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NAS CECIL FIELD, FL
5090.3a

CONFIRMATORY SAMPLING REPORT FOR BUILDING 16 TANK G16-A BASE REALIGNMENT AND CLOSURE NAS CECIL FIELD FL

1/8/2002

TETRA TECH NUS INC

Rev. 1
01/08/02

Confirmatory Sampling Report
for
Building 16, Tank G16-A

Base Realignment and Closure

Naval Air Station Cecil Field
Jacksonville, Florida

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

Contract Task Order 0121

January 2002

Rev. 1
01/08/02

CONFIRMATORY SAMPLING REPORT
FOR
BUILDING 16, TANK G16-A
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
2155 Eagle Drive
North Charleston, South Carolina 29406

Submitted by:
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CONTRACT NUMBER N62467-94-D-0888
CONTRACT TASK ORDER 0121

JANUARY 2002

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ACRONYMS

ABB-ES	ABB Environmental Services, Inc.
AST	Above Ground Storage Tank
bls	Below Land Surface
CSR	Confirmatory Sampling Report
FAC	Florida Administrative Code
FDEP	Florida Department of Environmental Protection
FID	Flame Ionization Detector
FL-PRO	Florida – Petroleum Range Organics
GCTLs	Groundwater Cleanup Target Level
KAG	Kerosene Analytical Group
mg/kg	Milligrams Per Kilogram
mg/L	Milligrams Per Liter
NAS	Naval Air Station
NFA	No Further Action
OVA	Organic Vapor Analyzer
ppm	Parts per Million
SAP	Sampling and Analysis Plan
SCTLs	Soil Cleanup Target Level
SOUTHNAVFACENGCOM	Southern Division Naval Facilities Engineering Command
TRPH	Total Recoverable Petroleum Hydrocarbons
TtNUS	Tetra Tech NUS, Inc.
µg/kg	Micrograms Per Kilogram
USEPA	United States Environmental Protection Agency
VOC	Volatile Organic Compound

PROFESSIONAL REVIEW CERTIFICATION

The data contained in this report was prepared using sound hydrogeologic principles and judgement. 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 CSR was developed for Tank G16-A at the former NAS Cecil Field, Jacksonville, Florida, and should not be construed to apply to any other site.

Mervin W. Dale

Mervin Dale, P.G.
Florida Professional Geologist
P. G. No. 0001917

01/08/02
Date

MERVIN W. DALE
LICENSE NO. 1917
STATE OF FLORIDA
PROFESSIONAL GEOLOGIST

1.0 INTRODUCTION

Tetra Tech NUS, Inc. (TtNUS) was authorized by Southern Division, Naval Facilities Engineering Command (SOUTHNAVFACENGCOM) to conduct a site investigation and develop a Confirmatory Sampling Report (CSR) for the Tank G16-A at Naval Air Station (NAS) Cecil Field in Jacksonville, Duval County, Florida. A Sampling and Analysis Plan (SAP) for the assessment of soil and possibly groundwater at various tank sites including Tank G16-A was submitted by TtNUS (2000).

Tank G16-A is an existing aboveground storage tank (AST) located just west of Building 16. Building 16 was used as one of the water treatment plants for the NAS Cecil Field potable water distribution systems. The AST has a 1,000-gallon capacity and was used to store diesel fuel for the plant generator [ABB Environmental Services, Inc. (ABB-ES), 1997].

Confirmatory soil screening conducted by ABB-ES (1998) consisted of soil screening at four locations around the AST with an organic vapor analyzer (OVA). The results of that investigation indicated that contaminated soil was not present at that time, and ABB-ES recommended no further action (NFA) at that time.

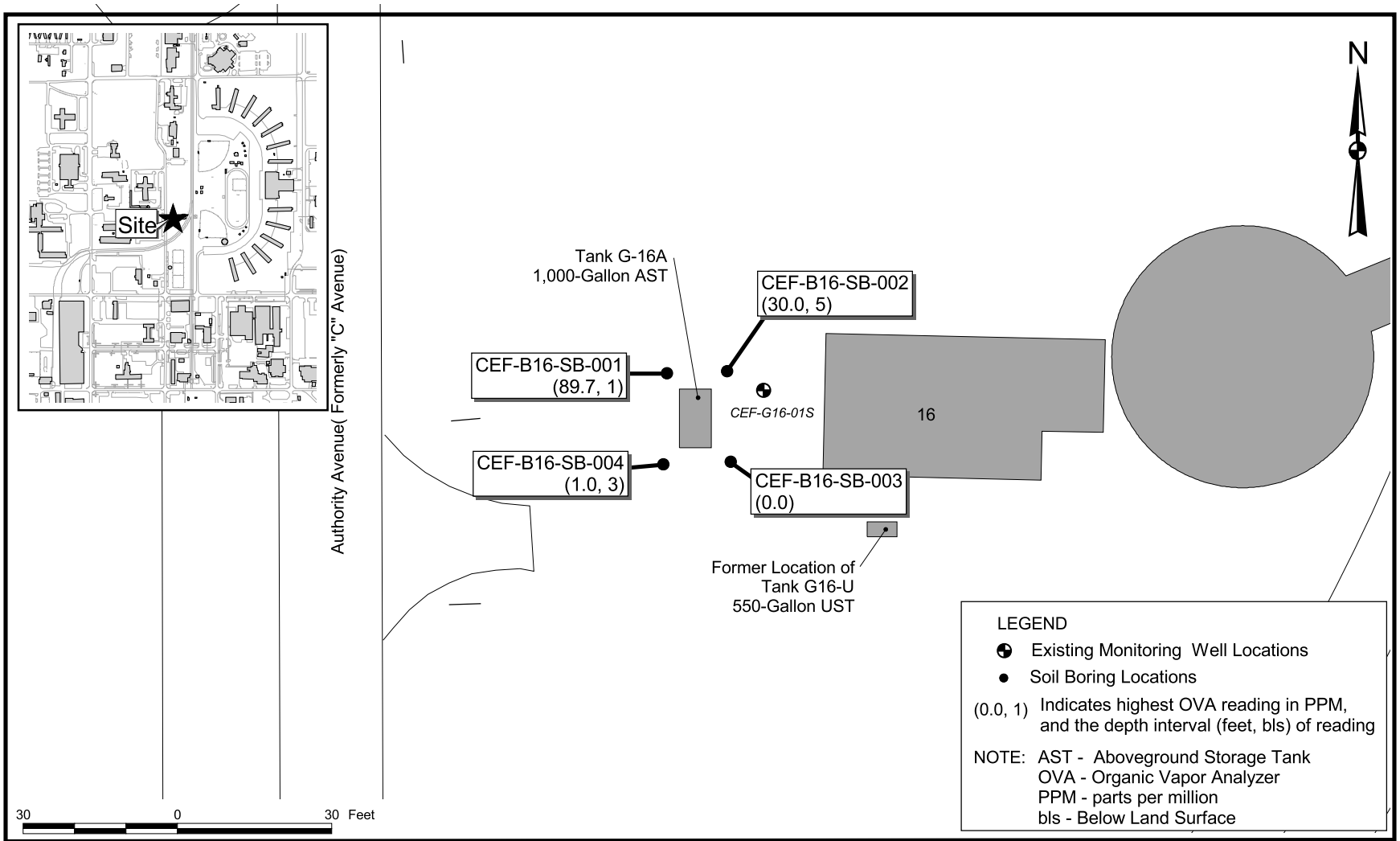
2.0 FIELD INVESTIGATION

The investigation was begun on June 7, 2000 and included:

- Several hand auger soil borings.
- Soil screening at prescribed intervals (TtNUS, 2000).
- Collection and analysis of one subsurface soil sample.
- Collection and analysis of one groundwater sample.

The methodologies and equipment that were used during this investigation are in accordance with the TtNUS Comprehensive Quality Assurance Plan No. 980038, as approved by the Florida Department of Environmental Protection (FDEP). A site location map is provided inset to Figure 2-1.

Following utility location protocols and an initial site visit, four hand auger borings were advanced in the soil around Tank G16-A on June 14, 2000 (Figure 2-1). A fifth hand auger borehole was not made since the AST is a concrete vault structure without a secondary containment drain valve. The soil borings were advanced to the water table, general soil lithology was recorded, and soil samples were collected at depth



DRAWN BY MJJ	DATE 23Mar00	SOIL BORING LOCATIONS DATA CONFIRMATORY SAMPLING REPORT BUILDING 16, TANK G16-A NAVAL AIR STATION CECIL FIELD JACKSONVILLE, FLORIDA	CONTRACT NUMBER 121
CHECKED BY	DATE		APPROVED BY DATE
COST/SCHEDULE-AREA			APPROVED BY DATE
SCALE AS NOTED			DRAWING NO. FIGURE 2-1 / REV 1

P:\GIS\CECIL\tank_g16-a-1.apr 22Aug01 MJJ Layout1

intervals of 1 foot below land surface (bls) and every 2 feet thereafter to the water table. Soil screening was conducted with an OVA-flame ionization detector (OVA-FID). Since the OVA-FID soil screenings at CEF-B16-SB-001 and CEF-B16-SB-002 were indeterminate, those locations were re-screened with an OVA-FID on February 9, 2001. The additional OVA-FID screening results, shown on Table 2-1, indicated a need to collect confirmatory soil and groundwater samples.

In general accord with FDEP guidelines, TtNUS collected a confirmatory soil sample from 0.5 to 1.0 feet bls at soil boring location CEF-B16-SB-001, and a groundwater sample from existing monitoring well, CEF-G16-01S. This sampling event took place on March 1, 2001. Figure 2-1 indicates those locations. Following collection, the samples were placed on ice and shipped overnight by Federal Express to Accura Laboratories in Norcross, Georgia, for analysis. The samples were analyzed for Kerosene Analytical Group (KAG) compounds in general accord with Chapter 62-770, Florida Administrative Code (FAC).

3.0 SITE SCREENING RESULTS

Excessively contaminated soil (defined as 50 parts per million [ppm] for KAG sites) was not detected in the first set of four soil samples collected from the unsaturated zone during the confirmatory sampling, but the results for CEF-B16-SB-001 and CEF-B16-SB-002 were indeterminate. A re-screening of the soil from those borings resulted in a finding of excessively contaminated soil at the 0.5 to 1.0 foot bls interval at CEF-B16-SB-001 (Table 2-1). The general lithology of the soils excavated were silty fine-grained sands in various shades of gray and brown. The depth of the water table at the site was approximately 5 feet bls. The soil OVA-FID data, as modified by the re-sampling, is presented on Figure 2-1.

The laboratory data for the soil and groundwater samples indicates some petroleum contamination was detectable. The analytical results for the soil sample, CEF-B16-SS-001-01, indicated that total recoverable petroleum hydrocarbons (TRPH) and toluene were the only detectable KAG constituents in the sample. Only the TRPH concentration exceeded the FDEP soil cleanup target levels (SCTLs). The detected soil analytical results are summarized and compared to the respective FDEP SCTLs in Table 3-1. The analytical results for the groundwater sample, CEF-B16-GW-01S-01, indicated that lead and TRPH were the only detectable KAG constituents, and no groundwater cleanup target levels (GCTLs) were exceeded. The detected groundwater analytical results are summarized and compared to the respective FDEP GCTLs in Table 3-2. The laboratory report for the soil and groundwater data is included in Appendix A.

Table 2-1
Summary of Soil Screening Data

Confirmatory Sampling Report
Building 16, Tank G16-A
Naval Air Station Cecil Field
Jacksonville, Florida

Location	Screening Date	OVA-FID Concentration (ppm)			
		Depth (feet bls)	Unfiltered	Filtered	Corrected
CEF-B16-SB-001	6/14/2000	1	150	300	0.0
		3	10	180	0.0
		5	10	100	0.0
CEF-B16-SB-001	2/9/2001	1	90.4	0.7	89.7
		3	9.1	0.7	8.4
		5	5.1	0.7	4.4
CEF-B16-SB-002	6/14/2000	1	20	50	0.0
		3	20	15	5
		5	100	70	30
CEF-B16-SB-002	2/9/2001	1	1.5	0.8	0.7
		3	1.9	0.8	1.1
		5	1.2	0.8	0.4
CEF-B16-SB-003	6/14/2000	1	3.0	3.0	0.0
		3	0.0	0.0	0.0
		5	0.0	0.0	0.0
CEF-B16-SB-004	6/14/2000	1	4.0	4.0	0.0
		3	1.0	0.0	1.0
		5	0.0	0.0	0.0

Notes:
Soils were filtered with carbon to determine the methane concentration.
The water table was encountered at approximately 5 feet bls in the borings.

Table 3-1
Summary of Detections in Soil

Confirmatory Sampling Report
Building 16, Tank G16-A
Naval Air Station Cecil Field
Jacksonville, Florida

Sample ID	CEF-B16-SS-001-01	SCTL[2]
Date Sampled	3/1/2001	
Compounds Detected	CEF-B16-SB-001[1]	
VOCs (USEPA Method SW846 8260B) (ug/Kg)		
Toluene	2.4J	500
FL-PRO (mg/Kg)		
TRPH	370	340

Notes:
[1]Sample location shown on Figure 2-1 of report.
[2]SCTL based on leachability to groundwater standards (Chapter 62-770, FAC).
FL-PRO = Florida Petroleum Range Organics
J = estimated.
USEPA = U.S. Environmental Protection Agency
VOCs = volatile organic compounds.

Table 3-2
Summary of Detections in Groundwater

Confirmatory Sampling Report
Building 16, Tank G16-A
Naval Air Station Cecil Field
Jacksonville, Florida

Sample ID	CEF-B16-GW-01S-01	GCTL[2]
Date Sampled	3/1/2001	
Compounds Detected	CEF-G16-01S[1]	
Metals (USEPA Method SW846 6010B) (mg/L)		
Lead	0.0052J	0.015
FL-PRO (mg/L)		
TRPH	1.7U	5

Notes:
[1]Sample location shown on Figure 2-1 of report.
[2]GCTL based on Chapter 62-770, FAC.
J = estimated.
U = undetected

4.0 CONCLUSIONS AND RECOMMENDATIONS

The OVA-FID re-screening soil data and soil analytical data for soil boring CEF-B16-SB-001 indicate that soil contamination above the SCTL for TRPH does exist at that location. The groundwater analytical data for existing monitoring well CEF-G16-01S, which is 20 feet from the contaminated soil boring, indicates petroleum contamination. However, the concentrations are below the respective GCTLs.

TtNUS recommends conducting a limited-scope site assessment for Tank G16-A including additional soil screening and sampling to determine the limits of the soil contamination and installation of an additional monitoring well near soil boring CEF-B16-SB-001 to evaluate the condition of the groundwater under the soil contamination.

REFERENCES

ABB-ES (ABB Environmental Services, Inc.), 1997. Base Realignment and Closure Tank Management Plan, Naval Air Station Cecil Field, Jacksonville, Florida. Prepared SOUTHNAVFACENGCOM, North Charleston, South Carolina, January.

ABB-ES, 1998. Confirmatory Sampling Report, Building 16, Tank G16-A, Naval Air Station Cecil Field, Jacksonville, Florida. Prepared for SOUTHNAVFACENGCOM, North Charleston, South Carolina, April.

TtNUS (Tetra Tech NUS, Inc.), 2000. Sampling and Analysis Plan for Site Assessment and Confirmatory Sampling at Various UST and AST Sites, Naval Air Station Cecil Field, Jacksonville, Florida. Prepared for SOUTHNAVFACENGCOM, North Charleston, South Carolina, March.

APPENDIX A

LABORATORY ANALYTICAL DATA

Tetra Tech NUS, Inc. **Internal Correspondence**

TO: **Mr. Paul Calligan** **DATE:** **April 17, 2001**

FROM: **Suzanne I. Smith** **CC:** **File**

SUBJECT: **Organic Data Validation – VOC, EDB, PAH, TPH, and Lead**
CTO121 – NAS Cecil Field
SDG 27166

SAMPLES: **1/Aqueous**

CEF-B16-GW-OIS-01

1/Soil

CEF-B16-SS-001-01

OVERVIEW

The sample set for CTO121 SDG 27166; Naval Air Station Cecil Field, Jacksonville, Florida consists of one (1) aqueous and one (1) soil environmental samples. The environmental samples were analyzed for Volatile Organic Compounds (VOCs), Polycyclic Aromatic Hydrocarbons (PAHs), and Total Petroleum Hydrocarbons. The aqueous sample was also analyzed for EDB and Lead.

The samples were collected by Tetra Tech NUS on March 1, 2001 and analyzed by Accura Analytical Laboratory, Inc. All analyses were performed in accordance with Naval Facilities Engineering Service Center (NFESC) Quality Assurance/Quality Control (QA/QC) criteria and analyzed according to SW-846 Method 8260B (VOCs), EPA 504.1 (EDB), SW-846 Method 8270C (PAHs), FDEP FL-PRO, and SW-846 6010B analytical and reporting protocols. The data in this SDG was validated with regard to the following parameters:

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

The symbol (*) indicates that all quality control criteria were met for this parameter.

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Volatiles and EDB Fraction

All quality control criteria were met for this fraction.

Polycyclic Aromatic Hydrocarbons Fraction

All quality control criteria were met for this fraction.

Total Petroleum Hydrocarbon Fraction

Laboratory Blank Analysis

Samples affected : CEF-B16-GW-OIS-01

Analyte	Maximum Concentration (ug/L)	Action Level (ug/L)
TPH	0.37	1.85

An action level of 5x the maximum concentration has been used to evaluate the sample for contamination. Dilution factors and sample aliquots were taken into consideration when evaluating for blank contamination. Positive detects less than the action level were qualified as nondetects (U) as a result of blank contamination.

All other quality control criteria were met for this fraction.

Lead Fraction

All quality control criteria were met for this fraction.

Executive Summary

Laboratory performance: All quality control criteria were met.

Other factors affecting data quality: None.

The data for these analyses were reviewed with reference to the EPA Functional Guidelines for Organic Data Validation (February, 1996), and the NFESC guidelines "Navy Installation Restoration Chemical Data Quality Manual" (September, 1999). The text of the report has been formulated to address only those problems affecting data quality.

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

Suzanne I. Smith

Project Chemist
Tetra Tech NUS, Inc.

CTO121-NAS CECIL FIELD
SOIL DATA
AAL
SDG: 27166

SAMPLE NUMBER:	CEF-B16-SS-001-01			
SAMPLE DATE:	03/01/01	/ /	/ /	/ /
LABORATORY ID:	AC09061			
QC_TYPE:	NORMAL			
% SOLIDS:	94.0 %	100.0 %	100.0 %	100.0 %
UNITS:	UG/KG			
FIELD DUPLICATE OF:				

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

CTO121-NAS CECIL FIELD
SOIL DATA
AAL
SDG: 27166

SAMPLE NUMBER:	CEF-B16-SS-001-01			
SAMPLE DATE:	03/01/01	/ /	/ /	/ /
LABORATORY ID:	AC09061			
QC_TYPE:	NORMAL			
% SOLIDS:	94.0 %	100.0 %	100.0 %	100.0 %
UNITS:	MG/KG			
FIELD DUPLICATE OF:				

	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
TOTAL PETROLEUM HYDROCARBONS	370											

CTO121-NAS CECIL FIELD
SOIL DATA
AAL
SDG: 27166

SAMPLE NUMBER:	CEF-B16-SS-001-01			
SAMPLE DATE:	03/01/01	/ /	/ /	/ /
LABORATORY ID:	AC09061			
QC_TYPE:	NORMAL			
% SOLIDS:	94.0 %	100.0 %	100.0 %	100.0 %
UNITS:	UG/KG			
FIELD DUPLICATE OF:				

	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
VOLATILES												
1,1,1-TRICHLOROETHANE	6.7	U										
1,1,2,2-TETRACHLOROETHANE	6.7	U										
1,1,2-TRICHLOROETHANE	6.7	U										
1,1-DICHLOROETHANE	6.7	U										
1,1-DICHLOROETHENE	6.7	U										
1,2-DICHLOROETHANE	6.7	U										
1,2-DICHLOROPROPANE	6.7	U										
2-CHLOROETHYL VINYL ETHER	67	U										
ACROLEIN	67	U										
ACRYLONITRILE	67	U										
BENZENE	6.7	U										
BROMODICHLOROMETHANE	6.7	U										
BROMOFORM	6.7	U										
BROMOMETHANE	6.7	U										
CARBON TETRACHLORIDE	6.7	U										
CHLOROBENZENE	6.7	U										
CHLOROFORM	6.7	U										
CHLOROMETHANE	6.7	U										
CIS-1,3-DICHLOROPROPENE	6.7	U										
ETHYLBENZENE	6.7	U										
METHYL TERT-BUTYL ETHER	67	U										
METHYLENE CHLORIDE	6.7	U										
TETRACHLOROETHENE	6.7	U										
TOLUENE	6.7	J	P									
TOTAL XYLENES	13											
TRANS-1,2-DICHLOROETHENE	6.7	U										
TRICHLOROETHENE	6.7	U										
VINYL CHLORIDE	6.7	U										

CTO121-NAS CECIL FIELD
WATER DATA
AAL
SDG: 27166

SAMPLE NUMBER:	CEF-B16-GW-OIS-01			
SAMPLE DATE:	03/01/01	/ /	/ /	/ /
LABORATORY ID:	AC09062			
QC_TYPE:	NORMAL			
% SOLIDS:	0.0 %	100.0 %	100.0 %	100.0 %
UNITS:	UG/L			
FIELD DUPLICATE OF:				

	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
POLYNUCLEAR AROMATIC HYDROCARBONS												
1-METHYLNAPHTHALENE	1.0	U										
2-METHYLNAPHTHALENE	1.0	U										
ACENAPHTHENE	1.0	U										
ACENAPHTHYLENE	1.0	U										
ANTHRACENE	1.0	U										
BENZO(A)ANTHRACENE	1.0	U										
BENZO(A)PYRENE	1.0	U										
BENZO(B)FLUORANTHENE	1.0	U										
BENZO(G,H,I)PERYLENE	1.0	U										
BENZO(K)FLUORANTHENE	1.0	U										
CHRYSENE	1.0	U										
DIBENZO(A,H)ANTHRACENE	1.0	U										
FLUORANTHENE	1.0	U										
FLUORENE	1.0	U										
INDENO(1,2,3-CD)PYRENE	1.0	U										
NAPHTHALENE	1.0	U										
PHENANTHRENE	1.0	U										
PYRENE	1.0	U										

CTO121-NAS CECIL FIELD
WATER DATA
AAL
SDG: 27166

SAMPLE NUMBER:	CEF-B16-GW-OIS-01											
SAMPLE DATE:	03/01/01			/ /			/ /			/ /		
LABORATORY ID:	AC09062											
QC_TYPE:	NORMAL											
% SOLIDS:	0.0 %			100.0 %			100.0 %			100.0 %		
UNITS:	MG/L											
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
INORGANICS												
LEAD	0.0052	J	P									

CTO121-NAS CECIL FIELD
WATER DATA
AAL
SDG: 27166

SAMPLE NUMBER:	CEF-B16-GW-OIS-01											
SAMPLE DATE:	03/01/01			/ /			/ /			/ /		
LABORATORY ID:	AC09062											
QC_TYPE:	NORMAL											
% SOLIDS:	0.0 %			100.0 %			100.0 %			100.0 %		
UNITS:	MG/L											
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
TOTAL PETROLEUM HYDROCARBONS	1.7	U	A									

CTO121-NAS CECIL FIELD
WATER DATA
AAL
SDG: 27166

SAMPLE NUMBER:	CEF-B16-GW-OIS-01			
SAMPLE DATE:	03/01/01	/ /	/ /	/ /
LABORATORY ID:	AC09062			
QC_TYPE:	NORMAL			
% SOLIDS:	0.0 %	100.0 %	100.0 %	100.0 %
UNITS:	UG/L			
FIELD DUPLICATE OF:				

	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
VOLATILES												
1,1,1-TRICHLOROETHANE	1.0	U										
1,1,2,2-TETRACHLOROETHANE	1.0	U										
1,1,2-TRICHLOROETHANE	1.0	U										
1,1-DICHLOROETHANE	1.0	U										
1,1-DICHLOROETHENE	1.0	U										
1,2-DIBROMOETHANE	1.0	U										
1,2-DICHLOROETHANE	1.0	U										
1,2-DICHLOROPROPANE	1.0	U										
2-CHLOROETHYL VINYL ETHER	10	U										
ACROLEIN	10	U										
ACRYLONITRILE	10	U										
BENZENE	1.0	U										
BROMODICHLOROMETHANE	1.0	U										
BROMOFORM	1.0	U										
BROMOMETHANE	1.0	U										
CARBON TETRACHLORIDE	1.0	U										
CHLOROBENZENE	1.0	U										
CHLOROFORM	1.0	U										
CHLOROMETHANE	1.0	U										
CIS-1,3-DICHLOROPROPENE	1.0	U										
ETHYLBENZENE	1.0	U										
METHYL TERT-BUTYL ETHER	10	U										
METHYLENE CHLORIDE	5.0	U										
TETRACHLOROETHENE	1.0	U										
TOLUENE	1.0	U										
TOTAL XYLENES	2.0	U										
TRANS-1,2-DICHLOROETHENE	1.0	U										
TRICHLOROETHENE	1.0	U										
VINYL CHLORIDE	1.0	U										

27166

HOLDING TIME
04/12/01

Units	Nsample	Lab Id	Qc Type	Sdg	Sort	Samp Date	Extr Date	Anal Date	SAMP_DATE TO EXTR_DATE	EXTR_DATE TO ANAL_DATE	SAMP_DATE TO ANAL_DATE
UG/L	CEF-B16-GW-OIS-01	AC09062	NORMAL	27166	EDB	03/01/01	03/08/01	03/08/01	7	0	7
MG/L	CEF-B16-GW-OIS-01	AC09062	NORMAL	27166	M	03/01/01	03/13/01	03/14/01	12	1	13
UG/L	CEF-B16-GW-OIS-01	AC09062	NORMAL	27166	OV	03/01/01	03/07/01	03/07/01	6	0	6
UG/KG	CEF-B16-SS-001-01	AC09061	NORMAL	27166	OV	03/01/01	03/07/01	03/07/01	6	0	6
UG/L	CEF-B16-GW-OIS-01	AC09062	NORMAL	27166	PAH	03/01/01	03/07/01	03/17/01	6	10	16
UG/KG	CEF-B16-SS-001-01	AC09061	NORMAL	27166	PAH	03/01/01	03/07/01	03/19/01	6	12	18
MG/L	CEF-B16-GW-OIS-01	AC09062	NORMAL	27166	TPH	03/01/01	03/07/01	03/16/01	6	9	15
MG/KG	CEF-B16-SS-001-01	AC09061	NORMAL	27166	TPH	03/01/01	03/07/01	03/16/01	6	9	15

27166

HOLDING TIME
04/12/01

Units	Nsample	Lab Id	Qc Type	Sdg	Sort	Samp Date	Extr Date	Anal Date	SAMP_DATE TO EXTR_DATE	EXTR_DATE TO ANAL_DATE	SAMP_DATE TO ANAL_DATE
UG/L	CEF-B16-GW-OIS-01	AC09062	NORMAL	27166	EDB	03/01/01	03/08/01	03/08/01	7	0	7
MG/L	CEF-B16-GW-OIS-01	AC09062	NORMAL	27166	M	03/01/01	03/13/01	03/14/01	12	1	13
UG/L	CEF-B16-GW-OIS-01	AC09062	NORMAL	27166	OV	03/01/01	03/07/01	03/07/01	6	0	6
UG/KG	CEF-B16-SS-001-01	AC09061	NORMAL	27166	OV	03/01/01	03/07/01	03/07/01	6	0	6
UG/L	CEF-B16-GW-OIS-01	AC09062	NORMAL	27166	PAH	03/01/01	03/07/01	03/17/01	6	10	16
UG/KG	CEF-B16-SS-001-01	AC09061	NORMAL	27166	PAH	03/01/01	03/07/01	03/19/01	6	12	18
MG/L	CEF-B16-GW-OIS-01	AC09062	NORMAL	27166	TPH	03/01/01	03/07/01	03/16/01	6	9	15
MG/KG	CEF-B16-SS-001-01	AC09061	NORMAL	27166	TPH	03/01/01	03/07/01	03/16/01	6	9	15

TETRA TECH NUS, INC. CHAIN OF CUSTODY | NUMBER HAL #27166 CF16-030101 PAGE 1 OF 1 3°C/ABL

PROJECT NO: N0486	SITE NAME: CF Tank 16A
PROJECT MANAGER AND PHONE NUMBER	Paul Calligan
LABORATORY NAME AND CONTACT:	Accura Bonnie Hogue
SAMPLERS (SIGNATURE)	[signature] Elena L. Rodriguez
FIELD OPERATIONS LEADER AND PHONE NUMBER	Merv Dale 904-281-0400
ADDRESS	6017 Financial Drive
CARRIER/WAYBILL NUMBER	FEDEX 8422 2558 5040
CITY, STATE	Norcross GA 30071
STANDARD TAT ☒ RUSH TAT ☐ ☐ 24 hr. ☐ 48 hr. ☐ 72 hr. ☐ 7 day ☐ 14 day	

DATE YEAR 2001	TIME	SAMPLE ID	MATRIX	GRAB (G) COMP (C)	No. OF CONTAINERS	BTEX+MTBE (8260B)	PAH (8310)	TRPH (FL PRO)	BTEX+MTBE+VOH (601/602 1st by 8260B)	EDB (504.1)	PAH (8310)	Total Lead	TRPH (FL PRO)	COMMENTS
CONTAINER TYPE PLASTIC (P) or GLASS (G)						encore	G	G	G	G	G	P	G	
PRESERVATIVE USED						none	none	none	HCl	HCl	none	HNO3	H2SO4	
3/1	1205	CEF-B16-SS-001-01	S	G	5	✓	✓	✓					✓	Cool to 4°C AL09061
3/1	11:55	CEF-B16-GW-01S-01	GW	G	11				✓	✓	✓	✓	✓	AL09062

1. RELINQUISHED BY Elena Rodriguez	DATE 3/1/01	TIME 1700	1. RECEIVED BY Fedex	DATE 3/2/01	TIME 9:15
2. RELINQUISHED BY	DATE	TIME	2. RECEIVED BY	DATE	TIME
3. RELINQUISHED BY Fedex	DATE 3/1/01	TIME	3. RECEIVED BY [signature]	DATE 3/2/01	TIME 9:15

COMMENTS N0486.P3777(DW)

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

3/99

FORM NO. TtNUS-001

ACCURA ANALYTICAL LABORATORY, INC.
6017 Financial Drive, Norcross, Georgia, 30071, Phone (770) 449-8800

CASE NARRATIVE for Project Number: 27166
Client Project: NAS Cecil Field – Tank 16A / N0486 / CTO 121
CTO Manager: Paul Calligan

The following items were noted concerning this project:

1. The following samples were received by Accura Analytical Laboratory on 03/02/01 at 0915:

Client I.D.	Laboratory I.D.
CEF-B16-SS-001-01	AC09061
CEF-B16-GW-01S-01	AC09062

2. The sample cooler temperature was noted to be 3^0C upon receipt.

3. The Encore samplers were transferred into the preserved sodium bisulfate vials on 3/2/01 at 14:05.

4. The soil sample results are reported on a dry weight basis.

5. The "J" values noted for the VOC, Metal-Lead, and FL-PRO results indicate estimated concentrations that were above the method detection limits, but below the reporting limits.

6. The "B" value noted for the FL-PRO analysis indicates that the compound was detected in the sample and in the Method Blank, and the result should be considered estimated due to Method Blank contamination.

7. The pH for sample CEF-B16-GW-01S-01 was 1.0 for the VOC analysis.

8. The following sample required dilution due to high analyte concentration or matrix interference, resulting in elevated detection limits:

FL-PRO (Soil)	PAH – SW-846-8270C
CEF-B16-SS-001-01	CEF-B16-SS-001-01

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9. The following surrogates were outside the method specified limit:

FL-PRO

C39(Nonatriacontane) - CEF-B16-SS-001-01
CEF-B16-GW-OIS-01
Method Blank (Soil)
Method Blank (Water)
Laboratory Control Sample (Water)
Laboratory Control Sample (Soil)
Matrix Spike (Water)
Matrix Spike Duplicate (Water)
Matrix Spike Duplicate (Soil)

o-Terphenyl - CEF-B16-SS-001-01
Matrix Spike (Soil

The recoveries were within historical limits established in the laboratory; therefore the data was accepted.

10. Project Specified QC consists of LCS/LCSD for the Water FL-PRO and Water SVOC analyses due to limited sample volume. Note that LCS/LCSD recoveries are reported as MS/MSD recoveries on the QC spreadsheet.

11. Batch QC is reported for the Soil VOC analysis.

12. The laboratory control sample recoveries were outside the project specified limit for the following analyte:

FL-PRO (Water)
FL-PRO (Soil)

The recoveries were within historical limits established in the laboratory; therefore the data was accepted.

13. The laboratory control sample recovery was outside the project specified limit for the following analyte:

Water VOC – SW-846-8260B
Acrolein

Acrolein was not detected in the water sample; therefore the data results were accepted.

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14. The following spike recoveries were outside the project specified limits due to matrix interference:

FL-PRO
Matrix Spike - FL-PRO (Soil)
Matrix Spike - FL-PRO (Water)

Soil PAH – SW-846-8270C
Matrix Spike - Dibenzo (a,h) anthracene
Matrix Spike Duplicate - Dibenzo (a,h) anthracene

Water VOC – SW-46-8260B
Matrix Spike - Methylene Chloride

Soil VOC – SW-46-8260B
Matrix Spike - Xylene

15. The following spike recoveries were outside the project specified limits due to the fact that in the presence of Hydrochloric Acid, (sample preservative), 2-Chloroethylvinylether breaks down:

Water VOC – SW-846-8260B
Matrix Spike / Matrix Spike Duplicate - 2-Chloroethylvinylether

16. The relative percent difference between the matrix spike and matrix spike duplicate was outside the project specified limit for the following analytes:

Water VOC – SW-846-8260B
2-Chloroethylvinylether

Soil VOC – SW-846-8260B
Xylene

Quality Assurance

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PROJECT QUALITY CONTROL RESULTS
AAL PROJECT #27166

Method No[1]	Analyte / Component	Project Control Rec. MS Water	MSD Water	MS Soil[2]	MSD Soil[2]	Accuracy Limits MS/MSD Recoveries Water	Accuracy Limits MS/MSD Recoveries Soil[2]	Project Control MS/MSD % Deviation Water	Project Control MS/MSD % Deviation Soil[2]	Precision Limits MS/MSD Deviation Water	Precision Limits MS/MSD Deviation Soil[2]	Project Control Recoveries LCS Water	Project Control Recoveries LCS Soil[2]	Accuracy Limits LCS Recoveries Water	Accuracy Limits LCS Recoveries Soil[2]	Project Control Field Dup % Deviation Water	Project Control Field Dup % Deviation Soil[2]	Precision Limits Field Dup Deviation Water	Precision Limits Field Dup Deviation Soil[2]
	VOLATILES BY GC/MS					%	%			%	%			%	%			%	%
8260B	1,1,1-Trichloroethane	96	96	104	101	60-140	20-150	0%	3%	<30	<50	100	96	65-135	65-135			<50	<75
8260B	1,1,2,2-Tetrachloroethane	100	97	98	93	60-140	20-150	3%	5%	<30	<50	101	98	64-135	64-135			<50	<75
8260B	1,1,2-Trichloroethane	101	97	107	102	60-140	20-150	4%	5%	<30	<50	92	101	65-135	65-135			<50	<75
8260B	1,1-Dichloroethane	94	95	108	104	60-140	20-150	1%	4%	<30	<50	97	101	62-135	62-135			<50	<75
8260B	1,1-Dichloroethene	96	95	106	101	60-140	20-150	1%	5%	<30	<50	93	98	65-135	65-135			<50	<75
8260B	1,2-Dichloroethane	102	93	103	102	60-140	20-150	9%	1%	<30	<50	97	99	58-137	58-137			<50	<75
8260B	1,2-Dichloropropane	96	93	108	105	60-140	20-150	3%	3%	<30	<50	92	102	60-135	60-135			<50	<75
8260B	1,3-Dichloropropene	99	93	106	102	60-140	20-150	6%	4%	<30	<50	91	99	65-135	65-135			<50	<75
8260B	2-Chloroethylvinyl ether			110	107	60-140	20-150		3%	<30	<50	77	100	65-135	65-135			<50	<75
8260B	Acrolein	121	107	112	108	60-140	20-150	12%	4%	<30	<50	62	107	65-135	65-135			<50	<75
8260B	Acrylonitrile	100	93	98	94	60-140	20-150	7%	4%	<30	<50	80	103	63-135	63-135			<50	<75
8260B	Benzene	93	96	105	103	60-140	20-150	3%	2%	<30	<50	95	99	65-135	65-135			<50	<75
8260B	Bromodichloromethane	93	92	103	102	60-140	20-150	1%	1%	<30	<50	95	99	65-135	65-135			<50	<75
8260B	Bromoform	91	90	97	93	60-140	20-150	1%	4%	<30	<50	85	96	65-135	65-135			<50	<75
8260B	Bromomethane	93	91	106	111	60-140	20-150	2%	5%	<30	<50	101	92	62-135	62-135			<50	<75
8260B	Carbon Tetrachloride	93	96	103	101	60-140	20-150	3%	2%	<30	<50	100	95	52-135	52-135			<50	<75
8260B	Chlorobenzene	93	95	110	105	60-140	20-150	2%	5%	<30	<50	94	101	65-135	65-135			<50	<75
8260B	Chloroform	95	96	104	103	60-140	20-150	1%	1%	<30	<50	97	98	64-135	64-135			<50	<75
8260B	Chloromethane	96	93	87	82	60-140	20-150	3%	6%	<30	<50	95	83	65-135	65-135			<50	<75
8260B	Ethylbenzene	97	100	112	107	60-140	20-150	3%	5%	<30	<50	103	103	65-135	65-135			<50	<75
8260B	Methylene Chloride	143	132	99	96	60-140	20-150	8%	3%	<30	<50	106	84	65-135	65-135			<50	<75
8260B	Methyl-tert-butyl ether	99	90	104	101	60-140	20-150	10%	3%	<30	<50	83	100	65-135	65-135			<50	<75
8260B	Tetrachloroethylene	98	100	114	109	60-140	20-150	2%	4%	<30	<50	100	101	61-135	61-135			<50	<75
8260B	Toluene	95	98	110	104	60-140	20-150	3%	6%	<30	<50	98	99	64-135	64-135			<50	<75
8260B	Trans-1,2-Dichloroethene	94	96	106	103	60-140	20-150	2%	3%	<30	<50	95	99	65-135	65-135			<50	<75
8260B	Trichloroethylene	95	95	106	103	60-140	20-150	0%	3%	<30	<50	96	99	61-135	61-135			<50	<75
8260B	Vinyl Chloride	92	90	95	88	60-140	20-150	2%	8%	<30	<50	90	89	36-144	36-144			<50	<75
8260B	total-Xylene	97	100	17	111	60-140	20-150	3%	147%	<30	<50	100	105	65-135	65-135			<50	<75
8260B	Toluene-d8 (surr)	94	100	100	100	75-125	65-135	6%	0%	NA	NA	100	100	NA	NA			NA	NA
8260B	4-Bromofluorobenzene (surr)	89	93	98	96	75-125	65-135	4%	2%	NA	NA	93	98	NA	NA			NA	NA
8260B	1,2-Dichloroethane-d4 (surr)	97	93	98	101	62-139	52-149	4%	3%	NA	NA	96	99	NA	NA			NA	NA
	SEMI-VOLATILES BY GC/MS					%	%			%	%			%	%			%	%
8270C	1-Methylnaphthalene	54	53	62	58	41-125	31-135	2%	7%	<30	<50		60	41-125	31-135			<50	<75
8270C	2-Methylnaphthalene	73	70	78	78	41-125	31-135	4%	0%	<30	<50		81	41-125	31-135			<50	<75
8270C	Acenaphthylene	80	80	84	86	47-125	37-135	0%	2%	<30	<50		88	47-125	37-135			<50	<75
8270C	Acenaphthene	73	72	76	80	49-124	39-135	1%	5%	<30	<50		79	49-124	39-135			<50	<75
8270C	Anthracene	84	85	86	88	45-165	35-175	1%	2%	<30	<50		87	45-165	35-175			<50	<75
8270C	Benzo (a) anthracene	89	89	84	88	51-133	41-143	0%	5%	<30	<50		93	51-133	41-143			<50	<75
8270C	Benzo (a) pyrene	86	84	60	66	41-125	31-135	2%	10%	<30	<50		99	41-125	31-135			<50	<75
8270C	Benzo (b) fluoranthene	94	93	84	91	37-125	27-135	1%	8%	<30	<50		93	37-125	27-135			<50	<75
8270C	Benzo (g,h,i) perylene	98	90	74	82	34-149	25-159	9%	10%	<30	<50		99	34-149	25-159			<50	<75
8270C	Benzo (k) fluoranthene	85	85	78	79	37-123	37-123	0%	1%	<30	<50		94	37-123	37-123			<50	<75
8270C	Chrysene	89	86	84	86	55-133	45-143	3%	2%	<30	<50		92	55-133	45-143			<50	<75
8270C	Dibenzo (a,h) anthracene	95	89	146	151	50-125	40-135	7%	3%	<30	<50		95	50-125	40-135			<50	<75

Notes:
1) SW-846 Methods unless otherwise noted
2) Includes sediments, waste, solids

[illegible]

PROJECT QUALITY CONTROL RESULTS
AAL PROJECT #27166

8270C	Fluoranthene	90	94	90	91	47-125	37-135	4%	1%	<30	<50		94	47-125	37-135			<50	<75
8270C	Fluorene	82	82	84	83	48-139	38-149	0%	1%	<30	<50		86	48-139	38-149			<50	<75
8270C	Indeno (1,2,3-c,d) pyrene	93	87	124	131	27-160	25-170	7%	5%	<30	<50		94	27-160	25-170			<50	<75
8270C	Naphthalene	66	65	70	70	50-125	40-135	2%	0%	<30	<50		74	50-125	40-135			<50	<75
8270C	Phenanthrene	86	86	90	92	54-125	44-135	0%	2%	<30	<50		86	54-125	44-135			<50	<75
8270C	Pyrene	93	88	92	94	47-136	37-146	6%	2%	<30	<50		94	47-136	37-146			<50	<75
8270C	2-Fluorobiphenyl	78	77	86	87	43-125	34-135	1%	1%	<30	<50		87						
8270C	Nitrobenzene-d5	83	84	80	81	32-125	25-135	1%	1%	<30	<50		84						
8270C	Terphenyl-d14	84	80	79	81	42-126	32-136	5%	3%	<30	<50		86						
PETROLEUM HYDROCARBONS						%	%			%	%			%	%			%	%
FL-PRO	FL-PRO	59	62	17	0	50-150	30-170	5%	200%	<30	<50	64	64	75-125	70-130			<50	<75
METALS BY ICP						%	%			%	%			%	%			%	%
6010B	Lead	91	101			50-150	30-170	10%	#DIV/0!	<30	<50	91		79-116	79-116			<50	<75
ETHYLENEDIBROMIDE						%	%			%	%			%	%			%	%
504.1	EDB	104	110			30-150	30-150	6%	#DIV/0!	<30	<50	104		30-150	30-150			<50	<75

Notes:
1: SW-846 Methods unless otherwise noted
2: Includes sediments, waste, solids

NS: Not Specified
NA: Not Applicable

ACCURA ANALYTICAL LABORATORY, INC.

6017 Financial Drive, Norcross, Georgia 30017. Phone (770)449-8800. FAX (770)449-5477
FL Certification # E87429 NC Certification # 483 SC Certification # 98015 USACE-MRD Approved

LABORATORY REPORT

Accura Sample ID #: AC09061 **Accura Project #: 27166**

Client: Tetra Tech Nus -Tallahassee
Client Contact: PAUL CALLIGAN
Client Project Number: N0486/CTO 121
Client Project Name: NAS CECIL FIELD-TANK 16A
Client Sample ID: CEF-B16-SS-001-01

Date Sampled: 3/1/01
Date Received: 3/2/01
Date Reported: 3/21/01
Sample Matrix: SOIL

ANALYSIS: % Solids
Date Ext/Dig/Prep: 3/8/01 Date Analyzed: 3/8/01 Method Ref: EPA 160.3 Result Units: %

Analyte Name	Analytical Results	Qualifier	Reporting Limit
Solids	94		1.0

ANALYSIS: PAH's
Date Ext/Dig/Prep: 3/7/01 Date Analyzed: 3/19/01 Method Ref: 8270C Result Units: ug/Kg

Analyte Name	Analytical Results	Qualifier	Reporting Limit
1-Methylnaphthalene	<RL		350
2-Methylnaphthalene	<RL		350
Acenaphthene	<RL		350
Acenaphthylene	<RL		350
Anthracene	<RL		350
Benzo(a)anthracene	<RL		350
Benzo(a)pyrene	<RL		350
Benzo(b)fluoranthene	<RL		350
Benzo(g,h,i)perylene	<RL		350
Benzo(k)fluoranthene	<RL		350
Chrysene	<RL		350
Dibenz(a,h)anthracene	<RL		350
Fluoranthene	<RL		350
Fluorene	<RL		350
Indeno(1,2,3-cd)pyrene	<RL		350
Naphthalene	<RL		350
Phenanthrene	<RL		350
Pyrene	<RL		350

ANALYSIS: Petroleum Range Organics (PRO)
Date Ext/Dig/Prep: 3/7/01 Date Analyzed: 3/16/01 Method Ref: FL-PRO Result Units: mg/Kg

Analyte Name	Analytical Results	Qualifier	Reporting Limit
Petroleum Range Organics (PRO)	370		130

ANALYSIS: VOC's - Cecil Field (soils)
Date Ext/Dig/Prep: 3/7/01 Date Analyzed: 3/7/01 Method Ref: 8260B Result Units: ug/kg

Analyte Name	Analytical Results	Qualifier	Reporting Limit
1,1,1-Trichloroethane	<RL		6.7
1,1,2,2-Tetrachloroethane	<RL		6.7
1,1,2-Trichloroethane	<RL		6.7

1,1-Dichloroethane	<RL		6.7
1,1-Dichloroethene	<RL		6.7
1,2-Dichloroethane	<RL		6.7
1,2-Dichloropropane	<RL		6.7
1,3-Dichloropropene	<RL		6.7
2-Chloroethylvinyl ether	<RL		67
Acrolein	<RL		67
Acrylonitrile	<RL		67
Benzene	<RL		6.7
Bromodichloromethane	<RL		6.7
Bromoform	<RL		6.7
Bromomethane	<RL		6.7
Carbon tetrachloride	<RL		6.7
Chlorobenzene	<RL		6.7
Chloroform	<RL		6.7
Chloromethane	<RL		6.7
Ethylbenzene	<RL		6.7
Methylene chloride	<RL		6.7
Methyl-tert-butyl ether (MTBE)	<RL		67
Tetrachloroethene	<RL		6.7
Toluene	2.4	J	6.7
trans-1,2-Dichloroethene	<RL		6.7
Trichloroethene	<RL		6.7
Vinyl chloride	<RL		6.7
Xylenes (Total)	<RL		13

ANALYSIS: X B/N Sample Surrogates (Soils) Method Ref: 8270C

Date Ext/Dig/Prep: 3/7/01 Date Analyzed: 3/19/01 Result Units: %

Analyte Name	Analytical Results	Qualifier	Reporting Limit
2-Fluorobiphenyl (Range 50-103)	80		
Nitrobenzene-d5 (Range 43-104)	72		
p-Terphenyl-d14 (Range 44-125)	83		

ANALYSIS: X PRO Sample Surrogates (Soil) Method Ref: FL-PRO

Date Ext/Dig/Prep: 3/7/01 Date Analyzed: 3/16/01 Result Units: %

Analyte Name	Analytical Results	Qualifier	Reporting Limit
C(39) (Range 60-118)	122	*	
o-Terphenyl (Range 62-109)	114	*	

ANALYSIS: X VOC Sample Surrogates-Soil Method Ref: 5035/8260B

Date Ext/Dig/Prep: 3/7/01 Date Analyzed: 3/7/01 Result Units: %

Analyte Name	Analytical Results	Qualifier	Reporting Limit
1,2-Dichloroethane-d4 (Range 81-151)	89		
4-Bromofluorobenzene (Range 80-131)	96		
Toluene-d8 (Range 82-119)	102		

Accura Analytical Laboratory, Inc.

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FL Certification # E87429 NC Certification # 483 SC Certification # 98015 USACE-MRD Approved

LABORATORY REPORT

Accura Sample ID #: AC09062 **Accura Project #: 27166**

Client: Tetra Tech Nus -Tallahassee
Client Contact: PAUL CALLIGAN
Client Project Number: N0486/CTO 121
Client Project Name: NAS CECIL FIELD-TANK 16A
Client Sample ID: CEF-B16-GW-OIS-01

Date Sampled: 3/1/01
Date Received: 3/2/01
Date Reported: 3/20/01
Sample Matrix: WATER

ANALYSIS: EDB
Date Ext/Dig/Prep: 3/8/01 Date Analyzed: 3/8/01 Method Ref: 504.1 Result Units: ug/L

Analyte Name	Analytical Results	Qualifier	Reporting Limit
1,2-Dibromoethane (EDB)	<RL		0.050

ANALYSIS: Metals - Lead
Date Ext/Dig/Prep: 3/13/01 Date Analyzed: 3/14/01 Method Ref: 3010A/6010B Result Units: mg/L

Analyte Name	Analytical Results	Qualifier	Reporting Limit
Lead	0.0052	J	0.010

ANALYSIS: PAH's - Low Level
Date Ext/Dig/Prep: 3/7/01 Date Analyzed: 3/17/01 Method Ref: 8270C Result Units: ug/L

Analyte Name	Analytical Results	Qualifier	Reporting Limit
1-Methylnaphthalene	<RL		1.0
2-Methylnaphthalene	<RL		1.0
Acenaphthene	<RL		1.0
Acenaphthylene	<RL		1.0
Anthracene	<RL		1.0
Benzo(a)anthracene	<RL		1.0
Benzo(a)pyrene	<RL		1.0
Benzo(b)fluoranthene	<RL		1.0
Benzo(g,h,i)perylene	<RL		1.0
Benzo(k)fluoranthene	<RL		1.0
Chrysene	<RL		1.0
Dibenz(a,h)anthracene	<RL		1.0
Fluoranthene	<RL		1.0
Fluorene	<RL		1.0
Indeno(1,2,3-cd)pyrene	<RL		1.0
Naphthalene	<RL		1.0
Phenanthrene	<RL		1.0
Pyrene	<RL		1.0

ANALYSIS: Petroleum Range Organics (PRO)
Date Ext/Dig/Prep: 3/7/01 Date Analyzed: 3/16/01 Method Ref: FL-PRO Result Units: mg/L

Analyte Name	Analytical Results	Qualifier	Reporting Limit
Petroleum Range Organics (PRO)	1.7	B	1.0

ANALYSIS: VOC's - Cecil Field(25 ml purge) Method Ref: 8260B

Date Ext/Dig/Prep: 3/7/01 Date Analyzed: 3/7/01 Result Units: ug/L

Analyte Name	Analytical Results	Qualifier	Reporting Limit
1,1,1-Trichloroethane	<RL		1.0
1,1,2,2-Tetrachloroethane	<RL		1.0
1,1,2-Trichloroethane	<RL		1.0
1,1-Dichloroethane	<RL		1.0
1,1-Dichloroethene	<RL		1.0
1,2-Dichloroethane	<RL		1.0
1,2-Dichloropropane	<RL		1.0
1,3-Dichloropropene	<RL		1.0
2-Chloroethylvinyl ether	<RL		10
Acrolein	<RL		10
Acrylonitrile	<RL		10
Benzene	<RL		1.0
Bromodichloromethane	<RL		1.0
Bromoform	<RL		1.0
Bromomethane	<RL		1.0
Carbon tetrachloride	<RL		1.0
Chlorobenzene	<RL		1.0
Chloroform	<RL		1.0
Chloromethane	<RL		1.0
Ethylbenzene	<RL		1.0
Methylene chloride	<RL		5.0
Methyl-tert-butyl ether (MTBE)	<RL		10
Tetrachloroethene	<RL		1.0
Toluene	<RL		1.0
trans-1,2-Dichloroethene	<RL		1.0
Trichloroethene	<RL		1.0
Vinyl chloride	<RL		1.0
Xylenes (Total)	<RL		2.0

ANALYSIS: X B/N Sample Surrogates (Waters Method Ref: 8270C

Date Ext/Dig/Prep: 3/7/01 Date Analyzed: 3/17/01 Result Units: %

Analyte Name		Analytical Results	Qualifier	Reporting Limit
2-Fluorobiphenyl	(Range 43-111)	84		
Nitrobenzene-d5	(Range 37-104)	87		
p-Terphenyl-d14	(Range 15-132)	68		

ANALYSIS: X PRO Sample Surrogates (Water) Method Ref: FL-PRO

Date Ext/Dig/Prep: 3/7/01 Date Analyzed: 3/16/01 Result Units: %

Analyte Name	Analytical Results	Qualifier	Reporting Limit
C(39) (Range 42-193)	16	*	
o-Terphenyl (Range 82-142)	93		

ANALYSIS: X VOC Sample Surrogates-Waters Method Ref: 5030B/8260B

Date Ext/Dig/Prep: 3/7/01 Date Analyzed: 3/7/01 Result Units: %

Analyte Name	Analytical Results	Qualifier	Reporting Limit
1,2-Dichloroethane-d4 (78-128)	106		
4-Bromofluorobenzene (86-112)	103		
Toluene-d8 (84-108)	104		

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FL Certification # E87429 NC Certification # 483 SC Certification # 98015 USACE-MRD Approved

LABORATORY REPORT

Accura Sample ID #: AC09063 **Accura Project #: 27166**

Client: Tetra Tech Nus -Tallahassee
Client Contact: PAUL CALLIGAN
Client Project Number: N0486/CTO 121
Client Project Name: NAS CECIL FIELD-TANK 16A
Client Sample ID: METHOD BLANK-1

Date Sampled: 3/2/01
Date Received: 3/2/01
Date Reported: 3/20/01
Sample Matrix: SOIL

ANALYSIS: PAH's Method Ref: 8270C
Date Ext/Dig/Prep: 3/7/01 Date Analyzed: 3/19/01 Result Units: ug/Kg

Analyte Name	Analytical Results	Qualifier	Reporting Limit
1-Methylnaphthalene	<RL		33
2-Methylnaphthalene	<RL		33
Acenaphthene	<RL		33
Acenaphthylene	<RL		33
Anthracene	<RL		33
Benzo(a)anthracene	<RL		33
Benzo(a)pyrene	<RL		33
Benzo(b)fluoranthene	<RL		33
Benzo(g,h,i)perylene	<RL		33
Benzo(k)fluoranthene	<RL		33
Chrysene	<RL		33
Dibenz(a,h)anthracene	<RL		33
Fluoranthene	<RL		33
Fluorene	<RL		33
Indeno(1,2,3-cd)pyrene	<RL		33
Naphthalene	<RL		33
Phenanthrene	<RL		33
Pyrene	<RL		33

ANALYSIS: Petroleum Range Organics (PRO) Method Ref: FL-PRO
Date Ext/Dig/Prep: 3/7/01 Date Analyzed: 3/16/01 Result Units: mg/Kg

Analyte Name	Analytical Results	Qualifier	Reporting Limit
Petroleum Range Organics (PRO)	<RL		30

ANALYSIS: VOC's - Cecil Field (soils) Method Ref: 8260B
Date Ext/Dig/Prep: 3/7/01 Date Analyzed: 3/7/01 Result Units: ug/kg

Analyte Name	Analytical Results	Qualifier	Reporting Limit
1,1,1-Trichloroethane	<RL		5
1,1,2,2-Tetrachloroethane	<RL		5
1,1,2-Trichloroethane	<RL		5
1,1-Dichloroethane	<RL		5
1,1-Dichloroethene	<RL		5
1,2-Dichloroethane	<RL		5
1,2-Dichloropropane	<RL		5
1,3-Dichloropropene	<RL		5

2-Chloroethylvinyl ether	<RL	50
Acrolein	<RL	50
Acrylonitrile	<RL	50
Benzene	<RL	5
Bromodichloromethane	<RL	5
Bromoform	<RL	5
Bromomethane	<RL	5
Carbon tetrachloride	<RL	5
Chlorobenzene	<RL	5
Chloroform	<RL	5
Chloromethane	<RL	5
Ethylbenzene	<RL	5
Methylene chloride	<RL	5
Methyl-tert-butyl ether (MTBE)	<RL	50
Tetrachloroethene	<RL	5
Toluene	<RL	5
trans-1,2-Dichloroethene	<RL	5
Trichloroethene	<RL	5
Vinyl chloride	<RL	5
Xylenes (Total)	<RL	10

ANALYSIS: X Base Neutral QC Surrogates (S

Method Ref: 8270C
Date Ext/Dig/Prep: 3/7/01 Date Analyzed: 3/19/01 Result Units: %

Analyte Name		Analytical Results	Qualifier	Reporting Limit
2-Fluorobiphenyl	(Range 55-96)	85		
Nitrobenzene-d5	(Range 40-99)	81		
p-Terphenyl-d14	(Range 57-110)	84		

ANALYSIS: X PRO QC Surrogates (Soil)

Method Ref: FL-PRO
Date Ext/Dig/Prep: 3/7/01 Date Analyzed: 3/16/01 Result Units: %

Analyte Name	Analytical Results	Qualifier	Reporting Limit
C(39) (Range 60-118)	29	*	
o-Terphenyl (Range 62-109)	106		

ANALYSIS: X VOC QC Surrogates-Soils

Method Ref: 5035/8260B
Date Ext/Dig/Prep: 3/7/01 Date Analyzed: 3/7/01 Result Units: %

Analyte Name	Analytical Results	Qualifier	Reporting Limit
1,2-Dichloroethane-d4 (Range 74-125)	106		
4-Bromofluorobenzene (Range 89-122)	96		
Toluene-d8 (Range 92-111)	101		

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FL Certification # E87429 NC Certification # 483 SC Certification # 98015 USACE-MRD Approved

LABORATORY REPORT

Accura Sample ID #: AC09064 **Accura Project #: 27166**

Client: Tetra Tech Nus -Tallahassee
Client Contact: PAUL CALLIGAN
Client Project Number: N0486/CTO 121
Client Project Name: NAS CECIL FIELD-TANK 16A
Client Sample ID: METHOD BLANK-2

Date Sampled: 3/2/01
Date Received: 3/2/01
Date Reported: 3/20/01
Sample Matrix: WATER

ANALYSIS: EDB
Date Ext/Dig/Prep: 3/8/01 Date Analyzed: 3/8/01 Method Ref: 504.1 Result Units: ug/L

Analyte Name	Analytical Results	Qualifier	Reporting Limit
1,2-Dibromoethane (EDB)	<RL		0.05

ANALYSIS: Metals - Lead
Date Ext/Dig/Prep: 3/13/01 Date Analyzed: 3/14/01 Method Ref: 3010A/6010B Result Units: mg/L

Analyte Name	Analytical Results	Qualifier	Reporting Limit
Lead	<RL		0.010

ANALYSIS: PAH's - Low Level
Date Ext/Dig/Prep: 3/7/01 Date Analyzed: 3/17/01 Method Ref: 8270C Result Units: ug/L

Analyte Name	Analytical Results	Qualifier	Reporting Limit
1-Methylnaphthalene	<RL		1.0
2-Methylnaphthalene	<RL		1.0
Acenaphthene	<RL		1.0
Acenaphthylene	<RL		1.0
Anthracene	<RL		1.0
Benzo(a)anthracene	<RL		1.0
Benzo(a)pyrene	<RL		1.0
Benzo(b)fluoranthene	<RL		1.0
Benzo(g,h,i)perylene	<RL		1.0
Benzo(k)fluoranthene	<RL		1.0
Chrysene	<RL		1.0
Dibenz(a,h)anthracene	<RL		1.0
Fluoranthene	<RL		1.0
Fluorene	<RL		1.0
Indeno(1,2,3-cd)pyrene	<RL		1.0
Naphthalene	<RL		1.0
Phenanthrene	<RL		1.0
Pyrene	<RL		1.0

ANALYSIS: Petroleum Range Organics (PRO)
Date Ext/Dig/Prep: 3/7/01 Date Analyzed: 3/16/01 Method Ref: FL-PRO Result Units: mg/L

Analyte Name	Analytical Results	Qualifier	Reporting Limit
Petroleum Range Organics (PRO)	0.37	J	1.0

ANALYSIS: VOC's - Cecil Field(25 ml purge) Method Ref: 8260B

Date Ext/Dig/Prep: 3/7/01 Date Analyzed: 3/7/01 Result Units: ug/L

Analyte Name	Analytical Results	Qualifier	Reporting Limit
1,1,1-Trichloroethane	<RL		1.0
1,1,2,2-Tetrachloroethane	<RL		1.0
1,1,2-Trichloroethane	<RL		1.0
1,1-Dichloroethane	<RL		1.0
1,1-Dichloroethene	<RL		1.0
1,2-Dichloroethane	<RL		1.0
1,2-Dichloropropane	<RL		1.0
1,3-Dichloropropene	<RL		1.0
2-Chloroethylvinyl ether	<RL		10
Acrolein	<RL		10
Acrylonitrile	<RL		10
Benzene	<RL		1.0
Bromodichloromethane	<RL		1.0
Bromoform	<RL		1.0
Bromomethane	<RL		1.0
Carbon tetrachloride	<RL		1.0
Chlorobenzene	<RL		1.0
Chloroform	<RL		1.0
Chloromethane	<RL		1.0
Ethylbenzene	<RL		1.0
Methylene chloride	<RL		5.0
Methyl-tert-butyl ether (MTBE)	<RL		10
Tetrachloroethene	<RL		1.0
Toluene	<RL		1.0
trans-1,2-Dichloroethene	<RL		1.0
Trichloroethene	<RL		1.0
Vinyl chloride	<RL		1.0
Xylenes (Total)	<RL		2.0

ANALYSIS: X Base Neutral QC Surrogates (W Method Ref: 8270C

Date Ext/Dig/Prep: 3/7/01 Date Analyzed: 3/17/01 Result Units: %

Analyte Name		Analytical Results	Qualifier	Reporting Limit
2-Fluorobiphenyl	(Range 57-102)	80		
Nitrobenzene-d5	(Range 50-103)	87		
p-Terphenyl-d14	(Range 64-113)	83		

ANALYSIS: X PRO QC Surrogates (Water) Method Ref: FL-PRO

Date Ext/Dig/Prep: 3/7/01 Date Analyzed: 3/16/01 Result Units: %

Analyte Name	Analytical Results	Qualifier	Reporting Limit
C(39) (Range 42-193)	32	*	
o-Terphenyl (Range 82-142)	95		

ANALYSIS: X VOC QC Surrogates-Waters Method Ref: 5030B/8260B

Date Ext/Dig/Prep: 3/7/01 Date Analyzed: 3/7/01 Result Units: %

Analyte Name	Analytical Results	Qualifier	Reporting Limit
1,2-Dichloroethane-d4 (78-114)	92		
4-Bromofluorobenzene (85-111)	96		
Toluene-d8 (88-106)	104		

Accura Analytical Laboratory, Inc.

I Camden Robinson, as the designated Quality Assurance Officer, hereby attest that all electronic deliverables have been thoroughly reviewed and are in agreement with the associated hardcopy data. The enclosed electronic files have been reviewed for accuracy (including significant figures), completeness and format. The laboratory will be responsible for any labor time necessary to correct enclosed electronic deliverables that have been found to be in error. I can be reached at (770) 449-8800 if there are any questions or problems with the enclosed electronic deliverables.

Signature: Camden Robinson Title: Q.C. Officer Date: 4/3/01