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NAS CECIL FIELD, FL
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SAMPLING AND ANALYSIS OUTLINE REPORT FOR BUILDING 68 AREA BASE REALIGNMENT AND CLOSURE REVISION 1 NAS CECIL FIELD FL
3/31/2000
TETRA TECH NUS INC

Rev. 1
03/31/00

Sampling and Analysis Outline Report

for

Building 68 Area 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

Rev. 1
03/31/00

SAMPLING AND ANALYSIS OULINE REPORT
FOR
BUILDING 68 AREA
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:

Mark P. Speranza

MARK SPERANZA, P.E.
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TETRA TECH NUS, INC.
PITTSBURGH, PENNSYLVANIA

APPROVED FOR SUBMITTAL BY:

D. M. Wroblewski

DEBBIE WROBLEWSKI
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TETRA TECH NUS, INC.
PITTSBURGH, PENNSYLVANIA

03964

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 31, 2000

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

The professional opinions rendered in this decision document identified as Sampling and Analysis Outline Report for Building 68 Area, 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

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ACRONYMS

BCT	BRAC Cleanup Team
BRAC	Base Realignment and Closure
CTO	Contract Task Order
FDEP	Florida Department of Environmental Protection
NAS	Naval Air Station
NGC	Northrup-Grumman
PAH	Polycyclic aromatic hydrocarbon
PRE	Preliminary Risk Evaluation
SAP	Sampling and Analysis Plan
SCTL	Soil cleanup target level
TCE	Trichloroethene
TCL	Target Compound List
THM	Trihalomethane
TtNUS	Tetra Tech NUS, Incorporated
U.S. EPA	United States Environmental Protection Agency
VOCs	Volatile organic compounds

1.0 INTRODUCTION

Tetra Tech NUS, Inc. (TtNUS), under contract to Southern Division, Naval Facilities Engineering Command, has completed the Base Realignment and Closure (BRAC) Phase II Sampling and Analysis Program for the Building 68 Area 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 Phase II investigation.

Northrop-Grumman (NGC) collected groundwater and soil samples in the Building 68 Area as part of a due diligence investigation in 1998 (Golder Associates, 1998). During this investigation, 13 shallow and 11 intermediate temporary monitoring wells were installed, sampled, and analyzed for organic and inorganic parameters. Twenty shallow soil samples and one sediment sample from a storm water pond were collected and analyzed for organic and inorganic parameters. Groundwater samples indicated exceedances of Florida Department of Environmental Protection (FDEP) criteria for trihalomethanes (THMs), lead, chromium, and selenium. Concentrations of trichloroethene (TCE), bis(2-chloroethyl) ether, and benzene were detected in excess of FDEP criteria in soil samples, and PAHs were detected in the sediment sample collected as part of this investigation.

The BRAC Cleanup Team (BCT) determined that soil and groundwater samples should be collected at the site to confirm the results of the NGC investigation.

2.0 SAMPLING AND ANALYSIS OUTLINE

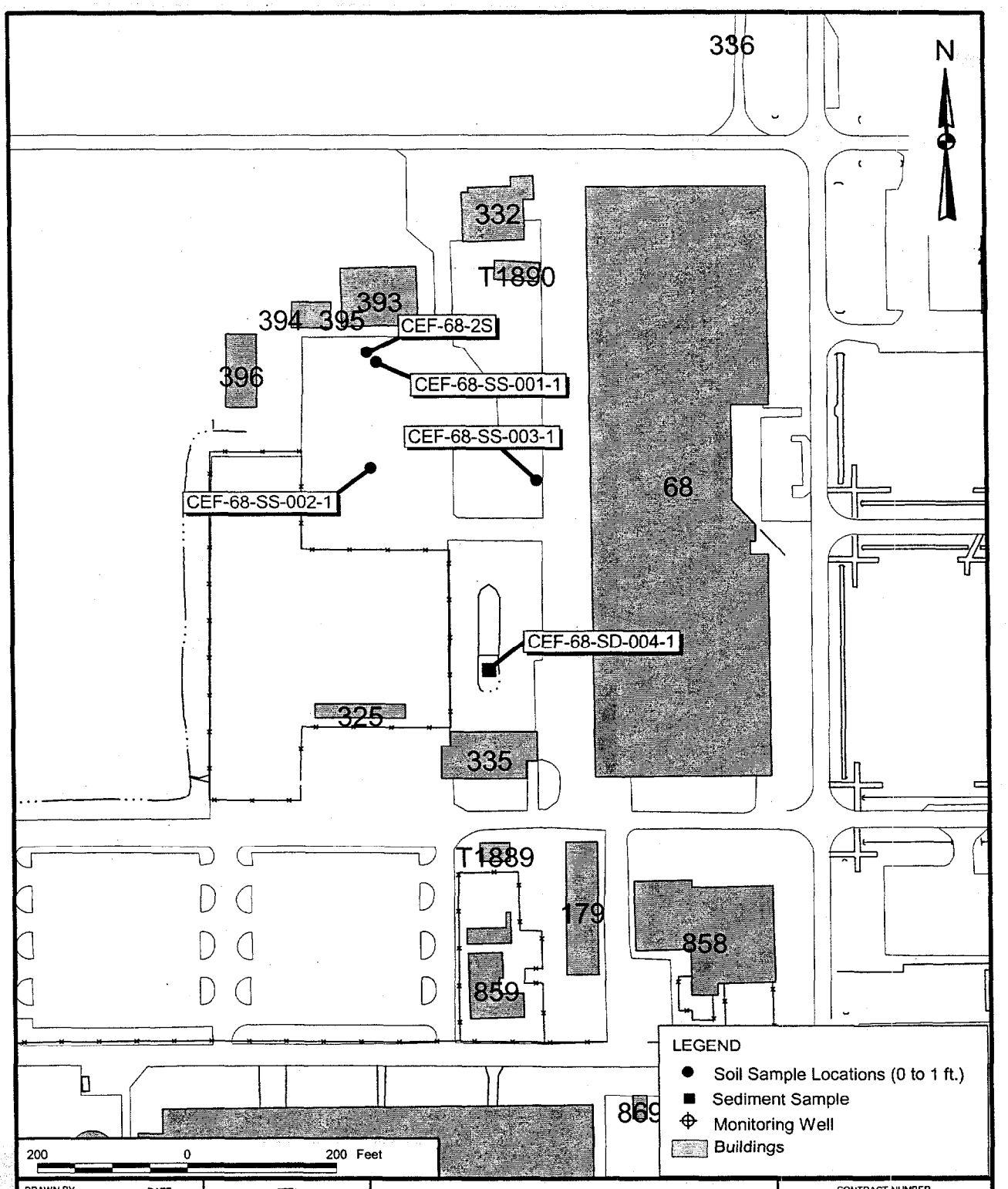
A Sampling and Analysis Plan (SAP) for the assessment of soil and groundwater at this site was prepared by TtNUS and approved by the BCT (TtNUS, 1999).

This Phase II investigation included the collection and analysis of three surface soil samples, one sediment sample, and one groundwater sample from the Building 68 area. Field activities were conducted in July 1998 in conformance with the Base-Wide Generic Work Plan (TtNUS, 1998).

Three surface soil samples were collected from previous sampling locations at which volatile organic compounds (VOCs) were detected from depths of 0 to 1 foot below the bottom of the pavement. These soil samples were analyzed for Target Compound List (TCL) VOCs. One soil sample also was analyzed for bis(2-chloroethyl) ether. One sediment sample was collected from the storm water basin near the previous NGC sampling location and analyzed for polycyclic aromatic hydrocarbons (PAHs).

The groundwater monitoring well CEF-68-2S was installed at the location of the second highest detected concentration of THMs and which also had detectable concentrations of lead, chromium, and selenium. The well was installed to a total depth of 30 feet with a screen length of 10 feet. Groundwater from this well was sampled using low-flow techniques and analyzed for dissolved metals. The boring well, monitoring well construction sheet, and certificate of conformance are included in Appendix A.

Sampling locations are presented on Figure 2-1.



DRAWN BY MJJ	DATE 4June99	SITE AND SAMPLE LOCATION MAP BUILDING 68 AREA NAVAL AIR STATION CECIL FIELD JACKSONVILLE, FLORIDA	CONTRACT NUMBER 0039
CHECKED BY JWL	DATE 4June99		APPROVED BY / DATE
COST/SCHEDULE-AREA			APPROVED BY / DATE
SCALE AS NOTED			DRAWING NO. FIGURE 2-1 / REV 0

P:\GIS\CECIL\misc_proj.apr 04June99 MJJ Building 68 Layout

3.0 RESULTS AND PRELIMINARY RISK EVALUATION

VOCs and bis(2-chloroethyl)ether were not detected in soil samples collected in the Building 68 area, and VOCs and lead, chromium, and selenium were not detected in soil in excess of FDEP soil cleanup target levels (SCTLs) or United States Environmental Protection Agency (U.S. EPA) Region 4 Ecological Screening Values for soil. In addition, PAHs were not detected in the sediment sample at concentrations greater than FDEP criteria or U.S. EPA screening levels. Therefore, a Human Health Preliminary Risk Evaluation (PRE) and an ecological risk assessment were not performed.

Analytical data are provided in Appendix B.

4.0 CONCLUSIONS AND RECOMMENDATION

Analytes detected in soil, sediment, and groundwater samples collected in the Building 68 Area do not represent a hazard to human health or the environment at the detected concentrations. No other environmental concerns have been identified for this facility. The THMs detected during NGC sampling were not detected during this investigation. In addition, concentrations of metals in the filtered and unfiltered groundwater sample were less than FDEP criteria. It appears that the elevated concentrations of metals in NGC samples were the result of high levels of solids in the sample.

Based upon the findings of this evaluation, the color code for the Building 68 Area should be reclassified to White. No remedial action or further evaluation is recommended.

REFERENCES

Tetra Tech NUS, Incorporated (TtNUS), 1998. Base-wide Generic Work Plan, Naval Air Station Cecil Field, Jacksonville, Florida. Pittsburgh, PA.

TtNUS, 1999. Sampling and Analysis Outline – Building 68 Area, Naval Air Station, Cecil Field, Jacksonville, Florida. Pittsburgh, PA.

United States Environmental Protection Agency (U.S. EPA), 1998. Memorandum on Ecological Risk Assessment at Military Bases: Process Considerations, Timing of Activities, and Inclusion of Stakeholders. Region 4, Atlanta, GA.

Golder Associates, 1998, Due Diligence Assessment of Environmental Concerns – Building 18 Area, January.

APPENDIX A

MONITORING WELL INFORMATION

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: NAS CECIL FIELD
PROJECT NUMBER: 0039
DRILLING COMPANY: Groundwater Protection
DRILLING RIG: Deutrich D-25

BORING NUMBER: AW 368-001
DATE: 7/7/99
GEOLOGIST: A. WILCOX
DRILLER: Shane Nowlen

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS*	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**
	0-4		N/A			LT GREY	F SILTY SAND HA	SM	DRY	0		
	4-8		↓			MED BRN	F SILTY SAND W/SOME CLAY	SM-SC	DRY			
	8-15		↓			LT BRN	F SILTY SAND W/CLAY	SM-SC	WET	0		
	15-30		↓			LT BRN	F SILTY SAND	SM	SATURATED			
							EOB 30'					

* When rock coring, enter rock brokeness.

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

Drilling Area Background (ppm): 0

Remarks: 6 Bags sand HA-Hand Auger to 4' BLS
Screen of 20-30

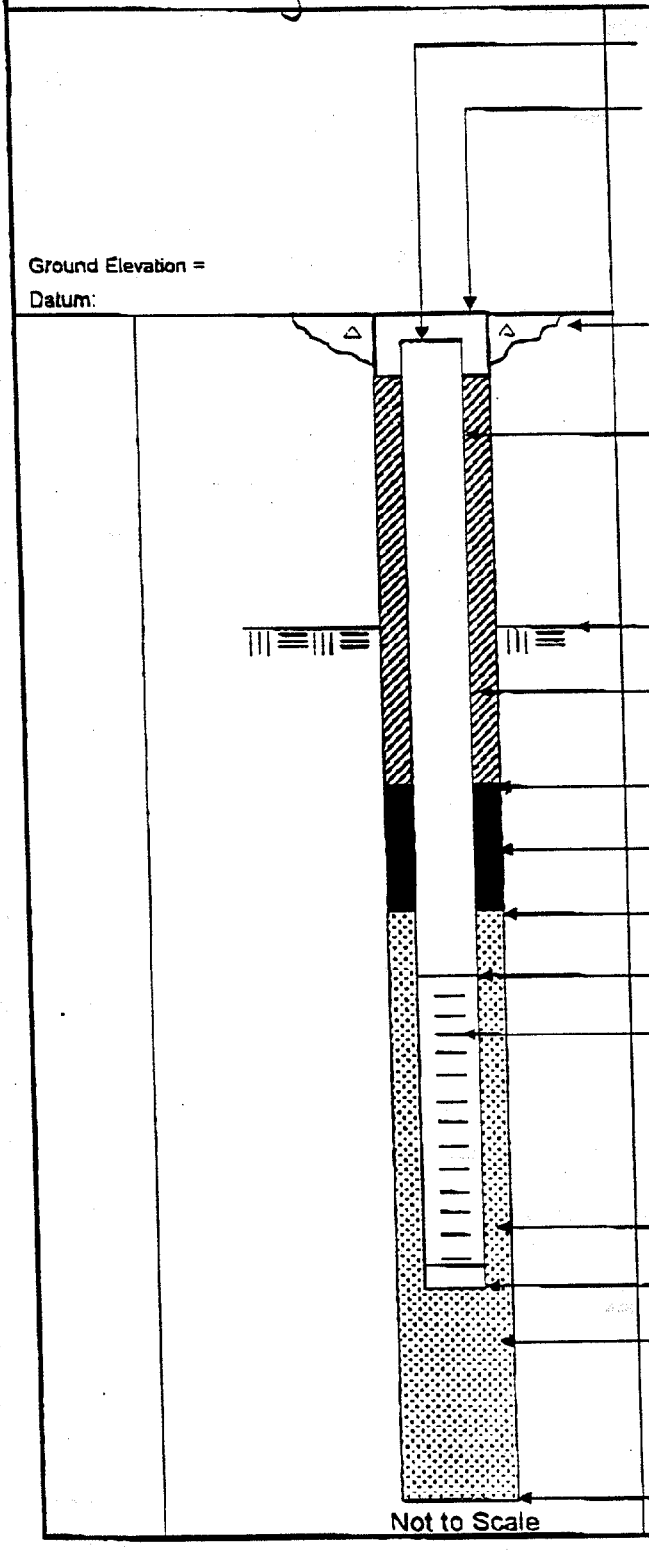
Converted to Well: Yes ✓ No ____ Well I.D. #: CFF-68-025

Tetra Tech NUS, Inc.

WELL No.: CFF-68-025

MONITORING WELL SHEET

PROJECT:	NAS CECIL FIELD	DRILLING Co.:	Groundwater Protection	BORING No.:	68-001
PROJECT No.:	0039	DRILLER:	Shane Nowlen	DATE COMPLETED:	7/7/99
SITE:	NASCF Bldg 68	DRILLING METHOD:	HSA	NORTHING:	
GEOLOGIST:	Philip Wilcox	DEV. METHOD:	Submersible Pump	EASTING:	



Elevation / Depth of Top of Riser: /

Elevation / Height of Top of Surface Casing: /

I.D. of Surface Casing: 8"

Type of Surface Casing: SS MAN HOLE

Type of Surface Seal: QUICKCRETE

I.D. of Riser: 2"

Type of Riser: PVC SCH. 40

Borehole Diameter: 8"

Elevation / Depth Top of Rock: —+

Type of Backfill: GROUT

Elevation / Depth of Seal: / 16'

Type of Seal: BENTONITE

Elevation / Depth of Top of Filter Pack: / 18'

Elevation / Depth of Top of Screen: / 20'

Type of Screen: PVC SCH. 40

Slot Size x Length: 0.010 x 10'

I.D. of Screen: 2"

Type of Filter Pack: 20/30 SAND

Elevation / Depth of Bottom of Screen: / 30'

Elevation / Depth of Bottom of Filter Pack: / 30'

Type of Backfill Below Well: SOIL

Elevation / Total Depth of Borehole: / 30'

Tetra Tech NUS. Inc.
CERTIFICATE OF CONFORMANCE

Well Designation: CEF-68-02S
Site Name: BLDG 68, NASCE
Date Installed: 7/7/99
Project Name: BRAC

Site Geologist: A WILCOX
Drilling Company: GROUNDWATER PROTECTION
Driller: SHANE NOWLEN
Project Number: 0039

Material	Brand/Description	Source/Supplier	Sample Collected ?
Well Casing	PVC Sch. 40 2"	TONEY DRILLING	NO
Well Screen	0.010 x 10' PVC SCH40 2"	↓	↓
End Cap	EXPANDABLE LOCKING-COP		
Drilling Fluid	–		
Drilling Fluid Additives	–		
Backfill Material	NATIVE SOIL		
Annular Filter Pack	20/30 sand	STANDARD SAND	
Bentonite Seal	Bentonite Pellets	CETCO	
Annular Grout	Cement Grout	Holman Cement	
Surface Cement	QUICKRETE	Quickrete	
Protective Casing	8" SS MANHOLE	Toney Drilling	
Paint	–		
Rod Lubricant	–		
Compressor Oil	–		

To the best of my knowledge, I certify that the above described materials were used during installation of this monitoring well.

Signature of Site Geologist: Abby B Wilcox

APPENDIX B

ANALYTICAL RESULTS

Tetra Tech NUS

INTERNAL CORRESPONDENCE

PITT-08-9-177

TO:	M. SPERANZA	DATE:	AUGUST 19, 1999
FROM:	GRETCHEN PHIPPS	COPIES:	DV FILE

SUBJECT: ORGANIC DATA VALIDATION – VOLATILES, SEMIVOLATILES AND PAH
CTO 078 - NAS CECIL FIELD, FLORIDA
SDG – F4525

SAMPLES: 5/Soils/

CEF-68-SS-001-01	CEF-68-SS-002-01
CEF-68-SS-003-01	CEF-68-SS-DU01
CEF-68-SS-004-01	

Overview

The sample set for CTO 078, NAS Cecil Field, SDG F4525, consists of five (5) soil environmental samples. One (1) field duplicate pair (CEF-68-SS-003-01/ CEF-68-SS-DU01) was included within this SDG.

Samples CEF-68-SS-001-01, CEF-68-SS-002-01, CEF-68-SS-003-01 and CEF-68-SS-DU01 were analyzed for target compound list (TCL) volatiles. Sample CEF-68SS-004-01 was analyzed for total petroleum hydrocarbons (TPHs). Sample CEF-68-SS-003-01 was analyzed for the semivolatile compound bis(2-chloroethyl)ether. The samples were collected by Tetra Tech NUS on July 15, 1999 and analyzed by Accutest Laboratory. Volatile analyses were conducted using SW 846 method 8260B. PAH analyses were conducted using SW 846 method 8310. Semivolatile analyses were conducted using SW 846 method 8270C.

The data was evaluated based on the following parameters:

*	Data Completeness
	Calibration Verifications
*	Holding Times
*	Laboratory Blank Analyses
*	Field Duplicate Analyses
	Surrogate Recoveries
*	Detection Limits

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

Calibration Verifications

A continuing calibration percent difference (%D) for benzo(a)pyrene exceeded the upper quality control limit on one column. No validation action was taken on this basis.

Surrogate Recoveries

The percent recovery (%R) for surrogate 4-bromofluorobenzene exceeded the upper quality control limit affecting sample CEF-68-SS-001-01. However, all volatile results reported in the affected sample were nondetected. Therefore, no validation action was taken on this basis.

Notes

All results reported in field duplicate pair (CEF-68-SS-003-01/ CEF-68-SS-DU01) were nondetected. Therefore, a comparison was not included.

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 Organic Review", February 1994 and the NFESC document entitles "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)."

Gretchen A. Phipps

Tetra Tech NUS
Gretchen A. Phipps

Tetra Tech NUS
Joseph A. Samchuck
Quality Control Officer

Attachments:

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

Qualifier Codes:

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

CTO078 - NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F4525

SAMPLE NUMBER:	CEF-68-SS-001-01			CEF-68-SS-002-01			CEF-68-SS-003-01			CEF-68-SS-DU01		
SAMPLE DATE:	07/15/99			07/15/99			07/15/99			07/15/99		
LABORATORY ID:	F4525-1			F4525-2			F4525-3			F4525-5		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	93.1 %			91.6 %			83.3 %			90.3 %		
UNITS:	UG/KG			UG/KG			UG/KG			UG/KG		
FIELD DUPLICATE OF:										CEF-68-SS-103-01		
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
VOLATILES												
1,1,1-TRICHLOROETHANE	2.4	U		2.3	U		2.8	U		2.6	U	
1,1,2,2-TETRACHLOROETHANE	2.4	U		2.3	U		2.8	U		2.6	U	
1,1,2-TRICHLOROETHANE	2.4	U		2.3	U		2.8	U		2.6	U	
1,1-DICHLOROETHANE	2.4	U		2.3	U		2.8	U		2.6	U	
1,1-DICHLOROETHENE	2.4	U		2.3	U		2.8	U		2.6	U	
1,2-DICHLOROETHANE	2.4	U		2.3	U		2.8	U		2.6	U	
1,2-DICHLOROPROPANE	2.4	U		2.3	U		2.8	U		2.6	U	
2-BUTANONE	12	U		12	U		14	U		13	U	
2-HEXANONE	12	U		12	U		14	U		13	U	
4-METHYL-2-PENTANONE	12	U		12	U		14	U		13	U	
ACETONE	60	U		58	U		70	U		66	U	
BENZENE	2.4	U		2.3	U		2.8	U		2.6	U	
BROMODICHLOROMETHANE	2.4	U		2.3	U		2.8	U		2.6	U	
BROMOFORM	2.4	U		2.3	U		2.8	U		2.6	U	
BROMOMETHANE	6	U		5.8	U		7	U		6.6	U	
CARBON DISULFIDE	6	U		5.8	U		7	U		6.6	U	
CARBON TETRACHLORIDE	2.4	U		2.3	U		2.8	U		2.6	U	
CHLOROBENZENE	2.4	U		2.3	U		2.8	U		2.6	U	
CHLOROETHANE	6	U		5.8	U		7	U		6.6	U	
CHLOROFORM	2.4	U		2.3	U		2.8	U		2.6	U	
CHLOROMETHANE	6	U		5.8	U		7	U		6.6	U	
CIS-1,2-DICHLOROETHENE	2.4	U		2.3	U		2.8	U		2.6	U	
CIS-1,3-DICHLOROPROPENE	2.4	U		2.3	U		2.8	U		2.6	U	
DIBROMOCHLOROMETHANE	2.4	U		2.3	U		2.8	U		2.6	U	
ETHYLBENZENE	2.4	U		2.3	U		2.8	U		2.6	U	
METHYLENE CHLORIDE	6	U		5.8	U		7	U		6.6	U	
STYRENE	2.4	U		2.3	U		2.8	U		2.6	U	
TETRACHLOROETHENE	2.4	U		2.3	U		2.8	U		2.6	U	
TOLUENE	2.4	U		2.3	U		2.8	U		2.6	U	
TRANS-1,2-DICHLOROETHENE	2.4	U		2.3	U		2.8	U		2.6	U	
TRANS-1,3-DICHLOROPROPENE	2.4	U		3	U		2.8	U		2.6	U	
TRICHLOROETHENE	2.4	U		3	U		2.8	U		2.6	U	

CTO078 - NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F4525

SAMPLE NUMBER:	CEF-68-SS-003-01			/ /			/ /			/ /		
SAMPLE DATE:	07/15/99											
LABORATORY ID:	F4525-3											
QC_TYPE:	NORMAL											
% SOLIDS:	83.3 %			100.0 %			100.0 %			100.0 %		
UNITS:	UG/KG											
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
SEMIVOLATILES												
BIS(2-CHLOROETHYL)ETHER	200	U										

CTO078 - NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F4525

SAMPLE NUMBER:	CEF-68-SS-004-01			
SAMPLE DATE:	07/15/99	/ /	/ /	/ /
LABORATORY ID:	F4525-4			
QC_TYPE:	NORMAL			
% SOLIDS:	77.8 %	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	410	U										
2-METHYLNAPHTHALENE	410	U										
ACENAPHTHENE	410	U										
ACENAPHTHYLENE	840	U										
ANTHRACENE	62	U										
BENZO(A)ANTHRACENE	62	U										
BENZO(A)PYRENE	63											
BENZO(B)FLUORANTHENE	88											
BENZO(G,H,I)PERYLENE	84	U										
BENZO(K)FLUORANTHENE	62	U										
CHRYSENE	62	U										
DIBENZO(A,H)ANTHRACENE	100	U										
FLUORANTHENE	110											
FLUORENE	84	U										
INDENO(1,2,3-CD)PYRENE	62	U										
NAPHTHALENE	410	U										
PHENANTHRENE	62	U										
PYRENE	110											

Tetra Tech NUS

INTERNAL CORRESPONDENCE

PITT-07-9-241

TO:	**M. SPERANZA**	**DATE:**	**AUGUST 9, 1999**
FROM:	**JENNIFER MALLE**	**COPIES:**	**DV FILE**

SUBJECT: **INORGANIC DATA VALIDATION-SELECTED METALS**
CTO 078 – CECIL FIELD
SDG – F4480

SAMPLES: 4/Aqueous/

CEF-68-GW-02S-1 CEF-68-GW-02S-1-F CEF-68-GW-DU01
CEF-68-GW-DU01-F

Overview

The sample set for CTO 078, Cecil Field, SDG F4480, consists of four (4) aqueous environmental samples. Two (2) field duplicate pairs (CEF-68-GW-02S-1/ CEF-68-GW-DU01 and CEF-68-GW-02S-1-F/ CEF-68-GW-DU01) were included within this SDG.

The samples were analyzed for selected metals including, chromium, lead and selenium. The samples were collected by Tetra Tech NUS on July 12, 1999 and analyzed by Accutest Laboratory under Naval Facilities Engineering Service Center (NFESC) Quality Assurance/Quality Control (QA/QC) criteria. All metal analyses were conducted using SW846 method 6010B.

The data was evaluated based on the following parameters:

- * Data Completeness
- * Holding Times
- * Initial and Continuing Calibration Recoveries
- Laboratory Blank Analyses
- Field Duplicates
- * Detection Limits

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

The following contaminants were detected in the laboratory method/preparation blanks at the following maximur concentrations:

Analyte	Maximum Concentration	Action Level (aqueous)
Chromium	2.5 ug/L	12.5 ug/L
Lead	1.7 ug/L	8.5 ug/L
Selenium	2.9 ug/L	14.5 ug/L

An action level of 5x the maximum concentration has been used to evaluate the sample data for bla contamination. Sample aliquot, percent solids and dilution factors were taken into consideration when evaluating for blank contamination. Positive results less than the action levels for chromium and selenium have beer qualified as a nondetect, "U". No validation action was taken for lead as the results were either nondetected above the action level.

Field Duplicate Results

Field duplicate imprecision > 30% was noted for lead. Positive results reported for lead were qualified estimated, "J".

Notes

The CRDL Percent Recoveries (%Rs) for lead and selenium were >120% quality control limits. However, n validation action is required.

Executive Summary

Laboratory Performance: Chromium, lead and selenium were detected in the laboratory / preparation blanks.

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

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)."

Jennifer Malle

Tetra Tech NUS
Jennifer Malle
Environmental Scientist

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

Qualifier Codes:

A = Lab Blank Contamination
B = Field Blank Contamination
C = Calibration (i.e., % RSDs, %Ds, ICVs, CCVs, RPDs, RRFs, etc.) Noncompliance
D = MS/MSD Noncompliance
E = LCS/LCSD Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = GFAA PDS - GFAA MSA's $r < 0.995$
K = ICP Interference - include ICSAB % R's
L = Instrument Calibration Range Exceedance
M = Sample Preservation
N = Internal Standard Noncompliance
O = Poor Instrument Performance (i.e., base-time drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can encompass a number of issues)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = Pest/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
WATER DATA
Accutest, NJ
SDG: F4480

SAMPLE NUMBER:	CEF-68-GW-02S-1			CEF-68-GW-02S-1-F			CEF-68-GW-DU01			CEF-68-GW-DU01-F		
SAMPLE DATE:	07/12/99			07/12/99			07/12/99			07/12/99		
LABORATORY ID:	F4480-1			F4480-1			F4480-2			F4480-2		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	0.0 %			0.0 %			0.0 %			0.0 %		
UNITS:	UG/L			UG/L			UG/L			UG/L		
FIELD DUPLICATE OF:							CEF-68-GW-02S-1			CEF-68-GW-02S-1-F		
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
INORGANICS												
CHROMIUM	9.8	U	A	0.64	U		2.0	U	A	1.6	U	A
LEAD	13.4	J	G	1.6	U		1.6	U		1.6	U	
SELENIUM	8.1	U	A	2.0	U		2.3	U	A	2.0	U	