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SAMPLING AND ANALYSIS REPORT FOR BUILDING 635 RAILROAD LOADING DOCK NAS CECIL FIELD FL

7/1/2004

TETRA TECH NUS INC

Sampling and Analysis Report
for
Building 635
Railroad Loading Dock

Naval Air Station Cecil Field
Jacksonville, Florida

Southern Division
Naval Facilities Engineering Command
Contract Number N62467-94-D-0888

Contract Task Order 0078

July 2004

060301/P

SAMPLING AND ANALYSIS REPORT
FOR
BUILDING 635
RAILROAD LOADING DOCK

NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

COMPREHENSIVE LONG-TERM
ENVIRONMENTAL ACTION NAVY (CLEAN) CONTRACT

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

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

JULY 2004

PREPARED UNDER THE SUPERVISION OF:

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The professional opinions rendered in this decision document identified as Sampling and Analysis Report for Building 635, Railroad Loading Dock, 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 the project described in this report.

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

Date: 7/1/04

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: July 1, 2004

COMPANY CERTIFICATION AUTHORIZATION NUMBER: 7988
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Pittsburgh, PA 15220

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ACRONYMS

ABB-ES	ABB-Environmental Services
ASCTL	Alternative soil cleanup target level
BaP	benzo(a)pyrene
BaPEq	BaP equivalents
BCT	BRAC Cleanup Team
bgs	below ground surface
BRAC	Base Realignment and Closure
CCI	CH2MHill Constructors, Inc.
CH2MHill	CH2MHill Constructors, Inc.
CLEAN	Comprehensive Long-Term Environmental Action Navy
COPC	Chemical of Potential Concern
cPAH	Carcinogenic polynuclear aromatic hydrocarbons
CTO	Contract Task Order
EBS	Environmental Baseline Survey
EISOPQAM	Environmental Investigations Standard Operating Procedures and Quality Assurance Manual
FAC	Florida Administrative Code
FDEP	Florida Department of Environmental Protection
FL-PRO	Florida Petroleum Residual Organics
GCTL	Groundwater cleanup target level
HDPE	High-density polyethylene
IBDS	Inorganic Background Data Set
JEDC	Jacksonville Economic Development Commission
MHSP&E	Ministry of Housing, Spatial Planning and Environment
mg/kg	milligram per kilogram
µg/kg	microgram per kilogram
NAS	Naval Air Station
NPW	Net present worth
PAH	Polynuclear aromatic hydrocarbon
PRE	Preliminary Risk Evaluation
PRG	Preliminary remediation goal
PVC	Polyvinyl chloride
RAC	Remedial Action Contractor
RAO	Remedial action objective
SAR	Sampling and Analysis Report

SCTL	Soil cleanup target level
SOUTHNAVFACENGCOM	Southern Division, Naval Facilities Engineering Command
TAL	Target Analyte List
TEF	Toxicity equivalent factor
TRPH	Total recoverable petroleum hydrocarbons
TtNUS	Tetra Tech NUS, Inc.
U.S. EPA	United States Environmental Protection Agency
UCL	Upper confidence limit
YWWA	Yellow Water Weapons Area

1.0 INTRODUCTION

Tetra Tech NUS, Inc. (TtNUS), under contract to Southern Division, Naval Facilities Engineering Command (SOUTHNAVFACENGCOM), has completed the Base Realignment and Closure (BRAC) Sampling and Analysis Investigation for the Building 635 Railroad Loading Dock at Naval Air Station (NAS) Cecil Field in Jacksonville, Florida. This investigation was conducted under the Comprehensive Long-Term Environmental Action Navy (CLEAN) Program, Contract Number N62467-94-D-0888, Contract Task Order (CTO) 0078. This Sampling and Analysis Report (SAR) summarizes the related operations, results, conclusions, and recommendations of the field investigation.

The Navy operated approximately 18 miles of railroad tracks at NAS Cecil Field, including spurs and sidings, from the 1940s to 1983. The railroad cars distributed supplies and materials throughout the Facility. When the system was closed in 1984, the railroad ties and tracks were removed. In developed areas of the Base, some former railroad bed areas were reworked during subsequent construction activities. Areas of the former railroad beds are visible as low-mounded features in some undeveloped areas but may be overgrown and difficult to distinguish in other undeveloped areas.

In general, railroad tracks may have elevated concentrations of certain contaminants as a result of routine operational activities. These contaminants include polynuclear aromatic hydrocarbons (PAHs), total recoverable petroleum hydrocarbons (TRPH), and metals from the fossil fuels used to power the engines and from ballast materials and ties used along the tracks. These elevated concentrations of contaminants do not constitute a release because they are a result of normal operating practices of the railroad. However, at certain areas along the tracks, there is a potential contamination could be more likely as a result of activities conducted there. These areas include loading docks where materials were on- and off-loaded from railroad cars and areas where cars were fueled, maintained, and parked. Four of these areas were identified at NAS Cecil Field, a loading dock in Yellow Water Weapons Area (Building 635), the Aviation Ordnance (AVORD) loading dock (Building 535), the locomotive fueling, maintenance, and parking area (Building 98), and the area where fuels were off-loaded from rails cars to the South Fuel Farm (SFF) (Former Fuel Depot). These areas of the former railroad bed were recommended for biased soil sampling and analysis to investigate potential releases. Sampling was generally limited to the areas at which loading and/or maintenance activities were conducted.

Building 635, Railroad Loading Dock, is located in the Yellow Water Weapons Area (YWWA) portion of NAS Cecil Field approximately 3,000 feet northeast of the former YWWA magazines, as shown on Figure 1-1. The loading dock is constructed of concrete and is 300 feet long and 20 feet wide. The loading dock is located just west of the former location of an approximately 3,100-foot long railroad siding that ran parallel to an approximately 300 feet west of the mainline. The loading dock is located approximately 2,100 feet south

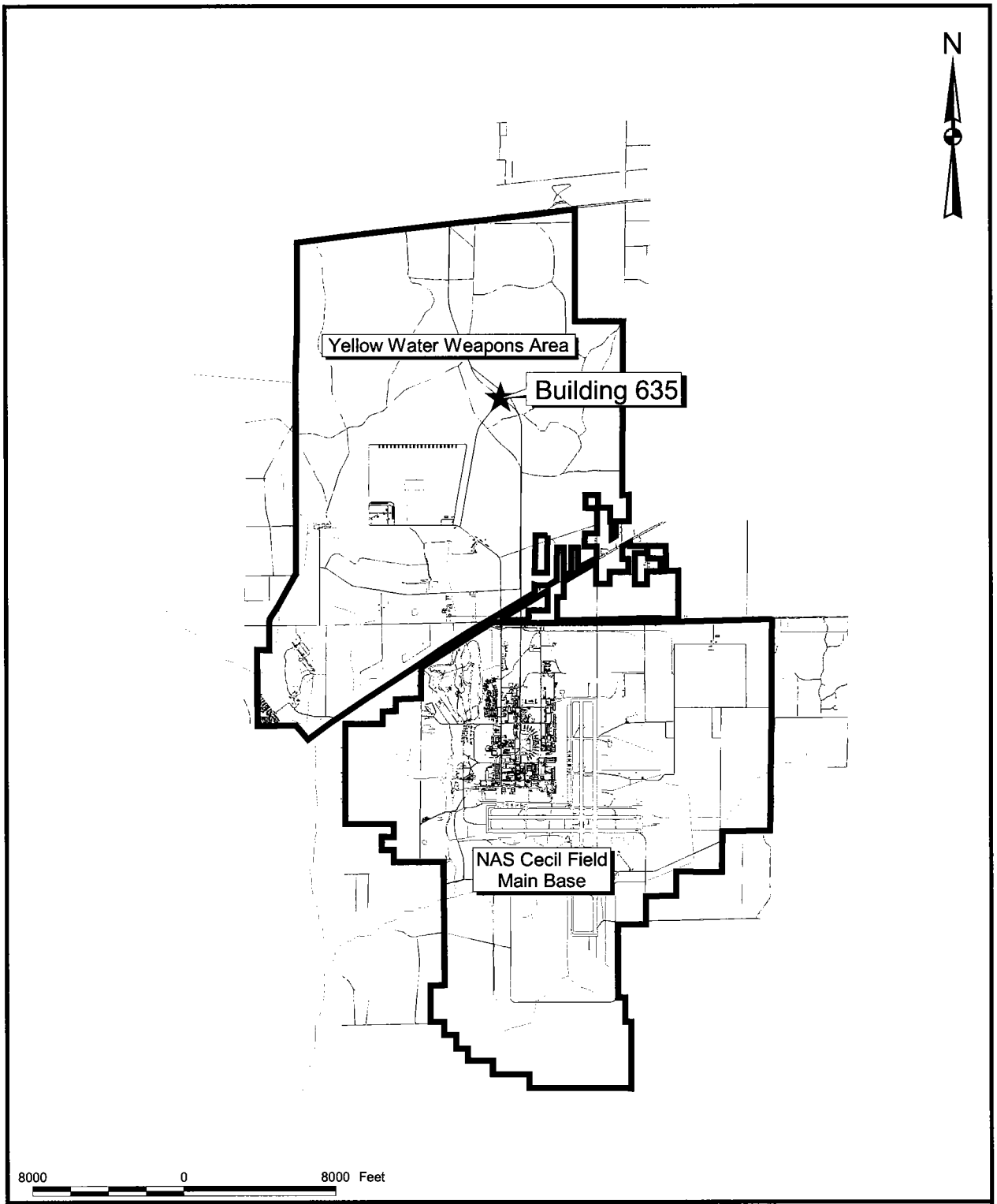
of the northern switch and approximately 1,000 north of the southern switch. The access road to Building 635 (also known as Rail Head Road) is about 7,000 feet long and branches off the old Main Road near the entrance to the magazine area. The ground surface on the northeast side of the railroad bed is low-lying and poorly drained. This results in standing water, saturated soil, and/or a high water table in the ground next to the railroad bed, particularly in an area to the southeast of the loading dock. Forest fires have also occurred nearby during drought in recent years.

The City of Jacksonville reuse plan calls for the Building 635 railroad siding area to be maintained as a wetland. The reuse plan also includes a utility corridor in the northern portion of YWWA that crosses the railroad siding about 1,300 feet west of Building 635 (See Figure 1-2).

An investigation was conducted to verify the presence of soil contamination and to delineate the extent of contamination in the surface soil, subsurface soil, and groundwater. A dig and haul package (excavation plan) was prepared by TtNUS based on the results of the field investigations (TtNUS, 2002a). The contaminated soil was excavated by the Remedial Action Contractor (RAC), CH2MHill Constructors, Inc. (CH2MHill), in accordance with the dig and haul package. Soil contamination was removed to achieve industrial land use.

In the 1994 Environmental Baseline Survey (EBS), Building 635 was classified as White/Uncontaminated indicating that no release or disposal of hazardous substances or petroleum products had occurred at the sire. Based on this classification, no sampling was proposed or performed at the site (ABB-ES, 1994). An adjacent building, Building 637, was also designated as White, and no sampling related to this building was conducted (ABB-ES, 1995). No sampling was performed in the area of Building 635 or the railroad bed as part of the YWWA investigations (HLA, 1999).

This SAR summarizes the related field operations, results, conclusions, and recommendations of the investigation conducted by TtNUS from June 2000 through September 2002 and the activities related to the removal action as described in the Source Removal Report for Excavation of PAHs and TRPH Contaminated Soil at Former Railroad Bed - Building 635 Loading Dock Area (CH2MHill, 2003). The results of the investigation and the subsequent removal action indicate that, with the exception of land use controls, no additional remedial action is needed at this site.



DRAWN BY MJJ	DATE 18Dec02	GENERAL LOCATION MAP BUILDING 635 RAILROAD LOADING DOCK SAMPLING AND ANALYSIS REPORT NAVAL AIR STATION CECIL FIELD JACKSONVILLE, FLORIDA	CONTRACT NUMBER 0039
CHECKED BY	DATE		APPROVED BY	DATE 6/29/04
COST/SCHEDULE-AREA			APPROVED BY	DATE
SCALE AS NOTED			DRAWING NO. FIGURE 1-1	REV 0

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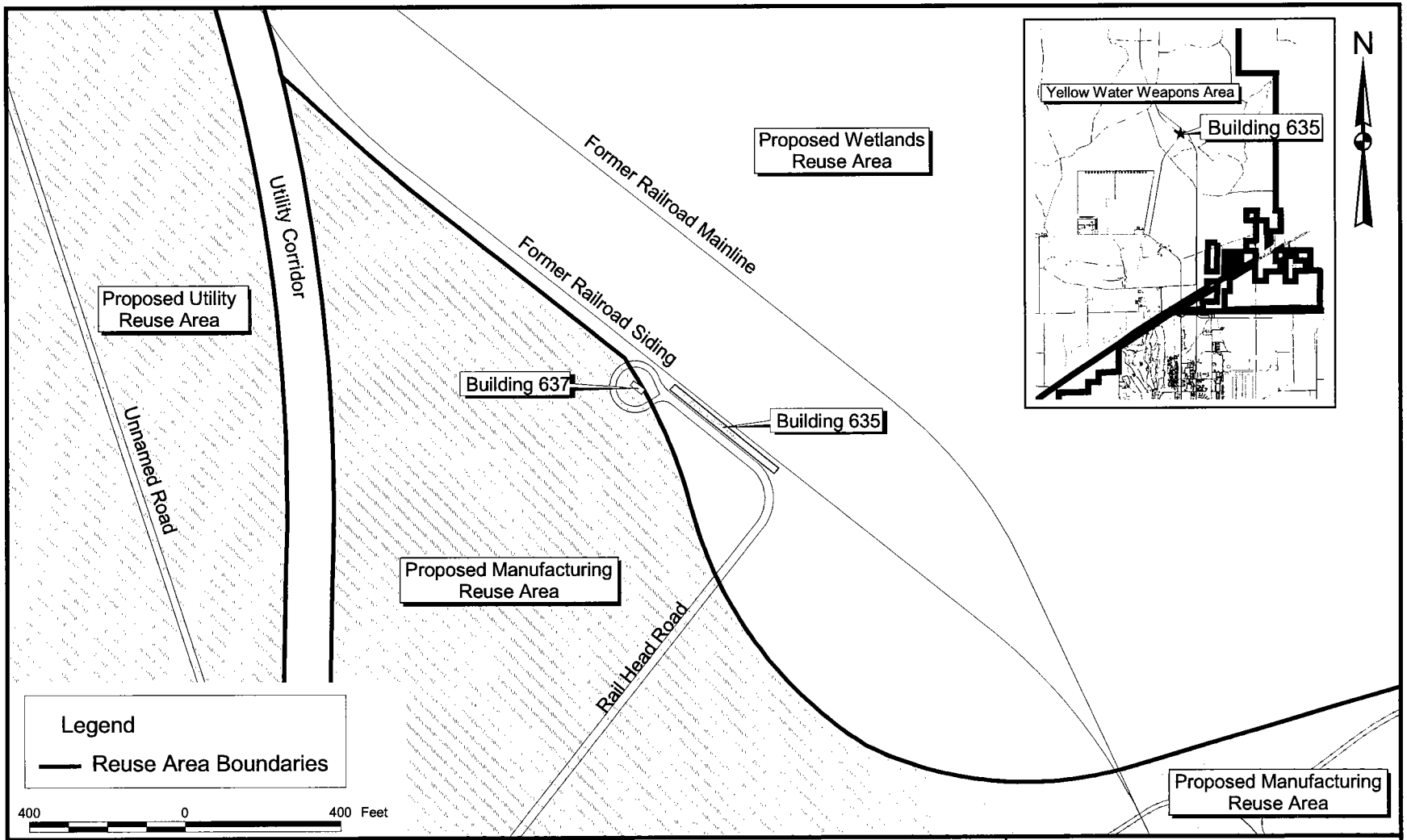

DRAWN BY MJJ	DATE 18Dec02	SITE PLAN BUILDING 635 RAILROAD LOADING DOCK SAMPLING AND ANALYSIS REPORT NAVAL AIR STATION CECIL FIELD JACKSONVILLE, FLORIDA	CONTRACT NUMBER 0039
CHECKED BY	DATE		APPROVED BY DATE 6/20/04
COST/SCHEDULE-AREA			APPROVED BY DATE
SCALE AS NOTED			DRAWING NO. FIGURE 1-2 / REV 0

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2.0 FIELD INVESTIGATIONS

The field investigation at Building 635 was conducted in 10 phases between June 2000 and August 2001. Table 2-1 is a summary of samples collected and analyses conducted during the 10 phases of the investigation. The last two digits of each sample identification number represent the depth bgs of the bottom of the 1-foot interval sampled. For example, sample CEF-635-SU-806-03 was collected from 2 to 3 feet bgs.

The initial phase of the investigation was conducted on June 15, 2000 to assess potential soil contamination in the vicinity of the former railroad bed site. The initial sampling event included the collection and analysis of five surface soil samples (CEF-635-SS-001-01 and CEF-635-SS-005-01) collected at a depth of 0 to 1 foot below ground surface (bgs) along the railroad bed in front of and slightly beyond the ends of Building 635. The soil samples were analyzed for PAHs, TAL metals, pesticides, and TRPH (TtNUS, 2000a).

Phase II of the field investigation was conducted on August 9, 2000 to delineate PAH and TRPH contamination detected during the initial phase of the investigation. Three surface soil samples (CEF-635-SS-101-01, CEF-635-SS-102-01, and CEF-635-SS-103-01) were collected at the edges and along the centerline of the railroad bed at a distance of 75 feet northwest of previous sample location CEF-635-SS-001-01 to determine the horizontal extent of contamination. Three surface soil samples (CEF-635-SS-104-01, CEF-635-SS-105-01, and CEF-635-SS-106-01) were collected at the edges and the centerline of the railroad bed at a distance of 25 feet northwest of previous sample location CEF-635-SS-001-01 to determine the horizontal extent of contamination. Sample CEF-635-SS-107-02 was collected at the CEF-635-SS-001-01 location to determine the vertical extent of PAH and TRPH contamination. Sample CEF-635-SS-108-01 was collected at the railroad bed edge opposite CEF-635-SS-001-01 to determine the horizontal extent of PAH and TRPH contamination. Sample CEF-635-SS-109-02 was collected at the CEF-635-SS-002-01 location to determine the vertical extent of PAH contamination. Samples CEF-635-SS-110-01 and CEF-635-SS-111-01 were collected at the edges of the railroad bed on either side of previous sample location CEF-635-SS-002-01 to determine the horizontal extent of contamination. Sample CEF-635-SS-112-02 was collected at the CEF-635-SS-003-01 location to determine the vertical extent of PAH contamination. Samples CEF-635-SS-113-01 and CEF-635-SS-114-01 were collected at the edges of the railroad bed on either side of previous sample location CEF-635-SS-003-01 to determine the horizontal extent of contamination. Sample CEF-635-SS-115-02 was collected at the CEF-635-SS-004-01 location to determine the vertical extent of PAH contamination. Samples CEF-635-SS-116-01 and CEF-635-SS-117-01 were collected at the edges of the railroad bed on either side of previous sample location CEF-635-SS-004-01 to determine the horizontal extent of contamination.

Three surface soil samples (CEF-635-SS-120-01, CEF-635-SS-121-01, and CEF-635-SS-122-01) were collected at the edges and the centerline of the railroad bed at a distance of 25 feet southeast of previous sample location CEF-635-SS-005-01 to determine the horizontal extent of contamination. Three surface soil samples (CEF-635-SS-123-01, CEF-635-SS-124-01, and CEF-635-SS-125-01) were collected at the edges and along the centerline of the railroad bed at a distance of 75 feet southeast of previous sample location CEF-635-SS-005-01 to determine the horizontal extent of contamination. Sample CEF-635-SS-118-02 was collected at the CEF-635-SS-005-01 location to determine the vertical extent of PAH contamination. Sample CEF-635-SS-119-01 was collected at the railroad bed edge opposite CEF-635-SS-005-01 to determine the horizontal extent of PAH and TRPH contamination. Three samples (CEF-635-SS-126-01, CEF-635-SS-127-01, and CEF-635-SS-128-01) were collected off of the railroad bed in the areas affected by previous forest fires, about 150 feet to the northeast of Building 635 to investigate whether the fires were a significant source of PAHs. Based on contaminants detected during the first phase of the field investigation, Phase II samples were analyzed for PAHs or PAHs and TRPH (TtNUS, 2000b).

The Phase III field investigation was conducted on September 18, 2000 to delineate the horizontal extent of PAH contamination. Samples CEF-635-SS-201-01, CEF-635-SS-202-01, and CEF-635-SS-203-01 were collected along the centerline at 30, 60, and 90 feet, respectively, northwest of sample CEF-635-101-01. Samples CEF-635-SS-204-01 and CEF-635-SS-205-01 were collected 30 feet from the edge of the railroad bed at the northwest end of the siding, to the northeast of CEF-635-SS-101-01 through CEF 635-SS-106-01. Samples CEF-635-SS-206-01 and CEF-635-SS-207-01 were collected 30 feet from the edge of the railroad bed at the northwest end of the siding, to the southwest of CEF-635-SS-101-01 through CEF-635-SS-106-01. CEF-635-SS-208-01 was collected 30 feet northeast of CEF-635-SS-110-01, and CEF-635-SS-211-01 was collected 30 feet southwest of CEF-635-SS-111-01. Samples CEF-635-SU-209-03 and CEF-635-SU-210-04 were collected at CEF-635-SS-109-02 to delineate vertical contamination. Sample CEF-635-SS-227-01 was collected midway between CEF-635-SS-205-01 and CEF-635-SS-208-01.

Sample CEF-635-SS-212-01 was collected midway between the CEF-635-SS-002-01 and CEF-635-SS-003-01 locations. CEF-635-SS-213-01 was collected 30 feet northeast of CEF-635-SS-113-01. Sample CEF-635-SU-214-03 and CEF-635-SU-215-04 were collected at CEF-635-SS-003-01 to delineate vertical contamination. Sample CEF-635-SS-216-01 was collected midway between CEF-635-SS-003-01 and CEF-635-SS-004-01. Sample CEF-635-SU-217-03 and CEF-635-SU-218-04 were collected at CEF-635-SS-004-01 to delineate vertical contamination. CEF-635-SS-219-01 was collected at about 50 feet southeast of CEF-635-SS-004-01.

CEF-635-SS-223-01, CEF-635-SS-224-01, and CEF-635-SS-225-01 were collected along the centerline at 30, 60, and 90 feet, respectively, southeast of sample CEF-635-123-01. CEF-635-SS-220-01 was collected 30 feet from the edge of the railroad bed at the southeast end of the siding to the northeast of CEF-635-SS-119-01 through CEF-635-SS-124-01. CEF-635-SS-221-01, CEF-635-SS-222-01, and CEF-635-SS-226-01 were collected 30 feet from the edge of the railroad bed at the southeast end of the siding to the southwest of CEF-635-SS-119-01 through CEF-635-SS-124-01. Standing water prevented collection of CEF-635-SS-220-01, CEF-635-SS-221-01, CEF-635-SS-222-01, and CEF-635-SS-226-01 further from the edge of the railroad bed (TtNUS, 2000c).

Phase IV of the investigation was conducted on September 28 and 29, 2000 to further delineate contamination along the railroad bed and to characterize contamination in the areas affected by forest fires at large distances northeast and southwest Building 635. Samples CEF-635-SS-301-01 through CEF-635-SS-305-01 were collected in the areas affected by forest fires. CEF-635-SS-301-01 was collected about 1,000 feet southwest of Building 635. Samples CEF-635-SS-302-01 through CEF-635-SS-305-01 were collected about 2,000 to 4,000 feet to the north and east of Building 635.

CEF-635-SS-306-01 was collected along the centerline of the railroad bed about 30 feet northwest of CEF-635-SS-201-01. CEF-635-SS-308-01 was collected along the centerline of the railroad bed about 30 feet southeast of CEF-635-SS-225-01. CEF-635-SU-309-05 was collected at CEF-635-SS-002-01 to delineate vertical contamination. CEF-635-SS-307-01 was proposed for collection at a location about 15 feet northeast of CEF-635-SS-220-01, but was not collected because of the presence of standing water at the time of the Phase IV field effort. This sample was later collected in Phase V when no standing water was present (TtNUS, 2000d).

Phase V was conducted on November 15, 2000 to further delineate horizontal PAH contamination. CEF-635-SS-401-01 was collected along the centerline of the railroad bed about 30 feet southeast of CEF-635-SS-308-01. CEF-635-SS-402-01 was collected 30 feet southwest of CEF-635-SS-308-01, and CEF-635-SS-404-01 was collected 30 feet southwest of CEF-635-SS-224-01. CEF-635-SS-403-01 was collected at the edge of the railroad bed opposite CEF-635-SS-308-01, and CEF-635-SS-405-01 was collected at the edge of the railroad bed northeast of CEF-635-SS-224-01. As noted above, CEF-635-SS-307-01 was collected about 15 feet northeast of CEF-635-SS-220-01. CEF-635-SS-406-01 was to be collected about 30 feet southwest of CEF-635-SS-226-01, but was not collected because of the presence of standing water.

CEF-635-SS-407-01 was collected about 50 feet northeast of CEF-635-SS-212-01. CEF-635-SS-408-01 was collected about 30 feet southwest of CEF-635-SS-202-01. CEF-635-SS-409-01 was collected about

30 feet northeast of CEF-635-SS-201-01. CEF-635-SS-410-01 was collected along the centerline of the railroad bed about 30 feet northwest of CEF-635-SS-306-01 (TtNUS, 2000e).

Phase VI was conducted on January 31, 2001 to further delineate horizontal PAH contamination. CEF-635-SS-501-01 was collected along the centerline of the railroad bed about 30 feet northwest of CEF-635-SS-410-01. CEF-635-SS-502-01 was collected along the centerline of the railroad bed about 30 feet southeast of CEF-635-SS-401-01. CEF-635-SU-503-05 was collected at the CEF-635-SS-111-01 location to delineate vertical contamination. CEF-635-SS-504-02 and CEF-635-SU-505-03 were collected at the CEF-635-SS-125-01 location to delineate vertical contamination. CEF-635-SS-506-02 and CEF-635-SU-507-03 were collected at the CEF-635-SS-110-01 location to delineate vertical contamination. CEF-635-SS-109-02 was re-collected and analyzed for TRPH during the Phase VI field effort because the analysis was not performed in Phase II (TtNUS, 2001a).

Phase VII was conducted on March 8, 2001 to delineate PAH contamination. CEF-635-SS-601-01 was collected along the centerline of the railroad bed about 100 feet northwest of CEF-635-SS-501-01. CEF-635-SS-602-01 was collected along the centerline of the railroad bed about 100 feet southeast of CEF-635-SS-502-01. CEF-635-SS-603-01 was collected about 15 feet northeast of CEF-635-SS-307-01 (TtNUS, 2001b).

Phase VIII was conducted on May 3, 2001 to determine the extent of PAH contamination along the railroad siding as far as the physical limits of the site (see Section 3.0). Samples CEF-635-SS-701-01, CEF-635-SS-702-01, CEF-635-SS-703-01, and CEF-635-SS-704-01 were collected along the centerline of the railroad bed at the northwestern end of the siding to the boundary of the proposed utility corridor. CEF-635-SS-701-01 was 100 feet northwest of CEF-635-SS-601-01, and the other samples were collected at intervals of 250 feet. Samples CEF-635-SS-705-01, CEF-635-SS-706-01, and CEF-635-SS-707-01 were collected along the centerline of the railroad bed at the southeastern end of the siding to the connection with the former mainline. CEF-635-SS-705-01 was 100 feet southeast of CEF-635-SS-602-01, and the other samples were collected at intervals of 240 feet. CEF-636-SS-708-01 was collected about 5 feet northeast of CEF-635-SS-603-01 (TtNUS, 2001c).

Phase IX was conducted on August 21, 2001 to further delineate the horizontal and vertical extent of PAH and TRPH contamination identified during previous sampling events. During this phase, a series of samples were also collected at deeper 1-foot intervals to delineate vertical contamination. The samples were analyzed successively starting with the shallowest sample. If contaminants were detected at concentrations greater Florida Department of Environmental Protection (FDEP) criteria, then the next deepest sample was analyzed. In several cases, the contaminant concentrations in the shallower samples were less than the criteria, so the deeper samples were not analyzed. Also during this phase,

several samples were to be collected at a distance from the railroad bed, but standing water did not permit the collection of these samples.

CEF-635-SS-801-02 was collected at CEF-635-SS-704-01 to delineate vertical contamination. CEF-635-SS-803-01 was collected 10 feet southwest from the edge of the railroad bed midway between CEF-635-SS-703-01 and CEF-635-SS-704-01. CEF-635-SS-804-01 was collected 10 feet northeast from the edge of the railroad bed midway between CEF-635-SS-702-01 and CEF-635-SS-703-01. CEF-635-SS-805-02 and CEF-635-SU-806-03 were collected at the CEF-635-SS-702-01 location to delineate vertical contamination. CEF-635-SS-807-01 was collected 10 feet to the southwest of the edge of the railroad bed midway between CEF-635-SS-701-01 and CEF-635-SS-702-01. CEF-635-SS-808-01 was collected 10 feet to the northeast of the edge of the railroad bed midway between CEF-635-SS-501-01 and CEF-635-SS-701-01. CEF-635-SS-809-02 was collected at the CEF-635-SS-501-01 location to delineate vertical contamination. CEF-635-SS-811-01 was collected midway between CEF-635-SS-108-01 and CEF-635-SS-111-01. CEF-635-SU-812-03 and CEF-635-SU-813-04 were collected at the CEF-635-SS-002-01 location to delineate vertical contamination. CEF-635-SU-814-02 was collected at the CEF-635-SS-111-01 location to delineate vertical contamination.

CEF-635-SS-818-02 was collected 10 feet southeast of CEF-635-SS-002-01 to delineate vertical contamination. CEF-635-SS-822-02 was collected at the CEF-635-SS-502-01 location to delineate vertical contamination. CEF-635-SS-823-01 was collected 10 feet to the northeast of the edge of the railroad bed midway between CEF-635-SS-602-01 and CEF-635-SS-705-01. CEF-635-SS-824-02 was collected at the CEF-635-SS-705-01 location to delineate vertical contamination. CEF-635-SS-826-01 was collected 10 feet to the southwest of the edge of the railroad bed midway between CEF-635-SS-705-01 and CEF-635-SS-706-01. CEF-635-SS-829-02 was collected at the CEF-635-SS-707-01 location to delineate vertical contamination. CEF-635-SS-831-01 was collected 120 feet northwest CEF-635-SS-603-01 (TtNUS, 2001d).

The following samples were not collected because of the standing water: CEF-635-SS-827-01 was planned 10 feet northeast of the edge of the railroad bed midway between CEF-635-SS-705-01 and CEF-635-SS-706-01. CEF-635-SS-828-01 was planned 10 feet southwest of the edge of the railroad bed midway between CEF-635-SS-706-01 and CEF-635-SS-707-01. CEF-635-SS-832-01 was planned 50-feet northeast CEF-635-SS-831-01. CEF-635-SS-833-02 and CEF-635-SU-834-03 were planned at the CEF-635-SS-603-01 location to delineate vertical contamination. CEF-635-SS-835-01 was planned 50 feet northeast CEF-635-SS-603-01. CEF-635-SS-836-01 was planned 75 feet southeast CEF-635-SS-603-01. CEF-635-SS-837-01 was planned 50 feet northeast CEF-635-SS-836-01. CEF-635-SS-838-01 was planned 50 feet northeast CEF-635-SS-837-01.

Phase X investigation was completed after the contaminated soil was removed. This phase included the installation of a shallow monitoring well and the collection of a groundwater sample because PAHs and TRPH had been detected in soil samples at concentrations greater than FDEP leachability to groundwater SCTLs. The well was installed near the locations of soil samples with some of the highest detected PAH and TRPH concentrations (CEF-635-SS-002-01 and CEF-635-SS-111-01). Monitoring well CEF-635-01S was installed August 22, 2002 and was screened from approximately 2 to 12 feet bgs with 10-foot-long 0.010-inch slotted screen. Well construction materials consisted of 2-inch inside diameter, flush-threaded, polyvinyl chloride (PVC) screen and riser. The monitoring well boring and construction logs are included in Appendix A. The well was sampled (CEF-635-GW-01S-01) on September 5, 2002 and analyzed for PAHs and TRPH (TtNUS, 2002b).

For all phases, surface soil and subsurface samples were collected as grab samples using plastic, disposable trowels. A hand auger was used to collect deep subsurface soil samples. The groundwater sample was collected using low-flow sampling techniques. Sampling activities were performed in accordance with the procedures described in the United States Environmental Protection Agency (U.S. EPA) Region IV Environmental Investigations Standard Operating Procedures and Quality Assurance Manual (EISOPQAM) (U.S. EPA, 1996) and the NAS Cecil Field Base-Wide Generic Work Plan (TtNUS, 1998). As agreed by the BRAC Cleanup Team (BCT), no rinsate or trip blanks were collected. In addition, field blanks were not collected because the sampling equipment was disposable.

Soil samples were analyzed for PAHs using U.S. EPA Method SW-846 8310, for pesticides using U.S. EPA Method SW-846 8081A, for TAL metals using U.S. EPA Method SW-846 6010B, and for TRPH using the Florida Petroleum Residual Organics (FL-PRO) method. Groundwater samples were analyzed for PAHs using U.S. EPA Method SW-846 8310 and for TRPH using the FL-PRO method. ACCUTEST Southeast in Orlando, Florida performed the analyses. A site plan showing sample locations from the 10 phases of sampling is presented on Figure 2-1.

TABLE 2-1

SAMPLING SUMMARY
BUILDING 635 SAMPLING AND ANALYSIS REPORT
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

SAMPLE ID	ANALYSIS			
	PAHs	TRPH	Pesticides	TAL Metals
CEF-635-SS-001-01	X	X	X	X
CEF-635-SS-002-01	X	X	X	X
CEF-635-SS-003-01	X	X	X	X
CEF-635-SS-004-01	X	X	X	X
CEF-635-SS-005-01	X	X	X	X
CEF-635-SS-101-01	X	X	-	-
CEF-635-SS-102-01	X	X	-	-
CEF-635-SS-103-01	X	X	-	-
CEF-635-SS-104-01	X	X	-	-
CEF-635-SS-105-01	X	X	-	-
CEF-635-SS-106-01	X	X	-	-
CEF-635-SS-107-02	X	X	-	-
CEF-635-SS-108-01	X	X	-	-
CEF-635-SS-109-02	X	-	-	-
CEF-635-SS-110-01	X	-	-	-
CEF-635-SS-111-01	X	-	-	-
CEF-635-SS-112-02	X	-	-	-
CEF-635-SS-113-01	X	-	-	-
CEF-635-SS-114-01	X	-	-	-
CEF-635-SS-115-02	X	-	-	-
CEF-635-SS-116-01	X	-	-	-
CEF-635-SS-117-01	X	-	-	-
CEF-635-SS-118-02	X	-	-	-
CEF-635-SS-119-01	X	-	-	-
CEF-635-SS-120-01	X	-	-	-
CEF-635-SS-121-01	X	-	-	-
CEF-635-SS-122-01	X	-	-	-
CEF-635-SS-123-01	X	-	-	-
CEF-635-SS-124-01	X	-	-	-
CEF-635-SS-125-01	X	-	-	-
CEF-635-SS-126-01	X	-	-	-
CEF-635-SS-127-01	X	-	-	-
CEF-635-SS-128-01	X	-	-	-
CEF-635-SS-201-01	X	-	-	-
CEF-635-SS-202-01	X	-	-	-
CEF-635-SS-203-01	X	-	-	-
CEF-635-SS-204-01	X	-	-	-
CEF-635-SS-205-01	X	-	-	-
CEF-635-SS-206-01	X	-	-	-
CEF-635-SS-207-01	X	-	-	-
CEF-635-SS-208-01	X	-	-	-

TABLE 2-1

SAMPLING SUMMARY
BUILDING 635 SAMPLING AND ANALYSIS REPORT
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

SAMPLE ID	ANALYSIS			
	PAHs	TRPH	Pesticides	TAL Metals
CEF-635-SU-209-03	X	-	-	-
CEF-635-SU-210-04	X	-	-	-
CEF-635-SS-211-01	X	-	-	-
CEF-635-SS-212-01	X	-	-	-
CEF-635-SS-213-01	X	-	-	-
CEF-635-SU-214-03	X	-	-	-
CEF-635-SU-215-04	X	-	-	-
CEF-635-SS-216-01	X	-	-	-
CEF-635-SU-217-03	X	-	-	-
CEF-635-SU-218-04	X	-	-	-
CEF-635-SS-219-01	X	-	-	-
CEF-635-SS-220-01	X	-	-	-
CEF-635-SS-221-01	X	-	-	-
CEF-635-SS-222-01	X	-	-	-
CEF-635-SS-223-01	X	-	-	-
CEF-635-SS-224-01	X	-	-	-
CEF-635-SS-225-01	X	-	-	-
CEF-635-SS-226-01	X	-	-	-
CEF-635-SS-227-01	X	-	-	-
CEF-635-SS-306-01	X	-	-	-
CEF-635-SS-307-01	X	-	-	-
CEF-635-SS-308-01	X	-	-	-
CEF-635-SU-309-05	X	-	-	-
CEF-635-SS-401-01	X	-	-	-
CEF-635-SS-402-01	X	-	-	-
CEF-635-SS-403-01	X	-	-	-
CEF-635-SS-404-01	X	-	-	-
CEF-635-SS-405-01	X	-	-	-
CEF-635-SS-407-01	X	-	-	-
CEF-635-SS-408-01	X	-	-	-
CEF-635-SS-409-01	X	-	-	-
CEF-635-SS-410-01	X	-	-	-
CEF-635-SS-501-01	X	-	-	-
CEF-635-SS-502-01	X	-	-	-
CEF-635-SU-503-05	X	-	-	-
CEF-635-SS-504-02	X	-	-	-
CEF-635-SU-505-03	X	-	-	-
CEF-635-SS-506-02	X	-	-	-
CEF-635-SU-507-03	X	-	-	-
CEF-635-SS-601-01	X	-	-	-
CEF-635-SS-602-01	X	-	-	-
CEF-635-SS-603-01	X	-	-	-

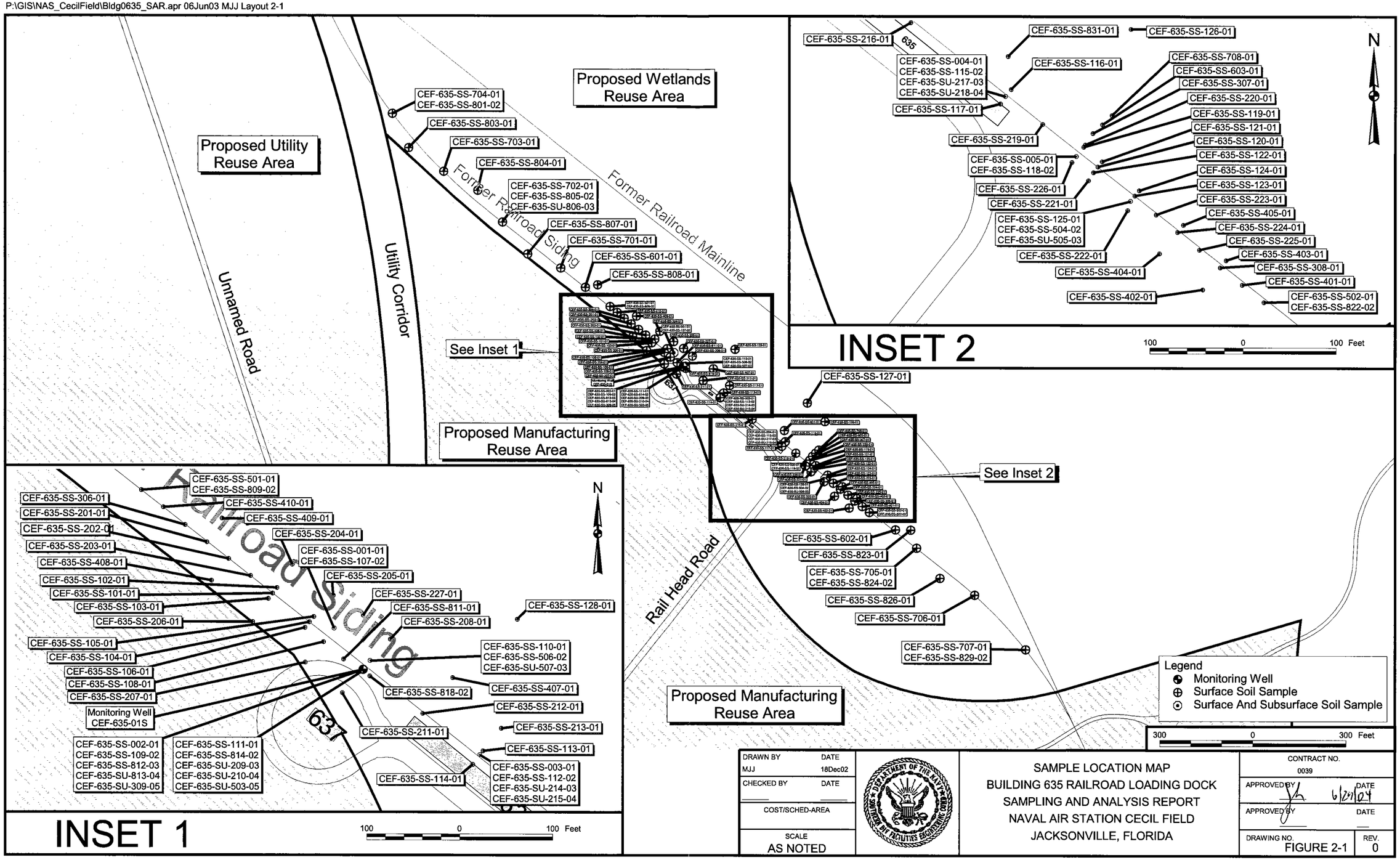
TABLE 2-1

SAMPLING SUMMARY
BUILDING 635 SAMPLING AND ANALYSIS REPORT
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

SAMPLE ID	ANALYSIS			
	PAHs	TRPH	Pesticides	TAL Metals
CEF-635-SS-701-01	X	-	-	-
CEF-635-SS-702-01	X	-	-	-
CEF-635-SS-703-01	X	-	-	-
CEF-635-SS-704-01	X	-	-	-
CEF-635-SS-705-01	X	-	-	-
CEF-635-SS-706-01	X	-	-	-
CEF-635-SS-707-01	X	-	-	-
CEF-635-SS-708-01	X	-	-	-
CEF-635-SS-801-02	X	-	-	-
CEF-635-SS-803-01	X	-	-	-
CEF-635-SS-804-01	X	-	-	-
CEF-635-SS-805-02	X	-	-	-
CEF-635-SU-806-03	X*	-	-	-
CEF-635-SS-807-01	X	-	-	-
CEF-635-SS-808-01	X	-	-	-
CEF-635-SS-809-02	X	-	-	-
CEF-635-SS-811-01	X	-	-	-
CEF-635-SU-812-03	X	X	-	-
CEF-635-SU-813-04	X*	-	-	-
CEF-635-SS-814-02	X	X	-	-
CEF-635-SS-818-02	X	X	-	-
CEF-635-SS-822-02	X	-	-	-
CEF-635-SS-823-01	X	-	-	-
CEF-635-SS-824-02	X	-	-	-
CEF-635-SS-826-01	X	-	-	-
CEF-635-SS-829-02	X	-	-	-
CEF-635-SS-831-01	X	-	-	-

* Analyzed for benzo(a)pyrene only.
PAHs = Polynuclear aromatic hydrocarbons.
TRPH = Total recoverable petroleum hydrocarbons.
TAL = Target Analyte List.
The last two digits of the sample ID designate the depth below ground surface (bgs) of the bottom of the 1-foot sample interval (i.e., CEF-635-SS-806-03 was collected from 2 to 3 feet bgs).

P:\GIS\NAS_CecilField\Bldg0635_SAR.apr 06Jun03 MJJ Layout 2-1



DRAWN BY MJJ	DATE 18Dec02	SAMPLE LOCATION MAP BUILDING 635 RAILROAD LOADING DOCK SAMPLING AND ANALYSIS REPORT NAVAL AIR STATION CECIL FIELD JACKSONVILLE, FLORIDA	CONTRACT NO. 0039
CHECKED BY	DATE		APPROVED BY DATE 6/20/04
COST/SCHED-AREA			APPROVED BY DATE
SCALE AS NOTED			DRAWING NO. FIGURE 2-1 REV. 0

3.0 DATA EVALUATION AND REMOVAL ACTION

3.1 DATA EVALUATION

The concentrations of individual samples were compared to the FDEP criteria in the Florida Administrative Code (FAC) Chapter 62-777 (FDEP, 1999) and also to the NAS Cecil Field site-specific Inorganic Background Data Set (IBDS) (HLA, 1998) for metals. Phase I analytical results were compared to the more stringent of the FDEP residential SCTL or the leachability to groundwater SCTL. However, the BCT agreed that analytical results from later phases were to be compared to the more stringent of the FDEP industrial SCTL or the leachability to groundwater SCTL. Groundwater analytical results were compared to the FDEP groundwater contaminant target levels (GCTLs).

Inorganics and pesticides were not detected at concentrations in excess of FDEP SCTLs during Phase I (see Table 3-1). During Phase I sampling, PAHs and TRPH were detected in the five soil samples collected (see Table 3-2); therefore, the remaining investigations (Phases II through IX) concentrated on determining the horizontal and vertical extent of PAH and TRPH contamination. Table 3-2 shows the samples, results, and exceedances of FDEP SCTLs for PAHs and TRPH during Phases I through IX of the investigations, and Figure 3-1 shows the locations of the samples exceeding the FDEP criteria. Table 3-3 summarizes the range of concentrations of the contaminants in the soil samples. Laboratory analytical data are provided in Appendix B.

The City of Jacksonville reuse plan calls for the Building 635 railroad siding area to be maintained as a wetland. The reuse plan also includes a utility corridor in the northern portion of YWWA that crosses the railroad siding about 1,300 feet west of Building 635 (See Figure 1-2).

During the evaluation of laboratory results, it became apparent that a large removal action might be needed. The BCT agreed that for purposes of site definition, the northern boundary of the railroad bed site would be the proposed utility corridor approximately 1,300 feet from Building 635, and the southern boundary of the railroad bed site would be the location of the former connection of the siding to the mainline. The Phase VIII results indicated that PAH contamination at concentrations greater than industrial SCTLs extended as far north as the proposed utility corridor and as far south as the former connection of the siding to the mainline.

Further, as data were collected, several human health risk scenarios were evaluated. These scenarios included industrial, construction worker, recreational user, and residential and are described further in Section 3.2. The ecological risk evaluation is described in Section 3.3. Because of the large volume of

contaminated soil, the costs of several remedial alternatives were evaluated. These alternatives are described in Section 3.4.

The PAH concentrations were below detection limits in the seven of the eight samples collected in the area affected by forest fires (CEF-635-SS-126-01 through CEF-635-SS-128-01 and CEF-635-SS-301-01 through CEF-635-SS-305-01). One sample, CEF-635-SS-126-01, had a benzo(a)pyrene concentration greater than the residential SCTL but less than the industrial SCTL. The concentrations of other PAHs in the sample were less than the residential SCTLs or were less than detection limits. Therefore, nearby forest fires did not appear to have contributed any significant quantities of PAHs to the site.

No PAHs or TRPH were detected in the groundwater sample. Laboratory method detection limits were less than GCTLs. Laboratory analytical data for groundwater are provided in Appendix B. The monitoring well was located where some of the highest PAH and TRPH soil concentrations were detected; therefore, risks from groundwater do not need to be evaluated.

3.2 HUMAN HEALTH RISK EVALUATION

The results of the sampling at Building 635 identified the extent of PAH contamination in excess of FDEP industrial SCTLs. Because carcinogenic PAHs (cPAHs) were detected at concentrations greater than SCTLs, the BCT agreed that cPAHs should be regarded as a family of compounds and their concentrations should be defined in terms of benzo(a)pyrene (BaP) equivalents (BaPEq). Total BaPEq concentrations were derived for each sample using U.S. EPA toxicity equivalent factors (TEF) (U.S. EPA, 1993). If a specific cPAH within a sample was not detected, one-half its detection limit was used in the calculation of BaPEq. If no cPAHs were detected within a sample, one-half the detection limit of BaP was used in the calculation.

A statistically based approach using BaPEq was used to determine how much excavation would be required to remediate the PAH contamination at the site. It was determined that not all samples with these compounds at concentrations greater than individual SCTLs 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 BaPEq in the soil is a result of exposure to an area, not an individual sampling location.

The exposure concentration for BaPEq at Building 635 is best represented by the 95 percent upper confidence limit (UCL) of the mean. The UCL of BaPEq was 4,243 µg/kg, which exceeds the corresponding BaP industrial SCTL of 500 µg/kg. The pre- and post-excavation data analyses are provided in Table 3-4. Note that where duplicate samples were collected, the average of the two results was used.

The statistically based approach used to determine the BaPEq concentration above which the soil must be removed to achieve a UCL less than or equal to the FDEP SCTL for BaP involves an iterative process. In theory, the sampling locations with the highest BaPEq concentrations would be excavated and replaced with clean fill. The clean fill for this site was obtained from Coxwell's Crystal Springs Pit. The excavated sample points were assumed to be replaced with clean fill having a BaPEq concentration of 1.8 µg/kg, a value equal to one half the detection limit of BaP in fill from Coxwell's Crystal Spring Pit used previously at Cecil Field. The data set was evaluated by replacing the highest concentrations at Building 635 with the clean fill concentration and then recalculating the UCL. When the UCL was less than the FDEP industrial SCTL (500 µg/kg), the calculations were stopped.

Soil was removed from approximately one half of the approximately 2,950 feet of abandoned railroad bed that comprises the Building 635 site. The soil that required removal is shown on Figure 3-2. After removal had been completed, a revised data set (post-removal BaPeq) was created that contained soil concentration data from areas that remained unremediated and clean backfill concentrations for areas that were remediated. This data set was input by Tetra Tech into the ProUCL statistical program. The results from ProUCL indicated that the post-removal BaPEq 95 percent UCL concentration was 568 µg/kg. A printout of the ProUCL program results is included in Appendix C. Because soil samples were initially collected along the centerline of the abandoned railroad bed with delineation samples collected stepping out short distances from this centerline and because very few samples were collected more than 50 feet from the centerline of the bed, the 95 percent UCL concentration calculated above would only represent an estimated average exposure concentration for receptors exposed to the approximately 2,950 feet of the abandoned railroad bed and its immediate surroundings. Also, because of sampling bias toward those areas that are contaminated, the 95 percent UCL value is higher than the true 95 percent UCL of the mean.

FDEP has a rule of thumb of three times the applicable SCTL for determining the presence of hot spots. For BaPEq under an industrial scenario, the BaPEq hot spot concentration would be 1,500 µg/kg. The post-removal BaPEq data set indicated several locations still remained that would meet the definition of hot spots under an industrial use scenario, but that soils with a concentration greater than 4.8 times the industrial SCTL had been removed.

In order to determine whether further soil removal needed to be conducted, the partnering team looked further into the proposed reuse of the Building 635 property. Per FDEP guidance, exposure and exposure units for a site should be identified based on current and plausible future uses of the site. Based on the Jacksonville Economic Development Commission's (JEDC) Cecil Field Reuse Plan, the southeastern half of the site would be located within a wetlands conservation area, as shown on Figure

1-2. For this area, human exposure to the site would most likely be adult recreational or potentially a construction worker. The alternative SCTLs (ASCTLs) for the adult recreational receptor and construction worker were calculated to be 4,500 and 65,000 µg/kg (see Appendix D). Based on this plausible future use of the southeastern half of the site, no further soil removal activities would be required in this area because all soils have been removed below both of those ASCTLs.

The proposed future use of the northwestern half of the site either will be for industrial use or will be located within the wetlands conservation area. The current reuse plan, as shown on Figure 1-2, indicates the northwestern half of Building 635 is situated at the boundary between those two land uses. However, the city of Jacksonville has indicated that the boundary between land use for industrial redevelopment and the wetlands conservation area is not set and may move. Therefore, exposure to this portion of the site needed to be evaluated for two exposure scenarios, industrial and recreational/construction worker. Based on the levels of contamination left in the northwestern half of the site and the ASCTLs for adult recreators and construction workers, no further soil removal activities would be required under those scenarios. However, there could be excessive carcinogenic risks to an industrial worker who would be exposed to soil within the narrow strip of land comprising the abandoned railroad bed using the default exposure assumptions for deriving industrial SCTLs. One plausible future use of this area would be for a fence or as a buffer between the industrial and wetland areas. Under this industrial reuse scenario, one would expect that a site worker would be exposed to contaminated soil in this area infrequently, presumably much less than the under the default industrial worker values of 250 days per year for 20 years.

Based on the discussion above, a risk management decision was made that no further soil removal activities would be necessary. The decision was made based on information that is specific to Building 635 site. The inputs to the decision included the following:

1. Plausible future uses of the site are known. Based on the JEDC's Reuse Plan, the southeastern half of the site will be within a wetlands conservation area. The northwestern half of the site either will be within the wetlands conservation area or will be within a piece of property to be redeveloped for industrial use, but most likely near the wetland and industrial reuse boundaries. The soil remediation that has been conducted has removed all soil with concentrations greater than the ASCTL of 4,500 µg/kg for BaPEq for the adult recreator.

2. The remaining contamination is almost exclusively located within a 25 foot wide strip of land comprising the abandoned railroad bed. Also, approximately half of the approximately 2,950 foot length of railroad bed has seen soil removal activities.

3. Contaminated soil that remains on site is almost exclusively located beneath 6 inches of railroad ballast consisting of crushed rock. Exposure to this soil would require the removal of this ballast material. The proper handling and disposal of this soil, if disturbed, can be managed with land use controls.

4. All soil with concentrations greater than 4.8 times the industrial SCTL have been removed.

5. The majority of the PAH soil contamination remaining on the site has not been attributed to a discharge. Soil contamination, where there are indications that it may have been from a discharge, has been removed. All soil contamination above leachability SCTLs has been removed.

6. Redevelopment of the site for residential uses will be prohibited through land use

3.3 ECOLOGICAL RISK EVALUATION

A screening-level ecological risk assessment was conducted to evaluate potential site-related risks to ecological receptors at the site. Steps 1 through 3A of the ecological risk assessment were conducted in accordance with the following documents: U.S. EPA Ecological Risk Assessment Guidance for Superfund (U.S. EPA, 1997), Region 4 Ecological Risk Assessment Bulletins – Supplement to RAGs (U.S. EPA, 2000a), Amended Guidance on Ecological Risk Assessment at Military Bases (U.S. EPA, 2000b), and the Navy Policy for Conducting Ecological Risk Assessments (Department of the Navy, 1999). Steps 1 through 3A consist of the following:

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

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

The site consists of an abandoned railroad bed oriented in a northwest/southeast direction. It extends from sample CEF-635-SS-704 to CEF-635-SS-707, a distance of approximately 2,600 feet (Figure 2-1). The railroad bed was constructed along the top of a berm that was presumably created for this purpose. The tracks and ties were removed in 1984. Vegetation on the berm is currently a mixture of various grasses and weedy species such as Spanish needle (*Bidens pilosa*), broomsedge (*Andropogon virginicus*), and goldenrod (*Solidago* spp.), and shrubby species such as blackberry (*Rubus* spp.), groundsel bush (*Baccharis halimifolia*), St John's wort (*Hypericum* spp.), yaupon holly (*Ilex vomitoria*), wax myrtle (*Myrica cerifera*), gallberry (*Ilex glabra*), and saw palmetto (*Serenoa repens*). The topography

beyond the berm is mostly flat. The habitat on both sides of the berm was formerly pine flatwoods with a few scattered cypress domes. Much of the area has been logged and/or burned in recent years, so few trees currently exceed 10 feet in height. Wildlife that utilize the area in the vicinity of the site consist of species of birds, mammals, reptiles, and amphibians that are typically found in forested habitats of NAS Cecil Field.

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

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

Maximum concentrations of analytes detected in non-excavated surface soil samples were compared to ecological screening values established by U.S. EPA Region 4 (U.S. EPA, 2000a; 2000b). Surface soil samples were defined as those collected from depths of 0 to 1 feet bgs. Surface soil analytes with maximum concentrations that did not exceed screening values were dropped from further consideration, and analytes with concentrations that exceeded screening values (or did not have screening values) were retained as ecological COPCs.

The soil samples analytical results are presented in Tables 3-1 and 3-2. Following the contaminated soil removal described in Section 3.5, the ecological risk was evaluated based on the results of the remaining soil samples. Table 3-5 summarizes the ranges of detections in these remaining samples. Maximum concentrations of BaP, fluoranthene, phenanthrene, and pyrene exceeded ecological screening values, and ecological screening values were not available for eight PAHs detected in surface soils (Table 3-5). The maximum concentration of total PAHs (defined as the sum of detected individual PAHs) also exceeded the ecological screening value for total PAHs (Table 3-5).

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

Subsequent to the initial screening, other factors are typically considered to further refine COPCs. Such factors include food chain modeling, habitat quality and use, toxicological evaluation of COPCs, frequency of detection, and comparisons of COPCs to alternate guidelines (U.S. EPA, 1997; 2000b; Department of the Navy, 1999). These factors are discussed below.

3.3.3.1 Step 3A Discussion

PAHs show little tendency to bioconcentrate or biomagnify in the food web (Eisler, 2000). U.S. EPA Region 4 considers the potential toxicity of PAHs via the terrestrial food web to be generally negligible unless PAHs are present at extremely high concentrations (i.e., percent levels: 10,000 mg/kg) in soil. Because PAH concentrations in soil at Building 635 are well below percent levels, toxicity to upper level receptors is not expected and food chain modeling to investigate potential risks from ingested PAHs was not conducted.

PAHs can be toxic to fish and other aquatic organisms. However, the exposure pathway for site-related contaminants is essentially incomplete for aquatic organisms. There are no surface water bodies near the site. A ditch parallels much of the berm, but is dry except after recent rain events. Vegetation currently covers the sloped sides as well as much of the flat crown of the berm, limiting the potential for surface runoff of soil contaminants through erosion. Furthermore, the flat character of the terrain beyond the former railroad bed reduces overland flow and surface runoff. Groundwater analyses have shown that infiltration of contaminants into groundwater is negligible at the site. For the above reasons, surface soil is the only potential exposure medium for ecological receptors at the site.

PAHs can cause adverse effects in numerous species. PAH compounds can cause mortality in soil invertebrates. Dermal and oral exposure to PAHs has produced carcinogenic tumors in numerous birds and mammals in laboratory tests. PAHs are also associated with adverse effects on reproduction and growth in birds. Reptiles and amphibians might also be at risk from PAH compounds. PAH-induced phytotoxic effects (i.e., toxicity to plants) are rare (Eisler, 2000).

Direct toxicity of PAHs to birds, mammals, reptiles, and amphibians at the site is considered to be negligible due to the compacted character of the soils along the former railroad bed. Field personnel noted during soil sampling that the soil along the berm is comprised of crushed rock and gravel in many areas and is considerably compacted along the entire abandoned railroad bed. Few animals would dig into the soils to any appreciable extent. Thus, dermal and oral exposure to upper level receptors is probably negligible. Overall, the soil-to-invertebrate pathway is assumed to be the primary pathway of exposure to PAHs at the site.

Ecologically based toxicity values are sparse for PAHs in soil. U.S. EPA Region 4 has established screening values for only 5 of the 13 individual PAHs detected at the site. The Region 4 screening values are based on values established in the Netherlands during the 1980s. In 1994, the Dutch modified their screening values for total PAHs, establishing a “target” value of 1,000 µg/kg and an ”intervention” value of 40,000 µg/kg (MHSP&E, 1994; 2000). The Dutch target values represent clean soil while intervention values represent seriously contaminated soil. The concentration midway between the target value and

the intervention value was designated as the “intermediate” value. 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. Further investigation is required when concentrations exceed the intermediate value but are less than the intervention value (Swartjes, 1999). The intermediate value for total PAHs in soil is 20,500 µg/kg.

Concentrations of BaP, fluoranthene, pyrene, and total PAHs exceeded U.S. EPA Region 4 ecological screening values in approximately two-thirds of surface soil samples, and concentrations of phenanthrene exceeded its Region 4 ecological screening value in approximately one-sixth of surface soil samples (Table 3-5). Therefore, based on Region 4 ecological screening values, PAHs might pose risk to soil invertebrates in the vicinity of numerous samples.

Concentrations of total PAHs in all samples were less than the Dutch intermediate value of 20,500 µg/kg, although total PAH concentrations approached the Dutch value in two samples (CEF-635-SS-706-01 at 19,835 µg/kg, and CEF-635-SS-501-01 at 19,204 µg/kg). As mentioned earlier, total PAH concentrations in these two samples and in Table 3-5 were derived as the sum of <u>all</u> detected individual PAHs. It should be noted, however, that the Dutch intermediate value for total PAHs is based on the sum of <u>ten</u> PAHs (anthracene, benzo(a)anthracene, benzo(k)fluoranthene, BaP, chrysene, phenanthrene, fluoranthene, indeno(1,2,3-cd)pyrene, naphthalene, and benzo(ghi)perylene) (MHSP&E, 2000). The sum of the same 10 “Dutch” PAHs would be 13,765 µg/kg for CEF-635-SS-706-01, and 13,631 µg/kg for CEF-635-SS-501, both considerably less than the Dutch intermediate value for total PAHs.

In summary, potential ecological risk from PAHs is largely limited to soil invertebrates. Potential PAH-related risk is expected to be negligible however, due to the compacted soil conditions and relatively low concentrations of PAHs.

3.3.3.2 Uncertainty Analysis

Uncertainties are associated with several aspects of ecological risk assessments. A summary of the specific uncertainties associated with the ecological risk assessment that was conducted for the Building 635 site follows.

There is uncertainty regarding the method of calculating total PAH concentrations. Non-detects were not included in the calculations of total PAHs; there is no ideal approach for calculating total PAH concentrations. Uncertainty will exist if non-detected PAHs are assigned values of 0, one-half the reporting limit, or any other commonly used value. In addition, there is no standard list of PAHs with which to calculate total PAH concentrations. The Region 4 ecological screening value for total PAHs is

based on Dutch guidelines in which only 10 PAHs were used to define total PAHs. The reason for selecting these 10 specific compounds is unclear.

The reporting limits of some non-detected PAHs exceeded their respective Region 4 ecological screening values, with reporting limits in some samples as high as 1,800 µg/kg compared to Region 4 screening values of 100 µg/kg. Most reporting limits however, ranged from 180 to 420 µg/kg. This issue is not considered to be a significant flaw in the risk assessment because total PAH concentrations would be relatively low in most samples assuming values of one-half the reporting limit for non-detected analytes.

The average concentrations of 1-methylnaphthalene and anthracene were greater than their respective maximum detected concentrations (Table 3-5). This incongruity can occur when the detection limits in "non-detected" samples exceed the maximum detected concentrations, especially when the analyte is infrequently detected. The compound 1-methylnaphthalene was detected in only 2 of 62 samples at a maximum concentration of 214 µg/kg, and anthracene was detected in 6 of 62 samples at a maximum concentration of 58.8 µg/kg. The detection limits in some non-detect samples of these two PAHs were as high as 1,800 µg/kg. The average calculated by assuming a value of one-half the detection limit for non-detected samples resulted in an average concentration greater than the maximum detected concentration.

There is some uncertainty associated with the extent to which soils at the site are utilized by ecological receptors. The tightly compacted soil and high gravel/rock content presumably results in poor habitat for soil invertebrates, especially in comparison to soils in the area adjacent to the site. The extent to which this presumption is true however, is unclear.

3.3.4 Ecological Risk Summary and Conclusions

A screening-level ecological risk assessment was performed for the Building 635 site. PAH compounds were detected in surface soil at concentrations that exceeded conservative screening values, and some PAHs without screening values were detected. These COPCs were assessed in Step 3A of the risk assessment.

PAH compounds do not significantly bioaccumulate or biomagnify in higher organisms at the concentrations observed here. PAH concentrations at the site pose negligible risk to upper level receptors such as mammals, birds, reptiles, and amphibians. Potential PAH-related risks are limited to soil invertebrates. However, the results of the Step 3A evaluation indicate that potential risk to these organisms is negligible or minor at worst. Overall, PAHs detected in surface soil at the Building 635 site pose negligible potential risk to ecological receptors.

3.4 REMEDIAL ALTERNATIVES CONSIDERED

Based on the results of the human health risk evaluation and proposed land use, the BCT decided in October 2001 that the site would be remediated to meet the industrial use scenario. Because of the large amount of soil requiring remediation, several alternatives in addition to excavation and off-site disposal were briefly evaluated and presented to the BCT in January 2002. The remedial action objectives (RAOs) were for the site to have acceptable risk for industrial uses and for the soil to meet leachability SCTLs. FDEP industrial SCTLs were used as preliminary remediation goals (PRGs). In addition, two alternatives to meet residential RAOs and PRGs (FDEP residential SCTLs) were considered. Each alternative is described below.

3.4.1 Alternative 1 – Excavation, Blending, Backfill, Institutional Controls, and Monitoring

The entire railroad bed and adjacent soil at the Building 635 site (approximately 2,800 feet long by 75 feet wide by 4 feet deep) would be excavated. All of the excavated soil would be mixed and blended so that the average BaPEq concentration would be less than the industrial SCTL, and the blended soil would be used as backfill at the site. Institutional controls would prevent residential development. Groundwater quality would be monitored for 30 years because concentrations would still exceed leachability SCTLs, and five-year reviews would be performed for the same period. PRGs and RAOs would be met within 6 months. The estimated net present worth (NPW) cost for this alternative is $475,000.

3.4.2 Alternative 2a – Impervious Capping, Institutional Controls, and Monitoring

The entire railroad bed and adjacent soil at the site (approximately 2,800 feet long by 75 feet wide) would be cleared and capped with an impervious liner system. The major components of the cap would include a layer of low permeability soil, a polyethylene liner, additional fill, and topsoil. Institutional controls would prevent residential development. Groundwater quality would be monitored for 30 years because concentrations would still exceed leachability SCTLs, and five-year reviews would be performed for the same period. RAOs would be met within 1 year, and PRGs might eventually be met through natural degradation processes. The estimated NPW cost for this alternative is $2,705,000.

3.4.3 Alternative 2b – Soil Capping, Institutional Controls, and Monitoring

The entire railroad bed and adjacent soil at the site (approximately 2,800 feet long by 75 feet wide) would be cleared and capped with soil to minimize exposure to the contaminated soil. The soil cap would include fill and topsoil. Institutional controls would prevent residential development. Groundwater quality would be monitored for 30 years, and five-year reviews would be performed for the same period. RAOs would be met within 1 year, and PRGs might eventually be met through natural degradation processes. The estimated NPW cost for this alternative is $725,000.

3.4.4 Alternative 3 – Phytoremediation, Institutional Controls, and Monitoring

A treatability study would be performed to determine the PAH removal rate and optimum plant types. The entire railroad bed and adjacent soil at the site (approximately 2,800 feet long by 75 feet wide) would be cleared, and a layer of topsoil would be placed. The area would be seeded, mulched, fertilized, and irrigated to establish the vegetation, followed by long-term fertilizing, irrigation, and harvesting to maintain the plant population. Institutional controls would prevent residential development. Groundwater quality would be monitored for 30 years because concentrations would still exceed leachability SCTLs, and five-year reviews would be performed for the same period. PRGs and RAOs would be met within 5 years, and the estimated NPW cost for this alternative is $619,000.

3.4.5 Alternative 4 – Excavation, Off-Site Disposal, Institutional Controls, and Monitoring

About 2,100 cubic yards of contaminated soil would be excavated and disposed offsite. The excavated areas would be backfilled with clean soil. On an overall site basis, the resulting BaPEq UCL concentration would be less than the industrial SCTL. Institutional controls would prevent residential development. Groundwater quality would be monitored for 30 years, and five-year reviews would be performed for the same period. PRGs and RAOs would be met within 6 months, and the estimated NPW cost for this alternative is $406,000.

3.4.6 Alternative 5a – Excavation and Off-Site Disposal – Residential PRGs

About 6,578 cubic yards of contaminated soil would be excavated and disposed offsite. The excavated areas would be backfilled with clean soil. On an overall site basis, the resulting BaPEq UCL concentration would be less than the residential SCTL. No institutional controls would be necessary. No groundwater monitoring or five-year reviews would be required. Residential PRGs and RAOs would be met within 6 months, and the estimated NPW cost for this alternative is $987,000.

3.4.7 Alternative 5b – Excavation, Blending, and Backfill – Residential PRGs

About 1,260 cubic yards of contaminated soil with BaPEq concentration greater than the leachability to groundwater SCTL would be excavated and disposed offsite. An additional 2,773 cubic yards of contaminated soil would be excavated and disposed offsite such that the remaining soil could be blended with adjacent clean soil and clean backfill so that the average BaPEq concentration would be less than the residential SCTL. A large portion of the railroad bed and adjacent soil at the site (approximately 1,400 feet long by 75 feet wide by 1 to 3 feet deep) would be excavated. All of the excavated soil would be mixed and blended so that the average BaPEq concentration would be less than the residential SCTL, and the blended soil would be used as backfill at the site. No institutional controls, no groundwater

monitoring, or five-year reviews would be required. Residential PRGs and RAOs would be met within 6 months and the estimated NPW cost for this alternative is $892,000.

Based on a comparison of the costs and the times to meet the RAOs, Alternative 4 – Excavation, Off-Site Disposal, Institutional Controls, and Monitoring was selected because it had the lowest cost and would meet PRGs and RAOs in a relatively short time.

3.5 REMOVAL ACTION

The proposed removal area described by Alternative 4 was presented by TtNUS in the Dig and Haul Package for Building 635 Area (TtNUS, 2002b). A source removal was conducted at this site from July 8 through August 1, 2002, and a total of 4,236 tons of nonhazardous PAH- and TRPH-contaminated soil was excavated from the area surrounding the aforementioned sampling locations. Soils were excavated to the horizontal limits specified in the Dig and Haul Package and shown on Figure 3-2. The depths of excavation varied from 1 foot bgs to the water table, as proposed in the Dig and Haul Package.

The soil was excavated using a hydraulic track excavator and stockpiled on a 10-mil high-density polyethylene (HDPE) liner. The soil stockpiles were covered with a 10-mil liner during periods of non-activity at the site. The nonhazardous soil, which was analyzed for waste characterization by CCI (CH2MHill Constructors, Inc.)/J.A. Jones Environmental services before the excavation, was transported off site by trucks to the Chesser Island Landfill in Folkston, Georgia (CH2MHill, 2003).

Clean fill material from the Coxwell's Crystal Springs Pit was used to backfill the excavation. The site was graded and seeded with a mixture of rye and bahia grass. A layer of straw was applied to prevent wind and water erosion.

Detailed information on the remedial activities, including photographs, laboratory results, copies of the soil manifests, certificates of disposal, and certificate of clean fill, is provided in the Source Removal Report (CH2MHill, 2003).

TABLE 3-1

PESTICIDES AND INORGANICS ANALYTICAL DATA
BUILDING 635 SAMPLING AND ANALYSIS REPORT
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

PARAMETER	FDEP RESIDENTIAL SCTL[1]	FDEP LEACHABILITY SCTL[2]	IBDS VALUE[3]	CEF-635-			
				SS-001-01		SS-002-01	SS-003-01
				Sample	Duplicate		
Pesticides (ug/kg)							
4,4'-DDD	70	500	NC	140 U	150 U	140 U	34 U
4,4'-DDE	200	0.3	NC	140 U	150 U	140 U	34 U
4,4'-DDT	600	1.0	NC	140 U	150 U	140 U	34 U
ALDRIN	22,000	200	NC	72 U	74 U	69 U	17 U
ALPHA-BHC	700	9.0	NC	72 U	74 U	69 U	17 U
ALPHA-CHLORDANE	3,100[4]	9,600[4]	NC	140 U	150 U	140 U	34 U
BETA-BHC	3,100[4]	9,600[4]	NC	72 U	74 U	69 U	17 U
DELTA-BHC	70	4.0	NC	72 U	74 U	69 U	17 U
DIELDRIN	4,600	4,000	NC	72 U	74 U	69 U	17 U
ENDOSULFAN I	3,300	18,000	NC	72 U	74 U	69 U	17 U
ENDOSULFAN II	3,300	11,000	NC	140 U	150 U	140 U	34 U
ENDOSULFAN SULFATE	21,000	1,000	NC	140 U	150 U	140 U	34 U
ENDRIN	NC	NC	NC	140 U	150 U	140 U	34 U
ENDRINALDEHYDE	NC	NC	NC	140 U	150 U	140 U	34 U
ENDRINKETONE	NC	NC	NC	140 U	150 U	140 U	34 U
GAMMA-BHC(LINDANE)	410,000[5]	3,800[5]	NC	72 U	74 U	69 U	17 U
GAMMA-CHLORDANE	410,000[5]	3,800[5]	NC	140 U	150 U	140 U	34 U
HEPTACHLOR	200	23,000	NC	72 U	74 U	69 U	17 U
HEPTACHLOR EPOXIDE	100	600	NC	72 U	74 U	69 U	17 U
METHOXYCHLOR	370,000	160,000	NC	290 U	300 U	280 U	69 U
TOXAPHENE	1,000	31,000	NC	7200 U	7400 U	6900 U	1700 U
Inorganics (mg/kg)							
ALUMINUM	72,000	NC	4,430	3240	2900	5490	858
ANTIMONY	26	5.0	9.44	0.26 U	0.27 U	0.25 U	0.25 U
ARSENIC	0.80	29	2.04	2.2 U	2.5	2.8	0.6 U
BARIUM	110	1,600	14.4	42.3	36.6	57.9	8.6
BERYLLIUM	120	63	0.35	0.68 U	0.73 U	1.2	0.09 U
CADMIUM	75	8.0	1.72	0.04 U	0.13 U	0.23 U	0.06 U
CALCIUM	NC	NC	9.44	18400	50600	96700	35200
CHROMIUM	210	38	7.75	3.5	4.3	6.1	2.8
COBALT	4,700	NC	3.11	0.49 U	0.65 U	0.82	0.19 U
COPPER	110	NC	5.97	3.7	4	8.4	3
IRON	23,000	NC	1,490	3440	3960	3580	807
LEAD	400	NC	197	9.8	10.8	11.1	5.4
MAGNESIUM	NC	NC	329	2280	1990	3760	347
MANGANESE	1,600	NC	22	189 J	191 J	308 J	26.2 J
MERCURY	3.4	2.1	0.16	0.06 U	0.07 U	0.05 U	0.05 U
NICKEL	110	130	3.89	0.95 U	1.5 U	1.6 U	0.52 U
POTASSIUM	NC	NC	102	528	509	1460	94.5 U
SELENIUM	390	5.0	1.68	0.22 U	0.23 U	0.21 U	0.21 U
SILVER	390	17	2.13	0.1 U	0.11 U	0.1 U	0.1 U
SODIUM	NC	NC	343	155	161	267	130
THALLIUM	NC	NC	2.84	0.29 U	0.31 U	0.28 U	0.28 U
VANADIUM	15	980	6.3	5.3	4.6	9.3	1.8
ZINC	23,000	6,000	37	12.7	13.7	35.6	18.3

TABLE 3-1

PESTICIDES AND INORGANICS ANALYTICAL DATA
BUILDING 635 SAMPLING AND ANALYSIS REPORT
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

PARAMETER	FDEP RESIDENTIAL SCTL[1]	FDEP LEACHABILITY SCTL[2]	IBDS VALUE[3]	CEF-635-	
				SS-004-01	SS-005-01
Pesticides (ug/kg)					
4,4'-DDD	70	500	NC	34 U	34 U
4,4'-DDE	200	0.3	NC	34 U	34 U
4,4'-DDT	600	1.0	NC	34 U	34 U
ALDRIN	22,000	200	NC	17 U	17 U
ALPHA-BHC	700	9.0	NC	17 U	17 U
ALPHA-CHLORDANE	3,100[4]	9,600[4]	NC	34 U	34 U
BETA-BHC	3,100[4]	9,600[4]	NC	17 U	17 U
DELTA-BHC	70	4.0	NC	17 U	17 U
DIELDRIN	4,600	4,000	NC	17 U	17 U
ENDOSULFAN I	3,300	18,000	NC	17 U	17 U
ENDOSULFAN II	3,300	11,000	NC	34 U	34 U
ENDOSULFAN SULFATE	21,000	1,000	NC	34 U	34 U
ENDRIN	NC	NC	NC	34 U	34 U
ENDRINALDEHYDE	NC	NC	NC	34 U	34 U
ENDRINKETONE	NC	NC	NC	34 U	34 U
GAMMA-BHC(LINDANE)	410,000[5]	3,800[5]	NC	17 U	17 U
GAMMA-CHLORDANE	410,000[5]	3,800[5]	NC	34 U	34 U
HEPTACHLOR	200	23,000	NC	17 U	17 U
HEPTACHLOR EPOXIDE	100	600	NC	17 U	17 U
METHOXYCHLOR	370,000	160,000	NC	69 U	69 U
TOXAPHENE	1,000	31,000	NC	1700 U	1700 U
Inorganics (mg/kg)					
ALUMINUM	72,000	NC	4,430	1240	4700
ANTIMONY	26	5.0	9.44	0.24 U	0.25 U
ARSENIC	0.80	29	2.04	0.64 U	1.9 U
BARIUM	110	1,600	14.4	12.4	50.5
BERYLLIUM	120	63	0.35	0.21 U	1.3
CADMIUM	75	8.0	1.72	0.18 U	0.03 U
CALCIUM	NC	NC	9.44	125000	39700
CHROMIUM	210	38	7.75	4.3	3.7
COBALT	4,700	NC	3.11	0.2 U	0.66
COPPER	110	NC	5.97	3	6.7
IRON	23,000	NC	1,490	940	3130
LEAD	400	NC	197	5.9	7.2
MAGNESIUM	NC	NC	329	1850	3080
MANGANESE	1,600	NC	22	57.6 J	277 J
MERCURY	3.4	2.1	0.16	0.03 U	0.04 U
NICKEL	110	130	3.89	0.71 U	1.1 U
POTASSIUM	NC	NC	102	285	1020
SELENIUM	390	5.0	1.68	0.2 U	0.21 U
SILVER	390	17	2.13	0.1 U	0.1 U
SODIUM	NC	NC	343	185	219
THALLIUM	NC	NC	2.84	0.27 U	0.28 U
VANADIUM	15	980	6.3	4.4	5.4
ZINC	23,000	6,000	37	12.2	9.8

J = Estimated value.
U = Not detected at or above detection limit (associated value).
NC = No criterion.
1 Florida Residential Soil Cleanup Target Level, FAC Chapter 62-777 (FDEP, 1999).
2 Florida Leachability to Groundwater Soil Cleanup Target Level, FAC Chapter 62-777 (FDEP, 1999).
3 NAS Cecil Field Inorganic Background Data Set (HLA, 1998).
4 Criterion for total chlordane.
5 Criterion for endosulfan.
Highlighted value indicates exceedance of regulatory criteria.

TABLE 3-2

PAH AND TRPH ANALYTICAL DATA
BUILDING 635 SAMPLING AND ANALYSIS REPORT
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

Parameter	FDEP SCTL(1)			CEF-635-				
	Residential Direct Exposure	Industrial Direct Exposure	Leachability to Groundwater	SS-001-01		SS-107-02	SS-002-01	SS-109-02
				Sample	Duplicate			
Semivolatile Compounds (ug/kg)								
1-METHYLNAPHTHALENE	68,000	470,000	2,100	72000 U	29000 U	200 U	17000 U	190 U
2-METHYLNAPHTHALENE	83,000	560,000	6,100	72000 U	29000 U	200 U	17000 U	190 U
ACENAPHTHENE	1,900,000	1,800,000	2,100	72000 U	29000 U	200 U	17000 U	190 U
ACENAPHTHYLENE	1,100,000	11,000,000	27,000	140000 U	59000 U	200 U	35000 U	190 U
ANTHRACENE	18,000,000	260,000,000	2,500,000	72000 U	29000 U	**24.2 J**	17000 U	190 U
BENZO(A)ANTHRACENE	1,400	5,000	3,200	**64400 J**	**34900 J**	**353**	**16800**	**1230**
BENZO(A)PYRENE	100	500	8,000	**54000 J**	**30300 J**	**292**	**17800**	**1300**
BENZO(B)FLUORANTHENE	1,400	4,800	10,000	**58800**	**35600**	**464**	**25100**	**1900**
BENZO(G,H,I)PERYLENE	2,300,000	41,000,000	32,000,000	**34300 J**	**18200 J**	**258**	**11500**	**868**
BENZO(K)FLUORANTHENE	15,000	52,000	25,000	**38300**	**23600**	**238**	**13900**	**864**
CHRYSENE	140,000	450,000	77,000	**58200 J**	**32500 J**	**201**	**17100**	**1290**
DIBENZO(A,H)ANTHRACENE	100	500	30,000	14000 U	5900 U	**23.8 J**	3500 U	28 U
FLUORANTHENE	2,900,000	48,000,000	1,200,000	**82800 J**	**42500 J**	**505**	**19500**	**1170**
FLUORENE	2,200,000	28,000,000	160,000	72000 U	29000 U	200 U	17000 U	190 U
INDENO(1,2,3-CD)PYRENE	1,500	5,300	28,000	**38100 J**	**21400 J**	**244**	**13000**	**778**
NAPHTHALENE	40,000	270,000	1,700	72000 U	29000 U	200 U	17000 U	190 U
PHENANTHRENE	2,000,000	30,000,000	250,000	72000 U	29000 U	**26.2 J**	17000 U	190 U
PYRENE	2,200,000	37,000,000	880,000	**136000 J**	**60400 J**	**654**	**23600**	**1730**
Petroleum Hydrocarbons(mg/kg)								
TPH	340	2,500	340	**3260**	**3390**	**24.1**	**733**	NA

TABLE 3-2

PAH AND TRPH ANALYTICAL DATA
BUILDING 635 SAMPLING AND ANALYSIS REPORT
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

Parameter	CEF-635-								
	SU-209-03	SU-210-04	SU-309-05 Sample	SU-309-05 Duplicate	SS-812-03	SU-813-04	SS-003-01	SS-112-02	SU-214-03
Semivolatile Compounds (ug/kg)									
1-METHYLNAPHTHALENE	420 U	410 U	400 U	400 U	1600 U	NA	6900 U	190 U	400 U
2-METHYLNAPHTHALENE	420 U	410 U	400 U	400 U	1600 U	NA	6900 U	190 U	400 U
ACENAPHTHENE	850 U	820 U	810 U	810 U	3300 U	NA	6900 U	**228**	800 U
ACENAPHTHYLENE	850 U	820 U	810 U	810 U	3300 U	NA	14000 U	**356**	800 U
ANTHRACENE	420 U	410 U	400 U	400 U	1600 U	NA	6900 U	190 U	400 U
BENZO(A)ANTHRACENE	85 U	**807**	81 U	**173**	**1710**	NA	**7450**	**3370**	**98.3**
BENZO(A)PYRENE	85 U	**887**	81 U	**154**	**2030**	**83.2 J**	**4100**	**3180**	**86.7**
BENZO(B)FLUORANTHENE	85 U	**1070**	81 U	**204**	**2210**	NA	**5890**	**5790**	**137**
BENZO(G,H,I)PERYLENE	85 U	**578**	81 U	**161**	**2500**	NA	**2480**	**2190**	**73.6 J**
BENZO(K)FLUORANTHENE	85 U	**602**	81 U	**84.5**	**1150**	NA	**3650**	**2280**	**73.2 J**
CHRYSENE	420 U	**742**	400 U	**114 J**	**1610**	NA	**6180 J**	**4010**	**56.6 J**
DIBENZO(A,H)ANTHRACENE	85 U	**83.7**	81 U	81 U	**174 J**	NA	1400 U	**426**	80 U
FLUORANTHENE	420 U	**1000**	400 U	400 U	**1640**	NA	**13500**	**2090**	400 U
FLUORENE	420 U	410 U	400 U	400 U	1600 U	NA	6900 U	190 U	400 U
INDENO(1,2,3-CD)PYRENE	85 U	**650**	81 U	**141**	**1530**	NA	**2890**	**1890**	**81.5**
NAPHTHALENE	420 U	410 U	400 U	400 U	1600 U	NA	6900 U	190 U	400 U
PHENANTHRENE	420 U	410 U	400 U	400 U	1600 U	NA	6900 U	190 U	400 U
PYRENE	420 U	**1150**	400 U	400 U	**2610**	NA	**12400**	**3720**	400 U
Petroleum Hydrocarbons(mg/kg)									
TPH	NA	NA	NA	NA	**246**	NA	**108**	NA	NA

TABLE 3-2

PAH AND TRPH ANALYTICAL DATA
BUILDING 635 SAMPLING AND ANALYSIS REPORT
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

Parameter	CEF-635-								
	SU-215-04	SS-004-01	SS-115-02	SU-217-03	SU-218-04	SS-005-01	SS-118-02	SS-101-01 Sample	SS-101-01 Duplicate
Semivolatile Compounds (ug/kg)									
1-METHYLNAPHTHALENE	430 U	3500 U	360 U	400 U	420 U	3500 U	190 U	190 U	190 U
2-METHYLNAPHTHALENE	430 U	3500 U	360 U	400 U	420 U	3500 U	190 U	190 U	190 U
ACENAPHTHENE	860 U	3500 U	360 U	790 U	850 U	3500 U	190 U	190 U	190 U
ACENAPHTHYLENE	860 U	6900 U	360 U	790 U	850 U	6900 U	190 U	190 U	190 U
ANTHRACENE	430 U	3500 U	360 U	400 U	420 U	3500 U	190 U	**21.9 J**	190 U
BENZO(A)ANTHRACENE	**70.4 J**	**1890**	**196**	79 U	**140**	**1740**	**204**	**607 J**	28 UJ
BENZO(A)PYRENE	**58.6 J**	**1730**	**677**	79 U	**112**	**2420**	**478**	**560 J**	**1080 J**
BENZO(B)FLUORANTHENE	**96.8**	**2200**	**173**	79 U	**136**	**3310**	**468**	**1160 J**	**1430 J**
BENZO(G,H,I)PERYLENE	**62.4 J**	**1730**	**145**	79 U	**111**	**2430**	**275**	**641 J**	28 UJ
BENZO(K)FLUORANTHENE	**51.2 J**	**1470**	**111**	79 U	**76 J**	**2050**	**214**	**539**	**715**
CHRYSENE	430 U	**2100 J**	**87**	400 U	**111 J**	**2000 J**	**432**	**758 J**	28 UJ
DIBENZO(A,H)ANTHRACENE	86 U	690 U	55 U	79 U	85 U	690 U	28 U	**122 J**	28 UJ
FLUORANTHENE	430 U	**3780**	**212**	400 U	**278 J**	**2600 J**	**397**	**1690 J**	**1930 J**
FLUORENE	430 U	3500 U	360 U	400 U	420 U	3500 U	190 U	190 U	190 U
INDENO(1,2,3-CD)PYRENE	**53.3 J**	**1640**	**139**	79 U	**91.6**	**2120**	**211**	**534 J**	28 UJ
NAPHTHALENE	430 U	3500 U	360 U	400 U	420 U	3500 U	190 U	190 U	190 U
PHENANTHRENE	430 U	3500 U	360 U	400 U	420 U	3500 U	190 U	**139 J**	190 U
PYRENE	430 U	**3570**	**183**	400 U	**202 J**	**3170 J**	**426**	**1380**	**1750**
Petroleum Hydrocarbons(mg/kg)									
TPH	NA	**183**	NA	NA	NA	**181**	NA	**83.4**	**78.4**

TABLE 3-2

PAH AND TRPH ANALYTICAL DATA
BUILDING 635 SAMPLING AND ANALYSIS REPORT
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

Parameter	CEF-635-								
	SS-102-01	SS-103-01	SS-104-01	SS-105-01	SS-106-01	SS-108-01	SS-110-01	SS-506-02	SU-507-03
Semivolatile Compounds (ug/kg)									
1-METHYLNAPHTHALENE	200 U	190 U	190 U	200 U	190 U	180 U	**2200**	390 U	390 U
2-METHYLNAPHTHALENE	200 U	190 U	190 U	200 U	190 U	180 U	**1040**	390 U	390 U
ACENAPHTHENE	200 U	190 U	190 U	200 U	190 U	180 U	**1750**	780 U	780 U
ACENAPHTHYLENE	200 U	190 U	190 U	200 U	190 U	180 U	**1060**	780 U	780 U
ANTHRACENE	**37.4 J**	**40.6 J**	**16.7 J**	**58.8 J**	**10.7 J**	180 U	**864**	390 U	390 U
BENZO(A)ANTHRACENE	**927**	**792**	**582**	**1140**	**299**	**572**	**14100**	390 U	390 U
BENZO(A)PYRENE	**992**	**625**	**534**	**1270**	**286**	**875**	**14700**	78 U	78 U
BENZO(B)FLUORANTHENE	**1540**	**1200**	**770**	**2100**	**588**	**953**	**20100**	78 U	78 U
BENZO(G,H,I)PERYLENE	**814**	**727**	**580**	**848**	**360**	**547**	**8290**	78 U	78 U
BENZO(K)FLUORANTHENE	**728**	**568**	**430**	**1120**	**307**	**485**	**7890**	78 U	78 U
CHRYSENE	**1000**	**1020**	**442**	**1280**	**261**	**725**	**13500**	390 U	390 U
DIBENZO(A,H)ANTHRACENE	**101**	**83.3**	**105**	**112**	**44.5**	**81**	**1510**	78 U	78 U
FLUORANTHENE	**2050**	**2550**	**755**	**2490**	**457**	**898**	**16200**	390 U	390 U
FLUORENE	200 U	190 U	190 U	200 U	190 U	180 U	**653**	390 U	390 U
INDENO(1,2,3-CD)PYRENE	**680**	**597**	**481**	**893**	**303**	28 U	**7840**	78 U	78 U
NAPHTHALENE	200 U	190 U	190 U	200 U	190 U	180 U	**464**	390 U	390 U
PHENANTHRENE	**216**	**378**	**55.5 J**	**79.7 J**	**182 J**	180 U	**1840**	390 U	390 U
PYRENE	**2290**	**1920**	**760**	**4260**	**468**	**967**	**20900**	390 U	390 U
Petroleum Hydrocarbons(mg/kg)									
TPH	**85**	**73.9**	**59.4**	**86.8**	**56.1**	**215**	NA	NA	NA

TABLE 3-2

PAH AND TRPH ANALYTICAL DATA
BUILDING 635 SAMPLING AND ANALYSIS REPORT
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

Parameter	CEF-635-								
	SS-111-01 Sample	SS-111-01 Duplicate	SS-814-02	SU-503-05	SS-113-01	SS-114-01	SS-116-01	SS-117-01	SS-119-01
Semivolatile Compounds (ug/kg)									
1-METHYLNAPHTHALENE	**554 J**	**1260 J**	360 U	1600 U	180 U	190 U	180 U	190 U	**197**
2-METHYLNAPHTHALENE	400 UJ	**1060 J**	360 U	1600 U	180 U	190 U	180 U	190 U	180 U
ACENAPHTHENE	**1290**	**1150**	720 U	3300 U	180 U	190 U	180 U	190 U	180 U
ACENAPHTHYLENE	**2180 J**	**993 J**	720 U	3300 U	180 U	190 U	180 U	190 U	180 U
ANTHRACENE	**1000 J**	**5910 J**	360 U	1600 U	180 U	190 U	180 U	190 U	180 U
BENZO(A)ANTHRACENE	**19800 J**	**8250 J**	360 U	**1160 J**	**319**	**257**	**196**	**222**	**968**
BENZO(A)PYRENE	**22900 J**	**9850 J**	72 U	**1960**	**616**	**429**	**495**	**465**	**1560**
BENZO(B)FLUORANTHENE	**34300 J**	**5570 J**	72 U	**1450**	**591**	**213**	**402**	**329**	**3120**
BENZO(G,H,I)PERYLENE	**13300**	**16400**	72 U	**1440**	**288**	**127**	**217**	**183**	**1640**
BENZO(K)FLUORANTHENE	**12300 J**	**7370 J**	72 U	**960**	**294**	**102**	**157**	**149**	**1090**
CHRYSENE	**22800**	**17800**	360 U	**1240 J**	28 U	**127**	**185**	**239**	**1410**
DIBENZO(A,H)ANTHRACENE	61 UJ	**1260 J**	72 U	**655**	**44.3**	29 U	28 U	29 U	28 U
FLUORANTHENE	**11800**	**9430**	360 U	**1100 J**	**945**	**312**	**399**	**358**	**704**
FLUORENE	400 UJ	**778 J**	360 U	1600 U	180 U	190 U	180 U	190 U	180 U
INDENO(1,2,3-CD)PYRENE	**12000**	**14600**	72 U	**1290**	**256**	**207**	**191**	**158**	**1300**
NAPHTHALENE	400 U	380 U	360 U	1600 U	180 U	190 U	180 U	190 U	180 U
PHENANTHRENE	**970 J**	380 UJ	360 U	1600 U	180 U	190 U	180 U	190 U	180 U
PYRENE	**22200**	**16000**	360 U	**1730**	**56.6**	**257**	**427**	**386**	**1510**
Petroleum Hydrocarbons(mg/kg)									
TPH	NA	NA	**36.5**	NA	NA	NA	NA	NA	NA

TABLE 3-2

PAH AND TRPH ANALYTICAL DATA
BUILDING 635 SAMPLING AND ANALYSIS REPORT
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

Parameter	CEF-635-								
	SS-120-01	SS-121-01	SS-121-01	SS-122-01	SS-123-01	SS-124-01	SS-125-01	SS-504-02	SU-505-03
		Sample	Duplicate						
Semivolatile Compounds (ug/kg)									
1-METHYLNAPHTHALENE	190 U	190 U	190 U	370 U	**214**	190 U	**3890**	440 U	420 U
2-METHYLNAPHTHALENE	190 U	190 U	190 U	370 U	190 U	190 U	390 U	440 U	420 U
ACENAPHTHENE	190 U	190 U	190 U	370 U	190 U	190 U	**1020**	890 U	840 U
ACENAPHTHYLENE	190 U	190 U	190 U	370 U	190 U	190 U	**3760**	890 U	840 U
ANTHRACENE	190 U	190 U	190 U	370 U	190 U	190 U	390 U	440 U	420 U
BENZO(A)ANTHRACENE	**472**	**85.1 J**	**153 J**	**2810**	**835**	**102**	**12500**	440 U	420 U
BENZO(A)PYRENE	**749**	**448**	**345**	**4750**	**1010**	**364**	**17100**	89 U	84 U
BENZO(B)FLUORANTHENE	**904**	**328 J**	**35.6 J**	**5860**	**1960**	**111**	**34200**	89 U	84 U
BENZO(G,H,I)PERYLENE	**640**	**159 J**	**432 J**	**2840**	**926**	**72.9**	**12400**	89 U	84 U
BENZO(K)FLUORANTHENE	**484**	**151 J**	28 UJ	**2020**	**772**	**90.1**	**11400**	89 U	84 U
CHRYSENE	**429**	**346 J**	**72.3 J**	**3630**	**1160**	**101**	**15700**	440 U	420 U
DIBENZO(A,H)ANTHRACENE	28 U	29 U	28 U	**272**	**74.9**	**64.7**	**1580**	89 U	84 U
FLUORANTHENE	**1160**	**259 J**	**54.6 J**	**5720**	**1630**	**260**	**24600**	440 U	420 U
FLUORENE	190 U	190 U	190 U	370 U	190 U	190 U	390 U	440 U	420 U
INDENO(1,2,3-CD)PYRENE	**477**	**132 J**	**478 J**	**2340**	**668**	**58**	**9390**	89 U	84 U
NAPHTHALENE	190 U	190 U	190 U	370 U	190 U	190 U	390 U	440 U	420 U
PHENANTHRENE	190 U	190 U	190 U	370 U	190 U	190 U	**1180**	440 U	420 U
PYRENE	**1080**	**294 J**	**53.4 J**	**5740**	**1580**	**199**	**28300**	440 U	420 U
Petroleum Hydrocarbons(mg/kg)									
TPH	NA	NA	NA	NA	NA	NA	NA	NA	NA

TABLE 3-2

PAH AND TRPH ANALYTICAL DATA
BUILDING 635 SAMPLING AND ANALYSIS REPORT
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

Parameter	CEF-635-								
	SS-126-01	SS-127-01	SS-128-01	SS-201-01 Sample	SS-201-01 Duplicate	SS-202-01	SS-203-01	SS-204-01	SS-205-01
Semivolatile Compounds (ug/kg)									
1-METHYLNAPHTHALENE	210 U	470 U	240 U	390 U	1800 U	380 U	420 U	450 U	450 U
2-METHYLNAPHTHALENE	210 U	470 U	240 U	390 U	1800 U	380 U	420 U	450 U	450 U
ACENAPHTHENE	210 U	470 U	240 U	780 U	3700 U	770 U	850 U	900 U	910 U
ACENAPHTHYLENE	210 U	470 U	240 U	780 U	3700 U	770 U	850 U	900 U	910 U
ANTHRACENE	210 U	470 U	240 U	390 U	1800 U	380 U	420 U	450 U	450 U
BENZO(A)ANTHRACENE	31 U	71 U	37 U	**363 J**	**2590 J**	**344**	**853**	90 U	91 U
BENZO(A)PYRENE	**482**	71 U	37 U	**394 J**	**2720 J**	**303**	**858**	90 U	**44 J**
BENZO(B)FLUORANTHENE	**125**	71 U	37 U	**609 J**	**2810 J**	**535**	**1360**	90 U	**92.5**
BENZO(G,H,I)PERYLENE	**84**	71 U	37 U	**413 J**	**2460 J**	**327**	**808**	90 U	**39 J**
BENZO(K)FLUORANTHENE	**144**	71 U	37 U	**342 J**	**1770 J**	**297**	**751**	90 U	**97.9**
CHRYSENE	**300**	71 U	37 U	**347 J**	**3110 J**	**404**	**799**	450 U	450 U
DIBENZO(A,H)ANTHRACENE	31 U	71 U	37 U	**51.8 J**	**257 J**	**34.2 J**	**85.2**	90 U	91 U
FLUORANTHENE	**176**	71 U	37 U	**461 J**	**3700 J**	**702**	**1050**	450 U	450 U
FLUORENE	210 U	470 U	240 U	390 U	1800 U	380 U	420 U	450 U	450 U
INDENO(1,2,3-CD)PYRENE	**242**	71 U	37 U	**390 J**	**2520 J**	**310**	**766**	90 U	**50.7 J**
NAPHTHALENE	210 U	470 U	240 U	390 U	1800 U	380 U	420 U	450 U	450 U
PHENANTHRENE	210 U	470 U	240 U	390 U	**1300 J**	380 U	420 U	450 U	450 U
PYRENE	**138**	71 U	37 U	**452 J**	**3550 J**	**589**	**1230**	450 U	450 U
Petroleum Hydrocarbons(mg/kg)									
TPH	NA	NA	NA	NA	NA	NA	NA	NA	NA

TABLE 3-2

PAH AND TRPH ANALYTICAL DATA
BUILDING 635 SAMPLING AND ANALYSIS REPORT
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

Parameter	CEF-635-								
	SS-206-01	SS-207-01	SS-208-01	SS-211-01	SS-212-01	SS-213-01	SS-216-01	SS-219-01	SS-220-01
Semivolatile Compounds (ug/kg)									
1-METHYLNAPHTHALENE	420 U	400 U	420 U	410 U	390 U	440 U	440 U	2100 U	470 U
2-METHYLNAPHTHALENE	420 U	400 U	420 U	410 U	390 U	440 U	440 U	2100 U	470 U
ACENAPHTHENE	850 U	810 U	850 U	820 U	770 U	880 U	880 U	4200 U	940 U
ACENAPHTHYLENE	850 U	810 U	850 U	820 U	770 U	880 U	880 U	4200 U	940 U
ANTHRACENE	420 U	400 U	420 U	410 U	390 U	440 U	440 U	2100 U	470 U
BENZO(A)ANTHRACENE	85 U	81 U	85 U	**677**	**519**	**80.2 J**	**507**	**3010**	**612**
BENZO(A)PYRENE	85 U	81 U	85 U	**431**	**561**	88 U	**390**	**2400**	**671**
BENZO(B)FLUORANTHENE	85 U	81 U	85 U	**768**	**621**	**50 J**	**576**	**3280**	**785**
BENZO(G,H,I)PERYLENE	85 U	81 U	85 U	**419**	**467**	88 U	**352**	**1650**	**449**
BENZO(K)FLUORANTHENE	85 U	81 U	85 U	**402**	**364**	88 U	**306**	**1830**	**440**
CHRYSENE	420 U	400 U	420 U	**764**	**430**	440 U	**458**	**2500**	**612**
DIBENZO(A,H)ANTHRACENE	85 U	81 U	85 U	**66.3 J**	**63.5 J**	88 U	**46.2 J**	**265 J**	**79.4 J**
FLUORANTHENE	420 U	400 U	420 U	**1290**	**736**	440 U	**1220**	**4880**	**553**
FLUORENE	420 U	400 U	420 U	410 U	390 U	440 U	440 U	2100 U	470 U
INDENO(1,2,3-CD)PYRENE	85 U	81 U	85 U	**494**	**445**	88 U	**347**	**1760**	**527**
NAPHTHALENE	420 U	400 U	420 U	410 U	390 U	440 U	440 U	2100 U	470 U
PHENANTHRENE	420 U	400 U	420 U	410 U	390 U	440 U	**272 J**	2100 U	470 U
PYRENE	420 U	400 U	420 U	**978**	**708**	440 U	**959**	**4960**	**560**
Petroleum Hydrocarbons(mg/kg)									
TPH	NA	NA	NA	NA	NA	NA	NA	NA	NA

TABLE 3-2

PAH AND TRPH ANALYTICAL DATA
BUILDING 635 SAMPLING AND ANALYSIS REPORT
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

Parameter	CEF-635-								
	SS-221-01	SS-222-01	SS-223-01	SS-224-01	SS-225-01 Sample	SS-225-01 Duplicate	SS-226-01	SS-227-01	SS-301-01
Semivolatile Compounds (ug/kg)									
1-METHYLNAPHTHALENE	440 U	450 U	440 U	2200 U	480 U	420 U	460 U	460 U	450 U
2-METHYLNAPHTHALENE	440 U	450 U	440 U	2200 U	480 U	420 U	460 U	460 U	450 U
ACENAPHTHENE	890 U	890 U	890 U	4400 U	960 U	830 U	930 U	930 U	910 U
ACENAPHTHYLENE	890 U	890 U	890 U	4400 U	960 U	830 U	930 U	930 U	910 U
ANTHRACENE	440 U	450 U	440 U	2200 U	480 U	420 U	460 U	460 U	450 U
BENZO(A)ANTHRACENE	89 U	89 U	**617**	**1730**	**147 J**	**596 J**	**753**	93 U	91 U
BENZO(A)PYRENE	89 U	89 U	**684**	**1840**	**132 J**	**552 J**	**716**	93 U	91 U
BENZO(B)FLUORANTHENE	89 U	89 U	**1060**	**3510**	**184 J**	**697 J**	**1070**	**56.4 J**	91 U
BENZO(G,H,I)PERYLENE	89 U	89 U	**669**	**1960**	**138 J**	**405 J**	**636**	93 U	91 U
BENZO(K)FLUORANTHENE	89 U	89 U	**529**	**1910**	**96.2 J**	**394 J**	**624**	460 U	91 U
CHRYSENE	440 U	450 U	**685**	**2640**	**142 J**	**570 J**	**838**	460 U	450 U
DIBENZO(A,H)ANTHRACENE	89 U	89 U	**72.5 J**	**227 J**	96 U	**46.9 J**	**38.4 J**	93 U	91 U
FLUORANTHENE	440 U	450 U	**1180**	**4470**	**274 J**	**1070 J**	**1280**	460 U	450 U
FLUORENE	440 U	450 U	440 U	2200 U	480 U	420 U	460 U	460 U	450 U
INDENO(1,2,3-CD)PYRENE	89 U	89 U	**622**	**1860**	**112 J**	**443 J**	**842**	93 U	91 U
NAPHTHALENE	440 U	450 U	440 U	2200 U	480 U	420 U	460 U	460 U	450 U
PHENANTHRENE	440 U	450 U	**205 J**	2200 U	480 U	420 U	**426 J**	460 U	450 U
PYRENE	440 U	450 U	**1220**	**3390**	**296 J**	**1150 J**	**1260**	460 U	450 U
Petroleum Hydrocarbons(mg/kg)									
TPH	NA	NA	NA	NA	NA	NA	NA	NA	NA

TABLE 3-2

PAH AND TRPH ANALYTICAL DATA
BUILDING 635 SAMPLING AND ANALYSIS REPORT
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

Parameter	CEF-635-								
	SS-302-01	SS-303-01	SS-304-01	SS-305-01	SS-306-01	SS-307-01	SS-308-01	SS-401-01	SS-402-01
Semivolatile Compounds (ug/kg)									
1-METHYLNAPHTHALENE	430 U	410 U	400 U	390 U	1900 U	980 U	1500 U	1800 U	410 U
2-METHYLNAPHTHALENE	430 U	410 U	400 U	390 U	1900 U	980 U	1500 U	1800 U	410 U
ACENAPHTHENE	870 U	820 U	800 U	770 U	3800 U	2000 U	3000 U	3600 U	810 U
ACENAPHTHYLENE	870 U	820 U	800 U	770 U	3800 U	2000 U	3000 U	3600 U	810 U
ANTHRACENE	430 U	410 U	400 U	390 U	1900 U	980 U	1500 U	1800 U	410 U
BENZO(A)ANTHRACENE	87 U	82 U	80 U	77 U	**1400**	**646 J**	**1170**	**796 J**	410 U
BENZO(A)PYRENE	87 U	82 U	80 U	77 U	**1670**	**858**	**1040**	**1150**	81 U
BENZO(B)FLUORANTHENE	87 U	82 U	80 U	77 U	**2440**	**758**	**1700**	**1220**	81 U
BENZO(G,H,I)PERYLENE	87 U	82 U	80 U	77 U	**1600**	**493**	**1170**	**1260**	81 U
BENZO(K)FLUORANTHENE	87 U	82 U	80 U	77 U	**1270**	**536**	**938**	**842**	81 U
CHRYSENE	430 U	410 U	400 U	390 U	**1030 J**	**491 J**	**1260 J**	**1330 J**	410 U
DIBENZO(A,H)ANTHRACENE	87 U	82 U	80 U	77 U	**189 J**	200 U	**141 J**	360 U	81 U
FLUORANTHENE	430 U	410 U	400 U	390 U	**1440 J**	980 U	**2170**	**1970**	410 U
FLUORENE	430 U	410 U	400 U	390 U	1900 U	980 U	1500 U	1800 U	410 U
INDENO(1,2,3-CD)PYRENE	87 U	82 U	80 U	77 U	**1640**	**452**	**1060**	**855**	81 U
NAPHTHALENE	430 U	410 U	400 U	390 U	1900 U	980 U	1500 U	1800 U	410 U
PHENANTHRENE	430 U	410 U	400 U	390 U	1900 U	980 U	1500 U	1800 U	410 U
PYRENE	430 U	410 U	400 U	390 U	**1480 J**	980 U	**1970**	**1960**	410 U
Petroleum Hydrocarbons(mg/kg)									
TPH	NA	NA	NA	NA	NA	NA	NA	NA	NA

TABLE 3-2

PAH AND TRPH ANALYTICAL DATA
BUILDING 635 SAMPLING AND ANALYSIS REPORT
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

Parameter	CEF-635-								
	SS-403-01	SS-404-01	SS-405-01	SS-407-01	SS-408-01	SS-409-01	SS-410-01	SS-501-01 Sample	SS-501-01 Duplicate
Semivolatile Compounds (ug/kg)									
1-METHYLNAPHTHALENE	370 U	460 U	380 U	390 U	400 U	390 U	3700 U	1500 U	1500 U
2-METHYLNAPHTHALENE	370 U	460 U	380 U	390 U	400 U	390 U	3700 U	1500 U	1500 U
ACENAPHTHENE	740 U	930 U	750 U	780 U	800 U	780 U	7400 U	3000 U	3000 U
ACENAPHTHYLENE	740 U	930 U	750 U	780 U	800 U	780 U	7400 U	3000 U	3000 U
ANTHRACENE	370 U	460 U	380 U	390 U	400 U	390 U	3700 U	1500 U	1500 U
BENZO(A)ANTHRACENE	**130 J**	**414 J**	**166 J**	390 U	400 U	390 U	**1290 J**	**1330 J**	**710 J**
BENZO(A)PYRENE	**220**	**313**	**196**	78 U	80 U	78 U	**1640**	**2190 J**	**1200**
BENZO(B)FLUORANTHENE	**189**	**329**	**164**	78 U	80 U	78 U	**1620**	**2370 J**	**1220**
BENZO(G,H,I)PERYLENE	**177**	**141**	**133**	78 U	80 U	78 U	**1240**	**1870 J**	**1060**
BENZO(K)FLUORANTHENE	**126**	**260**	**111**	78 U	80 U	78 U	**1080**	**1850 J**	**765**
CHRYSENE	**140 J**	**355 J**	**156 J**	390 U	400 U	390 U	**1420 J**	**3330 J**	**1270 J**
DIBENZO(A,H)ANTHRACENE	74 U	93 U	75 U	78 U	80 U	78 U	740 U	**361 J**	**186 J**
FLUORANTHENE	**119 J**	**322 J**	**187 J**	390 U	400 U	390 U	**1660 J**	**5850 J**	**1970**
FLUORENE	370 U	460 U	380 U	390 U	400 U	390 U	3700 U	1500 U	1500 U
INDENO(1,2,3-CD)PYRENE	**158**	**118**	**128**	78 U	80 U	78 U	**1140**	**1530 J**	**920**
NAPHTHALENE	370 U	460 U	380 U	390 U	400 U	390 U	3700 U	1500 U	1500 U
PHENANTHRENE	370 U	460 U	380 U	390 U	400 U	390 U	3700 U	**708 J**	1500 U
PYRENE	**210 J**	**798**	**243 J**	390 U	400 U	390 U	**2640 J**	**5120 J**	**1890**
Petroleum Hydrocarbons(mg/kg)									
TPH	NA	NA	NA	NA	NA	NA	NA	NA	NA

TABLE 3-2

PAH AND TRPH ANALYTICAL DATA
BUILDING 635 SAMPLING AND ANALYSIS REPORT
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

Parameter	CEF-635-								
	SS-809-02	SS-502-01	SS-822-02	SS-601-01	SS-602-01 Sample	SS-602-01 Duplicate	SS-603-01	SS-701-01	SS-702-01
Semivolatile Compounds (ug/kg)									
1-METHYLNAPHTHALENE	390 U	3200 U	410 U	380 U	1800 U	1800 U	5700 U	380 U	1900 U
2-METHYLNAPHTHALENE	390 U	3200 U	410 U	380 U	1800 U	1800 U	5700 U	380 U	1900 U
ACENAPHTHENE	790 U	6300 U	820 U	750 U	3600 U	3700 U	11000 U	760 U	3700 U
ACENAPHTHYLENE	790 U	6300 U	820 U	750 U	3600 U	3700 U	11000 U	760 U	3700 U
ANTHRACENE	390 U	3200 U	410 U	380 U	1800 U	1800 U	5700 U	380 U	1900 U
BENZO(A)ANTHRACENE	390 U	**11800 J**	410 U	**610**	**1900**	**2050**	**10100**	**521**	**1850 J**
BENZO(A)PYRENE	79 U	**11100 J**	82 U	**546**	**2460**	**2420**	**8390**	**584**	**2480**
BENZO(B)FLUORANTHENE	79 U	**6320 J**	82 U	**404**	**2170**	**2010**	**7820**	**1020**	**2650**
BENZO(G,H,I)PERYLENE	79 U	**4610 J**	82 U	**250**	**2060**	**1370**	**3490**	**975**	**3260**
BENZO(K)FLUORANTHENE	79 U	**4600 J**	82 U	**284**	**1430**	**1110**	**5440**	**605**	**1410**
CHRYSENE	390 U	**9110 J**	410 U	**445**	**2300**	**2480**	**7550**	**913**	**3390**
DIBENZO(A,H)ANTHRACENE	79 U	**817 J**	82 U	**89.1**	**744**	**550**	**2000**	**65 J**	370 U
FLUORANTHENE	390 U	**17200 J**	410 U	**1000**	**5760**	**5850**	**12800**	**1520**	**5320**
FLUORENE	390 U	3200 U	410 U	380 U	1800 U	1800 U	5700 U	380 U	1900 U
INDENO(1,2,3-CD)PYRENE	79 U	**4850 J**	82 U	**261**	**1750**	**1270**	**4080**	**648**	**2020**
NAPHTHALENE	390 U	3200 U	410 U	380 U	1800 U	1800 U	5700 U	380 U	1900 U
PHENANTHRENE	390 U	3200 U	410 U	380 U	1800 U	1800 U	5700 U	**258 J**	**948 J**
PYRENE	390 U	**21100 J**	410 U	**865**	**4460**	**4840**	**18000**	**1330**	**5640**
Petroleum Hydrocarbons(mg/kg)									
TPH	NA	NA	NA	NA	NA	NA	NA	NA	NA

TABLE 3-2

PAH AND TRPH ANALYTICAL DATA
BUILDING 635 SAMPLING AND ANALYSIS REPORT
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

Parameter	CEF-635-								
	SS-805-02	SU-806-03	SS-703-01	SS-704-01	SS-801-02	SS-705-01	SS-824-02	SS-706-01	SS-707-01
Semivolatile Compounds (ug/kg)									
1-METHYLNAPHTHALENE	1600 U	NA	1800 U	1800 U	420 U	2900 U	370 U	1800 U	1800 U
2-METHYLNAPHTHALENE	1600 U	NA	1800 U	1800 U	420 U	2900 U	370 U	1800 U	1800 U
ACENAPHTHENE	3200 U	NA	3600 U	3700 U	840 U	5800 U	730 U	3600 U	3600 U
ACENAPHTHYLENE	3200 U	NA	3600 U	3700 U	840 U	5800 U	730 U	3600 U	3600 U
ANTHRACENE	1600 U	NA	1800 U	1800 U	420 U	2900 U	370 U	1800 U	1800 U
BENZO(A)ANTHRACENE	**1770**	NA	**903 J**	**6420**	420 U	**3520**	370 U	**1840**	**2140**
BENZO(A)PYRENE	**2100**	79 UJ	**1150**	**7170**	84 U	**4010**	73 U	**1570**	**1900**
BENZO(B)FLUORANTHENE	**2460**	NA	**1180**	**7870**	84 U	**6080**	73 U	**1770**	**2160**
BENZO(G,H,I)PERYLENE	**2740**	NA	**1620**	**9790**	84 U	**5760**	73 U	**2270**	**3400**
BENZO(K)FLUORANTHENE	**1270**	NA	**642**	**4390**	84 U	**3420**	73 U	**975**	**1550**
CHRYSENE	**2220**	NA	**1370 J**	**9780**	420 U	**4290**	370 U	**2350**	**3240**
DIBENZO(A,H)ANTHRACENE	**210 J**	NA	360 U	**605**	84 U	**462 J**	73 U	360 U	360 U
FLUORANTHENE	**3230**	NA	**1060 J**	**10200**	420 U	**7070**	370 U	**3520**	**3540**
FLUORENE	1600 U	NA	1800 U	1800 U	420 U	2900 U	370 U	1800 U	1800 U
INDENO(1,2,3-CD)PYRENE	**1780**	NA	**946**	**5850**	84 U	**4000**	73 U	**1240**	**1490**
NAPHTHALENE	1600 U	NA	1800 U	1800 U	420 U	2900 U	370 U	1800 U	1800 U
PHENANTHRENE	1600 U	NA	1800 U	**1080 J**	420 U	**1250 J**	370 U	1800 U	1800 U
PYRENE	**3610**	NA	**1490 J**	**13300**	420 U	**7150**	370 U	**4300**	**4390**
Petroleum Hydrocarbons(mg/kg)									
TPH	NA	NA	NA	NA	NA	NA	NA	NA	NA

TABLE 3-2

PAH AND TRPH ANALYTICAL DATA
BUILDING 635 SAMPLING AND ANALYSIS REPORT
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

Parameter	CEF-635-								
	SS-829-02	SS-708-01	SS-803-01	SS-804-01 Sample	SS-804-01 Duplicate	SS-807-01	SS-808-01	SS-811-01 Sample	SS-811-01 Duplicate
Semivolatile Compounds (ug/kg)									
1-METHYLNAPHTHALENE	380 U	1800 U	410 U	440 U	450 U	450 U	440 U	1400 U	1500 U
2-METHYLNAPHTHALENE	380 U	1800 U	410 U	440 U	450 U	450 U	440 U	1400 U	1500 U
ACENAPHTHENE	760 U	3600 U	820 U	870 U	900 U	910 U	890 U	2900 U	3000 U
ACENAPHTHYLENE	760 U	3600 U	820 U	870 U	900 U	910 U	890 U	2900 U	3000 U
ANTHRACENE	380 U	1800 U	410 U	440 U	450 U	450 U	440 U	1400 U	1500 U
BENZO(A)ANTHRACENE	380 U	**1100 J**	410 U	440 U	450 U	450 U	440 U	**805 J**	**620 J**
BENZO(A)PYRENE	76 U	**1170**	82 U	87 U	90 U	91 U	89 U	**1490**	**1200**
BENZO(B)FLUORANTHENE	76 U	**1570**	82 U	87 U	90 U	91 U	89 U	**1510**	**1100**
BENZO(G,H,I)PERYLENE	76 U	**1040**	82 U	87 U	90 U	91 U	89 U	**2370**	**1630**
BENZO(K)FLUORANTHENE	76 U	**949**	82 U	87 U	180 U	91 U	89 U	**760**	**555**
CHRYSENE	380 U	**1170 J**	410 U	440 U	450 U	450 U	440 U	**2780**	**2330**
DIBENZO(A,H)ANTHRACENE	76 U	360 U	82 U	87 U	90 U	91 U	89 U	**182 J**	300 U
FLUORANTHENE	380 U	**2350**	410 U	440 U	450 U	450 U	440 U	**743 J**	**652 J**
FLUORENE	380 U	1800 U	410 U	440 U	450 U	450 U	440 U	1400 U	1500 U
INDENO(1,2,3-CD)PYRENE	76 U	**875**	82 U	87 U	90 U	91 U	89 U	**1410**	**1030**
NAPHTHALENE	380 U	1800 U	410 U	440 U	450 U	450 U	440 U	1400 U	1500 U
PHENANTHRENE	380 U	**1230 J**	410 U	440 U	450 U	450 U	440 U	1400 U	1500 U
PYRENE	380 U	**3170**	410 U	440 U	450 U	450 U	440 U	**1390 J**	**1160 J**
Petroleum Hydrocarbons(mg/kg)									
TPH	NA	NA	NA	NA	NA	NA	NA	NA	NA

TABLE 3-2

PAH AND TRPH ANALYTICAL DATA
BUILDING 635 SAMPLING AND ANALYSIS REPORT
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

Parameter	CEF-635-				
	SS-818-02	SS-818-02	SS-823-01	SS-826-01	SS-831-01
	Sample	Duplicate			
Semivolatile Compounds (ug/kg)					
1-METHYLNAPHTHALENE	390 U	430 U	470 U	440 U	390 U
2-METHYLNAPHTHALENE	390 U	430 U	470 U	440 U	390 U
ACENAPHTHENE	790 U	860 U	950 U	890 U	770 U
ACENAPHTHYLENE	790 U	860 U	950 U	890 U	770 U
ANTHRACENE	390 U	430 U	470 U	440 U	390 U
BENZO(A)ANTHRACENE	390 U	430 U	470 U	440 U	390 U
BENZO(A)PYRENE	**141 J**	86 UJ	95 U	89 U	77 U
BENZO(B)FLUORANTHENE	**184 J**	86 UJ	95 U	89 U	77 U
BENZO(G,H,I)PERYLENE	**241 J**	86 UJ	95 U	89 U	77 U
BENZO(K)FLUORANTHENE	**96 J**	86 UJ	95 U	89 U	77 U
CHRYSENE	**203 J**	430 UJ	470 U	440 U	390 U
DIBENZO(A,H)ANTHRACENE	79 U	86 U	95 U	89 U	77 U
FLUORANTHENE	390 U	430 U	470 U	440 U	390 U
FLUORENE	390 U	430 U	470 U	440 U	390 U
INDENO(1,2,3-CD)PYRENE	**141 J**	86 UJ	95 U	89 U	77 U
NAPHTHALENE	390 U	430 U	470 U	440 U	390 U
PHENANTHRENE	390 U	430 U	470 U	440 U	390 U
PYRENE	390 U	430 U	470 U	440 U	390 U
Petroleum Hydrocarbons(mg/kg)					
TPH	**41.6**	**40.5**	NA	NA	NA

TABLE 3-2

PAH AND TRPH ANALYTICAL DATA
BUILDING 635 SITE ASSESSMENT REPORT
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

NOTES:
U = Not detected at or above detection limit (associated value).
J = Estimated concentration.
NA = Not analyzed.
Bolded values exceed detection limit.
Shaded values exceed less stringent of industrial and leachability criteria.
1 Florida Department of Environmental Protection Soil Cleanup Target Levels, FAC Chapter 62-777 (FDEP, 1999).

TABLE 3-3

SOIL ANALYTICAL RESULTS SUMMARY (PRE-EXCAVATION)
BUILDING 635 RAILROAD LOADING DOCK
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

Parameter	Frequency of Detection	Range of Concentrations	Location Of Maximum Detection	Average of Positive Detections
Inorganics (mg/kg)				
ALUMINUM	5 / 5	858 - 5490	CEF-635-SS-002-01	3072
ANTIMONY	0 / 5	-	-	-
ARSENIC	2 / 5	2.5 - 2.8	CEF-635-SS-002-01	2.3
BARIUM	5 / 5	8.6 - 57.9	CEF-635-SS-002-01	33.8
BERYLLIUM	2 / 5	1.2 - 1.3	CEF-635-SS-005-01	1.3
CADMIUM	0 / 5	-	-	-
CALCIUM	5 / 5	18,400 - 125,000	CEF-635-SS-004-01	66,220
CHROMIUM	5 / 5	2.8 - 6.1	CEF-635-SS-002-01	4.2
COBALT	2 / 5	0.66 - 0.82	CEF-635-SS-002-01	0.74
COPPER	5 / 5	3 - 8.4	CEF-635-SS-002-01	5.0
IRON	5 / 5	807 - 3,960	CEF-635-SS-001-01	2,431
LEAD	5 / 5	5.4 - 11.1	CEF-635-SS-002-01	8.0
MAGNESIUM	5 / 5	347 - 3,760	CEF-635-SS-002-01	2,234
MANGANESE	5 / 5	26.2 - 308	CEF-635-SS-002-01	172
MERCURY	0 / 5	-	-	-
NICKEL	0 / 5	-	-	-
POTASSIUM	4 / 5	285 - 1,460	CEF-635-SS-002-01	821
SELENIUM	0 / 5	-	-	-
SILVER	0 / 5	-	-	-
SODIUM	5 / 5	130 - 267	CEF-635-SS-002-01	192
THALLIUM	0 / 5	-	-	-
VANADIUM	5 / 5	1.8 - 9.3	CEF-635-SS-002-01	5
ZINC	5 / 5	9.8 - 35.6	CEF-635-SS-002-01	18
Semivolatile Organic Compounds, ug/kg				
1-METHYLNAPHTHALENE	5 / 105	197 - 3,890	CEF-635-SS-125-01	1,482
2-METHYLNAPHTHALENE	2 / 105	1,040 - 1,060	CEF-635-SS-111-01	835
ACENAPHTHENE	4 / 105	228 - 1,750	CEF-635-SS-110-01	1,055
ACENAPHTHYLENE	4 / 105	356 - 3,760	CEF-635-SS-125-01	1,691
ANTHRACENE	9 / 105	10.7 - 5,910	CEF-635-SS-111-01	503
BENZO(A)ANTHRACENE	73 / 105	70.4 - 64,400	CEF-635-SS-001-01	2,772
BENZO(A)PYRENE	75 / 107	44 - 54,000	CEF-635-SS-001-01	2,793
BENZO(B)FLUORANTHENE	76 / 105	35.6 - 58,800	CEF-635-SS-001-01	3,487
BENZO(G,H,I)PERYLENE	74 / 105	39 - 34,300	CEF-635-SS-001-01	2,165
BENZO(K)FLUORANTHENE	74 / 105	51.2 - 38,300	CEF-635-SS-001-01	1,894
CHRYSENE	71 / 105	56.6 - 58,200	CEF-635-SS-001-01	3,048
DIBENZO(A,H)ANTHRACENE	43 / 105	23.8 - 2,000	CEF-635-SS-603-01	303
FLUORANTHENE	68 / 105	54.6 - 82,800	CEF-635-SS-001-01	4,290
FLUORENE	2 / 105	653 - 778	CEF-635-SS-111-01	571
INDENO(1,2,3-CD)PYRENE	73 / 105	50.7 - 38,100	CEF-635-SS-001-01	1,967
NAPHTHALENE	1 / 105	464	CEF-635-SS-110-01	464
PHENANTHRENE	20 / 105	26.2 - 1,840	CEF-635-SS-110-01	590
PYRENE	68 / 105	53.4 - 136,000	CEF-635-SS-001-01	5,396
Petroleum Hydrocarbons, mg/kg				
TRPH	16 / 16	24.1 - 3,390	CEF-635-SS-001-01	346

TABLE 3-4

ATTAINMENT OF SCTLs
BUILDING 635 SAMPLING AND ANALYSIS REPORT
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

	BaPEq - Pre-excavation	BaPEq - Industrial SCTL
MINIMUM CONCENTRATION	42	2
MAXIMUM CONCENTRATION	60,140	2,388
MEAN CONCENTRATION	2,985	468
t 0.95, n-1	0.219134	0.253076
STANDARD DEVIATION	7,660.48	631.07
COEFFICIENT OF VARIATION	2.57	1.35
n	97	97
UCL $_{0.95}$	4,243	568
Goal	-	**500**
Replacement Value	-	**1.8**
CEF-635-SS-001-01-AVG	60,140	*1.8*
CEF-635-SS-002-01	25,196	*1.8*
CEF-635-SS-125-01	24,419	*1.8*
CEF-635-SS-111-01-AVG	21,865	*1.8*
CEF-635-SS-110-01	20,506	*1.8*
CEF-635-SS-502-01	14,269	*1.8*
CEF-635-SS-603-01	12,652	*1.8*
CEF-635-SS-704-01	9,843	*1.8*
CEF-635-SS-003-01	6,466	*1.8*
CEF-635-SS-122-01	6,147	*1.8*
CEF-635-SS-705-01	5,870	*1.8*
CEF-635-SS-112-02	4,738	*1.8*
CEF-635-SS-602-01-AVG	3,660	*1.8*
CEF-635-SS-005-01	3,505	*1.8*
CEF-635-SS-219-01	3,491	*1.8*
CEF-635-SS-702-01	3,334	*1.8*
CEF-635-SS-805-02	2,926	*1.8*
CEF-635-SS-224-01	2,799	*1.8*
CEF-635-SS-707-01	2,678	*1.8*
CEF-635-SS-004-01	2,665	*1.8*
CEF-635-SS-410-01	2,427	*1.8*
CEF-635-SS-306-01	2,421	*1.8*
CEF-635-SS-501-01-AVG	2,388	2,388
CEF-635-SS-706-01	2,247	2,247
CEF-635-SS-201-01-AVG	2,188	2,188
CEF-635-SS-119-01	2,125	2,125
CEF-635-SS-811-01-AVG	1,860	1,860
CEF-635-SS-105-01	1,808	1,808
CEF-635-SS-708-01	1,715	1,715
CEF-635-SS-109-02[1]	1,715	*60.5*
CEF-635-SS-703-01	1,641	1,641
CEF-635-SS-401-01	1,627	1,627

TABLE 3-4

ATTAINMENT OF SCTLs
BUILDING 635 SAMPLING AND ANALYSIS REPORT
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

	BaPEq - Pre-excavation	BaPEq - Industrial SCTL
MINIMUM CONCENTRATION	42	2
MAXIMUM CONCENTRATION	60,140	2,388
MEAN CONCENTRATION	2,985	468
t 0.95, n-1	0.219134	0.253076
STANDARD DEVIATION	7,660.48	631.07
COEFFICIENT OF VARIATION	2.57	1.35
n	97	97
UCL $_{0.95}$	4,243	568
Goal	-	**500**
Replacement Value	-	**1.8**
CEF-635-SS-308-01	1,585	1,585
CEF-635-SS-123-01	1,440	1,440
CEF-635-SS-102-01	1,416	1,416
CEF-635-SS-203-01	1,249	1,249
CEF-635-SS-307-01	1,149	1,149
CEF-635-SS-108-01	1,115	1,115
CEF-635-SS-101-01-AVG	1,083	1,083
CEF-635-SS-226-01	1,028	1,028
CEF-635-SS-223-01	992	992
CEF-635-SS-103-01	974	974
CEF-635-SS-120-01	954	954
CEF-635-SS-220-01	948	948
CEF-635-SS-701-01	875	875
CEF-635-SS-104-01	827	827
CEF-635-SS-212-01	787	787
CEF-635-SS-113-01	780	780
CEF-635-SS-601-01	766	766
CEF-635-SS-115-02	756	756
CEF-635-SS-211-01	696	696
CEF-635-SS-116-01	590	590
CEF-635-SS-118-02	583	583
CEF-635-SS-216-01	583	583
CEF-635-SS-117-01	552	552
CEF-635-SS-126-01	537	537
CEF-635-SS-114-01	512	512
CEF-635-SS-225-01-AVG	501	501
CEF-635-SS-121-01-AVG	472	472
CEF-635-SS-202-01	459	459
CEF-635-SS-124-01	457	457
CEF-635-SS-106-01	453	453
CEF-635-SS-404-01	449	449
CEF-635-SS-107-02[1]	424	*60.5*

TABLE 3-4

ATTAINMENT OF SCTLs
BUILDING 635 SAMPLING AND ANALYSIS REPORT
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

	BaPEq - Pre-excavation	BaPEq - Industrial SCTL
MINIMUM CONCENTRATION	42	2
MAXIMUM CONCENTRATION	60,140	2,388
MEAN CONCENTRATION	2,985	468
t 0.95, n-1	0.219134	0.253076
STANDARD DEVIATION	7,660.48	631.07
COEFFICIENT OF VARIATION	2.57	1.35
n	97	97
UCL $_{0.95}$	4,243	568
Goal	-	**500**
Replacement Value	-	**1.8**
CEF-635-SS-403-01	306	306
CEF-635-SS-405-01	281	281
CEF-635-SS-818-02-AVG[1]	175	*60.5*
CEF-635-SS-227-01	110	110
CEF-635-SS-205-01	110	110
CEF-635-SS-213-01	106	106
CEF-635-SS-823-01	*48*	*48*
CEF-635-SS-807-01	*46*	*46*
CEF-635-SS-204-01	*45*	*45*
CEF-635-SS-504-02	*45*	*45*
CEF-635-SS-221-01	*45*	*45*
CEF-635-SS-222-01	*45*	*45*
CEF-635-SS-808-01	*45*	*45*
CEF-635-SS-826-01	*45*	*45*
CEF-635-SS-804-01-AVG	*44*	*44*
CEF-635-SS-206-01	*43*	*43*
CEF-635-SS-208-01	*43*	*43*
CEF-635-SS-801-02	*42*	*42*
CEF-635-SS-822-02	*41*	*41*
CEF-635-SS-803-01	*41*	*41*
CEF-635-SS-207-01	*41*	*41*
CEF-635-SS-402-01	*41*	*41*
CEF-635-SS-408-01	*40*	*40*
CEF-635-SS-809-02	*40*	*40*
CEF-635-SS-506-02[1]	*39*	*60.5*
CEF-635-SS-407-01	*39*	*39*
CEF-635-SS-409-01	*39*	*39*
CEF-635-SS-831-01	*39*	*39*
CEF-635-SS-829-02	*38*	*38*
CEF-635-SS-824-02	*37*	*37*
CEF-635-SS-814-02[1]	*36*	*60.5*

TABLE 3-4

ATTAINMENT OF SCTLs
BUILDING 635 SAMPLING AND ANALYSIS REPORT
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

	BaPEq - Pre-excavation	BaPEq - Industrial SCTL
MINIMUM CONCENTRATION	42	2
MAXIMUM CONCENTRATION	60,140	2,388
MEAN CONCENTRATION	2,985	468
t 0.95, n-1	0.219134	0.253076
STANDARD DEVIATION	7,660.48	631.07
COEFFICIENT OF VARIATION	2.57	1.35
n	97	97
UCL $_{0.95}$	4,243	568
Goal	-	**500**
Replacement Value	-	**1.8**
CEF-635-SS-127-01	*36*	*36*
CEF-635-SS-128-01	*19*	*19*

1 - Coincidentally excavated.
Concentrations are in ug/kg.
Bolded sample numbers indicate that the sample was excavated.
Italicized values indicate that one-half of the detection limit was used.
UCL $_{0.95}$ - 95 percent upper confidence limit of the mean.
SCTL - Soil Cleanup Target Level, Florida Department of Environmental Protection Soil Cleanup Target Levels, FAC Chapter 62-777 (FDEP, 1999).

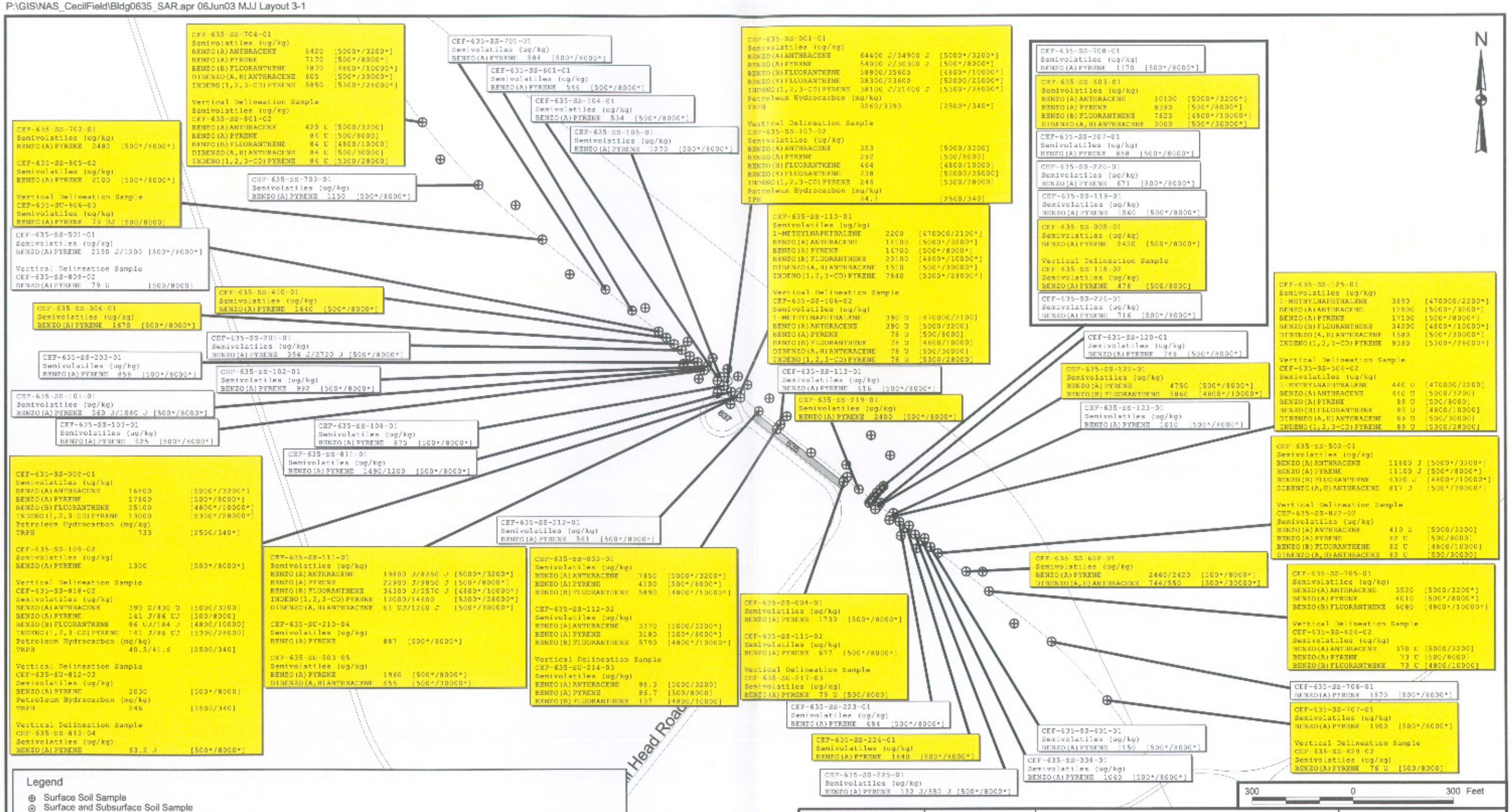
TABLE 3-5

ECOLOGICAL CONTAMINANTS OF POTENTIAL CONCERN IN SURFACE SOIL
BUILDING 635 SAMPLING AND ANALYSIS REPORT
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

Analyte	Frequency of Detection	Range of Detected Values (ug/kg)		Location of Maximum Concentration	Ecological Screening Value (ESV) (ug/kg)	Maximum Hazard Quotient	No. of Samples Exceeding ESV	Average Concentration (ug/kg)
		Minimum	Maximum					
1-METHYLNAPHTHALENE	2/62	197	214[1]	CEF-635-SS-123-01	NA	NA	NA	262[1]
ANTHRACENE	6/62	10.7	58.8[1]	CEF-635-SS-105-01	100	0.6	0	252[1]
BENZO(A)ANTHRACENE	40/62	80.2	1,840	CEF-635-SS-706-01	NA	NA	NA	447
BENZO(A)PYRENE	41/62	44	1,695	CEF-635-SS-501-01	100	17.0	40	504
BENZO(B)FLUORANTHENE	43/62	50	3,120	CEF-635-SS-119-01	NA	NA	NA	640
BENZO(G,H,I)PERYLENE	41/62	39	2,270	CEF-635-SS-706-01	NA	NA	NA	458
BENZO(K)FLUORANTHENE	41/62	82.5	1,307.50	CEF-635-SS-501-01	NA	NA	NA	356
CHRYSENE	39/62	101	2,555	CEF-635-SS-811-01	NA	NA	NA	573
DIBENZO(A,H)ANTHRACENE	25/62	34.2	273.5	CEF-635-SS-501-01	NA	NA	NA	67
FLUORANTHENE	39/62	119	3910	CEF-635-SS-501-01	100	39.1	39	831
INDENO(1,2,3-CD)PYRENE	40/62	50.7	1,455	CEF-635-SS-201-01	NA	NA	NA	376
PHENANTHRENE	13/62	55.5	1,230	CEF-635-SS-708-01	100	12.3	11	279
PYRENE	39/62	56.6	4,300	CEF-635-SS-706-01	100	43.0	38	874
TOTAL PAHs	43/62	56.4	19,835	CEF-635-SS-706-01	1,000	19.8	40	6,980

NA: Ecological Screening Value not available.
1 The average uses 1/2 the detection limit if a result is less than the detection limit. Several samples with high detection limits have skewed the average above the measured maximum value.

P:\GIS\NAS_CecilField\Bldg0635_SAR.apr 06Jun03 MJJ Layout 3-1



Legend

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

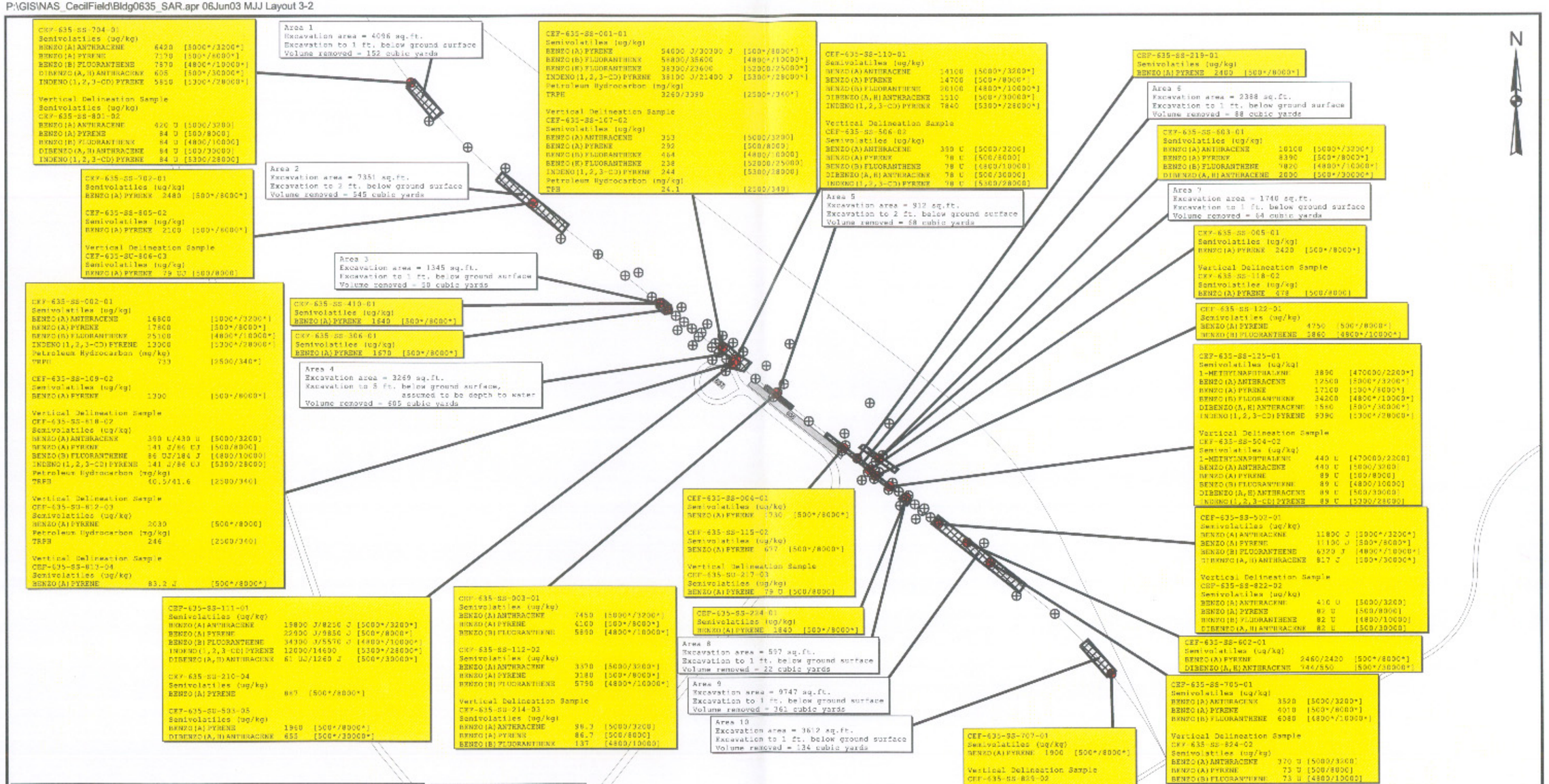
CEF-810-SS-015
Semivolatile Organics (ug/kg)
BENZO(A)PYRENE 648 [100*/8000]

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

Notes: 1) Shaded tags are sample locations that exceeded Industrial UCL pickup level (2,347 ug/kg) calculated and presented at June 2001 BCT Meeting.
2) Sample location CEF-635-SS-002 is approximately 3 feet northeast of sample location CEF-635-SS-111.

DRAWN BY MJJ	DATE 18Dec02	SOIL EXCEEDING FDEP INDUSTRIAL AND LEACHABILITY SCTLs BUILDING 635 RAILROAD LOADING DOCK SAMPLING AND ANALYSIS REPORT NAVAL AIR STATION CECIL FIELD JACKSONVILLE, FLORIDA	CONTRACT NO. 0039
CHECKED BY	DATE		APPROVED BY 6/29/04 DATE
COST/SCHED-AREA			APPROVED BY DATE
SCALE AS NOTED			DRAWING NO. FIGURE 3-1 REV. 0

P:\GIS\NAS_CecilField\Bldg0635_SAR.apr 06Jun03 MJJ Layout 3-2



Legend

- ⊕ Surface Soil Sample (Samples to be excavated have red symbol)
- ⊙ Surface and Subsurface Soil Sample (Samples to be excavated have red symbol)

CEF-610-SS-015
Semivolatile Organics (ug/kg)
BENZO(A)PYRENE 645 [1200*/8000]

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

Yellow Tags - Sample to be removed to achieve 95% UCL.
Sample Locations without tags are not required to be removed to achieve 95% UCL.

Area (ft2)	Depth (ft)	Volume (yds)
1	1	152
2	2	545
3	1	50
4	5	605
5	2	68
6	1	88
7	1	64
8	1	22
9	1	361
10	1	134
Total Volume		2089

DRAWN BY	DATE
MJJ	18Dec02
CHECKED BY	DATE
COST/SCHED-AREA	
SCALE	AS NOTED

REMOVAL ACTION
EXTENT OF SOIL EXCAVATION
BUILDING 635 RAILROAD LOADING DOCK
SAMPLING AND ANALYSIS REPORT
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

CONTRACT NO.	
0039	
APPROVED BY	DATE 6/20/04
APPROVED BY	DATE
DRAWING NO. FIGURE 3-2	REV. 0

4.0 CONCLUSIONS AND RECOMMENDATIONS

Field investigations determined that PAH and TRPH contamination was present in soil at the Building 635 site. A removal action was performed in July and August 2002 to excavate and dispose off site sufficient contaminated soil such that the site is acceptable for industrial use. Because of the removal action, the soil at this site no longer represents a risk to human health or the environment under an industrial use scenario.

Based upon these conclusions, the recommendation for the Building 635 site is to implement land use controls to prevent residential uses of the site. No other remedial actions are needed. It is also recommended that the EBS color code should be Dark Green to denote that release, disposal, and/or migration of hazardous substances have occurred and that remedial actions to protect human health and the environment have been taken. Residual PAH and TRPH concentrations in the soil no longer represent a hazard to human health or the environment under industrial use conditions.

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APPENDIX A

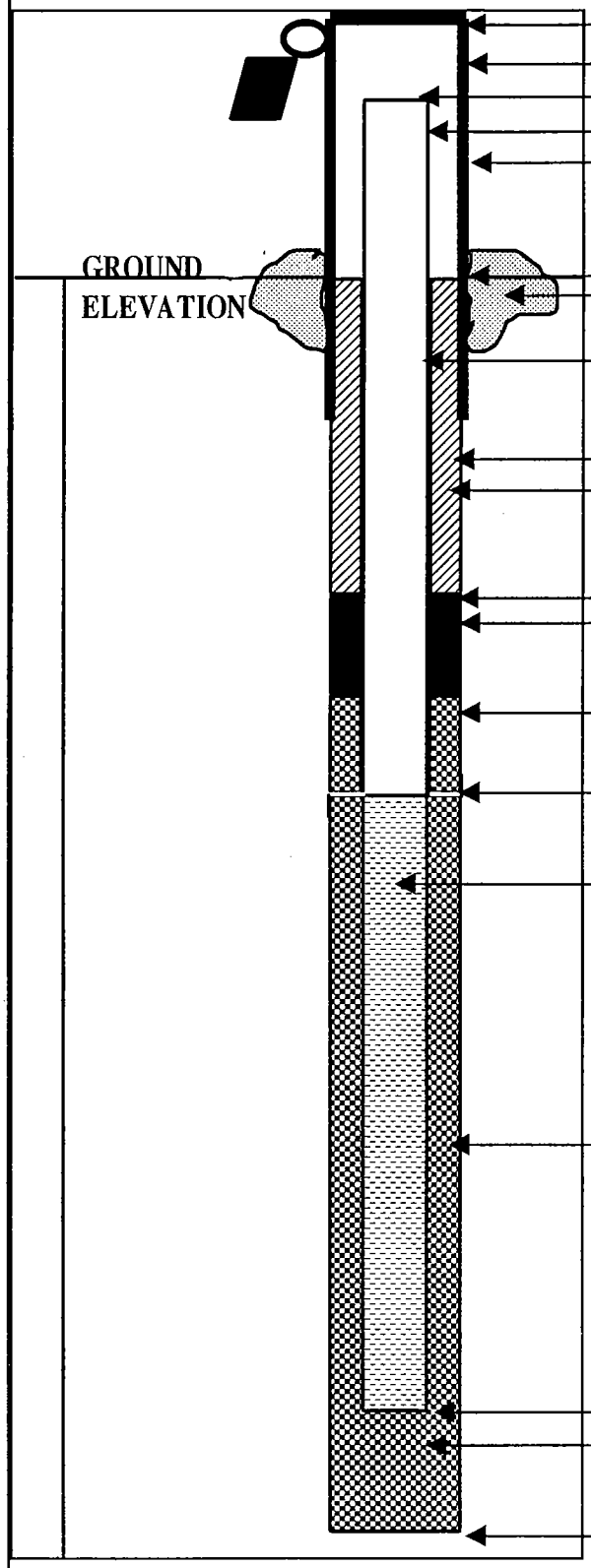
MONITORING WELL LOG

BORING NO.: CEF-635-MW1

Tetra Tech NUS, Inc. **OVERBURDEN MONITORING WELL SHEET**

PERMIT NO.:

PROJECT:	BLDG 635 · YELLOW WATER	DRILLING Co.:	PRECISION	BORING No.:	CEF-635-SB1
PROJECT No.:		DRILLER:	TOMMY LYNCH	DATE COMPLETED:	8-22-02
SITE:	RR DOCK.. YW · CEF	DRILLING METHOD:	HSA	NORTHING:	
GEOLOGIST:	L. KNIGHT	DEV. METHOD:	Centrifugal Pump	EASTING:	



ELEVATION OF TOP OF SURFACE CASING: N/A

STICK -UP TOP OF SURFACE CASING: N/A

ELEVATION OF TOP OF RISER PIPE: N/A

RISER STICK-UP ABOVE GROUND SURFACE: N/A

I.D. OF SURFACE CASING: N/A

TYPE OF SURFACE CASING: N/A

GROUND ELEVATION:

TYPE OF SURFACE SEAL: 8" STEEL MANHOLE

RISER PIPE I.D.: 2"

TYPE OF RISER PIPE: PVC

BOREHOLE DIAMETER: 8"

TYPE OF BACKFILL: TYPE I PORTLAND

ELEVATION / DEPTH OF SEAL: 10.5

TYPE OF SEAL: 30/65 FINE SAND

ELEVATION / DEPTH TOP OF FILTER PACK: 11.0

ELEVATION / DEPTH TOP OF SCREEN: 12.0

TYPE OF SCREEN: PVC (SCH 40)

SLOT SIZE X LENGTH: .010" X 10'

I.D. OF SCREEN: 2"

TYPE OF FILTER PACK: 20/30 SILICA SAND

ELEVATION / DEPTH BOTTOM OF SCREEN: 12.0

ELEVATION / DEPTH BOTTOM OF FILTER PACK: 12.5

TYPE OF BACKFILL BELOW WELL:

ELEVATION / DEPTH OF BOREHOLE: 12.5

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: NAS CECIL FIELD
PROJECT NUMBER: ~~4248MW00501~~15
DRILLING COMPANY: ~~TtNUS~~ PRECISION
DRILLING RIG: ~~Hand Auger~~ CME 75

BORING NUM: CEF-~~293 SB~~ 635-MW1S
DATE: 8-22-02
GEOLOGIST: L. KNIGHT
DRILLER: TOMMY LYNCH

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm) Sample (unfilter)	Sample (filter)	Sample (corrected)	Sampler BZ
							SAND: orange-brown						
							& yellow-brown; Fill						
							SATURATED (▼) ~3'bls						
				4									
							SAND: fine/v. fine;						
							med. brown becoming						
							v. dk. brown (organic						
							rich) at 8'bls; reddish						
							brown @ 9.5'bls						
				12									
							EOB = 12.5'						

Drilling Area Background (ppm): 2.7

Remarks:

Converted to Well: Yes X No

Well I.D. #: CEF-635-MW1S

APPENDIX B

LABORATORY ANALYTICAL DATA

APPENDIX B

The data and data validation reports comprise about 300 pages, so this information has been provided on a separate CD. The SDG numbers of the laboratory reports are listed below.

Phase	Laboratory	SDG numbers
I	Accutest	F6811
II	Accutest	F7329
III	Accutest	F7625, F7644
IV	Accutest	F7748, F7763
V	Accutest	F8138
VI	Accutest	F8860
VII	Accutest	F9148
VIII	Accutest	F9615
IX	Accutest	F10677, F10677R
X	Accutest	F14460

PHASE I LABORATORY ANALYTICAL DATA

SAMPLE NUMBER SERIES CEF-635-SS-000

Tetra Tech NUS **INTERNAL CORRESPONDENCE**

PITT-07-0-025

TO: **MARK SPERANZA** **DATE: AUGUST 9, 2000**

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

SUBJECT: **ORGANIC DATA VALIDATION – PEST/PAH/TPH**
CTO 078 – NAS CECIL FIELD
SDG F6811

SAMPLES: 9/Surface Soil

~~CEF-098-DUP1~~
~~CEF-098-SS-002-01~~
CEF-635-SS-002-01
CEF-635-SS-004-01
CEF-635-SS-DUP1
~~CEF-098-SS-001-01~~
CEF-635-SS-001-01
CEF-635-SS-003-01
CEF-635-SS-005-01

OVERVIEW

The sample set for CTO 078, SDG F6811 Naval Air Station (NAS) Cecil Field; Florida consists of nine (9) surface soil environmental samples. The samples were analyzed for pesticide, Polynuclear Aromatic Hydrocarbon (PAH), and Total Petroleum Hydrocarbon (TPH) organic compounds. Two (2) field duplicate pairs (CEF-098-SS-001-01/CEF-098-DUP1 and CEF-635-SS-001-01/CEF-635-SS-DUP1) were included within this SDG.

The samples were collected by Tetra Tech, NUS on June 15th, 2000 and analyzed by Accutest Laboratories. All analyses were performed in accordance with Naval Facilities Engineering Service Center (NFESC) Quality Assurance/Quality Control (QA/QC) criteria and analyzed according to SW 846 Method 8081A, 8310, and FLORIDA-PRO analytical and reporting protocols. The data in this SDG was validated with regard to the following parameters:

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

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

PESTICIDE FRACTION

The following samples were analyzed at dilutions thus causing elevated reporting limits:

Sample	Dilution
CEF-098-DUP1	10X

CEF-098-SS-001-01	10X
CEF-098-SS-002-01	2X
CEF-635-SS-001-01	40X
CEF-635-SS-002-01	40X
CEF-635-SS-003-01	10X
CEF-635-SS-004-01	10X
CEF-635-SS-005-01	10X
CEF-635-SS-DUP1	40X

PAH FRACTION

The following samples were analyzed at dilutions thus causing elevated reporting limits:

Sample	Dilution
CEF-098-DUP1	10X
CEF-098-SS-001-01	10X
CEF-635-SS-001-01	200X
CEF-635-SS-002-01	50X
CEF-635-SS-003-01	20X
CEF-635-SS-004-01	10X
CEF-635-SS-005-01	10X
CEF-635-SS-DUP1	80X

The field duplicate pair (CEF-098-SS-001-01/CEF-098-DUP1) Relative Percent Differences (RPDs) exceeded the 50% upper control limit for fluoranthene. The positive results were qualified as estimated (J), in the aforementioned pair.

The field duplicate pair (CEF-635-SS-001-01/CEF-635-SS-DUP1) Relative Percent Differences (RPDs) exceeded the 50% upper control limit for benzo(a)anthracene, benzo(a)pyrene, benzo(g,h,i)perylene, chrysene, fluoranthene, indeno(1,2,3-cd)pyrene, and pyrene. The positive results were qualified as estimated (J), in the aforementioned pair.

TPH FRACTION

The field duplicate pair (CEF-098-SS-001-01/CEF-098-DUP1) Relative Percent Differences (RPDs) exceeded the 50% upper control limit for TPH (c8-c40). The positive results were qualified as estimated (J), in the aforementioned pair.

EXECUTIVE SUMMARY

Laboratory performance: None.

Other Factors Affecting Data Quality: Several samples were analyzed at a dilution thus causing elevated reporting limits in all fractions. Several field duplicate pairs RPDs exceeded the 50% upper control limit in the PAH and TPH fraction.

MEMO TO: MARK SPERANZA
DATE: AUGUST 9, 2000 – PAGE 3

The data for these analyses were reviewed with reference to the EPA Functional Guidelines for Organic Data Validation (October 1999) and the NFESC guidelines "Navy IRCDQM" (September 1999). The text of this report has been formulated to address only those problems affecting data quality.

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

Justin Orbich

Chemist/Data Validator
Tetra Tech, NUS

Joseph A. Samchuck

Data Validation Quality Assurance Officer
Tetra Tech, NUS

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

DATA QUALIFIER DEFINITIONS:

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

Qualifier Codes:

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

APPENDIX A

Qualified Analytical Results

CTO078-NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F6811

SAMPLE NUMBER:	CEF-098-DUP1			CEF-098-SS-001-01			CEF-098-SS-002-01			CEF-635-SS-001-01		
SAMPLE DATE:	06/15/00			06/15/00			06/15/00			06/15/00		
LABORATORY ID:	F6811-3			F6811-1			F6811-2			F6811-5		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	94.1 %			94.1 %			95.1 %			93.0 %		
UNITS:	UG/KG			UG/KG			UG/KG			UG/KG		
FIELD DUPLICATE OF:	CEF-098-SS-001-01											
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
POLYNUCLEAR AROMATIC HYDROCARBONS												
1-METHYLNAPHTHALENE	3500	U		3500	U		350	U		72000	U	
2-METHYLNAPHTHALENE	3500	U		3500	U		350	U		72000	U	
ACENAPHTHENE	3500	U		3500	U		350	U		72000	U	
ACENAPHTHYLENE	7100	U		7100	U		700	U		140000	U	
ANTHRACENE	3500	U		3500	U		350	U		72000	U	
BENZO(A)ANTHRACENE	1180			958			186			64400	J	P
BENZO(A)PYRENE	3820			3430			230			54000	J	P
BENZO(B)FLUORANTHENE	3210			3480			393			58800		
BENZO(G,H,I)PERYLENE	2100			1890			220			34300	J	P
BENZO(K)FLUORANTHENE	2030			2180			208			38300		
CHRYSENE	1220	J	P	1120	J	P	319	J	P	58200	J	GP
DIBENZO(A,H)ANTHRACENE	710	U		710	U		70	U		14000	U	
FLUORANTHENE	2330	J	P	1380	J	P	353			82800	J	P
FLUORENE	3500	U		3500	U		350	U		72000	U	
INDENO(1,2,3-CD)PYRENE	2740			2590			260			38100	J	P
NAPHTHALENE	3500	U		3500	U		350	U		72000	U	
PHENANTHRENE	3500	U		3500	U		350	U		72000	U	
PYRENE	6690			4290			454			136000	J	P

CTO078-NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F6811

SAMPLE NUMBER:	CEF-635-SS-002-01			CEF-635-SS-003-01			CEF-635-SS-004-01			CEF-635-SS-005-01		
SAMPLE DATE:	06/15/00			06/15/00			06/15/00			06/15/00		
LABORATORY ID:	F6811-4			F6811-6			F6811-7			F6811-8		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	96.3 %			96.8 %			96.5 %			96.6 %		
UNITS:	UG/KG			UG/KG			UG/KG			UG/KG		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
POLYNUCLEAR AROMATIC HYDROCARBONS												
1-METHYLNAPHTHALENE	17000	U		6900	U		3500	U		3500	U	
2-METHYLNAPHTHALENE	17000	U		6900	U		3500	U		3500	U	
ACENAPHTHENE	17000	U		6900	U		3500	U		3500	U	
ACENAPHTHYLENE	35000	U		14000	U		6900	U		6900	U	
ANTHRACENE	17000	U		6900	U		3500	U		3500	U	
BENZO(A)ANTHRACENE	16800			7450			1890			1740		
BENZO(A)PYRENE	17800			4100			1730			2420		
BENZO(B)FLUORANTHENE	25100			5890			2200			3310		
BENZO(G,H,I)PERYLENE	11500			2480			1730			2430		
BENZO(K)FLUORANTHENE	13900			3650			1470			2050		
CHRYSENE	17100			6180	J	P	2100	J	P	2000	J	P
DIBENZO(A,H)ANTHRACENE	3500	U		1400	U		690	U		690	U	
FLUORANTHENE	19500			13500			3780			2600	J	P
FLUORENE	17000	U		6900	U		3500	U		3500	U	
INDENO(1,2,3-CD)PYRENE	13000			2890			1640			2120		
NAPHTHALENE	17000	U		6900	U		3500	U		3500	U	
PHENANTHRENE	17000	U		6900	U		3500	U		3500	U	
PYRENE	23600			12400			3570			3170	J	P

CTO078-NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F6811

SAMPLE NUMBER:	CEF-635-SS-DUP1											
SAMPLE DATE:	06/15/00			/ /			/ /			/ /		
LABORATORY ID:	F6811-9											
QC_TYPE:	NORMAL											
% SOLIDS:	90.3 %			100.0 %			100.0 %			100.0 %		
UNITS:	UG/KG											
FIELD DUPLICATE OF:	CEF-635-SS-001-01											
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
POLYNUCLEAR AROMATIC HYDROCARBONS												
1-METHYLNAPHTHALENE	29000	U										
2-METHYLNAPHTHALENE	29000	U										
ACENAPHTHENE	29000	U										
ACENAPHTHYLENE	59000	U										
ANTHRACENE	29000	U										
BENZO(A)ANTHRACENE	34900	J	P									
BENZO(A)PYRENE	30300	J	P									
BENZO(B)FLUORANTHENE	35600											
BENZO(G,H,I)PERYLENE	18200	J	P									
BENZO(K)FLUORANTHENE	23600											
CHRYSENE	32500	J	P									
DIBENZO(A,H)ANTHRACENE	5900	U										
FLUORANTHENE	42500	J	P									
FLUORENE	29000	U										
INDENO(1,2,3-CD)PYRENE	21400	J	P									
NAPHTHALENE	29000	U										
PHENANTHRENE	29000	U										
PYRENE	60400	J	P									

CTO078-NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F6811

SAMPLE NUMBER:	CEF-098-DUP1			CEF-098-SS-001-01			CEF-098-SS-002-01			CEF-635-SS-001-01		
SAMPLE DATE:	06/15/00			06/15/00			06/15/00			06/15/00		
LABORATORY ID:	F6811-3			F6811-1			F6811-2			F6811-5		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	94.1 %			94.1 %			95.1 %			93.0 %		
UNITS:	UG/KG			UG/KG			UG/KG			UG/KG		
FIELD DUPLICATE OF:	CEF-098-SS-001-01											
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
PESTICIDES/PCBs												
4,4'-DDD	35	U		35	U		7.0	U		140	U	
4,4'-DDE	35	U		35	U		7.0	U		140	U	
4,4'-DDT	35	U		35	U		3.0	J		140	U	
ALDRIN	18	U		18	U		3.5	U		72	U	
ALPHA-BHC	18	U		18	U		3.5	U		72	U	
ALPHA-CHLORDANE	35	U		35	U		7.0	U		140	U	
BETA-BHC	18	U		18	U		3.5	U		72	U	
DELTA-BHC	18	U		18	U		3.5	U		72	U	
DIELDRIN	18	U		18	U		3.5	U		72	U	
ENDOSULFAN I	18	U		18	U		3.5	U		72	U	
ENDOSULFAN II	35	U		35	U		7.0	U		140	U	
ENDOSULFAN SULFATE	35	U		35	U		7.0	U		140	U	
ENDRIN	35	U		35	U		7.0	U		140	U	
ENDRIN ALDEHYDE	35	U		35	U		7.0	U		140	U	
ENDRIN KETONE	35	U		35	U		7.0	U		140	U	
GAMMA-BHC (LINDANE)	18	U		18	U		3.5	U		72	U	
GAMMA-CHLORDANE	35	U		35	U		7.0	U		140	U	
HEPTACHLOR	18	U		18	U		3.5	U		72	U	
HEPTACHLOR EPOXIDE	18	U		18	U		3.5	U		72	U	
METHOXYCHLOR	71	U		71	U		14	U		290	U	
TOXAPHENE	1800	U		1800	U		350	U		7200	U	

CTO078-NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F6811

SAMPLE NUMBER:	CEF-635-SS-002-01			CEF-635-SS-003-01			CEF-635-SS-004-01			CEF-635-SS-005-01		
SAMPLE DATE:	06/15/00			06/15/00			06/15/00			06/15/00		
LABORATORY ID:	F6811-4			F6811-6			F6811-7			F6811-8		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	96.3 %			96.8 %			96.5 %			96.6 %		
UNITS:	UG/KG			UG/KG			UG/KG			UG/KG		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
PESTICIDES/PCBs												
4,4'-DDD	140	U		34	U		34	U		34	U	
4,4'-DDE	140	U		34	U		34	U		34	U	
4,4'-DDT	140	U		34	U		34	U		34	U	
ALDRIN	69	U		17	U		17	U		17	U	
ALPHA-BHC	69	U		17	U		17	U		17	U	
ALPHA-CHLORDANE	140	U		34	U		34	U		34	U	
BETA-BHC	69	U		17	U		17	U		17	U	
DELTA-BHC	69	U		17	U		17	U		17	U	
DIELDRIN	69	U		17	U		17	U		17	U	
ENDOSULFAN I	69	U		17	U		17	U		17	U	
ENDOSULFAN II	140	U		34	U		34	U		34	U	
ENDOSULFAN SULFATE	140	U		34	U		34	U		34	U	
ENDRIN	140	U		34	U		34	U		34	U	
ENDRIN ALDEHYDE	140	U		34	U		34	U		34	U	
ENDRIN KETONE	140	U		34	U		34	U		34	U	
GAMMA-BHC (LINDANE)	69	U		17	U		17	U		17	U	
GAMMA-CHLORDANE	140	U		34	U		34	U		34	U	
HEPTACHLOR	69	U		17	U		17	U		17	U	
HEPTACHLOR EPOXIDE	69	U		17	U		17	U		17	U	
METHOXYCHLOR	280	U		69	U		69	U		69	U	
TOXAPHENE	6900	U		1700	U		1700	U		1700	U	

CTO078-NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F6811

SAMPLE NUMBER:	CEF-635-SS-DUP1											
SAMPLE DATE:	06/15/00			/ /			/ /			/ /		
LABORATORY ID:	F6811-9											
QC_TYPE:	NORMAL											
% SOLIDS:	90.3 %			100.0 %			100.0 %			100.0 %		
UNITS:	UG/KG											
FIELD DUPLICATE OF:	CEF-635-SS-001-01											
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
PESTICIDES/PCBs												
4,4'-DDD	150	U										
4,4'-DDE	150	U										
4,4'-DDT	150	U										
ALDRIN	74	U										
ALPHA-BHC	74	U										
ALPHA-CHLORDANE	150	U										
BETA-BHC	74	U										
DELTA-BHC	74	U										
DIELDRIN	74	U										
ENDOSULFAN I	74	U										
ENDOSULFAN II	150	U										
ENDOSULFAN SULFATE	150	U										
ENDRIN	150	U										
ENDRIN ALDEHYDE	150	U										
ENDRIN KETONE	150	U										
GAMMA-BHC (LINDANE)	74	U										
GAMMA-CHLORDANE	150	U										
HEPTACHLOR	74	U										
HEPTACHLOR EPOXIDE	74	U										
METHOXYCHLOR	300	U										
TOXAPHENE	7400	U										

CTO078-NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F6811

SAMPLE NUMBER:	CEF-098-DUP1			CEF-098-SS-001-01			CEF-098-SS-002-01			CEF-635-SS-001-01		
SAMPLE DATE:	06/15/00			06/15/00			06/15/00			06/15/00		
LABORATORY ID:	F6811-3			F6811-1			F6811-2			F6811-5		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	94.1 %			94.1 %			95.1 %			93.0 %		
UNITS:	MG/KG			MG/KG			MG/KG			MG/KG		
FIELD DUPLICATE OF:	CEF-098-SS-001-01											
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
PETROLEUM HYDROCARBONS												
TPH (C8-C40)	272	J	G	469	J	G	35.8			3260		

CTO078-NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F6811

SAMPLE NUMBER:	CEF-635-SS-002-01			CEF-635-SS-003-01			CEF-635-SS-004-01			CEF-635-SS-005-01		
SAMPLE DATE:	06/15/00			06/15/00			06/15/00			06/15/00		
LABORATORY ID:	F6811-4			F6811-6			F6811-7			F6811-8		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	96.3 %			96.8 %			96.5 %			96.6 %		
UNITS:	MG/KG			MG/KG			MG/KG			MG/KG		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
PETROLEUM HYDROCARBONS												
TPH (C8-C40)	733			108			183			181		

CTO078-NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F6811

SAMPLE NUMBER:	CEF-635-SS-DUP1													
SAMPLE DATE:	06/15/00			/ /			/ /			/ /				
LABORATORY ID:	F6811-9													
QC_TYPE:	NORMAL													
% SOLIDS:	90.3 %			100.0 %			100.0 %			100.0 %				
UNITS:	MG/KG													
FIELD DUPLICATE OF:	CEF-635-SS-001-01													
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE		
PETROLEUM HYDROCARBONS														
TPH (C8-C40)	3390													

APPENDIX B

Results as Reported by the Laboratory

Report of Analysis

Client Sample ID:	CEF-635-SS-001-01		
Lab Sample ID:	F6811-5	**Date Sampled:**	06/15/00
Matrix:	SO - Soil	**Date Received:**	06/16/00
Method:	SW846 3550B/8081A	**Percent Solids:**	93.0
Project:	NAS Cecil Field-Site 11		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	ST05467.D	40	06/27/00	SKW	06/24/00	OP1730	GST204
Run #2							

Pesticide TCL List

CAS No.	Compound	Result	RL	Units	Q
309-00-2	Aldrin	ND	72	ug/kg	
319-84-6	alpha-BHC	ND	72	ug/kg	
319-85-7	beta-BHC	ND	72	ug/kg	
319-86-8	delta-BHC	ND	72	ug/kg	
58-89-9	gamma-BHC (Lindane)	ND	72	ug/kg	
5103-71-9	alpha-Chlordane	ND	140	ug/kg	
5103-74-2	gamma-Chlordane	ND	140	ug/kg	
60-57-1	Dieldrin	ND	72	ug/kg	
72-54-8	4,4'-DDD	ND	140	ug/kg	
72-55-9	4,4'-DDE	ND	140	ug/kg	
50-29-3	4,4'-DDT	ND	140	ug/kg	
72-20-8	Endrin	ND	140	ug/kg	
1031-07-8	Endosulfan sulfate	ND	140	ug/kg	
7421-93-4	Endrin aldehyde	ND	140	ug/kg	
53494-70-5	Endrin ketone	ND	140	ug/kg	
959-98-8	Endosulfan-I	ND	72	ug/kg	
33213-65-9	Endosulfan-II	ND	140	ug/kg	
76-44-8	Heptachlor	ND	72	ug/kg	
1024-57-3	Heptachlor epoxide	ND	72	ug/kg	
72-43-5	Methoxychlor	ND	290	ug/kg	
8001-35-2	Toxaphene	ND	7200	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	70%		50-144%
2051-24-3	Decachlorobiphenyl	135%		10-180%

(a) Dilution required due to matrix interference.

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

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

Report of Analysis

Client Sample ID:	CEF-635-SS-002-01		
Lab Sample ID:	F6811-4	**Date Sampled:**	06/15/00
Matrix:	SO - Soil	**Date Received:**	06/16/00
Method:	SW846 3550B/8081A	**Percent Solids:**	96.3
Project:	NAS Cecil Field-Site 11		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	ST05466.D	40	06/27/00	SKW	06/24/00	OP1730	GST204
Run #2							

Pesticide TCL List

CAS No.	Compound	Result	RL	Units	Q
309-00-2	Aldrin	ND	69	ug/kg	
319-84-6	alpha-BHC	ND	69	ug/kg	
319-85-7	beta-BHC	ND	69	ug/kg	
319-86-8	delta-BHC	ND	69	ug/kg	
58-89-9	gamma-BHC (Lindane)	ND	69	ug/kg	
5103-71-9	alpha-Chlordane	ND	140	ug/kg	
5103-74-2	gamma-Chlordane	ND	140	ug/kg	
60-57-1	Dieldrin	ND	69	ug/kg	
72-54-8	4,4'-DDD	ND	140	ug/kg	
72-55-9	4,4'-DDE	ND	140	ug/kg	
50-29-3	4,4'-DDT	ND	140	ug/kg	
72-20-8	Endrin	ND	140	ug/kg	
1031-07-8	Endosulfan sulfate	ND	140	ug/kg	
7421-93-4	Endrin aldehyde	ND	140	ug/kg	
53494-70-5	Endrin ketone	ND	140	ug/kg	
959-98-8	Endosulfan-I	ND	69	ug/kg	
33213-65-9	Endosulfan-II	ND	140	ug/kg	
76-44-8	Heptachlor	ND	69	ug/kg	
1024-57-3	Heptachlor epoxide	ND	69	ug/kg	
72-43-5	Methoxychlor	ND	280	ug/kg	
8001-35-2	Toxaphene	ND	6900	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	85%		50-144%
2051-24-3	Decachlorobiphenyl	125%		10-180%

(a) Dilution required due to matrix interference.

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

Report of Analysis

Client Sample ID:	CEF-635-SS-003-01		
Lab Sample ID:	F6811-6	**Date Sampled:**	06/15/00
Matrix:	SO - Soil	**Date Received:**	06/16/00
Method:	SW846 3550B/8081A	**Percent Solids:**	96.8
Project:	NAS Cecil Field-Site 11		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	ST05468.D	10	06/27/00	SKW	06/24/00	OP1730	GST204
Run #2							

Pesticide TCL List

CAS No.	Compound	Result	RL	Units	Q
309-00-2	Aldrin	ND	17	ug/kg	
319-84-6	alpha-BHC	ND	17	ug/kg	
319-85-7	beta-BHC	ND	17	ug/kg	
319-86-8	delta-BHC	ND	17	ug/kg	
58-89-9	gamma-BHC (Lindane)	ND	17	ug/kg	
5103-71-9	alpha-Chlordane	ND	34	ug/kg	
5103-74-2	gamma-Chlordane	ND	34	ug/kg	
60-57-1	Dieldrin	ND	17	ug/kg	
72-54-8	4,4'-DDD	ND	34	ug/kg	
72-55-9	4,4'-DDE	ND	34	ug/kg	
50-29-3	4,4'-DDT	ND	34	ug/kg	
72-20-8	Endrin	ND	34	ug/kg	
1031-07-8	Endosulfan sulfate	ND	34	ug/kg	
7421-93-4	Endrin aldehyde	ND	34	ug/kg	
53494-70-5	Endrin ketone	ND	34	ug/kg	
959-98-8	Endosulfan-I	ND	17	ug/kg	
33213-65-9	Endosulfan-II	ND	34	ug/kg	
76-44-8	Heptachlor	ND	17	ug/kg	
1024-57-3	Heptachlor epoxide	ND	17	ug/kg	
72-43-5	Methoxychlor	ND	69	ug/kg	
8001-35-2	Toxaphene	ND	1700	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	98%		50-144%
2051-24-3	Decachlorobiphenyl	132%		10-180%

(a) Dilution required due to matrix interference.

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

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

Report of Analysis

Client Sample ID:	CEF-635-SS-004-01		
Lab Sample ID:	F6811-7	**Date Sampled:**	06/15/00
Matrix:	SO - Soil	**Date Received:**	06/16/00
Method:	SW846 3550B/8081A	**Percent Solids:**	96.5
Project:	NAS Cecil Field-Site 11		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	ST05469.D	10	06/27/00	SKW	06/24/00	OP1730	GST204
Run #2							

Pesticide TCL List

CAS No.	Compound	Result	RL	Units	Q
309-00-2	Aldrin	ND	17	ug/kg	
319-84-6	alpha-BHC	ND	17	ug/kg	
319-85-7	beta-BHC	ND	17	ug/kg	
319-86-8	delta-BHC	ND	17	ug/kg	
58-89-9	gamma-BHC (Lindane)	ND	17	ug/kg	
5103-71-9	alpha-Chlordane	ND	34	ug/kg	
5103-74-2	gamma-Chlordane	ND	34	ug/kg	
60-57-1	Dieldrin	ND	17	ug/kg	
72-54-8	4,4'-DDD	ND	34	ug/kg	
72-55-9	4,4'-DDE	ND	34	ug/kg	
50-29-3	4,4'-DDT	ND	34	ug/kg	
72-20-8	Endrin	ND	34	ug/kg	
1031-07-8	Endosulfan sulfate	ND	34	ug/kg	
7421-93-4	Endrin aldehyde	ND	34	ug/kg	
53494-70-5	Endrin ketone	ND	34	ug/kg	
959-98-8	Endosulfan-I	ND	17	ug/kg	
33213-65-9	Endosulfan-II	ND	34	ug/kg	
76-44-8	Heptachlor	ND	17	ug/kg	
1024-57-3	Heptachlor epoxide	ND	17	ug/kg	
72-43-5	Methoxychlor	ND	69	ug/kg	
8001-35-2	Toxaphene	ND	1700	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	98%		50-144%
2051-24-3	Decachlorobiphenyl	141%		10-180%

(a) Dilution required due to matrix interference.

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

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

Report of Analysis

Client Sample ID:	CEF-635-SS-005-01		
Lab Sample ID:	F6811-8	**Date Sampled:**	06/15/00
Matrix:	SO - Soil	**Date Received:**	06/16/00
Method:	SW846 3550B/8081A	**Percent Solids:**	96.6
Project:	NAS Cecil Field-Site 11		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	ST05470.D	10	06/27/00	SKW	06/24/00	OP1730	GST204
Run #2							

Pesticide TCL List

CAS No.	Compound	Result	RL	Units	Q
309-00-2	Aldrin	ND	17	ug/kg	
319-84-6	alpha-BHC	ND	17	ug/kg	
319-85-7	beta-BHC	ND	17	ug/kg	
319-86-8	delta-BHC	ND	17	ug/kg	
58-89-9	gamma-BHC (Lindane)	ND	17	ug/kg	
5103-71-9	alpha-Chlordane	ND	34	ug/kg	
5103-74-2	gamma-Chlordane	ND	34	ug/kg	
60-57-1	Dieldrin	ND	17	ug/kg	
72-54-8	4,4'-DDD	ND	34	ug/kg	
72-55-9	4,4'-DDE	ND	34	ug/kg	
50-29-3	4,4'-DDT	ND	34	ug/kg	
72-20-8	Endrin	ND	34	ug/kg	
1031-07-8	Endosulfan sulfate	ND	34	ug/kg	
7421-93-4	Endrin aldehyde	ND	34	ug/kg	
53494-70-5	Endrin ketone	ND	34	ug/kg	
959-98-8	Endosulfan-I	ND	17	ug/kg	
33213-65-9	Endosulfan-II	ND	34	ug/kg	
76-44-8	Heptachlor	ND	17	ug/kg	
1024-57-3	Heptachlor epoxide	ND	17	ug/kg	
72-43-5	Methoxychlor	ND	69	ug/kg	
8001-35-2	Toxaphene	ND	1700	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	103%		50-144%
2051-24-3	Decachlorobiphenyl	112%		10-180%

(a) Dilution required due to matrix interference.

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

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

Report of Analysis

Client Sample ID:	CEF-635-SS-DUP1		
Lab Sample ID:	F6811-9	**Date Sampled:**	06/15/00
Matrix:	SO - Soil	**Date Received:**	06/16/00
Method:	SW846 3550B/8081A	**Percent Solids:**	90.3
Project:	NAS Cecil Field-Site 11		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	ST05471.D	40	06/27/00	SKW	06/24/00	OP1730	GST204
Run #2							

Pesticide TCL List

CAS No.	Compound	Result	RL	Units	Q
309-00-2	Aldrin	ND	74	ug/kg	
319-84-6	alpha-BHC	ND	74	ug/kg	
319-85-7	beta-BHC	ND	74	ug/kg	
319-86-8	delta-BHC	ND	74	ug/kg	
58-89-9	gamma-BHC (Lindane)	ND	74	ug/kg	
5103-71-9	alpha-Chlordane	ND	150	ug/kg	
5103-74-2	gamma-Chlordane	ND	150	ug/kg	
60-57-1	Dieldrin	ND	74	ug/kg	
72-54-8	4,4'-DDD	ND	150	ug/kg	
72-55-9	4,4'-DDE	ND	150	ug/kg	
50-29-3	4,4'-DDT	ND	150	ug/kg	
72-20-8	Endrin	ND	150	ug/kg	
1031-07-8	Endosulfan sulfate	ND	150	ug/kg	
7421-93-4	Endrin aldehyde	ND	150	ug/kg	
53494-70-5	Endrin ketone	ND	150	ug/kg	
959-98-8	Endosulfan-I	ND	74	ug/kg	
33213-65-9	Endosulfan-II	ND	150	ug/kg	
76-44-8	Heptachlor	ND	74	ug/kg	
1024-57-3	Heptachlor epoxide	ND	74	ug/kg	
72-43-5	Methoxychlor	ND	300	ug/kg	
8001-35-2	Toxaphene	ND	7400	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	65%		50-144%
2051-24-3	Decachlorobiphenyl	304% [b]		10-180%

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

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

Report of Analysis

Client Sample ID:	CEF-635-SS-001-01		
Lab Sample ID:	F6811-5	**Date Sampled:**	06/15/00
Matrix:	SO - Soil	**Date Received:**	06/16/00
Method:	EPA 8310	**Percent Solids:**	93.0
Project:	NAS Cecil Field-Site 11		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	AA002176.D	200	06/26/00	CCJ	06/23/00	OP1729	GAA84
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	72000	ug/kg	
208-96-8	Acenaphthylene	ND	140000	ug/kg	
120-12-7	Anthracene	ND	72000	ug/kg	
56-55-3	Benzo(a)anthracene	64400	14000	ug/kg	
50-32-8	Benzo(a)pyrene	54000	14000	ug/kg	
205-99-2	Benzo(b)fluoranthene	58800	14000	ug/kg	
191-24-2	Benzo(g,h,i)perylene	34300	14000	ug/kg	
207-08-9	Benzo(k)fluoranthene	38300	14000	ug/kg	
218-01-9	Chrysene	58200	72000	ug/kg	J
53-70-3	Dibenzo(a,h)anthracene	ND	14000	ug/kg	
206-44-0	Fluoranthene	82800	72000	ug/kg	
86-73-7	Fluorene	ND	72000	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	38100	14000	ug/kg	
91-20-3	Naphthalene	ND	72000	ug/kg	
90-12-0	1-Methylnaphthalene	ND	72000	ug/kg	
91-57-6	2-Methylnaphthalene	ND	72000	ug/kg	
85-01-8	Phenanthrene	ND	72000	ug/kg	
129-00-0	Pyrene	136000	72000	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	0% [b]		35-135%
92-94-4	p-Terphenyl	0% [b]		50-150%

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

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

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

Report of Analysis

Client Sample ID:	CEF-635-SS-002-01		
Lab Sample ID:	F6811-4	**Date Sampled:**	06/15/00
Matrix:	SO - Soil	**Date Received:**	06/16/00
Method:	EPA 8310	**Percent Solids:**	96.3
Project:	NAS Cecil Field-Site 11		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	AA002175.D	50	06/26/00	CCJ	06/23/00	OP1729	GAA84
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	17000	ug/kg	
208-96-8	Acenaphthylene	ND	35000	ug/kg	
120-12-7	Anthracene	ND	17000	ug/kg	
56-55-3	Benzo(a)anthracene	16800	3500	ug/kg	
50-32-8	Benzo(a)pyrene	17800	3500	ug/kg	
205-99-2	Benzo(b)fluoranthene	25100	3500	ug/kg	
191-24-2	Benzo(g,h,i)perylene	11500	3500	ug/kg	
207-08-9	Benzo(k)fluoranthene	13900	3500	ug/kg	
218-01-9	Chrysene	17100	17000	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	3500	ug/kg	
206-44-0	Fluoranthene	19500	17000	ug/kg	
86-73-7	Fluorene	ND	17000	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	13000	3500	ug/kg	
91-20-3	Naphthalene	ND	17000	ug/kg	
90-12-0	1-Methylnaphthalene	ND	17000	ug/kg	
91-57-6	2-Methylnaphthalene	ND	17000	ug/kg	
85-01-8	Phenanthrene	ND	17000	ug/kg	
129-00-0	Pyrene	23600	17000	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	0% [b]		35-135%
92-94-4	p-Terphenyl	0% [b]		50-150%

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

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

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

Report of Analysis

Client Sample ID:	CEF-635-SS-003-01		
Lab Sample ID:	F6811-6	**Date Sampled:**	06/15/00
Matrix:	SO - Soil	**Date Received:**	06/16/00
Method:	EPA 8310	**Percent Solids:**	96.8
Project:	NAS Cecil Field-Site 11		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	AA002177.D	20	06/26/00	CCJ	06/23/00	OP1729	GAA84
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	6900	ug/kg	
208-96-8	Acenaphthylene	ND	14000	ug/kg	
120-12-7	Anthracene	ND	6900	ug/kg	
56-55-3	Benzo(a)anthracene	7450	1400	ug/kg	
50-32-8	Benzo(a)pyrene	4100	1400	ug/kg	
205-99-2	Benzo(b)fluoranthene	5890	1400	ug/kg	
191-24-2	Benzo(g,h,i)perylene	2480	1400	ug/kg	
207-08-9	Benzo(k)fluoranthene	3650	1400	ug/kg	
218-01-9	Chrysene	6180	6900	ug/kg	J
53-70-3	Dibenzo(a,h)anthracene	ND	1400	ug/kg	
206-44-0	Fluoranthene	13500	6900	ug/kg	
86-73-7	Fluorene	ND	6900	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	2890	1400	ug/kg	
91-20-3	Naphthalene	ND	6900	ug/kg	
90-12-0	1-Methylnaphthalene	ND	6900	ug/kg	
91-57-6	2-Methylnaphthalene	ND	6900	ug/kg	
85-01-8	Phenanthrene	ND	6900	ug/kg	
129-00-0	Pyrene	12400	6900	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	61%		35-135%
92-94-4	p-Terphenyl	124%		50-150%

(a) Dilution required due to matrix interference.

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

Report of Analysis

Client Sample ID:	CEF-635-SS-004-01		
Lab Sample ID:	F6811-7	**Date Sampled:**	06/15/00
Matrix:	SO - Soil	**Date Received:**	06/16/00
Method:	EPA 8310	**Percent Solids:**	96.5
Project:	NAS Cecil Field-Site 11		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	AA002179.D	10	06/26/00	CCJ	06/23/00	OP1729	GAA84
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	3500	ug/kg	
208-96-8	Acenaphthylene	ND	6900	ug/kg	
120-12-7	Anthracene	ND	3500	ug/kg	
56-55-3	Benzo(a)anthracene	1890	690	ug/kg	
50-32-8	Benzo(a)pyrene	1730	690	ug/kg	
205-99-2	Benzo(b)fluoranthene	2200	690	ug/kg	
191-24-2	Benzo(g,h,i)perylene	1730	690	ug/kg	
207-08-9	Benzo(k)fluoranthene	1470	690	ug/kg	
218-01-9	Chrysene	2100	3500	ug/kg	J
53-70-3	Dibenzo(a,h)anthracene	ND	690	ug/kg	
206-44-0	Fluoranthene	3780	3500	ug/kg	
86-73-7	Fluorene	ND	3500	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	1640	690	ug/kg	
91-20-3	Naphthalene	ND	3500	ug/kg	
90-12-0	1-Methylnaphthalene	ND	3500	ug/kg	
91-57-6	2-Methylnaphthalene	ND	3500	ug/kg	
85-01-8	Phenanthrene	ND	3500	ug/kg	
129-00-0	Pyrene	3570	3500	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	76%		35-135%
92-94-4	p-Terphenyl	107%		50-150%

(a) Dilution required due to matrix interference.

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

Report of Analysis

Client Sample ID:	CEF-635-SS-005-01		
Lab Sample ID:	F6811-8	**Date Sampled:**	06/15/00
Matrix:	SO - Soil	**Date Received:**	06/16/00
Method:	EPA 8310	**Percent Solids:**	96.6
Project:	NAS Cecil Field-Site 11		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	AA002180.D	10	06/26/00	CCJ	06/23/00	OP1729	GAA84
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	3500	ug/kg	
208-96-8	Acenaphthylene	ND	6900	ug/kg	
120-12-7	Anthracene	ND	3500	ug/kg	
56-55-3	Benzo(a)anthracene	1740	690	ug/kg	
50-32-8	Benzo(a)pyrene	2420	690	ug/kg	
205-99-2	Benzo(b)fluoranthene	3310	690	ug/kg	
191-24-2	Benzo(g,h,i)perylene	2430	690	ug/kg	
207-08-9	Benzo(k)fluoranthene	2050	690	ug/kg	
218-01-9	Chrysene	2000	3500	ug/kg	J
53-70-3	Dibenzo(a,h)anthracene	ND	690	ug/kg	
206-44-0	Fluoranthene	2600	3500	ug/kg	J
86-73-7	Fluorene	ND	3500	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	2120	690	ug/kg	
91-20-3	Naphthalene	ND	3500	ug/kg	
90-12-0	1-Methylnaphthalene	ND	3500	ug/kg	
91-57-6	2-Methylnaphthalene	ND	3500	ug/kg	
85-01-8	Phenanthrene	ND	3500	ug/kg	
129-00-0	Pyrene	3170	3500	ug/kg	J

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	81%		35-135%
92-94-4	p-Terphenyl	128%		50-150%

(a) Dilution required due to matrix interference.

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

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

Report of Analysis

Client Sample ID:	CEF-635-SS-DUP1		
Lab Sample ID:	F6811-9	**Date Sampled:**	06/15/00
Matrix:	SO - Soil	**Date Received:**	06/16/00
Method:	EPA 8310	**Percent Solids:**	90.3
Project:	NAS Cecil Field-Site 11		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	AA002181.D	80	06/26/00	CCJ	06/23/00	OP1729	GAA84
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	29000	ug/kg	
208-96-8	Acenaphthylene	ND	59000	ug/kg	
120-12-7	Anthracene	ND	29000	ug/kg	
56-55-3	Benzo(a)anthracene	34900	5900	ug/kg	
50-32-8	Benzo(a)pyrene	30300	5900	ug/kg	
205-99-2	Benzo(b)fluoranthene	35600	5900	ug/kg	
191-24-2	Benzo(g,h,i)perylene	18200	5900	ug/kg	
207-08-9	Benzo(k)fluoranthene	23600	5900	ug/kg	
218-01-9	Chrysene	32500	29000	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	5900	ug/kg	
206-44-0	Fluoranthene	42500	29000	ug/kg	
86-73-7	Fluorene	ND	29000	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	21400	5900	ug/kg	
91-20-3	Naphthalene	ND	29000	ug/kg	
90-12-0	1-Methylnaphthalene	ND	29000	ug/kg	
91-57-6	2-Methylnaphthalene	ND	29000	ug/kg	
85-01-8	Phenanthrene	ND	29000	ug/kg	
129-00-0	Pyrene	60400	29000	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	0% [b]		35-135%
92-94-4	p-Terphenyl	0% [b]		50-150%

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

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

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

Report of Analysis

Client Sample ID:	CEF-635-SS-001-01		
Lab Sample ID:	F6811-5	**Date Sampled:**	06/15/00
Matrix:	SO - Soil	**Date Received:**	06/16/00
Method:	FLORIDA-PRO	**Percent Solids:**	93.0
Project:	NAS Cecil Field-Site 11		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP08952.D	200	06/25/00	CCJ	06/23/00	OP1728	GOP398
Run #2							

CAS No.	Compound	Result	RL	Units	Q
	TPH (C8-C40)	3260	1800	mg/kg	

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

(a) Outside control limits due to dilution.

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

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

Report of Analysis

Client Sample ID:	CEF-635-SS-002-01		
Lab Sample ID:	F6811-4	**Date Sampled:**	06/15/00
Matrix:	SO - Soil	**Date Received:**	06/16/00
Method:	FLORIDA-PRO	**Percent Solids:**	96.3
Project:	NAS Cecil Field-Site 11		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP08971.D	40	06/26/00	CCJ	06/23/00	OP1728	GOP399
Run #2							

CAS No.	Compound	Result	RL	Units	Q
	TPH (C8-C40)	733	340	mg/kg	

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

(a) Outside control limits due to dilution.

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

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

Report of Analysis

Client Sample ID:	CEF-635-SS-003-01		
Lab Sample ID:	F6811-6	**Date Sampled:**	06/15/00
Matrix:	SO - Soil	**Date Received:**	06/16/00
Method:	FLORIDA-PRO	**Percent Solids:**	96.8
Project:	NAS Cecil Field-Site 11		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP08972.D	5	06/26/00	CCJ	06/23/00	OP1728	GOP399
Run #2							

CAS No.	Compound	Result	RL	Units	Q
	TPH (C8-C40)	108	43	mg/kg	

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

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

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

Report of Analysis

Client Sample ID:	CEF-635-SS-004-01		
Lab Sample ID:	F6811-7	**Date Sampled:**	06/15/00
Matrix:	SO - Soil	**Date Received:**	06/16/00
Method:	FLORIDA-PRO	**Percent Solids:**	96.5
Project:	NAS Cecil Field-Site 11		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP08973.D	8	06/26/00	CCJ	06/23/00	OP1728	GOP399
Run #2							

CAS No.	Compound	Result	RL	Units	Q
	TPH (C8-C40)	183	69	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	110%		40-140%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

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

Report of Analysis

Client Sample ID:	CEF-635-SS-005-01		
Lab Sample ID:	F6811-8	**Date Sampled:**	06/15/00
Matrix:	SO - Soil	**Date Received:**	06/16/00
Method:	FLORIDA-PRO	**Percent Solids:**	96.6
Project:	NAS Cecil Field-Site 11		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP08974.D	10	06/26/00	CCJ	06/23/00	OP1728	GOP399
Run #2							

CAS No.	Compound	Result	RL	Units	Q
	TPH (C8-C40)	181	86	mg/kg	

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

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

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

Report of Analysis

Client Sample ID:	CEF-635-SS-DUP1		
Lab Sample ID:	F6811-9	**Date Sampled:**	06/15/00
Matrix:	SO - Soil	**Date Received:**	06/16/00
Method:	FLORIDA-PRO	**Percent Solids:**	90.3
Project:	NAS Cecil Field-Site 11		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP08953.D	200	06/25/00	CCJ	06/23/00	OP1728	GOP398
Run #2							

CAS No.	Compound	Result	RL	Units	Q
	TPH (C8-C40)	3390	1800	mg/kg	

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

(a) Outside control limits due to dilution.

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

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

Tetra Tech NUS **INTERNAL CORRESPONDENCE**

TO:	**M. SPERANZA**	**DATE:**	**AUGUST 9, 2000**
FROM:	**GRETCHEN PHIPPS**	**COPIES:**	**DV FILE**

SUBJECT: **INORGANIC DATA VALIDATION – TAL METALS**
CTO 078 - NAS CECIL FIELD
SDG – F6811

SAMPLES: 9/Soils/

~~CEF-098-DUP1~~	~~CEF-098-SS-001-01~~
~~CEF-098-SS-002-01~~	CEF-635-SS-001-01
CEF-635-SS-002-01	CEF-635-SS-003-01
CEF-635-SS-004-01	CEF-635-SS-005-01
CEF-635-SS-DUP1	

Overview

The sample set for CTO 078, Cecil Field, SDG F6811 consists of nine (9) soil environmental samples. Two (2) field duplicate pairs (CEF-098-SS-001-01 / CEF-098-DUP1 and CEF-635-SS-001-01 / CEF-635-SS-DUP1) were included within this SDG.

The samples were analyzed for Target Analyte List (TAL) metals. The samples were collected by Tetra Tech NUS on June 15, 2000 and analyzed by Accutest Laboratory under Naval Facilities Engineering Service Center (NFESC) Quality Assurance / Quality Control (QA / QC) criteria. Metals analyses were conducted using SW 846 method 6010B/7471A.

The data was evaluated based on the following parameters:

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

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

Laboratory Blank Analyses

The following contaminants were present in a laboratory method / preparation blanks at the following maximum concentration:

Analyte	Maximum Concentration	Action Level(soil)
Aluminum	51.5µg/L	25.75 mg/kg
Arsenic	4.4µg/L	2.2 mg/kg
Barium	1.2µg/L	0.6 mg/kg
Beryllium	1.9µg/L	0.95 mg/kg
Cadmium	1.1µg/L	0.55 mg/kg
Calcium	23.5µg/L	11.75 mg/kg
Chromium	0.69µg/L	0.345 mg/kg
Cobalt	1.2µg/L	0.6 mg/kg
Copper	3.4µg/L	1.7 mg/kg
Iron	47.6µg/L	23.8 mg/kg
Magnesium	28.3µg/L	14.15 mg/kg
Manganese	1.1µg/L	0.55 mg/kg
Mercury	0.2µg/L	0.16 mg/kg
Nickel[1]	0.35 mg/kg	1.75 mg/kg
Potassium	246µg/L	123 mg/kg
Selenium	4.2µg/L	2.1 mg/kg
Silver	1.5µg/L	0.75 mg/kg
Vanadium	1.0µg/L	0.5 mg/kg
Zinc	1.3µg/L	0.65 mg/kg

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

An action level of 5X the maximum concentration has been used to evaluate the sample data for blank contamination. Sample aliquot, percent solids and dilution factors were taken into consideration when determining blank contamination. Positive results less than the blank action levels for arsenic, beryllium, cadmium, cobalt, mercury, nickel, potassium and selenium were qualified, "U", as a result of blank contamination

Field Duplicate Imprecision

Field duplicate imprecision (Relative Percent Difference >50%) was noted for manganese. The positive results reported for manganese were qualified as estimated, "J".

Executive Summary

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

Other Factors Affecting Data Quality: Field duplicate imprecision was noted for manganese.

The data for these analyses were reviewed with reference to the "National Functional Guidelines for Inorganic Review", February 1994 and the NFESC document entitled "Navy IRCDQM." (September 1999).

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

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

Gretchen A. Phipps

Tetra Tech NUS
Gretchen A. Phipps

Tetra Tech NUS
Joseph A. Samchuck
Quality Control Officer

Attachments:

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

APPENDIX A
QUALIFIED ANALYTICAL RESULTS

Qualifier Codes:

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

CTO078-NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F6811

SAMPLE NUMBER:	CEF-098-DUP1			CEF-098-SS-001-01			CEF-098-SS-002-01			CEF-635-SS-001-01		
SAMPLE DATE:	06/15/00			06/15/00			06/15/00			06/15/00		
LABORATORY ID:	F6811-3			F6811-1			F6811-2			F6811-5		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	94.1 %			94.1 %			95.1 %			93.0 %		
UNITS:	MG/KG			MG/KG			MG/KG			MG/KG		
FIELD DUPLICATE OF:	CEF-098-SS-001-01											
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
INORGANICS												
ALUMINUM	3700			3400			1630			3240		
ANTIMONY	0.27	U		0.26	U		0.25	U		0.26	U	
ARSENIC	0.51	U	A	0.46	U	A	0.67	U	A	2.2	U	A
BARIUM	8.5			5.8			10.5			42.3		
BERYLLIUM	0.17	U	A	0.11	U	A	0.20	U	A	0.68	U	A
CADMIUM	0.04	U		0.04	U		0.04	U		0.04	U	
CALCIUM	9110			5610			2150			18400		
CHROMIUM	4.4			4.4			2.1			3.5		
COBALT	0.24	U	A	0.18	U	A	0.18	U	A	0.49	U	A
COPPER	7.8			9.0			13.4			3.7		
IRON	681			598			808			3440		
LEAD	8.1			8.4			7.2			9.8		
MAGNESIUM	306			123			282			2280		
MANGANESE	26.1	J	P	14.1	J	P	32.8	J	P	189	J	P
MERCURY	0.06	U	A	0.09	U	A	0.06	U	A	0.06	U	A
NICKEL	0.84	U	A	1.7	U	A	0.75	U	A	0.95	U	A
POTASSIUM	131			88.2	U	A	92.2	U	A	528		
SELENIUM	1.1	U	A	1.3	U	A	0.41	U	A	0.22	U	
SILVER	0.11	U		0.11	U		0.10	U		0.10	U	
SODIUM	93.2			71.9			75.6			155		
THALLIUM	0.30	U		0.30	U		0.29	U		0.29	U	
VANADIUM	3.3			2.7			2.1			5.3		
ZINC	10.8			10.6			6.2			12.7		

CTO078-NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F6811

SAMPLE NUMBER:	CEF-635-SS-002-01			CEF-635-SS-003-01			CEF-635-SS-004-01			CEF-635-SS-005-01		
SAMPLE DATE:	06/15/00			06/15/00			06/15/00			06/15/00		
LABORATORY ID:	F6811-4			F6811-6			F6811-7			F6811-8		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	96.3 %			96.8 %			96.5 %			96.6 %		
UNITS:	MG/KG			MG/KG			MG/KG			MG/KG		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
INORGANICS												
ALUMINUM	5490			858			1240			4700		
ANTIMONY	0.25	U		0.25	U		0.24	U		0.25	U	
ARSENIC	2.8			0.60	U	A	0.64	U	A	1.9	U	A
BARIUM	57.9			8.6			12.4			50.5		
BERYLLIUM	1.2			0.09	U	A	0.21	U	A	1.3		
CADMIUM	0.23	U	A	0.06	U	A	0.18	U	A	0.03	U	
CALCIUM	96700			35200			125000			39700		
CHROMIUM	6.1			2.8			4.3			3.7		
COBALT	0.82			0.19	U	A	0.20	U	A	0.66		
COPPER	8.4			3.0			3.0			6.7		
IRON	3580			807			940			3130		
LEAD	11.1			5.4			5.9			7.2		
MAGNESIUM	3760			347			1850			3080		
MANGANESE	308	J	P	26.2	J	P	57.6	J	P	277	J	P
MERCURY	0.05	U	A	0.05	U	A	0.03	U	A	0.04	U	A
NICKEL	1.6	U	A	0.52	U	A	0.71	U	A	1.1	U	A
POTASSIUM	1460			94.5	U	A	285			1020		
SELENIUM	0.21	U		0.21	U		0.20	U		0.21	U	
SILVER	0.10	U		0.10	U		0.10	U		0.10	U	
SODIUM	267			130			185			219		
THALLIUM	0.28	U		0.28	U		0.27	U		0.28	U	
VANADIUM	9.3			1.8			4.4			5.4		
ZINC	35.6			18.3			12.2			9.8		

CTO078-NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F6811

SAMPLE NUMBER:	CEF-635-SS-DUP1											
SAMPLE DATE:	06/15/00			/ /			/ /			/ /		
LABORATORY ID:	F6811-9											
QC_TYPE:	NORMAL											
% SOLIDS:	90.3 %			100.0 %			100.0 %			100.0 %		
UNITS:	MG/KG											
FIELD DUPLICATE OF:	CEF-635-SS-001-01											
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
INORGANICS												
ALUMINUM	2900											
ANTIMONY	0.27	U										
ARSENIC	2.5											
BARIUM	36.6											
BERYLLIUM	0.73	U	A									
CADMIUM	0.13	U	A									
CALCIUM	50600											
CHROMIUM	4.3											
COBALT	0.65	U	A									
COPPER	4.0											
IRON	3960											
LEAD	10.8											
MAGNESIUM	1990											
MANGANESE	191	J	P									
MERCURY	0.07	U	A									
NICKEL	1.5	U	A									
POTASSIUM	509											
SELENIUM	0.23	U										
SILVER	0.11	U										
SODIUM	161											
THALLIUM	0.31	U										
VANADIUM	4.6											
ZINC	13.7											

APPENDIX B
RESULTS AS REPORTED BY THE LABORATORY

Report of Analysis

Client Sample ID:	CEF-635-SS-001-01		
Lab Sample ID:	F6811-5	**Date Sampled:**	06/15/00
Matrix:	SO - Soil	**Date Received:**	06/16/00
		Percent Solids:	93.0
Project:	NAS Cecil Field-Site 11		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method
Aluminum	3240	21.7	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Antimony	0.26 U	6.5	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Arsenic	2.2	0.54	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Barium	42.3	21.7	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Beryllium	0.68	0.54	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Cadmium	0.04 U	0.43	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Calcium	18400	543	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Chromium	3.5	1.1	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Cobalt	0.49 B	5.4	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Copper	3.7	2.7	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Iron	3440	10.9	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Lead	9.8 B	10.9	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Magnesium	2280	543	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Manganese	189	1.6	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Mercury	0.06 B	0.15	mg/kg	1	06/20/00	06/22/00	SJL	SW846 7471A
Nickel	0.95 B	4.3	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Potassium	528 B	543	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Selenium	0.22 U	10.9	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Silver	0.10 U	1.1	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Sodium	155 B	543	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Thallium	0.29 U	1.1	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Vanadium	5.3 B	5.4	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Zinc	12.7	2.2	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A

RL = Reporting Limit

Report of Analysis

Client Sample ID:	CEF-635-SS-002-01		
Lab Sample ID:	F6811-4	**Date Sampled:**	06/15/00
Matrix:	SO - Soil	**Date Received:**	06/16/00
		Percent Solids:	96.3
Project:	NAS Cecil Field-Site 11		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method
Aluminum	5490	21.0	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Antimony	0.25 U	6.3	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Arsenic	2.8	0.52	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Barium	57.9	21.0	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Beryllium	1.2	0.52	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Cadmium	0.23 B	0.42	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Calcium	96700	524	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Chromium	6.1	1.0	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Cobalt	0.82 B	5.2	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Copper	8.4	2.6	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Iron	3580	10.5	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Lead	11.1	10.5	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Magnesium	3760	524	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Manganese	308	1.6	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Mercury	0.05 B	0.17	mg/kg	1	06/20/00	06/22/00	SJL	SW846 7471A
Nickel	1.6 B	4.2	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Potassium	1460	524	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Selenium	0.21 U	10.5	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Silver	0.10 U	1.0	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Sodium	267 B	524	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Thallium	0.28 U	1.0	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Vanadium	9.3	5.2	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Zinc	35.6	2.1	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A

RL = Reporting Limit

Report of Analysis

Client Sample ID:	CEF-635-SS-003-01		
Lab Sample ID:	F6811-6	**Date Sampled:**	06/15/00
Matrix:	SO - Soil	**Date Received:**	06/16/00
		Percent Solids:	96.8
Project:	NAS Cecil Field-Site 11		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method
Aluminum	858	20.9	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Antimony	0.25 U	6.3	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Arsenic	0.60	0.52	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Barium	8.6 B	20.9	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Beryllium	0.09 B	0.52	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Cadmium	0.06 B	0.42	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Calcium	35200	522	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Chromium	2.8	1.0	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Cobalt	0.19 B	5.2	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Copper	3.0	2.6	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Iron	807	10.4	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Lead	5.4 B	10.4	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Magnesium	347 B	522	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Manganese	26.2	1.6	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Mercury	0.05 B	0.18	mg/kg	1	06/20/00	06/22/00	SJL	SW846 7471A
Nickel	0.52 B	4.2	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Potassium	94.5 B	522	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Selenium	0.21 U	10.4	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Silver	0.10 U	1.0	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Sodium	130 B	522	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Thallium	0.28 U	1.0	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Vanadium	1.8 B	5.2	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Zinc	18.3	2.1	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A

RL = Reporting Limit

Report of Analysis

Client Sample ID:	CEF-635-SS-004-01		
Lab Sample ID:	F6811-7	**Date Sampled:**	06/15/00
Matrix:	SO - Soil	**Date Received:**	06/16/00
		Percent Solids:	96.5
Project:	NAS Cecil Field-Site 11		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method
Aluminum	1240	19.9	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Antimony	0.24 U	6.0	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Arsenic	0.64	0.50	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Barium	12.4 B	19.9	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Beryllium	0.21 B	0.50	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Cadmium	0.18 B	0.40	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Calcium	125000	498	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Chromium	4.3	1.0	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Cobalt	0.20 B	5.0	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Copper	3.0	2.5	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Iron	940	10	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Lead	5.9 B	10	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Magnesium	1850	498	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Manganese	57.6	1.5	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Mercury	0.03 B	0.17	mg/kg	1	06/20/00	06/22/00	SJL	SW846 7471A
Nickel	0.71 B	4.0	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Potassium	285 B	498	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Selenium	0.20 U	10	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Silver	0.1 U	1.0	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Sodium	185 B	498	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Thallium	0.27 U	1.0	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Vanadium	4.4 B	5.0	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Zinc	12.2	2.0	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A

RL = Reporting Limit

Report of Analysis

Client Sample ID:	CEF-635-SS-005-01		
Lab Sample ID:	F6811-8	**Date Sampled:**	06/15/00
Matrix:	SO - Soil	**Date Received:**	06/16/00
		Percent Solids:	96.6
Project:	NAS Cecil Field-Site 11		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method
Aluminum	4700	20.7	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Antimony	0.25 U	6.2	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Arsenic	1.9	0.52	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Barium	50.5	20.7	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Beryllium	1.3	0.52	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Cadmium	0.03 U	0.41	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Calcium	39700	518	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Chromium	3.7	1.0	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Cobalt	0.66 B	5.2	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Copper	6.7	2.6	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Iron	3130	10.4	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Lead	7.2 B	10.4	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Magnesium	3080	518	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Manganese	277	1.6	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Mercury	0.04 B	0.14	mg/kg	1	06/20/00	06/22/00	SJL	SW846 7471A
Nickel	1.1 B	4.1	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Potassium	1020	518	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Selenium	0.21 U	10.4	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Silver	0.1 U	1.0	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Sodium	219 B	518	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Thallium	0.28 U	1.0	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Vanadium	5.4	5.2	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Zinc	9.8	2.1	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A

RL = Reporting Limit

Report of Analysis

Client Sample ID:	CEF-635-SS-DUP1		
Lab Sample ID:	F6811-9	**Date Sampled:**	06/15/00
Matrix:	SO - Soil	**Date Received:**	06/16/00
		Percent Solids:	90.3
Project:	NAS Cecil Field-Site 11		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method
Aluminum	2900	22.8	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Antimony	0.27 U	6.9	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Arsenic	2.5	0.57	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Barium	36.6	22.8	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Beryllium	0.73	0.57	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Cadmium	0.13 B	0.46	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Calcium	50600	571	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Chromium	4.3	1.1	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Cobalt	0.65 B	5.7	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Copper	4.0	2.9	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Iron	3960	11.4	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Lead	10.8 B	11.4	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Magnesium	1990	571	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Manganese	191	1.7	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Mercury	0.07 B	0.19	mg/kg	1	06/20/00	06/22/00	SJL	SW846 7471A
Nickel	1.5 B	4.6	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Potassium	509 B	571	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Selenium	0.23 U	11.4	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Silver	0.11 U	1.1	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Sodium	161 B	571	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Thallium	0.31 U	1.1	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Vanadium	4.6 B	5.7	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Zinc	13.7	2.3	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A

RL = Reporting Limit

PHASE II LABORATORY ANALYTICAL DATA

SAMPLE NUMBER SERIES CEF-635-SS-100

Tetra Tech NUS **INTERNAL CORRESPONDENCE**

PITT-07-0-026

TO: **MARK SPERANZA** **DATE: OCTOBER 4, 2000**

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

SUBJECT: **ORGANIC DATA VALIDATION – PAH/PET**
CTO 078 – NAS CECIL FIELD
SDG F7329

SAMPLES: 31/Surface Soil

CEF-635-DUP2*
CEF-635-DUP4
CEF-635-SS-102-01*
CEF-635-SS-104-01*
CEF-635-SS-106-01*
CEF-635-SS-108-01*
CEF-635-SS-110-01
CEF-635-SS-112-02
CEF-635-SS-114-01
CEF-635-SS-116-01
CEF-635-SS-118-02
CEF-635-SS-120-01
CEF-635-SS-122-01
CEF-635-SS-124-01
CEF-635-SS-126-01
CEF-635-SS-128-01

CEF-635-DUP3
CEF-635-SS-101-01*
CEF-635-SS-103-01*
CEF-635-SS-105-01*
CEF-635-SS-107-02*
CEF-635-SS-109-02
CEF-635-SS-111-01
CEF-635-SS-113-01
CEF-635-SS-115-02
CEF-635-SS-117-01
CEF-635-SS-119-01
CEF-635-SS-121-01
CEF-635-SS-123-01
CEF-635-SS-125-01
CEF-635-SS-127-01

OVERVIEW

The sample set for CTO 078, SDG F7329 Naval Air Station (NAS) Cecil Field; Florida consists of thirty-one (31) surface soil environmental samples. The samples were analyzed for Polynuclear Aromatic Hydrocarbon (PAH) organic compounds. The samples designated (*) were analyzed for Total Petroleum Hydrocarbon (PET) organic compounds. Three (3) field duplicate pairs (CEF-635-SS-101-01/CEF-635-DUP2, CEF-635-SS-111-01/CEF-635-DUP3, and CEF-635-SS-121-01/CEF-635-DUP4) were included within this SDG.

The samples were collected by Tetra Tech, NUS on August 9th, 2000 and analyzed by Accutest Laboratories. All analyses were performed in accordance with Naval Facilities Engineering Service Center (NFESC) Quality Assurance/Quality Control (QA/QC) criteria and analyzed according to SW 846 Method 8310 and FLORIDA-PRO analytical and reporting protocols. The data in this SDG was validated with regard to the following parameters:

* • Data Completeness
* • Holding Times
* • Initial/continuing calibrations
* • Laboratory method/field quality control blank results
• Field Duplicate Precision

* • Detection Limits

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

PAH FRACTION

The field duplicate pair (CEF-635-SS-101-01/CEF-635-DUP2) Relative Percent Differences (RPDs) exceeded the quality control limits for benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, chrysene, dibenzo(a,h)anthracene, and indeno(1,2,3-cd)pyrene. The positive and nondetected results were qualified as estimated, J and UJ, respectively.

The field duplicate pair (CEF-635-SS-111-01/CEF-635-DUP3) Relative Percent Differences (RPDs) exceeded the quality control limits for 1-methylnaphthalene, 2-methylnaphthalene, acenaphthylene, anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, dibenzo(a,h)anthracene, fluorene, and phenanthrene. The positive and nondetected results were qualified as estimated, J and UJ, respectively.

The field duplicate pair (CEF-635-SS-121-01/CEF-635-DUP4) Relative Percent Differences (RPDs) exceeded the quality control limits for benzo(a)anthracene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, fluoranthene, indeno(1,2,3-cd)pyrene, and pyrene. The positive and nondetected results were qualified as estimated, J and UJ, respectively.

PET FRACTION

Several samples were analyzed at a dilution thus causing elevated reporting limits.

ADDITIONAL COMMENTS

Several samples contained positive results for compounds below the reporting limits. These results were qualified as estimated (J).

EXECUTIVE SUMMARY

Laboratory performance: None.

Other Factors Affecting Data Quality: The field duplicate pair RPD exceeded the upper control limit for several compounds.

MEMO TO: MARK SPERANZA
DATE: OCTOBER 4, 2000 – PAGE 3

The data for these analyses were reviewed with reference to the EPA Functional Guidelines for Organic Data Validation (October 1999) and the NFESC guidelines "Navy IRCDQM" (September 1999). The text of this report has been formulated to address only those problems affecting data quality.

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

Justin Orbich

Chemist/Data Validator
Tetra Tech, NUS

Joseph A. Samchuck

Data Validation Quality Assurance Officer
Tetra Tech, NUS

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

DATA QUALIFIER DEFINITIONS:

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

Qualifier Codes:

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

APPENDIX A

Qualified Analytical Results

NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F7329

SAMPLE NUMBER:	CEF-635-DUP2	CEF-635-SS-101-01	CEF-635-SS-102-01	CEF-635-SS-103-01
SAMPLE DATE:	08/09/00	08/09/00	08/09/00	08/09/00
LABORATORY ID:	F7329-29	F7329-1	F7329-3	F7329-2
QC_TYPE:	NORMAL	NORMAL	NORMAL	NORMAL
% SOLIDS:	89.2 %	88.0 %	83.4 %	87.0 %
UNITS:	MG/KG	MG/KG	MG/KG	MG/KG
FIELD DUPLICATE OF:	CEF-635-SS-101-01			

	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
PETROLEUM HYDROCARBONS												
TPH (C8-C40)	78.4			83.4			85			73.9		

NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F7329

SAMPLE NUMBER:	CEF-635-SS-104-01	CEF-635-SS-105-01	CEF-635-SS-106-01	CEF-635-SS-107-02
SAMPLE DATE:	08/09/00	08/09/00	08/09/00	08/09/00
LABORATORY ID:	F7329-4	F7329-5	F7329-6	F7329-7
QC_TYPE:	NORMAL	NORMAL	NORMAL	NORMAL
% SOLIDS:	88.8 %	82.6 %	88.7 %	82.4 %
UNITS:	MG/KG	MG/KG	MG/KG	MG/KG
FIELD DUPLICATE OF:				

	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
PETROLEUM HYDROCARBONS												
TPH (C8-C40)	59.4			86.8			56.1			24.1		

NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F7329

SAMPLE NUMBER:	CEF-635-SS-108-01			
SAMPLE DATE:	08/09/00	/ /	/ /	/ /
LABORATORY ID:	F7329-8			
QC_TYPE:	NORMAL			
% SOLIDS:	90.1 %	100.0 %	100.0 %	100.0 %
UNITS:	MG/KG			
FIELD DUPLICATE OF:				

	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
PETROLEUM HYDROCARBONS												
TPH (C8-C40)	215											

APPENDIX B

Results as Reported by the Laboratory

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-635-DUP2		
Lab Sample ID:	F7329-29	**Date Sampled:**	08/09/00
Matrix:	SO - Soil	**Date Received:**	08/11/00
Method:	SW846 8310	**Percent Solids:**	89.2
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	UV0477.D	1	08/31/00	AMA	08/18/00	M:OP2193	M:LCB7
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	190	ug/kg	
208-96-8	Acenaphthylene	ND	190	ug/kg	
120-12-7	Anthracene	ND	190	ug/kg	
56-55-3	Benzo (a) anthracene	ND	28	ug/kg	
50-32-8	Benzo (a) pyrene	1080	28	ug/kg	
205-99-2	Benzo (b) fluoranthene	1430	28	ug/kg	
191-24-2	Benzo (g,h,i) perylene	ND	28	ug/kg	
207-08-9	Benzo (k) fluoranthene	715	28	ug/kg	
218-01-9	Chrysene	ND	28	ug/kg	
53-70-3	Dibenz(a,h)anthracene	ND	28	ug/kg	
206-44-0	Fluoranthene	1930	28	ug/kg	
86-73-7	Fluorene	ND	190	ug/kg	
193-39-5	Indeno (1,2,3-cd) pyrene	ND	28	ug/kg	
90-12-0	1-Methylnaphthalene	ND	190	ug/kg	
91-57-6	2-Methylnaphthalene	ND	190	ug/kg	
91-20-3	Naphthalene	ND	190	ug/kg	
85-01-8	Phenanthrene	ND	190	ug/kg	
129-00-0	Pyrene	1750	28	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	87%		20-130%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

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

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-635-DUP3		
Lab Sample ID:	F7329-30	**Date Sampled:**	08/09/00
Matrix:	SO - Soil	**Date Received:**	08/11/00
Method:	SW846 8310	**Percent Solids:**	86.7
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	UV0478.D	1	08/31/00	AMA	08/18/00	M:OP2193	M:LCB7
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	1150	380	ug/kg	
208-96-8	Acenaphthylene	993	380	ug/kg	
120-12-7	Anthracene	5910	380	ug/kg	
56-55-3	Benzo (a) anthracene	8250	57	ug/kg	
50-32-8	Benzo (a) pyrene	9850	57	ug/kg	
205-99-2	Benzo (b) fluoranthene	5570	57	ug/kg	
191-24-2	Benzo (g,h,i) perylene	16400	57	ug/kg	
207-08-9	Benzo (k) fluoranthene	7370	57	ug/kg	
218-01-9	Chrysene	17800	57	ug/kg	
53-70-3	Dibenz(a,h)anthracene	1260	57	ug/kg	
206-44-0	Fluoranthene	9430	57	ug/kg	
86-73-7	Fluorene	778	380	ug/kg	
193-39-5	Indeno (1,2,3-cd) pyrene	14600	57	ug/kg	
90-12-0	1-Methylnaphthalene	1260	380	ug/kg	
91-57-6	2-Methylnaphthalene	1060	380	ug/kg	
91-20-3	Naphthalene	ND	380	ug/kg	
85-01-8	Phenanthrene	ND	380	ug/kg	
129-00-0	Pyrene	16000	57	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	47%		20-130%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

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

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ACCUTEST

Report of Analysis

Client Sample ID:	CEF-635-DUP4		
Lab Sample ID:	F7329-31	**Date Sampled:**	08/09/00
Matrix:	SO - Soil	**Date Received:**	08/11/00
Method:	SW846 8310	**Percent Solids:**	87.8
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	UV0479.D	1	08/31/00	AMA	08/18/00	M:OP2193	M:LCB7
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	190	ug/kg	
208-96-8	Acenaphthylene	ND	190	ug/kg	
120-12-7	Anthracene	ND	190	ug/kg	
56-55-3	Benzo (a) anthracene	153	28	ug/kg	
50-32-8	Benzo (a) pyrene	345	28	ug/kg	
205-99-2	Benzo (b) fluoranthene	35.6	28	ug/kg	
191-24-2	Benzo (g,h,i) perylene	432	28	ug/kg	
207-08-9	Benzo (k) fluoranthene	ND	28	ug/kg	
218-01-9	Chrysene	72.3	28	ug/kg	
53-70-3	Dibenz(a,h)anthracene	ND	28	ug/kg	
206-44-0	Fluoranthene	54.6	28	ug/kg	
86-73-7	Fluorene	ND	190	ug/kg	
193-39-5	Indeno (1,2,3-cd) pyrene	478	28	ug/kg	
90-12-0	1-Methylnaphthalene	ND	190	ug/kg	
91-57-6	2-Methylnaphthalene	ND	190	ug/kg	
91-20-3	Naphthalene	ND	190	ug/kg	
85-01-8	Phenanthrene	ND	190	ug/kg	
129-00-0	Pyrene	53.4	28	ug/kg	

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

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

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

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-635-SS-101-01		
Lab Sample ID:	F7329-1	**Date Sampled:**	08/09/00
Matrix:	SO - Soil	**Date Received:**	08/11/00
Method:	SW846 8310	**Percent Solids:**	88.0
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	UV0373.D	1	08/19/00	AMA	08/14/00	M:OP2176	M:LCB3
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	190	ug/kg	
208-96-8	Acenaphthylene	ND	190	ug/kg	
120-12-7	Anthracene	21.9	190	ug/kg	J
56-55-3	Benzo (a) anthracene	607	28	ug/kg	
50-32-8	Benzo (a) pyrene	560	28	ug/kg	
205-99-2	Benzo (b) fluoranthene	1160	28	ug/kg	
191-24-2	Benzo (g,h,i) perylene	641	28	ug/kg	
207-08-9	Benzo (k) fluoranthene	539	28	ug/kg	
218-01-9	Chrysene	758	28	ug/kg	
53-70-3	Dibenz(a,h)anthracene	122	28	ug/kg	
206-44-0	Fluoranthene	1690	28	ug/kg	
86-73-7	Fluorene	ND	190	ug/kg	
193-39-5	Indeno (1,2,3-cd) pyrene	534	28	ug/kg	
90-12-0	1-Methylnaphthalene	ND	190	ug/kg	
91-57-6	2-Methylnaphthalene	ND	190	ug/kg	
91-20-3	Naphthalene	ND	190	ug/kg	
85-01-8	Phenanthrene	139	190	ug/kg	J
129-00-0	Pyrene	1380	28	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	96%		20-130%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

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

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-635-SS-102-01		
Lab Sample ID:	F7329-3	**Date Sampled:**	08/09/00
Matrix:	SO - Soil	**Date Received:**	08/11/00
Method:	SW846 8310	**Percent Solids:**	83.4
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	UV0375.D	1	08/19/00	AMA	08/14/00	M:OP2176	M:LCB3
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	200	ug/kg	
208-96-8	Acenaphthylene	ND	200	ug/kg	
120-12-7	Anthracene	37.4	200	ug/kg	J
56-55-3	Benzo (a) anthracene	927	30	ug/kg	
50-32-8	Benzo (a) pyrene	992	30	ug/kg	
205-99-2	Benzo (b) fluoranthene	1540	30	ug/kg	
191-24-2	Benzo (g,h,i) perylene	814	30	ug/kg	
207-08-9	Benzo (k) fluoranthene	728	30	ug/kg	
218-01-9	Chrysene	1000	30	ug/kg	
53-70-3	Dibenz(a,h)anthracene	101	30	ug/kg	
206-44-0	Fluoranthene	2050	30	ug/kg	
86-73-7	Fluorene	ND	200	ug/kg	
193-39-5	Indeno (1,2,3-cd) pyrene	680	30	ug/kg	
90-12-0	1-Methylnaphthalene	ND	200	ug/kg	
91-57-6	2-Methylnaphthalene	ND	200	ug/kg	
91-20-3	Naphthalene	ND	200	ug/kg	
85-01-8	Phenanthrene	216	200	ug/kg	
129-00-0	Pyrene	2290	30	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	87%		20-130%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

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

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Report of Analysis

Client Sample ID:	CEF-635-SS-103-01		
Lab Sample ID:	F7329-2	**Date Sampled:**	08/09/00
Matrix:	SO - Soil	**Date Received:**	08/11/00
Method:	SW846 8310	**Percent Solids:**	87.0
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	UV0374.D	1	08/19/00	AMA	08/14/00	M:OP2176	M:LCB3
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	190	ug/kg	
208-96-8	Acenaphthylene	ND	190	ug/kg	
120-12-7	Anthracene	40.6	190	ug/kg	J
56-55-3	Benzo (a) anthracene	792	29	ug/kg	
50-32-8	Benzo (a) pyrene	625	29	ug/kg	
205-99-2	Benzo (b) fluoranthene	1200	29	ug/kg	
191-24-2	Benzo (g,h,i) perylene	727	29	ug/kg	
207-08-9	Benzo (k) fluoranthene	568	29	ug/kg	
218-01-9	Chrysene	1020	29	ug/kg	
53-70-3	Dibenz(a,h)anthracene	83.3	29	ug/kg	
206-44-0	Fluoranthene	2550	29	ug/kg	
86-73-7	Fluorene	ND	190	ug/kg	
193-39-5	Indeno (1,2,3-cd) pyrene	597	29	ug/kg	
90-12-0	1-Methylnaphthalene	ND	190	ug/kg	
91-57-6	2-Methylnaphthalene	ND	190	ug/kg	
91-20-3	Naphthalene	ND	190	ug/kg	
85-01-8	Phenanthrene	378	190	ug/kg	
129-00-0	Pyrene	1920	29	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	90%		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-635-SS-104-01		
Lab Sample ID:	F7329-4	**Date Sampled:**	08/09/00
Matrix:	SO - Soil	**Date Received:**	08/11/00
Method:	SW846 8310	**Percent Solids:**	88.8
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	UV0377.D	1	08/19/00	AMA	08/14/00	M:OP2176	M:LCB3
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	190	ug/kg	
208-96-8	Acenaphthylene	ND	190	ug/kg	
120-12-7	Anthracene	16.7	190	ug/kg	J
56-55-3	Benzo (a) anthracene	582	28	ug/kg	
50-32-8	Benzo (a) pyrene	534	28	ug/kg	
205-99-2	Benzo (b) fluoranthene	770	28	ug/kg	
191-24-2	Benzo (g,h,i) perylene	580	28	ug/kg	
207-08-9	Benzo (k) fluoranthene	430	28	ug/kg	
218-01-9	Chrysene	442	28	ug/kg	
53-70-3	Dibenz(a,h)anthracene	105	28	ug/kg	
206-44-0	Fluoranthene	755	28	ug/kg	
86-73-7	Fluorene	ND	190	ug/kg	
193-39-5	Indeno (1,2,3-cd) pyrene	481	28	ug/kg	
90-12-0	1-Methylnaphthalene	ND	190	ug/kg	
91-57-6	2-Methylnaphthalene	ND	190	ug/kg	
91-20-3	Naphthalene	ND	190	ug/kg	
85-01-8	Phenanthrene	55.5	190	ug/kg	J
129-00-0	Pyrene	760	28	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	90%		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-635-SS-105-01		
Lab Sample ID:	F7329-5	**Date Sampled:**	08/09/00
Matrix:	SO - Soil	**Date Received:**	08/11/00
Method:	SW846 8310	**Percent Solids:**	82.6
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	UV0378.D	1	08/19/00	AMA	08/14/00	M:OP2176	M:LCB3
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	200	ug/kg	
208-96-8	Acenaphthylene	ND	200	ug/kg	
120-12-7	Anthracene	58.8	200	ug/kg	J
56-55-3	Benzo (a) anthracene	1140	30	ug/kg	
50-32-8	Benzo (a) pyrene	1270	30	ug/kg	
205-99-2	Benzo (b) fluoranthene	2100	30	ug/kg	
191-24-2	Benzo (g,h,i) perylene	848	30	ug/kg	
207-08-9	Benzo (k) fluoranthene	1120	30	ug/kg	
218-01-9	Chrysene	1280	30	ug/kg	
53-70-3	Dibenz(a,h)anthracene	112	30	ug/kg	
206-44-0	Fluoranthene	2490	30	ug/kg	
86-73-7	Fluorene	ND	200	ug/kg	
193-39-5	Indeno (1,2,3-cd) pyrene	893	30	ug/kg	
90-12-0	1-Methylnaphthalene	ND	200	ug/kg	
91-57-6	2-Methylnaphthalene	ND	200	ug/kg	
91-20-3	Naphthalene	ND	200	ug/kg	
85-01-8	Phenanthrene	79.7	200	ug/kg	J
129-00-0	Pyrene	4260	30	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	80%		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-635-SS-106-01		
Lab Sample ID:	F7329-6	**Date Sampled:**	08/09/00
Matrix:	SO - Soil	**Date Received:**	08/11/00
Method:	SW846 8310	**Percent Solids:**	88.7
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	UV0379.D	1	08/19/00	AMA	08/14/00	M:OP2176	M:LCB3
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	190	ug/kg	
208-96-8	Acenaphthylene	ND	190	ug/kg	
120-12-7	Anthracene	10.7	190	ug/kg	J
56-55-3	Benzo (a) anthracene	299	28	ug/kg	
50-32-8	Benzo (a) pyrene	286	28	ug/kg	
205-99-2	Benzo (b) fluoranthene	588	28	ug/kg	
191-24-2	Benzo (g,h,i) perylene	360	28	ug/kg	
207-08-9	Benzo (k) fluoranthene	307	28	ug/kg	
218-01-9	Chrysene	261	28	ug/kg	
53-70-3	Dibenz(a,h)anthracene	44.5	28	ug/kg	
206-44-0	Fluoranthene	457	28	ug/kg	
86-73-7	Fluorene	ND	190	ug/kg	
193-39-5	Indeno (1,2,3-cd) pyrene	303	28	ug/kg	
90-12-0	1-Methylnaphthalene	ND	190	ug/kg	
91-57-6	2-Methylnaphthalene	ND	190	ug/kg	
91-20-3	Naphthalene	ND	190	ug/kg	
85-01-8	Phenanthrene	182	190	ug/kg	J
129-00-0	Pyrene	468	28	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	97%		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-635-SS-107-02		
Lab Sample ID:	F7329-7	**Date Sampled:**	08/09/00
Matrix:	SO - Soil	**Date Received:**	08/11/00
Method:	SW846 8310	**Percent Solids:**	82.4
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	UV0380.D	1	08/19/00	AMA	08/14/00	M:OP2176	M:LCB3
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	200	ug/kg	
208-96-8	Acenaphthylene	ND	200	ug/kg	
120-12-7	Anthracene	24.2	200	ug/kg	J
56-55-3	Benzo (a) anthracene	353	30	ug/kg	
50-32-8	Benzo (a) pyrene	292	30	ug/kg	
205-99-2	Benzo (b) fluoranthene	464	30	ug/kg	
191-24-2	Benzo (g,h,i) perylene	258	30	ug/kg	
207-08-9	Benzo (k) fluoranthene	238	30	ug/kg	
218-01-9	Chrysene	201	30	ug/kg	
53-70-3	Dibenz(a,h)anthracene	23.8	30	ug/kg	J
206-44-0	Fluoranthene	505	30	ug/kg	
86-73-7	Fluorene	ND	200	ug/kg	
193-39-5	Indeno (1,2,3-cd) pyrene	244	30	ug/kg	
90-12-0	1-Methylnaphthalene	ND	200	ug/kg	
91-57-6	2-Methylnaphthalene	ND	200	ug/kg	
91-20-3	Naphthalene	ND	200	ug/kg	
85-01-8	Phenanthrene	26.2	200	ug/kg	J
129-00-0	Pyrene	654	30	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	83%		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-635-SS-108-01		
Lab Sample ID:	F7329-8	**Date Sampled:**	08/09/00
Matrix:	SO - Soil	**Date Received:**	08/11/00
Method:	SW846 8310	**Percent Solids:**	90.1
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	UV0487.D	1	08/31/00	AMA	08/17/00	M:OP2192	M:LCB8
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	180	ug/kg	
208-96-8	Acenaphthylene	ND	180	ug/kg	
120-12-7	Anthracene	ND	180	ug/kg	
56-55-3	Benzo (a) anthracene	572	28	ug/kg	
50-32-8	Benzo (a) pyrene	875	28	ug/kg	
205-99-2	Benzo (b) fluoranthene	953	28	ug/kg	
191-24-2	Benzo (g,h,i) perylene	547	28	ug/kg	
207-08-9	Benzo (k) fluoranthene	485	28	ug/kg	
218-01-9	Chrysene	725	28	ug/kg	
53-70-3	Dibenz(a,h)anthracene	81.0	28	ug/kg	
206-44-0	Fluoranthene	898	28	ug/kg	
86-73-7	Fluorene	ND	180	ug/kg	
193-39-5	Indeno (1,2,3-cd) pyrene	ND	28	ug/kg	
90-12-0	1-Methylnaphthalene	ND	180	ug/kg	
91-57-6	2-Methylnaphthalene	ND	180	ug/kg	
91-20-3	Naphthalene	ND	180	ug/kg	
85-01-8	Phenanthrene	ND	180	ug/kg	
129-00-0	Pyrene	967	28	ug/kg	

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

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

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

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Report of Analysis

Client Sample ID:	CEF-635-SS-109-02		
Lab Sample ID:	F7329-9	**Date Sampled:**	08/09/00
Matrix:	SO - Soil	**Date Received:**	08/11/00
Method:	SW846 8310	**Percent Solids:**	88.4
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	UV0488.D	1	08/31/00	AMA	08/17/00	M:OP2192	M:LCB8
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	190	ug/kg	
208-96-8	Acenaphthylene	ND	190	ug/kg	
120-12-7	Anthracene	ND	190	ug/kg	
56-55-3	Benzo (a) anthracene	1230	28	ug/kg	
50-32-8	Benzo (a) pyrene	1300	28	ug/kg	
205-99-2	Benzo (b) fluoranthene	1900	28	ug/kg	
191-24-2	Benzo (g,h,i) perylene	868	28	ug/kg	
207-08-9	Benzo (k) fluoranthene	864	28	ug/kg	
218-01-9	Chrysene	1290	28	ug/kg	
53-70-3	Dibenz(a,h)anthracene	ND	28	ug/kg	
206-44-0	Fluoranthene	1170	28	ug/kg	
86-73-7	Fluorene	ND	190	ug/kg	
193-39-5	Indeno (1,2,3-cd) pyrene	778	28	ug/kg	
90-12-0	1-Methylnaphthalene	ND	190	ug/kg	
91-57-6	2-Methylnaphthalene	ND	190	ug/kg	
91-20-3	Naphthalene	ND	190	ug/kg	
85-01-8	Phenanthrene	ND	190	ug/kg	
129-00-0	Pyrene	1730	28	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	88%		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-635-SS-110-01		
Lab Sample ID:	F7329-10	**Date Sampled:**	08/09/00
Matrix:	SO - Soil	**Date Received:**	08/11/00
Method:	SW846 8310	**Percent Solids:**	84.2
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	UV0489.D	1	08/31/00	AMA	08/17/00	M:OP2192	M:LCB8
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	1750	400	ug/kg	
208-96-8	Acenaphthylene	1060	400	ug/kg	
120-12-7	Anthracene	864	400	ug/kg	
56-55-3	Benzo (a) anthracene	14100	59	ug/kg	
50-32-8	Benzo (a) pyrene	14700	59	ug/kg	
205-99-2	Benzo (b) fluoranthene	20100	59	ug/kg	
191-24-2	Benzo (g,h,i) perylene	8290	59	ug/kg	
207-08-9	Benzo (k) fluoranthene	7890	59	ug/kg	
218-01-9	Chrysene	13500	59	ug/kg	
53-70-3	Dibenz(a,h)anthracene	1510	59	ug/kg	
206-44-0	Fluoranthene	16200	59	ug/kg	
86-73-7	Fluorene	653	400	ug/kg	
193-39-5	Indeno (1,2,3-cd) pyrene	7840	59	ug/kg	
90-12-0	1-Methylnaphthalene	2200	400	ug/kg	
91-57-6	2-Methylnaphthalene	1040	400	ug/kg	
91-20-3	Naphthalene	464	400	ug/kg	
85-01-8	Phenanthrene	1840	400	ug/kg	
129-00-0	Pyrene	20900	59	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	98%		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-635-SS-111-01		
Lab Sample ID:	F7329-11	**Date Sampled:**	08/09/00
Matrix:	SO - Soil	**Date Received:**	08/11/00
Method:	SW846 8310	**Percent Solids:**	85.1
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	UV0490.D	1	08/31/00	AMA	08/17/00	M:OP2192	M:LCB8
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	1290	400	ug/kg	
208-96-8	Acenaphthylene	2180	400	ug/kg	
120-12-7	Anthracene	1000	400	ug/kg	
56-55-3	Benzo (a) anthracene	19800	61	ug/kg	
50-32-8	Benzo (a) pyrene	22900	61	ug/kg	
205-99-2	Benzo (b) fluoranthene	34300	61	ug/kg	
191-24-2	Benzo (g,h,i) perylene	13300	61	ug/kg	
207-08-9	Benzo (k) fluoranthene	12300	61	ug/kg	
218-01-9	Chrysene	22800	61	ug/kg	
53-70-3	Dibenz(a,h)anthracene	ND	61	ug/kg	
206-44-0	Fluoranthene	11800	61	ug/kg	
86-73-7	Fluorene	ND	400	ug/kg	
193-39-5	Indeno (1,2,3-cd) pyrene	12000	61	ug/kg	
90-12-0	1-Methylnaphthalene	554	400	ug/kg	
91-57-6	2-Methylnaphthalene	ND	400	ug/kg	
91-20-3	Naphthalene	ND	400	ug/kg	
85-01-8	Phenanthrene	970	400	ug/kg	
129-00-0	Pyrene	22200	61	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	111%		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

0023

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-635-SS-112-02		
Lab Sample ID:	F7329-12	**Date Sampled:**	08/09/00
Matrix:	SO - Soil	**Date Received:**	08/11/00
Method:	SW846 8310	**Percent Solids:**	88.8
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	UV0491.D	1	08/31/00	AMA	08/17/00	M:OP2192	M:LCB8
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	228	190	ug/kg	
208-96-8	Acenaphthylene	356	190	ug/kg	
120-12-7	Anthracene	ND	190	ug/kg	
56-55-3	Benzo (a) anthracene	3370	28	ug/kg	
50-32-8	Benzo (a) pyrene	3180	28	ug/kg	
205-99-2	Benzo (b) fluoranthene	5790	28	ug/kg	
191-24-2	Benzo (g,h,i) perylene	2190	28	ug/kg	
207-08-9	Benzo (k) fluoranthene	2280	28	ug/kg	
218-01-9	Chrysene	4010	28	ug/kg	
53-70-3	Dibenz(a,h)anthracene	426	28	ug/kg	
206-44-0	Fluoranthene	2090	28	ug/kg	
86-73-7	Fluorene	ND	190	ug/kg	
193-39-5	Indeno (1,2,3-cd) pyrene	1890	28	ug/kg	
90-12-0	1-Methylnaphthalene	ND	190	ug/kg	
91-57-6	2-Methylnaphthalene	ND	190	ug/kg	
91-20-3	Naphthalene	ND	190	ug/kg	
85-01-8	Phenanthrene	ND	190	ug/kg	
129-00-0	Pyrene	3720	28	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	94%		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-635-SS-113-01		
Lab Sample ID:	F7329-13	**Date Sampled:**	08/09/00
Matrix:	SO - Soil	**Date Received:**	08/11/00
Method:	SW846 8310	**Percent Solids:**	90.1
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	UV0492.D	1	08/31/00	AMA	08/17/00	M:OP2192	M:LCB8
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	180	ug/kg	
208-96-8	Acenaphthylene	ND	180	ug/kg	
120-12-7	Anthracene	ND	180	ug/kg	
56-55-3	Benzo (a) anthracene	319	28	ug/kg	
50-32-8	Benzo (a) pyrene	616	28	ug/kg	
205-99-2	Benzo (b) fluoranthene	591	28	ug/kg	
191-24-2	Benzo (g,h,i) perylene	288	28	ug/kg	
207-08-9	Benzo (k) fluoranthene	294	28	ug/kg	
218-01-9	Chrysene	ND	28	ug/kg	
53-70-3	Dibenz(a,h)anthracene	44.3	28	ug/kg	
206-44-0	Fluoranthene	945	28	ug/kg	
86-73-7	Fluorene	ND	180	ug/kg	
193-39-5	Indeno (1,2,3-cd) pyrene	256	28	ug/kg	
90-12-0	1-Methylnaphthalene	ND	180	ug/kg	
91-57-6	2-Methylnaphthalene	ND	180	ug/kg	
91-20-3	Naphthalene	ND	180	ug/kg	
85-01-8	Phenanthrene	ND	180	ug/kg	
129-00-0	Pyrene	56.6	28	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	104%		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-635-SS-114-01		
Lab Sample ID:	F7329-14	**Date Sampled:**	08/09/00
Matrix:	SO - Soil	**Date Received:**	08/11/00
Method:	SW846 8310	**Percent Solids:**	87.2
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	UV0494.D	1	08/31/00	AMA	08/17/00	M:OP2192	M:LCB8
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	190	ug/kg	
208-96-8	Acenaphthylene	ND	190	ug/kg	
120-12-7	Anthracene	ND	190	ug/kg	
56-55-3	Benzo (a) anthracene	257	29	ug/kg	
50-32-8	Benzo (a) pyrene	429	29	ug/kg	
205-99-2	Benzo (b) fluoranthene	213	29	ug/kg	
191-24-2	Benzo (g,h,i) perylene	127	29	ug/kg	
207-08-9	Benzo (k) fluoranthene	102	29	ug/kg	
218-01-9	Chrysene	127	29	ug/kg	
53-70-3	Dibenz(a,h)anthracene	ND	29	ug/kg	
206-44-0	Fluoranthene	312	29	ug/kg	
86-73-7	Fluorene	ND	190	ug/kg	
193-39-5	Indeno (1,2,3-cd) pyrene	207	29	ug/kg	
90-12-0	1-Methylnaphthalene	ND	190	ug/kg	
91-57-6	2-Methylnaphthalene	ND	190	ug/kg	
91-20-3	Naphthalene	ND	190	ug/kg	
85-01-8	Phenanthrene	ND	190	ug/kg	
129-00-0	Pyrene	257	29	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	90%		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-635-SS-115-02		
Lab Sample ID:	F7329-15	**Date Sampled:**	08/09/00
Matrix:	SO - Soil	**Date Received:**	08/11/00
Method:	SW846 8310	**Percent Solids:**	91.3
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	UV0495.D	1	08/31/00	AMA	08/17/00	M:OP2192	M:LCB8
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	360	ug/kg	
208-96-8	Acenaphthylene	ND	360	ug/kg	
120-12-7	Anthracene	ND	360	ug/kg	
56-55-3	Benzo (a) anthracene	196	55	ug/kg	
50-32-8	Benzo (a) pyrene	677	55	ug/kg	
205-99-2	Benzo (b) fluoranthene	173	55	ug/kg	
191-24-2	Benzo (g,h,i) perylene	145	55	ug/kg	
207-08-9	Benzo (k) fluoranthene	111	55	ug/kg	
218-01-9	Chrysene	87.0	55	ug/kg	
53-70-3	Dibenz(a,h)anthracene	ND	55	ug/kg	
206-44-0	Fluoranthene	212	55	ug/kg	
86-73-7	Fluorene	ND	360	ug/kg	
193-39-5	Indeno (1,2,3-cd) pyrene	139	55	ug/kg	
90-12-0	1-Methylnaphthalene	ND	360	ug/kg	
91-57-6	2-Methylnaphthalene	ND	360	ug/kg	
91-20-3	Naphthalene	ND	360	ug/kg	
85-01-8	Phenanthrene	ND	360	ug/kg	
129-00-0	Pyrene	183	55	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	87%		20-130%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

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

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Report of Analysis

Client Sample ID:	CEF-635-SS-116-01		
Lab Sample ID:	F7329-16	**Date Sampled:**	08/09/00
Matrix:	SO - Soil	**Date Received:**	08/11/00
Method:	SW846 8310	**Percent Solids:**	90.4
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	UV0496.D	1	08/31/00	AMA	08/17/00	M:OP2192	M:LCB8
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	180	ug/kg	
208-96-8	Acenaphthylene	ND	180	ug/kg	
120-12-7	Anthracene	ND	180	ug/kg	
56-55-3	Benzo (a) anthracene	196	28	ug/kg	
50-32-8	Benzo (a) pyrene	495	28	ug/kg	
205-99-2	Benzo (b) fluoranthene	402	28	ug/kg	
191-24-2	Benzo (g,h,i) perylene	217	28	ug/kg	
207-08-9	Benzo (k) fluoranthene	157	28	ug/kg	
218-01-9	Chrysene	185	28	ug/kg	
53-70-3	Dibenz(a,h)anthracene	ND	28	ug/kg	
206-44-0	Fluoranthene	399	28	ug/kg	
86-73-7	Fluorene	ND	180	ug/kg	
193-39-5	Indeno (1,2,3-cd) pyrene	191	28	ug/kg	
90-12-0	1-Methylnaphthalene	ND	180	ug/kg	
91-57-6	2-Methylnaphthalene	ND	180	ug/kg	
91-20-3	Naphthalene	ND	180	ug/kg	
85-01-8	Phenanthrene	ND	180	ug/kg	
129-00-0	Pyrene	427	28	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	91%		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-635-SS-117-01		
Lab Sample ID:	F7329-17	**Date Sampled:**	08/09/00
Matrix:	SO - Soil	**Date Received:**	08/11/00
Method:	SW846 8310	**Percent Solids:**	86.7
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	UV0497.D	1	08/31/00	AMA	08/17/00	M:OP2192	M:LCB8
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	190	ug/kg	
208-96-8	Acenaphthylene	ND	190	ug/kg	
120-12-7	Anthracene	ND	190	ug/kg	
56-55-3	Benzo (a) anthracene	222	29	ug/kg	
50-32-8	Benzo (a) pyrene	465	29	ug/kg	
205-99-2	Benzo (b) fluoranthene	329	29	ug/kg	
191-24-2	Benzo (g,h,i) perylene	183	29	ug/kg	
207-08-9	Benzo (k) fluoranthene	149	29	ug/kg	
218-01-9	Chrysene	239	29	ug/kg	
53-70-3	Dibenz(a,h)anthracene	ND	29	ug/kg	
206-44-0	Fluoranthene	358	29	ug/kg	
86-73-7	Fluorene	ND	190	ug/kg	
193-39-5	Indeno (1,2,3-cd) pyrene	158	29	ug/kg	
90-12-0	1-Methylnaphthalene	ND	190	ug/kg	
91-57-6	2-Methylnaphthalene	ND	190	ug/kg	
91-20-3	Naphthalene	ND	190	ug/kg	
85-01-8	Phenanthrene	ND	190	ug/kg	
129-00-0	Pyrene	386	29	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	75%		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-635-SS-118-02		
Lab Sample ID:	F7329-18	**Date Sampled:**	08/09/00
Matrix:	SO - Soil	**Date Received:**	08/11/00
Method:	SW846 8310	**Percent Solids:**	88.7
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	UV0498.D	1	08/31/00	AMA	08/17/00	M:OP2192	M:LCB8
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	190	ug/kg	
208-96-8	Acenaphthylene	ND	190	ug/kg	
120-12-7	Anthracene	ND	190	ug/kg	
56-55-3	Benzo (a) anthracene	204	28	ug/kg	
50-32-8	Benzo (a) pyrene	478	28	ug/kg	
205-99-2	Benzo (b) fluoranthene	468	28	ug/kg	
191-24-2	Benzo (g,h,i) perylene	275	28	ug/kg	
207-08-9	Benzo (k) fluoranthene	214	28	ug/kg	
218-01-9	Chrysene	432	28	ug/kg	
53-70-3	Dibenz(a,h)anthracene	ND	28	ug/kg	
206-44-0	Fluoranthene	397	28	ug/kg	
86-73-7	Fluorene	ND	190	ug/kg	
193-39-5	Indeno (1,2,3-cd) pyrene	211	28	ug/kg	
90-12-0	1-Methylnaphthalene	ND	190	ug/kg	
91-57-6	2-Methylnaphthalene	ND	190	ug/kg	
91-20-3	Naphthalene	ND	190	ug/kg	
85-01-8	Phenanthrene	ND	190	ug/kg	
129-00-0	Pyrene	426	28	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	93%		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-635-SS-119-01		
Lab Sample ID:	F7329-19	**Date Sampled:**	08/09/00
Matrix:	SO - Soil	**Date Received:**	08/11/00
Method:	SW846 8310	**Percent Solids:**	90.3
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	UV0499.D	1	08/31/00	AMA	08/17/00	M:OP2192	M:LCB8
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	180	ug/kg	
208-96-8	Acenaphthylene	ND	180	ug/kg	
120-12-7	Anthracene	ND	180	ug/kg	
56-55-3	Benzo (a) anthracene	968	28	ug/kg	
50-32-8	Benzo (a) pyrene	1560	28	ug/kg	
205-99-2	Benzo (b) fluoranthene	3120	28	ug/kg	
191-24-2	Benzo (g,h,i) perylene	1640	28	ug/kg	
207-08-9	Benzo (k) fluoranthene	1090	28	ug/kg	
218-01-9	Chrysene	1410	28	ug/kg	
53-70-3	Dibenz(a,h)anthracene	ND	28	ug/kg	
206-44-0	Fluoranthene	704	28	ug/kg	
86-73-7	Fluorene	ND	180	ug/kg	
193-39-5	Indeno (1,2,3-cd) pyrene	1300	28	ug/kg	
90-12-0	1-Methylnaphthalene	197	180	ug/kg	
91-57-6	2-Methylnaphthalene	ND	180	ug/kg	
91-20-3	Naphthalene	ND	180	ug/kg	
85-01-8	Phenanthrene	ND	180	ug/kg	
129-00-0	Pyrene	1510	28	ug/kg	

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

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

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

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Report of Analysis

Client Sample ID:	CEF-635-SS-120-01		
Lab Sample ID:	F7329-20	**Date Sampled:**	08/09/00
Matrix:	SO - Soil	**Date Received:**	08/11/00
Method:	SW846 8310	**Percent Solids:**	88.3
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	UV0500.D	1	09/01/00	AMA	08/17/00	M:OP2192	M:LCB8
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	190	ug/kg	
208-96-8	Acenaphthylene	ND	190	ug/kg	
120-12-7	Anthracene	ND	190	ug/kg	
56-55-3	Benzo (a) anthracene	472	28	ug/kg	
50-32-8	Benzo (a) pyrene	749	28	ug/kg	
205-99-2	Benzo (b) fluoranthene	904	28	ug/kg	
191-24-2	Benzo (g,h,i) perylene	640	28	ug/kg	
207-08-9	Benzo (k) fluoranthene	484	28	ug/kg	
218-01-9	Chrysene	429	28	ug/kg	
53-70-3	Dibenz(a,h)anthracene	ND	28	ug/kg	
206-44-0	Fluoranthene	1160	28	ug/kg	
86-73-7	Fluorene	ND	190	ug/kg	
193-39-5	Indeno (1,2,3-cd) pyrene	477	28	ug/kg	
90-12-0	1-Methylnaphthalene	ND	190	ug/kg	
91-57-6	2-Methylnaphthalene	ND	190	ug/kg	
91-20-3	Naphthalene	ND	190	ug/kg	
85-01-8	Phenanthrene	ND	190	ug/kg	
129-00-0	Pyrene	1080	28	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	89%		20-130%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

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

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Report of Analysis

Client Sample ID:	CEF-635-SS-121-01		
Lab Sample ID:	F7329-21	**Date Sampled:**	08/09/00
Matrix:	SO - Soil	**Date Received:**	08/11/00
Method:	SW846 8310	**Percent Solids:**	86.7
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	UV0501.D	1	09/01/00	AMA	08/17/00	M:OP2192	M:LCB8
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	190	ug/kg	
208-96-8	Acenaphthylene	ND	190	ug/kg	
120-12-7	Anthracene	ND	190	ug/kg	
56-55-3	Benzo (a) anthracene	85.1	29	ug/kg	
50-32-8	Benzo (a) pyrene	448	29	ug/kg	
205-99-2	Benzo (b) fluoranthene	328	29	ug/kg	
191-24-2	Benzo (g,h,i) perylene	159	29	ug/kg	
207-08-9	Benzo (k) fluoranthene	151	29	ug/kg	
218-01-9	Chrysene	346	29	ug/kg	
53-70-3	Dibenz(a,h)anthracene	ND	29	ug/kg	
206-44-0	Fluoranthene	259	29	ug/kg	
86-73-7	Fluorene	ND	190	ug/kg	
193-39-5	Indeno (1,2,3-cd) pyrene	132	29	ug/kg	
90-12-0	1-Methylnaphthalene	ND	190	ug/kg	
91-57-6	2-Methylnaphthalene	ND	190	ug/kg	
91-20-3	Naphthalene	ND	190	ug/kg	
85-01-8	Phenanthrene	ND	190	ug/kg	
129-00-0	Pyrene	294	29	ug/kg	

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

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

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

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Report of Analysis

Client Sample ID:	CEF-635-SS-122-01		
Lab Sample ID:	F7329-22	**Date Sampled:**	08/09/00
Matrix:	SO - Soil	**Date Received:**	08/11/00
Method:	SW846 8310	**Percent Solids:**	90.4
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	UV0502.D	1	09/01/00	AMA	08/17/00	M:OP2192	M:LCB8
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	370	ug/kg	
208-96-8	Acenaphthylene	ND	370	ug/kg	
120-12-7	Anthracene	ND	370	ug/kg	
56-55-3	Benzo (a) anthracene	2810	55	ug/kg	
50-32-8	Benzo (a) pyrene	4750	55	ug/kg	
205-99-2	Benzo (b) fluoranthene	5860	55	ug/kg	
191-24-2	Benzo (g,h,i) perylene	2840	55	ug/kg	
207-08-9	Benzo (k) fluoranthene	2020	55	ug/kg	
218-01-9	Chrysene	3630	55	ug/kg	
53-70-3	Dibenz(a,h)anthracene	272	55	ug/kg	
206-44-0	Fluoranthene	5720	55	ug/kg	
86-73-7	Fluorene	ND	370	ug/kg	
193-39-5	Indeno (1,2,3-cd) pyrene	2340	55	ug/kg	
90-12-0	1-Methylnaphthalene	ND	370	ug/kg	
91-57-6	2-Methylnaphthalene	ND	370	ug/kg	
91-20-3	Naphthalene	ND	370	ug/kg	
85-01-8	Phenanthrene	ND	370	ug/kg	
129-00-0	Pyrene	5740	55	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	47%		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-635-SS-123-01		
Lab Sample ID:	F7329-23	**Date Sampled:**	08/09/00
Matrix:	SO - Soil	**Date Received:**	08/11/00
Method:	SW846 8310	**Percent Solids:**	89.0
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	UV0503.D	1	09/01/00	AMA	08/17/00	M:OP2192	M:LCB8
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	190	ug/kg	
208-96-8	Acenaphthylene	ND	190	ug/kg	
120-12-7	Anthracene	ND	190	ug/kg	
56-55-3	Benzo (a) anthracene	835	28	ug/kg	
50-32-8	Benzo (a) pyrene	1010	28	ug/kg	
205-99-2	Benzo (b) fluoranthene	1960	28	ug/kg	
191-24-2	Benzo (g,h,i) perylene	926	28	ug/kg	
207-08-9	Benzo (k) fluoranthene	772	28	ug/kg	
218-01-9	Chrysene	1160	28	ug/kg	
53-70-3	Dibenz(a,h)anthracene	74.9	28	ug/kg	
206-44-0	Fluoranthene	1630	28	ug/kg	
86-73-7	Fluorene	ND	190	ug/kg	
193-39-5	Indeno (1,2,3-cd) pyrene	668	28	ug/kg	
90-12-0	1-Methylnaphthalene	214	190	ug/kg	
91-57-6	2-Methylnaphthalene	ND	190	ug/kg	
91-20-3	Naphthalene	ND	190	ug/kg	
85-01-8	Phenanthrene	ND	190	ug/kg	
129-00-0	Pyrene	1580	28	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	90%		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-635-SS-124-01		
Lab Sample ID:	F7329-24	**Date Sampled:**	08/09/00
Matrix:	SO - Soil	**Date Received:**	08/11/00
Method:	SW846 8310	**Percent Solids:**	89.5
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	UV0505.D	1	09/01/00	AMA	08/17/00	M:OP2192	M:LCB8
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	190	ug/kg	
208-96-8	Acenaphthylene	ND	190	ug/kg	
120-12-7	Anthracene	ND	190	ug/kg	
56-55-3	Benzo (a) anthracene	102	28	ug/kg	
50-32-8	Benzo (a) pyrene	364	28	ug/kg	
205-99-2	Benzo (b) fluoranthene	111	28	ug/kg	
191-24-2	Benzo (g,h,i) perylene	72.9	28	ug/kg	
207-08-9	Benzo (k) fluoranthene	90.1	28	ug/kg	
218-01-9	Chrysene	101	28	ug/kg	
53-70-3	Dibenz(a,h)anthracene	64.7	28	ug/kg	
206-44-0	Fluoranthene	260	28	ug/kg	
86-73-7	Fluorene	ND	190	ug/kg	
193-39-5	Indeno (1,2,3-cd) pyrene	58.0	28	ug/kg	
90-12-0	1-Methylnaphthalene	ND	190	ug/kg	
91-57-6	2-Methylnaphthalene	ND	190	ug/kg	
91-20-3	Naphthalene	ND	190	ug/kg	
85-01-8	Phenanthrene	ND	190	ug/kg	
129-00-0	Pyrene	199	28	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	92%		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-635-SS-125-01		
Lab Sample ID:	F7329-25	**Date Sampled:**	08/09/00
Matrix:	SO - Soil	**Date Received:**	08/11/00
Method:	SW846 8310	**Percent Solids:**	85.0
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	UV0506.D	1	09/01/00	AMA	08/17/00	M:OP2192	M:LCB8
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	1020	390	ug/kg	
208-96-8	Acenaphthylene	3760	390	ug/kg	
120-12-7	Anthracene	ND	390	ug/kg	
56-55-3	Benzo (a) anthracene	12500	59	ug/kg	
50-32-8	Benzo (a) pyrene	17100	59	ug/kg	
205-99-2	Benzo (b) fluoranthene	34200	59	ug/kg	
191-24-2	Benzo (g,h,i) perylene	12400	59	ug/kg	
207-08-9	Benzo (k) fluoranthene	11400	59	ug/kg	
218-01-9	Chrysene	15700	59	ug/kg	
53-70-3	Dibenz(a,h)anthracene	1580	59	ug/kg	
206-44-0	Fluoranthene	24600	59	ug/kg	
86-73-7	Fluorene	ND	390	ug/kg	
193-39-5	Indeno (1,2,3-cd) pyrene	9390	59	ug/kg	
90-12-0	1-Methylnaphthalene	3890	390	ug/kg	
91-57-6	2-Methylnaphthalene	ND	390	ug/kg	
91-20-3	Naphthalene	ND	390	ug/kg	
85-01-8	Phenanthrene	1180	390	ug/kg	
129-00-0	Pyrene	28300	59	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	82%		20-130%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

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

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Report of Analysis

Client Sample ID:	CEF-635-SS-126-01		
Lab Sample ID:	F7329-26	**Date Sampled:**	08/09/00
Matrix:	SO - Soil	**Date Received:**	08/11/00
Method:	SW846 8310	**Percent Solids:**	79.9
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	UV0507.D	1	09/01/00	AMA	08/17/00	M:OP2192	M:LCB8
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	210	ug/kg	
208-96-8	Acenaphthylene	ND	210	ug/kg	
120-12-7	Anthracene	ND	210	ug/kg	
56-55-3	Benzo (a) anthracene	ND	31	ug/kg	
50-32-8	Benzo (a) pyrene	482	31	ug/kg	
205-99-2	Benzo (b) fluoranthene	125	31	ug/kg	
191-24-2	Benzo (g,h,i) perylene	84.0	31	ug/kg	
207-08-9	Benzo (k) fluoranthene	144	31	ug/kg	
218-01-9	Chrysene	300	31	ug/kg	
53-70-3	Dibenz(a,h)anthracene	ND	31	ug/kg	
206-44-0	Fluoranthene	176	31	ug/kg	
86-73-7	Fluorene	ND	210	ug/kg	
193-39-5	Indeno (1,2,3-cd) pyrene	242	31	ug/kg	
90-12-0	1-Methylnaphthalene	ND	210	ug/kg	
91-57-6	2-Methylnaphthalene	ND	210	ug/kg	
91-20-3	Naphthalene	ND	210	ug/kg	
85-01-8	Phenanthrene	ND	210	ug/kg	
129-00-0	Pyrene	138	31	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	85%		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

0038

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-635-SS-127-01		
Lab Sample ID:	F7329-27	**Date Sampled:**	08/09/00
Matrix:	SO - Soil	**Date Received:**	08/11/00
Method:	SW846 8310	**Percent Solids:**	70.6
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	UV0508.D	1	09/01/00	AMA	08/17/00	M:OP2192	M:LCB8
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	470	ug/kg	
208-96-8	Acenaphthylene	ND	470	ug/kg	
120-12-7	Anthracene	ND	470	ug/kg	
56-55-3	Benzo (a) anthracene	ND	71	ug/kg	
50-32-8	Benzo (a) pyrene	ND	71	ug/kg	
205-99-2	Benzo (b) fluoranthene	ND	71	ug/kg	
191-24-2	Benzo (g,h,i) perylene	ND	71	ug/kg	
207-08-9	Benzo (k) fluoranthene	ND	71	ug/kg	J
218-01-9	Chrysene	ND	71	ug/kg	
53-70-3	Dibenz(a,h)anthracene	ND	71	ug/kg	
206-44-0	Fluoranthene	ND	71	ug/kg	
86-73-7	Fluorene	ND	470	ug/kg	
193-39-5	Indeno (1,2,3-cd) pyrene	ND	71	ug/kg	
90-12-0	1-Methylnaphthalene	ND	470	ug/kg	
91-57-6	2-Methylnaphthalene	ND	470	ug/kg	
91-20-3	Naphthalene	ND	470	ug/kg	
85-01-8	Phenanthrene	ND	470	ug/kg	
129-00-0	Pyrene	ND	71	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	95%		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-635-SS-128-01		
Lab Sample ID:	F7329-28	**Date Sampled:**	08/09/00
Matrix:	SO - Soil	**Date Received:**	08/11/00
Method:	SW846 8310	**Percent Solids:**	67.9
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	UV0476.D	1	08/31/00	AMA	08/18/00	M:OP2193	M:LCB7
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	240	ug/kg	
208-96-8	Acenaphthylene	ND	240	ug/kg	
120-12-7	Anthracene	ND	240	ug/kg	
56-55-3	Benzo (a) anthracene	ND	37	ug/kg	
50-32-8	Benzo (a) pyrene	ND	37	ug/kg	
205-99-2	Benzo (b) fluoranthene	ND	37	ug/kg	
191-24-2	Benzo (g,h,i) perylene	ND	37	ug/kg	
207-08-9	Benzo (k) fluoranthene	ND	37	ug/kg	
218-01-9	Chrysene	ND	37	ug/kg	
53-70-3	Dibenz(a,h)anthracene	ND	37	ug/kg	
206-44-0	Fluoranthene	ND	37	ug/kg	
86-73-7	Fluorene	ND	240	ug/kg	
193-39-5	Indeno (1,2,3-cd) pyrene	ND	37	ug/kg	
90-12-0	1-Methylnaphthalene	ND	240	ug/kg	
91-57-6	2-Methylnaphthalene	ND	240	ug/kg	
91-20-3	Naphthalene	ND	240	ug/kg	
85-01-8	Phenanthrene	ND	240	ug/kg	
129-00-0	Pyrene	ND	37	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	94%		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-635-DUP2		
Lab Sample ID:	F7329-29	**Date Sampled:**	08/09/00
Matrix:	SO - Soil	**Date Received:**	08/11/00
Method:	FLORIDA-PRO	**Percent Solids:**	89.2
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP10330.D	2	08/17/00	ME	08/14/00	OP1942	GOP427
Run #2							

CAS No.	Compound	Result	RL	Units	Q
	TPH (C8-C40)	78.4	19	mg/kg	

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

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

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

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Report of Analysis

Client Sample ID:	CEF-635-SS-101-01		
Lab Sample ID:	F7329-1	**Date Sampled:**	08/09/00
Matrix:	SO - Soil	**Date Received:**	08/11/00
Method:	FLORIDA-PRO	**Percent Solids:**	88.0
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP10324.D	2	08/17/00	ME	08/14/00	OP1942	GOP427
Run #2							

CAS No.	Compound	Result	RL	Units	Q
	TPH (C8-C40)	83.4	19	mg/kg	

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

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

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

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-635-SS-102-01		
Lab Sample ID:	F7329-3	**Date Sampled:**	08/09/00
Matrix:	SO - Soil	**Date Received:**	08/11/00
Method:	FLORIDA-PRO	**Percent Solids:**	83.4
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP10325.D	2	08/17/00	ME	08/14/00	OP1942	GOP427
Run #2							

CAS No.	Compound	Result	RL	Units	Q
	TPH (C8-C40)	85.0	20	mg/kg	

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

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

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

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-635-SS-103-01		
Lab Sample ID:	F7329-2	**Date Sampled:**	08/09/00
Matrix:	SO - Soil	**Date Received:**	08/11/00
Method:	FLORIDA-PRO	**Percent Solids:**	87.0
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP10326.D	2	08/17/00	ME	08/14/00	OP1942	GOP427
Run #2							

CAS No.	Compound	Result	RL	Units	Q
	TPH (C8-C40)	73.9	19	mg/kg	

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

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

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

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-635-SS-104-01		
Lab Sample ID:	F7329-4	**Date Sampled:**	08/09/00
Matrix:	SO - Soil	**Date Received:**	08/11/00
Method:	FLORIDA-PRO	**Percent Solids:**	88.8
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP10312.D	1	08/16/00	ME	08/14/00	OP1942	GOP426
Run #2							

CAS No.	Compound	Result	RL	Units	Q
	TPH (C8-C40)	59.4	9.4	mg/kg	

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

0011

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-635-SS-105-01		
Lab Sample ID:	F7329-5	**Date Sampled:**	08/09/00
Matrix:	SO - Soil	**Date Received:**	08/11/00
Method:	FLORIDA-PRO	**Percent Solids:**	82.6
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP10329.D	2	08/17/00	ME	08/14/00	OP1942	GOP427
Run #2							

CAS No.	Compound	Result	RL	Units	Q
	TPH (C8-C40)	86.8	20	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	92%		40-140%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

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

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-635-SS-106-01		
Lab Sample ID:	F7329-6	**Date Sampled:**	08/09/00
Matrix:	SO - Soil	**Date Received:**	08/11/00
Method:	FLORIDA-PRO	**Percent Solids:**	88.7
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP10314.D	1	08/17/00	ME	08/14/00	OP1942	GOP426
Run #2							

CAS No.	Compound	Result	RL	Units	Q
	TPH (C8-C40)	56.1	9.4	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	110%		40-140%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

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

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-635-SS-107-02		
Lab Sample ID:	F7329-7	**Date Sampled:**	08/09/00
Matrix:	SO - Soil	**Date Received:**	08/11/00
Method:	FLORIDA-PRO	**Percent Solids:**	82.4
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP10315.D	1	08/17/00	ME	08/14/00	OP1942	GOP426
Run #2							

CAS No.	Compound	Result	RL	Units	Q
	TPH (C8-C40)	24.1	10	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	95%		40-140%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

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

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-635-SS-108-01		
Lab Sample ID:	F7329-8	**Date Sampled:**	08/09/00
Matrix:	SO - Soil	**Date Received:**	08/11/00
Method:	FLORIDA-PRO	**Percent Solids:**	90.1
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP10316.D	4	08/17/00	ME	08/14/00	OP1942	GOP426
Run #2							

CAS No.	Compound	Result	RL	Units	Q
	TPH (C8-C40)	215	37	mg/kg	

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

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

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

PHASE III LABORATORY ANALYTICAL DATA

SAMPLE NUMBER SERIES CEF-635-SS-200 and -SU-200

Tetra Tech NUS **INTERNAL CORRESPONDENCE**

PITT-07-0-026

TO: MARK SPERANZA **DATE:** NOVEMBER 8, 2000

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

SUBJECT: ORGANIC DATA VALIDATION – PAH
CTO 078 – NAS CECIL FIELD
SDG F7625

SAMPLES: 32/Soil

CEF-635-SS-201-01	CEF-635-SS-202-01
CEF-635-SS-203-01	CEF-635-SS-204-01
CEF-635-SS-205-01	CEF-635-SS-206-01
CEF-635-SS-207-01	CEF-635-SS-208-01
CEF-635-SS-211-01	CEF-635-SS-212-01
CEF-635-SS-213-01	CEF-635-SS-216-01
CEF-635-SS-219-01	CEF-635-SS-220-01
CEF-635-SS-221-01	CEF-635-SS-222-01
CEF-635-SS-223-01	CEF-635-SS-224-01
CEF-635-SS-225-01	CEF-635-SS-DUP2-01
CEF-635-SS-DUP3-01	CEF-635-SU-209-03
CEF-635-SU-210-04	CEF-635-SU-214-03
CEF-635-SU-215-04	CEF-635-SU-217-03
CEF-635-SU-218-04	~~CEF-FFD-SS-201-01~~
~~CEF-FFD-SS-202-01~~	~~CEF-FFD-SS-DUP2-01~~
~~CEF-FFD-SU-203-03~~	~~CEF-FFD-SU-204-04~~

OVERVIEW

The sample set for CTO 078, SDG F7625 Naval Air Station (NAS) Cecil Field; Florida consists of thirty-two (32) soil environmental samples. The samples were analyzed for Polynuclear Aromatic Hydrocarbon (PAH) organic compounds. Three (3) field duplicate pairs (CEF-635-SS-201-01/CEF-635-SS-DUP2-01, CEF-635-SS-225-01/CEF-635-SS-DUP3-01, and CEF-FFD-SS-201-01/CEF-FFD-SS-DUP2-01) were included within this SDG.

The samples were collected by Tetra Tech, NUS on September 18th, 2000 and analyzed by Accutest Laboratories. All analyses were performed in accordance with Naval Facilities Engineering Service Center (NFESC) Quality Assurance/Quality Control (QA/QC) criteria and analyzed according to SW 846 Method 8310 analytical and reporting protocols. The data in this SDG was validated with regard to the following parameters:

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

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

PAH FRACTION

Relative Percent Differences in the associated field duplicate pairs (CEF-635-SS-201-01/CEF-635-SS-DUP2-01 and CEF-FFD-SS-201-01/CEF-FFD-SS-DUP2-01) exceeded the 50% quality control criteria for the following compounds: benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, fluoranthene, indeno(1,2,3-cd)pyrene, and pyrene. The positive results were qualified as estimated, (J).

Relative Percent Differences in the associated field duplicate pair (CEF-635-SS-225-01/CEF-635-SS-DUP3-01) exceeded the 50% quality control criteria for the following compounds: benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, fluoranthene, indeno(1,2,3-cd)pyrene, and pyrene. The positive results were qualified as estimated, (J).

Samples CEF-635-SS-219-01, CEF-635-SS-224-01, CEF-635-SS-DUP2-01, and CEF-FFD-SS-201-01 were analyzed at a 5X dilution thus causing elevated reporting limits.

It should be noted that duplicate, CEF-635-SS-DUP2-01 was analyzed at a 5X dilution, however, the associated sample, CEF-635-SS-201-01, was not analyzed at a dilution.

It should be noted that sample, CEF-FFD-SS-201-01 was analyzed at a 5X dilution, however, the associated duplicate, CEF-FFD-SS-DUP2-01, was not analyzed at a dilution.

ADDITIONAL COMMENTS

Several samples contained positive results for compounds below the reporting limits. These results were qualified as estimated (J).

EXECUTIVE SUMMARY

Laboratory performance: None.

Other Factors Affecting Data Quality: Several samples were analyzed at a dilution thus causing elevated reporting limits. Several field duplicate RPDs exceeded the control criteria.

MEMO TO: **MARK SPERANZA**
DATE: **NOVEMBER 8, 2000 – PAGE 3**

The data for these analyses were reviewed with reference to the EPA Functional Guidelines for Organic Data Validation (October 1999) and the NFESC guidelines "Navy IRCDQM" (September 1999). The text of this report has been formulated to address only those problems affecting data quality.

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

Justin Orbich

Chemist/Data Validator
Tetra Tech, NUS

Joseph A. Samchuck

Data Validation Quality Assurance Officer
Tetra Tech, NUS

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

DATA QUALIFIER DEFINITIONS:

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

APPENDIX A

Qualified Analytical Results

CTO078-NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F7625

SAMPLE NUMBER:	CEF-635-SS-201-01			CEF-635-SS-202-01			CEF-635-SS-203-01			CEF-635-SS-204-01		
SAMPLE DATE:	09/18/00			09/18/00			09/18/00			09/18/00		
LABORATORY ID:	F7625-1			F7625-2			F7625-3			F7625-4		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	85.6 %			87.0 %			78.4 %			74.0 %		
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	390	U		380	U		420	U		450	U	
2-METHYLNAPHTHALENE	390	U		380	U		420	U		450	U	
ACENAPHTHENE	780	U		770	U		850	U		900	U	
ACENAPHTHYLENE	780	U		770	U		850	U		900	U	
ANTHRACENE	390	U		380	U		420	U		450	U	
BENZO(A)ANTHRACENE	363	J	G	344			853			90	U	
BENZO(A)PYRENE	394	J	G	303			858			90	U	
BENZO(B)FLUORANTHENE	609	J	G	535			1360			90	U	
BENZO(G,H,I)PERYLENE	413	J	G	327			808			90	U	
BENZO(K)FLUORANTHENE	342	J	G	297			751			90	U	
CHRYSENE	347	J	GP	404			799			450	U	
DIBENZO(A,H)ANTHRACENE	51.8	J	GP	34.2	J	P	85.2			90	U	
FLUORANTHENE	461	J	G	702			1050			450	U	
FLUORENE	390	U		380	U		420	U		450	U	
INDENO(1,2,3-CD)PYRENE	390	J	G	310			766			90	U	
NAPHTHALENE	390	U		380	U		420	U		450	U	
PHENANTHRENE	390	U		380	U		420	U		450	U	
PYRENE	452	J	G	589			1230			450	U	

CTO078-NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F7625

SAMPLE NUMBER:	CEF-635-SS-205-01			CEF-635-SS-206-01			CEF-635-SS-207-01			CEF-635-SS-208-01		
SAMPLE DATE:	09/18/00			09/18/00			09/18/00			09/18/00		
LABORATORY ID:	F7625-5			F7625-6			F7625-7			F7625-8		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	73.6 %			78.3 %			82.4 %			78.5 %		
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	450	U		420	U		400	U		420	U	
2-METHYLNAPHTHALENE	450	U		420	U		400	U		420	U	
ACENAPHTHENE	910	U		850	U		810	U		850	U	
ACENAPHTHYLENE	910	U		850	U		810	U		850	U	
ANTHRACENE	450	U		420	U		400	U		420	U	
BENZO(A)ANTHRACENE	91	U		85	U		81	U		85	U	
BENZO(A)PYRENE	44	J	P	85	U		81	U		85	U	
BENZO(B)FLUORANTHENE	92.5			85	U		81	U		85	U	
BENZO(G,H,I)PERYLENE	39	J	P	85	U		81	U		85	U	
BENZO(K)FLUORANTHENE	97.9			85	U		81	U		85	U	
CHRYSENE	450	U		420	U		400	U		420	U	
DIBENZO(A,H)ANTHRACENE	91	U		85	U		81	U		85	U	
FLUORANTHENE	450	U		420	U		400	U		420	U	
FLUORENE	450	U		420	U		400	U		420	U	
INDENO(1,2,3-CD)PYRENE	50.7	J	P	85	U		81	U		85	U	
NAPHTHALENE	450	U		420	U		400	U		420	U	
PHENANTHRENE	450	U		420	U		400	U		420	U	
PYRENE	450	U		420	U		400	U		420	U	

CTO078-NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F7625

SAMPLE NUMBER:	CEF-635-SS-211-01			CEF-635-SS-212-01			CEF-635-SS-213-01			CEF-635-SS-216-01		
SAMPLE DATE:	09/18/00			09/18/00			09/18/00			09/18/00		
LABORATORY ID:	F7625-11			F7625-12			F7625-13			F7625-16		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	81.3 %			86.1 %			76.2 %			75.5 %		
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	410	U		390	U		440	U		440	U	
2-METHYLNAPHTHALENE	410	U		390	U		440	U		440	U	
ACENAPHTHENE	820	U		770	U		880	U		880	U	
ACENAPHTHYLENE	820	U		770	U		880	U		880	U	
ANTHRACENE	410	U		390	U		440	U		440	U	
BENZO(A)ANTHRACENE	677			519			80.2	J	P	507		
BENZO(A)PYRENE	431			561			88	U		390		
BENZO(B)FLUORANTHENE	768			621			50	J	P	576		
BENZO(G,H,I)PERYLENE	419			467			88	U		352		
BENZO(K)FLUORANTHENE	402			364			88	U		306		
CHRYSENE	764			430			440	U		458		
DIBENZO(A,H)ANTHRACENE	66.3	J	P	63.5	J	P	88	U		46.2	J	P
FLUORANTHENE	1290			736			440	U		1220		
FLUORENE	410	U		390	U		440	U		440	U	
INDENO(1,2,3-CD)PYRENE	494			445			88	U		347		
NAPHTHALENE	410	U		390	U		440	U		440	U	
PHENANTHRENE	410	U		390	U		440	U		272	J	P
PYRENE	978			708			440	U		959		

CTO078-NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F7625

SAMPLE NUMBER:	CEF-635-SS-219-01			CEF-635-SS-220-01			CEF-635-SS-221-01			CEF-635-SS-222-01		
SAMPLE DATE:	09/18/00			09/18/00			09/18/00			09/18/00		
LABORATORY ID:	F7625-19			F7625-20			F7625-21			F7625-22		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	78.9 %			70.9 %			74.9 %			74.6 %		
UNITS:	UG/KG			UG/KG			UG/KG			UG/KG		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
POLYNUCLEAR AROMATIC HYDROCARBONS												
1-METHYLNAPHTHALENE	2100	U		470	U		440	U		450	U	
2-METHYLNAPHTHALENE	2100	U		470	U		440	U		450	U	
ACENAPHTHENE	4200	U		940	U		890	U		890	U	
ACENAPHTHYLENE	4200	U		940	U		890	U		890	U	
ANTHRACENE	2100	U		470	U		440	U		450	U	
BENZO(A)ANTHRACENE	3010			612			89	U		89	U	
BENZO(A)PYRENE	2400			671			89	U		89	U	
BENZO(B)FLUORANTHENE	3280			785			89	U		89	U	
BENZO(G,H,I)PERYLENE	1650			449			89	U		89	U	
BENZO(K)FLUORANTHENE	1830			440			89	U		89	U	
CHRYSENE	2500			612			440	U		450	U	
DIBENZO(A,H)ANTHRACENE	265	J	P	79.4	J	P	89	U		89	U	
FLUORANTHENE	4880			553			440	U		450	U	
FLUORENE	2100	U		470	U		440	U		450	U	
INDENO(1,2,3-CD)PYRENE	1760			527			89	U		89	U	
NAPHTHALENE	2100	U		470	U		440	U		450	U	
PHENANTHRENE	2100	U		470	U		440	U		450	U	
PYRENE	4960			560			440	U		450	U	

CTO078-NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F7625

SAMPLE NUMBER:	CEF-635-SS-223-01	CEF-635-SS-224-01	CEF-635-SS-225-01	CEF-635-SS-DUP2-01
SAMPLE DATE:	09/18/00	09/18/00	09/18/00	09/18/00
LABORATORY ID:	F7625-23	F7625-24	F7625-25	F7625-26
QC_TYPE:	NORMAL	NORMAL	NORMAL	NORMAL
% SOLIDS:	75.1 %	76.0 %	69.3 %	89.8 %
UNITS:	UG/KG	UG/KG	UG/KG	UG/KG
FIELD DUPLICATE OF:				CEF-635-SS-201-01

	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
POLYNUCLEAR AROMATIC HYDROCARBONS												
1-METHYLNAPHTHALENE	440	U		2200	U		480	U		1800	U	
2-METHYLNAPHTHALENE	440	U		2200	U		480	U		1800	U	
ACENAPHTHENE	890	U		4400	U		960	U		3700	U	
ACENAPHTHYLENE	890	U		4400	U		960	U		3700	U	
ANTHRACENE	440	U		2200	U		480	U		1800	U	
BENZO(A)ANTHRACENE	617			1730			147	J	G	2590	J	G
BENZO(A)PYRENE	684			1840			132	J	G	2720	J	G
BENZO(B)FLUORANTHENE	1060			3510			184	J	G	2810	J	G
BENZO(G,H,I)PERYLENE	669			1960			138	J	G	2460	J	G
BENZO(K)FLUORANTHENE	529			1910			96.2	J	G	1770	J	G
CHRYSENE	685			2640			142	J	GP	3110	J	G
DIBENZO(A,H)ANTHRACENE	72.5	J	P	227	J	P	96	U		257	J	GP
FLUORANTHENE	1180			4470			274	J	GP	3700	J	G
FLUORENE	440	U		2200	U		480	U		1800	U	
INDENO(1,2,3-CD)PYRENE	622			1860			112	J	G	2520	J	G
NAPHTHALENE	440	U		2200	U		480	U		1800	U	
PHENANTHRENE	205	J	P	2200	U		480	U		1300	J	P
PYRENE	1220			3390			296	J	GP	3550	J	G

CTO078-NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F7625

SAMPLE NUMBER:	CEF-635-SS-DUP3-01	CEF-635-SU-209-03	CEF-635-SU-210-04	CEF-635-SU-214-03
SAMPLE DATE:	09/18/00	09/18/00	09/18/00	09/18/00
LABORATORY ID:	F7625-27	F7625-9	F7625-10	F7625-14
QC_TYPE:	NORMAL	NORMAL	NORMAL	NORMAL
% SOLIDS:	80.1 %	78.8 %	81.8 %	82.8 %
UNITS:	UG/KG	UG/KG	UG/KG	UG/KG
FIELD DUPLICATE OF:	CEF-635-SS-225-01			

	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
POLYNUCLEAR AROMATIC HYDROCARBONS												
1-METHYLNAPHTHALENE	420	U		420	U		410	U		400	U	
2-METHYLNAPHTHALENE	420	U		420	U		410	U		400	U	
ACENAPHTHENE	830	U		850	U		820	U		800	U	
ACENAPHTHYLENE	830	U		850	U		820	U		800	U	
ANTHRACENE	420	U		420	U		410	U		400	U	
BENZO(A)ANTHRACENE	596	J	G	85	U		807			98.3		
BENZO(A)PYRENE	552	J	G	85	U		887			86.7		
BENZO(B)FLUORANTHENE	697	J	G	85	U		1070			137		
BENZO(G,H,I)PERYLENE	405	J	G	85	U		578			73.6	J	P
BENZO(K)FLUORANTHENE	394	J	G	85	U		602			73.2	J	P
CHRYSENE	570	J	G	420	U		742			56.6	J	P
DIBENZO(A,H)ANTHRACENE	46.9	J	GP	85	U		83.7			80	U	
FLUORANTHENE	1070	J	G	420	U		1000			400	U	
FLUORENE	420	U		420	U		410	U		400	U	
INDENO(1,2,3-CD)PYRENE	443	J	G	85	U		650			81.5		
NAPHTHALENE	420	U		420	U		410	U		400	U	
PHENANTHRENE	420	U		420	U		410	U		400	U	
PYRENE	1150	J	G	420	U		1150			400	U	

CTO078-NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F7625

SAMPLE NUMBER:	CEF-635-SU-215-04			CEF-635-SU-217-03			CEF-635-SU-218-04			CEF-FFD-SS-201-01		
SAMPLE DATE:	09/18/00			09/18/00			09/18/00			09/18/00		
LABORATORY ID:	F7625-15			F7625-17			F7625-18			F7625-28		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	77.8 %			84.0 %			78.6 %			87.6 %		
UNITS:	UG/KG			UG/KG			UG/KG			UG/KG		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
POLYNUCLEAR AROMATIC HYDROCARBONS												
1-METHYLNAPHTHALENE	430	U		400	U		420	U		1900	U	
2-METHYLNAPHTHALENE	430	U		400	U		420	U		1900	U	
ACENAPHTHENE	860	U		790	U		850	U		3800	U	
ACENAPHTHYLENE	860	U		790	U		850	U		3800	U	
ANTHRACENE	430	U		400	U		420	U		1900	U	
BENZO(A)ANTHRACENE	70.4	J	P	79	U		140			2630	J	G
BENZO(A)PYRENE	58.6	J	P	79	U		112			2270	J	G
BENZO(B)FLUORANTHENE	96.8			79	U		136			3610	J	G
BENZO(G,H,I)PERYLENE	62.4	J	P	79	U		111			2530	J	G
BENZO(K)FLUORANTHENE	51.2	J	P	79	U		76	J	P	1970	J	G
CHRYSENE	430	U		400	U		111	J	P	3050	J	G
DIBENZO(A,H)ANTHRACENE	86	U		79	U		85	U		326	J	GP
FLUORANTHENE	430	U		400	U		278	J	P	1950	J	G
FLUORENE	430	U		400	U		420	U		1900	U	
INDENO(1,2,3-CD)PYRENE	53.3	J	P	79	U		91.6			2700	J	G
NAPHTHALENE	430	U		400	U		420	U		1900	U	
PHENANTHRENE	430	U		400	U		420	U		1900	U	
PYRENE	430	U		400	U		202	J	P	2540	J	G

APPENDIX B

Results as Reported by the Laboratory

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-635-SS-201-01		
Lab Sample ID:	F7625-1	**Date Sampled:**	09/18/00
Matrix:	SO - Soil	**Date Received:**	09/19/00
Method:	EPA 8310	**Percent Solids:**	85.6
Project:	NAS Cecil Field 0039		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	EE000252.D	1	09/21/00	ME	09/19/00	OP2067	GEE9
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	780	ug/kg	
208-96-8	Acenaphthylene	ND	780	ug/kg	
120-12-7	Anthracene	ND	390	ug/kg	
56-55-3	Benzo(a)anthracene	363	78	ug/kg	
50-32-8	Benzo(a)pyrene	394	78	ug/kg	
205-99-2	Benzo(b)fluoranthene	609	78	ug/kg	
191-24-2	Benzo(g,h,i)perylene	413	78	ug/kg	
207-08-9	Benzo(k)fluoranthene	342	78	ug/kg	
218-01-9	Chrysene	347	390	ug/kg	J
53-70-3	Dibenzo(a,h)anthracene	51.8	78	ug/kg	J
206-44-0	Fluoranthene	461	390	ug/kg	
86-73-7	Fluorene	ND	390	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	390	78	ug/kg	
91-20-3	Naphthalene	ND	390	ug/kg	
90-12-0	1-Methylnaphthalene	ND	390	ug/kg	
91-57-6	2-Methylnaphthalene	ND	390	ug/kg	
85-01-8	Phenanthrene	ND	390	ug/kg	
129-00-0	Pyrene	452	390	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	67%		22-130%
92-94-4	p-Terphenyl	85%		53-130%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

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

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-635-SS-202-01		
Lab Sample ID:	F7625-2	**Date Sampled:**	09/18/00
Matrix:	SO - Soil	**Date Received:**	09/19/00
Method:	EPA 8310	**Percent Solids:**	87.0
Project:	NAS Cecil Field 0039		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	EE000255.D	1	09/21/00	ME	09/19/00	OP2067	GEE9
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	770	ug/kg	
208-96-8	Acenaphthylene	ND	770	ug/kg	
120-12-7	Anthracene	ND	380	ug/kg	
56-55-3	Benzo(a)anthracene	344	77	ug/kg	
50-32-8	Benzo(a)pyrene	303	77	ug/kg	
205-99-2	Benzo(b)fluoranthene	535	77	ug/kg	
191-24-2	Benzo(g,h,i)perylene	327	77	ug/kg	
207-08-9	Benzo(k)fluoranthene	297	77	ug/kg	
218-01-9	Chrysene	404	380	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	34.2	77	ug/kg	J
206-44-0	Fluoranthene	702	380	ug/kg	
86-73-7	Fluorene	ND	380	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	310	77	ug/kg	
91-20-3	Naphthalene	ND	380	ug/kg	
90-12-0	1-Methylnaphthalene	ND	380	ug/kg	
91-57-6	2-Methylnaphthalene	ND	380	ug/kg	
85-01-8	Phenanthrene	ND	380	ug/kg	
129-00-0	Pyrene	589	380	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	64%		22-130%
92-94-4	p-Terphenyl	78%		53-130%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

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

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-635-SS-203-01		
Lab Sample ID:	F7625-3	**Date Sampled:**	09/18/00
Matrix:	SO - Soil	**Date Received:**	09/19/00
Method:	EPA 8310	**Percent Solids:**	78.4
Project:	NAS Cecil Field 0039		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	EE000257.D	1	09/21/00	ME	09/19/00	OP2067	GEE9
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	850	ug/kg	
208-96-8	Acenaphthylene	ND	850	ug/kg	
120-12-7	Anthracene	ND	420	ug/kg	
56-55-3	Benzo(a)anthracene	853	85	ug/kg	
50-32-8	Benzo(a)pyrene	858	85	ug/kg	
205-99-2	Benzo(b)fluoranthene	1360	85	ug/kg	
191-24-2	Benzo(g,h,i)perylene	808	85	ug/kg	
207-08-9	Benzo(k)fluoranthene	751	85	ug/kg	
218-01-9	Chrysene	799	420	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	85.2	85	ug/kg	
206-44-0	Fluoranthene	1050	420	ug/kg	
86-73-7	Fluorene	ND	420	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	766	85	ug/kg	
91-20-3	Naphthalene	ND	420	ug/kg	
90-12-0	1-Methylnaphthalene	ND	420	ug/kg	
91-57-6	2-Methylnaphthalene	ND	420	ug/kg	
85-01-8	Phenanthrene	ND	420	ug/kg	
129-00-0	Pyrene	1230	420	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	66%		22-130%
92-94-4	p-Terphenyl	85%		53-130%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

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

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-635-SS-204-01		
Lab Sample ID:	F7625-4	**Date Sampled:**	09/18/00
Matrix:	SO - Soil	**Date Received:**	09/19/00
Method:	EPA 8310	**Percent Solids:**	74.0
Project:	NAS Cecil Field 0039		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	EE000258.D	1	09/21/00	ME	09/19/00	OP2067	GEE9
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	900	ug/kg	
208-96-8	Acenaphthylene	ND	900	ug/kg	
120-12-7	Anthracene	ND	450	ug/kg	
56-55-3	Benzo(a)anthracene	ND	90	ug/kg	
50-32-8	Benzo(a)pyrene	ND	90	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	90	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	90	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	90	ug/kg	
218-01-9	Chrysene	ND	450	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	90	ug/kg	
206-44-0	Fluoranthene	ND	450	ug/kg	
86-73-7	Fluorene	ND	450	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	90	ug/kg	
91-20-3	Naphthalene	ND	450	ug/kg	
90-12-0	1-Methylnaphthalene	ND	450	ug/kg	
91-57-6	2-Methylnaphthalene	ND	450	ug/kg	
85-01-8	Phenanthrene	ND	450	ug/kg	
129-00-0	Pyrene	ND	450	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	51%		22-130%
92-94-4	p-Terphenyl	66%		53-130%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

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

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Report of Analysis

Client Sample ID:	CEF-635-SS-205-01		
Lab Sample ID:	F7625-5	**Date Sampled:**	09/18/00
Matrix:	SO - Soil	**Date Received:**	09/19/00
Method:	EPA 8310	**Percent Solids:**	73.6
Project:	NAS Cecil Field 0039		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	EE000259.D	1	09/21/00	ME	09/19/00	OP2067	GEE9
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	910	ug/kg	
208-96-8	Acenaphthylene	ND	910	ug/kg	
120-12-7	Anthracene	ND	450	ug/kg	
56-55-3	Benzo(a)anthracene	ND	91	ug/kg	
50-32-8	Benzo(a)pyrene	44.0	91	ug/kg	J
205-99-2	Benzo(b)fluoranthene	92.5	91	ug/kg	
191-24-2	Benzo(g,h,i)perylene	39.0	91	ug/kg	J
207-08-9	Benzo(k)fluoranthene	97.9	91	ug/kg	
218-01-9	Chrysene	ND	450	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	91	ug/kg	
206-44-0	Fluoranthene	ND	450	ug/kg	
86-73-7	Fluorene	ND	450	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	50.7	91	ug/kg	J
91-20-3	Naphthalene	ND	450	ug/kg	
90-12-0	1-Methylnaphthalene	ND	450	ug/kg	
91-57-6	2-Methylnaphthalene	ND	450	ug/kg	
85-01-8	Phenanthrene	ND	450	ug/kg	
129-00-0	Pyrene	ND	450	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	71%		22-130%
92-94-4	p-Terphenyl	89%		53-130%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

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

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Report of Analysis

Client Sample ID:	CEF-635-SS-206-01		
Lab Sample ID:	F7625-6	**Date Sampled:**	09/18/00
Matrix:	SO - Soil	**Date Received:**	09/19/00
Method:	EPA 8310	**Percent Solids:**	78.3
Project:	NAS Cecil Field 0039		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	EE000260.D	1	09/21/00	ME	09/19/00	OP2067	GEE9
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	850	ug/kg	
208-96-8	Acenaphthylene	ND	850	ug/kg	
120-12-7	Anthracene	ND	420	ug/kg	
56-55-3	Benzo(a)anthracene	ND	85	ug/kg	
50-32-8	Benzo(a)pyrene	ND	85	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	85	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	85	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	85	ug/kg	
218-01-9	Chrysene	ND	420	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	85	ug/kg	
206-44-0	Fluoranthene	ND	420	ug/kg	
86-73-7	Fluorene	ND	420	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	85	ug/kg	
91-20-3	Naphthalene	ND	420	ug/kg	
90-12-0	1-Methylnaphthalene	ND	420	ug/kg	
91-57-6	2-Methylnaphthalene	ND	420	ug/kg	
85-01-8	Phenanthrene	ND	420	ug/kg	
129-00-0	Pyrene	ND	420	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	61%		22-130%
92-94-4	p-Terphenyl	78%		53-130%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

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

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Report of Analysis

Client Sample ID:	CEF-635-SS-207-01		
Lab Sample ID:	F7625-7	**Date Sampled:**	09/18/00
Matrix:	SO - Soil	**Date Received:**	09/19/00
Method:	EPA 8310	**Percent Solids:**	82.4
Project:	NAS Cecil Field 0039		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	EE000214.D	1	09/20/00	ME	09/19/00	OP2067	GEE8
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	810	ug/kg	
208-96-8	Acenaphthylene	ND	810	ug/kg	
120-12-7	Anthracene	ND	400	ug/kg	
56-55-3	Benzo(a)anthracene	ND	81	ug/kg	
50-32-8	Benzo(a)pyrene	ND	81	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	81	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	81	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	81	ug/kg	
218-01-9	Chrysene	ND	400	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	81	ug/kg	
206-44-0	Fluoranthene	ND	400	ug/kg	
86-73-7	Fluorene	ND	400	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	81	ug/kg	
91-20-3	Naphthalene	ND	400	ug/kg	
90-12-0	1-Methylnaphthalene	ND	400	ug/kg	
91-57-6	2-Methylnaphthalene	ND	400	ug/kg	
85-01-8	Phenanthrene	ND	400	ug/kg	
129-00-0	Pyrene	ND	400	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	53%		22-130%
92-94-4	p-Terphenyl	64%		53-130%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

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

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Report of Analysis

Client Sample ID:	CEF-635-SS-208-01		
Lab Sample ID:	F7625-8	**Date Sampled:**	09/18/00
Matrix:	SO - Soil	**Date Received:**	09/19/00
Method:	EPA 8310	**Percent Solids:**	78.5
Project:	NAS Cecil Field 0039		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	EE000215.D	1	09/20/00	ME	09/19/00	OP2067	GEE8
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	850	ug/kg	
208-96-8	Acenaphthylene	ND	850	ug/kg	
120-12-7	Anthracene	ND	420	ug/kg	
56-55-3	Benzo(a)anthracene	ND	85	ug/kg	
50-32-8	Benzo(a)pyrene	ND	85	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	85	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	85	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	85	ug/kg	
218-01-9	Chrysene	ND	420	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	85	ug/kg	
206-44-0	Fluoranthene	ND	420	ug/kg	
86-73-7	Fluorene	ND	420	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	85	ug/kg	
91-20-3	Naphthalene	ND	420	ug/kg	
90-12-0	1-Methylnaphthalene	ND	420	ug/kg	
91-57-6	2-Methylnaphthalene	ND	420	ug/kg	
85-01-8	Phenanthrene	ND	420	ug/kg	
129-00-0	Pyrene	ND	420	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	70%		22-130%
92-94-4	p-Terphenyl	88%		53-130%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

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

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Report of Analysis

Client Sample ID:	CEF-635-SU-209-03		
Lab Sample ID:	F7625-9	**Date Sampled:**	09/18/00
Matrix:	SO - Soil	**Date Received:**	09/19/00
Method:	EPA 8310	**Percent Solids:**	78.8
Project:	NAS Cecil Field 0039		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	EE000216.D	1	09/20/00	ME	09/19/00	OP2067	GEE8
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	850	ug/kg	
208-96-8	Acenaphthylene	ND	850	ug/kg	
120-12-7	Anthracene	ND	420	ug/kg	
56-55-3	Benzo(a)anthracene	ND	85	ug/kg	
50-32-8	Benzo(a)pyrene	ND	85	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	85	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	85	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	85	ug/kg	
218-01-9	Chrysene	ND	420	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	85	ug/kg	
206-44-0	Fluoranthene	ND	420	ug/kg	
86-73-7	Fluorene	ND	420	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	85	ug/kg	
91-20-3	Naphthalene	ND	420	ug/kg	
90-12-0	1-Methylnaphthalene	ND	420	ug/kg	
91-57-6	2-Methylnaphthalene	ND	420	ug/kg	
85-01-8	Phenanthrene	ND	420	ug/kg	
129-00-0	Pyrene	ND	420	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	72%		22-130%
92-94-4	p-Terphenyl	92%		53-130%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

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

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Report of Analysis

Client Sample ID:	CEF-635-SU-210-04		
Lab Sample ID:	F7625-10	**Date Sampled:**	09/18/00
Matrix:	SO - Soil	**Date Received:**	09/19/00
Method:	EPA 8310	**Percent Solids:**	81.8
Project:	NAS Cecil Field 0039		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	EE000217.D	1	09/20/00	ME	09/19/00	OP2067	GEE8
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	820	ug/kg	
208-96-8	Acenaphthylene	ND	820	ug/kg	
120-12-7	Anthracene	ND	410	ug/kg	
56-55-3	Benzo(a)anthracene	807	82	ug/kg	
50-32-8	Benzo(a)pyrene	887	82	ug/kg	
205-99-2	Benzo(b)fluoranthene	1070	82	ug/kg	
191-24-2	Benzo(g,h,i)perylene	578	82	ug/kg	
207-08-9	Benzo(k)fluoranthene	602	82	ug/kg	
218-01-9	Chrysene	742	410	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	83.7	82	ug/kg	
206-44-0	Fluoranthene	1000	410	ug/kg	
86-73-7	Fluorene	ND	410	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	650	82	ug/kg	
91-20-3	Naphthalene	ND	410	ug/kg	
90-12-0	1-Methylnaphthalene	ND	410	ug/kg	
91-57-6	2-Methylnaphthalene	ND	410	ug/kg	
85-01-8	Phenanthrene	ND	410	ug/kg	
129-00-0	Pyrene	1150	410	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	58%		22-130%
92-94-4	p-Terphenyl	81%		53-130%

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

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Report of Analysis

Client Sample ID:	CEF-635-SS-211-01		
Lab Sample ID:	F7625-11	**Date Sampled:**	09/18/00
Matrix:	SO - Soil	**Date Received:**	09/19/00
Method:	EPA 8310	**Percent Solids:**	81.3
Project:	NAS Cecil Field 0039		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	EE000218.D	1	09/20/00	ME	09/19/00	OP2067	GEE8
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	820	ug/kg	
208-96-8	Acenaphthylene	ND	820	ug/kg	
120-12-7	Anthracene	ND	410	ug/kg	
56-55-3	Benzo(a)anthracene	677	82	ug/kg	
50-32-8	Benzo(a)pyrene	431	82	ug/kg	
205-99-2	Benzo(b)fluoranthene	768	82	ug/kg	
191-24-2	Benzo(g,h,i)perylene	419	82	ug/kg	
207-08-9	Benzo(k)fluoranthene	402	82	ug/kg	
218-01-9	Chrysene	764	410	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	66.3	82	ug/kg	J
206-44-0	Fluoranthene	1290	410	ug/kg	
86-73-7	Fluorene	ND	410	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	494	82	ug/kg	
91-20-3	Naphthalene	ND	410	ug/kg	
90-12-0	1-Methylnaphthalene	ND	410	ug/kg	
91-57-6	2-Methylnaphthalene	ND	410	ug/kg	
85-01-8	Phenanthrene	ND	410	ug/kg	
129-00-0	Pyrene	978	410	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	54%		22-130%
92-94-4	p-Terphenyl	72%		53-130%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

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

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Report of Analysis

Client Sample ID:	CEF-635-SS-212-01		
Lab Sample ID:	F7625-12	**Date Sampled:**	09/18/00
Matrix:	SO - Soil	**Date Received:**	09/19/00
Method:	EPA 8310	**Percent Solids:**	86.1
Project:	NAS Cecil Field 0039		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	EE000219.D	1	09/20/00	ME	09/19/00	OP2067	GEE8
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	770	ug/kg	
208-96-8	Acenaphthylene	ND	770	ug/kg	
120-12-7	Anthracene	ND	390	ug/kg	
56-55-3	Benzo(a)anthracene	519	77	ug/kg	
50-32-8	Benzo(a)pyrene	561	77	ug/kg	
205-99-2	Benzo(b)fluoranthene	621	77	ug/kg	
191-24-2	Benzo(g,h,i)perylene	467	77	ug/kg	
207-08-9	Benzo(k)fluoranthene	364	77	ug/kg	
218-01-9	Chrysene	430	390	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	63.5	77	ug/kg	J
206-44-0	Fluoranthene	736	390	ug/kg	
86-73-7	Fluorene	ND	390	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	445	77	ug/kg	
91-20-3	Naphthalene	ND	390	ug/kg	
90-12-0	1-Methylnaphthalene	ND	390	ug/kg	
91-57-6	2-Methylnaphthalene	ND	390	ug/kg	
85-01-8	Phenanthrene	ND	390	ug/kg	
129-00-0	Pyrene	708	390	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	64%		22-130%
92-94-4	p-Terphenyl	84%		53-130%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

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

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Report of Analysis

Client Sample ID:	CEF-635-SS-213-01		
Lab Sample ID:	F7625-13	**Date Sampled:**	09/18/00
Matrix:	SO - Soil	**Date Received:**	09/19/00
Method:	EPA 8310	**Percent Solids:**	76.2
Project:	NAS Cecil Field 0039		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	EE000220.D	1	09/20/00	ME	09/19/00	OP2067	GEE8
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	880	ug/kg	
208-96-8	Acenaphthylene	ND	880	ug/kg	
120-12-7	Anthracene	ND	440	ug/kg	
56-55-3	Benzo(a)anthracene	80.2	88	ug/kg	J
50-32-8	Benzo(a)pyrene	ND	88	ug/kg	
205-99-2	Benzo(b)fluoranthene	50.0	88	ug/kg	J
191-24-2	Benzo(g,h,i)perylene	ND	88	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	88	ug/kg	
218-01-9	Chrysene	ND	440	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	88	ug/kg	
206-44-0	Fluoranthene	ND	440	ug/kg	
86-73-7	Fluorene	ND	440	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	88	ug/kg	
91-20-3	Naphthalene	ND	440	ug/kg	
90-12-0	1-Methylnaphthalene	ND	440	ug/kg	
91-57-6	2-Methylnaphthalene	ND	440	ug/kg	
85-01-8	Phenanthrene	ND	440	ug/kg	
129-00-0	Pyrene	ND	440	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	76%		22-130%
92-94-4	p-Terphenyl	91%		53-130%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

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

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Report of Analysis

Client Sample ID:	CEF-635-SU-214-03		
Lab Sample ID:	F7625-14	**Date Sampled:**	09/18/00
Matrix:	SO - Soil	**Date Received:**	09/19/00
Method:	EPA 8310	**Percent Solids:**	82.8
Project:	NAS Cecil Field 0039		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	EE000221.D	1	09/20/00	ME	09/19/00	OP2067	GEE8
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	800	ug/kg	
208-96-8	Acenaphthylene	ND	800	ug/kg	
120-12-7	Anthracene	ND	400	ug/kg	
56-55-3	Benzo(a)anthracene	98.3	80	ug/kg	
50-32-8	Benzo(a)pyrene	86.7	80	ug/kg	
205-99-2	Benzo(b)fluoranthene	137	80	ug/kg	
191-24-2	Benzo(g,h,i)perylene	73.6	80	ug/kg	J
207-08-9	Benzo(k)fluoranthene	73.2	80	ug/kg	J
218-01-9	Chrysene	56.6	400	ug/kg	J
53-70-3	Dibenzo(a,h)anthracene	ND	80	ug/kg	
206-44-0	Fluoranthene	ND	400	ug/kg	
86-73-7	Fluorene	ND	400	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	81.5	80	ug/kg	
91-20-3	Naphthalene	ND	400	ug/kg	
90-12-0	1-Methylnaphthalene	ND	400	ug/kg	
91-57-6	2-Methylnaphthalene	ND	400	ug/kg	
85-01-8	Phenanthrene	ND	400	ug/kg	
129-00-0	Pyrene	ND	400	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	64%		22-130%
92-94-4	p-Terphenyl	73%		53-130%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

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

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-635-SU-215-04		
Lab Sample ID:	F7625-15	**Date Sampled:**	09/18/00
Matrix:	SO - Soil	**Date Received:**	09/19/00
Method:	EPA 8310	**Percent Solids:**	77.8
Project:	NAS Cecil Field 0039		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	EE000223.D	1	09/21/00	ME	09/19/00	OP2067	GEE8
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	860	ug/kg	
208-96-8	Acenaphthylene	ND	860	ug/kg	
120-12-7	Anthracene	ND	430	ug/kg	
56-55-3	Benzo(a)anthracene	70.4	86	ug/kg	J
50-32-8	Benzo(a)pyrene	58.6	86	ug/kg	J
205-99-2	Benzo(b)fluoranthene	96.8	86	ug/kg	
191-24-2	Benzo(g,h,i)perylene	62.4	86	ug/kg	J
207-08-9	Benzo(k)fluoranthene	51.2	86	ug/kg	J
218-01-9	Chrysene	ND	430	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	86	ug/kg	
206-44-0	Fluoranthene	ND	430	ug/kg	
86-73-7	Fluorene	ND	430	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	53.3	86	ug/kg	J
91-20-3	Naphthalene	ND	430	ug/kg	
90-12-0	1-Methylnaphthalene	ND	430	ug/kg	
91-57-6	2-Methylnaphthalene	ND	430	ug/kg	
85-01-8	Phenanthrene	ND	430	ug/kg	
129-00-0	Pyrene	ND	430	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	64%		22-130%
92-94-4	p-Terphenyl	81%		53-130%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

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

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Report of Analysis

Client Sample ID:	CEF-635-SS-216-01		
Lab Sample ID:	F7625-16	**Date Sampled:**	09/18/00
Matrix:	SO - Soil	**Date Received:**	09/19/00
Method:	EPA 8310	**Percent Solids:**	75.5
Project:	NAS Cecil Field 0039		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	EE000224.D	1	09/21/00	ME	09/19/00	OP2067	GEE8
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	880	ug/kg	
208-96-8	Acenaphthylene	ND	880	ug/kg	
120-12-7	Anthracene	ND	440	ug/kg	
56-55-3	Benzo(a)anthracene	507	88	ug/kg	
50-32-8	Benzo(a)pyrene	390	88	ug/kg	
205-99-2	Benzo(b)fluoranthene	576	88	ug/kg	
191-24-2	Benzo(g,h,i)perylene	352	88	ug/kg	
207-08-9	Benzo(k)fluoranthene	306	88	ug/kg	
218-01-9	Chrysene	458	440	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	46.2	88	ug/kg	J
206-44-0	Fluoranthene	1220	440	ug/kg	
86-73-7	Fluorene	ND	440	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	347	88	ug/kg	
91-20-3	Naphthalene	ND	440	ug/kg	
90-12-0	1-Methylnaphthalene	ND	440	ug/kg	
91-57-6	2-Methylnaphthalene	ND	440	ug/kg	
85-01-8	Phenanthrene	272	440	ug/kg	J
129-00-0	Pyrene	959	440	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	67%		22-130%
92-94-4	p-Terphenyl	83%		53-130%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

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

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Report of Analysis

Client Sample ID:	CEF-635-SU-217-03		
Lab Sample ID:	F7625-17	**Date Sampled:**	09/18/00
Matrix:	SO - Soil	**Date Received:**	09/19/00
Method:	EPA 8310	**Percent Solids:**	84.0
Project:	NAS Cecil Field 0039		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	EE000225.D	1	09/21/00	ME	09/19/00	OP2067	GEE8
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	790	ug/kg	
208-96-8	Acenaphthylene	ND	790	ug/kg	
120-12-7	Anthracene	ND	400	ug/kg	
56-55-3	Benzo(a)anthracene	ND	79	ug/kg	
50-32-8	Benzo(a)pyrene	ND	79	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	79	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	79	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	79	ug/kg	
218-01-9	Chrysene	ND	400	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	79	ug/kg	
206-44-0	Fluoranthene	ND	400	ug/kg	
86-73-7	Fluorene	ND	400	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	79	ug/kg	
91-20-3	Naphthalene	ND	400	ug/kg	
90-12-0	1-Methylnaphthalene	ND	400	ug/kg	
91-57-6	2-Methylnaphthalene	ND	400	ug/kg	
85-01-8	Phenanthrene	ND	400	ug/kg	
129-00-0	Pyrene	ND	400	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	70%		22-130%
92-94-4	p-Terphenyl	88%		53-130%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

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

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Report of Analysis

Client Sample ID:	CEF-635-SU-218-04		
Lab Sample ID:	F7625-18	**Date Sampled:**	09/18/00
Matrix:	SO - Soil	**Date Received:**	09/19/00
Method:	EPA 8310	**Percent Solids:**	78.6
Project:	NAS Cecil Field 0039		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	EE000226.D	1	09/21/00	ME	09/19/00	OP2067	GEE8
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	850	ug/kg	
208-96-8	Acenaphthylene	ND	850	ug/kg	
120-12-7	Anthracene	ND	420	ug/kg	
56-55-3	Benzo(a)anthracene	140	85	ug/kg	
50-32-8	Benzo(a)pyrene	112	85	ug/kg	
205-99-2	Benzo(b)fluoranthene	136	85	ug/kg	
191-24-2	Benzo(g,h,i)perylene	111	85	ug/kg	
207-08-9	Benzo(k)fluoranthene	76.0	85	ug/kg	J
218-01-9	Chrysene	111	420	ug/kg	J
53-70-3	Dibenzo(a,h)anthracene	ND	85	ug/kg	
206-44-0	Fluoranthene	278	420	ug/kg	J
86-73-7	Fluorene	ND	420	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	91.6	85	ug/kg	
91-20-3	Naphthalene	ND	420	ug/kg	
90-12-0	1-Methylnaphthalene	ND	420	ug/kg	
91-57-6	2-Methylnaphthalene	ND	420	ug/kg	
85-01-8	Phenanthrene	ND	420	ug/kg	
129-00-0	Pyrene	202	420	ug/kg	J

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	64%		22-130%
92-94-4	p-Terphenyl	82%		53-130%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

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

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Report of Analysis

Client Sample ID:	CEF-635-SS-219-01		
Lab Sample ID:	F7625-19	**Date Sampled:**	09/18/00
Matrix:	SO - Soil	**Date Received:**	09/19/00
Method:	EPA 8310	**Percent Solids:**	78.9
Project:	NAS Cecil Field 0039		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	EE000227.D	5	09/21/00	ME	09/19/00	OP2067	GEE8
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	4200	ug/kg	
208-96-8	Acenaphthylene	ND	4200	ug/kg	
120-12-7	Anthracene	ND	2100	ug/kg	
56-55-3	Benzo(a)anthracene	3010	420	ug/kg	
50-32-8	Benzo(a)pyrene	2400	420	ug/kg	
205-99-2	Benzo(b)fluoranthene	3280	420	ug/kg	
191-24-2	Benzo(g,h,i)perylene	1650	420	ug/kg	
207-08-9	Benzo(k)fluoranthene	1830	420	ug/kg	
218-01-9	Chrysene	2500	2100	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	265	420	ug/kg	J
206-44-0	Fluoranthene	4880	2100	ug/kg	
86-73-7	Fluorene	ND	2100	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	1760	420	ug/kg	
91-20-3	Naphthalene	ND	2100	ug/kg	
90-12-0	1-Methylnaphthalene	ND	2100	ug/kg	
91-57-6	2-Methylnaphthalene	ND	2100	ug/kg	
85-01-8	Phenanthrene	ND	2100	ug/kg	
129-00-0	Pyrene	4960	2100	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	79%		22-130%
92-94-4	p-Terphenyl	111%		53-130%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

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

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Report of Analysis

Client Sample ID:	CEF-635-SS-220-01		
Lab Sample ID:	F7625-20	**Date Sampled:**	09/18/00
Matrix:	SO - Soil	**Date Received:**	09/19/00
Method:	EPA 8310	**Percent Solids:**	70.9
Project:	NAS Cecil Field 0039		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	EE000228.D	1	09/21/00	ME	09/19/00	OP2067	GEE8
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	940	ug/kg	
208-96-8	Acenaphthylene	ND	940	ug/kg	
120-12-7	Anthracene	ND	470	ug/kg	
56-55-3	Benzo(a)anthracene	612	94	ug/kg	
50-32-8	Benzo(a)pyrene	671	94	ug/kg	
205-99-2	Benzo(b)fluoranthene	785	94	ug/kg	
191-24-2	Benzo(g,h,i)perylene	449	94	ug/kg	
207-08-9	Benzo(k)fluoranthene	440	94	ug/kg	
218-01-9	Chrysene	612	470	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	79.4	94	ug/kg	J
206-44-0	Fluoranthene	553	470	ug/kg	
86-73-7	Fluorene	ND	470	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	527	94	ug/kg	
91-20-3	Naphthalene	ND	470	ug/kg	
90-12-0	1-Methylnaphthalene	ND	470	ug/kg	
91-57-6	2-Methylnaphthalene	ND	470	ug/kg	
85-01-8	Phenanthrene	ND	470	ug/kg	
129-00-0	Pyrene	560	470	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	56%		22-130%
92-94-4	p-Terphenyl	74%		53-130%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

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

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Report of Analysis

Client Sample ID:	CEF-635-SS-221-01		
Lab Sample ID:	F7625-21	**Date Sampled:**	09/18/00
Matrix:	SO - Soil	**Date Received:**	09/19/00
Method:	EPA 8310	**Percent Solids:**	74.9
Project:	NAS Cecil Field 0039		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	EE000232.D	1	09/21/00	ME	09/19/00	OP2070	GEE8
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	890	ug/kg	
208-96-8	Acenaphthylene	ND	890	ug/kg	
120-12-7	Anthracene	ND	440	ug/kg	
56-55-3	Benzo(a)anthracene	ND	89	ug/kg	
50-32-8	Benzo(a)pyrene	ND	89	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	89	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	89	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	89	ug/kg	
218-01-9	Chrysene	ND	440	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	89	ug/kg	
206-44-0	Fluoranthene	ND	440	ug/kg	
86-73-7	Fluorene	ND	440	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	89	ug/kg	
91-20-3	Naphthalene	ND	440	ug/kg	
90-12-0	1-Methylnaphthalene	ND	440	ug/kg	
91-57-6	2-Methylnaphthalene	ND	440	ug/kg	
85-01-8	Phenanthrene	ND	440	ug/kg	
129-00-0	Pyrene	ND	440	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	78%		22-130%
92-94-4	p-Terphenyl	96%		53-130%

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

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Report of Analysis

Client Sample ID:	CEF-635-SS-222-01		
Lab Sample ID:	F7625-22	**Date Sampled:**	09/18/00
Matrix:	SO - Soil	**Date Received:**	09/19/00
Method:	EPA 8310	**Percent Solids:**	74.6
Project:	NAS Cecil Field 0039		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	EE000233.D	1	09/21/00	ME	09/19/00	OP2070	GEE8
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	890	ug/kg	
208-96-8	Acenaphthylene	ND	890	ug/kg	
120-12-7	Anthracene	ND	450	ug/kg	
56-55-3	Benzo(a)anthracene	ND	89	ug/kg	
50-32-8	Benzo(a)pyrene	ND	89	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	89	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	89	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	89	ug/kg	
218-01-9	Chrysene	ND	450	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	89	ug/kg	
206-44-0	Fluoranthene	ND	450	ug/kg	
86-73-7	Fluorene	ND	450	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	89	ug/kg	
91-20-3	Naphthalene	ND	450	ug/kg	
90-12-0	1-Methylnaphthalene	ND	450	ug/kg	
91-57-6	2-Methylnaphthalene	ND	450	ug/kg	
85-01-8	Phenanthrene	ND	450	ug/kg	
129-00-0	Pyrene	ND	450	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	65%		22-130%
92-94-4	p-Terphenyl	93%		53-130%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

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

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Report of Analysis

Client Sample ID:	CEF-635-SS-223-01		
Lab Sample ID:	F7625-23	**Date Sampled:**	09/18/00
Matrix:	SO - Soil	**Date Received:**	09/19/00
Method:	EPA 8310	**Percent Solids:**	75.1
Project:	NAS Cecil Field 0039		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	EE000247.D	1	09/21/00	ME	09/19/00	OP2070	GEE8
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	890	ug/kg	
208-96-8	Acenaphthylene	ND	890	ug/kg	
120-12-7	Anthracene	ND	440	ug/kg	
56-55-3	Benzo(a)anthracene	617	89	ug/kg	
50-32-8	Benzo(a)pyrene	684	89	ug/kg	
205-99-2	Benzo(b)fluoranthene	1060	89	ug/kg	
191-24-2	Benzo(g,h,i)perylene	669	89	ug/kg	
207-08-9	Benzo(k)fluoranthene	529	89	ug/kg	
218-01-9	Chrysene	685	440	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	72.5	89	ug/kg	J
206-44-0	Fluoranthene	1180	440	ug/kg	
86-73-7	Fluorene	ND	440	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	622	89	ug/kg	
91-20-3	Naphthalene	ND	440	ug/kg	
90-12-0	1-Methylnaphthalene	ND	440	ug/kg	
91-57-6	2-Methylnaphthalene	ND	440	ug/kg	
85-01-8	Phenanthrene	205	440	ug/kg	J
129-00-0	Pyrene	1220	440	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	74%		22-130%
92-94-4	p-Terphenyl	94%		53-130%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

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

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Report of Analysis

Client Sample ID:	CEF-635-SS-224-01		
Lab Sample ID:	F7625-24	**Date Sampled:**	09/18/00
Matrix:	SO - Soil	**Date Received:**	09/19/00
Method:	EPA 8310	**Percent Solids:**	76.0
Project:	NAS Cecil Field 0039		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	EE000235.D	5	09/21/00	ME	09/19/00	OP2070	GEE8
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	4400	ug/kg	
208-96-8	Acenaphthylene	ND	4400	ug/kg	
120-12-7	Anthracene	ND	2200	ug/kg	
56-55-3	Benzo(a)anthracene	1730	440	ug/kg	
50-32-8	Benzo(a)pyrene	1840	440	ug/kg	
205-99-2	Benzo(b)fluoranthene	3510	440	ug/kg	
191-24-2	Benzo(g,h,i)perylene	1960	440	ug/kg	
207-08-9	Benzo(k)fluoranthene	1910	440	ug/kg	
218-01-9	Chrysene	2640	2200	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	227	440	ug/kg	J
206-44-0	Fluoranthene	4470	2200	ug/kg	
86-73-7	Fluorene	ND	2200	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	1860	440	ug/kg	
91-20-3	Naphthalene	ND	2200	ug/kg	
90-12-0	1-Methylnaphthalene	ND	2200	ug/kg	
91-57-6	2-Methylnaphthalene	ND	2200	ug/kg	
85-01-8	Phenanthrene	ND	2200	ug/kg	
129-00-0	Pyrene	3390	2200	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	90%		22-130%
92-94-4	p-Terphenyl	119%		53-130%

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

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-635-SS-225-01		
Lab Sample ID:	F7625-25	**Date Sampled:**	09/18/00
Matrix:	SO - Soil	**Date Received:**	09/19/00
Method:	EPA 8310	**Percent Solids:**	69.3
Project:	NAS Cecil Field 0039		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	EE000236.D	1	09/21/00	ME	09/19/00	OP2070	GEE8
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	960	ug/kg	
208-96-8	Acenaphthylene	ND	960	ug/kg	
120-12-7	Anthracene	ND	480	ug/kg	
56-55-3	Benzo(a)anthracene	147	96	ug/kg	
50-32-8	Benzo(a)pyrene	132	96	ug/kg	
205-99-2	Benzo(b)fluoranthene	184	96	ug/kg	
191-24-2	Benzo(g,h,i)perylene	138	96	ug/kg	
207-08-9	Benzo(k)fluoranthene	96.2	96	ug/kg	
218-01-9	Chrysene	142	480	ug/kg	J
53-70-3	Dibenzo(a,h)anthracene	ND	96	ug/kg	
206-44-0	Fluoranthene	274	480	ug/kg	J
86-73-7	Fluorene	ND	480	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	112	96	ug/kg	
91-20-3	Naphthalene	ND	480	ug/kg	
90-12-0	1-Methylnaphthalene	ND	480	ug/kg	
91-57-6	2-Methylnaphthalene	ND	480	ug/kg	
85-01-8	Phenanthrene	ND	480	ug/kg	
129-00-0	Pyrene	296	480	ug/kg	J

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	74%		22-130%
92-94-4	p-Terphenyl	95%		53-130%

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

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-635-SS-DUP2-01		
Lab Sample ID:	F7625-26	**Date Sampled:**	09/18/00
Matrix:	SO - Soil	**Date Received:**	09/19/00
Method:	EPA 8310	**Percent Solids:**	89.8
Project:	NAS Cecil Field 0039		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	EE000237.D	5	09/21/00	ME	09/19/00	OP2070	GEE8
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	3700	ug/kg	
208-96-8	Acenaphthylene	ND	3700	ug/kg	
120-12-7	Anthracene	ND	1800	ug/kg	
56-55-3	Benzo(a)anthracene	2590	370	ug/kg	
50-32-8	Benzo(a)pyrene	2720	370	ug/kg	
205-99-2	Benzo(b)fluoranthene	2810	370	ug/kg	
191-24-2	Benzo(g,h,i)perylene	2460	370	ug/kg	
207-08-9	Benzo(k)fluoranthene	1770	370	ug/kg	
218-01-9	Chrysene	3110	1800	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	257	370	ug/kg	J
206-44-0	Fluoranthene	3700	1800	ug/kg	
86-73-7	Fluorene	ND	1800	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	2520	370	ug/kg	
91-20-3	Naphthalene	ND	1800	ug/kg	
90-12-0	1-Methylnaphthalene	ND	1800	ug/kg	
91-57-6	2-Methylnaphthalene	ND	1800	ug/kg	
85-01-8	Phenanthrene	1300	1800	ug/kg	J
129-00-0	Pyrene	3550	1800	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	90%		22-130%
92-94-4	p-Terphenyl	113%		53-130%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

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

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-635-SS-DUP3-01		
Lab Sample ID:	F7625-27	**Date Sampled:**	09/18/00
Matrix:	SO - Soil	**Date Received:**	09/19/00
Method:	EPA 8310	**Percent Solids:**	80.1
Project:	NAS Cecil Field 0039		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	EE000239.D	1	09/21/00	ME	09/19/00	OP2070	GEE8
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	830	ug/kg	
208-96-8	Acenaphthylene	ND	830	ug/kg	
120-12-7	Anthracene	ND	420	ug/kg	
56-55-3	Benzo(a)anthracene	596	83	ug/kg	
50-32-8	Benzo(a)pyrene	552	83	ug/kg	
205-99-2	Benzo(b)fluoranthene	697	83	ug/kg	
191-24-2	Benzo(g,h,i)perylene	405	83	ug/kg	
207-08-9	Benzo(k)fluoranthene	394	83	ug/kg	
218-01-9	Chrysene	570	420	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	46.9	83	ug/kg	J
206-44-0	Fluoranthene	1070	420	ug/kg	
86-73-7	Fluorene	ND	420	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	443	83	ug/kg	
91-20-3	Naphthalene	ND	420	ug/kg	
90-12-0	1-Methylnaphthalene	ND	420	ug/kg	
91-57-6	2-Methylnaphthalene	ND	420	ug/kg	
85-01-8	Phenanthrene	ND	420	ug/kg	
129-00-0	Pyrene	1150	420	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	74%		22-130%
92-94-4	p-Terphenyl	95%		53-130%

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

Tetra Tech NUS **INTERNAL CORRESPONDENCE**

PITT-07-0-026

TO:	**MARK SPERANZA**	**DATE:**	**NOVEMBER 8, 2000**
FROM:	**JUSTIN ORBICH**	**CC:**	**DV FILE**
SUBJECT:	**ORGANIC DATA VALIDATION – PAH CTO 078 – NAS CECIL FIELD SDG F7644**		
SAMPLES:	2/Surface Soil		
	CEF-635-SS-226-01	CEF-635-SS-227-01	

OVERVIEW

The sample set for CTO 078, SDG F7644 Naval Air Station (NAS) Cecil Field; Florida consists of two (2) surface soil environmental samples. The samples were analyzed for Polynuclear Aromatic Hydrocarbon (PAH) organic compounds. No field duplicate pairs were included within this SDG.

The samples were collected by Tetra Tech, NUS on September 20th, 2000 and analyzed by Accutest Laboratories. All analyses were performed in accordance with Naval Facilities Engineering Service Center (NFESC) Quality Assurance/Quality Control (QA/QC) criteria and analyzed according to SW 846 Method 8310 analytical and reporting protocols. The data in this SDG was validated with regard to the following parameters:

* • Data Completeness
* • Holding Times
* • Initial/continuing calibrations
* • Laboratory method/field quality control blank results
* • Detection Limits

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

PAH FRACTION

All quality control parameters were met for this fraction.

ADDITIONAL COMMENTS

Several samples contained positive results for compounds below the reporting limits. These results were qualified as estimated (J).

MEMO TO: MARK SPERANZA
DATE: NOVEMBER 8, 2000 – PAGE 2

EXECUTIVE SUMMARY

Laboratory performance: None.

Other Factors Affecting Data Quality: None.

The data for these analyses were reviewed with reference to the EPA Functional Guidelines for Organic Data Validation (October 1999) and the NFESC guidelines "Navy IRCDQM" (September 1999). The text of this report has been formulated to address only those problems affecting data quality.

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

Justin Orbich

Chemist/Data Validator
Tetra Tech, NUS

Joseph A. Samchuck

Data Validation Quality Assurance Officer
Tetra Tech, NUS

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

DATA QUALIFIER DEFINITIONS:

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

Qualifier Codes:

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

APPENDIX A

Qualified Analytical Results

CTO078-NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F7644

SAMPLE NUMBER:	CEF-635-SS-226-01	CEF-635-SS-227-01		
SAMPLE DATE:	09/20/00	09/20/00	/ /	/ /
LABORATORY ID:	F7644-1	F7644-2		
QC_TYPE:	NORMAL	NORMAL		
% SOLIDS:	72.0 %	72.0 %	100.0 %	100.0 %
UNITS:	UG/KG	UG/KG		
FIELD DUPLICATE OF:				

	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
POLYNUCLEAR AROMATIC HYDROCARBONS												
1-METHYLNAPHTHALENE	460	U		460	U							
2-METHYLNAPHTHALENE	460	U		460	U							
ACENAPHTHENE	930	U		930	U							
ACENAPHTHYLENE	930	U		930	U							
ANTHRACENE	460	U		460	U							
BENZO(A)ANTHRACENE	753			93	U							
BENZO(A)PYRENE	716			93	U							
BENZO(B)FLUORANTHENE	1070			56.4	J	P						
BENZO(G,H,I)PERYLENE	636			93	U							
BENZO(K)FLUORANTHENE	624			460	U							
CHRYSENE	838			460	U							
DIBENZO(A,H)ANTHRACENE	38.4	J	P	93	U							
FLUORANTHENE	1280			460	U							
FLUORENE	460	U		460	U							
INDENO(1,2,3-CD)PYRENE	842			93	U							
NAPHTHALENE	460	U		460	U							
PHENANTHRENE	426	J	P	460	U							
PYRENE	1260			460	U							

APPENDIX B

Results as Reported by the Laboratory

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-635-SS-226-01		
Lab Sample ID:	F7644-1	**Date Sampled:**	09/20/00
Matrix:	SO - Soil	**Date Received:**	09/21/00
Method:	EPA 8310	**Percent Solids:**	72.0
Project:	NAS Cecil Field 0039		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	AA004354.D	1	09/25/00	ME	09/22/00	OP2084	GAA138
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	930	ug/kg	
208-96-8	Acenaphthylene	ND	930	ug/kg	
120-12-7	Anthracene	ND	460	ug/kg	
56-55-3	Benzo(a)anthracene	753	93	ug/kg	
50-32-8	Benzo(a)pyrene	716	93	ug/kg	
205-99-2	Benzo(b)fluoranthene	1070	93	ug/kg	
191-24-2	Benzo(g,h,i)perylene	636	93	ug/kg	
207-08-9	Benzo(k)fluoranthene	624	93	ug/kg	
218-01-9	Chrysene	838	460	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	38.4	93	ug/kg	J
206-44-0	Fluoranthene	1280	460	ug/kg	
86-73-7	Fluorene	ND	460	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	842	93	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	426	460	ug/kg	J
129-00-0	Pyrene	1260	460	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	74%		22-130%
92-94-4	p-Terphenyl	94%		53-130%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

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

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-635-SS-227-01		
Lab Sample ID:	F7644-2	**Date Sampled:**	09/20/00
Matrix:	SO - Soil	**Date Received:**	09/21/00
Method:	EPA 8310	**Percent Solids:**	72.0
Project:	NAS Cecil Field 0039		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	AA004357.D	1	09/25/00	ME	09/22/00	OP2084	GAA138
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	930	ug/kg	
208-96-8	Acenaphthylene	ND	930	ug/kg	
120-12-7	Anthracene	ND	460	ug/kg	
56-55-3	Benzo(a)anthracene	ND	93	ug/kg	
50-32-8	Benzo(a)pyrene	ND	93	ug/kg	
205-99-2	Benzo(b)fluoranthene	56.4	93	ug/kg	J
191-24-2	Benzo(g,h,i)perylene	ND	93	ug/kg	
207-08-9	Benzo(k)fluoranthene [a]	ND	460	ug/kg	
218-01-9	Chrysene	ND	460	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	93	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	ND	93	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	74%		22-130%
92-94-4	p-Terphenyl	92%		53-130%

(a) Elevated reporting limits due to matrix interference.

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

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

Florida • 4405 Vineland Road • Suite C-15 • Orlando, FL 32811 • tel: 407-425-6700 • fax: 407-425-0707 • http://www.accutest.com

PHASE IV LABORATORY ANALYTICAL DATA

SAMPLE NUMBER SERIES CEF-635-SS-300 and -SU-300

Tetra Tech NUS **INTERNAL CORRESPONDENCE**

TO:	**M. SPERANZA**	**DATE:**	**NOVEMBER 8, 2000**
FROM:	**DOUGLAS S. SCHLOER**	**COPIES:**	**DV FILE**
SUBJECT:	**ORGANIC DATA VALIDATION – PAH CTO 078, NAS CECIL FIELD SDG F7748**		
SAMPLES:	7 / Soil / PAH		

CEF-635-DUP4	CEF-635-SS-301-01	CEF-635-SS-302-01
CEF-635-SS-303-01	CEF-635-SS-306-01	CEF-635-SS-308-01
CEF-635-SU-309-05		

OVERVIEW

The sample set for CTO 078, NAS Cecil Field, SDG F7748 consists of seven (7) soil environmental samples. The samples were analyzed for polynuclear aromatic hydrocarbons. One field duplicate pair was included in this SDG: CEF-635-SU-309-05 and CEF-635-DUP4.

The samples were collected by TetraTech NUS on September 28th, 2000 and analyzed by Accutest Labroratories. All analyses were conducted in accordance with Naval Facilities Engineering Service Center (NFESC) Quality Assurance/Quality Control (QA/QC) criteria using SW-846 Method 8310 analytical and reporting protocol. The data contained in this SDG were validated with regard to the following parameters:

* • Data completeness
* • Holding times
* • Initial/continuing calibrations
* • Laboratory method and field quality control blank results
* • Surrogate spike recoveries
* • Detection Limits

The symbol (*) indicates that 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

Due to the presence of target analytes, samples CEF-635-SS-306-01, CEF-635-SS-308-01 were analyzed and reported at 5X and 4X respectively. This accounts for the elevated reporting limits for these samples.

All data quality parameters were met for this fraction.

Additional Comments

Positive results below the reporting limit (RL) were qualified as estimated (J), due to uncertainty near the detection limit.

EXECUTIVE SUMMARY

Laboratory Performance Issues: None

Other Factors Affecting Data Quality: None.

The data for these analyses were reviewed with reference to the EPA Functional Guidelines for Organic Data Validation (10/99) and the NFESC guidelines "Navy IRCDQM" (Sept 1999). The text of this report has been formulated to address only those problem areas affecting data quality.

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

Tetra Tech NUS

Douglas S Schloer
Chemist/Data Validator

TetraTech NUS

Joseph A. Samchuck
Data Validation Quality Assurance Officer

Attachments:

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

APPENDIX A

QUALIFIED ANALYTICAL RESULTS

Qualifier Codes:

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

CTO078-NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F7748

SAMPLE NUMBER:	CEF-635-SS-301-01	CEF-635-SS-302-01	CEF-635-SS-303-01	CEF-635-SS-306-01
SAMPLE DATE:	09/28/00	09/28/00	09/28/00	09/28/00
LABORATORY ID:	F7748-5	F7748-2	F7748-4	F7748-1
QC_TYPE:	NORMAL	NORMAL	NORMAL	NORMAL
% SOLIDS:	73.3 %	77.0 %	81.0 %	87.9 %
UNITS:	UG/KG	UG/KG	UG/KG	UG/KG
FIELD DUPLICATE OF:				

	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
POLYNUCLEAR AROMATIC HYDROCARBONS												
1-METHYLNAPHTHALENE	450	U		430	U		410	U		1900	U	
2-METHYLNAPHTHALENE	450	U		430	U		410	U		1900	U	
ACENAPHTHENE	910	U		870	U		820	U		3800	U	
ACENAPHTHYLENE	910	U		870	U		820	U		3800	U	
ANTHRACENE	450	U		430	U		410	U		1900	U	
BENZO(A)ANTHRACENE	91	U		87	U		82	U		1400		
BENZO(A)PYRENE	91	U		87	U		82	U		1670		
BENZO(B)FLUORANTHENE	91	U		87	U		82	U		2440		
BENZO(G,H,I)PERYLENE	91	U		87	U		82	U		1600		
BENZO(K)FLUORANTHENE	91	U		87	U		82	U		1270		
CHRYSENE	450	U		430	U		410	U		1030	J	P
DIBENZO(A,H)ANTHRACENE	91	U		87	U		82	U		189	J	P
FLUORANTHENE	450	U		430	U		410	U		1440	J	P
FLUORENE	450	U		430	U		410	U		1900	U	
INDENO(1,2,3-CD)PYRENE	91	U		87	U		82	U		1640		
NAPHTHALENE	450	U		430	U		410	U		1900	U	
PHENANTHRENE	450	U		430	U		410	U		1900	U	
PYRENE	450	U		430	U		410	U		1480	J	P

CTO078-NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F7748

SAMPLE NUMBER:	CEF-635-SS-308-01			CEF-635-SU-309-05			CEF-SU-635-DUP4					
SAMPLE DATE:	09/28/00			09/28/00			09/28/00			/ /		
LABORATORY ID:	F7748-6			F7748-3			F7748-7					
QC_TYPE:	NORMAL			NORMAL			NORMAL					
% SOLIDS:	88.9 %			82.6 %			82.4 %			100.0 %		
UNITS:	UG/KG			UG/KG			UG/KG					
FIELD DUPLICATE OF:							CEF-SU-635-309-05					
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
POLYNUCLEAR AROMATIC HYDROCARBONS												
1-METHYLNAPHTHALENE	1500	U		400	U		400	U				
2-METHYLNAPHTHALENE	1500	U		400	U		400	U				
ACENAPHTHENE	3000	U		810	U		810	U				
ACENAPHTHYLENE	3000	U		810	U		810	U				
ANTHRACENE	1500	U		400	U		400	U				
BENZO(A)ANTHRACENE	1170			81	U		173					
BENZO(A)PYRENE	1040			81	U		154					
BENZO(B)FLUORANTHENE	1700			81	U		204					
BENZO(G,H,I)PERYLENE	1170			81	U		161					
BENZO(K)FLUORANTHENE	938			81	U		84.5					
CHRYSENE	1260	J	P	400	U		114	J	P			
DIBENZO(A,H)ANTHRACENE	141	J	P	81	U		81	U				
FLUORANTHENE	2170			400	U		400	U				
FLUORENE	1500	U		400	U		400	U				
INDENO(1,2,3-CD)PYRENE	1060			81	U		141					
NAPHTHALENE	1500	U		400	U		400	U				
PHENANTHRENE	1500	U		400	U		400	U				
PYRENE	1970			400	U		400	U				

APPENDIX B

RESULTS AS REPORTED BY THE LABORATORY

Report of Analysis

Client Sample ID:	CEF-635-SS-306-01		
Lab Sample ID:	F7748-1	**Date Sampled:**	09/28/00
Matrix:	SO - Soil	**Date Received:**	09/29/00
Method:	EPA 8310	**Percent Solids:**	87.9
Project:	NAS Cecil Field 0039		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	EE000399.D	5	10/06/00	ME	10/05/00	OP2140	GEE18
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	3800	ug/kg	
208-96-8	Acenaphthylene	ND	3800	ug/kg	
120-12-7	Anthracene	ND	1900	ug/kg	
56-55-3	Benzo(a)anthracene	1400	380	ug/kg	
50-32-8	Benzo(a)pyrene	1670	380	ug/kg	
205-99-2	Benzo(b)fluoranthene	2440	380	ug/kg	
191-24-2	Benzo(g,h,i)perylene	1600	380	ug/kg	
207-08-9	Benzo(k)fluoranthene	1270	380	ug/kg	
218-01-9	Chrysene	1030	1900	ug/kg	J
53-70-3	Dibenzo(a,h)anthracene	189	380	ug/kg	J
206-44-0	Fluoranthene	1440	1900	ug/kg	J
86-73-7	Fluorene	ND	1900	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	1640	380	ug/kg	
91-20-3	Naphthalene	ND	1900	ug/kg	
90-12-0	1-Methylnaphthalene	ND	1900	ug/kg	
91-57-6	2-Methylnaphthalene	ND	1900	ug/kg	
85-01-8	Phenanthrene	ND	1900	ug/kg	
129-00-0	Pyrene	1480	1900	ug/kg	J

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	80%		22-130%
92-94-4	p-Terphenyl	109%		53-130%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

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

Report of Analysis

Client Sample ID:	CEF-635-SS-302-01		
Lab Sample ID:	F7748-2	**Date Sampled:**	09/28/00
Matrix:	SO - Soil	**Date Received:**	09/29/00
Method:	EPA 8310	**Percent Solids:**	77.0
Project:	NAS Cecil Field 0039		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	EE000380.D	1	10/05/00	ME	10/05/00	OP2140	GEE17
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	870	ug/kg	
208-96-8	Acenaphthylene	ND	870	ug/kg	
120-12-7	Anthracene	ND	430	ug/kg	
56-55-3	Benzo(a)anthracene	ND	87	ug/kg	
50-32-8	Benzo(a)pyrene	ND	87	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	87	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	87	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	87	ug/kg	
218-01-9	Chrysene	ND	430	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	87	ug/kg	
206-44-0	Fluoranthene	ND	430	ug/kg	
86-73-7	Fluorene	ND	430	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	87	ug/kg	
91-20-3	Naphthalene	ND	430	ug/kg	
90-12-0	1-Methylnaphthalene	ND	430	ug/kg	
91-57-6	2-Methylnaphthalene	ND	430	ug/kg	
85-01-8	Phenanthrene	ND	430	ug/kg	
129-00-0	Pyrene	ND	430	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	76%		22-130%
92-94-4	p-Terphenyl	96%		53-130%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

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

Report of Analysis

Client Sample ID:	CEF-635-SU-309-05		
Lab Sample ID:	F7748-3	**Date Sampled:**	09/28/00
Matrix:	SO - Soil	**Date Received:**	09/29/00
Method:	EPA 8310	**Percent Solids:**	82.6
Project:	NAS Cecil Field 0039		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	EE000381.D	1	10/05/00	ME	10/05/00	OP2140	GEE17
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	810	ug/kg	
208-96-8	Acenaphthylene	ND	810	ug/kg	
120-12-7	Anthracene	ND	400	ug/kg	
56-55-3	Benzo(a)anthracene	ND	81	ug/kg	
50-32-8	Benzo(a)pyrene	ND	81	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	81	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	81	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	81	ug/kg	
218-01-9	Chrysene	ND	400	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	81	ug/kg	
206-44-0	Fluoranthene	ND	400	ug/kg	
86-73-7	Fluorene	ND	400	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	81	ug/kg	
91-20-3	Naphthalene	ND	400	ug/kg	
90-12-0	1-Methylnaphthalene	ND	400	ug/kg	
91-57-6	2-Methylnaphthalene	ND	400	ug/kg	
85-01-8	Phenanthrene	ND	400	ug/kg	
129-00-0	Pyrene	ND	400	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	79%		22-130%
92-94-4	p-Terphenyl	101%		53-130%

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

Report of Analysis

Client Sample ID:	CEF-635-SS-303-01		
Lab Sample ID:	F7748-4	**Date Sampled:**	09/28/00
Matrix:	SO - Soil	**Date Received:**	09/29/00
Method:	EPA 8310	**Percent Solids:**	81.0
Project:	NAS Cecil Field 0039		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	EE000382.D	1	10/05/00	ME	10/05/00	OP2140	GEE17
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	820	ug/kg	
208-96-8	Acenaphthylene	ND	820	ug/kg	
120-12-7	Anthracene	ND	410	ug/kg	
56-55-3	Benzo(a)anthracene	ND	82	ug/kg	
50-32-8	Benzo(a)pyrene	ND	82	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	82	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	82	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	82	ug/kg	
218-01-9	Chrysene	ND	410	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	82	ug/kg	
206-44-0	Fluoranthene	ND	410	ug/kg	
86-73-7	Fluorene	ND	410	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	82	ug/kg	
91-20-3	Naphthalene	ND	410	ug/kg	
90-12-0	1-Methylnaphthalene	ND	410	ug/kg	
91-57-6	2-Methylnaphthalene	ND	410	ug/kg	
85-01-8	Phenanthrene	ND	410	ug/kg	
129-00-0	Pyrene	ND	410	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	81%		22-130%
92-94-4	p-Terphenyl	101%		53-130%

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

Report of Analysis

Client Sample ID:	CEF-635-SS-301-01		
Lab Sample ID:	F7748-5	**Date Sampled:**	09/28/00
Matrix:	SO - Soil	**Date Received:**	09/29/00
Method:	EPA 8310	**Percent Solids:**	73.3
Project:	NAS Cecil Field 0039		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	EE000385.D	1	10/05/00	ME	10/05/00	OP2140	GEE17
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	910	ug/kg	
208-96-8	Acenaphthylene	ND	910	ug/kg	
120-12-7	Anthracene	ND	450	ug/kg	
56-55-3	Benzo(a)anthracene	ND	91	ug/kg	
50-32-8	Benzo(a)pyrene	ND	91	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	91	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	91	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	91	ug/kg	
218-01-9	Chrysene	ND	450	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	91	ug/kg	
206-44-0	Fluoranthene	ND	450	ug/kg	
86-73-7	Fluorene	ND	450	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	91	ug/kg	
91-20-3	Naphthalene	ND	450	ug/kg	
90-12-0	1-Methylnaphthalene	ND	450	ug/kg	
91-57-6	2-Methylnaphthalene	ND	450	ug/kg	
85-01-8	Phenanthrene	ND	450	ug/kg	
129-00-0	Pyrene	ND	450	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	94%		22-130%
92-94-4	p-Terphenyl	102%		53-130%

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

Report of Analysis

Client Sample ID:	CEF-635-SS-308-01		
Lab Sample ID:	F7748-6	**Date Sampled:**	09/28/00
Matrix:	SO - Soil	**Date Received:**	09/29/00
Method:	EPA 8310	**Percent Solids:**	88.9
Project:	NAS Cecil Field 0039		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	EE000400.D	4	10/06/00	ME	10/05/00	OP2140	GEE18
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	3000	ug/kg	
208-96-8	Acenaphthylene	ND	3000	ug/kg	
120-12-7	Anthracene	ND	1500	ug/kg	
56-55-3	Benzo(a)anthracene	1170	300	ug/kg	
50-32-8	Benzo(a)pyrene	1040	300	ug/kg	
205-99-2	Benzo(b)fluoranthene	1700	300	ug/kg	
191-24-2	Benzo(g,h,i)perylene	1170	300	ug/kg	
207-08-9	Benzo(k)fluoranthene	938	300	ug/kg	
218-01-9	Chrysene	1260	1500	ug/kg	J
53-70-3	Dibenzo(a,h)anthracene	141	300	ug/kg	J
206-44-0	Fluoranthene	2170	1500	ug/kg	
86-73-7	Fluorene	ND	1500	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	1060	300	ug/kg	
91-20-3	Naphthalene	ND	1500	ug/kg	
90-12-0	1-Methylnaphthalene	ND	1500	ug/kg	
91-57-6	2-Methylnaphthalene	ND	1500	ug/kg	
85-01-8	Phenanthrene	ND	1500	ug/kg	
129-00-0	Pyrene	1970	1500	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	88%		22-130%
92-94-4	p-Terphenyl	116%		53-130%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

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

Report of Analysis

Client Sample ID:	CEF-635-DUP4		
Lab Sample ID:	F7748-7	**Date Sampled:**	09/28/00
Matrix:	SO - Soil	**Date Received:**	09/29/00
Method:	EPA 8310	**Percent Solids:**	82.4
Project:	NAS Cecil Field 0039		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	EE000387.D	1	10/05/00	ME	10/05/00	OP2140	GEE17
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	810	ug/kg	
208-96-8	Acenaphthylene	ND	810	ug/kg	
120-12-7	Anthracene	ND	400	ug/kg	
56-55-3	Benzo(a)anthracene	173	81	ug/kg	
50-32-8	Benzo(a)pyrene	154	81	ug/kg	
205-99-2	Benzo(b)fluoranthene	204	81	ug/kg	
191-24-2	Benzo(g,h,i)perylene	161	81	ug/kg	
207-08-9	Benzo(k)fluoranthene	84.5	81	ug/kg	
218-01-9	Chrysene	114	400	ug/kg	J
53-70-3	Dibenzo(a,h)anthracene	ND	81	ug/kg	
206-44-0	Fluoranthene	ND	400	ug/kg	
86-73-7	Fluorene	ND	400	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	141	81	ug/kg	
91-20-3	Naphthalene	ND	400	ug/kg	
90-12-0	1-Methylnaphthalene	ND	400	ug/kg	
91-57-6	2-Methylnaphthalene	ND	400	ug/kg	
85-01-8	Phenanthrene	ND	400	ug/kg	
129-00-0	Pyrene	ND	400	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	80%		22-130%
92-94-4	p-Terphenyl	101%		53-130%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

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

Tetra Tech NUS **INTERNAL CORRESPONDENCE**

TO:	**M. SPERANZA**	**DATE:**	**NOVEMBER 8, 2000**
FROM:	**DOUGLAS S. SCHLOER**	**COPIES:**	**DV FILE**
SUBJECT:	**ORGANIC DATA VALIDATION – PAH CTO 078, NAS CECIL FIELD SDG F7763**		
SAMPLES:	2 / Soil / PAH		
	CEF-635-SS-304-01	CEF-635-SS-305-01	

OVERVIEW

The sample set for CTO 078, NAS Cecil Field, SDG F7763 consists of two (2) soil environmental samples. The samples were analyzed for polynuclear aromatic hydrocarbons. No field duplicate pairs were included in this SDG.

The samples were collected by TetraTech NUS on September 29th, 2000 and analyzed by Accutest Labroratories. All analyses were conducted in accordance with Naval Facilities Engineering Service Center (NFESC) Quality Assurance/Quality Control (QA/QC) criteria using SW-846 Method 8310 analytical and reporting protocol. The data contained in this SDG were validated with regard to the following parameters:

* • Data completeness
* • Holding times
* • Initial/continuing calibrations
* • Laboratory method and field quality control blank results
* • Surrogate spike recoveries
* • Detection Limits

The symbol (*) indicates that 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

All data quality parameters were met for this fraction.

EXECUTIVE SUMMARY

Laboratory Performance Issues: None

Other Factors Affecting Data Quality: None.

Other Factors Affecting Data Quality: None.

The data for these analyses were reviewed with reference to the EPA Functional Guidelines for Organic Data Validation (10/99) and the NFESC guidelines "Navy IRCDQM" (Sept 1999). The text of this report has been formulated to address only those problem areas affecting data quality.

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

Tetra Tech NUS

Douglas S Schloer
Chemist/Data Validator

TetraTech NUS

Joseph A. Samchuck
Data Validation Quality Assurance Officer

Attachments:

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

Qualifier Codes:

A = Lab Blank Contamination
B = Field Blank Contamination
C = Calibration (i.e., % RSDs, %Ds, ICVs, CCVs, RPDs, RRFs, etc.) Noncompliance
D = MS/MSD Noncompliance
E = LCS/LCSD Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = GFAA PDS - GFAA MSA's $r < 0.995$
K = ICP Interference - include ICSAB % R's
L = Instrument Calibration Range Exceedance
M = Sample Preservation
N = Internal Standard Noncompliance
O = Poor Instrument Performance (i.e., base-time drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can encompass a number of issues)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = Pest/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: F7763

SAMPLE NUMBER:	CEF-635-SS-304-01	CEF-635-SS-305-01		
SAMPLE DATE:	09/29/00	09/29/00	/ /	/ /
LABORATORY ID:	F7763-1	F7763-2		
QC_TYPE:	NORMAL	NORMAL		
% SOLIDS:	83.0 %	86.3 %	100.0 %	100.0 %
UNITS:	UG/KG	UG/KG		
FIELD DUPLICATE OF:				

	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
POLYNUCLEAR AROMATIC HYDROCARBONS												
1-METHYLNAPHTHALENE	400	U		390	U							
2-METHYLNAPHTHALENE	400	U		390	U							
ACENAPHTHENE	800	U		770	U							
ACENAPHTHYLENE	800	U		770	U							
ANTHRACENE	400	U		390	U							
BENZO(A)ANTHRACENE	80	U		77	U							
BENZO(A)PYRENE	80	U		77	U							
BENZO(B)FLUORANTHENE	80	U		77	U							
BENZO(G,H,I)PERYLENE	80	U		77	U							
BENZO(K)FLUORANTHENE	80	U		77	U							
CHRYSENE	400	U		390	U							
DIBENZO(A,H)ANTHRACENE	80	U		77	U							
FLUORANTHENE	400	U		390	U							
FLUORENE	400	U		390	U							
INDENO(1,2,3-CD)PYRENE	80	U		77	U							
NAPHTHALENE	400	U		390	U							
PHENANTHRENE	400	U		390	U							
PYRENE	400	U		390	U							

APPENDIX B

RESULTS AS REPORTED BY THE LABORATORY

Report of Analysis

Client Sample ID:	CEF-635-SS-305-01		
Lab Sample ID:	F7763-2	**Date Sampled:**	09/29/00
Matrix:	SO - Soil	**Date Received:**	09/30/00
Method:	EPA 8310	**Percent Solids:**	86.3
Project:	NAS Cecil Field 0039		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	EE000392.D	1	10/05/00	ME	10/05/00	OP2140	GEE17
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	770	ug/kg	
208-96-8	Acenaphthylene	ND	770	ug/kg	
120-12-7	Anthracene	ND	390	ug/kg	
56-55-3	Benzo(a)anthracene	ND	77	ug/kg	
50-32-8	Benzo(a)pyrene	ND	77	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	77	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	77	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	77	ug/kg	
218-01-9	Chrysene	ND	390	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	77	ug/kg	
206-44-0	Fluoranthene	ND	390	ug/kg	
86-73-7	Fluorene	ND	390	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	77	ug/kg	
91-20-3	Naphthalene	ND	390	ug/kg	
90-12-0	1-Methylnaphthalene	ND	390	ug/kg	
91-57-6	2-Methylnaphthalene	ND	390	ug/kg	
85-01-8	Phenanthrene	ND	390	ug/kg	
129-00-0	Pyrene	ND	390	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	76%		22-130%
92-94-4	p-Terphenyl	96%		53-130%

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

Report of Analysis

Client Sample ID:	CEF-635-SS-304-01		
Lab Sample ID:	F7763-1	**Date Sampled:**	09/29/00
Matrix:	SO - Soil	**Date Received:**	09/30/00
Method:	EPA 8310	**Percent Solids:**	83.0
Project:	NAS Cecil Field 0039		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	EE000389.D	1	10/05/00	ME	10/05/00	OP2140	GEE17
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	800	ug/kg	
208-96-8	Acenaphthylene	ND	800	ug/kg	
120-12-7	Anthracene	ND	400	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	400	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	80	ug/kg	
206-44-0	Fluoranthene	ND	400	ug/kg	
86-73-7	Fluorene	ND	400	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	80	ug/kg	
91-20-3	Naphthalene	ND	400	ug/kg	
90-12-0	1-Methylnaphthalene	ND	400	ug/kg	
91-57-6	2-Methylnaphthalene	ND	400	ug/kg	
85-01-8	Phenanthrene	ND	400	ug/kg	
129-00-0	Pyrene	ND	400	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	78%		22-130%
92-94-4	p-Terphenyl	99%		53-130%

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

PHASE V LABORATORY ANALYTICAL DATA

SAMPLE NUMBER SERIES CEF-635-SS-400

Tetra Tech NUS **INTERNAL CORRESPONDENCE**

PITT-06-0-024

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

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

SUBJECT: **ORGANIC DATA VALIDATION – PAH**
CTO 078 – NAS CECIL FIELD
SDG F8138

SAMPLES: 11/Surface Soil

CEF-635-DUP4
CEF-635-SS-401-01
CEF-635-SS-403-01
CEF-635-SS-405-01
CEF-635-SS-408-01
CEF-635-SS-410-01
CEF-635-SS-307-01
CEF-635-SS-402-01
CEF-635-SS-404-01
CEF-635-SS-407-01
CEF-635-SS-409-01

OVERVIEW

The sample set for CTO 078, SDG F8138 Naval Air Station (NAS) Cecil Field; Florida consists of eleven (11) surface soil environmental samples. The samples were analyzed for Polynuclear Aromatic Hydrocarbon organic compounds. One (1) field duplicate pair (CEF-635-SU-309-05/CEF-635-DUP4) was included within this SDG.

The samples were collected by Tetra Tech, NUS on November 15th, 2000 and analyzed by Accutest Laboratories. All analyses were performed in accordance with Naval Facilities Engineering Service Center (NFESC) Quality Assurance/Quality Control (QA/QC) criteria and analyzed according to SW 846 Method 8310 analytical and reporting protocols. The data in this SDG was validated with regard to the following parameters:

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

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

PAH FRACTION

It should be noted that the associated sample to duplicate, CEF-635-DUP4, was not included within this SDG. Therefore, field duplicate precision could not be calculated.

Several samples were analyzed at a dilution due to high levels of target compounds.

MEMO TO: MARK SPERANZA
DATE: DECEMBER 28, 2000 – PAGE 2

ADDITIONAL COMMENTS

Several samples contained positive results for compounds below the reporting limits. These results were qualified as estimated (J).

EXECUTIVE SUMMARY

Laboratory performance: None.

Other Factors Affecting Data Quality: None.

MEMO TO: MARK SPERANZA
DATE: DECEMBER 28, 2000 – PAGE 3

The data for these analyses were reviewed with reference to the EPA Functional Guidelines for Organic Data Validation (October 1999) and the NFESC guidelines "Navy IRCDQM" (September 1999). The text of this report has been formulated to address only those problems affecting data quality.

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

Justin Orbich

Chemist/Data Validator
Tetra Tech, NUS

Joseph A. Samchuck

Data Validation Quality Assurance Officer
Tetra Tech, NUS

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

DATA QUALIFIER DEFINITIONS:

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

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

Qualifier Codes:

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

APPENDIX A

Qualified Analytical Results

CTO078-NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F8138

SAMPLE NUMBER:	CEF-635-DUP4			CEF-635-SS-307-01			CEF-635-SS-401-01			CEF-635-SS-402-01		
SAMPLE DATE:	11/15/00			11/15/00			11/15/00			11/15/00		
LABORATORY ID:	F8138-11			F8138-5			F8138-6			F8138-8		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	0.2 %			0.2 %			0.2 %			0.2 %		
UNITS:	UG/KG			UG/KG			UG/KG			UG/KG		
FIELD DUPLICATE OF:	CEF-635-SU-309-05											
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
POLYNUCLEAR AROMATIC HYDROCARBONS												
1-METHYLNAPHTHALENE	370	U		980	U		1800	U		410	U	
2-METHYLNAPHTHALENE	370	U		980	U		1800	U		410	U	
ACENAPHTHENE	740	U		2000	U		3600	U		810	U	
ACENAPHTHYLENE	740	U		2000	U		3600	U		810	U	
ANTHRACENE	370	U		980	U		1800	U		410	U	
BENZO(A)ANTHRACENE	163	J	P	646	J	P	796	J	P	410	U	
BENZO(A)PYRENE	267			858			1150			81	U	
BENZO(B)FLUORANTHENE	228			758			1220			81	U	
BENZO(G,H,I)PERYLENE	231			493			1260			81	U	
BENZO(K)FLUORANTHENE	153			536			842			81	U	
CHRYSENE	188	J	P	491	J	P	1330	J	P	410	U	
DIBENZO(A,H)ANTHRACENE	34.9	J	P	200	U		360	U		81	U	
FLUORANTHENE	246	J	P	980	U		1970			410	U	
FLUORENE	370	U		980	U		1800	U		410	U	
INDENO(1,2,3-CD)PYRENE	201			452			855			81	U	
NAPHTHALENE	370	U		980	U		1800	U		410	U	
PHENANTHRENE	370	U		980	U		1800	U		410	U	
PYRENE	323	J	P	980	U		1960			410	U	

CTO078-NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F8138

SAMPLE NUMBER:	CEF-635-SS-403-01			CEF-635-SS-404-01			CEF-635-SS-405-01			CEF-635-SS-407-01		
SAMPLE DATE:	11/15/00			11/15/00			11/15/00			11/15/00		
LABORATORY ID:	F8138-7			F8138-9			F8138-10			F8138-1		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	0.2 %			0.2 %			0.2 %			0.2 %		
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	370	U		460	U		380	U		390	U	
2-METHYLNAPHTHALENE	370	U		460	U		380	U		390	U	
ACENAPHTHENE	740	U		930	U		750	U		780	U	
ACENAPHTHYLENE	740	U		930	U		750	U		780	U	
ANTHRACENE	370	U		460	U		380	U		390	U	
BENZO(A)ANTHRACENE	130	J	P	414	J	P	166	J	P	390	U	
BENZO(A)PYRENE	220			313			196			78	U	
BENZO(B)FLUORANTHENE	189			329			164			78	U	
BENZO(G,H,I)PERYLENE	177			141			133			78	U	
BENZO(K)FLUORANTHENE	126			260			111			78	U	
CHRYSENE	140	J	P	355	J	P	156	J	P	390	U	
DIBENZO(A,H)ANTHRACENE	74	U		93	U		75	U		78	U	
FLUORANTHENE	119	J	P	322	J	P	187	J	P	390	U	
FLUORENE	370	U		460	U		380	U		390	U	
INDENO(1,2,3-CD)PYRENE	158			118			128			78	U	
NAPHTHALENE	370	U		460	U		380	U		390	U	
PHENANTHRENE	370	U		460	U		380	U		390	U	
PYRENE	210	J	P	798			243	J	P	390	U	

CTO078-NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F8138

SAMPLE NUMBER:	CEF-635-SS-408-01	CEF-635-SS-409-01	CEF-635-SS-410-01	
SAMPLE DATE:	11/15/00	11/15/00	11/15/00	/ /
LABORATORY ID:	F8138-2	F8138-3	F8138-4	
QC_TYPE:	NORMAL	NORMAL	NORMAL	
% SOLIDS:	0.2 %	0.2 %	0.2 %	100.0 %
UNITS:	UG/KG	UG/KG	UG/KG	
FIELD DUPLICATE OF:				

	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
POLYNUCLEAR AROMATIC HYDROCARBONS												
1-METHYLNAPHTHALENE	400	U		390	U		3700	U				
2-METHYLNAPHTHALENE	400	U		390	U		3700	U				
ACENAPHTHENE	800	U		780	U		7400	U				
ACENAPHTHYLENE	800	U		780	U		7400	U				
ANTHRACENE	400	U		390	U		3700	U				
BENZO(A)ANTHRACENE	400	U		390	U		1290	J	P			
BENZO(A)PYRENE	80	U		78	U		1640					
BENZO(B)FLUORANTHENE	80	U		78	U		1620					
BENZO(G,H,I)PERYLENE	80	U		78	U		1240					
BENZO(K)FLUORANTHENE	80	U		78	U		1080					
CHRYSENE	400	U		390	U		1420	J	P			
DIBENZO(A,H)ANTHRACENE	80	U		78	U		740	U				
FLUORANTHENE	400	U		390	U		1660	J	P			
FLUORENE	400	U		390	U		3700	U				
INDENO(1,2,3-CD)PYRENE	80	U		78	U		1140					
NAPHTHALENE	400	U		390	U		3700	U				
PHENANTHRENE	400	U		390	U		3700	U				
PYRENE	400	U		390	U		2640	J	P			

APPENDIX B

Results as Reported by the Laboratory

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-635-DUP4		
Lab Sample ID:	F8138-11	**Date Sampled:**	11/15/00
Matrix:	SO - Soil	**Date Received:**	11/16/00
Method:	EPA 8310 SW846 3550B	**Percent Solids:**	90.7
Project:	NAS Cecil Field 0039		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	EE000882.D	1	12/01/00	MRE	11/28/00	OP2363	GEE41
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	740	ug/kg	
208-96-8	Acenaphthylene	ND	740	ug/kg	
120-12-7	Anthracene	ND	370	ug/kg	
56-55-3	Benzo(a)anthracene	163	370	ug/kg	J
50-32-8	Benzo(a)pyrene	267	74	ug/kg	
205-99-2	Benzo(b)fluoranthene	228	74	ug/kg	
191-24-2	Benzo(g,h,i)perylene	231	74	ug/kg	
207-08-9	Benzo(k)fluoranthene	153	74	ug/kg	
218-01-9	Chrysene	188	370	ug/kg	J
53-70-3	Dibenzo(a,h)anthracene	34.9	74	ug/kg	J
206-44-0	Fluoranthene	246	370	ug/kg	J
86-73-7	Fluorene	ND	370	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	201	74	ug/kg	
91-20-3	Naphthalene	ND	370	ug/kg	
90-12-0	1-Methylnaphthalene	ND	370	ug/kg	
91-57-6	2-Methylnaphthalene	ND	370	ug/kg	
85-01-8	Phenanthrene	ND	370	ug/kg	
129-00-0	Pyrene	323	370	ug/kg	J

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	93%		22-130%
92-94-4	p-Terphenyl	103%		53-130%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

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

014

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-635-SS-307-01		
Lab Sample ID:	F8138-5	**Date Sampled:**	11/15/00
Matrix:	SO - Soil	**Date Received:**	11/16/00
Method:	EPA 8310 SW846 3550B	**Percent Solids:**	68.2
Project:	NAS Cecil Field 0039		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	EE000879.D	2	12/01/00	MRE	11/28/00	OP2363	GEE41
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	2000	ug/kg	
208-96-8	Acenaphthylene	ND	2000	ug/kg	
120-12-7	Anthracene	ND	980	ug/kg	
56-55-3	Benzo(a)anthracene	646	980	ug/kg	J
50-32-8	Benzo(a)pyrene	858	200	ug/kg	
205-99-2	Benzo(b)fluoranthene	758	200	ug/kg	
191-24-2	Benzo(g,h,i)perylene	493	200	ug/kg	
207-08-9	Benzo(k)fluoranthene	536	200	ug/kg	
218-01-9	Chrysene	491	980	ug/kg	J
53-70-3	Dibenzo(a,h)anthracene	ND	200	ug/kg	
206-44-0	Fluoranthene	ND	980	ug/kg	
86-73-7	Fluorene	ND	980	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	452	200	ug/kg	
91-20-3	Naphthalene	ND	980	ug/kg	
90-12-0	1-Methylnaphthalene	ND	980	ug/kg	
91-57-6	2-Methylnaphthalene	ND	980	ug/kg	
85-01-8	Phenanthrene	ND	980	ug/kg	
129-00-0	Pyrene	ND	980	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	104%		22-130%
92-94-4	p-Terphenyl	112%		53-130%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

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

008

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-635-SS-401-01		
Lab Sample ID:	F8138-6	**Date Sampled:**	11/15/00
Matrix:	SO - Soil	**Date Received:**	11/16/00
Method:	EPA 8310 SW846 3550B	**Percent Solids:**	93.2
Project:	NAS Cecil Field 0039		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	EE000861.D	5	11/30/00	MRE	11/28/00	OP2363	GEE40
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	3600	ug/kg	
208-96-8	Acenaphthylene	ND	3600	ug/kg	
120-12-7	Anthracene	ND	1800	ug/kg	
56-55-3	Benzo(a)anthracene	796	1800	ug/kg	J
50-32-8	Benzo(a)pyrene	1150	360	ug/kg	
205-99-2	Benzo(b)fluoranthene	1220	360	ug/kg	
191-24-2	Benzo(g,h,i)perylene	1260	360	ug/kg	
207-08-9	Benzo(k)fluoranthene	842	360	ug/kg	
218-01-9	Chrysene	1330	1800	ug/kg	J
53-70-3	Dibenzo(a,h)anthracene	ND	360	ug/kg	
206-44-0	Fluoranthene	1970	1800	ug/kg	
86-73-7	Fluorene	ND	1800	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	855	360	ug/kg	
91-20-3	Naphthalene	ND	1800	ug/kg	
90-12-0	1-Methylnaphthalene	ND	1800	ug/kg	
91-57-6	2-Methylnaphthalene	ND	1800	ug/kg	
85-01-8	Phenanthrene	ND	1800	ug/kg	
129-00-0	Pyrene	1960	1800	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	102%		22-130%
92-94-4	p-Terphenyl	129%		53-130%

(a) Dilution required due to matrix interference.

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

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

[illegible]

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Report of Analysis

Client Sample ID:	CEF-635-SS-402-01		
Lab Sample ID:	F8138-8	**Date Sampled:**	11/15/00
Matrix:	SO - Soil	**Date Received:**	11/16/00
Method:	EPA 8310 SW846 3550B	**Percent Solids:**	82.0
Project:	NAS Cecil Field 0039		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	EE000863.D	1	12/01/00	MRE	11/28/00	OP2363	GEE40
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	810	ug/kg	
208-96-8	Acenaphthylene	ND	810	ug/kg	
120-12-7	Anthracene	ND	410	ug/kg	
56-55-3	Benzo(a)anthracene	ND	410	ug/kg	
50-32-8	Benzo(a)pyrene	ND	81	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	81	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	81	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	81	ug/kg	
218-01-9	Chrysene	ND	410	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	81	ug/kg	
206-44-0	Fluoranthene	ND	410	ug/kg	
86-73-7	Fluorene	ND	410	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	81	ug/kg	
91-20-3	Naphthalene	ND	410	ug/kg	
90-12-0	1-Methylnaphthalene	ND	410	ug/kg	
91-57-6	2-Methylnaphthalene	ND	410	ug/kg	
85-01-8	Phenanthrene	ND	410	ug/kg	
129-00-0	Pyrene	ND	410	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	97%		22-130%
92-94-4	p-Terphenyl	104%		53-130%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

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

011

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Report of Analysis

Client Sample ID:	CEF-635-SS-403-01		
Lab Sample ID:	F8138-7	**Date Sampled:**	11/15/00
Matrix:	SO - Soil	**Date Received:**	11/16/00
Method:	EPA 8310 SW846 3550B	**Percent Solids:**	90.7
Project:	NAS Cecil Field 0039		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	EE000880.D	1	12/01/00	MRE	11/28/00	OP2363	GEE41
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	740	ug/kg	
208-96-8	Acenaphthylene	ND	740	ug/kg	
120-12-7	Anthracene	ND	370	ug/kg	
56-55-3	Benzo(a)anthracene	130	370	ug/kg	J
50-32-8	Benzo(a)pyrene	220	74	ug/kg	
205-99-2	Benzo(b)fluoranthene	189	74	ug/kg	
191-24-2	Benzo(g,h,i)perylene	177	74	ug/kg	
207-08-9	Benzo(k)fluoranthene	126	74	ug/kg	
218-01-9	Chrysene	140	370	ug/kg	J
53-70-3	Dibenzo(a,h)anthracene	ND	74	ug/kg	
206-44-0	Fluoranthene	119	370	ug/kg	J
86-73-7	Fluorene	ND	370	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	158	74	ug/kg	
91-20-3	Naphthalene	ND	370	ug/kg	
90-12-0	1-Methylnaphthalene	ND	370	ug/kg	
91-57-6	2-Methylnaphthalene	ND	370	ug/kg	
85-01-8	Phenanthrene	ND	370	ug/kg	
129-00-0	Pyrene	210	370	ug/kg	J

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	98%		22-130%
92-94-4	p-Terphenyl	107%		53-130%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

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

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Report of Analysis

Client Sample ID:	CEF-635-SS-404-01		
Lab Sample ID:	F8138-9	**Date Sampled:**	11/15/00
Matrix:	SO - Soil	**Date Received:**	11/16/00
Method:	EPA 8310 SW846 3550B	**Percent Solids:**	71.8
Project:	NAS Cecil Field 0039		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	EE000881.D	5	12/01/00	MRE	11/28/00	OP2363	GEE41
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	930	ug/kg	
208-96-8	Acenaphthylene	ND	930	ug/kg	
120-12-7	Anthracene	ND	460	ug/kg	
56-55-3	Benzo(a)anthracene	414	460	ug/kg	J
50-32-8	Benzo(a)pyrene	313	93	ug/kg	
205-99-2	Benzo(b)fluoranthene	329	93	ug/kg	
191-24-2	Benzo(g,h,i)perylene	141	93	ug/kg	
207-08-9	Benzo(k)fluoranthene	260	93	ug/kg	
218-01-9	Chrysene	355	460	ug/kg	J
53-70-3	Dibenzo(a,h)anthracene	ND	93	ug/kg	
206-44-0	Fluoranthene	322	460	ug/kg	J
86-73-7	Fluorene	ND	460	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	118	93	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	798	460	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	109%		22-130%
92-94-4	p-Terphenyl	139% [b]		53-130%

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

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

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

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Report of Analysis

Client Sample ID:	CEF-635-SS-405-01		
Lab Sample ID:	F8138-10	**Date Sampled:**	11/15/00
Matrix:	SO - Soil	**Date Received:**	11/16/00
Method:	EPA 8310 SW846 3550B	**Percent Solids:**	88.5
Project:	NAS Cecil Field 0039		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	EE000865.D	1	12/01/00	MRE	11/28/00	OP2363	GEE40
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	750	ug/kg	
208-96-8	Acenaphthylene	ND	750	ug/kg	
120-12-7	Anthracene	ND	380	ug/kg	
56-55-3	Benzo(a)anthracene	166	380	ug/kg	J
50-32-8	Benzo(a)pyrene	196	75	ug/kg	
205-99-2	Benzo(b)fluoranthene	164	75	ug/kg	
191-24-2	Benzo(g,h,i)perylene	133	75	ug/kg	
207-08-9	Benzo(k)fluoranthene	111	75	ug/kg	
218-01-9	Chrysene	156	380	ug/kg	J
53-70-3	Dibenzo(a,h)anthracene	ND	75	ug/kg	
206-44-0	Fluoranthene	187	380	ug/kg	J
86-73-7	Fluorene	ND	380	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	128	75	ug/kg	
91-20-3	Naphthalene	ND	380	ug/kg	
90-12-0	1-Methylnaphthalene	ND	380	ug/kg	
91-57-6	2-Methylnaphthalene	ND	380	ug/kg	
85-01-8	Phenanthrene	ND	380	ug/kg	
129-00-0	Pyrene	243	380	ug/kg	J

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	107%		22-130%
92-94-4	p-Terphenyl	121%		53-130%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

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

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ACCUTEST

Report of Analysis

Client Sample ID:	CEF-635-SS-407-01		
Lab Sample ID:	F8138-1	**Date Sampled:**	11/15/00
Matrix:	SO - Soil	**Date Received:**	11/16/00
Method:	EPA 8310 SW846 3550B	**Percent Solids:**	85.3
Project:	NAS Cecil Field 0039		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	EE000856.D	1	11/30/00	MRE	11/28/00	OP2363	GEE40
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	780	ug/kg	
208-96-8	Acenaphthylene	ND	780	ug/kg	
120-12-7	Anthracene	ND	390	ug/kg	
56-55-3	Benzo(a)anthracene	ND	390	ug/kg	
50-32-8	Benzo(a)pyrene	ND	78	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	78	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	78	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	78	ug/kg	
218-01-9	Chrysene	ND	390	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	78	ug/kg	
206-44-0	Fluoranthene	ND	390	ug/kg	
86-73-7	Fluorene	ND	390	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	78	ug/kg	
91-20-3	Naphthalene	ND	390	ug/kg	
90-12-0	1-Methylnaphthalene	ND	390	ug/kg	
91-57-6	2-Methylnaphthalene	ND	390	ug/kg	
85-01-8	Phenanthrene	ND	390	ug/kg	
129-00-0	Pyrene	ND	390	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	108%		22-130%
92-94-4	p-Terphenyl	112%		53-130%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

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

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Report of Analysis

Client Sample ID:	CEF-635-SS-408-01		
Lab Sample ID:	F8138-2	**Date Sampled:**	11/15/00
Matrix:	SO - Soil	**Date Received:**	11/16/00
Method:	EPA 8310 SW846 3550B	**Percent Solids:**	83.1
Project:	NAS Cecil Field 0039		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	EE000857.D	1	11/30/00	MRE	11/28/00	OP2363	GEE40
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	800	ug/kg	
208-96-8	Acenaphthylene	ND	800	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	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	400	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	80	ug/kg	
206-44-0	Fluoranthene	ND	400	ug/kg	
86-73-7	Fluorene	ND	400	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	80	ug/kg	
91-20-3	Naphthalene	ND	400	ug/kg	
90-12-0	1-Methylnaphthalene	ND	400	ug/kg	
91-57-6	2-Methylnaphthalene	ND	400	ug/kg	
85-01-8	Phenanthrene	ND	400	ug/kg	
129-00-0	Pyrene	ND	400	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	90%		22-130%
92-94-4	p-Terphenyl	97%		53-130%

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

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ACCUTEST

Report of Analysis

Client Sample ID:	CEF-635-SS-409-01		
Lab Sample ID:	F8138-3	**Date Sampled:**	11/15/00
Matrix:	SO - Soil	**Date Received:**	11/16/00
Method:	EPA 8310 SW846 3550B	**Percent Solids:**	84.9
Project:	NAS Cecil Field 0039		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	EE000858.D	1	11/30/00	MRE	11/28/00	OP2363	GEE40
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	780	ug/kg	
208-96-8	Acenaphthylene	ND	780	ug/kg	
120-12-7	Anthracene	ND	390	ug/kg	
56-55-3	Benzo(a)anthracene	ND	390	ug/kg	
50-32-8	Benzo(a)pyrene	ND	78	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	78	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	78	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	78	ug/kg	
218-01-9	Chrysene	ND	390	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	78	ug/kg	
206-44-0	Fluoranthene	ND	390	ug/kg	
86-73-7	Fluorene	ND	390	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	78	ug/kg	
91-20-3	Naphthalene	ND	390	ug/kg	
90-12-0	1-Methylnaphthalene	ND	390	ug/kg	
91-57-6	2-Methylnaphthalene	ND	390	ug/kg	
85-01-8	Phenanthrene	ND	390	ug/kg	
129-00-0	Pyrene	ND	390	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	96%		22-130%
92-94-4	p-Terphenyl	102%		53-130%

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

006

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-635-SS-410-01		
Lab Sample ID:	F8138-4	**Date Sampled:**	11/15/00
Matrix:	SO - Soil	**Date Received:**	11/16/00
Method:	EPA 8310 SW846 3550B	**Percent Solids:**	90.5
Project:	NAS Cecil Field 0039		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	EE000859.D	10	11/30/00	MRE	11/28/00	OP2363	GEE40
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	7400	ug/kg	
208-96-8	Acenaphthylene	ND	7400	ug/kg	
120-12-7	Anthracene	ND	3700	ug/kg	
56-55-3	Benzo(a)anthracene	1290	3700	ug/kg	J
50-32-8	Benzo(a)pyrene	1640	740	ug/kg	
205-99-2	Benzo(b)fluoranthene	1620	740	ug/kg	
191-24-2	Benzo(g,h,i)perylene	1240	740	ug/kg	
207-08-9	Benzo(k)fluoranthene	1080	740	ug/kg	
218-01-9	Chrysene	1420	3700	ug/kg	J
53-70-3	Dibenzo(a,h)anthracene	ND	740	ug/kg	
206-44-0	Fluoranthene	1660	3700	ug/kg	J
86-73-7	Fluorene	ND	3700	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	1140	740	ug/kg	
91-20-3	Naphthalene	ND	3700	ug/kg	
90-12-0	1-Methylnaphthalene	ND	3700	ug/kg	
91-57-6	2-Methylnaphthalene	ND	3700	ug/kg	
85-01-8	Phenanthrene	ND	3700	ug/kg	
129-00-0	Pyrene	2640	3700	ug/kg	J

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	115%		22-130%
92-94-4	p-Terphenyl	152% [b]		53-130%

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

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

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

007

PHASE VI LABORATORY ANALYTICAL DATA

SAMPLE NUMBER SERIES CEF-635-SS-500 and -SU-500

Tetra Tech NUS **INTERNAL CORRESPONDENCE**

TO: **MR. M. SPERANZA** **DATE: MAY 11, 2001**

FROM: **SETH STAFFEN** **CC: DV FILE**

SUBJECT: **ORGANIC DATA VALIDATION – PAH/PET**
CTO 078 – NAS CECIL FIELD
SDG F8860
SDG F8629 TCLP ONLY

SAMPLES: 9/ Soil

CEF-635-SS-501-01	CEF-635-SS-502-01	CEF-635-SS-504-02
CEF-635-SS-506-02	CEF-635-SS-DU6	CEF-635-SU-503-05
CEF-635-SU-505-03	CEF-635-SU-507-03	CEF-635-SS-109-02

~~2/TCLP-VOA~~

~~CEF-36-IDW-35S-01 CEF-36-IDW-40I-01~~

OVERVIEW

The sample set for CTO 078, SDGs F8860 and F8629 Naval Air Station (NAS) Cecil Field, Florida, consists of eight (8) soil environmental samples. Eight samples were analyzed for Target Compound List (TCL) Polynuclear Aromatic Hydrocarbons (PAHs) and one sample was analyzed for Petroleum Hydrocarbons (PETs) compounds. SDG 8629 sample set consists of two (2) samples that were analyzed for TCLP volatiles.

The samples were collected by Tetra Tech, NUS on January 31st, 2001 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 Methods 8260B, 8310, and Florida-PRO analytical and reporting protocol. The data in this SDG was validated with regard to the following parameters:

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

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

PAH FRACTION

In samples, CEF-635-SS-501-01 and CEF-635-SS-502-01, the surrogate recoveries exceeded the upper quality control limit. Positive results were qualified as estimated (J).

Sample CEF-635-SS-DUP6, CEF-635-SS-501-01, and CEF-635-SU-503-05 were analyzed and reported at a 4X dilution factor, respectively, due to matrix interference. This accounts for the elevated reporting limits for these samples. No qualifiers were assigned on this basis.

Sample CEF-635-SS-502-01 was analyzed and reported at an 8X dilution factor, respectively, due to matrix interference. This accounts for the elevated reporting limits for this sample. No qualifiers were assigned on this basis.

PET FRACTION

The MSD% recovery exceeded the upper quality control limit for TPH (C8-C40). No action was warranted on this data alone. The Matrix Spike and Matrix Spike Duplicate were analyzed at a 2x dilution.

TCLP-VOA

All data quality parameters were met for this fraction based on the amount of information the laboratory provided.

ADDITONAL COMMENTS

Positive results below the reporting limit were qualified as estimated (J), due to uncertainty near the detection limit.

EXECUTIVE SUMMARY

Laboratory performance: None.

Other Factors Affecting Data Quality: None.

The data for these analyses were reviewed with reference to the EPA Functional Guidelines for Organic Data Validation (October 1999) and the NFESC guidelines "Navy IRCDQM" (September 1999). The text of this report has been formulated to address only those problems affecting data quality.

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

Seth Staffen

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

APPENDIX A

QUALIFIED ANALYTICAL RESULTS

Qualifier Codes:

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

CTO078-NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F8860

SAMPLE NUMBER:	CEF-635-SS-501-01			CEF-635-SS-502-01			CEF-635-SS-504-02			CEF-635-SS-506-02		
SAMPLE DATE:	01/31/01			01/31/01			01/31/01			01/31/01		
LABORATORY ID:	F8860-2			F8860-3			F8860-5			F8860-7		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	88.2 %			84.3 %			75.0 %			85.0 %		
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	1500	U		3200	U		440	U		390	U	
2-METHYLNAPHTHALENE	1500	U		3200	U		440	U		390	U	
ACENAPHTHENE	3000	U		6300	U		890	U		780	U	
ACENAPHTHYLENE	3000	U		6300	U		890	U		780	U	
ANTHRACENE	1500	U		3200	U		440	U		390	U	
BENZO(A)ANTHRACENE	1330	J	PR	11800	J	R	440	U		390	U	
BENZO(A)PYRENE	2190	J	R	11100	J	R	89	U		78	U	
BENZO(B)FLUORANTHENE	2370	J	R	6320	J	R	89	U		78	U	
BENZO(G,H,I)PERYLENE	1870	J	R	4610	J	R	89	U		78	U	
BENZO(K)FLUORANTHENE	1850	J	R	4600	J	R	89	U		78	U	
CHRYSENE	3330	J	R	9110	J	R	440	U		390	U	
DIBENZO(A,H)ANTHRACENE	361	J	R	817	J	R	89	U		78	U	
FLUORANTHENE	5850	J	R	17200	J	R	440	U		390	U	
FLUORENE	1500	U		3200	U		440	U		390	U	
INDENO(1,2,3-CD)PYRENE	1530	J	R	4850	J	R	89	U		78	U	
NAPHTHALENE	1500	U		3200	U		440	U		390	U	
PHENANTHRENE	708	J	PR	3200	U		440	U		390	U	
PYRENE	5120	J	R	21100	J	R	440	U		390	U	

CTO078-NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F8860

SAMPLE NUMBER:	CEF-635-SS-DUP6			CEF-635-SU-503-05			CEF-635-SU-505-03			CEF-635-SU-507-03		
SAMPLE DATE:	01/31/01			01/31/01			01/31/01			01/31/01		
LABORATORY ID:	F8860-1			F8860-4			F8860-6			F8860-8		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	88.2 %			81.8 %			79.6 %			85.3 %		
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	1500	U		1600	U		420	U		390	U	
2-METHYLNAPHTHALENE	1500	U		1600	U		420	U		390	U	
ACENAPHTHENE	3000	U		3300	U		840	U		780	U	
ACENAPHTHYLENE	3000	U		3300	U		840	U		780	U	
ANTHRACENE	1500	U		1600	U		420	U		390	U	
BENZO(A)ANTHRACENE	710	J	P	1160	J	P	420	U		390	U	
BENZO(A)PYRENE	1200			1960			84	U		78	U	
BENZO(B)FLUORANTHENE	1220			1450			84	U		78	U	
BENZO(G,H,I)PERYLENE	1060			1440			84	U		78	U	
BENZO(K)FLUORANTHENE	765			960			84	U		78	U	
CHRYSENE	1270	J	P	1240	J	P	420	U		390	U	
DIBENZO(A,H)ANTHRACENE	186	J	P	655			84	U		78	U	
FLUORANTHENE	1970			1100	J	P	420	U		390	U	
FLUORENE	1500	U		1600	U		420	U		390	U	
INDENO(1,2,3-CD)PYRENE	920			1290			84	U		78	U	
NAPHTHALENE	1500	U		1600	U		420	U		390	U	
PHENANTHRENE	1500	U		1600	U		420	U		390	U	
PYRENE	1890			1730			420	U		390	U	

CTO078-NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F8860

SAMPLE NUMBER:	CEF-635-SS-109-02			
SAMPLE DATE:	01/31/01	/ /	/ /	/ /
LABORATORY ID:	F8860-9			
QC_TYPE:	NORMAL			
% SOLIDS:	85.3 %	100.0 %	100.0 %	100.0 %
UNITS:	MG/KG			
FIELD DUPLICATE OF:				

	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
PETROLEUM HYDROCARBONS												
TPH (C8-C40)	11.5											

APPENDIX B

RESULTS AS REPORTED BY THE LABORATORY

Report of Analysis

Client Sample ID:	CEF-635-SS-501-01		
Lab Sample ID:	F8860-2	**Date Sampled:**	01/31/01
Matrix:	SO - Soil	**Date Received:**	02/01/01
Method:	EPA 8310 SW846 3550B	**Percent Solids:**	88.2
Project:	NAS Cecil Field 0039		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	EE001691.D	4	02/05/01	MRE	02/02/01	OP2672	GEE86
Run #2							

Polynuclear Aromatic Hydrocarbons

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	3000	ug/kg	
208-96-8	Acenaphthylene	ND	3000	ug/kg	
120-12-7	Anthracene	ND	1500	ug/kg	
56-55-3	Benzo(a)anthracene	1330	1500	ug/kg	J
50-32-8	Benzo(a)pyrene	2190	300	ug/kg	
205-99-2	Benzo(b)fluoranthene	2370	300	ug/kg	
191-24-2	Benzo(g,h,i)perylene	1870	300	ug/kg	
207-08-9	Benzo(k)fluoranthene	1850	300	ug/kg	
218-01-9	Chrysene	3330	1500	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	361	300	ug/kg	
206-44-0	Fluoranthene	5850	1500	ug/kg	
86-73-7	Fluorene	ND	1500	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	1530	300	ug/kg	
91-20-3	Naphthalene	ND	1500	ug/kg	
90-12-0	1-Methylnaphthalene	ND	1500	ug/kg	
91-57-6	2-Methylnaphthalene	ND	1500	ug/kg	
85-01-8	Phenanthrene	708	1500	ug/kg	J
129-00-0	Pyrene	5120	1500	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	97%		22-130%
92-94-4	p-Terphenyl	148% [b]		53-130%

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

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

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

Report of Analysis

Client Sample ID:	CEF-635-SS-502-01		
Lab Sample ID:	F8860-3	**Date Sampled:**	01/31/01
Matrix:	SO - Soil	**Date Received:**	02/01/01
Method:	EPA 8310 SW846 3550B	**Percent Solids:**	84.3
Project:	NAS Cecil Field 0039		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	EE001704.D	8	02/06/01	MRE	02/02/01	OP2672	GEE87
Run #2							

Polynuclear Aromatic Hydrocarbons

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	6300	ug/kg	
208-96-8	Acenaphthylene	ND	6300	ug/kg	
120-12-7	Anthracene	ND	3200	ug/kg	
56-55-3	Benzo(a)anthracene	11800	3200	ug/kg	
50-32-8	Benzo(a)pyrene	11100	630	ug/kg	
205-99-2	Benzo(b)fluoranthene	6320	630	ug/kg	
191-24-2	Benzo(g,h,i)perylene	4610	630	ug/kg	
207-08-9	Benzo(k)fluoranthene	4600	630	ug/kg	
218-01-9	Chrysene	9110	3200	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	817	630	ug/kg	
206-44-0	Fluoranthene	17200	3200	ug/kg	
86-73-7	Fluorene	ND	3200	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	4850	630	ug/kg	
91-20-3	Naphthalene	ND	3200	ug/kg	
90-12-0	1-Methylnaphthalene	ND	3200	ug/kg	
91-57-6	2-Methylnaphthalene	ND	3200	ug/kg	
85-01-8	Phenanthrene	ND	3200	ug/kg	
129-00-0	Pyrene	21100	3200	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	94%		22-130%
92-94-4	p-Terphenyl	156% [b]		53-130%

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

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

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

Report of Analysis

Client Sample ID:	CEF-635-SU-503-05		
Lab Sample ID:	F8860-4	**Date Sampled:**	01/31/01
Matrix:	SO - Soil	**Date Received:**	02/01/01
Method:	EPA 8310 SW846 3550B	**Percent Solids:**	81.8
Project:	NAS Cecil Field 0039		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	EE001696.D	4	02/05/01	MRE	02/02/01	OP2672	GEE86
Run #2							

Polynuclear Aromatic Hydrocarbons

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	3300	ug/kg	
208-96-8	Acenaphthylene	ND	3300	ug/kg	
120-12-7	Anthracene	ND	1600	ug/kg	
56-55-3	Benzo(a)anthracene	1160	1600	ug/kg	J
50-32-8	Benzo(a)pyrene	1960	330	ug/kg	
205-99-2	Benzo(b)fluoranthene	1450	330	ug/kg	
191-24-2	Benzo(g,h,i)perylene	1440	330	ug/kg	
207-08-9	Benzo(k)fluoranthene	960	330	ug/kg	
218-01-9	Chrysene	1240	1600	ug/kg	J
53-70-3	Dibenzo(a,h)anthracene	655	330	ug/kg	
206-44-0	Fluoranthene	1100	1600	ug/kg	J
86-73-7	Fluorene	ND	1600	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	1290	330	ug/kg	
91-20-3	Naphthalene	ND	1600	ug/kg	
90-12-0	1-Methylnaphthalene	ND	1600	ug/kg	
91-57-6	2-Methylnaphthalene	ND	1600	ug/kg	
85-01-8	Phenanthrene	ND	1600	ug/kg	
129-00-0	Pyrene	1730	1600	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	102%		22-130%
92-94-4	p-Terphenyl	129%		53-130%

(a) Dilution required due to matrix interference.

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

Report of Analysis

Client Sample ID:	CEF-635-SS-504-02		
Lab Sample ID:	F8860-5	**Date Sampled:**	01/31/01
Matrix:	SO - Soil	**Date Received:**	02/01/01
Method:	EPA 8310 SW846 3550B	**Percent Solids:**	75.0
Project:	NAS Cecil Field 0039		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	EE001697.D	1	02/05/01	MRE	02/02/01	OP2672	GEE86
Run #2							

Polynuclear Aromatic Hydrocarbons

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	890	ug/kg	
208-96-8	Acenaphthylene	ND	890	ug/kg	
120-12-7	Anthracene	ND	440	ug/kg	
56-55-3	Benzo(a)anthracene	ND	440	ug/kg	
50-32-8	Benzo(a)pyrene	ND	89	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	89	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	89	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	89	ug/kg	
218-01-9	Chrysene	ND	440	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	89	ug/kg	
206-44-0	Fluoranthene	ND	440	ug/kg	
86-73-7	Fluorene	ND	440	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	89	ug/kg	
91-20-3	Naphthalene	ND	440	ug/kg	
90-12-0	1-Methylnaphthalene	ND	440	ug/kg	
91-57-6	2-Methylnaphthalene	ND	440	ug/kg	
85-01-8	Phenanthrene	ND	440	ug/kg	
129-00-0	Pyrene	ND	440	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	99%		22-130%
92-94-4	p-Terphenyl	95%		53-130%

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

Report of Analysis

Client Sample ID:	CEF-635-SU-505-03		
Lab Sample ID:	F8860-6	**Date Sampled:**	01/31/01
Matrix:	SO - Soil	**Date Received:**	02/01/01
Method:	EPA 8310 SW846 3550B	**Percent Solids:**	79.6
Project:	NAS Cecil Field 0039		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	EE001698.D	1	02/05/01	MRE	02/02/01	OP2672	GEE86
Run #2							

Polynuclear Aromatic Hydrocarbons

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	840	ug/kg	
208-96-8	Acenaphthylene	ND	840	ug/kg	
120-12-7	Anthracene	ND	420	ug/kg	
56-55-3	Benzo(a)anthracene	ND	420	ug/kg	
50-32-8	Benzo(a)pyrene	ND	84	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	84	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	84	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	84	ug/kg	
218-01-9	Chrysene	ND	420	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	84	ug/kg	
206-44-0	Fluoranthene	ND	420	ug/kg	
86-73-7	Fluorene	ND	420	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	84	ug/kg	
91-20-3	Naphthalene	ND	420	ug/kg	
90-12-0	1-Methylnaphthalene	ND	420	ug/kg	
91-57-6	2-Methylnaphthalene	ND	420	ug/kg	
85-01-8	Phenanthrene	ND	420	ug/kg	
129-00-0	Pyrene	ND	420	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	103%		22-130%
92-94-4	p-Terphenyl	108%		53-130%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

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

Report of Analysis

Client Sample ID:	CEF-635-SS-506-02		
Lab Sample ID:	F8860-7	**Date Sampled:**	01/31/01
Matrix:	SO - Soil	**Date Received:**	02/01/01
Method:	EPA 8310 SW846 3550B	**Percent Solids:**	85.0
Project:	NAS Cecil Field 0039		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	EE001699.D	1	02/05/01	MRE	02/02/01	OP2672	GEE86
Run #2							

Polynuclear Aromatic Hydrocarbons

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	780	ug/kg	
208-96-8	Acenaphthylene	ND	780	ug/kg	
120-12-7	Anthracene	ND	390	ug/kg	
56-55-3	Benzo(a)anthracene	ND	390	ug/kg	
50-32-8	Benzo(a)pyrene	ND	78	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	78	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	78	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	78	ug/kg	
218-01-9	Chrysene	ND	390	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	78	ug/kg	
206-44-0	Fluoranthene	ND	390	ug/kg	
86-73-7	Fluorene	ND	390	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	78	ug/kg	
91-20-3	Naphthalene	ND	390	ug/kg	
90-12-0	1-Methylnaphthalene	ND	390	ug/kg	
91-57-6	2-Methylnaphthalene	ND	390	ug/kg	
85-01-8	Phenanthrene	ND	390	ug/kg	
129-00-0	Pyrene	ND	390	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	105%		22-130%
92-94-4	p-Terphenyl	117%		53-130%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

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

Report of Analysis

Client Sample ID:	CEF-635-SS-DUP6		
Lab Sample ID:	F8860-1	**Date Sampled:**	01/31/01
Matrix:	SO - Soil	**Date Received:**	02/01/01
Method:	EPA 8310 SW846 3550B	**Percent Solids:**	88.2
Project:	NAS Cecil Field 0039		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	EE001690.D	4	02/05/01	MRE	02/02/01	OP2672	GEE86
Run #2							

Polynuclear Aromatic Hydrocarbons

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	3000	ug/kg	
208-96-8	Acenaphthylene	ND	3000	ug/kg	
120-12-7	Anthracene	ND	1500	ug/kg	
56-55-3	Benzo(a)anthracene	710	1500	ug/kg	J
50-32-8	Benzo(a)pyrene	1200	300	ug/kg	
205-99-2	Benzo(b)fluoranthene	1220	300	ug/kg	
191-24-2	Benzo(g,h,i)perylene	1060	300	ug/kg	
207-08-9	Benzo(k)fluoranthene	765	300	ug/kg	
218-01-9	Chrysene	1270	1500	ug/kg	J
53-70-3	Dibenzo(a,h)anthracene	186	300	ug/kg	J
206-44-0	Fluoranthene	1970	1500	ug/kg	
86-73-7	Fluorene	ND	1500	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	920	300	ug/kg	
91-20-3	Naphthalene	ND	1500	ug/kg	
90-12-0	1-Methylnaphthalene	ND	1500	ug/kg	
91-57-6	2-Methylnaphthalene	ND	1500	ug/kg	
85-01-8	Phenanthrene	ND	1500	ug/kg	
129-00-0	Pyrene	1890	1500	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	77%		22-130%
92-94-4	p-Terphenyl	102%		53-130%

(a) Dilution required due to matrix interference.

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

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

Report of Analysis

Client Sample ID:	CEF-635-SU-507-03		
Lab Sample ID:	F8860-8	**Date Sampled:**	01/31/01
Matrix:	SO - Soil	**Date Received:**	02/01/01
Method:	EPA 8310 SW846 3550B	**Percent Solids:**	85.3
Project:	NAS Cecil Field 0039		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	EE001700.D	1	02/05/01	MRE	02/02/01	OP2672	GEE86
Run #2							

Polynuclear Aromatic Hydrocarbons

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	780	ug/kg	
208-96-8	Acenaphthylene	ND	780	ug/kg	
120-12-7	Anthracene	ND	390	ug/kg	
56-55-3	Benzo(a)anthracene	ND	390	ug/kg	
50-32-8	Benzo(a)pyrene	ND	78	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	78	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	78	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	78	ug/kg	
218-01-9	Chrysene	ND	390	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	78	ug/kg	
206-44-0	Fluoranthene	ND	390	ug/kg	
86-73-7	Fluorene	ND	390	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	78	ug/kg	
91-20-3	Naphthalene	ND	390	ug/kg	
90-12-0	1-Methylnaphthalene	ND	390	ug/kg	
91-57-6	2-Methylnaphthalene	ND	390	ug/kg	
85-01-8	Phenanthrene	ND	390	ug/kg	
129-00-0	Pyrene	ND	390	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	101%		22-130%
92-94-4	p-Terphenyl	111%		53-130%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

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

Report of Analysis

Client Sample ID:	CEF-635-SS-109-02		
Lab Sample ID:	F8860-9	**Date Sampled:**	01/31/01
Matrix:	SO - Soil	**Date Received:**	02/01/01
Method:	FLORIDA-PRO SW846 3550B	**Percent Solids:**	85.3
Project:	NAS Cecil Field 0039		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP13416.D	1	02/06/01	SKW	02/05/01	OP2676	GOP525
Run #2							

CAS No.	Compound	Result	RL	Units	Q
	TPH (C8-C40)	11.5	9.8	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	88%		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 VII LABORATORY ANALYTICAL DATA

SAMPLE NUMBER SERIES CEF-635-SS-600

Tetra Tech NUS **INTERNAL CORRESPONDENCE**

TO:	**MR. M. SPERANZA**	**DATE:**	**MARCH 27, 2001**
FROM:	**ANGELA SCHEETZ**	**COPIES:**	**DV FILE**
SUBJECT:	**ORGANIC DATA VALIDATION- PAH CTO 078, NAS CECIL FIELD SDG F9148**		
SAMPLES:	4/Soils/		

CEF-635-SS-601-01 CEF-635-SS-602-01
CEF-635-SS-603-01 CEF-635-SS-DUP7

OVERVIEW

The sample set for CTO 078, NAS Cecil Field, SDG F9148 consists of four (4) soil environmental samples. All samples were analyzed for Target Compound List (TCL) polynuclear aromatic hydrocarbons (PAHs). One field duplicate pair (samples CEF-635-SS-602/CEF-635-SS-DUP7) was included in this SDG.

The samples were collected by TetraTech NUS on March 08, 2001 and analyzed by Accutest. All analyses were conducted in accordance with Naval Facilities Engineering Service Center (NFESC) Quality Assurance/Quality Control (QA/QC) criteria using SW-846 Method 3550B analytical and reporting protocols. The data contained in this SDG were validated with regard to the following parameters:

* • Data completeness
* • Holding times
* • Initial and continuing calibration
* • Laboratory method and field quality control blank results
* • Detection Limits

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

Polynuclear aromatic hyrdrocarbons

No qualifiers were assigned to this fraction.

Additional Comments

None

EXECUTIVE SUMMARY

Laboratory Performance Issues: None

Other Factors Affecting Data Quality: None

The data for these analyses were reviewed with reference to the EPA Functional Guidelines for Organic Data Validation (10/99) and the NFESC guidelines (September, 1999). The text of this report has been formulated to address only those problem areas affecting data quality.

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

Tetra Tech NUS

Angela Scheetz
Chemist/Data Validator

TetraTech NUS

Joseph A. Samchuck
Data Validation Quality Assurance Officer

Attachments:

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

APPENDIX A

QUALIFIED ANALYTICAL RESULTS

CTO078-NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F9148

SAMPLE NUMBER:	CEF-635-SS-601-01	CEF-635-SS-602-01	CEF-635-SS-603-01	CEF-635-SS-DUP7
SAMPLE DATE:	03/08/01	03/08/01	03/08/01	03/08/01
LABORATORY ID:	F9148-1	F9148-2	F9148-3	F9148-4
QC_TYPE:	NORMAL	NORMAL	NORMAL	NORMAL
% SOLIDS:	88.6 %	91.4 %	58.1 %	90.8 %
UNITS:	UG/KG	UG/KG	UG/KG	UG/KG
FIELD DUPLICATE OF:				CEF-635-SS-602-01

	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
POLYNUCLEAR AROMATIC HYDROCARBONS												
1-METHYLNAPHTHALENE	380	U		1800	U		5700	U		1800	U	
2-METHYLNAPHTHALENE	380	U		1800	U		5700	U		1800	U	
ACENAPHTHENE	750	U		3600	U		11000	U		3700	U	
ACENAPHTHYLENE	750	U		3600	U		11000	U		3700	U	
ANTHRACENE	380	U		1800	U		5700	U		1800	U	
BENZO(A)ANTHRACENE	610			1900			10100			2050		
BENZO(A)PYRENE	546			2460			8390			2420		
BENZO(B)FLUORANTHENE	404			2170			7820			2010		
BENZO(G,H,I)PERYLENE	250			2060			3490			1370		
BENZO(K)FLUORANTHENE	284			1430			5440			1110		
CHRYSENE	445			2300			7550			2480		
DIBENZO(A,H)ANTHRACENE	89.1			744			2000			550		
FLUORANTHENE	1000			5760			12800			5850		
FLUORENE	380	U		1800	U		5700	U		1800	U	
INDENO(1,2,3-CD)PYRENE	261			1750			4080			1270		
NAPHTHALENE	380	U		1800	U		5700	U		1800	U	
PHENANTHRENE	380	U		1800	U		5700	U		1800	U	
PYRENE	865			4460			18000			4840		

APPENDIX B

RESULTS AS REPORTED BY THE LABORATORY

Report of Analysis

Client Sample ID:	CEF-635-SS-601-01		
Lab Sample ID:	F9148-1	**Date Sampled:**	03/08/01
Matrix:	SO - Soil	**Date Received:**	03/09/01
Method:	EPA 8310 SW846 3550B	**Percent Solids:**	88.6
Project:	NAS Cecil Field 0039		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	EE002291.D	1	03/14/01	MRE	03/12/01	OP2840	GEE114
Run #2							

Polynuclear Aromatic Hydrocarbons

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	750	ug/kg	
208-96-8	Acenaphthylene	ND	750	ug/kg	
120-12-7	Anthracene	ND	380	ug/kg	
56-55-3	Benzo(a)anthracene	610	380	ug/kg	
50-32-8	Benzo(a)pyrene	546	75	ug/kg	
205-99-2	Benzo(b)fluoranthene	404	75	ug/kg	
191-24-2	Benzo(g,h,i)perylene	250	75	ug/kg	
207-08-9	Benzo(k)fluoranthene	284	75	ug/kg	
218-01-9	Chrysene	445	380	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	89.1	75	ug/kg	
206-44-0	Fluoranthene	1000	380	ug/kg	
86-73-7	Fluorene	ND	380	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	261	75	ug/kg	
91-20-3	Naphthalene	ND	380	ug/kg	
90-12-0	1-Methylnaphthalene	ND	380	ug/kg	
91-57-6	2-Methylnaphthalene	ND	380	ug/kg	
85-01-8	Phenanthrene	ND	380	ug/kg	
129-00-0	Pyrene	865	380	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	86%		22-130%
92-94-4	p-Terphenyl	89%		53-130%

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

Report of Analysis

Client Sample ID:	CEF-635-SS-602-01		
Lab Sample ID:	F9148-2	**Date Sampled:**	03/08/01
Matrix:	SO - Soil	**Date Received:**	03/09/01
Method:	EPA 8310 SW846 3550B	**Percent Solids:**	91.4
Project:	NAS Cecil Field 0039		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	EE002280.D	5	03/13/01	MRE	03/12/01	OP2840	GEE113
Run #2							

Polynuclear Aromatic Hydrocarbons

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	3600	ug/kg	
208-96-8	Acenaphthylene	ND	3600	ug/kg	
120-12-7	Anthracene	ND	1800	ug/kg	
56-55-3	Benzo(a)anthracene	1900	1800	ug/kg	
50-32-8	Benzo(a)pyrene	2460	360	ug/kg	
205-99-2	Benzo(b)fluoranthene	2170	360	ug/kg	
191-24-2	Benzo(g,h,i)perylene	2060	360	ug/kg	
207-08-9	Benzo(k)fluoranthene	1430	360	ug/kg	
218-01-9	Chrysene	2300	1800	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	744	360	ug/kg	
206-44-0	Fluoranthene	5760	1800	ug/kg	
86-73-7	Fluorene	ND	1800	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	1750	360	ug/kg	
91-20-3	Naphthalene	ND	1800	ug/kg	
90-12-0	1-Methylnaphthalene	ND	1800	ug/kg	
91-57-6	2-Methylnaphthalene	ND	1800	ug/kg	
85-01-8	Phenanthrene	ND	1800	ug/kg	
129-00-0	Pyrene	4460	1800	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	98%		22-130%
92-94-4	p-Terphenyl	114%		53-130%

(a) Dilution required due to matrix interference.

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

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

Report of Analysis

Client Sample ID:	CEF-635-SS-603-01		
Lab Sample ID:	F9148-3	**Date Sampled:**	03/08/01
Matrix:	SO - Soil	**Date Received:**	03/09/01
Method:	EPA 8310 SW846 3550B	**Percent Solids:**	58.1
Project:	NAS Cecil Field 0039		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	EE002281.D	10	03/13/01	MRE	03/12/01	OP2840	GEE113
Run #2							

Polynuclear Aromatic Hydrocarbons

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	11000	ug/kg	
208-96-8	Acenaphthylene	ND	11000	ug/kg	
120-12-7	Anthracene	ND	5700	ug/kg	
56-55-3	Benzo(a)anthracene	10100	5700	ug/kg	
50-32-8	Benzo(a)pyrene	8390	1100	ug/kg	
205-99-2	Benzo(b)fluoranthene	7820	1100	ug/kg	
191-24-2	Benzo(g,h,i)perylene	3490	1100	ug/kg	
207-08-9	Benzo(k)fluoranthene	5440	1100	ug/kg	
218-01-9	Chrysene	7550	5700	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	2000	1100	ug/kg	
206-44-0	Fluoranthene	12800	5700	ug/kg	
86-73-7	Fluorene	ND	5700	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	4080	1100	ug/kg	
91-20-3	Naphthalene	ND	5700	ug/kg	
90-12-0	1-Methylnaphthalene	ND	5700	ug/kg	
91-57-6	2-Methylnaphthalene	ND	5700	ug/kg	
85-01-8	Phenanthrene	ND	5700	ug/kg	
129-00-0	Pyrene	18000	5700	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	72%		22-130%
92-94-4	p-Terphenyl	120%		53-130%

(a) Dilution required due to matrix interference.

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

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

Report of Analysis

Client Sample ID:	CEF-635-SS-DUP7		
Lab Sample ID:	F9148-4	**Date Sampled:**	03/08/01
Matrix:	SO - Soil	**Date Received:**	03/09/01
Method:	EPA 8310 SW846 3550B	**Percent Solids:**	90.8
Project:	NAS Cecil Field 0039		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	EE002282.D	5	03/13/01	MRE	03/12/01	OP2840	GEE113
Run #2							

Polynuclear Aromatic Hydrocarbons

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	3700	ug/kg	
208-96-8	Acenaphthylene	ND	3700	ug/kg	
120-12-7	Anthracene	ND	1800	ug/kg	
56-55-3	Benzo(a)anthracene	2050	1800	ug/kg	
50-32-8	Benzo(a)pyrene	2420	370	ug/kg	
205-99-2	Benzo(b)fluoranthene	2010	370	ug/kg	
191-24-2	Benzo(g,h,i)perylene	1370	370	ug/kg	
207-08-9	Benzo(k)fluoranthene	1110	370	ug/kg	
218-01-9	Chrysene	2480	1800	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	550	370	ug/kg	
206-44-0	Fluoranthene	5850	1800	ug/kg	
86-73-7	Fluorene	ND	1800	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	1270	370	ug/kg	
91-20-3	Naphthalene	ND	1800	ug/kg	
90-12-0	1-Methylnaphthalene	ND	1800	ug/kg	
91-57-6	2-Methylnaphthalene	ND	1800	ug/kg	
85-01-8	Phenanthrene	ND	1800	ug/kg	
129-00-0	Pyrene	4840	1800	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	90%		22-130%
92-94-4	p-Terphenyl	117%		53-130%

(a) Dilution required due to matrix interference.

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

PHASE VIII LABORATORY ANALYTICAL DATA

SAMPLE NUMBER SERIES CEF-635-SS-700

Tetra Tech NUS **INTERNAL CORRESPONDENCE**

TO: **MR. M. SPERANZA** **DATE: JUNE 14, 2001**

FROM: **SETH STAFFEN** **CC: DV FILE**

SUBJECT: **ORGANIC DATA VALIDATION – PAH**
CTO 078 – NAS CECIL FIELD
SDG F9615

SAMPLES: 8/Soil/PAH

CEF-635-SS-701-01	CEF-635-SS-702-01	CEF-635-SS-703-01
CEF-635-SS-704-01	CEF-635-SS-705-01	CEF-635-SS-706-01
CEF-635-SS-707-01	CEF-635-SS-708-01	

OVERVIEW

The sample set for CTO 078, SDG F9615 Naval Air Station (NAS) Cecil Field; Florida consisted of eight (8) soil environmental samples. The samples were analyzed for Polynuclear aromatic hydrocarbon (PAHs) compounds. No field duplicate pairs were included within this SDG.

The samples were collected by Tetra Tech, NUS on May 3rd, 2001 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 protocol. The data in this SDG was validated with regard to the following parameters:

* • Data Completeness
* • Holding Times
* • Initial/continuing calibrations
* • Laboratory method/field quality control blank results
• Detection Limits

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

The text of this report is formulated to address only gross noncompliances resulting in the rejection of data and the elimination of false positives.

PAH FRACTION

The following samples were analyzed at a dilution due to the high concentration of analytes present; thus causing the increase in reporting limits.

Sample	Dilution
CEF-635-SS-702-01	5X
CEF-635-SS-703-01	5X
CEF-635-SS-704-01	5X
CEF-635-SS-705-01	8X
CEF-635-SS-706-01	5X
CEF-635-SS-707-01	5X
CEF-635-SS-708-01	4X

The surrogate recoveries for p-Terphenyl were greater than the upper quality control limit in samples CEF-635-SS-704-01 and CEF-635-SS-705-01. No action was taken since the exceedances were a result of matrix interference and sample dilution.

ADDITIONAL COMMENTS

Positive results below the RL were qualified as estimated, J, due to uncertainty near the detection limit.

EXECUTIVE SUMMARY

Laboratory performance: None.

Other Factors Affecting Data Quality: None.

The data for these analyses were reviewed with reference to the EPA Functional Guidelines for Organic Data Validation (October 1999) and the NFESC guidelines "Navy IRCDQM" (September 1999). The text of this report has been formulated to address only those problems affecting data quality.

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

Seth Staffen

Environmental Scientist/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

APPENDIX A

QUALIFIED ANALYTICAL RESULTS

Qualifier Codes:

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

CTO078-NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F9615

SAMPLE NUMBER:	CEF-635-SS-701-01			CEF-635-SS-702-01			CEF-635-SS-703-01			CEF-635-SS-704-01		
SAMPLE DATE:	05/03/01			05/03/01			05/03/01			05/03/01		
LABORATORY ID:	F9615-1			F9615-2			F9615-3			F9615-4		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	88.2 %			89.1 %			92.2 %			90.4 %		
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	380	U		1900	U		1800	U		1800	U	
2-METHYLNAPHTHALENE	380	U		1900	U		1800	U		1800	U	
ACENAPHTHENE	760	U		3700	U		3600	U		3700	U	
ACENAPHTHYLENE	760	U		3700	U		3600	U		3700	U	
ANTHRACENE	380	U		1900	U		1800	U		1800	U	
BENZO(A)ANTHRACENE	521			1850	J	P	903	J	P	6420		
BENZO(A)PYRENE	584			2480			1150			7170		
BENZO(B)FLUORANTHENE	1020			2650			1180			7870		
BENZO(G,H,I)PERYLENE	975			3260			1620			9790		
BENZO(K)FLUORANTHENE	605			1410			642			4390		
CHRYSENE	913			3390			1370	J	P	9780		
DIBENZO(A,H)ANTHRACENE	65	J	P	370	U		360	U		605		
FLUORANTHENE	1520			5320			1060	J	P	10200		
FLUORENE	380	U		1900	U		1800	U		1800	U	
INDENO(1,2,3-CD)PYRENE	648			2020			946			5850		
NAPHTHALENE	380	U		1900	U		1800	U		1800	U	
PHENANTHRENE	258	J	P	948	J	P	1800	U		1080	J	P
PYRENE	1330			5640			1490	J	P	13300		

CTO078-NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F9615

SAMPLE NUMBER:	CEF-635-SS-705-01			CEF-635-SS-706-01			CEF-635-SS-707-01			CEF-635-SS-708-01		
SAMPLE DATE:	05/03/01			05/03/01			05/03/01			05/03/01		
LABORATORY ID:	F9615-5			F9615-6			F9615-7			F9615-8		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	92.6 %			92.2 %			91.8 %			74.4 %		
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	2900	U		1800	U		1800	U		1800	U	
2-METHYLNAPHTHALENE	2900	U		1800	U		1800	U		1800	U	
ACENAPHTHENE	5800	U		3600	U		3600	U		3600	U	
ACENAPHTHYLENE	5800	U		3600	U		3600	U		3600	U	
ANTHRACENE	2900	U		1800	U		1800	U		1800	U	
BENZO(A)ANTHRACENE	3520			1840			2140			1100	J	P
BENZO(A)PYRENE	4010			1570			1900			1170		
BENZO(B)FLUORANTHENE	6080			1770			2160			1570		
BENZO(G,H,I)PERYLENE	5760			2270			3400			1040		
BENZO(K)FLUORANTHENE	3420			975			1550			949		
CHRYSENE	4290			2350			3240			1170	J	P
DIBENZO(A,H)ANTHRACENE	462	J	P	360	U		360	U		360	U	
FLUORANTHENE	7070			3520			3540			2350		
FLUORENE	2900	U		1800	U		1800	U		1800	U	
INDENO(1,2,3-CD)PYRENE	4000			1240			1490			875		
NAPHTHALENE	2900	U		1800	U		1800	U		1800	U	
PHENANTHRENE	1250	J	P	1800	U		1800	U		1230	J	P
PYRENE	7150			4300			4390			3170		

APPENDIX B

RESULTS AS REPORTED BY THE LABORATORY

Accutest Laboratories

Report of Analysis

Client Sample ID:	CEF-635-SS-701-01		
Lab Sample ID:	F9615-1	**Date Sampled:**	05/03/01
Matrix:	SO - Soil	**Date Received:**	05/04/01
Method:	EPA 8310 SW846 3550B	**Percent Solids:**	88.2
Project:	NAS Cecil Field 0039		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	AA007314.D	1	05/09/01	MRE	05/07/01	OP3101	GAA296
Run #2							

Polynuclear Aromatic Hydrocarbons

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	760	ug/kg	
208-96-8	Acenaphthylene	ND	760	ug/kg	
120-12-7	Anthracene	ND	380	ug/kg	
56-55-3	Benzo(a)anthracene	521	380	ug/kg	
50-32-8	Benzo(a)pyrene	584	76	ug/kg	
205-99-2	Benzo(b)fluoranthene	1020	76	ug/kg	
191-24-2	Benzo(g,h,i)perylene	975	76	ug/kg	
207-08-9	Benzo(k)fluoranthene	605	76	ug/kg	
218-01-9	Chrysene	913	380	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	65.0	76	ug/kg	J
206-44-0	Fluoranthene	1520	380	ug/kg	
86-73-7	Fluorene	ND	380	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	648	76	ug/kg	
91-20-3	Naphthalene	ND	380	ug/kg	
90-12-0	1-Methylnaphthalene	ND	380	ug/kg	
91-57-6	2-Methylnaphthalene	ND	380	ug/kg	
85-01-8	Phenanthrene	258	380	ug/kg	J
129-00-0	Pyrene	1330	380	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	84%		37-158%
92-94-4	p-Terphenyl	99%		59-149%

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 Laboratories

Report of Analysis

Client Sample ID:	CEF-635-SS-702-01		
Lab Sample ID:	F9615-2	**Date Sampled:**	05/03/01
Matrix:	SO - Soil	**Date Received:**	05/10/01
Method:	EPA 8310 SW846 3550B	**Percent Solids:**	89.1
Project:	NAS Cecil Field 0039		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	EE003120.D	5	05/15/01	MRE	05/11/01	OP3128	GEE152
Run #2							

Polynuclear Aromatic Hydrocarbons

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	3700	ug/kg	
208-96-8	Acenaphthylene	ND	3700	ug/kg	
120-12-7	Anthracene	ND	1900	ug/kg	
56-55-3	Benzo(a)anthracene	1850	1900	ug/kg	J
50-32-8	Benzo(a)pyrene	2480	370	ug/kg	
205-99-2	Benzo(b)fluoranthene	2650	370	ug/kg	
191-24-2	Benzo(g,h,i)perylene	3260	370	ug/kg	
207-08-9	Benzo(k)fluoranthene	1410	370	ug/kg	
218-01-9	Chrysene	3390	1900	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	370	ug/kg	
206-44-0	Fluoranthene	5320	1900	ug/kg	
86-73-7	Fluorene	ND	1900	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	2020	370	ug/kg	
91-20-3	Naphthalene	ND	1900	ug/kg	
90-12-0	1-Methylnaphthalene	ND	1900	ug/kg	
91-57-6	2-Methylnaphthalene	ND	1900	ug/kg	
85-01-8	Phenanthrene	948	1900	ug/kg	J
129-00-0	Pyrene	5640	1900	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	108%		37-158%
92-94-4	p-Terphenyl	136%		59-149%

(a) Dilution required due to matrix interference.

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

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

Accutest Laboratories

Report of Analysis

Client Sample ID:	CEF-635-SS-703-01		
Lab Sample ID:	F9615-3	**Date Sampled:**	05/03/01
Matrix:	SO - Soil	**Date Received:**	05/04/01
Method:	EPA 8310 SW846 3550B	**Percent Solids:**	92.2
Project:	NAS Cecil Field 0039		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	EE003139.D	5	05/16/01	MRE	05/11/01	OP3128	GEE152
Run #2							

Polynuclear Aromatic Hydrocarbons

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	3600	ug/kg	
208-96-8	Acenaphthylene	ND	3600	ug/kg	
120-12-7	Anthracene	ND	1800	ug/kg	
56-55-3	Benzo(a)anthracene	903	1800	ug/kg	J
50-32-8	Benzo(a)pyrene	1150	360	ug/kg	
205-99-2	Benzo(b)fluoranthene	1180	360	ug/kg	
191-24-2	Benzo(g,h,i)perylene	1620	360	ug/kg	
207-08-9	Benzo(k)fluoranthene	642	360	ug/kg	
218-01-9	Chrysene	1370	1800	ug/kg	J
53-70-3	Dibenzo(a,h)anthracene	ND	360	ug/kg	
206-44-0	Fluoranthene	1060	1800	ug/kg	J
86-73-7	Fluorene	ND	1800	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	946	360	ug/kg	
91-20-3	Naphthalene	ND	1800	ug/kg	
90-12-0	1-Methylnaphthalene	ND	1800	ug/kg	
91-57-6	2-Methylnaphthalene	ND	1800	ug/kg	
85-01-8	Phenanthrene	ND	1800	ug/kg	
129-00-0	Pyrene	1490	1800	ug/kg	J

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	114%		37-158%
92-94-4	p-Terphenyl	127%		59-149%

(a) Dilution required due to matrix interference.

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

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

Report of Analysis

Client Sample ID:	CEF-635-SS-704-01		
Lab Sample ID:	F9615-4	**Date Sampled:**	05/03/01
Matrix:	SO - Soil	**Date Received:**	05/24/01
Method:	EPA 8310 SW846 3550B	**Percent Solids:**	90.4
Project:	NAS Cecil Field 0039		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	EE003140.D	5	05/16/01	MRE	05/11/01	OP3128	GEE152
Run #2							

Polynuclear Aromatic Hydrocarbons

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	3700	ug/kg	
208-96-8	Acenaphthylene	ND	3700	ug/kg	
120-12-7	Anthracene	ND	1800	ug/kg	
56-55-3	Benzo(a)anthracene	6420	1800	ug/kg	
50-32-8	Benzo(a)pyrene	7170	370	ug/kg	
205-99-2	Benzo(b)fluoranthene	7870	370	ug/kg	
191-24-2	Benzo(g,h,i)perylene	9790	370	ug/kg	
207-08-9	Benzo(k)fluoranthene	4390	370	ug/kg	
218-01-9	Chrysene	9780	1800	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	605	370	ug/kg	
206-44-0	Fluoranthene	10200	1800	ug/kg	
86-73-7	Fluorene	ND	1800	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	5850	370	ug/kg	
91-20-3	Naphthalene	ND	1800	ug/kg	
90-12-0	1-Methylnaphthalene	ND	1800	ug/kg	
91-57-6	2-Methylnaphthalene	ND	1800	ug/kg	
85-01-8	Phenanthrene	1080	1800	ug/kg	J
129-00-0	Pyrene	13300	1800	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	100%		37-158%
92-94-4	p-Terphenyl	152% [a]		59-149%

(a) Outside control limits due to matrix interference.

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

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

Accutest Laboratories

Report of Analysis

Client Sample ID:	CEF-635-SS-705-01		
Lab Sample ID:	F9615-5	**Date Sampled:**	05/03/01
Matrix:	SO - Soil	**Date Received:**	05/04/01
Method:	EPA 8310 SW846 3550B	**Percent Solids:**	92.6
Project:	NAS Cecil Field 0039		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	AA007329.D	8	05/09/01	MRE	05/07/01	OP3101	GAA297
Run #2							

Polynuclear Aromatic Hydrocarbons

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	5800	ug/kg	
208-96-8	Acenaphthylene	ND	5800	ug/kg	
120-12-7	Anthracene	ND	2900	ug/kg	
56-55-3	Benzo(a)anthracene	3520	2900	ug/kg	
50-32-8	Benzo(a)pyrene	4010	580	ug/kg	
205-99-2	Benzo(b)fluoranthene	6080	580	ug/kg	
191-24-2	Benzo(g,h,i)perylene	5760	580	ug/kg	
207-08-9	Benzo(k)fluoranthene	3420	580	ug/kg	
218-01-9	Chrysene	4290	2900	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	462	580	ug/kg	J
206-44-0	Fluoranthene	7070	2900	ug/kg	
86-73-7	Fluorene	ND	2900	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	4000	580	ug/kg	
91-20-3	Naphthalene	ND	2900	ug/kg	
90-12-0	1-Methylnaphthalene	ND	2900	ug/kg	
91-57-6	2-Methylnaphthalene	ND	2900	ug/kg	
85-01-8	Phenanthrene	1250	2900	ug/kg	J
129-00-0	Pyrene	7150	2900	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	112%		37-158%
92-94-4	p-Terphenyl	174% [b]		59-149%

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

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

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

Accutest Laboratories

Report of Analysis

Client Sample ID:	CEF-635-SS-706-01		
Lab Sample ID:	F9615-6	**Date Sampled:**	05/03/01
Matrix:	SO - Soil	**Date Received:**	05/10/01
Method:	EPA 8310 SW846 3550B	**Percent Solids:**	92.2
Project:	NAS Cecil Field 0039		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	EE003121.D	5	05/15/01	MRE	05/11/01	OP3128	GEE152
Run #2							

Polynuclear Aromatic Hydrocarbons

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	3600	ug/kg	
208-96-8	Acenaphthylene	ND	3600	ug/kg	
120-12-7	Anthracene	ND	1800	ug/kg	
56-55-3	Benzo(a)anthracene	1840	1800	ug/kg	
50-32-8	Benzo(a)pyrene	1570	360	ug/kg	
205-99-2	Benzo(b)fluoranthene	1770	360	ug/kg	
191-24-2	Benzo(g,h,i)perylene	2270	360	ug/kg	
207-08-9	Benzo(k)fluoranthene	975	360	ug/kg	
218-01-9	Chrysene	2350	1800	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	360	ug/kg	
206-44-0	Fluoranthene	3520	1800	ug/kg	
86-73-7	Fluorene	ND	1800	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	1240	360	ug/kg	
91-20-3	Naphthalene	ND	1800	ug/kg	
90-12-0	1-Methylnaphthalene	ND	1800	ug/kg	
91-57-6	2-Methylnaphthalene	ND	1800	ug/kg	
85-01-8	Phenanthrene	ND	1800	ug/kg	
129-00-0	Pyrene	4300	1800	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	114%		37-158%
92-94-4	p-Terphenyl	135%		59-149%

(a) Dilution required due to matrix interference.

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

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

Accutest Laboratories

Report of Analysis

Client Sample ID:	CEF-635-SS-707-01		
Lab Sample ID:	F9615-7	**Date Sampled:**	05/03/01
Matrix:	SO - Soil	**Date Received:**	05/04/01
Method:	EPA 8310 SW846 3550B	**Percent Solids:**	91.8
Project:	NAS Cecil Field 0039		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	EE003141.D	5	05/16/01	MRE	05/11/01	OP3128	GEE152
Run #2							

Polynuclear Aromatic Hydrocarbons

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	3600	ug/kg	
208-96-8	Acenaphthylene	ND	3600	ug/kg	
120-12-7	Anthracene	ND	1800	ug/kg	
56-55-3	Benzo(a)anthracene	2140	1800	ug/kg	
50-32-8	Benzo(a)pyrene	1900	360	ug/kg	
205-99-2	Benzo(b)fluoranthene	2160	360	ug/kg	
191-24-2	Benzo(g,h,i)perylene	3400	360	ug/kg	
207-08-9	Benzo(k)fluoranthene	1550	360	ug/kg	
218-01-9	Chrysene	3240	1800	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	360	ug/kg	
206-44-0	Fluoranthene	3540	1800	ug/kg	
86-73-7	Fluorene	ND	1800	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	1490	360	ug/kg	
91-20-3	Naphthalene	ND	1800	ug/kg	
90-12-0	1-Methylnaphthalene	ND	1800	ug/kg	
91-57-6	2-Methylnaphthalene	ND	1800	ug/kg	
85-01-8	Phenanthrene	ND	1800	ug/kg	
129-00-0	Pyrene	4390	1800	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	124%		37-158%
92-94-4	p-Terphenyl	148%		59-149%

(a) Dilution required due to matrix interference.

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

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

Accutest Laboratories

Report of Analysis

Client Sample ID:	CEF-635-SS-708-01		
Lab Sample ID:	F9615-8	**Date Sampled:**	05/03/01
Matrix:	SO - Soil	**Date Received:**	05/04/01
Method:	EPA 8310 SW846 3550B	**Percent Solids:**	74.4
Project:	NAS Cecil Field 0039		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	AA007330.D	4	05/09/01	MRE	05/07/01	OP3101	GAA297
Run #2							

Polynuclear Aromatic Hydrocarbons

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	3600	ug/kg	
208-96-8	Acenaphthylene	ND	3600	ug/kg	
120-12-7	Anthracene	ND	1800	ug/kg	
56-55-3	Benzo(a)anthracene	1100	1800	ug/kg	J
50-32-8	Benzo(a)pyrene	1170	360	ug/kg	
205-99-2	Benzo(b)fluoranthene	1570	360	ug/kg	
191-24-2	Benzo(g,h,i)perylene	1040	360	ug/kg	
207-08-9	Benzo(k)fluoranthene	949	360	ug/kg	
218-01-9	Chrysene	1170	1800	ug/kg	J
53-70-3	Dibenzo(a,h)anthracene	ND	360	ug/kg	
206-44-0	Fluoranthene	2350	1800	ug/kg	
86-73-7	Fluorene	ND	1800	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	875	360	ug/kg	
91-20-3	Naphthalene	ND	1800	ug/kg	
90-12-0	1-Methylnaphthalene	ND	1800	ug/kg	
91-57-6	2-Methylnaphthalene	ND	1800	ug/kg	
85-01-8	Phenanthrene	1230	1800	ug/kg	J
129-00-0	Pyrene	3170	1800	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	98%		37-158%
92-94-4	p-Terphenyl	116%		59-149%

(a) Dilution required due to matrix interference.

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

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

PHASE IX LABORATORY ANALYTICAL DATA

SAMPLE NUMBER SERIES CEF-635-SS-800 and -SU-800

Tetra Tech NUS **INTERNAL CORRESPONDENCE**

TO: **MR. M. SPERANZA** **DATE: OCTOBER 1, 2001**

FROM: **SETH C. STAFFEN** **CC: DV FILE**

SUBJECT: **ORGANIC DATA VALIDATION – PAH/TPH**
CTO 078 – NAS CECIL FIELD
SDG: F10677

SAMPLES: 20/Soil/PAH/TPH

CEF-635-SS-801-02	CEF-635-SS-803-01	CEF-635-SS-804-01
CEF-635-SS-805-02	CEF-635-SS-807-01	CEF-635-SS-808-01
CEF-635-SS-809-02	CEF-635-SS-811-01	CEF-635-SS-812-03*
CEF-635-SS-814-02*	CEF-635-SS-818-02*	CEF-635-SS-822-02
CEF-635-SS-823-01	CEF-635-SS-824-02	CEF-635-SS-826-01
CEF-635-SS-829-01	CEF-635-SS-831-01	CEF-635-SS-DUP1
CEF-635-SS-DUP2	CEF-635-SS-DUP3*	

OVERVIEW

The sample set for CTO 078, SDG F10677 Naval Air Station (NAS) Cecil Field; Florida consisted of twenty (20) environmental soil samples. All of the samples were analyzed for Polynuclear aromatic hydrocarbon (PAHs) compounds. The samples designated * were also analyzed for Total Petroleum Hydrocarbons. Three field duplicate pairs were included within this SDG: CEF-635-SS-804-01 / CEF-635-SS-DUP1, CEF-635-SS-811-01 / CEF-635-SS-DUP2, and CEF-635-SS-818-02* / CEF-635-SS-DUP3.

The samples were collected by Tetra Tech, NUS on August 21, 2001 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 EPA Method 8310 and Florida-PRO analytical and reporting protocol. The data in this SDG was validated with regard to the following parameters:

* • Data Completeness
* • Holding Times
* • Initial/continuing calibrations
* • Laboratory method/field quality control blank results
• Field Duplicate Imprecision
* • Detection Limits

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

The text of this report is formulated to address only gross noncompliances resulting in the rejection of data and the elimination of false positives.

PAH FRACTION

Samples CEF-635-SS-805-02, CEF-635-SS-811-01, CEF-635-SS-812-03, and CEF-635-SS-DUP2 were analyzed at a 4X dilution, thus causing elevated reporting limits.

Field duplicate imprecision occurred between sample CEF-635-SS-818-01 and its duplicate CEF-635-SS-DUP3 for Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(g,h,i)perylene, Benzo(k)fluoranthene, Chrysene, and Indeno(1,2,3-cd)pyrene. The positive results in sample CEF-635-SS-818-01 were qualified as estimated, J. Positive and nondetected results in the field pair were qualified as estimated, J, and, UJ, respectively.

All other qualify control parameters were met for this fraction.

TOTAL PETROLEUM HYDROCARBONS

Sample CEF-635-SS-812-03 was analyzed at a 10X dilution. Thus causing elevated reporting limits.

All qualify control parameters were met for this fraction.

ADDITIONAL COMMENTS

Positive results below the reporting limit were qualified as estimated, J, due to uncertainty near the detection limit.

EXECUTIVE SUMMARY

Laboratory performance: None.

Other Factors Affecting Data Quality: None.

The data for these analyses were reviewed with reference to the EPA Functional Guidelines for Organic Data Validation (October 1999) and the NFESC guidelines "Navy IRCDQM" (September 1999). The text of this report has been formulated to address only those problems affecting data quality.

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

Seth C. Staffen

Environmental Scientist/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

APPENDIX A

QUALIFIED ANALYTICAL RESULTS

Qualifier Codes:

A = Lab Blank Contamination
B = Field Blank Contamination
C = Calibration (i.e., % RSDs, %Ds, ICVs, CCVs, RPDs, RRFs, etc.) Noncompliance
D = MS/MSD Noncompliance
E = LCS/LCSD Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = GFAA PDS - GFAA MSA's $r < 0.995$
K = ICP Interference - include ICSAB % R's
L = Instrument Calibration Range Exceedance
M = Sample Preservation
N = Internal Standard Noncompliance
N01 = Internal Standard Noncompliance Dioxins
N02 = Recovery Standard Noncompliance Dioxins
N03 = Clean-up Standard Noncompliance Dioxins
O = Poor Instrument Performance (i.e., base-time drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can encompass a number of issues)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = Pest/PCD% between columns for positive results
V = Non-linear calibrations, tuning $r < 0.995$ (correlation coefficient)
W = EMPC result
X = Signal to noise response drop
Y = Percent solids <30%
Z = Uncertainty at 2 sigma deviation is less than sample activity

CTO078-NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F10677

SAMPLE NUMBER:	CEF-635-SS-801-02	CEF-635-SS-803-01	CEF-635-SS-804-01	CEF-635-SS-805-02
SAMPLE DATE:	08/21/01	08/21/01	08/21/01	08/21/01
LABORATORY ID:	F10677-1	F10677-2	F10677-3	F10677-4
QC_TYPE:	NORMAL	NORMAL	NORMAL	NORMAL
% SOLIDS:	79.4 %	83.0 %	78.2 %	84.3 %
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	420	U		410	U		440	U		1600	U	
2-METHYLNAPHTHALENE	420	U		410	U		440	U		1600	U	
ACENAPHTHENE	840	U		820	U		870	U		3200	U	
ACENAPHTHYLENE	840	U		820	U		870	U		3200	U	
ANTHRACENE	420	U		410	U		440	U		1600	U	
BENZO(A)ANTHRACENE	420	U		410	U		440	U		1770		
BENZO(A)PYRENE	84	U		82	U		87	U		2100		
BENZO(B)FLUORANTHENE	84	U		82	U		87	U		2460		
BENZO(G,H,I)PERYLENE	84	U		82	U		87	U		2740		
BENZO(K)FLUORANTHENE	84	U		82	U		87	U		1270		
CHRYSENE	420	U		410	U		440	U		2220		
DIBENZO(A,H)ANTHRACENE	84	U		82	U		87	U		210	J	P
FLUORANTHENE	420	U		410	U		440	U		3230		
FLUORENE	420	U		410	U		440	U		1600	U	
INDENO(1,2,3-CD)PYRENE	84	U		82	U		87	U		1780		
NAPHTHALENE	420	U		410	U		440	U		1600	U	
PHENANTHRENE	420	U		410	U		440	U		1600	U	
PYRENE	420	U		410	U		440	U		3610		

CTO078-NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F10677

SAMPLE NUMBER:	CEF-635-SS-807-01			CEF-635-SS-808-01			CEF-635-SS-809-02			CEF-635-SS-811-01		
SAMPLE DATE:	08/21/01			08/21/01			08/21/01			08/21/01		
LABORATORY ID:	F10677-5			F10677-6			F10677-7			F10677-8		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	74.0 %			76.9 %			84.9 %			93.1 %		
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	450	U		440	U		390	U		1400	U	
2-METHYLNAPHTHALENE	450	U		440	U		390	U		1400	U	
ACENAPHTHENE	910	U		890	U		790	U		2900	U	
ACENAPHTHYLENE	910	U		890	U		790	U		2900	U	
ANTHRACENE	450	U		440	U		390	U		1400	U	
BENZO(A)ANTHRACENE	450	U		440	U		390	U		805	J	P
BENZO(A)PYRENE	91	U		89	U		79	U		1490		
BENZO(B)FLUORANTHENE	91	U		89	U		79	U		1510		
BENZO(G,H,I)PERYLENE	91	U		89	U		79	U		2370		
BENZO(K)FLUORANTHENE	91	U		89	U		79	U		760		
CHRYSENE	450	U		440	U		390	U		2780		
DIBENZO(A,H)ANTHRACENE	91	U		89	U		79	U		182	J	P
FLUORANTHENE	450	U		440	U		390	U		743	J	P
FLUORENE	450	U		440	U		390	U		1400	U	
INDENO(1,2,3-CD)PYRENE	91	U		89	U		79	U		1410		
NAPHTHALENE	450	U		440	U		390	U		1400	U	
PHENANTHRENE	450	U		440	U		390	U		1400	U	
PYRENE	450	U		440	U		390	U		1390	J	P

CTO078-NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F10677

SAMPLE NUMBER:	CEF-635-SS-812-03			CEF-635-SS-814-02			CEF-635-SS-818-02			CEF-635-SS-822-02		
SAMPLE DATE:	08/21/01			08/21/01			08/21/01			08/21/01		
LABORATORY ID:	F10677-9			F10677-10			F10677-11			F10677-12		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	82.2 %			91.6 %			85.0 %			82.5 %		
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	1600	U		360	U		390	U		410	U	
2-METHYLNAPHTHALENE	1600	U		360	U		390	U		410	U	
ACENAPHTHENE	3300	U		720	U		790	U		820	U	
ACENAPHTHYLENE	3300	U		720	U		790	U		820	U	
ANTHRACENE	1600	U		360	U		390	U		410	U	
BENZO(A)ANTHRACENE	1710			360	U		390	U		410	U	
BENZO(A)PYRENE	2030			72	U		141	J	G	82	U	
BENZO(B)FLUORANTHENE	2210			72	U		184	J	G	82	U	
BENZO(G,H,I)PERYLENE	2500			72	U		241	J	G	82	U	
BENZO(K)FLUORANTHENE	1150			72	U		96	J	G	82	U	
CHRYSENE	1610			360	U		203	J	GP	410	U	
DIBENZO(A,H)ANTHRACENE	174	J	P	72	U		79	U		82	U	
FLUORANTHENE	1640			360	U		390	U		410	U	
FLUORENE	1600	U		360	U		390	U		410	U	
INDENO(1,2,3-CD)PYRENE	1530			72	U		141	J	G	82	U	
NAPHTHALENE	1600	U		360	U		390	U		410	U	
PHENANTHRENE	1600	U		360	U		390	U		410	U	
PYRENE	2610			360	U		390	U		410	U	

CTO078-NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F10677

SAMPLE NUMBER:	CEF-635-SS-823-01			CEF-635-SS-824-02			CEF-635-SS-826-01			CEF-635-SS-829-02		
SAMPLE DATE:	08/21/01			08/21/01			08/21/01			08/21/01		
LABORATORY ID:	F10677-13			F10677-14			F10677-15			F10677-16		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	70.5 %			89.2 %			74.3 %			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	470	U		370	U		440	U		380	U	
2-METHYLNAPHTHALENE	470	U		370	U		440	U		380	U	
ACENAPHTHENE	950	U		730	U		890	U		760	U	
ACENAPHTHYLENE	950	U		730	U		890	U		760	U	
ANTHRACENE	470	U		370	U		440	U		380	U	
BENZO(A)ANTHRACENE	470	U		370	U		440	U		380	U	
BENZO(A)PYRENE	95	U		73	U		89	U		76	U	
BENZO(B)FLUORANTHENE	95	U		73	U		89	U		76	U	
BENZO(G,H,I)PERYLENE	95	U		73	U		89	U		76	U	
BENZO(K)FLUORANTHENE	95	U		73	U		89	U		76	U	
CHRYSENE	470	U		370	U		440	U		380	U	
DIBENZO(A,H)ANTHRACENE	95	U		73	U		89	U		76	U	
FLUORANTHENE	470	U		370	U		440	U		380	U	
FLUORENE	470	U		370	U		440	U		380	U	
INDENO(1,2,3-CD)PYRENE	95	U		73	U		89	U		76	U	
NAPHTHALENE	470	U		370	U		440	U		380	U	
PHENANTHRENE	470	U		370	U		440	U		380	U	
PYRENE	470	U		370	U		440	U		380	U	

CTO078-NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F10677

SAMPLE NUMBER:	CEF-635-SS-831-01			CEF-635-SS-DUP1			CEF-635-SS-DUP2			CEF-635-SS-DUP3		
SAMPLE DATE:	08/21/01			08/21/01			08/21/01			08/21/01		
LABORATORY ID:	F10677-17			F10677-18			F10677-19			F10677-20		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	85.6 %			74.9 %			89.7 %			77.7 %		
UNITS:	UG/KG			UG/KG			UG/KG			UG/KG		
FIELD DUPLICATE OF:				CEF-635-SS-804-01			CEF-635-SS-811-0~~2~~1			CEF-635-SS-818-02		
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
POLYNUCLEAR AROMATIC HYDROCARBONS												
1-METHYLNAPHTHALENE	390	U		450	U		1500	U		430	U	
2-METHYLNAPHTHALENE	390	U		450	U		1500	U		430	U	
ACENAPHTHENE	770	U		900	U		3000	U		860	U	
ACENAPHTHYLENE	770	U		900	U		3000	U		860	U	
ANTHRACENE	390	U		450	U		1500	U		430	U	
BENZO(A)ANTHRACENE	390	U		450	U		620	J	P	430	U	
BENZO(A)PYRENE	77	U		90	U		1200			86	UJ	G
BENZO(B)FLUORANTHENE	77	U		90	U		1100			86	UJ	G
BENZO(G,H,I)PERYLENE	77	U		90	U		1630			86	UJ	G
BENZO(K)FLUORANTHENE	77	U		180	U		555			86	UJ	G
CHRYSENE	390	U		450	U		2330			430	UJ	G
DIBENZO(A,H)ANTHRACENE	77	U		90	U		300	U		86	U	
FLUORANTHENE	390	U		450	U		652	J	P	430	U	
FLUORENE	390	U		450	U		1500	U		430	U	
INDENO(1,2,3-CD)PYRENE	77	U		90	U		1030			86	UJ	G
NAPHTHALENE	390	U		450	U		1500	U		430	U	
PHENANTHRENE	390	U		450	U		1500	U		430	U	
PYRENE	390	U		450	U		1160	J	P	430	U	

CTO078-NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F10677

SAMPLE NUMBER:	CEF-635-SS-812-03			CEF-635-SS-814-02			CEF-635-SS-818-02			CEF-635-SS-DUP3		
SAMPLE DATE:	08/21/01			08/21/01			08/21/01			08/21/01		
LABORATORY ID:	F10677-9			F10677-10			F10677-11			F10677-20		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	82.2 %			91.6 %			85.0 %			77.7 %		
UNITS:	MG/KG			MG/KG			MG/KG			MG/KG		
FIELD DUPLICATE OF:										CEF-635-SS-818-02		
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
PETROLEUM HYDROCARBONS												
TOTAL PETROLEUM HYDROCARBONS	246			36.5			41.6			40.5		

APPENDIX B

RESULTS AS REPORTED BY THE LABORATORY

Accutest Laboratories

Report of Analysis

Client Sample ID:	CEF-635-SS-801-02		
Lab Sample ID:	F10677-1	**Date Sampled:**	08/21/01
Matrix:	SO - Soil	**Date Received:**	08/23/01
Method:	EPA 8310 SW846 3550B	**Percent Solids:**	79.4
Project:	NAS Cecil Field 0039		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	EE004734.D	1	08/27/01	MRE	08/24/01	OP3729	GEE222
Run #2							

Polynuclear Aromatic Hydrocarbons

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	840	ug/kg	
208-96-8	Acenaphthylene	ND	840	ug/kg	
120-12-7	Anthracene	ND	420	ug/kg	
56-55-3	Benzo(a)anthracene	ND	420	ug/kg	
50-32-8	Benzo(a)pyrene	ND	84	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	84	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	84	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	84	ug/kg	
218-01-9	Chrysene	ND	420	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	84	ug/kg	
206-44-0	Fluoranthene	ND	420	ug/kg	
86-73-7	Fluorene	ND	420	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	84	ug/kg	
91-20-3	Naphthalene	ND	420	ug/kg	
90-12-0	1-Methylnaphthalene	ND	420	ug/kg	
91-57-6	2-Methylnaphthalene	ND	420	ug/kg	
85-01-8	Phenanthrene	ND	420	ug/kg	
129-00-0	Pyrene	ND	420	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	86%		37-158%
92-94-4	p-Terphenyl	90%		59-149%

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 Laboratories

Report of Analysis

Client Sample ID:	CEF-635-SS-803-01		
Lab Sample ID:	F10677-2	**Date Sampled:**	08/21/01
Matrix:	SO - Soil	**Date Received:**	08/23/01
Method:	EPA 8310 SW846 3550B	**Percent Solids:**	83.0
Project:	NAS Cecil Field 0039		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	EE004735.D	1	08/27/01	MRE	08/24/01	OP3729	GEE222
Run #2							

Polynuclear Aromatic Hydrocarbons

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	820	ug/kg	
208-96-8	Acenaphthylene	ND	820	ug/kg	
120-12-7	Anthracene	ND	410	ug/kg	
56-55-3	Benzo(a)anthracene	ND	410	ug/kg	
50-32-8	Benzo(a)pyrene	ND	82	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	82	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	82	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	82	ug/kg	
218-01-9	Chrysene	ND	410	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	82	ug/kg	
206-44-0	Fluoranthene	ND	410	ug/kg	
86-73-7	Fluorene	ND	410	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	82	ug/kg	
91-20-3	Naphthalene	ND	410	ug/kg	
90-12-0	1-Methylnaphthalene	ND	410	ug/kg	
91-57-6	2-Methylnaphthalene	ND	410	ug/kg	
85-01-8	Phenanthrene	ND	410	ug/kg	
129-00-0	Pyrene	ND	410	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	83%		37-158%
92-94-4	p-Terphenyl	89%		59-149%

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 Laboratories

Report of Analysis

Client Sample ID:	CEF-635-SS-804-01		
Lab Sample ID:	F10677-3	**Date Sampled:**	08/21/01
Matrix:	SO - Soil	**Date Received:**	08/23/01
Method:	EPA 8310 SW846 3550B	**Percent Solids:**	78.2
Project:	NAS Cecil Field 0039		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	EE004736.D	1	08/27/01	MRE	08/24/01	OP3729	GEE222
Run #2							

Polynuclear Aromatic Hydrocarbons

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	870	ug/kg	
208-96-8	Acenaphthylene	ND	870	ug/kg	
120-12-7	Anthracene	ND	440	ug/kg	
56-55-3	Benzo(a)anthracene	ND	440	ug/kg	
50-32-8	Benzo(a)pyrene	ND	87	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	87	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	87	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	87	ug/kg	
218-01-9	Chrysene	ND	440	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	87	ug/kg	
206-44-0	Fluoranthene	ND	440	ug/kg	
86-73-7	Fluorene	ND	440	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	87	ug/kg	
91-20-3	Naphthalene	ND	440	ug/kg	
90-12-0	1-Methylnaphthalene	ND	440	ug/kg	
91-57-6	2-Methylnaphthalene	ND	440	ug/kg	
85-01-8	Phenanthrene	ND	440	ug/kg	
129-00-0	Pyrene	ND	440	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	85%		37-158%
92-94-4	p-Terphenyl	89%		59-149%

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 Laboratories

Report of Analysis

Client Sample ID:	CEF-635-SS-805-02		
Lab Sample ID:	F10677-4	**Date Sampled:**	08/21/01
Matrix:	SO - Soil	**Date Received:**	08/23/01
Method:	EPA 8310 SW846 3550B	**Percent Solids:**	84.3
Project:	NAS Cecil Field 0039		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	EE004737.D	4	08/27/01	MRE	08/24/01	OP3729	GEE222
Run #2							

Polynuclear Aromatic Hydrocarbons

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	3200	ug/kg	
208-96-8	Acenaphthylene	ND	3200	ug/kg	
120-12-7	Anthracene	ND	1600	ug/kg	
56-55-3	Benzo(a)anthracene	1770	1600	ug/kg	
50-32-8	Benzo(a)pyrene	2100	320	ug/kg	
205-99-2	Benzo(b)fluoranthene	2460	320	ug/kg	
191-24-2	Benzo(g,h,i)perylene	2740	320	ug/kg	
207-08-9	Benzo(k)fluoranthene	1270	320	ug/kg	
218-01-9	Chrysene	2220	1600	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	210	320	ug/kg	J
206-44-0	Fluoranthene	3230	1600	ug/kg	
86-73-7	Fluorene	ND	1600	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	1780	320	ug/kg	
91-20-3	Naphthalene	ND	1600	ug/kg	
90-12-0	1-Methylnaphthalene	ND	1600	ug/kg	
91-57-6	2-Methylnaphthalene	ND	1600	ug/kg	
85-01-8	Phenanthrene	ND	1600	ug/kg	
129-00-0	Pyrene	3610	1600	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	98%		37-158%
92-94-4	p-Terphenyl	117%		59-149%

(a) All hits confirmed by spectral match using a diode array detector.

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 Laboratories

Report of Analysis

Client Sample ID:	CEF-635-SS-807-01		
Lab Sample ID:	F10677-5	**Date Sampled:**	08/21/01
Matrix:	SO - Soil	**Date Received:**	08/23/01
Method:	EPA 8310 SW846 3550B	**Percent Solids:**	74.0
Project:	NAS Cecil Field 0039		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	EE004758.D	1	08/27/01	MRE	08/24/01	OP3729	GEE222
Run #2							

Polynuclear Aromatic Hydrocarbons

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	910	ug/kg	
208-96-8	Acenaphthylene	ND	910	ug/kg	
120-12-7	Anthracene	ND	450	ug/kg	
56-55-3	Benzo(a)anthracene	ND	450	ug/kg	
50-32-8	Benzo(a)pyrene	ND	91	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	91	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	91	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	91	ug/kg	
218-01-9	Chrysene	ND	450	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	91	ug/kg	
206-44-0	Fluoranthene	ND	450	ug/kg	
86-73-7	Fluorene	ND	450	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	91	ug/kg	
91-20-3	Naphthalene	ND	450	ug/kg	
90-12-0	1-Methylnaphthalene	ND	450	ug/kg	
91-57-6	2-Methylnaphthalene	ND	450	ug/kg	
85-01-8	Phenanthrene	ND	450	ug/kg	
129-00-0	Pyrene	ND	450	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	84%		37-158%
92-94-4	p-Terphenyl	89%		59-149%

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 Laboratories

Report of Analysis

Client Sample ID:	CEF-635-SS-808-01		
Lab Sample ID:	F10677-6	**Date Sampled:**	08/21/01
Matrix:	SO - Soil	**Date Received:**	08/23/01
Method:	EPA 8310 SW846 3550B	**Percent Solids:**	76.9
Project:	NAS Cecil Field 0039		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	EE004739.D	1	08/27/01	MRE	08/24/01	OP3729	GEE222
Run #2							

Polynuclear Aromatic Hydrocarbons

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	890	ug/kg	
208-96-8	Acenaphthylene	ND	890	ug/kg	
120-12-7	Anthracene	ND	440	ug/kg	
56-55-3	Benzo(a)anthracene	ND	440	ug/kg	
50-32-8	Benzo(a)pyrene	ND	89	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	89	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	89	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	89	ug/kg	
218-01-9	Chrysene	ND	440	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	89	ug/kg	
206-44-0	Fluoranthene	ND	440	ug/kg	
86-73-7	Fluorene	ND	440	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	89	ug/kg	
91-20-3	Naphthalene	ND	440	ug/kg	
90-12-0	1-Methylnaphthalene	ND	440	ug/kg	
91-57-6	2-Methylnaphthalene	ND	440	ug/kg	
85-01-8	Phenanthrene	ND	440	ug/kg	
129-00-0	Pyrene	ND	440	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	86%		37-158%
92-94-4	p-Terphenyl	91%		59-149%

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 Laboratories

Report of Analysis

Client Sample ID:	CEF-635-SS-809-02		
Lab Sample ID:	F10677-7	**Date Sampled:**	08/21/01
Matrix:	SO - Soil	**Date Received:**	08/23/01
Method:	EPA 8310 SW846 3550B	**Percent Solids:**	84.9
Project:	NAS Cecil Field 0039		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	EE004741.D	1	08/27/01	MRE	08/24/01	OP3729	GEE222
Run #2							

Polynuclear Aromatic Hydrocarbons

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	790	ug/kg	
208-96-8	Acenaphthylene	ND	790	ug/kg	
120-12-7	Anthracene	ND	390	ug/kg	
56-55-3	Benzo(a)anthracene	ND	390	ug/kg	
50-32-8	Benzo(a)pyrene	ND	79	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	79	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	79	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	79	ug/kg	
218-01-9	Chrysene	ND	390	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	79	ug/kg	
206-44-0	Fluoranthene	ND	390	ug/kg	
86-73-7	Fluorene	ND	390	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	79	ug/kg	
91-20-3	Naphthalene	ND	390	ug/kg	
90-12-0	1-Methylnaphthalene	ND	390	ug/kg	
91-57-6	2-Methylnaphthalene	ND	390	ug/kg	
85-01-8	Phenanthrene	ND	390	ug/kg	
129-00-0	Pyrene	ND	390	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	82%		37-158%
92-94-4	p-Terphenyl	82%		59-149%

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 Laboratories

Report of Analysis

Client Sample ID:	CEF-635-SS-811-01		
Lab Sample ID:	F10677-8	**Date Sampled:**	08/21/01
Matrix:	SO - Soil	**Date Received:**	08/23/01
Method:	EPA 8310 SW846 3550B	**Percent Solids:**	93.1
Project:	NAS Cecil Field 0039		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	EE004742.D	4	08/27/01	MRE	08/24/01	OP3729	GEE222
Run #2							

Polynuclear Aromatic Hydrocarbons

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	2900	ug/kg	
208-96-8	Acenaphthylene	ND	2900	ug/kg	
120-12-7	Anthracene	ND	1400	ug/kg	
56-55-3	Benzo(a)anthracene	805	1400	ug/kg	J
50-32-8	Benzo(a)pyrene	1490	290	ug/kg	
205-99-2	Benzo(b)fluoranthene	1510	290	ug/kg	
191-24-2	Benzo(g,h,i)perylene	2370	290	ug/kg	
207-08-9	Benzo(k)fluoranthene	760	290	ug/kg	
218-01-9	Chrysene	2780	1400	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	182	290	ug/kg	J
206-44-0	Fluoranthene	743	1400	ug/kg	J
86-73-7	Fluorene	ND	1400	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	1410	290	ug/kg	
91-20-3	Naphthalene	ND	1400	ug/kg	
90-12-0	1-Methylnaphthalene	ND	1400	ug/kg	
91-57-6	2-Methylnaphthalene	ND	1400	ug/kg	
85-01-8	Phenanthrene	ND	1400	ug/kg	
129-00-0	Pyrene	1390	1400	ug/kg	J

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	101%		37-158%
92-94-4	p-Terphenyl	112%		59-149%

(a) All hits confirmed by spectral match using a diode array detector.

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 Laboratories

Report of Analysis

Client Sample ID:	CEF-635-SS-812-03		
Lab Sample ID:	F10677-9	**Date Sampled:**	08/21/01
Matrix:	SO - Soil	**Date Received:**	08/23/01
Method:	EPA 8310 SW846 3550B	**Percent Solids:**	82.2
Project:	NAS Cecil Field 0039		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	EE004743.D	4	08/27/01	MRE	08/24/01	OP3729	GEE222
Run #2							

Polynuclear Aromatic Hydrocarbons

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	3300	ug/kg	
208-96-8	Acenaphthylene	ND	3300	ug/kg	
120-12-7	Anthracene	ND	1600	ug/kg	
56-55-3	Benzo(a)anthracene	1710	1600	ug/kg	
50-32-8	Benzo(a)pyrene	2030	330	ug/kg	
205-99-2	Benzo(b)fluoranthene	2210	330	ug/kg	
191-24-2	Benzo(g,h,i)perylene	2500	330	ug/kg	
207-08-9	Benzo(k)fluoranthene	1150	330	ug/kg	
218-01-9	Chrysene	1610	1600	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	174	330	ug/kg	J
206-44-0	Fluoranthene	1640	1600	ug/kg	
86-73-7	Fluorene	ND	1600	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	1530	330	ug/kg	
91-20-3	Naphthalene	ND	1600	ug/kg	
90-12-0	1-Methylnaphthalene	ND	1600	ug/kg	
91-57-6	2-Methylnaphthalene	ND	1600	ug/kg	
85-01-8	Phenanthrene	ND	1600	ug/kg	
129-00-0	Pyrene	2610	1600	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	80%		37-158%
92-94-4	p-Terphenyl	97%		59-149%

(a) All hits confirmed by spectral match using a diode array detector.

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 Laboratories

Report of Analysis

Client Sample ID:	CEF-635-SS-814-02		
Lab Sample ID:	F10677-10	**Date Sampled:**	08/21/01
Matrix:	SO - Soil	**Date Received:**	08/23/01
Method:	EPA 8310 SW846 3550B	**Percent Solids:**	91.6
Project:	NAS Cecil Field 0039		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	EE004744.D	1	08/27/01	MRE	08/24/01	OP3729	GEE222
Run #2							

Polynuclear Aromatic Hydrocarbons

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

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	88%		37-158%
92-94-4	p-Terphenyl	91%		59-149%

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 Laboratories

Report of Analysis

Client Sample ID:	CEF-635-SS-818-02		
Lab Sample ID:	F10677-11	**Date Sampled:**	08/21/01
Matrix:	SO - Soil	**Date Received:**	08/23/01
Method:	EPA 8310 SW846 3550B	**Percent Solids:**	85.0
Project:	NAS Cecil Field 0039		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	EE004745.D	1	08/27/01	MRE	08/24/01	OP3729	GEE222
Run #2							

Polynuclear Aromatic Hydrocarbons

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	790	ug/kg	
208-96-8	Acenaphthylene	ND	790	ug/kg	
120-12-7	Anthracene	ND	390	ug/kg	
56-55-3	Benzo(a)anthracene	ND	390	ug/kg	
50-32-8	Benzo(a)pyrene	141	79	ug/kg	
205-99-2	Benzo(b)fluoranthene	184	79	ug/kg	
191-24-2	Benzo(g,h,i)perylene	241	79	ug/kg	
207-08-9	Benzo(k)fluoranthene	96.0	79	ug/kg	
218-01-9	Chrysene	203	390	ug/kg	J
53-70-3	Dibenzo(a,h)anthracene	ND	79	ug/kg	
206-44-0	Fluoranthene	ND	390	ug/kg	
86-73-7	Fluorene	ND	390	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	141	79	ug/kg	
91-20-3	Naphthalene	ND	390	ug/kg	
90-12-0	1-Methylnaphthalene	ND	390	ug/kg	
91-57-6	2-Methylnaphthalene	ND	390	ug/kg	
85-01-8	Phenanthrene	ND	390	ug/kg	
129-00-0	Pyrene	ND	390	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	86%		37-158%
92-94-4	p-Terphenyl	91%		59-149%

(a) All hits confirmed by spectral match using a diode array detector.

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 Laboratories

Report of Analysis

Client Sample ID:	CEF-635-SS-822-02		
Lab Sample ID:	F10677-12	**Date Sampled:**	08/21/01
Matrix:	SO - Soil	**Date Received:**	08/23/01
Method:	EPA 8310 SW846 3550B	**Percent Solids:**	82.5
Project:	NAS Cecil Field 0039		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	EE004746.D	1	08/27/01	MRE	08/24/01	OP3729	GEE222
Run #2							

Polynuclear Aromatic Hydrocarbons

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	820	ug/kg	
208-96-8	Acenaphthylene	ND	820	ug/kg	
120-12-7	Anthracene	ND	410	ug/kg	
56-55-3	Benzo(a)anthracene	ND	410	ug/kg	
50-32-8	Benzo(a)pyrene	ND	82	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	82	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	82	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	82	ug/kg	
218-01-9	Chrysene	ND	410	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	82	ug/kg	
206-44-0	Fluoranthene	ND	410	ug/kg	
86-73-7	Fluorene	ND	410	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	82	ug/kg	
91-20-3	Naphthalene	ND	410	ug/kg	
90-12-0	1-Methylnaphthalene	ND	410	ug/kg	
91-57-6	2-Methylnaphthalene	ND	410	ug/kg	
85-01-8	Phenanthrene	ND	410	ug/kg	
129-00-0	Pyrene	ND	410	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	87%		37-158%
92-94-4	p-Terphenyl	91%		59-149%

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 Laboratories

Report of Analysis

Client Sample ID:	CEF-635-SS-823-01		
Lab Sample ID:	F10677-13	**Date Sampled:**	08/21/01
Matrix:	SO - Soil	**Date Received:**	08/23/01
Method:	EPA 8310 SW846 3550B	**Percent Solids:**	70.5
Project:	NAS Cecil Field 0039		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	EE004747.D	1	08/27/01	MRE	08/24/01	OP3729	GEE222
Run #2							

Polynuclear Aromatic Hydrocarbons

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	950	ug/kg	
208-96-8	Acenaphthylene	ND	950	ug/kg	
120-12-7	Anthracene	ND	470	ug/kg	
56-55-3	Benzo(a)anthracene	ND	470	ug/kg	
50-32-8	Benzo(a)pyrene	ND	95	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	95	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	95	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	95	ug/kg	
218-01-9	Chrysene	ND	470	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	95	ug/kg	
206-44-0	Fluoranthene	ND	470	ug/kg	
86-73-7	Fluorene	ND	470	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	95	ug/kg	
91-20-3	Naphthalene	ND	470	ug/kg	
90-12-0	1-Methylnaphthalene	ND	470	ug/kg	
91-57-6	2-Methylnaphthalene	ND	470	ug/kg	
85-01-8	Phenanthrene	ND	470	ug/kg	
129-00-0	Pyrene	ND	470	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	97%		37-158%
92-94-4	p-Terphenyl	97%		59-149%

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 Laboratories

Report of Analysis

Client Sample ID:	CEF-635-SS-824-02		
Lab Sample ID:	F10677-14	**Date Sampled:**	08/21/01
Matrix:	SO - Soil	**Date Received:**	08/23/01
Method:	EPA 8310 SW846 3550B	**Percent Solids:**	89.2
Project:	NAS Cecil Field 0039		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	EE004748.D	1	08/27/01	MRE	08/24/01	OP3729	GEE222
Run #2							

Polynuclear Aromatic Hydrocarbons

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	730	ug/kg	
208-96-8	Acenaphthylene	ND	730	ug/kg	
120-12-7	Anthracene	ND	370	ug/kg	
56-55-3	Benzo(a)anthracene	ND	370	ug/kg	
50-32-8	Benzo(a)pyrene	ND	73	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	73	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	73	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	73	ug/kg	
218-01-9	Chrysene	ND	370	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	73	ug/kg	
206-44-0	Fluoranthene	ND	370	ug/kg	
86-73-7	Fluorene	ND	370	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	73	ug/kg	
91-20-3	Naphthalene	ND	370	ug/kg	
90-12-0	1-Methylnaphthalene	ND	370	ug/kg	
91-57-6	2-Methylnaphthalene	ND	370	ug/kg	
85-01-8	Phenanthrene	ND	370	ug/kg	
129-00-0	Pyrene	ND	370	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	88%		37-158%
92-94-4	p-Terphenyl	94%		59-149%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

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

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Accutest Laboratories

Report of Analysis

Client Sample ID:	CEF-635-SS-826-01		
Lab Sample ID:	F10677-15	**Date Sampled:**	08/21/01
Matrix:	SO - Soil	**Date Received:**	08/23/01
Method:	EPA 8310 SW846 3550B	**Percent Solids:**	74.3
Project:	NAS Cecil Field 0039		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	EE004763.D	1	08/28/01	MRE	08/24/01	OP3729	GEE223
Run #2							

Polynuclear Aromatic Hydrocarbons

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	890	ug/kg	
208-96-8	Acenaphthylene	ND	890	ug/kg	
120-12-7	Anthracene	ND	440	ug/kg	
56-55-3	Benzo(a)anthracene	ND	440	ug/kg	
50-32-8	Benzo(a)pyrene	ND	89	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	89	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	89	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	89	ug/kg	
218-01-9	Chrysene	ND	440	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	89	ug/kg	
206-44-0	Fluoranthene	ND	440	ug/kg	
86-73-7	Fluorene	ND	440	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	89	ug/kg	
91-20-3	Naphthalene	ND	440	ug/kg	
90-12-0	1-Methylnaphthalene	ND	440	ug/kg	
91-57-6	2-Methylnaphthalene	ND	440	ug/kg	
85-01-8	Phenanthrene	ND	440	ug/kg	
129-00-0	Pyrene	ND	440	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	88%		37-158%
92-94-4	p-Terphenyl	92%		59-149%

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 Laboratories

Report of Analysis

Client Sample ID:	CEF-635-SS-829-02		
Lab Sample ID:	F10677-16	**Date Sampled:**	08/21/01
Matrix:	SO - Soil	**Date Received:**	08/23/01
Method:	EPA 8310 SW846 3550B	**Percent Solids:**	87.5
Project:	NAS Cecil Field 0039		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	EE004764.D	1	08/28/01	MRE	08/24/01	OP3729	GEE223
Run #2							

Polynuclear Aromatic Hydrocarbons

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

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	88%		37-158%
92-94-4	p-Terphenyl	91%		59-149%

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 Laboratories

Report of Analysis

Client Sample ID:	CEF-635-SS-831-01		
Lab Sample ID:	F10677-17	**Date Sampled:**	08/21/01
Matrix:	SO - Soil	**Date Received:**	08/23/01
Method:	EPA 8310 SW846 3550B	**Percent Solids:**	85.6
Project:	NAS Cecil Field 0039		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	EE004752.D	1	08/27/01	MRE	08/24/01	OP3729	GEE222
Run #2							

Polynuclear Aromatic Hydrocarbons

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	770	ug/kg	
208-96-8	Acenaphthylene	ND	770	ug/kg	
120-12-7	Anthracene	ND	390	ug/kg	
56-55-3	Benzo(a)anthracene	ND	390	ug/kg	
50-32-8	Benzo(a)pyrene	ND	77	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	77	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	77	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	77	ug/kg	
218-01-9	Chrysene	ND	390	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	77	ug/kg	
206-44-0	Fluoranthene	ND	390	ug/kg	
86-73-7	Fluorene	ND	390	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	77	ug/kg	
91-20-3	Naphthalene	ND	390	ug/kg	
90-12-0	1-Methylnaphthalene	ND	390	ug/kg	
91-57-6	2-Methylnaphthalene	ND	390	ug/kg	
85-01-8	Phenanthrene	ND	390	ug/kg	
129-00-0	Pyrene	ND	390	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	86%		37-158%
92-94-4	p-Terphenyl	90%		59-149%

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-635-SS-DUP1		
Lab Sample ID:	F10677-18	**Date Sampled:**	08/21/01
Matrix:	SO - Soil	**Date Received:**	08/23/01
Method:	EPA 8310 SW846 3550B	**Percent Solids:**	74.9
Project:	NAS Cecil Field 0039		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	EE004765.D	1	08/28/01	MRE	08/24/01	OP3729	GEE223
Run #2							

Polynuclear Aromatic Hydrocarbons

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	900	ug/kg	
208-96-8	Acenaphthylene	ND	900	ug/kg	
120-12-7	Anthracene	ND	450	ug/kg	
56-55-3	Benzo(a)anthracene	ND	450	ug/kg	
50-32-8	Benzo(a)pyrene	ND	90	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	90	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	90	ug/kg	
207-08-9	Benzo(k)fluoranthene [a]	ND	180	ug/kg	
218-01-9	Chrysene	ND	450	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	90	ug/kg	
206-44-0	Fluoranthene	ND	450	ug/kg	
86-73-7	Fluorene	ND	450	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	90	ug/kg	
91-20-3	Naphthalene	ND	450	ug/kg	
90-12-0	1-Methylnaphthalene	ND	450	ug/kg	
91-57-6	2-Methylnaphthalene	ND	450	ug/kg	
85-01-8	Phenanthrene	ND	450	ug/kg	
129-00-0	Pyrene	ND	450	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	86%		37-158%
92-94-4	p-Terphenyl	90%		59-149%

(a) Elevated reporting limits due to matrix interference.

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

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

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Report of Analysis

Client Sample ID:	CEF-635-SS-DUP2		
Lab Sample ID:	F10677-19	**Date Sampled:**	08/21/01
Matrix:	SO - Soil	**Date Received:**	08/23/01
Method:	EPA 8310 SW846 3550B	**Percent Solids:**	89.7
Project:	NAS Cecil Field 0039		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	EE004756.D	4	08/27/01	MRE	08/24/01	OP3729	GEE222
Run #2							

Polynuclear Aromatic Hydrocarbons

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	3000	ug/kg	
208-96-8	Acenaphthylene	ND	3000	ug/kg	
120-12-7	Anthracene	ND	1500	ug/kg	
56-55-3	Benzo(a)anthracene	620	1500	ug/kg	J
50-32-8	Benzo(a)pyrene	1200	300	ug/kg	
205-99-2	Benzo(b)fluoranthene	1100	300	ug/kg	
191-24-2	Benzo(g,h,i)perylene	1630	300	ug/kg	
207-08-9	Benzo(k)fluoranthene	555	300	ug/kg	
218-01-9	Chrysene	2330	1500	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	300	ug/kg	
206-44-0	Fluoranthene	652	1500	ug/kg	J
86-73-7	Fluorene	ND	1500	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	1030	300	ug/kg	
91-20-3	Naphthalene	ND	1500	ug/kg	
90-12-0	1-Methylnaphthalene	ND	1500	ug/kg	
91-57-6	2-Methylnaphthalene	ND	1500	ug/kg	
85-01-8	Phenanthrene	ND	1500	ug/kg	
129-00-0	Pyrene	1160	1500	ug/kg	J

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	92%		37-158%
92-94-4	p-Terphenyl	104%		59-149%

(a) All hits confirmed by spectral match using a diode array detector.

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-635-SS-DUP3		
Lab Sample ID:	F10677-20	**Date Sampled:**	08/21/01
Matrix:	SO - Soil	**Date Received:**	08/23/01
Method:	EPA 8310 SW846 3550B	**Percent Solids:**	77.7
Project:	NAS Cecil Field 0039		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	EE004757.D	1	08/27/01	MRE	08/24/01	OP3729	GEE222
Run #2							

Polynuclear Aromatic Hydrocarbons

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	860	ug/kg	
208-96-8	Acenaphthylene	ND	860	ug/kg	
120-12-7	Anthracene	ND	430	ug/kg	
56-55-3	Benzo(a)anthracene	ND	430	ug/kg	
50-32-8	Benzo(a)pyrene	ND	86	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	86	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	86	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	86	ug/kg	
218-01-9	Chrysene	ND	430	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	86	ug/kg	
206-44-0	Fluoranthene	ND	430	ug/kg	
86-73-7	Fluorene	ND	430	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	86	ug/kg	
91-20-3	Naphthalene	ND	430	ug/kg	
90-12-0	1-Methylnaphthalene	ND	430	ug/kg	
91-57-6	2-Methylnaphthalene	ND	430	ug/kg	
85-01-8	Phenanthrene	ND	430	ug/kg	
129-00-0	Pyrene	ND	430	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	82%		37-158%
92-94-4	p-Terphenyl	87%		59-149%

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-635-SS-812-03		
Lab Sample ID:	F10677-9	**Date Sampled:**	08/21/01
Matrix:	SO - Soil	**Date Received:**	08/23/01
Method:	FLORIDA-PRO SW846 3550B	**Percent Solids:**	82.2
Project:	NAS Cecil Field 0039		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP16742.D	10	08/27/01	ME	08/24/01	OP3726	GOP649
Run #2							

CAS No.	Compound	Result	RL	Units	Q
	TPH (C8-C40)	246	100	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	94%		66-130%

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 Laboratories

Report of Analysis

Client Sample ID:	CEF-635-SS-814-02		
Lab Sample ID:	F10677-10	**Date Sampled:**	08/21/01
Matrix:	SO - Soil	**Date Received:**	08/23/01
Method:	FLORIDA-PRO SW846 3550B	**Percent Solids:**	91.6
Project:	NAS Cecil Field 0039		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP16743.D	1	08/27/01	ME	08/24/01	OP3726	GOP649
Run #2							

CAS No.	Compound	Result	RL	Units	Q
	TPH (C8-C40)	36.5	9.1	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	96%		66-130%

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-635-SS-818-02		
Lab Sample ID:	F10677-11	**Date Sampled:**	08/21/01
Matrix:	SO - Soil	**Date Received:**	08/23/01
Method:	FLORIDA-PRO SW846 3550B	**Percent Solids:**	85.0
Project:	NAS Cecil Field 0039		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP16744.D	1	08/27/01	ME	08/24/01	OP3726	GOP649
Run #2							

CAS No.	Compound	Result	RL	Units	Q
	TPH (C8-C40)	41.6	9.5	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	94%		66-130%

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 Laboratories

Report of Analysis

Client Sample ID:	CEF-635-SS-DUP3		
Lab Sample ID:	F10677-20	**Date Sampled:**	08/21/01
Matrix:	SO - Soil	**Date Received:**	08/23/01
Method:	FLORIDA-PRO SW846 3550B	**Percent Solids:**	77.7
Project:	NAS Cecil Field 0039		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP16754.D	1	08/27/01	ME	08/24/01	OP3726	GOP649
Run #2							

CAS No.	Compound	Result	RL	Units	Q
	TPH (C8-C40)	40.5	11	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	92%		66-130%

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

Tetra Tech NUS **INTERNAL CORRESPONDENCE**

TO:	**M. SPERANZA**	**DATE:**	**OCTOBER 25, 2001**
FROM:	**DOUGLAS S. SCHLOER**	**COPIES:**	**DV FILE**

SUBJECT: **ORGANIC DATA VALIDATION – VOA / PEST / PAH / TPH**
CTO 078, NAS CECIL FIELD
SDGs: F10677R, F10950 and F10990

SAMPLES: ~~2 / Aqueous / VOA / PAH / TPH~~

~~CEF-610-GW-01S-01~~ ~~CEF-610-GW-DUP1-01~~

~~2 / Aqueous / PAH / PEST / TPH~~

~~CEF-P52-GW-01S~~ ~~CEF-P52-GW-DUP1~~

2 / Soil / PAH

CEF-635-SU-806-03 CEF-635-SU-813-04

OVERVIEW

The sample set for CTO 078, NAS Cecil Field; SDGs: F10677R, F10950, and F10990 consists of four (4) aqueous environmental samples and two (2) soil environmental samples. Two aqueous samples were analyzed for Target Compound List (TCL) volatile organic compounds (VOA), polynuclear aromatic hydrocarbons (PAH) and total petroleum hydrocarbons (TPH). Two aqueous samples were analyzed for PAHs, the pesticide compound Dieldrin and TPH. Two soil samples were analyzed for the PAH benzo(a)pyrene only. Two field duplicate pairs were included in this SDG: CEF-610-GW-01S-01 / CEF-610-GW-DUP1-01 and CEF-P52-GW-01S / CEF-P52-GW-DUP1.

The samples were collected by TetraTech NUS on August 21st, September 19th and 21st, 2001 and analyzed by Accutest Laboratories. All analyses were conducted in accordance with Naval Facilities Engineering Service Center (NFESC) Quality Assurance/Quality Control (QA/QC) criteria using U. S. EPA Test Methods for Evaluating Solid Wastes (SW-846) Methods 8260B, 8330, 8081A analytical and reporting protocols. TPH analyses were conducted in accordance with the state the of Florida Department of Environmental Protection (DEP) Method "Florida Petroleum Residual Organic" (FL-PRO). The data contained in this SDG were validated with regard to the following parameters:

- Data completeness
- Holding times
- * Initial and continuing calibration
- * Blank results
- * Blank Spike Results
- Surrogate spike recoveries
- * 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. Results as reported by the laboratory are presented in Appendix B.

The text of this report is formulated to address only gross noncompliances resulting in the rejection of data and the elimination of false positives.

VOA

All data were reported without qualification.

PAH

Samples CEF-635-SU-806-03 and CEF-635-SU-813-04 were extracted 24 days out of hold time. Positive and nondetected results for benzo(a)pyrene were qualified as estimated (J) and (UJ), respectively.

PEST

Recovery of the pesticide surrogate tetrachloro-m-xylene (TMX) fell below the 57% (but was >10%) quality control limit on one analytical column for the analysis of sample CEF-P52-GW-DUP1-01. No action was taken based on this noncompliance.

Matrix Spike / Matrix Spike Duplicate (MS/MSD) recoveries of Dieldrin resulted in a Relative Percent Difference (RPD) that exceeded the 20% quality control limit. No action was taken based on this noncompliance.

Additional Comments

Positive results below the Reporting Limit (RL) were qualified as estimated (J), due to uncertainty near the detection limit.

Pesticide surrogate recoveries were reported from one analytical column. However, this surrogate reporting convention may be standard laboratory protocol if only nondetected results are reported in environmental samples. Therefore, no action was taken based on this noncompliance.

EXECUTIVE SUMMARY

Laboratory Performance Issues: Environmental soil samples were extracted 24 days out of hold time resulting in the qualification (estimation) of analytical data.

Other Factors Affecting Data Quality: None

The data for these analyses were reviewed with reference to the EPA Functional Guidelines for Organic Data Validation (10/99) and the NFESC guidelines "Navy IRCDQM" (Sept 1999). The text of this report has been formulated to address only those problem areas affecting data quality.

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

Tetra Tech NUS

Douglas Schloer
Chemist/Data Validator

TetraTech NUS

Joseph A. Samchuck
Data Validation Quality Assurance Officer

Attachments:

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

APPENDIX A

QUALIFIED ANALYTICAL RESULTS

Qualifier Codes:

A = Lab Blank Contamination
B = Field Blank Contamination
C = Calibration (i.e., % RSDs, %Ds, ICVs, CCVs, RPDs, RRFs, etc.) Noncompliance
D = MS/MSD Noncompliance
E = LCS/LCSD Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = GFAA PDS - GFAA MSA's $r < 0.995$
K = ICP Interference - include ICSAB % R's
L = Instrument Calibration Range Exceedance
M = Sample Preservation
N = Internal Standard Noncompliance
N01 = Internal Standard Noncompliance Dioxins
N02 = Recovery Standard Noncompliance Dioxins
N03 = Clean-up Standard Noncompliance Dioxins
O = Poor Instrument Performance (i.e., base-time drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can encompass a number of issues)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = Pest/PCD% between columns for positive results
V = Non-linear calibrations, tuning $r < 0.995$ (correlation coefficient)
W = EMPC result
X = Signal to noise response drop
Y = Percent solids <30%
Z = Uncertainty at 2 sigma deviation is less than sample activity

CTO078-NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F10677R

SAMPLE NUMBER:	CEF-635-SU-806-03	CEF-635-SU-813-04		
SAMPLE DATE:	08/21/01	08/21/01	/ /	/ /
LABORATORY ID:	F10677-22R	F10677-24R		
QC_TYPE:	NORMAL	NORMAL		
% SOLIDS:	84.0 %	82.6 %	100.0 %	100.0 %
UNITS:	UG/KG	UG/KG		
FIELD DUPLICATE OF:				

	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
POLYNUCLEAR AROMATIC HYDROCARBONS												
BENZO(A)PYRENE	79	UJ	H	83.2	J	H						

APPENDIX B

RESULTS AS REPORTED BY THE LABORATORY

Accutest Laboratories

Report of Analysis

Client Sample ID:	CEF-635-SU-806-03		
Lab Sample ID:	F10677-22R	**Date Sampled:**	08/21/01
Matrix:	SO - Soil	**Date Received:**	08/23/01
Method:	EPA 8310 SW846 3550B	**Percent Solids:**	84.0
Project:	NAS Cecil Field 0039		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	EE005101.D	1	09/24/01	MRE	09/21/01	OP3877	GEE237
Run #2							

Polynuclear Aromatic Hydrocarbons

CAS No.	Compound	Result	RL	Units	Q
50-32-8	Benzo(a)pyrene	ND	79	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	67%		37-158%
92-94-4	p-Terphenyl	88%		59-149%

(a) Sample extracted beyond hold time; reported results are considered minimum values.

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

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

Accutest Laboratories

Report of Analysis

Client Sample ID:	CEF-635-SU-813-04		
Lab Sample ID:	F10677-24R	**Date Sampled:**	08/21/01
Matrix:	SO - Soil	**Date Received:**	08/23/01
Method:	EPA 8310 SW846 3550B	**Percent Solids:**	82.6
Project:	NAS Cecil Field 0039		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	EE005102.D	1	09/24/01	MRE	09/21/01	OP3877	GEE237
Run #2							

Polynuclear Aromatic Hydrocarbons

CAS No.	Compound	Result	RL	Units	Q
50-32-8	Benzo(a)pyrene [b]	83.2	80	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	63%		37-158%
92-94-4	p-Terphenyl	89%		59-149%

(a) Sample extracted beyond hold time; reported results are considered minimum values.
(b) All hits confirmed by spectral match using a diode array detector.

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 X LABORATORY ANALYTICAL DATA

SAMPLE NUMBER SERIES CEF-635-GW-01

Tetra Tech NUS **INTERNAL CORRESPONDENCE**

TO:	**M. SPERANZA**	**DATE:**	**OCTOBER 1, 2002**
FROM:	**EDWARD SEDLMYER**	**COPIES:**	**DV FILE**
SUBJECT:	**ORGANIC DATA VALIDATION- PAH/TPH CTO 078, NAS CECIL FIELD SDG F14460**		
SAMPLES:	2/Aqueous		
	CEF-635-GW-01S-01	CEF-635-DU01-01	

OVERVIEW

The sample set for CTO 078 NAS Cecil Field, SDG F14460 consists of one (1) field duplicate and one (1) aqueous environmental samples. The samples were analyzed for polynuclear aromatic hydrocarbons (PAHs) and total petroleum hydrocarbons (TPH). One (1) field duplicate pair was included in this SDG: CEF-635-GW-01S-01 / CEF-635-DU01-01.

The samples were collected by TetraTech NUS on September 5, 2002 and analyzed by Accutest Laboratories. All analyses were conducted in accordance with Naval Facilities Engineering Service Center (NFESC) Quality Assurance/Quality Control (QA/QC) criteria using SW-846 Methods 8310 and Florida-PRO analysis and reporting protocols. The data contained in this SDG were validated with regard to the following parameters:

* • Data completeness
* • Holding times
* • Initial/continuing calibrations
* • Laboratory method blank results
* • Field Duplicate Results
* • Detection Limits

The symbol (*) indicates that 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.

PAHs

No qualification of the data was necessary.

TPH

No qualification of the data was necessary.

EXECUTIVE SUMMARY

Laboratory Performance Issues: None.

Other Factors Affecting Data Quality: None.

The data for these analyses were reviewed with reference to the EPA Functional Guidelines for Organic Data Validation (10/99), and the NFESC guidelines IRCDQM (Sept., 1999). The text of this report has been formulated to address only those problem areas affecting data quality.

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

Tetra Tech NUS

Edward Sedlmyer
Chemist/Data Validator

Tetra Tech NUS

Joseph A. Samchuck
Data Validation Quality Assurance Officer

Attachments:

Appendix A – Qualified Analytical Results
Appendix B – Results as Reported by the Laboratory
Appendix C – Support Documentation

APPENDIX A

QUALIFIED ANALYTICAL RESULTS

Qualifier Codes:

A	=	Lab Blank Contamination
B	=	Field Blank Contamination
C	=	Calibration (i.e., % RSDs, %Ds, ICVs, CCVs, RPDs, RRFs, etc.) Noncompliance
D	=	MS/MSD Noncompliance
E	=	LCS/LCSD Noncompliance
F	=	Lab Duplicate Imprecision
G	=	Field Duplicate Imprecision
H	=	Holding Time Exceedance
I	=	ICP Serial Dilution Noncompliance
J	=	GFAA PDS - GFAA MSA's $r < 0.995$
K	=	ICP Interference - include ICSAB % R's
L	=	Instrument Calibration Range Exceedance
M	=	Sample Preservation
N	=	Internal Standard Noncompliance
N01	=	Internal Standard Noncompliance Dioxins
N02	=	Recovery Standard Noncompliance Dioxins
N03	=	Clean-up Standard Noncompliance Dioxins
O	=	Poor Instrument Performance (i.e., base-time drifting)
P	=	Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q	=	Other problems (can encompass a number of issues)
R	=	Surrogates Recovery Noncompliance
S	=	Pesticide/PCB Resolution
T	=	% Breakdown Noncompliance for DDT and Endrin
U	=	Pest/PCD% between columns for positive results
V	=	Non-linear calibrations, tuning $r < 0.995$ (correlation coefficient)
W	=	EMPC result
X	=	Signal to noise response drop
Y	=	Percent solids <30%
Z	=	Uncertainty at 2 sigma deviation is less than sample activity

PROJ_NO: 0039

SDG: F14460 MEDIA: WATER DATA FRACTION: PAH

nsample	CEF-635-DU01-01	nsample	CEF-635-GW-01S-01
samp_date	9/5/2002	samp_date	9/5/2002
lab_id	F14460-2	lab_id	F14460-1
qc_type	NM	qc_type	NM
units	UG/L	units	UG/L
Pct_Solids	0	Pct_Solids	0
DUP_OF:	CEF-635-GW-01S-01	DUP_OF:	

Parameter	Result	Val Qual	Qual Code
1-METHYLNAPHTHALENE	2.3	U	
2-METHYLNAPHTHALENE	2.3	U	
ACENAPHTHENE	4.5	U	
ACENAPHTHYLENE	4.5	U	
ANTHRACENE	2.3	U	
BENZO(A)ANTHRACENE	0.23	U	
BENZO(A)PYRENE	0.23	U	
BENZO(B)FLUORANTHENE	0.23	U	
BENZO(G,H,I)PERYLENE	0.23	U	
BENZO(K)FLUORANTHENE	0.23	U	
CHRYSENE	2.3	U	
DIBENZO(A,H)ANTHRACENE	0.23	U	
FLUORANTHENE	2.3	U	
FLUORENE	2.3	U	
INDENO(1,2,3-CD)PYRENE	0.23	U	
NAPHTHALENE	2.3	U	
PHENANTHRENE	2.3	U	
PYRENE	2.3	U	

Parameter	Result	Val Qual	Qual Code
1-METHYLNAPHTHALENE	2.4	U	
2-METHYLNAPHTHALENE	2.4	U	
ACENAPHTHENE	4.7	U	
ACENAPHTHYLENE	4.7	U	
ANTHRACENE	2.4	U	
BENZO(A)ANTHRACENE	0.24	U	
BENZO(A)PYRENE	0.24	U	
BENZO(B)FLUORANTHENE	0.24	U	
BENZO(G,H,I)PERYLENE	0.24	U	
BENZO(K)FLUORANTHENE	0.24	U	
CHRYSENE	2.4	U	
DIBENZO(A,H)ANTHRACENE	0.24	U	
FLUORANTHENE	2.4	U	
FLUORENE	2.4	U	
INDENO(1,2,3-CD)PYRENE	0.24	U	
NAPHTHALENE	2.4	U	
PHENANTHRENE	2.4	U	
PYRENE	2.4	U	

PROJ_NO: 0039

SDG: F14460 MEDIA: WATER DATA FRACTION: PET

nsample	CEF-635-DU01-01	nsample	CEF-635-GW-01S-01
samp_date	9/5/2002	samp_date	9/5/2002
lab_id	F14460-2	lab_id	F14460-1
qc_type	NM	qc_type	NM
units	MG/L	units	MG/L
Pct_Solids	0	Pct_Solids	0
DUP_OF:	CEF-635-GW-01S-01	DUP_OF:	

Parameter	Result	Val Qual	Qual Code
TOTAL PETROLEUM HYDROCARBONS	0.28	U	

Parameter	Result	Val Qual	Qual Code
TOTAL PETROLEUM HYDROCARBONS	0.28	U	

APPENDIX B

RESULTS AS REPORTED BY THE LABORATORY

Accutest Laboratories

Report of Analysis

Client Sample ID:	CEF-635-GW-01S-01		
Lab Sample ID:	F14460-1	**Date Sampled:**	09/05/02
Matrix:	AQ - Ground Water	**Date Received:**	09/06/02
Method:	EPA 8310 SW846 3510C	**Percent Solids:**	n/a
Project:	NAS Cecil Field-BLDG 635		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	EE009916.D	1	09/10/02	MRE	09/10/02	OP5830	GEE456
Run #2							

	Initial Volume	Final Volume
Run #1	850 ml	1.0 ml
Run #2		

Polynuclear Aromatic Hydrocarbons

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	4.7	1.2	ug/l	
208-96-8	Acenaphthylene	ND	4.7	1.2	ug/l	
120-12-7	Anthracene	ND	2.4	1.2	ug/l	
56-55-3	Benzo(a)anthracene	ND	0.24	0.12	ug/l	
50-32-8	Benzo(a)pyrene	ND	0.24	0.12	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	0.24	0.12	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	0.24	0.12	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	0.24	0.12	ug/l	
218-01-9	Chrysene	ND	2.4	1.2	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	0.24	0.12	ug/l	
206-44-0	Fluoranthene	ND	2.4	0.59	ug/l	
86-73-7	Fluorene	ND	2.4	1.2	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.24	0.12	ug/l	
91-20-3	Naphthalene	ND	2.4	0.59	ug/l	
90-12-0	1-Methylnaphthalene	ND	2.4	0.59	ug/l	
91-57-6	2-Methylnaphthalene	ND	2.4	0.59	ug/l	
85-01-8	Phenanthrene	ND	2.4	1.2	ug/l	
129-00-0	Pyrene	ND	2.4	0.59	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	85%		32-142%
92-94-4	p-Terphenyl	96%		30-128%

ND = Not detected MDL - Method Detection Limit
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 Laboratories

Report of Analysis

Client Sample ID:	CEF-635-DU01-01		
Lab Sample ID:	F14460-2	**Date Sampled:**	09/05/02
Matrix:	AQ - Ground Water	**Date Received:**	09/06/02
Method:	EPA 8310 SW846 3510C	**Percent Solids:**	n/a
Project:	NAS Cecil Field-BLDG 635		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	EE009920.D	1	09/11/02	MRE	09/10/02	OP5830	GEE456
Run #2							

	Initial Volume	Final Volume
Run #1	880 ml	1.0 ml
Run #2		

Polynuclear Aromatic Hydrocarbons

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	4.5	1.1	ug/l	
208-96-8	Acenaphthylene	ND	4.5	1.1	ug/l	
120-12-7	Anthracene	ND	2.3	1.1	ug/l	
56-55-3	Benzo(a)anthracene	ND	0.23	0.11	ug/l	
50-32-8	Benzo(a)pyrene	ND	0.23	0.11	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	0.23	0.11	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	0.23	0.11	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	0.23	0.11	ug/l	
218-01-9	Chrysene	ND	2.3	1.1	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	0.23	0.11	ug/l	
206-44-0	Fluoranthene	ND	2.3	0.57	ug/l	
86-73-7	Fluorene	ND	2.3	1.1	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.23	0.11	ug/l	
91-20-3	Naphthalene	ND	2.3	0.57	ug/l	
90-12-0	1-Methylnaphthalene	ND	2.3	0.57	ug/l	
91-57-6	2-Methylnaphthalene	ND	2.3	0.57	ug/l	
85-01-8	Phenanthrene	ND	2.3	1.1	ug/l	
129-00-0	Pyrene	ND	2.3	0.57	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	83%		32-142%
92-94-4	p-Terphenyl	97%		30-128%

ND = Not detected MDL - Method Detection Limit
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 Laboratories

Report of Analysis

Client Sample ID:	CEF-635-GW-01S-01		
Lab Sample ID:	F14460-1	**Date Sampled:**	09/05/02
Matrix:	AQ - Ground Water	**Date Received:**	09/06/02
Method:	FLORIDA-PRO SW846 3510C	**Percent Solids:**	n/a
Project:	NAS Cecil Field-BLDG 635		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP23506.D	1	09/14/02	SKW	09/12/02	OP5842	GOP842
Run #2							

	Initial Volume	Final Volume
Run #1	890 ml	1.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH (C8-C40)	ND	0.28	0.19	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	78%		51-125%

ND = Not detected MDL - Method Detection Limit
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 Laboratories

Report of Analysis

Client Sample ID:	CEF-635-DU01-01		
Lab Sample ID:	F14460-2	**Date Sampled:**	09/05/02
Matrix:	AQ - Ground Water	**Date Received:**	09/06/02
Method:	FLORIDA-PRO SW846 3510C	**Percent Solids:**	n/a
Project:	NAS Cecil Field-BLDG 635		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP23509.D	1	09/14/02	SKW	09/12/02	OP5842	GOP842
Run #2							

	Initial Volume	Final Volume
Run #1	890 ml	1.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH (C8-C40)	ND	0.28	0.19	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	73%		51-125%

ND = Not detected MDL - Method Detection Limit
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

APPENDIX C

ProUCL PROGRAM RESULTS

General Statistics

From File	H:\Cecil Field\BLDG 635\Bldg635_BaPEq_Re			
Summary Statistics for	Pre BaPEq		Summary Statistics for	ln(Pre BaPEq)
Number of Samples	97		Minimum	2.917771
Minimum	18.5		Maximum	11.00443
Maximum	60139.85		Mean	6.306386
Mean	2984.568		Standard Deviation	1.98138
Median	765.885		Variance	3.925866
Standard Deviation	7660.484			
Variance	58683009		Lilliefors Test Statisitic	0.169809
Coefficient of Variation	2.566698		Lilliefors 5% Critical Value	0.08996
Skewness	5.233713		Data not Lognormal at 5% Significance Level	
			Data not Normal: Try Non-parametric UCL	
95 % UCL (Assuming Normal Data)				
Student's-t	4276.408		Estimates Assuming Lognormal Distribution	
			MLE Mean	3902.289
95 % UCL (Adjusted for Skewness)			MLE Standard Deviation	27509.6
Adjusted-CLT	4705.589		MLE Coefficient of Variation	7.049606
Modified-t	4345.296		MLE Skewness	371.4926
			MLE Median	548.0606
95 % Non-parametric UCL			MLE 80% Quantile	2923.836
CLT	4263.942		MLE 90% Quantile	6991.558
Jackknife	4276.408		MLE 95% Quantile	14267.73
Standard Bootstrap	4243.161		MLE 99% Quantile	54999.26
Bootstrap-t	5280.445			
Chebyshev (Mean, Std)	6374.938		MVU Estimate of Median	537.079
			MVU Estimate of Mean	3686.506
			MVU Estimate of Std. Dev.	20315.47
			MVU Estimate of SE of Mean	1160.966
			UCL Assuming Lognormal Distribution	
			95% H-UCL	7582.683
			95% Chebyshev (MVUE) UCL	8747.037
			99% Chebyshev (MVUE) UCL	15237.97

PRE BaPEq UCL = 4243 µg/kg

General Statistics

From File	H:\Cecil Field\BLDG 635\Bldg635_BaPEq_Re			
Summary Statistics for	Post BaPE		Summary Statistics for	ln(Post Ba
Number of Samples	97		Minimum	0.587787
Minimum	1.8		Maximum	7.778159
Maximum	2387.875		Mean	4.276066
Mean	466.6458		Standard Deviation	2.561168
Median	45.5		Variance	6.559581
Standard Deviation	632.3399			
Variance	399853.8		Lilliefors Test Statisitic	0.182809
Coefficient of Variation	1.355075		Lilliefors 5% Critical Value	0.08996
Skewness	1.401652		Data not Lognormal at 5% Significance Level	
			Data not Normal: Try Non-parametric UCL	
95	% UCL (Assuming Normal Data)			
Student's-t	573.2817		Estimates Assuming Lognormal Distribution	
			MLE Mean	1911.908
95	% UCL (Adjusted for Skewness)		MLE Standard Deviation	50763.8
Adjusted-CLT	582.016		MLE Coefficient of Variation	26.55139
Modified-t	574.8045		MLE Skewness	18797.75
			MLE Median	71.95681
95	% Non-parametric UCL		MLE 80% Quantile	626.5653
CLT	572.2526		MLE 90% Quantile	1933.654
Jackknife	573.2817		MLE 95% Quantile	4861.914
Standard Bootstrap	568.3025		MLE 99% Quantile	27815.34
Bootstrap-t	582.0118			
Chebyshev (Mean, Std)	746.5062		MVU Estimate of Median	69.56365
			MVU Estimate of Mean	1673.811
			MVU Estimate of Std. Dev.	24621.2
			MVU Estimate of SE of Mean	761.1795
			UCL Assuming Lognormal Distribution	
			95% H-UCL	5461.153
			95% Chebyshev (MVUE) UCL	4991.715
			99% Chebyshev (MVUE) UCL	9247.451

Post BaPEq UCL = 568 µg/kg

(REPLACEMENT VALUE = 1.8 µg/kg)

General Statistics

From File	H:\Cecil Field\BLDG 635\Bldg635_BaP.xls			
Summary Statistics for	NUMERIC		Summary Statistics for	ln(NUMER
Number of Samples	97		Minimum	3.610918
Minimum	37		Maximum	10.64899
Maximum	42150		Mean	6.252533
Mean	2134.186		Standard Deviation	1.622896
Median	546		Variance	2.633792
Standard Deviation	5414.818			
Variance	29320254		Lilliefors Test Statisitic	0.171964
Coefficient of Variation	2.537182		Lilliefors 5% Critical Value	0.08996
Skewness	5.148931		Data not Lognormal at 5% Significance Level	
			Data not Normal: Try Non-parametric UCL	
95	% UCL (Assuming Normal Data)			
Student's-t	3047.324		Estimates Assuming Lognormal Distribution	
			MLE Mean	1938.033
95	% UCL (Adjusted for Skewness)		MLE Standard Deviation	6967.89
Adjusted-CLT	3345.633		MLE Coefficient of Variation	3.595342
Modified-t	3095.229		MLE Skewness	57.26114
			MLE Median	519.3264
95	% Non-parametric UCL		MLE 80% Quantile	2046.487
CLT	3038.512		MLE 90% Quantile	4179.531
Jackknife	3047.324		MLE 95% Quantile	7496.54
Standard Bootstrap	3035.156		MLE 99% Quantile	22638.09
Bootstrap-t	3605.483			
Chebyshev (Mean, Std)	4530.671		MVU Estimate of Median	512.3226
			MVU Estimate of Mean	1880.126
			MVU Estimate of Std. Dev.	5953.583
			MVU Estimate of SE of Mean	443.5389
			UCL Assuming Lognormal Distribution	
			95% H-UCL	3112.56
			95% Chebyshev (MVUE) UCL	3813.468
			99% Chebyshev (MVUE) UCL	6293.283

PRE BaP UCL = 3035 µg/kg

General Statistics

From File	H:\Cecil Field\BLDG 635\Bldg635_BaP.xls			
Summary Statistics for	VALUE 1.8		Summary Statistics for	ln(VALUE
Number of Samples	97		Minimum	0.587787
Minimum	1.8		Maximum	7.435438
Maximum	1695		Mean	4.148297
Mean	338.7753		Standard Deviation	2.39406
Median	45		Variance	5.731524
Standard Deviation	447.4877			
Variance	200245.2		Lilliefors Test Statisitic	0.178945
Coefficient of Variation	1.320898		Lilliefors 5% Critical Value	0.08996
Skewness	1.370418		Data not Lognormal at 5% Significance Level	
			Data not Normal: Try Non-parametric UCL	
95	% UCL (Assuming Normal Data)			
Student's-t	414.2382		Estimates Assuming Lognormal Distribution	
			MLE Mean	1112.16
95	% UCL (Adjusted for Skewness)		MLE Standard Deviation	19500.54
Adjusted-CLT	420.2653		MLE Coefficient of Variation	17.53394
Modified-t	415.2919		MLE Skewness	5443.222
			MLE Median	63.32605
95	% Non-parametric UCL		MLE 80% Quantile	478.7975
CLT	413.51		MLE 90% Quantile	1372.878
Jackknife	414.2382		MLE 95% Quantile	3250.376
Standard Bootstrap	412.6877		MLE 99% Quantile	16595.4
Bootstrap-t	423.2384			
Chebyshev (Mean, Std)	536.824		MVU Estimate of Median	61.48197
			MVU Estimate of Mean	1000.306
			MVU Estimate of Std. Dev.	10970.1
			MVU Estimate of SE of Mean	413.7386
			UCL Assuming Lognormal Distribution	
			95% H-UCL	2814.643
			95% Chebyshev (MVUE) UCL	2803.75
			99% Chebyshev (MVUE) UCL	5116.952

POST BaP UCL = 413 µg/kg

(REPLACEMENT VALUE = 1.8 µg/kg)

APPENDIX D

OTHER HUMAN HEALTH RISK SCENARIOS

TABLE D-1

EXPOSURE ASSUMPTIONS FOR DEVELOPMENT OF SCTLs
BUILDING 635 RAILROAD LOADING DOCK
SAMPLING AND ANALYSIS REPORT
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

Parameter	Symbol	Construction Worker	Recreational Receptor	Industrial	Residential
Body Weight (kg)	BW	70	70	70	59
Averaging Time (days)	ATc	25,550	25,550	25,550	25,550
Exposure Frequency (days/year)	EF	45	50	250	350
Exposure Duration (years)	ED	0.17	20	25	30
Fraction from Contaminated Source (unitless)	FC	1	1	1	1
Ingestion Rate (mg/day)	IRo	480	50	200	120
Surface Area (cm^2)	SA	3,000	3,000	2,000	3,674
Adherence Factor (mg/cm^2)	AF	0.07	0.07	0.6	0.2
Inhalation Rate (cm^2/day)	IRi	15	15	20	15
Soil Cleanup Target Level (mg/kg)	SCTL	65,000	4,500	500	100

TABLE D-2

ATTAINMENT OF RECREATIONAL SCTLs
BUILDING 635 RAILROAD LOADING DOCK
SAMPLING AND ANALYSIS REPORT
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

	BaPEq - Pre-excavation	BaPEq - Recreational SCTL Goal
MINIMUM CONCENTRATION	19	19
MAXIMUM CONCENTRATION	60,140	60,140
MEAN CONCENTRATION	2,734	2,734
t 0.95, n-1	0.2208374	0.216838221
STANDARD DEVIATION	7,262.98	7,262.98
COEFFICIENT OF VARIATION	2.66	2.66
n	108	108
UCL $_{0.95}$	2,889	2,886
Goal	-	**4,500.00**
Replacement Value	-	**36**
SS-001-01	60140	60140
SS-002-01	25196	25196
SS-125-01	24419	24419
SS-110-01	20507	20507
SS-111-01	20347	20347
SS-502-01	14269	14269
SS-603-01	12652	12652
SS-704-01	9843	9843
SS-003-01	6466	6466
SS-122-01	6147	6147
SS-705-01	5870	5870
SS-112-02	4738	4738
SS-602-01	3659	3659
SS-005-01	3505	3505
SS-219-01	3491	3491
SS-702-01	3334	3334
SU-503-05	3016	3016
SS-805-02	2926	2926
SS-224-01	2799	2799
SS-812-03	2763	2763
SS-707-01	2678	2678
SS-004-01	2665	2665
SS-410-01	2427	2427
SS-306-01	2421	2421
SS-501-01	2347	2347
SS-706-01	2247	2247
SS-201-01	2188	2188
SS-119-01	2125	2125
SS-811-01	1845	1845
SS-105-01	1807	1807
SS-708-01	1715	1715
SS-109-01	1715	1715
SS-703-01	1640	1640

TABLE D-2

ATTAINMENT OF RECREATIONAL SCTLs
BUILDING 635 RAILROAD LOADING DOCK
SAMPLING AND ANALYSIS REPORT
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

	BaPEq - Pre-excavation	BaPEq - Recreational SCTL Goal
MINIMUM CONCENTRATION	19	19
MAXIMUM CONCENTRATION	60,140	60,140
MEAN CONCENTRATION	2,734	2,734
t 0.95, n-1	0.2208374	0.216838221
STANDARD DEVIATION	7,262.98	7,262.98
COEFFICIENT OF VARIATION	2.66	2.66
n	108	108
UCL $_{0.95}$	2,889	2,886
Goal	-	**4,500.00**
Replacement Value	-	**36**
SS-401-01	1627	1627
SS-203-01	1624	1624
SS-308-01	1584	1584
SS-123-01	1441	1441
SS-102-01	1416	1416
SU-210-04	1231	1231
SS-307-01	1149	1149
SS-108-01	1115	1115
SS-101-01	1082	1082
SS-226-01	1027	1027
SS-103-01	974	974
SS-120-01	953	953
SS-220-01	948	948
SS-701-01	875	875
SS-104-01	826	826
SS-212-01	788	788
SS-113-01	780	780
SS-601-01	765	765
SS-115-02	757	757
SS-211-01	696	696
SS-116-01	590	590
SS-216-01	583	583
SS-118-02	582	582
SS-117-01	552	552
SS-126-01	538	538
SS-114-01	513	513
SS-225-01	502	502
SS-121-01	473	473
SS-202-01	459	459
SS-124-01	457	457
SS-106-01	453	453
SS-404-01	449	449
SS-403-01	448	448

TABLE D-2

ATTAINMENT OF RECREATIONAL SCTLs
BUILDING 635 RAILROAD LOADING DOCK
SAMPLING AND ANALYSIS REPORT
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

	BaPEq - Pre-excavation	BaPEq - Recreational SCTL Goal
MINIMUM CONCENTRATION	19	19
MAXIMUM CONCENTRATION	60,140	60,140
MEAN CONCENTRATION	2,734	2,734
t 0.95, n-1	0.2208374	0.216838221
STANDARD DEVIATION	7,262.98	7,262.98
COEFFICIENT OF VARIATION	2.66	2.66
n	108	108
UCL $_{0.95}$	2,889	2,886
Goal	-	**4,500.00**
Replacement Value	-	**36**
SS-107-02	423	423
SS-405-01	281	281
SU-218-04	193	193
SU-214-03	166	166
SU-309-05	144	144
SS-818-02	139	139
SU-215-04	125	125
SS-227-01	112	112
SS-205-01	110	110
SS-213-01	105	105
SS-223-01	93	93
SS-823-01	*48*	*48*
SS-807-01	*46*	*46*
SS-504-02	*45*	*45*
SS-222-01	*45*	*45*
SS-221-01	*45*	*45*
SS-204-01	*45*	*45*
SS-808-01	*45*	*45*
SS-826-01	*45*	*45*
SS-804-01	*44*	*44*
SU-209-03	*43*	*43*
SS-208-01	*43*	*43*
SS-206-01	*43*	*43*
SS-505-03	*42*	*42*
SS-801-02	*42*	*42*
SS-402-01	*41*	*41*
SS-207-01	*41*	*41*
SS-803-01	*41*	*41*
SS-822-02	*41*	*41*
SU-217-03	*40*	*40*
SS-408-01	*40*	*40*
SS-809-02	*40*	*40*
SU-507-03	*39*	*39*

TABLE D-2

ATTAINMENT OF RECREATIONAL SCTLs
BUILDING 635 RAILROAD LOADING DOCK
SAMPLING AND ANALYSIS REPORT
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

	BaPEq - Pre-excavation	BaPEq - Recreational SCTL Goal
MINIMUM CONCENTRATION	19	19
MAXIMUM CONCENTRATION	60,140	60,140
MEAN CONCENTRATION	2,734	2,734
t 0.95, n-1	0.2208374	0.216838221
STANDARD DEVIATION	7,262.98	7,262.98
COEFFICIENT OF VARIATION	2.66	2.66
n	108	108
UCL $_{0.95}$	2,889	2,886
Goal	-	**4,500.00**
Replacement Value	-	**36**
SS-831-01	*39*	*39*
SS-506-02	*39*	*39*
SS-409-01	*39*	*39*
SS-407-01	*39*	*39*
SS-829-02	*38*	*38*
SS-824-02	*37*	*37*
SS-814-02	*36*	*36*
SS-127-01	*36*	*36*
SS-128-01	19	19

Concentrations are in ug/kg.
Bolded sample numbers indicate that the sample was excavated.
Italicized values indicate that one-half of the detection limit was used.
UCL $_{0.95}$ - 95 percent upper confidence limit of the mean
SCTL - Soil Cleanup Target Level, Florida Department of Environmental Protection Soil Cleanup Target Levels, FAC Chapter 62-777 (FDEP, 1999).