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SAMPLING AND ANALYSIS REPORT FOR FORMER FUEL DEPOT AREA ABANDONED RAILROAD BED SITE NAS CECIL FIELD FL

3/6/2002

TETRA TECH NUS INC

Sampling and Analysis Report

for

Former Fuel Depot Area
Abandoned Railroad Bed Site

Naval Air Station Cecil Field

Jacksonville, Florida

Southern Division
Naval Facilities Engineering Command

Contract Number N62467-94-D-0888

Contract Task Order 0078

March 2002

SAMPLING AND ANALYSIS REPORT
FOR
FORMER FUEL DEPOT AREA
ABANDONED RAILROAD BED SITE

NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

COMPREHENSIVE LONG-TERM
ENVIRONMENTAL ACTION NAVY (CLEAN) CONTRACT

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

Submitted by:
Tetra Tech NUS, Inc.
661 Andersen Drive
Foster Plaza 7
Pittsburgh, Pennsylvania 15220

CONTRACT NUMBER N62467-94-D-0888
CONTRACT TASK ORDER 0078

MARCH 2002

PREPARED UNDER THE SUPERVISION OF:

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APPROVED FOR SUBMITTAL BY:

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The professional opinions rendered in this decision document identified as Sampling and Analysis Report for Former Fuel Depot Area/Abandoned Railroad Bed Site, 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

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

Date: 3/6/02

Mark Speranza

CERTIFICATION OF TECHNICAL
DATA CONFORMITY

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

DATE: March 6, 2002

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

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

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TABLES

FIGURES

ACRONYMS

BaP	Benzo(a)pyrene
BCT	BRAC Cleanup Team
bgs	below ground surface
BRAC	Base Realignment and Closure
CLEAN	Comprehensive Long-Term Environmental Action Navy
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
FFD	Former Fuel Depot
NAS	Naval Air Station
µg/kg	microgram per kilogram
PAH	polynuclear aromatic hydrocarbon
RAC	Remedial Action Contractor
SAR	Sampling and Analysis Report
SCTL	Soil Cleanup Target Level
SOUTHNAVFACENGCOM	Southern Division, Naval Facilities Engineering Command
TAL	Target Analyte List
TRPH	total recoverable petroleum hydrocarbon
TtNUS	Tetra Tech NUS, Inc.
U.S. EPA	U.S. Environmental Protection Agency

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 Program for the Former Fuel Depot Area – Abandoned Railroad Bed Site at Naval Air Station (NAS) Cecil Field in Jacksonville, Florida. This program 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.

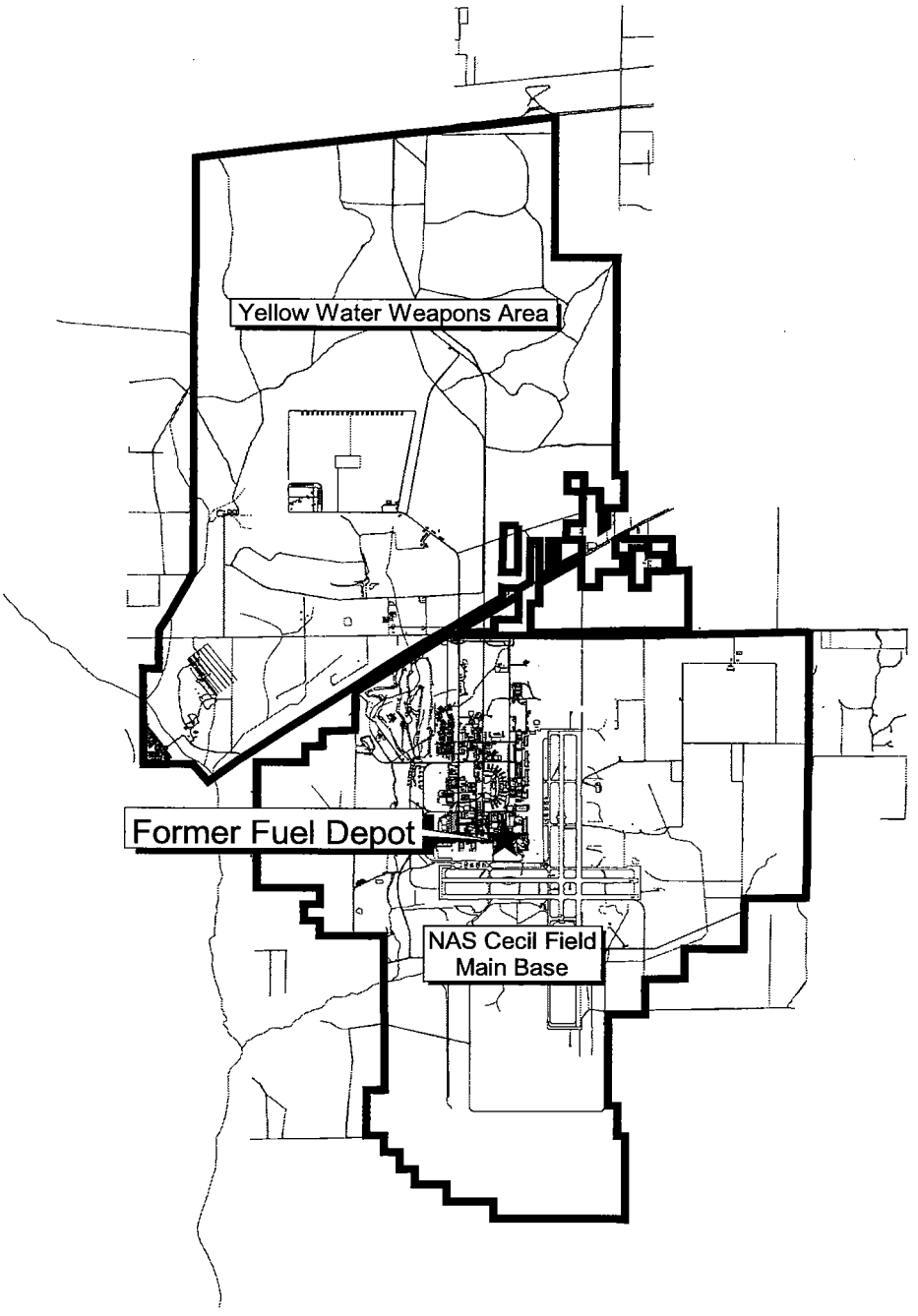
The Navy operated approximately 18 miles of railroad tracks at NAS Cecil Field, including spurs and sidings, from the 1940s to 1983. The railroad cars distributed supplies and materials throughout the Facility. When the system was closed in 1984, the railroad ties and tracks were removed. In developed 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 may 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/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, the potential for releases is expected to be more likely based on the 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 including 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.

The FFD is located in the Main Base portion of NAS Cecil Field as shown on Figure 1-1. It is in the area between Crossover Street (formerly 2nd Street) and the South Fuel Farm and at the foot of Aviation Avenue (formerly "A" Avenue) (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 and subsurface soil. A dig and haul package (excavation plan) was prepared by TtNUS based on the results of the field investigations

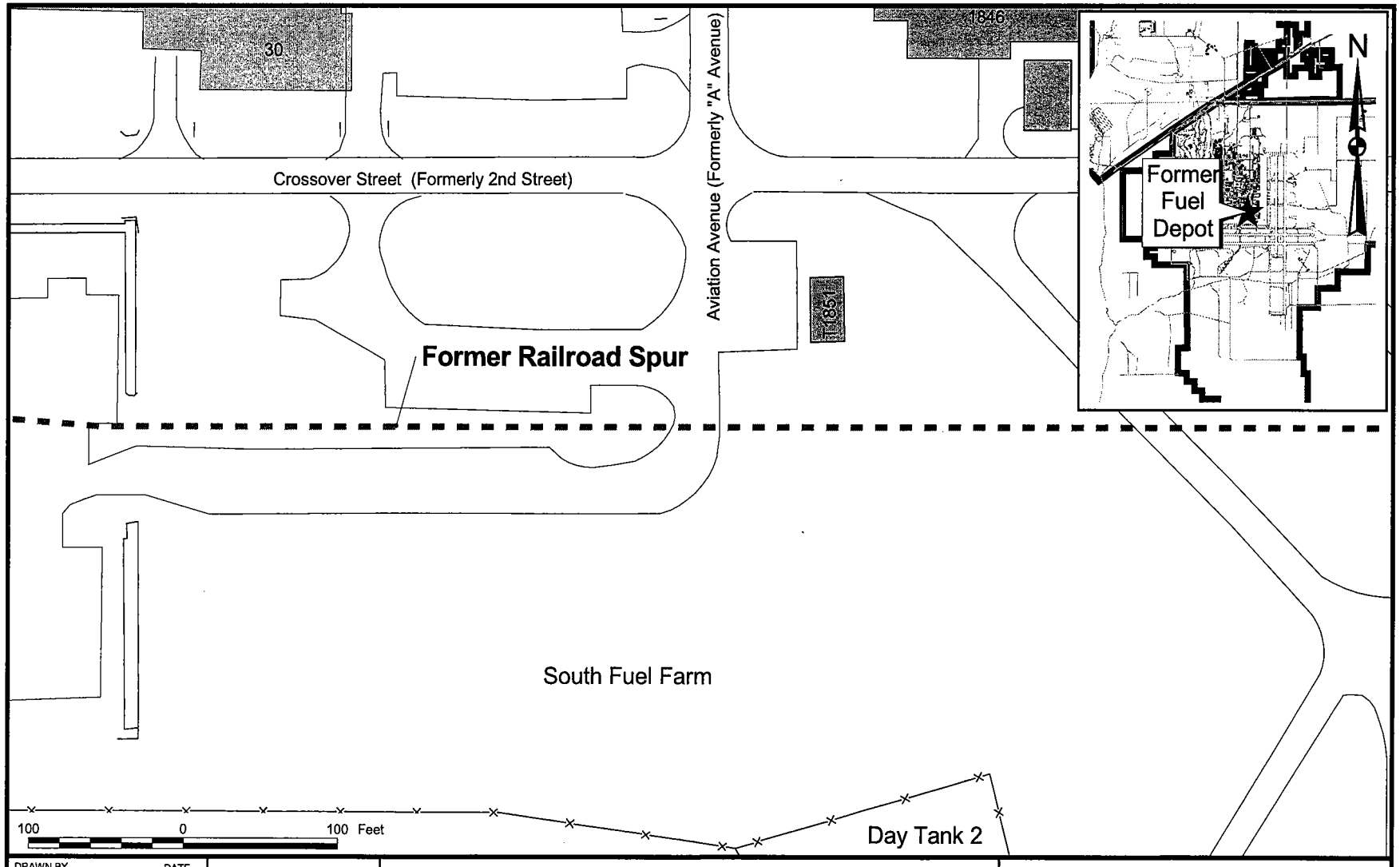
(TtNUS, 2001b). The contaminated soil was excavated by the Remedial Action Contractor (RAC), CH2MHill, in accordance with the dig and haul package. Soil contamination was removed to achieve industrial land use.

This SAR summarizes the related field operations, results, conclusions, and recommendations of the investigation conducted by TtNUS from June 2000 through January 2001 and the activities related to the removal action as described in the Source Removal Report for Excavation of Petroleum-Contaminated Soil at Former Fuel Depot/Former Railroad Bed Site (CH2M Hill, 2001). The results of the investigation and the subsequent removal action indicate that, with the exception of institutional controls, no further action is needed at this site.



DRAWN BY: MJJ — DATE: 01Jun00		GENERAL LOCATION MAP FORMER FUEL DEPOT AREA ABANDONED RAILROAD BED SITE SAMPLING AND ANALYSIS REPORT NAVAL AIR STATION CECIL FIELD JACKSONVILLE, FLORIDA	CONTRACT NUMBER: 0039
CHECKED BY — DATE			APPROVED BY — DATE
COST/SCHEDULE-AREA			APPROVED BY — DATE
SCALE: AS NOTED			DRAWING NO.: FIGURE 1-1 — REV: 0

P:\GIS\NAS_CecilField\FormerFuelDepot.apr 11Dec01 MJJ 0_Site Location Map Layout



DRAWN BY: MJJ — DATE: 01Jun00	SITE LOCATION MAP FORMER FUEL DEPOT AREA ABANDONED RAILROAD BED SITE SAMPLING AND ANALYSIS REPORT NAVAL AIR STATION CECIL FIELD JACKSONVILLE, FLORIDA	CONTRACT NUMBER: 0039
CHECKED BY — DATE		APPROVED BY — DATE
COST/SCHEDULE-AREA		APPROVED BY — DATE
SCALE: AS NOTED		DRAWING NO.: FIGURE 1-2 — REV: 0

P:\GIS\NAS_CecilField\FormerFuelDepot.apr 11Dec01 MJJ 1_FormerFuelDepot Area

2.0 FIELD INVESTIGATIONS

The field investigation at the FFD area was conducted in five phases. The initial phase of the investigation was conducted on June 14, 2000 to assess potential soil contamination in the vicinity of the FFD. The initial sampling event included the collection and analysis of two surface soil samples (CEF-FFD-SS-001-01 and CEF-FFD-SS-002-01) collected at a depth of 0 to 1 foot below ground surface (bgs). The soil samples were analyzed for polynuclear aromatic hydrocarbons (PAHs), Target Analyte List (TAL) metals, pesticides, and total recoverable petroleum hydrocarbons (TRPH) (TtNUS, 2000a).

Phase II of the field investigation was conducted on August 8, 2000 to delineate the PAH contamination detected during the initial phase of the investigation. Four surface soil samples (CEF-FFD-SS-102-01, CEF-FFD-SS-103-01, CEF-FFD-SS-104-01, and CEF-FFD-SS-105-01) were collected at a depth of 0 to 1 foot bgs at a distance of 15 feet north, east, south, and west, respectively, of previous sample location CEF-FFD-SS-001-01 to determine the horizontal extent of contamination. In addition, one sample (CEF-FFD-SS-101-02) was collected at 1 to 2 feet bgs at CEF-FFD-SS-001-01 to determine the vertical extent of PAH contamination. Phase II samples were analyzed for PAHs (TtNUS, 2000b).

The Phase III field investigation was conducted on September 18, 2000 to further delineate the horizontal and vertical extent of PAH contamination identified during previous sampling events. Two surface soil samples (CEF-FFD-SS-201-01 and CEF-FFD-SS-202-01) were collected at locations 15 feet and 30 feet west of previous sample location CEF-FFD-SS-105-01 at a depth of 0 to 1 foot bgs to determine the lateral extent of contamination to the west. In addition, two subsurface soil samples (CEF-FFD-SU-203-03 and CEF-FFD-SU-204-04) were collected at depths of 2 to 3 feet bgs and 3 to 4 feet bgs, respectively, to further delineate the vertical extent of contamination at the sampling location CEF-FFD-SS-001-01. These four samples were analyzed for PAHs (TtNUS, 2000c).

Phase IV of the field investigation was conducted on November 15, 2000 to further delineate the horizontal and vertical extent of PAH contamination identified during previous sampling events. Two surface soil samples (CEF-FFD-SS-301-01 and CEF-FFD-SS-302-01) were collected at locations 15 feet southwest of previous sample location CEF-FFD-SS-201-01 and 15 feet south of previous sample location CEF-FFD-SS-105-01, respectively. In addition, two subsurface soil samples (CEF-FFD-SU-303-03 and CEF-FFD-SU-304-04) were collected at depths of 2 to 3 feet bgs and 3 to 4 feet bgs, respectively, to further delineate the vertical extent of contamination at the previous sampling location CEF-FFD-SS-201-01. Phase IV samples were analyzed for PAHs (TtNUS, 2000d).

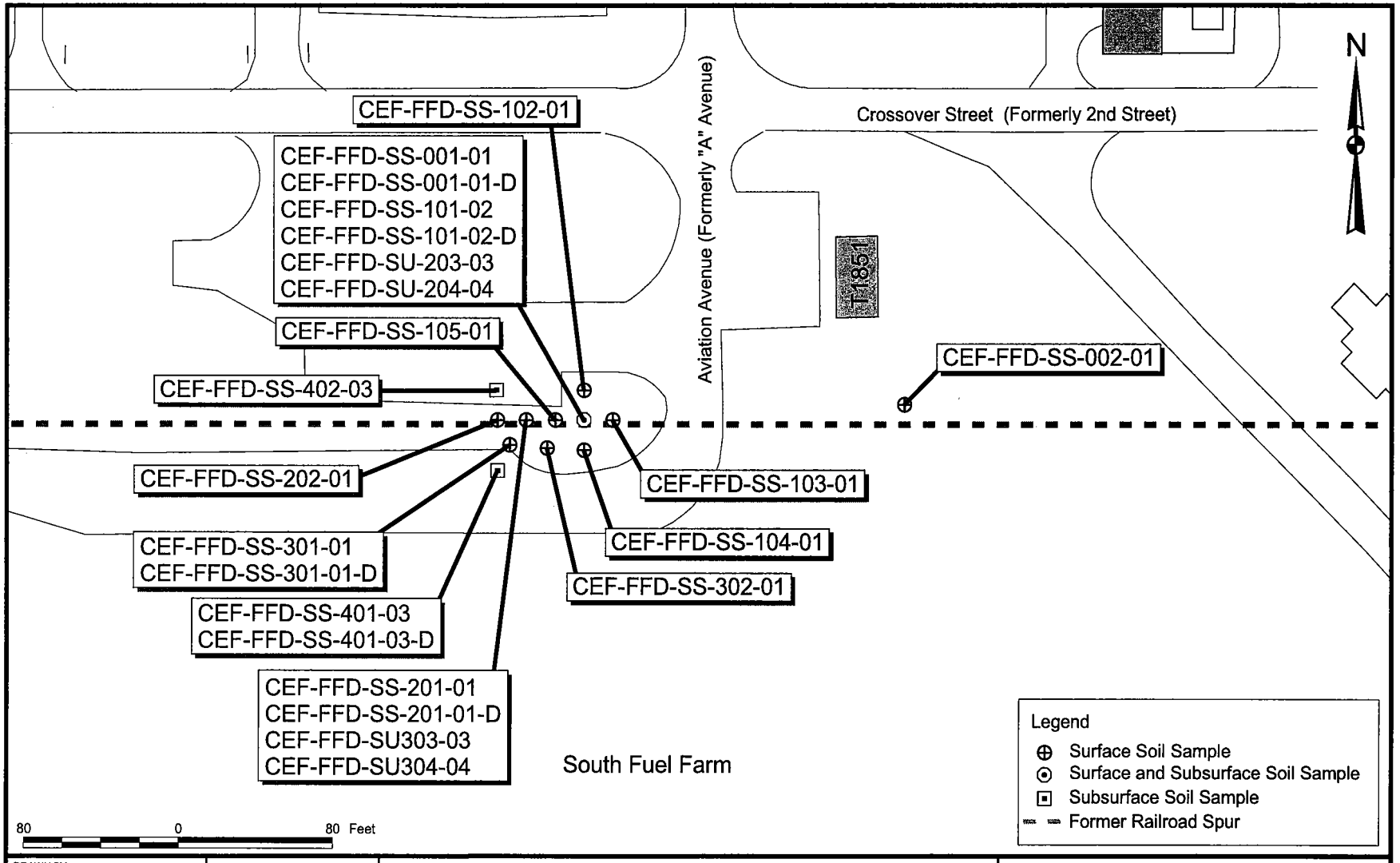
The Phase V field investigation was conducted on January 25, 2001 to further delineate the vertical extent of PAH contamination identified during the previous sampling event. Two subsurface soil samples

(CEF-FFD-SU-401-03 and CEF-FFD-SU-402-03) were collected at locations 15 feet north and 25 feet south of previous sample location CEF-FFD-SS-202-01, respectively. Both samples were collected at depths of 2 to 3 feet bgs and analyzed for PAHs (TtNUS, 2001a).

All surface soil samples were collected as grab samples using plastic, disposable trowels. Subsurface soil samples were collected using a hand auger. Sampling activities were performed in accordance with the procedures described in the U.S. Environmental Protection Agency (U.S. EPA) Region IV Environmental Investigations Standard Operating Procedures and Quality Assurance Manual (EISOPQAM) (U.S. EPA, 1996) and the NAS Cecil Field Base-Wide Generic Work Plan (TtNUS, 1998). As agreed by the BCT, no rinsate or trip blanks were collected. In addition, field blanks were not collected because the 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 metals using U.S. EPA Method SW-846 6010B, and for TRPH using the Florida Petroleum Residual Organics (FL-PRO) method. ACCUTEST Southeast, in Orlando, Florida, performed the analyses.

A site plan showing sample locations from the five phases of sampling is presented on Figure 2-1.



DRAWN BY: MJJ	DATE: 01Jun00	SAMPLE LOCATION MAP FORMER FUEL DEPOT AREA ABANDONED RAILROAD BED SITE SAMPLING AND ANALYSIS REPORT NAVAL AIR STATION CECIL FIELD JACKSONVILLE, FLORIDA	CONTRACT NUMBER: 0039
CHECKED BY:	DATE:		APPROVED BY: DATE:
COST/SCHEDULE-AREA			APPROVED BY: DATE:
SCALE: AS NOTED			DRAWING NO.: FIGURE 2-1 / REV: 0

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3.0 DATA EVALUATION AND REMOVAL ACTION

3.1 DATA EVALUATION

The concentrations of individual samples were compared to the Florida Department of Environmental Protection (FDEP) criteria in the Florida Administrative Code (FAC) Chapter 62-777 (FDEP, 1999) and to the Inorganic Background Data Set (IBDS) values. Analytical results were compared to the more stringent of the FDEP industrial soil contaminant target level (SCTL) for direct exposure or to the leachability to groundwater criteria. During Phase I sampling, PAHs, TRPH, and metals were detected in the two soil samples collected at the FFD area. Pesticides were not detected in soil samples collected at the site.

As shown on Table 3-1, metals were not detected at concentrations in excess of FDEP SCTLs during Phase I; therefore, the remaining investigation (Phases II through V) concentrated on determining the horizontal and vertical extent of PAH contamination. Table 3-2 shows the samples that exceeded FDEP SCTLs for PAHs during Phases I through V of the investigation and Figure 3-1 shows the locations of the samples exceeding the FDEP criteria. Laboratory analytical data are provided in Appendix A.

3.2 REMOVAL ACTION

Based on the soil investigation that was conducted, the BRAC Cleanup Team (BCT) determined that a removal action was required at the FFD Area Abandoned Railroad Site and agreed upon the proposed removal area presented by TtNUS in the Dig and Haul Package (TtNUS, 2001b). A source removal was conducted on April 20 through 27, 2001, and 316 tons of PAH-contaminated soils were excavated. Soils were excavated to the horizontal limits shown on Figure 3-2. The excavated soil was stockpiled onto a 10-mil plastic lined area and covered with a 10-mil plastic liner. Upon receipt of waste disposal approval, the soil was loaded into a truck, transported, and disposed off site on April 27, 2001. As shown on Figure 3-2, approximately 2,057 square feet of soil were excavated to a depth of 3 feet bgs, for a total estimated volume of 229 cubic yards. The excavated soil was transported by Beaver Bulk Trucking to the Broadhurst Landfill, a Subtitle D solid waste disposal facility in Jessup, Georgia (CH2MHill, 2001).

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. No confirmatory sampling was performed (CH2MHill, 2001) as per the Dig and Haul Package (TtNUS, 2001b).

Detailed information on the remedial activities, including photographs, laboratory results, copies of the soil manifests, certificates of disposal, and certificates of clean fill, is provided in the Source Removal Report (CH2MHill, 2001).

TABLE 3-1

PESTICIDE, TRPH, AND INORGANICS ANALYTICAL DATA
FORMER FUEL DEPOT AREA
ABANDONED RAILROAD BED SITE
SAMPLING AND ANALYSIS REPORT
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

PARAMETER	CEF-FFD-			FDEP INDUSTRIAL SCTL[1]	FDEP LEACHABILITY SCTL[2]	IBDS VALUE[3]
	SS-001-01		SS-002-01			
	Sample	Duplicate				
Pesticides, ug/kg						
Aldrin	3.4 U	3.4 U	6.9 U	300	500	NC
alpha-BHC	3.4 U	3.4 U	6.9 U	500	0.3	NC
beta-BHC	3.4 U	3.4 U	6.9 U	2,100	1	NC
delta-BHC	3.4 U	3.4 U	6.9 U	420,000	200	NC
gamma-BHC (Lindane)	3.4 U	3.4 U	6.9 U	2,200	9	NC
alpha-Chlordane	6.8 U	6.8 U	14 U	12,000[4]	9,600[4]	NC
gamma-Chlordane	6.8 U	6.8 U	14 U	12,000[4]	9,600[4]	NC
Dieldrin	3.4 U	3.4 U	6.9 U	300	4	NC
4,4'-DDD	6.8 U	6.8 U	14 U	18,000	4,000	NC
4,4'-DDE	6.8 U	6.8 U	14 U	13,000	18,000	NC
4,4'-DDT	6.8 U	6.8 U	14 U	13,000	11,000	NC
Endrin	6.8 U	6.8 U	14 U	340,000	1,000	NC
Endosulfan sulfate	6.8 U	6.8 U	14 U	NC	NC	NC
Endrin aldehyde	6.8 U	6.8 U	14 U	NC	NC	NC
Endrin ketone	6.8 U	6.8 U	14 U	NC	NC	NC
Endosulfan-I	3.4 U	3.4 U	6.9 U	6,700,000[5]	3,800[5]	NC
Endosulfan-II	6.8 U	6.8 U	14 U	6,700,000[5]	3,800[5]	NC
Heptachlor	3.4 U	3.4 U	6.9 U	900	23,000	NC
Heptachlor epoxide	3.4 U	3.4 U	6.9 U	400	600	NC
Methoxychlor	14 U	14 U	28 U	7,500,000	160,000	NC
Toxaphene	340 U	340 U	690 U	3,700	31,000	NC
Total Recoverable Petroleum Hydrocarbons, mg/kg						
TRPH	31.1	34.0	35.9	2500	340	NC
Inorganics, mg/kg						
Aluminum	2110	1930	1530	NC	NC	4,430
Antimony	0.28	0.25 U	0.25 U	240	5.0	9.44
Arsenic	1.3 U	0.36 U	0.36 U	3.7	29	2.04
Barium	5.5	6.2	9.6	87,000	1,600	14.4
Beryllium	0.09 U	0.10 U	0.11 U	800	63	0.35
Cadmium	0.06 U	0.08 U	0.34 U	1,300	8.0	1.72
Calcium	3310	3220	34,600	NC	NC	9.44
Chromium	4.6	3.1	5.7	NC	38	7.75
Cobalt	0.46 U	0.14 U	0.24 U	110,000	NC	3.11
Copper	18.6	3.5	4.6	76,000	NC	5.97
Iron	2210 J	528 J	858	480,000	NC	1,490
Lead	385 J	11.2 J	31.6	920	NC	197
Magnesium	104	122	413	NC	NC	329
Manganese	14.7	24.3	33.4	22,000	NC	22
Mercury	0.03 U	0.06 U	0.04 U	26	2.1	0.16
Nickel	1.4 U	0.49 U	1.4 U	28,000	130	3.89
Potassium	57.9 U	65.8 U	128 U	NC	NC	102
Selenium	0.44 U	0.84 U	0.21 U	10,000	5.0	1.68
Silver	0.11 U	0.10 U	0.10 U	9,100	17	2.13
Sodium	96	63.2	114	NC	NC	343
Thallium	0.30 U	0.28 U	0.28 U	NC	NC	2.84
Vanadium	2.5	1.9	3.3	7400	980	6.3
Zinc	21.6	16.3	18.1	560,000	6,000	37

J = Estimated Value.
U = Not Detected at or above detection limit (associated value).
NC = No Criteria.
1 Florida Industrial 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

POLYNUCLEAR AROMATIC HYDROCARBON ANALYTICAL DATA
FORMER FUEL DEPOT AREA
ABANDONED RAILROAD BED SITE
SAMPLING AND ANALYSIS REPORT
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA
PAGE 1 OF 3

PARAMETER	FDEP SCTL		CEF-FFD-						
	Industrial Direct Exposure[1]	Leachability to Groundwater[2]	SS-001-01		SS-002-01	SS-101-02		SS-102-01	SS-103-01
			Sample	Duplicate		Sample	Duplicate		
Polynuclear Aromatic Hydrocarbons (µg/kg)									
1-Methylnaphthalene	470,000	2100	340 U	690 U	350 U	180 U	46.4 J	180 U	180 U
2-Methylnaphthalene	560,000	6100	340 U	690 U	350 U	180 UJ	192 J	180 U	180 U
Acenaphthene	18,000,000	2100	340 U	690 U	350 U	1730 J	324 J	180 U	180 U
Acenaphthylene	11,000,000	27,000	680 U	1400 U	690 U	180 UJ	556 J	180 U	180 U
Anthracene	260,000,000	2,500,000	340 U	690 U	350 U	382 J	53.9 J	40.9 J	10.8 J
Benzo(a)anthracene	5000	3200	273	335	69 U	**7360 J**	2960 J	281	79.7
Benzo(a)pyrene	500	8000	383 J	**819 J**	69 U	**5460 J**	**2580 J**	249	105
Benzo(b)fluoranthene	4800	10,000	359 J	718 J	69 U	**9880 J**	4400 J	448	147
Benzo(g,h,i)perylene	41,000,000	32,000,000	292 J	616 J	69 U	4480 J	2260 J	456	137
Benzo(k)fluoranthene	52,000	25,000	235 J	479 J	69 U	5130 J	2220 J	224	87.6
Chrysene	450,000	77,000	363	517 J	350 U	8200 J	2310 J	400	152
Dibenzo(a,h)anthracene	500	30,000	68 U	140 U	69 U	**834**	**552**	112	27 U
Fluoranthene	48,000,000	1,200,000	646	847	350 U	7180 J	4000 J	710	230
Fluorene	28,000,000	160,000	340 U	690 U	350 U	245 J	39.2 J	180 U	180 U
Indeno(1,2,3-cd)pyrene	5300	28,000	334 J	605 J	69 U	3970 J	2060 J	310	125
Naphthalene	270,000	17,000	340 U	690 U	350 U	180 U	180 U	180 U	180 U
Phenanthrene	30,000,000	250,000	216 J	350 J	350 U	139 J	231	135 J	83.6 J
Pyrene	37,000,000	880,000	466 J	873 J	350 U	14,700 J	6000 J	582	342

TABLE 3-2

POLYNUCLEAR AROMATIC HYDROCARBON ANALYTICAL DATA
FORMER FUEL DEPOT AREA
ABANDONED RAILROAD BED SITE
SAMPLING AND ANALYSIS REPORT
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA
PAGE 2 OF 3

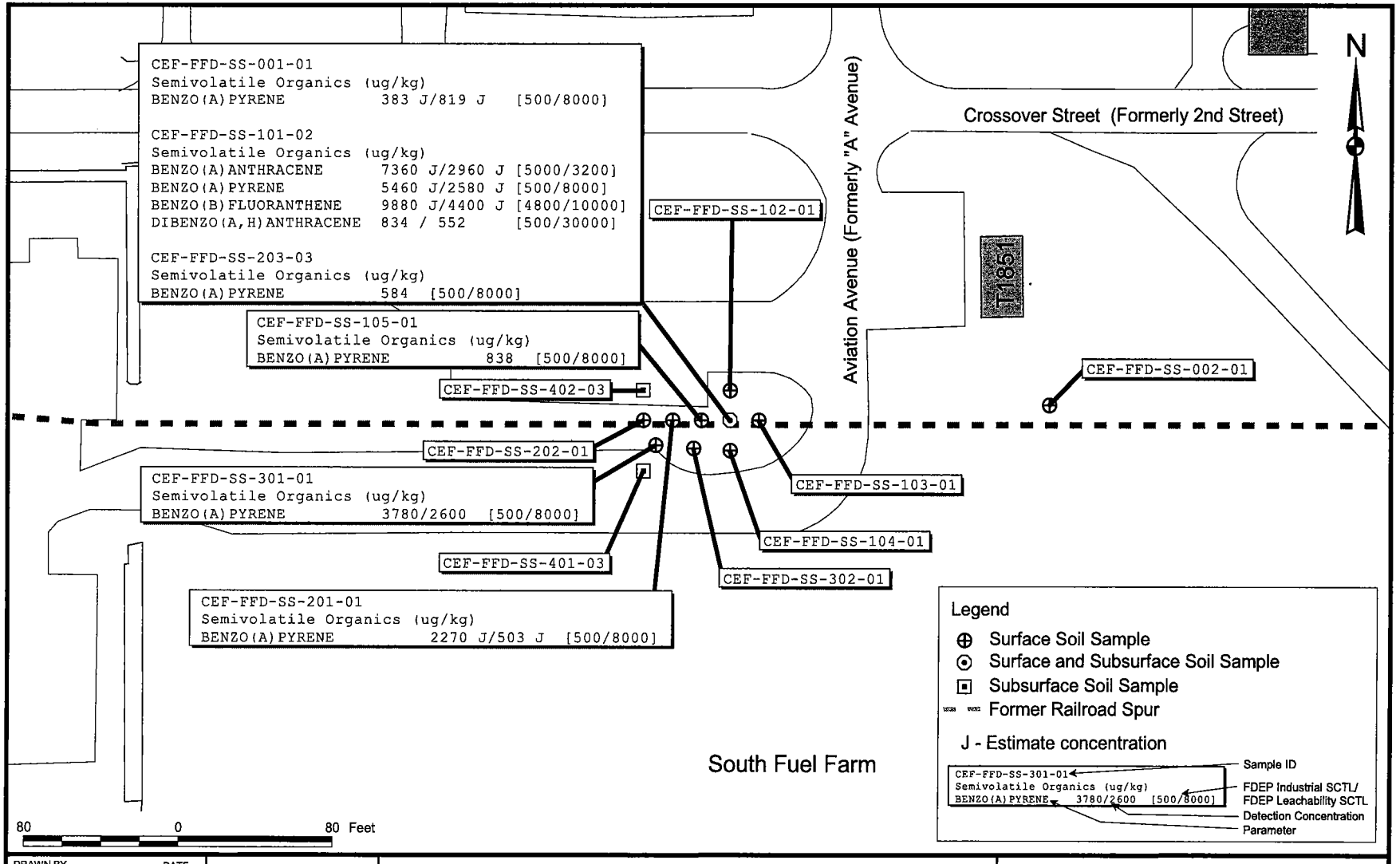
PARAMETER	FDEP SCTL		CEF-FFD-						
	Industrial Direct Exposure(1)	Leachability to Groundwater(2)	SS-104-01	SS-105-01	SS-201-01 Sample	SS-201-01 Duplicate	SS-202-01	SU-203-03	SU-204-04
Polynuclear Aromatic Hydrocarbons (µg/kg)									
1-Methylnaphthalene	470,000	2100	180 U	180 U	1900 U	440 U	370 U	410 U	360 U
2-Methylnaphthalene	560,000	6100	180 U	180 U	1900 U	440 U	370 U	410 U	360 U
Acenaphthene	18,000,000	2100	180 U	180 U	3800 U	870 U	750 U	830 U	720 U
Acenaphthylene	11,000,000	27,000	180 U	180 U	3800 U	870 U	750 U	830 U	720 U
Anthracene	260,000,000	2,500,000	25.6 J	104 J	1900 U	440 U	370 U	410 U	360 U
Benzo(a)anthracene	5000	3200	153	630	2630 J	447 J	252	495	72 U
Benzo(a)pyrene	500	8000	180	**838**	**2270 J**	**503 J**	322	**584**	40.4 J
Benzo(b)fluoranthene	4800	10,000	322	1480	3610 J	807 J	331	767	61.8 J
Benzo(g,h,i)perylene	41,000,000	32,000,000	284	1040	2530 J	571 J	270	422	48.1 J
Benzo(k)fluoranthene	52,000	25,000	155	721	1970 J	447 J	165	399	32.7 J
Chrysene	450,000	77,000	400	860	3050 J	494 J	214 J	269 J	360 U
Dibenzo(a,h)anthracene	500	30,000	48.5	26 U	326 J	56.8 J	41.6 J	54.1 J	72 U
Fluoranthene	48,000,000	1,200,000	589	1170	1950 J	788 J	351 J	505	360 U
Fluorene	28,000,000	160,000	180 U	180 U	1900 U	440 U	370 U	410 U	360 U
Indeno(1,2,3-cd)pyrene	5300	28,000	244	868	2700 J	485 J	279	468	37.9 J
Naphthalene	270,000	17,000	180 U	180 U	1900 U	440 U	370 U	410 U	360 U
Phenanthrene	30,000,000	250,000	180	225	1900 U	440 U	370 U	410 U	360 U
Pyrene	37,000,000	880,000	445	1030	2540 J	692 J	344 J	825	360 U

TABLE 3-2

POLYNUCLEAR AROMATIC HYDROCARBON ANALYTICAL DATA
FORMER FUEL DEPOT AREA
ABANDONED RAILROAD BED SITE
SAMPLING AND ANALYSIS REPORT
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

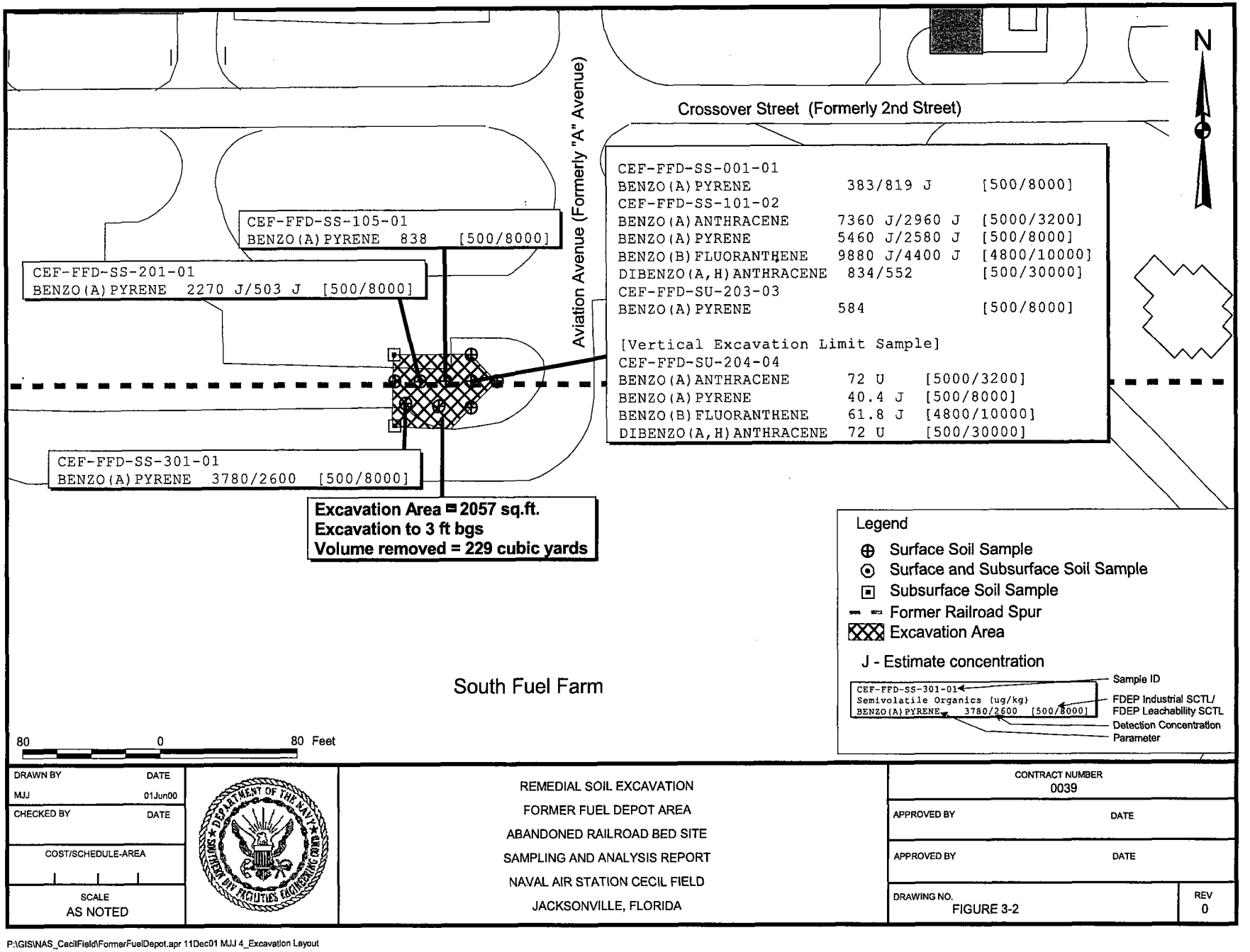
PARAMETER	FDEP SCTL		CEF-FFD-							
	Industrial Direct Exposure(1)	Leachability to Groundwater(2)	SS-301-01		SS-302-01	SU-303-03	SU-304-04	SS-401-03		SS-402-03
			Sample	Duplicate				Sample	Duplicate	
Polynuclear Aromatic Hydrocarbons (µg/kg)										
1-Methylnaphthalene	470,000	2100	1980 J	1350 J	350 U	350 U	350 U	390 U	350 U	360 U
2-Methylnaphthalene	560,000	6100	2210 J	1450 J	350 U	350 U	350 U	390 U	350 U	360 U
Acenaphthene	18,000,000	2100	7200 U	7200 U	700 U	700 U	690 U	780 U	710 U	730 U
Acenaphthylene	11,000,000	27,000	7200 U	7200 U	700 U	700 U	690 U	780 U	710 U	730 U
Anthracene	260,000,000	2,500,000	3600 U	3600 U	350 U	350 U	350 U	390 U	350 U	360 U
Benzo(a)anthracene	5000	3200	2480 J	1610 J	350 U	350 U	350 U	390 U	350 U	360 U
Benzo(a)pyrene	500	8000	**3780**	**2600**	46.4 J	120	69 U	78 U	71 U	73 U
Benzo(b)fluoranthene	4800	10,000	2530	1780	32.6 J	73.5	69 U	78 U	71 U	73 U
Benzo(g,h,i)perylene	41,000,000	32,000,000	4140	3100	38.2 J	136	69 U	78 U	71 U	73 U
Benzo(k)fluoranthene	52,000	25,000	1820	1250	18.4 J	48.4 J	69 U	78 U	71 U	73 U
Chrysene	450,000	77,000	3200 J	2040 J	350 U	350 U	350 U	390 U	350 U	360 U
Dibenzo(a,h)anthracene	500	30,000	395 J	247 J	70 U	70 U	69 U	78 U	71 U	73 U
Fluoranthene	48,000,000	1,200,000	5800	3550 J	350 U	350 U	350 U	390 U	350 U	360 U
Fluorene	28,000,000	160,000	3600 U	3600 U	350 U	350 U	350 U	390 U	350 U	360 U
Indeno(1,2,3-cd)pyrene	5300	28,000	3850	2740	47 J	138	69 U	78 U	71 U	73 U
Naphthalene	270,000	17,000	2390 J	3600 U	350 U	350 U	350 U	390 U	350 U	360 U
Phenanthrene	30,000,000	250,000	2080 J	3600 U	350 U	350 U	350 U	390 U	350 U	360 U
Pyrene	37,000,000	880,000	5170	3220 J	350 U	350 U	350 U	390 U	350 U	360 U

J = Estimated Value
U = Not Detected at or above detection limit (associated value)
1 Florida Industrial 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)
Highlighted value indicates exceedance of regulatory criteria.



DRAWN BY: MJJ	DATE: 01Jun00	SAMPLING LOCATION AND EXCEEDANCE MAP FORMER FUEL DEPOT AREA ABANDONED RAILROAD BED SITE SAMPLING AND ANALYSIS REPORT NAVAL AIR STATION CECIL FIELD JACKSONVILLE, FLORIDA	CONTRACT NUMBER: 0039
CHECKED BY:	DATE:		APPROVED BY: DATE:
COST/SCHEDULE-AREA			APPROVED BY: DATE:
SCALE: AS NOTED			DRAWING NO.: FIGURE 3-1 / REV: 0

P:\GIS\NAS_CecilField\FormerFuelDepot.apr 11Dec01 MJJ 3_ExceedanceMap



DRAWN BY: MJJ — DATE: 01Jun00	REMEDIAL SOIL EXCAVATION	CONTRACT NUMBER: 0039
CHECKED BY — DATE	FORMER FUEL DEPOT AREA	APPROVED BY — DATE
COST/SCHEDULE-AREA	ABANDONED RAILROAD BED SITE	APPROVED BY — DATE
SCALE: AS NOTED	SAMPLING AND ANALYSIS REPORT NAVAL AIR STATION CECIL FIELD JACKSONVILLE, FLORIDA	DRAWING NO.: FIGURE 3-2 — REV: 0

P:\GIS\NAS_CecilField\FormerFuelDepot.apr 11Dec01 MJJ 4_Excavation Layout

4.0 CONCLUSIONS AND RECOMMENDATION

Field investigations determined that PAH contamination was present at the FFD Area, and a removal action was performed in April 2001 to excavate and dispose off site the soil contaminated above the FDEP Industrial SCTLs. Since the removal action, the soils at this site no longer represent a risk to human health for industrial use and to the environment.

Based upon these conclusions, the recommendation for the abandoned railroad site at the FFD Area is no further action with institutional controls as specified in the Land Use Control Implementation Plan (LUCIP). It is also recommended that the Environmental Baseline Survey (EBS) color code should be designated as Dark Green to denote areas where 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 concentrations in the soil no longer represent a hazard to human health for industrial use or to the environment.

REFERENCES

CH2M Hill (CH2M Hill Constructors, Inc.), 2001. Source Removal Report, Excavation of Petroleum-Contaminated Soil at Former Fuel depot/Former Railroad Bed Site. Prepared for SOUTHNAVFACENGCOM, North Charleston, South Carolina. NAS Cecil Field, Jacksonville, Florida, September.

FDEP (Florida Department of Environmental Protection), 1999. Contaminant Target Rule, Soil, Groundwater, and Surface Water Target Cleanup Levels. Florida Administrative Code (FAC) 62-777, August.

TtNUS (Tetra Tech NUS, Inc.), 1998. Base-Wide Generic Work Plan, NAS Cecil Field, Jacksonville, Florida. Prepared for SOUTHNAVFACENGCOM, Charleston, South Carolina, October.

TtNUS, 2000a. Phase I Sampling and Analysis Work Plan, Former Railroad Bed – Former Fuel Depot Area, Naval Air Station Cecil Field, Jacksonville, Florida, June.

TtNUS, 2000b. Phase II Sampling and Analysis Work Plan, Former Railroad Bed – Former Fuel Depot Area, Naval Air Station Cecil Field, Jacksonville, Florida, July.

TtNUS, 2000c. Phase III Sampling and Analysis Work Plan, Former Railroad Bed – Former Fuel Depot Area, Naval Air Station Cecil Field, Jacksonville, Florida, September.

TtNUS, 2000d. Phase IV Sampling and Analysis Work Plan, Former Railroad Bed – Former Fuel Depot Area, Naval Air Station Cecil Field, Jacksonville, Florida, November.

TtNUS, 2001a. Phase V Sampling and Analysis Work Plan, Former Railroad Bed – Former Fuel Depot Area, Naval Air Station Cecil Field, Jacksonville, Florida, January.

TtNUS, 2001b. Dig and Haul Package for Former Fuel Depot, Former Naval Air Station Cecil Field, Jacksonville, Florida. Pittsburgh, Pennsylvania, February.

U.S. EPA Region IV, 1996. Environmental Investigations Standard Operating Procedures and Quality Assurance Manual. Athens, Georgia, May.

APPENDIX A

LABORATORY ANALYTICAL DATA

Tetra Tech NUS **INTERNAL CORRESPONDENCE**

TO:	**M. SPERANZA**	**DATE:**	**AUGUST 7, 2000**
FROM:	**GRETCHEN PHIPPS**	**COPIES:**	**DV FILE**
SUBJECT:	**INORGANIC DATA VALIDATION – METALS** **CTO 078 - NAS CECIL FIELD** **SDG – F6809**		
SAMPLES:	7/Soils/		

CEF-FFD-SS-001-01
CEF-FFD-SS-DUP1
~~CEF-1820-SS-001-01~~
~~CEF-1820-SS-003-01~~
CEF-FFD-SS-002-01
~~CEF-1820-DUP1~~
~~CEF-1820-SS-002-01~~

Overview

The sample set for CTO 078, Cecil Field, SDG F6809 consists of seven (7) soil environmental samples. Two (2) field duplicate pairs (CEF-FFD-SS-001-01 / CEF-FFD-SS-DUP1 and CEF-1820-SS-001-01 / CEF-1820-DUP1) were included within this SDG.

The FFD samples were analyzed for Target Analyte List (TAL) metals. The six "1820" samples were analyzed for chromium, lead and vanadium. The samples were collected by Tetra Tech NUS on June 14, 2000 and analyzed by Accutest Laboratory under Naval Facilities Engineering Service Center (NFESC) Quality Assurance / Quality Control (QA / QC) criteria. Metals analyses were conducted using SW 846 method 6010B/7470A.

The data was evaluated based on the following parameters:

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

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

Laboratory Blank Analyses

The following contaminants were present in a laboratory method / preparation blanks at the following maximum 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	1.8µg/L	0.9 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	0.17 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 Results

Field duplicate imprecision was noted for in field duplicate pair CEF-FFD-SS-001-01 / CEF-FFD-SS-DUP1 for lead and iron. The positive results reported for lead and iron in the affected duplicate pair 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 in field duplicate pair CEF-FFD-SS-001-01 / CEF-FFD-SS-DUP1 for lead and iron.

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

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

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

Tetra Tech NUS
Gretchen A. Phipps

Tetra Tech NUS
Joseph A. Samchuck
Quality Control Officer

Attachments:

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

DATA QUALIFIER DEFINITIONS:

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

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

Qualifier Codes:

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

CTO078-NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F6809

SAMPLE NUMBER:	CEF-FFD-SS-001-01	CEF-FFD-SS-002-01	CEF-FFD-SS-DUP1	
SAMPLE DATE:	06/14/00	06/14/00	06/14/00	/ /
LABORATORY ID:	F6809-1	F6809-2	F6809-3	
QC_TYPE:	NORMAL	NORMAL	NORMAL	
% SOLIDS:	97.6 %	96.6 %	96.5 %	100.0 %
UNITS:	MG/KG	MG/KG	MG/KG	
FIELD DUPLICATE OF:			CEF-FFD-SS-001-01	

	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
INORGANICS												
ALUMINUM	2110			1530			1930					
ANTIMONY	0.28			0.25	U		0.25	U				
ARSENIC	1.3	U	A	0.36	U		0.36	U	A			
BARIUM	5.5			9.6			6.2					
BERYLLIUM	0.09	U	A	0.11	U	A	0.10	U	A			
CADMIUM	0.06	U	A	0.34	U	A	0.08	U	A			
CALCIUM	3310			34600			3220					
CHROMIUM	4.6			5.7			3.1					
COBALT	0.46	U	A	0.24	U	A	0.14	U	A			
COPPER	18.6			4.6			3.5					
IRON	2210	J	G	858			528	J	G			
LEAD	385	J	G	31.6			11.2	J	G			
MAGNESIUM	104			413			122					
MANGANESE	14.7			33.4			24.3					
MERCURY	0.03	U	A	0.04	U	A	0.06	U	A			
NICKEL	1.4	U	A	1.4	U	A	0.49	U	A			
POTASSIUM	57.9	U	A	128	U	A	65.8	U	A			
SELENIUM	0.44	U	A	0.21	U		0.84	U	A			
SILVER	0.11	U		0.10	U		0.10	U				
SODIUM	96.0			114			63.2					
THALLIUM	0.30	U		0.28	U		0.28	U				
VANADIUM	2.5			3.3			1.9					
ZINC	21.6			18.1			16.3					

Report of Analysis

Client Sample ID:	CEF-FFD-SS-001-01		
Lab Sample ID:	F6809-1	**Date Sampled:**	06/14/00
Matrix:	SO - Soil	**Date Received:**	06/16/00
		Percent Solids:	97.6
Project:	NAS Cecil Field-BLDGS.30/182		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method
Aluminum	2110	22.0	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Antimony	0.28 B	6.6	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Arsenic	1.3	0.55	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Barium	5.5 B	22.0	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Beryllium	0.09 B	0.55	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Cadmium	0.06 B	0.44	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Calcium	3310	551	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Chromium	4.6	1.1	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Cobalt	0.46 B	5.5	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Copper	18.6	2.8	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Iron	2210	11.0	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Lead	385	11.0	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Magnesium	104 B	551	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Manganese	14.7	1.7	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Mercury	0.03 B	0.18	mg/kg	1	06/20/00	06/22/00	SJL	SW846 7471A
Nickel	1.4 B	4.4	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Potassium	57.9 B	551	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Selenium	0.44 B	11.0	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	96.0 B	551	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Thallium	0.30 U	1.1	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Vanadium	2.5 B	5.5	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Zinc	21.6	2.2	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A

RL = Reporting Limit

Report of Analysis

Client Sample ID:	CEF-FFD-SS-DUP1		
Lab Sample ID:	F6809-3	**Date Sampled:**	06/14/00
Matrix:	SO - Soil	**Date Received:**	06/16/00
		Percent Solids:	96.5
Project:	NAS Cecil Field-BLDGS.30/182		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method
Aluminum	1930	21.1	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	0.36 B	0.53	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Barium	6.2 B	21.1	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Beryllium	0.10 B	0.53	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Cadmium	0.08 B	0.42	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Calcium	3220	529	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Chromium	3.1	1.1	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Cobalt	0.14 B	5.3	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Copper	3.5	2.6	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Iron	528	10.6	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Lead	11.2	10.6	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Magnesium	122 B	529	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Manganese	24.3	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	0.49 B	4.2	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Potassium	65.8 B	529	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Selenium	0.84 B	10.6	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	63.2 B	529	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Thallium	0.28 U	1.1	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Vanadium	1.9 B	5.3	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Zinc	16.3	2.1	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A

RL = Reporting Limit

Report of Analysis

Client Sample ID:	CEF-FFD-SS-002-01		
Lab Sample ID:	F6809-2	**Date Sampled:**	06/14/00
Matrix:	SO - Soil	**Date Received:**	06/16/00
		Percent Solids:	96.6
Project:	NAS Cecil Field-BLDGS.30/182		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method
Aluminum	1530	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	0.36 U	0.52	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Barium	9.6 B	20.9	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Beryllium	0.11 B	0.52	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Cadmium	0.34 B	0.42	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Calcium	34600	523	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Chromium	5.7	1.0	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Cobalt	0.24 B	5.2	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Copper	4.6	2.6	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Iron	858	10.5	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Lead	31.6	10.5	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Magnesium	413 B	523	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Manganese	33.4	1.6	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Mercury	0.04 B	0.17	mg/kg	1	06/20/00	06/22/00	SJL	SW846 7471A
Nickel	1.4 B	4.2	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Potassium	128 B	523	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	114 B	523	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	3.3 B	5.2	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A
Zinc	18.1	2.1	mg/kg	1	06/19/00	06/22/00	SJL	SW846 6010A

RL = Reporting Limit

Tetra Tech NUS **INTERNAL CORRESPONDENCE**

PITT-07-0-026

TO: MARK SPERANZA **DATE:** AUGUST 7, 2000

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

SUBJECT: ORGANIC DATA VALIDATION – VOA/PAH/PEST/TPH
CTO 078 – NAS CECIL FIELD
SDG F6809

SAMPLES: 5/Surface Soil

~~CEF-080-SS-001-01*~~
CEF-FFD-SS-001-01+
CEF-FFD-SS-DUP1+

~~CEF-080-SS-002-01*~~
CEF-FFD-SS-002-01+

OVERVIEW

The sample set for CTO 078, SDG F6809 Naval Air Station (NAS) Cecil Field; Florida consists of five (5) surface soil environmental samples. The samples were analyzed for Polynuclear Aromatic Hydrocarbon (PAH) and Total Petroleum Hydrocarbon (TPH) organic compounds. The samples designated (*) were analyzed for Target Compound List (TCL) volatile organic compounds. The samples designated (+) were analyzed for pesticide organic compounds. One (1) field duplicate pair (CEF-FFD-SS-001-01/CEF-FFD-SS-DUP1) was included within this SDG.

The sample was collected by Tetra Tech, NUS on June 14th, 2000 and analyzed by Accutest Laboratories. All analyses were performed in accordance with Naval Facilities Engineering Service Center (NFESC) Quality Assurance/Quality Control (QA/QC) criteria and analyzed according to SW 846 Method 8260B, 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.

VOLATILE FRACTION

It should be noted that methylene chloride was detected in both the surface soil samples. Despite the absence in the associated lab method blank, it is a suspected lab contaminant. The positive results were qualified as estimated, (J).

PAH FRACTION

Sample CEF-880-SS-002-01 was analyzed at a 4X dilution thus causing elevated reporting limits.

Sample CEF-FFD-SS-DUP1 was analyzed at a 2X dilution thus causing elevated reporting limits.

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

PESTICIDE FRACTION

Samples CEF-FFD-SS-001-01 and CEF-FFD-SS-DUP1 were analyzed at a 2X dilution thus causing elevated reporting limits.

Sample CEF-FFD-SS-002-01 was analyzed at a 4X dilution thus causing elevated reporting limits.

TPH FRACTION

All quality control parameters were met for this fraction.

EXECUTIVE SUMMARY

Laboratory performance: None.

Other Factors Affecting Data Quality: Several samples were analyzed at a dilution thus causing elevated reporting limits. The field duplicate pair RPDs exceeded the 50% upper control limit in the fraction.

MEMO TO: MARK SPERANZA
DATE: AUGUST 7, 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%

CTO078-NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F6809

SAMPLE NUMBER:	CEF-880-SS-001-01			CEF-880-SS-002-01			CEF-FFD-SS-001-01			CEF-FFD-SS-002-01		
SAMPLE DATE:	06/14/00			06/14/00			06/14/00			06/14/00		
LABORATORY ID:	F6809-4			F6809-5			F6809-1			F6809-2		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	97.0 %			99.5 %			97.6 %			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	340	U		1300	U		340	U		350	U	
2-METHYLNAPHTHALENE	340	U		1300	U		340	U		350	U	
ACENAPHTHENE	340	U		1300	U		340	U		350	U	
ACENAPHTHYLENE	690	U		2700	U		680	U		690	U	
ANTHRACENE	340	U		1300	U		340	U		350	U	
BENZO(A)ANTHRACENE	22.3	J	P	270	U		273			69	U	
BENZO(A)PYRENE	92.1			270	U		383	J	G	69	U	
BENZO(B)FLUORANTHENE	55.5	J	P	270	U		359	J	G	69	U	
BENZO(G,H,I)PERYLENE	51.9	J	P	270	U		292	J	G	69	U	
BENZO(K)FLUORANTHENE	32.6	J	P	270	U		235	J	G	69	U	
CHRYSENE	57.7	J	P	1300	U		363			350	U	
DIBENZO(A,H)ANTHRACENE	69	U		270	U		68	U		69	U	
FLUORANTHENE	340	U		1300	U		646			350	U	
FLUORENE	340	U		1300	U		340	U		350	U	
INDENO(1,2,3-CD)PYRENE	56.8	J	P	270	U		334	J	G	69	U	
NAPHTHALENE	340	U		1300	U		340	U		350	U	
PHENANTHRENE	340	U		1300	U		216	J	P	350	U	
PYRENE	340	U		1300	U		466	J	G	350	U	

CTO078-NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F6809

SAMPLE NUMBER:	CEF-FFD-SS-DUP1			
SAMPLE DATE:	06/14/00	/ /	/ /	/ /
LABORATORY ID:	F6809-3			
QC_TYPE:	NORMAL			
% SOLIDS:	96.5 %	100.0 %	100.0 %	100.0 %
UNITS:	UG/KG			
FIELD DUPLICATE OF:	CEF-FFD-SS-001-01			

	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
POLYNUCLEAR AROMATIC HYDROCARBONS												
1-METHYLNAPHTHALENE	690	U										
2-METHYLNAPHTHALENE	690	U										
ACENAPHTHENE	690	U										
ACENAPHTHYLENE	1400	U										
ANTHRACENE	690	U										
BENZO(A)ANTHRACENE	335											
BENZO(A)PYRENE	819	J	G									
BENZO(B)FLUORANTHENE	718	J	G									
BENZO(G,H,I)PERYLENE	616	J	G									
BENZO(K)FLUORANTHENE	479	J	G									
CHRYSENE	517	J	P									
DIBENZO(A,H)ANTHRACENE	140	U										
FLUORANTHENE	847											
FLUORENE	690	U										
INDENO(1,2,3-CD)PYRENE	605	J	G									
NAPHTHALENE	690	U										
PHENANTHRENE	350	J	P									
PYRENE	873	J	G									

Report of Analysis

Client Sample ID:	CEF-FFD-SS-001-01		
Lab Sample ID:	F6809-1	**Date Sampled:**	06/14/00
Matrix:	SO - Soil	**Date Received:**	06/16/00
Method:	EPA 8310	**Percent Solids:**	97.6
Project:	NAS Cecil Field-BLDGS.30/182		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	AA002221.D	1	06/27/00	CCJ	06/23/00	OP1725	GAA84
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	340	ug/kg	
208-96-8	Acenaphthylene	ND	680	ug/kg	
120-12-7	Anthracene	ND	340	ug/kg	
56-55-3	Benzo(a)anthracene	273	68	ug/kg	
50-32-8	Benzo(a)pyrene	383	68	ug/kg	
205-99-2	Benzo(b)fluoranthene	359	68	ug/kg	
191-24-2	Benzo(g,h,i)perylene	292	68	ug/kg	
207-08-9	Benzo(k)fluoranthene	235	68	ug/kg	
218-01-9	Chrysene	363	340	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	68	ug/kg	
206-44-0	Fluoranthene	646	340	ug/kg	
86-73-7	Fluorene	ND	340	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	334	68	ug/kg	
91-20-3	Naphthalene	ND	340	ug/kg	
90-12-0	1-Methylnaphthalene	ND	340	ug/kg	
91-57-6	2-Methylnaphthalene	ND	340	ug/kg	
85-01-8	Phenanthrene	216	340	ug/kg	J
129-00-0	Pyrene	466	340	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	74%		35-135%
92-94-4	p-Terphenyl	99%		50-150%

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

Report of Analysis

Client Sample ID:	CEF-FFD-SS-002-01		
Lab Sample ID:	F6809-2	**Date Sampled:**	06/14/00
Matrix:	SO - Soil	**Date Received:**	06/16/00
Method:	EPA 8310	**Percent Solids:**	96.6
Project:	NAS Cecil Field-BLDGS.30/182		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	AA002222.D	1	06/27/00	CCJ	06/23/00	OP1725	GAA84
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	350	ug/kg	
208-96-8	Acenaphthylene	ND	690	ug/kg	
120-12-7	Anthracene	ND	350	ug/kg	
56-55-3	Benzo(a)anthracene	ND	69	ug/kg	
50-32-8	Benzo(a)pyrene	ND	69	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	69	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	69	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	69	ug/kg	
218-01-9	Chrysene	ND	350	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	69	ug/kg	
206-44-0	Fluoranthene	ND	350	ug/kg	
86-73-7	Fluorene	ND	350	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	69	ug/kg	
91-20-3	Naphthalene	ND	350	ug/kg	
90-12-0	1-Methylnaphthalene	ND	350	ug/kg	
91-57-6	2-Methylnaphthalene	ND	350	ug/kg	
85-01-8	Phenanthrene	ND	350	ug/kg	
129-00-0	Pyrene	ND	350	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	69%		35-135%
92-94-4	p-Terphenyl	88%		50-150%

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

Report of Analysis

Client Sample ID:	CEF-FFD-SS-DUP1		
Lab Sample ID:	F6809-3	**Date Sampled:**	06/14/00
Matrix:	SO - Soil	**Date Received:**	06/16/00
Method:	EPA 8310	**Percent Solids:**	96.5
Project:	NAS Cecil Field-BLDGS.30/182		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	AA002223.D	2	06/27/00	CCJ	06/23/00	OP1725	GAA84
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	690	ug/kg	
208-96-8	Acenaphthylene	ND	1400	ug/kg	
120-12-7	Anthracene	ND	690	ug/kg	
56-55-3	Benzo(a)anthracene	335	140	ug/kg	
50-32-8	Benzo(a)pyrene	819	140	ug/kg	
205-99-2	Benzo(b)fluoranthene	718	140	ug/kg	
191-24-2	Benzo(g,h,i)perylene	616	140	ug/kg	
207-08-9	Benzo(k)fluoranthene	479	140	ug/kg	
218-01-9	Chrysene	517	690	ug/kg	J
53-70-3	Dibenzo(a,h)anthracene	ND	140	ug/kg	
206-44-0	Fluoranthene	847	690	ug/kg	
86-73-7	Fluorene	ND	690	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	605	140	ug/kg	
91-20-3	Naphthalene	ND	690	ug/kg	
90-12-0	1-Methylnaphthalene	ND	690	ug/kg	
91-57-6	2-Methylnaphthalene	ND	690	ug/kg	
85-01-8	Phenanthrene	350	690	ug/kg	J
129-00-0	Pyrene	873	690	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	70%		35-135%
92-94-4	p-Terphenyl	99%		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

CTO078-NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F6809

SAMPLE NUMBER:	CEF-FFD-SS-001-01			CEF-FFD-SS-002-01			CEF-FFD-SS-DUP1					
SAMPLE DATE:	06/14/00			06/14/00			06/14/00			/ /		
LABORATORY ID:	F6809-1			F6809-2			F6809-3					
QC_TYPE:	NORMAL			NORMAL			NORMAL					
% SOLIDS:	97.6 %			96.6 %			96.5 %			100.0 %		
UNITS:	UG/KG			UG/KG			UG/KG					
FIELD DUPLICATE OF:							CEF-FFD-SS-001-01					
	RESULT	**QUAL**	**CODE**	**RESULT**	**QUAL**	**CODE**	**RESULT**	**QUAL**	**CODE**	**RESULT**	**QUAL**	**CODE**
PESTICIDES/PCBs												
4,4'-DDD	6.8	U		14	U		6.9	U				
4,4'-DDE	6.8	U		14	U		6.9	U				
4,4'-DDT	6.8	U		14	U		6.9	U				
ALDRIN	3.4	U		6.9	U		3.4	U				
ALPHA-BHC	3.4	U		6.9	U		3.4	U				
ALPHA-CHLORDANE	6.8	U		14	U		6.9	U				
BETA-BHC	3.4	U		6.9	U		3.4	U				
DELTA-BHC	3.4	U		6.9	U		3.4	U				
DIELDRIN	3.4	U		6.9	U		3.4	U				
ENDOSULFAN I	3.4	U		6.9	U		3.4	U				
ENDOSULFAN II	6.8	U		14	U		6.9	U				
ENDOSULFAN SULFATE	6.8	U		14	U		6.9	U				
ENDRIN	6.8	U		14	U		6.9	U				
ENDRIN ALDEHYDE	6.8	U		14	U		6.9	U				
ENDRIN KETONE	6.8	U		14	U		6.9	U				
GAMMA-BHC (LINDANE)	3.4	U		6.9	U		3.4	U				
GAMMA-CHLORDANE	6.8	U		14	U		6.9	U				
HEPTACHLOR	3.4	U		6.9	U		3.4	U				
HEPTACHLOR EPOXIDE	3.4	U		6.9	U		3.4	U				
METHOXYCHLOR	14	U		28	U		14	U				
TOXAPHENE	340	U		690	U		340	U				

Report of Analysis

Client Sample ID:	CEF-FFD-SS-001-01		
Lab Sample ID:	F6809-1	**Date Sampled:**	06/14/00
Matrix:	SO - Soil	**Date Received:**	06/16/00
Method:	SW846 3550B/8081A	**Percent Solids:**	97.6
Project:	NAS Cecil Field-BLDGS.30/182		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	ST05458.D	2	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	3.4	ug/kg	
319-84-6	alpha-BHC	ND	3.4	ug/kg	
319-85-7	beta-BHC	ND	3.4	ug/kg	
319-86-8	delta-BHC	ND	3.4	ug/kg	
58-89-9	gamma-BHC (Lindane)	ND	3.4	ug/kg	
5103-71-9	alpha-Chlordane	ND	6.8	ug/kg	
5103-74-2	gamma-Chlordane	ND	6.8	ug/kg	
60-57-1	Dieldrin	ND	3.4	ug/kg	
72-54-8	4,4'-DDD	ND	6.8	ug/kg	
72-55-9	4,4'-DDE	ND	6.8	ug/kg	
50-29-3	4,4'-DDT	ND	6.8	ug/kg	
72-20-8	Endrin	ND	6.8	ug/kg	
1031-07-8	Endosulfan sulfate	ND	6.8	ug/kg	
7421-93-4	Endrin aldehyde	ND	6.8	ug/kg	
53494-70-5	Endrin ketone	ND	6.8	ug/kg	
959-98-8	Endosulfan-I	ND	3.4	ug/kg	
33213-65-9	Endosulfan-II	ND	6.8	ug/kg	
76-44-8	Heptachlor	ND	3.4	ug/kg	
1024-57-3	Heptachlor epoxide	ND	3.4	ug/kg	
72-43-5	Methoxychlor	ND	14	ug/kg	
8001-35-2	Toxaphene	ND	340	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	92%		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-FFD-SS-002-01		
Lab Sample ID:	F6809-2	**Date Sampled:**	06/14/00
Matrix:	SO - Soil	**Date Received:**	06/16/00
Method:	SW846 3550B/8081A	**Percent Solids:**	96.6
Project:	NAS Cecil Field-BLDGS.30/182		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	ST05459.D	4	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	6.9	ug/kg	
319-84-6	alpha-BHC	ND	6.9	ug/kg	
319-85-7	beta-BHC	ND	6.9	ug/kg	
319-86-8	delta-BHC	ND	6.9	ug/kg	
58-89-9	gamma-BHC (Lindane)	ND	6.9	ug/kg	
5103-71-9	alpha-Chlordane	ND	14	ug/kg	
5103-74-2	gamma-Chlordane	ND	14	ug/kg	
60-57-1	Dieldrin	ND	6.9	ug/kg	
72-54-8	4,4'-DDD	ND	14	ug/kg	
72-55-9	4,4'-DDE	ND	14	ug/kg	
50-29-3	4,4'-DDT	ND	14	ug/kg	
72-20-8	Endrin	ND	14	ug/kg	
1031-07-8	Endosulfan sulfate	ND	14	ug/kg	
7421-93-4	Endrin aldehyde	ND	14	ug/kg	
53494-70-5	Endrin ketone	ND	14	ug/kg	
959-98-8	Endosulfan-I	ND	6.9	ug/kg	
33213-65-9	Endosulfan-II	ND	14	ug/kg	
76-44-8	Heptachlor	ND	6.9	ug/kg	
1024-57-3	Heptachlor epoxide	ND	6.9	ug/kg	
72-43-5	Methoxychlor	ND	28	ug/kg	
8001-35-2	Toxaphene	ND	690	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	84%		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-FFD-SS-DUP1		
Lab Sample ID:	F6809-3	**Date Sampled:**	06/14/00
Matrix:	SO - Soil	**Date Received:**	06/16/00
Method:	SW846 3550B/8081A	**Percent Solids:**	96.5
Project:	NAS Cecil Field-BLDGS.30/182		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	ST05460.D	2	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	3.4	ug/kg	
319-84-6	alpha-BHC	ND	3.4	ug/kg	
319-85-7	beta-BHC	ND	3.4	ug/kg	
319-86-8	delta-BHC	ND	3.4	ug/kg	
58-89-9	gamma-BHC (Lindane)	ND	3.4	ug/kg	
5103-71-9	alpha-Chlordane	ND	6.9	ug/kg	
5103-74-2	gamma-Chlordane	ND	6.9	ug/kg	
60-57-1	Dieldrin	ND	3.4	ug/kg	
72-54-8	4,4'-DDD	ND	6.9	ug/kg	
72-55-9	4,4'-DDE	ND	6.9	ug/kg	
50-29-3	4,4'-DDT	ND	6.9	ug/kg	
72-20-8	Endrin	ND	6.9	ug/kg	
1031-07-8	Endosulfan sulfate	ND	6.9	ug/kg	
7421-93-4	Endrin aldehyde	ND	6.9	ug/kg	
53494-70-5	Endrin ketone	ND	6.9	ug/kg	
959-98-8	Endosulfan-I	ND	3.4	ug/kg	
33213-65-9	Endosulfan-II	ND	6.9	ug/kg	
76-44-8	Heptachlor	ND	3.4	ug/kg	
1024-57-3	Heptachlor epoxide	ND	3.4	ug/kg	
72-43-5	Methoxychlor	ND	14	ug/kg	
8001-35-2	Toxaphene	ND	340	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	94%		50-144%
2051-24-3	Decachlorobiphenyl	129%		10-180%

(a) Dilution required due to matrix interference.

252

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

CTO078-NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F6809

SAMPLE NUMBER:	CEF-880-SS-001-01			CEF-880-SS-002-01			CEF-FFD-SS-001-01			CEF-FFD-SS-002-01		
SAMPLE DATE:	06/14/00			06/14/00			06/14/00			06/14/00		
LABORATORY ID:	F6809-4			F6809-5			F6809-1			F6809-2		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	97.0 %			99.5 %			97.6 %			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)	28.8			35.9			31.1			35.9		

CTO078-NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F6809

SAMPLE NUMBER:	CEF-FFD-SS-DUP1			
SAMPLE DATE:	06/14/00	/ /	/ /	/ /
LABORATORY ID:	F6809-3			
QC_TYPE:	NORMAL			
% SOLIDS:	96.5 %	100.0 %	100.0 %	100.0 %
UNITS:	MG/KG			
FIELD DUPLICATE OF:	CEF-FFD-SS-001-01			

	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
PETROLEUM HYDROCARBONS												
TPH (C8-C40)	34											

Report of Analysis

Client Sample ID:	CEF-FFD-SS-001-01		
Lab Sample ID:	F6809-1	**Date Sampled:**	06/14/00
Matrix:	SO - Soil	**Date Received:**	06/16/00
Method:	FLORIDA-PRO	**Percent Solids:**	97.6
Project:	NAS Cecil Field-BLDGS.30/182		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP08962.D	2	06/26/00	CCJ	06/23/00	OP1728	GOP399
Run #2							

CAS No.	Compound	Result	RL	Units	Q
	TPH (C8-C40)	31.1	17	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	94%		40-140%

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

Report of Analysis

Client Sample ID:	CEF-FFD-SS-002-01		
Lab Sample ID:	F6809-2	**Date Sampled:**	06/14/00
Matrix:	SO - Soil	**Date Received:**	06/16/00
Method:	FLORIDA-PRO	**Percent Solids:**	96.6
Project:	NAS Cecil Field-BLDGS.30/182		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP08963.D	2	06/26/00	CCJ	06/23/00	OP1728	GOP399
Run #2							

CAS No.	Compound	Result	RL	Units	Q
	TPH (C8-C40)	35.9	17	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-FFD-SS-DUP1		
Lab Sample ID:	F6809-3	**Date Sampled:**	06/14/00
Matrix:	SO - Soil	**Date Received:**	06/16/00
Method:	FLORIDA-PRO	**Percent Solids:**	96.5
Project:	NAS Cecil Field-BLDGS.30/182		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP08964.D	2	06/26/00	CCJ	06/23/00	OP1728	GOP399
Run #2							

CAS No.	Compound	Result	RL	Units	Q
	TPH (C8-C40)	34.0	17	mg/kg	

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

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

Tetra Tech NUS **INTERNAL CORRESPONDENCE**

PITT-07-0-026

TO: **MARK SPERANZA** **DATE: SEPTEMBER 7, 2000**

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

SUBJECT: **ORGANIC DATA VALIDATION – PAH**
CTO 078 – NAS CECIL FIELD
SDG F7327

SAMPLES: 6/Surface Soil

CEF-FFD-DUP2	CEF-FFD-SS-101-02
CEF-FFD-SS-102-01	CEF-FFD-SS-103-01
CEF-FFD-SS-104-01	CEF-FFD-SS-105-01

OVERVIEW

The sample set for CTO 078, SDG F7327 Naval Air Station (NAS) Cecil Field; Florida consists of six (6) surface soil environmental samples. The samples were analyzed for Polynuclear Aromatic Hydrocarbon (PAH) organic compounds. One (1) field duplicate pair (CEF-FFD-SS-101-02/CEF-FFD-DUP2) was included within this SDG.

The samples were collected by Tetra Tech, NUS on August 8th, 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

The field duplicate pair (CEF-FFD-SS-101-02/CEF-FFD-DUP2) Relative Percent Differences (RPDs) exceeded the quality control limits for 2-methylnaphthalene, acenaphthene, acenaphthylene, anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, fluoranthene, fluorene, indeno(1,2,3-cd)pyrene, and pyrene. The positive and nondetected results were qualified as estimated (J) and (UJ), in the aforementioned pair.

MEMO TO: MARK SPERANZA
DATE: SEPTEMBER 7, 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: Several samples were analyzed at a dilution thus causing elevated reporting limits. Several RPDs exceeded the quality control limit in the field duplicate pair.

MEMO TO: **MARK SPERANZA**
DATE: **SEPTEMBER 7, 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%

NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F7327

SAMPLE NUMBER:	CEF-FFD-DUP2			CEF-FFD-SS-101-02			CEF-FFD-SS-102-01			CEF-FFD-SS-103-01		
SAMPLE DATE:	08/08/00			08/08/00			08/08/00			08/08/00		
LABORATORY ID:	F7327-6			F7327-1			F7327-2			F7327-3		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	92.8 %			92.3 %			91.0 %			91.4 %		
UNITS:	UG/KG			UG/KG			UG/KG			UG/KG		
FIELD DUPLICATE OF:	CEF-FFD-SS-101-02											
	RESULT	**QUAL**	**CODE**	**RESULT**	**QUAL**	**CODE**	**RESULT**	**QUAL**	**CODE**	**RESULT**	**QUAL**	**CODE**
POLYNUCLEAR AROMATIC HYDROCARBONS												
1-METHYLNAPHTHALENE	46.4	J	P	180	U		180	U		180	U	
2-METHYLNAPHTHALENE	192	J	G	180	UJ	G	180	U		180	U	
ACENAPHTHENE	324	J	G	1730	J	G	180	U		180	U	
ACENAPHTHYLENE	556	J	G	180	UJ	G	180	U		180	U	
ANTHRACENE	53.9	J	G	382	J	G	40.9	J	P	10.8	J	P
BENZO(A)ANTHRACENE	2960	J	G	7360	J	G	281			79.7		
BENZO(A)PYRENE	2580	J	G	5460	J	G	249			105		
BENZO(B)FLUORANTHENE	4400	J	G	9880	J	G	448			147		
BENZO(G,H,I)PERYLENE	2260	J	G	4480	J	G	456			137		
BENZO(K)FLUORANTHENE	2220	J	G	5130	J	G	224			87.6		
CHRYSENE	2310	J	G	8200	J	G	400			152		
DIBENZO(A,H)ANTHRACENE	552			834			112			27	U	
FLUORANTHENE	4000	J	G	7180	J	G	710			230		
FLUORENE	39.2	J	G	245	J	G	180	U		180	U	
INDENO(1,2,3-CD)PYRENE	2060	J	G	3970	J	G	310			125		
NAPHTHALENE	180	U		180	U		180	U		180	U	
PHENANTHRENE	231			139	J	P	135	J	P	83.6	J	P
PYRENE	6000	J	G	14700	J	G	582			342		

NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F7327

SAMPLE NUMBER:	CEF-FFD-SS-104-01			CEF-FFD-SS-105-01								
SAMPLE DATE:	08/08/00			08/08/00			/ /			/ /		
LABORATORY ID:	F7327-4			F7327-5								
QC_TYPE:	NORMAL			NORMAL								
% SOLIDS:	94.5 %			94.3 %			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	180	U		180	U							
2-METHYLNAPHTHALENE	180	U		180	U							
ACENAPHTHENE	180	U		180	U							
ACENAPHTHYLENE	180	U		180	U							
ANTHRACENE	25.6	J	P	104	J	P						
BENZO(A)ANTHRACENE	153			630								
BENZO(A)PYRENE	180			838								
BENZO(B)FLUORANTHENE	322			1480								
BENZO(G,H,I)PERYLENE	284			1040								
BENZO(K)FLUORANTHENE	155			721								
CHRYSENE	400			860								
DIBENZO(A,H)ANTHRACENE	48.5			26	U							
FLUORANTHENE	589			1170								
FLUORENE	180	U		180	U							
INDENO(1,2,3-CD)PYRENE	244			868								
NAPHTHALENE	180	U		180	U							
PHENANTHRENE	180			225								
PYRENE	445			1030								

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-FFD-SS-101-02		
Lab Sample ID:	F7327-1	**Date Sampled:**	08/08/00
Matrix:	SO - Soil	**Date Received:**	08/11/00
Method:	SW846 8310	**Percent Solids:**	92.3
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	UV0360.D	1	08/18/00	AMA	08/14/00	M:OP2176	M:LCB3
Run #2	UV0470.D	5	08/31/00	AMA	08/14/00	M:OP2176	M:LCB6

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	1730	180	ug/kg	
208-96-8	Acenaphthylene	ND	180	ug/kg	
120-12-7	Anthracene	382	180	ug/kg	
56-55-3	Benzo (a) anthracene	7360	27	ug/kg	
50-32-8	Benzo (a) pyrene	5460	27	ug/kg	
205-99-2	Benzo (b) fluoranthene	9880	27	ug/kg	
191-24-2	Benzo (g,h,i) perylene	4480	27	ug/kg	
207-08-9	Benzo (k) fluoranthene	5130	27	ug/kg	
218-01-9	Chrysene	8200	27	ug/kg	
53-70-3	Dibenz(a,h)anthracene	834	27	ug/kg	
206-44-0	Fluoranthene	7180	27	ug/kg	
86-73-7	Fluorene	245	180	ug/kg	
193-39-5	Indeno (1,2,3-cd) pyrene	3970	27	ug/kg	
90-12-0	1-Methylnaphthalene	ND	180	ug/kg	
91-57-6	2-Methylnaphthalene	ND	180	ug/kg	
91-20-3	Naphthalene	ND	180	ug/kg	
85-01-8	Phenanthrene	139	180	ug/kg	J
129-00-0	Pyrene	14700 [a]	140	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	92%	89%	20-130%

(a) Result is from Run# 2

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

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Report of Analysis

Client Sample ID:	CEF-FFD-DUP2		
Lab Sample ID:	F7327-6	**Date Sampled:**	08/08/00
Matrix:	SO - Soil	**Date Received:**	08/11/00
Method:	SW846 8310	**Percent Solids:**	92.8
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	UV0366.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	324	180	ug/kg	
208-96-8	Acenaphthylene	556	180	ug/kg	
120-12-7	Anthracene	53.9	180	ug/kg	J
56-55-3	Benzo (a) anthracene	2960	27	ug/kg	
50-32-8	Benzo (a) pyrene	2580	27	ug/kg	
205-99-2	Benzo (b) fluoranthene	4400	27	ug/kg	
191-24-2	Benzo (g,h,i) perylene	2260	27	ug/kg	
207-08-9	Benzo (k) fluoranthene	2220	27	ug/kg	
218-01-9	Chrysene	2310	27	ug/kg	
53-70-3	Dibenz(a,h)anthracene	552	27	ug/kg	
206-44-0	Fluoranthene	4000	27	ug/kg	
86-73-7	Fluorene	39.2	180	ug/kg	J
193-39-5	Indeno (1,2,3-cd) pyrene	2060	27	ug/kg	
90-12-0	1-Methylnaphthalene	46.4	180	ug/kg	J
91-57-6	2-Methylnaphthalene	192	180	ug/kg	
91-20-3	Naphthalene	ND	180	ug/kg	
85-01-8	Phenanthrene	231	180	ug/kg	
129-00-0	Pyrene	6000	27	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-FFD-SS-102-01		
Lab Sample ID:	F7327-2	**Date Sampled:**	08/08/00
Matrix:	SO - Soil	**Date Received:**	08/11/00
Method:	SW846 8310	**Percent Solids:**	91.0
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	UV0361.D	1	08/18/00	AMA	08/14/00	M:OP2176	M:LCB3
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	40.9	180	ug/kg	J
56-55-3	Benzo (a) anthracene	281	27	ug/kg	
50-32-8	Benzo (a) pyrene	249	27	ug/kg	
205-99-2	Benzo (b) fluoranthene	448	27	ug/kg	
191-24-2	Benzo (g,h,i) perylene	456	27	ug/kg	
207-08-9	Benzo (k) fluoranthene	224	27	ug/kg	
218-01-9	Chrysene	400	27	ug/kg	
53-70-3	Dibenz(a,h)anthracene	112	27	ug/kg	
206-44-0	Fluoranthene	710	27	ug/kg	
86-73-7	Fluorene	ND	180	ug/kg	
193-39-5	Indeno (1,2,3-cd) pyrene	310	27	ug/kg	
90-12-0	1-Methylnaphthalene	ND	180	ug/kg	
91-57-6	2-Methylnaphthalene	ND	180	ug/kg	
91-20-3	Naphthalene	ND	180	ug/kg	
85-01-8	Phenanthrene	135	180	ug/kg	J
129-00-0	Pyrene	582	27	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	77%		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-FFD-SS-103-01		
Lab Sample ID:	F7327-3	**Date Sampled:**	08/08/00
Matrix:	SO - Soil	**Date Received:**	08/11/00
Method:	SW846 8310	**Percent Solids:**	91.4
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	UV0362.D	1	08/18/00	AMA	08/14/00	M:OP2176	M:LCB3
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	10.8	180	ug/kg	J
56-55-3	Benzo (a) anthracene	79.7	27	ug/kg	
50-32-8	Benzo (a) pyrene	105	27	ug/kg	
205-99-2	Benzo (b) fluoranthene	147	27	ug/kg	
191-24-2	Benzo (g,h,i) perylene	137	27	ug/kg	
207-08-9	Benzo (k) fluoranthene	87.6	27	ug/kg	
218-01-9	Chrysene	152	27	ug/kg	
53-70-3	Dibenz(a,h)anthracene	ND	27	ug/kg	
206-44-0	Fluoranthene	230	27	ug/kg	
86-73-7	Fluorene	ND	180	ug/kg	
193-39-5	Indeno (1,2,3-cd) pyrene	125	27	ug/kg	
90-12-0	1-Methylnaphthalene	ND	180	ug/kg	
91-57-6	2-Methylnaphthalene	ND	180	ug/kg	
91-20-3	Naphthalene	ND	180	ug/kg	
85-01-8	Phenanthrene	83.6	180	ug/kg	J
129-00-0	Pyrene	342	27	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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ACCUTEST

Report of Analysis

Client Sample ID:	CEF-FFD-SS-104-01		
Lab Sample ID:	F7327-4	**Date Sampled:**	08/08/00
Matrix:	SO - Soil	**Date Received:**	08/11/00
Method:	SW846 8310	**Percent Solids:**	94.5
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	UV0363.D	1	08/18/00	AMA	08/14/00	M:OP2176	M:LCB3
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	25.6	180	ug/kg	J
56-55-3	Benzo (a) anthracene	153	26	ug/kg	
50-32-8	Benzo (a) pyrene	180	26	ug/kg	
205-99-2	Benzo (b) fluoranthene	322	26	ug/kg	
191-24-2	Benzo (g,h,i) perylene	284	26	ug/kg	
207-08-9	Benzo (k) fluoranthene	155	26	ug/kg	
218-01-9	Chrysene	400	26	ug/kg	
53-70-3	Dibenz(a,h)anthracene	48.5	26	ug/kg	
206-44-0	Fluoranthene	589	26	ug/kg	
86-73-7	Fluorene	ND	180	ug/kg	
193-39-5	Indeno (1,2,3-cd) pyrene	244	26	ug/kg	
90-12-0	1-Methylnaphthalene	ND	180	ug/kg	
91-57-6	2-Methylnaphthalene	ND	180	ug/kg	
91-20-3	Naphthalene	ND	180	ug/kg	
85-01-8	Phenanthrene	180	180	ug/kg	
129-00-0	Pyrene	445	26	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	100%		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-FFD-SS-105-01		
Lab Sample ID:	F7327-5	**Date Sampled:**	08/08/00
Matrix:	SO - Soil	**Date Received:**	08/11/00
Method:	SW846 8310	**Percent Solids:**	94.3
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	UV0364.D	1	08/18/00	AMA	08/14/00	M:OP2176	M:LCB3
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	104	180	ug/kg	J
56-55-3	Benzo (a) anthracene	630	26	ug/kg	
50-32-8	Benzo (a) pyrene	838	26	ug/kg	
205-99-2	Benzo (b) fluoranthene	1480	26	ug/kg	
191-24-2	Benzo (g,h,i) perylene	1040	26	ug/kg	
207-08-9	Benzo (k) fluoranthene	721	26	ug/kg	
218-01-9	Chrysene	860	26	ug/kg	
53-70-3	Dibenz(a,h)anthracene	ND	26	ug/kg	
206-44-0	Fluoranthene	1170	26	ug/kg	
86-73-7	Fluorene	ND	180	ug/kg	
193-39-5	Indeno (1,2,3-cd) pyrene	868	26	ug/kg	
90-12-0	1-Methylnaphthalene	ND	180	ug/kg	
91-57-6	2-Methylnaphthalene	ND	180	ug/kg	
91-20-3	Naphthalene	ND	180	ug/kg	
85-01-8	Phenanthrene	225	180	ug/kg	
129-00-0	Pyrene	1030	26	ug/kg	

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

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

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-203-01
CEF-635-SS-205-01
CEF-635-SS-207-01
CEF-635-SS-211-01
CEF-635-SS-213-01
CEF-635-SS-219-01
CEF-635-SS-221-01
CEF-635-SS-223-01
CEF-635-SS-225-01
CEF-635-SS-DUP3-01
CEF-635-SU-210-04
CEF-635-SU-215-04
CEF-635-SU-218-04
CEF-FFD-SS-202-01
CEF-FFD-SU-203-03

CEF-635-SS-202-01
CEF-635-SS-204-01
CEF-635-SS-206-01
CEF-635-SS-208-01
CEF-635-SS-212-01
CEF-635-SS-216-01
CEF-635-SS-220-01
CEF-635-SS-222-01
CEF-635-SS-224-01
CEF-635-SS-DUP2-01
CEF-635-SU-209-03
CEF-635-SU-214-03
CEF-635-SU-217-03
CEF-FFD-SS-201-01
CEF-FFD-SS-DUP2-01
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.

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%

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

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

SAMPLE NUMBER:	CEF-FFD-SS-202-01			CEF-FFD-SS-DUP2-01			CEF-FFD-SU-203-03			CEF-FFD-SU-204-04		
SAMPLE DATE:	09/18/00			09/18/00			09/18/00			09/18/00		
LABORATORY ID:	F7625-29			F7625-32			F7625-30			F7625-31		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	89.4 %			76.3 %			80.4 %			91.9 %		
UNITS:	UG/KG			UG/KG			UG/KG			UG/KG		
FIELD DUPLICATE OF:				CEF-FFD-SS-201-01								
	RESULT	**QUAL**	**CODE**	**RESULT**	**QUAL**	**CODE**	**RESULT**	**QUAL**	**CODE**	**RESULT**	**QUAL**	**CODE**
POLYNUCLEAR AROMATIC HYDROCARBONS												
1-METHYLNAPHTHALENE	370	U		440	U		410	U		360	U	
2-METHYLNAPHTHALENE	370	U		440	U		410	U		360	U	
ACENAPHTHENE	750	U		870	U		830	U		720	U	
ACENAPHTHYLENE	750	U		870	U		830	U		720	U	
ANTHRACENE	370	U		440	U		410	U		360	U	
BENZO(A)ANTHRACENE	252			447	J	G	495			72	U	
BENZO(A)PYRENE	322			503	J	G	584			40.4	J	P
BENZO(B)FLUORANTHENE	331			807	J	G	767			61.8	J	P
BENZO(G,H,I)PERYLENE	270			571	J	G	422			48.1	J	P
BENZO(K)FLUORANTHENE	165			447	J	G	399			32.7	J	P
CHRYSENE	214	J	P	494	J	G	269	J	P	360	U	
DIBENZO(A,H)ANTHRACENE	41.6	J	P	56.8	J	GP	54.1	J	P	72	U	
FLUORANTHENE	351	J	P	788	J	G	505			360	U	
FLUORENE	370	U		440	U		410	U		360	U	
INDENO(1,2,3-CD)PYRENE	279			485	J	G	468			37.9	J	P
NAPHTHALENE	370	U		440	U		410	U		360	U	
PHENANTHRENE	370	U		440	U		410	U		360	U	
PYRENE	344	J	P	692	J	G	825			360	U	

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Report of Analysis

Client Sample ID:	CEF-FFD-SS-201-01		
Lab Sample ID:	F7625-28	**Date Sampled:**	09/18/00
Matrix:	SO - Soil	**Date Received:**	09/19/00
Method:	EPA 8310	**Percent Solids:**	87.6
Project:	NAS Cecil Field 0039		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	EE000240.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	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	2630	380	ug/kg	
50-32-8	Benzo(a)pyrene	2270	380	ug/kg	
205-99-2	Benzo(b)fluoranthene	3610	380	ug/kg	
191-24-2	Benzo(g,h,i)perylene	2530	380	ug/kg	
207-08-9	Benzo(k)fluoranthene	1970	380	ug/kg	
218-01-9	Chrysene	3050	1900	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	326	380	ug/kg	J
206-44-0	Fluoranthene	1950	1900	ug/kg	
86-73-7	Fluorene	ND	1900	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	2700	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	2540	1900	ug/kg	

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

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-FFD-SS-DUP2-01		
Lab Sample ID:	F7625-32	**Date Sampled:**	09/18/00
Matrix:	SO - Soil	**Date Received:**	09/19/00
Method:	EPA 8310	**Percent Solids:**	76.3
Project:	NAS Cecil Field 0039		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	EE000246.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	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	447	87	ug/kg	
50-32-8	Benzo(a)pyrene	503	87	ug/kg	
205-99-2	Benzo(b)fluoranthene	807	87	ug/kg	
191-24-2	Benzo(g,h,i)perylene	571	87	ug/kg	
207-08-9	Benzo(k)fluoranthene	447	87	ug/kg	
218-01-9	Chrysene	494	440	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	56.8	87	ug/kg	J
206-44-0	Fluoranthene	788	440	ug/kg	
86-73-7	Fluorene	ND	440	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	485	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	692	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	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

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-FFD-SS-202-01		
Lab Sample ID:	F7625-29	**Date Sampled:**	09/18/00
Matrix:	SO - Soil	**Date Received:**	09/19/00
Method:	EPA 8310	**Percent Solids:**	89.4
Project:	NAS Cecil Field 0039		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	EE000241.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	750	ug/kg	
208-96-8	Acenaphthylene	ND	750	ug/kg	
120-12-7	Anthracene	ND	370	ug/kg	
56-55-3	Benzo(a)anthracene	252	75	ug/kg	
50-32-8	Benzo(a)pyrene	322	75	ug/kg	
205-99-2	Benzo(b)fluoranthene	331	75	ug/kg	
191-24-2	Benzo(g,h,i)perylene	270	75	ug/kg	
207-08-9	Benzo(k)fluoranthene	165	75	ug/kg	
218-01-9	Chrysene	214	370	ug/kg	J
53-70-3	Dibenzo(a,h)anthracene	41.6	75	ug/kg	J
206-44-0	Fluoranthene	351	370	ug/kg	J
86-73-7	Fluorene	ND	370	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	279	75	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	344	370	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	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

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-FFD-SU-203-03		
Lab Sample ID:	F7625-30	**Date Sampled:**	09/18/00
Matrix:	SO - Soil	**Date Received:**	09/19/00
Method:	EPA 8310	**Percent Solids:**	80.4
Project:	NAS Cecil Field 0039		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	EE000242.D	5/1	09/21/00	ME	09/19/00	OP2070	GEE8
Run #2							

11-7-00 JAA

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	410	ug/kg	
56-55-3	Benzo(a)anthracene	495	83	ug/kg	
50-32-8	Benzo(a)pyrene	584	83	ug/kg	
205-99-2	Benzo(b)fluoranthene	767	83	ug/kg	
191-24-2	Benzo(g,h,i)perylene	422	83	ug/kg	
207-08-9	Benzo(k)fluoranthene	399	83	ug/kg	
218-01-9	Chrysene	269	410	ug/kg	J
53-70-3	Dibenzo(a,h)anthracene	54.1	83	ug/kg	J
206-44-0	Fluoranthene	505	410	ug/kg	
86-73-7	Fluorene	ND	410	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	468	83	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	825	410	ug/kg	

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

Report of Analysis

Client Sample ID:	CEF-FFD-SU-204-04		
Lab Sample ID:	F7625-31	**Date Sampled:**	09/18/00
Matrix:	SO - Soil	**Date Received:**	09/19/00
Method:	EPA 8310	**Percent Solids:**	91.9
Project:	NAS Cecil Field 0039		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	EE000243.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	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	72	ug/kg	
50-32-8	Benzo(a)pyrene	40.4	72	ug/kg	J
205-99-2	Benzo(b)fluoranthene	61.8	72	ug/kg	J
191-24-2	Benzo(g,h,i)perylene	48.1	72	ug/kg	J
207-08-9	Benzo(k)fluoranthene	32.7	72	ug/kg	J
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	37.9	72	ug/kg	J
91-20-3	Naphthalene	ND	360	ug/kg	
90-12-0	1-Methylnaphthalene	ND	360	ug/kg	
91-57-6	2-Methylnaphthalene	ND	360	ug/kg	
85-01-8	Phenanthrene	ND	360	ug/kg	
129-00-0	Pyrene	ND	360	ug/kg	

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

Tetra Tech NUS **INTERNAL CORRESPONDENCE**

PITT-06-0-024

TO: **MARK SPERANZA** **DATE: JANUARY 3, 2001**

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

SUBJECT: **ORGANIC DATA VALIDATION – PAH**
CTO 078 – NAS CECIL FIELD
SDG F8137

SAMPLES: 5/Soil

CEF-FFD-DUP3
CEF-FFD-SS-302-01
CEF-FFD-SU303-04
CEF-FFD-SS-301-01
CEF-FFD-SU303-03

OVERVIEW

The sample set for CTO 078, SDG F8137 Naval Air Station (NAS) Cecil Field; Florida consists of five (5) soil environmental samples. The samples were analyzed for Polynuclear Aromatic Hydrocarbon (PAH) organic compounds. One (1) field duplicate pair (CEF-FFD-SS-301-01/CEF-FFD-DUP3) 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

Samples CEF-FFD-DUP3 and CEF-FFD-SS-302-01 were analyzed at a 10X dilution due to elevated target compound results.

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

MEMO TO: MARK SPERANZA
DATE: JANUARY 3, 2001 – 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%

CTO078-NAS CECIL FIELD
SOIL DATA
ACCUTEST
SDG: F8137

SAMPLE NUMBER:	CEF-FFD-DUP3			CEF-FFD-SS-301-01			CEF-FFD-SS-302-01			CEF-FFD-SU303-03		
SAMPLE DATE:	11/15/00			11/15/00			11/15/00			11/15/00		
LABORATORY ID:	F8137-1			F8137-4			F8137-5			F8137-2		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	92.5 %			92.9 %			94.9 %			95.3 %		
UNITS:	UG/KG			UG/KG			UG/KG			UG/KG		
FIELD DUPLICATE OF:	CEF-FFD-SS-301-01											
	RESULT	**QUAL**	**CODE**	**RESULT**	**QUAL**	**CODE**	**RESULT**	**QUAL**	**CODE**	**RESULT**	**QUAL**	**CODE**
POLYNUCLEAR AROMATIC HYDROCARBONS												
1-METHYLNAPHTHALENE	1350	J	P	1980	J	P	350	U		350	U	
2-METHYLNAPHTHALENE	1450	J	P	2210	J	P	350	U		350	U	
ACENAPHTHENE	7200	U		7200	U		700	U		700	U	
ACENAPHTHYLENE	7200	U		7200	U		700	U		700	U	
ANTHRACENE	3600	U		3600	U		350	U		350	U	
BENZO(A)ANTHRACENE	1610	J	P	2480	J	P	350	U		350	U	
BENZO(A)PYRENE	2600			3780			46.4	J	P	120		
BENZO(B)FLUORANTHENE	1780			2530			32.6	J	P	73.5		
BENZO(G,H,I)PERYLENE	3100			4140			38.2	J	P	136		
BENZO(K)FLUORANTHENE	1250			1820			18.4	J	P	48.4	J	P
CHRYSENE	2040	J	P	3200	J	P	350	U		350	U	
DIBENZO(A,H)ANTHRACENE	247	J	P	395	J	P	70	U		70	U	
FLUORANTHENE	3550	J	P	5800			350	U		350	U	
FLUORENE	3600	U		3600	U		350	U		350	U	
INDENO(1,2,3-CD)PYRENE	2740			3850			47	J	P	138		
NAPHTHALENE	3600	U		2390	J	P	350	U		350	U	
PHENANTHRENE	3600	U		2080	J	P	350	U		350	U	
PYRENE	3220	J	P	5170			350	U		350	U	

CTO078-NAS CECIL FIELD
SOIL DATA
ACCUTEST
SDG: F8137

SAMPLE NUMBER:	CEF-FFD-SU304-04		
SAMPLE DATE:	11/15/00	/ /	/ /	/ /
LABORATORY ID:	F8137-3			
QC_TYPE:	NORMAL			
% SOLIDS:	96.1 %	100.0 %	100.0 %	100.0 %
UNITS:	UG/KG			
FIELD DUPLICATE OF:				

	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
POLYNUCLEAR AROMATIC HYDROCARBONS												
1-METHYLNAPHTHALENE	350	U										
2-METHYLNAPHTHALENE	350	U										
ACENAPHTHENE	690	U										
ACENAPHTHYLENE	690	U										
ANTHRACENE	350	U										
BENZO(A)ANTHRACENE	350	U										
BENZO(A)PYRENE	69	U										
BENZO(B)FLUORANTHENE	69	U										
BENZO(G,H,I)PERYLENE	69	U										
BENZO(K)FLUORANTHENE	69	U										
CHRYSENE	350	U										
DIBENZO(A,H)ANTHRACENE	69	U										
FLUORANTHENE	350	U										
FLUORENE	350	U										
INDENO(1,2,3-CD)PYRENE	69	U										
NAPHTHALENE	350	U										
PHENANTHRENE	350	U										
PYRENE	350	U										

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-FFD-SS301-01		
Lab Sample ID:	F8137-4	**Date Sampled:**	11/15/00
Matrix:	SO - Soil	**Date Received:**	11/16/00
Method:	EPA 8310 SW846 3550B	**Percent Solids:**	92.9
Project:	NAS Cecil Field 0039		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	EE000851.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	7200	ug/kg	
208-96-8	Acenaphthylene	ND	7200	ug/kg	
120-12-7	Anthracene	ND	3600	ug/kg	
56-55-3	Benzo(a)anthracene	2480	3600	ug/kg	J
50-32-8	Benzo(a)pyrene	3780	720	ug/kg	
205-99-2	Benzo(b)fluoranthene	2530	720	ug/kg	
191-24-2	Benzo(g,h,i)perylene	4140	720	ug/kg	
207-08-9	Benzo(k)fluoranthene	1820	720	ug/kg	
218-01-9	Chrysene	3200	3600	ug/kg	J
53-70-3	Dibenzo(a,h)anthracene	395	720	ug/kg	J
206-44-0	Fluoranthene	5800	3600	ug/kg	
86-73-7	Fluorene	ND	3600	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	3850	720	ug/kg	
91-20-3	Naphthalene	2390	3600	ug/kg	J
90-12-0	1-Methylnaphthalene	1980	3600	ug/kg	J
91-57-6	2-Methylnaphthalene	2210	3600	ug/kg	J
85-01-8	Phenanthrene	2080	3600	ug/kg	J
129-00-0	Pyrene	5170	3600	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	107%		22-130%
92-94-4	p-Terphenyl	157% [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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ACCUTEST

Report of Analysis

Client Sample ID:	CEF-FFD-DUP3		
Lab Sample ID:	F8137-1	**Date Sampled:**	11/15/00
Matrix:	SO - Soil	**Date Received:**	11/16/00
Method:	EPA 8310 SW846 3550B	**Percent Solids:**	92.5
Project:	NAS Cecil Field 0039		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	EE000848.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	7200	ug/kg	
208-96-8	Acenaphthylene	ND	7200	ug/kg	
120-12-7	Anthracene	ND	3600	ug/kg	
56-55-3	Benzo(a)anthracene	1610	3600	ug/kg	J
50-32-8	Benzo(a)pyrene	2600	720	ug/kg	
205-99-2	Benzo(b)fluoranthene	1780	720	ug/kg	
191-24-2	Benzo(g,h,i)perylene	3100	720	ug/kg	
207-08-9	Benzo(k)fluoranthene	1250	720	ug/kg	
218-01-9	Chrysene	2040	3600	ug/kg	J
53-70-3	Dibenzo(a,h)anthracene	247	720	ug/kg	J
206-44-0	Fluoranthene	3550	3600	ug/kg	J
86-73-7	Fluorene	ND	3600	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	2740	720	ug/kg	
91-20-3	Naphthalene	ND	3600	ug/kg	
90-12-0	1-Methylnaphthalene	1350	3600	ug/kg	J
91-57-6	2-Methylnaphthalene	1450	3600	ug/kg	J
85-01-8	Phenanthrene	ND	3600	ug/kg	
129-00-0	Pyrene	3220	3600	ug/kg	J

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	100%		22-130%
92-94-4	p-Terphenyl	128%		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

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-FFD-SS302-01		
Lab Sample ID:	F8137-5	**Date Sampled:**	11/15/00
Matrix:	SO - Soil	**Date Received:**	11/16/00
Method:	EPA 8310 SW846 3550B	**Percent Solids:**	94.9
Project:	NAS Cecil Field 0039		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	EE000852.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	700	ug/kg	
208-96-8	Acenaphthylene	ND	700	ug/kg	
120-12-7	Anthracene	ND	350	ug/kg	
56-55-3	Benzo(a)anthracene	ND	350	ug/kg	
50-32-8	Benzo(a)pyrene	46.4	70	ug/kg	J
205-99-2	Benzo(b)fluoranthene	32.6	70	ug/kg	J
191-24-2	Benzo(g,h,i)perylene	38.2	70	ug/kg	J
207-08-9	Benzo(k)fluoranthene	18.4	70	ug/kg	J
218-01-9	Chrysene	ND	350	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	70	ug/kg	
206-44-0	Fluoranthene	ND	350	ug/kg	
86-73-7	Fluorene	ND	350	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	47.0	70	ug/kg	J
91-20-3	Naphthalene	ND	350	ug/kg	
90-12-0	1-Methylnaphthalene	ND	350	ug/kg	
91-57-6	2-Methylnaphthalene	ND	350	ug/kg	
85-01-8	Phenanthrene	ND	350	ug/kg	
129-00-0	Pyrene	ND	350	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	96%		22-130%
92-94-4	p-Terphenyl	106%		53-130%

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

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

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ACCUTEST

Report of Analysis

Client Sample ID:	CEF-FFD-SU303-03		
Lab Sample ID:	F8137-2	**Date Sampled:**	11/15/00
Matrix:	SO - Soil	**Date Received:**	11/16/00
Method:	EPA 8310 SW846 3550B	**Percent Solids:**	95.3
Project:	NAS Cecil Field 0039		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	EE000878.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	700	ug/kg	
208-96-8	Acenaphthylene	ND	700	ug/kg	
120-12-7	Anthracene	ND	350	ug/kg	
56-55-3	Benzo(a)anthracene	ND	350	ug/kg	
50-32-8	Benzo(a)pyrene	120	70	ug/kg	
205-99-2	Benzo(b)fluoranthene	73.5	70	ug/kg	
191-24-2	Benzo(g,h,i)perylene	136	70	ug/kg	
207-08-9	Benzo(k)fluoranthene	48.4	70	ug/kg	J
218-01-9	Chrysene	ND	350	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	70	ug/kg	
206-44-0	Fluoranthene	ND	350	ug/kg	
86-73-7	Fluorene	ND	350	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	138	70	ug/kg	
91-20-3	Naphthalene	ND	350	ug/kg	
90-12-0	1-Methylnaphthalene	ND	350	ug/kg	
91-57-6	2-Methylnaphthalene	ND	350	ug/kg	
85-01-8	Phenanthrene	ND	350	ug/kg	
129-00-0	Pyrene	ND	350	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	122%		22-130%
92-94-4	p-Terphenyl	129%		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

005

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-FFD-SU304-04		
Lab Sample ID:	F8137-3	**Date Sampled:**	11/15/00
Matrix:	SO - Soil	**Date Received:**	11/16/00
Method:	EPA 8310 SW846 3550B	**Percent Solids:**	96.1
Project:	NAS Cecil Field 0039		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	EE000850.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	690	ug/kg	
208-96-8	Acenaphthylene	ND	690	ug/kg	
120-12-7	Anthracene	ND	350	ug/kg	
56-55-3	Benzo(a)anthracene	ND	350	ug/kg	
50-32-8	Benzo(a)pyrene	ND	69	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	69	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	69	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	69	ug/kg	
218-01-9	Chrysene	ND	350	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	69	ug/kg	
206-44-0	Fluoranthene	ND	350	ug/kg	
86-73-7	Fluorene	ND	350	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	69	ug/kg	
91-20-3	Naphthalene	ND	350	ug/kg	
90-12-0	1-Methylnaphthalene	ND	350	ug/kg	
91-57-6	2-Methylnaphthalene	ND	350	ug/kg	
85-01-8	Phenanthrene	ND	350	ug/kg	
129-00-0	Pyrene	ND	350	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	107%		22-130%
92-94-4	p-Terphenyl	115%		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

Tetra Tech NUS **INTERNAL CORRESPONDENCE**

TO: **MARK SPERANZA** **DATE: FEBRUARY 9, 2001**

FROM: **SETH STAFFEN** **CC: DV FILE**

SUBJECT: **ORGANIC DATA VALIDATION –PAH**
CTO 078 – NAS CECIL FIELD
SDG F8798

SAMPLES: 3/Surface Soil

CEF-FFD-SS-401-03
CEF-FFD-SS-402-03
CEF-FFD-DUP4

OVERVIEW

The sample set for CTO 078, SDG F8798 Naval Air Station (NAS) Cecil Field; Florida consists of three (3) soil/sediment environmental samples. The samples were analyzed for Target Compound List (TCL) Polynuclear Aromatic Hydrocarbons (PAHs). One (1) field duplicate pair was included within this SDG (CEF-FFD-SS-401-03/CEF-FFD-DUP4).

The samples were collected by Tetra Tech, NUS on January 25th, 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
- * Field Duplicate Results
- * 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

The surrogate %R exceeded the upper control limit for p-Terphenyl on column two in the matrix spike duplicate due to matrix interference. No action was taken.

The Relative Percent Differences (RPDs) for several compounds were greater than the RPD quality control limit due to possible sample nonhomogeneity. No action was warranted on MS/MSD data alone.

Continuing calibration %Ds exceeded the 15% quality control limit on both analytical columns for Benzo (a) Pyrene. No action was taken since the last calibration bracketing the sample was acceptable.

ADDITONAL COMMENTS

The laboratory reported the lower of the two analytical results.

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

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/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: F8798

SAMPLE NUMBER:	CEF-FFD-DUP4	CEF-FFD-SS-401-03	CEF-FFD-SS-402-03	
SAMPLE DATE:	01/25/01	01/25/01	01/25/01	/ /
LABORATORY ID:	F8798-3	F8798-1	F8798-2	
QC_TYPE:	NORMAL	NORMAL	NORMAL	
% SOLIDS:	94.1 %	85.4 %	97.1 %	100.0 %
UNITS:	UG/KG	UG/KG	UG/KG	
FIELD DUPLICATE OF:	CEF-FFD-SS-401-03			

	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
POLYNUCLEAR AROMATIC HYDROCARBONS												
1-METHYLNAPHTHALENE	350	U		390	U		360	U				
2-METHYLNAPHTHALENE	350	U		390	U		360	U				
ACENAPHTHENE	710	U		780	U		730	U				
ACENAPHTHYLENE	710	U		780	U		730	U				
ANTHRACENE	350	U		390	U		360	U				
BENZO(A)ANTHRACENE	350	U		390	U		360	U				
BENZO(A)PYRENE	71	U		78	U		73	U				
BENZO(B)FLUORANTHENE	71	U		78	U		73	U				
BENZO(G,H,I)PERYLENE	71	U		78	U		73	U				
BENZO(K)FLUORANTHENE	71	U		78	U		73	U				
CHRYSENE	350	U		390	U		360	U				
DIBENZO(A,H)ANTHRACENE	71	U		78	U		73	U				
FLUORANTHENE	350	U		390	U		360	U				
FLUORENE	350	U		390	U		360	U				
INDENO(1,2,3-CD)PYRENE	71	U		78	U		73	U				
NAPHTHALENE	350	U		390	U		360	U				
PHENANTHRENE	350	U		390	U		360	U				
PYRENE	350	U		390	U		360	U				

Report of Analysis

Client Sample ID:	CEF-FFD-SS-401-03		
Lab Sample ID:	F8798-1	**Date Sampled:**	01/25/01
Matrix:	SO - Soil	**Date Received:**	01/26/01
Method:	EPA 8310 SW846 3550B	**Percent Solids:**	85.4
Project:	NAS Cecil Field 0039		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	AA006232.D	1	01/31/01	MRE	01/30/01	OP2650	GAA232
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	87%		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

Report of Analysis

Client Sample ID:	CEF-FFD-DUP4		
Lab Sample ID:	F8798-3	**Date Sampled:**	01/25/01
Matrix:	SO - Soil	**Date Received:**	01/26/01
Method:	EPA 8310 SW846 3550B	**Percent Solids:**	94.1
Project:	NAS Cecil Field 0039		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	AA006234.D	1	01/31/01	MRE	01/30/01	OP2650	GAA232
Run #2							

Polynuclear Aromatic Hydrocarbons

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	710	ug/kg	
208-96-8	Acenaphthylene	ND	710	ug/kg	
120-12-7	Anthracene	ND	350	ug/kg	
56-55-3	Benzo(a)anthracene	ND	350	ug/kg	
50-32-8	Benzo(a)pyrene	ND	71	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	71	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	71	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	71	ug/kg	
218-01-9	Chrysene	ND	350	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	71	ug/kg	
206-44-0	Fluoranthene	ND	350	ug/kg	
86-73-7	Fluorene	ND	350	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	71	ug/kg	
91-20-3	Naphthalene	ND	350	ug/kg	
90-12-0	1-Methylnaphthalene	ND	350	ug/kg	
91-57-6	2-Methylnaphthalene	ND	350	ug/kg	
85-01-8	Phenanthrene	ND	350	ug/kg	
129-00-0	Pyrene	ND	350	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	86%		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-FFD-SS-402-03		
Lab Sample ID:	F8798-2	**Date Sampled:**	01/25/01
Matrix:	SO - Soil	**Date Received:**	01/26/01
Method:	EPA 8310 SW846 3550B	**Percent Solids:**	91.7
Project:	NAS Cecil Field 0039		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	AA006233.D	1	01/31/01	MRE	01/30/01	OP2650	GAA232
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	360	ug/kg	
56-55-3	Benzo(a)anthracene	ND	360	ug/kg	
50-32-8	Benzo(a)pyrene	ND	73	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	73	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	73	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	73	ug/kg	
218-01-9	Chrysene	ND	360	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	73	ug/kg	
206-44-0	Fluoranthene	ND	360	ug/kg	
86-73-7	Fluorene	ND	360	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	73	ug/kg	
91-20-3	Naphthalene	ND	360	ug/kg	
90-12-0	1-Methylnaphthalene	ND	360	ug/kg	
91-57-6	2-Methylnaphthalene	ND	360	ug/kg	
85-01-8	Phenanthrene	ND	360	ug/kg	
129-00-0	Pyrene	ND	360	ug/kg	

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