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NAS CECIL FIELD, FL
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SAMPLING AND ANALYSIS OUTLINE REPORT FOR BUILDING 1846 OIL-WATER
SEPARATOR 1846-OW BASE REALIGNMENT AND CLOSURE REVISION 1 NAS CECIL
FIELD FL
3/29/2000
TETRA TECH NUS INC

**Sampling and Analysis
Outline Report**
for
**Building 1846, Oil-Water Separator
1846-OW**
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 0078

March 2000

**SAMPLING AND ANALYSIS OUTLINE REPORT
FOR
BUILDING 1846, OIL-WATER SEPARATOR 1846-OW
BASE REALIGNMENT AND CLOSURE**

**NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA**

**COMPREHENSIVE LONG-TERM
ENVIRONMENTAL ACTION NAVY (CLEAN) CONTRACT N62467-89-D-0088**

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

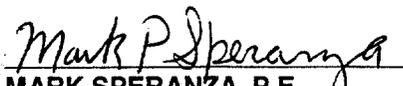
**Submitted by:
Tetra Tech NUS, Inc.
661 Andersen Drive
Foster Plaza 7
Pittsburgh, Pennsylvania 15220**

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

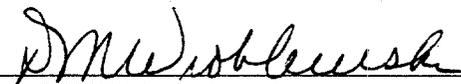
MARCH 2000

PREPARED UNDER THE SUPERVISION OF:

APPROVED FOR SUBMITTAL BY:



**MARK SPERANZA, P.E.
TASK ORDER MANAGER
TETRA TECH NUS, INC.
PITTSBURGH, PENNSYLVANIA**



**DEBBIE WROBLEWSKI
PROGRAM MANAGER
TETRA TECH NUS, INC.
PITTSBURGH, PENNSYLVANIA**



The professional opinions rendered in this decision document identified as Sampling and Analysis Outline Report for Building 1846, Oil-Water Separator 1846-OW, Naval Air Station Cecil Field, Jacksonville, Florida were developed in accordance with commonly accepted procedures consistent with applicable standards of practice. Decision documents are based on information obtained from others and under the supervision of the signing engineer. If conditions are determined to exist differently than those described in this document, then the undersigned professional engineer should be notified to evaluate the effects of any additional information on this project described in this report.

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

Date: 3/31/00

Mark Speranza



CERTIFICATION OF TECHNICAL
DATA CONFORMITY

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

DATE: March 15, 2000

NAME AND TITLE OF CERTIFYING OFFICIAL:

Mark Speranza, P.E.
Task Order Manager

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ACRONYMS

ABB-ES	ABB Environmental Services, Inc.
BCT	BRAC Cleanup Team
bgs	Below ground surface
BRAC	Base Realignment and Closure
CSR	Confirmatory Sampling Report
CTO	Contract Task Order
EDB	1,2-Dibromoethane
EISOPQAM	Environmental Investigations Standard Operating Procedures and Quality Assurance Manual
F.A.C.	Florida Administrative Code
FDEP	Florida Department of Environmental Protection
HLA	Harding Lawson Associates
KAG	Kerosene analytical group
MTBE	Methyltertbutylether
NAS	Naval Air Station
OWS	Oil-Water Separator
PAH	Polynuclear aromatic hydrocarbons
PID	Photoionization detector
PRE	Preliminary Risk Evaluation
PVC	Polyvinyl chloride
RCRA	Resource Conservation and Recovery Act
STCL	Soil Target Cleanup Level
TRPH	Total recoverable petroleum hydrocarbons
TtNUS	Tetra Tech NUS, Inc.
U.S. EPA	United States Environmental Protection Agency

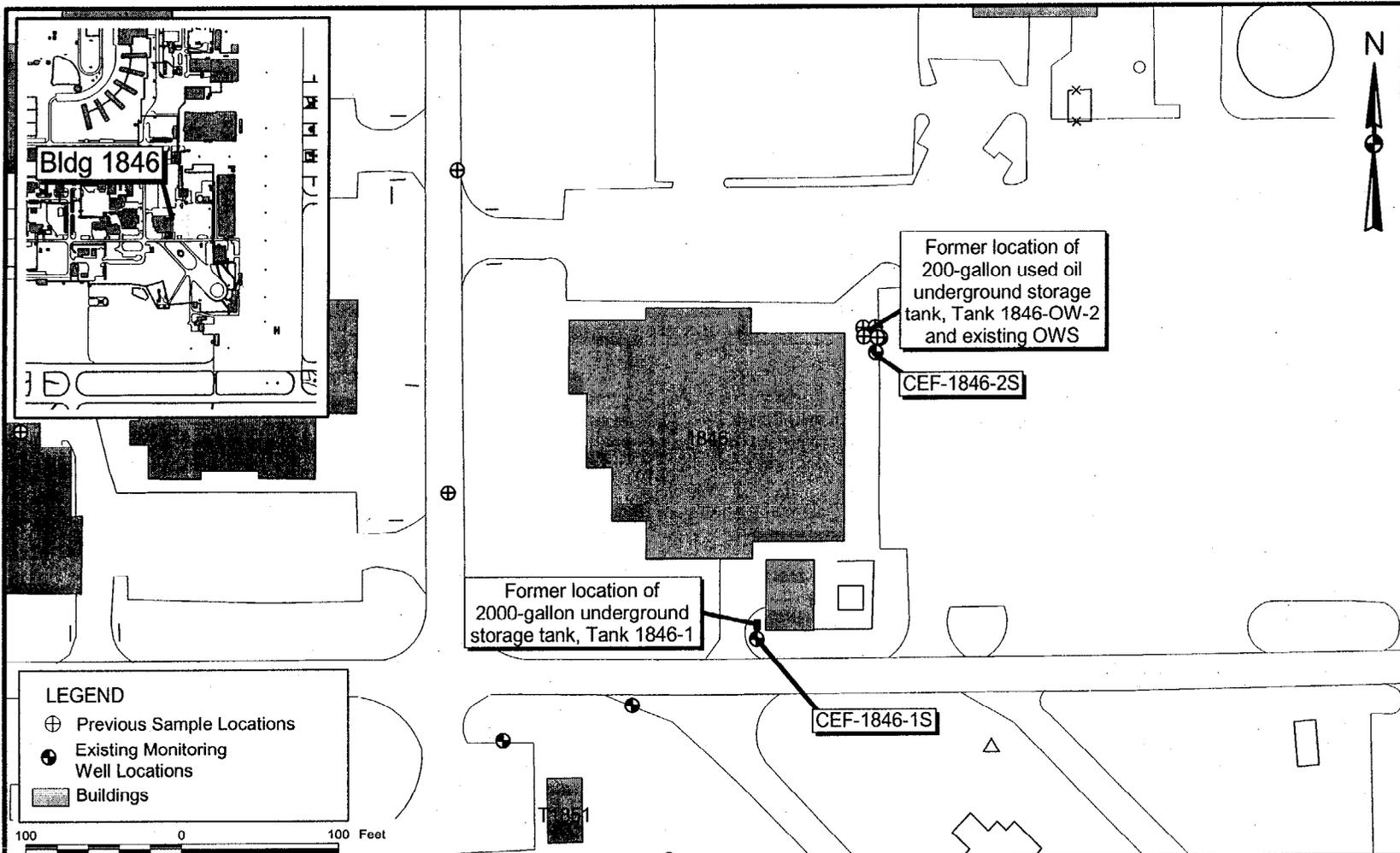
1.0 INTRODUCTION

Tetra Tech NUS, Inc. (TtNUS), under contract to Southern Division, Naval Facilities Engineering Command, has completed Base Realignment and Closure (BRAC) sampling and analysis for Building 1846, Oil-Water Separator 1846-OW at Naval Air Station (NAS) Cecil Field. This program was conducted under Contract Number N62467-94-D-088, Contract Task Order (CTO) 0078. This report summarizes the related field operations, results, conclusions, and recommendation of the investigation.

Building 1846 is located in the Main Base Area, north of the Former South Fuel Farm, between Buildings 1822 and 1820 (see Figure 1-1). The Confirmatory Sampling Report (CSR) for Building 1846, Tank 1846-OW [Harding Lawson Associates (HLA), 1998] identified two underground storage tanks (1846-1 and 1846-2) as being removed in April 1997. However, subsequent investigations of the site have identified that the oil-water separator (OWS) associated with Tank 1846-2 was left in place and is proposed to remain in service.

020010/P

1-3



LEGEND

- ⊕ Previous Sample Locations
- Existing Monitoring Well Locations
- Buildings

100 0 100 Feet

DRAWN BY	DATE
MJJ	09Sept99
CHECKED BY	DATE
RS	
COST/SCHEDULE-AREA	
SCALE AS NOTED	



SITE LOCATION MAP
 BUILDING 1846, OIL WATER SEPARATOR
 NAVAL AIR STATION CECIL FIELD
 JACKSONVILLE, FLORIDA

CONTRACT NUMBER 0039	
APPROVED BY	DATE
APPROVED BY	DATE
DRAWING NO. FIGURE 1-1	REV 0

CTO 0078

Rev. 0
03/15/00

P:\GIS\CECIL\bidg1846.apr 08Mar00 MJJ Building 1846 OW Layout A

2.0 SAMPLING AND ANALYSIS OUTLINE

A Sampling and Analysis Plan for the assessment of this site was prepared by TtNUS and approved by the BRAC Cleanup Team (BCT) (TtNUS, 1999) to investigate potential contamination of soil and/or groundwater in the area of 1846-OW.

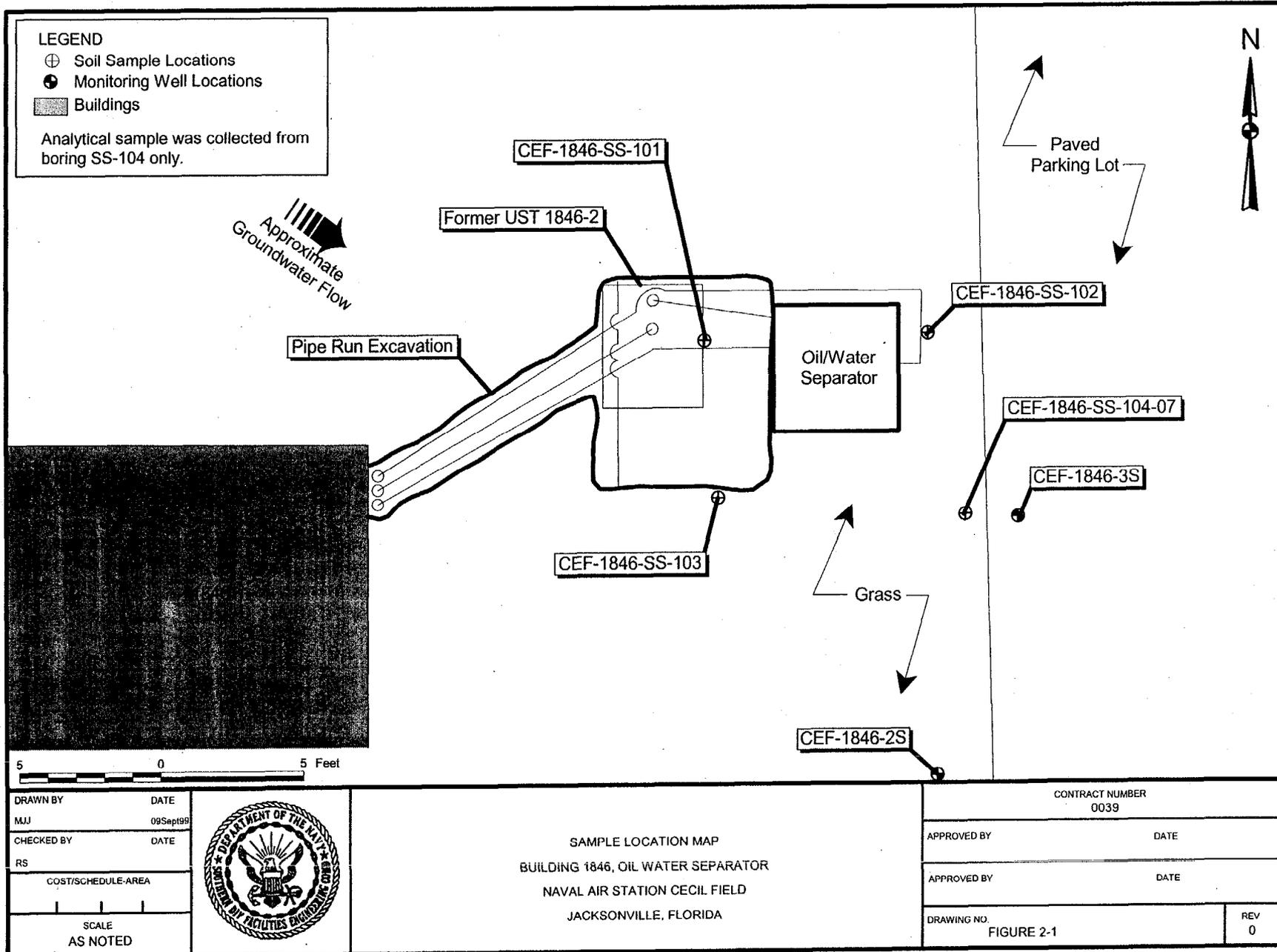
Four soil borings, located at the corners of the OWS, were advanced to the water table. At each boring, soil samples were collected at one-foot intervals and screened for hydrocarbon vapors with a photoionization detector (PID) according to headspace analysis procedures outlined in Chapter 62-770.200 of the Florida Administrative Code (F.A.C.). No elevated readings were obtained during screening, therefore, per the work plan, the sample from the boring southwest of the OWS (downgradient) at the interval immediately above the water table was submitted for laboratory analysis. Analytical parameters included:

- Kerosene analytical group (KAG) volatiles - benzene, ethylbenzene, toluene, total xylenes, and methyl-tert-butylether (MTBE)
- KAG polynuclear aromatic hydrocarbons (PAHs) - 16 method-listed PAHs including 1-methylnaphthalene and 2-methylnaphthalene
- Eight Resource Conservation and Recovery Act (RCRA) metals - arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver
- Total recoverable petroleum hydrocarbons (TRPH)

In addition to soil sampling, the investigation included the installation of one shallow monitoring well at the southwest (downgradient) boring and the sampling of this and an existing shallow well. Field activities were conducted in general conformance with the Base-Wide Generic Work Plan and the United States Environmental Protection Agency (U.S. EPA) Region V Environmental Investigation Standard Operating Procedures and Quality Assurance Manual (EISOPQAM) (TtNUS, 1998 and U.S. EPA, 1996). A site plan indicating the location of the soil boring and monitoring wells is presented on Figure 2-1. Analytical results are provided in Appendix A.

Groundwater samples were collected from the newly installed well CEF-1846-MW-2S and from existing monitoring well CEF-1846-MW-1S and analyzed for KAG volatiles, KAG PAHs, eight RCRA metals, TRPH, and 1,2-dibromoethane (EDB).

The newly installed monitoring well (CEF-1846-MW-2S) was constructed of 2-inch polyvinyl chloride (PVC) to a depth of approximately 15 feet below ground surface (bgs) with a 10-foot screen of 0.010 slot size. The well was developed prior to sampling, and the sample was collected on January 20, 2000 using low-flow sampling techniques and analyzed for lead.



3.0 RESULTS AND PRELIMINARY RISK EVALUATION

Volatiles and PAHs were not detected in the soil sample, and detected concentrations of metals and TRPH were less than Florida Department of Environmental Protection (FDEP) soil cleanup target level (SCTLs). Contaminants were not detected in the new or existing wells at the site. Based on this information, a human health preliminary risk evaluation (PRE) is not required for this site.

In addition, an ecological risk assessment is not required because soil contamination was not detected at the site.

4.0 CONCLUSIONS AND RECOMMENDATION

No soil or groundwater contamination was detected during the investigation at Building 1846, Oil-Water Separator 1846-OW. No other environmental concerns have been identified for this facility.

Based upon the findings of this evaluation, the color code for Building 1846, Oil-Water Separator 1846-OW should be reclassified to Light Green. No further action or further evaluation is recommended.

REFERENCES

Harding Lawson Associates (HLA), 1998. Confirmatory Sampling Report, Building 1846, Oil-Water Separator 1846-OW, Naval Air Station, Cecil Field, Jacksonville, Florida. December.

ABB Environmental Services (ABB-ES), 1994. Base Realignment and Closure Environmental Baseline Survey Report, Naval Air Station, Cecil Field, Jacksonville, Florida.

Florida Department of Environmental Protection (FDEP), 1999. Contaminant Target Cleanup Levels, Florida Administrative Code (F.A.C.) Chapter 62-777, August.

Tetra Tech NUS, Inc. (TtNUS), 1999. Sampling and Analysis Plan, Building 1846, Oil-Water Separator 1846-OW, Naval Air Station Cecil Field, Jacksonville, Florida, September.

TtNUS, 1998. Base-Wide Generic Work Plan, Naval Air Station Cecil Field, Jacksonville, Florida, October.

United States Environmental Protection Agency (U.S. EPA), 1996. Environmental Investigations Standard Operating Procedures and Quality Assurance Manual (EISOPQAM), May.

APPENDIX A
LABORATORY ANALYTICAL DATA

MEMO TO: MR. MARK SPERANZA
DATE: FEBRUARY 28, 2000 – PAGE 2

TPH FRACTION

All quality control parameters were met for this fraction.

ADDITIONAL COMMENTS

Positive results reported below the reporting limit (RL) are qualified as estimated (J).

EXECUTIVE SUMMARY

Laboratory performance: None.

Other Factors Affecting Data Quality: None.

MEMO TO: MR. MARK SPERANZA
DATE: FEBRUARY 28, 2000 - PAGE 3

The data for these analyses were reviewed with reference to the EPA Functional Guidelines for Organic Data Validation (February, 1994), and the NFESC "Navy Installation Restoration Program Laboratory Quality Assurance Guide" (February, 1996). The text of this report has been formulated to address only those problems affecting data quality.

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



Justin Orbich

Chemist/Data Validator
Tetra Tech, NUS



Joseph A. Sarochuck

Data Validation Quality Assurance Officer
Tetra Tech, NUS

Attachments:

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

Qualifier Codes:

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

DATA QUALIFIER DEFINITIONS:

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

APPENDIX A
Qualified Analytical Results

CTOC NAS CECIL FIELD

SOIL DATA

Accutest, NJ

SDG: F5414

SAMPLE NUMBER:	CEF-1846-SU-104-07	CEF-1846-SU-DU01		
SAMPLE DATE:	12/02/99	12/02/99	//	//
LABORATORY ID:	F5414-1	F5414-2		
QC_TYPE:	NORMAL	NORMAL		
% SOLIDS:	85.4 %	85.1 %	100.0 %	100.0 %
UNITS:	UG/KG	UG/KG		
FIELD DUPLICATE OF:				

	RESULT	QUAL	CODE									
POLYNUCLEAR AROMATIC HYDROCARBONS												
1-METHYLNAPHTHALENE	77	U		78	U							
2-METHYLNAPHTHALENE	77	U		78	U							
ACENAPHTHENE	77	U		78	U							
ACENAPHTHYLENE	77	U		78	U							
ANTHRACENE	77	U		78	U							
BENZO(A)ANTHRACENE	12	U		12	U							
BENZO(A)PYRENE	12	U		12	U							
BENZO(B)FLUORANTHENE	12	U		12	U							
BENZO(G,H,I)PERYLENE	12	U		12	U							
BENZO(K)FLUORANTHENE	12	U		12	U							
CHRYSENE	12	U		12	U							
DIBENZO(A,H)ANTHRACENE	12	U		12	U							
FLUORANTHENE	12	U		12	U							
FLUORENE	77	U		78	U							
INDENO(1,2,3-CD)PYRENE	12	U		12	U							
NAPHTHALENE	77	U		78	U							
PHENANTHRENE	77	U		78	U							
PYRENE	12	U		12	U							

CTO078-NAS CECIL FIELD

SOIL DATA

Accutest, III
000 10 10

ME (METHYL) TERT-BUTYL ETHER

	2.2	U	2.2	U					
TOLUENE	2.2	U	2.2	U					
XYLENES, TOTAL	6.7	U	6.7	U					

CTO078-NAS CECIL FIELD

**SOIL DATA
Accutest, NJ
SDG: F5414**

SAMPLE NUMBER:	CEF-1846-SU-104-07	CEF-1846-SU-DU01		
SAMPLE DATE:	12/02/99	12/02/99	//	//
LABORATORY ID:	F5414-1	F5414-2		
QC_TYPE:	NORMAL	NORMAL		
% SOLIDS:	85.4 %	85.1 %	100.0 %	100.0 %
UNITS:	MG/KG	MG/KG		
FIELD DUPLICATE OF:		CEF-1846-SU-104-0		

	RESULT	QUAL	CODE									
PETROLEUM HYDROCARBONS												
TPH (C8-C40)	7.97	J	P	8.25	J	P						

APPENDIX B

Results as Reported by the Laboratory



Report of Analysis

Client Sample ID: CEF-1846-SU-DU01
Lab Sample ID: F5414-2
Matrix: SO - Soil
Method: SW846 8260B
Project: NAS Cecil Field

Date Sampled: 12/02/99
Date Received: 12/03/99
Percent Solids: 85.1

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	H005270.D	1	12/08/99	CJP	n/a	n/a	VH16
Run #2							

VOA 8021 List

CAS No.	Compound	Result	RL	Units	Q
71-43-2	Benzene	ND	2.2	ug/kg	
100-41-4	Ethylbenzene	ND	2.2	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	2.2	ug/kg	
108-88-3	Toluene	ND	2.2	ug/kg	
1330-20-7	Xylene (total)	ND	6.7	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	100%		71-122%
2037-26-5	Toluene-D8	99%		73-128%
460-00-4	4-Bromofluorobenzene	102%		53-158%
17060-07-0	1,2-Dichloroethane-D4	99%		71-122%

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

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



Report of Analysis

Client Sample ID:	CEF-1846-SU-104-07	Date Sampled:	12/02/99
Lab Sample ID:	F5414-1	Date Received:	12/03/99
Matrix:	SO - Soil	Percent Solids:	85.4
Method:	SW846 8260B		
Project:	NAS Cecil Field		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	H005264.D	1	12/08/99	CJP	n/a	n/a	VH16
Run #2	G0011460.D	50	12/07/99	CJP	n/a	n/a	VG316

VOA 8021 List

CAS No.	Compound	Result	RL	Units	Q
71-43-2	Benzene	ND	2.2	ug/kg	
100-41-4	Ethylbenzene	ND	2.2	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	2.2	ug/kg	
108-88-3	Toluene	ND	2.2	ug/kg	
1330-20-7	Xylene (total)	ND	6.7	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	103%	96%	71-122%
2037-26-5	Toluene-D8	96%	99%	73-128%
460-00-4	4-Bromofluorobenzene	100%	99%	53-158%
17060-07-0	1,2-Dichloroethane-D4	108%	91%	71-122%

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

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



Report of Analysis

Client Sample ID: CEF-1846-SU-DU01
Lab Sample ID: F5414-2
Matrix: SO - Soil
Method: FLORIDA-PRO
Project: NAS Cecil Field

Date Sampled: 12/02/99
Date Received: 12/03/99
Percent Solids: 85.1

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP06102.D	1	12/10/99	ME	12/10/99	OP1143	GOP292
Run #2							

CAS No.	Compound	Result	RL	Units	Q
	TPH (C8-C40)	8.25	9.8	mg/kg	J

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	90%		40-140%

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

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

00009



Report of Analysis

Client Sample ID: CEF-1846-SU-DU01 Lab Sample ID: F5414-2 Matrix: SO - Soil Method: SW846 8310 Project: NAS Cecil Field	Date Sampled: 12/02/99 Date Received: 12/03/99 Percent Solids: 85.1
--	--

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	LC7466.D	1	12/16/99	AMA	12/07/99	M:OP1584	M:GLC78
Run #2							

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

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

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

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

00010



Report of Analysis

Client Sample ID:	CEF-1846-SU-104-07	Date Sampled:	12/02/99
Lab Sample ID:	F5414-1	Date Received:	12/03/99
Matrix:	SO - Soil	Percent Solids:	85.4
Method:	FLORIDA-PRO		
Project:	NAS Cecil Field		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP06098.D	1	12/10/99	ME	12/10/99	OP1143	GOP292
Run #2							

CAS No.	Compound	Result	RL	Units	Q
	TPH (C8-C40)	7.97	9.8	mg/kg	J

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	90%		40-140%

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

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

00005



Report of Analysis

Client Sample ID: CEF-1846-SU-104-07	Date Sampled: 12/02/99
Lab Sample ID: F5414-1	Date Received: 12/03/99
Matrix: SO - Soil	Percent Solids: 85.4
Method: SW846 8310	
Project: NAS Cecil Field	

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #2	LC7465.D	1	12/16/99	AMA	12/07/99	M:OP1584	M:GLC78

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

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

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

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

00006

MEMO TO: M. SPERANZA - PAGE 2
DATE: MARCH 9, 2000

<u>Analyte</u>	<u>Maximum Concentration</u>	<u>Action Level</u>
Arsenic	3.6µg/L	18.0µg/L
Barium	1.0µg/L	5.0µg/L
Cadmium	0.82µg/L	4.1µg/L
Chromium	0.82µg/L	4.1µg/L
Lead	1.9µg/L	9.5µg/L
Mercury	0.086µg/L	0.43µg/L
Selenium	2.8µg/L	14.0µg/L
Silver	1.2µg/L	6.0µg/L

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

Notes

The Form 1s originally submitted by the laboratory were incorrect. The laboratory was contacted and resubmitted corrected Form 1s via facsimile.

Executive Summary

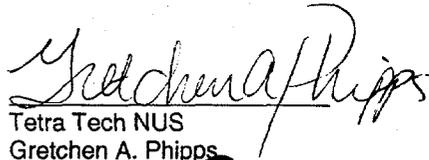
Laboratory Performance: None.

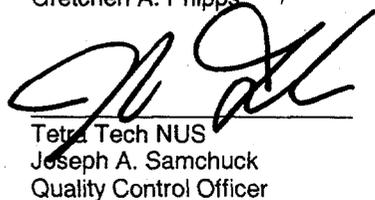
Other Factors Affecting Data Quality: None.

The data for these analyses were reviewed with reference to the "National Functional Guidelines for Inorganic Review", February 1994 and the NFESC document entitled "Navy Installation Restoration Laboratory Quality Assurance Guide." (NFESC 2/96).

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

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


Tetra Tech NUS
Gretchen A. Phipps


Tetra Tech NUS
Joseph A. Samchuck
Quality Control Officer

MEMO TO: M. SPERANZA - PAGE 3
DATE: MARCH 9, 2000

Attachments:

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

APPENDIX A
QUALIFIED ANALYTICAL RESULTS

Qualifier Codes:

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

CTO078 - NAS CECIL FIELD

WATER DATA

Accutest, NJ

SDG: F5685

SAMPLE NUMBER:	CEF-1846-GW-2S-01	CEF-1846-GW-3S-01	CEF-1846-GW-DU01-01	
SAMPLE DATE:	01/19/00	01/19/00	01/19/00	//
LABORATORY ID:	F5685-2	F5685-1	F5685-3	
QC_TYPE:	NORMAL	NORMAL	NORMAL	
% SOLIDS:	0.0 %	0.0 %	0.0 %	100.0 %
UNITS:	UG/L	UG/L	UG/L	
FIELD DUPLICATE OF:			CEF-1846-GW-3S-01	

	RESULT	QUAL	CODE									
INORGANICS												
ARSENIC	3.5	U		3.5	U		3.5	U				
BARIUM	39.8			19.3			19.0					
CADMIUM	0.33	U		0.33	U		0.33	U				
CHROMIUM	1.2	U	A	0.72	U	A	1.0	U	A			
LEAD	1.6	U		1.6	U		1.6	U				
MERCURY	0.06	U		0.06	U		0.06	U				
SELENIUM	4.4	U	A	3.2	U	A	2.0	U				
SILVER	0.96	U		0.96	U		0.96	U				

APPENDIX B
RESULTS AS REPORTED BY THE LABORATORY

Report of Analysis

Page 1 of 1

Client Sample ID: CEF-1846-GW-3S-01
Lab Sample ID: F5685-1
Matrix: AQ - Ground Water
Project: NAS Cecil Field

Date Sampled: 01/19/00
Date Received: 01/21/00
Percent Solids: n/a

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method
Arsenic	3.5 U	10	ug/l	1	01/26/00	01/27/00 JK	SW846 6010A
Barium	19.3 B	200	ug/l	1	01/26/00	01/27/00 JK	SW846 6010A
Cadmium	0.33 U	5.0	ug/l	1	01/26/00	01/27/00 JK	SW846 6010A
Chromium	0.72 B	10	ug/l	1	01/26/00	01/27/00 JK	SW846 6010A
Lead	1.6 U	5.0	ug/l	1	01/26/00	01/27/00 JK	SW846 6010A
Mercury	0.060 U	1.0	ug/l	1	01/25/00	01/26/00 SJL	EPA 245.1
Selenium	3.2 B	10	ug/l	1	01/26/00	01/27/00 JK	SW846 6010A
Silver	0.50 B	10	ug/l	1	01/26/00	01/27/00 JK	SW846 6010A

0.96 U

3-13-2000
J00

RL = Reporting Limit

Report of Analysis

Client Sample ID: CEF-1846-GW-2S-01	Date Sampled: 01/19/00
Lab Sample ID: F5685-2	Date Received: 01/21/00
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: NAS Cecil Field	

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method
Arsenic	3.5 U	10	ug/l	1	01/26/00	01/27/00 JK	SW846 6010A
Barium	39.8 B	200	ug/l	1	01/26/00	01/27/00 JK	SW846 6010A
Cadmium	0.14 B	5.0	ug/l	1	01/26/00	01/27/00 JK	SW846 6010A
Chromium	1.2 B	10	ug/l	1	01/26/00	01/27/00 JK	SW846 6010A
Lead	1.6 U	5.0	ug/l	1	01/26/00	01/27/00 JK	SW846 6010A
Mercury	0.060 U	1.0	ug/l	1	01/25/00	01/26/00 SIL	EPA 245.1
Selenium	4.4 B	10	ug/l	1	01/26/00	01/27/00 JK	SW846 6010A
Silver	0.75 B	10	ug/l	1	01/26/00	01/27/00 JK	SW846 6010A

0.96 u

3-13-2000
JAJ

RL = Reporting Limit

Report of Analysis

Client Sample ID: CEF-1846-GW-DU01-01	Date Sampled: 01/19/00
Lab Sample ID: F5685-3	Date Received: 01/21/00
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: NAS Cecil Field	

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method
Arsenic	3.5 U	10	ug/l	1	01/26/00	01/27/00 JK	SW846 6010A
Barium	19.0 B	200	ug/l	1	01/26/00	01/27/00 JK	SW846 6010A
Cadmium	0.33 U	5.0	ug/l	1	01/26/00	01/27/00 JK	SW846 6010A
Chromium	1.0 B	10	ug/l	1	01/26/00	01/27/00 JK	SW846 6010A
Lead	1.6 U	5.0	ug/l	1	01/26/00	01/27/00 JK	SW846 6010A
Mercury	0.060 U	1.0	ug/l	1	01/25/00	01/26/00 SJL	EPA 245.1
Selenium	1.7 B	10	ug/l	1	01/26/00	01/27/00 JK	SW846 6010A
Silver	0.96 U	10	ug/l	1	01/26/00	01/27/00 JK	SW846 6010A

RL = Reporting Limit

MEMO TO: M. SPERANZA - PAGE 2
DATE: JANUARY 11, 2000

Laboratory Blank Analyses

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

<u>Analyte</u>	<u>Maximum Concentration</u>	<u>Action Level(soil)</u>
Arsenic	4.0 µg/L	2.0 mg/kg
Barium ⁽¹⁾	0.92 mg/kg	4.6 mg/kg
Cadmium	0.40 µg/L	0.20 mg/kg
Chromium ⁽¹⁾	0.11 mg/kg	0.55 mg/kg
Lead	1.9 µg/L	0.95 mg/kg
Mercury	0.1 µg/L	0.05 mg/kg

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

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

Executive Summary

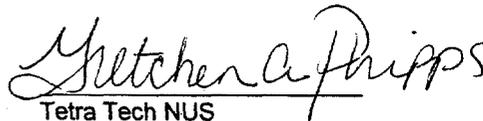
Laboratory Performance: Several analytes were present in the laboratory method / preparation blanks.

Other Factors Affecting Data Quality: None.

The data for these analyses were reviewed with reference to the "National Functional Guidelines for Inorganic Review", February 1994 and the NFESC document entitled "Navy Installation Restoration Laboratory Quality Assurance Guide." (NFESC 2/96).

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

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



Tetra Tech NUS
Gretchen A. Phipps



Tetra Tech NUS
Joseph A. Samchuck
Quality Control Officer

MEMO TO: M. SPERANZA - PAGE 3
DATE: JANUARY 11, 2000

Attachments:

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

**APPENDIX A
QUALIFIED ANALYTICAL RESULTS**

Qualifier Codes:

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

CTO078-NAS CECIL FIELD

SOIL DATA

Accutest, NJ

SDG: F5414

SAMPLE NUMBER:	CEF-1846-SU-104-07	CEF-1846-SU-DU01		
SAMPLE DATE:	12/02/99	12/02/99	//	//
LABORATORY ID:	F5414-1	F5414-2		
QC_TYPE:	NORMAL	NORMAL		
% SOLIDS:	85.4 %	85.1 %	100.0 %	100.0 %
UNITS:	MG/KG	MG/KG		
FIELD DUPLICATE OF:		CEF-1846-SU-104-0		

	RESULT	QUAL	CODE									
INORGANICS												
ARSENIC	0.40	U		0.39	U							
BARIUM	7.7			7.7								
CADMIUM	0.04	U		0.04	U							
CHROMIUM	9.8			9.0								
LEAD	6.2			6.3								
MERCURY	0.02	U	A	0.03	U	A						
SELENIUM	0.36			0.32								
SILVER	0.11	U		0.11	U							

APPENDIX B
RESULTS AS REPORTED BY THE LABORATORY



Report of Analysis

Client Sample ID: CEF-1846-SU-104-07

Lab Sample ID: F5414-1

Matrix: SO - Soil

Date Sampled: 12/02/99

Date Received: 12/03/99

Percent Solids: 85.4

Project: NAS Cecil Field

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method
Arsenic	0.40 U	1.2	mg/kg	1	12/07/99	12/09/99 JK	SW846 6010A
Barium	7.7 B	23.4	mg/kg	1	12/07/99	12/09/99 JK	SW846 6010A
Cadmium	0.04 U	0.47	mg/kg	1	12/07/99	12/09/99 JK	SW846 6010A
Chromium	9.8	1.2	mg/kg	1	12/07/99	12/09/99 JK	SW846 6010A
Lead	6.2 B	11.7	mg/kg	1	12/07/99	12/09/99 JK	SW846 6010A
Mercury	0.02 B	0.11	mg/kg	1	12/08/99	12/09/99 SJL	SW846 7471A
Selenium	0.36 B	11.7	mg/kg	1	12/07/99	12/09/99 JK	SW846 6010A
Silver	0.11 U	1.2	mg/kg	1	12/07/99	12/09/99 JK	SW846 6010A

RL = Reporting Limit



Report of Analysis

Client Sample ID:	CEF-1846-SU-DU01	Date Sampled:	12/02/99
Lab Sample ID:	F5414-2	Date Received:	12/03/99
Matrix:	SO - Soil	Percent Solids:	85.1
Project:	NAS Cecil Field		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method
Arsenic	0.39 U	1.1	mg/kg	1	12/07/99	12/09/99 JK	SW846 6010A
Barium	7.7 B	22.8	mg/kg	1	12/07/99	12/09/99 JK	SW846 6010A
Cadmium	0.04 U	0.46	mg/kg	1	12/07/99	12/09/99 JK	SW846 6010A
Chromium	9.0	1.1	mg/kg	1	12/07/99	12/09/99 JK	SW846 6010A
Lead	6.3 B	11.4	mg/kg	1	12/07/99	12/09/99 JK	SW846 6010A
Mercury	0.03 B	0.11	mg/kg	1	12/08/99	12/09/99 SJL	SW846 7471A
Selenium	0.32 B	11.4	mg/kg	1	12/07/99	12/09/99 JK	SW846 6010A
Silver	0.11 U	1.1	mg/kg	1	12/07/99	12/09/99 JK	SW846 6010A

RL = Reporting Limit



Tetra Tech NUS

INTERNAL CORRESPONDENCE

PITT-02-0-156

TO: MR. M. SPERANZA **DATE:** MARCH 10, 2000
FROM: JUSTIN ORBICH **CC:** DV FILE
SUBJECT: ORGANIC DATA VALIDATION – VOA/PAH/TPH
CTO 078 – NAS CECIL FIELD
SDG F5685
SAMPLES: 3/Aqueous
CEF-1846-GW-2S-01 CEF-1846-GW-3S-01
CEF-1846-GW-DU01-01

OVERVIEW

The sample set for CTO 078, SDG F5685 Naval Air Station (NAS) Cecil Field; Florida consists of three (3) aqueous environmental samples. The samples were analyzed for selected volatile, Polynuclear Aromatic (PAH), and Total Petroleum Hydrocarbon (TPH) organic compounds. One (1) field duplicate pair (/CEF-1846-GW-DU01-01) was included within this SDG.

The samples were collected by Tetra Tech, NUS on and January 19th, 2000 and analyzed by Accutest Laboratories. All analyses were performed in accordance with Naval Facilities Engineering Service Center (NFESC) Quality Assurance/Quality Control (QA/QC) criteria and analyzed according to SW 846 Method 8260B, 8310, and FLORIDA-PRO analytical and reporting protocols. The data in this SDG was validated with regard to the following parameters:

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

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

VOLATILE FRACTION

All quality control parameters were met for this fraction.

PAH FRACTION

All quality control parameters were met for this fraction.

MEMO TO: MR. M. SPERANZA
DATE: MARCH 10, 2000 - PAGE 2

TPH FRACTION

All quality control parameters were met for this fraction.

ADDITIONAL COMMENTS

Positive results reported below the reporting limits (RL) are qualified as estimated (J).

EXECUTIVE SUMMARY

Laboratory performance: None.

Other Factors Affecting Data Quality: None.

MEMO TO: MR. M. SPERANZA
DATE: MARCH 10, 2000 – PAGE 3

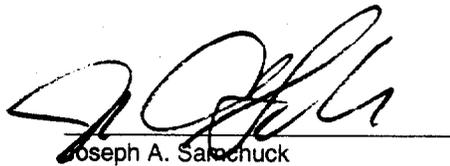
The data for these analyses were reviewed with reference to the EPA Functional Guidelines for Organic Data Validation (February, 1994), and the NFESC "Navy Installation Restoration Program Laboratory Quality Assurance Guide" (February, 1996). The text of this report has been formulated to address only those problems affecting data quality.

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



Justin Orbich

Chemist/Data Validator
Tetra Tech, NUS



Joseph A. Salschuck

Data Validation Quality Assurance Officer
Tetra Tech, NUS

Attachments:

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

DATA QUALIFIER DEFINITIONS:

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

Qualifier Codes:

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

APPENDIX A
Qualified Analytical Results

CTO078 - NAS CECIL FIELD

WATER DATA

Accutest, NJ

SDG: F5685

SAMPLE NUMBER:	CEF-1846-GW-2S-01	CEF-1846-GW-3S-01	CEF-1846-GW-DU01-01	
SAMPLE DATE:	01/19/00	01/19/00	01/19/00	///
LABORATORY ID:	F5685-2	F5685-1	F5685-3	
QC_TYPE:	NORMAL	NORMAL	NORMAL	
% SOLIDS:	0.0 %	0.0 %	0.0 %	100.0 %
UNITS:	UG/L	UG/L	UG/L	
FIELD DUPLICATE OF:				

	RESULT	QUAL	CODE									
VOLATILES												
1,2-DIBROMOETHANE	0.02	U		0.02	U		0.02	U				
BENZENE	1	U		1	U		1	U				
ETHYLBENZENE	1	U		1	U		1	U				
METHYL TERT-BUTYL ETHER	1	U		1	U		1	U				
TOLUENE	1	U		1	U		1	U				
XYLENES, TOTAL	3	U		3	U		3	U				

CTO078 - NAS CECIL FIELD

WATER DATA
Accutest, NJ
SDG: F5685

SAMPLE NUMBER:	CEF-1846-GW-2S-01	CEF-1846-GW-3S-01	CEF-1846-GW-DU01-01	
SAMPLE DATE:	01/19/00	01/19/00	01/19/00	//
LABORATORY ID:	F5685-2	F5685-1	F5685-3	
QC_TYPE:	NORMAL	NORMAL	NORMAL	
% SOLIDS:	0.0 %	0.0 %	0.0 %	100.0 %
UNITS:	UG/L	UG/L	UG/L	
FIELD DUPLICATE OF:				

	RESULT	QUAL	CODE									
POLYNUCLEAR AROMATIC HYDROCARBONS												
1-METHYLNAPHTHALENE	1	U		1.1	U		1.1	U				
2-METHYLNAPHTHALENE	1	U		1.1	U		1.1	U				
ACENAPHTHENE	1	U		1.1	U		1.1	U				
ACENAPHTHYLENE	1	U		1.1	U		1.1	U				
ANTHRACENE	1	U		1.1	U		1.1	U				
BENZO(A)ANTHRACENE	0.16	U		0.16	U		0.16	U				
BENZO(A)PYRENE	0.16	U		0.16	U		0.16	U				
BENZO(B)FLUORANTHENE	0.16	U		0.16	U		0.16	U				
BENZO(G,H,I)PERYLENE	0.16	U		0.16	U		0.16	U				
BENZO(K)FLUORANTHENE	0.16	U		0.16	U		0.16	U				
CHRYSENE	0.16	U		0.16	U		0.16	U				
DIBENZO(A,H)ANTHRACENE	0.16	U		0.16	U		0.16	U				
FLUORANTHENE	1	U		1.1	U		1.1	U				
FLUORENE	1	U		1.1	U		1.1	U				
INDENO(1,2,3-CD)PYRENE	0.16	U		0.16	U		0.16	U				
NAPHTHALENE	1	U		1.1	U		1.1	U				
PHENANTHRENE	1	U		1.1	U		1.1	U				
PYRENE	1	U		1.1	U		1.1	U				

CTO078 - NAS CECIL FIELD
WATER DATA
Accutest, NJ
SDG: F5685

SAMPLE NUMBER:	CEF-1846-GW-2S-01	CEF-1846-GW-3S-01	CEF-1846-GW-DU01-01	
SAMPLE DATE:	01/19/00	01/19/00	01/19/00	//
LABORATORY ID:	F5685-2	F5685-1	F5685-3	
QC_TYPE:	NORMAL	NORMAL	NORMAL	
% SOLIDS:	0.0 %	0.0 %	0.0 %	100.0 %
UNITS:	MG/L	MG/L	MG/L	
FIELD DUPLICATE OF:				

	RESULT	QUAL	CODE									
PETROLEUM HYDROCARBONS												
TPH (C8-C40)	0.28	U		0.28	U		0.28	U				

APPENDIX B

Results as Reported by the Laboratory



Report of Analysis

Client Sample ID: CEF-1846-GW-2S-01	Date Sampled: 01/19/00
Lab Sample ID: F5685-2	Date Received: 01/21/00
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: SW846 8310	
Project: NAS Cecil Field	

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #2	LC8404.D	1	02/05/00	AMA	01/25/00	M:OP1695	M:GLC97

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	1.0	ug/l	
208-96-8	Acenaphthylene	ND	1.0	ug/l	
120-12-7	Anthracene	ND	1.0	ug/l	
56-55-3	Benzo (a) anthracene	ND	0.16	ug/l	
50-32-8	Benzo (a) pyrene	ND	0.16	ug/l	
205-99-2	Benzo (b) fluoranthene	ND	0.16	ug/l	
191-24-2	Benzo (g,h,i) perylene	ND	0.16	ug/l	
207-08-9	Benzo (k) fluoranthene	ND	0.16	ug/l	
218-01-9	Chrysene	ND	0.16	ug/l	
53-70-3	Dibenz(a,h)anthracene	ND	0.16	ug/l	
206-44-0	Fluoranthene	ND	1.0	ug/l	
86-73-7	Fluorene	ND	1.0	ug/l	
193-39-5	Indeno (1,2,3-cd) pyrene	ND	0.16	ug/l	
90-12-0	1-Methylnaphthalene	ND	1.0	ug/l	
91-57-6	2-Methylnaphthalene	ND	1.0	ug/l	
91-20-3	Naphthalene	ND	1.0	ug/l	
85-01-8	Phenanthrene	ND	1.0	ug/l	
129-00-0	Pyrene	ND	1.0	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	49%		20-160%

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

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



Report of Analysis

Client Sample ID: CEF-1846-GW-3S-01	Date Sampled: 01/19/00
Lab Sample ID: F5685-1	Date Received: 01/21/00
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: SW846 8310	
Project: NAS Cecil Field	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	LC8403.D	1	02/05/00	AMA	01/25/00	M:OP1695	M:GLC97
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	1.1	ug/l	
208-96-8	Acenaphthylene	ND	1.1	ug/l	
120-12-7	Anthracene	ND	1.1	ug/l	
56-55-3	Benzo (a) anthracene	ND	0.16	ug/l	
50-32-8	Benzo (a) pyrene	ND	0.16	ug/l	
205-99-2	Benzo (b) fluoranthene	ND	0.16	ug/l	
191-24-2	Benzo (g,h,i) perylene	ND	0.16	ug/l	
207-08-9	Benzo (k) fluoranthene	ND	0.16	ug/l	
218-01-9	Chrysene	ND	0.16	ug/l	
53-70-3	Dibenz(a,h)anthracene	ND	0.16	ug/l	
206-44-0	Fluoranthene	ND	1.1	ug/l	
86-73-7	Fluorene	ND	1.1	ug/l	
193-39-5	Indeno (1,2,3-cd) pyrene	ND	0.16	ug/l	
90-12-0	1-Methylnaphthalene	ND	1.1	ug/l	
91-57-6	2-Methylnaphthalene	ND	1.1	ug/l	
91-20-3	Naphthalene	ND	1.1	ug/l	
85-01-8	Phenanthrene	ND	1.1	ug/l	
129-00-0	Pyrene	ND	1.1	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	48%		20-160%

006

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



Report of Analysis

Client Sample ID: CEF-1846-GW-DU01-01	Date Sampled: 01/19/00
Lab Sample ID: F5685-3	Date Received: 01/21/00
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: SW846 8310	
Project: NAS Cecil Field	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	LC8405.D	1	02/05/00	AMA	01/25/00	M:OP1695	M:GLC97
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	1.1	ug/l	
208-96-8	Acenaphthylene	ND	1.1	ug/l	
120-12-7	Anthracene	ND	1.1	ug/l	
56-55-3	Benzo (a) anthracene	ND	0.16	ug/l	
50-32-8	Benzo (a) pyrene	ND	0.16	ug/l	
205-99-2	Benzo (b) fluoranthene	ND	0.16	ug/l	
191-24-2	Benzo (g,h,i) perylene	ND	0.16	ug/l	
207-08-9	Benzo (k) fluoranthene	ND	0.16	ug/l	
218-01-9	Chrysene	ND	0.16	ug/l	
53-70-3	Dibenz(a,h)anthracene	ND	0.16	ug/l	
206-44-0	Fluoranthene	ND	1.1	ug/l	
86-73-7	Fluorene	ND	1.1	ug/l	
193-39-5	Indeno (1,2,3-cd) pyrene	ND	0.16	ug/l	
90-12-0	1-Methylnaphthalene	ND	1.1	ug/l	
91-57-6	2-Methylnaphthalene	ND	1.1	ug/l	
91-20-3	Naphthalene	ND	1.1	ug/l	
85-01-8	Phenanthrene	ND	1.1	ug/l	
129-00-0	Pyrene	ND	1.1	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	69%		20-160%

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



Report of Analysis

Client Sample ID: CEF-1846-GW-2S-01
Lab Sample ID: F5685-2
Matrix: AQ - Ground Water
Method: FLORIDA-PRO
Project: NAS Cecil Field
Date Sampled: 01/19/00
Date Received: 01/21/00
Percent Solids: n/a

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP06642.D	1	01/26/00	ME	01/24/00	OP1237	GOP314
Run #2							

CAS No.	Compound	Result	RL	Units	Q
	TPH (C8-C40)	ND	0.28	mg/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits	
84-15-1	o-Terphenyl	76%		40-140%	

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

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

010



Report of Analysis

Client Sample ID: CEF-1846-GW-3S-01	Date Sampled: 01/19/00
Lab Sample ID: F5685-1	Date Received: 01/21/00
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: FLORIDA-PRO	
Project: NAS Cecil Field	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP06639.D	1	01/25/00	ME	01/24/00	OP1237	GOP314
Run #2							

CAS No.	Compound	Result	RL	Units	Q
	TPH (C8-C40)	ND	0.28	mg/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits	
84-15-1	o-Terphenyl	76%		40-140%	

005

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



Report of Analysis

Client Sample ID: CEF-1846-GW-DU01-01	Date Sampled: 01/19/00
Lab Sample ID: F5685-3	Date Received: 01/21/00
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: FLORIDA-PRO	
Project: NAS Cecil Field	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP06643.D	1	01/26/00	ME	01/24/00	OP1237	GOP314
Run #2							

CAS No.	Compound	Result	RL	Units	Q
	TPH (C8-C40)	ND	0.28	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	70%		40-140%

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

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



Report of Analysis

Client Sample ID: CEF-1846-GW-2S-01
Lab Sample ID: F5685-2
Matrix: AQ - Ground Water
Method: SW846 8021B
Project: NAS Cecil Field

Date Sampled: 01/19/00
Date Received: 01/21/00
Percent Solids: n/a

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	CD013097.D	1	01/27/00	JG	n/a	n/a	GCD474
Run #2							

Purgeable Aromatics, MTBE

CAS No.	Compound	Result	RL	Units	Q
71-43-2	Benzene	ND	1.0	ug/l	
100-41-4	Ethylbenzene	ND	1.0	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	ug/l	
108-88-3	Toluene	ND	1.0	ug/l	
1330-20-7	Xylenes (total)	ND	3.0	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	96%		69-125%
98-08-8	aaa-Trifluorotoluene	100%		72-125%

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

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

009



Report of Analysis

Client Sample ID: CEF-1846-GW-2S-01
Lab Sample ID: F5685-2
Matrix: AQ - Ground Water
Method: EPA 504.1
Project: NAS Cecil Field
Date Sampled: 01/19/00
Date Received: 01/21/00
Percent Solids: n/a

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	MN06330.D	1	01/31/00	SKW	n/a	n/a	GMN256
Run #2							

CAS No.	Compound	Result	RL	Units	Q
106-93-4	1,2-Dibromoethane	ND	0.020	ug/l	

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



Report of Analysis

Client Sample ID: CEF-1846-GW-3S-01	Date Sampled: 01/19/00
Lab Sample ID: F5685-1	Date Received: 01/21/00
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: SW846 8021B	
Project: NAS Cecil Field	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	CD013096.D	1	01/27/00	JG	n/a	n/a	GCD474
Run #2							

Purgeable Aromatics, MTBE

CAS No.	Compound	Result	RL	Units	Q
71-43-2	Benzene	ND	1.0	ug/l	
100-41-4	Ethylbenzene	ND	1.0	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	ug/l	
108-88-3	Toluene	ND	1.0	ug/l	
1330-20-7	Xylenes (total)	ND	3.0	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	94%		69-125%
98-08-8	aaa-Trifluorotoluene	95%		72-125%

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

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



Report of Analysis

Client Sample ID: CEF-1846-GW-3S-01	Date Sampled: 01/19/00
Lab Sample ID: F5685-1	Date Received: 01/21/00
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: EPA 504.1	
Project: NAS Cecil Field	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	MN06327.D	1	01/31/00	SKW	n/a	n/a	GMN256
Run #2							

CAS No.	Compound	Result	RL	Units	Q
106-93-4	1,2-Dibromoethane	ND	0.020	ug/l	

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



Report of Analysis

Client Sample ID: CEF-1846-GW-DU01-01	Date Sampled: 01/19/00
Lab Sample ID: F5685-3	Date Received: 01/21/00
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: SW846 8021B	
Project: NAS Cecil Field	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	CD013098.D	1	01/27/00	JG	n/a	n/a	GCD474
Run #2							

Purgeable Aromatics, MTBE

CAS No.	Compound	Result	RL	Units	Q
71-43-2	Benzene	ND	1.0	ug/l	
100-41-4	Ethylbenzene	ND	1.0	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	ug/l	
108-88-3	Toluene	ND	1.0	ug/l	
1330-20-7	Xylenes (total)	ND	3.0	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	94%		69-125%
98-08-8	aaa-Trifluorotoluene	95%		72-125%

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

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



Report of Analysis

Client Sample ID: CEF-1846-GW-DU01-01	Date Sampled: 01/19/00
Lab Sample ID: F5685-3	Date Received: 01/21/00
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: EPA 504.1	
Project: NAS Cecil Field	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	MN06331.D	1	01/31/00	SKW	n/a	n/a	GMN256
Run #2							

CAS No.	Compound	Result	RL	Units	Q
106-93-4	1,2-Dibromoethane	ND	0.020	ug/l	

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

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