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LIMITED SCOPE SITE ASSESSMENT REPORT FOR BUILDING 842 UNDERGROUND STORAGE TANK G842B BASE REALIGNMENT AND CLOSURE NAS CECIL FIELD FL
7/1/2004
TETRA TECH

Limited Scope
Site Assessment Report
for
Building 842,
Underground Storage Tank G842B

Base Realignment and Closure

Naval Air Station Cecil Field
Jacksonville, Florida

NAVFAC
Naval Facilities Engineering Command
SOUTHERN DIVISION

Southern Division
Naval Facilities Engineering Command

Contract Number N62467-94-D-0888

Contract Task Order 0248

July 2004

TETRA TECH NUS, INC.

04JAX0012

LIMITED SCOPE SITE ASSESSMENT REPORT
FOR
BUILDING 842, UNDERGROUND STORAGE TANK G842B

BASE REALIGNMENT AND CLOSURE

NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

COMPREHENSIVE LONG-TERM
ENVIRONMENTAL ACTION NAVY (CLEAN) CONTRACT

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

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CONTRACT TASK ORDER 0248

JULY 2004

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PROFESSIONAL REVIEW CERTIFICATION

The Limited Scope Site Assessment contained in this report was prepared using sound hydrogeologic principles and judgment. This assessment is based on the geologic investigation and associated information detailed in the text and appended to this report. If conditions are determined to exist that differ from those described, the undersigned geologist should be notified to evaluate the effects of any additional information on the assessment described in this report. This Site Assessment Report was developed for Building 842, Tank G842B at the former Naval Air Station Cecil Field, Jacksonville, Florida, and should not be construed to apply to any other site.

Mervin Dale
Florida Professional Geologist
P.G. Number 0001917

July 2, 2004

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ACRONYMS

bls	Below Land Surface
CCI	CH2M Hill Constructors, Inc.
COCs	Contaminants of Concern
CompQAP	Comprehensive Quality Assurance Plan
CSR	Confirmatory Sampling Report
DPT	Direct Push Technology
FAC	Florida Administrative Code
FDEP	Florida Department of Environmental Protection
FID	Flame Ionization Detector
ft	Feet or Foot
HLA	Harding Lawson Associates
JAA	Jacksonville Airport Authority
KAG	Kerosene Analytical Group
LSSA	Limited Scope Site Assessment
µg/L	Micrograms per Liter
mg/kg	Milligrams per Kilogram
NAS	Naval Air Station
NAVFAC EFD SOUTH	Southern Division, Naval Facilities Engineering Command
OVA	Organic Vapor Analyzer
PAHs	Polynuclear Aromatic Hydrocarbons
ppm	Parts per Million
SAR	Site Assessment Report
SCTLs	Soil Cleanup Target Levels
SRR	Source Removal Report
TRPH	Total Recoverable Petroleum Hydrocarbons
TtNUS	Tetra Tech NUS, Inc.
USEPA	United States Environmental Protection Agency
USGS	United States Geological Survey
UST	Underground Storage Tank
VOAs	Volatile Organic Aromatics

1.0 INTRODUCTION

TtNUS was authorized by the United States Navy Southern Division, Naval Facilities Engineering Command (NAVFAC EFD SOUTH) to conduct a LSSA at Building 842, UST G842B at NAS Cecil Field, in Jacksonville, Florida. The LSSA was conducted at the former location of a 550-gallon UST located on the west side of Building 842. Available background information for the site is provided in the following sections.

1.1 SITE DESCRIPTION

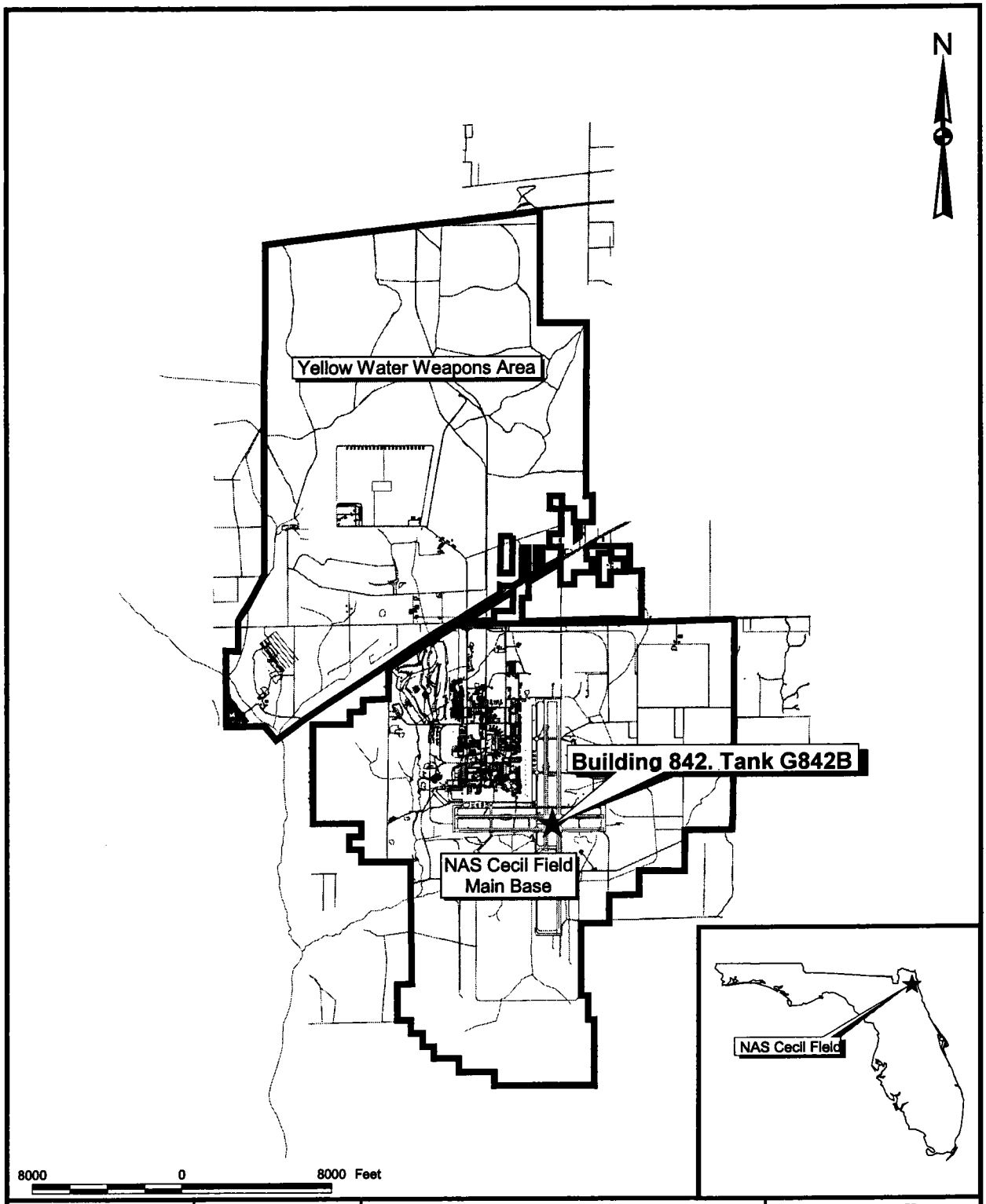
Building 842 was the radar building and housed ground electronics used for aircraft navigation. Building 842 was located in the central portion of NAS Cecil Field at the intersection of the north-south and east-west runways (see Figure 1-1). The building was removed by the Jacksonville Airport Authority (JAA). UST G842B was located to the west of Building 842 in a grassy area. The area immediately surrounding the former location of Building 842 is paved, with a driveway extending from the north side of Building 842 to the runway north of the building. The remainder of the area is grass covered.

1.2 SURROUNDING PROPERTIES

The area of the former Building 842 is surrounded to the north, south, east, and west by paved areas of the runways and flightline with maintained grass areas in between. The area adjacent to Building 842 is shown on an aerial photograph reproduction as Figure 1-2. The JAA continues to use these runways and taxiways.

1.3 TOPOGRAPHIC SETTING

A portion of the Fiftone, Florida United States Geological Survey (USGS) 7.5-minute quadrangle has been reproduced as Figure 1-3 to illustrate the subject site in relation to its topographic surroundings. The site area is elevated approximately 2 ft above the runways. A shallow depression surrounds the site on the west, east, and north sides between the site and the runways. Surface water run off in the immediate vicinity of the former Building 842 location is directed into the storm water drain system. The nearest surface water bodies are drainage canals 1,000 to 2,000 ft from the site.



DRAWN BY MJJ	DATE 27Aug03	GENERAL LOCATION MAP BUILDING 842, TANK G842B NAVAL AIR STATION CECIL FIELD JACKSONVILLE, FLORIDA	CONTRACT NUMBER 4248
CHECKED BY	DATE		APPROVED BY / DATE
COST/SCHEDULE-AREA			APPROVED BY / DATE
SCALE AS NOTED			DRAWING NO. FIGURE 1-1 / REV 0

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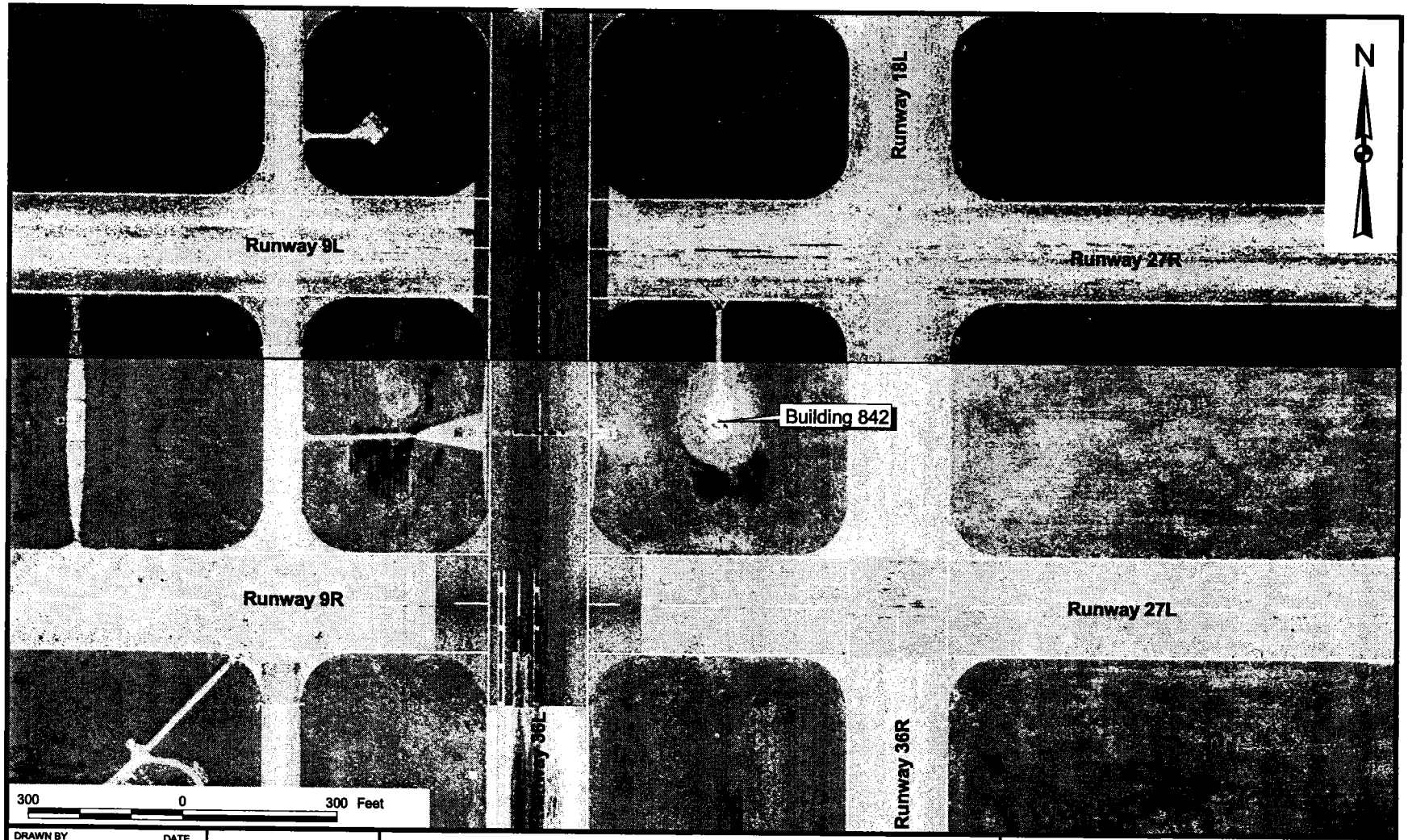

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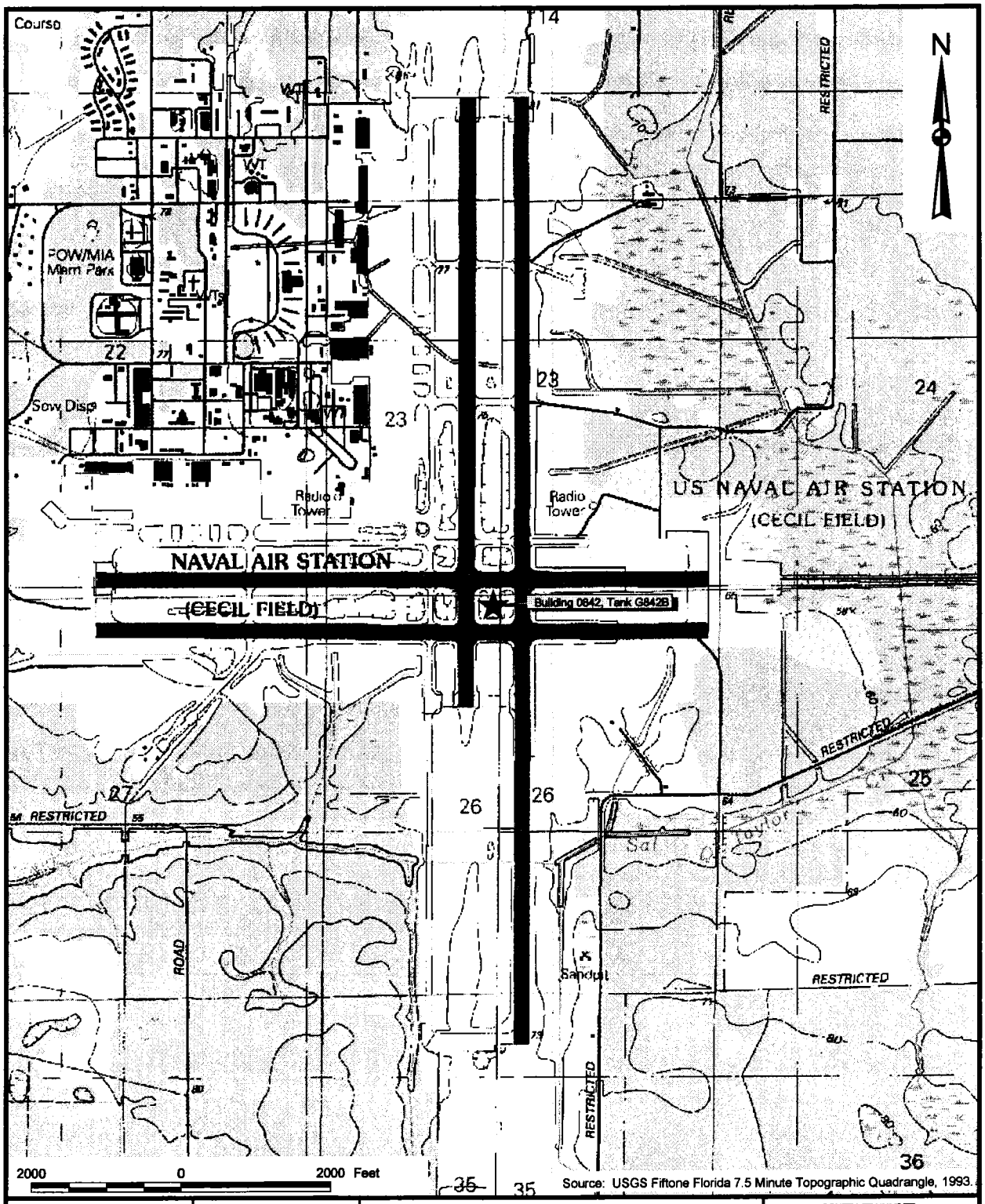

Source: USGS Fiftone Florida 7.5 Minute Topographic Quadrangle, 1993.

DRAWN BY MJJ	DATE 27Aug03	**TOPOGRAPHIC MAP** BUILDING 842, TANK G842B NAVAL AIR STATION CECIL FIELD JACKSONVILLE, FLORIDA	CONTRACT NUMBER 4248
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COST/SCHEDULE-AREA			APPROVED BY DATE
SCALE AS NOTED			DRAWING NO. FIGURE 1-3 REV 0

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1.4 INVESTIGATIVE HISTORY

Two petroleum storage tanks were identified in the vicinity of Building 842 in the Tank Management Plan for NAS Cecil Field (ABB-ES, 1997a). Tank G842A, a 275-gallon aboveground storage tank, was never located and was deleted from the Tank Management Plan. Tank G842B was a 550-gallon UST for storing diesel fuel installed in 1985 and removed in 1999. The following investigations have been conducted at UST G842B:

- **1997.** A confirmation sampling investigation conducted in January 1997 evaluated the site soil for petroleum impact (ABB-ES, 1997b). Soil samples were collected from around the tank and field screened with an organic vapor analyzer (OVA). No excessively contaminated soil was encountered at that time. However, the confirmation sampling report (CSR) recommended installation of a monitoring well and groundwater sampling to complete the investigation.

- **1998.** A confirmation sampling investigation conducted in April 1998 evaluated groundwater at Tank Site G842B for petroleum impacts [Harding Lawson and Associates (HLA), 1998]. One shallow monitoring well (CEF-842-1S) was installed downgradient of the tank and sampled for volatile organic aromatics (VOAs), PAHs, and total recoverable petroleum hydrocarbons (TRPH). Since that investigation detected no contaminants in the groundwater and no excessively contaminated soil was indicated previously (ABB-ES, 1997b), the CSR recommended that no further action be taken at the site until the tank was removed.

- **1999.** A tank excavation and soil removal were conducted in September and November 1999 to remove any petroleum contaminated soil that might be encountered [CH2M Hill Constructors, Inc. (CCI), 2000]. The extent of the excavation was determined by field OVA screening and the results of offsite laboratory analysis of soil samples by Kerosene Analytical Group (KAG) methods. Approximately 13 cubic yards of soil were removed for offsite disposal in September, and an additional 2.3 yards were removed in November. A temporary monitoring well was installed in the tank excavation, and a groundwater sample was collected for off-site analysis by KAG methods. The Source Removal Report (SRR) recommended that no further action was required at the site because the groundwater analytical results from the temporary well were below groundwater cleanup target levels and the soil analytical results from the confirmation samples were less than the leachability SCTLs.

In April 2001, the FDEP issued a letter requesting additional site investigation because analytical results from two of the soil samples collected during the source removal had dibenzo(a,h)anthracene and/or benzo(a)pyrene concentrations above the residential direct exposure SCTLs. A copy of the FDEP letter is provided in Appendix A. A LSSA was conducted in 2003 and 2004 to delineate the extent of petroleum impact beyond the hot spots detected during the source removal. The LSSA activities and results are documented in this Site Assessment Report (SAR).

EXECUTIVE SUMMARY

Tetra Tech NUS, Inc. (TtNUS) has completed a Limited Scope Site Assessment (LSSA) at Building 842, Tank G842B, former Naval Air Station (NAS) Cecil Field, Jacksonville, Florida. The focal point of the study was on the west side of the former location of Building 842 where a 550-gallon diesel underground storage tank (UST) was formerly in service. The investigation was conducted in accordance with requirements of Chapter 62-770, Florida Administrative Code (FAC). This report is being submitted to the Florida Department of Environmental Protection (FDEP) for approval.

The elements of this LSSA are as follows:

- Existing literature was reviewed to identify potential petroleum hydrocarbon sources and receptors in the site vicinity; to locate nearby surface water bodies, if any; and to determine surface drainage features.

- Reports of previous environmental investigations and remedial activities at the site were reviewed to estimate the magnitude of potential contamination to environmental media. Two separate previous investigations made it evident that no groundwater contamination exists at the site.

- A soil headspace screening survey was performed by collecting and field analyzing soil samples at 2-foot (ft) vertical intervals from ground surface to the water table at 14 locations around the former source area.

- One soil sample was collected from each soil boring and analyzed for polynuclear aromatic hydrocarbons (PAHs) at a fixed-base laboratory. A combination of previous investigations and a Florida Department of Environmental Protection (FDEP) response made it possible to determine that PAHs are the only contaminants of concern (COCs) for this investigation.

No significant headspace screening responses or stained soil were identified during field screening procedures, and no PAHs were reported at concentrations above the detection limit in soil samples analyzed at the fixed-base laboratory.

Based on results of this investigation, TtNUS recommends that additional soil be excavated from the hot spots. Confirmatory soil samples should be submitted to an off-site laboratory for PAH analysis to verify that soil remaining at the site does not exceed the PAH soil cleanup target levels (SCTLs). Removal of soil with PAH exceedances may allow future unrestricted reuse of the site and approval of no further action at the site.

2.0 INVESTIGATIVE METHODOLOGY

The LSSA activities were conducted at UST G842B following the tank closure and source removal. Soil samples were collected during this investigation for field headspace screening and for off-site laboratory analysis on May 7, 2003 and March 30, 2004. The results of the LSSA are discussed in Chapters 3.0 and 4.0 of this report.

2.1 QUALITY ASSURANCE

The field activities described in this SAR were performed in general accordance with the FDEP Standard Operating Procedures described in the TtNUS Comprehensive Quality Assurance Plan (CompQAP) Number 980038 and with the site-specific Sampling and Analysis Plan (TtNUS, 2003). Soil samples collected for analyses by the fixed-base laboratory were shipped on ice and under chain of custody to Accutest Laboratory, Orlando, Florida. The CompQAP number for the Accutest Florida facility is 940304. Based on the type of analytes detected in the SRR, TtNUS submitted soil samples for PAH analysis only.

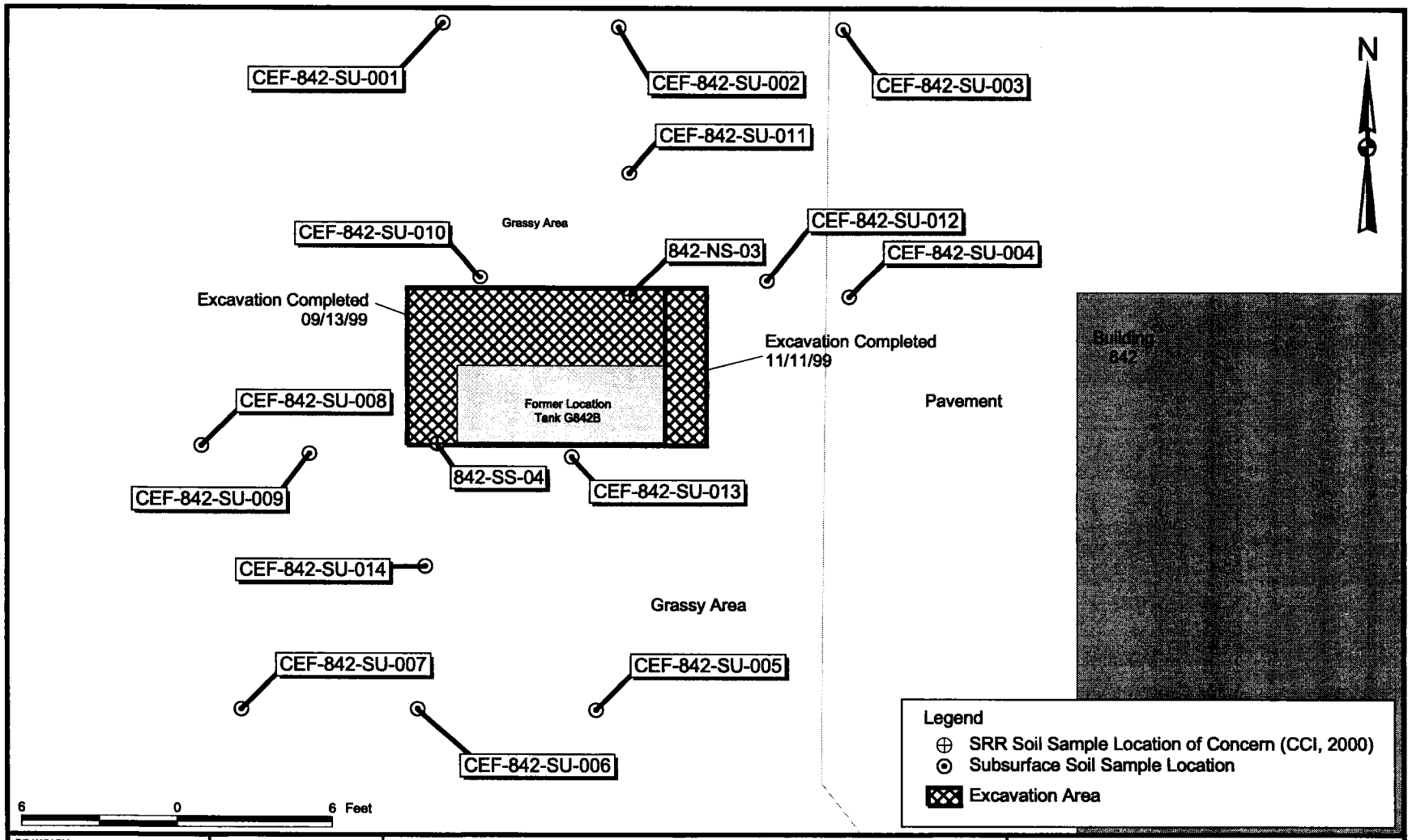
2.2 SOIL ASSESSMENT

Soil samples were collected for field headspace screening and off-site laboratory analysis from 14 soil boring locations during the LSSA.

2.2.1 Soil Headspace Screening

Fourteen borings were completed for lithologic description and soil headspace screening. The soil borings were located approximately adjacent to the two soil sample locations of concern (842-SS-04 and 842-NS-03) from the tank excavation where PAH SCTL exceedances were detected. The soil boring locations and their relation to the SRR excavations and SRR soil sample locations of concern are shown on Figure 2-1. For brevity in this SAR, boring identification numbers may be shortened from CEF-842-SU-001 to SU-001, SU-002, etc.

Soil samples were collected for lithologic description at 2-ft vertical intervals to a total depth of approximately 7 ft below land surface (bls) at each soil boring location using direct push technology (DPT) soil sampling techniques and/or a stainless steel hand auger. The soil samples were visually inspected for petroleum staining. Soil samples collected from intervals above the water table were field screened using headspace analysis techniques in general accordance with Chapter 62-770, FAC. The soil headspace readings were measured using a PhotoVac MicroFID Flame Ionization Detector (FID). The soil boring logs for each location with the unfiltered/filtered OVA-FID results are included in Appendix B. The field notes documenting the investigation are included in Appendix C.



DRAWN BY MJJ	DATE 27Aug03	SOIL SAMPLE LOCATIONS BUILDING 842, TANK G842B NAVAL AIR STATION CECIL FIELD JACKSONVILLE, FLORIDA	CONTRACT NUMBER 4248
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COST/SCHEDULE-AREA			APPROVED BY — DATE —
SCALE AS NOTED			DRAWING NO. FIGURE 2-1 REV 0

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2.2.2 Laboratory Analyses

Confirmatory soil samples were collected from each of the soil borings. Because no significant OVA responses [greater than 10 parts per million (ppm)] or soil staining were observed, soil samples for confirmatory analysis were selected from the interval directly above the water table. The samples were shipped on ice via overnight courier and under chain-of-custody to the fixed-base laboratory (Accutest in Orlando, Florida) and analyzed for PAHs using United States Environmental Protection Agency Method 8310.

2.3 DETERMINATION OF GROUNDWATER GRADIENT

The assumed direction of groundwater flow at Building 842 is toward the northwest based on the USGS groundwater model for NAS Cecil Field as described in the CSR (HLA, 1998).

2.4 GROUNDWATER ASSESSMENT

The groundwater assessment for this investigation was limited to a review of the groundwater sampling results reported in the CSR (HLA, 1998) and the SRR (CCI, 2000).

3.0 RESULTS OF INVESTIGATION

3.1 SOIL ASSESSMENT

3.1.1 OVA-FID Headspace Analyses

No significant OVA responses (greater than 10 ppm) or soil staining were observed. Soil samples for confirmatory analysis were selected from the interval directly above the water table. The lithologic descriptions and OVA-FID headspace measurements are summarized in Table 3-1. Because no significant OVA responses or soil staining were observed, soil samples for confirmatory analysis were selected from the interval directly above the water table.

3.1.2 Fixed-Base Confirmatory Results

No PAHs were detected in the soil samples submitted for laboratory analysis as part of the LSSA. Figure 3-1 illustrates those findings. The detection limits reported by the laboratory were less than the SCTLs. Table 3-2 summarizes the laboratory analytical results and copies of the applicable laboratory reports are provided in Appendix D.

3.2 GROUNDWATER ASSSESSMENT

Groundwater samples were not collected as part of this LSSA. A groundwater sample was collected from a shallow downgradient well during confirmatory sampling and analyzed for VOAs, PAHs, and TRPH (HLA, 1998). Analyte concentrations in that sample were reported below standard laboratory detection limits. A temporary well was installed in the tank excavation during the source removal and that groundwater sample was analyzed for benzene, toluene, ethylbenzene, total xylenes, methyl-tert-butyl ether, PAHs, and TRPH (CCI, 2000). Toluene was reported in this sample at a concentration of 0.3 micrograms per liter (µg/L). The other groundwater COC concentrations were below standard laboratory detection limits.

Table 3-1
Soil Vapor Field Screening Results

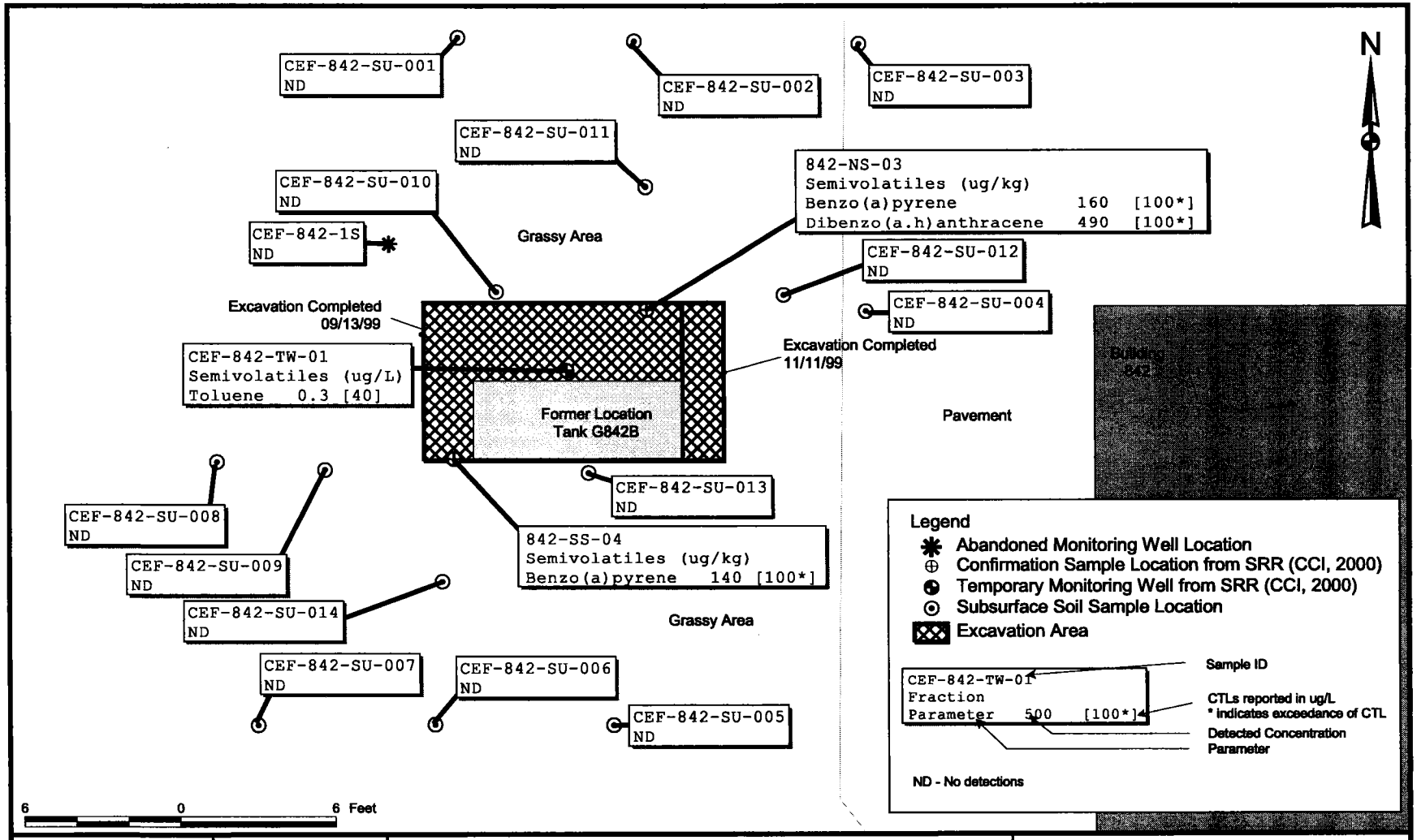
Site Assessment Report
Building 842, UST G842B
Naval Air Station Cecil Field
Jacksonville, Florida

Sample Identification "CEF-842-SU-"	Depth (ft bls)	OVA Result (ppm)			Lithologic Description	Analytical Sample	Analysis
		Unfiltered	Filtered	Net			
001	2	7.2	7.4	0.2	Silty fine sand, light brown	CEF-842-SU-001-06	PAHs
	4	7.7	7.5	0.2	Silty fine sand, light brown/black		
	6	15.8	14.2	1.6	Silty fine sand, gray/brown		
002	2	4.4	4.1	0.3	Silty fine sand, light brown	CEF-842-SU-002-06	PAHs
	4	4.5	2.8	1.7	Silty fine sand, light brown		
	6	14.5	6.7	7.8	Silty fine sand, black/gray		
003	2	4.2	5.6	-1.4	Silty fine sand, light brown	CEF-842-SU-003-06	PAHs
	4	2.8	2.8	0	Silty fine sand, light brown/gray		
	6	4.5	1.0	3.5	Silty fine sand, black		
004	2	3.2	3.1	0.1	Silty fine sand, light brown	CEF-842-SU-004-06	PAHs
	4	3.3	0	3.3	Silty fine sand, gray		
	6	3.1	0	3.1	Silty Fine sand, black		
005	2	1.4	0	1.4	Silty fine sand, light brown, with limerock	CEF-842-SU-005-07	PAHs
	4	3.8	0	3.8	Silty fine sand, gray		
	7	5.7	0	5.7	Silty fine sand, black		
006	2	3.2	0	3.2	Silty fine sand, light brown	CEF-842-SU-006-06	PAHs
	4	2.8	0	2.8	Silty fine sand, light brown/gray		
	6	3.0	0	3.0	Silty fine sand, black		
007	2	2.3	0	2.3	Silty fine sand, light brown	CEF-842-SU-007-04	PAHs
	4	2.8	0	2.8	Silty fine sand, black		
					Wet at 4.5 ft		
008	2	0.6	0	0.6	Silty fine sand, light brown	CEF-842-SU-008-04	PAHs
	4	0.9	0	0.9	Silty fine sand, black		
					Wet at 4.5 ft		

Table 3-1 (Continued)
Soil Vapor Field Screening Results

Site Assessment Report
Building 842, UST G842B
Naval Air Station Cecil Field
Jacksonville, Florida

Sample Identification "CEF-842-SU-"	Depth (ft bls)	OVA Result (ppm)			Lithologic Description	Analytical Sample	Analysis
		Unfiltered	Filtered	Net			
009	2	3.8	0	3.8	Silty fine sand, light brown	CEF-842-SU-009-06	PAHs
	4	4.1	0	4.1	Silty fine sand, brown		
	6	3.9	0	3.9	Silty fine sand, black/gray		
					Wet at 7.25 ft		
010	2	1.1	0	1.1	Silty fine sand, light gray brown	CEF-842-SU-010-06	PAHs
	4	1.4	0	1.4	Silty fine sand, light gray brown		
	6	1.2	0	1.2	Silty fine sand, dark brown/light gray		
					Wet at 7.5 ft		
011	2	0.2	0	0.2	Silty fine sand, light brown	CEF-842-SU-011-06	PAHs
	4	0.1	0	0.1	Silty fine sand, brown		
	6	0.0	0	0.0	Silty fine sand, black/gray		
					Wet at 7.25 ft		
012	2	0.0	0	0.0	Silty fine sand, brown	CEF-842-SU-012-06	PAHs
	4	0.0	0	0.0	Silty fine sand, dark brown		
	6	0.0	0	0.0	Silty fine sand, dark brown		
					Wet at 7.25 ft		
013	2	0.0	0	0.0	Silty fine sand, brown	CEF-842-SU-013-06	PAHs
	4	0.0	0	0.0	Silty fine sand, brown		
	6	0.0	0	0.0	Silty fine sand, gray/brown		
					Wet at 7.5 ft		
014	2	0.0	0	0.0	Silty fine sand, yellow/brown	CEF-842-SU-014-06	PAHs
	4	0.0	0	0.0	Silty fine sand, gray/brown		
	6	0.0	0	0.0	Silty fine sand, dark gray/black		
					Wet at 7.25 ft		



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COST/SCHEDULE-AREA				DRAWING NO. FIGURE 3-1	REV 0
SCALE AS NOTED					

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Table 3-2
Summary of Soil Sample Analytical Results

Site Assessment Report
Building 842, UST G842B
Naval Air Station Cecil Field
Jacksonville, Florida

		Sample ID CEF-842-	SU-001-06	SU-002-06	SU-003-06	SU-004-06	SU-005-07	SU-006-06	SU-007-04
		Sample Depth	6 ft bls	6 ft bls	6 ft bls	6 ft bls	7 ft bls	6 ft bls	4 ft bls
		Sample Date	05/07/03	05/07/03	05/07/03	05/07/03	05/07/03	05/07/03	05/07/03
Compounds	**SCTLs[1]**								
PAHs (mg/kg)	**Residential**	**Leachability**							
Acenaphthene	1,900	2.1	<0.200	<0.200	<0.190	<0.180	<0.190	<0.190	<0.180
Acenaphthylene	1,100	27	<0.200	<0.200	<0.190	<0.180	<0.190	<0.190	<0.180
Anthracene	18,000	2,500	<0.200	<0.200	<0.190	<0.180	<0.190	<0.190	<0.180
Benzo(a)anthracene	1.4	3.2	<0.098	<0.100	<0.095	<0.089	<0.094	<0.095	<0.092
Benzo(a)pyrene	0.1	8	<0.020	<0.020	<0.019	<0.018	<0.019	<0.019	<0.018
Benzo(b)fluoranthene	1.4	10	<0.020	<0.020	<0.019	<0.018	<0.019	<0.019	<0.018
Benzo(g,h,i)perylene	2,300	32,000	<0.020	<0.020	<0.019	<0.018	<0.019	<0.019	<0.018
Benzo(k)fluoranthene	15	25	<0.020	<0.020	<0.019	<0.018	<0.019	<0.019	<0.018
Chrysene	140	77	<0.098	<0.100	<0.095	<0.089	<0.094	<0.095	<0.092
Dibenzo(a,h)anthracene	0.1	30	<0.020	<0.020	<0.019	<0.018	<0.019	<0.019	<0.018
Fluoranthene	2,900	1,200	<0.098	<0.100	<0.095	<0.089	<0.094	<0.095	<0.092
Fluorene	2,200	160	<0.200	<0.200	<0.190	<0.180	<0.190	<0.190	<0.180
Indeno(1,2,3-cd)pyrene	1.5	28	<0.020	<0.020	<0.019	<0.018	<0.019	<0.019	<0.018
Naphthalene	40	1.7	<0.098	<0.100	<0.095	<0.089	<0.094	<0.095	<0.092
1-Methylnaphthalene	68	2.2	<0.098	<0.100	<0.095	<0.089	<0.094	<0.095	<0.092
2-Methylnaphthalene	80	6.1	<0.098	<0.100	<0.095	<0.089	<0.094	<0.095	<0.092
Phenanthrene	2,000	250	<0.200	<0.200	<0.190	<0.180	<0.190	<0.190	<0.180
Pyrene	2,200	880	<0.098	<0.100	<0.095	<0.089	<0.094	<0.095	<0.092

See notes at end of table.

DRAFT

Table 3-2 (Continued)
Summary of Soil Sample Analytical Results

Site Assessment Report
Building 842, UST G842B
Naval Air Station Cecil Field
Jacksonville, Florida

		Sample ID CEF-842-	SU-008-04	SU-009-06	SU-010-06	SU-011-06	SU-012-06	SU-013-06	SU-014-06
		Sample Depth	4 ft bls	6 ft bls	6 ft bls	6 ft bls	6 ft bls	6 ft bls	6 ft bls
		Sample Date	05/07/03	03/30/04	03/30/04	03/30/04	03/30/04	03/30/04	03/30/04
Compounds	**SCTLs[1]**								
PAHs (mg/kg)	**Residential**	**Leachability**							
Acenaphthene	1,900	2.1	<0.190	<0.180	<0.180	<0.200	<0.200	<0.190	<0.210
Acenaphthylene	1,100	27	<0.190	<0.180	<0.180	<0.200	<0.200	<0.190	<0.210
Anthracene	18,000	2,500	<0.190	<0.180	<0.180	<0.200	<0.200	<0.190	<0.210
Benzo(a)anthracene	1.4	3.2	<0.094	<0.090	<0.090	<0.099	<0.098	<0.096	<0.110
Benzo(a)pyrene	0.1	8	<0.019	<0.018	<0.018	<0.020	<0.020	<0.019	<0.021
Benzo(b)fluoranthene	1.4	10	<0.019	<0.018	<0.018	<0.020	<0.020	<0.019	<0.021
Benzo(g,h,i)perylene	2,300	32,000	<0.019	<0.018	<0.018	<0.020	<0.020	<0.019	<0.021
Benzo(k)fluoranthene	15	25	<0.019	<0.018	<0.018	<0.020	<0.020	<0.019	<0.021
Chrysene	140	77	<0.094	<0.090	<0.090	<0.099	<0.098	<0.096	<0.110
Dibenzo(a,h)anthracene	0.1	30	<0.019	<0.018	<0.018	<0.020	<0.020	<0.019	<0.021
Fluoranthene	2,900	1,200	<0.094	<0.090	<0.090	<0.099	<0.098	<0.096	<0.110
Fluorene	2,200	160	<0.190	<0.180	<0.180	<0.200	<0.200	<0.190	<0.210
Indeno(1,2,3-cd)pyrene	1.5	28	<0.019	<0.018	<0.018	<0.020	<0.020	<0.019	<0.021
Naphthalene	40	1.7	<0.094	<0.090	<0.090	<0.099	<0.098	<0.096	<0.110
1-Methylnaphthalene	68	2.2	<0.094	<0.090	<0.090	<0.099	<0.098	<0.096	<0.110
2-Methylnaphthalene	80	6.1	<0.094	<0.090	<0.090	<0.099	<0.098	<0.096	<0.110
Phenanthrene	2,000	250	<0.190	<0.180	<0.180	<0.200	<0.200	<0.190	<0.210
Pyrene	2,200	880	<0.094	<0.090	<0.090	<0.099	<0.098	<0.096	<0.110

Notes:
[1]Established in Chapter 62-777, FAC.
mg/kg = milligrams per kilogram
All units are in mg/kg.
< = less than

DRAFT

4.0 SUMMARY AND RECOMMENDATIONS

TtNUS completed this LSSA on the site of the former UST (Tank G842B) that was adjacent to the former radar building, Building 842, at NAS Cecil Field. This LSSA was conducted based on the data presented in the SRR (CCI, 2000) and the resulting response from the FDEP. The conclusions based on the data collected during this LSSA of the former UST (Tank G842B) are summarized as follows:

- The SRR soil data indicated that a petroleum impact appeared to have occurred in the area adjacent to the former location of UST G842B.

- No free product was reported in the CSR or the SRR, and none was encountered during this LSSA.

- The results of soil screening (both visual and OVA-FID headspace analysis) and confirmatory soil sampling indicate that no excessively contaminated soil is present at the site.

- Any remaining petroleum impact to site soil appears to be limited to two locations at the edges of the source removal excavation. PAHs were detected in two soil samples at concentrations above the residential direct exposure SCTLs.

- The groundwater sampling results reported in the CSR and SRR indicated that petroleum impact to the shallow groundwater had not occurred. The groundwater flow direction is reported to be to the northwest. Because no petroleum impact to site groundwater was detected during the CSR and SRR, installation of vertical extent wells, a potable water supply well inventory, and aquifer testing were not conducted at this site.

Based on the results of this investigation, TtNUS recommends that additional soil be excavated from immediately around the two soil sample locations (842-SS-04 and 842-NS-03). Confirmatory soil samples should be submitted to an off-site laboratory for PAH analysis to verify that soil remaining at the site does not exceed the PAH residential direct exposure SCTLs. Removal of soil with PAH exceedances may allow future unrestricted reuse of the site and approval of no further action at the site.

REFERENCES

ABB-ES (ABB Environmental Services), 1997a. "Tank Management Plan" Naval Air Station Cecil Field, Jacksonville, Florida. Prepared for NAVFAC EFD SOUTH, North Charleston, South Carolina. January.

ABB-ES, 1997b. "Confirmatory Sampling Report" Naval Air Station Cecil Field, Jacksonville, Florida. Prepared for NAVFAC EFD SOUTH, North Charleston, South Carolina. December.

CCI (CH2M HILL Constructors, Inc.), 2000. "Source Removal Report Underground Storage Tank Removal at Building 842, Tank G842B," Naval Air Station Cecil Field, Jacksonville, Florida. Prepared for NAVFAC EFD SOUTH, Charleston, South Carolina. August.

HLA (Harding Lawson Associates), 1998. "Confirmatory Sampling Report Building 842, Tank G842B, Revision 2.0," Naval Air Station Cecil Field, Jacksonville, Florida. Prepared for NAVFAC EFD SOUTH, Charleston, South Carolina. November.

TtNUS (Tetra Tech NUS, Inc.), 2003. "Work Plan Addendum for UST Investigations at South Fuel Farm and Other Sites," Naval Air Station Cecil Field, Jacksonville, Florida. Prepared for NAVFAC EFD SOUTH, Charleston, South Carolina. April.

APPENDIX A

FDEP LETTER REGARDING SOURCE REMOVAL REPORT

Department of Environmental Protection

Jeb Bush
Governor

Twin Towers Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

David B. Struhs
Secretary

April 5, 2001

Mr. Nick Ugolini
Code 1843 (UST RPM)
Southern Division
Naval Facilities Engineering Command
Post Office Box 190010
North Charleston, South Carolina 29419-9010

RE: Source Removal Report, Underground Storage Tank Removal at Building 842, Tank G842B, Naval Air Station Cecil Field, Jacksonville, Florida

Dear Mr. Ugolini:

I have completed the review of the Source Removal Report, Underground Storage Tank Removal at Building 842, Tank 842B, Naval Air Station Cecil Field, dated August 2000 (draft received August 7, 2000, green cover received March 21, 2001), prepared and submitted by CH2M Hill Constructors, Inc. A total of 2.47 tons of soil were excavated and properly disposed. The Department cannot concur with the recommendation for No Further Action at this site because soil contaminated with benzo(a)pyrene and dibenzo(a,h)anthracene at concentrations exceeding the Department's residential Soil Cleanup Target Levels was detected in grab samples from the north and south sides of the excavation. Since groundwater has not been impacted, Site Assessment activities should be limited to delineating the extent of contaminated soil. As OVA data proved to be of no use in delineating contaminated soil during source removal activities at this site, assessment of soil contamination should be determined by laboratory analyses.

If I can be of any further assistance with this matter, please contact me at (850) 488-3693.

Sincerely,

David P. Grabka
Remedial Project Manager

cc: Scott Glass, Southern Division
Debbie Vaughn-Wright, USEPA Region 4
Mark Speranza, TetraTech NUS, Pittsburgh

Sam Ross, CH2M Hill Constructors, Inc.
Mike Fitzsimmons, FDEP Northeast District

TJB _____ JJC _____ ESN _____

APPENDIX B

DPT SOIL BORING LOGS

DN4248: 4.4:75

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NAS Cecil Field Building 842
Project No.: N4248, CTO 246

[ ] Surface Soil
[X] Subsurface Soil
[ ] Sediment
[] Other:
[ ] QA Sample Type:

Sample ID No.: CEF-842-SU-001-06
Sample Location: CEF-842-SP-001
Sampled By: MD / CG
C.O.C. No.: 2310

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 5/7/03
Time: 1136
Method: SS hand auger & DPT sleeve
BG Monitor Reading (ppm): 0.0

Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
5-6'	brown	silty fine sd. dry to damp

BORING LOG DATA:

Depth	Color	USCS	Description (Sand, Silt, Clay, Moisture, etc.)
0-2.5	lt. brn	SM	silty fine sand, dry
2.5-4	black	SM	silty fine sand, dry
4-5	grey	SM	silty fine sand, dry
5-6	brown	SM	silty fine sand, dry to damp?
6-8.5	black	SM	silty fine sand, damp?
8.5-10	dk. brn	SM	silty fine sd. ▽ @ 7' bls.
			silty fine sd., wet

SAMPLE COLLECTION INFORMATION:

Analysis		Container Requirements	Collected	LAB
PAHs	SW 846 8310	1-4oz. Jar	yes	accutest

OBSERVATIONS / NOTES:

st read	Depth (ft bls)	Unfilter (ppm)	Filtered (ppm)	Net (ppm)
1118 1123	2	7.2	7.4	0.2
1122/1127	4	7.7	7.5	0.2
1136 1141	6	15.8	14.2	1.6

BZ = BH = BG

Note: hand auger to 5' and core to 10' bls.

MAP: see work plan

Check if Applicable:

ID No.: [ ] MSMSD [ ] DUPLICATE

None

Signature(s): M.J. Dale

Globals BG = background, BH = borehole, BZ = breathing zone.

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NAS Cecil Field Building 842
Project No.: N4248, CTO 248

[ ] Surface Soil
[X] Subsurface Soil
[ ] Sediment
[] Other:
[ ] QA Sample Type:

Sample ID No.: CEF- 842-SU-002-06
Sample Location: CEF- 842-SB-002
Sampled By: MD / CG
C.O.C. No.: 2310

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 5/7/03	5-6'	gray	silty fine sand, damp
Time: 1202			
Method: SS H.A. & DPT Acetate			
Monitor Reading (ppm): 7.0-8.0 Beere			

bk grnd

BORING LOG DATA:

Depth	Color	USCS	Description (Sand, Silt, Clay, Moisture, etc.)
0-4	lt. brn	SM	silty fine sand, dry
4-5	black	SM	silty fine sand, dry
5-7	gray	SM	silty fine sand damp
7-10	dk. brn	SM	silty fine sand, moist at 7', ▽ @ 8' bls.

SAMPLE COLLECTION INFORMATION:

Analysis		Container Requirements	Collected	LAB
PAHs	SW 846 8310	1-4oz. Jar	yes	accutest

OBSERVATIONS / NOTES:

st.	read	Depth (ft bls)	Unfilter (ppm)	Filtered (ppm)	Net (ppm)
1152	1157	2	4.4 MD	~~4.4~~ 4.1	0.3
1155	1200	4	24.5	2.8	
1200	1205	6	14.5	6.7	

BZ = Bg = BH

Note: hand auger to 5' + core to 10' bls.

MAP:

See workplan.

Check if Applicable:

ID No.: [ ] MSMSD [ ] DUPLICATE

None

Bg = background

Signature(s): M. H. Dale

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NAS Cecil Field Building 842
Project No.: N4248, CTO 248

[ ] Surface Soil
[X] Subsurface Soil
[ ] Sediment
[] Other:
[ ] QA Sample Type:

Sample ID No.: CEF-842-SB-003-06
Sample Location: CEF-842-SB-003
Sampled By: MD / CG
C.O.C. No.: 2310

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 5/7/03
Time: 1233
Method: HA(SS) + DPT Acetate
BG Monitor Reading (ppm): 5.9

Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
5-6'	black	silty fine sand, damp

BORING LOG DATA:

Depth	Color	USCS	Description (Sand, Silt, Clay, Moisture, etc.)
1'-3'	lt. brn	SM	silty fine sd., dry
3-4.5	gray	SM	silty fine sd, dry
4.5-7	black	SM	silty fine sd, dry
7-10	dk. brn	SM	silty fine sd, moist @ 7.5', ▽ @ 8'

SAMPLE COLLECTION INFORMATION:

Analysis		Container Requirements	Collected	LAB
PAHs	SW 846 8310	1-4oz. Jar	yes	accutest

OBSERVATIONS / NOTES:

st	end	Depth (ft bls)	Unfilter (ppm)	Filtered (ppm)	Net (ppm)
1224	1229	2	4.2	5.6	-1.4
1228	1233	4	2.8	2.8	0
1234	1239	6	4.5	1.0	3.5

Hand auger to 5'; core to 10' bls.
BK = BH = BZ

MAP:

1" asphalt on top

see workplan

Check if Applicable:

ID No.: [ ] MSMSD [ ] DUPLICATE

None

Signature(s): Marvin Wade

tra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

ct Site Name: NAS Cecil Field Building 842
ject No.: N4248, CTO 248

Sample ID No.: CEF- 842-SU-004-BG
Sample Location: CEF- 842-SB-004
Sampled By: MD / CG
C.O.C. No.: 2310

[ ] Surface Soil
[X] Subsurface Soil
[ ] Sediment
[] Other:
[ ] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 5/7/03 Time: 1305 Method: CSH.A. / DT Acetate Monitor Reading (ppm): 3.2	5-6	black	silty fine sd. damp

BG

BORING LOG DATA:

Depth	Color	USCS	Description (Sand, Silt, Clay, Moisture, etc.)
0-2	lt. bm	SM	silty fine sand, dry
2-4.5	gray	SM	silty fine sand, dry
4.5-6	black	SM	silty fine sand, dry
6-10	dk. bm	SM	silty fine sand, Moist @ 6.5', ▽ @ 7'bls

SAMPLE COLLECTION INFORMATION:

Analysis		Container Requirements	Collected	LAB
PAHs	SW 846 8310	1-4oz. Jar	yes	accutest

OBSERVATIONS / NOTES:

st	rad	Depth (ft bls)	Unfilter (ppm)	Filtered (ppm)	Net (ppm)
1254	1259	2	3.2	3.1	0.1
1256	1301	4	3.3	0	3.3
1305	1310	6	3.1	0	3.1

hand auger to 5' bls, core to 10' bls

BG = BZ = BH

MAP:

1" Asphalt on top

See workplan

Check if Applicable:

ID No.: [ ] MSMSD [ ] DUPLICATE

None

Signature(s): M.W. Tile

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NAS Cecil Field Building 842
Project No.: N4248, CTO 248

[ ] Surface Soil
[X] Subsurface Soil
[ ] Sediment
[ ] Other:
[ ] QA Sample Type:

Sample ID No.: CEF-842-SU-005-07
Sample Location: CEF- 842-SB-005
Sampled By: MD / CG
C.O.C. No.: 2310

Type of Sample:
[X] Low Concentration
[ ] High Concentration

GRAB SAMPLE DATA:

Date: 5/7/03
Time: 1520
Method: H.A. (SS) & DPT Acetate
Monitor Reading (ppm): 4.8 BG

Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
6-7'	black	silty fine sand, damp

BORING LOG DATA:

Depth	Color	USCS	Description (Sand, Silt, Clay, Moisture, etc.)
0-2	lt. brn	SM	silty fine sand w/ limerock dry
2-3.5	gray	SM	silty fine sand ~~w/~~ dry
3.5-5	black	SM	silty fine sand dry
5-7.5	black	SM	silty fine sd. dry
7.5-10	dk. brn	SM	silty fine sd., moist @ 7.5' bls, ▽ @ 8' bls

SAMPLE COLLECTION INFORMATION:

Analysis		Container Requirements	Collected	LAB
PAHs	SW 846 8310	1-4oz. Jar	yes	accutest

OBSERVATIONS / NOTES:

st.	end	Depth (ft bls)	Unfilter (ppm)	Filtered (ppm)	Net (ppm)
1453	1458	2	1.4	0	1.4
1516	1521	4	3.8	0	3.8
1523	1528	7	5.7	0	5.7

BG = BH = BZ

Hand auger to 5' bls, core to 10' bls.

MAP: see work plan

Check if Applicable:

ID No.: [ ] MSMSD [ ] DUPLICATE

None

Signature(s): M. Wilde

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NAS Cecil Field Building 842
Project No.: N4248, CTO 248

[ ] Surface Soil
[X] Subsurface Soil
[ ] Sediment
[] Other:
[ ] QA Sample Type:

Sample ID No.: CEF-842-SU-006-06
Sample Location: CEF-842-SB-006
Sampled By: MD / CG
C.O.C. No.: 2310

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 5/7/03	5-6' bls	black	silty fine sand, dry
Time: 1539			
Method: SS. H.A. / DPT Acetate			
BG Monitor Reading (ppm): 3.2			

BORING LOG DATA:

Depth	Color	USCS	Description (Sand, Silt, Clay, Moisture, etc.)
0-3	lt. brn	SM	silty fine sand, dry
3-4	gray	SM	silty fine sand, dry
4-6	black	SM	silty fine sand, dry
6-6.5	brown	SM	silty fine sand, Moist @ 6.5' bls
6.5-10	dk. brn	SM	silty fine sand, ∇ @ 7' bls

SAMPLE COLLECTION INFORMATION:

Analysis		Container Requirements	Collected	LAB
PAHs	SW 846 8310	1-4oz. Jar	yes	accutest

OBSERVATIONS / NOTES:

St read		Depth (ft bls)	Unfilter (ppm)	Filtered (ppm)	Net (ppm)
1532	1537	2	3.2	0	3.2
1535	1540	4	2.8	0	2.8
1541	1546	6	3.0	0	3.0

BG = B4 = B2

Hand auger to 5' bls ; core to 10' bls.

MAP:

See map in workplan

Check if Applicable:

ID No.: [ ] MSMSD [ ] DUPLICATE

None

Signature(s): M. J. Dale

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NAS Cecil Field Building 842
Project No.: N4248, CTO 248

Sample ID No.: CEF-842-SU-007-04
Sample Location: CEF-842-SB-007
Sampled By: MD / CG
C.O.C. No.: 2310

[ ] Surface Soil
[X] Subsurface Soil
[ ] Sediment
[ ] Other:
[ ] QA Sample Type:

Type of Sample:
[X] Low Concentration
[ ] High Concentration

GRAB SAMPLE DATA:

Date: 5/7/03
Time: 1552
Method: SSH.A. / Acetate DT
BG Monitor Reading (ppm): 2.8

Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
3-4	black	silty fine sd., dry

BORING LOG DATA:

Depth	Color	USCS	Description (Sand, Silt, Clay, Moisture, etc.)
0-2.5	lt. brn	SM	silty fine sand, dry
2.5-4	black	SM	silty fine sand, dry
4-5	dk. brn	SM	silty fine sand, moist @ 4.5', wet @ 5'

SAMPLE COLLECTION INFORMATION:

Analysis		Container Requirements	Collected	LAB
PAHs	SW 846 8310	1-4oz. Jar	yes	accutest

OBSERVATIONS / NOTES:

SI read

Depth (ft bls)	Unfilter (ppm)	Filtered (ppm)	Net (ppm)
1550 1559 2	2.3	0	2.3
1552 1557 4	2.8	0	2.8

BZ = BG = BH

S.S. hand auger to 5' bls, ~~core to 10' bls~~ MD

MAP:

See map in workplan

Check if Applicable:

ID No.: [X] MSMSD [ ] DUPLICATE
CEF-842-SU-007-04

Signature(s): M.W. Dale

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NAS Cecil Field Building 842
Project No.: N4248, CTO 248

[ ] Surface Soil
[X] Subsurface Soil
[ ] Sediment
[] Other:
[ ] QA Sample Type:

Sample ID No.: CEF-842-SU-008-04
Sample Location: CEF-842-SB-008
Sampled By: MD / CG
C.O.C. No.: 2310

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 5/7/03	3-4'		
Time: 1608			
Method: SS HA / DPT Acetate			
BG Monitor Reading (ppm): 0.7			

BORING LOG DATA:

Depth	Color	USCS	Description (Sand, Silt, Clay, Moisture, etc.)
0-2.5	H. brn	SM	silty fine sand, dry
2.5-3	black	SM	silty fine sand, dry
3-4	gray	SM	silty fine sand, dry
MD 4-4.5	dk. brn	SM	silty fine sand, moist at 4.5' b/s
4.5-5	brn	SM	silty fine sand, ▽ at 5' b/s.

SAMPLE COLLECTION INFORMATION:

Analysis		Container Requirements	Collected	LAB
PAHs	SW 846 8310	1-4oz. Jar	yes	accutest

OBSERVATIONS / NOTES:

st read		Depth (ft bls)	Unfilter (ppm)	Filtered (ppm)	Net (ppm)
1605	1610	2	0.6	0	0.6
1607	1612	4	0.9	0	0.9

BG = BZ = BH

hand auger to 5' b/s; ~~core to 10' b/s~~ MD

MAP:

See map in workplan

Check if Applicable:

ID No.: [ ] MSMSD [X] DUPLICATE

CEF-842-DU01-04

Signature(s): M. W. Dale

BORING LOG

Tetra Tech NUS, Inc.

PROJECT NAME: NASCF, Building 842
PROJECT NUMBER: N4248
DRILLING COMPANY: TtNUS
DRILLING RIG: SS Hand Auger

BORING NO.: CEF-842-SB-009
DATE: 3/30/04
GEOLOGIST: Mervin Dale
DRILLER: Mervin Dale

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
	0-2				lt.	brn	sl. silty fine sand	SM	dry			5.5	5.5
	2-3				dk.	brn-blk	silty fine sand	SM	damp				
	3-4					brn	silty fine sand	SM	damp				
	4-6					blk	silty fine sand	SM	damp				
	6-6.75					lt. gray to gray	silty fine sand	SM	damp				
	6.75-7					dk. gray	silty fine sand	SM	moist				
	7-7.25					yel. brn	silty fine sand	SM	wet ▽@7.25	6/s.		4.4	4.4

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Remarks:

Drilling Area Background (ppm): 2.1-2.3

Converted to Well: Yes ____ No X Well I.D. #: ____

BORING LOG

Tetra Tech NUS, Inc.

PROJECT NAME: NASCF, Building 842
PROJECT NUMBER: N4248
DRILLING COMPANY: TtNUS
DRILLING RIG: SS Hand Auger

BORING NO.: CEF-842-SB-010
DATE: 3/30/04
GEOLOGIST: Mervin Dale
DRILLER: Mervin Dale

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm) Sample	Sampler BZ	Borehole**	Driller BZ**
	0-6"					org brown	silty fine sd.	SM	dry				
	6"-2'					lt. gray + brn	silty fine sd.	SM	dry			2.9	2.9
	2'-4'						same	SM	dry			2.8	2.8
	4-4.5'					dk. brn	silty fine sand	SM	damp				
	4.5-6					lt. gry	silty fine sand	SM	damp			0.7	0.7
	6-6.5						same	SM	damp				
	6.5-7					dk. brn	silty fine sand	SM	moist				
	7-7.5					dk. brn	silty fine sand	SM	wet @ 7.5' bls				

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Remarks:

Drilling Area Background (ppm): 2.4

Converted to Well: Yes ____ No X Well I.D. #: ____

BORING LOG

Tetra Tech NUS, Inc.

PROJECT NAME: NASCF, Building 842
PROJECT NUMBER: N4248
DRILLING COMPANY: TtNUS
DRILLING RIG: SS Hand Auger

BORING NO.: CEF-842-SB-011
DATE: 3/30/04
GEOLOGIST: Mervin Dale
DRILLER: Mervin Dale

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm) Sample	Sampler BZ	Borehole**	Driller BZ**
	0-6"					yld	limerock	—	dry				
	6"-1'					lt. bn	silty fine sand	SM	dry			0.2	0.2
	1-3.5'					yel. brn	silty fine sand	SM	dry				
	3.5-4'					dk. bru	silty fine sand	SM	dry			0.2	0.2
	4-5.5'					lt. gry	silty fine sand	SM	damp				
	5.5-6'					blk.	silty fine sand	SM	damp			0.0	0.0
	6-7.25'					dk. brn	silty fine sand	SM	moist, ▽@7.25' b/s.				

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Remarks:

Drilling Area Background (ppm): 0.2

Converted to Well: Yes ____ No X Well I.D. #: ____

BORING LOG

Tetra Tech NUS, Inc.

PROJECT NAME: NASCF, Building 842
PROJECT NUMBER: N4248
DRILLING COMPANY: TtNUS
DRILLING RIG: SS Hand Auger

BORING NO.: CEF-842-SB-012
DATE: 3/30/04
GEOLOGIST: Mervin Dale
DRILLER: Mervin Dale

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
	0-6"					yl.br	silty fine sand	SM	dry				
	6"-1'					br	silty fine sand	SM	dry				
	1'-2'					br	silty fine sand	SM	damp			0.0	0.0
	2-4'					dk.br	silty fine sand	SM	damp			0.0	0.0
	4-6					dk.br	silty fine sand	SM	damp			0.0	0.0
	6-7.25'					dk.br	silty fine sand	SM	Moist, ▽@7.25'	b/s		0.0	0.0

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Remarks:

Drilling Area Background (ppm): 0.0

Converted to Well: Yes ____ No X Well I.D. #: ____

BORING LOG

Tetra Tech NUS, Inc.

PROJECT NAME: NASCF, Building 842
PROJECT NUMBER: N4248
DRILLING COMPANY: TtNUS
DRILLING RIG: SS Hand Auger

BORING NO.: CEF-842-SB-013
DATE: 03/30/04
GEOLOGIST: Mervin Dale
DRILLER: Mervin Dale

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
	0-6"				H.	brn	silty fine sand	SM	dry				
	6"-1'				yel.		limerock	—	dry				
	1-2'				H.	brn	silty fine sand	SM	dry				
	2-4'					brn	silty fine sand	SM	damp			0.0	0.0
	4-5				M	brn	silty fine sand	SM	damp				
	5-6'				gry	brn	silty fine sand	SM	damp				
	6-7				dk	brn	silty fine sand	SM	moist			0.0	0.0
	7-7.5'				dk	brn	silty fine sand	SM	wet @ 7.5' H2O				

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Remarks:

Drilling Area Background (ppm): 0.0

Converted to Well: Yes ____ No X Well I.D. #: ____

BORING LOG

Tetra Tech NUS, Inc.

PROJECT NAME: NASCF, Building 842
PROJECT NUMBER: N4248
DRILLING COMPANY: TtNUS
DRILLING RIG: SS Hand Auger

BORING NO.: CEF-842-SB-014
DATE: 3/20/04
GEOLOGIST: Mervin Dale
DRILLER: Mervin Dale

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
	0-3'				ylw	brn	silty fine sand	SM	dry to damp			0.0	0.0
	3-4				gray	brn	silty fine sand	SM	damp				
	4-5'				lt.	gray	silty fine sand	SM	damp				
	5-5.5'					dk gray	silty fine sand	SM	damp				
	5.5-6'				dk org	brn	silty fine sand	SM	damp				
	6-7'				dk.	brn	silty fine sand	SM	moist			0.0	0.0
	7-7.5'				dk.	brn	silty fine sand	SM	wet @ 7.25' b/s				

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Drilling Area Background (ppm): 0.0

Remarks:

Converted to Well: Yes ____ No X Well I.D. #: ____

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NAS Cecil Field Building 324
Project No.: N4248, CTO 248

[ ] Surface Soil
[X] Subsurface Soil
[ ] Sediment
[ ] Other:
[ ] QA Sample Type:

Sample ID No.: CEF-842-SU-009-06
Sample Location: CEF-842-SB-009
Sampled By: MD
C.O.C. No.: 842-033004

Type of Sample:
[X] Low Concentration
[ ] High Concentration

GRAB SAMPLE DATA:

Date: 3/30/04
Time: 1332
Method: ~~Disposable Trowel~~ SS HA
Monitor Reading (ppm):

Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
5-6' bls	gray to black	silty fine sand, damp

COMPOSITE SAMPLE DATA:

Date:
Method:
Monitor Readings (Range in ppm):

Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)

NA

SAMPLE COLLECTION INFORMATION:

Analysis		Container Requirements	Collected	LAB
PAHs	8310	1 - 4 oz jar	yes	accutest

OBSERVATIONS / NOTES:

Tc	TM	Depth (ft bls)	Unfilter (ppm)	Filtered (ppm)	Net (ppm)
1240	1245	2	3.8	–	3.8
252	1257	4	4.1	–	4.1
1307	1312	6	3.9	–	3.9

MAP:

See Fig 3.1

Check if Applicable:

ID No.: [ ] MSMSD [ ] DUPLICATE

None

Signature(s): [illegible]

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NAS Cecil Field Building 324
Project No.: N4248, CTO 248

[ ] Surface Soil
[X] Subsurface Soil
[ ] Sediment
[ ] Other:
[ ] QA Sample Type:

Sample ID No.: CEF-842-SB-010-06
Sample Location: CEF-842-SB-010
Sampled By: MA
C.O.C. No.: 842-033001

Type of Sample:
[ ] Low Concentration
[ ] High Concentration

GRAB SAMPLE DATA:

	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 3/30/04	5-6' bls.	gray	silty fine sand, damp
Time: 1442			
Method: ~~Disposable Trowel~~ SSHA			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

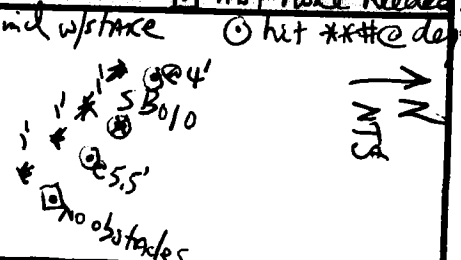
Analysis		Container Requirements	Collected	LAB
PAHs	8310	1 - 4 oz jar	yes	accutest

OBSERVATIONS / NOTES:

TC	TM	Depth (ft bls)	Unfiltered (ppm)	Filtered (ppm)	Net (ppm)
1352	1357	2	1.1	—	1.1
1407	1412	4	1.4	—	1.4
1422	1427	6	1.2	—	1.2

hit obstacles w/in 1' of stake - had to move 2' SE to get to depth (Asphalt)

MAP: [X] last hole needed



Check if Applicable:

ID No.: [ ] MSMSD ~~[X] DUPLICATE~~

~~CEF-842-SW-D002~~ MWD NME

Signature(s): M. Dale

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NAS Cecil Field Building 324
Project No.: N4248, CTO 248

[ ] Surface Soil
[X] Subsurface Soil
[ ] Sediment
[ ] Other:
[ ] QA Sample Type:

Sample ID No.: CEF-842-SU-011-06
Sample Location: CEF-842-SB-011
Sampled By: MP
C.O.C. No.: 842-033004

Type of Sample:
[ ] Low Concentration
[ ] High Concentration

GRAB SAMPLE DATA:

Date: 2/30/04
Time: 1530
Method: ~~Disposable Trowel~~ HAS
Monitor Reading (ppm):

Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
5-6' bls	blk	silty fine sand, damp

COMPOSITE SAMPLE DATA:

Date:
Method:
Monitor Readings (Range in ppm):

Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)

N/A

SAMPLE COLLECTION INFORMATION:

Analysis		Container Requirements	Collected	LAB
PAHs	8310	1 - 4 oz jar	yes	accutest

OBSERVATIONS / NOTES:

Te	TM	Depth (ft bls)	Unfilter (ppm)	Filtered (ppm)	Net (ppm)
1453	1459	2	0.2	–	0.2
1505	1511	4	0.1	–	0.1
1517	1523	6	0.0	–	0.0

MAP:

See Fig 3.1

Check if Applicable:

ID No.: [ ] MSMSD [X] DUPLICATE

CEF-842-SU-DU02

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NAS Cecil Field Building 324
Project No.: N4248, CTO 248

[ ] Surface Soil
[X] Subsurface Soil
[ ] Sediment
[ ] Other:
[ ] QA Sample Type:

Sample ID No.: CEF-842-SU-012-06
Sample Location: CEF-842-SB-012
Sampled By: MD
C.O.C. No.: 842-033004

Type of Sample:
[X] Low Concentration
[ ] High Concentration

GRAB SAMPLE DATA:

Date: 3/30/04
Time: 1614
Method: ~~Disposable Trowel~~ HA, SS
Monitor Reading (ppm):

Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
5-6' bls	dk. brn	silty fine sand, damp

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis		Container Requirements	Collected	LAB
PAHs	8310	1 - 4 oz jar	yes	accutest

OBSERVATIONS / NOTES:

TC	TM	Depth (ft bls)	Unfilter (ppm)	Filtered (ppm)	Net (ppm)
1557	1602	2'	0.0	—	0.0
1602	1607	4'	0.0	—	0.0
1614	1619	6'	0.0	—	0.0

MAP:

see fig. 3.1

Check if Applicable:

ID No.: [X] MSMSD [ ] DUPLICATE
CEF-842-SU-012-06

Signature(s): M. W. Dale

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NAS Cecil Field Building 324
Project No.: N4248, CTO 248

[ ] Surface Soil
[X] Subsurface Soil
[ ] Sediment
[ ] Other:
[ ] QA Sample Type:

Sample ID No.: CEF-842-SU-013-06
Sample Location: CEF-842SB-013
Sampled By: MO
C.O.C. No.: 842-033004

Type of Sample:
[X] Low Concentration
[ ] High Concentration

GRAB SAMPLE DATA:

	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 3/30/04 Time: 1649 Method: ~~Disposable Trowel~~ SSHA Monitor Reading (ppm):	5-6' bls	gray ~~dk. brn~~ MO	silty fine sand, damp

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis		Container Requirements	Collected	LAB
PAHs	8310	1 - 4 oz jar	yes	accutest

OBSERVATIONS / NOTES:

TC	TM	Depth (ft bls)	Unfilter (ppm)	Filtered (ppm)	Net (ppm)
1637	1642	2'	0.0	—	0.0
1641	1646	4'	0.0	—	0.0
1649	1654	6'	0.0	—	0.0

MAP:

See fig. 3.1

Check if Applicable:

ID No.: [ ] MSMSD [ ] DUPLICATE

none

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NAS Cecil Field Building 324
Project No.: N4248, CTO 248

[ ] Surface Soil
[X] Subsurface Soil
[ ] Sediment
[ ] Other:
[ ] QA Sample Type:

Sample ID No.: CEF-842-SU-014-06
Sample Location: CEF-842-SB-014
Sampled By: MO
C.O.C. No.: 842-033004

Type of Sample:
[X] Low Concentration
[ ] High Concentration

GRAB SAMPLE DATA:

	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 3/30/04 Time: 1722 Method: ~~Disposable Trowel~~ SSHA Monitor Reading (ppm):	5-6' bls	black	silty fine sand, damp

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis		Container Requirements	Collected	LAB
PAHs	8310	1 - 4 oz jar	yes	accutest

OBSERVATIONS / NOTES:

TC	TM	Depth (ft bls)	Unfilter (ppm)	Filtered (ppm)	Net (ppm)
1703	1708	2'	0.0	—	0.0
1714	1719	4'	0.0	—	0.0
1722	1727	6'	0.0	—	0.0

MAP:

see fig. 3.1

Check if Applicable:

ID No.: [ ] MSMSD [ ] DUPLICATE

none

Signature(s):

[signature]

APPENDIX C

FIELD NOTES

5/7/03 B.842 CECIL FIELD CTO241 U.S. NAVY

0700 Merv Lane AT Cecil Field. IN Ranger (cell ph. 845-7048). Chris Gleaton to arrive later.
WEATH: 76°F (Lo), 92°F (Hi), 0% rain chance, winds from SW @ 5-10 mph.

0805 Merv located Prosonic DPT crew (Victor Terrell & Maurice Crespanke) and @ B.1 for H&S & workplan.

0815 Merv calibrate FID # 44 from Field Env. See calibration sheet for details.

0835 Work plan debriefing. See workplan Addendum dated 4/03.
Note: utility locates completed (started 5/5/03 A.M.) See Sunshine ticket # 125302160.
No live utilities on site. There are dead utility lines on site. JASON of JAA was here on 5/5/03 and indicated the nearest airline flight line lines/utilities are about 100 ft. away and not to the runways (w/in 5' of runways)

0850 Held H&S briefing per plan dated 4/03. See safework permits 842-1 thru 842-4. Also signed medical data sheets for crew.

0930 Merv & Prosonic crew go to B.82 to get escort w/ JAA.
Note: PPE level D – safety glasses, gloves & hard hats included. Note: C. Gleaton arrived at 1000.

1045 Roy Cranford gave us his blessing to go out to the site. He said that Cecil Ground is ready for our call.

1050 M. Dale (Tetra Tech 2) has permission to cross runways with 2 vehicles following.

1055 on site. Set up decon station for DPT and for our soil screen mason jars on concrete pad where B.842 used to be located.

1100 Chris Gleaton doing eq. insp. of 66DT rig. (Veh. # 6601).

1110 Rig okay to work. Kill switch at operator station works. See equip. inspection sheet for further detail.

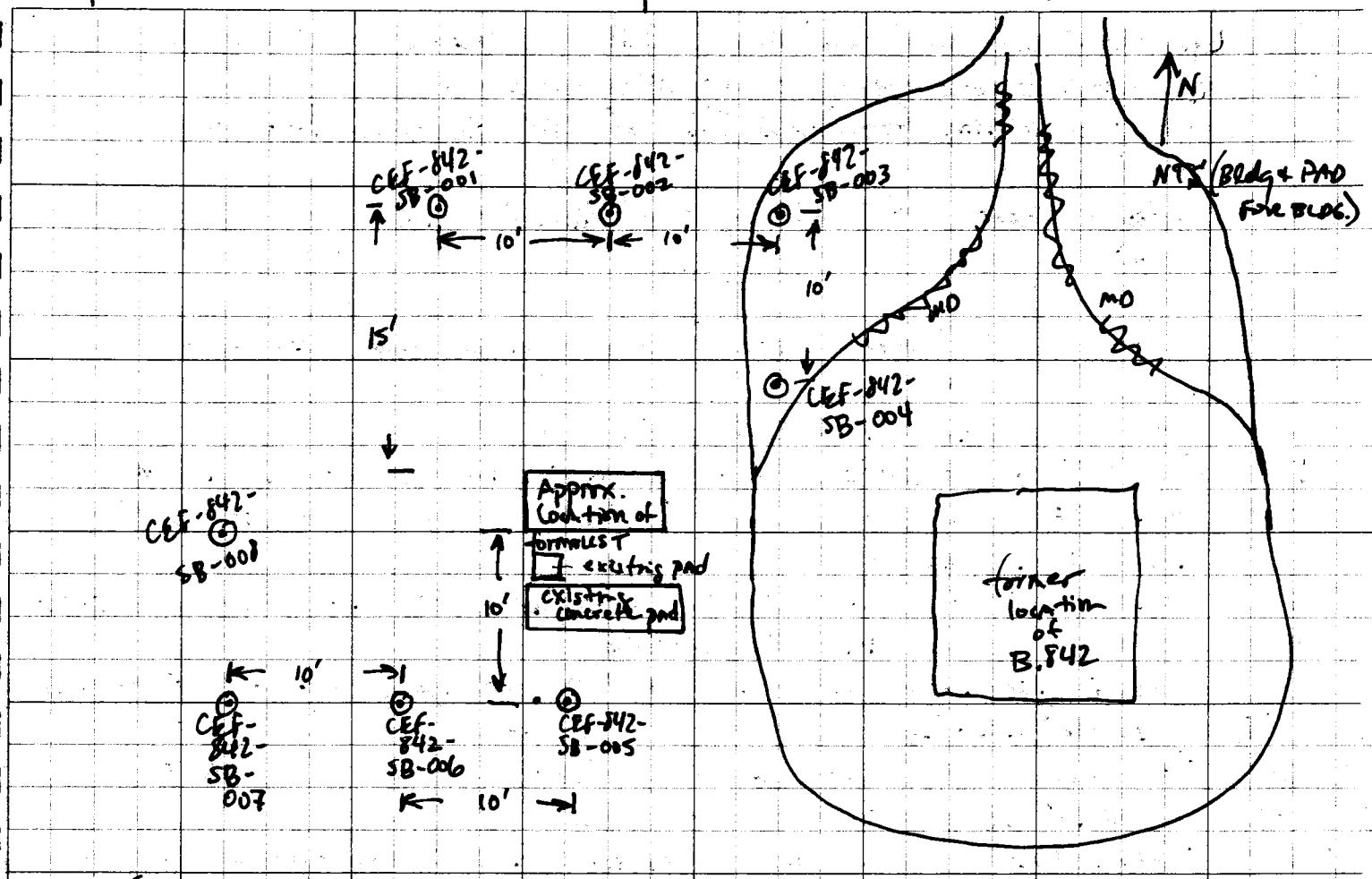
1112 Air background 7-8 ppm. NOTE: P-3's & other aircraft are flying by on the runways.

1118-1141 Collecting soil samples for OVA-FID screen per FOES recommended headspace screening guidelines. Sampling at 2' intervals to the water table per workplan. See Soil/Sediment Sample log sheets for lithology, air monitor + soil sample data.

*1136 Merv collect sample for PAHs (8310) @ 5-6' bls. interval from DPT acetate sleeve. I.D. CEF-842-SU-001-06.

M. W. Dale

* Delayed entry



Former TANK shown w/ dimensions 3' x 8' (Approximated).

1142 Chris is decanning mason jars after each OVA-FID reading. DPT helper (Victor) is decontaminating the hand auger and MACRO-CORE DPT tool after each hole per TTNUS SOP SA 7.1.

1150 VICTOR set up on CEF-842-SB-002.

1152-1205 Merv + Chris collecting soil samples using same procedure for soil screening per FDEP recommended guideline for headspace screening. See Soil/Sediment Log Sheet for lithologic data, air monitor + soil sample data.

*1202 Merv collect soil sample for PAHs. Sample I.D. CEF-842-SU-002-06.

1220 Victor set up on CEF-842-SB-003.

1224-1239 Merv + Chris collecting soil samples for headspace screening per FDEP guidelines. See soil/sediment log sheet for lithologic data, air monitor + soil sample data.

*1233 Merv collected soil sample for PAHs. Sample I.D. CEF-842-SU-003-06.

1251 Victor set up CEF-842-SB-004.

1254-1310 Merv + Chris collecting soil samples for headspace screening per FDEP guidelines. See soil/sediment log sheet for lithologic data, air monitor data + soil sample data.

M.W. Dale

* delayed entry.

5/7/03 CECIL FIELD B.842 Limited Soil Inv. CTO 248 U.S. NAVY

*1305 Merv collect soil sample for PAHs. I.D.# is CEF-842-SU-004-06.
1315 Merv, Chris + Prosonic crew securing site for lunch.
1323 We have permission from DIANA Stone of JAA to leave truck + trailer on site.
1325 2 vehicles depart flightline w/ Cecil Ground's okay.
1330-1435 Lunch.
1435-1445 Merv, Chris + Prosonic crew rec'd permission from Cecil Ground to return to B.842 area.
1450 Victor set up on CEF-842-SB-005.
1453-1528 Merv + Chris set soils collected per workplan + screen w/OVA-FID per FDEP headspace analysis guidelines. Still sampling @ 2' intervals per workplan.
*1520 Merv collect soil for lab PAH analysis. I.D.# CEF-842-SU-005-07.
1538 Victor set up on CEF-842-SB-006.
1532-1546 Merv + Chris collect soils for OVA-FID headspace screening w/OVA-FID per FDEP guidelines.
*1539 Merv collect soil sample for PAHs. I.D# CEF-842-SU-006-06.
1548 Victor set up on CEF-842-SB-007.
1550-1557 Merv + Chris collecting and screening soils at this location per FDEP headspace guidelines. Note: ∇ shallower here so we only have to hand auger (stainless steel type).
*1552 Merv collect soil for Lab PAH analysis. I.D.# CEF-842-SU-007-04. Also collect extra jar for Lab MSMSD. See Soil/Sediment log sheet for soil lithologic + sampling data and air monitor data.
1600 Victor set up on CEF-842-SB-008.
1605-1612 Merv + Chris collecting + screening soils per FDEP recommended headspace analysis guidelines. See Soil/Sediment Sample LogSheet for lithologic data, air monitor data + sampling data.
*1608 Merv collect PAH soil sample. I.D. # CEF-842-SU-008-04. Also collect duplicate (time on label = 0000) and I.D. it CEF-842-DU01-04. here @ SB008 (same interval as sample).
1615 Victor doing final decon of equip. Since OVA-FID soil reads were below 10 ppm (bat) - we are putting soil back in hole it came from. We also spread the IDW decon H_2O on the asphalt to evaporate there.
1630 Prosonic crew, Merv + Chris have secured site and departed with Cecil Ground's permission.
1633 Back at office. Merv took samples from ice chest + put
* delayed entry.

MW. Sole

5/7/03 CECIL FIELD, B.842 Soil Inv. 40248 U.S. NAVY

1633 in fridge for overnight storage. Note: Sample fridge is locked. Samples logged on COC# 2310. Hold time - 7 days to extraction.

1635 Prosonic crew depart Ceal - we will meet them @ 0800 tomorrow.

Mid. Lake

B.842 NASCF 3/2/04
LSSAR, Ph. II
U.S.N. CTD 248

1605 Have permission to depart flightline.
1610 Clear of runways.
Now proceed to Site 57 (CTD 78) on errand for Pittsburgh's M. Jannet.

MWD

MWDale

B.842 NASCF 3/30/04
LSSAR, Ph. II
USN

1038 M. Dale depart office for CECIL to conduct Ph. II soil sampling at Bldg. 842 (SB 009 thru SB-014). Sampling for PAH's only (8310). Lab is ACCUTEST.
PPE = Level D w/ gloves
Clearance: letter of 3/26/04 in possession.
HASP dtd. reviewed.
WEAX: Hi 78°F, Lo 42°F, WINDY (from west).
1100 At Publix to get fuel & sub for lunch.
1117 Leave for Cecil.
1133 At B.1, load other supplies, fill MicroFID w/ hydrogen + calibrate (PINE ENV. Rental #401). See cal sheet for details.
1145-1200 Lunch.
1205 At JAA, notify D. Dollarhide going to site. CECIL ph. 545-7048.
1230 Have permission from CECIL Control to go to site.
1238 On site. Set up. Snakes still here. Note: New locate ticket in effect # 08545841 (sunshine one-call).

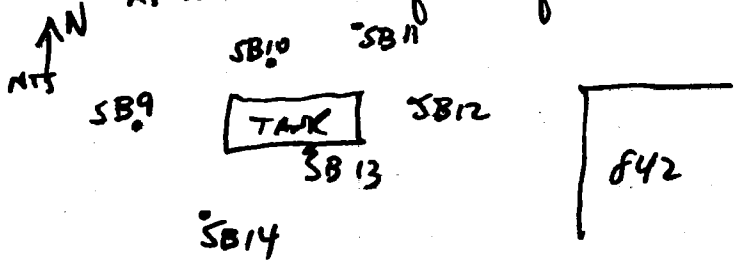
MWDale

Bldg. 842 Date 3/30/04
LSSAR, Ph. II
U.S.N. CTO 248

DECON: SOP SA 7.1 done before, between & after each location on the stainless steel hand auger. MASON JARS DONE AS needed.

See Boring logs for each location ~~and~~ for Lithology and air monitor data.
See Soil Sample Log Sheet for sample details and soil screen data.

1240-1312 Screen & log soils for CEF-842-SB-009. See Fig 3-1 As modified by Paul Callignon and As marked in field for locations



this fig. is general sketch for relative case only.

M.W. Dale

Bldg. 842 3/30/04
LSSAR, Ph. II
U.S.N. CTO 248

1332 Collect 1 jar "CEF-842-SU-009-06" from 5-6' bls. DECON

1352 Screen & log soils for CEF-842-SB-010.

1442 Collect 1 jar "CEF-842-SU-010-06" from 5-6' bls. DECON

1453-1523 Screen & log soils for CEF-842-SB-011.

1530 Collect 1 jar "CEF-842-SU-011-06" from 5 to 6' bls. Also, collect 1 other jar for duplicate "CEF-842-SU-D002" & give it time 0000. DECON

1557-1619 Screen and log soils for CEF-842-SB-012.

*1614 Collect 2 jars (extra for MSMSD) from 5 to 6' bls as "CEF-842-SU-012-06". DECON

1637-1654 Screen & log soils for CEF-842-SB-013.

*1649 Collect 1 jar for "CEF-842-SU-013-06". DECON

1703-1727 Screen and log soils for CEF-842-SB-014.

* Delayed entry

M.W. Dale

Bldg. 842, Ph. II 3/30/04
LSSAR, Ph. II Soils
U.S.N. CTO 248

*1722 Collect "CEF-842-SU-014-06" from 5-6' b/s. (1 jar). DECON.
NOTE: Samples put on ice after collection.
CHAIN # 842-033004.
Lab work release N3965-395 Mod 6.

1747 DECON complete, holes refilled; have about 1.5 gals of decon water to take to Bldg. 18.

1750 Cecil Ground guided me back to ADA next to tower.

1755 Back at Bldg. 1 (dumped decon water at B. 18).
Pack cooler (1) with 8 jars for ACCUTEST per SOP SA 6.1.
Also packing FID to return it to PINE.

1825 Fedex airbill for cooler is 8402 7227 1877.

1829 Leave CECIL, lock door, CH2M Hill still here.

1900 At Fedex, ship cooler. FID shipped on 8458 5691 6635.

M.W. Dale & Delayed entry

B. 842, Soils 3/30/04
Ph. II, LSSAR
U.S.N. CTO 248

1908 Leave Fedex for office.

1932 Back at office. Unload cooler to warehouse.

MWD

MWDale

APPENDIX D

SOIL LABORATORY REPORT

Southeast
ACCUTEST.
Laboratories

05/30/03

Technical Report for

Tetra Tech, NUS

NAS Cecil Field-CTO-248

WR#N4248-WR334 B842 NASCF

Accutest Job Number: F17755

Report to:

Tetra Tech, NUS

dalem@ttnus.com

ATTN: Merv Dale

Total number of pages in report: 12

ACCREDITED IN ACCORDANCE WITH nela

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference and/or state specific certification programs as applicable.

Harry Behzadi, Ph.D.
Laboratory Director

Certifications: FL (DOH E83510), NC (573), NJ (FL002), MA (FL946), IA (366), LA (03051), KS (E-10327), SC, AK

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Sample Summary

Tetra Tech, NUS

Job No: F17755

NAS Cecil Field-CTO-248
Project No: WR#N4248-WR334 B842 NASCF

Sample Number	Collected Date	Time By	Received	Matrix Code	Type	Client Sample ID
F17755-1	05/07/03	11:36 MD	05/10/03	SO	Soil	CEF-842-SU-001-06
F17755-2	05/07/03	12:02 MD	05/10/03	SO	Soil	CEF-842-SU-002-06
F17755-3	05/07/03	12:33 MD	05/10/03	SO	Soil	CEF-842-SU-003-06
F17755-4	05/07/03	13:05 MD	05/10/03	SO	Soil	CEF-842-SU-004-06
F17755-5	05/07/03	15:20 MD	05/10/03	SO	Soil	CEF-842-SU-005-07
F17755-6	05/07/03	15:39 MD	05/10/03	SO	Soil	CEF-842-SU-006-06
F17755-7	05/07/03	15:52 MD	05/10/03	SO	Soil	CEF-842-SU-007-04
F17755-8	05/07/03	16:08 MD	05/10/03	SO	Soil	CEF-842-SU-008-04
F17755-9	05/07/03	00:00 MD	05/10/03	SO	Soil	CEF-842-DU01-04
F17755-10	05/08/03	08:50 MD	05/10/03	AQ	Field Blank Water	CEF-842-RB1

Soil samples reported on a dry weight basis unless otherwise indicated on result page.

Report of Analysis

Client Sample ID:	CEF-842-SU-001-06		
Lab Sample ID:	F17755-1	Date Sampled:	05/07/03
Matrix:	SO - Soil	Date Received:	05/10/03
Method:	EPA 8310 SW846 3550B	Percent Solids:	84.7
Project:	NAS Cecil Field-CTO-248		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	EE015295.D	1	05/19/03	SM	05/16/03	OP7595	GEE652
Run #2							

	Initial Weight	Final Volume
Run #1	30.0 g	5.0 ml
Run #2		

Polynuclear Aromatic Hydrocarbons

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	790	200	ug/kg	
208-96-8	Acenaphthylene	ND	790	200	ug/kg	
120-12-7	Anthracene	ND	390	200	ug/kg	
56-55-3	Benzo(a)anthracene	ND	390	98	ug/kg	
50-32-8	Benzo(a)pyrene	ND	79	20	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	79	20	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	79	20	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	79	20	ug/kg	
218-01-9	Chrysene	ND	390	98	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	79	20	ug/kg	
206-44-0	Fluoranthene	ND	390	98	ug/kg	
86-73-7	Fluorene	ND	390	200	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	79	20	ug/kg	
91-20-3	Naphthalene	ND	390	98	ug/kg	
90-12-0	1-Methylnaphthalene	ND	390	98	ug/kg	
91-57-6	2-Methylnaphthalene	ND	390	98	ug/kg	
85-01-8	Phenanthrene	ND	390	200	ug/kg	
129-00-0	Pyrene	ND	390	98	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	90%		38-139%
92-94-4	p-Terphenyl	103%		46-149%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

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

Report of Analysis

Client Sample ID:	CEF-842-SU-002-06		
Lab Sample ID:	F17755-2	Date Sampled:	05/07/03
Matrix:	SO - Soil	Date Received:	05/10/03
Method:	EPA 8310 SW846 3550B	Percent Solids:	81.6
Project:	NAS Cecil Field-CTO-248		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	EE015296.D	1	05/19/03	SM	05/16/03	OP7595	GEE652
Run #2							

	Initial Weight	Final Volume
Run #1	30.1 g	5.0 ml
Run #2		

Polynuclear Aromatic Hydrocarbons

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	810	200	ug/kg	
208-96-8	Acenaphthylene	ND	810	200	ug/kg	
120-12-7	Anthracene	ND	410	200	ug/kg	
56-55-3	Benzo(a)anthracene	ND	410	100	ug/kg	
50-32-8	Benzo(a)pyrene	ND	81	20	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	81	20	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	81	20	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	81	20	ug/kg	
218-01-9	Chrysene	ND	410	100	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	81	20	ug/kg	
206-44-0	Fluoranthene	ND	410	100	ug/kg	
86-73-7	Fluorene	ND	410	200	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	81	20	ug/kg	
91-20-3	Naphthalene	ND	410	100	ug/kg	
90-12-0	1-Methylnaphthalene	ND	410	100	ug/kg	
91-57-6	2-Methylnaphthalene	ND	410	100	ug/kg	
85-01-8	Phenanthrene	ND	410	200	ug/kg	
129-00-0	Pyrene	ND	410	100	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	89%		38-139%
92-94-4	p-Terphenyl	102%		46-149%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

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

Report of Analysis

Client Sample ID:	CEF-842-SU-003-06		
Lab Sample ID:	F17755-3	Date Sampled:	05/07/03
Matrix:	SO - Soil	Date Received:	05/10/03
Method:	EPA 8310 SW846 3550B	Percent Solids:	87.2
Project:	NAS Cecil Field-CTO-248		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	EE015297.D	1	05/19/03	SM	05/16/03	OP7595	GEE652
Run #2							

	Initial Weight	Final Volume
Run #1	30.2 g	5.0 ml
Run #2		

Polynuclear Aromatic Hydrocarbons

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	760	190	ug/kg	
208-96-8	Acenaphthylene	ND	760	190	ug/kg	
120-12-7	Anthracene	ND	380	190	ug/kg	
56-55-3	Benzo(a)anthracene	ND	380	95	ug/kg	
50-32-8	Benzo(a)pyrene	ND	76	19	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	76	19	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	76	19	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	76	19	ug/kg	
218-01-9	Chrysene	ND	380	95	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	76	19	ug/kg	
206-44-0	Fluoranthene	ND	380	95	ug/kg	
86-73-7	Fluorene	ND	380	190	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	76	19	ug/kg	
91-20-3	Naphthalene	ND	380	95	ug/kg	
90-12-0	1-Methylnaphthalene	ND	380	95	ug/kg	
91-57-6	2-Methylnaphthalene	ND	380	95	ug/kg	
85-01-8	Phenanthrene	ND	380	190	ug/kg	
129-00-0	Pyrene	ND	380	95	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	85%		38-139%
92-94-4	p-Terphenyl	98%		46-149%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

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

Report of Analysis

Client Sample ID:	CEF-842-SU-004-06		
Lab Sample ID:	F17755-4	Date Sampled:	05/07/03
Matrix:	SO - Soil	Date Received:	05/10/03
Method:	EPA 8310 SW846 3550B	Percent Solids:	93.2
Project:	NAS Cecil Field-CTO-248		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	EE015298.D	1	05/19/03	SM	05/16/03	OP7595	GEE652
Run #2							

	Initial Weight	Final Volume
Run #1	30.2 g	5.0 ml
Run #2		

Polynuclear Aromatic Hydrocarbons

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	710	180	ug/kg	
208-96-8	Acenaphthylene	ND	710	180	ug/kg	
120-12-7	Anthracene	ND	360	180	ug/kg	
56-55-3	Benzo(a)anthracene	ND	360	89	ug/kg	
50-32-8	Benzo(a)pyrene	ND	71	18	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	71	18	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	71	18	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	71	18	ug/kg	
218-01-9	Chrysene	ND	360	89	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	71	18	ug/kg	
206-44-0	Fluoranthene	ND	360	89	ug/kg	
86-73-7	Fluorene	ND	360	180	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	71	18	ug/kg	
91-20-3	Naphthalene	ND	360	89	ug/kg	
90-12-0	1-Methylnaphthalene	ND	360	89	ug/kg	
91-57-6	2-Methylnaphthalene	ND	360	89	ug/kg	
85-01-8	Phenanthrene	ND	360	180	ug/kg	
129-00-0	Pyrene	ND	360	89	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	89%		38-139%
92-94-4	p-Terphenyl	103%		46-149%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

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

Report of Analysis

Client Sample ID:	CEF-842-SU-005-07		
Lab Sample ID:	F17755-5	Date Sampled:	05/07/03
Matrix:	SO - Soil	Date Received:	05/10/03
Method:	EPA 8310 SW846 3550B	Percent Solids:	87.2
Project:	NAS Cecil Field-CTO-248		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	EE015299.D	1	05/19/03	SM	05/16/03	OP7595	GEE652
Run #2							

	Initial Weight	Final Volume
Run #1	30.4 g	5.0 ml
Run #2		

Polynuclear Aromatic Hydrocarbons

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	750	190	ug/kg	
208-96-8	Acenaphthylene	ND	750	190	ug/kg	
120-12-7	Anthracene	ND	380	190	ug/kg	
56-55-3	Benzo(a)anthracene	ND	380	94	ug/kg	
50-32-8	Benzo(a)pyrene	ND	75	19	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	75	19	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	75	19	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	75	19	ug/kg	
218-01-9	Chrysene	ND	380	94	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	75	19	ug/kg	
206-44-0	Fluoranthene	ND	380	94	ug/kg	
86-73-7	Fluorene	ND	380	190	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	75	19	ug/kg	
91-20-3	Naphthalene	ND	380	94	ug/kg	
90-12-0	1-Methylnaphthalene	ND	380	94	ug/kg	
91-57-6	2-Methylnaphthalene	ND	380	94	ug/kg	
85-01-8	Phenanthrene	ND	380	190	ug/kg	
129-00-0	Pyrene	ND	380	94	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	90%		38-139%
92-94-4	p-Terphenyl	104%		46-149%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

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

Report of Analysis

Client Sample ID:	CEF-842-SU-006-06		
Lab Sample ID:	F17755-6	Date Sampled:	05/07/03
Matrix:	SO - Soil	Date Received:	05/10/03
Method:	EPA 8310 SW846 3550B	Percent Solids:	87.0
Project:	NAS Cecil Field-CTO-248		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	EE015301.D	1	05/19/03	SM	05/16/03	OP7595	GEE652
Run #2							

	Initial Weight	Final Volume
Run #1	30.1 g	5.0 ml
Run #2		

Polynuclear Aromatic Hydrocarbons

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	760	190	ug/kg	
208-96-8	Acenaphthylene	ND	760	190	ug/kg	
120-12-7	Anthracene	ND	380	190	ug/kg	
56-55-3	Benzo(a)anthracene	ND	380	95	ug/kg	
50-32-8	Benzo(a)pyrene	ND	76	19	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	76	19	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	76	19	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	76	19	ug/kg	
218-01-9	Chrysene	ND	380	95	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	76	19	ug/kg	
206-44-0	Fluoranthene	ND	380	95	ug/kg	
86-73-7	Fluorene	ND	380	190	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	76	19	ug/kg	
91-20-3	Naphthalene	ND	380	95	ug/kg	
90-12-0	1-Methylnaphthalene	ND	380	95	ug/kg	
91-57-6	2-Methylnaphthalene	ND	380	95	ug/kg	
85-01-8	Phenanthrene	ND	380	190	ug/kg	
129-00-0	Pyrene	ND	380	95	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	91%		38-139%
92-94-4	p-Terphenyl	108%		46-149%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

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

Report of Analysis

Client Sample ID:	CEF-842-SU-007-04		
Lab Sample ID:	F17755-7	Date Sampled:	05/07/03
Matrix:	SO - Soil	Date Received:	05/10/03
Method:	EPA 8310 SW846 3550B	Percent Solids:	88.2
Project:	NAS Cecil Field-CTO-248		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	EE015302.D	1	05/19/03	SM	05/16/03	OP7595	GEE652
Run #2							

	Initial Weight	Final Volume
Run #1	30.8 g	5.0 ml
Run #2		

Polynuclear Aromatic Hydrocarbons

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	740	180	ug/kg	
208-96-8	Acenaphthylene	ND	740	180	ug/kg	
120-12-7	Anthracene	ND	370	180	ug/kg	
56-55-3	Benzo(a)anthracene	ND	370	92	ug/kg	
50-32-8	Benzo(a)pyrene	ND	74	18	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	74	18	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	74	18	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	74	18	ug/kg	
218-01-9	Chrysene	ND	370	92	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	74	18	ug/kg	
206-44-0	Fluoranthene	ND	370	92	ug/kg	
86-73-7	Fluorene	ND	370	180	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	74	18	ug/kg	
91-20-3	Naphthalene	ND	370	92	ug/kg	
90-12-0	1-Methylnaphthalene	ND	370	92	ug/kg	
91-57-6	2-Methylnaphthalene	ND	370	92	ug/kg	
85-01-8	Phenanthrene	ND	370	180	ug/kg	
129-00-0	Pyrene	ND	370	92	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	93%		38-139%
92-94-4	p-Terphenyl	107%		46-149%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

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

Report of Analysis

Client Sample ID:	CEF-842-SU-008-04		
Lab Sample ID:	F17755-8	Date Sampled:	05/07/03
Matrix:	SO - Soil	Date Received:	05/10/03
Method:	EPA 8310 SW846 3550B	Percent Solids:	87.8
Project:	NAS Cecil Field-CTO-248		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	EE015303.D	1	05/19/03	SM	05/16/03	OP7595	GEE652
Run #2							

	Initial Weight	Final Volume
Run #1	30.4 g	5.0 ml
Run #2		

Polynuclear Aromatic Hydrocarbons

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	750	190	ug/kg	
208-96-8	Acenaphthylene	ND	750	190	ug/kg	
120-12-7	Anthracene	ND	370	190	ug/kg	
56-55-3	Benzo(a)anthracene	ND	370	94	ug/kg	
50-32-8	Benzo(a)pyrene	ND	75	19	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	75	19	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	75	19	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	75	19	ug/kg	
218-01-9	Chrysene	ND	370	94	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	75	19	ug/kg	
206-44-0	Fluoranthene	ND	370	94	ug/kg	
86-73-7	Fluorene	ND	370	190	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	75	19	ug/kg	
91-20-3	Naphthalene	ND	370	94	ug/kg	
90-12-0	1-Methylnaphthalene	ND	370	94	ug/kg	
91-57-6	2-Methylnaphthalene	ND	370	94	ug/kg	
85-01-8	Phenanthrene	ND	370	190	ug/kg	
129-00-0	Pyrene	ND	370	94	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	95%		38-139%
92-94-4	p-Terphenyl	109%		46-149%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

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

Report of Analysis

Client Sample ID:	CEF-842-DU01-04		
Lab Sample ID:	F17755-9	Date Sampled:	05/07/03
Matrix:	SO - Soil	Date Received:	05/10/03
Method:	EPA 8310 SW846 3550B	Percent Solids:	80.9
Project:	NAS Cecil Field-CTO-248		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	EE015304.D	1	05/19/03	SM	05/16/03	OP7595	GEE652
Run #2							

	Initial Weight	Final Volume
Run #1	30.2 g	5.0 ml
Run #2		

Polynuclear Aromatic Hydrocarbons

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	820	200	ug/kg	
208-96-8	Acenaphthylene	ND	820	200	ug/kg	
120-12-7	Anthracene	ND	410	200	ug/kg	
56-55-3	Benzo(a)anthracene	ND	410	100	ug/kg	
50-32-8	Benzo(a)pyrene	ND	82	20	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	82	20	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	82	20	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	82	20	ug/kg	
218-01-9	Chrysene	ND	410	100	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	82	20	ug/kg	
206-44-0	Fluoranthene	ND	410	100	ug/kg	
86-73-7	Fluorene	ND	410	200	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	82	20	ug/kg	
91-20-3	Naphthalene	ND	410	100	ug/kg	
90-12-0	1-Methylnaphthalene	ND	410	100	ug/kg	
91-57-6	2-Methylnaphthalene	ND	410	100	ug/kg	
85-01-8	Phenanthrene	ND	410	200	ug/kg	
129-00-0	Pyrene	ND	410	100	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	90%		38-139%
92-94-4	p-Terphenyl	103%		46-149%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

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

Report of Analysis

Client Sample ID:	CEF-842-RB1		
Lab Sample ID:	F17755-10	Date Sampled:	05/08/03
Matrix:	AQ - Field Blank Water	Date Received:	05/10/03
Method:	EPA 8310 SW846 3510C	Percent Solids:	n/a
Project:	NAS Cecil Field-CTO-248		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	EE015236.D	1	05/15/03	SM	05/15/03	OP7583	GEE649
Run #2							

	Initial Volume	Final Volume
Run #1	930 ml	1.0 ml
Run #2		

Polynuclear Aromatic Hydrocarbons

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	4.3	1.1	ug/l	
208-96-8	Acenaphthylene	ND	4.3	1.1	ug/l	
120-12-7	Anthracene	ND	2.2	1.1	ug/l	
56-55-3	Benzo(a)anthracene	ND	0.22	0.11	ug/l	
50-32-8	Benzo(a)pyrene	ND	0.22	0.11	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	0.22	0.11	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	0.22	0.11	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	0.22	0.11	ug/l	
218-01-9	Chrysene	ND	2.2	1.1	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	0.22	0.11	ug/l	
206-44-0	Fluoranthene	ND	2.2	0.54	ug/l	
86-73-7	Fluorene	ND	2.2	1.1	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.22	0.11	ug/l	
91-20-3	Naphthalene	ND	2.2	0.54	ug/l	
90-12-0	1-Methylnaphthalene	ND	2.2	0.54	ug/l	
91-57-6	2-Methylnaphthalene	ND	2.2	0.54	ug/l	
85-01-8	Phenanthrene	ND	2.2	1.1	ug/l	
129-00-0	Pyrene	ND	2.2	0.54	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	95%		32-142%
92-94-4	p-Terphenyl	78%		30-128%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

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

TETRA TECH NUS, INC. CHAIN OF CUSTODY | NUMBER 2310 | PAGE 1 OF 1

PROJECT NO: N4248, CTO248	FACILITY: B. 842, NASCF	PROJECT MANAGER: PAUL CALLIGAN	PHONE NUMBER: 813 806 0202
LABORATORY NAME AND CONTACT: Accutest Sue Bell			
SAMPLERS (SIGNATURE): Mervin H. Dale, C. Blaston	FIELD OPERATIONS LEADER: MERV DALE	PHONE NUMBER: 904 636 6125	ADDRESS: 4405 Vineland Rd. C-15
CARRIER/WAYBILL NUMBER: Fedex 8371 1005 6337/6348			CITY, STATE: ORLANDO, FL 32811

STANDARD TAT [X]
RUSH TAT [ ] [ ] 24 hr. [ ] 48 hr. [ ] 72 hr. [ ] 7 day [ ] 14 day

CONTAINER TYPE PLASTIC (P) or GLASS (G): G
PRESERVATIVE USED: None

FM755

	DATE YEAR 2003	TIME	SAMPLE ID	LOCATION ID	TOP DEPTH (FT)	BOTTOM DEPTH (FT)	MATRIX (GW, SO, SW, SD, QC, ETC.)	COLLECTION METHOD GRAP (G) COMP (C)	No. OF CONTAINERS	TYPE OF ANALYSIS: PAHs * SW8270 8310								COMMENTS
1	5/7	1136	CEF-842-SU-001-06	SB001	5	6	SO	G	1	1								Cool to 4°C
2	5/7	1202	CEF-842-SU-002-06	SB002	5	6	SO	G	1	1								
3	5/7	1233	CEF-842-SU-003-06	SB003	5	6	SO	G	1	1								N4248-WR334
4	5/7	1305	CEF-842-SU-004-06	SB004	5	6	SO	G	1	1								
5	5/7	1520	CEF-842-SU-005-07	SB005	6	7	SO	G	1	1								* INC. 1-+2-
6	5/7	1539	CEF-842-SU-006-06	SB006	5	6	SO	G	1	1								methylnaphthalene
7	5/7	1552	CEF-842-SU-007-04	SB007	3	4	SO	G	2	2	**							
8	5/7	1608	CEF-842-SU-008-04	SB008	3	4	SO	G	1	1								** use extra
9	5/7	0000	CEF-842-DU01-04	—	—	—	SO	G	1	1								for Lab MS MSD
10	5/8	0850	CEF-842-RB1	—	—	—	W	G	2	2								

1. RELINQUISHED BY: Mervin H. Dale	DATE: 5/9/03	TIME: 1600	1. RECEIVED BY: Fedex	DATE	TIME
2. RELINQUISHED BY: FED EX	DATE	TIME	2. RECEIVED BY: Mirza Mohammed	DATE: 5/10/03	TIME: 110
3. RELINQUISHED BY	DATE	TIME	3. RECEIVED BY	DATE	TIME

COMMENTS: 3.0, 2.8

DISTRIBUTION: WHITE (ACCOMPANIES SAMPLE) YELLOW (FIELD COPY) PINK (FILE COPY)

4/02R
FORM NO TINUS-001

Southeast
ACCUTEST.
Laboratories

06/30/04

Technical Report for

Tetra Tech, NUS

NAS Cecil Field-CTO-248

N3965-WR395 (MOD 6)

Accutest Job Number: F23131

Sampling Date: 03/30/04

Report to:

Tetra Tech, NUS

dalem@ttnus.com

ATTN: Merv Dale

Total number of pages in report: **14**

ACCREDITED IN ACCORDANCE WITH nelac

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference and/or state specific certification programs as applicable.

Harry Behzadi, Ph.D.
Laboratory Director

Certifications: FL (DOH E83510), NC (573), NJ (FL002), MA (FL946), IA (366), LA (03051), KS (E-10327), SC, AK

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Sample Summary

Tetra Tech, NUS

Job No: F23131

NAS Cecil Field-CTO-248
Project No: N3965-WR395 (MOD 6)

Sample Number	Collected Date	Time By	Received	Matrix Code	Type	Client Sample ID
F23131-1	03/30/04	13:32 MD	03/31/04	SO	Soil	CEF-842-SU-009-06
F23131-2	03/30/04	14:42 MD	03/31/04	SO	Soil	CEF-842-SU-010-06
F23131-3	03/30/04	15:30 MD	03/31/04	SO	Soil	CEF-842-SU-011-06
F23131-4	03/30/04	16:14 MD	03/31/04	SO	Soil	CEF-842-SU-012-06
F23131-5	03/30/04	16:49 MD	03/31/04	SO	Soil	CEF-842-SU-013-06
F23131-6	03/30/04	17:22 MD	03/31/04	SO	Soil	CEF-842-SU-014-06
F23131-7	03/30/04	00:00 MD	03/31/04	SO	Soil	CEF-842-SU-DU02

Soil samples reported on a dry weight basis unless otherwise indicated on result page.

Accutest Laboratories Southeast, Inc.
Analytical Narrative

Client:	Tetra Tech, NUS	**Job No:**	F23131
Site:	NAS Cecil Field-CTO-248	**Report Date**	4/20/2004

7 Samples were collected on 03/30/2004 and were received at Accutest on 03/31/2004 properly preserved, at 4.6 Deg. C and intact. These Samples received an Accutest job number of F23131.A listing of the Laboratory Sample ID, Client Sample ID and dates of collection are presented in the Results Summary Section of this report.

Except as noted below, all method specified holding times, calibrations and quality control performance criteria were met.

Extractables by GC By Method EPA 8310

Matrix: SO **Batch ID:** OP10144

All samples were run within holding times.

All samples were extracted within holding time for method

All method blanks for this batch passed with no positive results

Samples F23131-4MS, F23131-4MSD were used as the QC samples indicated.

Wet Chemistry By Method EPA 160.3 M

Matrix: SO **Batch ID:** GN14187

Sample F23080-1DUP was used as the QC samples for Solids, Percent.

Accutest Laboratories Southeast, Inc. certifies that this report meets the project requirements for analytical data produced for the samples as received at the Accutest Laboratories Southeast location as stated in the Analytical Task Order and the COC. In addition, Accutest Laboratories Southeast, Inc. certifies that data as reported meet the Data Quality Objectives for precision, accuracy and completeness as specified in the Accutest Laboratories Southeast, Inc. Quality Manual for other that conditions detailed above. It is recommended by Accutest Laboratories Southeast, Inc. that this report is to be used in its entirety. Accutest Laboratories Southeast, Inc. is not responsible for any assumptions of data quality if partial data packages are used to interpret data. The Accutest Laboratories Southeast, Inc. Laboratory Director as verified by the signature on the front page has authorized release of this report.

Narrative prepared by:

_____ Date: April 20, 2004

Sue O. Bell, Project Manager (signature on file)

Report of Analysis

Client Sample ID:	CEF-842-SU-011-06		
Lab Sample ID:	F23131-3	Date Sampled:	03/30/04
Matrix:	SO - Soil	Date Received:	03/31/04
Method:	EPA 8310 SW846 3550B	Percent Solids:	83.5
Project:	NAS Cecil Field-CTO-248		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	AA021009.D	1	04/14/04	MRE	04/06/04	OP10144	GAA995
Run #2							

	Initial Weight	Final Volume
Run #1	30.2 g	5.0 ml
Run #2		

Polynuclear Aromatic Hydrocarbons

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	790	200	ug/kg	
208-96-8	Acenaphthylene	ND	790	200	ug/kg	
120-12-7	Anthracene	ND	400	200	ug/kg	
56-55-3	Benzo(a)anthracene	ND	400	99	ug/kg	
50-32-8	Benzo(a)pyrene	ND	79	20	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	79	20	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	79	20	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	79	20	ug/kg	
218-01-9	Chrysene	ND	400	99	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	79	20	ug/kg	
206-44-0	Fluoranthene	ND	400	99	ug/kg	
86-73-7	Fluorene	ND	400	200	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	79	20	ug/kg	
91-20-3	Naphthalene	ND	400	99	ug/kg	
90-12-0	1-Methylnaphthalene	ND	400	99	ug/kg	
91-57-6	2-Methylnaphthalene	ND	400	99	ug/kg	
85-01-8	Phenanthrene	ND	400	200	ug/kg	
129-00-0	Pyrene	ND	400	99	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	85%		49-124%
92-94-4	p-Terphenyl	88%		56-141%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

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

ACCUTEST Laboratories

Report of Analysis

Client Sample ID:	CEF-842-SU-012-06		
Lab Sample ID:	F23131-4	Date Sampled:	03/30/04
Matrix:	SO - Soil	Date Received:	03/31/04
Method:	EPA 8310 SW846 3550B	Percent Solids:	84.1
Project:	NAS Cecil Field-CTO-248		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	AA021011.D	1	04/14/04	MRE	04/06/04	OP10144	GAA995
Run #2							

	Initial Weight	Final Volume
Run #1	30.2 g	5.0 ml
Run #2		

Polynuclear Aromatic Hydrocarbons

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	790	200	ug/kg	
208-96-8	Acenaphthylene	ND	790	200	ug/kg	
120-12-7	Anthracene	ND	390	200	ug/kg	
56-55-3	Benzo(a)anthracene	ND	390	98	ug/kg	
50-32-8	Benzo(a)pyrene	ND	79	20	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	79	20	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	79	20	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	79	20	ug/kg	
218-01-9	Chrysene	ND	390	98	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	79	20	ug/kg	
206-44-0	Fluoranthene	ND	390	98	ug/kg	
86-73-7	Fluorene	ND	390	200	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	79	20	ug/kg	
91-20-3	Naphthalene	ND	390	98	ug/kg	
90-12-0	1-Methylnaphthalene	ND	390	98	ug/kg	
91-57-6	2-Methylnaphthalene	ND	390	98	ug/kg	
85-01-8	Phenanthrene	ND	390	200	ug/kg	
129-00-0	Pyrene	ND	390	98	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	88%		49-124%
92-94-4	p-Terphenyl	90%		56-141%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

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

ACCUTEST Laboratories

Report of Analysis

Client Sample ID:	CEF-842-SU-013-06		
Lab Sample ID:	F23131-5	Date Sampled:	03/30/04
Matrix:	SO - Soil	Date Received:	03/31/04
Method:	EPA 8310 SW846 3550B	Percent Solids:	85.9
Project:	NAS Cecil Field-CTO-248		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	AA021014.D	1	04/14/04	MRE	04/06/04	OP10144	GAA995
Run #2							

	Initial Weight	Final Volume
Run #1	30.2 g	5.0 ml
Run #2		

Polynuclear Aromatic Hydrocarbons

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	770	190	ug/kg	
208-96-8	Acenaphthylene	ND	770	190	ug/kg	
120-12-7	Anthracene	ND	390	190	ug/kg	
56-55-3	Benzo(a)anthracene	ND	390	96	ug/kg	
50-32-8	Benzo(a)pyrene	ND	77	19	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	77	19	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	77	19	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	77	19	ug/kg	
218-01-9	Chrysene	ND	390	96	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	77	19	ug/kg	
206-44-0	Fluoranthene	ND	390	96	ug/kg	
86-73-7	Fluorene	ND	390	190	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	77	19	ug/kg	
91-20-3	Naphthalene	ND	390	96	ug/kg	
90-12-0	1-Methylnaphthalene	ND	390	96	ug/kg	
91-57-6	2-Methylnaphthalene	ND	390	96	ug/kg	
85-01-8	Phenanthrene	ND	390	190	ug/kg	
129-00-0	Pyrene	ND	390	96	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	85%		49-124%
92-94-4	p-Terphenyl	86%		56-141%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

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

ACCUTEST Laboratories

Report of Analysis

Client Sample ID:	CEF-842-SU-014-06		
Lab Sample ID:	F23131-6	Date Sampled:	03/30/04
Matrix:	SO - Soil	Date Received:	03/31/04
Method:	EPA 8310 SW846 3550B	Percent Solids:	76.9
Project:	NAS Cecil Field-CTO-248		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	AA021015.D	1	04/14/04	MRE	04/06/04	OP10144	GAA995
Run #2							

	Initial Weight	Final Volume
Run #1	30.4 g	5.0 ml
Run #2		

Polynuclear Aromatic Hydrocarbons

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	860	210	ug/kg	
208-96-8	Acenaphthylene	ND	860	210	ug/kg	
120-12-7	Anthracene	ND	430	210	ug/kg	
56-55-3	Benzo(a)anthracene	ND	430	110	ug/kg	
50-32-8	Benzo(a)pyrene	ND	86	21	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	86	21	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	86	21	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	86	21	ug/kg	
218-01-9	Chrysene	ND	430	110	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	86	21	ug/kg	
206-44-0	Fluoranthene	ND	430	110	ug/kg	
86-73-7	Fluorene	ND	430	210	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	86	21	ug/kg	
91-20-3	Naphthalene	ND	430	110	ug/kg	
90-12-0	1-Methylnaphthalene	ND	430	110	ug/kg	
91-57-6	2-Methylnaphthalene	ND	430	110	ug/kg	
85-01-8	Phenanthrene	ND	430	210	ug/kg	
129-00-0	Pyrene	ND	430	110	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	93%		49-124%
92-94-4	p-Terphenyl	97%		56-141%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

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