/kg	
120-12-7	Anthracene	ND	360	ug/kg	
56-55-3	Benzo(a)anthracene	ND	72	ug/kg	
50-32-8	Benzo(a)pyrene	ND	72	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	72	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	72	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	72	ug/kg	
218-01-9	Chrysene	ND	72	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	72	ug/kg	
206-44-0	Fluoranthene	ND	360	ug/kg	
86-73-7	Fluorene	ND	360	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	72	ug/kg	
91-20-3	Naphthalene	ND	360	ug/kg	
90-12-0	1-Methylnaphthalene	ND	360	ug/kg	
91-57-6	2-Methylnaphthalene	ND	360	ug/kg	
85-01-8	Phenanthrene	ND	360	ug/kg	
129-00-0	Pyrene	ND	360	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	82%		35-135%
92-94-4	p-Terphenyl	86%		50-150%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-P42-SS-714-01		
Lab Sample ID:	F6274-13	**Date Sampled:**	04/13/00
Matrix:	SO - Soil	**Date Received:**	04/14/00
Method:	EPA 8310	**Percent Solids:**	84.5
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	AA000770.D	1	04/18/00	CCJ	04/17/00	OP1456	GAA37
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	390	ug/kg	
208-96-8	Acenaphthylene	ND	790	ug/kg	
120-12-7	Anthracene	ND	390	ug/kg	
56-55-3	Benzo(a)anthracene	118	79	ug/kg	
50-32-8	Benzo(a)pyrene	86.2	79	ug/kg	
205-99-2	Benzo(b)fluoranthene	70.1	79	ug/kg	J
191-24-2	Benzo(g,h,i)perylene	72.2	79	ug/kg	J
207-08-9	Benzo(k)fluoranthene	46.7	79	ug/kg	J
218-01-9	Chrysene	106	79	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	79	ug/kg	
206-44-0	Fluoranthene	273	390	ug/kg	J
86-73-7	Fluorene	ND	390	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	74.2	79	ug/kg	J
91-20-3	Naphthalene	ND	390	ug/kg	
90-12-0	1-Methylnaphthalene	ND	390	ug/kg	
91-57-6	2-Methylnaphthalene	ND	390	ug/kg	
85-01-8	Phenanthrene	145	390	ug/kg	J
129-00-0	Pyrene	183	390	ug/kg	J

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	80%		35-135%
92-94-4	p-Terphenyl	87%		50-150%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-P42-SS-DU14		
Lab Sample ID:	F6274-14	**Date Sampled:**	04/13/00
Matrix:	SO - Soil	**Date Received:**	04/14/00
Method:	EPA 8310	**Percent Solids:**	90.4
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	AA000802.D	1	04/19/00	CCJ	04/17/00	OP1456	GAA39
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	370	ug/kg	
208-96-8	Acenaphthylene	ND	740	ug/kg	
120-12-7	Anthracene	ND	370	ug/kg	
56-55-3	Benzo(a)anthracene	ND	74	ug/kg	
50-32-8	Benzo(a)pyrene	ND	74	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	74	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	74	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	74	ug/kg	
218-01-9	Chrysene	ND	74	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	74	ug/kg	
206-44-0	Fluoranthene	ND	370	ug/kg	
86-73-7	Fluorene	ND	370	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	74	ug/kg	
91-20-3	Naphthalene	ND	370	ug/kg	
90-12-0	1-Methylnaphthalene	ND	370	ug/kg	
91-57-6	2-Methylnaphthalene	ND	370	ug/kg	
85-01-8	Phenanthrene	ND	370	ug/kg	
129-00-0	Pyrene	ND	370	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	76%		35-135%
92-94-4	p-Terphenyl	100%		50-150%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-P42-SS-DU15		
Lab Sample ID:	F6274-15	**Date Sampled:**	04/13/00
Matrix:	SO - Soil	**Date Received:**	04/14/00
Method:	EPA 8310	**Percent Solids:**	86.1
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	AA000803.D	1	04/19/00	CCJ	04/17/00	OP1456	GAA39
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	390	ug/kg	
208-96-8	Acenaphthylene	ND	770	ug/kg	
120-12-7	Anthracene	ND	390	ug/kg	
56-55-3	Benzo(a)anthracene	ND	77	ug/kg	
50-32-8	Benzo(a)pyrene	ND	77	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	77	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	77	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	77	ug/kg	
218-01-9	Chrysene	ND	77	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	77	ug/kg	
206-44-0	Fluoranthene	ND	390	ug/kg	
86-73-7	Fluorene	ND	390	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	77	ug/kg	
91-20-3	Naphthalene	ND	390	ug/kg	
90-12-0	1-Methylnaphthalene	ND	390	ug/kg	
91-57-6	2-Methylnaphthalene	ND	390	ug/kg	
85-01-8	Phenanthrene	ND	390	ug/kg	
129-00-0	Pyrene	ND	390	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	78%		35-135%
92-94-4	p-Terphenyl	100%		50-150%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-P42-SU-702-03		
Lab Sample ID:	F6274-2	**Date Sampled:**	04/13/00
Matrix:	SO - Soil	**Date Received:**	04/14/00
Method:	EPA 8310	**Percent Solids:**	95.3
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	AA000758.D	1	04/17/00	CCJ	04/17/00	OP1456	GAA37
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	350	ug/kg	
208-96-8	Acenaphthylene	ND	700	ug/kg	
120-12-7	Anthracene	ND	350	ug/kg	
56-55-3	Benzo(a)anthracene	ND	70	ug/kg	
50-32-8	Benzo(a)pyrene	ND	70	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	70	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	70	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	70	ug/kg	
218-01-9	Chrysene	ND	70	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	70	ug/kg	
206-44-0	Fluoranthene	ND	350	ug/kg	
86-73-7	Fluorene	ND	350	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	70	ug/kg	
91-20-3	Naphthalene	ND	350	ug/kg	
90-12-0	1-Methylnaphthalene	ND	350	ug/kg	
91-57-6	2-Methylnaphthalene	ND	350	ug/kg	
85-01-8	Phenanthrene	ND	350	ug/kg	
129-00-0	Pyrene	ND	350	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	77%		35-135%
92-94-4	p-Terphenyl	83%		50-150%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-P42-SU-703-03		
Lab Sample ID:	F6274-3	**Date Sampled:**	04/13/00
Matrix:	SO - Soil	**Date Received:**	04/14/00
Method:	EPA 8310	**Percent Solids:**	95.6
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	AA000759.D	1	04/17/00	CCJ	04/17/00	OP1456	GAA37
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	350	ug/kg	
208-96-8	Acenaphthylene	ND	700	ug/kg	
120-12-7	Anthracene	ND	350	ug/kg	
56-55-3	Benzo(a)anthracene	ND	70	ug/kg	
50-32-8	Benzo(a)pyrene	ND	70	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	70	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	70	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	70	ug/kg	
218-01-9	Chrysene	ND	70	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	70	ug/kg	
206-44-0	Fluoranthene	ND	350	ug/kg	
86-73-7	Fluorene	ND	350	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	70	ug/kg	
91-20-3	Naphthalene	ND	350	ug/kg	
90-12-0	1-Methylnaphthalene	ND	350	ug/kg	
91-57-6	2-Methylnaphthalene	ND	350	ug/kg	
85-01-8	Phenanthrene	ND	350	ug/kg	
129-00-0	Pyrene	ND	350	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	82%		35-135%
92-94-4	p-Terphenyl	86%		50-150%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-P42-SU-705-03		
Lab Sample ID:	F6274-5	**Date Sampled:**	04/13/00
Matrix:	SO - Soil	**Date Received:**	04/14/00
Method:	EPA 8310	**Percent Solids:**	96.3
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	AA000762.D	1	04/18/00	CCJ	04/17/00	OP1456	GAA37
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	340	ug/kg	
208-96-8	Acenaphthylene	ND	690	ug/kg	
120-12-7	Anthracene	ND	340	ug/kg	
56-55-3	Benzo(a)anthracene	ND	69	ug/kg	
50-32-8	Benzo(a)pyrene	ND	69	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	69	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	69	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	69	ug/kg	
218-01-9	Chrysene	ND	69	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	69	ug/kg	
206-44-0	Fluoranthene	ND	340	ug/kg	
86-73-7	Fluorene	ND	340	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	69	ug/kg	
91-20-3	Naphthalene	ND	340	ug/kg	
90-12-0	1-Methylnaphthalene	ND	340	ug/kg	
91-57-6	2-Methylnaphthalene	ND	340	ug/kg	
85-01-8	Phenanthrene	ND	340	ug/kg	
129-00-0	Pyrene	ND	340	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	83%		35-135%
92-94-4	p-Terphenyl	90%		50-150%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-P42-SU-707-03		
Lab Sample ID:	F6274-7	**Date Sampled:**	04/13/00
Matrix:	SO - Soil	**Date Received:**	04/14/00
Method:	EPA 8310	**Percent Solids:**	91.2
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	AA000764.D	1	04/18/00	CCJ	04/17/00	OP1456	GAA37
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	360	ug/kg	
208-96-8	Acenaphthylene	ND	730	ug/kg	
120-12-7	Anthracene	ND	360	ug/kg	
56-55-3	Benzo(a)anthracene	33.9	73	ug/kg	J
50-32-8	Benzo(a)pyrene	22.5	73	ug/kg	J
205-99-2	Benzo(b)fluoranthene	25.4	73	ug/kg	J
191-24-2	Benzo(g,h,i)perylene	23.3	73	ug/kg	J
207-08-9	Benzo(k)fluoranthene	19.2	73	ug/kg	J
218-01-9	Chrysene	33.5	73	ug/kg	J
53-70-3	Dibenzo(a,h)anthracene	ND	73	ug/kg	
206-44-0	Fluoranthene	ND	360	ug/kg	
86-73-7	Fluorene	ND	360	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	21.2	73	ug/kg	J
91-20-3	Naphthalene	ND	360	ug/kg	
90-12-0	1-Methylnaphthalene	ND	360	ug/kg	
91-57-6	2-Methylnaphthalene	ND	360	ug/kg	
85-01-8	Phenanthrene	ND	360	ug/kg	
129-00-0	Pyrene	ND	360	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	77%		35-135%
92-94-4	p-Terphenyl	83%		50-150%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-P42-SS-701-02		
Lab Sample ID:	F6274-1	**Date Sampled:**	04/13/00
Matrix:	SO - Soil	**Date Received:**	04/14/00
Method:	FLORIDA-PRO	**Percent Solids:**	94.4
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP07877.D	1	04/18/00	ME	04/15/00	OP1454	GOP359
Run #2							

CAS No.	Compound	Result	RL	Units	Q
	TPH (C8-C40)	7.49	8.8	mg/kg	J

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	109%		40-140%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-P42-SS-704-02		
Lab Sample ID:	F6274-4	**Date Sampled:**	04/13/00
Matrix:	SO - Soil	**Date Received:**	04/14/00
Method:	FLORIDA-PRO	**Percent Solids:**	97.0
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP07857.D	1	04/17/00	ME	04/15/00	OP1454	GOP358
Run #2							

CAS No.	Compound	Result	RL	Units	Q
	TPH (C8-C40)	ND	8.6	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	112%		40-140%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-P42-SS-709-01		
Lab Sample ID:	F6274-8	**Date Sampled:**	04/13/00
Matrix:	SO - Soil	**Date Received:**	04/14/00
Method:	FLORIDA-PRO	**Percent Solids:**	91.5
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP07881.D	1	04/18/00	ME	04/15/00	OP1454	GOP359
Run #2							

CAS No.	Compound	Result	RL	Units	Q
	TPH (C8-C40)	14.3	9.1	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	100%		40-140%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-P42-SS-710-01		
Lab Sample ID:	F6274-9	**Date Sampled:**	04/13/00
Matrix:	SO - Soil	**Date Received:**	04/14/00
Method:	FLORIDA-PRO	**Percent Solids:**	81.4
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP07861.D	1	04/17/00	ME	04/15/00	OP1454	GOP358
Run #2							

CAS No.	Compound	Result	RL	Units	Q
	TPH (C8-C40)	9.20	10	mg/kg	J

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	103%		40-140%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-P42-SS-711-01		
Lab Sample ID:	F6274-10	**Date Sampled:**	04/13/00
Matrix:	SO - Soil	**Date Received:**	04/14/00
Method:	FLORIDA-PRO	**Percent Solids:**	87.0
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP07863.D	1	04/17/00	ME	04/15/00	OP1454	GOP358
Run #2							

CAS No.	Compound	Result	RL	Units	Q
	TPH (C8-C40)	9.41	9.6	mg/kg	J

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	107%		40-140%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-P42-SS-712-01		
Lab Sample ID:	F6274-11	**Date Sampled:**	04/13/00
Matrix:	SO - Soil	**Date Received:**	04/14/00
Method:	FLORIDA-PRO	**Percent Solids:**	82.1
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP07864.D	1	04/17/00	ME	04/15/00	OP1454	GOP358
Run #2							

CAS No.	Compound	Result	RL	Units	Q
	TPH (C8-C40)	15.5	10	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	105%		40-140%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-P42-SS-713-01		
Lab Sample ID:	F6274-12	**Date Sampled:**	04/13/00
Matrix:	SO - Soil	**Date Received:**	04/14/00
Method:	FLORIDA-PRO	**Percent Solids:**	92.3
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP07865.D	1	04/17/00	ME	04/15/00	OP1454	GOP358
Run #2							

CAS No.	Compound	Result	RL	Units	Q
	TPH (C8-C40)	8.26	9.0	mg/kg	J

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	104%		40-140%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-P42-SS-714-01		
Lab Sample ID:	F6274-13	**Date Sampled:**	04/13/00
Matrix:	SO - Soil	**Date Received:**	04/14/00
Method:	FLORIDA-PRO	**Percent Solids:**	84.5
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP07866.D	1	04/17/00	ME	04/15/00	OP1454	GOP358
Run #2							

CAS No.	Compound	Result	RL	Units	Q
	TPH (C8-C40)	13.9	9.8	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	102%		40-140%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-P42-SS-DU14		
Lab Sample ID:	F6274-14	**Date Sampled:**	04/13/00
Matrix:	SO - Soil	**Date Received:**	04/14/00
Method:	FLORIDA-PRO	**Percent Solids:**	90.4
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP07867.D	1	04/17/00	ME	04/15/00	OP1454	GOP358
Run #2							

CAS No.	Compound	Result	RL	Units	Q
	TPH (C8-C40)	ND	9.2	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	98%		40-140%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-P42-SS-DU15		
Lab Sample ID:	F6274-15	**Date Sampled:**	04/13/00
Matrix:	SO - Soil	**Date Received:**	04/14/00
Method:	FLORIDA-PRO	**Percent Solids:**	86.1
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP07868.D	1	04/17/00	ME	04/15/00	OP1454	GOP358
Run #2							

CAS No.	Compound	Result	RL	Units	Q
	TPH (C8-C40)	10.4	9.7	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	96%		40-140%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-P42-SU-702-03		
Lab Sample ID:	F6274-2	**Date Sampled:**	04/13/00
Matrix:	SO - Soil	**Date Received:**	04/14/00
Method:	FLORIDA-PRO	**Percent Solids:**	95.3
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP07856.D	1	04/17/00	ME	04/15/00	OP1454	GOP358
Run #2							

CAS No.	Compound	Result	RL	Units	Q
	TPH (C8-C40)	ND	8.7	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	107%		40-140%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Tetra Tech NUS **INTERNAL CORRESPONDENCE**

TO:	**M. SPERANZA**	**DATE:**	**MAY 12, 2000**
FROM:	**JENNIFER M. MALLE**	**COPIES:**	**DV FILE**

SUBJECT: **INORGANIC DATA VALIDATION –ANTIMONY, ARSENIC AND BARIUM**
CTO-078 NAS CECIL FIELD
SDG- F6274

SAMPLES: 12/Soil/

CEF-P42-SS-701-02	CEF-P42-SS-704-02	CEF-P42-SS-709-01
CEF-P42-SS-710-01	CEF-P42-SS-711-01	CEF-P42-SS-712-01
CEF-P42-SS-713-01	CEF-P42-SS-714-01	CEF-P42-SS-DU14
CEF-P42-SS-DU15	CEF-P42-SU-702-03	CEF-P42-SU-703-03

Overview

The sample set for CTO 078, NAS Cecil Field, SDG F6274 includes twelve (12) soil environmental samples. The field duplicate pair CEF-P42-SS-DU15/ CEF-P42-SS-710-01 was included within this SDG.

All samples were analyzed for antimony, arsenic and barium. The samples were collected by Tetra Tech NUS on April 13, 2000 and analyzed by Accutest Laboratories in accordance with Naval Facilities Engineering Service Center (NFESC) Navy Installation Restoration Laboratory Quality Assurance Guide, (February 1996). Metal analyses were conducted under SW846 method 6010B.

The data was evaluated based on the following parameters:

* • Data Completeness
* • Holding Times
* • Initial and Continuing Calibration Verifications
• Laboratory Blank Analyses
* • Field Duplicate Precision
* • Detection Limits

* - All quality control criteria were met for this parameter.

Laboratory Blank Analyses

The following contaminants were detected in the laboratory method/ preparation blanks at the following maximum concentrations:

Affected samples : All

Analyte	Maximum Concentration	Action Level (soil)
Antimony	5.7 ug/L	2.85 mg/kg
Barium [1]	0.23 mg/kg	1.15 mg/kg

[1] - Maximum concentration present in a soil preparation blank.

An action level of 5X the maximum concentration was used to evaluate the sample data for blank contamination. Sample aliquot, percent solids and dilution factors were taken into consideration in evaluation for blank contamination. Positive results less than the action level for antimony were qualified as nondetected, "U", due to blank contamination. Validation action was not required for barium as results were greater than the action level.

Notes

A field duplicate summary table is included in Appendix C.

The field duplicate sample CEF-P42-SS-DU14 was included in this SDG. However, the corresponding sample CEF-P42-SU-707-03 was not. Therefore, a comparison analysis between the two samples was not calculated.

Executive Summary

Laboratory Performance: Antimony and barium were present in the laboratory method/preparation blanks.

Other Factors Affecting Data Quality: None.

The data for these analyses were reviewed with reference to the "National Functional Guidelines for Inorganic Review", February 1994 and the NFESC document entitled "Navy Installation Restoration Laboratory Quality Assurance Guide" (NFESC 2/96).

The text of this report has been formulated to address only those problem areas affecting data quality.

"I attest that the data referenced herein were validated according to the agreed upon validation criteria as specified in the NFESC Guidelines and the Quality Assurance Project Plan (QAPP)."

Jennifer M. Malle

Tetra Tech NUS
Jennifer M. Malle
Environmental Scientist

Tetra Tech NUS
Joseph A. Samchuck
Quality Assurance Officer

Attachments:

1. Appendix A - Qualified Analytical Results
2. Appendix B - Results as reported by the Laboratory
3. Appendix C - Support Documentation

APPENDIX A

Qualified Analytical Results

Qualifier Codes:

A = Lab Blank Contamination
B = Field Blank Contamination
C = Calibration (i.e., % RSDs, %Ds, ICVs, CCVs, RPDs, RRFs, etc.) Noncompliance
D = MS/MSD Noncompliance
E = LCS/LCSD Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = GFAA PDS - GFAA MSA's $r < 0.995$
K = ICP Interference - include ICSAB % R's
L = Instrument Calibration Range Exceedance
M = Sample Preservation
N = Internal Standard Noncompliance
O = Poor Instrument Performance (i.e., base-time drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can encompass a number of issues)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = Pest/PCB D% between columns for positive results
V = Non-linear calibrations, tuning $r < 0.995$ (correlation coefficient)
W = EMPC result
X = Signal to noise response drop
Y = % Solid content is less than 30%

CTO078 - NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F6274

SAMPLE NUMBER:	CEF-P42-SS-701-02			CEF-P42-SS-704-02			CEF-P42-SS-709-01			CEF-P42-SS-710-01		
SAMPLE DATE:	04/13/00			04/13/00			04/13/00			04/13/00		
LABORATORY ID:	F6274-1			F6274-4			F6274-8			F6274-9		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	94.4 %			97.0 %			91.5 %			81.4 %		
UNITS:	MG/KG			MG/KG			MG/KG			MG/KG		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
INORGANICS												
ANTIMONY	0.25	U		0.25	U		0.26	U		0.29	U	
ARSENIC	0.37	U		0.36	U		0.37	U		0.42	U	
BARIUM	2.5			3.6			2.9			8.9		

CTO078 - NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F6274

SAMPLE NUMBER:	CEF-P42-SS-711-01			CEF-P42-SS-712-01			CEF-P42-SS-713-01			CEF-P42-SS-714-01		
SAMPLE DATE:	04/13/00			04/13/00			04/13/00			04/13/00		
LABORATORY ID:	F6274-10			F6274-11			F6274-12			F6274-13		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	87.0 %			82.1 %			92.3 %			84.5 %		
UNITS:	MG/KG			MG/KG			MG/KG			MG/KG		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
INORGANICS												
ANTIMONY	0.25	U		0.28	U		0.26	U		0.46	U	A
ARSENIC	0.37	U		0.41	U		0.37	U		0.39	U	
BARIUM	4.3			7.2			4.3			12.9		

CTO078 - NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F6274

SAMPLE NUMBER:	CEF-P42-SS-DU14			CEF-P42-SS-DU15			CEF-P42-SU-702-03			CEF-P42-SU-703-03		
SAMPLE DATE:	04/13/00			04/13/00			04/13/00			04/13/00		
LABORATORY ID:	F6274-14			F6274-15			F6274-2			F6274-3		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	90.4 %			86.1 %			95.3 %			95.6 %		
UNITS:	MG/KG			MG/KG			MG/KG			MG/KG		
FIELD DUPLICATE OF:	CEF-P42-SU-707-03			CEF-P42-SS-710-01								
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
INORGANICS												
ANTIMONY	0.25	U		0.27	U		0.24	U		0.25	U	
ARSENIC	0.36	U		0.39	U		0.35	U		0.35	U	
BARIUM	2.1			23.9			2.7			3.2		

APPENDIX B

Results as Reported by the Laboratory

Report of Analysis

Client Sample ID:	CEF-P42-SS-701-02		
Lab Sample ID:	F6274-1	**Date Sampled:**	04/13/00
Matrix:	SO - Soil	**Date Received:**	04/14/00
		Percent Solids:	94.4
Project:	NAS Cecil Field		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method
Antimony	0.25 U	6.4	mg/kg	1	04/17/00	04/18/00	JK	SW846 6010A
Arsenic	0.37 U	0.53	mg/kg	1	04/17/00	04/18/00	JK	SW846 6010A
Barium	2.5 B	21.2	mg/kg	1	04/17/00	04/18/00	JK	SW846 6010A

RL = Reporting Limit

Report of Analysis

Client Sample ID:	CEF-P42-SS-704-02		
Lab Sample ID:	F6274-4	**Date Sampled:**	04/13/00
Matrix:	SO - Soil	**Date Received:**	04/14/00
		Percent Solids:	97.0
Project:	NAS Cecil Field		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method
Antimony	0.25 U	6.3	mg/kg	1	04/17/00	04/18/00	JK	SW846 6010A
Arsenic	0.36 U	0.53	mg/kg	1	04/17/00	04/18/00	JK	SW846 6010A
Barium	3.6 B	21.0	mg/kg	1	04/17/00	04/18/00	JK	SW846 6010A

RL = Reporting Limit

Report of Analysis

Client Sample ID:	CEF-P42-SS-709-01		
Lab Sample ID:	F6274-8	**Date Sampled:**	04/13/00
Matrix:	SO - Soil	**Date Received:**	04/14/00
		Percent Solids:	91.5
Project:	NAS Cecil Field		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method
Antimony	0.26 U	6.5	mg/kg	1	04/17/00	04/18/00	JK	SW846 6010A
Arsenic	0.37 U	0.54	mg/kg	1	04/17/00	04/18/00	JK	SW846 6010A
Barium	2.9 B	21.6	mg/kg	1	04/17/00	04/18/00	JK	SW846 6010A

RL = Reporting Limit

Report of Analysis

Client Sample ID:	CEF-P42-SS-710-01		
Lab Sample ID:	F6274-9	**Date Sampled:**	04/13/00
Matrix:	SO - Soil	**Date Received:**	04/14/00
		Percent Solids:	81.4
Project:	NAS Cecil Field		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method
Antimony	0.29 U	7.3	mg/kg	1	04/17/00	04/18/00	JK	SW846 6010A
Arsenic	0.42 U	0.61	mg/kg	1	04/17/00	04/18/00	JK	SW846 6010A
Barium	8.9 B	24.3	mg/kg	1	04/17/00	04/18/00	JK	SW846 6010A

RL = Reporting Limit

Report of Analysis

Client Sample ID:	CEF-P42-SS-711-01		
Lab Sample ID:	F6274-10	**Date Sampled:**	04/13/00
Matrix:	SO - Soil	**Date Received:**	04/14/00
		Percent Solids:	87.0
Project:	NAS Cecil Field		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By		Method
Antimony	0.25 U	6.4	mg/kg	1	04/17/00	04/18/00	JK	SW846 6010A
Arsenic	0.37 U	0.53	mg/kg	1	04/17/00	04/18/00	JK	SW846 6010A
Barium	4.3 B	21.3	mg/kg	1	04/17/00	04/18/00	JK	SW846 6010A

RL = Reporting Limit

Report of Analysis

Client Sample ID:	CEF-P42-SS-712-01		
Lab Sample ID:	F6274-11	**Date Sampled:**	04/13/00
Matrix:	SO - Soil	**Date Received:**	04/14/00
		Percent Solids:	82.1
Project:	NAS Cecil Field		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method
Antimony	0.28 U	7.1	mg/kg	1	04/17/00	04/18/00	JK	SW846 6010A
Arsenic	0.41 U	0.59	mg/kg	1	04/17/00	04/18/00	JK	SW846 6010A
Barium	7.2 B	23.7	mg/kg	1	04/17/00	04/18/00	JK	SW846 6010A

RL = Reporting Limit

Report of Analysis

Client Sample ID:	CEF-P42-SS-713-01		
Lab Sample ID:	F6274-12	**Date Sampled:**	04/13/00
Matrix:	SO - Soil	**Date Received:**	04/14/00
		Percent Solids:	92.3
Project:	NAS Cecil Field		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By		Method
Antimony	0.26 U	6.5	mg/kg	1	04/17/00	04/18/00	JK	SW846 6010A
Arsenic	0.37 U	0.54	mg/kg	1	04/17/00	04/18/00	JK	SW846 6010A
Barium	4.3 B	21.7	mg/kg	1	04/17/00	04/18/00	JK	SW846 6010A

RL = Reporting Limit

Report of Analysis

Client Sample ID:	CEF-P42-SS-714-01		
Lab Sample ID:	F6274-13	**Date Sampled:**	04/13/00
Matrix:	SO - Soil	**Date Received:**	04/14/00
		Percent Solids:	84.5
Project:	NAS Cecil Field		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method
Antimony	0.46 B	6.7	mg/kg	1	04/17/00	04/18/00	JK	SW846 6010A
Arsenic	0.39 U	0.56	mg/kg	1	04/17/00	04/18/00	JK	SW846 6010A
Barium	12.9 B	22.3	mg/kg	1	04/17/00	04/18/00	JK	SW846 6010A

RL = Reporting Limit

Report of Analysis

Client Sample ID:	CEF-P42-SS-DU14		
Lab Sample ID:	F6274-14	**Date Sampled:**	04/13/00
Matrix:	SO - Soil	**Date Received:**	04/14/00
		Percent Solids:	90.4
Project:	NAS Cecil Field		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By		Method
Antimony	0.25 U	6.2	mg/kg	1	04/17/00	04/18/00	JK	SW846 6010A
Arsenic	0.36 U	0.52	mg/kg	1	04/17/00	04/18/00	JK	SW846 6010A
Barium	2.1 B	20.7	mg/kg	1	04/17/00	04/18/00	JK	SW846 6010A

RL = Reporting Limit

Report of Analysis

Client Sample ID:	CEF-P42-SS-DU15		
Lab Sample ID:	F6274-15	**Date Sampled:**	04/13/00
Matrix:	SO - Soil	**Date Received:**	04/14/00
		Percent Solids:	86.1
Project:	NAS Cecil Field		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method
Antimony	0.27 U	6.8	mg/kg	1	04/17/00	04/18/00	JK	SW846 6010A
Arsenic	0.39 U	0.56	mg/kg	1	04/17/00	04/18/00	JK	SW846 6010A
Barium	23.9	22.6	mg/kg	1	04/17/00	04/18/00	JK	SW846 6010A

RL = Reporting Limit

Report of Analysis

Client Sample ID:	CEF-P42-SU-702-03		
Lab Sample ID:	F6274-2	**Date Sampled:**	04/13/00
Matrix:	SO - Soil	**Date Received:**	04/14/00
		Percent Solids:	95.3
Project:	NAS Cecil Field		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method
Antimony	0.24 U	6.1	mg/kg	1	04/17/00	04/18/00	JK	SW846 6010A
Arsenic	0.35 U	0.51	mg/kg	1	04/17/00	04/18/00	JK	SW846 6010A
Barium	2.7 B	20.4	mg/kg	1	04/17/00	04/18/00	JK	SW846 6010A

RL = Reporting Limit

Report of Analysis

Client Sample ID:	CEF-P42-SU-703-03		
Lab Sample ID:	F6274-3	**Date Sampled:**	04/13/00
Matrix:	SO - Soil	**Date Received:**	04/14/00
		Percent Solids:	95.6
Project:	NAS Cecil Field		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method
Antimony	0.25 U	6.2	mg/kg	1	04/17/00	04/18/00	JK	SW846 6010A
Arsenic	0.35 U	0.51	mg/kg	1	04/17/00	04/18/00	JK	SW846 6010A
Barium	3.2 B	20.5	mg/kg	1	04/17/00	04/18/00	JK	SW846 6010A

RL = Reporting Limit

Tetra Tech NUS **INTERNAL CORRESPONDENCE**

PITT-07-0-027

TO: MARK SPERANZA **DATE:** AUGUST 4, 2000

FROM: JUSTIN ORBICH **CC:** DV FILE

SUBJECT: ORGANIC DATA VALIDATION – PAH/PEST/PCB/HERB/TPH/OPEST
CTO 078 – NAS CECIL FIELD
SDG F6831

SAMPLES: 24/Polynuclear Aromatic Hydrocarbon

~~CEF-535-DUP1~~	~~CEF-535-SS-001-01~~
~~CEF-535-SS-002-01~~	~~CEF-535-SS-003-01~~
~~CEF-535-SS-004-01~~	CEF-P42-DUP1
CEF-P42-DUP2	CEF-P42-DUP3
CEF-P42-SS-806-02	CEF-P42-SS-807-02
CEF-P42-SS-810-02	CEF-P42-SS-813-02
CEF-P42-SS-816-02	CEF-P42-SS-820-02
CEF-P42-SS-823-02	CEF-P42-SS-826-02
CEF-P42-SS-827-02	CEF-P42-SS-828-02
CEF-P42-SS-829-02	CEF-P42-SS-832-02
CEF-P42-SU-821-04	~~CEF-P49-DUP1~~
~~CEF-P49-SU-605-03~~	~~CEF-P49-SU-607-03~~

21/Total Petroleum Hydrocarbon

~~CEF-535-DUP1~~	~~CEF-535-SS-001-01~~
~~CEF-535-SS-002-01~~	~~CEF-535-SS-003-01~~
~~CEF-535-SS-004-01~~	~~CEF-P21-DUP1~~
~~CEF-P21-DUP2~~	~~CEF-P21-DUP3~~
~~CEF-P21-SS-801-02~~	~~CEF-P21-SS-804-02~~
~~CEF-P21-SS-805-02~~	~~CEF-P21-SS-806-02~~
~~CEF-P21-SS-807-02~~	~~CEF-P21-SS-817-02~~
~~CEF-P21-SS-819-02~~	~~CEF-P21-SS-820-02~~
~~CEF-P21-SS-822-02~~	CEF-P42-DUP1
CEF-P42-SS-813-02	CEF-P42-SS-816-02
CEF-P42-SS-823-02	

~~6/Herbicide~~

~~CEF-P21-DUP1~~	~~CEF-P21-SS-803-03~~
CEF-P21-SS-817-02	CEF-P21-SS-819-02
~~CEF-P21-SS-820-02~~	~~CEF-P21-SS-822-02~~

~~38/Pesticide~~

~~CEF-535-DUP1~~	~~CEF-535-SS-001-01~~
~~CEF-535-SS-002-01~~	~~CEF-535-SS-003-01~~

MEMO TO: **MARK SPERANZA**
DATE: **AUGUST 4, 2000 – PAGE 2**

CEF-535-SS-004-01	CEF-P21-DUP1
CEF-P21-DUP2	CEF-P21-DUP3
CEF-P21-SS-801-02	CEF-P21-SS-803-03
CEF-P21-SS-804-02	CEF-P21-SS-805-02
CEF-P21-SS-806-02	CEF-P21-SS-807-02
CEF-P21-SS-809-02	CEF-P21-SS-811-01
CEF-P21-SS-812-01	CEF-P21-SS-813-01
CEF-P21-SS-814-02	CEF-P21-SS-815-01
CEF-P21-SS-816-01	CEF-P21-SS-817-02
CEF-P21-SS-819-02	CEF-P21-SS-820-02
CEF-P21-SS-822-02	CEF-P21-SS-831-01
CEF-P25-DUP1	CEF-P25-DUP2*
CEF-P25-SS-701-02	CEF-P25-SS-703-02
CEF-P25-SS-705-02	CEF-P25-SS-707-02
CEF-P25-SS-709-02	CEF-P25-SS-711-02
CEF-P25-SS-713-01	CEF-P25-SS-714-01
CEF-P25-SS-715-02	CEF-P25-SS-717-01*

6/Organophopshorous Pesticide

CEF-P21-DUP2	CEF-P21-DUP3
CEF-P21-SS-804-02	CEF-P21-SS-805-02
CEF-P21-SS-806-02	CEF-P21-SS-807-02

OVERVIEW

The sample set for CTO 078, SDG F6831 Naval Air Station (NAS) Cecil Field; Florida consists of sixty (60) soil environmental samples. The samples were analyzed for Polynuclear Aromatic Hydrocarbon (PAH), Total Petroleum Hydrocarbon (TPH), herbicide, pesticide, and organophosphorous pesticide organic compounds. The pesticide samples designated (*) were analyzed for Polychlorinated Biphenyl (PCB) organic compounds. Nine (9) field duplicate pairs (CEF-535-SS-003-01/CEF-535-DUP1, CEF-P42-SS-816-02/CEF-P42-DUP1, CEF-P42-SS-820-02/CEF-P42-DUP2, CEF-P42-SS-807-02/CEF-P42-DUP3, CEF-P49-SU-607-03/CEF-P49-DUP1, CEF-P21-SS-817-02/CEF-P21-DUP1, CEF-P21-SS-819-02/CEF-P21-DUP2, CEF-P21-SS-806-02/CEF-P21-DUP3, CEF-P25-SS-705-02/CEF-P25-DUP1, and CEF-P25-SS-717-01/CEF-P25-DUP2) were included within this SDG.

The samples were collected by Tetra Tech, NUS on June 16th, 17th, and 18th, 2000 and analyzed by Accutest Laboratories. All analyses were performed in accordance with Naval Facilities Engineering Service Center (NFESC) Quality Assurance/Quality Control (QA/QC) criteria and analyzed according to SW 846 Method 8081A, 8082, 8310, 8141A, 8151A, and FLORIDA-PRO analytical and reporting protocols. The data in this SDG was validated with regard to the following parameters:

- * Data Completeness
- * Holding Times
- * Initial/continuing calibrations
- * Laboratory method/field quality control blank results
- Field Duplicate Precision
- * Detection Limits

The symbol (*) indicates that all quality control criteria were met for this parameter. Problems affecting data quality are discussed below; documentation supporting these findings is presented in Appendix C. Qualified analytical results are presented in Appendix A.

PAH FRACTION

The following samples were analyzed at a dilution thus causing elevated reporting limits.

Sample	Dilution Factor
CEF-535-SS-001-01	20X
CEF-535-SS-002-01	4X
CEF-P42-SS-810-02	8X
CEF-P49-DUP1	80X
CEF-P49-SU-605-03	200X
CEF-P49-SU-607-03	150X

The field duplicate pair (CEF-P42-SS-807-02/CEF-P42-DUP3) Relative Percent Differences (RPD) exceeded 50% for 1-methynapthalene, 2-methylnaphthalene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, beno(k)fluoranthene, chrysene, fluoranthene, indeno(1,2,3-cd)pyrene, naphthalene, phenanthrene, and pyrene. The positive and nondetected results were qualified as estimated (J) and (UJ), respectively.

The field duplicate pair (CEF-P49-SU-607-03/CEF-P49-DUP1) RPD exceeded 50% for 2-methylnaphthalene, benzo(a)pyrene, benzo(b)fluoranthene, chrysene, fluoranthene, indeno(1,2,3-cd)pyrene, naphthalene, phenanthrene, and pyrene. The positive and nondetected results were qualified as estimated (J) and (UJ), respectively.

PESTICIDE/PCB FRACTION

The following samples were analyzed at a dilution thus causing elevated reporting limits.

Sample	Dilution Factor
CEF-535-DUP1-01	10X
CEF-535-SS-001-01	20X
CEF-535-SS-002-01	10X
CEF-535-SS-003-01	10X
CEF-535-SS-004-01	10X
CEF-P21-DUP1	50X
CEF-P21-DUP2	40X
CEF-P21-DUP3	1000X
CEF-P21-SS-803-03	25X
CEF-P21-SS-804-02	500X
CEF-P21-SS-805-02	20X
CEF-P21-SS-806-02	5X
CEF-P21-SS-809-02	25X
CEF-P21-SS-811-01	20X
CEF-P21-SS-813-01	100X
CEF-P21-SS-814-02	10X
CEF-P21-SS-815-01	4X
CEF-P21-SS-816-01	10X
CEF-P21-SS-817-02	500X
CEF-P21-SS-819-02	40X
CEF-P21-SS-831-01	10X
CEF-P25-DUP1	5X
CEF-P25-DUP2	10X
CEF-P25-SS-701-02	16X
CEF-P25-SS-703-02	5X
CEF-P25-SS-705-02	4X

CEF-P25-SS-707-02	10X
CEF-P25-SS-711-02	5X
CEF-P25-SS-713-02	400X
CEF-P25-SS-714-01	200X
CEF-P25-SS-715-02	20X
CEF-P25-SS-717-01	50X

The field duplicate pair (CEF-P21-SS-817-02/CEF-P21-DUP1) RPD exceeded 50% for alpha-BHC and gamma-Chlordane. The positive results were qualified as estimated (J).

The field duplicate pair (CEF-P25-SS-717-02/CEF-P25-DUP2) RPD exceeded 50% for Dieldrin and AROCLOR-1254. The positive results were qualified as estimated (J).

HERBICIDE FRACTION

All quality control parameters were met for this fraction.

TPH FRACTION

The following samples were analyzed at a dilution thus causing elevated reporting limits.

Sample	Dilution Factor
CEF-535-SS-001-01	20X
CEF-535-SS-002-01	4X
CEF-535-SS-004-01	5X
CEF-P21-DUP1	4X
CEF-P21-DUP2	5X
CEF-P21-DUP3	8X
CEF-P21-SS-804-02	4X
CEF-P21-SS-805-02	4X
CEF-P21-SS-806-02	20X
CEF-P21-SS-817-02	4X
CEF-P21-SS-819-02	4X

The field duplicate pair (CEF-P21-SS-817-02/CEF-P21-DUP1) RPD exceeded 50% for TPH (c8-c40). The positive results were qualified as estimated (J).

ORGANOPHOSPHOROUS PESTICIDE FRACTION

It should be noted that the laboratory only reported 28 of 47 compounds listed in method 8141A.

Two compounds, Demeton-o and Monocrotophos, were omitted from the electronic deliverable. The reviewer amended the electronic deliverable to report the missing compounds.

EXECUTIVE SUMMARY

Laboratory performance: Two compounds, Demeton-o and Monocrotophos, were omitted from the organophosphorous compound list.

Other Factors Affecting Data Quality: Several samples were analyzed at a dilution thus causing elevated reporting limits in all fractions. The field duplicate pair RPDs exceeded the 50% upper control limit in the fraction.

MEMO TO: MARK SPERANZA
DATE: AUGUST 4, 2000 – PAGE 5

The data for these analyses were reviewed with reference to the EPA Functional Guidelines for Organic Data Validation (October 1999) and the NFESC guidelines "Navy IRCDQM" (September 1999). The text of this report has been formulated to address only those problems affecting data quality.

"I attest that the data referenced herein was validated according to the agreed upon validation criteria as specified in the NFESC Guidelines and the Quality Assurance Project Plan (QAPP)."

Justin Orbich

Chemist/Data Validator
Tetra Tech, NUS

Joseph A. Samchuck

Data Validation Quality Assurance Officer
Tetra Tech, NUS

Attachments:
1. Appendix A - Qualified Analytical Results
2. Appendix B - Results as reported by the Laboratory
3. Appendix C - Support Documentation

DATA QUALIFIER DEFINITIONS:

U	-	Value is a nondetected result as reported by the laboratory and should not be considered present.
J	-	Positive result is estimated as a result of a value below the CRQL or a technical noncompliance.
UJ	-	Nondetected results is estimated as a result of a technical noncomplicane.

Qualifier Codes:

A = Lab Blank Contamination
B = Field Blank Contamination
C = Calibration (i.e., % RSDs, %Ds, ICVs, CCVs, RPDs, RRFs, etc.) Noncompliance
D = MS/MSD Noncompliance
E = LCS/LCSD Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = GFAA PDS - GFAA MSA's $r < 0.995$
K = ICP Interference - include ICSAB % R's
L = Instrument Calibration Range Exceedance
M = Sample Preservation
N = Internal Standard Noncompliance
O = Poor Instrument Performance (i.e., base-time drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can encompass a number of issues)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = Pest/PCB D% between columns for positive results
V = Non-linear calibrations, tuning $r < 0.995$ (correlation coefficient)
W = EMPC result
X = Signal to noise response drop
Y = % Solid content is less than 30%

APPENDIX A

Qualified Analytical Results

CTO078-NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F6831

SAMPLE NUMBER:	CEF-P21-SS-822-02			CEF-P42-DUP1			CEF-P42-SS-813-02			CEF-P42-SS-816-02		
SAMPLE DATE:	06/17/00			06/18/00			06/18/00			06/18/00		
LABORATORY ID:	F6831-26			F6831-64			F6831-60			F6831-50		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	95.9 %			95.7 %			97.8 %			96.1 %		
UNITS:	MG/KG			MG/KG			MG/KG			MG/KG		
FIELD DUPLICATE OF:				CEF-P42-SS-816-02								
	RESULT	**QUAL**	**CODE**	**RESULT**	**QUAL**	**CODE**	**RESULT**	**QUAL**	**CODE**	**RESULT**	**QUAL**	**CODE**
PETROLEUM HYDROCARBONS												
TPH (C8-C40)	8.7	U		23			18.1			8.05	J	P

CTO078-NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F6831

SAMPLE NUMBER:	CEF-P42-SS-823-02											
SAMPLE DATE:	06/18/00			/ /			/ /			/ /		
LABORATORY ID:	F6831-58											
QC_TYPE:	NORMAL											
% SOLIDS:	97.0 %			100.0 %			100.0 %			100.0 %		
UNITS:	MG/KG											
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
PETROLEUM HYDROCARBONS												
TPH (C8-C40)	8.44	J	P									

CTO078-NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F6831

SAMPLE NUMBER:	CEF-535-SS-004-01			CEF-P42-DUP1			CEF-P42-DUP2			CEF-P42-DUP3		
SAMPLE DATE:	06/16/00			06/18/00			06/18/00			06/18/00		
LABORATORY ID:	F6831-4			F6831-64			F6831-65			F6831-66		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	89.2 %			95.7 %			96.2 %			93.0 %		
UNITS:	UG/KG			UG/KG			UG/KG			UG/KG		
FIELD DUPLICATE OF:				CEF-P42-SS-816-02			CEF-P42-SS-820-02			CEF-P42-SS-807-02		
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
POLYNUCLEAR AROMATIC HYDROCARBONS												
1-METHYLNAPHTHALENE	370	U		92.6	J	P	350	U		530	J	G
2-METHYLNAPHTHALENE	370	U		146	J	P	350	U		685	J	G
ACENAPHTHENE	370	U		350	U		350	U		886	J	G
ACENAPHTHYLENE	750	U		700	U		690	U		720	U	
ANTHRACENE	370	U		350	U		350	U		2900	U	
BENZO(A)ANTHRACENE	75	U		70	U		69	U		803	J	G
BENZO(A)PYRENE	75	U		27	J	P	69	U		807	J	G
BENZO(B)FLUORANTHENE	75	U		70	U		69	U		544	J	G
BENZO(G,H,I)PERYLENE	75	U		27.5	J	P	69	U		676	J	G
BENZO(K)FLUORANTHENE	75	U		70	U		69	U		278	J	G
CHRYSENE	370	U		350	U		350	U		920	J	G
DIBENZO(A,H)ANTHRACENE	75	U		70	U		69	U		570	U	
FLUORANTHENE	370	U		88.4	J	P	350	U		2200	J	G
FLUORENE	370	U		350	U		350	U		114	J	P
INDENO(1,2,3-CD)PYRENE	75	U		18.5	J	P	69	U		465	J	G
NAPHTHALENE	370	U		132	J	P	350	U		456	J	G
PHENANTHRENE	370	U		80.5	J	P	350	U		1760	J	G
PYRENE	370	U		58.3	J	P	350	U		1550	J	G

CTO078-NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F6831

SAMPLE NUMBER:	CEF-P42-SS-806-02			CEF-P42-SS-807-02			CEF-P42-SS-810-02			CEF-P42-SS-813-02		
SAMPLE DATE:	06/18/00			06/18/00			06/18/00			06/18/00		
LABORATORY ID:	F6831-62			F6831-57			F6831-63			F6831-60		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	96.2 %			86.3 %			96.3 %			97.8 %		
UNITS:	UG/KG			UG/KG			UG/KG			UG/KG		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
POLYNUCLEAR AROMATIC HYDROCARBONS												
1-METHYLNAPHTHALENE	350	U		390	UJ	G	170	J	P	350	U	
2-METHYLNAPHTHALENE	350	U		390	UJ	G	239	J	P	350	U	
ACENAPHTHENE	350	U		390	UJ	G	415			350	U	
ACENAPHTHYLENE	690	U		770	U		690	U		700	U	
ANTHRACENE	350	U		390	U		350	U		350	U	
BENZO(A)ANTHRACENE	69	U		77	UJ	G	526			70	U	
BENZO(A)PYRENE	69	U		77	UJ	G	540			70	U	
BENZO(B)FLUORANTHENE	69	U		77	UJ	G	751			70	U	
BENZO(G,H,I)PERYLENE	69	U		77	UJ	G	689			70	U	
BENZO(K)FLUORANTHENE	69	U		77	UJ	G	335			70	U	
CHRYSENE	350	U		390	UJ	G	661			350	U	
DIBENZO(A,H)ANTHRACENE	69	U		77	U		550	U		70	U	
FLUORANTHENE	350	U		390	UJ	G	848			350	U	
FLUORENE	350	U		390	U		350	U		350	U	
INDENO(1,2,3-CD)PYRENE	69	U		77	UJ	G	410			70	U	
NAPHTHALENE	350	U		390	UJ	G	151	J	P	350	U	
PHENANTHRENE	350	U		390	UJ	G	256	J	P	350	U	
PYRENE	350	U		390	UJ	G	859			350	U	

CTO078-NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F6831

SAMPLE NUMBER:	CEF-P42-SS-816-02			CEF-P42-SS-820-02			CEF-P42-SS-823-02			CEF-P42-SS-826-02		
SAMPLE DATE:	06/18/00			06/18/00			06/18/00			06/18/00		
LABORATORY ID:	F6831-50			F6831-54			F6831-58			F6831-61		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	96.1 %			97.5 %			97.0 %			96.4 %		
UNITS:	UG/KG			UG/KG			UG/KG			UG/KG		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
POLYNUCLEAR AROMATIC HYDROCARBONS												
1-METHYLNAPHTHALENE	350	U		340	U		340	U		340	U	
2-METHYLNAPHTHALENE	350	U		340	U		340	U		340	U	
ACENAPHTHENE	350	U		340	U		340	U		340	U	
ACENAPHTHYLENE	690	U		680	U		690	U		690	U	
ANTHRACENE	350	U		340	U		340	U		340	U	
BENZO(A)ANTHRACENE	69	U		68	U		27.6	J	P	69	U	
BENZO(A)PYRENE	69	U		68	U		26.4	J	P	69	U	
BENZO(B)FLUORANTHENE	69	U		68	U		16.9	J	P	69	U	
BENZO(G,H,I)PERYLENE	69	U		68	U		41.8	J	P	69	U	
BENZO(K)FLUORANTHENE	69	U		68	U		25.3	J	P	69	U	
CHRYSENE	350	U		340	U		22.6	J	P	340	U	
DIBENZO(A,H)ANTHRACENE	69	U		68	U		69	U		69	U	
FLUORANTHENE	350	U		340	U		340	U		340	U	
FLUORENE	350	U		340	U		340	U		340	U	
INDENO(1,2,3-CD)PYRENE	69	U		68	U		22.5	J	P	69	U	
NAPHTHALENE	350	U		340	U		340	U		340	U	
PHENANTHRENE	350	U		340	U		340	U		340	U	
PYRENE	350	U		340	U		340	U		340	U	

CTO078-NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F6831

SAMPLE NUMBER:	CEF-P42-SS-827-02			CEF-P42-SS-828-02			CEF-P42-SS-829-02			CEF-P42-SS-832-02		
SAMPLE DATE:	06/18/00			06/18/00			06/18/00			06/18/00		
LABORATORY ID:	F6831-56			F6831-55			F6831-53			F6831-51		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	96.9 %			96.1 %			98.7 %			97.4 %		
UNITS:	UG/KG			UG/KG			UG/KG			UG/KG		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
POLYNUCLEAR AROMATIC HYDROCARBONS												
1-METHYLNAPHTHALENE	340	U		350	U		340	U		340	U	
2-METHYLNAPHTHALENE	340	U		350	U		340	U		340	U	
ACENAPHTHENE	340	U		350	U		340	U		340	U	
ACENAPHTHYLENE	680	U		690	U		680	U		680	U	
ANTHRACENE	340	U		350	U		340	U		340	U	
BENZO(A)ANTHRACENE	68	U		69	U		68	U		68	U	
BENZO(A)PYRENE	21.6	J	P	69	U		68	U		68	U	
BENZO(B)FLUORANTHENE	68	U		69	U		68	U		68	U	
BENZO(G,H,I)PERYLENE	26.1	J	P	69	U		68	U		68	U	
BENZO(K)FLUORANTHENE	68	U		69	U		68	U		68	U	
CHRYSENE	24.9	J	P	350	U		340	U		340	U	
DIBENZO(A,H)ANTHRACENE	68	U		69	U		68	U		68	U	
FLUORANTHENE	340	U		350	U		340	U		340	U	
FLUORENE	340	U		350	U		340	U		340	U	
INDENO(1,2,3-CD)PYRENE	17.4	J	P	69	U		68	U		68	U	
NAPHTHALENE	340	U		350	U		340	U		340	U	
PHENANTHRENE	340	U		350	U		340	U		340	U	
PYRENE	340	U		350	U		340	U		340	U	

CTO078-NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F6831

SAMPLE NUMBER:	CEF-P42-SU-821-04			CEF-P49-DUP1			CEF-P49-SU-605-03			CEF-P49-SU-607-03		
SAMPLE DATE:	06/18/00			06/16/00			06/16/00			06/16/00		
LABORATORY ID:	F6831-49			F6831-11			F6831-8			F6831-7		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	95.1 %			96.9 %			97.9 %			97.0 %		
UNITS:	UG/KG			UG/KG			UG/KG			UG/KG		
FIELD DUPLICATE OF:				CEF-P49-SU-607-03								
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
POLYNUCLEAR AROMATIC HYDROCARBONS												
1-METHYLNAPHTHALENE	350	U		22900	J	P	66500	J	P	52000	U	
2-METHYLNAPHTHALENE	350	U		28100	J	G	79200			52000	UJ	G
ACENAPHTHENE	350	U		27700	J	P	78500			52000	U	
ACENAPHTHYLENE	700	U		55000	U		140000	U		100000	U	
ANTHRACENE	350	U		17200	J	P	36000	J	P	52000	U	
BENZO(A)ANTHRACENE	70	U		40000			93900			24700		
BENZO(A)PYRENE	70	U		33500	J	G	71400			14200	J	G
BENZO(B)FLUORANTHENE	70	U		21600	J	G	53100			8490	J	G
BENZO(G,H,I)PERYLENE	70	U		8890	J	G	21200			10000	UJ	G
BENZO(K)FLUORANTHENE	70	U		17300			45400			13000		
CHRYSENE	350	U		47900	J	G	103000			28300	J	G
DIBENZO(A,H)ANTHRACENE	70	U		5500	U		14000	U		10000	U	
FLUORANTHENE	350	U		79100	J	G	190000			30000	J	G
FLUORENE	350	U		4010	J	P	68000	U		52000	U	
INDENO(1,2,3-CD)PYRENE	70	U		13400	J	G	30000			10000	UJ	G
NAPHTHALENE	350	U		28000	U		68000	U		52000	U	
PHENANTHRENE	350	U		52900	J	G	125000			24000	J	G
PYRENE	350	U		76000	J	G	152000			28400	J	G

APPENDIX B

Results as Reported by the Laboratory

Report of Analysis

Client Sample ID:	CEF-P42-DUP1		
Lab Sample ID:	F6831-64	**Date Sampled:**	06/18/00
Matrix:	SO - Soil	**Date Received:**	06/20/00
Method:	EPA 8310	**Percent Solids:**	95.7
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	AA002490.D	1	07/02/00	CCJ	06/27/00	OP1745	GAA87
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	350	ug/kg	
208-96-8	Acenaphthylene	ND	700	ug/kg	
120-12-7	Anthracene	ND	350	ug/kg	
56-55-3	Benzo(a)anthracene	ND	70	ug/kg	
50-32-8	Benzo(a)pyrene	27.0	70	ug/kg	J
205-99-2	Benzo(b)fluoranthene	ND	70	ug/kg	
191-24-2	Benzo(g,h,i)perylene	27.5	70	ug/kg	J
207-08-9	Benzo(k)fluoranthene	ND	70	ug/kg	
218-01-9	Chrysene	ND	350	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	70	ug/kg	
206-44-0	Fluoranthene	88.4	350	ug/kg	J
86-73-7	Fluorene	ND	350	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	18.5	70	ug/kg	J
91-20-3	Naphthalene	132	350	ug/kg	J
90-12-0	1-Methylnaphthalene	92.6	350	ug/kg	J
91-57-6	2-Methylnaphthalene	146	350	ug/kg	J
85-01-8	Phenanthrene	80.5	350	ug/kg	J
129-00-0	Pyrene	58.3	350	ug/kg	J

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	73%		35-135%
92-94-4	p-Terphenyl	92%		50-150%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-P42-DUP2		
Lab Sample ID:	F6831-65	**Date Sampled:**	06/18/00
Matrix:	SO - Soil	**Date Received:**	06/20/00
Method:	EPA 8310	**Percent Solids:**	96.2
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	AA002491.D	1	07/02/00	CCJ	06/27/00	OP1745	GAA87
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	350	ug/kg	
208-96-8	Acenaphthylene	ND	690	ug/kg	
120-12-7	Anthracene	ND	350	ug/kg	
56-55-3	Benzo(a)anthracene	ND	69	ug/kg	
50-32-8	Benzo(a)pyrene	ND	69	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	69	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	69	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	69	ug/kg	
218-01-9	Chrysene	ND	350	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	69	ug/kg	
206-44-0	Fluoranthene	ND	350	ug/kg	
86-73-7	Fluorene	ND	350	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	69	ug/kg	
91-20-3	Naphthalene	ND	350	ug/kg	
90-12-0	1-Methylnaphthalene	ND	350	ug/kg	
91-57-6	2-Methylnaphthalene	ND	350	ug/kg	
85-01-8	Phenanthrene	ND	350	ug/kg	
129-00-0	Pyrene	ND	350	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	77%		35-135%
92-94-4	p-Terphenyl	96%		50-150%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-P42-DUP3		
Lab Sample ID:	F6831-66	**Date Sampled:**	06/18/00
Matrix:	SO - Soil	**Date Received:**	06/20/00
Method:	EPA 8310	**Percent Solids:**	93.0
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	AA002504.D	2	07/03/00	CCJ	06/27/00	OP1745	GAA88
Run #2 [a]	AA002492.D	8	07/02/00	CCJ	06/27/00	OP1745	GAA87

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	886	360	ug/kg	
208-96-8	Acenaphthylene	ND	720	ug/kg	
120-12-7	Anthracene	ND [b]	2900	ug/kg	
56-55-3	Benzo(a)anthracene	803	72	ug/kg	
50-32-8	Benzo(a)pyrene	807	72	ug/kg	
205-99-2	Benzo(b)fluoranthene	544	72	ug/kg	
191-24-2	Benzo(g,h,i)perylene	676	72	ug/kg	
207-08-9	Benzo(k)fluoranthene	278	72	ug/kg	
218-01-9	Chrysene	920	360	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND [b]	570	ug/kg	
206-44-0	Fluoranthene	2200	360	ug/kg	
86-73-7	Fluorene	114	360	ug/kg	J
193-39-5	Indeno(1,2,3-cd)pyrene	465	72	ug/kg	
91-20-3	Naphthalene	456	360	ug/kg	
90-12-0	1-Methylnaphthalene	530	360	ug/kg	
91-57-6	2-Methylnaphthalene	685	360	ug/kg	
85-01-8	Phenanthrene	1760	360	ug/kg	
129-00-0	Pyrene	1550	360	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	59%	48%	35-135%
92-94-4	p-Terphenyl	106%	100%	50-150%

(a) Dilution required due to matrix interference.
(b) Result is from Run# 2

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-P42-SS-806-02		
Lab Sample ID:	F6831-62	**Date Sampled:**	06/18/00
Matrix:	SO - Soil	**Date Received:**	06/20/00
Method:	EPA 8310	**Percent Solids:**	96.2
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	AA002488.D	1	07/02/00	CCJ	06/27/00	OP1745	GAA87
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	350	ug/kg	
208-96-8	Acenaphthylene	ND	690	ug/kg	
120-12-7	Anthracene	ND	350	ug/kg	
56-55-3	Benzo(a)anthracene	ND	69	ug/kg	
50-32-8	Benzo(a)pyrene	ND	69	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	69	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	69	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	69	ug/kg	
218-01-9	Chrysene	ND	350	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	69	ug/kg	
206-44-0	Fluoranthene	ND	350	ug/kg	
86-73-7	Fluorene	ND	350	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	69	ug/kg	
91-20-3	Naphthalene	ND	350	ug/kg	
90-12-0	1-Methylnaphthalene	ND	350	ug/kg	
91-57-6	2-Methylnaphthalene	ND	350	ug/kg	
85-01-8	Phenanthrene	ND	350	ug/kg	
129-00-0	Pyrene	ND	350	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	77%		35-135%
92-94-4	p-Terphenyl	96%		50-150%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-P42-SS-807-02		
Lab Sample ID:	F6831-57	**Date Sampled:**	06/18/00
Matrix:	SO - Soil	**Date Received:**	06/20/00
Method:	EPA 8310	**Percent Solids:**	86.3
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	AA002483.D	1	07/02/00	CCJ	06/27/00	OP1745	GAA87
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	390	ug/kg	
208-96-8	Acenaphthylene	ND	770	ug/kg	
120-12-7	Anthracene	ND	390	ug/kg	
56-55-3	Benzo(a)anthracene	ND	77	ug/kg	
50-32-8	Benzo(a)pyrene	ND	77	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	77	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	77	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	77	ug/kg	
218-01-9	Chrysene	ND	390	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	77	ug/kg	
206-44-0	Fluoranthene	ND	390	ug/kg	
86-73-7	Fluorene	ND	390	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	77	ug/kg	
91-20-3	Naphthalene	ND	390	ug/kg	
90-12-0	1-Methylnaphthalene	ND	390	ug/kg	
91-57-6	2-Methylnaphthalene	ND	390	ug/kg	
85-01-8	Phenanthrene	ND	390	ug/kg	
129-00-0	Pyrene	ND	390	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	78%		35-135%
92-94-4	p-Terphenyl	99%		50-150%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-P42-SS-810-02		
Lab Sample ID:	F6831-63	**Date Sampled:**	06/18/00
Matrix:	SO - Soil	**Date Received:**	06/20/00
Method:	EPA 8310	**Percent Solids:**	96.3
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	AA002503.D	1	07/03/00	CCJ	06/27/00	OP1745	GAA88
Run #2 [a]	AA002489.D	8	07/02/00	CCJ	06/27/00	OP1745	GAA87

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	415	350	ug/kg	
208-96-8	Acenaphthylene	ND	690	ug/kg	
120-12-7	Anthracene	ND	350	ug/kg	
56-55-3	Benzo(a)anthracene	526	69	ug/kg	
50-32-8	Benzo(a)pyrene	540	69	ug/kg	
205-99-2	Benzo(b)fluoranthene	751	69	ug/kg	
191-24-2	Benzo(g,h,i)perylene	689	69	ug/kg	
207-08-9	Benzo(k)fluoranthene	335	69	ug/kg	
218-01-9	Chrysene	661	350	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND [b]	550	ug/kg	
206-44-0	Fluoranthene	848	350	ug/kg	
86-73-7	Fluorene	ND	350	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	410	69	ug/kg	
91-20-3	Naphthalene	151	350	ug/kg	J
90-12-0	1-Methylnaphthalene	170	350	ug/kg	J
91-57-6	2-Methylnaphthalene	239	350	ug/kg	J
85-01-8	Phenanthrene	256	350	ug/kg	J
129-00-0	Pyrene	859	350	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	73%	69%	35-135%
92-94-4	p-Terphenyl	90%	90%	50-150%

(a) Dilution required due to matrix interference.
(b) Result is from Run# 2

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-P42-SS-813-02		
Lab Sample ID:	F6831-60	**Date Sampled:**	06/18/00
Matrix:	SO - Soil	**Date Received:**	06/20/00
Method:	EPA 8310	**Percent Solids:**	97.8
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	AA002486.D	1	07/02/00	CCJ	06/27/00	OP1745	GAA87
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	350	ug/kg	
208-96-8	Acenaphthylene	ND	700	ug/kg	
120-12-7	Anthracene	ND	350	ug/kg	
56-55-3	Benzo(a)anthracene	ND	70	ug/kg	
50-32-8	Benzo(a)pyrene	ND	70	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	70	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	70	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	70	ug/kg	
218-01-9	Chrysene	ND	350	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	70	ug/kg	
206-44-0	Fluoranthene	ND	350	ug/kg	
86-73-7	Fluorene	ND	350	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	70	ug/kg	
91-20-3	Naphthalene	ND	350	ug/kg	
90-12-0	1-Methylnaphthalene	ND	350	ug/kg	
91-57-6	2-Methylnaphthalene	ND	350	ug/kg	
85-01-8	Phenanthrene	ND	350	ug/kg	
129-00-0	Pyrene	ND	350	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	77%		35-135%
92-94-4	p-Terphenyl	99%		50-150%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-P42-SS-816-02		
Lab Sample ID:	F6831-50	**Date Sampled:**	06/18/00
Matrix:	SO - Soil	**Date Received:**	06/20/00
Method:	EPA 8310	**Percent Solids:**	96.1
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	AA002477.D	1	07/01/00	CCJ	06/27/00	OP1745	GAA87
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	350	ug/kg	
208-96-8	Acenaphthylene	ND	690	ug/kg	
120-12-7	Anthracene	ND	350	ug/kg	
56-55-3	Benzo(a)anthracene	ND	69	ug/kg	
50-32-8	Benzo(a)pyrene	ND	69	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	69	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	69	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	69	ug/kg	
218-01-9	Chrysene	ND	350	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	69	ug/kg	
206-44-0	Fluoranthene	ND	350	ug/kg	
86-73-7	Fluorene	ND	350	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	69	ug/kg	
91-20-3	Naphthalene	ND	350	ug/kg	
90-12-0	1-Methylnaphthalene	ND	350	ug/kg	
91-57-6	2-Methylnaphthalene	ND	350	ug/kg	
85-01-8	Phenanthrene	ND	350	ug/kg	
129-00-0	Pyrene	ND	350	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	74%		35-135%
92-94-4	p-Terphenyl	94%		50-150%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-P42-SS-820-02		
Lab Sample ID:	F6831-54	**Date Sampled:**	06/18/00
Matrix:	SO - Soil	**Date Received:**	06/20/00
Method:	EPA 8310	**Percent Solids:**	97.5
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	AA002480.D	1	07/02/00	CCJ	06/27/00	OP1745	GAA87
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	340	ug/kg	
208-96-8	Acenaphthylene	ND	680	ug/kg	
120-12-7	Anthracene	ND	340	ug/kg	
56-55-3	Benzo(a)anthracene	ND	68	ug/kg	
50-32-8	Benzo(a)pyrene	ND	68	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	68	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	68	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	68	ug/kg	
218-01-9	Chrysene	ND	340	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	68	ug/kg	
206-44-0	Fluoranthene	ND	340	ug/kg	
86-73-7	Fluorene	ND	340	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	68	ug/kg	
91-20-3	Naphthalene	ND	340	ug/kg	
90-12-0	1-Methylnaphthalene	ND	340	ug/kg	
91-57-6	2-Methylnaphthalene	ND	340	ug/kg	
85-01-8	Phenanthrene	ND	340	ug/kg	
129-00-0	Pyrene	ND	340	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	75%		35-135%
92-94-4	p-Terphenyl	97%		50-150%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-P42-SS-823-02		
Lab Sample ID:	F6831-58	**Date Sampled:**	06/18/00
Matrix:	SO - Soil	**Date Received:**	06/20/00
Method:	EPA 8310	**Percent Solids:**	97.0
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	AA002485.D	1	07/02/00	CCJ	06/27/00	OP1745	GAA87
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	340	ug/kg	
208-96-8	Acenaphthylene	ND	690	ug/kg	
120-12-7	Anthracene	ND	340	ug/kg	
56-55-3	Benzo(a)anthracene	27.6	69	ug/kg	J
50-32-8	Benzo(a)pyrene	26.4	69	ug/kg	J
205-99-2	Benzo(b)fluoranthene	16.9	69	ug/kg	J
191-24-2	Benzo(g,h,i)perylene	41.8	69	ug/kg	J
207-08-9	Benzo(k)fluoranthene	25.3	69	ug/kg	J
218-01-9	Chrysene	22.6	340	ug/kg	J
53-70-3	Dibenzo(a,h)anthracene	ND	69	ug/kg	
206-44-0	Fluoranthene	ND	340	ug/kg	
86-73-7	Fluorene	ND	340	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	22.5	69	ug/kg	J
91-20-3	Naphthalene	ND	340	ug/kg	
90-12-0	1-Methylnaphthalene	ND	340	ug/kg	
91-57-6	2-Methylnaphthalene	ND	340	ug/kg	
85-01-8	Phenanthrene	ND	340	ug/kg	
129-00-0	Pyrene	ND	340	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	75%		35-135%
92-94-4	p-Terphenyl	96%		50-150%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-P42-SS-826-02		
Lab Sample ID:	F6831-61	**Date Sampled:**	06/18/00
Matrix:	SO - Soil	**Date Received:**	06/20/00
Method:	EPA 8310	**Percent Solids:**	96.4
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	AA002487.D	1	07/02/00	CCJ	06/27/00	OP1745	GAA87
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	340	ug/kg	
208-96-8	Acenaphthylene	ND	690	ug/kg	
120-12-7	Anthracene	ND	340	ug/kg	
56-55-3	Benzo(a)anthracene	ND	69	ug/kg	
50-32-8	Benzo(a)pyrene	ND	69	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	69	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	69	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	69	ug/kg	
218-01-9	Chrysene	ND	340	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	69	ug/kg	
206-44-0	Fluoranthene	ND	340	ug/kg	
86-73-7	Fluorene	ND	340	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	69	ug/kg	
91-20-3	Naphthalene	ND	340	ug/kg	
90-12-0	1-Methylnaphthalene	ND	340	ug/kg	
91-57-6	2-Methylnaphthalene	ND	340	ug/kg	
85-01-8	Phenanthrene	ND	340	ug/kg	
129-00-0	Pyrene	ND	340	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	74%		35-135%
92-94-4	p-Terphenyl	94%		50-150%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-P42-SS-827-02		
Lab Sample ID:	F6831-56	**Date Sampled:**	06/18/00
Matrix:	SO - Soil	**Date Received:**	06/20/00
Method:	EPA 8310	**Percent Solids:**	96.9
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	AA002482.D	1	07/02/00	CCJ	06/27/00	OP1745	GAA87
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	340	ug/kg	
208-96-8	Acenaphthylene	ND	680	ug/kg	
120-12-7	Anthracene	ND	340	ug/kg	
56-55-3	Benzo(a)anthracene	ND	68	ug/kg	
50-32-8	Benzo(a)pyrene	21.6	68	ug/kg	J
205-99-2	Benzo(b)fluoranthene	ND	68	ug/kg	
191-24-2	Benzo(g,h,i)perylene	26.1	68	ug/kg	J
207-08-9	Benzo(k)fluoranthene	ND	68	ug/kg	
218-01-9	Chrysene	24.9	340	ug/kg	J
53-70-3	Dibenzo(a,h)anthracene	ND	68	ug/kg	
206-44-0	Fluoranthene	ND	340	ug/kg	
86-73-7	Fluorene	ND	340	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	17.4	68	ug/kg	J
91-20-3	Naphthalene	ND	340	ug/kg	
90-12-0	1-Methylnaphthalene	ND	340	ug/kg	
91-57-6	2-Methylnaphthalene	ND	340	ug/kg	
85-01-8	Phenanthrene	ND	340	ug/kg	
129-00-0	Pyrene	ND	340	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	74%		35-135%
92-94-4	p-Terphenyl	96%		50-150%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-P42-SS-828-02		
Lab Sample ID:	F6831-55	**Date Sampled:**	06/18/00
Matrix:	SO - Soil	**Date Received:**	06/20/00
Method:	EPA 8310	**Percent Solids:**	96.1
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	AA002502.D	1	07/03/00	CCJ	06/27/00	OP1745	GAA88
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	350	ug/kg	
208-96-8	Acenaphthylene	ND	690	ug/kg	
120-12-7	Anthracene	ND	350	ug/kg	
56-55-3	Benzo(a)anthracene	ND	69	ug/kg	
50-32-8	Benzo(a)pyrene	ND	69	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	69	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	69	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	69	ug/kg	
218-01-9	Chrysene	ND	350	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	69	ug/kg	
206-44-0	Fluoranthene	ND	350	ug/kg	
86-73-7	Fluorene	ND	350	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	69	ug/kg	
91-20-3	Naphthalene	ND	350	ug/kg	
90-12-0	1-Methylnaphthalene	ND	350	ug/kg	
91-57-6	2-Methylnaphthalene	ND	350	ug/kg	
85-01-8	Phenanthrene	ND	350	ug/kg	
129-00-0	Pyrene	ND	350	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	75%		35-135%
92-94-4	p-Terphenyl	97%		50-150%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-P42-SS-829-02		
Lab Sample ID:	F6831-53	**Date Sampled:**	06/18/00
Matrix:	SO - Soil	**Date Received:**	06/20/00
Method:	EPA 8310	**Percent Solids:**	98.7
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	AA002479.D	1	07/02/00	CCJ	06/27/00	OP1745	GAA87
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	340	ug/kg	
208-96-8	Acenaphthylene	ND	680	ug/kg	
120-12-7	Anthracene	ND	340	ug/kg	
56-55-3	Benzo(a)anthracene	ND	68	ug/kg	
50-32-8	Benzo(a)pyrene	ND	68	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	68	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	68	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	68	ug/kg	
218-01-9	Chrysene	ND	340	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	68	ug/kg	
206-44-0	Fluoranthene	ND	340	ug/kg	
86-73-7	Fluorene	ND	340	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	68	ug/kg	
91-20-3	Naphthalene	ND	340	ug/kg	
90-12-0	1-Methylnaphthalene	ND	340	ug/kg	
91-57-6	2-Methylnaphthalene	ND	340	ug/kg	
85-01-8	Phenanthrene	ND	340	ug/kg	
129-00-0	Pyrene	ND	340	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	74%		35-135%
92-94-4	p-Terphenyl	96%		50-150%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-P42-SS-832-02		
Lab Sample ID:	F6831-51	**Date Sampled:**	06/18/00
Matrix:	SO - Soil	**Date Received:**	06/20/00
Method:	EPA 8310	**Percent Solids:**	97.4
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	AA002478.D	1	07/02/00	CCJ	06/27/00	OP1745	GAA87
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	340	ug/kg	
208-96-8	Acenaphthylene	ND	680	ug/kg	
120-12-7	Anthracene	ND	340	ug/kg	
56-55-3	Benzo(a)anthracene	ND	68	ug/kg	
50-32-8	Benzo(a)pyrene	ND	68	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	68	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	68	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	68	ug/kg	
218-01-9	Chrysene	ND	340	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	68	ug/kg	
206-44-0	Fluoranthene	ND	340	ug/kg	
86-73-7	Fluorene	ND	340	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	68	ug/kg	
91-20-3	Naphthalene	ND	340	ug/kg	
90-12-0	1-Methylnaphthalene	ND	340	ug/kg	
91-57-6	2-Methylnaphthalene	ND	340	ug/kg	
85-01-8	Phenanthrene	ND	340	ug/kg	
129-00-0	Pyrene	ND	340	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	74%		35-135%
92-94-4	p-Terphenyl	94%		50-150%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-P42-SU-821-04		
Lab Sample ID:	F6831-49	**Date Sampled:**	06/18/00
Matrix:	SO - Soil	**Date Received:**	06/20/00
Method:	EPA 8310	**Percent Solids:**	95.1
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	AA002476.D	1	07/01/00	CCJ	06/27/00	OP1745	GAA87
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	350	ug/kg	
208-96-8	Acenaphthylene	ND	700	ug/kg	
120-12-7	Anthracene	ND	350	ug/kg	
56-55-3	Benzo(a)anthracene	ND	70	ug/kg	
50-32-8	Benzo(a)pyrene	ND	70	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	70	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	70	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	70	ug/kg	
218-01-9	Chrysene	ND	350	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	70	ug/kg	
206-44-0	Fluoranthene	ND	350	ug/kg	
86-73-7	Fluorene	ND	350	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	70	ug/kg	
91-20-3	Naphthalene	ND	350	ug/kg	
90-12-0	1-Methylnaphthalene	ND	350	ug/kg	
91-57-6	2-Methylnaphthalene	ND	350	ug/kg	
85-01-8	Phenanthrene	ND	350	ug/kg	
129-00-0	Pyrene	ND	350	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	79%		35-135%
92-94-4	p-Terphenyl	101%		50-150%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-P42-DUP1		
Lab Sample ID:	F6831-64	**Date Sampled:**	06/18/00
Matrix:	SO - Soil	**Date Received:**	06/20/00
Method:	FLORIDA-PRO	**Percent Solids:**	95.7
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP09096.D	1	07/01/00	ME	06/28/00	OP1748	GOP402
Run #2							

CAS No.	Compound	Result	RL	Units	Q
	TPH (C8-C40)	23.0	8.7	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	106%		40-140%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-P42-SS-813-02		
Lab Sample ID:	F6831-60	**Date Sampled:**	06/18/00
Matrix:	SO - Soil	**Date Received:**	06/20/00
Method:	FLORIDA-PRO	**Percent Solids:**	97.8
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP09095.D	1	07/01/00	ME	06/28/00	OP1748	GOP402
Run #2							

CAS No.	Compound	Result	RL	Units	Q
	TPH (C8-C40)	18.1	8.5	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	106%		40-140%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-P42-SS-816-02		
Lab Sample ID:	F6831-50	**Date Sampled:**	06/18/00
Matrix:	SO - Soil	**Date Received:**	06/20/00
Method:	FLORIDA-PRO	**Percent Solids:**	96.1
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP09092.D	1	07/01/00	ME	06/28/00	OP1748	GOP402
Run #2							

CAS No.	Compound	Result	RL	Units	Q
	TPH (C8-C40)	8.05	8.7	mg/kg	J

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	109%		40-140%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-P42-SS-823-02		
Lab Sample ID:	F6831-58	**Date Sampled:**	06/18/00
Matrix:	SO - Soil	**Date Received:**	06/20/00
Method:	FLORIDA-PRO	**Percent Solids:**	97.0
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP09093.D	1	07/01/00	ME	06/28/00	OP1748	GOP402
Run #2							

CAS No.	Compound	Result	RL	Units	Q
	TPH (C8-C40)	8.44	8.6	mg/kg	J

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	106%		40-140%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Tetra Tech NUS **INTERNAL CORRESPONDENCE**

PITT-07-0-026

TO: **MARK SPERANZA** **DATE: AUGUST 9, 2000**

FROM: **JUSTIN ORBICH** **CC: DV FILE**

SUBJECT: **ORGANIC DATA VALIDATION – PAH/PEST/HERB/TPH**
CTO 078 – NAS CECIL FIELD
SDG F7010

SAMPLES: 2/Polynuclear Aromatic Hydrocarbon

CEF-P42-SU-808-03 CEF-P42-SU-815-03

~~7/Pesticide~~

~~CEF-P21-SU-802-03~~ ~~CEF-P21-SU-818-03~~
~~CEF-P25-SU-702-03~~ ~~CEF-P25-SU-706-03~~
~~CEF-P25-SU-708-03~~ ~~CEF-P25-SU-712-03~~
~~CEF-P25-SU-716-03~~

~~1/Herbicide~~

~~CEF-P21-SU-818-03~~

~~2/Total Petroleum Hydrocarbon~~

~~CEF-P21-SU-802-03~~ ~~CEF-P21-SU-818-03~~

OVERVIEW

The sample set for CTO 078, SDG F7010 Naval Air Station (NAS) Cecil Field; Florida consists of nine (9) surface soil environmental samples. The samples were analyzed for Polynuclear Aromatic Hydrocarbon (PAH), pesticide, herbicide, and Total Petroleum Hydrocarbon (TPH) organic compounds. No field duplicate pairs were included within this SDG.

The samples were collected by Tetra Tech, NUS on June 17th, 18th, and 20th, 2000 and analyzed by Accutest Laboratories. All analyses were performed in accordance with Naval Facilities Engineering Service Center (NFESC) Quality Assurance/Quality Control (QA/QC) criteria and analyzed according to SW 846 Method 8310, 8081A, 8151, and FLORIDA-PRO analytical and reporting protocols. The data in this SDG was validated with regard to the following parameters:

- Data Completeness
- Holding Times
- * Initial/continuing calibrations
- * Laboratory method/field quality control blank results
- * Detection Limits

The symbol (*) indicates that all quality control criteria were met for this parameter. Problems affecting data quality are discussed below; documentation supporting these findings is presented in Appendix C. Qualified analytical results are presented in Appendix A.

PAH FRACTION

Sample CEF-P42-SU-815-03 was analyzed at a 10X dilution thus causing elevated reporting limits.

Due to a client requested hold, samples CEF-P42-SU-808-03 and CEF-P42-SU-815-03 were extracted 24-26 days after collection. Despite the exceedance, positive and nondetected results are not severely compromised by this exceedance in the opinion of the reviewer. The positive and nondetected results were qualified as estimated, (J) and (UJ), respectively.

PESTICIDE FRACTION

It should be noted that the laboratory failed to report Chlordane (Technical) on the Form Is and the electronic deliverable. The laboratory was notified and as a result re-submitted the Form Is and electronic deliverable.

It should be noted that the laboratory did not provide the Form Xs in the pesticide fraction. The laboratory was notified and as a result was providing the Form Xs.

Sample CEF-P21-SU-818-03 was analyzed at a 500X dilution thus causing elevated reporting limits.

Sample CEF-P25-SU-716-03 was analyzed at a 100X dilution thus causing elevated reporting limits.

Due to a client requested hold, all samples were extracted ~30 days after collection. Despite the exceedance, positive and nondetected results are not severely compromised by this exceedance in the opinion of the reviewer. The positive and nondetected results were qualified as estimated, (J) and (UJ), respectively.

HERBICIDE FRACTION

Due to a client requested hold, sample CEF-P21-SU-818-03 was extracted ~28 days after collection. Despite the exceedance, positive and nondetected results are not severely compromised by this exceedance in the opinion of the reviewer. The positive and nondetected results were qualified as estimated, (J) and (UJ), respectively.

TPH FRACTION

Due to a client requested hold, samples CEF-P21-SU-802-03 and CEF-P21-SU-818-03 were extracted ~30 days after collection. Despite the exceedance, positive and nondetected results are not severely compromised by this exceedance in the opinion of the reviewer. The positive and nondetected results were qualified as estimated, (J) and (UJ), respectively.

Sample CEF-P21-SU-818-03 was analyzed at a 4X dilution thus causing elevated reporting limits.

ADDITIONAL COMMENTS

Positive results that were reported at concentrations below the Reporting Limits (RLs) were qualified as estimated (J).

MEMO TO: **MARK SPERANZA**
DATE: **AUGUST 9, 2000 – PAGE 3**

EXECUTIVE SUMMARY

Laboratory performance: None.

Other Factors Affecting Data Quality: Several samples were analyzed at a dilution. All samples were extracted outside of holding time.

The data for these analyses were reviewed with reference to the EPA Functional Guidelines for Organic Data Validation (October 1999) and the NFESC guidelines "Navy IRCDQM" (September 1999). The text of this report has been formulated to address only those problems affecting data quality.

"I attest that the data referenced herein was validated according to the agreed upon validation criteria as specified in the NFESC Guidelines and the Quality Assurance Project Plan (QAPP)."

Justin Orbich

Chemist/Data Validator
Tetra Tech, NUS

Joseph A. Samchuck

Data Validation Quality Assurance Officer
Tetra Tech, NUS

Attachments:
1. Appendix A - Qualified Analytical Results
2. Appendix B - Results as reported by the Laboratory
3. Appendix C - Support Documentation

DATA QUALIFIER DEFINITIONS:

U	-	Value is a nondetected result as reported by the laboratory and should not be considered present.
J	-	Positive result is estimated as a result of a value below the CRQL or a technical noncompliance.
UR	-	Nondetected result is rejected due to a severe technical noncompliance.

Qualifier Codes:

A = Lab Blank Contamination
B = Field Blank Contamination
C = Calibration (i.e., % RSDs, %Ds, ICVs, CCVs, RPDs, RRFs, etc.) Noncompliance
D = MS/MSD Noncompliance
E = LCS/LCSD Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = GFAA PDS - GFAA MSA's r < 0.995
K = ICP Interference - include ICSAB % R's
L = Instrument Calibration Range Exceedance
M = Sample Preservation
N = Internal Standard Noncompliance
O = Poor Instrument Performance (i.e., base-time drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can encompass a number of issues)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = Pest/PCB D% between columns for positive results
V = Non-linear calibrations, tuning r < 0.995 (correlation coefficient)
W = EMPC result
X = Signal to noise response drop
Y = % Solid content is less than 30%

APPENDIX A

Qualified Analytical Results

CTO078-NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F7010

SAMPLE NUMBER:	CEF-P42-SU-808-03	CEF-P42-SU-815-03	/ /	/ /
SAMPLE DATE:	06/18/00	06/20/00		
LABORATORY ID:	F7010-8	F7010-9		
QC_TYPE:	NORMAL	NORMAL		
% SOLIDS:	95.2 %	91.8 %	100.0 %	100.0 %
UNITS:	UG/KG	UG/KG		
FIELD DUPLICATE OF:				

	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
POLYNUCLEAR AROMATIC HYDROCARBONS												
1-METHYLNAPHTHALENE	350	UJ	H	4560	J	H						
2-METHYLNAPHTHALENE	350	UJ	H	3600	UJ	H						
ACENAPHTHENE	350	UJ	H	3600	UJ	H						
ACENAPHTHYLENE	700	UJ	H	14000	UJ	H						
ANTHRACENE	350	UJ	H	3600	UJ	H						
BENZO(A)ANTHRACENE	140	J	H	720	UJ	H						
BENZO(A)PYRENE	102	J	H	720	UJ	H						
BENZO(B)FLUORANTHENE	69	J	HP	720	UJ	H						
BENZO(G,H,I)PERYLENE	35.3	J	HP	720	UJ	H						
BENZO(K)FLUORANTHENE	52.6	J	HP	720	UJ	H						
CHRYSENE	118	J	HP	3600	UJ	H						
DIBENZO(A,H)ANTHRACENE	70	UJ	H	720	UJ	H						
FLUORANTHENE	334	J	HP	3600	UJ	H						
FLUORENE	350	UJ	H	7200	UJ	H						
INDENO(1,2,3-CD)PYRENE	68.6	J	HP	720	UJ	H						
NAPHTHALENE	350	UJ	H	3600	UJ	H						
PHENANTHRENE	204	J	HP	3600	UJ	H						
PYRENE	218	J	HP	14000	UJ	H						

APPENDIX B

Results as Reported by the Laboratory

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-P42-SU-808-03		
Lab Sample ID:	F7010-8	**Date Sampled:**	06/18/00
Matrix:	SO - Soil	**Date Received:**	07/11/00
Method:	EPA 8310	**Percent Solids:**	95.2
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	AA003029.D	1	07/18/00	CCJ	07/14/00	OP1827	GAA100
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	350	ug/kg	
208-96-8	Acenaphthylene	ND	700	ug/kg	
120-12-7	Anthracene	ND	350	ug/kg	
56-55-3	Benzo(a)anthracene	140	70	ug/kg	
50-32-8	Benzo(a)pyrene	102	70	ug/kg	
205-99-2	Benzo(b)fluoranthene	69.0	70	ug/kg	J
191-24-2	Benzo(g,h,i)perylene	35.3	70	ug/kg	J
207-08-9	Benzo(k)fluoranthene	52.6	70	ug/kg	J
218-01-9	Chrysene	118	350	ug/kg	J
53-70-3	Dibenzo(a,h)anthracene	ND	70	ug/kg	
206-44-0	Fluoranthene	334	350	ug/kg	J
86-73-7	Fluorene	ND	350	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	68.6	70	ug/kg	J
91-20-3	Naphthalene	ND	350	ug/kg	
90-12-0	1-Methylnaphthalene	ND	350	ug/kg	
91-57-6	2-Methylnaphthalene	ND	350	ug/kg	
85-01-8	Phenanthrene	204	350	ug/kg	J
129-00-0	Pyrene	218	350	ug/kg	J

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	76%		22-130%
92-94-4	p-Terphenyl	102%		53-130%

(a) Sample extracted beyond hold time; reported results are considered minimum values.

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-P42-SU-815-03		
Lab Sample ID:	F7010-9	**Date Sampled:**	06/20/00
Matrix:	SO - Soil	**Date Received:**	07/11/00
Method:	EPA 8310	**Percent Solids:**	91.8
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	AA003049.D	10	07/18/00	CCJ	07/14/00	OP1827	GAA100
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	3600	ug/kg	
208-96-8	Acenaphthylene [b]	ND	14000	ug/kg	
120-12-7	Anthracene	ND	3600	ug/kg	
56-55-3	Benzo(a)anthracene	ND	720	ug/kg	
50-32-8	Benzo(a)pyrene	ND	720	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	720	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	720	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	720	ug/kg	
218-01-9	Chrysene	ND	3600	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	720	ug/kg	
206-44-0	Fluoranthene	ND	3600	ug/kg	
86-73-7	Fluorene [b]	ND	7200	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	720	ug/kg	
91-20-3	Naphthalene	ND	3600	ug/kg	
90-12-0	1-Methylnaphthalene	4560	3600	ug/kg	
91-57-6	2-Methylnaphthalene	ND	3600	ug/kg	
85-01-8	Phenanthrene	ND	3600	ug/kg	
129-00-0	Pyrene [b]	ND	14000	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	47%		22-130%
92-94-4	p-Terphenyl	65%		53-130%

(a) Dilution required due to matrix interference. Sample extracted beyond hold time; reported results are considered minimum values.
(b) Elevated reporting limits due to matrix interference.

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Florida • 4405 Vineland Road • Suite C-15 • Orlando, FL 32811 • tel. 407-425-6700 • fax: 407-425-0707 • http://www.accutest.com

Tetra Tech NUS **INTERNAL CORRESPONDENCE**

TO:	**M. SPERANZA** [redacted]	**DATE:**	**AUGUST 6, 2000**
FROM:	**GRETCHEN PHIPPS**	**COPIES:**	**DV FILE**

SUBJECT: **INORGANIC DATA VALIDATION – METALS**
CTO 078 - NAS CECIL FIELD
SDG – F6831

SAMPLES: 33/Soils/

~~CEF-535-DUP1[1]~~
~~CEF-535-SS-002-01[1]~~
~~CEF-535-SS-004-01[1]~~
~~CEF-P21-DUP2[3]~~
~~CEF-P21-SS-801-02[2]~~
~~CEF-P21-SS-805-02[3]~~
~~CEF-P21-SS-807-02[3]~~
~~CEF-P21-SS-819-02[2]~~
~~CEF-P21-SS-822-02[2]~~
~~CEF-P~~21~~2-SS-825-02[2]~~
~~CEF-P21-SU-829-03[2]~~
CEF-P42-DUP3[4]
CEF-P42-SS-809-02[2]
CEF-P42-SS-816-02[2]
CEF-P42-SS-823-02[2]
~~CEF-P49-SS-601-02[6]~~
~~CEF-P49-SS-609-02[6]~~
~~CEF-535-SS-001-01[1]~~
~~CEF-535-SS-003-01[1]~~
~~CEF-P21-DUP1[2]~~
~~CEF-P21-DUP3[3]~~
~~CEF-P21-SS-804-02[3]~~
~~CEF-P21-SS-806-02[3]~~
~~CEF-P21-SS-817-02[2]~~
~~CEF-P21-SS-820-02[2]~~
~~CEF-P21-SS-823-02[2]~~
~~CEF-P21-SS-827-02[2]~~
CEF-P42-DUP1[2]
CEF-P42-SS-807-02[4]
CEF-P42-SS-810-02[5]
CEF-P42-SS-818-02[2]
CEF-P42-SS-826-02[4]
~~CEF-P49-SS-603-02[6]~~

[1]Samples analyzed for TAL metals.
[2]Samples analyzed for arsenic.
[3]Samples analyzed for mercury.
[4]Samples analyzed for antimony and arsenic.
[5]Samples analyzed for antimony.
[6]Samples analyzed for lead.

Overview

The sample set for CTO 078, Cecil Field, SDG F6831 consists of thirty-three (33) soil environmental samples. Six (6) field duplicate pairs (CEF-535-SS-003-01 / CEF-535-DUP1, CEF-P21-SS-817-02 / CEF-P21-DUP1, CEF-P21-SS-819-02 / DEF-P21-DUP2, CEF-P21-SS-806-02 / CEF-P21-DUP3, CEF-P42-SS-816-02 / CEF-P42-DUP1, CEF-P42-SS-807-02 / CEF-P42-DUP3) were included within this SDG.

The samples were collected by Tetra Tech NUS on June 16-18, 2000 and analyzed by Accutest Laboratory under Naval Facilities Engineering Service Center (NFESC) Quality Assurance / Quality Control (QA / QC) criteria. Metals analyses were conducted using SW 846 method 6010B/7470A.

Notes

Sample CEF-P49-SS-603-02 was not diluted for lead analyses in the original data submission. The laboratory was contacted by Joe Samchuck and the sample was reanalyzed at a 100X dilution. The Form 1 was amended with the result from the reanalysis.

Executive Summary

Laboratory Performance: Several analytes were present in the laboratory method / preparation blanks.

Other Factors Affecting Data Quality: Field duplicate imprecision was noted for antimony, arsenic, iron and mercury.

The data for these analyses were reviewed with reference to the "National Functional Guidelines for Inorganic Review", February 1994 and the NFESC document entitled "Navy IRCDQM." (September 1999).

The text of this report has been formulated to address only those problem areas affecting data quality.

"I attest that the data referenced herein were validated according to the agreed upon validation criteria as specified in the NFESC Guidelines and the Quality Assurance Project Plan (QAPP)."

Gretchen A. Phipps

Tetra Tech NUS
Gretchen A. Phipps

Tetra Tech NUS
Joseph A. Samchuck
Quality Control Officer

Attachments:

1. Appendix A - Qualified Analytical Data
2. Appendix B - Results as reported by the Laboratory
3. Appendix C - Support Documentation

APPENDIX A
QUALIFIED ANALYTICAL RESULTS

Qualifier Codes:

A = Lab Blank Contamination
B = Field Blank Contamination
C = Calibration (i.e., % RSDs, %Ds, ICVs, CCVs, RPDs, RRFs, etc.) Noncompliance
D = MS/MSD Noncompliance
E = LCS/LCSD Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = GFAA PDS - GFAA MSA's $r < 0.995$
K = ICP Interference - include ICSAB % R's
L = Instrument Calibration Range Exceedance
M = Sample Preservation
N = Internal Standard Noncompliance
O = Poor Instrument Performance (i.e., base-time drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can encompass a number of issues)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = Pest/PCD% between columns for positive results
V = Non-linear calibrations, tuning $r < 0.995$ (correlation coefficient)
W = EMPC result
X = Signal to noise response drop

CTO078-NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F6831

SAMPLE NUMBER:	CEF-P21-SU-829-03			CEF-P42-DUP1			CEF-P42-DUP3			CEF-P42-SS-807-02		
SAMPLE DATE:	06/17/00			06/18/00			06/18/00			06/18/00		
LABORATORY ID:	F6831-32			F6831-64			F6831-66			F6831-57		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	94.8 %			95.7 %			93.0 %			86.3 %		
UNITS:	MG/KG			MG/KG			MG/KG			MG/KG		
FIELD DUPLICATE OF:				CEF-P42-SS-816-02			CEF-P42-SS-807-02					
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
INORGANICS												
ANTIMONY							14.7	J	G	0.27	U	
ARSENIC	0.40	J	G	3.3	J	G	4.2	J	G	42.1	J	G

CTO078-NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F6831

SAMPLE NUMBER:	CEF-P42-SS-809-02			CEF-P42-SS-810-02			CEF-P42-SS-816-02			CEF-P42-SS-818-02		
SAMPLE DATE:	06/18/00			06/18/00			06/18/00			06/18/00		
LABORATORY ID:	F6831-59			F6831-63			F6831-50			F6831-52		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	93.5 %			96.3 %			96.1 %			95.7 %		
UNITS:	MG/KG			MG/KG			MG/KG			MG/KG		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
INORGANICS												
ANTIMONY				6.4	J	G						
ARSENIC	1.9	J	G				1.4	J	G	0.36	U	

CTO078-NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F6831

SAMPLE NUMBER:	CEF-P42-SS-823-02			CEF-P42-SS-826-02			CEF-P49-SS-601-02			CEF-P49-SS-603-02		
SAMPLE DATE:	06/18/00			06/18/00			06/16/00			06/16/00		
LABORATORY ID:	F6831-58			F6831-61			F6831-6			F6831-9		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	97.0 %			96.4 %			82.7 %			95.4 %		
UNITS:	MG/KG			MG/KG			MG/KG			MG/KG		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
INORGANICS												
ANTIMONY				0.25	U							
ARSENIC	0.36	U		0.37	U							
LEAD							16.7			66300		

APPENDIX B
RESULTS AS REPORTED BY THE LABORATORY

Report of Analysis

Client Sample ID:	CEF-P42-DUP1		
Lab Sample ID:	F6831-64	**Date Sampled:**	06/18/00
Matrix:	SO - Soil	**Date Received:**	06/20/00
		Percent Solids:	95.7
Project:	NAS Cecil Field		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method
Arsenic	3.3	0.54	mg/kg	1	06/21/00	06/26/00 JK	SW846 6010A

RL = Reporting Limit

Report of Analysis

Client Sample ID:	CEF-P42-DUP3		
Lab Sample ID:	F6831-66	**Date Sampled:**	06/18/00
Matrix:	SO - Soil	**Date Received:**	06/20/00
		Percent Solids:	93.0
Project:	NAS Cecil Field		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By		Method
Antimony	14.7	6.5	mg/kg	1	06/21/00	06/26/00	JK	SW846 6010A
Arsenic	4.2	0.54	mg/kg	1	06/21/00	06/26/00	JK	SW846 6010A

RL = Reporting Limit

Report of Analysis

Client Sample ID:	CEF-P42-SS-807-02		
Lab Sample ID:	F6831-57	**Date Sampled:**	06/18/00
Matrix:	SO - Soil	**Date Received:**	06/20/00
		Percent Solids:	86.3
Project:	NAS Cecil Field		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method
Antimony	0.27 U	6.9	mg/kg	1	06/21/00	06/26/00	JK	SW846 6010A
Arsenic	42.1	0.57	mg/kg	1	06/21/00	06/26/00	JK	SW846 6010A

RL = Reporting Limit

Report of Analysis

Client Sample ID:	CEF-P42-SS-809-02		
Lab Sample ID:	F6831-59	**Date Sampled:**	06/18/00
Matrix:	SO - Soil	**Date Received:**	06/20/00
		Percent Solids:	93.5
Project:	NAS Cecil Field		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method
Arsenic	1.9	0.50	mg/kg	1	06/21/00	06/26/00 JK	SW846 6010A

RL = Reporting Limit

Report of Analysis

Client Sample ID:	CEF-P42-SS-810-02		
Lab Sample ID:	F6831-63	**Date Sampled:**	06/18/00
Matrix:	SO - Soil	**Date Received:**	06/20/00
		Percent Solids:	96.3
Project:	NAS Cecil Field		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By		Method
Antimony	6.4	6.4	mg/kg	1	06/21/00	06/26/00	JK	SW846 6010A

RL = Reporting Limit

Report of Analysis

Client Sample ID:	CEF-P42-SS-816-02		
Lab Sample ID:	F6831-50	**Date Sampled:**	06/18/00
Matrix:	SO - Soil	**Date Received:**	06/20/00
		Percent Solids:	96.1
Project:	NAS Cecil Field		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By		Method
Arsenic	1.4	0.52	mg/kg	1	06/21/00	06/26/00	JK	SW846 6010A

RL = Reporting Limit

Report of Analysis

Client Sample ID:	CEF-P42-SS-818-02		
Lab Sample ID:	F6831-52	**Date Sampled:**	06/18/00
Matrix:	SO - Soil	**Date Received:**	06/20/00
		Percent Solids:	95.7
Project:	NAS Cecil Field		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method
Arsenic	0.36 U	0.52	mg/kg	1	06/21/00	06/26/00 JK	SW846 6010A

RL = Reporting Limit

Report of Analysis

Client Sample ID:	CEF-P42-SS-823-02		
Lab Sample ID:	F6831-58	**Date Sampled:**	06/18/00
Matrix:	SO - Soil	**Date Received:**	06/20/00
		Percent Solids:	97.0
Project:	NAS Cecil Field		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method
Arsenic	0.36 U	0.52	mg/kg	1	06/21/00	06/26/00 JK	SW846 6010A

RL = Reporting Limit

Report of Analysis

Client Sample ID:	CEF-P42-SS-826-02		
Lab Sample ID:	F6831-61	**Date Sampled:**	06/18/00
Matrix:	SO - Soil	**Date Received:**	06/20/00
		Percent Solids:	96.4
Project:	NAS Cecil Field		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method
Antimony	0.25 U	6.4	mg/kg	1	06/21/00	06/26/00	JK	SW846 6010A
Arsenic	0.37 U	0.53	mg/kg	1	06/21/00	06/26/00	JK	SW846 6010A

RL = Reporting Limit

Tetra Tech NUS **INTERNAL CORRESPONDENCE**

PITT-07-0-031

TO: **MARK SPERANZA** **DATE: JULY 31, 2000**

FROM: **JUSTIN ORBICH** **CC: DV FILE**

SUBJECT: **ORGANIC DATA VALIDATION – PAH/PEST/PCB**
CTO 078 – NAS CECIL FIELD
SDG F6857

SAMPLES: 6/PAH

CEF-P42-SS-801-01 CEF-P42-SS-802-01
CEF-P42-SS-803-01 CEF-P42-SS-804-01
CEF-P42-SS-805-01 CEF-P42-SS-814-02

~~10\Pesticide/PCB~~

CEF-P25-DUP3 ~~CEF-P25-SS-718-02~~
CEF-P25-SS-720-02 ~~CEF-P25-SS-722-02~~
CEF-P25-SS-723-02 ~~CEF-P25-SS-725-02+~~
CEF-P25-SS-727-01* CEF-P25-SS-728-01*
CEF-P25-SS-729-01*

OVERVIEW

The sample set for CTO 078, SDG F6857 Naval Air Station (NAS) Cecil Field; Florida consists of sixteen (16) surface soil environmental sample. The samples were analyzed for Polynuclear Aromatic Hydrocarbon (PAH) and pesticide/PCB organic compounds. The samples designated (*) were analyzed for SPLP pesticide organic compounds. The sample designated (+) was analyzed for Polychlorinated Biphenyl (PCB) only. One (1) field duplicate pair (CEF-P25-SS-718-02/CEF-P25-DUP3) was included within this SDG.

The samples were collected by Tetra Tech, NUS on June 20th, 2000 and analyzed by Accutest Laboratories. All analyses were performed in accordance with Naval Facilities Engineering Service Center (NFESC) Quality Assurance/Quality Control (QA/QC) criteria and analyzed according to SW 846 Method 8310 and 8081A/8082 analytical and reporting protocols. The data in this SDG was validated with regard to the following parameters:

* • Data Completeness
* • Holding Times
* • Initial/continuing calibrations
* • Laboratory method/field quality control blank results
• Field Duplicate Precision
* • Detection Limits

The symbol (*) indicates that all quality control criteria were met for this parameter. Problems affecting data quality are discussed below; documentation supporting these findings is presented in Appendix C. Qualified analytical results are presented in Appendix A.

DATA QUALIFIER DEFINITIONS:

U - Value is a nondetected result as reported by the laboratory and should not be considered present.

J - Positive result is estimated as a result of a value below the CRQL or a technical noncompliance.

Qualifier Codes:

A = Lab Blank Contamination
B = Field Blank Contamination
C = Calibration (i.e., % RSDs, %Ds, ICVs, CCVs, RPDs, RRFs, etc.) Noncompliance
D = MS/MSD Noncompliance
E = LCS/LCSD Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = GFAA PDS - GFAA MSA's $r < 0.995$
K = ICP Interference - include ICSAB % R's
L = Instrument Calibration Range Exceedance
M = Sample Preservation
N = Internal Standard Noncompliance
O = Poor Instrument Performance (i.e., base-time drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can encompass a number of issues)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = Pest/PCB D% between columns for positive results
V = Non-linear calibrations, tuning $r < 0.995$ (correlation coefficient)
W = EMPC result
X = Signal to noise response drop
Y = % Solid content is less than 30%

APPENDIX A

Qualified Analytical Results

CTO078-NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F6857

SAMPLE NUMBER:	CEF-P42-SS-801-01			CEF-P42-SS-802-01			CEF-P42-SS-803-01			CEF-P42-SS-804-01		
SAMPLE DATE:	06/20/00			06/20/00			06/20/00			06/20/00		
LABORATORY ID:	F6857-1			F6857-2			F6857-3			F6857-4		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	91.0 %			86.9 %			90.2 %			90.5 %		
UNITS:	UG/KG			UG/KG			UG/KG			UG/KG		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
POLYNUCLEAR AROMATIC HYDROCARBONS												
1-METHYLNAPHTHALENE	40000			50400			4770	J	P	370	U	
2-METHYLNAPHTHALENE	49800			59300			6320			370	U	
ACENAPHTHENE	45700			72000			5310	J	P	370	U	
ACENAPHTHYLENE	73000	U		77000	U		12000	U		740	U	
ANTHRACENE	37000	U		41100			5900	U		370	U	
BENZO(A)ANTHRACENE	62500			68300			7340			247		
BENZO(A)PYRENE	33600			37700			4430			173		
BENZO(B)FLUORANTHENE	33400			41500			4660			169		
BENZO(G,H,I)PERYLENE	13400			17000			2460			96.1		
BENZO(K)FLUORANTHENE	23700			29000			2990			125		
CHRYSENE	50800			55400			6070			219	J	P
DIBENZO(A,H)ANTHRACENE	3780	J	P	5180	J	P	665	J	P	74	U	
FLUORANTHENE	135000			173000			16300			565		
FLUORENE	37000	U		38000	U		5900	U		370	U	
INDENO(1,2,3-CD)PYRENE	21500			26200			3740			134		
NAPHTHALENE	37000	U		38000	U		5900	U		370	U	
PHENANTHRENE	77500			146000			10600			331	J	P
PYRENE	89400			110000			11000			429		

CTO078-NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F6857

SAMPLE NUMBER:	CEF-P42-SS-805-01	CEF-P42-SS-814-02		
SAMPLE DATE:	06/20/00	06/20/00	/ /	/ /
LABORATORY ID:	F6857-5	F6857-6		
QC_TYPE:	NORMAL	NORMAL		
% SOLIDS:	90.2 %	92.5 %	100.0 %	100.0 %
UNITS:	UG/KG	UG/KG		
FIELD DUPLICATE OF:				

	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
POLYNUCLEAR AROMATIC HYDROCARBONS												
1-METHYLNAPHTHALENE	370	U		1800	U							
2-METHYLNAPHTHALENE	370	U		1800	U							
ACENAPHTHENE	370	U		1800	U							
ACENAPHTHYLENE	740	U		3600	U							
ANTHRACENE	370	U		1800	U							
BENZO(A)ANTHRACENE	99.2			360	U							
BENZO(A)PYRENE	49	J	P	360	U							
BENZO(B)FLUORANTHENE	56.4	J	P	360	U							
BENZO(G,H,I)PERYLENE	35.6	J	P	360	U							
BENZO(K)FLUORANTHENE	36.9	J	P	360	U							
CHRYSENE	72.4	J	P	1800	U							
DIBENZO(A,H)ANTHRACENE	74	U		360	U							
FLUORANTHENE	370	U		1800	U							
FLUORENE	370	U		1800	U							
INDENO(1,2,3-CD)PYRENE	43.1	J	P	360	U							
NAPHTHALENE	370	U		1800	U							
PHENANTHRENE	370	U		1800	U							
PYRENE	370	U		1800	U							

APPENDIX B

Results as Reported by the Laboratory

Report of Analysis

Client Sample ID:	CEF-P42-SS-801-01		
Lab Sample ID:	F6857-1	**Date Sampled:**	06/20/00
Matrix:	SO - Soil	**Date Received:**	06/22/00
Method:	EPA 8310	**Percent Solids:**	91.0
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	AA002656.D	100	07/06/00	CCJ	07/01/00	OP1773	GAA90
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	45700	37000	ug/kg	
208-96-8	Acenaphthylene	ND	73000	ug/kg	
120-12-7	Anthracene	ND	37000	ug/kg	
56-55-3	Benzo(a)anthracene	62500	7300	ug/kg	
50-32-8	Benzo(a)pyrene	33600	7300	ug/kg	
205-99-2	Benzo(b)fluoranthene	33400	7300	ug/kg	
191-24-2	Benzo(g,h,i)perylene	13400	7300	ug/kg	
207-08-9	Benzo(k)fluoranthene	23700	7300	ug/kg	
218-01-9	Chrysene	50800	37000	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	3780	7300	ug/kg	J
206-44-0	Fluoranthene	135000	37000	ug/kg	
86-73-7	Fluorene	ND	37000	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	21500	7300	ug/kg	
91-20-3	Naphthalene	ND	37000	ug/kg	
90-12-0	1-Methylnaphthalene	40000	37000	ug/kg	
91-57-6	2-Methylnaphthalene	49800	37000	ug/kg	
85-01-8	Phenanthrene	77500	37000	ug/kg	
129-00-0	Pyrene	89400	37000	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	0% [b]		22-130%
92-94-4	p-Terphenyl	0% [b]		53-130%

(a) Dilution required due to matrix interference.
(b) Outside control limits due to dilution.

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-P42-SS-802-01		
Lab Sample ID:	F6857-2	**Date Sampled:**	06/20/00
Matrix:	SO - Soil	**Date Received:**	06/22/00
Method:	EPA 8310	**Percent Solids:**	86.9
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	AA002657.D	100	07/06/00	CCJ	07/01/00	OP1773	GAA90
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	72000	38000	ug/kg	
208-96-8	Acenaphthylene	ND	77000	ug/kg	
120-12-7	Anthracene	41100	38000	ug/kg	
56-55-3	Benzo(a)anthracene	68300	7700	ug/kg	
50-32-8	Benzo(a)pyrene	37700	7700	ug/kg	
205-99-2	Benzo(b)fluoranthene	41500	7700	ug/kg	
191-24-2	Benzo(g,h,i)perylene	17000	7700	ug/kg	
207-08-9	Benzo(k)fluoranthene	29000	7700	ug/kg	
218-01-9	Chrysene	55400	38000	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	5180	7700	ug/kg	J
206-44-0	Fluoranthene	173000	38000	ug/kg	
86-73-7	Fluorene	ND	38000	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	26200	7700	ug/kg	
91-20-3	Naphthalene	ND	38000	ug/kg	
90-12-0	1-Methylnaphthalene	50400	38000	ug/kg	
91-57-6	2-Methylnaphthalene	59300	38000	ug/kg	
85-01-8	Phenanthrene	146000	38000	ug/kg	
129-00-0	Pyrene	110000	38000	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	0% [b]		22-130%
92-94-4	p-Terphenyl	0% [b]		53-130%

(a) Dilution required due to matrix interference.
(b) Outside control limits due to dilution.

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-P42-SS-803-01		
Lab Sample ID:	F6857-3	**Date Sampled:**	06/20/00
Matrix:	SO - Soil	**Date Received:**	06/22/00
Method:	EPA 8310	**Percent Solids:**	90.2
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	AA002658.D	16	07/06/00	CCJ	07/01/00	OP1773	GAA90
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	5310	5900	ug/kg	J
208-96-8	Acenaphthylene	ND	12000	ug/kg	
120-12-7	Anthracene	ND	5900	ug/kg	
56-55-3	Benzo(a)anthracene	7340	1200	ug/kg	
50-32-8	Benzo(a)pyrene	4430	1200	ug/kg	
205-99-2	Benzo(b)fluoranthene	4660	1200	ug/kg	
191-24-2	Benzo(g,h,i)perylene	2460	1200	ug/kg	
207-08-9	Benzo(k)fluoranthene	2990	1200	ug/kg	
218-01-9	Chrysene	6070	5900	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	665	1200	ug/kg	J
206-44-0	Fluoranthene	16300	5900	ug/kg	
86-73-7	Fluorene	ND	5900	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	3740	1200	ug/kg	
91-20-3	Naphthalene	ND	5900	ug/kg	
90-12-0	1-Methylnaphthalene	4770	5900	ug/kg	J
91-57-6	2-Methylnaphthalene	6320	5900	ug/kg	
85-01-8	Phenanthrene	10600	5900	ug/kg	
129-00-0	Pyrene	11000	5900	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	84%		22-130%
92-94-4	p-Terphenyl	125%		53-130%

(a) Dilution required due to matrix interference.

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-P42-SS-804-01		
Lab Sample ID:	F6857-4	**Date Sampled:**	06/20/00
Matrix:	SO - Soil	**Date Received:**	06/22/00
Method:	EPA 8310	**Percent Solids:**	90.5
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	AA002640.D	1	07/06/00	CCJ	07/01/00	OP1773	GAA90
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	370	ug/kg	
208-96-8	Acenaphthylene	ND	740	ug/kg	
120-12-7	Anthracene	ND	370	ug/kg	
56-55-3	Benzo(a)anthracene	247	74	ug/kg	
50-32-8	Benzo(a)pyrene	173	74	ug/kg	
205-99-2	Benzo(b)fluoranthene	169	74	ug/kg	
191-24-2	Benzo(g,h,i)perylene	96.1	74	ug/kg	
207-08-9	Benzo(k)fluoranthene	125	74	ug/kg	
218-01-9	Chrysene	219	370	ug/kg	J
53-70-3	Dibenzo(a,h)anthracene	ND	74	ug/kg	
206-44-0	Fluoranthene	565	370	ug/kg	
86-73-7	Fluorene	ND	370	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	134	74	ug/kg	
91-20-3	Naphthalene	ND	370	ug/kg	
90-12-0	1-Methylnaphthalene	ND	370	ug/kg	
91-57-6	2-Methylnaphthalene	ND	370	ug/kg	
85-01-8	Phenanthrene	331	370	ug/kg	J
129-00-0	Pyrene	429	370	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	74%		22-130%
92-94-4	p-Terphenyl	93%		53-130%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-P42-SS-805-01		
Lab Sample ID:	F6857-5	**Date Sampled:**	06/20/00
Matrix:	SO - Soil	**Date Received:**	06/22/00
Method:	EPA 8310	**Percent Solids:**	90.2
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	AA002641.D	1	07/06/00	CCJ	07/01/00	OP1773	GAA90
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	370	ug/kg	
208-96-8	Acenaphthylene	ND	740	ug/kg	
120-12-7	Anthracene	ND	370	ug/kg	
56-55-3	Benzo(a)anthracene	99.2	74	ug/kg	
50-32-8	Benzo(a)pyrene	49.0	74	ug/kg	J
205-99-2	Benzo(b)fluoranthene	56.4	74	ug/kg	J
191-24-2	Benzo(g,h,i)perylene	35.6	74	ug/kg	J
207-08-9	Benzo(k)fluoranthene	36.9	74	ug/kg	J
218-01-9	Chrysene	72.4	370	ug/kg	J
53-70-3	Dibenzo(a,h)anthracene	ND	74	ug/kg	
206-44-0	Fluoranthene	ND	370	ug/kg	
86-73-7	Fluorene	ND	370	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	43.1	74	ug/kg	J
91-20-3	Naphthalene	ND	370	ug/kg	
90-12-0	1-Methylnaphthalene	ND	370	ug/kg	
91-57-6	2-Methylnaphthalene	ND	370	ug/kg	
85-01-8	Phenanthrene	ND	370	ug/kg	
129-00-0	Pyrene	ND	370	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	74%		22-130%
92-94-4	p-Terphenyl	89%		53-130%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-P42-SS-814-02		
Lab Sample ID:	F6857-6	**Date Sampled:**	06/20/00
Matrix:	SO - Soil	**Date Received:**	06/22/00
Method:	EPA 8310	**Percent Solids:**	92.5
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	AA002659.D	5	07/06/00	CCJ	07/01/00	OP1773	GAA90
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	1800	ug/kg	
208-96-8	Acenaphthylene	ND	3600	ug/kg	
120-12-7	Anthracene	ND	1800	ug/kg	
56-55-3	Benzo(a)anthracene	ND	360	ug/kg	
50-32-8	Benzo(a)pyrene	ND	360	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	360	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	360	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	360	ug/kg	
218-01-9	Chrysene	ND	1800	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	360	ug/kg	
206-44-0	Fluoranthene	ND	1800	ug/kg	
86-73-7	Fluorene	ND	1800	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	360	ug/kg	
91-20-3	Naphthalene	ND	1800	ug/kg	
90-12-0	1-Methylnaphthalene	ND	1800	ug/kg	
91-57-6	2-Methylnaphthalene	ND	1800	ug/kg	
85-01-8	Phenanthrene	ND	1800	ug/kg	
129-00-0	Pyrene	ND	1800	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	71%		22-130%
92-94-4	p-Terphenyl	91%		53-130%

(a) Dilution required due to matrix interference.

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Tetra Tech NUS **INTERNAL CORRESPONDENCE**

PITT-07-0-026

TO: **MARK SPERANZA** **DATE: AUGUST 9, 2000**

FROM: **JUSTIN ORBICH** **CC: DV FILE**

SUBJECT: **ORGANIC DATA VALIDATION – PAH**
CTO 078 – NAS CECIL FIELD
SDG F7061

SAMPLES: 14/Surface Soil

CEF-P42-DUP4	CEF-P42-DUP5
CEF-P42-SS-901-01	CEF-P42-SS-902-01
CEF-P42-SS-903-01	CEF-P42-SS-904-01
CEF-P42-SS-905-01	CEF-P42-SS-906-01
CEF-P42-SS-907-02	CEF-P42-SS-910-02
CEF-P42-SU-908-03	CEF-P42-SU-909-04
CEF-P42-SU-911-03	CEF-P42-SU-912-04

OVERVIEW

The sample set for CTO 078, SDG F7061 Naval Air Station (NAS) Cecil Field; Florida consists of fourteen (14) surface soil environmental samples. The samples were analyzed for Polynuclear Aromatic Hydrocarbon (PAH) organic compounds. Two (2) field duplicate pair (CEF-P42-SS-910-02/CEF-P42-DUP4 and CEF-P42-SS-905-01/CEF-P42-DUP5) was included within this SDG.

The samples were collected by Tetra Tech, NUS on July 14th, 2000 and analyzed by Accutest Laboratories. All analyses were performed in accordance with Naval Facilities Engineering Service Center (NFESC) Quality Assurance/Quality Control (QA/QC) criteria and analyzed according to SW 846 Method 8310 analytical and reporting protocols. The data in this SDG was validated with regard to the following parameters:

* • Data Completeness
* • Holding Times
* • Initial/continuing calibrations
* • Laboratory method/field quality control blank results
* • Field Duplicate Precision
* • Detection Limits

The symbol (*) indicates that all quality control criteria were met for this parameter. Problems affecting data quality are discussed below; documentation supporting these findings is presented in Appendix C. Qualified analytical results are presented in Appendix A.

PAH FRACTION

Sample CEF-P42-SU-909-04 was analyzed at an 8X dilution thus causing elevated reporting limits.

MEMO TO: **MARK SPERANZA**
DATE: **AUGUST 9, 2000 – PAGE 2**

EXECUTIVE SUMMARY

Laboratory performance: None.

Other Factors Affecting Data Quality: Sample CEF-P42-SU-909-04 was analyzed at a dilution.

The data for these analyses were reviewed with reference to the EPA Functional Guidelines for Organic Data Validation (October 1999) and the NFESC guidelines "Navy IRCDQM" (September 1999). The text of this report has been formulated to address only those problems affecting data quality.

"I attest that the data referenced herein was validated according to the agreed upon validation criteria as specified in the NFESC Guidelines and the Quality Assurance Project Plan (QAPP)."

Justin Orbich

Chemist/Data Validator
Tetra Tech, NUS

Joseph A. Samchuck

Data Validation Quality Assurance Officer
Tetra Tech, NUS

Attachments:
1. Appendix A - Qualified Analytical Results
2. Appendix B - Results as reported by the Laboratory
3. Appendix C - Support Documentation

DATA QUALIFIER DEFINITIONS:

U - Value is a nondetected result as reported by the laboratory and should not be considered present.

J - Positive result is estimated as a result of a value below the CRQL or a technical noncompliance.

Qualifier Codes:

A = Lab Blank Contamination
B = Field Blank Contamination
C = Calibration (i.e., % RSDs, %Ds, ICVs, CCVs, RPDs, RRFs, etc.) Noncompliance
D = MS/MSD Noncompliance
E = LCS/LCSD Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = GFAA PDS - GFAA MSA's $r < 0.995$
K = ICP Interference - include ICSAB % R's
L = Instrument Calibration Range Exceedance
M = Sample Preservation
N = Internal Standard Noncompliance
O = Poor Instrument Performance (i.e., base-time drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can encompass a number of issues)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = Pest/PCB D% between columns for positive results
V = Non-linear calibrations, tuning $r < 0.995$ (correlation coefficient)
W = EMPC result
X = Signal to noise response drop
Y = % Solid content is less than 30%

APPENDIX A

Qualified Analytical Results

CTO078-NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F7061

SAMPLE NUMBER:	CEF-P42-DUP4			CEF-P42-DUP5			CEF-P42-SS-901-01			CEF-P42-SS-902-01		
SAMPLE DATE:	07/14/00			07/14/00			07/14/00			07/14/00		
LABORATORY ID:	F7061-14			F7061-15			F7061-12			F7061-13		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	92.2 %			87.6 %			92.6 %			88.7 %		
UNITS:	UG/KG			UG/KG			UG/KG			UG/KG		
FIELD DUPLICATE OF:	CEF-P42-SS-910-02			CEF-P42-SS-905-01								
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
POLYNUCLEAR AROMATIC HYDROCARBONS												
1-METHYLNAPHTHALENE	360	U		380	U		360	U		380	U	
2-METHYLNAPHTHALENE	360	U		380	U		360	U		380	U	
ACENAPHTHENE	360	U		380	U		360	U		380	U	
ACENAPHTHYLENE	720	U		760	U		720	U		750	U	
ANTHRACENE	360	U		380	U		360	U		380	U	
BENZO(A)ANTHRACENE	72	U		76	U		375			224		
BENZO(A)PYRENE	72	U		76	U		261			142		
BENZO(B)FLUORANTHENE	72	U		76	U		166			105		
BENZO(G,H,I)PERYLENE	72	U		76	U		180			75.2		
BENZO(K)FLUORANTHENE	72	U		76	U		109			94		
CHRYSENE	360	U		380	U		243	J	P	168	J	P
DIBENZO(A,H)ANTHRACENE	72	U		76	U		72	U		75	U	
FLUORANTHENE	360	U		380	U		723			542		
FLUORENE	360	U		380	U		360	U		380	U	
INDENO(1,2,3-CD)PYRENE	72	U		76	U		232			119		
NAPHTHALENE	360	U		380	U		360	U		380	U	
PHENANTHRENE	360	U		380	U		584			338	J	P
PYRENE	360	U		380	U		560			470		

CTO078-NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F7061

SAMPLE NUMBER:	CEF-P42-SS-903-01			CEF-P42-SS-904-01			CEF-P42-SS-905-01			CEF-P42-SS-906-01		
SAMPLE DATE:	07/14/00			07/14/00			07/14/00			07/14/00		
LABORATORY ID:	F7061-10			F7061-11			F7061-8			F7061-9		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	92.7 %			91.9 %			87.6 %			89.3 %		
UNITS:	UG/KG			UG/KG			UG/KG			UG/KG		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
POLYNUCLEAR AROMATIC HYDROCARBONS												
1-METHYLNAPHTHALENE	360	U		360	U		380	U		370	U	
2-METHYLNAPHTHALENE	360	U		360	U		380	U		370	U	
ACENAPHTHENE	360	U		360	U		380	U		370	U	
ACENAPHTHYLENE	720	U		720	U		760	U		740	U	
ANTHRACENE	360	U		360	U		380	U		370	U	
BENZO(A)ANTHRACENE	72	U		140	U		76	U		74	U	
BENZO(A)PYRENE	72	U		72	U		76	U		74	U	
BENZO(B)FLUORANTHENE	72	U		72	U		76	U		74	U	
BENZO(G,H,I)PERYLENE	72	U		72	U		76	U		74	U	
BENZO(K)FLUORANTHENE	72	U		72	U		76	U		74	U	
CHRYSENE	360	U		360	U		380	U		370	U	
DIBENZO(A,H)ANTHRACENE	72	U		72	U		76	U		74	U	
FLUORANTHENE	360	U		360	U		380	U		370	U	
FLUORENE	360	U		360	U		380	U		370	U	
INDENO(1,2,3-CD)PYRENE	72	U		72	U		76	U		74	U	
NAPHTHALENE	360	U		360	U		380	U		370	U	
PHENANTHRENE	360	U		360	U		380	U		370	U	
PYRENE	360	U		360	U		380	U		370	U	

CTO078-NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F7061

SAMPLE NUMBER:	CEF-P42-SS-907-02			CEF-P42-SS-910-02			CEF-P42-SU-908-03			CEF-P42-SU-909-04		
SAMPLE DATE:	07/13/00			07/14/00			07/13/00			07/13/00		
LABORATORY ID:	F7061-2			F7061-5			F7061-3			F7061-4		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	89.3 %			92.2 %			97.1 %			97.1 %		
UNITS:	UG/KG			UG/KG			UG/KG			UG/KG		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
POLYNUCLEAR AROMATIC HYDROCARBONS												
1-METHYLNAPHTHALENE	318	J	P	360	U		340	U		2700		
2-METHYLNAPHTHALENE	422			360	U		340	U		5070		
ACENAPHTHENE	370	U		360	U		340	U		5110		
ACENAPHTHYLENE	740	U		720	U		690	U		5500	U	
ANTHRACENE	370	U		360	U		340	U		2530	J	P
BENZO(A)ANTHRACENE	593			72	U		250			4940		
BENZO(A)PYRENE	641			72	U		214			3570		
BENZO(B)FLUORANTHENE	369			72	U		144			2640		
BENZO(G,H,I)PERYLENE	376			72	U		110			1490		
BENZO(K)FLUORANTHENE	255			72	U		107			1710		
CHRYSENE	475			360	U		245	J	P	5010		
DIBENZO(A,H)ANTHRACENE	44.6	J	P	72	U		69	U		550	U	
FLUORANTHENE	1000			360	U		406			12700		
FLUORENE	370	U		360	U		340	U		2700	U	
INDENO(1,2,3-CD)PYRENE	576			72	U		149			2070		
NAPHTHALENE	370	U		360	U		340	U		2700	U	
PHENANTHRENE	400			360	U		340	U		10700		
PYRENE	701			360	U		333	J	P	9210		

CTO078-NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F7061

SAMPLE NUMBER:	CEF-P42-SU-911-03			CEF-P42-SU-912-04								
SAMPLE DATE:	07/14/00			07/14/00			/ /			/ /		
LABORATORY ID:	F7061-6			F7061-7								
QC_TYPE:	NORMAL			NORMAL								
% SOLIDS:	96.2 %			91.5 %			100.0 %			100.0 %		
UNITS:	UG/KG			UG/KG								
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
POLYNUCLEAR AROMATIC HYDROCARBONS												
1-METHYLNAPHTHALENE	350	U		360	U							
2-METHYLNAPHTHALENE	350	U		360	U							
ACENAPHTHENE	1100	U		360	U							
ACENAPHTHYLENE	690	U		730	U							
ANTHRACENE	350	U		360	U							
BENZO(A)ANTHRACENE	69	U		73	U							
BENZO(A)PYRENE	69	U		73	U							
BENZO(B)FLUORANTHENE	69	U		73	U							
BENZO(G,H,I)PERYLENE	69	U		73	U							
BENZO(K)FLUORANTHENE	69	U		73	U							
CHRYSENE	350	U		360	U							
DIBENZO(A,H)ANTHRACENE	69	U		73	U							
FLUORANTHENE	350	U		360	U							
FLUORENE	350	U		360	U							
INDENO(1,2,3-CD)PYRENE	69	U		73	U							
NAPHTHALENE	350	U		360	U							
PHENANTHRENE	350	U		360	U							
PYRENE	350	U		360	U							

APPENDIX B

Results as Reported by the Laboratory

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-P42-DUP4		
Lab Sample ID:	F7061-14	**Date Sampled:**	07/14/00
Matrix:	SO - Soil	**Date Received:**	07/15/00
Method:	EPA 8310	**Percent Solids:**	92.2
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	AA003133.D	1	07/21/00	CCJ	07/18/00	OP1832	GAA102
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	360	ug/kg	
208-96-8	Acenaphthylene	ND	720	ug/kg	
120-12-7	Anthracene	ND	360	ug/kg	
56-55-3	Benzo(a)anthracene	ND	72	ug/kg	
50-32-8	Benzo(a)pyrene	ND	72	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	72	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	72	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	72	ug/kg	
218-01-9	Chrysene	ND	360	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	72	ug/kg	
206-44-0	Fluoranthene	ND	360	ug/kg	
86-73-7	Fluorene	ND	360	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	72	ug/kg	
91-20-3	Naphthalene	ND	360	ug/kg	
90-12-0	1-Methylnaphthalene	ND	360	ug/kg	
91-57-6	2-Methylnaphthalene	ND	360	ug/kg	
85-01-8	Phenanthrene	ND	360	ug/kg	
129-00-0	Pyrene	ND	360	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	79%		22-130%
92-94-4	p-Terphenyl	95%		53-130%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

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Report of Analysis

Client Sample ID:	CEF-P42-DUP5		
Lab Sample ID:	F7061-15	**Date Sampled:**	07/14/00
Matrix:	SO - Soil	**Date Received:**	07/15/00
Method:	EPA 8310	**Percent Solids:**	87.6
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	AA003134.D	1	07/21/00	CCJ	07/18/00	OP1832	GAA102
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	380	ug/kg	
208-96-8	Acenaphthylene	ND	760	ug/kg	
120-12-7	Anthracene	ND	380	ug/kg	
56-55-3	Benzo(a)anthracene	ND	76	ug/kg	
50-32-8	Benzo(a)pyrene	ND	76	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	76	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	76	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	76	ug/kg	
218-01-9	Chrysene	ND	380	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	76	ug/kg	
206-44-0	Fluoranthene	ND	380	ug/kg	
86-73-7	Fluorene	ND	380	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	76	ug/kg	
91-20-3	Naphthalene	ND	380	ug/kg	
90-12-0	1-Methylnaphthalene	ND	380	ug/kg	
91-57-6	2-Methylnaphthalene	ND	380	ug/kg	
85-01-8	Phenanthrene	ND	380	ug/kg	
129-00-0	Pyrene	ND	380	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	70%		22-130%
92-94-4	p-Terphenyl	83%		53-130%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-P42-SS-901-01		
Lab Sample ID:	F7061-12	**Date Sampled:**	07/14/00
Matrix:	SO - Soil	**Date Received:**	07/15/00
Method:	EPA 8310	**Percent Solids:**	92.6
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	AA003131.D	1	07/21/00	CCJ	07/18/00	OP1832	GAA102
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	360	ug/kg	
208-96-8	Acenaphthylene	ND	720	ug/kg	
120-12-7	Anthracene	ND	360	ug/kg	
56-55-3	Benzo(a)anthracene	375	72	ug/kg	
50-32-8	Benzo(a)pyrene	261	72	ug/kg	
205-99-2	Benzo(b)fluoranthene	166	72	ug/kg	
191-24-2	Benzo(g,h,i)perylene	180	72	ug/kg	
207-08-9	Benzo(k)fluoranthene	109	72	ug/kg	
218-01-9	Chrysene	243	360	ug/kg	J
53-70-3	Dibenzo(a,h)anthracene	ND	72	ug/kg	
206-44-0	Fluoranthene	723	360	ug/kg	
86-73-7	Fluorene	ND	360	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	232	72	ug/kg	
91-20-3	Naphthalene	ND	360	ug/kg	
90-12-0	1-Methylnaphthalene	ND	360	ug/kg	
91-57-6	2-Methylnaphthalene	ND	360	ug/kg	
85-01-8	Phenanthrene	584	360	ug/kg	
129-00-0	Pyrene	560	360	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	71%		22-130%
92-94-4	p-Terphenyl	106%		53-130%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-P42-SS-902-01		
Lab Sample ID:	F7061-13	**Date Sampled:**	07/14/00
Matrix:	SO - Soil	**Date Received:**	07/15/00
Method:	EPA 8310	**Percent Solids:**	88.7
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	AA003132.D	1	07/21/00	CCJ	07/18/00	OP1832	GAA102
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	380	ug/kg	
208-96-8	Acenaphthylene	ND	750	ug/kg	
120-12-7	Anthracene	ND	380	ug/kg	
56-55-3	Benzo(a)anthracene	224	75	ug/kg	
50-32-8	Benzo(a)pyrene	142	75	ug/kg	
205-99-2	Benzo(b)fluoranthene	105	75	ug/kg	
191-24-2	Benzo(g,h,i)perylene	75.2	75	ug/kg	
207-08-9	Benzo(k)fluoranthene	94.0	75	ug/kg	
218-01-9	Chrysene	168	380	ug/kg	J
53-70-3	Dibenzo(a,h)anthracene	ND	75	ug/kg	
206-44-0	Fluoranthene	542	380	ug/kg	
86-73-7	Fluorene	ND	380	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	119	75	ug/kg	
91-20-3	Naphthalene	ND	380	ug/kg	
90-12-0	1-Methylnaphthalene	ND	380	ug/kg	
91-57-6	2-Methylnaphthalene	ND	380	ug/kg	
85-01-8	Phenanthrene	338	380	ug/kg	J
129-00-0	Pyrene	470	380	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	68%		22-130%
92-94-4	p-Terphenyl	93%		53-130%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-P42-SS-903-01		
Lab Sample ID:	F7061-10	**Date Sampled:**	07/14/00
Matrix:	SO - Soil	**Date Received:**	07/15/00
Method:	EPA 8310	**Percent Solids:**	92.7
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	AA003129.D	1	07/21/00	CCJ	07/18/00	OP1832	GAA102
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	360	ug/kg	
208-96-8	Acenaphthylene	ND	720	ug/kg	
120-12-7	Anthracene	ND	360	ug/kg	
56-55-3	Benzo(a)anthracene	ND	72	ug/kg	
50-32-8	Benzo(a)pyrene	ND	72	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	72	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	72	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	72	ug/kg	
218-01-9	Chrysene	ND	360	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	72	ug/kg	
206-44-0	Fluoranthene	ND	360	ug/kg	
86-73-7	Fluorene	ND	360	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	72	ug/kg	
91-20-3	Naphthalene	ND	360	ug/kg	
90-12-0	1-Methylnaphthalene	ND	360	ug/kg	
91-57-6	2-Methylnaphthalene	ND	360	ug/kg	
85-01-8	Phenanthrene	ND	360	ug/kg	
129-00-0	Pyrene	ND	360	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	74%		22-130%
92-94-4	p-Terphenyl	96%		53-130%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

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Report of Analysis

Client Sample ID:	CEF-P42-SS-904-01		
Lab Sample ID:	F7061-11	**Date Sampled:**	07/14/00
Matrix:	SO - Soil	**Date Received:**	07/15/00
Method:	EPA 8310	**Percent Solids:**	91.9
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	AA003130.D	1	07/21/00	CCJ	07/18/00	OP1832	GAA102
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	360	ug/kg	
208-96-8	Acenaphthylene	ND	720	ug/kg	
120-12-7	Anthracene	ND	360	ug/kg	
56-55-3	Benzo(a)anthracene [a]	ND	140	ug/kg	
50-32-8	Benzo(a)pyrene	ND	72	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	72	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	72	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	72	ug/kg	
218-01-9	Chrysene	ND	360	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	72	ug/kg	
206-44-0	Fluoranthene	ND	360	ug/kg	
86-73-7	Fluorene	ND	360	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	72	ug/kg	
91-20-3	Naphthalene	ND	360	ug/kg	
90-12-0	1-Methylnaphthalene	ND	360	ug/kg	
91-57-6	2-Methylnaphthalene	ND	360	ug/kg	
85-01-8	Phenanthrene	ND	360	ug/kg	
129-00-0	Pyrene	ND	360	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	85%		22-130%
92-94-4	p-Terphenyl	103%		53-130%

(a) Elevated reporting limits due to matrix interference.

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-P42-SS-905-01		
Lab Sample ID:	F7061-8	**Date Sampled:**	07/14/00
Matrix:	SO - Soil	**Date Received:**	07/15/00
Method:	EPA 8310	**Percent Solids:**	87.6
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	AA003126.D	1	07/21/00	CCJ	07/18/00	OP1832	GAA102
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	380	ug/kg	
208-96-8	Acenaphthylene	ND	760	ug/kg	
120-12-7	Anthracene	ND	380	ug/kg	
56-55-3	Benzo(a)anthracene	ND	76	ug/kg	
50-32-8	Benzo(a)pyrene	ND	76	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	76	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	76	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	76	ug/kg	
218-01-9	Chrysene	ND	380	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	76	ug/kg	
206-44-0	Fluoranthene	ND	380	ug/kg	
86-73-7	Fluorene	ND	380	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	76	ug/kg	
91-20-3	Naphthalene	ND	380	ug/kg	
90-12-0	1-Methylnaphthalene	ND	380	ug/kg	
91-57-6	2-Methylnaphthalene	ND	380	ug/kg	
85-01-8	Phenanthrene	ND	380	ug/kg	
129-00-0	Pyrene	ND	380	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	89%		22-130%
92-94-4	p-Terphenyl	105%		53-130%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

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Report of Analysis

Client Sample ID:	CEF-P42-SS-906-01		
Lab Sample ID:	F7061-9	**Date Sampled:**	07/14/00
Matrix:	SO - Soil	**Date Received:**	07/15/00
Method:	EPA 8310	**Percent Solids:**	89.3
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	AA003128.D	1	07/21/00	CCJ	07/18/00	OP1832	GAA102
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	370	ug/kg	
208-96-8	Acenaphthylene	ND	740	ug/kg	
120-12-7	Anthracene	ND	370	ug/kg	
56-55-3	Benzo(a)anthracene	ND	74	ug/kg	
50-32-8	Benzo(a)pyrene	ND	74	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	74	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	74	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	74	ug/kg	
218-01-9	Chrysene	ND	370	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	74	ug/kg	
206-44-0	Fluoranthene	ND	370	ug/kg	
86-73-7	Fluorene	ND	370	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	74	ug/kg	
91-20-3	Naphthalene	ND	370	ug/kg	
90-12-0	1-Methylnaphthalene	ND	370	ug/kg	
91-57-6	2-Methylnaphthalene	ND	370	ug/kg	
85-01-8	Phenanthrene	ND	370	ug/kg	
129-00-0	Pyrene	ND	370	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	75%		22-130%
92-94-4	p-Terphenyl	95%		53-130%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

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Report of Analysis

Client Sample ID:	CEF-P42-SS-907-02		
Lab Sample ID:	F7061-2	**Date Sampled:**	07/13/00
Matrix:	SO - Soil	**Date Received:**	07/15/00
Method:	EPA 8310	**Percent Solids:**	89.3
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	AA003119.D	1	07/21/00	CCJ	07/18/00	OP1832	GAA102
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	370	ug/kg	
208-96-8	Acenaphthylene	ND	740	ug/kg	
120-12-7	Anthracene	ND	370	ug/kg	
56-55-3	Benzo(a)anthracene	593	74	ug/kg	
50-32-8	Benzo(a)pyrene	641	74	ug/kg	
205-99-2	Benzo(b)fluoranthene	369	74	ug/kg	
191-24-2	Benzo(g,h,i)perylene	376	74	ug/kg	
207-08-9	Benzo(k)fluoranthene	255	74	ug/kg	
218-01-9	Chrysene	475	370	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	44.6	74	ug/kg	J
206-44-0	Fluoranthene	1000	370	ug/kg	
86-73-7	Fluorene	ND	370	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	576	74	ug/kg	
91-20-3	Naphthalene	ND	370	ug/kg	
90-12-0	1-Methylnaphthalene	318	370	ug/kg	J
91-57-6	2-Methylnaphthalene	422	370	ug/kg	
85-01-8	Phenanthrene	400	370	ug/kg	
129-00-0	Pyrene	701	370	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	67%		22-130%
92-94-4	p-Terphenyl	103%		53-130%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

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Report of Analysis

Client Sample ID:	CEF-P42-SS-910-02		
Lab Sample ID:	F7061-5	**Date Sampled:**	07/14/00
Matrix:	SO - Soil	**Date Received:**	07/15/00
Method:	EPA 8310	**Percent Solids:**	92.2
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	AA003123.D	1	07/21/00	CCJ	07/18/00	OP1832	GAA102
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	360	ug/kg	
208-96-8	Acenaphthylene	ND	720	ug/kg	
120-12-7	Anthracene	ND	360	ug/kg	
56-55-3	Benzo(a)anthracene	ND	72	ug/kg	
50-32-8	Benzo(a)pyrene	ND	72	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	72	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	72	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	72	ug/kg	
218-01-9	Chrysene	ND	360	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	72	ug/kg	
206-44-0	Fluoranthene	ND	360	ug/kg	
86-73-7	Fluorene	ND	360	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	72	ug/kg	
91-20-3	Naphthalene	ND	360	ug/kg	
90-12-0	1-Methylnaphthalene	ND	360	ug/kg	
91-57-6	2-Methylnaphthalene	ND	360	ug/kg	
85-01-8	Phenanthrene	ND	360	ug/kg	
129-00-0	Pyrene	ND	360	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	83%		22-130%
92-94-4	p-Terphenyl	102%		53-130%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

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Report of Analysis

Client Sample ID:	CEF-P42-SU-908-03		
Lab Sample ID:	F7061-3	**Date Sampled:**	07/13/00
Matrix:	SO - Soil	**Date Received:**	07/15/00
Method:	EPA 8310	**Percent Solids:**	97.1
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	AA003120.D	1	07/21/00	CCJ	07/18/00	OP1832	GAA102
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	340	ug/kg	
208-96-8	Acenaphthylene	ND	690	ug/kg	
120-12-7	Anthracene	ND	340	ug/kg	
56-55-3	Benzo(a)anthracene	250	69	ug/kg	
50-32-8	Benzo(a)pyrene	214	69	ug/kg	
205-99-2	Benzo(b)fluoranthene	144	69	ug/kg	
191-24-2	Benzo(g,h,i)perylene	110	69	ug/kg	
207-08-9	Benzo(k)fluoranthene	107	69	ug/kg	
218-01-9	Chrysene	245	340	ug/kg	J
53-70-3	Dibenzo(a,h)anthracene	ND	69	ug/kg	
206-44-0	Fluoranthene	406	340	ug/kg	
86-73-7	Fluorene	ND	340	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	149	69	ug/kg	
91-20-3	Naphthalene	ND	340	ug/kg	
90-12-0	1-Methylnaphthalene	ND	340	ug/kg	
91-57-6	2-Methylnaphthalene	ND	340	ug/kg	
85-01-8	Phenanthrene	ND	340	ug/kg	
129-00-0	Pyrene	333	340	ug/kg	J

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	76%		22-130%
92-94-4	p-Terphenyl	102%		53-130%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

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Report of Analysis

Client Sample ID:	CEF-P42-SU-909-04		
Lab Sample ID:	F7061-4	**Date Sampled:**	07/13/00
Matrix:	SO - Soil	**Date Received:**	07/15/00
Method:	EPA 8310	**Percent Solids:**	97.1
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	AA003122.D	8	07/21/00	CCJ	07/18/00	OP1832	GAA102
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	5110	2700	ug/kg	
208-96-8	Acenaphthylene	ND	5500	ug/kg	
120-12-7	Anthracene	2530	2700	ug/kg	J
56-55-3	Benzo(a)anthracene	4940	550	ug/kg	
50-32-8	Benzo(a)pyrene	3570	550	ug/kg	
205-99-2	Benzo(b)fluoranthene	2640	550	ug/kg	
191-24-2	Benzo(g,h,i)perylene	1490	550	ug/kg	
207-08-9	Benzo(k)fluoranthene	1710	550	ug/kg	
218-01-9	Chrysene	5010	2700	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	550	ug/kg	
206-44-0	Fluoranthene	12700	2700	ug/kg	
86-73-7	Fluorene	ND	2700	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	2070	550	ug/kg	
91-20-3	Naphthalene	ND	2700	ug/kg	
90-12-0	1-Methylnaphthalene	2700	2700	ug/kg	
91-57-6	2-Methylnaphthalene	5070	2700	ug/kg	
85-01-8	Phenanthrene	10700	2700	ug/kg	
129-00-0	Pyrene	9210	2700	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	69%		22-130%
92-94-4	p-Terphenyl	108%		53-130%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

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Report of Analysis

Client Sample ID:	CEF-P42-SU-911-03		
Lab Sample ID:	F7061-6	**Date Sampled:**	07/14/00
Matrix:	SO - Soil	**Date Received:**	07/15/00
Method:	EPA 8310	**Percent Solids:**	96.2
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	AA003124.D	1	07/21/00	CCJ	07/18/00	OP1832	GAA102
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene [a]	ND	1100	ug/kg	
208-96-8	Acenaphthylene	ND	690	ug/kg	
120-12-7	Anthracene	ND	350	ug/kg	
56-55-3	Benzo(a)anthracene	ND	69	ug/kg	
50-32-8	Benzo(a)pyrene	ND	69	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	69	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	69	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	69	ug/kg	
218-01-9	Chrysene	ND	350	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	69	ug/kg	
206-44-0	Fluoranthene	ND	350	ug/kg	
86-73-7	Fluorene	ND	350	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	69	ug/kg	
91-20-3	Naphthalene	ND	350	ug/kg	
90-12-0	1-Methylnaphthalene	ND	350	ug/kg	
91-57-6	2-Methylnaphthalene	ND	350	ug/kg	
85-01-8	Phenanthrene	ND	350	ug/kg	
129-00-0	Pyrene	ND	350	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	82%		22-130%
92-94-4	p-Terphenyl	100%		53-130%

(a) Elevated reporting limits due to matrix interference.

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

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Report of Analysis

Client Sample ID:	CEF-P42-SU-912-04		
Lab Sample ID:	F7061-7	**Date Sampled:**	07/14/00
Matrix:	SO - Soil	**Date Received:**	07/15/00
Method:	EPA 8310	**Percent Solids:**	91.5
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	AA003125.D	1	07/21/00	CCJ	07/18/00	OP1832	GAA102
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	360	ug/kg	
208-96-8	Acenaphthylene	ND	730	ug/kg	
120-12-7	Anthracene	ND	360	ug/kg	
56-55-3	Benzo(a)anthracene	ND	73	ug/kg	
50-32-8	Benzo(a)pyrene	ND	73	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	73	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	73	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	73	ug/kg	
218-01-9	Chrysene	ND	360	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	73	ug/kg	
206-44-0	Fluoranthene	ND	360	ug/kg	
86-73-7	Fluorene	ND	360	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	73	ug/kg	
91-20-3	Naphthalene	ND	360	ug/kg	
90-12-0	1-Methylnaphthalene	ND	360	ug/kg	
91-57-6	2-Methylnaphthalene	ND	360	ug/kg	
85-01-8	Phenanthrene	ND	360	ug/kg	
129-00-0	Pyrene	ND	360	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	77%		22-130%
92-94-4	p-Terphenyl	102%		53-130%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

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Tetra Tech NUS **INTERNAL CORRESPONDENCE**

TO:	**M. SPERANZA**	**DATE:**	**AUGUST 7, 2000**
FROM:	**GRETCHEN PHIPPS**	**COPIES:**	**DV FILE**

SUBJECT: **INORGANIC DATA VALIDATION – ANTIMONY AND ARSENIC**
CTO 078 - NAS CECIL FIELD
SDGs – F7061 AND F7010

SAMPLES: **F7061**

1/Soils/

CEF-P42-SU-913-03

F7010

3/Soils/

~~CEF-P21-SU-802-03~~ ~~CEF-P21-SU-818-03~~
CEF-P42-SU-808-03

Overview

The sample set for CTO 078, Cecil Field, SDGs F7061 and F7010 consists of four (4) soil environmental samples.

Samples CEF-P21-SU-802-03 and CEF-P21-SU-818-03 were analyzed for arsenic. Sample CEF-P42-SU-913-03 was analyzed for antimony. Sample CEF-P42-SU-808-03 was analyzed for antimony and arsenic. The samples were collected by Tetra Tech NUS on June 17 and 18 and July 13, 2000 and analyzed by Accutest Laboratory under Naval Facilities Engineering Service Center (NFESC) Quality Assurance / Quality Control (QA / QC) criteria. Antimony and arsenic analyses were conducted using SW 846 method 6010B.

The data was evaluated based on the following parameters:

* • Data Completeness
* • Holding Times
* • Calibration Verifications
• Laboratory Blank Analyses
* • Detection Limits

* - All quality control criteria were met for this parameter.

Laboratory Blank Analyses

The following contaminant was detected in the laboratory method blanks at the following maximum concentration:

Affected samples: all

Analyte	Maximum Concentration	Action Level
Antimony	6.4µg/L	3.2mg/kg

An action level of 5X the maximum concentration was used to established to evaluate for blank contamination. Sample aliquot, percent solids and dilution factors were taken into consideration when evaluating for blank contamination. Positive results less than the blank action level for antimony were qualified, "U", as a result of blank contamination.

Executive Summary

Laboratory Performance: Antimony was present in the laboratory blanks.

Other Factors Affecting Data Quality: None.

The data for these analyses were reviewed with reference to the "National Functional Guidelines for Inorganic Review", February 1994 and the NFESC document entitled "Navy IRCDQM." (September 1999).

The text of this report has been formulated to address only those problem areas affecting data quality.

"I attest that the data referenced herein were validated according to the agreed upon validation criteria as specified in the NFESC Guidelines and the Quality Assurance Project Plan (QAPP)."

Tetra Tech NUS
Gretchen A. Phipps

Tetra Tech NUS
Joseph A. Samchuck
Quality Control Officer

Attachments:

1. Appendix A - Qualified Analytical Data
2. Appendix B - Results as reported by the Laboratory
3. Appendix C - Support Documentation

APPENDIX A
QUALIFIED ANALYTICAL RESULTS

Qualifier Codes:

A = Lab Blank Contamination
B = Field Blank Contamination
C = Calibration (i.e., % RSDs, %Ds, ICVs, CCVs, RPDs, RRFs, etc.) Noncompliance
D = MS/MSD Noncompliance
E = LCS/LCSD Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = GFAA PDS - GFAA MSA's $r < 0.995$
K = ICP Interference - include ICSAB % R's
L = Instrument Calibration Range Exceedance
M = Sample Preservation
N = Internal Standard Noncompliance
O = Poor Instrument Performance (i.e., base-time drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can encompass a number of issues)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = Pest/PCD% between columns for positive results
V = Non-linear calibrations, tuning $r < 0.995$ (correlation coefficient)
W = EMPC result
X = Signal to noise response drop

CTO078-NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F7010

SAMPLE NUMBER:	CEF-P21-SU-802-03			CEF-P21-SU-818-03			CEF-P42-SU-808-03					
SAMPLE DATE:	06/17/00			06/17/00			06/18/00			/ /		
LABORATORY ID:	F7010-1			F7010-2			F7010-8					
QC_TYPE:	NORMAL			NORMAL			NORMAL					
% SOLIDS:	93.6 %			87.2 %			95.2 %			100.0 %		
UNITS:	MG/KG			MG/KG			MG/KG					
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
INORGANICS												
ANTIMONY							0.90	U	A			
ARSENIC	1.7			19.9			0.35	U				

CTO078-NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F7061

SAMPLE NUMBER:	CEF-P42-SU-913-03											
SAMPLE DATE:	07/13/00			/ /			/ /			/ /		
LABORATORY ID:	F7061-1											
QC_TYPE:	NORMAL											
% SOLIDS:	88.3 %			100.0 %			100.0 %			100.0 %		
UNITS:	MG/KG											
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
INORGANICS												
ANTIMONY	3.7											

APPENDIX B
RESULTS AS REPORTED BY THE LABORATORY

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Report of Analysis

Client Sample ID:	CEF-P42-SU-913-03		
Lab Sample ID:	F7061-1	**Date Sampled:**	07/13/00
Matrix:	SO - Soil	**Date Received:**	07/15/00
		Percent Solids:	88.3
Project:	NAS Cecil Field-PSC 42		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By		Method
Antimony	3.7 B	6.9	mg/kg	1	07/18/00	07/19/00	JK	SW846 6010A

RL = Reporting Limit

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Report of Analysis

Client Sample ID:	CEF-P21-SU-802-03		
Lab Sample ID:	F7010-1	**Date Sampled:**	06/17/00
Matrix:	SO - Soil	**Date Received:**	07/11/00
		Percent Solids:	93.6
Project:	NAS Cecil Field		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By		Method
Arsenic	1.7	0.50	mg/kg	1	07/14/00	07/19/00	JK	SW846 6010A

RL = Reporting Limit

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Report of Analysis

Client Sample ID:	CEF-P21-SU-818-03		
Lab Sample ID:	F7010-2	**Date Sampled:**	06/17/00
Matrix:	SO - Soil	**Date Received:**	07/11/00
		Percent Solids:	87.2
Project:	NAS Cecil Field		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method
Arsenic	19.9	0.57	mg/kg	1	07/14/00	07/19/00 JK	SW846 6010A

RL = Reporting Limit

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-P42-SU-808-03		
Lab Sample ID:	F7010-8	**Date Sampled:**	06/18/00
Matrix:	SO - Soil	**Date Received:**	07/11/00
		Percent Solids:	95.2
Project:	NAS Cecil Field		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By		Method
Antimony	0.90 B	6.1	mg/kg	1	07/14/00	07/19/00	JK	SW846 6010A
Arsenic	0.35 U	0.51	mg/kg	1	07/14/00	07/19/00	JK	SW846 6010A

RL = Reporting Limit

8

GROUNDWATER DATA

Tetra Tech NUS **INTERNAL CORRESPONDENCE**

PITT-10-9-026

TO: **MR. M. SPERANZA** **DATE: OCTOBER 13, 1999**

FROM: **JUSTIN ORBICH** **CC: DV FILE**

SUBJECT: **ORGANIC DATA VALIDATION – PAH/TPH**
CTO 078 – NAS CECIL FIELD
SDG F4876

SAMPLES: 3/Aqueous

CEF-P42-GW-01S-1 CEF-P42-GW-02S-1
CEF-P42-GW-DU01

OVERVIEW

The sample set for CTO 078, SDG F4876 Naval Air Station (NAS) Cecil Field; Florida consists of three (3) aqueous environmental samples. The samples were analyzed for Polynuclear Aromatic Hydrocarbon (PAH) and Total Petroleum Hydrocarbon (TPH) organic compounds. One (1) field duplicate pair (CEF-P42-GW-02S-1/CEF-P42-GW-DU01) was included within this SDG.

The samples were collected by Tetra Tech, NUS on September 10th, 1999 and analyzed by Accutest Laboratories. All analyses were performed in accordance with Naval Facilities Engineering Service Center (NFESC) Quality Assurance/Quality Control (QA/QC) criteria and analyzed according to SW 846 Method 8310 and FLORIDA-PRO analytical and reporting protocols. The data in this SDG was validated with regard to the following parameters:

* • Data Completeness
* • Holding Times
* • Initial/continuing calibrations
* • Laboratory method/field quality control blank results
* • Detection Limits
* • Field Duplicate Precision

The symbol (*) indicates that all quality control criteria were met for this parameter. Problems affecting data quality are discussed below; documentation supporting these findings is presented in Appendix C. Qualified analytical results are presented in Appendix A.

PAH FRACTION

All quality control limits were met for this fraction.

TPH FRACTION

All quality control limits were met for this fraction.

MEMO TO: MR. M. SPERANZA
DATE: OCTOBER 13, 1999 – PAGE 2

EXECUTIVE SUMMARY

Laboratory performance: None.

Other Factors Affecting Data Quality: None.

The data for these analyses were reviewed with reference to the EPA Functional Guidelines for Organic Data Validation (February, 1994), and the NFESC "Navy Installation Restoration Program Laboratory Quality Assurance Guide" (February, 1996). The text of this report has been formulated to address only those problems affecting data quality.

"I attest that the data referenced herein was validated according to the agreed upon validation criteria as specified in the NFESC Guidelines and the Quality Assurance Project Plan (QAPP)."

Justin Orbich

Chemist/Data Validator
Tetra Tech, NUS

Joseph A. Samchuck

Data Validation Quality Assurance Officer
Tetra Tech, NUS

Attachments:
1. Appendix A - Qualified Analytical Results
2. Appendix B - Results as reported by the Laboratory
3. Appendix C - Support Documentation

Qualifier Codes:

A = Lab Blank Contamination
B = Field Blank Contamination
C = Calibration (i.e., % RSDs, %Ds, ICVs, CCVs, RPDs, RRFs, etc.) Noncompliance
D = MS/MSD Noncompliance
E = LCS/LCSD Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = GFAA PDS - GFAA MSA's $r < 0.995$
K = ICP Interference - include ICSAB % R's
L = Instrument Calibration Range Exceedance
M = Sample Preservation
N = Internal Standard Noncompliance
O = Poor Instrument Performance (i.e., base-time drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can encompass a number of issues)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = Pest/PCB D% between columns for positive results
V = Non-linear calibrations, tuning $r < 0.995$ (correlation coefficient)
W = EMPC result
X = Signal to noise response drop
Y = % Solid content is less than 30%

APPENDIX A

Qualified Analytical Results

CTO078 - NAS CECIL FIELD
WATER DATA
Accutest, NJ
SDG: F4876

SAMPLE NUMBER:	CEF-P42-GW-01S-1			CEF-P42-GW-02S-1			CEF-P42-GW-DU01			/ /		
SAMPLE DATE:	09/09/99			09/09/99			09/09/99					
LABORATORY ID:	F4876-1			F4876-2			F4876-3					
QC_TYPE:	NORMAL			NORMAL			NORMAL					
% SOLIDS:	0.0 %			0.0 %			0.0 %			100.0 %		
UNITS:	UG/L			UG/L			UG/L					
FIELD DUPLICATE OF:							CEF-P42-GW-02S-1					
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
POLYNUCLEAR AROMATIC HYDROCARBONS												
1-METHYLNAPHTHALENE	1	U		1	U		1	U				
2-METHYLNAPHTHALENE	1	U		1	U		1	U				
ACENAPHTHENE	1	U		1	U		1	U				
ACENAPHTHYLENE	2	U		2	U		2	U				
ANTHRACENE	0.15	U		0.15	U		0.15	U				
BENZO(A)ANTHRACENE	0.15	U		0.15	U		0.15	U				
BENZO(A)PYRENE	0.15	U		0.15	U		0.15	U				
BENZO(B)FLUORANTHENE	0.2	U		0.2	U		0.2	U				
BENZO(G,H,I)PERYLENE	0.2	U		0.2	U		0.2	U				
BENZO(K)FLUORANTHENE	0.15	U		0.15	U		0.15	U				
CHRYSENE	0.15	U		0.15	U		0.15	U				
DIBENZO(A,H)ANTHRACENE	0.25	U		0.25	U		0.25	U				
FLUORANTHENE	0.2	U		0.2	U		0.2	U				
FLUORENE	0.2	U		0.2	U		0.2	U				
INDENO(1,2,3-CD)PYRENE	0.15	U		0.15	U		0.15	U				
NAPHTHALENE	1	U		1	U		1	U				
PHENANTHRENE	0.15	U		0.15	U		0.15	U				
PYRENE	0.2	U		0.2	U		0.2	U				

APPENDIX B

Results as Reported by the Laboratory

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-P42-GW-DU01		
Lab Sample ID:	F4876-3	**Date Sampled:**	09/09/99
Matrix:	AQ - Ground Water	**Date Received:**	09/10/99
Method:	EPA 8310	**Percent Solids:**	n/a
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]		1	09/18/99	SUB	n/a	n/a	R7105
Run #2							

CAS No.	Compound	Result	RDL	Units	Q
83-32-9	Acenaphthene	ND	1.0	ug/l	
208-96-8	Acenaphthylene	ND	2.0	ug/l	
120-12-7	Anthracene	ND	0.15	ug/l	
56-55-3	Benzo(a)anthracene	ND	0.15	ug/l	
50-32-8	Benzo(a)pyrene	ND	0.15	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	0.20	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	0.20	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	0.15	ug/l	
218-01-9	Chrysene	ND	0.15	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	0.25	ug/l	
206-44-0	Fluoranthene	ND	0.20	ug/l	
86-73-7	Fluorene	ND	0.20	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.15	ug/l	
91-20-3	Naphthalene	ND	1.0	ug/l	
90-12-0	1-Methylnaphthalene	ND	1.0	ug/l	
91-57-6	2-Methylnaphthalene	ND	1.0	ug/l	
85-01-8	Phenanthrene	ND	0.15	ug/l	
129-00-0	Pyrene	ND	0.20	ug/l	

(a) Analyzed By Accutest Southeast Subcontract Lab.

ND = Not detected
RDL = Reported Detection Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

000008

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-P42-GW-02S-1		
Lab Sample ID:	F4876-2	**Date Sampled:**	09/09/99
Matrix:	AQ - Ground Water	**Date Received:**	09/10/99
Method:	EPA 8310	**Percent Solids:**	n/a
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]		1	09/18/99	SUB	n/a	n/a	R7105
Run #2							

CAS No.	Compound	Result	RDL	Units	Q
83-32-9	Acenaphthene	ND	1.0	ug/l	
208-96-8	Acenaphthylene	ND	2.0	ug/l	
120-12-7	Anthracene	ND	0.15	ug/l	
56-55-3	Benzo(a)anthracene	ND	0.15	ug/l	
50-32-8	Benzo(a)pyrene	ND	0.15	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	0.20	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	0.20	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	0.15	ug/l	
218-01-9	Chrysene	ND	0.15	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	0.25	ug/l	
206-44-0	Fluoranthene	ND	0.20	ug/l	
86-73-7	Fluorene	ND	0.20	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.15	ug/l	
91-20-3	Naphthalene	ND	1.0	ug/l	
90-12-0	1-Methylnaphthalene	ND	1.0	ug/l	
91-57-6	2-Methylnaphthalene	ND	1.0	ug/l	
85-01-8	Phenanthrene	ND	0.15	ug/l	
129-00-0	Pyrene	ND	0.20	ug/l	

(a) Analyzed By Accutest Southeast Subcontract Lab.

ND = Not detected
RDL = Reported Detection Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-P42-GW-01S-1		
Lab Sample ID:	F4876-1	**Date Sampled:**	09/09/99
Matrix:	AQ - Ground Water	**Date Received:**	09/10/99
Method:	EPA 8310	**Percent Solids:**	n/a
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]		1	09/18/99	SUB	n/a	n/a	R7105
Run #2							

CAS No.	Compound	Result	RDL	Units	Q
83-32-9	Acenaphthene	ND	1.0	ug/l	
208-96-8	Acenaphthylene	ND	2.0	ug/l	
120-12-7	Anthracene	ND	0.15	ug/l	
56-55-3	Benzo(a)anthracene	ND	0.15	ug/l	
50-32-8	Benzo(a)pyrene	ND	0.15	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	0.20	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	0.20	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	0.15	ug/l	
218-01-9	Chrysene	ND	0.15	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	0.25	ug/l	
206-44-0	Fluoranthene	ND	0.20	ug/l	
86-73-7	Fluorene	ND	0.20	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.15	ug/l	
91-20-3	Naphthalene	ND	1.0	ug/l	
90-12-0	1-Methylnaphthalene	ND	1.0	ug/l	
91-57-6	2-Methylnaphthalene	ND	1.0	ug/l	
85-01-8	Phenanthrene	ND	0.15	ug/l	
129-00-0	Pyrene	ND	0.20	ug/l	

(a) Analyzed By Accutest Southeast Subcontract Lab.

ND = Not detected
RDL = Reported Detection Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

000002

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-P42-GW-DU01		
Lab Sample ID:	F4876-3	**Date Sampled:**	09/09/99
Matrix:	AQ - Ground Water	**Date Received:**	09/10/99
Method:	FLORIDA-PRO	**Percent Solids:**	n/a
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP05213.D	1	09/16/99	ME	09/14/99	OP972	GOP249
Run #2							

CAS No.	Compound	Result	RDL	Units	Q
	TPH (C8-C40)	ND	0.50	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	105%		40-140%

ND = Not detected
RDL = Reported Detection Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

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ACCUTEST

Report of Analysis

Client Sample ID:	CEF-P42-GW-02S-1		
Lab Sample ID:	F4876-2	**Date Sampled:**	09/09/99
Matrix:	AQ - Ground Water	**Date Received:**	09/10/99
Method:	FLORIDA-PRO	**Percent Solids:**	n/a
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP05212.D	1	09/16/99	ME	09/14/99	OP972	GOP249
Run #2							

CAS No.	Compound	Result	RDL	Units	Q
	TPH (C8-C40)	ND	0.50	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	101%		40-140%

ND = Not detected
RDL = Reported Detection Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

000006

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-P42-GW-01S-1		
Lab Sample ID:	F4876-1	**Date Sampled:**	09/09/99
Matrix:	AQ - Ground Water	**Date Received:**	09/10/99
Method:	FLORIDA-PRO	**Percent Solids:**	n/a
Project:	NAS Cecil Field-PSC 42		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP05211.D	1	09/16/99	ME	09/14/99	OP972	GOP249
Run #2							

CAS No.	Compound	Result	RDL	Units	Q
	TPH (C8-C40)	ND	0.50	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	90%		40-140%

ND = Not detected
RDL = Reported Detection Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

000003

Tetra Tech NUS **INTERNAL CORRESPONDENCE**

PITT-09-9-282

TO:	**M. SPERANZA**	**DATE:**	**OCTOBER 12, 1999**
FROM:	**GRETCHEN PHIPPS**	**COPIES:**	**DV FILE**

SUBJECT: **INORGANIC DATA VALIDATION – SELECT METALS**
CTO 078 - CECIL FIELD
SDG – F4876

SAMPLES: 3/Aqueous/

CEF-P42-GW-01S-1 CEF-P42-GW-02S-1
CEF-P42-GW-DU01

Overview

The sample set for CTO 078, Cecil Field, SDG F4876 consists of three (3) aqueous environmental samples. One (1) field duplicate pair (CEF-P42-GW-02S-1 / CEF-P42-GW-DU01) was included within this SDG.

All samples were analyzed for antimony, arsenic, barium and chromium. The samples were collected by Tetra Tech NUS on September 9, 1999 and analyzed by Accutest Laboratory under Naval Facilities Engineering Service Center (NFESC) Quality Assurance / Quality Control (QA / QC) criteria. Metals analyses were analyzed using SW 846 method 6010B.

The data was evaluated based on the following parameters:

* • Data Completeness
* • Holding Times
* • Calibration Verifications
• Laboratory Blank Analyses
* • Field Duplicate Precision
* • Detection Limits

* - All quality control criteria were met for this parameter.

Laboratory Blank Analyses

The following contaminants were present in a laboratory method / preparation blanks at the following maximum concentration:

Affected samples: All

Analyte	Maximum Concentration	Action Level
Antimony	4.0µg/L	20.0µg/L
Arsenic	6.3µg/L	31.5µg/L
Barium	0.80µg/L	4.0µg/L
Chromium	8.4µg/L	42.0µg/L

An action level of 5X the maximum concentration has been used to evaluate the sample data for blank contamination. Sample aliquot and dilution factors were taken into consideration when determining blank contamination. Positive results less than the blank action level for antimony and chromium were qualified, "U", as a result of blank contamination. No action was taken for the remaining analytes as either the results were greater than the blank action level or were nondetected.

Notes

A comparison of field duplicate pair (CEF-P42-GW-02S-1 / CEF-P42-GW-DU01) is included in Appendix C.

Executive Summary

Laboratory Performance: Several analytes were present in the laboratory method / preparation blanks.

Other Factors Affecting Data Quality: None.

The data for these analyses were reviewed with reference to the "National Functional Guidelines for Inorganic Review", February 1994 and the NFESC document entitled "Navy Installation Restoration Laboratory Quality Assurance Guide." (NFESC 2/96).

The text of this report has been formulated to address only those problem areas affecting data quality.

"I attest that the data referenced herein were validated according to the agreed upon validation criteria as specified in the NFESC Guidelines and the Quality Assurance Project Plan (QAPP).".

Gretchen A. Phipps

Tetra Tech NUS
Gretchen A. Phipps

Tetra Tech NUS
Joseph A. Samchuck
Quality Control Officer

Attachments:

1. Appendix A - Qualified Analytical Data
2. Appendix B - Results as reported by the Laboratory
3. Appendix C - Support Documentation

APPENIDX A
QUALIFIED ANALYTICAL RESULTS

Qualifier Codes:

A = Lab Blank Contamination
B = Field Blank Contamination
C = Calibration (i.e., % RSDs, %Ds, ICVs, CCVs, RPDs, RRFs, etc.) Noncompliance
D = MS/MSD Noncompliance
E = LCS/LCSD Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = GFAA PDS - GFAA MSA's $r < 0.995$
K = ICP Interference - include ICSAB % R's
L = Instrument Calibration Range Exceedance
M = Sample Preservation
N = Internal Standard Noncompliance
O = Poor Instrument Performance (i.e., base-time drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can encompass a number of issues)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = Pest/PCB D% between columns for positive results
V = Non-linear calibrations, tuning $r < 0.995$ (correlation coefficient)
W = EMPC result
X = Signal to noise response drop
Y = % Solid content is less than 30%

CTO078 - NAS CECIL FIELD
WATER DATA
Accutest, NJ
SDG: F4876

SAMPLE NUMBER:	CEF-P42-GW-01S-1			CEF-P42-GW-02S-1			CEF-P42-GW-DU01					
SAMPLE DATE:	09/09/99			09/09/99			09/09/99			/ /		
LABORATORY ID:	F4876-1			F4876-2			F4876-3					
QC_TYPE:	NORMAL			NORMAL			NORMAL					
% SOLIDS:	0.0 %			0.0 %			0.0 %			100.0 %		
UNITS:	UG/L			UG/L			UG/L					
FIELD DUPLICATE OF:							CEF-P42-GW-02S-1					
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
INORGANICS												
ANTIMONY	3.6	U	A	2.4	U		2.4	U				
ARSENIC	3.4	U		3.4	U		3.4	U				
BARIUM	37.0			48.6			49.5					
CHROMIUM	16.9	U	A	15.8	U	A	16.4	U	A			

APPENDIX B
RESULTS AS REPORTED BY THE LABORATORY

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-P42-GW-01S-1		
Lab Sample ID:	F4876-1	**Date Sampled:**	09/09/99
Matrix:	AQ - Ground Water	**Date Received:**	09/10/99
		Percent Solids:	n/a
Project:	NAS Cecil Field-PSC 42		

Metals Analysis

Analyte	Result	RDL	Units	DF	Prep	Analyzed	By	Method
Antimony	3.6 B	5.0	ug/l	1	09/16/99	09/17/99	JK	SW846 6010A
Arsenic	3.4 U	10.0	ug/l	1	09/16/99	09/17/99	JK	SW846 6010A
Barium	37.0 B	200	ug/l	1	09/16/99	09/17/99	JK	SW846 6010A
Chromium	16.9	10.0	ug/l	1	09/16/99	09/17/99	JK	SW846 6010A

RDL = Reported Detection Limit

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ACCUTEST

Report of Analysis

Client Sample ID:	CEF-P42-GW-02S-1		
Lab Sample ID:	F4876-2	**Date Sampled:**	09/09/99
Matrix:	AQ - Ground Water	**Date Received:**	09/10/99
		Percent Solids:	n/a
Project:	NAS Cecil Field-PSC 42		

Metals Analysis

Analyte	Result	RDL	Units	DF	Prep	Analyzed	By	Method
Antimony	2.4 U	5.0	ug/l	1	09/16/99	09/17/99	JK	SW846 6010A
Arsenic	3.4 U	10.0	ug/l	1	09/16/99	09/17/99	JK	SW846 6010A
Barium	48.6 B	200	ug/l	1	09/16/99	09/17/99	JK	SW846 6010A
Chromium	15.8	10.0	ug/l	1	09/16/99	09/17/99	JK	SW846 6010A

RDL = Reported Detection Limit

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-P42-GW-DU01		
Lab Sample ID:	F4876-3	**Date Sampled:**	09/09/99
Matrix:	AQ - Ground Water	**Date Received:**	09/10/99
		Percent Solids:	n/a
Project:	NAS Cecil Field-PSC 42		

Metals Analysis

Analyte	Result	RDL	Units	DF	Prep	Analyzed	By	Method
Antimony	2.4 U	5.0	ug/l	1	09/16/99	09/17/99	JK	SW846 6010A
Arsenic	3.4 U	10.0	ug/l	1	09/16/99	09/17/99	JK	SW846 6010A
Barium	49.5 B	200	ug/l	1	09/16/99	09/17/99	JK	SW846 6010A
Chromium	16.4	10.0	ug/l	1	09/16/99	09/17/99	JK	SW846 6010A

RDL = Reported Detection Limit

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APPENDIX B

HEXAVALENT CHROMIUM INFORMATION

TETRA TECH NUS, INC.
661 Andersen Drive ▪ Pittsburgh, Pennsylvania 15220-2745
(412) 921-7090 ▪ FAX (412) 921-4040 ▪ www.tetratech.com

PITT-04-1-013

April 30, 2001

Project Number 0039

Mr. David P. Grabka
Florida Department of Environmental Protection
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, FL 32399-2400

Reference: Clean Contract No. N62467-94-D-0888
Contract Task Order No. 0078

Subject: Response to Comments - Action Memorandum for Potential Source of Contamination 42 (PSC 42) – Former Boiler House/Steam Plant and General Storehouse (Yellow Water Weapons Area)
Naval Air Station Cecil Field
Jacksonville, Florida

Dear Mr. Grabka:

Your letter of February 6, 2001 (Attachment A) about the subject document noted that the concentration of total chromium in sample CEF-P42-SS-301 was greater than the chromium leachability-based SCTL. This SCTL is for hexavalent chromium rather than total chromium. This sample location is outside of the excavation limits presented in the Action Memorandum. This comment was subsequently discussed during the BCT telephone conference meeting on March 13, 2001, and during that meeting, it was decided to collect a sample at the CEF-P42-SS-301 location for hexavalent chromium anaylsis.

On March 15, 2001, a soil sample was collected at the CEF-P42-SS-301 location and analyzed for hexavalent chromium by Method SW-846 3060A/7196A and for total chromium by Method SW-846 6010B. Sufficient sample volume was collected so that additional tests that are recommended in the hexavalent chromium method - oxidation/reduction potential (ORP), pH, sulfide, and Fe(II) – could also be performed. The additional analyses are recommended to evaluate the reducing characteristics of the soil that can interfere with the matrix spike recovery of the hexavalent chromium analysis. Reducing properties in some soil samples will consume the hexavalent chromium used in the matrix spike solution and yield poor spike recovery results.

Hexavalent chromium was not detected at a detection limit of 20 mg/kg, and the total chromium result was 3 mg/kg. Both values are less than the leachability-based hexavalent chromium SCTL of 38 mg/kg. A copy of the analytical results is attached (Attachment B).

The results of the ORP and pH analyses suggest that reducing conditions are present in the soil. Thus, chromium is most likely to be in the trivalent rather than the hexavalent form (SW-846 3060A/7196A).

Because total and hexavalent chromium concentrations are less than the leachability-based SCTL for hexavalent chromium, the chromium concentration at this sample location no longer needs to be considered. Therefore, no delineation is needed at this location, and no additional

excavation is required. Thus, overall site risk for the entire site (after excavation is completed) will be protective for residential uses.

This information will be reiterated in the PSC 42 Technical Memorandum to be prepared after excavation is completed and the Construction Completion Report is submitted by the RAC.

If you have any questions, please call Joseph Logan at 412-921-7231 or me at 412-921-8916.

Very truly yours,

Mark Speranza

Mark Speranza, P.E.
Task Order Manager

Attachment

cc: M. Davidson, SOUTHDIV
S. Glass, SOUTHDIV
D. Vaughn-Wright, U. S. EPA
S. Ross, J. A. Jones
J. Flowe, City of Jacksonville
D. Wroblewski, TtNUS (Cover Letter Only)
M. Perry, TtNUS/File CTO 78

ATTACHMENT A

Department of Environmental Protection

Jeb Bush
Governor

Twin Towers Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

David B. Struhs
Secretary

February 6, 2001

Commanding Officer
Mr. Mark Davidson, Code 1879
SOUTHNAVFACENGCOM
Post Office Box 190010
North Charleston, SC 29419-9010

RE: Action Memorandum for Potential Source of Contamination 42 (PSC 42) - Former Boiler House/Steam Plant and General Storehouse (Yellow Water Weapons Area), Naval Air Station Cecil Field, Florida.

Dear Mr. Davidson:

I have completed my review of the Action Memorandum for PSC 42, Naval Air Station Cecil Field, dated January 31, 2001 (received February 2, 2001), prepared and submitted by Tetra Tech NUS, Inc. The Department approves the proposed remedial action to remove soils contaminated by PAHs, TRPH, arsenic, chromium, barium and antimony. The remedial action plan is to excavate soils with contaminant concentrations which exceed three times their respective residential Soil Cleanup Target Level (SCTL) or their leachability-based SCTL, whichever is lower. Removing all soils with contaminant concentrations greater than three times the residential SCTL (hot spots) will reduce the overall site risks so as to be protective for residential use. Removing soils with contaminant concentrations greater than the leachability-based SCTL will be protective of groundwater.

During a review of the report, it was noted that sample location SS-301 is not proposed to be remediated although chromium was detected in that sample at a concentration exceeding its leachability-based SCTL. This location should either be resampled to confirm the chromium concentration, tested to determine the site-specific leachability values using the Synthetic Precipitation Leaching Procedure (SPLP) at that location or should be targeted in the Removal Action Design Package for excavation.

If you have any concerns regarding this letter, please contact me at (850) 488-3693.

Sincerely,

David P. Grabka
Remedial Project Manager

CC: Satish Kastury, FDEP
Ashwin Patel, FDEP Northeast District
Debbie Vaughn-Wright, USEPA - Atlanta
John Flowe, City of Jacksonville
Scott Glass, SOUTHNAVFACENGCOM
Mark Speranza, TTNUS - Pittsburgh
Sam Ross, CH2M Hill Constructors - Atlanta

TJB JJC ESN

ATTACHMENT B

Sample Summary

Tetra Tech, NUS

Job No: F9206

NAS Cecil Field 0039
Project No: WORK RELEASE# CF-22

Sample Number	Collected Date	Time By	Received	Matrix Code	Matrix Type	Client Sample ID
F9206-1	03/15/01	09:15 RM	03/16/01	SO	Soil	CEF-P42-SS-915-01
F9206-1A	03/15/01	09:15 RM	03/16/01	SO	Soil	CEF-P42-SS-915-01

Report of Analysis

Client Sample ID:	CEF-P42-SS-915-01		
Lab Sample ID:	F9206-1	Date Sampled:	03/15/01
Matrix:	SO - Soil	Date Received:	03/16/01
		Percent Solids:	87.8
Project:	NAS Cecil Field 0039		

Metals Analysis

Analyte	Result	RL	IDL	Units	DF	Prep	Analyzed	By	Method
Chromium	3.0	1.1	0.039	mg/kg	1	03/19/01	03/20/01	JK	SW846 6010B

RL = Reporting Limit
IDL = Instrument Detection Limit

U = Indicates a result < IDL
B = Indicates a result > = IDL but < RL

Report of Analysis

Client Sample ID:	CEF-P42-SS-915-01	Date Sampled:	03/15/01
Lab Sample ID:	F9206-1	Date Received:	03/16/01
Matrix:	SO - Soil	Percent Solids:	87.8
Project:	NAS Cecil Field 0039		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed By	Method
Chromium, Hexavalent	< 20	20	mg/kg	10	03/16/01 SJL	SW846 3060/7196A
Solids, Percent	87.8		%	1	03/18/01 SJL	EPA 160.3 M

RL = Reporting Limit

Report of Analysis

Client Sample ID:	CEF-P42-SS-915-01		
Lab Sample ID:	F9206-1A	Date Sampled:	03/15/01
Matrix:	SO - Soil	Date Received:	03/16/01
		Percent Solids:	87.8
Project:	NAS Cecil Field 0039		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed By		Method
Iron, Ferrous	< 1.1	1.1	mg/l	1	03/20/01	SJL	SM18 3500FED
Redox Potential Vs H2	281		mv	1	03/20/01	SJL	ASTM E1498-76M
Sulfide	< 2.3	2.3	mg/kg	1	03/22/01	AL	SW846 9031
pH	4.8		su	1	03/19/01	TCF	SW846 9045

RL = Reporting Limit

APPENDIX C

ECOLOGICAL INFORMATION

APPENDIX C-1
FOOD CHAIN MODELING

Food chain modeling was conducted as part of COPC refinement. The objective of the food chain modeling was to investigate potential risks to representative receptors from screening-level COPCs that are known to bioaccumulate or biomagnify (EPA, 2000a). Toxicity reference values (TRVs), which are contaminant doses associated with adverse effects on growth, survival, and reproduction, were obtained for comparison to doses that the receptors may receive in the environment. TRVs were preferentially selected that represent a threshold for sublethal effects, such as impairment of reproduction or growth. Since toxicity data for the specific receptors chosen herein were not available, toxicity data from laboratory species were extrapolated to receptor species. The TRVs were obtained from wildlife toxicity data that were summarized by Sample et al. (1996). TRVs used in this ecological risk assessment and their sources are presented in Table C-1.

Food chain modeling was limited to COPCs that are known to bioaccumulate or biomagnify (EPA, 2000a). EPA Region 4 considers chemicals in this category to consist of those so designated in EPA's (2000b) *Appendix to Bioaccumulation Testing and Interpretation for the Purpose of Sediment Quality Assessment, Status and Needs, Chemical-Specific Summary Tables*, with the exception of PAHs. EPA Region 4 does not consider PAHs to bioaccumulate unless they are present in percent levels in the soil or sediment. COPCs at PSC 42 that are known to bioaccumulate or biomagnify consist of metals. The remaining COPCs are not known to bioaccumulate or biomagnify and were not included in the food chain model.

Representative Receptors

Representative ecological receptors used in the food chain model for PSC 42 consisted of the least Shrew (*Cryptotis parva*) and Northern mockingbird (*Mimus polyglottus)* both of which are found at NAS Cecil Field and could forage at PSC 42. Information regarding these representative receptors is presented below and in Table C-2.

Least shrew (*Cryptotis parva*)

The least shrew inhabits pine flatwoods and other habitats in Florida (Abrahamson and Hartnett, 1990; Brown, 1997), and is expected to be present at PSC 42. It weighs about 3.5 to 6.5 g (Choate et al, 1994). This species uses runways and burrows of other animals, but also makes its own tunnels in loose, soft soils. Least shrews consume large numbers of insects and other invertebrates, and are food items for predators such as owls, hawks, weasels, and skunks (Brown, 1997). Using Nagy's (1987) equation for mammals, the expected food consumption of the least shrew is 0.954 g dry mass/day. This equates to 3.3 g fresh mass/day based on 71 percent moisture content in food items. The 71 percent moisture value is the average of moisture contents in earthworms (84 percent), crickets and grasshoppers (69 percent) and adult beetles (61 percent) (EPA, 1993). Home ranges for the least shrew usually vary from

approximately 0.4-1.4 ha (1-3.5 acres) (Choate and Fleharty, 1973) but home ranges in some studies have been reported to be as small as 0.5 acre (Choate et al, 1994).

Northern Mockingbrid (*Mimus polyglottus*)

The northern mockingbird is a familiar songbird known to be present PSC 42. Mockingbirds in Florida are non-migratory and highly territorial throughout the year. Body mass averages 49 g (Derrickson and Breitwisch, 1992). The diet of adult mockingbirds is about 50 percent invertebrates (especially beetles, ants, bees, grasshoppers), and 50 percent fruit. The proportion of animal prey in the diet increases to approximately 85 percent during the breeding season and decreases in winter to approximately 13 percent (Derrickson and Breitwisch, 1992). Using Nagy's (1987) equation for passerine birds (commonly known as "song birds"), the expected food consumption for a mockingbird is 10.9 g dry mass/day. This equates to 37.6 g fresh mass/day based on 71 percent moisture content in food items. Average territory sizes of mockingbirds in south-central Florida varied from 0.31 ha (0.8 acres) in winter to 1.27 ha (3.1 acres) during the May and June breeding season (Derrickson and Breitwisch, 1992).

Exposure Estimate and Risk Calculation

The following equation presents the food chain model that was used for the mammals and birds that were selected for modeling:

$$CDI = \frac{[(Cf * If) + (Cs * Is)] * H}{BW}$$

where:

CDI	=	Chronic daily intake (mg/kg-day)
Cf	=	Contaminant concentration in food (earthworm) (mg/kg)
If	=	Ingestion rate of food (kg/day)
Cs	=	Contaminant concentration in surface soil (mg/kg)
Is	=	Rate of incidental surface soil ingestion (kg/day)
H	=	Contaminated area/home range area (unitless)
BW	=	Body weight (kg)

For soil, the chemical concentrations in earthworms are calculated using the following equation:

$$Ce = BAF_e * Cs$$

Where:

Ce = Chemical concentration in earthworm

BAF_e = Soil-to-earthworm bioaccumulation factor (unitless)

The risk characterization is the final phase of a risk assessment that compares the exposure to the ecological effects. It is at this phase that the likelihood of adverse effects occurring as a result of exposure to a stressor. A Hazard Quotient (HQ) approach will be used to characterize the risk to terrestrial receptors. This approach characterizes the potential effects by comparing exposure concentration with the effects data. The HQ for the terrestrial wildlife model is calculated as follows:

$$HQ = \frac{CDI}{TRV}$$

Where:

HQ	=	Hazard Quotient, (unitless)
CDI	=	Chronic daily intake dose, (mg/kg-day)
TRV	=	Toxicity Reference Value, (mg/kg-day)

An HQ of less than 1.0 is considered to indicate that potential risks to the ecological receptors are low. An HQ of greater than 1.0 at this stage in the risk assessment process is considered to indicate that potential risks to the ecological receptors may occur. The HQ is not an expression of probability, and the meaning of values greater than 1.0 must be interpreted in light of attendant uncertainties in risk management. Food chain models for the least shrew and northern mockingbird at PSC 42 can be found behind this appendix.

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TABLE C-1
TOXICITY REFERENCE VALUES (TRVs)
PSC 42, FORMER BOILER HOUSE/STEAM PLANT AND GENERAL STOREHOUSE
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

Parameter	Test Species	Endpoint	Study Duration	NOAEL (mg/kg/day)	LOAEL (mg/kg/day)	Reference
Chromium	Rat	Body weight	1 year	3.28	-	MacKenzie et al., 1958[a]
	Rat	Mortality	3 months	-	131.4	Steven et al., 1976[a]
	Black duck	Reproduction	10 months	1	5	Haseltine et al., 1985[a]
Lead	Rat	Reproduction	3 generations (> 1 year)	8	80	Azar et al., 1973 [a]
	Japanese quail	Reproduction	12 weeks	1.13	11.3	Edens et al., 1976 [a]
Zinc	Rat	Reproduction	1-16 days of gestation	160	320	Schlicker and Cox, 1968[a]
	White leghorn hens	Reproduction	44 weeks	14.5	131	Stahl et al., 1990[a]

a See Sample, et al., 1996 for full citation and details of study.
NOAEL = No observable adverse effects level.
LOAEL = Lowest observable adverse effects level.

TABLE C-2

EXPOSURE PARAMETERS FOR REPRESENTATIVE ECOLOGICAL RECEPTORS
PSC 42, FORMER BOILER HOUSE/STEAM PLANT AND GENERAL STOREHOUSE
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

Receptor	Body Weight (grams)	Food Ingestion (grams/day)	Water Ingestion (L/day)	Assumed Diet for Exposure Assessment[9]	Home Range (acres)
Least shrew (*Cryptotis parva*)	5.5[1]	3.3[2]	NA	Soil invertebrates 3% soil[3]	0.5 to 3.5[4]
Northern mockingbird (*Mimus polyglottus*)	49[5]	37.6[6]	NA	Invertebrates and vegetation[7] 2% soil	Not available[8]

1 Nowak (1991), Cothran et al (1991)

2 Calculated using mammal equation Nagy (1987); converted to fresh weight assuming 71 percent water content in food items

3 EPA (2000c)

4 Choate and Fleharty (1973), Choate et al (1994)

5 Derrickson and Breitwisch (1992)

6 Calculated using passerine equation Nagy (1987); converted to fresh weight assuming 71 percent water content in food items

7 Diet from Derrickson and Breitwisch (1992)

8 Home range data not available, but based on non-migratory and territorial nature of this species (Derrickson and Breitwisch, 1992), home range is assumed to be larger than PSC 42.

9 The food items for the shrew and mockingbird were assumed to be 100 percent earthworms to be conservative because earthworms typically accumulate more contaminants from soil than plants.

APPENDIX C-2
ALTERNATE BENCHMARKS/TOXICITY DATA

This appendix presents the additional benchmarks/toxicity data that were used to evaluate the chemicals, which were retained as COPCs after the initial screening, to determine if the concentrations warrant further evaluation.

Soil Chemical-Specific Alternate Benchmarks/Toxicity Data

The following sections discuss the alternate benchmarks that were used in the Step 3a evaluation for terrestrial plants and invertebrates. After the initial screening of chemicals was conducted, alternate benchmarks were used to re-evaluate the chemicals that were selected as COPCs to determine their potential for causing risks to ecological receptors. The following section presents the sources of the alternate benchmarks and is followed by chemical-specific sections that present the actual benchmarks. Also, the chemical-specific sections present additional toxicity data that was obtained from the literature.

- Dutch Intervention Values and Target Values – Soil Quality Standards (MHSPE, 1994)
- Canadian Soil Quality Guidelines (CCME, 1997)
- Oak Ridge National Laboratory Toxicological Benchmarks for Contaminants of Potential Concern for Effects on Soil and Litter Invertebrates and Heterotrophic Process: 1997 Revision (Efroymson R.A. et al., 1997a)
- Oak Ridge National Laboratory Toxicological Benchmarks for Screening Contaminants of Potential Concern for Effects on Terrestrial Plants: 1997 Revision (Efroymson R.A. et al., 1997b)

The Intervention Values and Target Values – Soil Quality Standards were developed by the Netherlands Ministry of Housing, Spatial Planning, and Environment, Department of Soil Protection and will be referred to as the Dutch Screening Values (MHSPE, 1994). The Dutch Screening Values for surface soil consist of Target Values and Intervention Values. The Target Values are the soil quality levels that are ultimately desired (MHSPE, 1994). The values for heavy metals, arsenic, and fluoride were derived from analysis of field data from relatively pollution-free rural areas. The Intervention Values indicate the "concentration levels of the contaminants in the soil above which the functionality of the soil for human, plant, or animal life is seriously impaired or threatened" (MHSPE, 1994). The "ecotoxicological effects are quantified in terms of the concentrations in the soil at which 50% of the species actually (or potentially) occurring may undergo adverse effects" (MHSPE, 1994). The following equation is used to determine the criteria that indicate the need for further investigation (MHSPE, 1994):

Criteria (Intermediate Value) = (Intervention Value+Target Value)/2

The Canadian Soil Quality Guidelines were developed by the Canadian Council of Ministers of the Environment (CCME, 1997). They are derived using toxicological data to determine the threshold level for key receptors (CCME, 1997). The values are calculated for four land uses: agricultural, residential/parkland, commercial, and industrial. Exposure from direct soil contact is used to derive guidelines for the residential/parkland, commercial, and industrial land uses (CCME, 1997). However, the soil guidelines for the agricultural land use incorporates direct soil contact as well as soil and food ingestion (CCME, 1997). A more detailed discussion of the derivation of the soil quality guidelines is presented in A Protocol for the Derivation of Environmental and Human Health Soil Quality Guidelines (CCME, 1996).

The Toxicological Benchmarks for Contaminants of Potential Concern for Effects on Soil and Litter Invertebrates and Heterotrophic Process: 1997 Revision (Efroymson R.A., et al., 1997a) and the Toxicological Benchmarks for Screening Contaminants of Potential Concern for Effects on Terrestrial Plants: 1997 Revision (Efroymson R.A. et al., 1997b) were developed by the Oak Ridge National Laboratory (ORNL). These benchmarks were intended to be used as screening values, and as such, may be overly conservative. They are based on a 20 percent reduction in growth, reproduction, or activity (for invertebrates) or growth and yield (for plants) as the threshold for significant effects (Efroymson R.A. et al., 1997a, b).

PAHs

The soil screening level of 0.1 mg/kg, is the Target Value for total PAHs divided by 10 for the number of PAHs accounted for in that Target Value. The Intermediate Value for total PAHs is 20.5 mg/kg, which was calculated as discussed above as the average of the Target Value (1 mg/kg) and the Intervention Value (40 mg/kg).

Aluminum

The soil screening level for aluminum of 50 mg/kg was based on one plant study in which the establishment of white clover in a silt loam (pH 5.0) was reduced by approximately 30% by the addition of 50 ppm of aluminum sulfate (Efroymson et al., 1997b). The aluminum that was applied to the soil in this study would most likely be more available than aluminum in soil at the site because it is unlikely that the aluminum at the site was disposed of as an aluminum salt. Therefore, the screening level is very conservative. No other toxicity data for aluminum in soil were located.

Antimony

The soil screening level of 5 mg/kg for antimony was based on one plant study that listed unspecified toxic effects on plants grown in surface soil with the addition of 5 ppm antimony in the form of a salt (Efroymson et al., 1997b). Because the antimony at the site was most likely not disposed of as a salt, the antimony that

was applied to the soil in this study would most likely be more available than antimony in the soil at the site. No other toxicity data for antimony in soil were located.

Chromium

The soil screening level for chromium (0.4 mg/kg) was based on an earthworm study in which potassium dichromate [Cr(IV)] was added to the soil as a solution (Efroymson et al., 1997a). The result was a 75% decrease in earthworms at the 2 ppm concentration, which was divided by 5 to obtain the benchmark of 0.4 mg/kg (Efroymson et al., 1997a). It was reported that chromium in soil typically occurs as Cr(III) (ASTDR, 1987), which is stable in most soils (CCME, 1997). Therefore, it was likely that most, if not all, of the chromium that was detected in the soil samples at the site was Cr(III). The following bullets present other screening levels and toxicity data for chromium:

- Canadian Soil Quality Guideline of 64 mg/kg, which was based on nutrient and energy cycling (CCME, 1997)
- Dutch Target Value of 100 mg/kg, which was based primarily on background concentrations for metals, and the Dutch Ecological Intervention Value of 230 mg/kg, which was defined as the Hazardous Concentration 50 (i.e., 50% of the ecosystem is threatened) (Swartjes, 1999)
- 1,000 mg/kg total chromium decreased growth and cocoon production (CCME, 1997)
- 671 to 1,400 mg/kg was the LC50 (lethal concentration at which 50 percent of the test organisms die) for earthworms (CCME, 1997)
- 21 and 31 mg/kg decreased yields by 50% in tomatoes and oats, respectively (CCME, 1997)
- 81 to 397 mg/kg reduced germination by 50% in radish and lettuce (CCME, 1997)
- 32 ppm chromium nitrate added to soil reduced growth of earthworms by 30%, while the cocoons/worm/week, the percentage of fertile cocoons, and juveniles/worm/week were reduced by 28%, 22%, and 51%, respectively, with 100 ppm chromium nitrate added to the soil (Efroymson et al., 1997a).
- 625 ppm of potassium chromium sulfate added to soil reduced the number of cocoons and hatchlings by 55%. Also, the mass gain of juveniles was reduced by 34% by 2,500 ppm Cr(III), but not by 625 ppm Cr(III) (Efroymson et al., 1997a).

Lead

The soil screening level for lead (70 mg/kg) was the Canadian Soil Quality Guideline and was set to protect mammalian and avian species through the food chain pathway (CCME, 1993). The following bullets present some alternate benchmarks and toxicity data for lead:

- The Canadian Soil Quality Guideline of 250 mg/kg for soil contact (ie., plants and invertebrates)

- Dutch Target Value of 85 mg/kg, which was based primarily on background concentrations for metals, and the Dutch Ecological Intervention Value of 290 mg/kg, which was defined as the Hazardous Concentration 50 (i.e., 50% of the ecosystem is threatened) (Swartjes, 1999)
- ORNL benchmark for earthworms of 500 mg/kg (Efroymson et al., 1997a)
- ORNL benchmark for plants of 50 mg/kg (Efroymson et al., 1997b). All of the studies used to develop the benchmark consisted of adding lead chloride as a solution to the soil. The lead in the solution would be more bioavailable than the lead in the soil at the sites.
- For earthworms, the NOEC (mortality) was 2,190 mg/kg, the OEC (cocoon production) was 1810 mg/kg, the LC50 was 3,760 mg/kg, and the EC50 (cocoon production) was 1,940 mg/kg (Spurgeon et al., 1994)
- NOEC for reproduction of 500 mg/kg in earthworms (Ma, 1983 as cited in Spurgeon et al., 1994)
- NOEC for reproduction of 200 mg/kg in earthworms (Bengtsson et al., 1986 as cited in Spurgeon et al., 1994)
- 100 mg/kg had no effects on plants (CCME, 1997)
- 50 to 500 mg/kg caused various reductions in weight, yield, root elongation in various plants (CCME, 1997)
- For radish and lettuce, the NOEC was 416-421 mg/kg, the LOEC was 740-974 mg/kg, the EC50 (seedling emergence) was 876-1,236 mg/kg, and the EC25 was 667-833 mg/kg (CCME, 1997)
- 150 mg/kg caused a 38-45% reduction in shoot dry weight and height of a red spruce (CCME, 1997)
- 1,179 mg/kg caused reduction in root dry weight and height of a loblolly pine (CCME, 1997)

Zinc

The soil screening value for zinc (200 mg/kg) was the Canadian Soil Quality Guideline and was set to protect plants, invertebrates, mammalian, and avian species through the food chain pathway (CCME, 1993). It was also the same value as the ORNL benchmark for earthworms (Efroymson et al., 1997a). The following bullets present some other screening levels and toxicity data for zinc:

- Dutch Target Value of 140 mg/kg, which was based primarily on background concentrations for metals, and the Dutch Ecological Intervention Value of 720 mg/kg, which was defined as the Hazardous Concentration 50 (i.e., 50% of the ecosystem is threatened) (Swartjes, 1999)
- ORNL benchmark for plants of 50 mg/kg (Efroymson et al., 1997b). All of the studies used to develop the benchmark consisted of adding zinc as a solution to the soil. The zinc as a solution would be more bioavailable than the zinc in the soil at the sites.
- For earthworms, the NOEC (mortality) was 289 mg/kg, the NOEC (cocoon production) was 199 mg/kg, the LC50 was 745 mg/kg and the EC50 (cocoon production) was 276 mg/kg (Spurgeon et al., 1994)

- EC10 and EC50 (reproduction) of 136 to 1,059 mg/kg, and 261 to 2,178 mg/kg, respectively (depending on soil type) for springtails (Smit and Van Gestel, 1998)
- 1,100 mg/kg caused a 50% reduction in body weight, a cessation of cocoon production, inhibition of development, and decreased growth rate for earthworms (Lee, 1985)
- No worms were found in soil with 470 mg/kg of zinc; a LC50 of 662 mg/kg was calculated for earthworms (Eisler, 1993)
- LC50 of 80 mg/kg for earthworms (CCME, 1997)
- 50 mg/kg caused a 50% decrease in seed yield for turnips (CCME, 1997)
- 10 mg kg had no effect of seeds produced, and 115 mg/kg had no effect on leaf weight (Efroymson et al., 1997b)
- 25 mg/kg to 1,000 mg/kg caused various percentages of decreased plant, leaf, and/or root weight (Efroymson et al., 1997b)

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EXAMPLE CALCULATION OF HAZARD QUOTIENT
FOR THE SHREW
USING THE AVERAGE SOIL CONCENTRATION OF LEAD

The predicted dose (PD) for all representative receptors =

$$PD\ (mg/kg\text{-}day) = \frac{(If * Cf) + (Is * Cs)}{BW}$$

Where:

	If	= Food ingestion rate (kg/day)
	Cf	= Food concentration (mg/kg)
	BW	= Body weight (kg)
	Is	= Incidental soil ingestion rate (kg/day) (3% of food ingestion rate)
	Cs	= Soil concentration (mg/kg)

Concentrations of organic compounds in food items of the shrew were derived from soil data using the following equation: Ci = BAF*Cs

BAF for Lead = 0.0426
Cs = 46.462

Using the above values, Cf = 0.0426*46.462 mg/kg = 1.98 mg/kg. Thus, the predicted concentration of lead in food items (i.e., invertebrates) of the shrew = 1.98 mg/kg.

If = 0.0033 kg/day
Cf = 1.98 mg/kg (derived above)
BW = 0.0055 kg
Is = 0.000099 kg/day (3% of food ingestion rate)
Cs = 46.462 mg/kg

Using the above values,
PD = [(0.0033 mg/kg*1.98 mg/kg)+(46.462*0.000099 kg/day) ÷ 0.0055 kg
PD = (0.006534 mg/day + 0.0046 mg/day) ÷ 0.0055 kg = 2.02 mg/kg/day

The mammalian NOAEL for Lead is 8 mg/kg/day.
Thus, the HQ (based on the NOAEL) = 2.02 mg/kg/day ÷ 8 mg/kg/day = 0.2525.

TABLE C-3

TERRESTRIAL WILDLIFE MODEL SPREADSHEET
INVERTEBRATE UPTAKE FACTORS
PSC 42, FORMER BOILER HOUSE/STEAM PLANT AND GENERAL STOREHOUSE
NAVAL IAR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

Parameter	Soil to Earthworm Uptake Factors[1]	
	Conservative[2]	Average[2]
Chromium	5.06E-01	4.90E-02
Lead	2.44E-01	4.26E-02
Zinc	2.06E+00	5.12E-01

1 - Sample et al., (1998); conservative value is 90th percentile; average value is median value

2 - Conservative and average refers to the exposure scenarios for which the uptake factors are used. The invertebrate uptake factors from Sample (1997 and 1998) were multiplied by and 0.16 to convert the uptake factors for earthworms from dry weight to wet weight

TERRESTRIAL WILDLIFE MODEL ECOLOGICAL EFFECTS QUOTIENT CALCULATION
NORTHERN MOCKINGBIRD - MAXIMUM CONCENTRATIONS
PSC 42, FORMER BOILER HOUSE/STEAM PLANT AND GENERAL STOREHOUSE
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

Parameter	Max. Soil Concentration (mg/kg)	Max. SW Concentration (mg/L)	Biotransfer Factor (soil to inv.)	Invertebrate Concentration (mg/kg)	Dose (mg/kg-day)	NOAEL (mg/kg-day)	LOAEL (mg/kg-day)	NOAEL EEQn	LOAEL EEQl
Chromium	257	0.00E+00	5.06E-01	1.30E+02	1.04E+02	1.00E+00	5.00E+00	1.04E+02	2.07E+01
Lead	637	0.00E+00	2.44E-01	1.55E+02	1.29E+02	1.13E+00	1.13E+01	1.14E+02	1.14E+01
Zinc	94.5	0.00E+00	2.06E+00	1.95E+02	1.51E+02	1.45E+01	1.31E+02	1.04E+01	1.15E+00

Cells are shaded if the HQ is greater than 1.0.

TERRESTRIAL WILDLIFE MODEL ECOLOGICAL EFFECTS QUOTIENT CALCULATION
NORTHERN MOCKINGBIRD - AVERAGE CONCENTRATIONS
PSC 42, FORMER BOILER HOUSE/STEAM PLANT AND GENERAL STOREHOUSE
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

Parameter	Avg. All Soil Concentration (mg/kg)	Avg. SW Concentration (mg/L)	Biotransfer Factor (soil to inv.)	Invertebrate Concentration (mg/kg)	Dose (mg/kg-day)	NOAEL (mg/kg-day)	LOAEL (mg/kg-day)	NOAEL EEQn	LOAEL EEQl
Chromium	8.218	0.00E+00	4.90E-02	4.02E-01	4.35E-01	1.00E+00	5.00E+00	4.35E-01	8.70E-02
Lead	46.462	0.00E+00	4.26E-02	1.98E+00	2.23E+00	1.13E+00	1.13E+01	1.97E+00	1.97E-01
Zinc	32.383	0.00E+00	5.12E-01	1.66E+01	1.32E+01	1.45E+01	1.31E+02	9.13E-01	1.01E-01

Cells are shaded if the HQ is greater than 1.0.

TERRESTRIAL WILDLIFE MODEL ECOLOGICAL EFFECTS QUOTIENT CALCULATION
LEAST SHREW - MAXIMUM CONCENTRATIONS
PSC 42, FORMER BOILER HOUSE/STEAM PLANT AND GENERAL STOREHOUSE
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

Parameter	Max. Soil Concentration (mg/kg)	Max. SW Concentration (mg/L)	Biotransfer Factor (soil to inv.)	Invertebrate Concentration (mg/kg)	Dose (mg/kg-day)	NOAEL (mg/kg-day)	LOAEL (mg/kg day)	NOAEL EEQn	LOAEL EEQl
Chromium	257	0.00E+00	5.06E-01	1.30E+02	8.26E+01	3.28E+00	1.31E+01	2.52E+01	6.29E+00
Lead	637	0.00E+00	2.44E-01	1.55E+02	1.05E+02	8.00E+00	8.00E+01	1.31E+01	1.31E+00
Zinc	94.5	0.00E+00	2.06E+00	1.95E+02	1.19E+02	1.60E+02	3.20E+02	7.41E-01	3.71E-01

Cells are shaded if the HQ is greater than 1.0.

TERRESTRIAL WILDLIFE MODEL ECOLOGICAL EFFECTS QUOTIENT CALCULATION
LEAST SHREW - AVERAGE CONCENTRATIONS
PSC 42, FORMER BOILER HOUSE/STEAM PLANT AND GENERAL STOREHOUSE
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

Parameter	Avg. All Soil Concentration (mg/kg)	Avg. SW Concentration (mg/L)	Biotransfer Factor (soil to inv.)	Invertebrate Concentration (mg/kg)	Dose (mg/kg-day)	NOAEL (mg/kg-day)	LOAEL (mg/kg day)	NOAEL EEQn	LOAEL EEQl
Chromium	8.218	0.00E+00	4.90E-02	4.02E-01	3.89E-01	3.28E+00	1.31E+01	1.19E-01	2.96E-02
Lead	46.462	0.00E+00	4.26E-02	1.98E+00	2.02E+00	8.00E+00	8.00E+01	2.53E-01	2.53E-02
Zinc	32.383	0.00E+00	5.12E-01	1.66E+01	1.05E+01	1.60E+02	3.20E+02	6.58E-02	3.29E-02

Cells are shaded if the HQ is greater than 1.0.