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# FINAL TECHNICAL MEMORANDUM FOR NO FURTHER ACTION AT POTENTIAL SOURCE OF CONTAMINATION 46 FACILITIES 72 AND 177 NAS CECIL FIELD FL

8/31/2001

TETRA TECH NUS INC

# Technical Memorandum
## for
# No Further Action

# Potential Source of Contamination 46
# Facilities 72 and 177

# Naval Air Station Cecil Field
Jacksonville, Florida

## Southern Division
## Naval Facilities Engineering Command

**Contract Number N62467-94-D-0888**

**Contract Task Order 0078**

August 2001

040106/P

# TECHNICAL MEMORANDUM FOR NO FURTHER ACTION

## POTENTIAL SOURCE OF CONTAMINATION 46
## FACILITIES 72 AND 177

## 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**

**AUGUST 2001**


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The professional opinions rendered in this decision document identified as Technical Memorandum for No Further Action, Potential Source of Contamination 46, 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: 8/31/01

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: August 31, 2001

NAME AND TITLE OF CERTIFYING OFFICIAL: Mark Speranza, P.E.
Task Order Manager

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# ACRONYMS

| | |
|---|---|
| ABB-ES | ABB Environmental Services, Inc. |
| BaP | Benzo(a)pyrene |
| BaPEq | Benzo(a)pyrene equivalents |
| BCT | BRAC Cleanup Team |
| bgs | Below ground surface |
| BRAC | Base Realignment and Closure |
| CERCLA | Comprehensive Environmental Response, Compensation, and Liability Act |
| CLEAN | Comprehensive Long-Term Environmental Action Navy |
| COPC | Contaminant 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 |
| ELCR | Excess lifetime cancer risk |
| FAC | Florida Administrative Code |
| FDEP | Florida Department of Environmental Protection |
| FL-PRO | Florida Petroleum Residual Organics |
| HLA | Harding Lawson Associates |
| HQ | Hazard Quotient |
| IBDS | Inorganic Background Data Set |
| IR | Installation Restoration |
| LUCIP | Land Use Control Implementation Plan |
| mg/kg | Milligram per kilogram |
| MHSP&E | Ministry of Housing, Spatial Planning, and Environment |
| NAS | Naval Air Station |
| NCP | National Oil and Hazardous Substance Pollution Contingency Plan |
| NFF | North Fuel Farm |
| OU | Operable Unit |
| PAH | Polynuclear aromatic hydrocarbon |
| PCB | Polychlorinated biphenyl |
| PRE | Preliminary risk evaluation |
| PSC | Potential Source of Contamination |
| QA/QC | Quality assurance/quality control |
| RAC | Remedial Action Contractor |

| | |
|---|---|
| RBC | Risk-based concentration |
| RI | Remedial Investigation |
| SAO | Sampling and Analysis Outline |
| SAR | Sampling and Analysis Report |
| SCTL | Soil Cleanup Target Level |
| SOUTHNAVFACENGCOM | Southern Division Naval Facilities Engineering Command |
| SVOC | Semivolatile organic compound |
| TCL | Target Compound List |
| TEF | Toxicity equivalent factor |
| TPH | Total petroleum hydrocarbons |
| TRPH | Total recoverable petroleum hydrocarbons |
| TtNUS | Tetra Tech NUS, Inc. |
| U.S. EPA | United States Environmental Protection Agency |
| UCL | Upper confidence limit |
| VOC | Volatile organic compound |

# 1.0 INTRODUCTION

This Technical Memorandum for Potential Source of Contamination (PSC) 46, Facilities 72 and 177, 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) has elected to delineate, excavate, and dispose of soil at PSC 46 that is contaminated with polynuclear aromatic hydrocarbons (PAHs).

TtNUS performed six sampling events at PSC 46 between May 1999 and March 2000 to supplement the results of previous investigations and to delineate the extent of PAH-contaminated soil. The results of these field investigations were used to develop an Action Memorandum (remedial design plan) for a removal action consisting of soil excavation and off-site disposal of the contaminated soil to achieve industrial land use requirements. The removal action at PSC 46 was conducted 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). The groundwater located beneath this site is being evaluated separately under the RI/RS process as part of Operable Unit (OU9) Site 36.

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 and 2000 and the activities related to the removal action, as described in the Source Removal Report for PSC 46 (CH2M Hill, 2001). The results of the investigations and the subsequent removal action indicate that no further action (except for the LUCIP) is needed at this site.

# 2.0 SITE DESCRIPTION

## 2.1 PHYSICAL SETTING

PSC 46 was formerly referred to in the BRAC NAS Cecil Field Environmental Baseline Survey (EBS) (ABB-ES, 1994) as two separate sites: Building 72, the Crash Fire Station and Building 177, the Arresting Gear Building. The site consists of the area in the vicinity of Facility 72 and Facility 177 and the area to the west along the taxiway located in the Main Base Area of NAS Cecil Field (Figure 2-1). PSC 46 is located southeast of the South Fuel Farm and comprises the grassy area south of Building 72 and west of Building 177. It is bordered by the taxiway "Charlie" to the south and by the flightline apron to the east (Figure 2-2). The area is an industrial setting, and the reuse plan identifies that this area will continue to be used in that manner.

## 2.2 SITE HISTORY

The Arresting Gear Building (Building 177), constructed in 1943, is a 100-foot by 40-foot Quonset hut with a concrete floor that was used to store aircraft arresting gear reels and equipment, maintenance supplies, and tools. In addition, large quantities of drummed hydraulic oil and antifreeze were stored inside the building. Facility 177 was color-coded Gray in the EBS because of the potential for discharge of contaminants from arresting gear fluid maintenance activities, extensive areas of stressed vegetation west of the building, and the historical storage of large quantities of oils and solvents. Evidence of disposal of sandblasting grit was also observed in the area.

The Crash Fire Station (Building 72), constructed in 1951, is a 130-foot by 70-foot cinderblock structure that was used to store firefighting supplies and equipment and served as living quarters for firefighting personnel. Three flammable materials lockers located south of the garage parking lot were used to store paint, hydraulic fluid, oils, and lubricants. Facility 72 was color-coded Gray in the EBS because asbestos construction materials were present within the building. In addition, stressed vegetation and odors around the doors and inside the three flammable materials lockers were observed. A remedial investigation (RI) of contaminated groundwater from Site 36, which underlies the area, was recently completed (TtNUS, 1999a).

## 2.3 SITE GEOLOGY AND HYDROGEOLOGY

PSC 46 overlies the area of contaminated groundwater associated with Operable Unit (OU) 9, Site 36. No site-specific subsurface investigation was performed at Facilities 72 and 177. The geological and hydrogeological characteristics of the site are the same as those described in the RI Report for OU 9, Sites 36 and 37 (TtNUS, 1999a).

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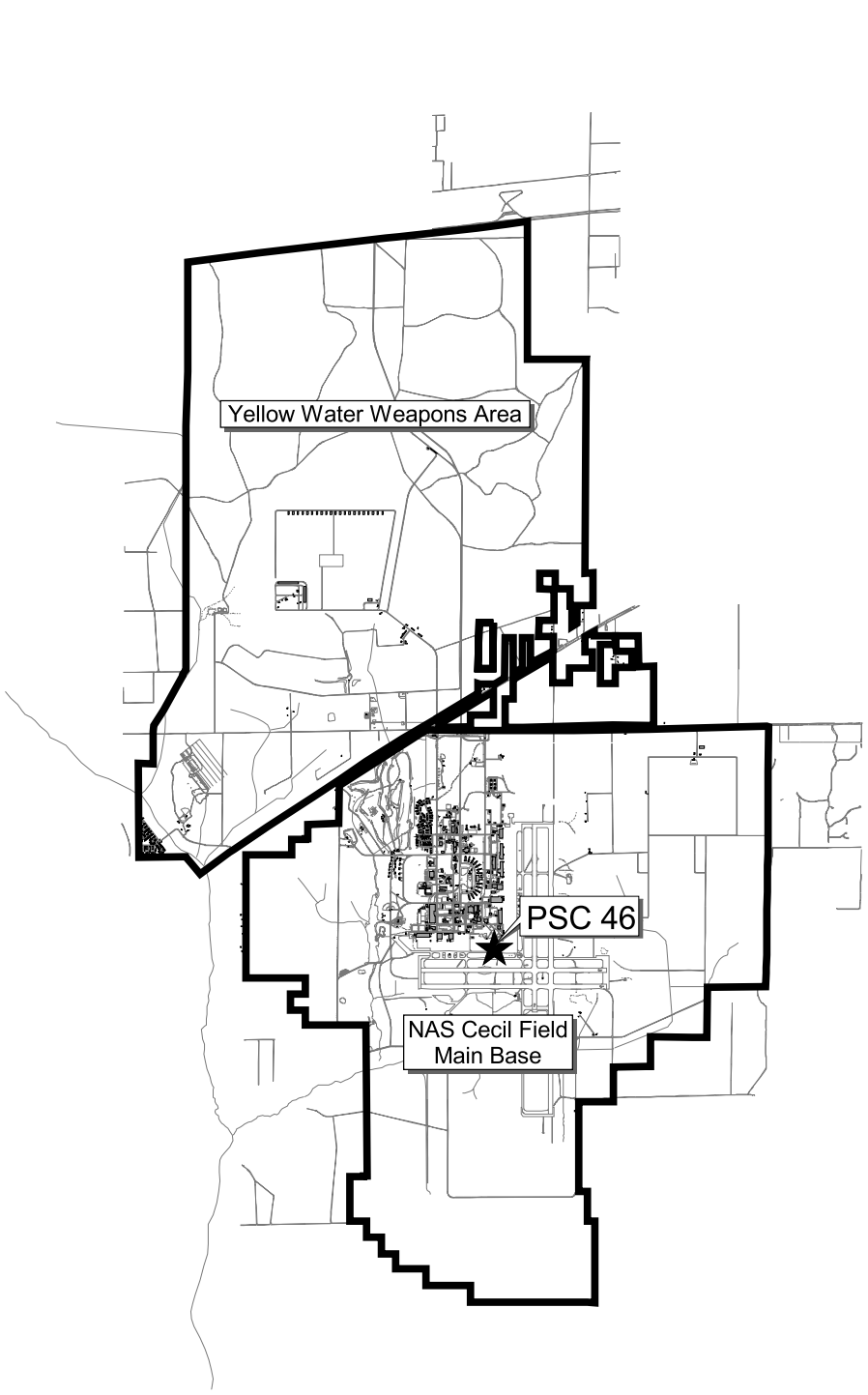


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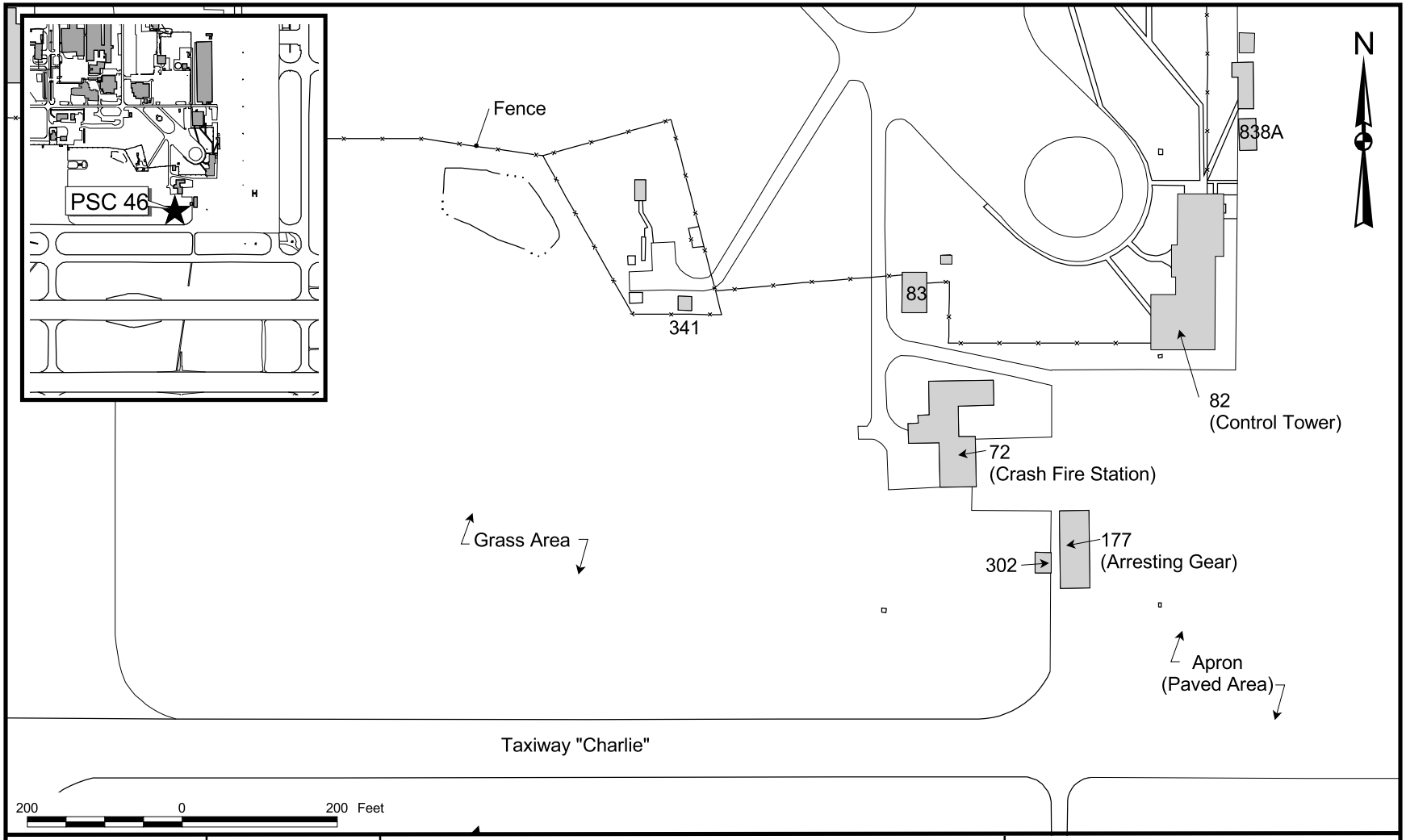
| DRAWN BY MJJ | DATE 02Apr00 | GENERAL LOCATION MAP<br>PSC 46, BUILDINGS 72 AND 177<br>TECHNICAL MEMORANDUM<br>NAVAL AIR STATION CECIL FIELD<br>JACKSONVILLE, FLORIDA | CONTRACT NUMBER 0039 |
| CHECKED BY | DATE | | APPROVED BY DATE |
| COST/SCHEDULE-AREA | | | APPROVED BY DATE |
| SCALE AS NOTED | | | DRAWING NO. FIGURE 2-1 / REV 0 |

P:\GIS\NAS_CecilField\psc46_techmemo.apr 04Apr00 MJJ Site Location Map Layout

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| DRAWN BY MJJ | DATE 17Apr00 | SITE LAYOUT MAP<br>PSC 46, BUILDINGS 72 AND 177<br>TECHNICAL MEMORANDUM<br>NAVAL AIR STATION CECIL FIELD<br>JACKSONVILLE, FLORIDA | CONTRACT NUMBER 0039 |
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P:\GIS\NAS_CecilField\psc46_techmemo.apr 29Apr00 MJJ Facility Location Layout

# 3.0 PREVIOUS INVESTIGATIONS

Environmental investigations at PSC 46 began in 1993 as part of a base-wide EBS. The following reports describe the results of investigations conducted prior to the TtNUS investigation at this site:

- EBS Report (ABB-ES, 1994)
- Sampling and Analysis Outline (SAO), Facility 177 (ABB-ES, 1995a)
- SAO, Facility 72 (ABB-ES, 1995b)
- Sampling and Analysis Report (SAR), Facility 177 (HLA, 1999a)
- SAR, Facility 72 (HLA, 1999b)
- Remedial Investigation for Site 36 and Site 37 (TtNUS, 1999a)

The SAR for Facility 177 (HLA, 1999a) indicated the following:

- Benzo(a)pyrene (BaP) and total recoverable petroleum hydrocarbons (TRPH) were detected in three surface soil samples collected in the study area at concentrations in excess of their Florida Department of Environmental Protection (FDEP) Industrial Soil Cleanup Target Levels (SCTLs).

- A preliminary human health risk evaluation indicated that benzo(a)anthracene, BaP, benzo(b) fluoranthene, and dibenzo(a,h)anthracene exceeded residential risk-based concentrations (RBCs) and residential SCTLs in seven of the 21 surface soil samples collected in the vicinity of Building 177. An excess lifetime cancer risk (ELCR) of $2.6 \times 10^{-5}$ was calculated based on a residential surface soil scenario.

- The extent of contamination was not delineated, and it was not determined whether or not Facility 177 is the source of the contamination.

- The BCT designated the area of contaminated soil associated with Facility 177 as PSC 46. Information pertinent to the subsequent evaluation of soil contamination in this area was to be presented in a technical memorandum for PSC 46.

- Because Facility 177 is within the area of investigation for Installation Restoration (IR) Sites 36 and 37 (OU 9), the color classification should be changed to Yellow until additional requirements for evaluation and remediation of soil in the vicinity of Facility 177 and groundwater associated with Sites 36 and 37 have been completed.

A summary of sampling locations and detected contaminants exceeding criteria from the previous investigations at Facility 177 is shown on Figure 3-1.

The SAR for Facility 72 (HLA, 1999b) indicated the following:

- No organic compounds or inorganic analytes were detected in the surface soil sample collected in the area of stressed vegetation adjacent to the flammable materials locker at concentrations in excess of their FDEP industrial SCTLs.

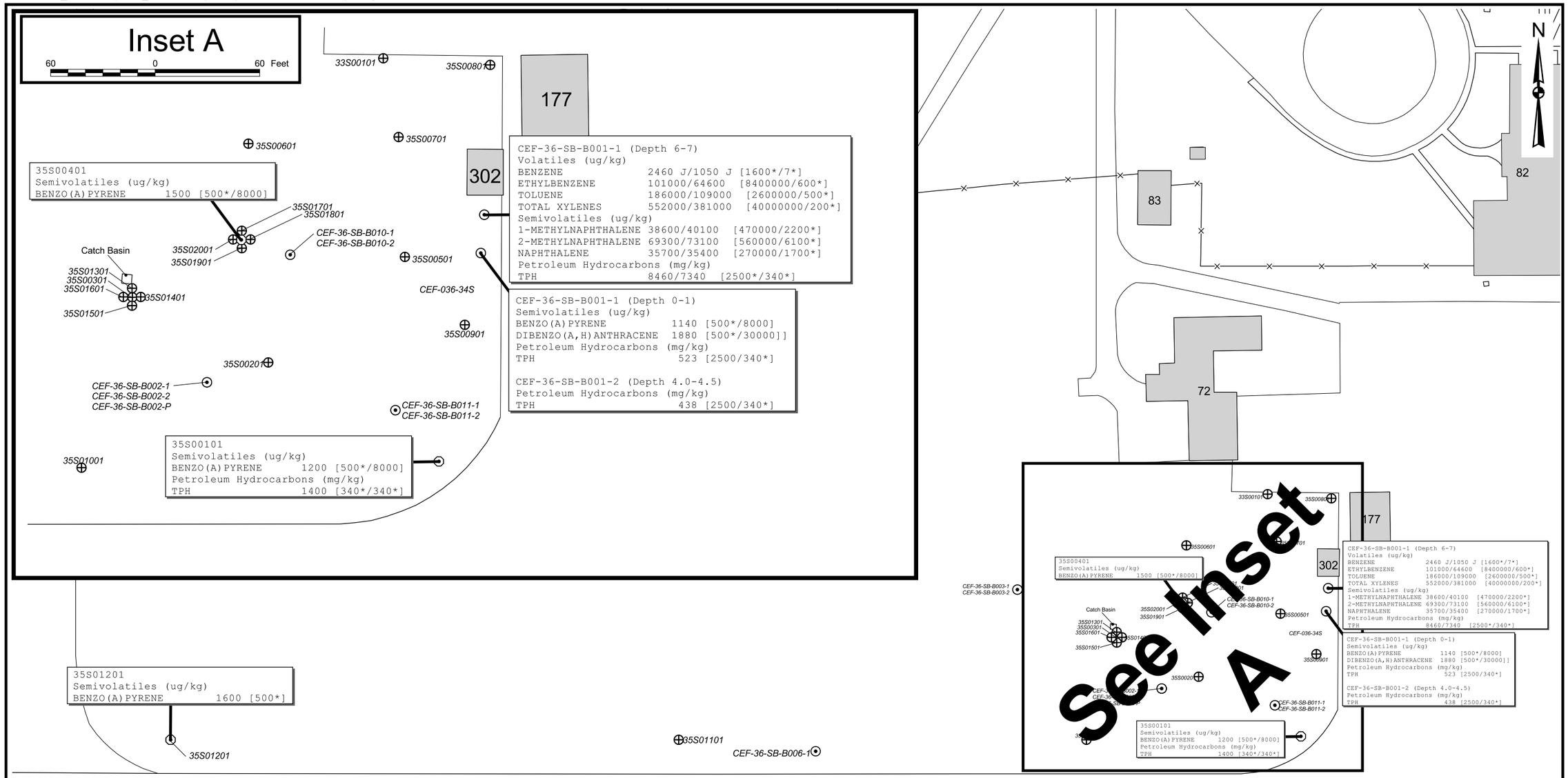
- A preliminary human health risk evaluation indicated that no organic compounds or inorganic analytes exceeded residential risk-based RBCs or residential SCTLs in the single surface soil sample collected next to the flammable materials locker between Buildings 72 and 177.

- Because Facility 72 is within the area of investigation for IR Sites 36 and 37, the color classification should be changed to Yellow until additional requirements for evaluation and remediation of groundwater associated with Sites 36 and 37 (OU 9) have been completed.

The sampling location from the previous investigation at Facility 72 has also been included on Figure 3-1.

During the Remedial Investigation for Site 36, 16 samples (including one duplicate) were collected from eight locations within the area of PSC 46. At two of the locations, CEF-36-SB-B001 and CEF-36-SB-B01A, several organic compounds including benzene, ethylbenzene, toluene, xylenes, naphthalene, 1-methylnaphthalene, 2-methylnaphthalene, benzo(a)pyrene, dibenzo(a,h)anthracene, and TRPH were found in concentrations exceeding either FDEP industrial SCTLs or leachability to groundwater SCTLs. These sampling locations from the Site 36 RI have also been included on Figure 3-1.

P:\GIS\NAS_CecilField\psc46_techmemo.apr 29Apr01 MJJ Previous Sample Layout




Legend

- ⊕ Surface Soil Sample
- ⊙ Surface and Subsurface Soil Sample
- ▣ Subsurface Soil Sample

CEF-610-SS-015
Semivolatile Organics (ug/kg)
BENZO(A)PYRENE 648 [100*/8000]

Sample ID
FDEP Industrial or Leachability SCTL [* indicates criteria exceeded]
Detection Concentration
Parameter

100 0 100 Feet

| | | | | |
|---|---|---|---|---|
| DRAWN BY MJJ | DATE 04Apr01 | | SAMPLE LOCATION AND EXCEEDANCE MAP - PREVIOUS INVESTIGATION FACILITIES 72 AND 177 TECHNICAL MEMORANDUM NAVAL AIR STATION CECIL FIELD JACKSONVILLE, FLORIDA | CONTRACT NO. 0039 |
| CHECKED BY | DATE | | | APPROVED BY / DATE |
| COST/SCHED-AREA | | | | APPROVED BY / DATE |
| SCALE AS NOTED | | | | DRAWING NO. FIGURE 3-1 / REV. 0 |

# 4.0 FIELD INVESTIGATION

Facilities 177 and 72 were combined into PSC 46 in May 1999. TtNUS conducted six soil sampling and analysis events at PSC 46 between May 1999 and March 2000 to delineate the extent of PAH- and total recoverable petroleum hydrocarbon (TRPH)-contaminated surface soil. The field investigation was performed in accordance with the PSC 46 Sampling and Analysis Work Plans (TtNUS, 1999b and TtNUS, 2000a). A total of 83 soil samples were collected over the six phases of the investigation.

- During Phase I, 18 surface soil samples were collected to determine the extent of PAH contamination west of Building 177. Eleven surface soil samples (CEF-P46-SS-001 through CEF-P46-SS-011) were collected in a 100-foot grid pattern within and just outside the area of known contamination. In addition, two surface soil samples (CEF-P46-SS-012 and CEF-P46-SS-013) were collected in the area of previous sampling location 35S00101 to further delineate the extent of contamination to the south of that location. Also, one surface soil sample, CEF-P46-SS-015, was collected at previous sample location 35S01101 for the purpose of verifying the BaP concentration because the detection limit on the previously collected sample was elevated. Finally, four surface soil samples (CEF-P46-SS-014 and CEF-P46-SS-016 through CEF-P46-SS-018) were collected to further delineate the extent of PAH contamination along the east-west taxiway.

  Five additional surface soil samples were collected during Phase I to delineate lead and TPH contamination. Three samples (CEF-P46-SS-019 through CEF-P46-SS-021) were collected in the former sand-blasting area and analyzed for lead. Sample CEF-P46-SS-021 was additionally analyzed for TPH. Finally, two samples, CEF-P46-SS-022 and CEF-P46-SS-023, were collected 15 feet north and west, respectively, of previous sample location 35S00101 for the purpose of delineating the extent of TPH contamination originally found in that area.

- During Phase II, 13 soil samples were collected to delineate horizontal and vertical excavation boundaries in the eastern area of the site south of Building 72 and west of Building 177. Three samples (CEF-P46-SS-101 through CEF-P46-SS-103) were collected at a depth interval of 0 to 1 foot below ground surface (bgs) and analyzed for PAHs to determine the northern limits of excavation in this area. Five samples (CEF-P46-SS-104 through CEF-P46-SS-108) were collected at a depth interval of 0 to 1 foot bgs and analyzed for PAHs to determine the western limits of excavation in this area. The eastern and southern excavation limits in this area are formed by the paved area surrounding Building 177 and the runway, respectively. Two samples (CEF-P46-SS-109 and CEF-P46-SS-110) were collected at a depth interval of 1 to 2 feet bgs to further define the vertical excavation limits in this area of the site. Sample CEF-P46-SS-109 was analyzed for PAHs and CEF-P46-SS-110 was analyzed for PAHs and TPH. Finally, three samples (CEF-P46-SS-111,

CEF-P46-SS-112, and CEF-P46-SS-123) were collected to determine the vertical excavation limit behind Building 177. These samples were each collected at depths of 1 to 2 feet bgs and analyzed for Target Compound List (TCL) volatile organic compounds (VOCs), TCL semivolatile organic compounds (SVOCs), TCL pesticides, PAHs, chromium, and TPH. Contamination in this area was detected earlier as part of the RI for OU 9, Sites 36 and 37.

Also during Phase II, four samples were collected in the area around previous sampling location CEF-P46-SS-014 to further delineate horizontal and vertical excavation limits in this area. Three of these samples (CEF-P46-SS-113 through CEF-P46-SS-115) were collected at a depth interval of 0 to 1 foot bgs 15 feet north, 15 feet east, and 15 feet west, respectively, of the previous sampling location. Sample CEF-P46-SS-116 was collected at a depth interval of 1 to 2 feet bgs at the CEF-P46-SS-014 location. Each of these samples was analyzed for PAHs. Finally, six samples (CEF-P46-SS-117 through CEF-P46-SS-122) were collected in the western portion of the site around previous sampling location CEF-P46-SS-018 to further delineate horizontal and vertical excavation limits in this area. These samples were analyzed for PAHs.

- During Phase III, 19 soil samples were collected to further delineate the horizontal and vertical extent of PAH and TRPH contamination. Seventeen surface soil samples (CEF-P46-SS-201 through CEF-P46-SS-217) were collected at the 0- to 1-foot-bgs depth interval, and two subsurface soil samples (CEF-P46-SU-218 and CEF-P46-SU-219) were collected in the 2- to 3-feet-bgs depth interval. Each of these 19 samples was analyzed for PAHs, and sample CEF-P46-SS-208 was also analyzed for TRPH.

- During Phase IV, 11 soil samples were collected to further delineate the horizontal and vertical extent of PAH contamination. The four samples collected at the 0- to 1-foot depth interval included CEF-P46-SS-301, located 15 feet west of previous location CEF-P46-SS-215; CEF-P46-SS-302, located 15 feet west of CEF-P46-SS-301; CEF-P46-SS-305, located midway between previous locations CEF-P46-SS-010 and CEF-P46-SS-205, and CEF-P46-SS-306, located midway between previous locations CEF-P46-SS-010 and CEF-P46-SS-212. In addition, three samples were collected at the 1- to 2-feet depth interval. These included CEF-P46-SS-303 at the previous location of CEF-P46-SS-009, CEF-P46-SS-310 at the previous location of CEF-P46-SS-007, and CEF-P46-SS-311, located approximately 50 feet south of CEF-P46-SS-310. Finally, four subsurface soil samples (CEF-P46-SU-304 and CEF-P46-SU-307 through CEF-P46-SU-309) were collected at a 2- to 3-foot depth interval to establish the vertical extent of contamination at two locations southwest of Building 177.

- During Phase V, two soil samples were collected to further delineate the horizontal and vertical extent of PAH contamination. The two samples collected at the 0- to 1-foot depth interval included CEF-P46-SS-401, located 15 feet north of previous location CEF-P46-SS-302, and CEF-P46-SS-402, located 15 feet north of previous location CEF-P46-SS-103. The samples collected during this phase of the field investigation were analyzed for PAHs.

- Finally, during Phase VI, two soil samples were collected to further delineate the extent of PAH contamination identified in previous sampling activities. The two samples, both collected at the 0- to 1-foot depth interval, included CEF-P46-SS-501, located 15 feet west of previous location CEF-P46-SS-114, and CEF-P46-SS-502, located 15 feet north of the same location. Both samples collected during this phase of the field investigation were analyzed for PAHs.

Over the six phases of sampling, 11 field duplicate soil samples were collected for quality assurance/ quality control (QA/QC) purposes. Sampling locations for the six phases of field sampling are shown on Figure 4-1. Analytical results are discussed in Section 5.0 and are included in Appendix A.

Soil samples were collected as grab samples using plastic, disposable trowels. 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 and trip blanks were collected. In addition, field blanks were not collected because the decontamination of sampling equipment was minimal.

The soil samples were analyzed for PAHs by U.S. EPA Method SW-846 8310, for TCL VOCs by U.S. EPA Method SW-846 8260B, for TCL SVOCs by U.S. EPA Method SW-846 8270C, for TCL Pesticides by U.S. EPA Method SW-846 8081A, for chromium by U.S. EPA Method SW-846 6010B, and for TPH by the Florida Petroleum Residual Organics (FL-PRO) method.

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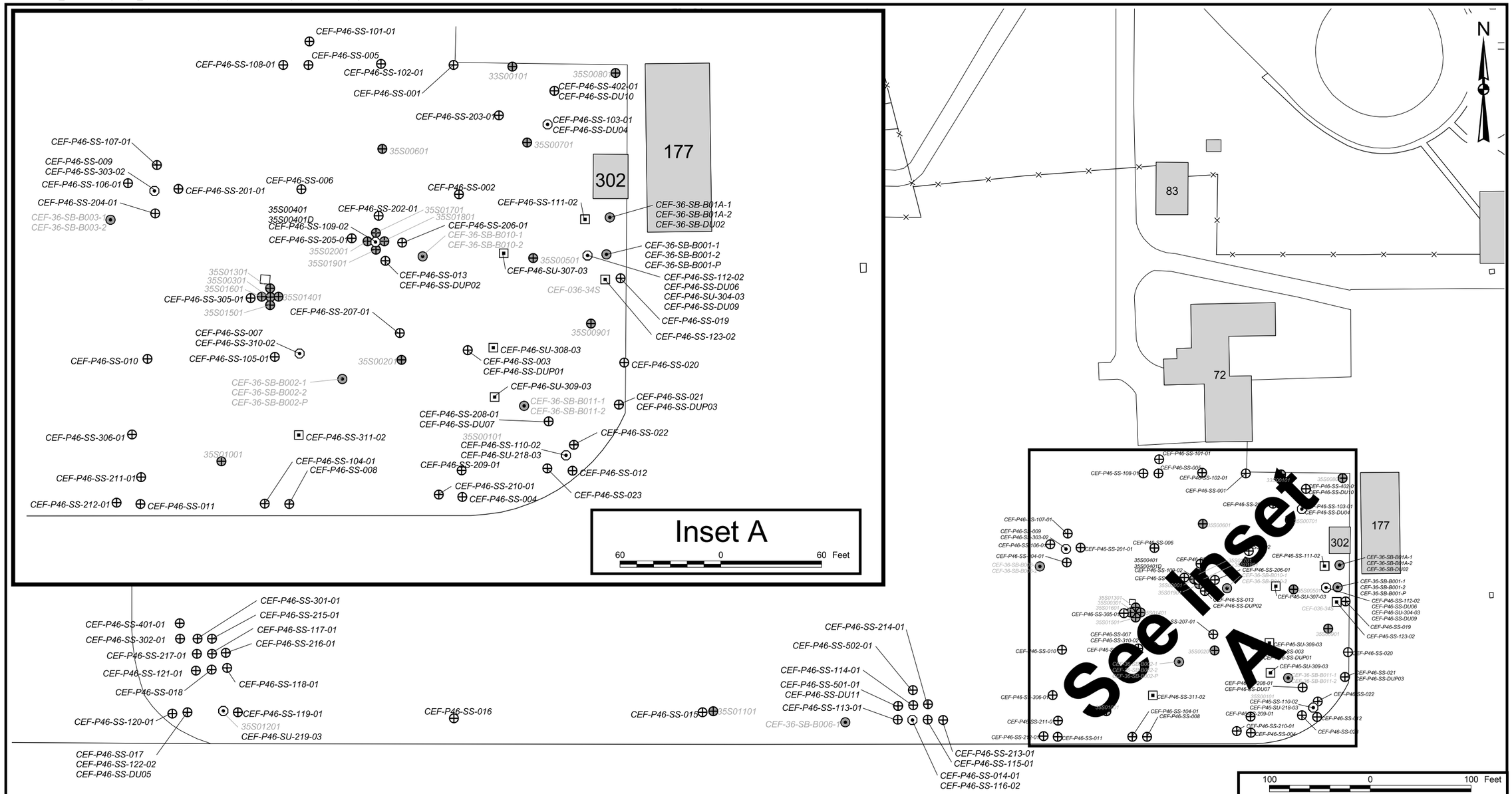
P:\GIS\NAS_CecilField\psc46_techmemo.apr 29Apr00 MJJ Sample Location Layout




Legend

- ⊕ Previous Soil Sample
- ⊕ Surface Soil Sample
- ⊙ Surface and Subsurface Soil Sample
- ▣ Subsurface Soil Sample

| | | | |
|---|---|---|---|
| DRAWN BY MJJ | DATE 04Apr01 | SAMPLE LOCATION MAP<br>PSC 46, BUILDINGS 72 AND 177<br>TECHNICAL MEMORANDUM<br>NAVAL AIR STATION CECIL FIELD<br>JACKSONVILLE, FLORIDA | CONTRACT NO. 0039 |
| CHECKED BY | DATE | | APPROVED BY / DATE |
| COST/SCHED-AREA | | | APPROVED BY / DATE |
| SCALE AS NOTED | | | DRAWING NO. FIGURE 4-1 / REV. 0 |

# 5.0 NATURE AND EXTENT OF CONTAMINATION

Analytical results for the soil samples collected during the six-phased field investigation are shown on Table 5-1, and complete laboratory data are included in Appendix A. Table 5-1 also compares the results to the FDEP SCTLs for industrial direct exposure and leachability to groundwater. The criterion used for the comparison was the more restrictive criterion. Table 5-2 provides a summary of the positive detections for the soil samples collected at PSC 46, 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 contamination in excess of the most restrictive FDEP SCTLs or the statistically-generated value for BaP presented in Section 6.2. Based on these results, an Action Memorandum (dig and haul package) was prepared for excavation of the delineated areas of BaP contamination greater than 770 µg/kg. This is the concentration at which the soil must be removed in order to achieve a site-wide upper confidence limit (UCL) for BaP that is less than the industrial SCTL of 500 µg/kg.

Four excavation areas were delineated based on sample locations where the analytical results were less than the statistically-generated value for BaP. The estimated excavation volume for the four excavations, each ranging from 1 to 2 feet deep, is approximately 242 cubic yards. This removal resulted in a concomitant reduction in concentrations of other CPAHs, thus rendering the BaPEq concentration to be less than the FDEP industrial SCTL of 500 µg/kg. This excavation also resulted in the removal of all soil with TPH concentrations greater than the FDEP leachability to groundwater SCTL of 340 mg/kg.

The excavation limits are shown for the four areas on Figure 5-1 and individually on Figures 5-2 through 5-5. Figures 5-2 through 5-5 also show the locations where sample results exceed the 770 µg/kg concentration at which the soil must be removed to achieve a site-wide UCL for BaP that is below the FDEP industrial SCTL.

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**TABLE 5-1**

**SOIL ANALYTICAL RESULTS**
**PSC 46, FACILITIES 72 AND 177**
**NAVAL AIR STATION CECIL FIELD**
**JACKSONVILLE, FLORIDA**


| PARAMETER | FDEP SCTLs[1] | | Background | PHASE I / MAY 1999 CEF-P46- | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Industrial Direct Exposure | Leachability to Groundwater | Inorganic Background Data Set[2] | SS-001 0-1 ft | SS-002 0-1 ft | SS-003 0-1 ft | SS-003D 0-1 ft | SS-004 0-1 ft | SS-005 0-1 ft | SS-006 0-1 ft | SS-007 0-1 ft | SS-008 0-1 ft | SS-009 0-1 ft |
| **POLYNUCLEAR AROMATIC HYDROCARBONS (ug/kg)** | | | | | | | | | | | | | |
| 1-Methylnaphthalene | 470,000 | 2,200 | NC | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 2-Methylnaphthalene | 560,000 | 6,100 | NC | ND | ND | ND | 144 | 765 | ND | ND | ND | ND | 421 |
| Acenaphthene | 18,000,000 | 2,100 | NC | ND | ND | ND | 131 | 1,000 | ND | 121 | 354 | 733 | 520 |
| Acenaphthylene | 11,000,000 | 27,000 | NC | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Anthracene | 260,000,000 | 2,500,000 | NC | ND | ND | ND | ND | ND | ND | ND | ND | 119 | ND |
| Benzo(a)anthracene | 5,000 | 3,200 | NC | ND | ND | 15.2 | 113 | 392 | 92.6 | 107 | 231 | 403 | 387 |
| Benzo(a)pyrene | 500 | 8,000 | NC | ND | ND | 18.4 | 252 | **739** | 133 | 178 | 495 | **658** | 417 |
| Benzo(b)fluoranthene | 4,800 | 10,000 | NC | ND | ND | 36.8 | 386 | 869 | 230 | 257 | 820 | 805 | 597 |
| Benzo(g,h,i)perylene | 41,000,000 | 32,000,000 | NC | ND | ND | 48.7 | 449 | 1,470 | 212 | 317 | 860 | 680 | 498 |
| Benzo(k)fluoranthene | 52,000 | 25,000 | NC | ND | ND | 19.5 | 142 | 400 | 88.8 | 105 | 272 | 345 | 229 |
| Chrysene | 450,000 | 77,000 | NC | ND | ND | ND | 226 | 511 | 201 | ND | ND | 800 | 640 |
| Dibenzo(a,h)anthracene | 500 | 30,000 | NC | ND | ND | ND | 103 | ND | ND | ND | 189 | 201 | 125 |
| Fluoranthene | 48,000,000 | 1,200,000 | NC | ND | ND | 61 | 354 | 998 | 218 | 141 | 328 | 1,400 | 674 |
| Fluorene | 28,000,000 | 160,000 | NC | ND | ND | ND | ND | 273 | ND | ND | ND | 270 | ND |
| Indeno(1,2,3-cd)pyrene | 5,300 | 28,000 | NC | ND | ND | ND | 533 | 1,380 | 239 | 363 | 971 | 1,020 | 634 |
| Naphthalene | 270,000 | 1,700 | NC | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Phenanthrene | 30,000,000 | 250,000 | NC | ND | ND | ND | 115 | ND | ND | ND | 138 | 1,210 | 297 |
| Pyrene | 37,000,000 | 880,000 | NC | ND | ND | 37.9 | 314 | 929 | 262 | 177 | 409 | 1,300 | 798 |
| **PESTICIDES / PCBs (ug/kg)** | | | | | | | | | | | | | |
| 4-, 4'-DDD | 18,000 | 4,000 | NC | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 4-, 4'-DDE | 13,000 | 18,000 | NC | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 4-, 4'-DDT | 13,000 | 11,000 | NC | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| **INORGANIC ANALYTES (mg/kg)** | | | | | | | | | | | | | |
| Chromium | NC | NC | 7.75 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Lead | 920 | NC | 197 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| **PETROLEUM HYDROCARBONS (mg/kg)** | | | | | | | | | | | | | |
| TRPH | 2,500 | 340 | NC | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |

**TABLE 5-1**

**SOIL ANALYTICAL RESULTS**
**PSC 46, FACILITIES 72 AND 177**
**NAVAL AIR STATION CECIL FIELD**
**JACKSONVILLE, FLORIDA**


| PARAMETER | FDEP SCTLs[1] | | Background | PHASE I / MAY 1999 CEF-P46- | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Industrial Direct Exposure | Leachability to Groundwater | Inorganic Background Data Set[2] | SS-010 0-1 ft | SS-011 0-1 ft | SS-012 0-1 ft | SS-013 0-1 ft | SS-013D 0-1 ft | SS-014 0-1 ft | SS-015 0-1 ft | SS-016 0-1 ft | SS-017 0-1 ft | SS-018 0-1 ft |
| **POLYNUCLEAR AROMATIC HYDROCARBONS (ug/kg)** | | | | | | | | | | | | | |
| 1-Methylnaphthalene | 470,000 | 2,200 | NC | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 2-Methylnaphthalene | 560,000 | 6,100 | NC | ND | ND | 991 | ND | 266 | 110 | ND | 159 | 142 | 113 |
| Acenaphthene | 18,000,000 | 2,100 | NC | 57.3 | ND | 1,090 | ND | 347 | 145 | ND | 116 | 153 | 112 |
| Acenaphthylene | 11,000,000 | 27,000 | NC | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Anthracene | 260,000,000 | 2,500,000 | NC | ND | ND | 179 | ND | ND | ND | ND | ND | ND | ND |
| Benzo(a)anthracene | 5,000 | 3,200 | NC | 34.3 | ND | 741 | 15 | 278 | 89.6 | ND | 83.4 | 76 | 71.4 |
| Benzo(a)pyrene | 500 | 8,000 | NC | 51.3 | 88.9 | **889** | ND | 316 | 186 | 41.4 | 85.7 | 140 | 148 |
| Benzo(b)fluoranthene | 4,800 | 10,000 | NC | 85.4 | 155 | 1,290 | 30.4 | 488 | 308 | 82.7 | 169 | 229 | 230 |
| Benzo(g,h,i)perylene | 41,000,000 | 32,000,000 | NC | 98.9 | 315 | 1,440 | ND | 284 | 336 | 64.3 | 113 | 211 | 257 |
| Benzo(k)fluoranthene | 52,000 | 25,000 | NC | 34.8 | 46.5 | 524 | 18 | 217 | 114 | 34.8 | 62.1 | 85.1 | 79.5 |
| Chrysene | 450,000 | 77,000 | NC | ND | ND | 1,070 | 94 | 735 | 138 | ND | ND | 129 | 129 |
| Dibenzo(a,h)anthracene | 500 | 30,000 | NC | ND | 56.3 | 321 | ND | 64 | 70.7 | ND | 29.8 | 44.5 | 65.4 |
| Fluoranthene | 48,000,000 | 1,200,000 | NC | 92.5 | 90.5 | 1,770 | 185 | 598 | 89.4 | 52.1 | 558 | 229 | 154 |
| Fluorene | 28,000,000 | 160,000 | NC | ND | ND | 311 | ND | ND | ND | ND | ND | ND | 22.6 |
| Indeno(1,2,3-cd)pyrene | 5,300 | 28,000 | NC | ND | 321 | 1,660 | 85.4 | 409 | 397 | 82.2 | 175 | 276 | 334 |
| Naphthalene | 270,000 | 1,700 | NC | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Phenanthrene | 30,000,000 | 250,000 | NC | ND | ND | 956 | ND | ND | ND | ND | 447 | 113 | ND |
| Pyrene | 37,000,000 | 880,000 | NC | 94.1 | 94.8 | 1,630 | 65.2 | 728 | 167 | 38 | 425 | 210 | 206 |
| **PESTICIDES / PCBs (ug/kg)** | | | | | | | | | | | | | |
| 4-, 4'-DDD | 18,000 | 4,000 | NC | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 4-, 4'-DDE | 13,000 | 18,000 | NC | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 4-, 4'-DDT | 13,000 | 11,000 | NC | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| **INORGANIC ANALYTES (mg/kg)** | | | | | | | | | | | | | |
| Chromium | NC | NC | 7.75 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Lead | 920 | NC | 197 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| **PETROLEUM HYDROCARBONS (mg/kg)** | | | | | | | | | | | | | |
| TRPH | 2,500 | 340 | NC | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |

**TABLE 5-1**

**SOIL ANALYTICAL RESULTS**
**PSC 46, FACILITIES 72 AND 177**
**NAVAL AIR STATION CECIL FIELD**
**JACKSONVILLE, FLORIDA**


| PARAMETER | FDEP SCTLs[1] | | Background | PHASE I / MAY 1999 CEF-P46- | | | | | | PHASE II / JUNE 1999 CEF-P46- | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Industrial Direct Exposure | Leachability to Groundwater | Inorganic Background Data Set[2] | SS-019 0-1 ft | SS-020 0-1 ft | SS-021 0-1 ft | SS-021D 0-1 ft | SS-022 0-1 ft | SS-023 0-1 ft | SS-101 0-1 ft | SS-102 0-1 ft | SS-103 0-1 ft | SS-103D 0-1 ft |
| **POLYNUCLEAR AROMATIC HYDROCARBONS (ug/kg)** | | | | | | | | | | | | | |
| 1-Methylnaphthalene | 470,000 | 2,200 | NC | NA | NA | NA | NA | NA | NA | ND | ND | ND | ND |
| 2-Methylnaphthalene | 560,000 | 6,100 | NC | NA | NA | NA | NA | NA | NA | ND | ND | 160 | 520 |
| Acenaphthene | 18,000,000 | 2,100 | NC | NA | NA | NA | NA | NA | NA | ND | ND | 200 | 900 |
| Acenaphthylene | 11,000,000 | 27,000 | NC | NA | NA | NA | NA | NA | NA | ND | ND | ND | ND |
| Anthracene | 260,000,000 | 2,500,000 | NC | NA | NA | NA | NA | NA | NA | ND | 7.8 | 23 | 110 |
| Benzo(a)anthracene | 5,000 | 3,200 | NC | NA | NA | NA | NA | NA | NA | 14 | 63 | 100 | 490 |
| Benzo(a)pyrene | 500 | 8,000 | NC | NA | NA | NA | NA | NA | NA | 18 | 200 | 160 | **580** |
| Benzo(b)fluoranthene | 4,800 | 10,000 | NC | NA | NA | NA | NA | NA | NA | 44 | 280 | 210 | 730 |
| Benzo(g,h,i)perylene | 41,000,000 | 32,000,000 | NC | NA | NA | NA | NA | NA | NA | 33 | 240 | 200 | 580 |
| Benzo(k)fluoranthene | 52,000 | 25,000 | NC | NA | NA | NA | NA | NA | NA | 17 | 120 | 100 | 390 |
| Chrysene | 450,000 | 77,000 | NC | NA | NA | NA | NA | NA | NA | 14 | 45 | 120 | 590 |
| Dibenzo(a,h)anthracene | 500 | 30,000 | NC | NA | NA | NA | NA | NA | NA | ND | 20 | 9.7 | 43 |
| Fluoranthene | 48,000,000 | 1,200,000 | NC | NA | NA | NA | NA | NA | NA | 30 | 67 | 260 | 1,300 |
| Fluorene | 28,000,000 | 160,000 | NC | NA | NA | NA | NA | NA | NA | ND | 15 | ND | 32 |
| Indeno(1,2,3-cd)pyrene | 5,300 | 28,000 | NC | NA | NA | NA | NA | NA | NA | 21 | 140 | 120 | 450 |
| Naphthalene | 270,000 | 1,700 | NC | NA | NA | NA | NA | NA | NA | ND | ND | ND | ND |
| Phenanthrene | 30,000,000 | 250,000 | NC | NA | NA | NA | NA | NA | NA | 5.8 | 11 | 63 | 510 |
| Pyrene | 37,000,000 | 880,000 | NC | NA | NA | NA | NA | NA | NA | 32 | 150 | 210 | 1,000 |
| **PESTICIDES / PCBs (ug/kg)** | | | | | | | | | | | | | |
| 4-, 4'-DDD | 18,000 | 4,000 | NC | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 4-, 4'-DDE | 13,000 | 18,000 | NC | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 4-, 4'-DDT | 13,000 | 11,000 | NC | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| **INORGANIC ANALYTES (mg/kg)** | | | | | | | | | | | | | |
| Chromium | NC | NC | 7.75 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Lead | 920 | NC | 197 | 155 | 54.7 | 4.6 | 3.2 | NA | NA | NA | NA | NA | NA |
| **PETROLEUM HYDROCARBONS (mg/kg)** | | | | | | | | | | | | | |
| TRPH | 2,500 | 340 | NC | NA | NA | 102 | 111 | 114 | ND | NA | NA | NA | NA |

**TABLE 5-1**

**SOIL ANALYTICAL RESULTS**
**PSC 46, FACILITIES 72 AND 177**
**NAVAL AIR STATION CECIL FIELD**
**JACKSONVILLE, FLORIDA**


| PARAMETER | FDEP SCTLs[1] | | Background | PHASE II / JUNE 1999 CEF-P46- | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Industrial Direct Exposure | Leachability to Groundwater | Inorganic Background Data Set[2] | SS-104 0-1 ft | SS-105 0-1 ft | SS-106 0-1 ft | SS-107 0-1 ft | SS-108 0-1 ft | SS-109 1-2 ft | SS-110 1-2 ft | SS-111 1-2 ft | SS-112 1-2 ft | SS-112D 1-2 ft |
| **POLYNUCLEAR AROMATIC HYDROCARBONS (ug/kg)** | | | | | | | | | | | | | |
| 1-Methylnaphthalene | 470,000 | 2,200 | NC | ND | 89 | ND | ND | ND | ND | ND | ND | ND | ND |
| 2-Methylnaphthalene | 560,000 | 6,100 | NC | 480 | 620 | 88 | 180 | ND | ND | 1,200 | 650 | 200 | 59 |
| Acenaphthene | 18,000,000 | 2,100 | NC | 960 | 1,400 | 150 | 390 | ND | 54 | 2,000 | 1,100 | 420 | 45 |
| Acenaphthylene | 11,000,000 | 27,000 | NC | ND | ND | ND | ND | ND | ND | ND | ND | 210 | ND |
| Anthracene | 260,000,000 | 2,500,000 | NC | 89 | 100 | 25 | 28 | ND | ND | 160 | 42 | 57 | 17 |
| Benzo(a)anthracene | 5,000 | 3,200 | NC | 290 | 460 | 79 | 170 | 11 | 17 | 720 | 440 | 170 | 33 |
| Benzo(a)pyrene | 500 | 8,000 | NC | **520** | **770** | 160 | 190 | 16 | 39 | **1,600** | **800** | 250 | 75 |
| Benzo(b)fluoranthene | 4,800 | 10,000 | NC | 680 | 1,100 | 140 | 260 | 22 | 52 | 2,000 | 950 | 280 | 77 |
| Benzo(g,h,i)perylene | 41,000,000 | 32,000,000 | NC | 770 | 1,000 | 150 | 220 | 11 | 60 | 2,200 | 1,200 | 540 | 260 |
| Benzo(k)fluoranthene | 52,000 | 25,000 | NC | 270 | 430 | 76 | 130 | 11 | 23 | 780 | 410 | 130 | 38 |
| Chrysene | 450,000 | 77,000 | NC | 300 | 500 | 100 | 170 | 18 | 24 | 780 | 440 | 150 | 55 |
| Dibenzo(a,h)anthracene | 500 | 30,000 | NC | 67 | 82 | ND | 26 | ND | ND | 220 | 80 | 38 | 9.5 |
| Fluoranthene | 48,000,000 | 1,200,000 | NC | 510 | 610 | 180 | 360 | 24 | 42 | 1,100 | 700 | 220 | 84 |
| Fluorene | 28,000,000 | 160,000 | NC | 25 | 17 | ND | ND | ND | ND | 36 | 16 | ND | ND |
| Indeno(1,2,3-cd)pyrene | 5,300 | 28,000 | NC | 360 | 650 | 150 | 150 | 12 | 38 | 1,400 | 630 | 250 | 64 |
| Naphthalene | 270,000 | 1,700 | NC | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Phenanthrene | 30,000,000 | 250,000 | NC | 340 | 200 | 51 | 110 | 5.8 | 12 | 370 | 130 | 56 | 12 |
| Pyrene | 37,000,000 | 880,000 | NC | 520 | 650 | 140 | 290 | 25 | 31 | 1,000 | 680 | 210 | 55 |
| **PESTICIDES / PCBs (ug/kg)** | | | | | | | | | | | | | |
| 4-, 4'-DDD | 18,000 | 4,000 | NC | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 4-, 4'-DDE | 13,000 | 18,000 | NC | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 4-, 4'-DDT | 13,000 | 11,000 | NC | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| **INORGANIC ANALYTES (mg/kg)** | | | | | | | | | | | | | |
| Chromium | NC | NC | 7.75 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Lead | 920 | NC | 197 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| **PETROLEUM HYDROCARBONS (mg/kg)** | | | | | | | | | | | | | |
| TRPH | 2,500 | 340 | NC | NA | NA | NA | NA | NA | NA | 97 | 136 | 98.7 | ND |

**TABLE 5-1**

**SOIL ANALYTICAL RESULTS**
**PSC 46, FACILITIES 72 AND 177**
**NAVAL AIR STATION CECIL FIELD**
**JACKSONVILLE, FLORIDA**


| PARAMETER | FDEP SCTLs[1] | | Background | PHASE II / JUNE 1999 CEF-P46- | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Industrial Direct Exposure | Leachability to Groundwater | Inorganic Background Data Set[2] | SS-113 0-1 ft | SS-114 0-1 ft | SS-115 0-1 ft | SS-116 1-2 ft | SS-117 0-1 ft | SS-118 0-1 ft | SS-119 0-1 ft | SS-120 0-1 ft | SS-121 0-1 ft | SS-122 1-2 ft |
| **POLYNUCLEAR AROMATIC HYDROCARBONS (ug/kg)** | | | | | | | | | | | | | |
| 1-Methylnaphthalene | 470,000 | 2,200 | NC | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 2-Methylnaphthalene | 560,000 | 6,100 | NC | 150 | 370 | 160 | 69 | 310 | 110 | 110 | 350 | 400 | 300 |
| Acenaphthene | 18,000,000 | 2,100 | NC | 230 | 550 | 230 | 96 | 410 | 150 | 130 | 530 | 580 | 470 |
| Acenaphthylene | 11,000,000 | 27,000 | NC | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Anthracene | 260,000,000 | 2,500,000 | NC | 12 | 13 | 9.5 | ND | 48 | 13 | 13 | 23 | 64 | 39 |
| Benzo(a)anthracene | 5,000 | 3,200 | NC | 72 | 140 | 74 | 42 | 140 | 69 | 89 | 230 | 180 | 140 |
| Benzo(a)pyrene | 500 | 8,000 | NC | 150 | 320 | 170 | 120 | 220 | 73 | 140 | 370 | 380 | 310 |
| Benzo(b)fluoranthene | 4,800 | 10,000 | NC | 250 | 450 | 240 | 150 | 320 | 150 | 170 | 530 | 520 | 480 |
| Benzo(g,h,i)perylene | 41,000,000 | 32,000,000 | NC | 280 | 720 | 370 | 220 | 300 | 140 | 170 | 560 | 750 | 1,400 |
| Benzo(k)fluoranthene | 52,000 | 25,000 | NC | 99 | 160 | 90 | 56 | 130 | 71 | 77 | 240 | 210 | 170 |
| Chrysene | 450,000 | 77,000 | NC | 80 | 160 | 99 | 54 | 150 | 110 | 100 | 290 | 210 | 230 |
| Dibenzo(a,h)anthracene | 500 | 30,000 | NC | 23 | 58 | 30 | 17 | 36 | 16 | 18 | 43 | 68 | 72 |
| Fluoranthene | 48,000,000 | 1,200,000 | NC | 150 | 350 | 150 | 77 | 450 | 430 | 220 | 360 | 450 | 410 |
| Fluorene | 28,000,000 | 160,000 | NC | ND | 7.7 | ND | ND | 21 | 26 | ND | ND | 20 | 9.1 |
| Indeno(1,2,3-cd)pyrene | 5,300 | 28,000 | NC | 170 | 320 | 180 | 110 | 190 | 85 | 110 | 300 | 370 | 400 |
| Naphthalene | 270,000 | 1,700 | NC | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Phenanthrene | 30,000,000 | 250,000 | NC | 31 | 74 | 54 | 18 | 190 | 390 | 74 | 110 | 190 | 170 |
| Pyrene | 37,000,000 | 880,000 | NC | 150 | 360 | 140 | 77 | 340 | 310 | 180 | 390 | 340 | 310 |
| **PESTICIDES / PCBs (ug/kg)** | | | | | | | | | | | | | |
| 4-, 4'-DDD | 18,000 | 4,000 | NC | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 4-, 4'-DDE | 13,000 | 18,000 | NC | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 4-, 4'-DDT | 13,000 | 11,000 | NC | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| **INORGANIC ANALYTES (mg/kg)** | | | | | | | | | | | | | |
| Chromium | NC | NC | 7.75 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Lead | 920 | NC | 197 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| **PETROLEUM HYDROCARBONS (mg/kg)** | | | | | | | | | | | | | |
| TRPH | 2,500 | 340 | NC | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |

**TABLE 5-1**

**SOIL ANALYTICAL RESULTS**
**PSC 46, FACILITIES 72 AND 177**
**NAVAL AIR STATION CECIL FIELD**
**JACKSONVILLE, FLORIDA**


| PARAMETER | FDEP SCTLs[1] | | Background | PHASE II/JUNE 1999 CEF-P46- | | PHASE III / SEPTEMBER-OCTOBER 1999 CEF-P46- | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Industrial Direct Exposure | Leachability to Groundwater | Inorganic Background Data Set[2] | SS-122D 1-2 ft | SS-123 1-2 ft | SS-111 1-2 ft | SS-111D 1-2 ft | SS-112 1-2 ft | SS-123 1-2 ft | SS-201 0-1 ft | SS-202 0-1 ft | SS-203 0-1 ft | SS-204 0-1 ft |
| **POLYNUCLEAR AROMATIC HYDROCARBONS (ug/kg)** | | | | | | | | | | | | | |
| 1-Methylnaphthalene | 470,000 | 2,200 | NC | ND | ND | ND | ND | NA | NA | ND | ND | ND | ND |
| 2-Methylnaphthalene | 560,000 | 6,100 | NC | 460 | 65 | ND | ND | ND | ND | ND | ND | ND | ND |
| Acenaphthene | 18,000,000 | 2,100 | NC | 730 | 90 | ND | ND | ND | ND | 80.1 | ND | ND | ND |
| Acenaphthylene | 11,000,000 | 27,000 | NC | ND | ND | ND | ND | 3,080 | ND | ND | ND | ND | ND |
| Anthracene | 260,000,000 | 2,500,000 | NC | 99 | 15 | ND | ND | ND | ND | ND | ND | ND | ND |
| Benzo(a)anthracene | 5,000 | 3,200 | NC | 450 | 78 | ND | ND | ND | ND | 39.7 | 16.8 | 14 | ND |
| Benzo(a)pyrene | 500 | 8,000 | NC | **1,200** | 170 | ND | ND | **2,640** | 477 | 182 | ND | 77.4 | ND |
| Benzo(b)fluoranthene | 4,800 | 10,000 | NC | 1,400 | 200 | ND | ND | 2,780 | 565 | 76.1 | ND | 32.1 | ND |
| Benzo(g,h,i)perylene | 41,000,000 | 32,000,000 | NC | 1,400 | 220 | ND | ND | 6,170 | 483 | 106 | 41.8 | 32.8 | ND |
| Benzo(k)fluoranthene | 52,000 | 25,000 | NC | 670 | 87 | ND | ND | ND | ND | 16.7 | ND | 12.5 | ND |
| Chrysene | 450,000 | 77,000 | NC | 610 | 86 | ND | ND | ND | ND | 75.5 | 73 | 59.4 | ND |
| Dibenzo(a,h)anthracene | 500 | 30,000 | NC | 160 | 28 | ND | ND | ND | ND | ND | ND | ND | ND |
| Fluoranthene | 48,000,000 | 1,200,000 | NC | 1,200 | 130 | ND | ND | ND | 572 | 109 | 52.7 | 97.7 | ND |
| Fluorene | 28,000,000 | 160,000 | NC | 11 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Indeno(1,2,3-cd)pyrene | 5,300 | 28,000 | NC | 1,000 | 130 | ND | ND | 3,060 | 492 | ND | ND | ND | ND |
| Naphthalene | 270,000 | 1,700 | NC | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Phenanthrene | 30,000,000 | 250,000 | NC | 270 | 33 | ND | ND | ND | ND | ND | ND | ND | ND |
| Pyrene | 37,000,000 | 880,000 | NC | 1,100 | 120 | ND | ND | ND | 594 | 75.7 | 39.4 | 76.3 | ND |
| **PESTICIDES / PCBs (ug/kg)** | | | | | | | | | | | | | |
| 4-, 4'-DDD | 18,000 | 4,000 | NC | NA | NA | 5 | 3.1 | ND | 5.7 | NA | NA | NA | NA |
| 4-, 4'-DDE | 13,000 | 18,000 | NC | NA | NA | 7.6 | 4.4 | 8.1 | 2 | NA | NA | NA | NA |
| 4-, 4'-DDT | 13,000 | 11,000 | NC | NA | NA | ND | 2.2 | 22 | ND | NA | NA | NA | NA |
| **INORGANIC ANALYTES (mg/kg)** | | | | | | | | | | | | | |
| Chromium | NC | NC | 7.75 | NA | NA | 1.9 | 3.4 | 6.5 | 5 | NA | NA | NA | NA |
| Lead | 920 | NC | 197 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| **PETROLEUM HYDROCARBONS (mg/kg)** | | | | | | | | | | | | | |
| TRPH | 2,500 | 340 | NC | NA | ND | 22.6 | 32.5 | **696** | 113 | NA | NA | NA | NA |

**TABLE 5-1**

**SOIL ANALYTICAL RESULTS**
**PSC 46, FACILITIES 72 AND 177**
**NAVAL AIR STATION CECIL FIELD**
**JACKSONVILLE, FLORIDA**


| PARAMETER | FDEP SCTLs[1] | | Background | PHASE III / SEPTEMBER-OCTOBER 1999 CEF-P46- | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Industrial Direct Exposure | Leachability to Groundwater | Inorganic Background Data Set[2] | SS-205 0-1 ft | SS-206 0-1 ft | SS-207 0-1 ft | SS-208 0-1 ft | SS-208D 0-1 ft | SS-209 0-1 ft | SS-210 0-1 ft | SS-211 0-1 ft | SS-212 0-1 ft | SS-213 0-1 ft |
| **POLYNUCLEAR AROMATIC HYDROCARBONS (ug/kg)** | | | | | | | | | | | | | |
| 1-Methylnaphthalene | 470,000 | 2,200 | NC | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 2-Methylnaphthalene | 560,000 | 6,100 | NC | ND | ND | 118 | ND | ND | ND | ND | 158 | ND | ND |
| Acenaphthene | 18,000,000 | 2,100 | NC | ND | ND | 162 | ND | ND | ND | 124 | 171 | ND | 122 |
| Acenaphthylene | 11,000,000 | 27,000 | NC | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Anthracene | 260,000,000 | 2,500,000 | NC | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Benzo(a)anthracene | 5,000 | 3,200 | NC | 12.3 | 26.4 | 52.5 | 11.4 | ND | 29.6 | 78.7 | 80.9 | ND | 45.8 |
| Benzo(a)pyrene | 500 | 8,000 | NC | 89.8 | 167 | 365 | ND | 22.8 | ND | 284 | **579** | ND | 151 |
| Benzo(b)fluoranthene | 4,800 | 10,000 | NC | 41.4 | 92.2 | 196 | ND | 16.4 | ND | 228 | 272 | ND | 42.1 |
| Benzo(g,h,i)perylene | 41,000,000 | 32,000,000 | NC | 46.7 | 123 | 201 | 28.1 | 13.4 | ND | 150 | 352 | 22.4 | 57.8 |
| Benzo(k)fluoranthene | 52,000 | 25,000 | NC | 12.4 | 16.9 | 33.8 | ND | ND | ND | 14 | 33.9 | ND | ND |
| Chrysene | 450,000 | 77,000 | NC | 40.9 | 57.8 | 69.8 | 31.8 | 29.9 | 154 | 114 | 135 | 32.5 | ND |
| Dibenzo(a,h)anthracene | 500 | 30,000 | NC | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Fluoranthene | 48,000,000 | 1,200,000 | NC | 63.1 | ND | 160 | 92.2 | 75.7 | 224 | 227 | 235 | 77.4 | 261 |
| Fluorene | 28,000,000 | 160,000 | NC | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Indeno(1,2,3-cd)pyrene | 5,300 | 28,000 | NC | ND | 71.3 | 171 | 20.6 | ND | ND | ND | ND | ND | 23.9 |
| Naphthalene | 270,000 | 1,700 | NC | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Phenanthrene | 30,000,000 | 250,000 | NC | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Pyrene | 37,000,000 | 880,000 | NC | 44.2 | 43 | 113 | 23.6 | 11.6 | 15.3 | 119 | 185 | 50.4 | 104 |
| **PESTICIDES / PCBs (ug/kg)** | | | | | | | | | | | | | |
| 4-, 4'-DDD | 18,000 | 4,000 | NC | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 4-, 4'-DDE | 13,000 | 18,000 | NC | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 4-, 4'-DDT | 13,000 | 11,000 | NC | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| **INORGANIC ANALYTES (mg/kg)** | | | | | | | | | | | | | |
| Chromium | NC | NC | 7.75 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Lead | 920 | NC | 197 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| **PETROLEUM HYDROCARBONS (mg/kg)** | | | | | | | | | | | | | |
| TRPH | 2,500 | 340 | NC | NA | NA | NA | 19.3 | 13.5 | NA | NA | NA | NA | NA |

**TABLE 5-1**

**SOIL ANALYTICAL RESULTS**
**PSC 46, FACILITIES 72 AND 177**
**NAVAL AIR STATION CECIL FIELD**
**JACKSONVILLE, FLORIDA**


| PARAMETER | FDEP SCTLs[1] | | Background | PHASE III / SEPTEMBER-OCTOBER 1999 CEF-P46- | | | | | | PHASE IV / DECEMBER 1999 CEF-P46- | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Industrial Direct Exposure | Leachability to Groundwater | Inorganic Background Data Set[2] | SS-214 0-1 ft | SS-215 0-1 ft | SS-216 0-1 ft | SS-217 0-1 ft | SU-218 2-3 ft | SU-219 2-3 ft | SS-301 0-1 ft | SS-302 0-1 ft | SS-303 1-2 ft | SU-304 2-3 ft |
| **POLYNUCLEAR AROMATIC HYDROCARBONS (ug/kg)** | | | | | | | | | | | | | |
| 1-Methylnaphthalene | 470,000 | 2,200 | NC | ND | ND | ND | ND | ND | ND | ND | 128 | ND | ND |
| 2-Methylnaphthalene | 560,000 | 6,100 | NC | ND | ND | ND | 155 | ND | ND | ND | 86.7 | ND | ND |
| Acenaphthene | 18,000,000 | 2,100 | NC | ND | ND | ND | 227 | ND | ND | ND | ND | ND | ND |
| Acenaphthylene | 11,000,000 | 27,000 | NC | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Anthracene | 260,000,000 | 2,500,000 | NC | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Benzo(a)anthracene | 5,000 | 3,200 | NC | 33.9 | 33 | 48.4 | 136 | ND | ND | 33.4 | 147 | ND | 12.9 |
| Benzo(a)pyrene | 500 | 8,000 | NC | 133 | 73.9 | 115 | 372 | ND | ND | 66.6 | 218 | ND | ND |
| Benzo(b)fluoranthene | 4,800 | 10,000 | NC | 65.8 | 49.2 | 135 | 157 | ND | ND | 59.1 | 187 | ND | 19.3 |
| Benzo(g,h,i)perylene | 41,000,000 | 32,000,000 | NC | 92.7 | 60.5 | 48.1 | 154 | ND | ND | 89.9 | 242 | 15.4 | 41.2 |
| Benzo(k)fluoranthene | 52,000 | 25,000 | NC | ND | ND | ND | 22.5 | ND | ND | 33.6 | 106 | ND | ND |
| Chrysene | 450,000 | 77,000 | NC | 33.5 | 44 | 61.3 | 127 | ND | ND | 49.1 | 166 | 14.6 | 14.4 |
| Dibenzo(a,h)anthracene | 500 | 30,000 | NC | ND | ND | ND | ND | ND | ND | 16 | 38.5 | ND | ND |
| Fluoranthene | 48,000,000 | 1,200,000 | NC | 126 | 136 | 188 | 387 | ND | ND | 133 | 319 | 18.4 | 30.6 |
| Fluorene | 28,000,000 | 160,000 | NC | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Indeno(1,2,3-cd)pyrene | 5,300 | 28,000 | NC | 81 | ND | ND | 141 | ND | ND | 61.1 | 178 | 13.9 | 53.1 |
| Naphthalene | 270,000 | 1,700 | NC | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Phenanthrene | 30,000,000 | 250,000 | NC | ND | ND | ND | 159 | ND | ND | ND | 152 | ND | ND |
| Pyrene | 37,000,000 | 880,000 | NC | 38.3 | 56.6 | 101 | 226 | ND | ND | 53.9 | 245 | 19.7 | 55.6 |
| **PESTICIDES / PCBs (ug/kg)** | | | | | | | | | | | | | |
| 4-, 4'-DDD | 18,000 | 4,000 | NC | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 4-, 4'-DDE | 13,000 | 18,000 | NC | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 4-, 4'-DDT | 13,000 | 11,000 | NC | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| **INORGANIC ANALYTES (mg/kg)** | | | | | | | | | | | | | |
| Chromium | NC | NC | 7.75 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Lead | 920 | NC | 197 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| **PETROLEUM HYDROCARBONS (mg/kg)** | | | | | | | | | | | | | |
| TRPH | 2,500 | 340 | NC | NA | NA | NA | NA | NA | NA | NA | NA | NA | ND |

**TABLE 5-1**

**SOIL ANALYTICAL RESULTS**
**PSC 46, FACILITIES 72 AND 177**
**NAVAL AIR STATION CECIL FIELD**
**JACKSONVILLE, FLORIDA**


| PARAMETER | FDEP SCTLs[1] | | Background | PHASE IV / DECEMBER 1999 CEF-P46- | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Industrial Direct Exposure | Leachability to Groundwater | Inorganic Background Data Set[2] | SU-304D 2-3 ft | SS-305 0-1 ft | SS-306 0-1 ft | SU-307 2-3 ft | SU-308 2-3 ft | SU-309 2-3 ft | SS-310 1-2 ft | SS-311 1-2 ft |
| **POLYNUCLEAR AROMATIC HYDROCARBONS (ug/kg)** | | | | | | | | | | | |
| 1-Methylnaphthalene | 470,000 | 2,200 | NC | ND | ND | 82.1 | ND | ND | ND | 132 | ND |
| 2-Methylnaphthalene | 560,000 | 6,100 | NC | ND | ND | ND | ND | ND | ND | ND | ND |
| Acenaphthene | 18,000,000 | 2,100 | NC | ND | ND | ND | ND | ND | ND | ND | ND |
| Acenaphthylene | 11,000,000 | 27,000 | NC | 280 | ND | ND | ND | ND | ND | ND | ND |
| Anthracene | 260,000,000 | 2,500,000 | NC | ND | ND | ND | ND | ND | ND | ND | ND |
| Benzo(a)anthracene | 5,000 | 3,200 | NC | ND | ND | 117 | ND | ND | ND | 220 | ND |
| Benzo(a)pyrene | 500 | 8,000 | NC | ND | ND | 142 | ND | ND | ND | 193 | ND |
| Benzo(b)fluoranthene | 4,800 | 10,000 | NC | ND | ND | 245 | ND | ND | ND | 330 | ND |
| Benzo(g,h,i)perylene | 41,000,000 | 32,000,000 | NC | 12.1 | ND | 366 | ND | ND | ND | 419 | 12.1 |
| Benzo(k)fluoranthene | 52,000 | 25,000 | NC | ND | ND | 145 | ND | ND | ND | 178 | ND |
| Chrysene | 450,000 | 77,000 | NC | ND | ND | ND | 14.3 | ND | 13.9 | 232 | ND |
| Dibenzo(a,h)anthracene | 500 | 30,000 | NC | ND | ND | ND | ND | ND | ND | 17.4 | ND |
| Fluoranthene | 48,000,000 | 1,200,000 | NC | ND | 13.6 | 230 | ND | ND | 11.3 | ND | ND |
| Fluorene | 28,000,000 | 160,000 | NC | ND | ND | ND | ND | ND | ND | 12.2 | ND |
| Indeno(1,2,3-cd)pyrene | 5,300 | 28,000 | NC | ND | ND | 329 | ND | ND | ND | 407 | ND |
| Naphthalene | 270,000 | 1,700 | NC | ND | ND | ND | ND | ND | ND | ND | ND |
| Phenanthrene | 30,000,000 | 250,000 | NC | ND | ND | ND | ND | ND | ND | 92 | ND |
| Pyrene | 37,000,000 | 880,000 | NC | ND | ND | 183 | ND | ND | ND | 353 | ND |
| **PESTICIDES / PCBs (ug/kg)** | | | | | | | | | | | |
| 4-, 4'-DDD | 18,000 | 4,000 | NC | NA | NA | NA | NA | NA | NA | NA | NA |
| 4-, 4'-DDE | 13,000 | 18,000 | NC | NA | NA | NA | NA | NA | NA | NA | NA |
| 4-, 4'-DDT | 13,000 | 11,000 | NC | NA | NA | NA | NA | NA | NA | NA | NA |
| **INORGANIC ANALYTES (mg/kg)** | | | | | | | | | | | |
| Chromium | NC | NC | 7.75 | NA | NA | NA | NA | NA | NA | NA | NA |
| Lead | 920 | NC | 197 | NA | NA | NA | NA | NA | NA | NA | NA |
| **PETROLEUM HYDROCARBONS (mg/kg)** | | | | | | | | | | | |
| TRPH | 2,500 | 340 | NC | ND | NA | NA | NA | NA | NA | NA | NA |

**TABLE 5-1**

**SOIL ANALYTICAL RESULTS**
**PSC 46, FACILITIES 72 AND 177**
**NAVAL AIR STATION CECIL FIELD**
**JACKSONVILLE, FLORIDA**


| PARAMETER | FDEP SCTLs[1] | | Background | PHASE V / JANUARY 2000 CEF-P46- | | | PHASE VI / MARCH 2000 CEF-P46- | | |
|---|---|---|---|---|---|---|---|---|---|
| | Industrial Direct Exposure | Leachability to Groundwater | Inorganic Background Data Set[2] | SS-401 0-1 ft | SS-402 0-1 ft | SS-402D 0-1 ft | SS-501 0-1 ft | SS-501D 0-1 ft | SS-502 0-1 ft |
| **POLYNUCLEAR AROMATIC HYDROCARBONS (ug/kg)** | | | | | | | | | |
| 1-Methylnaphthalene | 470,000 | 2,200 | NC | ND | ND | ND | ND | ND | ND |
| 2-Methylnaphthalene | 560,000 | 6,100 | NC | ND | 187 | 164 | ND | ND | ND |
| Acenaphthene | 18,000,000 | 2,100 | NC | ND | 71.9 | 84 | ND | ND | ND |
| Acenaphthylene | 11,000,000 | 27,000 | NC | ND | ND | ND | ND | ND | ND |
| Anthracene | 260,000,000 | 2,500,000 | NC | ND | ND | ND | ND | ND | ND |
| Benzo(a)anthracene | 5,000 | 3,200 | NC | 104 | 73.4 | 69.9 | 63.2 | 80 | 43.5 |
| Benzo(a)pyrene | 500 | 8,000 | NC | 93.8 | 54.6 | 38.4 | 175 | 256 | 169 |
| Benzo(b)fluoranthene | 4,800 | 10,000 | NC | 192 | 116 | 81.4 | 88 | 137 | 87 |
| Benzo(g,h,i)perylene | 41,000,000 | 32,000,000 | NC | 174 | 134 | 114 | 145 | 195 | 186 |
| Benzo(k)fluoranthene | 52,000 | 25,000 | NC | 82.8 | 64.3 | 52.5 | 52.5 | 85.9 | 54.7 |
| Chrysene | 450,000 | 77,000 | NC | 130 | 88.7 | 51.2 | 47 | 80.1 | 43.1 |
| Dibenzo(a,h)anthracene | 500 | 30,000 | NC | ND | ND | 15.3 | ND | ND | ND |
| Fluoranthene | 48,000,000 | 1,200,000 | NC | 360 | 236 | 207 | ND | ND | ND |
| Fluorene | 28,000,000 | 160,000 | NC | ND | ND | ND | ND | ND | ND |
| Indeno(1,2,3-cd)pyrene | 5,300 | 28,000 | NC | 166 | 101 | 66 | 127 | 191 | 147 |
| Naphthalene | 270,000 | 1,700 | NC | ND | ND | ND | ND | ND | ND |
| Phenanthrene | 30,000,000 | 250,000 | NC | 119 | ND | ND | ND | ND | ND |
| Pyrene | 37,000,000 | 880,000 | NC | 257 | 123 | 87.8 | ND | ND | ND |
| **PESTICIDES / PCBs (ug/kg)** | | | | | | | | | |
| 4-, 4'-DDD | 18,000 | 4,000 | NC | NA | NA | NA | NA | NA | NA |
| 4-, 4'-DDE | 13,000 | 18,000 | NC | NA | NA | NA | NA | NA | NA |
| 4-, 4'-DDT | 13,000 | 11,000 | NC | NA | NA | NA | NA | NA | NA |
| **INORGANIC ANALYTES (mg/kg)** | | | | | | | | | |
| Chromium | NC | NC | 7.75 | NA | NA | NA | NA | NA | NA |
| Lead | 920 | NC | 197 | NA | NA | NA | NA | NA | NA |
| **PETROLEUM HYDROCARBONS (mg/kg)** | | | | | | | | | |
| TRPH | 2,500 | 340 | NC | NA | NA | NA | NA | NA | NA |

1 - SCTLs = Soil Target Cleanup Levels, Florida Administrative Code (FAC) 62-777 (FDEP, 1999).
2 - NAS Cecil Field Inorganic Background Data Set (HLA, 1998).
NA - Not Analyzed.
NC - No Criterion.
ND - Not Detected. (All not detected parameters presented in this table have detection limits below FDEP SCTLs.)

**TABLE 5-2**

**SOIL ANALYTICAL RESULTS SUMMARY**
**PSC 46, FACILITIES 72 AND 177**
**NAVAL AIR STATION CECIL FIELD**
**JACKSONVILLE, FLORIDA**

| Parameter | Frequency of Detection | Range of Detections | Sample of Maximum Detection | Average of Positive Detections |
|---|---|---|---|---|
| **Volatile Organic Compounds (ug/kg)** | | | | |
| 2-Butanone | 1/25 | 2 | 35S00501 | 2 |
| Acetone | 2/13 | 14 - 26.2 | CEF-36-SB-B003-1 | 20.1 |
| Benzene | 2/25 | 4.2 - 2460 | CEF-36-SB-B01A-2 | 1232.1 |
| Ethylbenzene | 2/25 | 38.2 - 101,000 | CEF-36-SB-B01A-2 | 50519.1 |
| Tetrachloroethene | 1/25 | 6 | 35S00801 | 6 |
| Toluene | 2/25 | 2.3 - 186,000 | CEF-36-SB-B01A-2 | 93001.15 |
| Xylenes, Total | 2/25 | 91 - 552,000 | CEF-36-SB-B01A-2 | 276045.5 |
| **Semivolatile Organic Compounds (ug/kg)** | | | | |
| Bis(2-Ethylhexyl)phthalate | 8/17 | 22 - 360 | 35S00101 | 121.75 |
| Carbazole | 3/17 | 37 - 550 | 35S00401 | 162.333 |
| Di-n-butyl phthalate | 5/17 | 35 - 68 | 35S00501 | 52.8 |
| Dibenzofuran | 1/17 | 24 - 160 | 35S00401 | 92 |
| Phenol | 1/17 | 19 | 35S00401 | 19 |
| **Polynuclear Aromatic Hydrocarbons (ug/kg)** | | | | |
| 1-Methylnaphthalene | 6/78 | 82.1 - 39,350 | CEF-P36-SB-B01A | 6609.683 |
| 2-Methylnaphthalene | 38/90 | 40 - 71,200 | CEF-P36-SB-B01A | 2107.328 |
| Acenaphthene | 45/90 | 34 - 2000 | CEF-P46-SS-110-02 | 393.847 |
| Acenaphthylene | 7/90 | 27 - 3080 | CEF-P46-SS-112-02 | 765.707 |
| Anthracene | 25/90 | 7.8 - 740 | 35S00401 | 74.796 |
| Benzo(a)anthracene | 68/90 | 11.0 - 1600 | 35S00401 | 167.84 |
| Benzo(a)pyrene | 74/95 | 16.0 - 2640 | CEF-P46-SS-112-02 | 354.742 |
| Benzo(b)fluoranthene | 71/90 | 16.4 - 2780 | CEF-P46-SS-112-02 | 393.398 |
| Benzo(g,h,i)perylene | 75/90 | 11.0 - 6170 | CEF-P46-SS-112-02 | 437.379 |
| Benzo(k)fluoranthene | 62/90 | 11.0 - 860 | 35S00401 | 156.201 |
| Chrysene | 67/90 | 13.9 - 1600 | 35S00401 | 216.628 |
| Dibenzo(a,h)anthracene | 42/90 | 9.5 - 1880 | CEF-P36-SB-B001-1 | 92 |
| Fluoranthene | 74/90 | 11.3 - 3000 | 35S00401 | 354.787 |
| Fluorene | 20/90 | 7.7 - 311 | CEF-P46-SS-012-01 | 70.72 |
| Indeno(1,2,3-cd)pyrene | 63/90 | 12.0 - 3060 | CEF-P46-SS-112-02 | 381.664 |
| Naphthalene | 2/90 | 66 - 35,700 | CEF-36-SB-B01A-2 | 17883 |
| Phenanthrene | 43/90 | 5.8 - 7420 | CEF-P36-SB-B01A | 414.52 |
| Pyrene | 74/90 | 11.6 - 2100 | 35S00401 | 307.316 |
| **Pesticides/PCBs (ug/kg)** | | | | |
| 4,4'-DDD | 4/16 | 3.0 - 5.7 | CEF-P46-SS-123-02 | 4.313 |
| 4,4'-DDE | 9/16 | 0.20 - 180 | 35S00401 | 35.356 |
| 4,4'-DDT | 9/16 | 1.1 - 190 | 35S00401 | 44.089 |
| Aldrin | 5/16 | 0.30 - 0.50 | 35S00301 | 0.402 |
| Alpha-chlordane | 2/16 | 9.2 - 69 | CEF-36-SB-B01A-1 | 39.1 |
| Aroclor-1260 | 1/13 | 500 | 35S00301 | 500 |
| Dieldrin | 2/16 | 0.10 - 0.20 | 35S00701 | 0.145 |
| Endrin | 1/16 | 1.2 | 35S00801 | 1.2 |
| Gamma-chlordane | 2/16 | 9.1 - 83 | CEF-36-SB-B01A-1 | 46.05 |
| Heptachlor epoxide | 1/16 | 0.30 | 35S00801 | 0.26 |
| **Inorganics (mg/kg)** | | | | |
| Aluminum | 13/13 | 2310 - 14,100 | CEF-P36-SB-B01A | 4135.3846 |
| Arsenic | 4/21 | 0.59 - 1.3 | 33S00101 | 0.8444 |
| Barium | 13/13 | 3.3 - 88.5 | 35S00201 | 25.0846 |
| Cadmium | 6/13 | 0.52 - 0.71 | CEF-P36-SB-B001-1 | 0.6433 |
| Calcium | 13/13 | 2440 - 295000 | 33S00101 | 46403.8462 |
| Chromium | 16/16 | 1.9 - 31.4 | CEF-36-SB-B01A-2 | 8.4938 |
| Cobalt | 9/13 | 0.21 - 1.5 | 35S00401 | 0.5367 |
| Copper | 13/13 | 0.25 - 7.5 | CEF-36-SB-B01A-2 | 3.4631 |
| Cyanide | 1/13 | 0.48 | 35S00101 | 0.48 |
| Iron | 13/13 | 225 - 2210 | 35S00401 | 828.8462 |
| Lead | 16/16 | 2.7 - 155 | CEF-P46-SS-019-01 | 29.8844 |
| Magnesium | 13/13 | 87.1 - 1850 | 33S00101 | 499.3923 |
| Manganese | 13/13 | 2.1 - 130 | CEF-P36-SB-B001-1 | 26.2115 |
| Mercury | 1/13 | 0.06 - 0.07 | CEF-P36-SB-B01A | 0.06 |
| Nickel | 12/13 | 0.93 - 10.8 | CEF-36-SB-B01A-2 | 2.7067 |
| Potassium | 13/13 | 22.6 - 414 | 35S00401 | 135.7769 |
| Selenium | 1/13 | 0.46 | CEF-P36-SB-B001-1 | 0.46 |
| Silver | 1/13 | 0.48 | 35S00301 | 0.48 |
| Sodium | 12/13 | 144 - 501 | CEF-P36-SB-B001-2 | 250.8333 |
| Vanadium | 13/13 | 1.5 - 11.2 | 33S00101 | 4.6423 |
| Zinc | 13/13 | 2 - 252 | CEF-P36-SB-B001-2 | 43.7038 |
| **Miscellaneous Parameters (mg/kg)** | | | | |
| TOC | 2/2 | 13100 - 24000 | CEF-P36-SB-B002-P | 18550 |
| **Petroleum Hydrocarbons (mg/kg)** | | | | |
| TPH | 22/27 | 13.5 - 7900 | CEF-36-SB-B01A-2 | 599.6045 |

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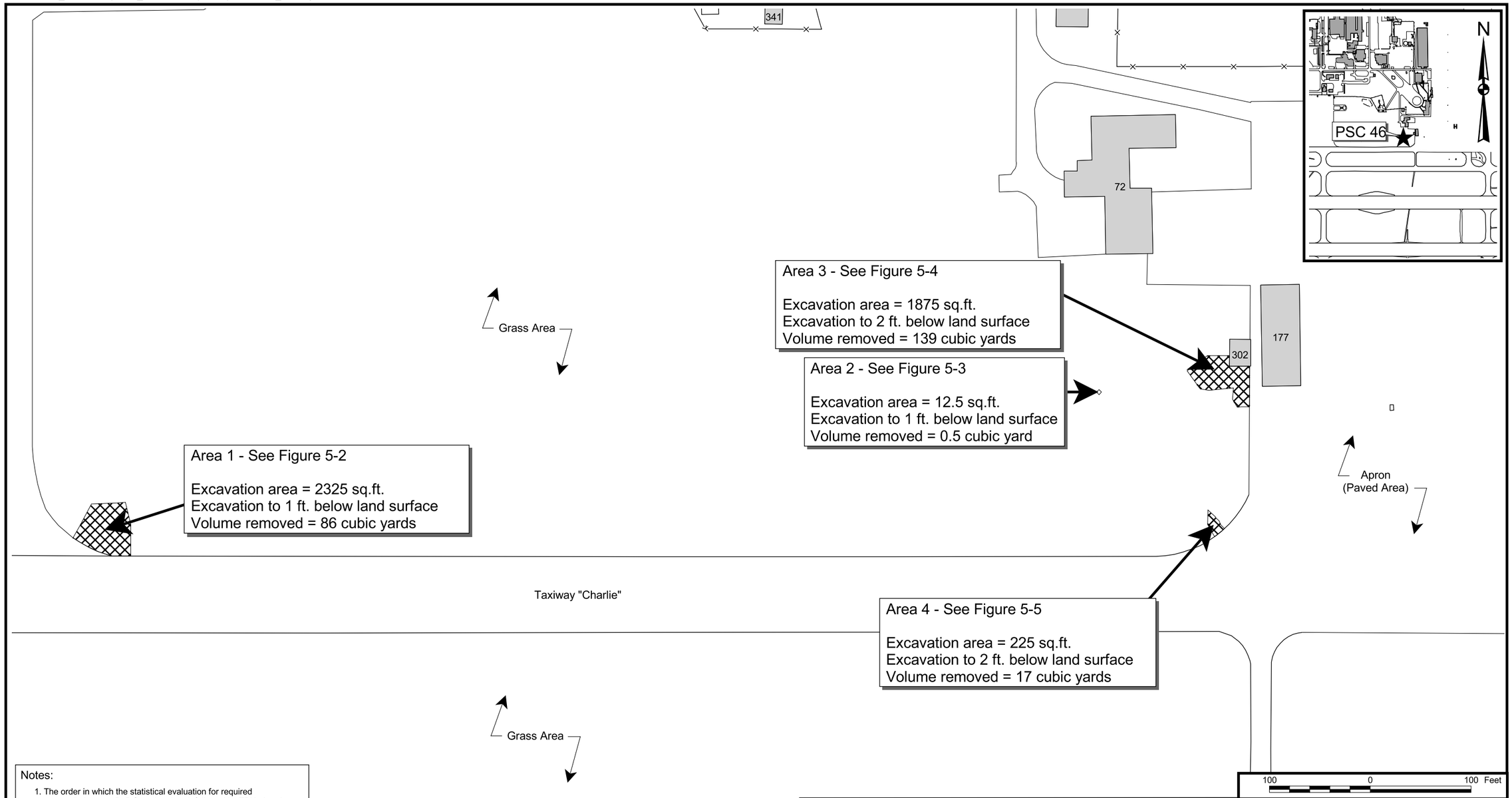



Notes:

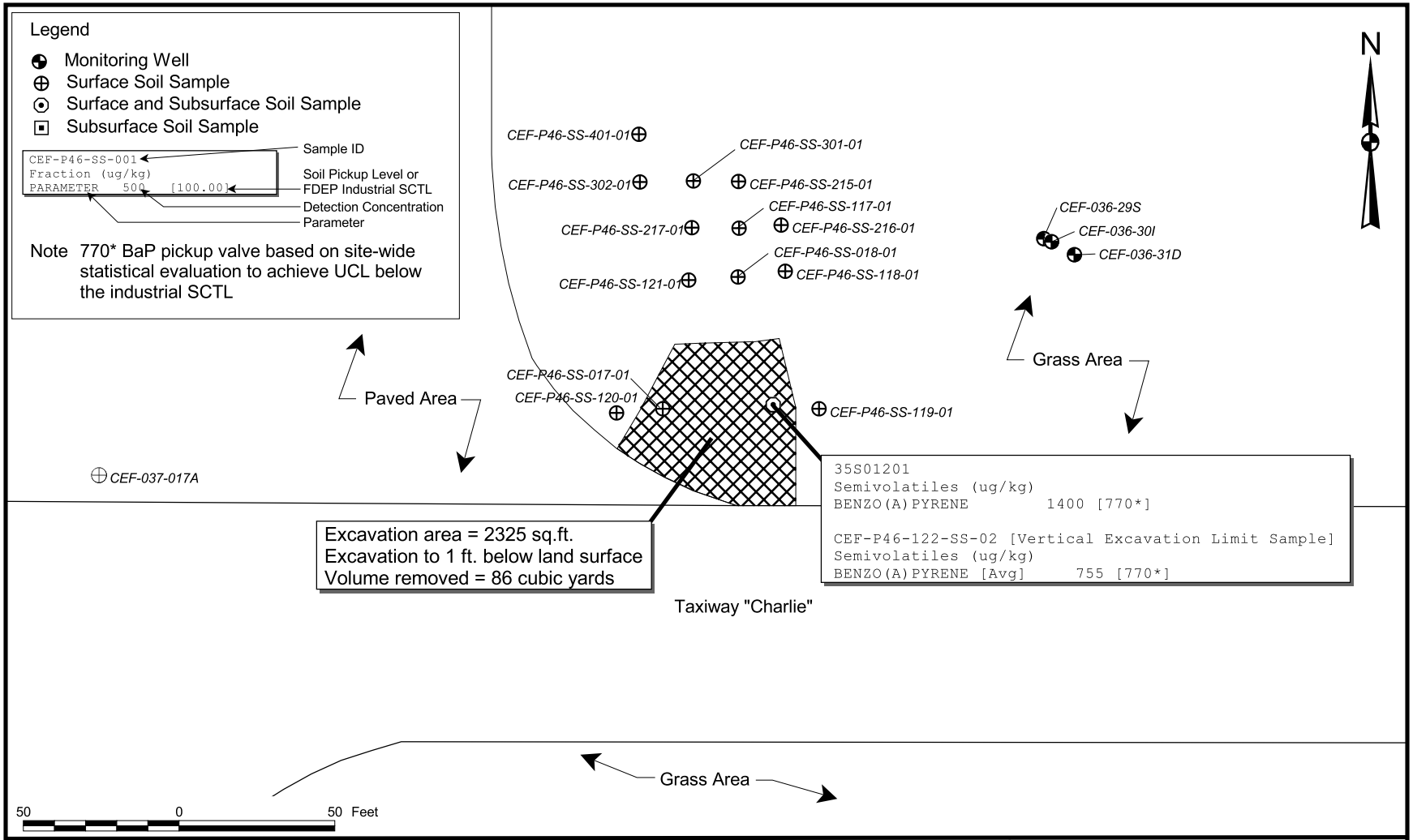
1. The order in which the statistical evaluation for required rememdiation was BaP first, then Lead, followed by TPH. Lead and TPH did not exceed Industrial criteria.

Legend

Buildings

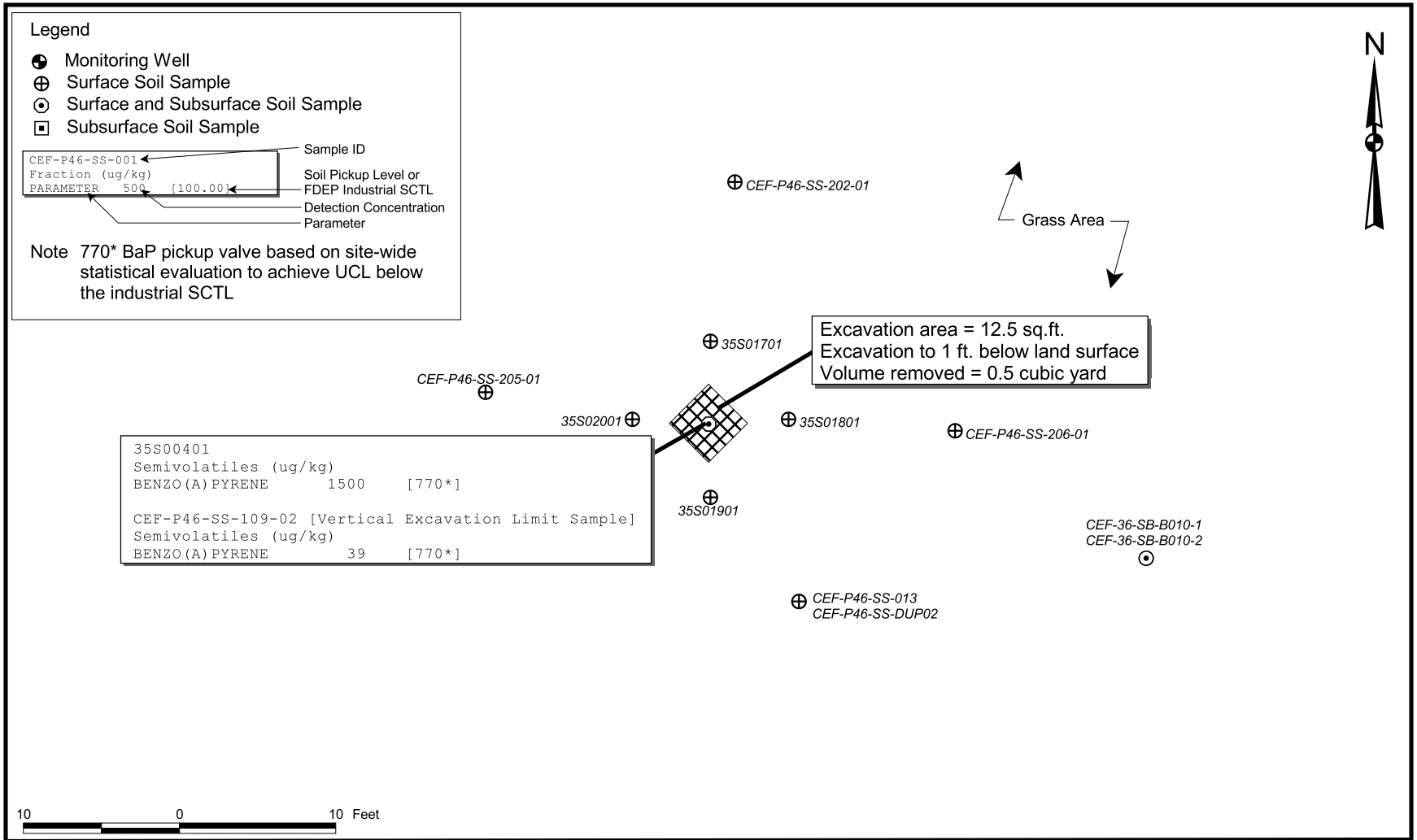
Excavation Area

| | | | |
|---|---|---|---|
| DRAWN BY MJJ | DATE 02Apr00 | LIMITS OF SOIL EXCAVATION<br>PSC 46, BUILDINGS 72 AND 177<br>TECHNICAL MEMORANDUM<br>NAVAL AIR STATION CECIL FIELD<br>JACKSONVILLE, FLORIDA | CONTRACT NO. 0039 |
| CHECKED BY | DATE | | APPROVED BY / DATE |
| COST/SCHED-AREA | | | APPROVED BY / DATE |
| SCALE AS NOTED | | | DRAWING NO. FIGURE 5-1 / REV. 0 |



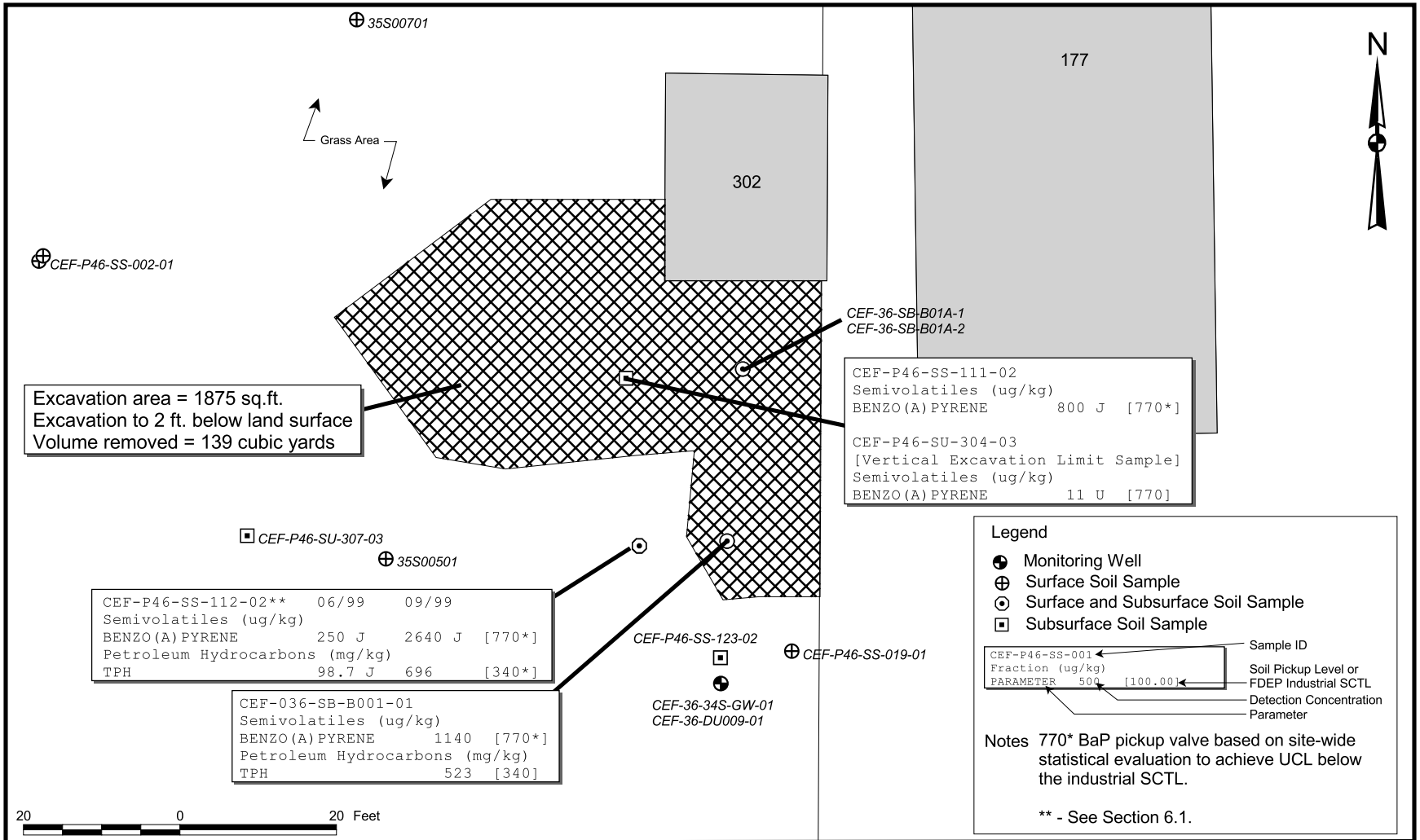

| | | | |
|---|---|---|---|
| DRAWN BY: MJJ | DATE: 02Apr00 | CONTAMINANTS GREATER THAN CLEANUP CONCENTRATIONS AND LIMITS OF SOIL EXCAVATION AREA No. 1<br>PSC 46, BUILDINGS 72 AND 177<br>TECHNICAL MEMORANDUM<br>NAVAL AIR STATION CECIL FIELD<br>JACKSONVILLE, FLORIDA | CONTRACT NUMBER: 0039 |
| CHECKED BY | DATE | | APPROVED BY / DATE |
| COST/SCHEDULE-AREA | | | APPROVED BY / DATE |
| SCALE: AS NOTED | | | DRAWING NO.: FIGURE 5-2 / REV: 0 |

P:\GIS\NAS_CecilField\psc46_techmemo.apr 29Apr01 MJJ 5_5-2 Layout



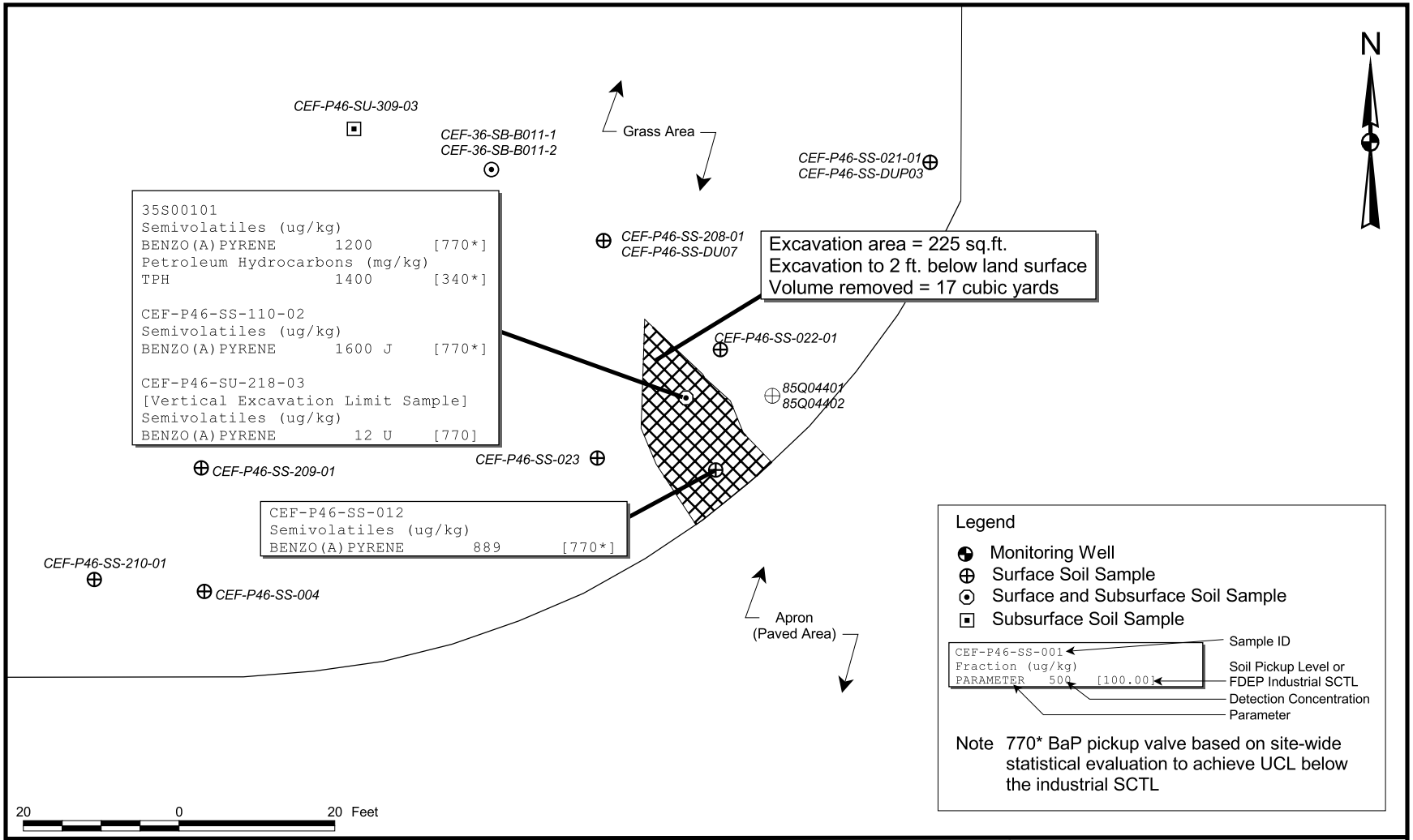

| | | | |
|---|---|---|---|
| DRAWN BY MJJ | DATE 02Apr00 | CONTAMINANTS GREATER THAN CLEANUP CONCENTRATIONS AND LIMITS OF SOIL EXCAVATION AREA No. 2 PSC 46, BUILDINGS 72 AND 177 TECHNICAL MEMORANDUM NAVAL AIR STATION CECIL FIELD JACKSONVILLE, FLORIDA | CONTRACT NUMBER 0039 |
| CHECKED BY | DATE | | APPROVED BY DATE |
| COST/SCHEDULE-AREA | | | APPROVED BY DATE |
| SCALE AS NOTED | | | DRAWING NO. FIGURE 5-3 / REV 0 |

P:\GIS\NAS_CecilField\psc46_techmemo.apr 29Apr01 MJJ 5_5-3 Layout




| | | | |
|---|---|---|---|
| DRAWN BY MJJ | DATE 02Apr00 | CONTAMINANTS GREATER THAN CLEANUP CONCENTRATIONS AND LIMITS OF SOIL EXCAVATION AREA No. 3 PSC 46, BUILDINGS 72 AND 177 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 5-4 REV 0 |

P:\GIS\NAS_CecilField\psc46_techmemo.apr 31Aug01 MJJ 5_5-4 Layout




| | | | |
|---|---|---|---|
| DRAWN BY MJJ | DATE 02Apr00 | CONTAMINANTS GREATER THAN CLEANUP CONCENTRATIONS AND LIMITS OF SOIL EXCAVATION AREA No. 4 PSC 46, BUILDINGS 72 AND 177 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 5-5 REV 0 |

P:\GIS\NAS_CecilField\psc46_techmemo.apr 29Apr01 MJJ 5_5-5 Layout

# 6.0 RISK EVALUATION / DETERMINATION OF CLEANUP CONCENTRATION

## 6.1 HUMAN HEALTH RISKS

The results of the sampling at PSC 46 identified BaP contamination in excess of the FDEP industrial SCTL of 500 µg/kg. The BCT reviewed the analytical results, and a decision was made to delineate the extent of contaminated surface soil. A statistical evaluation was conducted to determine the areas requiring removal to achieve a site-wide UCL that was below the industrial SCTL.

A statistically based approach was used to determine how much excavation would be required. It was determined that not all samples with BaP concentrations greater than the FDEP industrial SCTL of 500 µg/kg would need to be removed. The exceedance of a criterion by an individual sample does not necessarily indicate a significant exceedance of a target risk level. Exposure to the BaP 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 a post-excavation exposure concentration that would be less than the industrial SCTL for BaP.

The exposure concentration is represented best by the 95% UCL of the mean. Using an iterative statistical process, the concentration above which soil must be removed to achieve a UCL less than or equal to the Florida industrial SCTL (pickup level) is determined. The UCL was calculated in accordance with U.S EPA's Supplemental Guidance to RAGS: Calculating the Concentration Term (U.S. EPA, 1992) by using the H-statistic (Gilbert, 1987). The H-statistic was used because it is assumed that the BaP data approximate a lognormal distribution.

In theory, the sampling locations with the highest BaP concentrations would be excavated and replaced with clean fill. The excavated sample points were assumed to be replaced with clean fill having a hypothetical BaP concentration of 5 µg/kg, a value equal to one-half the method detection limit of 10 µg/kg. The data set was evaluated in a stepwise manner by replacing the highest concentration with the clean fill concentration, then recalculating the UCL. When the UCL was less than the Florida SCTL, the calculations were stopped. This iterative process indicated that soil with BaP concentrations greater than 770 µg/kg would require removal to achieve a UCL less than 500 µg/kg (Table 6-1).

Because BaP was detected at concentrations greater than its industrial SCTL, the BCT agreed that carcinogenic PAHs (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 factor (TEF) (U.S. EPA, 1995). If a specific CPAH

**TABLE 6-1**

**STATISTICAL ANALYSIS TO ATTAIN INDUSTRIAL SCTL**
**PSC 46-BUILDINGS 72 AND 177**
**NAVAL AIR STATION CECIL FIELD**
**JACKSONVILLE, FLORIDA**


| | BENZO(A)PYRENE | | |
|---|---|---|---|
| | data | normal | lognormal |
| **CEF-P46-SS-112-02** | 2640 | **5** | 1.60943791 |
| **CEF-P46-SS-110-02** | 1600 | **5** | 1.60943791 |
| **35S00401 D-MAX** | 1500 | **5** | 1.60943791 |
| **35S01201** | 1400 | **5** | 1.60943791 |
| **CEF-P46-SS-122-02-D-MAX** | 1200 | **5** | 1.60943791 |
| **35S00101** | 1200 | **5** | 1.60943791 |
| **CEF-36-SB-B001-1 01/11/99** | 1140 | **5** | 1.60943791 |
| **CEF-P46-SS-012** | 889 | **5** | 1.60943791 |
| **CEF-P46-SS-111-02** | 800 | **5** | 1.60943791 |
| CEF-P46-SS-105-01 | 770 | 770 | 6.64639051 |
| CEF-P46-SS-004 | 739 | 739 | 6.60529792 |
| CEF-P46-SS-008 | 658 | 658 | 6.48920493 |
| CEF-P46-SS-103-01-D-MAX | 580 | 580 | 6.3630281 |
| CEF-P46-SS-211-01 | 579 | 579 | 6.36130248 |
| CEF-P46-SS-104-01 | 520 | 520 | 6.25382881 |
| CEF-P46-SS-007 | 495 | 495 | 6.20455776 |
| CEF-P46-SS-123-02 | 477 | 477 | 6.16751649 |
| CEF-P46-SS-009 | 417 | 417 | 6.03308622 |
| CEF-P46-SS-121-01 | 380 | 380 | 5.94017125 |
| CEF-P46-SS-217-01 | 372 | 372 | 5.91889385 |
| CEF-P46-SS-120-01 | 370 | 370 | 5.91350301 |
| CEF-P46-SS-207-01 | 365 | 365 | 5.89989735 |
| CEF-P46-SS-114-01 | 320 | 320 | 5.768321 |
| CEF-P46-SS-013-D-MAX | 316 | 316 | 5.75574221 |
| CEF-P46-SS-210-01 | 284 | 284 | 5.64897424 |
| CEF-P46-SS-003-D-MAX | 252 | 252 | 5.52942909 |
| 35S00901 | 240 | 240 | 5.48063892 |
| CEF-P46-SS-117-01 | 220 | 220 | 5.39362755 |
| CEF-P46-SS-302-01 | 218 | 218 | 5.38449506 |
| 35S00201 | 210 | 210 | 5.34710753 |
| CEF-P46-SS-111-02 | 200 | 200 | 5.29831737 |
| 35S00701 | 200 | 200 | 5.29831737 |
| CEF-P46-SS-102-01 | 200 | 200 | 5.29831737 |
| CEF-P46-SS-310-02 | 193 | 193 | 5.26269019 |
| CEF-P46-SS-107-01 | 190 | 190 | 5.24702407 |
| CEF-P46-SS-014 | 186 | 186 | 5.22574667 |
| CEF-P46-SS-201-01 | 182 | 182 | 5.20400669 |
| 35S00601 | 180 | 180 | 5.19295685 |
| CEF-P46-SS-006 | 178 | 178 | 5.18178355 |
| 35S00501 | 175 | 175 | 5.16478597 |
| 35S01101 | 175 | 175 | 5.16478597 |
| CEF-P46-SS-115-01 | 170 | 170 | 5.13579844 |
| CEF-P46-SS-123-02 | 170 | 170 | 5.13579844 |
| CEF-P46-SS-206-01 | 167 | 167 | 5.11799381 |
| CEF-P46-SS-106-01 | 160 | 160 | 5.07517382 |
| CEF-P46-SS-213-01 | 151 | 151 | 5.01727984 |
| CEF-P46-SS-113-01 | 150 | 150 | 5.01063529 |
| CEF-P46-SS-018 | 148 | 148 | 4.99721227 |
| CEF-P46-SS-306-01 | 142 | 142 | 4.95582706 |
| CEF-P46-SS-017 | 140 | 140 | 4.94164242 |
| CEF-P46-SS-119-01 | 140 | 140 | 4.94164242 |

**TABLE 6-1**

**STATISTICAL ANALYSIS TO ATTAIN INDUSTRIAL SCTL**
**PSC 46-BUILDINGS 72 AND 177**
**NAVAL AIR STATION CECIL FIELD**
**JACKSONVILLE, FLORIDA**


| | BENZO(A)PYRENE | | |
|---|---|---|---|
| | data | normal | lognormal |
| CEF-P46-SS-005 | 133 | 133 | 4.89034913 |
| CEF-P46-SS-214-01 | 133 | 133 | 4.89034913 |
| CEF-P46-SS-116-02 | 120 | 120 | 4.78749174 |
| CEF-P46-SS-216-01 | 115 | 115 | 4.74493213 |
| CEF-P46-SS-401-01 | 93.8 | 93.8 | 4.54116486 |
| CEF-P46-SS-205-01 | 89.8 | 89.8 | 4.49758498 |
| CEF-P46-SS-011 | 88.9 | 88.9 | 4.48751214 |
| CEF-P46-SS-016 | 85.7 | 85.7 | 4.45085283 |
| 35S00801 | 85 | 85 | 4.44265126 |
| CEF-P46-SS-203-01 | 77.4 | 77.4 | 4.34898678 |
| CEF-P46-SS-112-02-D-MAX | 75 | 75 | 4.31748811 |
| CEF-P46-SS-215-01 | 73.9 | 73.9 | 4.30271283 |
| CEF-P46-SS-118-01 | 73 | 73 | 4.29045944 |
| CEF-P46-SS-301-01 | 66.6 | 66.6 | 4.19870458 |
| 35S01001 | 62 | 62 | 4.12713439 |
| CEF-P46-SS-010 | 51.3 | 51.3 | 3.93769075 |
| CEF-36-SB-B01A-1 | 44 | 44 | 3.78418963 |
| CEF-P46-SS-015 | 41.4 | 41.4 | 3.72328088 |
| CEF-P46-SS-002 | 40 | 40 | 3.68887945 |
| CEF-P46-SS-109-02 | 39 | 39 | 3.66356165 |
| CEF-P46-SS-402-01-D-MAX | 38.4 | 38.4 | 3.64805746 |
| CEF-P46-SS-001 | 37.5 | 37.5 | 3.62434093 |
| 35S00301 | 37 | 37 | 3.61091791 |
| CEF-P46-SS-208-01-MAX | 22.8 | 22.8 | 3.12676054 |
| 33S00101 | 18 | 18 | 2.89037176 |
| CEF-P46-SS-101-01 | 18 | 18 | 2.89037176 |
| CEF-P46-SS-108-01 | 16 | 16 | 2.77258872 |
| CEF-P46-SS-204-01 | 6 | 6 | 1.79175947 |
| CEF-P46-SS-202-01 | 5.5 | 5.5 | 1.70474809 |
| CEF-P46-SS-303-02 | 5.5 | 5.5 | 1.70474809 |
| CEF-P46-SS-311-02 | 5.5 | 5.5 | 1.70474809 |
| CEF-P46-SS-209-01 | 5.5 | 5.5 | 1.70474809 |
| CEF-P46-SS-212-01 | 5.5 | 5.5 | 1.70474809 |
| CEF-P46-SS-305-01 | 5.5 | 5.5 | 1.70474809 |
| CEF-P46-SS-021-D-MAX | | | |
| CEF-P46-SS-019 | | | |
| CEF-P46-SS-020 | | | |
| | Average | | 4.33 |
| | STD | | 1.54 |
| | Count | | 85 |
| | t/H | | 2.885 |
| | UCL | | **405.4** |

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.

The soil samples with BaP concentrations in excess of 770 µg/kg 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 North Fuel Farm (NFF) at Cecil Field. The BaP and BaPEq concentrations in the NFF clean fill are 11 µg/kg and 147 µg/kg, respectively. Replacement of excavated samples with these concentrations resulted in post-remediation concentrations of 181 µg/kg for BaP and 391 µg/kg for BaPEq (Table 6-2). Therefore, a human health preliminary risk evaluation (PRE) is not required.

When initially collected in 1999, sample CEF-P46-SS-112-02 had a BaP concentration of 75 µg/kg. During a subsequent phase of the investigation, another soil sample was collected from the same approximate location. The intent was to analyze the soil sample for constituents other than PAHs; however, the sample was analyzed for PAHs again and had a BaP concentration of 2,640 µg/kg.

Since the time that the pick-up level of 770 µg/kg for PSC 46 was developed, the statistical approach for deriving pick-up levels and the technical approach for addressing PAH contamination changed. The calculation of the 95 percent UCL, the value used to represent the exposure concentration and determine attainment of the SCTL, is conducted using the more sophisticated “bootstrap-t” procedure rather than using the H-statistic. Regarding the assessment of CPAHs, all CPAHs are evaluated in terms of BaPEq rather than evaluating each CPAH individually.

The site was remediated using a pick-up level of 770 µg/kg for BaP. When the remediation was conducted, the database showed that sample CEF-P46-SS-112-02 had a concentration of 75 µg/kg for BaP, the concentration initially reported. Because this value is less than 770 µg/kg, it was not removed. Knowing that the subsequent investigation reported a concentration of 2,640 µg/kg, the post-remediation 95 percent UCL concentration was calculated using the “bootstrap-t” procedure and this revised value. The post-remediation UCL concentrations for BaP and BaPEq were 181 and 391 µg/kg, respectively. Both values are less than the target SCTL of 500 µg/kg. Under pre-remediation conditions, the BaP and BaPEq 95 percent UCL concentrations were 301 and 542 µg/kg, respectively. The exceedance of the target SCTL for BaPEq warranted remediation. With sample CEF-P46-SS-112-02 still in place with a BaP concentration of 2,640 µg/kg, the SCTL is attained and no further remediation would be warranted. Therefore, as stated above, a human health PRE is not required.

## 6.2 ECOLOGICAL RISKS

PSC 46 is located in a highly developed portion of NAS Cecil Field. Parking lots, paved streets, and other buildings are located north and east of the site. An aircraft taxiway and runway are located immediately

**TABLE 6-2**

**POST-REMEDIATION CONCENTRATIONS**
**PSC 46-BUILDINGS 72 AND 177**
**NAVAL AIR STATION CECIL FIELD**
**JACKSONVILLE, FLORIDA**
**POST REMEDIATION**


| **nsample** | BaP (Post) | BaPEq (Post) |
|---|---|---|
| **MIN** | 5.5000 | 5.5000 |
| **MAX** | 2,640.00 | 10,089.00 |
| **MEAN** | 174.40 | 368.40 |
| **t 0.95, n-1** | 0.219989297 | 0.190718821 |
| **STANDARD DEVIATION** | 308.54 | 1,097.81 |
| **COEFFICIENT OF VARIATION** | 1.77 | 2.98 |
| **n** | 91 | 87 |
| **UCL $_{0.95}$** | 181.51 | 390.85 |
| ***Goal*** | **500.00** | **500.00** |
| ***remediation level*** | **11** | **147** |
| 33S00101 | 18 | 237 |
| **35S00101** | **11** | **147** |
| 35S00201 | 210 | 326 |
| 35S00301 | 37 | 228 |
| **35S00401** | **11** | **147** |
| 35S00501 | 175 | 175 |
| 35S00601 | 180 | 271 |
| 35S00701 | 200 | 309 |
| 35S00801 | 85 | 130 |
| 35S00901 | 240 | |
| 35S01001 | 62 | |
| 35S01101 | 175 | |
| **35S01201** | **11** | |
| **CEF-36-SB-B001-1** | **11** | **147** |
| CEF-36-SB-B001-2 | 178 | 266 |
| CEF-36-SB-B006-1 | 50 | 50 |
| CEF-36-SB-B01A-1 | 44 | 44 |
| **CEF-35-SB-B01A-2** | **11** | **147** |
| CEF-P46-SS-001 | 37.5 | 37.5 |
| CEF-P46-SS-002 | 40 | 40 |
| CEF-P46-SS-003 | 64.1 | 246 |
| CEF-P46-SS-004 | 392 | 1015 |
| CEF-P46-SS-005 | 92.6 | 198 |
| CEF-P46-SS-006 | 107 | 259 |
| CEF-P46-SS-007 | 231 | 889 |
| CEF-P46-SS-008 | 403 | 1086 |
| CEF-P46-SS-009 | 387 | 707 |
| CEF-P46-SS-010 | 34.3 | 71.9 |
| CEF-P46-SS-011 | 7.5 | 194 |
| **CEF-P46-SS-012** | **11** | **147** |
| CEF-P46-SS-013 | 316 | 264 |
| CEF-P46-SS-014 | 186 | 337 |
| CEF-P46-SS-015 | 41.4 | 66.5 |
| CEF-P46-SS-016 | 85.7 | 159 |
| **CEF-P46-SS-017** | **11** | **147** |
| CEF-P46-SS-018 | 148 | 278 |
| CEF-P46-SS-021 | | |
| CEF-P46-SS-022 | | |
| CEF-P46-SS-023 | | |
| CEF-P46-SS-101 | 18 | 30.6 |

**TABLE 6-2**

**POST-REMEDIATION CONCENTRATIONS**
**PSC 46-BUILDINGS 72 AND 177**
**NAVAL AIR STATION CECIL FIELD**
**JACKSONVILLE, FLORIDA**
**POST REMEDIATION**


| **nsample** | BaP (Post) | BaPEq (Post) |
|---|---|---|
| **MIN** | 5.5000 | 5.5000 |
| **MAX** | 2,640.00 | 10,089.00 |
| **MEAN** | 174.40 | 368.40 |
| **t 0.95, n-1** | 0.219989297 | 0.190718821 |
| **STANDARD DEVIATION** | 308.54 | 1,097.81 |
| **COEFFICIENT OF VARIATION** | 1.77 | 2.98 |
| **n** | 91 | 87 |
| **UCL $_{0.95}$** | 181.51 | 390.85 |
| ***Goal*** | **500.00** | **500.00** |
| ***remediation level*** | **11** | **147** |
| CEF-P46-SS-102 | 200 | 270 |
| CEF-P46-SS-103 | 370 | 214 |
| CEF-P46-SS-104 | 520 | 773 |
| CEF-P46-SS-105 | 770 | 1078 |
| CEF-P46-SS-106 | 160 | 203 |
| CEF-P46-SS-107 | 190 | 275 |
| CEF-P46-SS-108 | 16 | 25.1 |
| CEF-P46-SS-109-02 | 39 | 54.7 |
| **CEF-P46-SS-110-02** | **11** | **147** |
| **CEF-P46-SS-111-02** | **11** | **147** |
| CEF-P46-SS-112-02 | 2640 | 10089 |
| CEF-P46-SS-113 | 150 | 223 |
| CEF-P46-SS-114 | 320 | 471 |
| CEF-P46-SS-115 | 170 | 250 |
| CEF-P46-SS-116 | 120 | 168 |
| CEF-P46-SS-117 | 220 | 322 |
| CEF-P46-SS-118 | 73 | 120 |
| CEF-P46-SS-119 | 140 | 196 |
| CEF-P46-SS-120 | 370 | 522 |
| CEF-P46-SS-121 | 380 | 557 |
| CEF-P46-SS-122-02 | 755 | 1069 |
| CEF-P46-SS-123-02 | 477 | 1859 |
| CEF-P46-SS-201 | 182 | 200 |
| CEF-P46-SS-202 | 5.5 | 13.9 |
| CEF-P46-SS-203 | 77.4 | 88.2 |
| CEF-P46-SS-204 | 6 | 6 |
| CEF-P46-SS-205 | 89.8 | 101 |
| CEF-P46-SS-206 | 167 | 192 |
| CEF-P46-SS-207 | 365 | 413 |
| CEF-P46-SS-208 | 22.8 | 23 |
| CEF-P46-SS-209 | 5.5 | 15.3 |
| CEF-P46-SS-210 | 284 | 323 |
| CEF-P46-SS-211 | 579 | 622 |
| CEF-P46-SS-212 | 5.5 | 12.7 |
| CEF-P46-SS-213 | 151 | 169 |
| CEF-P46-SS-214 | 133 | 157 |
| CEF-P46-SS-215 | 73.9 | 89.4 |
| CEF-P46-SS-216 | 115 | 141 |
| CEF-P46-SS-217 | 372 | 422 |
| CEF-P46-SS-301 | 66.6 | 98.3 |

**TABLE 6-2**

**POST-REMEDIATION CONCENTRATIONS**
**PSC 46-BUILDINGS 72 AND 177**
**NAVAL AIR STATION CECIL FIELD**
**JACKSONVILLE, FLORIDA**
**POST REMEDIATION**


| | | |
|---|---|---|
| **nsample** | BaP (Post) | BaPEq (Post) |
| **MIN** | 5.5000 | 5.5000 |
| **MAX** | 2,640.00 | 10,089.00 |
| **MEAN** | 174.40 | 368.40 |
| **t 0.95, n-1** | 0.219989297 | 0.190718821 |
| **STANDARD DEVIATION** | 308.54 | 1,097.81 |
| **COEFFICIENT OF VARIATION** | 1.77 | 2.98 |
| **n** | 91 | 87 |
| **UCL $_{0.95}$** | 181.51 | 390.85 |
| ***Goal*** | **500.00** | **500.00** |
| ***remediation level*** | **11** | **147** |
| CEF-P46-SS-302 | 218 | 309 |
| CEF-P46-SS-303-02 | 5.5 | 13.6 |
| CEF-P46-SS-305 | 5.5 | 5.5 |
| CEF-P46-SS-306 | 142 | 218 |
| CEF-P46-SS-310-02 | 193 | 291 |
| CEF-P46-SS-311-02 | 5.5 | 5.5 |
| CEF-P46-SS-401 | 93.8 | 146 |
| CEF-P46-SS-402 | 47.4 | 83.4 |
| CEF-P45-SU-218-03 | 6 | 6 |
| CEF-P45-SU-219-03 | 6 | 6 |
| CEF-P45-SU-304-03 | 5.5 | 19.6 |
| CEF-P45-SU-307-03 | 5.5 | 12.7 |
| CEF-P45-SU-308-03 | 6 | 6 |
| CEF-P45-SU-309-03 | 5.5 | 12.7 |

Bold indicates samples that have been removed
UCL calculated using bootstrap-t procedure (EPA 1997)

south of the site, and various buildings and equipment are located west of the site. Ecological habitat consists of a large grassy area adjacent to the taxiway. The grass is frequently mowed, resulting in what is essentially a habitat of turf grass. The grassy area is utilized by receptors typically found in urban and industrial areas, such as various terrestrial invertebrates, lizards, songbirds, and probably by exotic rodents such as the black rat and house mouse. There are no aquatic habitats in the vicinity of the site.

Because the site is located in a heavily developed portion of NAS Cecil Field and because the habitat consists only of turf grass, the primary assessment endpoint for evaluating ecological risks at the site is the protection of soil invertebrates from adverse effects of site-related contaminants on growth, survival, and reproduction. Some birds forage occasionally at the site, but not extensively. Use of the site by other wide-ranging receptors is negligible. For this reason, potential risks via food-chain exposure are insignificant and were not investigated via food-chain modeling. Measurement endpoints consisted of ecological surface soil screening values

Table 6-3 summarizes the analytical results of surface soil samples collected at PSC 46. Ecological screening values in Table 6-3 are those of U.S. EPA Region IV (U.S. EPA, 2000a; U.S. EPA, 2000b). Subsurface soil samples and samples from the excavated areas are excluded from Table 6-3. As a result, the data in Table 6-3 differ from data shown in Table 5-2. Recent investigations have focused on PAH contamination at the site. Thus, most data for VOCs, pesticides, polychlorinated biphenyls (PCBs), and metals are from samples collected in 1995.

### 6.2.1 Volatile Organic Compounds

An absence of toxicity data for 2-butanone and acetone precludes a complete assessment of risks posed by these two compounds, but detected concentrations do not appear to be excessively elevated.

### 6.2.2 Semivolatile Organic Compounds

Numerous samples were analyzed for PAHs. Ecological screening values do not exist for most PAHs, but, where available, PAH concentrations were usually less than or only slightly greater than screening values. Maximum screening Hazard Quotients (HQs) were greatest for BaP (7.7), fluoranthene (14.0), phenanthrene (12.1), pyrene (13.0), and total PAHs (9.7). The maximum concentrations of fluoranthene, phenanthrene, pyrene, and total PAHs were in sample CEF-P46-SS-008, located adjacent to the aircraft taxiway, where exposure to ecological receptors is minimal. The average value for total PAHs at the site is 1,803 µg/kg, compared to a screening value of 1,000 µg/kg. This average value for total PAHs is not excessively great, when considering that the 1,000 µg/kg value is taken from Dutch guidelines in which 1,000 µg/kg is a “target” value that represents clean soil (MSP&E, 1994; Swartjes, 1999). The same

**TABLE 6-3**

**CHEMICALS OF POTENTIAL ECOLOGICAL CONCERN**
**SURFACE SOIL**
**PSC 46, FACILITIES 72 AND 77**
**NAVAL AIR STATION CECIL FIELD**
**JACKSONVILLE, FLORIDA**


| Analyte | Frequency of Detection | Range of Detected Concentrations | | Range of Non-Detects | Location of Maximum | EPA Region IV Screening Value | Maximum Hazard Quotient | Selected as COPC? (Yes/No) | Background Concentration (1) |
|---|---|---|---|---|---|---|---|---|---|
| | | Minimum | Maximum | | | | | | |
| **Volatile Organics (ug/kg)** | | | | | | | | | |
| 2-Butanone | 1/10 | 2 | 2 | 11 - 13 | 35S00501 | NA | NA | Yes | NA |
| Acetone | 2/8 | 14 | 26.2 | 11 | CEF-36-SB-B003-1 | NA | NA | Yes | NA |
| Tetrachloroethene | 1/10 | 6 | 6 | 2.2 - 11 | 35S00801 | 10 | 0.6 | No | NA |
| **Semivolatile Organics (ug/kg)** | | | | | | | | | |
| 1-Methylnaphthalene | 3/57 | 82.1 | 128 | 35 - 530 | CEF-P46-SS-302-01 | NA | NA | Yes | NA |
| 2-Methylnaphthalene | 26/64 | 40 | 765 | 35 - 530 | CEF-P46-SS-004-01 | NA | NA | Yes | NA |
| Acenaphthene | 32/64 | 53 | 1400 | 35 - 530 | CEF-P46-SS-105-01 | 20000 | 0.1 | No | NA |
| Anthracene | 16/64 | 7.8 | 119 | 5.3 - 530 | CEF-P46-SS-008-01 | 100 | 1.2 | Yes | NA |
| Benzo(a)anthracene | 55/64 | 11 | 490 | 11 - 360 | CEF-P46-SS-103-01-D | NA | NA | Yes | NA |
| Benzo(a)pyrene | 58/67 | 16 | 770 | 11 - 350 | CEF-P46-SS-105-01 | 100 | 7.7 | Yes | NA |
| Benzo(b)fluoranthene | 56/64 | 16.4 | 1100 | 11 - 350 | CEF-P46-SS-105-01 | NA | NA | Yes | NA |
| Benzo(g,h,i)perylene | 58/64 | 11 | 1470 | 11 - 350 | CEF-P46-SS-004-01 | NA | NA | Yes | NA |
| Benzo(k)fluoranthene | 50/64 | 11 | 430 | 11 - 360 | CEF-P46-SS-105-01 | NA | NA | Yes | NA |
| bis(2-Ethylhexyl)phthalate | 6/7 | 22 | 220 | 350 | 35S00701 | NA | NA | Yes | NA |
| Carbazole | 1/7 | 37 | 37 | 350 - 360 | 35S00601 | NA | NA | Yes | NA |
| Chrysene | 51/64 | 14 | 800 | 11 - 350 | CEF-P46-SS-008-01 | NA | NA | Yes | NA |
| Di-n-butyl phthalate | 3/7 | 35 | 68 | 350 - 360 | 35S00501 | 200,000 | 0.0003 | No | NA |
| Dibenzo(a,h)anthracene | 29/64 | 9.7 | 201 | 8.9 - 360 | CEF-P46-SS-008-01 | NA | NA | Yes | NA |
| Fluoranthene | 57/64 | 13.6 | 1400 | 11 - 460 | CEF-P46-SS-008-01 | 100 | 14.0 | Yes | NA |
| Fluorene | 12/64 | 7.7 | 273 | 5.6 - 530 | CEF-P46-SS-004-01 | NA | NA | Yes | NA |
| Indeno(1,2,3-cd)pyrene | 47/64 | 12 | 1380 | 11 - 360 | CEF-P46-SS-004-01 | NA | NA | Yes | NA |
| Phenanthrene | 28/64 | 5.8 | 1210 | 71 - 530 | CEF-P46-SS-008-01 | 100 | 12.1 | Yes | NA |
| Pyrene | 57/64 | 11.6 | 1300 | 11 - 460 | CEF-P46-SS-008-01 | 100 | 13.0 | Yes | NA |
| Total PAHs | 62/67 | 13.6 | 9674 | 12 - 350 | CEF-P46-SS-008-01 | 1000 | 9.7 | Yes | NA |
| **Pesticides/PCBs (ug/kg)** | | | | | | | | | |
| 4,4'-DDD | 1/7 | 4.5 | 4.5 | 3.5 - 18 | 35S00801 | 2.5 | 1.8 | Yes | NA |
| 4,4'-DDE | 4/7 | 0.23 | 150 | 3.5 - 7.3 | 35S00201 | 2.5 | 60.0 | Yes | NA |
| 4,4'-DDT | 4/7 | 1.1 | 170 | 3.5 - 7.3 | 35S00201 | 2.5 | 68.0 | Yes | NA |
| Aldrin | 5/7 | 0.3 | 0.49 | 1.8 - 8.9 | 35S00301 | 2.5 | 0.2 | No | NA |

**TABLE 6-3**

**CHEMICALS OF POTENTIAL ECOLOGICAL CONCERN**
**SURFACE SOIL**
**PSC 46, FACILITIES 72 AND 77**
**NAVAL AIR STATION CECIL FIELD**
**JACKSONVILLE, FLORIDA**


| Analyte | Frequency of Detection | Range of Detected Concentrations | | Range of Non-Detects | Location of Maximum | EPA Region IV Screening Value | Maximum Hazard Quotient | Selected as COPC? (Yes/No) | Background Concentration (1) |
|---|---|---|---|---|---|---|---|---|---|
| | | Minimum | Maximum | | | | | | |
| Alpha-Chlordane | 1/7 | 9.2 | 9.2 | 1.8 - 8.9 | 35S00801 | NA | NA | Yes | NA |
| Dieldrin | 1/7 | 0.19 | 0.19 | 3.5 - 18 | 35S00701 | 0.5 | 0.4 | No | NA |
| Endrin | 1/7 | 1.2 | 1.2 | 3.5 - 18 | 35S00801 | 1 | 1.2 | Yes | NA |
| Gamma-Chlordane | 1/7 | 9.1 | 9.1 | 1.8 - 8.9 | 35S00801 | NA | NA | Yes | NA |
| Heptachlor Epoxide | 1/7 | 0.26 | 0.26 | 1.8 - 8.9 | 35S00801 | NA | NA | Yes | NA |
| Aroclor-1260 | 1/7 | 500 | 500 | 35 - 180 | 35S00301 | 20 | 25.0 | Yes | NA |
| **Inorganics (mg/kg)** | | | | | | | | | |
| Aluminum | 8/8 | 700 | 4290 | 0 | 35S00301 | 50 | 85.8 | Yes | 4430 |
| Arsenic | 3/16 | 0.59 | 1.3 | 0.29 - 0.65 | 33S00101 | 10 | 0.1 | No | 2.04 |
| Barium | 8/8 | 3.3 | 88.5 | 0 | 35S00201 | 165 | 0.5 | No | 14.4 |
| Cadmium | 2/8 | 0.68 | 0.69 | 0.16 - 0.22 | 33S00101 | 1.6 | 0.4 | No | 1.72 |
| Chromium | 8/8 | 1.7 | 14.1 | 0 | 33S00101 | 0.4 | 35.3 | Yes | 7.75 |
| Cobalt | 3/8 | 0.21 | 0.59 | 0.08 - 0.22 | 35S00801 | 20 | 0.03 | No | 3.11 |
| Copper | 8/8 | 0.25 | 5.9 | 0 | 35S00801 | 40 | 0.1 | No | 5.97 |
| Iron | 8/8 | 91.4 | 1750 | 0 | 33S00101 | 200 | 8.8 | Yes | 1490 |
| Lead | 11/11 | 1.9 | 155 | 0 | CEF-P46-SS-019-01 | 50 | 3.1 | Yes | 197 |
| Manganese | 8/8 | 1.3 | 24.4 | 0 | 35S00801 | 100 | 0.2 | No | 22 |
| Nickel | 7/8 | 0.93 | 2.4 | 0.66 | 33S00101 | 30 | 0.1 | No | 3.89 |
| Silver | 1/8 | 0.48 | 0.48 | 0.08 - 0.22 | 35S00301 | 2 | 0.2 | No | 2.13 |
| Vanadium | 8/8 | 0.76 | 11.2 | 0 | 33S00101 | 2 | 5.6 | Yes | 6.3 |
| Zinc | 8/8 | 2 | 52.7 | 0 | 35S00801 | 50 | 1.1 | Yes | 37 |

NA Not Available.
COPC Contaminant of Potential Concern.
1 - NAS Cecil Field Inorganic Background Data Set (HLA, 1998).

Dutch guidelines establish an “intermediate” value of 20,500 µg/kg and an “intervention” value of 40,000 µg/kg for total PAHs in soil (MSP&E, 1994; Swartjes, 1999). The Dutch guidelines specify that concentrations greater than the target value but less than the intermediate value require no further investigation (but minor restrictions may be applied on soil use), and concentrations greater than the intermediate value and less than the intervention value indicate that further investigation is required (Swartjes, 1999). The maximum concentration of total PAHs at PSC 46 (9,674 µg/kg) is well below the 20,500 µg/kg intermediate value.

### 6.2.3 Pesticides/PCBs

Pesticide concentrations tended to be relatively low except in sample 35S00201, where DDE and DDT were detected at 150 µg/kg and 170 µg/kg, respectively. Screening HQs in this sample were 60.0 (DDE) and 68.0 (DDT). Thus, DDE and DDT could pose risks to ecological receptors in the vicinity of sample 35S00201, located in the grassy area approximately 150 feet southwest of Building 302 (Figure 4-1). Concentrations of these two compounds exceeded their respective screening value in only one other sample (35S00701), located approximately 40 feet west of Building 302.

Aroclor 1260 was the only PCB detected at the site; it was detected in only one sample (35S00301). The HQ was 25.0 in this sample, located in the grassy area approximately 200 feet southwest of Building 302. Aroclor 1260 could pose risks to ecological receptors in the vicinity of this sample. Detection limits in the other six samples analyzed for PCBs exceeded the 20 µg/kg ecological screening value (Table 6-3).

### 6.2.4 Metals

The maximum detected concentrations of six metals exceeded ecological screening values, but, of these six metals, only four (chromium, iron, vanadium, and zinc) exceeded NAS Cecil Field Inorganic Background Data Set (IBDS) concentrations (HLA, 1998). Concentrations of chromium, iron, and vanadium exceeded the background value in only one sample (33S00101), located adjacent to a paved surface at the north boundary of the site (Figure 4-1). Similarly, concentrations of zinc exceeded the background value in only one sample (35S00801), also located adjacent to a paved surface at the north boundary of the site (Figure 4-1). In summary, concentrations of metals at PSC 46 were either less than ecological screening values, less than background values, or exceeded background values only in samples at the edge of paved areas, where exposure to ecological receptors is minimal.

### 6.2.5 Summary and Conclusions

Contaminants generally fall into two classes: chemicals for which the exposure route of concern is direct contact and chemicals for which the exposure route of concern is the food chain (U.S. EPA, 2000b).

PAHs fall in the first category, because PAHs do not biomagnify in the food web and PAHs present at the concentrations measured at PSC 46 would not bioaccumulate. Thus, toxicity through direct contact is the only applicable exposure route for PAHs at the site. Based on data from numerous samples, potential risks of PAHs at PSC 46 are insignificant.

DDE, DDT, and Aroclor 1260 fall into the second category mentioned above; the exposure route of concern for these compounds is the food chain (U.S. EPA, 2000b). Concentrations of these compounds were elevated in three samples. However, the industrial character of PSC 46 precludes extensive use of the site by receptors such as birds and mammals. For this reason, potential risks via the food chain from pesticides and PCBs are negligible under existing conditions. The uncertainty resulting from PCB detection limits exceeding ecological screening values is also largely mitigated by the lack of habitat at the site.

Potential ecological risks from VOCs and metals are negligible.

In summary, PSC 46 and the adjacent areas provide only limited terrestrial habitat in an industrial setting. Terrestrial receptors consist of species acclimated to urban and industrial conditions. Based on analytical data from surface soil samples and available habitat, potential ecological risks are insignificant.

# 7.0 REMEDIAL ACTIVITIES

The Navy's Remedial Action Contractor (RAC), CH2M Hill Constructors, Inc., conducted the source removal activities for PSC 46 from August 25 through August 29, 2000. The RAC excavated, transported, and disposed of 385.55 tons of PAH-contaminated soil and restored the site to pre-excavation conditions. Soil samples were collected and analyzed for waste characterization before the excavation was begun. The excavated soil was directly loaded and transported off site for disposal on the same day that it was excavated.

The soil was excavated using a hydraulic track excavator and directly loaded into tarp-covered dump trucks provided by Beaver Bulk Trucking for transportation and disposal. Soils were excavated to the horizontal and vertical excavation limits shown on Figure 5-1 and as specified in the Removal Action Design Package, which was included in the Action Memorandum for PSC 46 (TtNUS, 2000b). The excavated soil was transported to the Broadhurst Landfill in Jessup, Georgia.

The material used to backfill the excavation was certified clean fill brought in from the NFF at NAS Cecil Field. The site was then graded and seeded with a mixture of brown millet, rye, bahia grass, fertilizer, and mulch. No confirmatory sampling and analyses were required based on the specifications outlined in the Action Memorandum for PSC 46.

Detailed information on the remedial activities, including photographs, 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 46, Facilities 72 and 177, are as follows:

- Soil with BaP concentrations in excess of 770 µg/kg was excavated and disposed at a permitted solid waste disposal facility. This resulted in a UCL concentration of BaP below the FDEP industrial SCTL of 500 µg/kg. This removal resulted in a concomitant reduction in concentrations of other CPAHs, thus rendering the BaPEq concentration to be less than the FDEP industrial SCTL of 500 µg/kg. This excavation also resulted in the removal of soil with TRPH concentrations greater than the FDEP leachability to groundwater SCTL of 340 mg/kg.

- The excavated area was restored to pre-excavation conditions with uncontaminated backfill materials from the NFF.

- PSC 46 and the adjacent areas provide only limited terrestrial habitat in an industrial setting. Terrestrial receptors consist of species acclimated to urban and industrial conditions. Based on analytical data from surface soil samples and available habitat, potential ecological risks are insignificant.

## 8.2 RECOMMENDATIONS

The removal action conducted at PSC 46 is protective of human health and the environment and utilized permanent solutions for the site. Since the removal action is complete, no further action is warranted. The final recommendation for PSC 46 is no further action with institutional controls as specified in the Land Use Control Implementation Plan (LUCIP).

With respect to soils only, the color classification of PSC 46 could be changed from Yellow to Dark Green to denote that releases of hazardous substances have occurred and remedial actions to protect human health and the environment have been taken. However, PSC 46 is located within the area of the Operable Unit 9, Site 36 groundwater plume where remediation of groundwater has not yet been completed. For this reason, it is recommended that the color classification for PSC 46 remain as Yellow until the remedial action conducted at Site 36 receives an approved Operating Properly and Successfully determination. At that time, the color classification in the Finding of suitability to Transfer Report can become Dark Green (conditional).

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# APPENDIX A

# ANALYTICAL LABORATORY RESULTS

# PHASE I ANALYTICAL RESULTS

Tetra Tech NUS

# INTERNAL CORRESPONDENCE

PITT-06-9-196

| | | | |
|---|---|---|---|
| TO: | M. SPERANZA | DATE: | JUNE 28, 1999 |
| FROM: | GRETCHEN PHIPPS | COPIES: | DV FILE |
| SUBJECT: | ORGANIC DATA VALIDATION – PAH AND TPH<br>CTO 078 - NAS, CECIL FIELD<br>SDG – F4087 | | |
| SAMPLES: | 24/Soils/ | | |

| | |
|---|---|
| CEF-P46-SS-001 | CEF-P46-SS-002 |
| CEF-P46-SS-003 | CEF-P46-SS-004 |
| CEF-P46-SS-005 | CEF-P46-SS-006 |
| CEF-P46-SS-007 | CEF-P46-SS-008 |
| CEF-P46-SS-009 | CEF-P46-SS-010 |
| CEF-P46-SS-011 | CEF-P46-SS-012 |
| CEF-P46-SS-013 | CEF-P46-SS-014 |
| CEF-P46-SS-015 | CEF-P46-SS-016 |
| CEF-P46-SS-017 | CEF-P46-SS-018 |
| CEF-P46-SS-021 | CEF-P46-SS-022 |
| CEF-P46-SS-023 | CEF-P46-SS-DUP01 |
| CEF-P46-SS-DUP02 | CEF-P46-SS-DUP03 |

Overview

The sample set for CTO 078, NAS Cecil Field, SDG F4087, consists of twenty-four (24) soil environmental samples. Three (3) field duplicate pairs (CEF-P46-SS-003/ CEF-P46-SS-DUP01, CEF-P46-SS-013 / CEF-P46-SS-DUP02and CEF-P46-SS-021/ CEF-P46-SS-DUP03) were included within this SDG.

All samples, with exception to CEF-P46-SS-021, CEF-P46-SS-022, CEF-P46-SS-023 and CEF-P46-SS-DUP03, were analyzed for polynuclear aromatic hydrocarbons (PAHs). Samples CEF-P46-SS-021, CEF-P46-SS-022, CEF-P46-SS-023 and CEF-P46-SS-DUP03 were analyzed for total petroleum hydrocarbons (TPH). The samples were collected by Tetra Tech NUS on May 3, 1999 and analyzed by Accutest Laboratory. 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
  • Field Duplicate Analyses

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

Field Duplicate Analyses

Field duplicate imprecision was noted for the following compounds in field duplicate pair CEF-P46-SS-003/ CEF-P46-SS-DUP01: 2-methylnaphthalene, acenaphthene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,l)perylene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, fluoranthene, indeno(1,2,3-cd)pyrene, phenanthrene and pyrene. The positive and nondetected results reported for the above listed compounds in the affected field duplicate pair were qualified as estimated, "J" and "UJ", respectively.

Field duplicate imprecision was noted for the following compounds in field duplicate pair CEF-P46-SS-013 / CEF-P46-SS-DUP02: 2-methylnaphthalene, acenaphthene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,l)perylene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, fluoranthene, indeno(1,2,3-cd)pyrene and pyrene. The positive and nondetected results reported for the above listed compounds in the affected field duplicate pair were qualified as estimated, "J" and "UJ", respectively.

Notes

A comparison of field duplicate pairs (CEF-P46-SS-003/ CEF-P46-SS-DUP01, CEF-P46-SS-013 / CEF-P46-SS-DUP02 and CEF-P46-SS-021/ CEF-P46-SS-DUP03) is included in Appendix C.

The reporting limits on the Form 1s were rounded to two significant figures. The reporting limits on the EDD contain three significant figures.

Executive Summary

**Laboratory Performance:** None.

**Other Factors Affecting Data Quality:** Field duplicate imprecision was noted for several compounds in field duplicate pairs CEF-P46-SS-003/ CEF-P46-SS-DUP01 and CEF-P46-SS-013 / CEF-P46-SS-DUP02.

The data for these analyses were reviewed with reference to the "National Functional Guidelines for Organic 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

for 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: F4087



| SAMPLE NUMBER: | CEF-P46-SS-001 | | | CEF-P46-SS-002 | | | CEF-P46-SS-003 | | | CEF-P46-SS-004 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SAMPLE DATE: | 05/03/99 | | | 05/03/99 | | | 05/03/99 | | | 05/03/99 | | |
| LABORATORY ID: | F4087-1 | | | F4087-2 | | | F4087-3 | | | F4087-4 | | |
| QC_TYPE: | NORMAL | | | NORMAL | | | NORMAL | | | NORMAL | | |
| % SOLIDS: | 97.3 % | | | 94.3 % | | | 97.3 % | | | 97.2 % | | |
| 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 | 515 | U | | 530 | U | | 103 | U | | 103 | U | |
| 2-METHYLNAPHTHALENE | 515 | U | | 530 | U | | 103 | UJ | G | 765 | | |
| ACENAPHTHENE | 515 | U | | 530 | U | | 103 | UJ | G | 1000 | | |
| ACENAPHTHYLENE | 515 | U | | 530 | U | | 103 | U | | 103 | U | |
| ANTHRACENE | 515 | U | | 530 | U | | 103 | U | | 103 | U | |
| BENZO(A)ANTHRACENE | 75 | U | | 80 | U | | 15.2 | J | G | 392 | | |
| BENZO(A)PYRENE | 75 | U | | 80 | U | | 18.4 | J | G | 739 | | |
| BENZO(B)FLUORANTHENE | 75 | U | | 80 | U | | 36.8 | J | G | 869 | | |
| BENZO(G,H,I)PERYLENE | 75 | U | | 80 | U | | 48.7 | J | G | 1470 | | |
| BENZO(K)FLUORANTHENE | 75 | U | | 80 | U | | 19.5 | J | G | 400 | | |
| CHRYSENE | 75 | U | | 80 | U | | 15 | UJ | G | 511 | | |
| DIBENZO(A,H)ANTHRACENE | 75 | U | | 80 | U | | 15 | UJ | G | 15 | U | |
| FLUORANTHENE | 75 | U | | 80 | U | | 61 | J | G | 998 | | |
| FLUORENE | 515 | U | | 530 | U | | 103 | U | | 273 | | |
| INDENO(1,2,3-CD)PYRENE | 75 | U | | 80 | U | | 15 | UJ | G | 1380 | | |
| NAPHTHALENE | 515 | U | | 530 | U | | 103 | U | | 103 | U | |
| PHENANTHRENE | 515 | U | | 530 | U | | 103 | UJ | G | 103 | U | |
| PYRENE | 75 | U | | 80 | U | | 37.9 | J | G | 929 | | |

# CTO078 - NAS CECIL FIELD
## SOIL DATA
## Accutest, NJ
## SDG: F4087



| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SAMPLE NUMBER: | CEF-P46-SS-005 | | | CEF-P46-SS-006 | | | CEF-P46-SS-007 | | | CEF-P46-SS-008 | | |
| SAMPLE DATE: | 05/03/99 | | | 05/03/99 | | | 05/03/99 | | | 05/03/99 | | |
| LABORATORY ID: | F4087-5 | | | F4087-6 | | | F4087-7 | | | F4087-8 | | |
| QC_TYPE: | NORMAL | | | NORMAL | | | NORMAL | | | NORMAL | | |
| % SOLIDS: | 96.6 % | | | 97.4 % | | | 96.7 % | | | 93.4 % | | |
| 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 | 104 | U | | 103 | U | | 103 | U | | 107 | U | |
| 2-METHYLNAPHTHALENE | 104 | U | | 103 | U | | 103 | U | | 107 | U | |
| ACENAPHTHENE | 104 | U | | 121 | | | 354 | | | 733 | | |
| ACENAPHTHYLENE | 104 | U | | 103 | U | | 103 | U | | 107 | U | |
| ANTHRACENE | 104 | U | | 103 | U | | 103 | U | | 119 | | |
| BENZO(A)ANTHRACENE | 92.6 | | | 107 | | | 231 | | | 403 | | |
| BENZO(A)PYRENE | 133 | | | 178 | | | 495 | | | 658 | | |
| BENZO(B)FLUORANTHENE | 230 | | | 257 | | | 820 | | | 805 | | |
| BENZO(G,H,I)PERYLENE | 212 | | | 317 | | | 860 | | | 680 | | |
| BENZO(K)FLUORANTHENE | 88.8 | | | 105 | | | 272 | | | 345 | | |
| CHRYSENE | 201 | | | 15 | U | | 15 | U | | 800 | | |
| DIBENZO(A,H)ANTHRACENE | 15 | U | | 15 | U | | 189 | | | 201 | | |
| FLUORANTHENE | 218 | | | 141 | | | 328 | | | 1400 | | |
| FLUORENE | 104 | U | | 103 | U | | 103 | U | | 270 | | |
| INDENO(1,2,3-CD)PYRENE | 239 | | | 363 | | | 971 | | | 1020 | | |
| NAPHTHALENE | 104 | U | | 103 | U | | 103 | U | | 107 | U | |
| PHENANTHRENE | 104 | U | | 103 | U | | 138 | | | 1210 | | |
| PYRENE | 262 | | | 177 | | | 409 | | | 1300 | | |

# CTO078 - NAS CECIL FIELD
## SOIL DATA
## Accutest, NJ
## SDG: F4087



| SAMPLE NUMBER: | CEF-P46-SS-009 | | | CEF-P46-SS-010 | | | CEF-P46-SS-011 | | | CEF-P46-SS-012 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SAMPLE DATE: | 05/03/99 | | | 05/03/99 | | | 05/03/99 | | | 05/03/99 | | |
| LABORATORY ID: | F4087-9 | | | F4087-10 | | | F4087-11 | | | F4087-12 | | |
| QC_TYPE: | NORMAL | | | NORMAL | | | NORMAL | | | NORMAL | | |
| % SOLIDS: | 93.6 % | | | 98.9 % | | | 99.2 % | | | 96.2 % | | |
| 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 | 107 | U | | 101 | U | | 100 | U | | 104 | U | |
| 2-METHYLNAPHTHALENE | 421 | | | 101 | U | | 100 | U | | 991 | | |
| ACENAPHTHENE | 520 | | | 57.3 | | | 100 | U | | 1090 | | |
| ACENAPHTHYLENE | 107 | U | | 101 | U | | 100 | U | | 104 | U | |
| ANTHRACENE | 107 | U | | 101 | U | | 100 | U | | 179 | | |
| BENZO(A)ANTHRACENE | 387 | | | 34.3 | | | 15 | U | | 741 | | |
| BENZO(A)PYRENE | 417 | | | 51.3 | | | 88.9 | | | 889 | | |
| BENZO(B)FLUORANTHENE | 597 | | | 85.4 | | | 155 | | | 1290 | | |
| BENZO(G,H,I)PERYLENE | 498 | | | 98.9 | | | 315 | | | 1440 | | |
| BENZO(K)FLUORANTHENE | 229 | | | 34.8 | | | 46.5 | | | 524 | | |
| CHRYSENE | 640 | | | 15 | U | | 15 | U | | 1070 | | |
| DIBENZO(A,H)ANTHRACENE | 125 | | | 15 | U | | 56.3 | | | 321 | | |
| FLUORANTHENE | 674 | | | 92.5 | | | 90.5 | | | 1770 | | |
| FLUORENE | 107 | U | | 101 | U | | 100 | U | | 311 | | |
| INDENO(1,2,3-CD)PYRENE | 634 | | | 15 | U | | 321 | | | 1660 | | |
| NAPHTHALENE | 107 | U | | 101 | U | | 100 | U | | 104 | U | |
| PHENANTHRENE | 297 | | | 101 | U | | 100 | U | | 956 | | |
| PYRENE | 798 | | | 94.1 | | | 94.8 | | | 1630 | | |

# CTO078 - NAS CECIL FIELD
## SOIL DATA
## Accutest, NJ
## SDG: F4087



| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SAMPLE NUMBER: | CEF-P46-SS-013 | | | CEF-P46-SS-014 | | | CEF-P46-SS-015 | | | CEF-P46-SS-016 | | |
| SAMPLE DATE: | 05/03/99 | | | 05/03/99 | | | 05/03/99 | | | 05/03/99 | | |
| LABORATORY ID: | F4087-13 | | | F4087-14 | | | F4087-15 | | | F4087-16 | | |
| QC_TYPE: | NORMAL | | | NORMAL | | | NORMAL | | | NORMAL | | |
| % SOLIDS: | 98.1 % | | | 94.6 % | | | 97.2 % | | | 98.0 % | | |
| 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 | 102 | U | | 106 | U | | 103 | U | | 102 | U | |
| 2-METHYLNAPHTHALENE | 102 | UJ | G | 110 | | | 103 | U | | 159 | | |
| ACENAPHTHENE | 102 | UJ | G | 145 | | | 103 | U | | 116 | | |
| ACENAPHTHYLENE | 102 | U | | 106 | U | | 103 | U | | 102 | U | |
| ANTHRACENE | 102 | U | | 106 | U | | 103 | U | | 102 | U | |
| BENZO(A)ANTHRACENE | 15 | J | G | 89.6 | | | 15 | U | | 83.4 | | |
| BENZO(A)PYRENE | 15 | UJ | G | 186 | | | 41.4 | | | 85.7 | | |
| BENZO(B)FLUORANTHENE | 30.4 | J | G | 308 | | | 82.7 | | | 169 | | |
| BENZO(G,H,I)PERYLENE | 15 | UJ | G | 336 | | | 64.3 | | | 113 | | |
| BENZO(K)FLUORANTHENE | 18 | J | G | 114 | | | 34.8 | | | 62.1 | | |
| CHRYSENE | 94 | J | G | 138 | | | 15 | U | | 15 | U | |
| DIBENZO(A,H)ANTHRACENE | 15 | UJ | G | 70.7 | | | 15 | U | | 29.8 | | |
| FLUORANTHENE | 185 | J | G | 89.4 | | | 52.1 | | | 558 | | |
| FLUORENE | 102 | U | | 106 | U | | 103 | U | | 102 | U | |
| INDENO(1,2,3-CD)PYRENE | 85.4 | J | G | 397 | | | 82.2 | | | 175 | | |
| NAPHTHALENE | 102 | U | | 106 | U | | 103 | U | | 102 | U | |
| PHENANTHRENE | 102 | U | | 106 | U | | 103 | U | | 447 | | |
| PYRENE | 65.2 | J | G | 167 | | | 38.1 | | | 425 | | |

# CTO078 - NAS CECIL FIELD
## SOIL DATA
## Accutest, NJ
## SDG: F4087



| SAMPLE NUMBER: | CEF-P46-SS-017 | CEF-P46-SS-018 | CEF-P46-SS-DUP01 | CEF-P46-SS-DUP02 |
|---|---|---|---|---|
| SAMPLE DATE: | 05/03/99 | 05/03/99 | 05/03/99 | 05/03/99 |
| LABORATORY ID: | F4087-17 | F4087-18 | F4087-24 | F4087-25 |
| QC_TYPE: | NORMAL | NORMAL | NORMAL | NORMAL |
| % SOLIDS: | 97.4 % | 96.9 % | 97.4 % | 98.0 % |
| UNITS: | UG/KG | UG/KG | UG/KG | UG/KG |
| FIELD DUPLICATE OF: | | | CEF-P46-SS-003 | CEF-P46-SS-013 |

| | RESULT | QUAL | CODE | RESULT | QUAL | CODE | RESULT | QUAL | CODE | RESULT | QUAL | CODE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **POLYNUCLEAR AROMATIC HYDROCARBONS** | | | | | | | | | | | | |
| 1-METHYLNAPHTHALENE | 103 | U | | 103 | U | | 103 | U | | 102 | U | |
| 2-METHYLNAPHTHALENE | 142 | | | 113 | | | 144 | J | G | 266 | J | G |
| ACENAPHTHENE | 153 | | | 112 | | | 131 | J | G | 347 | J | G |
| ACENAPHTHYLENE | 103 | U | | 103 | U | | 103 | U | | 102 | U | |
| ANTHRACENE | 103 | U | | 103 | U | | 103 | U | | 102 | U | |
| BENZO(A)ANTHRACENE | 76 | | | 71.4 | | | 113 | J | G | 278 | J | G |
| BENZO(A)PYRENE | 140 | | | 148 | | | 252 | J | G | 316 | J | G |
| BENZO(B)FLUORANTHENE | 229 | | | 230 | | | 388 | J | G | 488 | J | G |
| BENZO(G,H,I)PERYLENE | 211 | | | 257 | | | 449 | J | G | 284 | J | G |
| BENZO(K)FLUORANTHENE | 85.1 | | | 79.5 | | | 142 | J | G | 217 | J | G |
| CHRYSENE | 129 | | | 129 | | | 226 | J | G | 735 | J | G |
| DIBENZO(A,H)ANTHRACENE | 44.5 | | | 65.4 | | | 103 | J | G | 64 | J | G |
| FLUORANTHENE | 229 | | | 154 | | | 354 | J | G | 598 | J | G |
| FLUORENE | 103 | U | | 22.6 | | | 103 | U | | 102 | U | |
| INDENO(1,2,3-CD)PYRENE | 276 | | | 334 | | | 533 | J | G | 409 | J | G |
| NAPHTHALENE | 103 | U | | 103 | U | | 103 | U | | 102 | U | |
| PHENANTHRENE | 113 | | | 103 | U | | 115 | J | G | 102 | U | |
| PYRENE | 210 | | | 206 | | | 314 | J | G | 728 | J | G |

# CTO078 - NAS CECIL FIELD
## SOIL DATA
## Accutest, NJ
## SDG: F4087



| SAMPLE NUMBER: | CEF-P46-SS-021 | | | CEF-P46-SS-022 | | | CEF-P46-SS-023 | | | CEF-P46-SS-DUP03 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SAMPLE DATE: | 05/03/99 | | | 05/03/99 | | | 05/03/99 | | | 05/03/99 | | |
| LABORATORY ID: | F4087-21 | | | F4087-22 | | | F4087-23 | | | F4087-26 | | |
| QC_TYPE: | NORMAL | | | NORMAL | | | NORMAL | | | NORMAL | | |
| % SOLIDS: | 94.3 % | | | 97.9 % | | | 96.6 % | | | 95.0 % | | |
| UNITS: | MG/KG | | | MG/KG | | | MG/KG | | | MG/KG | | |
| FIELD DUPLICATE OF: | | | | | | | | | | CEF-P46-SS-021 | | |
| | RESULT | QUAL | CODE | RESULT | QUAL | CODE | RESULT | QUAL | CODE | RESULT | QUAL | CODE |
| **TOTAL PETROLEUM HYDROCARBONS** | | | | | | | | | | | | |
| TPH (C8-C40) | 102 | | | 114 | | | 86 | U | | 111 | | |

**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

ACCUTEST

# Report of Analysis



| | | | |
|---|---|---|---|
| **Client Sample ID:** | CEF-P46-SS-001 | | |
| **Lab Sample ID:** | F4087-1 | **Date Sampled:** | 05/03/99 |
| **Matrix:** | SO - Soil | **Date Received:** | 05/04/99 |
| **Method:** | SW846 8310 | **Percent Solids:** | 97.3 |
| **Project:** | NAS Cecil Field-PSC 46 | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | LC4790.D | 5 | 06/09/99 | AMA | 05/12/99 | M:OP1220 | M:GLC4 |
| Run #2 | | | | | | | |

| CAS No. | Compound | Result | RDL | Units | Q |
|---|---|---|---|---|---|
| 83-32-9 | Acenaphthene | ND | 520 | ug/kg | |
| 208-96-8 | Acenaphthylene | ND | 520 | ug/kg | |
| 120-12-7 | Anthracene | ND | 520 | ug/kg | |
| 56-55-3 | Benzo (a) anthracene | ND | 75 | ug/kg | |
| 50-32-8 | Benzo (a) pyrene | ND | 75 | ug/kg | |
| 205-99-2 | Benzo (b) fluoranthene | ND | 75 | ug/kg | |
| 191-24-2 | Benzo (g,h,i) perylene | ND | 75 | ug/kg | |
| 207-08-9 | Benzo (k) fluoranthene | ND | 75 | ug/kg | |
| 218-01-9 | Chrysene | ND | 75 | ug/kg | |
| 53-70-3 | Dibenz(a,h)anthracene | ND | 75 | ug/kg | |
| 206-44-0 | Fluoranthene | ND | 75 | ug/kg | |
| 86-73-7 | Fluorene | ND | 520 | ug/kg | |
| 193-39-5 | Indeno (1,2,3-cd) pyrene | ND | 75 | ug/kg | |
| 90-12-0 | 1-Methylnaphthalene | ND | 520 | ug/kg | |
| 91-57-6 | 2-Methylnaphthalene | ND | 520 | ug/kg | |
| 91-20-3 | Naphthalene | ND | 520 | ug/kg | |
| 85-01-8 | Phenanthrene | ND | 520 | ug/kg | |
| 129-00-0 | Pyrene | ND | 75 | ug/kg | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 84-15-1 | o-Terphenyl | 61% | | 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

ACCUTEST

# Report of Analysis



| | | | |
|---|---|---|---|
| **Client Sample ID:** | CEF-P46-SS-002 | | |
| **Lab Sample ID:** | F4087-2 | **Date Sampled:** | 05/03/99 |
| **Matrix:** | SO - Soil | **Date Received:** | 05/04/99 |
| **Method:** | SW846 8310 | **Percent Solids:** | 94.3 |
| **Project:** | NAS Cecil Field-PSC 46 | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | LC4791.D | 5 | 06/09/99 | AMA | 05/12/99 | M:OP1220 | M:GLC4 |
| Run #2 | | | | | | | |

| CAS No. | Compound | Result | RDL | Units | Q |
|---|---|---|---|---|---|
| 83-32-9 | Acenaphthene | ND | 530 | ug/kg | |
| 208-96-8 | Acenaphthylene | ND | 530 | ug/kg | |
| 120-12-7 | Anthracene | ND | 530 | ug/kg | |
| 56-55-3 | Benzo (a) anthracene | ND | 80 | ug/kg | |
| 50-32-8 | Benzo (a) pyrene | ND | 80 | ug/kg | |
| 205-99-2 | Benzo (b) fluoranthene | ND | 80 | ug/kg | |
| 191-24-2 | Benzo (g,h,i) perylene | ND | 80 | ug/kg | |
| 207-08-9 | Benzo (k) fluoranthene | ND | 80 | ug/kg | |
| 218-01-9 | Chrysene | ND | 80 | ug/kg | |
| 53-70-3 | Dibenz(a,h)anthracene | ND | 80 | ug/kg | |
| 206-44-0 | Fluoranthene | ND | 80 | ug/kg | |
| 86-73-7 | Fluorene | ND | 530 | ug/kg | |
| 193-39-5 | Indeno (1,2,3-cd) pyrene | ND | 80 | ug/kg | |
| 90-12-0 | 1-Methylnaphthalene | ND | 530 | ug/kg | |
| 91-57-6 | 2-Methylnaphthalene | ND | 530 | ug/kg | |
| 91-20-3 | Naphthalene | ND | 530 | ug/kg | |
| 85-01-8 | Phenanthrene | ND | 530 | ug/kg | |
| 129-00-0 | Pyrene | ND | 80 | ug/kg | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 84-15-1 | o-Terphenyl | 45% | | 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

ACCUTEST

# Report of Analysis



| | | | |
|---|---|---|---|
| **Client Sample ID:** | CEF-P46-SS-003 | | |
| **Lab Sample ID:** | F4087-3 | **Date Sampled:** | 05/03/99 |
| **Matrix:** | SO - Soil | **Date Received:** | 05/04/99 |
| **Method:** | SW846 8310 | **Percent Solids:** | 97.3 |
| **Project:** | NAS Cecil Field-PSC 46 | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | LC4792.D | 1 | 06/09/99 | AMA | 05/12/99 | M:OP1220 | M:GLC4 |
| 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 | 15.2 | 15 | ug/kg | |
| 50-32-8 | Benzo (a) pyrene | 18.4 | 15 | ug/kg | |
| 205-99-2 | Benzo (b) fluoranthene | 36.8 | 15 | ug/kg | |
| 191-24-2 | Benzo (g,h,i) perylene | 48.7 | 15 | ug/kg | |
| 207-08-9 | Benzo (k) fluoranthene | 19.5 | 15 | ug/kg | |
| 218-01-9 | Chrysene | ND | 15 | ug/kg | |
| 53-70-3 | Dibenz(a,h)anthracene | ND | 15 | ug/kg | |
| 206-44-0 | Fluoranthene | 61.0 | 15 | ug/kg | |
| 86-73-7 | Fluorene | ND | 100 | ug/kg | |
| 193-39-5 | Indeno (1,2,3-cd) pyrene | ND | 15 | 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 | 37.9 | 15 | ug/kg | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 84-15-1 | o-Terphenyl | 8% | | 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

ACCUTEST

# Report of Analysis



| | | | |
|---|---|---|---|
| **Client Sample ID:** | CEF-P46-SS-004 | | |
| **Lab Sample ID:** | F4087-4 | **Date Sampled:** | 05/03/99 |
| **Matrix:** | SO - Soil | **Date Received:** | 05/04/99 |
| **Method:** | SW846 8310 | **Percent Solids:** | 97.2 |
| **Project:** | NAS Cecil Field-PSC 46 | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | LC4793.D | 1 | 06/09/99 | AMA | 05/12/99 | M:OP1220 | M:GLC4 |
| Run #2 | | | | | | | |

| CAS No. | Compound | Result | RDL | Units | Q |
|---|---|---|---|---|---|
| 83-32-9 | Acenaphthene | 1000 | 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 | 392 | 15 | ug/kg | |
| 50-32-8 | Benzo (a) pyrene | 739 | 15 | ug/kg | |
| 205-99-2 | Benzo (b) fluoranthene | 869 | 15 | ug/kg | |
| 191-24-2 | Benzo (g,h,i) perylene | 1470 | 15 | ug/kg | |
| 207-08-9 | Benzo (k) fluoranthene | 400 | 15 | ug/kg | |
| 218-01-9 | Chrysene | 511 | 15 | ug/kg | |
| 53-70-3 | Dibenz(a,h)anthracene | ND | 15 | ug/kg | |
| 206-44-0 | Fluoranthene | 998 | 15 | ug/kg | |
| 86-73-7 | Fluorene | 273 | 100 | ug/kg | |
| 193-39-5 | Indeno (1,2,3-cd) pyrene | 1380 | 15 | ug/kg | |
| 90-12-0 | 1-Methylnaphthalene | ND | 100 | ug/kg | |
| 91-57-6 | 2-Methylnaphthalene | 765 | 100 | ug/kg | |
| 91-20-3 | Naphthalene | ND | 100 | ug/kg | |
| 85-01-8 | Phenanthrene | ND | 100 | ug/kg | |
| 129-00-0 | Pyrene | 929 | 15 | ug/kg | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 84-15-1 | o-Terphenyl | 47% | | 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

ACCUTEST

# Report of Analysis



| | | | |
|---|---|---|---|
| **Client Sample ID:** | CEF-P46-SS-005 | | |
| **Lab Sample ID:** | F4087-5 | **Date Sampled:** | 05/03/99 |
| **Matrix:** | SO - Soil | **Date Received:** | 05/04/99 |
| **Method:** | SW846 8310 | **Percent Solids:** | 96.6 |
| **Project:** | NAS Cecil Field-PSC 46 | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | LC4794.D | 1 | 06/09/99 | AMA | 05/12/99 | M:OP1220 | M:GLC4 |
| 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 | 92.6 | 15 | ug/kg | |
| 50-32-8 | Benzo (a) pyrene | 133 | 15 | ug/kg | |
| 205-99-2 | Benzo (b) fluoranthene | 230 | 15 | ug/kg | |
| 191-24-2 | Benzo (g,h,i) perylene | 212 | 15 | ug/kg | |
| 207-08-9 | Benzo (k) fluoranthene | 88.8 | 15 | ug/kg | |
| 218-01-9 | Chrysene | 201 | 15 | ug/kg | |
| 53-70-3 | Dibenz(a,h)anthracene | ND | 15 | ug/kg | |
| 206-44-0 | Fluoranthene | 218 | 15 | ug/kg | |
| 86-73-7 | Fluorene | ND | 100 | ug/kg | |
| 193-39-5 | Indeno (1,2,3-cd) pyrene | 239 | 15 | 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 | 262 | 15 | ug/kg | |

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

ACCUTEST

# Report of Analysis



| | | | |
|---|---|---|---|
| **Client Sample ID:** | CEF-P46-SS-006 | | |
| **Lab Sample ID:** | F4087-6 | **Date Sampled:** | 05/03/99 |
| **Matrix:** | SO - Soil | **Date Received:** | 05/04/99 |
| **Method:** | SW846 8310 | **Percent Solids:** | 97.4 |
| **Project:** | NAS Cecil Field-PSC 46 | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | LC4795.D | 1 | 06/09/99 | AMA | 05/12/99 | M:OP1220 | M:GLC4 |
| Run #2 | | | | | | | |

| CAS No. | Compound | Result | RDL | Units | Q |
|---|---|---|---|---|---|
| 83-32-9 | Acenaphthene | 121 | 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 | 107 | 15 | ug/kg | |
| 50-32-8 | Benzo (a) pyrene | 178 | 15 | ug/kg | |
| 205-99-2 | Benzo (b) fluoranthene | 257 | 15 | ug/kg | |
| 191-24-2 | Benzo (g,h,i) perylene | 317 | 15 | ug/kg | |
| 207-08-9 | Benzo (k) fluoranthene | 105 | 15 | ug/kg | |
| 218-01-9 | Chrysene | ND | 15 | ug/kg | |
| 53-70-3 | Dibenz(a,h)anthracene | ND | 15 | ug/kg | |
| 206-44-0 | Fluoranthene | 141 | 15 | ug/kg | |
| 86-73-7 | Fluorene | ND | 100 | ug/kg | |
| 193-39-5 | Indeno (1,2,3-cd) pyrene | 363 | 15 | 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 | 177 | 15 | ug/kg | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 84-15-1 | o-Terphenyl | 68% | | 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

ACCUTEST

# Report of Analysis



| | | | |
|---|---|---|---|
| **Client Sample ID:** | CEF-P46-SS-007 | | |
| **Lab Sample ID:** | F4087-7 | **Date Sampled:** | 05/03/99 |
| **Matrix:** | SO - Soil | **Date Received:** | 05/04/99 |
| **Method:** | SW846 8310 | **Percent Solids:** | 96.7 |
| **Project:** | NAS Cecil Field-PSC 46 | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | LC4796.D | 1 | 06/09/99 | AMA | 05/12/99 | M:OP1220 | M:GLC4 |
| Run #2 | | | | | | | |

| CAS No. | Compound | Result | RDL | Units | Q |
|---|---|---|---|---|---|
| 83-32-9 | Acenaphthene | 354 | 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 | 231 | 15 | ug/kg | |
| 50-32-8 | Benzo (a) pyrene | 495 | 15 | ug/kg | |
| 205-99-2 | Benzo (b) fluoranthene | 820 | 15 | ug/kg | |
| 191-24-2 | Benzo (g,h,i) perylene | 860 | 15 | ug/kg | |
| 207-08-9 | Benzo (k) fluoranthene | 272 | 15 | ug/kg | |
| 218-01-9 | Chrysene | ND | 15 | ug/kg | |
| 53-70-3 | Dibenz(a,h)anthracene | 189 | 15 | ug/kg | |
| 206-44-0 | Fluoranthene | 328 | 15 | ug/kg | |
| 86-73-7 | Fluorene | ND | 100 | ug/kg | |
| 193-39-5 | Indeno (1,2,3-cd) pyrene | 971 | 15 | 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 | 138 | 100 | ug/kg | |
| 129-00-0 | Pyrene | 409 | 15 | ug/kg | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 84-15-1 | o-Terphenyl | 59% | | 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

ACCUTEST

# Report of Analysis



| | | | |
|---|---|---|---|
| **Client Sample ID:** | CEF-P46-SS-008 | | |
| **Lab Sample ID:** | F4087-8 | **Date Sampled:** | 05/03/99 |
| **Matrix:** | SO - Soil | **Date Received:** | 05/04/99 |
| **Method:** | SW846 8310 | **Percent Solids:** | 93.4 |
| **Project:** | NAS Cecil Field-PSC 46 | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | LC4798.D | 1 | 06/09/99 | AMA | 05/12/99 | M:OP1220 | M:GLC4 |
| Run #2 | | | | | | | |

| CAS No. | Compound | Result | RDL | Units | Q |
|---|---|---|---|---|---|
| 83-32-9 | Acenaphthene | 733 | 110 | ug/kg | |
| 208-96-8 | Acenaphthylene | ND | 110 | ug/kg | |
| 120-12-7 | Anthracene | 119 | 110 | ug/kg | |
| 56-55-3 | Benzo (a) anthracene | 403 | 16 | ug/kg | |
| 50-32-8 | Benzo (a) pyrene | 658 | 16 | ug/kg | |
| 205-99-2 | Benzo (b) fluoranthene | 805 | 16 | ug/kg | |
| 191-24-2 | Benzo (g,h,i) perylene | 680 | 16 | ug/kg | |
| 207-08-9 | Benzo (k) fluoranthene | 345 | 16 | ug/kg | |
| 218-01-9 | Chrysene | 800 | 16 | ug/kg | |
| 53-70-3 | Dibenz(a,h)anthracene | 201 | 16 | ug/kg | |
| 206-44-0 | Fluoranthene | 1400 | 16 | ug/kg | |
| 86-73-7 | Fluorene | 270 | 110 | ug/kg | |
| 193-39-5 | Indeno (1,2,3-cd) pyrene | 1020 | 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 | 1210 | 110 | ug/kg | |
| 129-00-0 | Pyrene | 1300 | 16 | ug/kg | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 84-15-1 | o-Terphenyl | 59% | | 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

ACCUTEST

# Report of Analysis



| | | | |
|---|---|---|---|
| **Client Sample ID:** | CEF-P46-SS-009 | | |
| **Lab Sample ID:** | F4087-9 | **Date Sampled:** | 05/03/99 |
| **Matrix:** | SO - Soil | **Date Received:** | 05/04/99 |
| **Method:** | SW846 8310 | **Percent Solids:** | 93.6 |
| **Project:** | NAS Cecil Field-PSC 46 | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | LC4799.D | 1 | 06/09/99 | AMA | 05/12/99 | M:OP1220 | M:GLC4 |
| Run #2 | | | | | | | |

| CAS No. | Compound | Result | RDL | Units | Q |
|---|---|---|---|---|---|
| 83-32-9 | Acenaphthene | 520 | 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 | 387 | 16 | ug/kg | |
| 50-32-8 | Benzo (a) pyrene | 417 | 16 | ug/kg | |
| 205-99-2 | Benzo (b) fluoranthene | 597 | 16 | ug/kg | |
| 191-24-2 | Benzo (g,h,i) perylene | 498 | 16 | ug/kg | |
| 207-08-9 | Benzo (k) fluoranthene | 229 | 16 | ug/kg | |
| 218-01-9 | Chrysene | 640 | 16 | ug/kg | |
| 53-70-3 | Dibenz(a,h)anthracene | 125 | 16 | ug/kg | |
| 206-44-0 | Fluoranthene | 674 | 16 | ug/kg | |
| 86-73-7 | Fluorene | ND | 110 | ug/kg | |
| 193-39-5 | Indeno (1,2,3-cd) pyrene | 634 | 16 | ug/kg | |
| 90-12-0 | 1-Methylnaphthalene | ND | 110 | ug/kg | |
| 91-57-6 | 2-Methylnaphthalene | 421 | 110 | ug/kg | |
| 91-20-3 | Naphthalene | ND | 110 | ug/kg | |
| 85-01-8 | Phenanthrene | 297 | 110 | ug/kg | |
| 129-00-0 | Pyrene | 798 | 16 | ug/kg | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 84-15-1 | o-Terphenyl | 75% | | 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

ACCUTEST

# Report of Analysis



| | | | |
|---|---|---|---|
| **Client Sample ID:** | CEF-P46-SS-010 | | |
| **Lab Sample ID:** | F4087-10 | **Date Sampled:** | 05/03/99 |
| **Matrix:** | SO - Soil | **Date Received:** | 05/04/99 |
| **Method:** | SW846 8310 | **Percent Solids:** | 98.9 |
| **Project:** | NAS Cecil Field-PSC 46 | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | LC4800.D | 1 | 06/09/99 | AMA | 05/12/99 | M:OP1220 | M:GLC4 |
| Run #2 | | | | | | | |

| CAS No. | Compound | Result | RDL | Units | Q |
|---|---|---|---|---|---|
| 83-32-9 | Acenaphthene | 57.3 | 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 | 34.3 | 15 | ug/kg | |
| 50-32-8 | Benzo (a) pyrene | 51.3 | 15 | ug/kg | |
| 205-99-2 | Benzo (b) fluoranthene | 85.4 | 15 | ug/kg | |
| 191-24-2 | Benzo (g,h,i) perylene | 98.9 | 15 | ug/kg | |
| 207-08-9 | Benzo (k) fluoranthene | 34.8 | 15 | ug/kg | |
| 218-01-9 | Chrysene | ND | 15 | ug/kg | |
| 53-70-3 | Dibenz(a,h)anthracene | ND | 15 | ug/kg | |
| 206-44-0 | Fluoranthene | 92.5 | 15 | ug/kg | |
| 86-73-7 | Fluorene | ND | 100 | ug/kg | |
| 193-39-5 | Indeno (1,2,3-cd) pyrene | ND | 15 | 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 | 94.1 | 15 | ug/kg | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 84-15-1 | o-Terphenyl | 66% | | 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

ACCUTEST

# Report of Analysis



| | | | |
|---|---|---|---|
| **Client Sample ID:** | CEF-P46-SS-011 | | |
| **Lab Sample ID:** | F4087-11 | **Date Sampled:** | 05/03/99 |
| **Matrix:** | SO - Soil | **Date Received:** | 05/04/99 |
| **Method:** | SW846 8310 | **Percent Solids:** | 99.2 |
| **Project:** | NAS Cecil Field-PSC 46 | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | LC4801.D | 1 | 06/09/99 | AMA | 05/12/99 | M:OP1220 | M:GLC4 |
| 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 | 15 | ug/kg | |
| 50-32-8 | Benzo (a) pyrene | 88.9 | 15 | ug/kg | |
| 205-99-2 | Benzo (b) fluoranthene | 155 | 15 | ug/kg | |
| 191-24-2 | Benzo (g,h,i) perylene | 315 | 15 | ug/kg | |
| 207-08-9 | Benzo (k) fluoranthene | 46.5 | 15 | ug/kg | |
| 218-01-9 | Chrysene | ND | 15 | ug/kg | |
| 53-70-3 | Dibenz(a,h)anthracene | 56.3 | 15 | ug/kg | |
| 206-44-0 | Fluoranthene | 90.5 | 15 | ug/kg | |
| 86-73-7 | Fluorene | ND | 100 | ug/kg | |
| 193-39-5 | Indeno (1,2,3-cd) pyrene | 321 | 15 | 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 | 94.8 | 15 | ug/kg | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 84-15-1 | o-Terphenyl | 61% | | 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

ACCUTEST

# Report of Analysis



| | | | |
|---|---|---|---|
| **Client Sample ID:** | CEF-P46-SS-012 | | |
| **Lab Sample ID:** | F4087-12 | **Date Sampled:** | 05/03/99 |
| **Matrix:** | SO - Soil | **Date Received:** | 05/04/99 |
| **Method:** | SW846 8310 | **Percent Solids:** | 96.2 |
| **Project:** | NAS Cecil Field-PSC 46 | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | LC4802.D | 1 | 06/09/99 | AMA | 05/12/99 | M:OP1220 | M:GLC4 |
| Run #2 | | | | | | | |

| CAS No. | Compound | Result | RDL | Units | Q |
|---|---|---|---|---|---|
| 83-32-9 | Acenaphthene | 1090 | 100 | ug/kg | |
| 208-96-8 | Acenaphthylene | ND | 100 | ug/kg | |
| 120-12-7 | Anthracene | 179 | 100 | ug/kg | |
| 56-55-3 | Benzo (a) anthracene | 741 | 16 | ug/kg | |
| 50-32-8 | Benzo (a) pyrene | 889 | 16 | ug/kg | |
| 205-99-2 | Benzo (b) fluoranthene | 1290 | 16 | ug/kg | |
| 191-24-2 | Benzo (g,h,i) perylene | 1440 | 16 | ug/kg | |
| 207-08-9 | Benzo (k) fluoranthene | 524 | 16 | ug/kg | |
| 218-01-9 | Chrysene | 1070 | 16 | ug/kg | |
| 53-70-3 | Dibenz(a,h)anthracene | 321 | 16 | ug/kg | |
| 206-44-0 | Fluoranthene | 1770 | 16 | ug/kg | |
| 86-73-7 | Fluorene | 311 | 100 | ug/kg | |
| 193-39-5 | Indeno (1,2,3-cd) pyrene | 1660 | 16 | ug/kg | |
| 90-12-0 | 1-Methylnaphthalene | ND | 100 | ug/kg | |
| 91-57-6 | 2-Methylnaphthalene | 991 | 100 | ug/kg | |
| 91-20-3 | Naphthalene | ND | 100 | ug/kg | |
| 85-01-8 | Phenanthrene | 956 | 100 | ug/kg | |
| 129-00-0 | Pyrene | 1630 | 16 | ug/kg | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 84-15-1 | o-Terphenyl | 36% | | 20-130% |

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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-P46-SS-013 | | |
| **Lab Sample ID:** | F4087-13 | **Date Sampled:** | 05/03/99 |
| **Matrix:** | SO - Soil | **Date Received:** | 05/04/99 |
| **Method:** | SW846 8310 | **Percent Solids:** | 98.1 |
| **Project:** | NAS Cecil Field-PSC 46 | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | LC4803.D | 1 | 06/09/99 | AMA | 05/12/99 | M:OP1220 | M:GLC4 |
| 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 | 15.0 | 15 | ug/kg | |
| 50-32-8 | Benzo (a) pyrene | ND | 15 | ug/kg | |
| 205-99-2 | Benzo (b) fluoranthene | 30.4 | 15 | ug/kg | |
| 191-24-2 | Benzo (g,h,i) perylene | ND | 15 | ug/kg | |
| 207-08-9 | Benzo (k) fluoranthene | 18.0 | 15 | ug/kg | |
| 218-01-9 | Chrysene | 94.0 | 15 | ug/kg | |
| 53-70-3 | Dibenz(a,h)anthracene | ND | 15 | ug/kg | |
| 206-44-0 | Fluoranthene | 185 | 15 | ug/kg | |
| 86-73-7 | Fluorene | ND | 100 | ug/kg | |
| 193-39-5 | Indeno (1,2,3-cd) pyrene | 85.4 | 15 | 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 | 65.2 | 15 | ug/kg | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 84-15-1 | o-Terphenyl | 49% | | 20-130% |

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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-P46-SS-014 | | |
| **Lab Sample ID:** | F4087-14 | **Date Sampled:** | 05/03/99 |
| **Matrix:** | SO - Soil | **Date Received:** | 05/04/99 |
| **Method:** | SW846 8310 | **Percent Solids:** | 94.6 |
| **Project:** | NAS Cecil Field-PSC 46 | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | LC4804.D | 1 | 06/09/99 | AMA | 05/12/99 | M:OP1220 | M:GLC4 |
| Run #2 | | | | | | | |

| CAS No. | Compound | Result | RDL | Units | Q |
|---|---|---|---|---|---|
| 83-32-9 | Acenaphthene | 145 | 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 | 89.6 | 16 | ug/kg | |
| 50-32-8 | Benzo (a) pyrene | 186 | 16 | ug/kg | |
| 205-99-2 | Benzo (b) fluoranthene | 308 | 16 | ug/kg | |
| 191-24-2 | Benzo (g,h,i) perylene | 336 | 16 | ug/kg | |
| 207-08-9 | Benzo (k) fluoranthene | 114 | 16 | ug/kg | |
| 218-01-9 | Chrysene | 138 | 16 | ug/kg | |
| 53-70-3 | Dibenz(a,h)anthracene | 70.7 | 16 | ug/kg | |
| 206-44-0 | Fluoranthene | 89.4 | 16 | ug/kg | |
| 86-73-7 | Fluorene | ND | 110 | ug/kg | |
| 193-39-5 | Indeno (1,2,3-cd) pyrene | 397 | 16 | ug/kg | |
| 90-12-0 | 1-Methylnaphthalene | ND | 110 | ug/kg | |
| 91-57-6 | 2-Methylnaphthalene | 110 | 110 | ug/kg | |
| 91-20-3 | Naphthalene | ND | 110 | ug/kg | |
| 85-01-8 | Phenanthrene | ND | 110 | ug/kg | |
| 129-00-0 | Pyrene | 167 | 16 | ug/kg | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 84-15-1 | o-Terphenyl | 76% | | 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

ACCUTEST

# Report of Analysis



| | | | |
|---|---|---|---|
| **Client Sample ID:** | CEF-P46-SS-015 | | |
| **Lab Sample ID:** | F4087-15 | **Date Sampled:** | 05/03/99 |
| **Matrix:** | SO - Soil | **Date Received:** | 05/04/99 |
| **Method:** | SW846 8310 | **Percent Solids:** | 97.2 |
| **Project:** | NAS Cecil Field-PSC 46 | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | LC4805.D | 1 | 06/09/99 | AMA | 05/12/99 | M:OP1220 | M:GLC4 |
| 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 | 15 | ug/kg | |
| 50-32-8 | Benzo (a) pyrene | 41.4 | 15 | ug/kg | |
| 205-99-2 | Benzo (b) fluoranthene | 82.7 | 15 | ug/kg | |
| 191-24-2 | Benzo (g,h,i) perylene | 64.3 | 15 | ug/kg | |
| 207-08-9 | Benzo (k) fluoranthene | 34.8 | 15 | ug/kg | |
| 218-01-9 | Chrysene | ND | 15 | ug/kg | |
| 53-70-3 | Dibenz(a,h)anthracene | ND | 15 | ug/kg | |
| 206-44-0 | Fluoranthene | 52.1 | 15 | ug/kg | |
| 86-73-7 | Fluorene | ND | 100 | ug/kg | |
| 193-39-5 | Indeno (1,2,3-cd) pyrene | 82.2 | 15 | 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 | 38.1 | 15 | ug/kg | |

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

ACCUTEST

# Report of Analysis



| | | | |
|---|---|---|---|
| **Client Sample ID:** | CEF-P46-SS-016 | | |
| **Lab Sample ID:** | F4087-16 | **Date Sampled:** | 05/03/99 |
| **Matrix:** | SO - Soil | **Date Received:** | 05/04/99 |
| **Method:** | SW846 8310 | **Percent Solids:** | 98.0 |
| **Project:** | NAS Cecil Field-PSC 46 | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | LC4806.D | 1 | 06/09/99 | AMA | 05/12/99 | M:OP1220 | M:GLC4 |
| Run #2 | | | | | | | |

| CAS No. | Compound | Result | RDL | Units | Q |
|---|---|---|---|---|---|
| 83-32-9 | Acenaphthene | 116 | 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 | 83.4 | 15 | ug/kg | |
| 50-32-8 | Benzo (a) pyrene | 85.7 | 15 | ug/kg | |
| 205-99-2 | Benzo (b) fluoranthene | 169 | 15 | ug/kg | |
| 191-24-2 | Benzo (g,h,i) perylene | 113 | 15 | ug/kg | |
| 207-08-9 | Benzo (k) fluoranthene | 62.1 | 15 | ug/kg | |
| 218-01-9 | Chrysene | ND | 15 | ug/kg | |
| 53-70-3 | Dibenz(a,h)anthracene | 29.8 | 15 | ug/kg | |
| 206-44-0 | Fluoranthene | 558 | 15 | ug/kg | |
| 86-73-7 | Fluorene | ND | 100 | ug/kg | |
| 193-39-5 | Indeno (1,2,3-cd) pyrene | 175 | 15 | ug/kg | |
| 90-12-0 | 1-Methylnaphthalene | ND | 100 | ug/kg | |
| 91-57-6 | 2-Methylnaphthalene | 159 | 100 | ug/kg | |
| 91-20-3 | Naphthalene | ND | 100 | ug/kg | |
| 85-01-8 | Phenanthrene | 447 | 100 | ug/kg | |
| 129-00-0 | Pyrene | 425 | 15 | ug/kg | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 84-15-1 | o-Terphenyl | 78% | | 20-130% |

00016

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-P46-SS-017 | | |
| **Lab Sample ID:** | F4087-17 | **Date Sampled:** | 05/03/99 |
| **Matrix:** | SO - Soil | **Date Received:** | 05/04/99 |
| **Method:** | SW846 8310 | **Percent Solids:** | 97.4 |
| **Project:** | NAS Cecil Field-PSC 46 | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | LC4807.D | 1 | 06/10/99 | AMA | 05/12/99 | M:OP1220 | M:GLC4 |
| Run #2 | | | | | | | |

| CAS No. | Compound | Result | RDL | Units | Q |
|---|---|---|---|---|---|
| 83-32-9 | Acenaphthene | 153 | 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 | 76.0 | 15 | ug/kg | |
| 50-32-8 | Benzo (a) pyrene | 140 | 15 | ug/kg | |
| 205-99-2 | Benzo (b) fluoranthene | 229 | 15 | ug/kg | |
| 191-24-2 | Benzo (g,h,i) perylene | 211 | 15 | ug/kg | |
| 207-08-9 | Benzo (k) fluoranthene | 85.1 | 15 | ug/kg | |
| 218-01-9 | Chrysene | 129 | 15 | ug/kg | |
| 53-70-3 | Dibenz(a,h)anthracene | 44.5 | 15 | ug/kg | |
| 206-44-0 | Fluoranthene | 229 | 15 | ug/kg | |
| 86-73-7 | Fluorene | ND | 100 | ug/kg | |
| 193-39-5 | Indeno (1,2,3-cd) pyrene | 276 | 15 | ug/kg | |
| 90-12-0 | 1-Methylnaphthalene | ND | 100 | ug/kg | |
| 91-57-6 | 2-Methylnaphthalene | 142 | 100 | ug/kg | |
| 91-20-3 | Naphthalene | ND | 100 | ug/kg | |
| 85-01-8 | Phenanthrene | 113 | 100 | ug/kg | |
| 129-00-0 | Pyrene | 210 | 15 | ug/kg | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 84-15-1 | o-Terphenyl | 66% | | 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

ACCUTEST

# Report of Analysis



| | | | |
|---|---|---|---|
| **Client Sample ID:** | CEF-P46-SS-018 | | |
| **Lab Sample ID:** | F4087-18 | **Date Sampled:** | 05/03/99 |
| **Matrix:** | SO - Soil | **Date Received:** | 05/04/99 |
| **Method:** | SW846 8310 | **Percent Solids:** | 96.9 |
| **Project:** | NAS Cecil Field-PSC 46 | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | LC4808.D | 1 | 06/10/99 | AMA | 05/12/99 | M:OP1220 | M:GLC4 |
| Run #2 | | | | | | | |

| CAS No. | Compound | Result | RDL | Units | Q |
|---|---|---|---|---|---|
| 83-32-9 | Acenaphthene | 112 | 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 | 71.4 | 15 | ug/kg | |
| 50-32-8 | Benzo (a) pyrene | 148 | 15 | ug/kg | |
| 205-99-2 | Benzo (b) fluoranthene | 230 | 15 | ug/kg | |
| 191-24-2 | Benzo (g,h,i) perylene | 257 | 15 | ug/kg | |
| 207-08-9 | Benzo (k) fluoranthene | 79.5 | 15 | ug/kg | |
| 218-01-9 | Chrysene | 129 | 15 | ug/kg | |
| 53-70-3 | Dibenz(a,h)anthracene | 65.4 | 15 | ug/kg | |
| 206-44-0 | Fluoranthene | 154 | 15 | ug/kg | |
| 86-73-7 | Fluorene | 22.6 | 100 | ug/kg | |
| 193-39-5 | Indeno (1,2,3-cd) pyrene | 334 | 15 | ug/kg | |
| 90-12-0 | 1-Methylnaphthalene | ND | 100 | ug/kg | |
| 91-57-6 | 2-Methylnaphthalene | 113 | 100 | ug/kg | |
| 91-20-3 | Naphthalene | ND | 100 | ug/kg | |
| 85-01-8 | Phenanthrene | ND | 100 | ug/kg | |
| 129-00-0 | Pyrene | 206 | 15 | ug/kg | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 84-15-1 | o-Terphenyl | 70% | | 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

ACCUTEST

# Report of Analysis



| | | | |
|---|---|---|---|
| **Client Sample ID:** | CEF-P46-SS-DUP01 | | |
| **Lab Sample ID:** | F4087-24 | **Date Sampled:** | 05/03/99 |
| **Matrix:** | SO - Soil | **Date Received:** | 05/04/99 |
| **Method:** | SW846 8310 | **Percent Solids:** | 97.4 |
| **Project:** | NAS Cecil Field-PSC 46 | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | LC4809.D | 1 | 06/10/99 | AMA | 05/12/99 | M:OP1220 | M:GLC4 |
| Run #2 | | | | | | | |

| CAS No. | Compound | Result | RDL | Units | Q |
|---|---|---|---|---|---|
| 83-32-9 | Acenaphthene | 131 | 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 | 113 | 15 | ug/kg | |
| 50-32-8 | Benzo (a) pyrene | 252 | 15 | ug/kg | |
| 205-99-2 | Benzo (b) fluoranthene | 388 | 15 | ug/kg | |
| 191-24-2 | Benzo (g,h,i) perylene | 449 | 15 | ug/kg | |
| 207-08-9 | Benzo (k) fluoranthene | 142 | 15 | ug/kg | |
| 218-01-9 | Chrysene | 226 | 15 | ug/kg | |
| 53-70-3 | Dibenz(a,h)anthracene | 103 | 15 | ug/kg | |
| 206-44-0 | Fluoranthene | 354 | 15 | ug/kg | |
| 86-73-7 | Fluorene | ND | 100 | ug/kg | |
| 193-39-5 | Indeno (1,2,3-cd) pyrene | 533 | 15 | ug/kg | |
| 90-12-0 | 1-Methylnaphthalene | ND | 100 | ug/kg | |
| 91-57-6 | 2-Methylnaphthalene | 144 | 100 | ug/kg | |
| 91-20-3 | Naphthalene | ND | 100 | ug/kg | |
| 85-01-8 | Phenanthrene | 115 | 100 | ug/kg | |
| 129-00-0 | Pyrene | 314 | 15 | ug/kg | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 84-15-1 | o-Terphenyl | 74% | | 20-130% |

00124

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-P46-SS-DUP02 | | |
| **Lab Sample ID:** | F4087-25 | **Date Sampled:** | 05/03/99 |
| **Matrix:** | SO - Soil | **Date Received:** | 05/04/99 |
| **Method:** | SW846 8310 | **Percent Solids:** | 98.0 |
| **Project:** | NAS Cecil Field-PSC 46 | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | LC4810.D | 1 | 06/10/99 | AMA | 05/12/99 | M:OP1220 | M:GLC4 |
| Run #2 | | | | | | | |

| CAS No. | Compound | Result | RDL | Units | Q |
|---|---|---|---|---|---|
| 83-32-9 | Acenaphthene | 347 | 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 | 278 | 15 | ug/kg | |
| 50-32-8 | Benzo (a) pyrene | 316 | 15 | ug/kg | |
| 205-99-2 | Benzo (b) fluoranthene | 488 | 15 | ug/kg | |
| 191-24-2 | Benzo (g,h,i) perylene | 284 | 15 | ug/kg | |
| 207-08-9 | Benzo (k) fluoranthene | 217 | 15 | ug/kg | |
| 218-01-9 | Chrysene | 735 | 15 | ug/kg | |
| 53-70-3 | Dibenz(a,h)anthracene | 64.0 | 15 | ug/kg | |
| 206-44-0 | Fluoranthene | 598 | 15 | ug/kg | |
| 86-73-7 | Fluorene | ND | 100 | ug/kg | |
| 193-39-5 | Indeno (1,2,3-cd) pyrene | 409 | 15 | ug/kg | |
| 90-12-0 | 1-Methylnaphthalene | ND | 100 | ug/kg | |
| 91-57-6 | 2-Methylnaphthalene | 266 | 100 | ug/kg | |
| 91-20-3 | Naphthalene | ND | 100 | ug/kg | |
| 85-01-8 | Phenanthrene | ND | 100 | ug/kg | |
| 129-00-0 | Pyrene | 728 | 15 | ug/kg | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 84-15-1 | o-Terphenyl | 49% | | 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

ACCUTEST

# Report of Analysis



| | | | |
|---|---|---|---|
| **Client Sample ID:** | CEF-P46-SS-021 | | |
| **Lab Sample ID:** | F4087-21 | **Date Sampled:** | 05/03/99 |
| **Matrix:** | SO - Soil | **Date Received:** | 05/04/99 |
| **Method:** | FLORIDA-PRO | **Percent Solids:** | 94.3 |
| **Project:** | NAS Cecil Field-PSC 46 | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | P03891.D | 1 | 05/10/99 | SKW | 05/10/99 | OP798 | GOP187 |
| Run #2 | | | | | | | |

| CAS No. | Compound | Result | RDL | Units | Q |
|---|---|---|---|---|---|
| | TPH (C8-C40) | 102 | 88 | 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

ACCUTEST

# Report of Analysis



| | | | |
|---|---|---|---|
| **Client Sample ID:** | CEF-P46-SS-022 | | |
| **Lab Sample ID:** | F4087-22 | **Date Sampled:** | 05/03/99 |
| **Matrix:** | SO - Soil | **Date Received:** | 05/04/99 |
| **Method:** | FLORIDA-PRO | **Percent Solids:** | 97.9 |
| **Project:** | NAS Cecil Field-PSC 46 | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | P03892.D | 1 | 05/10/99 | SKW | 05/10/99 | OP798 | GOP187 |
| Run #2 | | | | | | | |

| CAS No. | Compound | Result | RDL | Units | Q |
|---|---|---|---|---|---|
| | TPH (C8-C40) | 114 | 85 | mg/kg | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 84-15-1 | o-Terphenyl | 117% | | 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

ACCUTEST

# Report of Analysis



| | | | |
|---|---|---|---|
| **Client Sample ID:** | CEF-P46-SS-023 | | |
| **Lab Sample ID:** | F4087-23 | **Date Sampled:** | 05/03/99 |
| **Matrix:** | SO - Soil | **Date Received:** | 05/04/99 |
| **Method:** | FLORIDA-PRO | **Percent Solids:** | 96.6 |
| **Project:** | NAS Cecil Field-PSC 46 | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | P03893.D | 1 | 05/10/99 | SKW | 05/10/99 | OP798 | GOP187 |
| Run #2 | | | | | | | |

| CAS No. | Compound | Result | RDL | Units | Q |
|---|---|---|---|---|---|
| | TPH (C8-C40) | ND | 86 | mg/kg | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 84-15-1 | o-Terphenyl | 91% | | 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-06-9-186**

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

**SUBJECT:** **INORGANIC DATA VALIDATION – LEAD**
**CTO 078 - CECIL FIELD**
**SDG – F4087**

**SAMPLES:** 4/Soils/

CEF-P46-SS-019 CEF-P46-SS-020
CEF-P46-SS-021 CEF-P46-SS-DUP03

Overview

The sample set for CTO 078, Cecil Field, SDG F4087, consists of four (4) soil environmental samples. One (1) field duplicate pair (CEF-P46-SS-021 / CEF-P46-SS-DUP03) was included within this SDG.

The samples were analyzed for lead. The samples were collected by Tetra Tech NUS on May 3, 1999 and analyzed by Accutest Laboratory under Naval Facilities Engineering Service Center (NFESC) Quality Assurance / Quality Control (QA / QC) criteria. Lead 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

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

Notes

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) |
|---|---|---|
| Lead | 3.7µg/L | 1.85 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 determining blank contamination. No action was required as the results reported for lead were greater than the action level.

The Contract Required Detection Limit (CRDL) Percent Recovery (%R) for lead was >120% quality control limit. However, no validation action was required.

A comparison of field duplicate pair (CEF-P46-SS-021 / CEF-P46-SS-DUP03) is included in Appendix C.

Executive Summary

**Laboratory Performance:** Lead was 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: F4087



| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SAMPLE NUMBER: | CEF-P46-SS-019 | | | CEF-P46-SS-020 | | | CEF-P46-SS-021 | | | CEF-P46-SS-DUP03 | | |
| SAMPLE DATE: | 05/03/99 | | | 05/03/99 | | | 05/03/99 | | | 05/03/99 | | |
| LABORATORY ID: | F4087-19 | | | F4087-20 | | | F4087-21 | | | F4087-26 | | |
| QC_TYPE: | NORMAL | | | NORMAL | | | NORMAL | | | NORMAL | | |
| % SOLIDS: | 98.2 % | | | 97.0 % | | | 94.3 % | | | 95.0 % | | |
| UNITS: | MG/KG | | | MG/KG | | | MG/KG | | | MG/KG | | |
| FIELD DUPLICATE OF: | | | | | | | | | | CEF-P46-SS-021 | | |
| | RESULT | QUAL | CODE | RESULT | QUAL | CODE | RESULT | QUAL | CODE | RESULT | QUAL | CODE |
| **INORGANICS** | | | | | | | | | | | | |
| LEAD | 155 | | | 54.7 | | | 4.6 | | | 3.2 | | |

**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

ACCUTEST

# Report of Analysis



| | | | |
|---|---|---|---|
| **Client Sample ID:** | CEF-P46-SS-019 | | |
| **Lab Sample ID:** | F4087-19 | **Date Sampled:** | 05/03/99 |
| **Matrix:** | SO - Soil | **Date Received:** | 05/04/99 |
| | | **Percent Solids:** | 98.2 |
| **Project:** | NAS Cecil Field-PSC 46 | | |

**Metals Analysis**

| Analyte | Result | RDL | Units | DF | Prep | Analyzed | By | Method |
|---|---|---|---|---|---|---|---|---|
| Lead | 155 | 10.2 | mg/kg | 1 | 05/06/99 | 05/07/99 | JK | SW846 6010A |

RDL = Reported Detection Limit

000005

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ACCUTEST

# Report of Analysis



| | | | |
|---|---|---|---|
| **Client Sample ID:** | CEF-P46-SS-020 | | |
| **Lab Sample ID:** | F4087-20 | **Date Sampled:** | 05/03/99 |
| **Matrix:** | SO - Soil | **Date Received:** | 05/04/99 |
| | | **Percent Solids:** | 97.0 |
| **Project:** | NAS Cecil Field-PSC 46 | | |

**Metals Analysis**

| Analyte | Result | RDL | Units | DF | Prep | Analyzed | By | Method |
|---|---|---|---|---|---|---|---|---|
| Lead | 54.7 | 10.3 | mg/kg | 1 | 05/06/99 | 05/07/99 | JK | SW846 6010A |

RDL = Reported Detection Limit

000306

ACCUTEST

# Report of Analysis



| | | | |
|---|---|---|---|
| **Client Sample ID:** | CEF-P46-SS-021 | | |
| **Lab Sample ID:** | F4087-21 | **Date Sampled:** | 05/03/99 |
| **Matrix:** | SO - Soil | **Date Received:** | 05/04/99 |
| | | **Percent Solids:** | 94.3 |
| **Project:** | NAS Cecil Field-PSC 46 | | |

**Metals Analysis**

| Analyte | Result | RDL | Units | DF | Prep | Analyzed | By | Method |
|---|---|---|---|---|---|---|---|---|
| Lead | 4.6 B | 10.6 | mg/kg | 1 | 05/06/99 | 05/07/99 | JK | SW846 6010A |

RDL = Reported Detection Limit

000035

ACCUTEST

# Report of Analysis



| | | | |
|---|---|---|---|
| **Client Sample ID:** | CEF-P46-SS-DUP03 | | |
| **Lab Sample ID:** | F4087-26 | **Date Sampled:** | 05/03/99 |
| **Matrix:** | SO - Soil | **Date Received:** | 05/04/99 |
| | | **Percent Solids:** | 95.0 |
| **Project:** | NAS Cecil Field-PSC 46 | | |

**Metals Analysis**

| Analyte | Result | RDL | Units | DF | Prep | Analyzed | By | Method |
|---|---|---|---|---|---|---|---|---|
| Lead | 3.2 B | 10.5 | mg/kg | 1 | 05/06/99 | 05/07/99 | JK | SW846 6010A |

RDL = Reported Detection Limit

000012

ACCUTEST

# Report of Analysis



| | | | |
|---|---|---|---|
| **Client Sample ID:** | CEF-P46-SS-DUP03 | | |
| **Lab Sample ID:** | F4087-26 | **Date Sampled:** | 05/03/99 |
| **Matrix:** | SO - Soil | **Date Received:** | 05/04/99 |
| **Method:** | FLORIDA-PRO | **Percent Solids:** | 95.0 |
| **Project:** | NAS Cecil Field-PSC 46 | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | P03894.D | 1 | 05/10/99 | SKW | 05/10/99 | OP798 | GOP187 |
| Run #2 | | | | | | | |

| CAS No. | Compound | Result | RDL | Units | Q |
|---|---|---|---|---|---|
| | TPH (C8-C40) | 111 | 88 | 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

# PHASE II ANALYTICAL RESULTS

**Tetra Tech NUS** **INTERNAL CORRESPONDENCE**

**PITT-08-9-131**

**TO:** **MR. M. SPERANZA** **DATE: AUGUST 30, 1999**

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

**SUBJECT:** **ORGANIC DATA VALIDATION –PAH/TPH**
**CTO 078 – NAS CECIL FIELD**
**SDG F4429**

**SAMPLES:** 26/Solid

| | |
|---|---|
| CEF-P46-SS-101-01 | CEF-P46-SS-102-01 |
| CEF-P46-SS-103-01 | CEF-P46-SS-104-01 |
| CEF-P46-SS-105-01 | CEF-P46-SS-106-01 |
| CEF-P46-SS-107-01 | CEF-P46-SS-108-01 |
| CEF-P46-SS-109-02 | CEF-P46-SS-110-02* |
| CEF-P46-SS-111-02* | CEF-P46-SS-112-02* |
| CEF-P46-SS-113-01 | CEF-P46-SS-114-01 |
| CEF-P46-SS-115-01 | CEF-P46-SS-116-02 |
| CEF-P46-SS-117-01 | CEF-P46-SS-118-01 |
| CEF-P46-SS-119-01 | CEF-P46-SS-120-01 |
| CEF-P46-SS-121-01 | CEF-P46-SS-122-02 |
| CEF-P46-SS-123-02* | CEF-P46-SS-DU04 |
| CEF-P46-SS-DU05 | CEF-P46-SS-DU06* |

## OVERVIEW

The sample set for CTO 078, SDG F4429, Naval Air Station (NAS) Cecil Field; Florida consists of twenty-six (26) 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. Three (3) field duplicate pairs (CEF-P46-SS-103-01/CEF-P46-SS-DU04, CEF-P46-SS-122-01/CEF-P46-SS-DU05 and CEF-P46-SS-112-02/CEF-P46-SS-DU06) were included within this SDG.

The samples were collected by Tetra Tech, NUS on June 29th and 30th, 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 on 8/5/99 at 0755, 7/21/99 at 1121, 7/23/99 at 0435 and 2115, and 8/4/99 at 1003 on both columns. The positive and nondetected results were qualified as estimated (J) and (UJ), respectively, in the affected samples.

The field duplicate pairs Percent Relative Percent Differences (%RPDs) exceeded the 50% quality control limits for several compounds. The positive and nondetected results were qualified as estimated (J) and (UJ).

TPH FRACTION

The field duplicate pair (CEF-P46-SS-112-02/CEF-P46-SS-DU06) %RPD exceeded the 50% quality control limits for TPH(C8-C40). The positive and nondetected results were qualified as estimated (J) and (UJ).

EXECUTIVE SUMMARY

***Laboratory performance:*** The continuing calibration %Ds exceeded the 15% quality control limit for benzo(a)pyrene.

***Other Factors Affecting Data Quality:*** The field duplicate pairs %RPDs exceeded 50% for several compounds in both fractions.

**MEMO TO: MR. M. SPERANZA**
**DATE: AUGUST 30, 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. |
| 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/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: F4429



| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SAMPLE NUMBER: | CEF-P46-SS-101-01 | | | CEF-P46-SS-102-01 | | | CEF-P46-SS-103-01 | | | CEF-P46-SS-104-01 | | |
| SAMPLE DATE: | 06/29/99 | | | 06/30/99 | | | 06/30/99 | | | 06/29/99 | | |
| LABORATORY ID: | F4429-1 | | | F4429-2 | | | F4429-3 | | | F4429-4 | | |
| QC_TYPE: | NORMAL | | | NORMAL | | | NORMAL | | | NORMAL | | |
| % SOLIDS: | 92.0 % | | | 90.4 % | | | 87.0 % | | | 87.4 % | | |
| 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 | 36 | U | | 36 | U | | 37 | U | | 37 | U | |
| 2-METHYLNAPHTHALENE | 36 | U | | 36 | U | | 160 | J | G | 480 | | |
| ACENAPHTHENE | 36 | U | | 36 | U | | 200 | J | G | 960 | | |
| ACENAPHTHYLENE | 72 | U | | 72 | U | | 75 | U | | 76 | U | |
| ANTHRACENE | 5.8 | U | | 7.8 | | | 23 | J | G | 89 | | |
| BENZO(A)ANTHRACENE | 14 | | | 63 | | | 100 | J | G | 290 | | |
| BENZO(A)PYRENE | 18 | J | C | 200 | J | C | 160 | J | CG | 520 | J | C |
| BENZO(B)FLUORANTHENE | 44 | | | 280 | | | 210 | J | G | 680 | | |
| BENZO(G,H,I)PERYLENE | 33 | | | 240 | | | 200 | J | G | 770 | | |
| BENZO(K)FLUORANTHENE | 17 | | | 120 | | | 100 | J | G | 270 | | |
| CHRYSENE | 14 | | | 45 | | | 120 | J | G | 300 | | |
| DIBENZO(A,H)ANTHRACENE | 9 | U | | 20 | | | 9.7 | J | G | 67 | | |
| FLUORANTHENE | 30 | | | 67 | | | 260 | J | G | 510 | | |
| FLUORENE | 7.2 | U | | 15 | | | 7.4 | UJ | G | 25 | | |
| INDENO(1,2,3-CD)PYRENE | 21 | | | 140 | | | 120 | J | G | 360 | | |
| NAPHTHALENE | 36 | U | | 36 | U | | 37 | U | | 37 | U | |
| PHENANTHRENE | 5.8 | | | 11 | | | 63 | J | G | 340 | | |
| PYRENE | 32 | | | 150 | | | 210 | J | G | 520 | | |

# CTO078 - NAS CECIL FIELD
## SOIL DATA
## Accutest, NJ
## SDG: F4429



| SAMPLE NUMBER: | CEF-P46-SS-105-01 | | | CEF-P46-SS-106-01 | | | CEF-P46-SS-107-01 | | | CEF-P46-SS-108-01 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SAMPLE DATE: | 06/29/99 | | | 06/30/99 | | | 06/30/99 | | | 06/29/99 | | |
| LABORATORY ID: | F4429-5 | | | F4429-6 | | | F4429-7 | | | F4429-8 | | |
| QC_TYPE: | NORMAL | | | NORMAL | | | NORMAL | | | NORMAL | | |
| % SOLIDS: | 89.1 % | | | 86.3 % | | | 86.9 % | | | 92.1 % | | |
| 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 | 89 | | | 39 | U | | 39 | U | | 35 | U | |
| 2-METHYLNAPHTHALENE | 620 | | | 88 | | | 180 | | | 35 | U | |
| ACENAPHTHENE | 1400 | | | 150 | | | 390 | | | 35 | U | |
| ACENAPHTHYLENE | 76 | U | | 79 | U | | 79 | U | | 72 | U | |
| ANTHRACENE | 100 | | | 25 | | | 28 | | | 5.3 | U | |
| BENZO(A)ANTHRACENE | 460 | | | 79 | | | 170 | | | 11 | | |
| BENZO(A)PYRENE | 770 | J | C | 160 | J | C | 190 | J | C | 16 | | |
| BENZO(B)FLUORANTHENE | 1100 | | | 140 | | | 260 | | | 22 | | |
| BENZO(G,H,I)PERYLENE | 1000 | | | 150 | | | 220 | | | 11 | | |
| BENZO(K)FLUORANTHENE | 430 | | | 76 | | | 130 | | | 11 | | |
| CHRYSENE | 500 | | | 100 | | | 170 | | | 18 | | |
| DIBENZO(A,H)ANTHRACENE | 82 | | | 9.8 | U | | 26 | | | 8.9 | U | |
| FLUORANTHENE | 610 | | | 180 | | | 360 | | | 24 | | |
| FLUORENE | 17 | | | 7.9 | U | | 7.9 | U | | 7.2 | U | |
| INDENO(1,2,3-CD)PYRENE | 650 | | | 150 | | | 150 | | | 12 | | |
| NAPHTHALENE | 37 | U | | 39 | U | | 39 | U | | 35 | U | |
| PHENANTHRENE | 200 | | | 51 | | | 110 | | | 5.8 | | |
| PYRENE | 650 | | | 140 | | | 290 | | | 25 | | |

# CTO078 - NAS CECIL FIELD
## SOIL DATA
## Accutest, NJ
## SDG: F4429



| SAMPLE NUMBER: | CEF-P46-SS-109-02 | | | CEF-P46-SS-110-02 | | | CEF-P46-SS-111-02 | | | CEF-P46-SS-112-02 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SAMPLE DATE: | 06/30/99 | | | 06/30/99 | | | 06/30/99 | | | 06/30/99 | | |
| LABORATORY ID: | F4429-9 | | | F4429-10 | | | F4429-11 | | | F4429-12 | | |
| QC_TYPE: | NORMAL | | | NORMAL | | | NORMAL | | | NORMAL | | |
| % SOLIDS: | 83.3 % | | | 91.2 % | | | 75.4 % | | | 85.9 % | | |
| 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 | 38 | U | | 36 | U | | 37 | U | | 39 | U | |
| 2-METHYLNAPHTHALENE | 38 | U | | 1200 | | | 650 | | | 200 | J | G |
| ACENAPHTHENE | 54 | | | 2000 | | | 1100 | | | 420 | J | G |
| ACENAPHTHYLENE | 76 | U | | 73 | U | | 76 | U | | 210 | J | G |
| ANTHRACENE | 5.7 | U | | 160 | | | 42 | | | 57 | J | G |
| BENZO(A)ANTHRACENE | 17 | | | 720 | | | 440 | | | 170 | J | G |
| BENZO(A)PYRENE | 39 | | | 1600 | J | C | 800 | J | C | 250 | J | CG |
| BENZO(B)FLUORANTHENE | 52 | | | 2000 | | | 950 | | | 280 | J | G |
| BENZO(G,H,I)PERYLENE | 60 | | | 2200 | | | 1200 | | | 540 | J | G |
| BENZO(K)FLUORANTHENE | 23 | | | 780 | | | 410 | | | 130 | J | G |
| CHRYSENE | 24 | | | 780 | | | 440 | | | 150 | J | G |
| DIBENZO(A,H)ANTHRACENE | 9.4 | U | | 220 | | | 80 | | | 38 | J | G |
| FLUORANTHENE | 42 | | | 1100 | | | 700 | | | 220 | J | G |
| FLUORENE | 7.6 | U | | 36 | | | 16 | | | 7.9 | U | |
| INDENO(1,2,3-CD)PYRENE | 38 | | | 1400 | | | 630 | | | 250 | J | G |
| NAPHTHALENE | 38 | U | | 36 | U | | 37 | U | | 39 | U | |
| PHENANTHRENE | 12 | | | 370 | | | 130 | | | 56 | J | G |
| PYRENE | 31 | | | 1000 | | | 680 | | | 210 | J | G |

# CTO078 - NAS CECIL FIELD
## SOIL DATA
## Accutest, NJ
## SDG: F4429



| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SAMPLE NUMBER: | CEF-P46-SS-113-01 | | | CEF-P46-SS-114-01 | | | CEF-P46-SS-115-01 | | | CEF-P46-SS-116-02 | | |
| SAMPLE DATE: | 06/30/99 | | | 06/30/99 | | | 06/30/99 | | | 06/30/99 | | |
| LABORATORY ID: | F4429-13 | | | F4429-14 | | | F4429-15 | | | F4429-16 | | |
| QC_TYPE: | NORMAL | | | NORMAL | | | NORMAL | | | NORMAL | | |
| % SOLIDS: | 88.9 % | | | 89.7 % | | | 89.4 % | | | 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 | 36 | U | | 37 | U | | 36 | U | | 38 | U | |
| 2-METHYLNAPHTHALENE | 150 | | | 370 | | | 160 | | | 69 | | |
| ACENAPHTHENE | 230 | | | 550 | | | 230 | | | 96 | | |
| ACENAPHTHYLENE | 74 | U | | 75 | U | | 73 | U | | 78 | U | |
| ANTHRACENE | 12 | | | 13 | | | 9.5 | | | 5.8 | U | |
| BENZO(A)ANTHRACENE | 72 | | | 140 | | | 74 | | | 42 | | |
| BENZO(A)PYRENE | 150 | J | C | 320 | J | C | 170 | J | C | 120 | J | C |
| BENZO(B)FLUORANTHENE | 250 | | | 450 | | | 240 | | | 150 | | |
| BENZO(G,H,I)PERYLENE | 280 | | | 720 | | | 370 | | | 220 | | |
| BENZO(K)FLUORANTHENE | 99 | | | 160 | | | 90 | | | 56 | | |
| CHRYSENE | 80 | | | 160 | | | 99 | | | 54 | | |
| DIBENZO(A,H)ANTHRACENE | 23 | | | 58 | | | 30 | | | 17 | | |
| FLUORANTHENE | 150 | | | 350 | | | 150 | | | 77 | | |
| FLUORENE | 7.4 | U | | 7.7 | | | 7.3 | U | | 7.6 | U | |
| INDENO(1,2,3-CD)PYRENE | 170 | | | 320 | | | 180 | | | 110 | | |
| NAPHTHALENE | 36 | U | | 37 | U | | 36 | U | | 38 | U | |
| PHENANTHRENE | 31 | | | 74 | | | 54 | | | 18 | | |
| PYRENE | 150 | | | 360 | | | 140 | | | 77 | | |

# CTO078 - NAS CECIL FIELD
## SOIL DATA
## Accutest, NJ
## SDG: F4429



| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SAMPLE NUMBER: | CEF-P46-SS-117-01 | | | CEF-P46-SS-118-01 | | | CEF-P46-SS-119-01 | | | CEF-P46-SS-120-01 | | |
| SAMPLE DATE: | 06/30/99 | | | 06/30/99 | | | 06/30/99 | | | 06/30/99 | | |
| LABORATORY ID: | F4429-17 | | | F4429-18 | | | F4429-19 | | | F4429-20 | | |
| QC_TYPE: | NORMAL | | | NORMAL | | | NORMAL | | | NORMAL | | |
| % SOLIDS: | 90.2 % | | | 89.4 % | | | 89.2 % | | | 89.2 % | | |
| 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 | 37 | U | | 36 | U | | 37 | U | | 37 | U | |
| 2-METHYLNAPHTHALENE | 310 | | | 110 | | | 110 | | | 350 | | |
| ACENAPHTHENE | 410 | | | 150 | | | 130 | | | 530 | | |
| ACENAPHTHYLENE | 74 | U | | 74 | U | | 74 | U | | 75 | U | |
| ANTHRACENE | 48 | | | 13 | | | 13 | | | 23 | | |
| BENZO(A)ANTHRACENE | 140 | | | 69 | | | 89 | | | 230 | | |
| BENZO(A)PYRENE | 220 | J | C | 73 | J | C | 140 | J | C | 370 | J | C |
| BENZO(B)FLUORANTHENE | 320 | | | 150 | | | 170 | | | 530 | | |
| BENZO(G,H,I)PERYLENE | 300 | | | 140 | | | 170 | | | 560 | | |
| BENZO(K)FLUORANTHENE | 130 | | | 71 | | | 77 | | | 240 | | |
| CHRYSENE | 150 | | | 110 | | | 100 | | | 290 | | |
| DIBENZO(A,H)ANTHRACENE | 36 | | | 16 | | | 18 | | | 43 | | |
| FLUORANTHENE | 450 | | | 430 | | | 220 | | | 360 | | |
| FLUORENE | 21 | | | 26 | | | 5.6 | U | | 7.5 | U | |
| INDENO(1,2,3-CD)PYRENE | 190 | | | 85 | | | 110 | | | 300 | | |
| NAPHTHALENE | 37 | U | | 36 | U | | 37 | U | | 37 | U | |
| PHENANTHRENE | 190 | | | 390 | | | 74 | | | 110 | | |
| PYRENE | 340 | | | 310 | | | 180 | | | 390 | | |

# CTO078 - NAS CECIL FIELD
## SOIL DATA
## Accutest, NJ
## SDG: F4429



| SAMPLE NUMBER: | CEF-P46-SS-121-01 | | | CEF-P46-SS-122-02 | | | CEF-P46-SS-123-02 | | | CEF-P46-SS-DU04 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SAMPLE DATE: | 06/30/99 | | | 06/30/99 | | | 06/30/99 | | | 06/30/99 | | |
| LABORATORY ID: | F4429-21 | | | F4429-22 | | | F4429-23 | | | F4429-24 | | |
| QC_TYPE: | NORMAL | | | NORMAL | | | NORMAL | | | NORMAL | | |
| % SOLIDS: | 89.5 % | | | 91.7 % | | | 85.3 % | | | 86.5 % | | |
| UNITS: | UG/KG | | | UG/KG | | | UG/KG | | | UG/KG | | |
| FIELD DUPLICATE OF: | | | | | | | | | | CEF-P46-SS-103-01 | | |
| | RESULT | QUAL | CODE | RESULT | QUAL | CODE | RESULT | QUAL | CODE | RESULT | QUAL | CODE |
| **POLYNUCLEAR AROMATIC HYDROCARBONS** | | | | | | | | | | | | |
| 1-METHYLNAPHTHALENE | 36 | U | | 35 | U | | 37 | U | | 37 | U | G |
| 2-METHYLNAPHTHALENE | 400 | | | 300 | | | 65 | | | 520 | J | G |
| ACENAPHTHENE | 580 | | | 470 | | | 90 | | | 900 | J | G |
| ACENAPHTHYLENE | 73 | U | | 72 | U | | 75 | U | | 75 | U | |
| ANTHRACENE | 64 | | | 39 | J | G | 15 | | | 110 | J | G |
| BENZO(A)ANTHRACENE | 180 | | | 140 | J | G | 78 | | | 490 | J | G |
| BENZO(A)PYRENE | 380 | J | C | 310 | J | CG | 170 | J | G | 580 | J | CG |
| BENZO(B)FLUORANTHENE | 520 | | | 480 | J | G | 200 | | | 730 | J | G |
| BENZO(G,H,I)PERYLENE | 750 | | | 1400 | J | G | 220 | | | 580 | J | G |
| BENZO(K)FLUORANTHENE | 210 | | | 170 | J | G | 87 | | | 390 | J | G |
| CHRYSENE | 210 | | | 230 | J | G | 86 | | | 590 | J | G |
| DIBENZO(A,H)ANTHRACENE | 68 | | | 72 | J | G | 28 | | | 43 | J | G |
| FLUORANTHENE | 450 | | | 410 | J | G | 130 | | | 1300 | J | G |
| FLUORENE | 20 | | | 9.1 | | | 7.4 | U | | 32 | J | G |
| INDENO(1,2,3-CD)PYRENE | 370 | | | 400 | J | G | 130 | | | 450 | J | G |
| NAPHTHALENE | 36 | U | | 35 | U | | 37 | U | | 37 | U | |
| PHENANTHRENE | 190 | | | 170 | | | 33 | | | 510 | J | G |
| PYRENE | 340 | | | 310 | J | G | 120 | | | 1000 | J | G |

# CTO078 - NAS CECIL FIELD
## SOIL DATA
## Accutest, NJ
## SDG: F4429



| | | | | |
|---|---|---|---|---|
| SAMPLE NUMBER: | CEF-P46-SS-DU05 | CEF-P46-SS-DU06 | | |
| SAMPLE DATE: | 06/30/99 | 06/30/99 | / / | / / |
| LABORATORY ID: | F4429-25 | F4429-26 | | |
| QC_TYPE: | NORMAL | NORMAL | | |
| % SOLIDS: | 90.3 % | 88.0 % | 100.0 % | 100.0 % |
| UNITS: | UG/KG | UG/KG | | |
| FIELD DUPLICATE OF: | CEF-P46-SS-122-02 | CEF-P46-SS-112-02 | | |

| | RESULT | QUAL | CODE | RESULT | QUAL | CODE | RESULT | QUAL | CODE | RESULT | QUAL | CODE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **POLYNUCLEAR AROMATIC HYDROCARBONS** | | | | | | | | | | | | |
| 1-METHYLNAPHTHALENE | 36 | U | | 37 | U | | | | | | | |
| 2-METHYLNAPHTHALENE | 460 | | | 59 | J | G | | | | | | |
| ACENAPHTHENE | 730 | | | 45 | J | G | | | | | | |
| ACENAPHTHYLENE | 73 | U | | 75 | UJ | G | | | | | | |
| ANTHRACENE | 99 | J | G | 17 | J | G | | | | | | |
| BENZO(A)ANTHRACENE | 450 | J | G | 33 | J | G | | | | | | |
| BENZO(A)PYRENE | 1200 | J | CG | 75 | J | G | | | | | | |
| BENZO(B)FLUORANTHENE | 1400 | J | G | 77 | J | G | | | | | | |
| BENZO(G,H,I)PERYLENE | 1400 | J | G | 260 | J | G | | | | | | |
| BENZO(K)FLUORANTHENE | 670 | J | G | 38 | J | G | | | | | | |
| CHRYSENE | 610 | J | G | 55 | J | G | | | | | | |
| DIBENZO(A,H)ANTHRACENE | 160 | J | G | 9.5 | J | G | | | | | | |
| FLUORANTHENE | 1200 | J | G | 84 | J | G | | | | | | |
| FLUORENE | 11 | | | 7.5 | U | | | | | | | |
| INDENO(1,2,3-CD)PYRENE | 1000 | J | G | 64 | J | G | | | | | | |
| NAPHTHALENE | 36 | U | | 37 | U | | | | | | | |
| PHENANTHRENE | 270 | | | 12 | J | G | | | | | | |
| PYRENE | 1100 | J | G | 55 | J | G | | | | | | |

# CTO078 - NAS CECIL FIELD
## SOIL DATA
## Accutest, NJ
## SDG: F4429



| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SAMPLE NUMBER: | CEF-P46-SS-110-02 | | | CEF-P46-SS-111-02 | | | CEF-P46-SS-112-02 | | | CEF-P46-SS-123-02 | | |
| SAMPLE DATE: | 06/30/99 | | | 06/30/99 | | | 06/30/99 | | | 06/30/99 | | |
| LABORATORY ID: | F4429-10 | | | F4429-11 | | | F4429-12 | | | F4429-23 | | |
| QC_TYPE: | NORMAL | | | NORMAL | | | NORMAL | | | NORMAL | | |
| % SOLIDS: | 91.2 % | | | 75.4 % | | | 85.9 % | | | 85.3 % | | |
| UNITS: | MG/KG | | | MG/KG | | | MG/KG | | | MG/KG | | |
| FIELD DUPLICATE OF: | | | | | | | | | | | | |
| | RESULT | QUAL | CODE | RESULT | QUAL | CODE | RESULT | QUAL | CODE | RESULT | QUAL | CODE |
| **TOTAL PETROLEUM HYDROCARBONS** | | | | | | | | | | | | |
| TPH (C8-C40) | 97 | | | 136 | | | 98.7 | J | G | 96 | U | |

# CTO078 - NAS CECIL FIELD
## SOIL DATA
## Accutest, NJ
## SDG: F4429



| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SAMPLE NUMBER: | CEF-P46-SS-DU06 | | | | | | | | | | | |
| SAMPLE DATE: | 06/30/99 | | | / / | | | / / | | | / / | | |
| LABORATORY ID: | F4429-26 | | | | | | | | | | | |
| QC_TYPE: | NORMAL | | | | | | | | | | | |
| % SOLIDS: | 88.0 % | | | 100.0 % | | | 100.0 % | | | 100.0 % | | |
| UNITS: | MG/KG | | | | | | | | | | | |
| FIELD DUPLICATE OF: | CEF-P46-SS-112-02 | | | | | | | | | | | |
| | RESULT | QUAL | CODE | RESULT | QUAL | CODE | RESULT | QUAL | CODE | RESULT | QUAL | CODE |
| **TOTAL PETROLEUM HYDROCARBONS** | | | | | | | | | | | | |
| TPH (C8-C40) | 96 | UJ | G | | | | | | | | | |

ACCUTEST

# Report of Analysis



| | | | |
|---|---|---|---|
| **Client Sample ID:** | CEF-P46-SS-101-01 | | |
| **Lab Sample ID:** | F4429-1 | **Date Sampled:** | 06/29/99 |
| **Matrix:** | SO - Soil | **Date Received:** | 07/01/99 |
| **Method:** | EPA 8310 | **Percent Solids:** | 92.0 |
| **Project:** | NAS Cecil Field-PSC 46 | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 [a] | | 1 | 07/21/99 | SUB | n/a | n/a | R6961 |
| Run #2 | | | | | | | |

| CAS No. | Compound | Result | RDL | Units | Q |
|---|---|---|---|---|---|
| 83-32-9 | Acenaphthene | ND | 36 | ug/kg | |
| 208-96-8 | Acenaphthylene | ND | 72 | ug/kg | |
| 120-12-7 | Anthracene | ND | 5.8 | ug/kg | |
| 56-55-3 | Benzo(a)anthracene | 14 | 5.8 | ug/kg | |
| 50-32-8 | Benzo(a)pyrene | 18 | 5.8 | ug/kg | |
| 205-99-2 | Benzo(b)fluoranthene | 44 | 5.8 | ug/kg | |
| 191-24-2 | Benzo(g,h,i)perylene | 33 | 7.2 | ug/kg | |
| 207-08-9 | Benzo(k)fluoranthene | 17 | 5.8 | ug/kg | |
| 218-01-9 | Chrysene | 14 | 5.8 | ug/kg | |
| 53-70-3 | Dibenzo(a,h)anthracene | ND | 9.0 | ug/kg | |
| 206-44-0 | Fluoranthene | 30 | 7.2 | ug/kg | |
| 86-73-7 | Fluorene | ND | 7.2 | ug/kg | |
| 193-39-5 | Indeno(1,2,3-cd)pyrene | 21 | 5.8 | 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 | 5.8 | 5.8 | ug/kg | |
| 129-00-0 | Pyrene | 32 | 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

ACCUTEST

# Report of Analysis



| | | | |
|---|---|---|---|
| **Client Sample ID:** | CEF-P46-SS-102-01 | | |
| **Lab Sample ID:** | F4429-2 | **Date Sampled:** | 06/30/99 |
| **Matrix:** | SO - Soil | **Date Received:** | 07/01/99 |
| **Method:** | EPA 8310 | **Percent Solids:** | 90.4 |
| **Project:** | NAS Cecil Field-PSC 46 | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 [a] | | 1 | 07/21/99 | SUB | n/a | n/a | R6961 |
| Run #2 | | | | | | | |

| CAS No. | Compound | Result | RDL | Units | Q |
|---|---|---|---|---|---|
| 83-32-9 | Acenaphthene | ND | 36 | ug/kg | |
| 208-96-8 | Acenaphthylene | ND | 72 | ug/kg | |
| 120-12-7 | Anthracene | 7.8 | 5.8 | ug/kg | |
| 56-55-3 | Benzo(a)anthracene | 63 | 5.8 | ug/kg | |
| 50-32-8 | Benzo(a)pyrene | 200 | 12 | ug/kg | |
| 205-99-2 | Benzo(b)fluoranthene | 280 | 5.8 | ug/kg | |
| 191-24-2 | Benzo(g,h,i)perylene | 240 | 7.2 | ug/kg | |
| 207-08-9 | Benzo(k)fluoranthene | 120 | 5.8 | ug/kg | |
| 218-01-9 | Chrysene | 45 | 5.8 | ug/kg | |
| 53-70-3 | Dibenzo(a,h)anthracene | 20 | 9.0 | ug/kg | |
| 206-44-0 | Fluoranthene | 67 | 7.2 | ug/kg | |
| 86-73-7 | Fluorene | 15 | 7.2 | ug/kg | |
| 193-39-5 | Indeno(1,2,3-cd)pyrene | 140 | 5.8 | 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 | 11 | 5.8 | ug/kg | |
| 129-00-0 | Pyrene | 150 | 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

ACCUTEST

# Report of Analysis



| | | | |
|---|---|---|---|
| **Client Sample ID:** | CEF-P46-SS-103-01 | | |
| **Lab Sample ID:** | F4429-3 | **Date Sampled:** | 06/30/99 |
| **Matrix:** | SO - Soil | **Date Received:** | 07/01/99 |
| **Method:** | EPA 8310 | **Percent Solids:** | 87.0 |
| **Project:** | NAS Cecil Field-PSC 46 | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 [a] | | 1 | 07/21/99 | SUB | n/a | n/a | R6961 |
| Run #2 | | | | | | | |

| CAS No. | Compound | Result | RDL | Units | Q |
|---|---|---|---|---|---|
| 83-32-9 | Acenaphthene | 200 | 37 | ug/kg | |
| 208-96-8 | Acenaphthylene | ND | 75 | ug/kg | |
| 120-12-7 | Anthracene | 23 | 5.6 | ug/kg | |
| 56-55-3 | Benzo(a)anthracene | 100 | 5.6 | ug/kg | |
| 50-32-8 | Benzo(a)pyrene | 160 | 5.6 | ug/kg | |
| 205-99-2 | Benzo(b)fluoranthene | 210 | 5.6 | ug/kg | |
| 191-24-2 | Benzo(g,h,i)perylene | 200 | 7.4 | ug/kg | |
| 207-08-9 | Benzo(k)fluoranthene | 100 | 5.6 | ug/kg | |
| 218-01-9 | Chrysene | 120 | 5.6 | ug/kg | |
| 53-70-3 | Dibenzo(a,h)anthracene | 9.7 | 9.3 | ug/kg | |
| 206-44-0 | Fluoranthene | 260 | 7.4 | ug/kg | |
| 86-73-7 | Fluorene | ND | 7.4 | ug/kg | |
| 193-39-5 | Indeno(1,2,3-cd)pyrene | 120 | 5.6 | ug/kg | |
| 91-20-3 | Naphthalene | ND | 37 | ug/kg | |
| 90-12-0 | 1-Methylnaphthalene | ND | 37 | ug/kg | |
| 91-57-6 | 2-Methylnaphthalene | 160 | 37 | ug/kg | |
| 85-01-8 | Phenanthrene | 63 | 5.6 | ug/kg | |
| 129-00-0 | Pyrene | 210 | 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

ACCUTEST

# Report of Analysis



| | | | |
|---|---|---|---|
| **Client Sample ID:** | CEF-P46-SS-104-01 | | |
| **Lab Sample ID:** | F4429-4 | **Date Sampled:** | 06/29/99 |
| **Matrix:** | SO - Soil | **Date Received:** | 07/01/99 |
| **Method:** | EPA 8310 | **Percent Solids:** | 87.4 |
| **Project:** | NAS Cecil Field-PSC 46 | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 [a] | | 1 | 07/21/99 | SUB | n/a | n/a | R6961 |
| Run #2 | | | | | | | |

| CAS No. | Compound | Result | RDL | Units | Q |
|---|---|---|---|---|---|
| 83-32-9 | Acenaphthene | 960 | 37 | ug/kg | |
| 208-96-8 | Acenaphthylene | ND | 76 | ug/kg | |
| 120-12-7 | Anthracene | 89 | 5.6 | ug/kg | |
| 56-55-3 | Benzo(a)anthracene | 290 | 28 | ug/kg | |
| 50-32-8 | Benzo(a)pyrene | 520 | 28 | ug/kg | |
| 205-99-2 | Benzo(b)fluoranthene | 680 | 28 | ug/kg | |
| 191-24-2 | Benzo(g,h,i)perylene | 770 | 37 | ug/kg | |
| 207-08-9 | Benzo(k)fluoranthene | 270 | 28 | ug/kg | |
| 218-01-9 | Chrysene | 300 | 28 | ug/kg | |
| 53-70-3 | Dibenzo(a,h)anthracene | 67 | 9.3 | ug/kg | |
| 206-44-0 | Fluoranthene | 510 | 37 | ug/kg | |
| 86-73-7 | Fluorene | 25 | 7.4 | ug/kg | |
| 193-39-5 | Indeno(1,2,3-cd)pyrene | 360 | 28 | ug/kg | |
| 91-20-3 | Naphthalene | ND | 37 | ug/kg | |
| 90-12-0 | 1-Methylnaphthalene | ND | 37 | ug/kg | |
| 91-57-6 | 2-Methylnaphthalene | 480 | 37 | ug/kg | |
| 85-01-8 | Phenanthrene | 340 | 28 | ug/kg | |
| 129-00-0 | Pyrene | 520 | 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

ACCUTEST

# Report of Analysis



| | | | |
|---|---|---|---|
| **Client Sample ID:** | CEF-P46-SS-105-01 | | |
| **Lab Sample ID:** | F4429-5 | **Date Sampled:** | 06/29/99 |
| **Matrix:** | SO - Soil | **Date Received:** | 07/01/99 |
| **Method:** | EPA 8310 | **Percent Solids:** | 89.1 |
| **Project:** | NAS Cecil Field-PSC 46 | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 [a] | | 1 | 07/21/99 | SUB | n/a | n/a | R6961 |
| Run #2 | | | | | | | |

| CAS No. | Compound | Result | RDL | Units | Q |
|---|---|---|---|---|---|
| 83-32-9 | Acenaphthene | 1400 | 37 | ug/kg | |
| 208-96-8 | Acenaphthylene | ND | 76 | ug/kg | |
| 120-12-7 | Anthracene | 100 | 5.6 | ug/kg | |
| 56-55-3 | Benzo(a)anthracene | 460 | 56 | ug/kg | |
| 50-32-8 | Benzo(a)pyrene | 770 | 56 | ug/kg | |
| 205-99-2 | Benzo(b)fluoranthene | 1100 | 56 | ug/kg | |
| 191-24-2 | Benzo(g,h,i)perylene | 1000 | 74 | ug/kg | |
| 207-08-9 | Benzo(k)fluoranthene | 430 | 56 | ug/kg | |
| 218-01-9 | Chrysene | 500 | 56 | ug/kg | |
| 53-70-3 | Dibenzo(a,h)anthracene | 82 | 9.3 | ug/kg | |
| 206-44-0 | Fluoranthene | 610 | 74 | ug/kg | |
| 86-73-7 | Fluorene | 17 | 7.4 | ug/kg | |
| 193-39-5 | Indeno(1,2,3-cd)pyrene | 650 | 56 | ug/kg | |
| 91-20-3 | Naphthalene | ND | 37 | ug/kg | |
| 90-12-0 | 1-Methylnaphthalene | 89 | 37 | ug/kg | |
| 91-57-6 | 2-Methylnaphthalene | 620 | 370 | ug/kg | |
| 85-01-8 | Phenanthrene | 200 | 56 | ug/kg | |
| 129-00-0 | Pyrene | 650 | 74 | 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-P46-SS-106-01 | | |
| **Lab Sample ID:** | F4429-6 | **Date Sampled:** | 06/30/99 |
| **Matrix:** | SO - Soil | **Date Received:** | 07/01/99 |
| **Method:** | EPA 8310 | **Percent Solids:** | 86.3 |
| **Project:** | NAS Cecil Field-PSC 46 | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 [a] | | 1 | 07/21/99 | SUB | n/a | n/a | R6961 |
| Run #2 | | | | | | | |

| CAS No. | Compound | Result | RDL | Units | Q |
|---|---|---|---|---|---|
| 83-32-9 | Acenaphthene | 150 | 39 | ug/kg | |
| 208-96-8 | Acenaphthylene | ND | 79 | ug/kg | |
| 120-12-7 | Anthracene | 25 | 5.9 | ug/kg | |
| 56-55-3 | Benzo(a)anthracene | 79 | 5.9 | ug/kg | |
| 50-32-8 | Benzo(a)pyrene | 160 | 5.9 | ug/kg | |
| 205-99-2 | Benzo(b)fluoranthene | 140 | 5.9 | ug/kg | |
| 191-24-2 | Benzo(g,h,i)perylene | 150 | 7.9 | ug/kg | |
| 207-08-9 | Benzo(k)fluoranthene | 76 | 5.9 | ug/kg | |
| 218-01-9 | Chrysene | 100 | 5.9 | ug/kg | |
| 53-70-3 | Dibenzo(a,h)anthracene | ND | 9.8 | ug/kg | |
| 206-44-0 | Fluoranthene | 180 | 7.9 | ug/kg | |
| 86-73-7 | Fluorene | ND | 7.9 | ug/kg | |
| 193-39-5 | Indeno(1,2,3-cd)pyrene | 150 | 5.9 | ug/kg | |
| 91-20-3 | Naphthalene | ND | 39 | ug/kg | |
| 90-12-0 | 1-Methylnaphthalene | ND | 39 | ug/kg | |
| 91-57-6 | 2-Methylnaphthalene | 88 | 39 | ug/kg | |
| 85-01-8 | Phenanthrene | 51 | 5.9 | ug/kg | |
| 129-00-0 | Pyrene | 140 | 7.9 | 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-P46-SS-107-01 | | |
| **Lab Sample ID:** | F4429-7 | **Date Sampled:** | 06/30/99 |
| **Matrix:** | SO - Soil | **Date Received:** | 07/01/99 |
| **Method:** | EPA 8310 | **Percent Solids:** | 86.9 |
| **Project:** | NAS Cecil Field-PSC 46 | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 [a] | | 1 | 08/03/99 | SUB | n/a | n/a | R6961 |
| Run #2 | | | | | | | |

| CAS No. | Compound | Result | RDL | Units | Q |
|---|---|---|---|---|---|
| 83-32-9 | Acenaphthene | 390 | 39 | ug/kg | |
| 208-96-8 | Acenaphthylene | ND | 79 | ug/kg | |
| 120-12-7 | Anthracene | 28 | 5.9 | ug/kg | |
| 56-55-3 | Benzo(a)anthracene | 170 | 5.9 | ug/kg | |
| 50-32-8 | Benzo(a)pyrene | 190 | 24 | ug/kg | |
| 205-99-2 | Benzo(b)fluoranthene | 260 | 5.9 | ug/kg | |
| 191-24-2 | Benzo(g,h,i)perylene | 220 | 7.9 | ug/kg | |
| 207-08-9 | Benzo(k)fluoranthene | 130 | 5.9 | ug/kg | |
| 218-01-9 | Chrysene | 170 | 5.9 | ug/kg | |
| 53-70-3 | Dibenzo(a,h)anthracene | 26 | 9.8 | ug/kg | |
| 206-44-0 | Fluoranthene | 360 | 7.9 | ug/kg | |
| 86-73-7 | Fluorene | ND | 7.9 | ug/kg | |
| 193-39-5 | Indeno(1,2,3-cd)pyrene | 150 | 5.9 | ug/kg | |
| 91-20-3 | Naphthalene | ND | 39 | ug/kg | |
| 90-12-0 | 1-Methylnaphthalene | ND | 39 | ug/kg | |
| 91-57-6 | 2-Methylnaphthalene | 180 | 39 | ug/kg | |
| 85-01-8 | Phenanthrene | 110 | 5.9 | ug/kg | |
| 129-00-0 | Pyrene | 290 | 32 | 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-P46-SS-108-01 | | |
| **Lab Sample ID:** | F4429-8 | **Date Sampled:** | 06/29/99 |
| **Matrix:** | SO - Soil | **Date Received:** | 07/01/99 |
| **Method:** | EPA 8310 | **Percent Solids:** | 92.1 |
| **Project:** | NAS Cecil Field-PSC 46 | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 [a] | | 1 | 08/03/99 | SUB | n/a | n/a | R6961 |
| Run #2 | | | | | | | |

| CAS No. | Compound | Result | RDL | Units | Q |
|---|---|---|---|---|---|
| 83-32-9 | Acenaphthene | ND | 35 | ug/kg | |
| 208-96-8 | Acenaphthylene | ND | 72 | ug/kg | |
| 120-12-7 | Anthracene | ND | 5.3 | ug/kg | |
| 56-55-3 | Benzo(a)anthracene | 11 | 5.3 | ug/kg | |
| 50-32-8 | Benzo(a)pyrene | 16 | 5.3 | ug/kg | |
| 205-99-2 | Benzo(b)fluoranthene | 22 | 5.3 | ug/kg | |
| 191-24-2 | Benzo(g,h,i)perylene | 11 | 7.2 | 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 | 8.9 | ug/kg | |
| 206-44-0 | Fluoranthene | 24 | 7.2 | ug/kg | |
| 86-73-7 | Fluorene | ND | 7.2 | ug/kg | |
| 193-39-5 | Indeno(1,2,3-cd)pyrene | 12 | 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 | 5.8 | 5.3 | ug/kg | |
| 129-00-0 | Pyrene | 25 | 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

ACCUTEST

# Report of Analysis



| | | | |
|---|---|---|---|
| **Client Sample ID:** | CEF-P46-SS-109-02 | | |
| **Lab Sample ID:** | F4429-9 | **Date Sampled:** | 06/30/99 |
| **Matrix:** | SO - Soil | **Date Received:** | 07/01/99 |
| **Method:** | EPA 8310 | **Percent Solids:** | 83.3 |
| **Project:** | NAS Cecil Field-PSC 46 | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 [a] | | 1 | 08/03/99 | SUB | n/a | n/a | R6961 |
| Run #2 | | | | | | | |

| CAS No. | Compound | Result | RDL | Units | Q |
|---|---|---|---|---|---|
| 83-32-9 | Acenaphthene | 54 | 38 | ug/kg | |
| 208-96-8 | Acenaphthylene | ND | 76 | ug/kg | |
| 120-12-7 | Anthracene | ND | 5.7 | ug/kg | |
| 56-55-3 | Benzo(a)anthracene | 17 | 5.7 | ug/kg | |
| 50-32-8 | Benzo(a)pyrene | 39 | 5.7 | ug/kg | |
| 205-99-2 | Benzo(b)fluoranthene | 52 | 5.7 | ug/kg | |
| 191-24-2 | Benzo(g,h,i)perylene | 60 | 7.6 | ug/kg | |
| 207-08-9 | Benzo(k)fluoranthene | 23 | 5.7 | ug/kg | |
| 218-01-9 | Chrysene | 24 | 5.7 | ug/kg | |
| 53-70-3 | Dibenzo(a,h)anthracene | ND | 9.4 | ug/kg | |
| 206-44-0 | Fluoranthene | 42 | 7.6 | ug/kg | |
| 86-73-7 | Fluorene | ND | 7.6 | ug/kg | |
| 193-39-5 | Indeno(1,2,3-cd)pyrene | 38 | 5.7 | ug/kg | |
| 91-20-3 | Naphthalene | ND | 38 | ug/kg | |
| 90-12-0 | 1-Methylnaphthalene | ND | 38 | ug/kg | |
| 91-57-6 | 2-Methylnaphthalene | ND | 38 | ug/kg | |
| 85-01-8 | Phenanthrene | 12 | 5.7 | ug/kg | |
| 129-00-0 | Pyrene | 31 | 7.6 | 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-P46-SS-110-02 | | |
| **Lab Sample ID:** | F4429-10 | **Date Sampled:** | 06/30/99 |
| **Matrix:** | SO - Soil | **Date Received:** | 07/01/99 |
| **Method:** | EPA 8310 | **Percent Solids:** | 91.2 |
| **Project:** | NAS Cecil Field-PSC 46 | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 [a] | | 1 | 08/03/99 | SUB | n/a | n/a | R6961 |
| Run #2 | | | | | | | |

| CAS No. | Compound | Result | RDL | Units | Q |
|---|---|---|---|---|---|
| 83-32-9 | Acenaphthene | 2000 | 360 | ug/kg | |
| 208-96-8 | Acenaphthylene | ND | 73 | ug/kg | |
| 120-12-7 | Anthracene | 160 | 5.4 | ug/kg | |
| 56-55-3 | Benzo(a)anthracene | 720 | 54 | ug/kg | |
| 50-32-8 | Benzo(a)pyrene | 1600 | 54 | ug/kg | |
| 205-99-2 | Benzo(b)fluoranthene | 2000 | 54 | ug/kg | |
| 191-24-2 | Benzo(g,h,i)perylene | 2200 | 72 | ug/kg | |
| 207-08-9 | Benzo(k)fluoranthene | 780 | 54 | ug/kg | |
| 218-01-9 | Chrysene | 780 | 54 | ug/kg | |
| 53-70-3 | Dibenzo(a,h)anthracene | 220 | 9.0 | ug/kg | |
| 206-44-0 | Fluoranthene | 1100 | 7.2 | ug/kg | |
| 86-73-7 | Fluorene | 36 | 7.2 | ug/kg | |
| 193-39-5 | Indeno(1,2,3-cd)pyrene | 1400 | 54 | ug/kg | |
| 91-20-3 | Naphthalene | ND | 36 | ug/kg | |
| 90-12-0 | 1-Methylnaphthalene | ND | 36 | ug/kg | |
| 91-57-6 | 2-Methylnaphthalene | 1200 | 360 | ug/kg | |
| 85-01-8 | Phenanthrene | 370 | 54 | ug/kg | |
| 129-00-0 | Pyrene | 1000 | 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

ACCUTEST

# Report of Analysis



| | | | |
|---|---|---|---|
| **Client Sample ID:** | CEF-P46-SS-111-02 | | |
| **Lab Sample ID:** | F4429-11 | **Date Sampled:** | 06/30/99 |
| **Matrix:** | SO - Soil | **Date Received:** | 07/01/99 |
| **Method:** | EPA 8310 | **Percent Solids:** | 75.4 |
| **Project:** | NAS Cecil Field-PSC 46 | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 [a] | | 1 | 08/03/99 | SUB | n/a | n/a | R6961 |
| Run #2 | | | | | | | |

| CAS No. | Compound | Result | RDL | Units | Q |
|---|---|---|---|---|---|
| 83-32-9 | Acenaphthene | 1100 | 37 | ug/kg | |
| 208-96-8 | Acenaphthylene | ND | 76 | ug/kg | |
| 120-12-7 | Anthracene | 42 | 5.6 | ug/kg | |
| 56-55-3 | Benzo(a)anthracene | 440 | 28 | ug/kg | |
| 50-32-8 | Benzo(a)pyrene | 800 | 28 | ug/kg | |
| 205-99-2 | Benzo(b)fluoranthene | 950 | 28 | ug/kg | |
| 191-24-2 | Benzo(g,h,i)perylene | 1200 | 37 | ug/kg | |
| 207-08-9 | Benzo(k)fluoranthene | 410 | 28 | ug/kg | |
| 218-01-9 | Chrysene | 440 | 28 | ug/kg | |
| 53-70-3 | Dibenzo(a,h)anthracene | 80 | 9.3 | ug/kg | |
| 206-44-0 | Fluoranthene | 700 | 37 | ug/kg | |
| 86-73-7 | Fluorene | 16 | 7.4 | ug/kg | |
| 193-39-5 | Indeno(1,2,3-cd)pyrene | 630 | 28 | ug/kg | |
| 91-20-3 | Naphthalene | ND | 37 | ug/kg | |
| 90-12-0 | 1-Methylnaphthalene | ND | 37 | ug/kg | |
| 91-57-6 | 2-Methylnaphthalene | 650 | 180 | ug/kg | |
| 85-01-8 | Phenanthrene | 130 | 5.6 | ug/kg | |
| 129-00-0 | Pyrene | 680 | 37 | ug/kg | |

(a) Analyzed By Accutest Southeast Subcontract Lab.

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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-P46-SS-112-02 | | |
| **Lab Sample ID:** | F4429-12 | **Date Sampled:** | 06/30/99 |
| **Matrix:** | SO - Soil | **Date Received:** | 07/01/99 |
| **Method:** | EPA 8310 | **Percent Solids:** | 85.9 |
| **Project:** | NAS Cecil Field-PSC 46 | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 [a] | | 1 | 08/03/99 | SUB | n/a | n/a | R6962 |
| Run #2 | | | | | | | |

| CAS No. | Compound | Result | RDL | Units | Q |
|---|---|---|---|---|---|
| 83-32-9 | Acenaphthene | 420 | 39 | ug/kg | |
| 208-96-8 | Acenaphthylene | 210 | 78 | ug/kg | |
| 120-12-7 | Anthracene | 57 | 5.9 | ug/kg | |
| 56-55-3 | Benzo(a)anthracene | 170 | 5.9 | ug/kg | |
| 50-32-8 | Benzo(a)pyrene | 250 | 24 | ug/kg | |
| 205-99-2 | Benzo(b)fluoranthene | 280 | 5.9 | ug/kg | |
| 191-24-2 | Benzo(g,h,i)perylene | 540 | 31 | ug/kg | |
| 207-08-9 | Benzo(k)fluoranthene | 130 | 5.9 | ug/kg | |
| 218-01-9 | Chrysene | 150 | 5.9 | ug/kg | |
| 53-70-3 | Dibenzo(a,h)anthracene | 38 | 9.8 | ug/kg | |
| 206-44-0 | Fluoranthene | 220 | 7.9 | ug/kg | |
| 86-73-7 | Fluorene | ND | 7.9 | ug/kg | |
| 193-39-5 | Indeno(1,2,3-cd)pyrene | 250 | 24 | ug/kg | |
| 91-20-3 | Naphthalene | ND | 39 | ug/kg | |
| 90-12-0 | 1-Methylnaphthalene | ND | 39 | ug/kg | |
| 91-57-6 | 2-Methylnaphthalene | 200 | 39 | ug/kg | |
| 85-01-8 | Phenanthrene | 56 | 5.9 | ug/kg | |
| 129-00-0 | Pyrene | 210 | 31 | 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

ACCUTEST

# Report of Analysis



| | | | |
|---|---|---|---|
| **Client Sample ID:** | CEF-P46-SS-113-01 | | |
| **Lab Sample ID:** | F4429-13 | **Date Sampled:** | 06/30/99 |
| **Matrix:** | SO - Soil | **Date Received:** | 07/01/99 |
| **Method:** | EPA 8310 | **Percent Solids:** | 88.9 |
| **Project:** | NAS Cecil Field-PSC 46 | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 [a] | | 1 | 08/03/99 | SUB | n/a | n/a | R6962 |
| Run #2 | | | | | | | |

| CAS No. | Compound | Result | RDL | Units | Q |
|---|---|---|---|---|---|
| 83-32-9 | Acenaphthene | 230 | 36 | ug/kg | |
| 208-96-8 | Acenaphthylene | ND | 74 | ug/kg | |
| 120-12-7 | Anthracene | 12 | 5.4 | ug/kg | |
| 56-55-3 | Benzo(a)anthracene | 72 | 5.4 | ug/kg | |
| 50-32-8 | Benzo(a)pyrene | 150 | 5.4 | ug/kg | |
| 205-99-2 | Benzo(b)fluoranthene | 250 | 5.4 | ug/kg | |
| 191-24-2 | Benzo(g,h,i)perylene | 280 | 7.4 | ug/kg | |
| 207-08-9 | Benzo(k)fluoranthene | 99 | 5.4 | ug/kg | |
| 218-01-9 | Chrysene | 80 | 5.4 | ug/kg | |
| 53-70-3 | Dibenzo(a,h)anthracene | 23 | 9.0 | ug/kg | |
| 206-44-0 | Fluoranthene | 150 | 7.4 | ug/kg | |
| 86-73-7 | Fluorene | ND | 7.4 | ug/kg | |
| 193-39-5 | Indeno(1,2,3-cd)pyrene | 170 | 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 | 150 | 36 | ug/kg | |
| 85-01-8 | Phenanthrene | 31 | 5.4 | ug/kg | |
| 129-00-0 | Pyrene | 150 | 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

ACCUTEST

# Report of Analysis



| | | | |
|---|---|---|---|
| **Client Sample ID:** | CEF-P46-SS-114-01 | | |
| **Lab Sample ID:** | F4429-14 | **Date Sampled:** | 06/30/99 |
| **Matrix:** | SO - Soil | **Date Received:** | 07/01/99 |
| **Method:** | EPA 8310 | **Percent Solids:** | 89.7 |
| **Project:** | NAS Cecil Field-PSC 46 | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 [a] | | 1 | 08/03/99 | SUB | n/a | n/a | R6962 |
| Run #2 | | | | | | | |

| CAS No. | Compound | Result | RDL | Units | Q |
|---|---|---|---|---|---|
| 83-32-9 | Acenaphthene | 550 | 37 | ug/kg | |
| 208-96-8 | Acenaphthylene | ND | 75 | ug/kg | |
| 120-12-7 | Anthracene | 13 | 5.6 | ug/kg | |
| 56-55-3 | Benzo(a)anthracene | 140 | 5.6 | ug/kg | |
| 50-32-8 | Benzo(a)pyrene | 320 | 11 | ug/kg | |
| 205-99-2 | Benzo(b)fluoranthene | 450 | 11 | ug/kg | |
| 191-24-2 | Benzo(g,h,i)perylene | 720 | 15 | ug/kg | |
| 207-08-9 | Benzo(k)fluoranthene | 160 | 5.6 | ug/kg | |
| 218-01-9 | Chrysene | 160 | 5.6 | ug/kg | |
| 53-70-3 | Dibenzo(a,h)anthracene | 58 | 9.3 | ug/kg | |
| 206-44-0 | Fluoranthene | 350 | 7.4 | ug/kg | |
| 86-73-7 | Fluorene | 7.7 | 7.4 | ug/kg | |
| 193-39-5 | Indeno(1,2,3-cd)pyrene | 320 | 11 | ug/kg | |
| 91-20-3 | Naphthalene | ND | 37 | ug/kg | |
| 90-12-0 | 1-Methylnaphthalene | ND | 37 | ug/kg | |
| 91-57-6 | 2-Methylnaphthalene | 370 | 37 | ug/kg | |
| 85-01-8 | Phenanthrene | 74 | 5.6 | ug/kg | |
| 129-00-0 | Pyrene | 360 | 15 | ug/kg | |

(a) Analyzed By Accutest Southeast Subcontract Lab.

ND = Not detected
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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-P46-SS-115-01 | | |
| **Lab Sample ID:** | F4429-15 | **Date Sampled:** | 06/30/99 |
| **Matrix:** | SO - Soil | **Date Received:** | 07/01/99 |
| **Method:** | EPA 8310 | **Percent Solids:** | 89.4 |
| **Project:** | NAS Cecil Field-PSC 46 | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 [a] | | 1 | 08/03/99 | SUB | n/a | n/a | R6962 |
| Run #2 | | | | | | | |

| CAS No. | Compound | Result | RDL | Units | Q |
|---|---|---|---|---|---|
| 83-32-9 | Acenaphthene | 230 | 36 | ug/kg | |
| 208-96-8 | Acenaphthylene | ND | 73 | ug/kg | |
| 120-12-7 | Anthracene | 9.5 | 5.4 | ug/kg | |
| 56-55-3 | Benzo(a)anthracene | 74 | 5.4 | ug/kg | |
| 50-32-8 | Benzo(a)pyrene | 170 | 11 | ug/kg | |
| 205-99-2 | Benzo(b)fluoranthene | 240 | 5.4 | ug/kg | |
| 191-24-2 | Benzo(g,h,i)perylene | 370 | 15 | ug/kg | |
| 207-08-9 | Benzo(k)fluoranthene | 90 | 5.4 | ug/kg | |
| 218-01-9 | Chrysene | 99 | 5.4 | ug/kg | |
| 53-70-3 | Dibenzo(a,h)anthracene | 30 | 9.0 | ug/kg | |
| 206-44-0 | Fluoranthene | 150 | 7.3 | ug/kg | |
| 86-73-7 | Fluorene | ND | 7.3 | ug/kg | |
| 193-39-5 | Indeno(1,2,3-cd)pyrene | 180 | 11 | ug/kg | |
| 91-20-3 | Naphthalene | ND | 36 | ug/kg | |
| 90-12-0 | 1-Methylnaphthalene | ND | 36 | ug/kg | |
| 91-57-6 | 2-Methylnaphthalene | 160 | 36 | ug/kg | |
| 85-01-8 | Phenanthrene | 54 | 5.4 | ug/kg | |
| 129-00-0 | Pyrene | 140 | 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

ACCUTEST

# Report of Analysis



| | | | |
|---|---|---|---|
| **Client Sample ID:** | CEF-P46-SS-116-02 | | |
| **Lab Sample ID:** | F4429-16 | **Date Sampled:** | 06/30/99 |
| **Matrix:** | SO - Soil | **Date Received:** | 07/01/99 |
| **Method:** | EPA 8310 | **Percent Solids:** | 87.3 |
| **Project:** | NAS Cecil Field-PSC 46 | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 [a] | | 1 | 08/03/99 | SUB | n/a | n/a | R6962 |
| Run #2 | | | | | | | |

| CAS No. | Compound | Result | RDL | Units | Q |
|---|---|---|---|---|---|
| 83-32-9 | Acenaphthene | 96 | 38 | ug/kg | |
| 208-96-8 | Acenaphthylene | ND | 78 | ug/kg | |
| 120-12-7 | Anthracene | ND | 5.8 | ug/kg | |
| 56-55-3 | Benzo(a)anthracene | 42 | 5.8 | ug/kg | |
| 50-32-8 | Benzo(a)pyrene | 120 | 5.8 | ug/kg | |
| 205-99-2 | Benzo(b)fluoranthene | 150 | 5.8 | ug/kg | |
| 191-24-2 | Benzo(g,h,i)perylene | 220 | 7.6 | ug/kg | |
| 207-08-9 | Benzo(k)fluoranthene | 56 | 5.8 | ug/kg | |
| 218-01-9 | Chrysene | 54 | 5.8 | ug/kg | |
| 53-70-3 | Dibenzo(a,h)anthracene | 17 | 9.5 | ug/kg | |
| 206-44-0 | Fluoranthene | 77 | 7.6 | ug/kg | |
| 86-73-7 | Fluorene | ND | 7.6 | ug/kg | |
| 193-39-5 | Indeno(1,2,3-cd)pyrene | 110 | 5.8 | ug/kg | |
| 91-20-3 | Naphthalene | ND | 38 | ug/kg | |
| 90-12-0 | 1-Methylnaphthalene | ND | 38 | ug/kg | |
| 91-57-6 | 2-Methylnaphthalene | 69 | 390 | ug/kg | |
| 85-01-8 | Phenanthrene | 18 | 5.8 | ug/kg | |
| 129-00-0 | Pyrene | 77 | 7.6 | 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-P46-SS-117-01 | | |
| **Lab Sample ID:** | F4429-17 | **Date Sampled:** | 06/30/99 |
| **Matrix:** | SO - Soil | **Date Received:** | 07/01/99 |
| **Method:** | EPA 8310 | **Percent Solids:** | 90.2 |
| **Project:** | NAS Cecil Field-PSC 46 | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 [a] | | 1 | 08/03/99 | SUB | n/a | n/a | R6962 |
| Run #2 | | | | | | | |

| CAS No. | Compound | Result | RDL | Units | Q |
|---|---|---|---|---|---|
| 83-32-9 | Acenaphthene | 410 | 37 | ug/kg | |
| 208-96-8 | Acenaphthylene | ND | 74 | ug/kg | |
| 120-12-7 | Anthracene | 48 | 5.6 | ug/kg | |
| 56-55-3 | Benzo(a)anthracene | 140 | 5.6 | ug/kg | |
| 50-32-8 | Benzo(a)pyrene | 220 | 28 | ug/kg | |
| 205-99-2 | Benzo(b)fluoranthene | 320 | 5.6 | ug/kg | |
| 191-24-2 | Benzo(g,h,i)perylene | 300 | 7.4 | ug/kg | |
| 207-08-9 | Benzo(k)fluoranthene | 130 | 5.6 | ug/kg | |
| 218-01-9 | Chrysene | 150 | 5.6 | ug/kg | |
| 53-70-3 | Dibenzo(a,h)anthracene | 36 | 9.3 | ug/kg | |
| 206-44-0 | Fluoranthene | 450 | 37 | ug/kg | |
| 86-73-7 | Fluorene | 21 | 7.4 | ug/kg | |
| 193-39-5 | Indeno(1,2,3-cd)pyrene | 190 | 28 | ug/kg | |
| 91-20-3 | Naphthalene | ND | 37 | ug/kg | |
| 90-12-0 | 1-Methylnaphthalene | ND | 37 | ug/kg | |
| 91-57-6 | 2-Methylnaphthalene | 310 | 37 | ug/kg | |
| 85-01-8 | Phenanthrene | 190 | 28 | ug/kg | |
| 129-00-0 | Pyrene | 340 | 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

ACCUTEST

# Report of Analysis



| | | | |
|---|---|---|---|
| **Client Sample ID:** | CEF-P46-SS-118-01 | | |
| **Lab Sample ID:** | F4429-18 | **Date Sampled:** | 06/30/99 |
| **Matrix:** | SO - Soil | **Date Received:** | 07/01/99 |
| **Method:** | EPA 8310 | **Percent Solids:** | 89.4 |
| **Project:** | NAS Cecil Field-PSC 46 | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 [a] | | 1 | 08/03/99 | SUB | n/a | n/a | R6962 |
| Run #2 | | | | | | | |

| CAS No. | Compound | Result | RDL | Units | Q |
|---|---|---|---|---|---|
| 83-32-9 | Acenaphthene | 150 | 36 | ug/kg | |
| 208-96-8 | Acenaphthylene | ND | 74 | ug/kg | |
| 120-12-7 | Anthracene | 13 | 5.4 | ug/kg | |
| 56-55-3 | Benzo(a)anthracene | 69 | 5.4 | ug/kg | |
| 50-32-8 | Benzo(a)pyrene | 73 | 5.4 | ug/kg | |
| 205-99-2 | Benzo(b)fluoranthene | 150 | 5.4 | ug/kg | |
| 191-24-2 | Benzo(g,h,i)perylene | 140 | 7.2 | ug/kg | |
| 207-08-9 | Benzo(k)fluoranthene | 71 | 5.6 | ug/kg | |
| 218-01-9 | Chrysene | 110 | 5.6 | ug/kg | |
| 53-70-3 | Dibenzo(a,h)anthracene | 16 | 9.0 | ug/kg | |
| 206-44-0 | Fluoranthene | 430 | 36 | ug/kg | |
| 86-73-7 | Fluorene | 26 | 7.2 | ug/kg | |
| 193-39-5 | Indeno(1,2,3-cd)pyrene | 85 | 5.6 | ug/kg | |
| 91-20-3 | Naphthalene | ND | 36 | ug/kg | |
| 90-12-0 | 1-Methylnaphthalene | ND | 36 | ug/kg | |
| 91-57-6 | 2-Methylnaphthalene | 110 | 36 | ug/kg | |
| 85-01-8 | Phenanthrene | 390 | 28 | ug/kg | |
| 129-00-0 | Pyrene | 310 | 36 | 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-P46-SS-119-01 | | |
| **Lab Sample ID:** | F4429-19 | **Date Sampled:** | 06/30/99 |
| **Matrix:** | SO - Soil | **Date Received:** | 07/01/99 |
| **Method:** | EPA 8310 | **Percent Solids:** | 89.2 |
| **Project:** | NAS Cecil Field-PSC 46 | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 [a] | | 1 | 08/03/99 | SUB | n/a | n/a | R6962 |
| 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 | 13 | 5.6 | ug/kg | |
| 56-55-3 | Benzo(a)anthracene | 89 | 5.6 | ug/kg | |
| 50-32-8 | Benzo(a)pyrene | 140 | 5.6 | ug/kg | |
| 205-99-2 | Benzo(b)fluoranthene | 170 | 5.6 | ug/kg | |
| 191-24-2 | Benzo(g,h,i)perylene | 170 | 7.4 | ug/kg | |
| 207-08-9 | Benzo(k)fluoranthene | 77 | 5.6 | ug/kg | |
| 218-01-9 | Chrysene | 100 | 5.6 | ug/kg | |
| 53-70-3 | Dibenzo(a,h)anthracene | 18 | 9.3 | ug/kg | |
| 206-44-0 | Fluoranthene | 220 | 5.6 | ug/kg | |
| 86-73-7 | Fluorene | ND | 5.6 | ug/kg | |
| 193-39-5 | Indeno(1,2,3-cd)pyrene | 110 | 7.4 | ug/kg | |
| 91-20-3 | Naphthalene | ND | 37 | ug/kg | |
| 90-12-0 | 1-Methylnaphthalene | ND | 37 | ug/kg | |
| 91-57-6 | 2-Methylnaphthalene | 110 | 37 | ug/kg | |
| 85-01-8 | Phenanthrene | 74 | 5.6 | ug/kg | |
| 129-00-0 | Pyrene | 180 | 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

ACCUTEST

# Report of Analysis



| | | | |
|---|---|---|---|
| **Client Sample ID:** | CEF-P46-SS-120-01 | | |
| **Lab Sample ID:** | F4429-20 | **Date Sampled:** | 06/30/99 |
| **Matrix:** | SO - Soil | **Date Received:** | 07/01/99 |
| **Method:** | EPA 8310 | **Percent Solids:** | 89.2 |
| **Project:** | NAS Cecil Field-PSC 46 | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 [a] | | 1 | 08/03/99 | SUB | n/a | n/a | R6962 |
| Run #2 | | | | | | | |

| CAS No. | Compound | Result | RDL | Units | Q |
|---|---|---|---|---|---|
| 83-32-9 | Acenaphthene | 530 | 37 | ug/kg | |
| 208-96-8 | Acenaphthylene | ND | 75 | ug/kg | |
| 120-12-7 | Anthracene | 23 | 5.6 | ug/kg | |
| 56-55-3 | Benzo(a)anthracene | 230 | 28 | ug/kg | |
| 50-32-8 | Benzo(a)pyrene | 370 | 28 | ug/kg | |
| 205-99-2 | Benzo(b)fluoranthene | 530 | 28 | ug/kg | |
| 191-24-2 | Benzo(g,h,i)perylene | 560 | 38 | ug/kg | |
| 207-08-9 | Benzo(k)fluoranthene | 240 | 28 | ug/kg | |
| 218-01-9 | Chrysene | 290 | 28 | ug/kg | |
| 53-70-3 | Dibenzo(a,h)anthracene | 43 | 9.3 | ug/kg | |
| 206-44-0 | Fluoranthene | 360 | 7.5 | ug/kg | |
| 86-73-7 | Fluorene | ND | 7.5 | ug/kg | |
| 193-39-5 | Indeno(1,2,3-cd)pyrene | 300 | 28 | ug/kg | |
| 91-20-3 | Naphthalene | ND | 37 | ug/kg | |
| 90-12-0 | 1-Methylnaphthalene | ND | 37 | ug/kg | |
| 91-57-6 | 2-Methylnaphthalene | 350 | 37 | ug/kg | |
| 85-01-8 | Phenanthrene | 110 | 5.6 | ug/kg | |
| 129-00-0 | Pyrene | 390 | 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

ACCUTEST

# Report of Analysis



| | | | |
|---|---|---|---|
| **Client Sample ID:** | CEF-P46-SS-121-01 | | |
| **Lab Sample ID:** | F4429-21 | **Date Sampled:** | 06/30/99 |
| **Matrix:** | SO - Soil | **Date Received:** | 07/01/99 |
| **Method:** | EPA 8310 | **Percent Solids:** | 89.5 |
| **Project:** | NAS Cecil Field-PSC 46 | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 [a] | | 1 | 08/03/99 | SUB | n/a | n/a | R6962 |
| Run #2 | | | | | | | |

| CAS No. | Compound | Result | RDL | Units | Q |
|---|---|---|---|---|---|
| 83-32-9 | Acenaphthene | 580 | 36 | ug/kg | |
| 208-96-8 | Acenaphthylene | ND | 73 | ug/kg | |
| 120-12-7 | Anthracene | 64 | 5.4 | ug/kg | |
| 56-55-3 | Benzo(a)anthracene | 180 | 5.4 | ug/kg | |
| 50-32-8 | Benzo(a)pyrene | 380 | 28 | ug/kg | |
| 205-99-2 | Benzo(b)fluoranthene | 520 | 28 | ug/kg | |
| 191-24-2 | Benzo(g,h,i)perylene | 750 | 36 | ug/kg | |
| 207-08-9 | Benzo(k)fluoranthene | 210 | 28 | ug/kg | |
| 218-01-9 | Chrysene | 210 | 28 | ug/kg | |
| 53-70-3 | Dibenzo(a,h)anthracene | 68 | 9.0 | ug/kg | |
| 206-44-0 | Fluoranthene | 450 | 36 | ug/kg | |
| 86-73-7 | Fluorene | 20 | 7.2 | ug/kg | |
| 193-39-5 | Indeno(1,2,3-cd)pyrene | 370 | 28 | ug/kg | |
| 91-20-3 | Naphthalene | ND | 36 | ug/kg | |
| 90-12-0 | 1-Methylnaphthalene | ND | 36 | ug/kg | |
| 91-57-6 | 2-Methylnaphthalene | 400 | 36 | ug/kg | |
| 85-01-8 | Phenanthrene | 190 | 28 | ug/kg | |
| 129-00-0 | Pyrene | 340 | 36 | 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-P46-SS-122-02 | | |
| **Lab Sample ID:** | F4429-22 | **Date Sampled:** | 06/30/99 |
| **Matrix:** | SO - Soil | **Date Received:** | 07/01/99 |
| **Method:** | EPA 8310 | **Percent Solids:** | 91.7 |
| **Project:** | NAS Cecil Field-PSC 46 | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 [a] | | 1 | 08/03/99 | SUB | n/a | n/a | R6962 |
| Run #2 | | | | | | | |

| CAS No. | Compound | Result | RDL | Units | Q |
|---|---|---|---|---|---|
| 83-32-9 | Acenaphthene | 470 | 35 | ug/kg | |
| 208-96-8 | Acenaphthylene | ND | 72 | ug/kg | |
| 120-12-7 | Anthracene | 39 | 5.3 | ug/kg | |
| 56-55-3 | Benzo(a)anthracene | 140 | 5.3 | ug/kg | |
| 50-32-8 | Benzo(a)pyrene | 310 | 26 | ug/kg | |
| 205-99-2 | Benzo(b)fluoranthene | 480 | 26 | ug/kg | |
| 191-24-2 | Benzo(g,h,i)perylene | 1400 | 35 | ug/kg | |
| 207-08-9 | Benzo(k)fluoranthene | 170 | 5.3 | ug/kg | |
| 218-01-9 | Chrysene | 230 | 26 | ug/kg | |
| 53-70-3 | Dibenzo(a,h)anthracene | 72 | 8.8 | ug/kg | |
| 206-44-0 | Fluoranthene | 410 | 35 | ug/kg | |
| 86-73-7 | Fluorene | 9.1 | 7.0 | ug/kg | |
| 193-39-5 | Indeno(1,2,3-cd)pyrene | 400 | 26 | ug/kg | |
| 91-20-3 | Naphthalene | ND | 35 | ug/kg | |
| 90-12-0 | 1-Methylnaphthalene | ND | 35 | ug/kg | |
| 91-57-6 | 2-Methylnaphthalene | 300 | 35 | ug/kg | |
| 85-01-8 | Phenanthrene | 170 | 5.3 | ug/kg | |
| 129-00-0 | Pyrene | 310 | 35 | 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-P46-SS-123-02 | | |
| **Lab Sample ID:** | F4429-23 | **Date Sampled:** | 06/30/99 |
| **Matrix:** | SO - Soil | **Date Received:** | 07/01/99 |
| **Method:** | EPA 8310 | **Percent Solids:** | 85.3 |
| **Project:** | NAS Cecil Field-PSC 46 | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 [a] | | 1 | 08/03/99 | SUB | n/a | n/a | R6962 |
| Run #2 | | | | | | | |

| CAS No. | Compound | Result | RDL | Units | Q |
|---|---|---|---|---|---|
| 83-32-9 | Acenaphthene | 90 | 37 | ug/kg | |
| 208-96-8 | Acenaphthylene | ND | 75 | ug/kg | |
| 120-12-7 | Anthracene | 15 | 5.6 | ug/kg | |
| 56-55-3 | Benzo(a)anthracene | 78 | 5.6 | ug/kg | |
| 50-32-8 | Benzo(a)pyrene | 170 | 11 | ug/kg | |
| 205-99-2 | Benzo(b)fluoranthene | 200 | 5.6 | ug/kg | |
| 191-24-2 | Benzo(g,h,i)perylene | 220 | 7.4 | ug/kg | |
| 207-08-9 | Benzo(k)fluoranthene | 87 | 5.6 | ug/kg | |
| 218-01-9 | Chrysene | 86 | 5.6 | ug/kg | |
| 53-70-3 | Dibenzo(a,h)anthracene | 28 | 9.3 | ug/kg | |
| 206-44-0 | Fluoranthene | 130 | 7.4 | ug/kg | |
| 86-73-7 | Fluorene | ND | 7.4 | ug/kg | |
| 193-39-5 | Indeno(1,2,3-cd)pyrene | 130 | 5.6 | ug/kg | |
| 91-20-3 | Naphthalene | ND | 37 | ug/kg | |
| 90-12-0 | 1-Methylnaphthalene | ND | 37 | ug/kg | |
| 91-57-6 | 2-Methylnaphthalene | 65 | 37 | ug/kg | |
| 85-01-8 | Phenanthrene | 33 | 5.6 | ug/kg | |
| 129-00-0 | Pyrene | 120 | 7.4 | ug/kg | |

(a) Analyzed By Accutest Southeast Subcontract Lab.

ND = Not detected
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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-P46-SS-DU04 | | |
| **Lab Sample ID:** | F4429-24 | **Date Sampled:** | 06/30/99 |
| **Matrix:** | SO - Soil | **Date Received:** | 07/01/99 |
| **Method:** | EPA 8310 | **Percent Solids:** | 86.5 |
| **Project:** | NAS Cecil Field-PSC 46 | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 [a] | | 1 | 08/03/99 | SUB | n/a | n/a | R6962 |
| Run #2 | | | | | | | |

| CAS No. | Compound | Result | RDL | Units | Q |
|---|---|---|---|---|---|
| 83-32-9 | Acenaphthene | 900 | 37 | ug/kg | |
| 208-96-8 | Acenaphthylene | ND | 75 | ug/kg | |
| 120-12-7 | Anthracene | 110 | 5.6 | ug/kg | |
| 56-55-3 | Benzo(a)anthracene | 490 | 56 | ug/kg | |
| 50-32-8 | Benzo(a)pyrene | 580 | 56 | ug/kg | |
| 205-99-2 | Benzo(b)fluoranthene | 730 | 56 | ug/kg | |
| 191-24-2 | Benzo(g,h,i)perylene | 580 | 74 | ug/kg | |
| 207-08-9 | Benzo(k)fluoranthene | 390 | 56 | ug/kg | |
| 218-01-9 | Chrysene | 590 | 56 | ug/kg | |
| 53-70-3 | Dibenzo(a,h)anthracene | 43 | 9.3 | ug/kg | |
| 206-44-0 | Fluoranthene | 1300 | 74 | ug/kg | |
| 86-73-7 | Fluorene | 32 | 7.4 | ug/kg | |
| 193-39-5 | Indeno(1,2,3-cd)pyrene | 450 | 56 | ug/kg | |
| 91-20-3 | Naphthalene | ND | 37 | ug/kg | |
| 90-12-0 | 1-Methylnaphthalene | ND | 37 | ug/kg | |
| 91-57-6 | 2-Methylnaphthalene | 520 | 37 | ug/kg | |
| 85-01-8 | Phenanthrene | 510 | 56 | ug/kg | |
| 129-00-0 | Pyrene | 1000 | 74 | 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-P46-SS-DU05 | | |
| **Lab Sample ID:** | F4429-25 | **Date Sampled:** | 06/30/99 |
| **Matrix:** | SO - Soil | **Date Received:** | 07/01/99 |
| **Method:** | EPA 8310 | **Percent Solids:** | 90.3 |
| **Project:** | NAS Cecil Field-PSC 46 | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 [a] | | 1 | 08/03/99 | SUB | n/a | n/a | R6962 |
| Run #2 | | | | | | | |

| CAS No. | Compound | Result | RDL | Units | Q |
|---|---|---|---|---|---|
| 83-32-9 | Acenaphthene | 730 | 36 | ug/kg | |
| 208-96-8 | Acenaphthylene | ND | 73 | ug/kg | |
| 120-12-7 | Anthracene | 99 | 5.4 | ug/kg | |
| 56-55-3 | Benzo(a)anthracene | 450 | 54 | ug/kg | |
| 50-32-8 | Benzo(a)pyrene | 1200 | 54 | ug/kg | |
| 205-99-2 | Benzo(b)fluoranthene | 1400 | 54 | ug/kg | |
| 191-24-2 | Benzo(g,h,i)perylene | 1400 | 72 | ug/kg | |
| 207-08-9 | Benzo(k)fluoranthene | 670 | 54 | ug/kg | |
| 218-01-9 | Chrysene | 610 | 54 | ug/kg | |
| 53-70-3 | Dibenzo(a,h)anthracene | 160 | 9.0 | ug/kg | |
| 206-44-0 | Fluoranthene | 1200 | 72 | ug/kg | |
| 86-73-7 | Fluorene | 11 | 7.2 | ug/kg | |
| 193-39-5 | Indeno(1,2,3-cd)pyrene | 1000 | 54 | ug/kg | |
| 91-20-3 | Naphthalene | ND | 36 | ug/kg | |
| 90-12-0 | 1-Methylnaphthalene | ND | 36 | ug/kg | |
| 91-57-6 | 2-Methylnaphthalene | 460 | 36 | ug/kg | |
| 85-01-8 | Phenanthrene | 270 | 54 | ug/kg | |
| 129-00-0 | Pyrene | 1100 | 72 | ug/kg | |

(a) Analyzed By Accutest Southeast Subcontract Lab.

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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-P46-SS-DU06 | | |
| **Lab Sample ID:** | F4429-26 | **Date Sampled:** | 06/30/99 |
| **Matrix:** | SO - Soil | **Date Received:** | 07/01/99 |
| **Method:** | EPA 8310 | **Percent Solids:** | 88.0 |
| **Project:** | NAS Cecil Field-PSC 46 | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 [a] | | 1 | 08/03/99 | SUB | n/a | n/a | R6962 |
| Run #2 | | | | | | | |

| CAS No. | Compound | Result | RDL | Units | Q |
|---|---|---|---|---|---|
| 83-32-9 | Acenaphthene | 45 | 37 | ug/kg | |
| 208-96-8 | Acenaphthylene | ND | 75 | ug/kg | |
| 120-12-7 | Anthracene | 17 | 5.6 | ug/kg | |
| 56-55-3 | Benzo(a)anthracene | 33 | 5.6 | ug/kg | |
| 50-32-8 | Benzo(a)pyrene | 75 | 5.6 | ug/kg | |
| 205-99-2 | Benzo(b)fluoranthene | 77 | 5.6 | ug/kg | |
| 191-24-2 | Benzo(g,h,i)perylene | 260 | 7.5 | ug/kg | |
| 207-08-9 | Benzo(k)fluoranthene | 38 | 5.6 | ug/kg | |
| 218-01-9 | Chrysene | 55 | 5.6 | ug/kg | |
| 53-70-3 | Dibenzo(a,h)anthracene | 9.5 | 9.3 | ug/kg | |
| 206-44-0 | Fluoranthene | 84 | 7.5 | ug/kg | |
| 86-73-7 | Fluorene | ND | 7.5 | ug/kg | |
| 193-39-5 | Indeno(1,2,3-cd)pyrene | 64 | 5.6 | ug/kg | |
| 91-20-3 | Naphthalene | ND | 37 | ug/kg | |
| 90-12-0 | 1-Methylnaphthalene | ND | 37 | ug/kg | |
| 91-57-6 | 2-Methylnaphthalene | 59 | 37 | ug/kg | |
| 85-01-8 | Phenanthrene | 12 | 5.6 | ug/kg | |
| 129-00-0 | Pyrene | 55 | 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

# Report of Analysis



| | | | |
|---|---|---|---|
| **Client Sample ID:** | CEF-P46-SS-110-02 | | |
| **Lab Sample ID:** | F4429-10 | **Date Sampled:** | 06/30/99 |
| **Matrix:** | SO - Soil | **Date Received:** | 07/01/99 |
| **Method:** | FLORIDA-PRO | **Percent Solids:** | 91.2 |
| **Project:** | NAS Cecil Field-PSC 46 | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | OP04364.D | 1 | 07/08/99 | SKW | 07/06/99 | OP876 | GOP213 |
| Run #2 | | | | | | | |

| CAS No. | Compound | Result | RDL | Units | Q |
|---|---|---|---|---|---|
| | TPH (C8-C40) | 97.0 | 91 | mg/kg | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 84-15-1 | o-Terphenyl | 109% | | 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-P46-SS-111-02 | | |
| **Lab Sample ID:** | F4429-11 | **Date Sampled:** | 06/30/99 |
| **Matrix:** | SO - Soil | **Date Received:** | 07/01/99 |
| **Method:** | FLORIDA-PRO | **Percent Solids:** | 75.4 |
| **Project:** | NAS Cecil Field-PSC 46 | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | OP04365.D | 1 | 07/08/99 | SKW | 07/06/99 | OP876 | GOP213 |
| Run #2 | | | | | | | |

| CAS No. | Compound | Result | RDL | Units | Q |
|---|---|---|---|---|---|
| | TPH (C8-C40) | 136 | 96 | mg/kg | |

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

30043

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-P46-SS-112-02 | | |
| **Lab Sample ID:** | F4429-12 | **Date Sampled:** | 06/30/99 |
| **Matrix:** | SO - Soil | **Date Received:** | 07/01/99 |
| **Method:** | FLORIDA-PRO | **Percent Solids:** | 85.9 |
| **Project:** | NAS Cecil Field-PSC 46 | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | OP04366.D | 1 | 07/08/99 | SKW | 07/06/99 | OP876 | GOP213 |
| Run #2 | | | | | | | |

| CAS No. | Compound | Result | RDL | Units | Q |
|---|---|---|---|---|---|
| | TPH (C8-C40) | 98.7 | 97 | mg/kg | |

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

30046

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-P46-SS-123-02 | | |
| **Lab Sample ID:** | F4429-23 | **Date Sampled:** | 06/30/99 |
| **Matrix:** | SO - Soil | **Date Received:** | 07/01/99 |
| **Method:** | FLORIDA-PRO | **Percent Solids:** | 85.3 |
| **Project:** | NAS Cecil Field-PSC 46 | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | OP04367.D | 1 | 07/08/99 | SKW | 07/06/99 | OP876 | GOP213 |
| 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 | 105% | | 40-140% |

00049

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-P46-SS-DU06 | | |
| **Lab Sample ID:** | F4429-26 | **Date Sampled:** | 06/30/99 |
| **Matrix:** | SO - Soil | **Date Received:** | 07/01/99 |
| **Method:** | FLORIDA-PRO | **Percent Solids:** | 88.0 |
| **Project:** | NAS Cecil Field-PSC 46 | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | OP04368.D | 1 | 07/08/99 | SKW | 07/06/99 | OP876 | GOP213 |
| 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 | 102% | | 40-140% |

30052

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

# PHASE III ANALYTICAL RESULTS

Tetra Tech NUS

# INTERNAL CORRESPONDENCE

PITT-11-9-040

TO: MR. M. SPERANZA

DATE: NOVEMBER 10, 1999

FROM: JUSTIN ORBICH

CC: DV FILE

SUBJECT: ORGANIC DATA VALIDATION –VOA
CTO 078 – NAS CECIL FIELD
SDG F5151

SAMPLES: 4/Surface Soil

CEF-P46-SS-111-02
CEF-P46-SS-123-02
CEF-P46-SS-112-02
CEF-P46-SS-DU08

## OVERVIEW

The sample set for CTO 078, SDG F5154 Naval Air Station (NAS) Cecil Field; Florida consists of four (4) surface soil environmental samples. The samples were analyzed for target Compound List (TCL) volatile organic compounds. One (1) field duplicate pair (CEF-P46-SS-111-02/CEF-P46-SS-DU08) was included within this SDG.

The samples were collected by Tetra Tech, NUS on and October 22nd, 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 8260B 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.

## VOLATILE FRACTION

It should be noted that the laboratory did not perform percent moisture. The laboratory only received encore sampling device, therefore, insufficient sample was received. Sample results were reported on a wet weight basis.

**MEMO TO:** **MR. M. SPERANZA**
**DATE:** **NOVEMBER 10, 1999 – PAGE 2**

EXECUTIVE SUMMARY

***Laboratory performance:*** The laboratory only received an encore sampler, therefore, they were not able to perform the percent solids.

***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

**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%

# CTO078 - NAS CECIL FIELD
## SOIL DATA
## Accutest, NJ
## SDG: F5151



| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SAMPLE NUMBER: | CEF-P46-SS-111-02 | | | CEF-P46-SS-112-02 | | | CEF-P46-SS-123-02 | | | CEF-P46-SS-DU08 | | |
| SAMPLE DATE: | 10/22/99 | | | 10/22/99 | | | 10/22/99 | | | 10/22/99 | | |
| LABORATORY ID: | F5151-1 | | | F5151-2 | | | F5151-3 | | | F5151-4 | | |
| QC_TYPE: | NORMAL | | | NORMAL | | | NORMAL | | | NORMAL | | |
| % SOLIDS: | 100.0 % | | | 100.0 % | | | 100.0 % | | | 100.0 % | | |
| UNITS: | UG/KG | | | UG/KG | | | UG/KG | | | UG/KG | | |
| FIELD DUPLICATE OF: | | | | | | | | | | CEF-P46-SS-111-02 | | |
| VOLATILES | RESULT | QUAL | CODE | RESULT | QUAL | CODE | RESULT | QUAL | CODE | RESULT | QUAL | CODE |
| 1,1,1-TRICHLOROETHANE | 2 | U | | 1.9 | U | | 1.9 | U | | 1.9 | U | |
| 1,1,2,2-TETRACHLOROETHANE | 2 | U | | 1.9 | U | | 1.9 | U | | 1.9 | U | |
| 1,1,2-TRICHLOROETHANE | 2 | U | | 1.9 | U | | 1.9 | U | | 1.9 | U | |
| 1,1-DICHLOROETHANE | 2 | U | | 1.9 | U | | 1.9 | U | | 1.9 | U | |
| 1,1-DICHLOROETHENE | 2 | U | | 1.9 | U | | 1.9 | U | | 1.9 | U | |
| 1,2-DICHLOROETHANE | 2 | U | | 1.9 | U | | 1.9 | U | | 1.9 | U | |
| 1,2-DICHLOROPROPANE | 2 | U | | 1.9 | U | | 1.9 | U | | 1.9 | U | |
| 2-BUTANONE | 9.9 | U | | 9.7 | U | | 9.4 | U | | 9.7 | U | |
| 2-HEXANONE | 9.9 | U | | 9.7 | U | | 9.4 | U | | 9.7 | U | |
| 4-METHYL-2-PENTANONE | 9.9 | U | | 9.7 | U | | 9.4 | U | | 9.7 | U | |
| ACETONE | 50 | U | | 48 | U | | 47 | U | | 48 | U | |
| BENZENE | 2 | U | | 1.9 | U | | 1.9 | U | | 1.9 | U | |
| BROMODICHLOROMETHANE | 2 | U | | 1.9 | U | | 1.9 | U | | 1.9 | U | |
| BROMOFORM | 2 | U | | 1.9 | U | | 1.9 | U | | 1.9 | U | |
| BROMOMETHANE | 5 | U | | 4.8 | U | | 4.7 | U | | 4.8 | U | |
| CARBON DISULFIDE | 5 | U | | 4.8 | U | | 4.7 | U | | 4.8 | U | |
| CARBON TETRACHLORIDE | 2 | U | | 1.9 | U | | 1.9 | U | | 1.9 | U | |
| CHLOROBENZENE | 2 | U | | 1.9 | U | | 1.9 | U | | 1.9 | U | |
| CHLOROETHANE | 5 | U | | 4.8 | U | | 4.7 | U | | 4.8 | U | |
| CHLOROFORM | 2 | U | | 1.9 | U | | 1.9 | U | | 1.9 | U | |
| CHLOROMETHANE | 5 | U | | 4.8 | U | | 4.7 | U | | 4.8 | U | |
| CIS-1,2-DICHLOROETHENE | 2 | U | | 1.9 | U | | 1.9 | U | | 1.9 | U | |
| CIS-1,3-DICHLOROPROPENE | 2 | U | | 1.9 | U | | 1.9 | U | | 1.9 | U | |
| DIBROMOCHLOROMETHANE | 2 | U | | 1.9 | U | | 1.9 | U | | 1.9 | U | |
| ETHYLBENZENE | 2 | U | | 1.9 | U | | 1.9 | U | | 1.9 | U | |
| METHYLENE CHLORIDE | 9.9 | U | | 9.7 | U | | 9.4 | U | | 9.7 | U | |
| STYRENE | 2 | U | | 1.9 | U | | 1.9 | U | | 1.9 | U | |
| TETRACHLOROETHENE | 2 | U | | 1.9 | U | | 1.9 | U | | 1.9 | U | |
| TOLUENE | 2 | U | | 1.9 | U | | 1.9 | U | | 1.9 | U | |
| TRANS-1,2-DICHLOROETHENE | 2 | U | | 1.9 | U | | 1.9 | U | | 1.9 | U | |
| TRANS-1,3-DICHLOROPROPENE | 2 | U | | 1.9 | U | | 1.9 | U | | 1.9 | U | |
| TRICHLOROETHENE | 2 | U | | 1.9 | U | | 1.9 | U | | 1.9 | U | |
| VINYL CHLORIDE | 5 | U | | 4.8 | U | | 4.7 | U | | 4.8 | U | |
| XYLENES, TOTAL | 5.9 | U | | 5.8 | U | | 5.6 | U | | 5.8 | U | |

ACCUTEST

# Report of Analysis



| | | | |
|---|---|---|---|
| **Client Sample ID:** | CEF-P46-SS-111-02 | | |
| **Lab Sample ID:** | F5151-1 | **Date Sampled:** | 10/22/99 |
| **Matrix:** | SO - Soil | **Date Received:** | 10/23/99 |
| **Method:** | SW846 8260B | **Percent Solids:** | n/a |
| **Project:** | NAS Cecil Field | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 [a] | K004591.D | 1 | 10/28/99 | RAW | n/a | n/a | VK116 |
| Run #2 | | | | | | | |

**VOA TCL List**

| CAS No. | Compound | Result | RL | Units | Q |
|---|---|---|---|---|---|
| 67-64-1 | Acetone | ND | 50 | ug/kg | |
| 71-43-2 | Benzene | ND | 2.0 | ug/kg | |
| 75-27-4 | Bromodichloromethane | ND | 2.0 | ug/kg | |
| 75-25-2 | Bromoform | ND | 2.0 | ug/kg | |
| 108-90-7 | Chlorobenzene | ND | 2.0 | ug/kg | |
| 75-00-3 | Chloroethane | ND | 5.0 | ug/kg | |
| 67-66-3 | Chloroform | ND | 2.0 | ug/kg | |
| 75-15-0 | Carbon disulfide | ND | 5.0 | ug/kg | |
| 56-23-5 | Carbon tetrachloride | ND | 2.0 | ug/kg | |
| 75-34-3 | 1,1-Dichloroethane | ND | 2.0 | ug/kg | |
| 75-35-4 | 1,1-Dichloroethylene | ND | 2.0 | ug/kg | |
| 107-06-2 | 1,2-Dichloroethane | ND | 2.0 | ug/kg | |
| 78-87-5 | 1,2-Dichloropropane | ND | 2.0 | ug/kg | |
| 124-48-1 | Dibromochloromethane | ND | 2.0 | ug/kg | |
| 156-59-2 | cis-1,2-Dichloroethylene | ND | 2.0 | ug/kg | |
| 10061-01-5 | cis-1,3-Dichloropropene | ND | 2.0 | ug/kg | |
| 156-60-5 | trans-1,2-Dichloroethylene | ND | 2.0 | ug/kg | |
| 10061-02-6 | trans-1,3-Dichloropropene | ND | 2.0 | ug/kg | |
| 100-41-4 | Ethylbenzene | ND | 2.0 | ug/kg | |
| 591-78-6 | 2-Hexanone | ND | 9.9 | ug/kg | |
| 108-10-1 | 4-Methyl-2-pentanone | ND | 9.9 | ug/kg | |
| 74-83-9 | Methyl bromide | ND | 5.0 | ug/kg | |
| 74-87-3 | Methyl chloride | ND | 5.0 | ug/kg | |
| 75-09-2 | Methylene chloride | ND | 9.9 | ug/kg | |
| 78-93-3 | Methyl ethyl ketone | ND | 9.9 | ug/kg | |
| 100-42-5 | Styrene | ND | 2.0 | ug/kg | |
| 71-55-6 | 1,1,1-Trichloroethane | ND | 2.0 | ug/kg | |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | ND | 2.0 | ug/kg | |
| 79-00-5 | 1,1,2-Trichloroethane | ND | 2.0 | ug/kg | |
| 127-18-4 | Tetrachloroethylene | ND | 2.0 | ug/kg | |
| 108-88-3 | Toluene | ND | 2.0 | ug/kg | |
| 79-01-6 | Trichloroethylene | ND | 2.0 | ug/kg | |
| 75-01-4 | Vinyl chloride | ND | 5.0 | ug/kg | |
| 1330-20-7 | Xylene (total) | ND | 5.9 | ug/kg | |

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-P46-SS-111-02 | | |
| **Lab Sample ID:** | F5151-1 | **Date Sampled:** | 10/22/99 |
| **Matrix:** | SO - Soil | **Date Received:** | 10/23/99 |
| **Method:** | SW846 8260B | **Percent Solids:** | n/a |
| **Project:** | NAS Cecil Field | | |

**VOA TCL List**

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 1868-53-7 | Dibromofluoromethane | 104% | | 71-122% |
| 2037-26-5 | Toluene-D8 | 96% | | 73-128% |
| 460-00-4 | 4-Bromofluorobenzene | 99% | | 53-158% |
| 17060-07-0 | 1,2-Dichloroethane-D4 | 107% | | 71-122% |

(a) Results reported on a wet weight basis.

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-P46-SS-112-02 | | |
| **Lab Sample ID:** | F5151-2 | **Date Sampled:** | 10/22/99 |
| **Matrix:** | SO - Soil | **Date Received:** | 10/23/99 |
| **Method:** | SW846 8260B | **Percent Solids:** | n/a |
| **Project:** | NAS Cecil Field | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 [a] | K004592.D | 1 | 10/28/99 | RAW | n/a | n/a | VK116 |
| Run #2 | | | | | | | |

**VOA TCL List**

| CAS No. | Compound | Result | RL | Units | Q |
|---|---|---|---|---|---|
| 67-64-1 | Acetone | ND | 48 | ug/kg | |
| 71-43-2 | Benzene | ND | 1.9 | ug/kg | |
| 75-27-4 | Bromodichloromethane | ND | 1.9 | ug/kg | |
| 75-25-2 | Bromoform | ND | 1.9 | ug/kg | |
| 108-90-7 | Chlorobenzene | ND | 1.9 | ug/kg | |
| 75-00-3 | Chloroethane | ND | 4.8 | ug/kg | |
| 67-66-3 | Chloroform | ND | 1.9 | ug/kg | |
| 75-15-0 | Carbon disulfide | ND | 4.8 | ug/kg | |
| 56-23-5 | Carbon tetrachloride | ND | 1.9 | ug/kg | |
| 75-34-3 | 1,1-Dichloroethane | ND | 1.9 | ug/kg | |
| 75-35-4 | 1,1-Dichloroethylene | ND | 1.9 | ug/kg | |
| 107-06-2 | 1,2-Dichloroethane | ND | 1.9 | ug/kg | |
| 78-87-5 | 1,2-Dichloropropane | ND | 1.9 | ug/kg | |
| 124-48-1 | Dibromochloromethane | ND | 1.9 | ug/kg | |
| 156-59-2 | cis-1,2-Dichloroethylene | ND | 1.9 | ug/kg | |
| 10061-01-5 | cis-1,3-Dichloropropene | ND | 1.9 | ug/kg | |
| 156-60-5 | trans-1,2-Dichloroethylene | ND | 1.9 | ug/kg | |
| 10061-02-6 | trans-1,3-Dichloropropene | ND | 1.9 | ug/kg | |
| 100-41-4 | Ethylbenzene | ND | 1.9 | ug/kg | |
| 591-78-6 | 2-Hexanone | ND | 9.7 | ug/kg | |
| 108-10-1 | 4-Methyl-2-pentanone | ND | 9.7 | ug/kg | |
| 74-83-9 | Methyl bromide | ND | 4.8 | ug/kg | |
| 74-87-3 | Methyl chloride | ND | 4.8 | ug/kg | |
| 75-09-2 | Methylene chloride | ND | 9.7 | ug/kg | |
| 78-93-3 | Methyl ethyl ketone | ND | 9.7 | ug/kg | |
| 100-42-5 | Styrene | ND | 1.9 | ug/kg | |
| 71-55-6 | 1,1,1-Trichloroethane | ND | 1.9 | ug/kg | |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | ND | 1.9 | ug/kg | |
| 79-00-5 | 1,1,2-Trichloroethane | ND | 1.9 | ug/kg | |
| 127-18-4 | Tetrachloroethylene | ND | 1.9 | ug/kg | |
| 108-88-3 | Toluene | ND | 1.9 | ug/kg | |
| 79-01-6 | Trichloroethylene | ND | 1.9 | ug/kg | |
| 75-01-4 | Vinyl chloride | ND | 4.8 | ug/kg | |
| 1330-20-7 | Xylene (total) | ND | 5.8 | ug/kg | |

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-P46-SS-112-02 | | |
| **Lab Sample ID:** | F5151-2 | **Date Sampled:** | 10/22/99 |
| **Matrix:** | SO - Soil | **Date Received:** | 10/23/99 |
| **Method:** | SW846 8260B | **Percent Solids:** | n/a |
| **Project:** | NAS Cecil Field | | |

**VOA TCL List**

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 1868-53-7 | Dibromofluoromethane | 102% | | 71-122% |
| 2037-26-5 | Toluene-D8 | 95% | | 73-128% |
| 460-00-4 | 4-Bromofluorobenzene | 92% | | 53-158% |
| 17060-07-0 | 1,2-Dichloroethane-D4 | 112% | | 71-122% |

(a) Results reported on a wet weight basis.

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-P46-SS-123-02 | | |
| **Lab Sample ID:** | F5151-3 | **Date Sampled:** | 10/22/99 |
| **Matrix:** | SO - Soil | **Date Received:** | 10/23/99 |
| **Method:** | SW846 8260B | **Percent Solids:** | n/a |
| **Project:** | NAS Cecil Field | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 [a] | K004593.D | 1 | 10/28/99 | RAW | n/a | n/a | VK116 |
| Run #2 | | | | | | | |

**VOA TCL List**

| CAS No. | Compound | Result | RL | Units | Q |
|---|---|---|---|---|---|
| 67-64-1 | Acetone | ND | 47 | ug/kg | |
| 71-43-2 | Benzene | ND | 1.9 | ug/kg | |
| 75-27-4 | Bromodichloromethane | ND | 1.9 | ug/kg | |
| 75-25-2 | Bromoform | ND | 1.9 | ug/kg | |
| 108-90-7 | Chlorobenzene | ND | 1.9 | ug/kg | |
| 75-00-3 | Chloroethane | ND | 4.7 | ug/kg | |
| 67-66-3 | Chloroform | ND | 1.9 | ug/kg | |
| 75-15-0 | Carbon disulfide | ND | 4.7 | ug/kg | |
| 56-23-5 | Carbon tetrachloride | ND | 1.9 | ug/kg | |
| 75-34-3 | 1,1-Dichloroethane | ND | 1.9 | ug/kg | |
| 75-35-4 | 1,1-Dichloroethylene | ND | 1.9 | ug/kg | |
| 107-06-2 | 1,2-Dichloroethane | ND | 1.9 | ug/kg | |
| 78-87-5 | 1,2-Dichloropropane | ND | 1.9 | ug/kg | |
| 124-48-1 | Dibromochloromethane | ND | 1.9 | ug/kg | |
| 156-59-2 | cis-1,2-Dichloroethylene | ND | 1.9 | ug/kg | |
| 10061-01-5 | cis-1,3-Dichloropropene | ND | 1.9 | ug/kg | |
| 156-60-5 | trans-1,2-Dichloroethylene | ND | 1.9 | ug/kg | |
| 10061-02-6 | trans-1,3-Dichloropropene | ND | 1.9 | ug/kg | |
| 100-41-4 | Ethylbenzene | ND | 1.9 | ug/kg | |
| 591-78-6 | 2-Hexanone | ND | 9.4 | ug/kg | |
| 108-10-1 | 4-Methyl-2-pentanone | ND | 9.4 | ug/kg | |
| 74-83-9 | Methyl bromide | ND | 4.7 | ug/kg | |
| 74-87-3 | Methyl chloride | ND | 4.7 | ug/kg | |
| 75-09-2 | Methylene chloride | ND | 9.4 | ug/kg | |
| 78-93-3 | Methyl ethyl ketone | ND | 9.4 | ug/kg | |
| 100-42-5 | Styrene | ND | 1.9 | ug/kg | |
| 71-55-6 | 1,1,1-Trichloroethane | ND | 1.9 | ug/kg | |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | ND | 1.9 | ug/kg | |
| 79-00-5 | 1,1,2-Trichloroethane | ND | 1.9 | ug/kg | |
| 127-18-4 | Tetrachloroethylene | ND | 1.9 | ug/kg | |
| 108-88-3 | Toluene | ND | 1.9 | ug/kg | |
| 79-01-6 | Trichloroethylene | ND | 1.9 | ug/kg | |
| 75-01-4 | Vinyl chloride | ND | 4.7 | ug/kg | |
| 1330-20-7 | Xylene (total) | ND | 5.6 | ug/kg | |

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-P46-SS-123-02 | | |
| **Lab Sample ID:** | F5151-3 | **Date Sampled:** | 10/22/99 |
| **Matrix:** | SO - Soil | **Date Received:** | 10/23/99 |
| **Method:** | SW846 8260B | **Percent Solids:** | n/a |
| **Project:** | NAS Cecil Field | | |

**VOA TCL List**

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 1868-53-7 | Dibromofluoromethane | 106% | | 71-122% |
| 2037-26-5 | Toluene-D8 | 93% | | 73-128% |
| 460-00-4 | 4-Bromofluorobenzene | 98% | | 53-158% |
| 17060-07-0 | 1,2-Dichloroethane-D4 | 111% | | 71-122% |

(a) Results reported on a wet weight basis.

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-P46-SS-DU08 | | |
| **Lab Sample ID:** | F5151-4 | **Date Sampled:** | 10/22/99 |
| **Matrix:** | SO - Soil | **Date Received:** | 10/23/99 |
| **Method:** | SW846 8260B | **Percent Solids:** | n/a |
| **Project:** | NAS Cecil Field | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 [a] | K004594.D | 1 | 10/28/99 | RAW | n/a | n/a | VK116 |
| Run #2 | | | | | | | |

**VOA TCL List**

| CAS No. | Compound | Result | RL | Units | Q |
|---|---|---|---|---|---|
| 67-64-1 | Acetone | ND | 48 | ug/kg | |
| 71-43-2 | Benzene | ND | 1.9 | ug/kg | |
| 75-27-4 | Bromodichloromethane | ND | 1.9 | ug/kg | |
| 75-25-2 | Bromoform | ND | 1.9 | ug/kg | |
| 108-90-7 | Chlorobenzene | ND | 1.9 | ug/kg | |
| 75-00-3 | Chloroethane | ND | 4.8 | ug/kg | |
| 67-66-3 | Chloroform | ND | 1.9 | ug/kg | |
| 75-15-0 | Carbon disulfide | ND | 4.8 | ug/kg | |
| 56-23-5 | Carbon tetrachloride | ND | 1.9 | ug/kg | |
| 75-34-3 | 1,1-Dichloroethane | ND | 1.9 | ug/kg | |
| 75-35-4 | 1,1-Dichloroethylene | ND | 1.9 | ug/kg | |
| 107-06-2 | 1,2-Dichloroethane | ND | 1.9 | ug/kg | |
| 78-87-5 | 1,2-Dichloropropane | ND | 1.9 | ug/kg | |
| 124-48-1 | Dibromochloromethane | ND | 1.9 | ug/kg | |
| 156-59-2 | cis-1,2-Dichloroethylene | ND | 1.9 | ug/kg | |
| 10061-01-5 | cis-1,3-Dichloropropene | ND | 1.9 | ug/kg | |
| 156-60-5 | trans-1,2-Dichloroethylene | ND | 1.9 | ug/kg | |
| 10061-02-6 | trans-1,3-Dichloropropene | ND | 1.9 | ug/kg | |
| 100-41-4 | Ethylbenzene | ND | 1.9 | ug/kg | |
| 591-78-6 | 2-Hexanone | ND | 9.7 | ug/kg | |
| 108-10-1 | 4-Methyl-2-pentanone | ND | 9.7 | ug/kg | |
| 74-83-9 | Methyl bromide | ND | 4.8 | ug/kg | |
| 74-87-3 | Methyl chloride | ND | 4.8 | ug/kg | |
| 75-09-2 | Methylene chloride | ND | 9.7 | ug/kg | |
| 78-93-3 | Methyl ethyl ketone | ND | 9.7 | ug/kg | |
| 100-42-5 | Styrene | ND | 1.9 | ug/kg | |
| 71-55-6 | 1,1,1-Trichloroethane | ND | 1.9 | ug/kg | |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | ND | 1.9 | ug/kg | |
| 79-00-5 | 1,1,2-Trichloroethane | ND | 1.9 | ug/kg | |
| 127-18-4 | Tetrachloroethylene | ND | 1.9 | ug/kg | |
| 108-88-3 | Toluene | ND | 1.9 | ug/kg | |
| 79-01-6 | Trichloroethylene | ND | 1.9 | ug/kg | |
| 75-01-4 | Vinyl chloride | ND | 4.8 | ug/kg | |
| 1330-20-7 | Xylene (total) | ND | 5.8 | ug/kg | |

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-P46-SS-DU08 | | |
| **Lab Sample ID:** | F5151-4 | **Date Sampled:** | 10/22/99 |
| **Matrix:** | SO - Soil | **Date Received:** | 10/23/99 |
| **Method:** | SW846 8260B | **Percent Solids:** | n/a |
| **Project:** | NAS Cecil Field | | |

**VOA TCL List**

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 1868-53-7 | Dibromofluoromethane | 107% | | 71-122% |
| 2037-26-5 | Toluene-D8 | 95% | | 73-128% |
| 460-00-4 | 4-Bromofluorobenzene | 94% | | 53-158% |
| 17060-07-0 | 1,2-Dichloroethane-D4 | 112% | | 71-122% |

(a) Results reported on a wet weight basis.

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-10-9-261**

**TO:** **MR. M. SPERANZA** **DATE: DECEMBER 14, 1999**

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

**SUBJECT:** **ORGANIC DATA VALIDATION – SVOA/PEST/TPH/PAH**
**CTO 078 – NAS CECIL FIELD**
**SDG F5001**

**SAMPLES:** 24/Soil

| | |
|---|---|
| CEF-P46-SS-111-02 | CEF-P46-SS-112-02 |
| CEF-P46-SS-123-02 | CEF-P46-SS-DU08 |
| CEF-P46-SS-208-1 | CEF-P46-SS-DU07 |
| CEF-P46-SS-201-1* | CEF-P46-SS-202-1* |
| CEF-P46-SS-203-1* | CEF-P46-SS-204-1* |
| CEF-P46-SS-205-1* | CEF-P46-SS-206-1* |
| CEF-P46-SS-207-1* | CEF-P46-SS-209-1* |
| CEF-P46-SS-210-1* | CEF-P46-SS-211-1* |
| CEF-P46-SS-212-1* | CEF-P46-SS-213-1* |
| CEF-P46-SS-214-1* | CEF-P46-SS-215-1* |
| CEF-P46-SS-216-1* | CEF-P46-SS-217-1* |
| CEF-P46-SS-218-03* | CEF-P46-SS-219-03* |

## OVERVIEW

The sample set for CTO 078, SDG F5001 Naval Air Station (NAS) Cecil Field; Florida consists of twenty-four (24) solid environmental samples. The samples were analyzed for Target Compound List (TCL) semivolatile, pesticide, Total Petroleum Hydrocarbon (TPH), and Polynuclear Aromatic Hydrocarbon (PAH) organic compounds. The compounds designated (*) were analyzed for TCL PAH organic compounds only. Two (2) field duplicate pairs (CEF-P46-SS-008-1/CEF-P46-SS-DU07 and CEF-P46-SS-111-02/CEF-P46-SS-DU08) were included within this SDG.

The samples were collected by Tetra Tech, NUS on and September 30th and October 1st, 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 8270C, 8081A, FLORIDA-PRO, and 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
* • 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.

SEMIVOLATILE FRACTION

Samples CEF-P46-SS-112-02 and CEF-P46-SS-123-02 were analyzed at a 20X dilution thus causing elevated detection limits.

PESTICIDE FRACTION

Sample CEF-P46-SS-112-02 was analyzed at a 5X dilution thus causing elevated detection limits.

The field duplicate pair exceeded the 50% quality control limits for 4,4'-DDE. The positive results were qualified as estimated (J).

TPH FRACTION

Sample CEF-P46-SS-112-02 was analyzed at a 40X dilution.

Sample CEF-P46-SS-123-02 was analyzed at a 5X dilution.

PAH FRACTION

The field duplicate pair 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:*** The laboratory did not report the positive result for methylene chloride in sample CEF-A22-SS-008-01.

***Other Factors Affecting Data Quality:*** Samples CEF-P46-SS-112-02 and CEF-P46-SS-123-02 were analyzed at a dilution.

**MEMO TO: MR. M. SPERANZA**
**DATE: DECEMBER 14, 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.

**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: F5001



| SAMPLE NUMBER: | CEF-P46-SS-111-02 | | | CEF-P46-SS-112-02 | | | CEF-P46-SS-123-02 | | | CEF-P46-SS-DU08 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SAMPLE DATE: | 09/30/99 | | | 09/30/99 | | | 09/30/99 | | | 09/30/99 | | |
| LABORATORY ID: | F5001-15 | | | F5001-14 | | | F5001-13 | | | F5001-23 | | |
| QC_TYPE: | NORMAL | | | NORMAL | | | NORMAL | | | NORMAL | | |
| % SOLIDS: | 82.2 % | | | 89.6 % | | | 89.5 % | | | 82.3 % | | |
| UNITS: | UG/KG | | | UG/KG | | | UG/KG | | | UG/KG | | |
| FIELD DUPLICATE OF: | | | | | | | | | | CEF-P46-SS-111-02 | | |
| | RESULT | QUAL | CODE | RESULT | QUAL | CODE | RESULT | QUAL | CODE | RESULT | QUAL | CODE |
| **SEMIVOLATILES** | | | | | | | | | | | | |
| 1,2,4-TRICHLOROBENZENE | 400 | U | | 7400 | U | | 1500 | U | | 400 | U | |
| 1,2-DICHLOROBENZENE | 400 | U | | 7400 | U | | 1500 | U | | 400 | U | |
| 1,3-DICHLOROBENZENE | 400 | U | | 7400 | U | | 1500 | U | | 400 | U | |
| 1,4-DICHLOROBENZENE | 400 | U | | 7400 | U | | 1500 | U | | 400 | U | |
| 2,4,5-TRICHLOROPHENOL | 400 | U | | 7400 | U | | 1500 | U | | 400 | U | |
| 2,4,6-TRICHLOROPHENOL | 400 | U | | 7400 | U | | 1500 | U | | 400 | U | |
| 2,4-DICHLOROPHENOL | 400 | U | | 7400 | U | | 1500 | U | | 400 | U | |
| 2,4-DIMETHYLPHENOL | 1000 | U | | 18000 | U | | 3700 | U | | 1000 | U | |
| 2,4-DINITROPHENOL | 1000 | U | | 18000 | U | | 3700 | U | | 1000 | U | |
| 2,4-DINITROTOLUENE | 400 | U | | 7400 | U | | 1500 | U | | 400 | U | |
| 2,6-DINITROTOLUENE | 400 | U | | 7400 | U | | 1500 | U | | 400 | U | |
| 2-CHLORONAPHTHALENE | 400 | U | | 7400 | U | | 1500 | U | | 400 | U | |
| 2-CHLOROPHENOL | 400 | U | | 7400 | U | | 1500 | U | | 400 | U | |
| 2-METHYLNAPHTHALENE | 400 | U | | 7400 | U | | 1500 | U | | 400 | U | |
| 2-METHYLPHENOL | 400 | U | | 7400 | U | | 1500 | U | | 400 | U | |
| 2-NITROANILINE | 400 | U | | 7400 | U | | 1500 | U | | 400 | U | |
| 2-NITROPHENOL | 400 | U | | 7400 | U | | 1500 | U | | 400 | U | |
| 3&4-METHYLPHENOL | 400 | U | | 7400 | U | | 1500 | U | | 400 | U | |
| 3,3'-DICHLOROBENZIDINE | 810 | U | | 15000 | U | | 3000 | U | | 810 | U | |
| 3-NITROANILINE | 400 | U | | 7400 | U | | 1500 | U | | 400 | U | |
| 4,6-DINITRO-2-METHYLPHENOL | 810 | U | | 15000 | U | | 3000 | U | | 810 | U | |
| 4-BROMOPHENYL PHENYL ETHER | 400 | U | | 7400 | U | | 1500 | U | | 400 | U | |
| 4-CHLORO-3-METHYLPHENOL | 400 | U | | 7400 | U | | 1500 | U | | 400 | U | |
| 4-CHLOROANILINE | 400 | U | | 7400 | U | | 1500 | U | | 400 | U | |
| 4-CHLOROPHENYL PHENYL ETHER | 400 | U | | 7400 | U | | 1500 | U | | 400 | U | |
| 4-NITROANILINE | 400 | U | | 7400 | U | | 1500 | U | | 400 | U | |
| 4-NITROPHENOL | 1000 | U | | 18000 | U | | 3700 | U | | 1000 | U | |
| ACENAPHTHENE | 400 | U | | 7400 | U | | 1500 | U | | 400 | U | |
| ACENAPHTHYLENE | 400 | U | | 3080 | J | P | 1500 | U | | 400 | U | |
| ANTHRACENE | 400 | U | | 7400 | U | | 1500 | U | | 400 | U | |
| BENZO(A)ANTHRACENE | 400 | U | | 7400 | U | | 1500 | U | | 400 | U | |
| BENZO(A)PYRENE | 400 | U | | 2640 | J | P | 477 | J | P | 400 | U | |
| BENZO(B)FLUORANTHENE | 400 | U | | 2780 | J | P | 565 | J | P | 400 | U | |
| BENZO(G,H,I)PERYLENE | 400 | U | | 6170 | J | P | 483 | J | P | 400 | U | |

# CTO078 - NAS CECIL FIELD
## SOIL DATA
## Accutest, NJ
## SDG: F5001



| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SAMPLE NUMBER: | CEF-P46-SS-111-02 | | | CEF-P46-SS-112-02 | | | CEF-P46-SS-123-02 | | | CEF-P46-SS-DU08 | | |
| SAMPLE DATE: | 09/30/99 | | | 09/30/99 | | | 09/30/99 | | | 09/30/99 | | |
| LABORATORY ID: | F5001-15 | | | F5001-14 | | | F5001-13 | | | F5001-23 | | |
| QC_TYPE: | NORMAL | | | NORMAL | | | NORMAL | | | NORMAL | | |
| % SOLIDS: | 82.2 % | | | 89.6 % | | | 89.5 % | | | 82.3 % | | |
| UNITS: | UG/KG | | | UG/KG | | | UG/KG | | | UG/KG | | |
| FIELD DUPLICATE OF: | | | | | | | | | | CEF-P46-SS-111-02 | | |
| | RESULT | QUAL | CODE | RESULT | QUAL | CODE | RESULT | QUAL | CODE | RESULT | QUAL | CODE |
| **SEMIVOLATILES** | | | | | | | | | | | | |
| BENZO(K)FLUORANTHENE | 400 | U | | 7400 | U | | 1500 | U | | 400 | U | |
| BIS(2-CHLOROETHOXY)METHANE | 400 | U | | 7400 | U | | 1500 | U | | 400 | U | |
| BIS(2-CHLOROETHYL)ETHER | 400 | U | | 7400 | U | | 1500 | U | | 400 | U | |
| BIS(2-CHLOROISOPROPYL) ETHER | 400 | U | | 7400 | U | | 1500 | U | | 400 | U | |
| BIS(2-ETHYLHEXYL)PHTHALATE | 400 | U | | 7400 | U | | 1500 | U | | 400 | U | |
| BUTYLBENZYL PHTHALATE | 400 | U | | 7400 | U | | 1500 | U | | 400 | U | |
| CARBAZOLE | 400 | U | | 7400 | U | | 1500 | U | | 400 | U | |
| CHRYSENE | 400 | U | | 7400 | U | | 1500 | U | | 400 | U | |
| DI-N-BUTYL PHTHALATE | 400 | U | | 7400 | U | | 1500 | U | | 400 | U | |
| DI-N-OCTYL PHTHALATE | 400 | U | | 7400 | U | | 1500 | U | | 400 | U | |
| DIBENZO(A,H)ANTHRACENE | 400 | U | | 7400 | U | | 1500 | U | | 400 | U | |
| DIBENZOFURAN | 400 | U | | 7400 | U | | 1500 | U | | 400 | U | |
| DIETHYL PHTHALATE | 400 | U | | 7400 | U | | 1500 | U | | 400 | U | |
| DIMETHYL PHTHALATE | 400 | U | | 7400 | U | | 1500 | U | | 400 | U | |
| FLUORANTHENE | 400 | U | | 7400 | U | | 572 | J | P | 400 | U | |
| FLUORENE | 400 | U | | 7400 | U | | 1500 | U | | 400 | U | |
| HEXACHLOROBENZENE | 400 | U | | 7400 | U | | 1500 | U | | 400 | U | |
| HEXACHLOROBUTADIENE | 400 | U | | 7400 | U | | 1500 | U | | 400 | U | |
| HEXACHLOROCYCLOPENTADIENE | 400 | U | | 7400 | U | | 1500 | U | | 400 | U | |
| HEXACHLOROETHANE | 400 | U | | 7400 | U | | 1500 | U | | 400 | U | |
| INDENO(1,2,3-CD)PYRENE | 400 | U | | 3060 | J | P | 492 | J | P | 400 | U | |
| ISOPHORONE | 400 | U | | 7400 | U | | 1500 | U | | 400 | U | |
| N-NITROSO-DI-N-PROPYLAMINE | 400 | U | | 7400 | U | | 1500 | U | | 400 | U | |
| N-NITROSODIPHENYLAMINE | 400 | U | | 7400 | U | | 1500 | U | | 400 | U | |
| NAPHTHALENE | 400 | U | | 7400 | U | | 1500 | U | | 400 | U | |
| NITROBENZENE | 400 | U | | 7400 | U | | 1500 | U | | 400 | U | |
| PENTACHLOROPHENOL | 1000 | U | | 18000 | U | | 3700 | U | | 1000 | U | |
| PHENANTHRENE | 400 | U | | 7400 | U | | 1500 | U | | 400 | U | |
| PHENOL | 400 | U | | 7400 | U | | 1500 | U | | 400 | U | |
| PYRENE | 400 | U | | 7400 | U | | 594 | J | P | 400 | U | |

# CTO078 - NAS CECIL FIELD
## SOIL DATA
## Accutest, NJ
## SDG: F5001



| SAMPLE NUMBER: | CEF-P46-SS-111-02 | | | CEF-P46-SS-112-02 | | | CEF-P46-SS-123-02 | | | CEF-P46-SS-DU08 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SAMPLE DATE: | 09/30/99 | | | 09/30/99 | | | 09/30/99 | | | 09/30/99 | | |
| LABORATORY ID: | F5001-15 | | | F5001-14 | | | F5001-13 | | | F5001-23 | | |
| QC_TYPE: | NORMAL | | | NORMAL | | | NORMAL | | | NORMAL | | |
| % SOLIDS: | 82.2 % | | | 89.6 % | | | 89.5 % | | | 82.3 % | | |
| UNITS: | UG/KG | | | UG/KG | | | UG/KG | | | UG/KG | | |
| FIELD DUPLICATE OF: | | | | | | | | | | CEF-P46-SS-111-02 | | |
| | RESULT | QUAL | CODE | RESULT | QUAL | CODE | RESULT | QUAL | CODE | RESULT | QUAL | CODE |
| **PESTICIDES/PCBs** | | | | | | | | | | | | |
| 4,4'-DDD | 5.0 | | | 19 | U | | 5.7 | | | 3.1 | J | P |
| 4,4'-DDE | 7.6 | J | G | 8.1 | J | P | 2.0 | J | P | 4.4 | J | G |
| 4,4'-DDT | 4.0 | U | | 22 | | | 3.7 | U | | 2.2 | J | P |
| ALDRIN | 2.0 | U | | 9.3 | U | | 1.9 | U | | 2.0 | U | |
| ALPHA-BHC | 2.0 | U | | 9.3 | U | | 1.9 | U | | 2.0 | U | |
| ALPHA-CHLORDANE | 4.0 | U | | 19 | U | | 3.7 | U | | 4.0 | U | |
| BETA-BHC | 2.0 | U | | 9.3 | U | | 1.9 | U | | 2.0 | U | |
| DELTA-BHC | 2.0 | U | | 9.3 | U | | 1.9 | U | | 2.0 | U | |
| DIELDRIN | 2.0 | U | | 9.3 | U | | 1.9 | U | | 2.0 | U | |
| ENDOSULFAN I | 2.0 | U | | 9.3 | U | | 1.9 | U | | 2.0 | U | |
| ENDOSULFAN II | 4.0 | U | | 19 | U | | 3.7 | U | | 4.0 | U | |
| ENDOSULFAN SULFATE | 4.0 | U | | 19 | U | | 3.7 | U | | 4.0 | U | |
| ENDRIN | 4.0 | U | | 19 | U | | 3.7 | U | | 4.0 | U | |
| ENDRIN ALDEHYDE | 4.0 | U | | 19 | U | | 3.7 | U | | 4.0 | U | |
| ENDRIN KETONE | 4.0 | U | | 19 | U | | 3.7 | U | | 4.0 | U | |
| GAMMA-BHC (LINDANE) | 2.0 | U | | 9.3 | U | | 1.9 | U | | 2.0 | U | |
| GAMMA-CHLORDANE | 4.0 | U | | 19 | U | | 3.7 | U | | 4.0 | U | |
| HEPTACHLOR | 2.0 | U | | 9.3 | U | | 1.9 | U | | 2.0 | U | |
| HEPTACHLOR EPOXIDE | 2.0 | U | | 9.3 | U | | 1.9 | U | | 2.0 | U | |
| METHOXYCHLOR | 8.1 | U | | 37 | U | | 7.4 | U | | 8.1 | U | |
| TOXAPHENE | 200 | U | | 930 | U | | 190 | U | | 200 | U | |

# CTO078 - NAS CECIL FIELD
## SOIL DATA
## Accutest, NJ
## SDG: F5001



| | | | | |
|---|---|---|---|---|
| SAMPLE NUMBER: | CEF-P46-SS-DU07 | CEF-P46-SS-DU08 | | |
| SAMPLE DATE: | 09/30/99 | 09/30/99 | / / | / / |
| LABORATORY ID: | F5001-22 | F5001-23 | | |
| QC_TYPE: | NORMAL | NORMAL | | |
| % SOLIDS: | 79.1 % | 82.3 % | 100.0 % | 100.0 % |
| UNITS: | MG/KG | MG/KG | | |
| FIELD DUPLICATE OF: | CEF-P46-SS-208-01 | CEF-P46-SS-111-02 | | |

| | RESULT | QUAL | CODE | RESULT | QUAL | CODE | RESULT | QUAL | CODE | RESULT | QUAL | CODE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **PETROLEUM HYDROCARBONS** | | | | | | | | | | | | |
| TPH (C8-C40) | 13.5 | | | 32.5 | | | | | | | | |

# CTO078 - NAS CECIL FIELD
## SOIL DATA
## Accutest, NJ
## SDG: F5001



| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SAMPLE NUMBER: | CEF-P46-SS-111-02 | | | CEF-P46-SS-112-02 | | | CEF-P46-SS-123-02 | | | CEF-P46-SS-208-01 | | |
| SAMPLE DATE: | 09/30/99 | | | 09/30/99 | | | 09/30/99 | | | 09/30/99 | | |
| LABORATORY ID: | F5001-15 | | | F5001-14 | | | F5001-13 | | | F5001-10 | | |
| QC_TYPE: | NORMAL | | | NORMAL | | | NORMAL | | | NORMAL | | |
| % SOLIDS: | 82.2 % | | | 89.6 % | | | 89.5 % | | | 87.5 % | | |
| 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) | 22.6 | | | 696 | | | 113 | | | 19.3 | | |

# CTO078 - NAS CECIL FIELD
## SOIL DATA
## Accutest, NJ
## SDG: F5001



| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SAMPLE NUMBER: | CEF-P46-SS-201-01 | | | CEF-P46-SS-202-01 | | | CEF-P46-SS-203-01 | | | CEF-P46-SS-204-01 | | |
| SAMPLE DATE: | 09/30/99 | | | 09/30/99 | | | 09/30/99 | | | 09/30/99 | | |
| LABORATORY ID: | F5001-9 | | | F5001-3 | | | F5001-4 | | | F5001-6 | | |
| QC_TYPE: | NORMAL | | | NORMAL | | | NORMAL | | | NORMAL | | |
| % SOLIDS: | 86.0 % | | | 86.1 % | | | 88.5 % | | | 83.3 % | | |
| 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 | 76 | U | | 75 | U | | 72 | U | | 77 | U | |
| 2-METHYLNAPHTHALENE | 76 | U | | 75 | U | | 72 | U | | 77 | U | |
| ACENAPHTHENE | 80.1 | | | 75 | U | | 72 | U | | 77 | U | |
| ACENAPHTHYLENE | 76 | U | | 75 | U | | 72 | U | | 77 | U | |
| ANTHRACENE | 76 | U | | 75 | U | | 72 | U | | 77 | U | |
| BENZO(A)ANTHRACENE | 39.7 | | | 16.8 | | | 14 | | | 12 | U | |
| BENZO(A)PYRENE | 182 | | | 11 | U | | 77.4 | | | 12 | U | |
| BENZO(B)FLUORANTHENE | 76.1 | | | 11 | U | | 32.1 | | | 12 | U | |
| BENZO(G,H,I)PERYLENE | 106 | | | 41.8 | | | 32.8 | | | 12 | U | |
| BENZO(K)FLUORANTHENE | 16.7 | | | 11 | U | | 12.5 | | | 12 | U | |
| CHRYSENE | 75.5 | | | 73 | | | 59.4 | | | 12 | U | |
| DIBENZO(A,H)ANTHRACENE | 11 | U | | 11 | U | | 11 | U | | 12 | U | |
| FLUORANTHENE | 109 | | | 52.7 | | | 97.7 | | | 12 | U | |
| FLUORENE | 76 | U | | 75 | U | | 72 | U | | 77 | U | |
| INDENO(1,2,3-CD)PYRENE | 11 | U | | 11 | U | | 11 | U | | 12 | U | |
| NAPHTHALENE | 76 | U | | 75 | U | | 72 | U | | 77 | U | |
| PHENANTHRENE | 76 | U | | 75 | U | | 72 | U | | 77 | U | |
| PYRENE | 75.7 | | | 39.4 | | | 76.3 | | | 12 | U | |

# CTO078 - NAS CECIL FIELD
## SOIL DATA
## Accutest, NJ
## SDG: F5001



| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SAMPLE NUMBER: | CEF-P46-SS-205-01 | | | CEF-P46-SS-206-01 | | | CEF-P46-SS-207-01 | | | CEF-P46-SS-208-01 | | |
| SAMPLE DATE: | 09/30/99 | | | 09/30/99 | | | 09/30/99 | | | 09/30/99 | | |
| LABORATORY ID: | F5001-2 | | | F5001-1 | | | F5001-5 | | | F5001-10 | | |
| QC_TYPE: | NORMAL | | | NORMAL | | | NORMAL | | | NORMAL | | |
| % SOLIDS: | 89.8 % | | | 89.1 % | | | 84.0 % | | | 87.5 % | | |
| 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 | 72 | U | | 74 | U | | 77 | U | | 75 | U | |
| 2-METHYLNAPHTHALENE | 72 | U | | 74 | U | | 118 | | | 75 | U | |
| ACENAPHTHENE | 72 | U | | 74 | U | | 162 | | | 75 | U | |
| ACENAPHTHYLENE | 72 | U | | 74 | U | | 77 | U | | 75 | U | |
| ANTHRACENE | 72 | U | | 74 | U | | 77 | U | | 75 | U | |
| BENZO(A)ANTHRACENE | 12.3 | | | 26.4 | | | 52.5 | | | 11.4 | J | G |
| BENZO(A)PYRENE | 89.8 | | | 167 | | | 365 | | | 11 | U | |
| BENZO(B)FLUORANTHENE | 41.4 | | | 92.2 | | | 196 | | | 11 | U | |
| BENZO(G,H,I)PERYLENE | 46.7 | | | 123 | | | 201 | | | 28.1 | J | G |
| BENZO(K)FLUORANTHENE | 12.4 | | | 16.9 | | | 33.8 | | | 11 | U | |
| CHRYSENE | 40.9 | | | 57.8 | | | 69.8 | | | 31.8 | | |
| DIBENZO(A,H)ANTHRACENE | 11 | U | | 11 | U | | 11 | U | | 11 | U | |
| FLUORANTHENE | 63.1 | | | 11 | U | | 160 | | | 92.2 | | |
| FLUORENE | 72 | U | | 74 | U | | 77 | U | | 75 | U | |
| INDENO(1,2,3-CD)PYRENE | 11 | U | | 71.3 | | | 171 | | | 20.6 | J | G |
| NAPHTHALENE | 72 | U | | 74 | U | | 77 | U | | 75 | U | |
| PHENANTHRENE | 72 | U | | 74 | U | | 77 | U | | 75 | U | |
| PYRENE | 44.2 | | | 43 | | | 113 | | | 23.6 | J | G |

# CTO078 - NAS CECIL FIELD
## SOIL DATA
## Accutest, NJ
## SDG: F5001



| SAMPLE NUMBER: | CEF-P46-SS-209-01 | CEF-P46-SS-210-01 | CEF-P46-SS-211-01 | CEF-P46-SS-212-01 |
|---|---|---|---|---|
| SAMPLE DATE: | 09/30/99 | 09/30/99 | 09/30/99 | 09/30/99 |
| LABORATORY ID: | F5001-11 | F5001-12 | F5001-7 | F5001-8 |
| QC_TYPE: | NORMAL | NORMAL | NORMAL | NORMAL |
| % SOLIDS: | 88.9 % | 71.6 % | 77.9 % | 90.0 % |
| 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 | U | | 92 | U | | 84 | U | | 72 | U | |
| 2-METHYLNAPHTHALENE | 73 | U | | 92 | U | | 158 | | | 72 | U | |
| ACENAPHTHENE | 73 | U | | 124 | | | 171 | | | 72 | U | |
| ACENAPHTHYLENE | 73 | U | | 92 | U | | 84 | U | | 72 | U | |
| ANTHRACENE | 73 | U | | 92 | U | | 84 | U | | 72 | U | |
| BENZO(A)ANTHRACENE | 29.6 | | | 78.7 | | | 80.9 | | | 11 | U | |
| BENZO(A)PYRENE | 11 | U | | 284 | | | 579 | | | 11 | U | |
| BENZO(B)FLUORANTHENE | 11 | U | | 228 | | | 272 | | | 11 | U | |
| BENZO(G,H,I)PERYLENE | 11 | U | | 150 | | | 352 | | | 22.4 | | |
| BENZO(K)FLUORANTHENE | 11 | U | | 14 | | | 33.9 | | | 11 | U | |
| CHRYSENE | 154 | | | 114 | | | 135 | | | 32.5 | | |
| DIBENZO(A,H)ANTHRACENE | 11 | U | | 14 | U | | 13 | U | | 11 | U | |
| FLUORANTHENE | 224 | | | 227 | | | 235 | | | 77.4 | | |
| FLUORENE | 73 | U | | 92 | U | | 84 | U | | 72 | U | |
| INDENO(1,2,3-CD)PYRENE | 11 | U | | 14 | U | | 13 | U | | 11 | U | |
| NAPHTHALENE | 73 | U | | 92 | U | | 84 | U | | 72 | U | |
| PHENANTHRENE | 73 | U | | 92 | U | | 84 | U | | 72 | U | |
| PYRENE | 15.3 | | | 119 | | | 185 | | | 50.4 | | |

# CTO078 - NAS CECIL FIELD
## SOIL DATA
## Accutest, NJ
## SDG: F5001



| SAMPLE NUMBER: | CEF-P46-SS-213-01 | | | CEF-P46-SS-214-01 | | | CEF-P46-SS-215-01 | | | CEF-P46-SS-216-01 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SAMPLE DATE: | 10/01/99 | | | 10/01/99 | | | 10/01/99 | | | 10/01/99 | | |
| LABORATORY ID: | F5001-20 | | | F5001-21 | | | F5001-17 | | | F5001-18 | | |
| QC_TYPE: | NORMAL | | | NORMAL | | | NORMAL | | | NORMAL | | |
| % SOLIDS: | 76.2 % | | | 78.2 % | | | 76.4 % | | | 72.8 % | | |
| 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 | 84 | U | | 83 | U | | 84 | U | | 87 | U | |
| 2-METHYLNAPHTHALENE | 84 | U | | 83 | U | | 84 | U | | 87 | U | |
| ACENAPHTHENE | 122 | | | 83 | U | | 84 | U | | 87 | U | |
| ACENAPHTHYLENE | 84 | U | | 83 | U | | 84 | U | | 87 | U | |
| ANTHRACENE | 84 | U | | 83 | U | | 84 | U | | 87 | U | |
| BENZO(A)ANTHRACENE | 45.8 | | | 33.9 | | | 33 | | | 48.4 | | |
| BENZO(A)PYRENE | 151 | | | 133 | | | 73.9 | | | 115 | | |
| BENZO(B)FLUORANTHENE | 42.1 | | | 65.8 | | | 49.2 | | | 135 | | |
| BENZO(G,H,I)PERYLENE | 57.8 | | | 92.7 | | | 60.5 | | | 48.1 | | |
| BENZO(K)FLUORANTHENE | 13 | U | | 12 | U | | 13 | U | | 13 | U | |
| CHRYSENE | 13 | U | | 33.5 | | | 44 | | | 61.3 | | |
| DIBENZO(A,H)ANTHRACENE | 13 | U | | 12 | U | | 13 | U | | 13 | U | |
| FLUORANTHENE | 261 | | | 126 | | | 136 | | | 188 | | |
| FLUORENE | 84 | U | | 83 | U | | 84 | U | | 87 | U | |
| INDENO(1,2,3-CD)PYRENE | 23.9 | | | 81.1 | | | 13 | U | | 13 | U | |
| NAPHTHALENE | 84 | U | | 83 | U | | 84 | U | | 87 | U | |
| PHENANTHRENE | 84 | U | | 83 | U | | 84 | U | | 87 | U | |
| PYRENE | 104 | | | 38.3 | | | 56.6 | | | 101 | | |

# CTO078 - NAS CECIL FIELD
## SOIL DATA
## Accutest, NJ
## SDG: F5001



| SAMPLE NUMBER: | CEF-P46-SS-217-01 | | | CEF-P46-SS-DU07 | | | CEF-P46-SU-218-03 | | | CEF-P46-SU-219-03 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SAMPLE DATE: | 10/01/99 | | | 09/30/99 | | | 09/30/99 | | | 10/01/99 | | |
| LABORATORY ID: | F5001-19 | | | F5001-22 | | | F5001-24 | | | F5001-16 | | |
| QC_TYPE: | NORMAL | | | NORMAL | | | NORMAL | | | NORMAL | | |
| % SOLIDS: | 77.9 % | | | 79.1 % | | | 86.0 % | | | 77.6 % | | |
| UNITS: | UG/KG | | | UG/KG | | | UG/KG | | | UG/KG | | |
| FIELD DUPLICATE OF: | | | | CEF-P46-SS-208-01 | | | | | | | | |
| | RESULT | QUAL | CODE | RESULT | QUAL | CODE | RESULT | QUAL | CODE | RESULT | QUAL | CODE |
| **POLYNUCLEAR AROMATIC HYDROCARBONS** | | | | | | | | | | | | |
| 1-METHYLNAPHTHALENE | 84 | U | | 75 | U | | 77 | U | | 82 | U | |
| 2-METHYLNAPHTHALENE | 155 | | | 75 | U | | 77 | U | | 82 | U | |
| ACENAPHTHENE | 227 | | | 75 | U | | 77 | U | | 82 | U | |
| ACENAPHTHYLENE | 84 | U | | 75 | U | | 77 | U | | 82 | U | |
| ANTHRACENE | 84 | U | | 75 | U | | 77 | U | | 82 | U | |
| BENZO(A)ANTHRACENE | 136 | | | 11 | U | | 12 | U | | 12 | U | |
| BENZO(A)PYRENE | 372 | | | 22.8 | J | G | 12 | U | | 12 | U | |
| BENZO(B)FLUORANTHENE | 157 | | | 16.4 | J | G | 12 | U | | 12 | U | |
| BENZO(G,H,I)PERYLENE | 154 | | | 13.4 | J | G | 12 | U | | 12 | U | |
| BENZO(K)FLUORANTHENE | 22.5 | | | 11 | U | | 12 | U | | 12 | U | |
| CHRYSENE | 127 | | | 29.9 | | | 12 | U | | 12 | U | |
| DIBENZO(A,H)ANTHRACENE | 13 | U | | 11 | U | | 12 | U | | 12 | U | |
| FLUORANTHENE | 387 | | | 75.7 | | | 12 | U | | 12 | U | |
| FLUORENE | 84 | U | | 75 | U | | 77 | U | | 82 | U | |
| INDENO(1,2,3-CD)PYRENE | 141 | | | 11 | U | | 12 | U | | 12 | U | |
| NAPHTHALENE | 84 | U | | 75 | U | | 77 | U | | 82 | U | |
| PHENANTHRENE | 159 | | | 75 | U | | 77 | U | | 82 | U | |
| PYRENE | 226 | | | 11.6 | J | G | 12 | U | | 12 | U | |

ACCUTEST

# Report of Analysis



| | | | |
|---|---|---|---|
| **Client Sample ID:** | CEF-P46-SS-111-02 | | |
| **Lab Sample ID:** | F5001-15 | **Date Sampled:** | 09/30/99 |
| **Matrix:** | SO - Soil | **Date Received:** | 10/02/99 |
| **Method:** | SW846 3550B/8270C | **Percent Solids:** | 82.2 |
| **Project:** | NAS Cecil Field-PSC 46 | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | W000408.D | 1 | 10/07/99 | ME | 10/06/99 | OP1004 | SW24 |
| Run #2 | | | | | | | |

**ABN TCL List**

| CAS No. | Compound | Result | RDL | Units | Q |
|---|---|---|---|---|---|
| 65-85-0 | Benzoic acid | ND | 1000 | ug/kg | |
| 95-57-8 | 2-Chlorophenol | ND | 400 | ug/kg | |
| 59-50-7 | 4-Chloro-3-methyl phenol | ND | 400 | ug/kg | |
| 120-83-2 | 2,4-Dichlorophenol | ND | 400 | ug/kg | |
| 105-67-9 | 2,4-Dimethylphenol | ND | 1000 | ug/kg | |
| 51-28-5 | 2,4-Dinitrophenol | ND | 1000 | ug/kg | |
| 534-52-1 | 4,6-Dinitro-o-cresol | ND | 810 | ug/kg | |
| 95-48-7 | 2-Methylphenol | ND | 400 | ug/kg | |
| | 3&4-Methylphenol | ND | 400 | ug/kg | |
| 88-75-5 | 2-Nitrophenol | ND | 400 | ug/kg | |
| 100-02-7 | 4-Nitrophenol | ND | 1000 | ug/kg | |
| 87-86-5 | Pentachlorophenol | ND | 1000 | ug/kg | |
| 108-95-2 | Phenol | ND | 400 | ug/kg | |
| 95-95-4 | 2,4,5-Trichlorophenol | ND | 400 | ug/kg | |
| 88-06-2 | 2,4,6-Trichlorophenol | ND | 400 | ug/kg | |
| 83-32-9 | Acenaphthene | ND | 400 | ug/kg | |
| 208-96-8 | Acenaphthylene | ND | 400 | ug/kg | |
| 120-12-7 | Anthracene | ND | 400 | ug/kg | |
| 56-55-3 | Benzo(a)anthracene | ND | 400 | ug/kg | |
| 50-32-8 | Benzo(a)pyrene | ND | 400 | ug/kg | |
| 205-99-2 | Benzo(b)fluoranthene | ND | 400 | ug/kg | |
| 191-24-2 | Benzo(g,h,i)perylene | ND | 400 | ug/kg | |
| 207-08-9 | Benzo(k)fluoranthene | ND | 400 | ug/kg | |
| 101-55-3 | 4-Bromophenyl phenyl ether | ND | 400 | ug/kg | |
| 85-68-7 | Butyl benzyl phthalate | ND | 400 | ug/kg | |
| 100-51-6 | Benzyl Alcohol | ND | 400 | ug/kg | |
| 91-58-7 | 2-Chloronaphthalene | ND | 400 | ug/kg | |
| 106-47-8 | 4-Chloroaniline | ND | 400 | ug/kg | |
| 86-74-8 | Carbazole | ND | 400 | ug/kg | |
| 218-01-9 | Chrysene | ND | 400 | ug/kg | |
| 111-91-1 | bis(2-Chloroethoxy)methane | ND | 400 | ug/kg | |
| 111-44-4 | bis(2-Chloroethyl)ether | ND | 400 | ug/kg | |
| 108-60-1 | bis(2-Chloroisopropyl)ether | ND | 400 | ug/kg | |
| 7005-72-3 | 4-Chlorophenyl phenyl ether | ND | 400 | ug/kg | |
| 95-50-1 | 1,2-Dichlorobenzene | ND | 400 | ug/kg | |
| 541-73-1 | 1,3-Dichlorobenzene | ND | 400 | ug/kg | |

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-P46-SS-111-02 | | |
| **Lab Sample ID:** | F5001-15 | **Date Sampled:** | 09/30/99 |
| **Matrix:** | SO - Soil | **Date Received:** | 10/02/99 |
| **Method:** | SW846 3550B/8270C | **Percent Solids:** | 82.2 |
| **Project:** | NAS Cecil Field-PSC 46 | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | W000408.D | 1 | 10/07/99 | ME | 10/06/99 | OP1004 | SW24 |
| Run #2 | | | | | | | |

**ABN TCL List**

| CAS No. | Compound | Result | RDL | Units | Q |
|---|---|---|---|---|---|
| 106-46-7 | 1,4-Dichlorobenzene | ND | 400 | ug/kg | |
| 121-14-2 | 2,4-Dinitrotoluene | ND | 400 | ug/kg | |
| 606-20-2 | 2,6-Dinitrotoluene | ND | 400 | ug/kg | |
| 91-94-1 | 3,3'-Dichlorobenzidine | ND | 810 | ug/kg | |
| 53-70-3 | Dibenzo(a,h)anthracene | ND | 400 | ug/kg | |
| 132-64-9 | Dibenzofuran | ND | 400 | ug/kg | |
| 84-74-2 | Di-n-butyl phthalate | ND | 400 | ug/kg | |
| 117-84-0 | Di-n-octyl phthalate | ND | 400 | ug/kg | |
| 84-66-2 | Diethyl phthalate | ND | 400 | ug/kg | |
| 131-11-3 | Dimethyl phthalate | ND | 400 | ug/kg | |
| 117-81-7 | bis(2-Ethylhexyl)phthalate | ND | 400 | ug/kg | |
| 206-44-0 | Fluoranthene | ND | 400 | ug/kg | |
| 86-73-7 | Fluorene | ND | 400 | ug/kg | |
| 118-74-1 | Hexachlorobenzene | ND | 400 | ug/kg | |
| 87-68-3 | Hexachlorobutadiene | ND | 400 | ug/kg | |
| 77-47-4 | Hexachlorocyclopentadiene | ND | 400 | ug/kg | |
| 67-72-1 | Hexachloroethane | ND | 400 | ug/kg | |
| 193-39-5 | Indeno(1,2,3-cd)pyrene | ND | 400 | ug/kg | |
| 78-59-1 | Isophorone | ND | 400 | ug/kg | |
| 91-57-6 | 2-Methylnaphthalene | ND | 400 | ug/kg | |
| 88-74-4 | 2-Nitroaniline | ND | 400 | ug/kg | |
| 99-09-2 | 3-Nitroaniline | ND | 400 | ug/kg | |
| 100-01-6 | 4-Nitroaniline | ND | 400 | ug/kg | |
| 91-20-3 | Naphthalene | ND | 400 | ug/kg | |
| 98-95-3 | Nitrobenzene | ND | 400 | ug/kg | |
| 621-64-7 | N-Nitroso-di-n-propylamine | ND | 400 | ug/kg | |
| 86-30-6 | N-Nitrosodiphenylamine | ND | 400 | ug/kg | |
| 85-01-8 | Phenanthrene | ND | 400 | ug/kg | |
| 129-00-0 | Pyrene | ND | 400 | ug/kg | |
| 120-82-1 | 1,2,4-Trichlorobenzene | ND | 400 | ug/kg | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 367-12-4 | 2-Fluorophenol | 81% | | 25-121% |
| 4165-62-2 | Phenol-d5 | 87% | | 24-113% |
| 118-79-6 | 2,4,6-Tribromophenol | 100% | | 19-122% |

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-P46-SS-111-02 | | |
| **Lab Sample ID:** | F5001-15 | **Date Sampled:** | 09/30/99 |
| **Matrix:** | SO - Soil | **Date Received:** | 10/02/99 |
| **Method:** | SW846 3550B/8270C | **Percent Solids:** | 82.2 |
| **Project:** | NAS Cecil Field-PSC 46 | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | W000408.D | 1 | 10/07/99 | ME | 10/06/99 | OP1004 | SW24 |
| Run #2 | | | | | | | |

**ABN TCL List**

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 4165-60-0 | Nitrobenzene-d5 | 89% | | 23-120% |
| 321-60-8 | 2-Fluorobiphenyl | 89% | | 30-115% |
| 1718-51-0 | Terphenyl-d14 | 105% | | 18-137% |

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-P46-SS-111-02 | | |
| **Lab Sample ID:** | F5001-15 | **Date Sampled:** | 09/30/99 |
| **Matrix:** | SO - Soil | **Date Received:** | 10/02/99 |
| **Method:** | SW846 3550B/8081A | **Percent Solids:** | 82.2 |
| **Project:** | NAS Cecil Field-PSC 46 | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 [a] | ST00822.D | 1 | 10/08/99 | SKW | 10/07/99 | OP998 | GST35 |
| Run #2 [a] | ST00832.D | 1 | 10/11/99 | SKW | 10/07/99 | OP998 | GST36 |

**Pesticide TCL List**

| CAS No. | Compound | Result | RDL | Units | Q |
|---|---|---|---|---|---|
| 309-00-2 | Aldrin | ND | 2.0 | ug/kg | |
| 319-84-6 | alpha-BHC | ND | 2.0 | ug/kg | |
| 319-85-7 | beta-BHC | ND | 2.0 | ug/kg | |
| 319-86-8 | delta-BHC | ND | 2.0 | ug/kg | |
| 58-89-9 | gamma-BHC (Lindane) | ND | 2.0 | ug/kg | |
| 5103-71-9 | alpha-Chlordane | ND | 4.0 | ug/kg | |
| 5103-74-2 | gamma-Chlordane | ND | 4.0 | ug/kg | |
| 60-57-1 | Dieldrin | ND | 2.0 | ug/kg | |
| 72-54-8 | 4,4'-DDD | 5.0 [b] | 4.0 | ug/kg | |
| 72-55-9 | 4,4'-DDE | 7.6 | 4.0 | ug/kg | |
| 50-29-3 | 4,4'-DDT | ND | 4.0 | ug/kg | |
| 72-20-8 | Endrin | ND | 4.0 | ug/kg | |
| 1031-07-8 | Endosulfan sulfate | ND | 4.0 | ug/kg | |
| 7421-93-4 | Endrin aldehyde | ND | 4.0 | ug/kg | |
| 53494-70-5 | Endrin ketone | ND | 4.0 | ug/kg | |
| 959-98-8 | Endosulfan-I | ND | 2.0 | ug/kg | |
| 33213-65-9 | Endosulfan-II | ND | 4.0 | ug/kg | |
| 76-44-8 | Heptachlor | ND | 2.0 | ug/kg | |
| 1024-57-3 | Heptachlor epoxide | ND | 2.0 | ug/kg | |
| 72-43-5 | Methoxychlor | ND | 8.1 | ug/kg | |
| 8001-35-2 | Toxaphene | ND | 200 | ug/kg | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 877-09-8 | Tetrachloro-m-xylene | 102% | 99% | 40-150% |
| 2051-24-3 | Decachlorobiphenyl | 64% | 59% | 30-160% |

(a) All hits confirmed by dual column analysis.
(b) Result is from Run# 2

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-P46-SS-111-02 | | |
| **Lab Sample ID:** | F5001-15 | **Date Sampled:** | 09/30/99 |
| **Matrix:** | SO - Soil | **Date Received:** | 10/02/99 |
| **Method:** | FLORIDA-PRO | **Percent Solids:** | 82.2 |
| **Project:** | NAS Cecil Field-PSC 46 | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | OP05450.D | 1 | 10/07/99 | ME | 10/06/99 | OP1012 | GOP262 |
| Run #2 | | | | | | | |

| CAS No. | Compound | Result | RDL | Units | Q |
|---|---|---|---|---|---|
| | TPH (C8-C40) | 22.6 | 10 | mg/kg | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 84-15-1 | o-Terphenyl | 100% | | 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-P46-SS-DU08 | | |
| **Lab Sample ID:** | F5001-23 | **Date Sampled:** | 09/30/99 |
| **Matrix:** | SO - Soil | **Date Received:** | 10/02/99 |
| **Method:** | SW846 3550B/8270C | **Percent Solids:** | 82.3 |
| **Project:** | NAS Cecil Field-PSC 46 | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | W000409.D | 1 | 10/07/99 | ME | 10/06/99 | OP1004 | SW24 |
| Run #2 | | | | | | | |

**ABN TCL List**

| CAS No. | Compound | Result | RDL | Units | Q |
|---|---|---|---|---|---|
| 65-85-0 | Benzoic acid | ND | 1000 | ug/kg | |
| 95-57-8 | 2-Chlorophenol | ND | 400 | ug/kg | |
| 59-50-7 | 4-Chloro-3-methyl phenol | ND | 400 | ug/kg | |
| 120-83-2 | 2,4-Dichlorophenol | ND | 400 | ug/kg | |
| 105-67-9 | 2,4-Dimethylphenol | ND | 1000 | ug/kg | |
| 51-28-5 | 2,4-Dinitrophenol | ND | 1000 | ug/kg | |
| 534-52-1 | 4,6-Dinitro-o-cresol | ND | 810 | ug/kg | |
| 95-48-7 | 2-Methylphenol | ND | 400 | ug/kg | |
| | 3&4-Methylphenol | ND | 400 | ug/kg | |
| 88-75-5 | 2-Nitrophenol | ND | 400 | ug/kg | |
| 100-02-7 | 4-Nitrophenol | ND | 1000 | ug/kg | |
| 87-86-5 | Pentachlorophenol | ND | 1000 | ug/kg | |
| 108-95-2 | Phenol | ND | 400 | ug/kg | |
| 95-95-4 | 2,4,5-Trichlorophenol | ND | 400 | ug/kg | |
| 88-06-2 | 2,4,6-Trichlorophenol | ND | 400 | ug/kg | |
| 83-32-9 | Acenaphthene | ND | 400 | ug/kg | |
| 208-96-8 | Acenaphthylene | ND | 400 | ug/kg | |
| 120-12-7 | Anthracene | ND | 400 | ug/kg | |
| 56-55-3 | Benzo(a)anthracene | ND | 400 | ug/kg | |
| 50-32-8 | Benzo(a)pyrene | ND | 400 | ug/kg | |
| 205-99-2 | Benzo(b)fluoranthene | ND | 400 | ug/kg | |
| 191-24-2 | Benzo(g,h,i)perylene | ND | 400 | ug/kg | |
| 207-08-9 | Benzo(k)fluoranthene | ND | 400 | ug/kg | |
| 101-55-3 | 4-Bromophenyl phenyl ether | ND | 400 | ug/kg | |
| 85-68-7 | Butyl benzyl phthalate | ND | 400 | ug/kg | |
| 100-51-6 | Benzyl Alcohol | ND | 400 | ug/kg | |
| 91-58-7 | 2-Chloronaphthalene | ND | 400 | ug/kg | |
| 106-47-8 | 4-Chloroaniline | ND | 400 | ug/kg | |
| 86-74-8 | Carbazole | ND | 400 | ug/kg | |
| 218-01-9 | Chrysene | ND | 400 | ug/kg | |
| 111-91-1 | bis(2-Chloroethoxy)methane | ND | 400 | ug/kg | |
| 111-44-4 | bis(2-Chloroethyl)ether | ND | 400 | ug/kg | |
| 108-60-1 | bis(2-Chloroisopropyl)ether | ND | 400 | ug/kg | |
| 7005-72-3 | 4-Chlorophenyl phenyl ether | ND | 400 | ug/kg | |
| 95-50-1 | 1,2-Dichlorobenzene | ND | 400 | ug/kg | |
| 541-73-1 | 1,3-Dichlorobenzene | ND | 400 | ug/kg | |

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-P46-SS-DU08 | | |
| **Lab Sample ID:** | F5001-23 | **Date Sampled:** | 09/30/99 |
| **Matrix:** | SO - Soil | **Date Received:** | 10/02/99 |
| **Method:** | SW846 3550B/8270C | **Percent Solids:** | 82.3 |
| **Project:** | NAS Cecil Field-PSC 46 | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | W000409.D | 1 | 10/07/99 | ME | 10/06/99 | OP1004 | SW24 |
| Run #2 | | | | | | | |

**ABN TCL List**

| CAS No. | Compound | Result | RDL | Units | Q |
|---|---|---|---|---|---|
| 106-46-7 | 1,4-Dichlorobenzene | ND | 400 | ug/kg | |
| 121-14-2 | 2,4-Dinitrotoluene | ND | 400 | ug/kg | |
| 606-20-2 | 2,6-Dinitrotoluene | ND | 400 | ug/kg | |
| 91-94-1 | 3,3'-Dichlorobenzidine | ND | 810 | ug/kg | |
| 53-70-3 | Dibenzo(a,h)anthracene | ND | 400 | ug/kg | |
| 132-64-9 | Dibenzofuran | ND | 400 | ug/kg | |
| 84-74-2 | Di-n-butyl phthalate | ND | 400 | ug/kg | |
| 117-84-0 | Di-n-octyl phthalate | ND | 400 | ug/kg | |
| 84-66-2 | Diethyl phthalate | ND | 400 | ug/kg | |
| 131-11-3 | Dimethyl phthalate | ND | 400 | ug/kg | |
| 117-81-7 | bis(2-Ethylhexyl)phthalate | ND | 400 | ug/kg | |
| 206-44-0 | Fluoranthene | ND | 400 | ug/kg | |
| 86-73-7 | Fluorene | ND | 400 | ug/kg | |
| 118-74-1 | Hexachlorobenzene | ND | 400 | ug/kg | |
| 87-68-3 | Hexachlorobutadiene | ND | 400 | ug/kg | |
| 77-47-4 | Hexachlorocyclopentadiene | ND | 400 | ug/kg | |
| 67-72-1 | Hexachloroethane | ND | 400 | ug/kg | |
| 193-39-5 | Indeno(1,2,3-cd)pyrene | ND | 400 | ug/kg | |
| 78-59-1 | Isophorone | ND | 400 | ug/kg | |
| 91-57-6 | 2-Methylnaphthalene | ND | 400 | ug/kg | |
| 88-74-4 | 2-Nitroaniline | ND | 400 | ug/kg | |
| 99-09-2 | 3-Nitroaniline | ND | 400 | ug/kg | |
| 100-01-6 | 4-Nitroaniline | ND | 400 | ug/kg | |
| 91-20-3 | Naphthalene | ND | 400 | ug/kg | |
| 98-95-3 | Nitrobenzene | ND | 400 | ug/kg | |
| 621-64-7 | N-Nitroso-di-n-propylamine | ND | 400 | ug/kg | |
| 86-30-6 | N-Nitrosodiphenylamine | ND | 400 | ug/kg | |
| 85-01-8 | Phenanthrene | ND | 400 | ug/kg | |
| 129-00-0 | Pyrene | ND | 400 | ug/kg | |
| 120-82-1 | 1,2,4-Trichlorobenzene | ND | 400 | ug/kg | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 367-12-4 | 2-Fluorophenol | 81% | | 25-121% |
| 4165-62-2 | Phenol-d5 | 89% | | 24-113% |
| 118-79-6 | 2,4,6-Tribromophenol | 94% | | 19-122% |

ND = Not detected
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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-P46-SS-DU08 | | |
| **Lab Sample ID:** | F5001-23 | **Date Sampled:** | 09/30/99 |
| **Matrix:** | SO - Soil | **Date Received:** | 10/02/99 |
| **Method:** | SW846 3550B/8270C | **Percent Solids:** | 82.3 |
| **Project:** | NAS Cecil Field-PSC 46 | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | W000409.D | 1 | 10/07/99 | ME | 10/06/99 | OP1004 | SW24 |
| Run #2 | | | | | | | |

**ABN TCL List**

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 4165-60-0 | Nitrobenzene-d5 | 88% | | 23-120% |
| 321-60-8 | 2-Fluorobiphenyl | 85% | | 30-115% |
| 1718-51-0 | Terphenyl-d14 | 107% | | 18-137% |

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-P46-SS-DU08 | | |
| **Lab Sample ID:** | F5001-23 | **Date Sampled:** | 09/30/99 |
| **Matrix:** | SO - Soil | **Date Received:** | 10/02/99 |
| **Method:** | SW846 3550B/8081A | **Percent Solids:** | 82.3 |
| **Project:** | NAS Cecil Field-PSC 46 | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 [a] | ST00823.D | 1 | 10/08/99 | SKW | 10/07/99 | OP998 | GST35 |
| Run #2 [a] | ST00833.D | 1 | 10/11/99 | SKW | 10/07/99 | OP998 | GST36 |

**Pesticide TCL List**

| CAS No. | Compound | Result | RDL | Units | Q |
|---|---|---|---|---|---|
| 309-00-2 | Aldrin | ND | 2.0 | ug/kg | |
| 319-84-6 | alpha-BHC | ND | 2.0 | ug/kg | |
| 319-85-7 | beta-BHC | ND | 2.0 | ug/kg | |
| 319-86-8 | delta-BHC | ND | 2.0 | ug/kg | |
| 58-89-9 | gamma-BHC (Lindane) | ND | 2.0 | ug/kg | |
| 5103-71-9 | alpha-Chlordane | ND | 4.0 | ug/kg | |
| 5103-74-2 | gamma-Chlordane | ND | 4.0 | ug/kg | |
| 60-57-1 | Dieldrin | ND | 2.0 | ug/kg | |
| 72-54-8 | 4,4'-DDD | 3.1 [b] | 4.0 | ug/kg | J |
| 72-55-9 | 4,4'-DDE | 4.4 | 4.0 | ug/kg | |
| 50-29-3 | 4,4'-DDT | 2.2 | 4.0 | ug/kg | J |
| 72-20-8 | Endrin | ND | 4.0 | ug/kg | |
| 1031-07-8 | Endosulfan sulfate | ND | 4.0 | ug/kg | |
| 7421-93-4 | Endrin aldehyde | ND | 4.0 | ug/kg | |
| 53494-70-5 | Endrin ketone | ND | 4.0 | ug/kg | |
| 959-98-8 | Endosulfan-I | ND | 2.0 | ug/kg | |
| 33213-65-9 | Endosulfan-II | ND | 4.0 | ug/kg | |
| 76-44-8 | Heptachlor | ND | 2.0 | ug/kg | |
| 1024-57-3 | Heptachlor epoxide | ND | 2.0 | ug/kg | |
| 72-43-5 | Methoxychlor | ND | 8.1 | ug/kg | |
| 8001-35-2 | Toxaphene | ND | 200 | ug/kg | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 877-09-8 | Tetrachloro-m-xylene | 107% | 105% | 40-150% |
| 2051-24-3 | Decachlorobiphenyl | 58% | 57% | 30-160% |

(a) All hits confirmed by dual column analysis.
(b) Result is from Run# 2

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-P46-SS-DU08 | | |
| **Lab Sample ID:** | F5001-23 | **Date Sampled:** | 09/30/99 |
| **Matrix:** | SO - Soil | **Date Received:** | 10/02/99 |
| **Method:** | FLORIDA-PRO | **Percent Solids:** | 82.3 |
| **Project:** | NAS Cecil Field-PSC 46 | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | OP05452.D | 2 | 10/08/99 | ME | 10/06/99 | OP1012 | GOP262 |
| Run #2 | | | | | | | |

| CAS No. | Compound | Result | RDL | Units | Q |
|---|---|---|---|---|---|
| | TPH (C8-C40) | 32.5 | 20 | mg/kg | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 84-15-1 | o-Terphenyl | 132% | | 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

ACCUTEST

# Report of Analysis



| | | | |
|---|---|---|---|
| **Client Sample ID:** | CEF-P46-SS-112-02 | | |
| **Lab Sample ID:** | F5001-14 | **Date Sampled:** | 09/30/99 |
| **Matrix:** | SO - Soil | **Date Received:** | 10/02/99 |
| **Method:** | SW846 3550B/8270C | **Percent Solids:** | 89.6 |
| **Project:** | NAS Cecil Field-PSC 46 | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 [a] | W000412.D | 20 | 10/07/99 | ME | 10/06/99 | OP1004 | SW24 |
| Run #2 | | | | | | | |

**ABN TCL List**

| CAS No. | Compound | Result | RDL | Units | Q |
|---|---|---|---|---|---|
| 65-85-0 | Benzoic acid | ND | 18000 | ug/kg | |
| 95-57-8 | 2-Chlorophenol | ND | 7400 | ug/kg | |
| 59-50-7 | 4-Chloro-3-methyl phenol | ND | 7400 | ug/kg | |
| 120-83-2 | 2,4-Dichlorophenol | ND | 7400 | ug/kg | |
| 105-67-9 | 2,4-Dimethylphenol | ND | 18000 | ug/kg | |
| 51-28-5 | 2,4-Dinitrophenol | ND | 18000 | ug/kg | |
| 534-52-1 | 4,6-Dinitro-o-cresol | ND | 15000 | ug/kg | |
| 95-48-7 | 2-Methylphenol | ND | 7400 | ug/kg | |
| | 3&4-Methylphenol | ND | 7400 | ug/kg | |
| 88-75-5 | 2-Nitrophenol | ND | 7400 | ug/kg | |
| 100-02-7 | 4-Nitrophenol | ND | 18000 | ug/kg | |
| 87-86-5 | Pentachlorophenol | ND | 18000 | ug/kg | |
| 108-95-2 | Phenol | ND | 7400 | ug/kg | |
| 95-95-4 | 2,4,5-Trichlorophenol | ND | 7400 | ug/kg | |
| 88-06-2 | 2,4,6-Trichlorophenol | ND | 7400 | ug/kg | |
| 83-32-9 | Acenaphthene | ND | 7400 | ug/kg | |
| 208-96-8 | Acenaphthylene | 3080 | 7400 | ug/kg | J |
| 120-12-7 | Anthracene | ND | 7400 | ug/kg | |
| 56-55-3 | Benzo(a)anthracene | ND | 7400 | ug/kg | |
| 50-32-8 | Benzo(a)pyrene | 2640 | 7400 | ug/kg | J |
| 205-99-2 | Benzo(b)fluoranthene | 2780 | 7400 | ug/kg | J |
| 191-24-2 | Benzo(g,h,i)perylene | 6170 | 7400 | ug/kg | J |
| 207-08-9 | Benzo(k)fluoranthene | ND | 7400 | ug/kg | |
| 101-55-3 | 4-Bromophenyl phenyl ether | ND | 7400 | ug/kg | |
| 85-68-7 | Butyl benzyl phthalate | ND | 7400 | ug/kg | |
| 100-51-6 | Benzyl Alcohol | ND | 7400 | ug/kg | |
| 91-58-7 | 2-Chloronaphthalene | ND | 7400 | ug/kg | |
| 106-47-8 | 4-Chloroaniline | ND | 7400 | ug/kg | |
| 86-74-8 | Carbazole | ND | 7400 | ug/kg | |
| 218-01-9 | Chrysene | ND | 7400 | ug/kg | |
| 111-91-1 | bis(2-Chloroethoxy)methane | ND | 7400 | ug/kg | |
| 111-44-4 | bis(2-Chloroethyl)ether | ND | 7400 | ug/kg | |
| 108-60-1 | bis(2-Chloroisopropyl)ether | ND | 7400 | ug/kg | |
| 7005-72-3 | 4-Chlorophenyl phenyl ether | ND | 7400 | ug/kg | |
| 95-50-1 | 1,2-Dichlorobenzene | ND | 7400 | ug/kg | |
| 541-73-1 | 1,3-Dichlorobenzene | ND | 7400 | ug/kg | |

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-P46-SS-112-02 | | |
| **Lab Sample ID:** | F5001-14 | **Date Sampled:** | 09/30/99 |
| **Matrix:** | SO - Soil | **Date Received:** | 10/02/99 |
| **Method:** | SW846 3550B/8270C | **Percent Solids:** | 89.6 |
| **Project:** | NAS Cecil Field-PSC 46 | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 [a] | W000412.D | 20 | 10/07/99 | ME | 10/06/99 | OP1004 | SW24 |
| Run #2 | | | | | | | |

**ABN TCL List**

| CAS No. | Compound | Result | RDL | Units | Q |
|---|---|---|---|---|---|
| 106-46-7 | 1,4-Dichlorobenzene | ND | 7400 | ug/kg | |
| 121-14-2 | 2,4-Dinitrotoluene | ND | 7400 | ug/kg | |
| 606-20-2 | 2,6-Dinitrotoluene | ND | 7400 | ug/kg | |
| 91-94-1 | 3,3'-Dichlorobenzidine | ND | 15000 | ug/kg | |
| 53-70-3 | Dibenzo(a,h)anthracene | ND | 7400 | ug/kg | |
| 132-64-9 | Dibenzofuran | ND | 7400 | ug/kg | |
| 84-74-2 | Di-n-butyl phthalate | ND | 7400 | ug/kg | |
| 117-84-0 | Di-n-octyl phthalate | ND | 7400 | ug/kg | |
| 84-66-2 | Diethyl phthalate | ND | 7400 | ug/kg | |
| 131-11-3 | Dimethyl phthalate | ND | 7400 | ug/kg | |
| 117-81-7 | bis(2-Ethylhexyl)phthalate | ND | 7400 | ug/kg | |
| 206-44-0 | Fluoranthene | ND | 7400 | ug/kg | |
| 86-73-7 | Fluorene | ND | 7400 | ug/kg | |
| 118-74-1 | Hexachlorobenzene | ND | 7400 | ug/kg | |
| 87-68-3 | Hexachlorobutadiene | ND | 7400 | ug/kg | |
| 77-47-4 | Hexachlorocyclopentadiene | ND | 7400 | ug/kg | |
| 67-72-1 | Hexachloroethane | ND | 7400 | ug/kg | |
| 193-39-5 | Indeno(1,2,3-cd)pyrene | 3060 | 7400 | ug/kg | J |
| 78-59-1 | Isophorone | ND | 7400 | ug/kg | |
| 91-57-6 | 2-Methylnaphthalene | ND | 7400 | ug/kg | |
| 88-74-4 | 2-Nitroaniline | ND | 7400 | ug/kg | |
| 99-09-2 | 3-Nitroaniline | ND | 7400 | ug/kg | |
| 100-01-6 | 4-Nitroaniline | ND | 7400 | ug/kg | |
| 91-20-3 | Naphthalene | ND | 7400 | ug/kg | |
| 98-95-3 | Nitrobenzene | ND | 7400 | ug/kg | |
| 621-64-7 | N-Nitroso-di-n-propylamine | ND | 7400 | ug/kg | |
| 86-30-6 | N-Nitrosodiphenylamine | ND | 7400 | ug/kg | |
| 85-01-8 | Phenanthrene | ND | 7400 | ug/kg | |
| 129-00-0 | Pyrene | ND | 7400 | ug/kg | |
| 120-82-1 | 1,2,4-Trichlorobenzene | ND | 7400 | ug/kg | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 367-12-4 | 2-Fluorophenol | 108% | | 25-121% |
| 4165-62-2 | Phenol-d5 | 120% [b] | | 24-113% |
| 118-79-6 | 2,4,6-Tribromophenol | 98% | | 19-122% |

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-P46-SS-112-02 | | |
| **Lab Sample ID:** | F5001-14 | **Date Sampled:** | 09/30/99 |
| **Matrix:** | SO - Soil | **Date Received:** | 10/02/99 |
| **Method:** | SW846 3550B/8270C | **Percent Solids:** | 89.6 |
| **Project:** | NAS Cecil Field-PSC 46 | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 [a] | W000412.D | 20 | 10/07/99 | ME | 10/06/99 | OP1004 | SW24 |
| Run #2 | | | | | | | |

**ABN TCL List**

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 4165-60-0 | Nitrobenzene-d5 | 106% | | 23-120% |
| 321-60-8 | 2-Fluorobiphenyl | 112% | | 30-115% |
| 1718-51-0 | Terphenyl-d14 | 147% [b] | | 18-137% |

(a) Dilution required due to matrix interference; extract was viscous.
(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



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# Report of Analysis



| | | | |
|---|---|---|---|
| **Client Sample ID:** | CEF-P46-SS-112-02 | | |
| **Lab Sample ID:** | F5001-14 | **Date Sampled:** | 09/30/99 |
| **Matrix:** | SO - Soil | **Date Received:** | 10/02/99 |
| **Method:** | SW846 3550B/8081A | **Percent Solids:** | 89.6 |
| **Project:** | NAS Cecil Field-PSC 46 | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 [a] | ST00821.D | 5 | 10/08/99 | SKW | 10/07/99 | OP998 | GST35 |
| Run #2 | | | | | | | |

**Pesticide TCL List**

| CAS No. | Compound | Result | RDL | Units | Q |
|---|---|---|---|---|---|
| 309-00-2 | Aldrin | ND | 9.3 | ug/kg | |
| 319-84-6 | alpha-BHC | ND | 9.3 | ug/kg | |
| 319-85-7 | beta-BHC | ND | 9.3 | ug/kg | |
| 319-86-8 | delta-BHC | ND | 9.3 | ug/kg | |
| 58-89-9 | gamma-BHC (Lindane) | ND | 9.3 | ug/kg | |
| 5103-71-9 | alpha-Chlordane | ND | 19 | ug/kg | |
| 5103-74-2 | gamma-Chlordane | ND | 19 | ug/kg | |
| 60-57-1 | Dieldrin | ND | 9.3 | ug/kg | |
| 72-54-8 | 4,4'-DDD | ND | 19 | ug/kg | |
| 72-55-9 | 4,4'-DDE [b] | 8.1 | 19 | ug/kg | J |
| 50-29-3 | 4,4'-DDT [b] | 22.0 | 19 | ug/kg | |
| 72-20-8 | Endrin | ND | 19 | ug/kg | |
| 1031-07-8 | Endosulfan sulfate | ND | 19 | ug/kg | |
| 7421-93-4 | Endrin aldehyde | ND | 19 | ug/kg | |
| 53494-70-5 | Endrin ketone | ND | 19 | ug/kg | |
| 959-98-8 | Endosulfan-I | ND | 9.3 | ug/kg | |
| 33213-65-9 | Endosulfan-II | ND | 19 | ug/kg | |
| 76-44-8 | Heptachlor | ND | 9.3 | ug/kg | |
| 1024-57-3 | Heptachlor epoxide | ND | 9.3 | ug/kg | |
| 72-43-5 | Methoxychlor | ND | 37 | ug/kg | |
| 8001-35-2 | Toxaphene | ND | 930 | ug/kg | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 877-09-8 | Tetrachloro-m-xylene | 85% | | 40-150% |
| 2051-24-3 | Decachlorobiphenyl | 93% | | 30-160% |

(a) Dilution required due to matrix interference.
(b) All hits confirmed by dual column analysis.

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-P46-SS-112-02 | | |
| **Lab Sample ID:** | F5001-14 | **Date Sampled:** | 09/30/99 |
| **Matrix:** | SO - Soil | **Date Received:** | 10/02/99 |
| **Method:** | FLORIDA-PRO | **Percent Solids:** | 89.6 |
| **Project:** | NAS Cecil Field-PSC 46 | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | OP05460.D | 40 | 10/08/99 | ME | 10/06/99 | OP1012 | GOP263 |
| Run #2 | | | | | | | |

| CAS No. | Compound | Result | RDL | Units | Q |
|---|---|---|---|---|---|
| | TPH (C8-C40) | 696 | 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
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-P46-SS-123-02 | | |
| **Lab Sample ID:** | F5001-13 | **Date Sampled:** | 09/30/99 |
| **Matrix:** | SO - Soil | **Date Received:** | 10/02/99 |
| **Method:** | SW846 3550B/8270C | **Percent Solids:** | 89.5 |
| **Project:** | NAS Cecil Field-PSC 46 | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 [a] | W000411.D | 4 | 10/07/99 | ME | 10/06/99 | OP1004 | SW24 |
| Run #2 | | | | | | | |

**ABN TCL List**

| CAS No. | Compound | Result | RDL | Units | Q |
|---|---|---|---|---|---|
| 65-85-0 | Benzoic acid | ND | 3700 | ug/kg | |
| 95-57-8 | 2-Chlorophenol | ND | 1500 | ug/kg | |
| 59-50-7 | 4-Chloro-3-methyl phenol | ND | 1500 | ug/kg | |
| 120-83-2 | 2,4-Dichlorophenol | ND | 1500 | ug/kg | |
| 105-67-9 | 2,4-Dimethylphenol | ND | 3700 | ug/kg | |
| 51-28-5 | 2,4-Dinitrophenol | ND | 3700 | ug/kg | |
| 534-52-1 | 4,6-Dinitro-o-cresol | ND | 3000 | ug/kg | |
| 95-48-7 | 2-Methylphenol | ND | 1500 | ug/kg | |
| | 3&4-Methylphenol | ND | 1500 | ug/kg | |
| 88-75-5 | 2-Nitrophenol | ND | 1500 | ug/kg | |
| 100-02-7 | 4-Nitrophenol | ND | 3700 | ug/kg | |
| 87-86-5 | Pentachlorophenol | ND | 3700 | ug/kg | |
| 108-95-2 | Phenol | ND | 1500 | ug/kg | |
| 95-95-4 | 2,4,5-Trichlorophenol | ND | 1500 | ug/kg | |
| 88-06-2 | 2,4,6-Trichlorophenol | ND | 1500 | ug/kg | |
| 83-32-9 | Acenaphthene | ND | 1500 | ug/kg | |
| 208-96-8 | Acenaphthylene | ND | 1500 | ug/kg | |
| 120-12-7 | Anthracene | ND | 1500 | ug/kg | |
| 56-55-3 | Benzo(a)anthracene | ND | 1500 | ug/kg | |
| 50-32-8 | Benzo(a)pyrene | 477 | 1500 | ug/kg | J |
| 205-99-2 | Benzo(b)fluoranthene | 565 | 1500 | ug/kg | J |
| 191-24-2 | Benzo(g,h,i)perylene | 483 | 1500 | ug/kg | J |
| 207-08-9 | Benzo(k)fluoranthene | ND | 1500 | ug/kg | |
| 101-55-3 | 4-Bromophenyl phenyl ether | ND | 1500 | ug/kg | |
| 85-68-7 | Butyl benzyl phthalate | ND | 1500 | ug/kg | |
| 100-51-6 | Benzyl Alcohol | ND | 1500 | ug/kg | |
| 91-58-7 | 2-Chloronaphthalene | ND | 1500 | ug/kg | |
| 106-47-8 | 4-Chloroaniline | ND | 1500 | ug/kg | |
| 86-74-8 | Carbazole | ND | 1500 | ug/kg | |
| 218-01-9 | Chrysene | ND | 1500 | ug/kg | |
| 111-91-1 | bis(2-Chloroethoxy)methane | ND | 1500 | ug/kg | |
| 111-44-4 | bis(2-Chloroethyl)ether | ND | 1500 | ug/kg | |
| 108-60-1 | bis(2-Chloroisopropyl)ether | ND | 1500 | ug/kg | |
| 7005-72-3 | 4-Chlorophenyl phenyl ether | ND | 1500 | ug/kg | |
| 95-50-1 | 1,2-Dichlorobenzene | ND | 1500 | ug/kg | |
| 541-73-1 | 1,3-Dichlorobenzene | ND | 1500 | ug/kg | |

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-P46-SS-123-02 | | |
| **Lab Sample ID:** | F5001-13 | **Date Sampled:** | 09/30/99 |
| **Matrix:** | SO - Soil | **Date Received:** | 10/02/99 |
| **Method:** | SW846 3550B/8270C | **Percent Solids:** | 89.5 |
| **Project:** | NAS Cecil Field-PSC 46 | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 [a] | W000411.D | 4 | 10/07/99 | ME | 10/06/99 | OP1004 | SW24 |
| Run #2 | | | | | | | |

**ABN TCL List**

| CAS No. | Compound | Result | RDL | Units | Q |
|---|---|---|---|---|---|
| 106-46-7 | 1,4-Dichlorobenzene | ND | 1500 | ug/kg | |
| 121-14-2 | 2,4-Dinitrotoluene | ND | 1500 | ug/kg | |
| 606-20-2 | 2,6-Dinitrotoluene | ND | 1500 | ug/kg | |
| 91-94-1 | 3,3'-Dichlorobenzidine | ND | 3000 | ug/kg | |
| 53-70-3 | Dibenzo(a,h)anthracene | ND | 1500 | ug/kg | |
| 132-64-9 | Dibenzofuran | ND | 1500 | ug/kg | |
| 84-74-2 | Di-n-butyl phthalate | ND | 1500 | ug/kg | |
| 117-84-0 | Di-n-octyl phthalate | ND | 1500 | ug/kg | |
| 84-66-2 | Diethyl phthalate | ND | 1500 | ug/kg | |
| 131-11-3 | Dimethyl phthalate | ND | 1500 | ug/kg | |
| 117-81-7 | bis(2-Ethylhexyl)phthalate | ND | 1500 | ug/kg | |
| 206-44-0 | Fluoranthene | 572 | 1500 | ug/kg | J |
| 86-73-7 | Fluorene | ND | 1500 | ug/kg | |
| 118-74-1 | Hexachlorobenzene | ND | 1500 | ug/kg | |
| 87-68-3 | Hexachlorobutadiene | ND | 1500 | ug/kg | |
| 77-47-4 | Hexachlorocyclopentadiene | ND | 1500 | ug/kg | |
| 67-72-1 | Hexachloroethane | ND | 1500 | ug/kg | |
| 193-39-5 | Indeno(1,2,3-cd)pyrene | 492 | 1500 | ug/kg | J |
| 78-59-1 | Isophorone | ND | 1500 | ug/kg | |
| 91-57-6 | 2-Methylnaphthalene | ND | 1500 | ug/kg | |
| 88-74-4 | 2-Nitroaniline | ND | 1500 | ug/kg | |
| 99-09-2 | 3-Nitroaniline | ND | 1500 | ug/kg | |
| 100-01-6 | 4-Nitroaniline | ND | 1500 | ug/kg | |
| 91-20-3 | Naphthalene | ND | 1500 | ug/kg | |
| 98-95-3 | Nitrobenzene | ND | 1500 | ug/kg | |
| 621-64-7 | N-Nitroso-di-n-propylamine | ND | 1500 | ug/kg | |
| 86-30-6 | N-Nitrosodiphenylamine | ND | 1500 | ug/kg | |
| 85-01-8 | Phenanthrene | ND | 1500 | ug/kg | |
| 129-00-0 | Pyrene | 594 | 1500 | ug/kg | J |
| 120-82-1 | 1,2,4-Trichlorobenzene | ND | 1500 | ug/kg | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 367-12-4 | 2-Fluorophenol | 88% | | 25-121% |
| 4165-62-2 | Phenol-d5 | 94% | | 24-113% |
| 118-79-6 | 2,4,6-Tribromophenol | 80% | | 19-122% |

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-P46-SS-123-02 | | |
| **Lab Sample ID:** | F5001-13 | **Date Sampled:** | 09/30/99 |
| **Matrix:** | SO - Soil | **Date Received:** | 10/02/99 |
| **Method:** | SW846 3550B/8270C | **Percent Solids:** | 89.5 |
| **Project:** | NAS Cecil Field-PSC 46 | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 [a] | W000411.D | 4 | 10/07/99 | ME | 10/06/99 | OP1004 | SW24 |
| Run #2 | | | | | | | |

**ABN TCL List**

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 4165-60-0 | Nitrobenzene-d5 | 89% | | 23-120% |
| 321-60-8 | 2-Fluorobiphenyl | 87% | | 30-115% |
| 1718-51-0 | Terphenyl-d14 | 103% | | 18-137% |

(a) Dilution required due to matrix interference; extract was viscous.

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-P46-SS-123-02 | | |
| **Lab Sample ID:** | F5001-13 | **Date Sampled:** | 09/30/99 |
| **Matrix:** | SO - Soil | **Date Received:** | 10/02/99 |
| **Method:** | SW846 3550B/8081A | **Percent Solids:** | 89.5 |
| **Project:** | NAS Cecil Field-PSC 46 | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 [a] | ST00820.D | 1 | 10/08/99 | SKW | 10/07/99 | OP998 | GST35 |
| Run #2 [a] | ST00831.D | 1 | 10/11/99 | SKW | 10/07/99 | OP998 | GST36 |

**Pesticide TCL List**

| CAS No. | Compound | Result | RDL | Units | Q |
|---|---|---|---|---|---|
| 309-00-2 | Aldrin | ND | 1.9 | ug/kg | |
| 319-84-6 | alpha-BHC | ND | 1.9 | ug/kg | |
| 319-85-7 | beta-BHC | ND | 1.9 | ug/kg | |
| 319-86-8 | delta-BHC | ND | 1.9 | ug/kg | |
| 58-89-9 | gamma-BHC (Lindane) | ND | 1.9 | ug/kg | |
| 5103-71-9 | alpha-Chlordane | ND | 3.7 | ug/kg | |
| 5103-74-2 | gamma-Chlordane | ND | 3.7 | ug/kg | |
| 60-57-1 | Dieldrin | ND | 1.9 | ug/kg | |
| 72-54-8 | 4,4'-DDD | 5.7 [b] | 3.7 | ug/kg | |
| 72-55-9 | 4,4'-DDE | 2.0 | 3.7 | ug/kg | J |
| 50-29-3 | 4,4'-DDT | ND | 3.7 | ug/kg | |
| 72-20-8 | Endrin | ND | 3.7 | ug/kg | |
| 1031-07-8 | Endosulfan sulfate | ND | 3.7 | ug/kg | |
| 7421-93-4 | Endrin aldehyde | ND | 3.7 | ug/kg | |
| 53494-70-5 | Endrin ketone | ND | 3.7 | ug/kg | |
| 959-98-8 | Endosulfan-I | ND | 1.9 | ug/kg | |
| 33213-65-9 | Endosulfan-II | ND | 3.7 | ug/kg | |
| 76-44-8 | Heptachlor | ND | 1.9 | ug/kg | |
| 1024-57-3 | Heptachlor epoxide | ND | 1.9 | ug/kg | |
| 72-43-5 | Methoxychlor | ND | 7.4 | ug/kg | |
| 8001-35-2 | Toxaphene | ND | 190 | ug/kg | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 877-09-8 | Tetrachloro-m-xylene | 99% | 101% | 40-150% |
| 2051-24-3 | Decachlorobiphenyl | 65% | 56% | 30-160% |

(a) All hits confirmed by dual column analysis.
(b) Result is from Run# 2

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-P46-SS-123-02 | | |
| **Lab Sample ID:** | F5001-13 | **Date Sampled:** | 09/30/99 |
| **Matrix:** | SO - Soil | **Date Received:** | 10/02/99 |
| **Method:** | FLORIDA-PRO | **Percent Solids:** | 89.5 |
| **Project:** | NAS Cecil Field-PSC 46 | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | OP05448.D | 5 | 10/07/99 | ME | 10/06/99 | OP1012 | GOP262 |
| Run #2 | | | | | | | |

| CAS No. | Compound | Result | RDL | Units | Q |
|---|---|---|---|---|---|
| | TPH (C8-C40) | 113 | 46 | mg/kg | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 84-15-1 | o-Terphenyl | 100% | | 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-P46-SS-201-01 | | |
| **Lab Sample ID:** | F5001-9 | **Date Sampled:** | 09/30/99 |
| **Matrix:** | SO - Soil | **Date Received:** | 10/02/99 |
| **Method:** | SW846 8310 | **Percent Solids:** | 86.0 |
| **Project:** | NAS Cecil Field-PSC 46 | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | LC6369.D | 1 | 10/13/99 | AMA | 10/07/99 | M:OP1475 | M:GLC36 |
| Run #2 | | | | | | | |

| CAS No. | Compound | Result | RDL | Units | Q |
|---|---|---|---|---|---|
| 83-32-9 | Acenaphthene | 80.1 | 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 | 39.7 | 11 | ug/kg | |
| 50-32-8 | Benzo (a) pyrene | 182 | 11 | ug/kg | |
| 205-99-2 | Benzo (b) fluoranthene | 76.1 | 11 | ug/kg | |
| 191-24-2 | Benzo (g,h,i) perylene | 106 | 11 | ug/kg | |
| 207-08-9 | Benzo (k) fluoranthene | 16.7 | 11 | ug/kg | |
| 218-01-9 | Chrysene | 75.5 | 11 | ug/kg | |
| 53-70-3 | Dibenz(a,h)anthracene | ND | 11 | ug/kg | |
| 206-44-0 | Fluoranthene | 109 | 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 | ND | 76 | ug/kg | |
| 91-20-3 | Naphthalene | ND | 76 | ug/kg | |
| 85-01-8 | Phenanthrene | ND | 76 | ug/kg | |
| 129-00-0 | Pyrene | 75.7 | 11 | ug/kg | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 84-15-1 | o-Terphenyl | 28% | | 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

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# Report of Analysis



| | | | |
|---|---|---|---|
| **Client Sample ID:** | CEF-P46-SS-202-01 | | |
| **Lab Sample ID:** | F5001-3 | **Date Sampled:** | 09/30/99 |
| **Matrix:** | SO - Soil | **Date Received:** | 10/02/99 |
| **Method:** | SW846 8310 | **Percent Solids:** | 86.1 |
| **Project:** | NAS Cecil Field-PSC 46 | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | LC6361.D | 1 | 10/13/99 | AMA | 10/07/99 | M:OP1475 | M:GLC36 |
| Run #2 | | | | | | | |

| CAS No. | Compound | Result | RDL | Units | Q |
|---|---|---|---|---|---|
| 83-32-9 | Acenaphthene | ND | 75 | ug/kg | |
| 208-96-8 | Acenaphthylene | ND | 75 | ug/kg | |
| 120-12-7 | Anthracene | ND | 75 | ug/kg | |
| 56-55-3 | Benzo (a) anthracene | 16.8 | 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 | 41.8 | 11 | ug/kg | |
| 207-08-9 | Benzo (k) fluoranthene | ND | 11 | ug/kg | |
| 218-01-9 | Chrysene | 73.0 | 11 | ug/kg | |
| 53-70-3 | Dibenz(a,h)anthracene | ND | 11 | ug/kg | |
| 206-44-0 | Fluoranthene | 52.7 | 11 | ug/kg | |
| 86-73-7 | Fluorene | ND | 75 | ug/kg | |
| 193-39-5 | Indeno (1,2,3-cd) pyrene | ND | 11 | ug/kg | |
| 90-12-0 | 1-Methylnaphthalene | ND | 75 | ug/kg | |
| 91-57-6 | 2-Methylnaphthalene | ND | 75 | ug/kg | |
| 91-20-3 | Naphthalene | ND | 75 | ug/kg | |
| 85-01-8 | Phenanthrene | ND | 75 | ug/kg | |
| 129-00-0 | Pyrene | 39.4 | 11 | ug/kg | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 84-15-1 | o-Terphenyl | 36% | | 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

ACCUTEST

# Report of Analysis



| | | | |
|---|---|---|---|
| **Client Sample ID:** | CEF-P46-SS-203-01 | | |
| **Lab Sample ID:** | F5001-4 | **Date Sampled:** | 09/30/99 |
| **Matrix:** | SO - Soil | **Date Received:** | 10/02/99 |
| **Method:** | SW846 8310 | **Percent Solids:** | 88.5 |
| **Project:** | NAS Cecil Field-PSC 46 | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | LC6362.D | 1 | 10/13/99 | AMA | 10/07/99 | M:OP1475 | M:GLC36 |
| Run #2 | | | | | | | |

| CAS No. | Compound | Result | RDL | 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 | 14.0 | 11 | ug/kg | |
| 50-32-8 | Benzo (a) pyrene | 77.4 | 11 | ug/kg | |
| 205-99-2 | Benzo (b) fluoranthene | 32.1 | 11 | ug/kg | |
| 191-24-2 | Benzo (g,h,i) perylene | 32.8 | 11 | ug/kg | |
| 207-08-9 | Benzo (k) fluoranthene | 12.5 | 11 | ug/kg | |
| 218-01-9 | Chrysene | 59.4 | 11 | ug/kg | |
| 53-70-3 | Dibenz(a,h)anthracene | ND | 11 | ug/kg | |
| 206-44-0 | Fluoranthene | 97.7 | 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 | 76.3 | 11 | ug/kg | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 84-15-1 | o-Terphenyl | 21% | | 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

ACCUTEST

# Report of Analysis



| | | | |
|---|---|---|---|
| **Client Sample ID:** | CEF-P46-SS-204-01 | | |
| **Lab Sample ID:** | F5001-6 | **Date Sampled:** | 09/30/99 |
| **Matrix:** | SO - Soil | **Date Received:** | 10/02/99 |
| **Method:** | SW846 8310 | **Percent Solids:** | 83.3 |
| **Project:** | NAS Cecil Field-PSC 46 | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | LC6365.D | 1 | 10/13/99 | AMA | 10/07/99 | M:OP1475 | M:GLC36 |
| Run #2 | | | | | | | |

| CAS No. | Compound | Result | RDL | Units | Q |
|---|---|---|---|---|---|
| 83-32-9 | Acenaphthene | ND | 77 | ug/kg | |
| 208-96-8 | Acenaphthylene | ND | 77 | ug/kg | |
| 120-12-7 | Anthracene | ND | 77 | ug/kg | |
| 56-55-3 | Benzo (a) anthracene | ND | 12 | ug/kg | |
| 50-32-8 | Benzo (a) pyrene | ND | 12 | ug/kg | |
| 205-99-2 | Benzo (b) fluoranthene | ND | 12 | ug/kg | |
| 191-24-2 | Benzo (g,h,i) perylene | ND | 12 | ug/kg | |
| 207-08-9 | Benzo (k) fluoranthene | ND | 12 | ug/kg | |
| 218-01-9 | Chrysene | ND | 12 | ug/kg | |
| 53-70-3 | Dibenz(a,h)anthracene | ND | 12 | ug/kg | |
| 206-44-0 | Fluoranthene | ND | 12 | ug/kg | |
| 86-73-7 | Fluorene | ND | 77 | ug/kg | |
| 193-39-5 | Indeno (1,2,3-cd) pyrene | ND | 12 | ug/kg | |
| 90-12-0 | 1-Methylnaphthalene | ND | 77 | ug/kg | |
| 91-57-6 | 2-Methylnaphthalene | ND | 77 | ug/kg | |
| 91-20-3 | Naphthalene | ND | 77 | ug/kg | |
| 85-01-8 | Phenanthrene | ND | 77 | ug/kg | |
| 129-00-0 | Pyrene | ND | 12 | ug/kg | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 84-15-1 | o-Terphenyl | 44% | | 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

ACCUTEST

# Report of Analysis



| | | | |
|---|---|---|---|
| **Client Sample ID:** | CEF-P46-SS-205-01 | | |
| **Lab Sample ID:** | F5001-2 | | |
| **Matrix:** | SO - Soil | **Date Sampled:** | 09/30/99 |
| **Method:** | SW846 8310 | **Date Received:** | 10/02/99 |
| **Project:** | NAS Cecil Field-PSC 46 | **Percent Solids:** | 89.8 |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | LC6360.D | 1 | 10/13/99 | AMA | 10/07/99 | M:OP1475 | M:GLC36 |
| Run #2 | | | | | | | |

| CAS No. | Compound | Result | RDL | 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 | 12.3 | 11 | ug/kg | |
| 50-32-8 | Benzo (a) pyrene | 89.8 | 11 | ug/kg | |
| 205-99-2 | Benzo (b) fluoranthene | 41.4 | 11 | ug/kg | |
| 191-24-2 | Benzo (g,h,i) perylene | 46.7 | 11 | ug/kg | |
| 207-08-9 | Benzo (k) fluoranthene | 12.4 | 11 | ug/kg | |
| 218-01-9 | Chrysene | 40.9 | 11 | ug/kg | |
| 53-70-3 | Dibenz(a,h)anthracene | ND | 11 | ug/kg | |
| 206-44-0 | Fluoranthene | 63.1 | 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 | 44.2 | 11 | ug/kg | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 84-15-1 | o-Terphenyl | 25% | | 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

ACCUTEST

# Report of Analysis



| | | | |
|---|---|---|---|
| **Client Sample ID:** | CEF-P46-SS-206-01 | | |
| **Lab Sample ID:** | F5001-1 | **Date Sampled:** | 09/30/99 |
| **Matrix:** | SO - Soil | **Date Received:** | 10/02/99 |
| **Method:** | SW846 8310 | **Percent Solids:** | 89.1 |
| **Project:** | NAS Cecil Field-PSC 46 | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | LC6359.D | 1 | 10/13/99 | AMA | 10/07/99 | M:OP1475 | M:GLC36 |
| Run #2 | | | | | | | |

| CAS No. | Compound | Result | RDL | 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 | 26.4 | 11 | ug/kg | |
| 50-32-8 | Benzo (a) pyrene | 167 | 11 | ug/kg | |
| 205-99-2 | Benzo (b) fluoranthene | 92.2 | 11 | ug/kg | |
| 191-24-2 | Benzo (g,h,i) perylene | 123 | 11 | ug/kg | |
| 207-08-9 | Benzo (k) fluoranthene | 16.9 | 11 | ug/kg | |
| 218-01-9 | Chrysene | 57.8 | 11 | ug/kg | |
| 53-70-3 | Dibenz(a,h)anthracene | ND | 11 | ug/kg | |
| 206-44-0 | Fluoranthene | ND | 11 | ug/kg | |
| 86-73-7 | Fluorene | ND | 74 | ug/kg | |
| 193-39-5 | Indeno (1,2,3-cd) pyrene | 71.3 | 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 | 43.0 | 11 | ug/kg | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 84-15-1 | o-Terphenyl | 36% | | 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

ACCUTEST

# Report of Analysis



| | | | |
|---|---|---|---|
| **Client Sample ID:** | CEF-P46-SS-207-01 | | |
| **Lab Sample ID:** | F5001-5 | **Date Sampled:** | 09/30/99 |
| **Matrix:** | SO - Soil | **Date Received:** | 10/02/99 |
| **Method:** | SW846 8310 | **Percent Solids:** | 84.0 |
| **Project:** | NAS Cecil Field-PSC 46 | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | LC6364.D | 1 | 10/13/99 | AMA | 10/07/99 | M:OP1475 | M:GLC36 |
| Run #2 | | | | | | | |

| CAS No. | Compound | Result | RDL | Units | Q |
|---|---|---|---|---|---|
| 83-32-9 | Acenaphthene | 162 | 77 | ug/kg | |
| 208-96-8 | Acenaphthylene | ND | 77 | ug/kg | |
| 120-12-7 | Anthracene | ND | 77 | ug/kg | |
| 56-55-3 | Benzo (a) anthracene | 52.5 | 11 | ug/kg | |
| 50-32-8 | Benzo (a) pyrene | 365 | 11 | ug/kg | |
| 205-99-2 | Benzo (b) fluoranthene | 196 | 11 | ug/kg | |
| 191-24-2 | Benzo (g,h,i) perylene | 201 | 11 | ug/kg | |
| 207-08-9 | Benzo (k) fluoranthene | 33.8 | 11 | ug/kg | |
| 218-01-9 | Chrysene | 69.8 | 11 | ug/kg | |
| 53-70-3 | Dibenz(a,h)anthracene | ND | 11 | ug/kg | |
| 206-44-0 | Fluoranthene | 160 | 11 | ug/kg | |
| 86-73-7 | Fluorene | ND | 77 | ug/kg | |
| 193-39-5 | Indeno (1,2,3-cd) pyrene | 171 | 11 | ug/kg | |
| 90-12-0 | 1-Methylnaphthalene | ND | 77 | ug/kg | |
| 91-57-6 | 2-Methylnaphthalene | 118 | 77 | ug/kg | |
| 91-20-3 | Naphthalene | ND | 77 | ug/kg | |
| 85-01-8 | Phenanthrene | ND | 77 | ug/kg | |
| 129-00-0 | Pyrene | 113 | 11 | ug/kg | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 84-15-1 | o-Terphenyl | 27% | | 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

ACCUTEST

# Report of Analysis



| | | | |
|---|---|---|---|
| **Client Sample ID:** | CEF-P46-SS-208-01 | | |
| **Lab Sample ID:** | F5001-10 | **Date Sampled:** | 09/30/99 |
| **Matrix:** | SO - Soil | **Date Received:** | 10/02/99 |
| **Method:** | SW846 8310 | **Percent Solids:** | 86.7 |
| **Project:** | NAS Cecil Field-PSC 46 | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | LC6370.D | 1 | 10/13/99 | AMA | 10/07/99 | M:OP1475 | M:GLC36 |
| Run #2 | | | | | | | |

| CAS No. | Compound | Result | RDL | Units | Q |
|---|---|---|---|---|---|
| 83-32-9 | Acenaphthene | ND | 75 | ug/kg | |
| 208-96-8 | Acenaphthylene | ND | 75 | ug/kg | |
| 120-12-7 | Anthracene | ND | 75 | ug/kg | |
| 56-55-3 | Benzo (a) anthracene | 11.4 | 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 | 28.1 | 11 | ug/kg | |
| 207-08-9 | Benzo (k) fluoranthene | ND | 11 | ug/kg | |
| 218-01-9 | Chrysene | 31.8 | 11 | ug/kg | |
| 53-70-3 | Dibenz(a,h)anthracene | ND | 11 | ug/kg | |
| 206-44-0 | Fluoranthene | 92.2 | 11 | ug/kg | |
| 86-73-7 | Fluorene | ND | 75 | ug/kg | |
| 193-39-5 | Indeno (1,2,3-cd) pyrene | 20.6 | 11 | ug/kg | |
| 90-12-0 | 1-Methylnaphthalene | ND | 75 | ug/kg | |
| 91-57-6 | 2-Methylnaphthalene | ND | 75 | ug/kg | |
| 91-20-3 | Naphthalene | ND | 75 | ug/kg | |
| 85-01-8 | Phenanthrene | ND | 75 | ug/kg | |
| 129-00-0 | Pyrene | 23.6 | 11 | ug/kg | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 84-15-1 | o-Terphenyl | 32% | | 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

ACCUTEST

# Report of Analysis



| | | | |
|---|---|---|---|
| **Client Sample ID:** | CEF-P46-SS-208-01 | | |
| **Lab Sample ID:** | F5001-10 | **Date Sampled:** | 09/30/99 |
| **Matrix:** | SO - Soil | **Date Received:** | 10/02/99 |
| **Method:** | FLORIDA-PRO | **Percent Solids:** | 86.7 |
| **Project:** | NAS Cecil Field-PSC 46 | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | OP05444.D | 1 | 10/07/99 | ME | 10/06/99 | OP1012 | GOP262 |
| Run #2 | | | | | | | |

| CAS No. | Compound | Result | RDL | Units | Q |
|---|---|---|---|---|---|
| | TPH (C8-C40) | 19.3 | 9.5 | 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

ACCUTEST

# Report of Analysis



| | | | |
|---|---|---|---|
| **Client Sample ID:** | CEF-P46-SS-DU07 | | |
| **Lab Sample ID:** | F5001-22 | **Date Sampled:** | 09/30/99 |
| **Matrix:** | SO - Soil | **Date Received:** | 10/02/99 |
| **Method:** | SW846 8310 | **Percent Solids:** | 87.6 |
| **Project:** | NAS Cecil Field-PSC 46 | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | LC6383.D | 1 | 10/14/99 | AMA | 10/07/99 | M:OP1476 | M:GLC37 |
| Run #2 | | | | | | | |

| CAS No. | Compound | Result | RDL | Units | Q |
|---|---|---|---|---|---|
| 83-32-9 | Acenaphthene | ND | 75 | ug/kg | |
| 208-96-8 | Acenaphthylene | ND | 75 | ug/kg | |
| 120-12-7 | Anthracene | ND | 75 | ug/kg | |
| 56-55-3 | Benzo (a) anthracene | ND | 11 | ug/kg | |
| 50-32-8 | Benzo (a) pyrene | 22.8 | 11 | ug/kg | |
| 205-99-2 | Benzo (b) fluoranthene | 16.4 | 11 | ug/kg | |
| 191-24-2 | Benzo (g,h,i) perylene | 13.4 | 11 | ug/kg | |
| 207-08-9 | Benzo (k) fluoranthene | ND | 11 | ug/kg | |
| 218-01-9 | Chrysene | 29.9 | 11 | ug/kg | |
| 53-70-3 | Dibenz(a,h)anthracene | ND | 11 | ug/kg | |
| 206-44-0 | Fluoranthene | 75.7 | 11 | ug/kg | |
| 86-73-7 | Fluorene | ND | 75 | ug/kg | |
| 193-39-5 | Indeno (1,2,3-cd) pyrene | ND | 11 | ug/kg | |
| 90-12-0 | 1-Methylnaphthalene | ND | 75 | ug/kg | |
| 91-57-6 | 2-Methylnaphthalene | ND | 75 | ug/kg | |
| 91-20-3 | Naphthalene | ND | 75 | ug/kg | |
| 85-01-8 | Phenanthrene | ND | 75 | ug/kg | |
| 129-00-0 | Pyrene | 11.6 | 11 | ug/kg | |

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

ACCUTEST

# Report of Analysis



| | | | |
|---|---|---|---|
| **Client Sample ID:** | CEF-P46-SS-DU07 | | |
| **Lab Sample ID:** | F5001-22 | **Date Sampled:** | 09/30/99 |
| **Matrix:** | SO - Soil | **Date Received:** | 10/02/99 |
| **Method:** | FLORIDA-PRO | **Percent Solids:** | 87.6 |
| **Project:** | NAS Cecil Field-PSC 46 | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | OP05451.D | 1 | 10/07/99 | ME | 10/06/99 | OP1012 | GOP262 |
| Run #2 | | | | | | | |

| CAS No. | Compound | Result | RDL | Units | Q |
|---|---|---|---|---|---|
| | TPH (C8-C40) | 13.5 | 10 | 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

ACCUTEST

# Report of Analysis



| | | | |
|---|---|---|---|
| **Client Sample ID:** | CEF-P46-SS-209-01 | | |
| **Lab Sample ID:** | F5001-11 | **Date Sampled:** | 09/30/99 |
| **Matrix:** | SO - Soil | **Date Received:** | 10/02/99 |
| **Method:** | SW846 8310 | **Percent Solids:** | 88.9 |
| **Project:** | NAS Cecil Field-PSC 46 | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | LC6394.D | 1 | 10/14/99 | AMA | 10/07/99 | M:OP1475 | M:GLC37 |
| Run #2 | | | | | | | |

| CAS No. | Compound | Result | RDL | 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 | 29.6 | 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 | 154 | 11 | ug/kg | |
| 53-70-3 | Dibenz(a,h)anthracene | ND | 11 | ug/kg | |
| 206-44-0 | Fluoranthene | 224 | 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 | ND | 73 | ug/kg | |
| 129-00-0 | Pyrene | 15.3 | 11 | ug/kg | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 84-15-1 | o-Terphenyl | 70% | | 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

ACCUTEST

# Report of Analysis



| | | | |
|---|---|---|---|
| **Client Sample ID:** | CEF-P46-SS-210-02 | | |
| **Lab Sample ID:** | F5001-12 | **Date Sampled:** | 09/30/99 |
| **Matrix:** | SO - Soil | **Date Received:** | 10/02/99 |
| **Method:** | SW846 8310 | **Percent Solids:** | 71.6 |
| **Project:** | NAS Cecil Field-PSC 46 | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | LC6395.D | 1 | 10/14/99 | AMA | 10/07/99 | M:OP1475 | M:GLC37 |
| Run #2 | | | | | | | |

| CAS No. | Compound | Result | RDL | Units | Q |
|---|---|---|---|---|---|
| 83-32-9 | Acenaphthene | 124 | 92 | ug/kg | |
| 208-96-8 | Acenaphthylene | ND | 92 | ug/kg | |
| 120-12-7 | Anthracene | ND | 92 | ug/kg | |
| 56-55-3 | Benzo (a) anthracene | 78.7 | 14 | ug/kg | |
| 50-32-8 | Benzo (a) pyrene | 284 | 14 | ug/kg | |
| 205-99-2 | Benzo (b) fluoranthene | 228 | 14 | ug/kg | |
| 191-24-2 | Benzo (g,h,i) perylene | 150 | 14 | ug/kg | |
| 207-08-9 | Benzo (k) fluoranthene | 14 | 14 | ug/kg | |
| 218-01-9 | Chrysene | 114 | 14 | ug/kg | |
| 53-70-3 | Dibenz(a,h)anthracene | ND | 14 | ug/kg | |
| 206-44-0 | Fluoranthene | 227 | 14 | ug/kg | |
| 86-73-7 | Fluorene | ND | 92 | ug/kg | |
| 193-39-5 | Indeno (1,2,3-cd) pyrene | ND | 14 | ug/kg | |
| 90-12-0 | 1-Methylnaphthalene | ND | 92 | ug/kg | |
| 91-57-6 | 2-Methylnaphthalene | ND | 92 | ug/kg | |
| 91-20-3 | Naphthalene | ND | 92 | ug/kg | |
| 85-01-8 | Phenanthrene | ND | 92 | ug/kg | |
| 129-00-0 | Pyrene | 119 | 14 | ug/kg | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 84-15-1 | o-Terphenyl | 27% | | 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

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# Report of Analysis



| | | | |
|---|---|---|---|
| **Client Sample ID:** | CEF-P46-SS-211-01 | | |
| **Lab Sample ID:** | F5001-7 | **Date Sampled:** | 09/30/99 |
| **Matrix:** | SO - Soil | **Date Received:** | 10/02/99 |
| **Method:** | SW846 8310 | **Percent Solids:** | 77.9 |
| **Project:** | NAS Cecil Field-PSC 46 | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | LC6367.D | 1 | 10/13/99 | AMA | 10/07/99 | M:OP1475 | M:GLC36 |
| Run #2 | | | | | | | |

| CAS No. | Compound | Result | RDL | Units | Q |
|---|---|---|---|---|---|
| 83-32-9 | Acenaphthene | 171 | 84 | ug/kg | |
| 208-96-8 | Acenaphthylene | ND | 84 | ug/kg | |
| 120-12-7 | Anthracene | ND | 84 | ug/kg | |
| 56-55-3 | Benzo (a) anthracene | 80.9 | 13 | ug/kg | |
| 50-32-8 | Benzo (a) pyrene | 579 | 13 | ug/kg | |
| 205-99-2 | Benzo (b) fluoranthene | 272 | 13 | ug/kg | |
| 191-24-2 | Benzo (g,h,i) perylene | 352 | 13 | ug/kg | |
| 207-08-9 | Benzo (k) fluoranthene | 33.9 | 13 | ug/kg | |
| 218-01-9 | Chrysene | 135 | 13 | ug/kg | |
| 53-70-3 | Dibenz(a,h)anthracene | ND | 13 | ug/kg | |
| 206-44-0 | Fluoranthene | 235 | 13 | ug/kg | |
| 86-73-7 | Fluorene | ND | 84 | ug/kg | |
| 193-39-5 | Indeno (1,2,3-cd) pyrene | ND | 13 | ug/kg | |
| 90-12-0 | 1-Methylnaphthalene | ND | 84 | ug/kg | |
| 91-57-6 | 2-Methylnaphthalene | 158 | 84 | ug/kg | |
| 91-20-3 | Naphthalene | ND | 84 | ug/kg | |
| 85-01-8 | Phenanthrene | ND | 84 | ug/kg | |
| 129-00-0 | Pyrene | 185 | 13 | ug/kg | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 84-15-1 | o-Terphenyl | 28% | | 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

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# Report of Analysis



| | | | |
|---|---|---|---|
| **Client Sample ID:** | CEF-P46-SS-212-01 | | |
| **Lab Sample ID:** | F5001-8 | **Date Sampled:** | 09/30/99 |
| **Matrix:** | SO - Soil | **Date Received:** | 10/02/99 |
| **Method:** | SW846 8310 | **Percent Solids:** | 90.0 |
| **Project:** | NAS Cecil Field-PSC 46 | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | LC6368.D | 1 | 10/13/99 | AMA | 10/07/99 | M:OP1475 | M:GLC36 |
| Run #2 | | | | | | | |

| CAS No. | Compound | Result | RDL | 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 | ND | 11 | ug/kg | |
| 191-24-2 | Benzo (g,h,i) perylene | 22.4 | 11 | ug/kg | |
| 207-08-9 | Benzo (k) fluoranthene | ND | 11 | ug/kg | |
| 218-01-9 | Chrysene | 32.5 | 11 | ug/kg | |
| 53-70-3 | Dibenz(a,h)anthracene | ND | 11 | ug/kg | |
| 206-44-0 | Fluoranthene | 77.4 | 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 | 50.4 | 11 | ug/kg | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 84-15-1 | o-Terphenyl | 35% | | 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

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# Report of Analysis



| | | | |
|---|---|---|---|
| **Client Sample ID:** | CEF-P46-SS-213-01 | | |
| **Lab Sample ID:** | F5001-20 | **Date Sampled:** | 10/01/99 |
| **Matrix:** | SO - Soil | **Date Received:** | 10/02/99 |
| **Method:** | SW846 8310 | **Percent Solids:** | 76.2 |
| **Project:** | NAS Cecil Field-PSC 46 | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | LC6400.D | 1 | 10/14/99 | AMA | 10/07/99 | M:OP1475 | M:GLC37 |
| Run #2 | | | | | | | |

| CAS No. | Compound | Result | RDL | Units | Q |
|---|---|---|---|---|---|
| 83-32-9 | Acenaphthene | 122 | 84 | ug/kg | |
| 208-96-8 | Acenaphthylene | ND | 84 | ug/kg | |
| 120-12-7 | Anthracene | ND | 84 | ug/kg | |
| 56-55-3 | Benzo (a) anthracene | 45.8 | 13 | ug/kg | |
| 50-32-8 | Benzo (a) pyrene | 151 | 13 | ug/kg | |
| 205-99-2 | Benzo (b) fluoranthene | 42.1 | 13 | ug/kg | |
| 191-24-2 | Benzo (g,h,i) perylene | 57.8 | 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 | 261 | 13 | ug/kg | |
| 86-73-7 | Fluorene | ND | 84 | ug/kg | |
| 193-39-5 | Indeno (1,2,3-cd) pyrene | 23.9 | 13 | ug/kg | |
| 90-12-0 | 1-Methylnaphthalene | ND | 84 | ug/kg | |
| 91-57-6 | 2-Methylnaphthalene | ND | 84 | ug/kg | |
| 91-20-3 | Naphthalene | ND | 84 | ug/kg | |
| 85-01-8 | Phenanthrene | ND | 84 | ug/kg | |
| 129-00-0 | Pyrene | 104 | 13 | ug/kg | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 84-15-1 | o-Terphenyl | 44% | | 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

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# Report of Analysis



| | | | |
|---|---|---|---|
| **Client Sample ID:** | CEF-P46-SS-214-01 | | |
| **Lab Sample ID:** | F5001-21 | **Date Sampled:** | 10/01/99 |
| **Matrix:** | SO - Soil | **Date Received:** | 10/02/99 |
| **Method:** | SW846 8310 | **Percent Solids:** | 78.2 |
| **Project:** | NAS Cecil Field-PSC 46 | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | LC6382.D | 1 | 10/14/99 | AMA | 10/07/99 | M:OP1476 | M:GLC37 |
| Run #2 | | | | | | | |

| CAS No. | Compound | Result | RDL | Units | Q |
|---|---|---|---|---|---|
| 83-32-9 | Acenaphthene | ND | 83 | ug/kg | |
| 208-96-8 | Acenaphthylene | ND | 83 | ug/kg | |
| 120-12-7 | Anthracene | ND | 83 | ug/kg | |
| 56-55-3 | Benzo (a) anthracene | 33.9 | 12 | ug/kg | |
| 50-32-8 | Benzo (a) pyrene | 133 | 12 | ug/kg | |
| 205-99-2 | Benzo (b) fluoranthene | 65.8 | 12 | ug/kg | |
| 191-24-2 | Benzo (g,h,i) perylene | 92.7 | 12 | ug/kg | |
| 207-08-9 | Benzo (k) fluoranthene | ND | 12 | ug/kg | |
| 218-01-9 | Chrysene | 33.5 | 12 | ug/kg | |
| 53-70-3 | Dibenz(a,h)anthracene | ND | 12 | ug/kg | |
| 206-44-0 | Fluoranthene | 126 | 12 | ug/kg | |
| 86-73-7 | Fluorene | ND | 83 | ug/kg | |
| 193-39-5 | Indeno (1,2,3-cd) pyrene | 81.1 | 12 | ug/kg | |
| 90-12-0 | 1-Methylnaphthalene | ND | 83 | ug/kg | |
| 91-57-6 | 2-Methylnaphthalene | ND | 83 | ug/kg | |
| 91-20-3 | Naphthalene | ND | 83 | ug/kg | |
| 85-01-8 | Phenanthrene | ND | 83 | ug/kg | |
| 129-00-0 | Pyrene | 38.3 | 12 | ug/kg | |

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



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# Report of Analysis



| | | | |
|---|---|---|---|
| **Client Sample ID:** | CEF-P46-SS-215-01 | | |
| **Lab Sample ID:** | F5001-17 | **Date Sampled:** | 10/01/99 |
| **Matrix:** | SO - Soil | **Date Received:** | 10/02/99 |
| **Method:** | SW846 8310 | **Percent Solids:** | 76.4 |
| **Project:** | NAS Cecil Field-PSC 46 | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | LC6397.D | 1 | 10/14/99 | AMA | 10/07/99 | M:OP1475 | M:GLC37 |
| Run #2 | | | | | | | |

| CAS No. | Compound | Result | RDL | Units | Q |
|---|---|---|---|---|---|
| 83-32-9 | Acenaphthene | ND | 84 | ug/kg | |
| 208-96-8 | Acenaphthylene | ND | 84 | ug/kg | |
| 120-12-7 | Anthracene | ND | 84 | ug/kg | |
| 56-55-3 | Benzo (a) anthracene | 33.0 | 13 | ug/kg | |
| 50-32-8 | Benzo (a) pyrene | 73.9 | 13 | ug/kg | |
| 205-99-2 | Benzo (b) fluoranthene | 49.2 | 13 | ug/kg | |
| 191-24-2 | Benzo (g,h,i) perylene | 60.5 | 13 | ug/kg | |
| 207-08-9 | Benzo (k) fluoranthene | ND | 13 | ug/kg | |
| 218-01-9 | Chrysene | 44.0 | 13 | ug/kg | |
| 53-70-3 | Dibenz(a,h)anthracene | ND | 13 | ug/kg | |
| 206-44-0 | Fluoranthene | 136 | 13 | ug/kg | |
| 86-73-7 | Fluorene | ND | 84 | ug/kg | |
| 193-39-5 | Indeno (1,2,3-cd) pyrene | ND | 13 | ug/kg | |
| 90-12-0 | 1-Methylnaphthalene | ND | 84 | ug/kg | |
| 91-57-6 | 2-Methylnaphthalene | ND | 84 | ug/kg | |
| 91-20-3 | Naphthalene | ND | 84 | ug/kg | |
| 85-01-8 | Phenanthrene | ND | 84 | ug/kg | |
| 129-00-0 | Pyrene | 56.6 | 13 | ug/kg | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 84-15-1 | o-Terphenyl | 35% | | 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

000037

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# Report of Analysis



| | | | |
|---|---|---|---|
| **Client Sample ID:** | CEF-P46-SS-216-01 | | |
| **Lab Sample ID:** | F5001-18 | **Date Sampled:** | 10/01/99 |
| **Matrix:** | SO - Soil | **Date Received:** | 10/02/99 |
| **Method:** | SW846 8310 | **Percent Solids:** | 72.8 |
| **Project:** | NAS Cecil Field-PSC 46 | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | LC6398.D | 1 | 10/14/99 | AMA | 10/07/99 | M:OP1475 | M:GLC37 |
| Run #2 | | | | | | | |

| CAS No. | Compound | Result | RDL | Units | Q |
|---|---|---|---|---|---|
| 83-32-9 | Acenaphthene | ND | 87 | ug/kg | |
| 208-96-8 | Acenaphthylene | ND | 87 | ug/kg | |
| 120-12-7 | Anthracene | ND | 87 | ug/kg | |
| 56-55-3 | Benzo (a) anthracene | 48.4 | 13 | ug/kg | |
| 50-32-8 | Benzo (a) pyrene | 115 | 13 | ug/kg | |
| 205-99-2 | Benzo (b) fluoranthene | 135 | 13 | ug/kg | |
| 191-24-2 | Benzo (g,h,i) perylene | 48.1 | 13 | ug/kg | |
| 207-08-9 | Benzo (k) fluoranthene | ND | 13 | ug/kg | |
| 218-01-9 | Chrysene | 61.3 | 13 | ug/kg | |
| 53-70-3 | Dibenz(a,h)anthracene | ND | 13 | ug/kg | |
| 206-44-0 | Fluoranthene | 188 | 13 | ug/kg | |
| 86-73-7 | Fluorene | ND | 87 | ug/kg | |
| 193-39-5 | Indeno (1,2,3-cd) pyrene | ND | 13 | ug/kg | |
| 90-12-0 | 1-Methylnaphthalene | ND | 87 | ug/kg | |
| 91-57-6 | 2-Methylnaphthalene | ND | 87 | ug/kg | |
| 91-20-3 | Naphthalene | ND | 87 | ug/kg | |
| 85-01-8 | Phenanthrene | ND | 87 | ug/kg | |
| 129-00-0 | Pyrene | 101 | 13 | ug/kg | |

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

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# Report of Analysis



| | | | |
|---|---|---|---|
| **Client Sample ID:** | CEF-P46-SS-217-01 | | |
| **Lab Sample ID:** | F5001-19 | **Date Sampled:** | 10/01/99 |
| **Matrix:** | SO - Soil | **Date Received:** | 10/02/99 |
| **Method:** | SW846 8310 | **Percent Solids:** | 77.9 |
| **Project:** | NAS Cecil Field-PSC 46 | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | LC6399.D | 1 | 10/14/99 | AMA | 10/07/99 | M:OP1475 | M:GLC37 |
| Run #2 | | | | | | | |

| CAS No. | Compound | Result | RDL | Units | Q |
|---|---|---|---|---|---|
| 83-32-9 | Acenaphthene | 227 | 84 | ug/kg | |
| 208-96-8 | Acenaphthylene | ND | 84 | ug/kg | |
| 120-12-7 | Anthracene | ND | 84 | ug/kg | |
| 56-55-3 | Benzo (a) anthracene | 136 | 13 | ug/kg | |
| 50-32-8 | Benzo (a) pyrene | 372 | 13 | ug/kg | |
| 205-99-2 | Benzo (b) fluoranthene | 157 | 13 | ug/kg | |
| 191-24-2 | Benzo (g,h,i) perylene | 154 | 13 | ug/kg | |
| 207-08-9 | Benzo (k) fluoranthene | 22.5 | 13 | ug/kg | |
| 218-01-9 | Chrysene | 127 | 13 | ug/kg | |
| 53-70-3 | Dibenz(a,h)anthracene | ND | 13 | ug/kg | |
| 206-44-0 | Fluoranthene | 387 | 13 | ug/kg | |
| 86-73-7 | Fluorene | ND | 84 | ug/kg | |
| 193-39-5 | Indeno (1,2,3-cd) pyrene | 141 | 13 | ug/kg | |
| 90-12-0 | 1-Methylnaphthalene | ND | 84 | ug/kg | |
| 91-57-6 | 2-Methylnaphthalene | 155 | 84 | ug/kg | |
| 91-20-3 | Naphthalene | ND | 84 | ug/kg | |
| 85-01-8 | Phenanthrene | 159 | 84 | ug/kg | |
| 129-00-0 | Pyrene | 226 | 13 | ug/kg | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 84-15-1 | o-Terphenyl | 45% | | 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

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# Report of Analysis



| | | | |
|---|---|---|---|
| **Client Sample ID:** | CEF-P46-SU-218-03 | | |
| **Lab Sample ID:** | F5001-24 | **Date Sampled:** | 09/30/99 |
| **Matrix:** | SO - Soil | **Date Received:** | 10/02/99 |
| **Method:** | SW846 8310 | **Percent Solids:** | 86.0 |
| **Project:** | NAS Cecil Field-PSC 46 | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | LC6384.D | 1 | 10/14/99 | AMA | 10/07/99 | M:OP1476 | M:GLC37 |
| Run #2 | | | | | | | |

| CAS No. | Compound | Result | RDL | Units | Q |
|---|---|---|---|---|---|
| 83-32-9 | Acenaphthene | ND | 77 | ug/kg | |
| 208-96-8 | Acenaphthylene | ND | 77 | ug/kg | |
| 120-12-7 | Anthracene | ND | 77 | ug/kg | |
| 56-55-3 | Benzo (a) anthracene | ND | 12 | ug/kg | |
| 50-32-8 | Benzo (a) pyrene | ND | 12 | ug/kg | |
| 205-99-2 | Benzo (b) fluoranthene | ND | 12 | ug/kg | |
| 191-24-2 | Benzo (g,h,i) perylene | ND | 12 | ug/kg | |
| 207-08-9 | Benzo (k) fluoranthene | ND | 12 | ug/kg | |
| 218-01-9 | Chrysene | ND | 12 | ug/kg | |
| 53-70-3 | Dibenz(a,h)anthracene | ND | 12 | ug/kg | |
| 206-44-0 | Fluoranthene | ND | 12 | ug/kg | |
| 86-73-7 | Fluorene | ND | 77 | ug/kg | |
| 193-39-5 | Indeno (1,2,3-cd) pyrene | ND | 12 | ug/kg | |
| 90-12-0 | 1-Methylnaphthalene | ND | 77 | ug/kg | |
| 91-57-6 | 2-Methylnaphthalene | ND | 77 | ug/kg | |
| 91-20-3 | Naphthalene | ND | 77 | ug/kg | |
| 85-01-8 | Phenanthrene | ND | 77 | ug/kg | |
| 129-00-0 | Pyrene | ND | 12 | ug/kg | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 84-15-1 | o-Terphenyl | 53% | | 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

ACCUTEST

# Report of Analysis



| | | | |
|---|---|---|---|
| **Client Sample ID:** | CEF-P46-SU-219-03 | | |
| **Lab Sample ID:** | F5001-16 | **Date Sampled:** | 10/01/99 |
| **Matrix:** | SO - Soil | **Date Received:** | 10/02/99 |
| **Method:** | SW846 8310 | **Percent Solids:** | 77.6 |
| **Project:** | NAS Cecil Field-PSC 46 | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | LC6396.D | 1 | 10/14/99 | AMA | 10/07/99 | M:OP1475 | M:GLC37 |
| Run #2 | | | | | | | |

| CAS No. | Compound | Result | RDL | Units | Q |
|---|---|---|---|---|---|
| 83-32-9 | Acenaphthene | ND | 82 | ug/kg | |
| 208-96-8 | Acenaphthylene | ND | 82 | ug/kg | |
| 120-12-7 | Anthracene | ND | 82 | ug/kg | |
| 56-55-3 | Benzo (a) anthracene | ND | 12 | ug/kg | |
| 50-32-8 | Benzo (a) pyrene | ND | 12 | ug/kg | |
| 205-99-2 | Benzo (b) fluoranthene | ND | 12 | ug/kg | |
| 191-24-2 | Benzo (g,h,i) perylene | ND | 12 | ug/kg | |
| 207-08-9 | Benzo (k) fluoranthene | ND | 12 | ug/kg | |
| 218-01-9 | Chrysene | ND | 12 | ug/kg | |
| 53-70-3 | Dibenz(a,h)anthracene | ND | 12 | ug/kg | |
| 206-44-0 | Fluoranthene | ND | 12 | ug/kg | |
| 86-73-7 | Fluorene | ND | 82 | ug/kg | |
| 193-39-5 | Indeno (1,2,3-cd) pyrene | ND | 12 | ug/kg | |
| 90-12-0 | 1-Methylnaphthalene | ND | 82 | ug/kg | |
| 91-57-6 | 2-Methylnaphthalene | ND | 82 | ug/kg | |
| 91-20-3 | Naphthalene | ND | 82 | ug/kg | |
| 85-01-8 | Phenanthrene | ND | 82 | ug/kg | |
| 129-00-0 | Pyrene | ND | 12 | ug/kg | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 84-15-1 | o-Terphenyl | 50% | | 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

000036

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| **TO:** | **M. SPERANZA** | **DATE:** | **DECEMBER 14, 1999** |
| **FROM:** | **GRETCHEN PHIPPS** | **COPIES:** | **DV FILE** |

**SUBJECT:** **INORGANIC DATA VALIDATION – CHROMIUM**
**CTO 078 - CECIL FIELD**
**SDG – F5001**

**SAMPLES:** 4/Soils/

| | |
|---|---|
| CEF-P46-SS-111-02 | CEF-P46-SS-112-02 |
| CEF-P46-SS-123-02 | CEF-P46-SS-DU08 |

Overview

The sample set for CTO 078, Cecil Field, SDG F5001consists of four (4) soil environmental samples.

All samples were analyzed for chromium. The samples were collected by Tetra Tech NUS on September 30, 1999 and analyzed by Accutest Laboratory under Naval Facilities Engineering Service Center (NFESC) Quality Assurance / Quality Control (QA / QC) criteria. Chromium 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
* • Detection Limits

* - 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 |
|---|---|---|
| Chromium | 1.7µg/L | 0.85mg/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 determining blank contamination. No validation action was taken as all results reported for chromium were greater than the blank action level.

Executive Summary

**Laboratory Performance:** Chromium was 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

CTO078 - NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F5001



| | | | | |
|---|---|---|---|---|
| SAMPLE NUMBER: | CEF-P46-SS-111-02 | CEF-P46-SS-112-02 | CEF-P46-SS-123-02 | CEF-P46-SS-DU08 |
| SAMPLE DATE: | 09/30/99 | 09/30/99 | 09/30/99 | 09/30/99 |
| LABORATORY ID: | F5001-15 | F5001-14 | F5001-13 | F5001-23 |
| QC_TYPE: | NORMAL | NORMAL | NORMAL | NORMAL |
| % SOLIDS: | 82.2 % | 89.6 % | 89.5 % | 82.3 % |
| UNITS: | MG/KG | MG/KG | MG/KG | MG/KG |
| FIELD DUPLICATE OF: | | | | CEF-P46-SS-111-02 |

| | RESULT | QUAL | CODE | RESULT | QUAL | CODE | RESULT | QUAL | CODE | RESULT | QUAL | CODE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **INORGANICS** | | | | | | | | | | | | |
| CHROMIUM | 1.9 | | | 6.5 | | | 5.0 | | | 3.4 | | |

ACCUTEST

# Report of Analysis



| | | | |
|---|---|---|---|
| **Client Sample ID:** | CEF-P46-SS-111-02 | | |
| **Lab Sample ID:** | F5001-15 | **Date Sampled:** | 09/30/99 |
| **Matrix:** | SO - Soil | **Date Received:** | 10/02/99 |
| | | **Percent Solids:** | 82.2 |
| **Project:** | NAS Cecil Field-PSC 46 | | |

**Metals Analysis**

| Analyte | Result | RDL | Units | DF | Prep | Analyzed By | | Method |
|---|---|---|---|---|---|---|---|---|
| Chromium | 1.9 | 1.1 | mg/kg | 1 | 10/11/99 | 10/13/99 | JK | SW846 6010A |

RDL = Reported Detection Limit



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# Report of Analysis



| | | | |
|---|---|---|---|
| **Client Sample ID:** | CEF-P46-SS-112-02 | | |
| **Lab Sample ID:** | F5001-14 | **Date Sampled:** | 09/30/99 |
| **Matrix:** | SO - Soil | **Date Received:** | 10/02/99 |
| | | **Percent Solids:** | 89.6 |
| **Project:** | NAS Cecil Field-PSC 46 | | |

**Metals Analysis**

| Analyte | Result | RDL | Units | DF | Prep | Analyzed By | Method |
|---|---|---|---|---|---|---|---|
| Chromium | 6.5 | 1.2 | mg/kg | 1 | 10/11/99 | 10/13/99 JK | SW846 6010A |

RDL = Reported Detection Limit



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# Report of Analysis



| | | | |
|---|---|---|---|
| **Client Sample ID:** | CEF-P46-SS-123-02 | | |
| **Lab Sample ID:** | F5001-13 | **Date Sampled:** | 09/30/99 |
| **Matrix:** | SO - Soil | **Date Received:** | 10/02/99 |
| | | **Percent Solids:** | 89.5 |
| **Project:** | NAS Cecil Field-PSC 46 | | |

**Metals Analysis**

| Analyte | Result | RDL | Units | DF | Prep | Analyzed | By | Method |
|---|---|---|---|---|---|---|---|---|
| Chromium | 5.0 | 0.98 | mg/kg | 1 | 10/11/99 | 10/13/99 | JK | SW846 6010A |

RDL = Reported Detection Limit

ACCUTEST

# Report of Analysis



| | | | |
|---|---|---|---|
| **Client Sample ID:** | CEF-P46-SS-DU08 | | |
| **Lab Sample ID:** | F5001-23 | **Date Sampled:** | 09/30/99 |
| **Matrix:** | SO - Soil | **Date Received:** | 10/02/99 |
| | | **Percent Solids:** | 82.3 |
| **Project:** | NAS Cecil Field-PSC 46 | | |

**Metals Analysis**

| Analyte | Result | RDL | Units | DF | Prep | Analyzed | By | Method |
|---|---|---|---|---|---|---|---|---|
| Chromium | 3.4 | 1.1 | mg/kg | 1 | 10/13/99 | 10/13/99 | JK | SW846 6010A |

RDL = Reported Detection Limit



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# PHASE IV ANALYTICAL RESULTS

**Tetra Tech NUS** **INTERNAL CORRESPONDENCE**

**PITT-01-0-073**

**TO:** **MARK SPERANZA** **DATE: FEBRUARY 28, 2000**

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

**SUBJECT:** **ORGANIC DATA VALIDATION – PAH**
**CTO 078 – NAS CECIL FIELD**
**SDG F5467**

**SAMPLES:** 12/Surface Soil

| | |
|---|---|
| CEF-P46-SS-301-01 | CEF-P46-SS-302-01 |
| CEF-P46-SS-303-01 | CEF-P46-SS-305-01 |
| CEF-P46-SS-306-01 | CEF-P46-SS-310-02 |
| CEF-P46-SS-311-02 | CEF-P46-SS-DU09 |
| CEF-P46-SU-304-03 | CEF-P46-SU-307-03 |
| CEF-P46-SU-308-03 | CEF-P46-SU-309-03 |

## OVERVIEW

The sample set for CTO 078, SDG F5467 Naval Air Station (NAS) Cecil Field; Florida consists of twelve (12) surface soil environmental samples. The samples were analyzed for Polynuclear Aromatic Hydrocarbon (PAH) organic compounds. One field duplicate pair (CEF-P46-SU-304-03/CEF-P46-SS-DU09) was included within this SDG.

The samples were collected by Tetra Tech, NUS on and December 8th, 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 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: MARK SPERANZA**
**DATE: FEBRAURY 28, 2000 – PAGE 2**

PAH FRACTION

The Relative Percent Difference (RPD) for acenaphthylene, benzo(a)anthracene, benzo(b)fluoranthene, benzo(g,h,i)perylene, chrysene, fluoranthene, indeno(1,2,3-cd)pyrene, and pyrene exceeded the 50% quality control limit for the field duplicate pair (CEF-P46-SU-304-03/CEF-P46-SS-DU09). The positive and nondetected results were qualified as estimated (J) and (UJ), respectively.

ADDITIONAL COMMENTS

Positive results reported below the Reporting Limit (RL) are qualified as estimated (J).

EXECUTIVE SUMMARY

***Laboratory performance:*** None.

***Other Factors Affecting Data Quality:*** Several compounds exceeded the 50% RPD criteria in the field duplicate pair.

**MEMO TO: MARK SPERANZA**
**DATE: FEBRAURY 28, 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:**

| | | |
|---|---|---|
| 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/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: F5467



| SAMPLE NUMBER: | CEF-P46-SS-301-01 | | | CEF-P46-SS-302-01 | | | CEF-P46-SS-303-02 | | | CEF-P46-SS-305-01 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SAMPLE DATE: | 12/09/99 | | | 12/09/99 | | | 12/08/99 | | | 12/08/99 | | |
| LABORATORY ID: | F5467-11 | | | F5467-12 | | | F5467-7 | | | F5467-1 | | |
| QC_TYPE: | NORMAL | | | NORMAL | | | NORMAL | | | NORMAL | | |
| % SOLIDS: | 93.0 % | | | 90.3 % | | | 90.0 % | | | 91.8 % | | |
| 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 | 71 | U | | 128 | | | 74 | U | | 72 | U | |
| 2-METHYLNAPHTHALENE | 71 | U | | 86.7 | | | 74 | U | | 72 | U | |
| ACENAPHTHENE | 71 | U | | 73 | U | | 74 | U | | 72 | U | |
| ACENAPHTHYLENE | 71 | U | | 73 | U | | 74 | U | | 72 | U | |
| ANTHRACENE | 71 | U | | 73 | U | | 74 | U | | 72 | U | |
| BENZO(A)ANTHRACENE | 33.4 | | | 147 | | | 11 | U | | 11 | U | |
| BENZO(A)PYRENE | 66.6 | | | 218 | | | 11 | U | | 11 | U | |
| BENZO(B)FLUORANTHENE | 59.1 | | | 187 | | | 11 | U | | 11 | U | |
| BENZO(G,H,I)PERYLENE | 89.9 | | | 242 | | | 15.4 | | | 11 | U | |
| BENZO(K)FLUORANTHENE | 33.6 | | | 106 | | | 11 | U | | 11 | U | |
| CHRYSENE | 49.1 | | | 166 | | | 14.6 | | | 11 | U | |
| DIBENZO(A,H)ANTHRACENE | 16 | | | 38.5 | | | 11 | U | | 11 | U | |
| FLUORANTHENE | 133 | | | 319 | | | 18.4 | | | 13.6 | | |
| FLUORENE | 71 | U | | 73 | U | | 74 | U | | 72 | U | |
| INDENO(1,2,3-CD)PYRENE | 61.1 | | | 178 | | | 13.9 | | | 11 | U | |
| NAPHTHALENE | 71 | U | | 73 | U | | 74 | U | | 72 | U | |
| PHENANTHRENE | 71 | U | | 152 | | | 74 | U | | 72 | U | |
| PYRENE | 53.9 | | | 245 | | | 19.7 | | | 11 | U | |

# CTO078 - NAS CECIL FIELD
## SOIL DATA
## Accutest, NJ
## SDG: F5467



| SAMPLE NUMBER: | CEF-P46-SS-306-01 | | | CEF-P46-SS-310-02 | | | CEF-P46-SS-311-02 | | | CEF-P46-SS-DU09 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SAMPLE DATE: | 12/08/99 | | | 12/08/99 | | | 12/08/99 | | | 12/08/99 | | |
| LABORATORY ID: | F5467-2 | | | F5467-8 | | | F5467-9 | | | F5467-10 | | |
| QC_TYPE: | NORMAL | | | NORMAL | | | NORMAL | | | NORMAL | | |
| % SOLIDS: | 93.2 % | | | 90.3 % | | | 88.9 % | | | 88.6 % | | |
| UNITS: | UG/KG | | | UG/KG | | | UG/KG | | | UG/KG | | |
| FIELD DUPLICATE OF: | | | | | | | | | | CEF-P46-SU-304-03 | | |
| | RESULT | QUAL | CODE | RESULT | QUAL | CODE | RESULT | QUAL | CODE | RESULT | QUAL | CODE |
| **POLYNUCLEAR AROMATIC HYDROCARBONS** | | | | | | | | | | | | |
| 1-METHYLNAPHTHALENE | 82.1 | | | 132 | | | 74 | U | | 74 | U | |
| 2-METHYLNAPHTHALENE | 71 | U | | 73 | U | | 74 | U | | 74 | U | |
| ACENAPHTHENE | 71 | U | | 73 | U | | 74 | U | | 74 | U | |
| ACENAPHTHYLENE | 71 | U | | 73 | U | | 74 | U | | 280 | J | G |
| ANTHRACENE | 71 | U | | 73 | U | | 74 | U | | 74 | U | |
| BENZO(A)ANTHRACENE | 117 | | | 220 | | | 11 | U | | 11 | UJ | G |
| BENZO(A)PYRENE | 142 | | | 193 | | | 11 | U | | 11 | U | |
| BENZO(B)FLUORANTHENE | 245 | | | 330 | | | 11 | U | | 11 | UJ | G |
| BENZO(G,H,I)PERYLENE | 366 | | | 419 | | | 12.1 | | | 12.1 | J | G |
| BENZO(K)FLUORANTHENE | 145 | | | 178 | | | 11 | U | | 11 | U | |
| CHRYSENE | 11 | U | | 232 | | | 11 | U | | 11 | UJ | G |
| DIBENZO(A,H)ANTHRACENE | 11 | U | | 17.4 | | | 11 | U | | 11 | U | |
| FLUORANTHENE | 230 | | | 11 | U | | 11 | U | | 11 | UJ | G |
| FLUORENE | 71 | U | | 12.2 | | | 74 | U | | 74 | U | |
| INDENO(1,2,3-CD)PYRENE | 329 | | | 407 | | | 11 | U | | 11 | UJ | G |
| NAPHTHALENE | 71 | U | | 73 | U | | 74 | U | | 74 | U | |
| PHENANTHRENE | 71 | U | | 92 | | | 74 | U | | 74 | U | |
| PYRENE | 183 | | | 353 | | | 11 | U | | 11 | UJ | G |

# CTO078 - NAS CECIL FIELD
## SOIL DATA
## Accutest, NJ
## SDG: F5467



| SAMPLE NUMBER: | CEF-P46-SU-304-03 | | | CEF-P46-SU-307-03 | | | CEF-P46-SU-308-03 | | | CEF-P46-SU-309-03 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SAMPLE DATE: | 12/08/99 | | | 12/08/99 | | | 12/08/99 | | | 12/08/99 | | |
| LABORATORY ID: | F5467-3 | | | F5467-4 | | | F5467-5 | | | F5467-6 | | |
| QC_TYPE: | NORMAL | | | NORMAL | | | NORMAL | | | NORMAL | | |
| % SOLIDS: | 88.5 % | | | 92.4 % | | | 85.3 % | | | 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 | | 71 | U | | 78 | U | | 73 | U | |
| 2-METHYLNAPHTHALENE | 74 | U | | 71 | U | | 78 | U | | 73 | U | |
| ACENAPHTHENE | 74 | U | | 71 | U | | 78 | U | | 73 | U | |
| ACENAPHTHYLENE | 74 | UJ | G | 71 | U | | 78 | U | | 73 | U | |
| ANTHRACENE | 74 | U | | 71 | U | | 78 | U | | 73 | U | |
| BENZO(A)ANTHRACENE | 12.9 | J | G | 11 | U | | 12 | U | | 11 | U | |
| BENZO(A)PYRENE | 11 | U | | 11 | U | | 12 | U | | 11 | U | |
| BENZO(B)FLUORANTHENE | 19.3 | J | G | 11 | U | | 12 | U | | 11 | U | |
| BENZO(G,H,I)PERYLENE | 41.2 | J | G | 11 | U | | 12 | U | | 11 | U | |
| BENZO(K)FLUORANTHENE | 11 | U | | 11 | U | | 12 | U | | 11 | U | |
| CHRYSENE | 14.4 | J | G | 14.3 | | | 12 | U | | 13.9 | | |
| DIBENZO(A,H)ANTHRACENE | 11 | U | | 11 | U | | 12 | U | | 11 | U | |
| FLUORANTHENE | 30.6 | J | G | 11 | U | | 12 | U | | 11.3 | | |
| FLUORENE | 74 | U | | 71 | U | | 78 | U | | 73 | U | |
| INDENO(1,2,3-CD)PYRENE | 53.1 | J | G | 11 | U | | 12 | U | | 11 | U | |
| NAPHTHALENE | 74 | U | | 71 | U | | 78 | U | | 73 | U | |
| PHENANTHRENE | 74 | U | | 71 | U | | 78 | U | | 73 | U | |
| PYRENE | 55.6 | J | G | 11 | U | | 12 | U | | 11 | U | |

ACCUTEST

# Report of Analysis



| | | | |
|---|---|---|---|
| **Client Sample ID:** | CEF-P46-SS-301-01 | | |
| **Lab Sample ID:** | F5467-11 | **Date Sampled:** | 12/09/99 |
| **Matrix:** | SO - Soil | **Date Received:** | 12/10/99 |
| **Method:** | SW846 8310 | **Percent Solids:** | 93.0 |
| **Project:** | NAS Cecil Field | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | LC7603.D | 1 | 12/30/99 | AMA | 12/14/99 | M:OP1611 | M:GLC82 |
| Run #2 | | | | | | | |

| CAS No. | Compound | Result | RL | Units | Q |
|---|---|---|---|---|---|
| 83-32-9 | Acenaphthene | ND | 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 | 33.4 | 11 | ug/kg | |
| 50-32-8 | Benzo (a) pyrene | 66.6 | 11 | ug/kg | |
| 205-99-2 | Benzo (b) fluoranthene | 59.1 | 11 | ug/kg | |
| 191-24-2 | Benzo (g,h,i) perylene | 89.9 | 11 | ug/kg | |
| 207-08-9 | Benzo (k) fluoranthene | 33.6 | 11 | ug/kg | |
| 218-01-9 | Chrysene | 49.1 | 11 | ug/kg | |
| 53-70-3 | Dibenz(a,h)anthracene | 16.0 | 11 | ug/kg | |
| 206-44-0 | Fluoranthene | 133 | 11 | ug/kg | |
| 86-73-7 | Fluorene | ND | 71 | ug/kg | |
| 193-39-5 | Indeno (1,2,3-cd) pyrene | 61.1 | 11 | ug/kg | |
| 90-12-0 | 1-Methylnaphthalene | ND | 71 | ug/kg | |
| 91-57-6 | 2-Methylnaphthalene | ND | 71 | ug/kg | |
| 91-20-3 | Naphthalene | ND | 71 | ug/kg | |
| 85-01-8 | Phenanthrene | ND | 71 | ug/kg | |
| 129-00-0 | Pyrene | 53.9 | 11 | ug/kg | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 84-15-1 | o-Terphenyl | 59% | | 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-P46-SS-302-01 | | |
| **Lab Sample ID:** | F5467-12 | **Date Sampled:** | 12/09/99 |
| **Matrix:** | SO - Soil | **Date Received:** | 12/10/99 |
| **Method:** | SW846 8310 | **Percent Solids:** | 90.3 |
| **Project:** | NAS Cecil Field | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | LC7604.D | 1 | 12/30/99 | AMA | 12/14/99 | M:OP1611 | M:GLC82 |
| 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 | 147 | 11 | ug/kg | |
| 50-32-8 | Benzo (a) pyrene | 218 | 11 | ug/kg | |
| 205-99-2 | Benzo (b) fluoranthene | 187 | 11 | ug/kg | |
| 191-24-2 | Benzo (g,h,i) perylene | 242 | 11 | ug/kg | |
| 207-08-9 | Benzo (k) fluoranthene | 106 | 11 | ug/kg | |
| 218-01-9 | Chrysene | 166 | 11 | ug/kg | |
| 53-70-3 | Dibenz(a,h)anthracene | 38.5 | 11 | ug/kg | |
| 206-44-0 | Fluoranthene | 319 | 11 | ug/kg | |
| 86-73-7 | Fluorene | ND | 73 | ug/kg | |
| 193-39-5 | Indeno (1,2,3-cd) pyrene | 178 | 11 | ug/kg | |
| 90-12-0 | 1-Methylnaphthalene | 128 | 73 | ug/kg | |
| 91-57-6 | 2-Methylnaphthalene | 86.7 | 73 | ug/kg | |
| 91-20-3 | Naphthalene | ND | 73 | ug/kg | |
| 85-01-8 | Phenanthrene | 152 | 73 | ug/kg | |
| 129-00-0 | Pyrene | 245 | 11 | ug/kg | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 84-15-1 | o-Terphenyl | 69% | | 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

000015

ACCUTEST

# Report of Analysis



| | | | |
|---|---|---|---|
| **Client Sample ID:** | CEF-P46-SS-303-02 | | |
| **Lab Sample ID:** | F5467-7 | **Date Sampled:** | 12/08/99 |
| **Matrix:** | SO - Soil | **Date Received:** | 12/10/99 |
| **Method:** | SW846 8310 | **Percent Solids:** | 90.0 |
| **Project:** | NAS Cecil Field | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | LC7598.D | 1 | 12/29/99 | AMA | 12/14/99 | M:OP1611 | M:GLC81 |
| 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 | 15.4 | 11 | ug/kg | |
| 207-08-9 | Benzo (k) fluoranthene | ND | 11 | ug/kg | |
| 218-01-9 | Chrysene | 14.6 | 11 | ug/kg | |
| 53-70-3 | Dibenz(a,h)anthracene | ND | 11 | ug/kg | |
| 206-44-0 | Fluoranthene | 18.4 | 11 | ug/kg | |
| 86-73-7 | Fluorene | ND | 74 | ug/kg | |
| 193-39-5 | Indeno (1,2,3-cd) pyrene | 13.9 | 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 | 19.7 | 11 | 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

ACCUTEST

# Report of Analysis



| | | | |
|---|---|---|---|
| **Client Sample ID:** | CEF-P46-SS-305-01 | | |
| **Lab Sample ID:** | F5467-1 | **Date Sampled:** | 12/08/99 |
| **Matrix:** | SO - Soil | **Date Received:** | 12/10/99 |
| **Method:** | SW846 8310 | **Percent Solids:** | 91.8 |
| **Project:** | NAS Cecil Field | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | LC7592.D | 1 | 12/29/99 | AMA | 12/14/99 | M:OP1611 | M:GLC81 |
| 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 | 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 | 13.6 | 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 | ND | 11 | ug/kg | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 84-15-1 | o-Terphenyl | 55% | | 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

000002

ACCUTEST

# Report of Analysis



| | | | |
|---|---|---|---|
| **Client Sample ID:** | CEF-P46-SS-306-01 | | |
| **Lab Sample ID:** | F5467-2 | **Date Sampled:** | 12/08/99 |
| **Matrix:** | SO - Soil | **Date Received:** | 12/10/99 |
| **Method:** | SW846 8310 | **Percent Solids:** | 93.2 |
| **Project:** | NAS Cecil Field | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | LC7593.D | 1 | 12/29/99 | AMA | 12/14/99 | M:OP1611 | M:GLC81 |
| Run #2 | | | | | | | |

| CAS No. | Compound | Result | RL | Units | Q |
|---|---|---|---|---|---|
| 83-32-9 | Acenaphthene | ND | 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 | 117 | 11 | ug/kg | |
| 50-32-8 | Benzo (a) pyrene | 142 | 11 | ug/kg | |
| 205-99-2 | Benzo (b) fluoranthene | 245 | 11 | ug/kg | |
| 191-24-2 | Benzo (g,h,i) perylene | 366 | 11 | ug/kg | |
| 207-08-9 | Benzo (k) fluoranthene | 145 | 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 | 230 | 11 | ug/kg | |
| 86-73-7 | Fluorene | ND | 71 | ug/kg | |
| 193-39-5 | Indeno (1,2,3-cd) pyrene | 329 | 11 | ug/kg | |
| 90-12-0 | 1-Methylnaphthalene | 82.1 | 71 | ug/kg | |
| 91-57-6 | 2-Methylnaphthalene | ND | 71 | ug/kg | |
| 91-20-3 | Naphthalene | ND | 71 | ug/kg | |
| 85-01-8 | Phenanthrene | ND | 71 | ug/kg | |
| 129-00-0 | Pyrene | 183 | 11 | ug/kg | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 84-15-1 | o-Terphenyl | 39% | | 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

000003

ACCUTEST

# Report of Analysis



| | | | |
|---|---|---|---|
| **Client Sample ID:** | CEF-P46-SS-310-02 | | |
| **Lab Sample ID:** | F5467-8 | **Date Sampled:** | 12/08/99 |
| **Matrix:** | SO - Soil | **Date Received:** | 12/10/99 |
| **Method:** | SW846 8310 | **Percent Solids:** | 90.3 |
| **Project:** | NAS Cecil Field | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | LC7599.D | 1 | 12/29/99 | AMA | 12/14/99 | M:OP1611 | M:GLC81 |
| 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 | 220 | 11 | ug/kg | |
| 50-32-8 | Benzo (a) pyrene | 193 | 11 | ug/kg | |
| 205-99-2 | Benzo (b) fluoranthene | 330 | 11 | ug/kg | |
| 191-24-2 | Benzo (g,h,i) perylene | 419 | 11 | ug/kg | |
| 207-08-9 | Benzo (k) fluoranthene | 178 | 11 | ug/kg | |
| 218-01-9 | Chrysene | 232 | 11 | ug/kg | |
| 53-70-3 | Dibenz(a,h)anthracene | 17.4 | 11 | ug/kg | |
| 206-44-0 | Fluoranthene | ND | 11 | ug/kg | |
| 86-73-7 | Fluorene | 12.2 | 73 | ug/kg | |
| 193-39-5 | Indeno (1,2,3-cd) pyrene | 407 | 11 | ug/kg | |
| 90-12-0 | 1-Methylnaphthalene | 132 | 73 | ug/kg | |
| 91-57-6 | 2-Methylnaphthalene | ND | 73 | ug/kg | |
| 91-20-3 | Naphthalene | ND | 73 | ug/kg | |
| 85-01-8 | Phenanthrene | 92.0 | 73 | ug/kg | |
| 129-00-0 | Pyrene | 353 | 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



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# Report of Analysis



| | | | |
|---|---|---|---|
| **Client Sample ID:** | CEF-P46-SS-311-02 | | |
| **Lab Sample ID:** | F5467-9 | **Date Sampled:** | 12/08/99 |
| **Matrix:** | SO - Soil | **Date Received:** | 12/10/99 |
| **Method:** | SW846 8310 | **Percent Solids:** | 88.9 |
| **Project:** | NAS Cecil Field | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | LC7601.D | 1 | 12/30/99 | AMA | 12/14/99 | M:OP1611 | M:GLC82 |
| 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 | 12.1 | 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 | ND | 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 | ND | 11 | ug/kg | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 84-15-1 | o-Terphenyl | 51% | | 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-P46-SS-DU09 | | |
| **Lab Sample ID:** | F5467-10 | **Date Sampled:** | 12/08/99 |
| **Matrix:** | SO - Soil | **Date Received:** | 12/10/99 |
| **Method:** | SW846 8310 | **Percent Solids:** | 88.6 |
| **Project:** | NAS Cecil Field | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | LC7602.D | 1 | 12/30/99 | AMA | 12/14/99 | M:OP1611 | M:GLC82 |
| Run #2 | | | | | | | |

| CAS No. | Compound | Result | RL | Units | Q |
|---|---|---|---|---|---|
| 83-32-9 | Acenaphthene | ND | 74 | ug/kg | |
| 208-96-8 | Acenaphthylene | 280 | 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 | 12.1 | 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 | ND | 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 | ND | 11 | ug/kg | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 84-15-1 | o-Terphenyl | 69% | | 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-P46-SU-304-03 | | |
| **Lab Sample ID:** | F5467-3 | **Date Sampled:** | 12/08/99 |
| **Matrix:** | SO - Soil | **Date Received:** | 12/10/99 |
| **Method:** | SW846 8310 | **Percent Solids:** | 88.5 |
| **Project:** | NAS Cecil Field | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | LC7594.D | 1 | 12/29/99 | AMA | 12/14/99 | M:OP1611 | M:GLC81 |
| 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 | 12.9 | 11 | ug/kg | |
| 50-32-8 | Benzo (a) pyrene | ND | 11 | ug/kg | |
| 205-99-2 | Benzo (b) fluoranthene | 19.3 | 11 | ug/kg | |
| 191-24-2 | Benzo (g,h,i) perylene | 41.2 | 11 | ug/kg | |
| 207-08-9 | Benzo (k) fluoranthene | ND | 11 | ug/kg | |
| 218-01-9 | Chrysene | 14.4 | 11 | ug/kg | |
| 53-70-3 | Dibenz(a,h)anthracene | ND | 11 | ug/kg | |
| 206-44-0 | Fluoranthene | 30.6 | 11 | ug/kg | |
| 86-73-7 | Fluorene | ND | 74 | ug/kg | |
| 193-39-5 | Indeno (1,2,3-cd) pyrene | 53.1 | 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 | 55.6 | 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

000005

ACCUTEST

# Report of Analysis



| | | | |
|---|---|---|---|
| **Client Sample ID:** | CEF-P46-SU-307-03 | | |
| **Lab Sample ID:** | F5467-4 | **Date Sampled:** | 12/08/99 |
| **Matrix:** | SO - Soil | **Date Received:** | 12/10/99 |
| **Method:** | SW846 8310 | **Percent Solids:** | 92.4 |
| **Project:** | NAS Cecil Field | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | LC7595.D | 1 | 12/29/99 | AMA | 12/14/99 | M:OP1611 | M:GLC81 |
| Run #2 | | | | | | | |

| CAS No. | Compound | Result | RL | Units | Q |
|---|---|---|---|---|---|
| 83-32-9 | Acenaphthene | ND | 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 | 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 | 14.3 | 11 | ug/kg | |
| 53-70-3 | Dibenz(a,h)anthracene | ND | 11 | ug/kg | |
| 206-44-0 | Fluoranthene | ND | 11 | ug/kg | |
| 86-73-7 | Fluorene | ND | 71 | ug/kg | |
| 193-39-5 | Indeno (1,2,3-cd) pyrene | ND | 11 | ug/kg | |
| 90-12-0 | 1-Methylnaphthalene | ND | 71 | ug/kg | |
| 91-57-6 | 2-Methylnaphthalene | ND | 71 | ug/kg | |
| 91-20-3 | Naphthalene | ND | 71 | ug/kg | |
| 85-01-8 | Phenanthrene | ND | 71 | ug/kg | |
| 129-00-0 | Pyrene | ND | 11 | ug/kg | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 84-15-1 | o-Terphenyl | 34% | | 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

000000

ACCUTEST

# Report of Analysis



| | | | |
|---|---|---|---|
| **Client Sample ID:** | CEF-P46-SU-308-03 | | |
| **Lab Sample ID:** | F5467-5 | **Date Sampled:** | 12/08/99 |
| **Matrix:** | SO - Soil | **Date Received:** | 12/10/99 |
| **Method:** | SW846 8310 | **Percent Solids:** | 85.3 |
| **Project:** | NAS Cecil Field | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | LC7596.D | 1 | 12/29/99 | AMA | 12/14/99 | M:OP1611 | M:GLC81 |
| 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 | ND | 12 | ug/kg | |
| 50-32-8 | Benzo (a) pyrene | ND | 12 | ug/kg | |
| 205-99-2 | Benzo (b) fluoranthene | ND | 12 | ug/kg | |
| 191-24-2 | Benzo (g,h,i) perylene | ND | 12 | ug/kg | |
| 207-08-9 | Benzo (k) fluoranthene | ND | 12 | ug/kg | |
| 218-01-9 | Chrysene | ND | 12 | ug/kg | |
| 53-70-3 | Dibenz(a,h)anthracene | ND | 12 | ug/kg | |
| 206-44-0 | Fluoranthene | ND | 12 | ug/kg | |
| 86-73-7 | Fluorene | ND | 78 | ug/kg | |
| 193-39-5 | Indeno (1,2,3-cd) pyrene | ND | 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 | ND | 78 | ug/kg | |
| 129-00-0 | Pyrene | ND | 12 | ug/kg | |

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

000007

ACCUTEST

# Report of Analysis



| | | | |
|---|---|---|---|
| **Client Sample ID:** | CEF-P46-SU-309-03 | | |
| **Lab Sample ID:** | F5467-6 | **Date Sampled:** | 12/08/99 |
| **Matrix:** | SO - Soil | **Date Received:** | 12/10/99 |
| **Method:** | SW846 8310 | **Percent Solids:** | 89.9 |
| **Project:** | NAS Cecil Field | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | LC7597.D | 1 | 12/29/99 | AMA | 12/14/99 | M:OP1611 | M:GLC81 |
| 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 | 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 | 13.9 | 11 | ug/kg | |
| 53-70-3 | Dibenz(a,h)anthracene | ND | 11 | ug/kg | |
| 206-44-0 | Fluoranthene | 11.3 | 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 | ND | 73 | ug/kg | |
| 129-00-0 | Pyrene | ND | 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

000008

Tetra Tech NUS

# INTERNAL CORRESPONDENCE

| | | | |
|---|---|---|---|
| **TO:** | **M. SPERANZA** | **DATE:** | **JANUARY 19, 2000** |
| **FROM:** | **GRETCHEN PHIPPS** | **COPIES:** | **DV FILE** |
| **SUBJECT:** | **ORGANIC DATA VALIDATION –TPH<br>CTO 078 - NAS, CECIL FIELD<br>SDG – F5467** | | |
| **SAMPLES:** | 2/Soils/ | | |
| | CEF-P46-SS-DU09 | CEF-P46-SU-304-03 | |

Overview

The sample set for CTO 078, NAS Cecil Field, SDG F5467, consists of two (2) soil environmental samples.

All samples were analyzed for total petroleum hydrocarbons (TPHs). The samples were collected by Tetra Tech NUS on December 8, 1999 and analyzed by Accutest Laboratory. TPH analyzed 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
* • Detection Limits
* • Surrogate Recoveries

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

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", 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: F5467



| | | | | |
|---|---|---|---|---|
| SAMPLE NUMBER: | CEF-P46-SS-DU09 | CEF-P46-SU-304-03 | | |
| SAMPLE DATE: | 12/08/99 | 12/08/99 | / / | / / |
| LABORATORY ID: | F5467-10 | F5467-3 | | |
| QC_TYPE: | NORMAL | NORMAL | | |
| % SOLIDS: | 88.6 % | 88.5 % | 100.0 % | 100.0 % |
| UNITS: | 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 | | 94 | U | | | | | | | |

**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%

ACCUTEST

# Report of Analysis



| | | | |
|---|---|---|---|
| **Client Sample ID:** | CEF-P46-SU-304-03 | | |
| **Lab Sample ID:** | F5467-3 | **Date Sampled:** | 12/08/99 |
| **Matrix:** | SO - Soil | **Date Received:** | 12/10/99 |
| **Method:** | FLORIDA-PRO | **Percent Solids:** | 88.5 |
| **Project:** | NAS Cecil Field | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | OP06218.D | 1 | 12/21/99 | ME | 12/21/99 | OP1170 | GOP299 |
| 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 | 72% | | 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-P46-SS-DU09 | | |
| **Lab Sample ID:** | F5467-10 | **Date Sampled:** | 12/08/99 |
| **Matrix:** | SO - Soil | **Date Received:** | 12/10/99 |
| **Method:** | FLORIDA-PRO | **Percent Solids:** | 88.6 |
| **Project:** | NAS Cecil Field | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | OP06221.D | 1 | 12/21/99 | ME | 12/21/99 | OP1170 | GOP299 |
| 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 | 74% | | 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

# PHASE V ANALYTICAL RESULTS

**Tetra Tech NUS** **INTERNAL CORRESPONDENCE**

| | | | |
|---|---|---|---|
| **TO:** | **M. SPERANZA** | **DATE:** | **MARCH 1, 2000** |
| **FROM:** | **GRETCHEN PHIPPS** | **COPIES:** | **DV FILE** |
| **SUBJECT:** | **ORGANIC DATA VALIDATION – PAHs**<br>**CTO 078 - NAS, CECIL FIELD**<br>**SDG – F5707** | | |
| **SAMPLES:** | 3/Soils/ | | |
| | CEF-P46-SS-401-01<br>CEF-P46-SS-DU10 | CEF-P46-SS-402-01 | |

Overview

The sample set for CTO 078, NAS Cecil Field, SDG F5707, consists of three (3) soil environmental samples. One (1) field duplicate pair (CEF-P46-SS-402-01 / CEF-P46-SS-DU10) was included within this SDG.

All samples were analyzed for polynuclear aromatic hydrocarbons (PAHs). The samples were collected by Tetra Tech NUS on January 21, 2000 and analyzed by Accutest Laboratory. PAH analyses were conducted using SW 846 method 8310.

The data was evaluated based on the following parameters:

* • Data Completeness
* • Holding Times
* • Calibration Verifications
* • Laboratory Blank Analyses
• Field Duplicate Analyses
* • Detection Limits

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

Field Duplicate Analyses

Field duplicate imprecision (RPD >50%) was noted for the dibenzo(a,h)anthracene and chrysene in field duplicate pair CEF-P46-SS-402-01 / CEF-P46-SS-DU10. The positive and nondetected results reported for dibenzo(a,h)anthracene and chrysene in field duplicate pair P46-SS-402-01 / CEF-P46-SS-DU10 were qualified as estimated, "J" and "UJ", respectively.

Executive Summary

**Laboratory Performance:** None.

**Other Factors Affecting Data Quality:** Field duplicate imprecision was noted for dibenzo(a,h)anthracene and chrysene.

The data for these analyses were reviewed with reference to the "National Functional Guidelines for Organic 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: F5707



| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SAMPLE NUMBER: | CEF-P46-SS-401-01 | | | CEF-P46-SS-402-01 | | | CEF-P46-SS-DU10 | | | | | |
| SAMPLE DATE: | 01/21/00 | | | 01/21/00 | | | 01/21/00 | | | / / | | |
| LABORATORY ID: | F5707-1 | | | F5707-2 | | | F5707-3 | | | | | |
| QC_TYPE: | NORMAL | | | NORMAL | | | NORMAL | | | | | |
| % SOLIDS: | 92.8 % | | | 92.7 % | | | 90.0 % | | | 100.0 % | | |
| UNITS: | UG/KG | | | UG/KG | | | UG/KG | | | | | |
| FIELD DUPLICATE OF: | | | | | | | CEF-P46-402-01 | | | | | |
| | RESULT | QUAL | CODE | RESULT | QUAL | CODE | RESULT | QUAL | CODE | RESULT | QUAL | CODE |
| POLYNUCLEAR AROMATIC HYDROCARBONS | | | | | | | | | | | | |
| 1-METHYLNAPHTHALENE | 71 | U | | 71 | U | | 73 | U | | | | |
| 2-METHYLNAPHTHALENE | 71 | U | | 187 | | | 164 | | | | | |
| ACENAPHTHENE | 71 | U | | 71.9 | | | 84 | | | | | |
| ACENAPHTHYLENE | 71 | U | | 71 | U | | 73 | U | | | | |
| ANTHRACENE | 71 | U | | 71 | U | | 73 | U | | | | |
| BENZO(A)ANTHRACENE | 104 | | | 73.4 | | | 69.9 | | | | | |
| BENZO(A)PYRENE | 93.8 | | | 54.6 | | | 38.4 | | | | | |
| BENZO(B)FLUORANTHENE | 192 | | | 116 | | | 81.4 | | | | | |
| BENZO(G,H,I)PERYLENE | 174 | | | 134 | | | 114 | | | | | |
| BENZO(K)FLUORANTHENE | 82.8 | | | 64.3 | | | 52.5 | | | | | |
| CHRYSENE | 130 | | | 88.7 | J | G | 51.2 | J | G | | | |
| DIBENZO(A,H)ANTHRACENE | 11 | U | | 11 | UJ | G | 15.3 | J | G | | | |
| FLUORANTHENE | 360 | | | 236 | | | 207 | | | | | |
| FLUORENE | 71 | U | | 71 | U | | 73 | U | | | | |
| INDENO(1,2,3-CD)PYRENE | 166 | | | 101 | | | 66 | | | | | |
| NAPHTHALENE | 71 | U | | 71 | U | | 73 | U | | | | |
| PHENANTHRENE | 119 | | | 71 | U | | 73 | U | | | | |
| PYRENE | 257 | | | 123 | | | 87.8 | | | | | |

**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

ACCUTEST

# Report of Analysis



| | | | |
|---|---|---|---|
| **Client Sample ID:** | CEF-P46-SS-401-01 | | |
| **Lab Sample ID:** | F5707-1 | **Date Sampled:** | 01/21/00 |
| **Matrix:** | SO - Soil | **Date Received:** | 01/24/00 |
| **Method:** | SW846 8310 | **Percent Solids:** | 92.8 |
| **Project:** | NAS Cecil Field-PSC 46 PO#N0039-P98655A-01 | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | LC8524.D | 1 | 02/10/00 | AMA | 02/04/00 | M:OP1716 | M:GLC101 |
| Run #2 | | | | | | | |

| CAS No. | Compound | Result | RL | Units | Q |
|---|---|---|---|---|---|
| 83-32-9 | Acenaphthene | ND | 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 | 104 | 11 | ug/kg | |
| 50-32-8 | Benzo (a) pyrene | 93.8 | 11 | ug/kg | |
| 205-99-2 | Benzo (b) fluoranthene | 192 | 11 | ug/kg | |
| 191-24-2 | Benzo (g,h,i) perylene | 174 | 11 | ug/kg | |
| 207-08-9 | Benzo (k) fluoranthene | 82.8 | 11 | ug/kg | |
| 218-01-9 | Chrysene | 130 | 11 | ug/kg | |
| 53-70-3 | Dibenz(a,h)anthracene | ND | 11 | ug/kg | |
| 206-44-0 | Fluoranthene | 360 | 11 | ug/kg | |
| 86-73-7 | Fluorene | ND | 71 | ug/kg | |
| 193-39-5 | Indeno (1,2,3-cd) pyrene | 166 | 11 | ug/kg | |
| 90-12-0 | 1-Methylnaphthalene | ND | 71 | ug/kg | |
| 91-57-6 | 2-Methylnaphthalene | ND | 71 | ug/kg | |
| 91-20-3 | Naphthalene | ND | 71 | ug/kg | |
| 85-01-8 | Phenanthrene | 119 | 71 | ug/kg | |
| 129-00-0 | Pyrene | 257 | 11 | ug/kg | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 84-15-1 | o-Terphenyl | 61% | | 20-130% |

00 01

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-P46-SS-402-01 | | |
| **Lab Sample ID:** | F5707-2 | | |
| **Matrix:** | SO - Soil | **Date Sampled:** | 01/21/00 |
| **Method:** | SW846 8310 | **Date Received:** | 01/24/00 |
| **Project:** | NAS Cecil Field-PSC 46 PO#N0039-P98655A-01 | **Percent Solids:** | 92.7 |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | LC8525.D | 1 | 02/10/00 | AMA | 02/04/00 | M:OP1716 | M:GLC101 |
| Run #2 | | | | | | | |

| CAS No. | Compound | Result | RL | Units | Q |
|---|---|---|---|---|---|
| 83-32-9 | Acenaphthene | 71.9 | 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 | 73.4 | 11 | ug/kg | |
| 50-32-8 | Benzo (a) pyrene | 54.6 | 11 | ug/kg | |
| 205-99-2 | Benzo (b) fluoranthene | 116 | 11 | ug/kg | |
| 191-24-2 | Benzo (g,h,i) perylene | 134 | 11 | ug/kg | |
| 207-08-9 | Benzo (k) fluoranthene | 64.3 | 11 | ug/kg | |
| 218-01-9 | Chrysene | 88.7 | 11 | ug/kg | |
| 53-70-3 | Dibenz(a,h)anthracene | ND | 11 | ug/kg | |
| 206-44-0 | Fluoranthene | 236 | 11 | ug/kg | |
| 86-73-7 | Fluorene | ND | 71 | ug/kg | |
| 193-39-5 | Indeno (1,2,3-cd) pyrene | 101 | 11 | ug/kg | |
| 90-12-0 | 1-Methylnaphthalene | ND | 71 | ug/kg | |
| 91-57-6 | 2-Methylnaphthalene | 187 | 71 | ug/kg | |
| 91-20-3 | Naphthalene | ND | 71 | ug/kg | |
| 85-01-8 | Phenanthrene | ND | 71 | ug/kg | |
| 129-00-0 | Pyrene | 123 | 11 | ug/kg | |

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

00 02

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-P46-SS-DU10 | | |
| **Lab Sample ID:** | F5707-3 | **Date Sampled:** | 01/21/00 |
| **Matrix:** | SO - Soil | **Date Received:** | 01/24/00 |
| **Method:** | SW846 8310 | **Percent Solids:** | 90.0 |
| **Project:** | NAS Cecil Field-PSC 46 PO#N0039-P98655A-01 | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | LC8526.D | 1 | 02/10/00 | AMA | 02/04/00 | M:OP1716 | M:GLC101 |
| Run #2 | | | | | | | |

| CAS No. | Compound | Result | RL | Units | Q |
|---|---|---|---|---|---|
| 83-32-9 | Acenaphthene | 84.0 | 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 | 69.9 | 11 | ug/kg | |
| 50-32-8 | Benzo (a) pyrene | 38.4 | 11 | ug/kg | |
| 205-99-2 | Benzo (b) fluoranthene | 81.4 | 11 | ug/kg | |
| 191-24-2 | Benzo (g,h,i) perylene | 114 | 11 | ug/kg | |
| 207-08-9 | Benzo (k) fluoranthene | 52.5 | 11 | ug/kg | |
| 218-01-9 | Chrysene | 51.2 | 11 | ug/kg | |
| 53-70-3 | Dibenz(a,h)anthracene | 15.3 | 11 | ug/kg | |
| 206-44-0 | Fluoranthene | 207 | 11 | ug/kg | |
| 86-73-7 | Fluorene | ND | 73 | ug/kg | |
| 193-39-5 | Indeno (1,2,3-cd) pyrene | 66.0 | 11 | ug/kg | |
| 90-12-0 | 1-Methylnaphthalene | ND | 73 | ug/kg | |
| 91-57-6 | 2-Methylnaphthalene | 164 | 73 | ug/kg | |
| 91-20-3 | Naphthalene | ND | 73 | ug/kg | |
| 85-01-8 | Phenanthrene | ND | 73 | ug/kg | |
| 129-00-0 | Pyrene | 87.8 | 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

# PHASE VI ANALYTICAL RESULTS

**Tetra Tech NUS** **INTERNAL CORRESPONDENCE**

| | | | |
|---|---|---|---|
| **TO:** | **M. SPERANZA** | **DATE:** | **APRIL 25, 2000** |
| **FROM:** | **GRETCHEN PHIPPS** | **COPIES:** | **DV FILE** |
| **SUBJECT:** | **ORGANIC DATA VALIDATION – PAH<br>CTO 078 - NAS, CECIL FIELD<br>SDG – F6000** | | |
| **SAMPLES:** | 3/Soils/ | | |

CEF-P46-SS-501-01 CEF-P46-SS-502-01
CEF-P46-SS-DU11

Overview

The sample set for CTO 078, NAS Cecil Field, SDG F6000, consists of three (3) soil environmental samples. One (1) field duplicate pair (CEF-P46-SS-501-01 / CEF-P46-SS-DU11) was included within this SDG.

All samples were analyzed for polynuclear aromatic hydrocarbon (PAHs). The samples were collected by Tetra Tech NUS on March 3, 2000 and analyzed by Accutest Laboratory. PAH analyses were conducted using SW 846 method 8310.

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.

Field Duplicate Results

Field duplicate imprecision (>50% RPD) was noted for chrysene. The positive results gretaer than the reporting limit reported for chrysene in the field duplicate pair were qualified as estimated, "J".

Notes

The samples were analyzed at a 5X dilution. Therefore, the reporting limits were elevated.

Executive Summary

**Laboratory Performance:** None.

**Other Factors Affecting Data Quality:** Field duplicate imprecision (>50% RPD) was noted for chrysene.

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

**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: F6000



| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SAMPLE NUMBER: | CEF-P46-SS-501-01 | | | CEF-P46-SS-502-01 | | | CEF-P46-SS-DU11 | | | | | |
| SAMPLE DATE: | 03/03/00 | | | 03/03/00 | | | 03/03/00 | | | / / | | |
| LABORATORY ID: | F6000-1 | | | F6000-2 | | | F6000-3 | | | | | |
| QC_TYPE: | NORMAL | | | NORMAL | | | NORMAL | | | | | |
| % SOLIDS: | 71.9 % | | | 93.2 % | | | 91.9 % | | | 100.0 % | | |
| UNITS: | UG/KG | | | UG/KG | | | UG/KG | | | | | |
| FIELD DUPLICATE OF: | | | | | | | CEF-P46-SS-501-01 | | | | | |
| | RESULT | QUAL | CODE | RESULT | QUAL | CODE | RESULT | QUAL | CODE | RESULT | QUAL | CODE |
| **POLYNUCLEAR AROMATIC HYDROCARBONS** | | | | | | | | | | | | |
| 1-METHYLNAPHTHALENE | 460 | U | | 360 | U | | 360 | U | | | | |
| 2-METHYLNAPHTHALENE | 460 | U | | 360 | U | | 360 | U | | | | |
| ACENAPHTHENE | 460 | U | | 360 | U | | 360 | U | | | | |
| ACENAPHTHYLENE | 920 | U | | 720 | U | | 720 | U | | | | |
| ANTHRACENE | 460 | U | | 360 | U | | 360 | U | | | | |
| BENZO(A)ANTHRACENE | 63.2 | J | P | 43.5 | J | P | 80 | | | | | |
| BENZO(A)PYRENE | 175 | | | 169 | | | 256 | | | | | |
| BENZO(B)FLUORANTHENE | 88 | J | P | 87 | | | 137 | | | | | |
| BENZO(G,H,I)PERYLENE | 145 | | | 186 | | | 195 | | | | | |
| BENZO(K)FLUORANTHENE | 52.5 | J | P | 54.7 | J | P | 85.9 | | | | | |
| CHRYSENE | 47 | J | P | 43.1 | J | P | 80.1 | | | | | |
| DIBENZO(A,H)ANTHRACENE | 92 | U | | 72 | U | | 72 | U | | | | |
| FLUORANTHENE | 460 | U | | 360 | U | | 360 | U | | | | |
| FLUORENE | 460 | U | | 360 | U | | 360 | U | | | | |
| INDENO(1,2,3-CD)PYRENE | 127 | | | 147 | | | 191 | | | | | |
| NAPHTHALENE | 460 | U | | 360 | U | | 360 | U | | | | |
| PHENANTHRENE | 460 | U | | 360 | U | | 360 | U | | | | |
| PYRENE | 460 | U | | 360 | U | | 360 | U | | | | |

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# Report of Analysis



| | | | |
|---|---|---|---|
| **Client Sample ID:** | CEF-P46-SS-501-01 | | |
| **Lab Sample ID:** | F6000-1 | **Date Sampled:** | 03/03/00 |
| **Matrix:** | SO - Soil | **Date Received:** | 03/04/00 |
| **Method:** | EPA 8310 | **Percent Solids:** | 71.9 |
| **Project:** | NAS Cecil Field-PSC 46 | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | AA000412.D | 5 | 03/11/00 | CCJ | 03/09/00 | OP1361 | GAA21 |
| Run #2 | | | | | | | |

| CAS No. | Compound | Result | RL | Units | Q |
|---|---|---|---|---|---|
| 83-32-9 | Acenaphthene | ND | 460 | ug/kg | |
| 208-96-8 | Acenaphthylene | ND | 920 | ug/kg | |
| 120-12-7 | Anthracene | ND | 460 | ug/kg | |
| 56-55-3 | Benzo(a)anthracene | 63.2 | 92 | ug/kg | J |
| 50-32-8 | Benzo(a)pyrene | 175 | 92 | ug/kg | |
| 205-99-2 | Benzo(b)fluoranthene | 88.0 | 92 | ug/kg | J |
| 191-24-2 | Benzo(g,h,i)perylene | 145 | 92 | ug/kg | |
| 207-08-9 | Benzo(k)fluoranthene | 52.5 | 92 | ug/kg | J |
| 218-01-9 | Chrysene | 47.0 | 92 | ug/kg | J |
| 53-70-3 | Dibenzo(a,h)anthracene | ND | 92 | ug/kg | |
| 206-44-0 | Fluoranthene | ND | 460 | ug/kg | |
| 86-73-7 | Fluorene | ND | 460 | ug/kg | |
| 193-39-5 | Indeno(1,2,3-cd)pyrene | 127 | 92 | ug/kg | |
| 91-20-3 | Naphthalene | ND | 460 | ug/kg | |
| 90-12-0 | 1-Methylnaphthalene | ND | 460 | ug/kg | |
| 91-57-6 | 2-Methylnaphthalene | ND | 460 | ug/kg | |
| 85-01-8 | Phenanthrene | ND | 460 | ug/kg | |
| 129-00-0 | Pyrene | ND | 460 | ug/kg | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 84-15-1 | o-Terphenyl | 76% | | 35-135% |
| 92-94-4 | p-Terphenyl | 78% | | 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



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# Report of Analysis



| | | | |
|---|---|---|---|
| **Client Sample ID:** | CEF-P46-SS-502-01 | | |
| **Lab Sample ID:** | F6000-2 | **Date Sampled:** | 03/03/00 |
| **Matrix:** | SO - Soil | **Date Received:** | 03/04/00 |
| **Method:** | EPA 8310 | **Percent Solids:** | 93.2 |
| **Project:** | NAS Cecil Field-PSC 46 | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | AA000413.D | 5 | 03/11/00 | CCJ | 03/09/00 | OP1361 | GAA21 |
| 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 | 43.5 | 72 | ug/kg | J |
| 50-32-8 | Benzo(a)pyrene | 169 | 72 | ug/kg | |
| 205-99-2 | Benzo(b)fluoranthene | 87.0 | 72 | ug/kg | |
| 191-24-2 | Benzo(g,h,i)perylene | 186 | 72 | ug/kg | |
| 207-08-9 | Benzo(k)fluoranthene | 54.7 | 72 | ug/kg | J |
| 218-01-9 | Chrysene | 43.1 | 72 | ug/kg | J |
| 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 | 147 | 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% | | 35-135% |
| 92-94-4 | p-Terphenyl | 81% | | 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



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# Report of Analysis



| | | | |
|---|---|---|---|
| **Client Sample ID:** | CEF-P46-SS-DU11 | | |
| **Lab Sample ID:** | F6000-3 | **Date Sampled:** | 03/03/00 |
| **Matrix:** | SO - Soil | **Date Received:** | 03/04/00 |
| **Method:** | EPA 8310 | **Percent Solids:** | 91.9 |
| **Project:** | NAS Cecil Field-PSC 46 | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | AA000414.D | 5 | 03/11/00 | CCJ | 03/09/00 | OP1361 | GAA21 |
| 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 | 80.0 | 72 | ug/kg | |
| 50-32-8 | Benzo(a)pyrene | 256 | 72 | ug/kg | |
| 205-99-2 | Benzo(b)fluoranthene | 137 | 72 | ug/kg | |
| 191-24-2 | Benzo(g,h,i)perylene | 195 | 72 | ug/kg | |
| 207-08-9 | Benzo(k)fluoranthene | 85.9 | 72 | ug/kg | |
| 218-01-9 | Chrysene | 80.1 | 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 | 191 | 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 | 77% | | 35-135% |
| 92-94-4 | p-Terphenyl | 80% | | 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



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