

N60200.AR.009457  
NAS CECIL FIELD  
5090.3a

SAMPLING AND ANALYSIS REPORT ADDENDUM FOR AREA OF INTEREST 22 (AOI 22)  
BASE REALIGNMENT AND CLOSURE NAS CECIL FIELD FL  
3/1/2000  
TETRA TECH

**Sampling and Analysis Report  
Addendum  
for  
AOI 22  
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 REPORT ADDENDUM  
FOR  
AOI 22  
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:**

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

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



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 1, 2000

NAME AND TITLE OF CERTIFYING OFFICIAL:

Mark Speranza, P.E.  
Task Order Manager



The professional opinions rendered in this decision document identified as Sampling and Analysis Report Addendum for Area of Investigation 22, 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 Speranza, P.E.  
Professional Engineer No. PE0050304

Date: \_\_\_\_\_

**SAMPLING AND ANALYSIS REPORT ADDENDUM**  
**BASE REALIGNMENT AND CLOSURE**  
**AREA OF INTEREST 22**

**INTRODUCTION**

Tetra Tech NUS, Incorporated (TtNUS), under contract to Southern Division, Naval Facilities Engineering Command, has completed additional sampling at Area of Interest (AOI) 22 at Naval Air Station (NAS) Cecil Field. This program was conducted under Contract Number N62467-94-D-088, Contract Task Order (CTO) 0039. This addendum to the Sampling and Analysis Report (SAR) [Harding Lawson Associates (HLA), 1999] documents the results of this additional investigation.

This addendum addresses two portions of AOI 22, located in the northern portion of the golf course. One area (the eastern area) is located along Rowell Creek where 5-gallon cans of fuel stabilizer were observed during previous investigations and remedial actions. The cans were subsequently removed and, during later site clearing activities, all survey markers were removed. Therefore, the exact location of the cans is uncertain. The second area (the western area) is a drainage swale to the west of Fairway 7 in which arsenic contamination was detected during previous sampling. Areas of open dumping were observed in the area around this swale. There is no other historic information about site operations and practices in these areas.

Because of the potential for releases of contaminants from the cans of fuel stabilizer in the eastern area and the arsenic contamination detected in the western area, the Base Realignment and Closure (BRAC) Cleanup Team (BCT) determined that soil samples should be collected at AOI 22. Sampling and Analysis Plans (SAPs) for the assessment of soil in both portions of this site were prepared by TtNUS and approved by the BCT (TtNUS, 1999a and TtNUS, 1999b).

**ADDITIONAL EVALUATION OF CONTAMINANTS**

*discussion of sediment samples*

In the eastern portion of the site where fuel stabilized cans were previously observed, four surface soil samples were collected from 0 to 1 foot below ground surface and analyzed for Target Compound List (TCL) volatile organic compounds (VOCs). Sample locations were selected based on a map provided by Harding Lawson Associates (HLA) showing the approximate location of the observed cans (HLA, 1999).

At the portion of the site to the west of Fairway 7, eight samples were collected and analyzed for pesticides, herbicides, and arsenic. An unlabeled pin flag was found at the approximate location of the original sample, as shown in a map provided by HLA. This was assumed to be the original sampling

ion at which arsenic was detected in excess of the Florida Department of Environmental Protection (EP) soil target cleanup level. Samples were collected at this location, to the north, south, east, and west of this original location, and in three areas of open dumping near the swale. Sample locations were selected based on a map provided by HLA showing the approximate location of the previous sample (HLA, 1999).

A site plan indicating soil sample locations is presented on Figure 1. Analytical results are provided in Appendix A.

*west?*  
*east?*  
*east?*

### CONCLUSIONS AND RECOMMENDATIONS

All detected concentrations of VOCs (in samples from the northern area), pesticides, herbicides, and arsenic (in samples from the southern area) were less than the lowest of the Florida Department of Environmental Protection (FDEP) residential, industrial, and groundwater leachability soil criteria, therefore, no Human Health Preliminary Risk Evaluation (PRE) was performed. All concentrations were less than United States Environmental Protection Agency (U.S. EPA) Region 4 Ecological Screening Values for soil (U.S. EPA, 1998), so no further ecological risk assessment was required. Analytes detected in soil collected at AOI 22 site do not represent a hazard to human health or the environment at the detected concentrations. No other environmental concerns have been identified for this site.

Based upon the findings of this evaluation, the color code for the AOI 22 should be reclassified to Light Green. No remedial action or further evaluation is recommended.

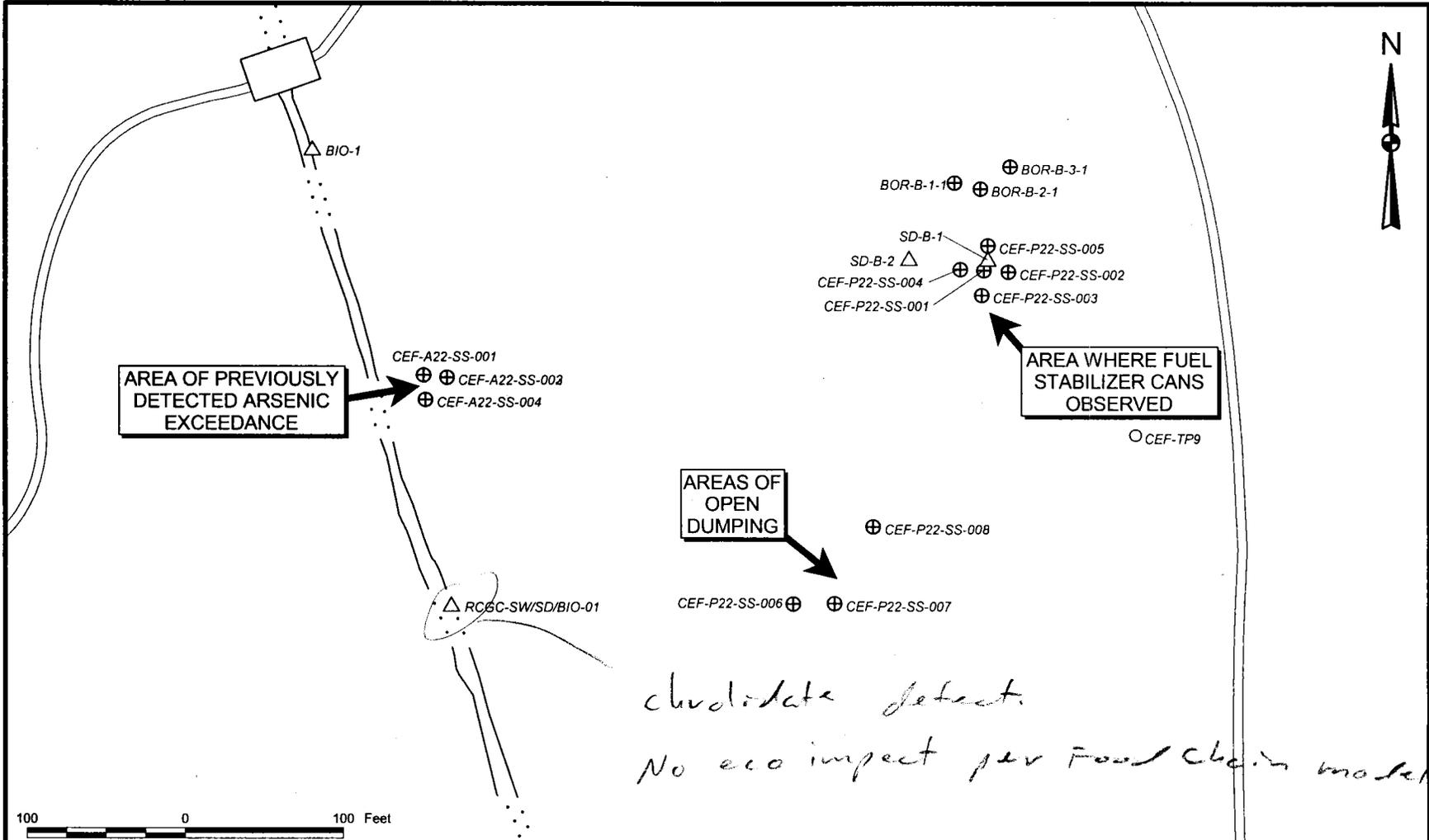
### REFERENCES

HLA, 1999, Sampling and Analysis Report – AOI 22, Naval Air Station, Cecil Field, Jacksonville, Florida, August.

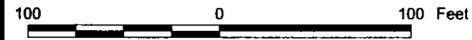
TtNUS, 1999. Sampling and Analysis Plan – AOI22, Naval Air Station, Cecil Field, Jacksonville, Florida. June.

TtNUS, 1999. Sampling and Analysis Plan – PSC 22, Naval Air Station, Cecil Field, Jacksonville, Florida. November.

U.S. EPA, 1998. Memorandum on Ecological Risk Assessment at Military Bases: Process Considerations, Timing of Activities, and Inclusion of Stakeholders. Region 4.



*validate defect.  
No eco impact per food chain model.*



DRAWN BY MJJ	DATE 15Feb00
CHECKED BY	DATE
COST/SCHEDULE-AREA	
SCALE AS NOTED	



SAMPLE LOCATIONS  
PSC 22,  
NAVAL AIR STATION CECIL FIELD  
JACKSONVILLE, FLORIDA

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

**APPENDIX A**

**LABORATORY ANALYTICAL DATA**



MEMO TO: M. SPERANZA - PAGE 2  
DATE: FEBRUARY 15, 2000

Laboratory Blank Analyses

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

Samples affected: SDG F5574

<u>Analyte</u>	<u>Maximum Concentration</u>	<u>Action Level(soil)</u>
Arsenic	8.3 µg/L	4.15 mg/kg

Samples affected: SDG F5582

<u>Analyte</u>	<u>Maximum Concentration</u>	<u>Action Level(soil)</u>
Arsenic	9.6 µg/L	4.8 mg/kg

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

Executive Summary

**Laboratory Performance:** Arsenic was 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: FEBRUARY 15, 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/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: F5582**

SAMPLE NUMBER:	CEF-P22-SS-001-01	CEF-P22-SS-002-01	CEF-P22-SS-003-01	CEF-P22-SS-004-01
SAMPLE DATE:	12/29/99	12/29/99	12/29/99	12/29/99
LABORATORY ID:	F5582-5	F5582-1	F5582-4	F5582-3
QC_TYPE:	NORMAL	NORMAL	NORMAL	NORMAL
% SOLIDS:	89.9 %	77.4 %	85.0 %	91.5 %
UNITS:	MG/KG	MG/KG	MG/KG	MG/KG
FIELD DUPLICATE OF:				

	RESULT	QUAL	CODE									
<b>INORGANICS</b>												
ARSENIC	0.37	U		0.78	U	A	0.62	U	A	0.38	U	

**CTO078 - NAS CECIL FIELD**

**SOIL DATA**  
**Accutest, NJ**  
**SDG: F5582**

SAMPLE NUMBER:	CEF-P22-SS-005-01	CEF-P22-SS-DU01		
SAMPLE DATE:	12/29/99	12/29/99	//	//
LABORATORY ID:	F5582-2	F5582-6		
QC_TYPE:	NORMAL	NORMAL		
% SOLIDS:	90.8 %	89.6 %	100.0 %	100.0 %
UNITS:	MG/KG	MG/KG		
FIELD DUPLICATE OF:		CEF-P22-SS-001-01		

	RESULT	QUAL	CODE									
<b>INORGANICS</b>												
<b>ARSENIC</b>	0.38	U		0.39	U							



TETRA TECH NUS, INC.

CHAIN OF CUSTODY

NUMBER

PSC 22-1

PAGE 1 OF 1

PROJECT NO: **N0039** SITE NAME: **PSC 22**

PROJECT MANAGER AND PHONE NUMBER: **Joe Logan 904 281-0400** LABORATORY NAME AND CONTACT: **Accutest H. Beh Hadi**

SAMPLERS (SIGNATURE): *Mawin W. Dale* FIELD OPERATIONS LEADER AND PHONE NUMBER: **MERY DALL 904 281-0400** ADDRESS: **4405 Vine Land Rd., Ste C-15**

CARRIER/WAYBILL NUMBER: **FED EX 8154 3903 3980** CITY, STATE: **ORLANDO, FL 32811**

STANDARD TAT  RUSH TAT

24 hr.  48 hr.  72 hr.  7 day  14 day

DATE YEAR	TIME	SAMPLE ID	MATRIX	GRAB (G) COMP (C)	No. OF CONTAINERS	CONTAINER TYPE PLASTIC (P) or GLASS (G)		PRESERVATIVE USED		TYPE OF ANALYSIS	COMMENTS	
12/29	1406	CEF-P22-SS-002-01	SO	G	2		G			None		
12/29	1409	CEF-P22-SS-003-01	SO	G	2		G			None		
12/29	1412	CEF-P22-SS-004-01	SO	G	2		G			None		
12/29	1416	CEF-P22-SS-003-01	SO	G	2		G			None		
12/29	1420	CEF-P22-SS-001-01	SO	G	2		G			None		
12/29	1420	CEF-P22-SS-MSMS01	SO	G	2		G			None		
12/29	0000	CEF-P22-SS-DU01	SO	G	2		G			None		

1. RELINQUISHED BY: *Mawin W. Dale* DATE: **12/29/99** TIME: **1700**

2. RELINQUISHED BY: *[Signature]* DATE: **12 30 99** TIME: **1500**

3. RELINQUISHED BY: \_\_\_\_\_ DATE: \_\_\_\_\_ TIME: \_\_\_\_\_

COMMENTS: **N0039. A/O. OSP. B16**



TO: M. SPERANZA  
DATE: FEBRUARY 16, 2000

- PAGE 2

Executive Summary

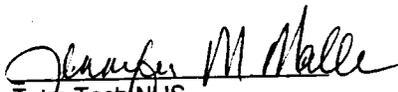
**Laboratory Performance:** None.

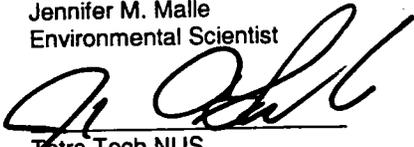
**Other Factors Affecting Data Quality:** None.

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  
Jennifer M. Malle  
Environmental Scientist

  
Tetra Tech NUS  
Joseph A. Samchuck  
Quality Assurance Officer

**Attachments:**

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

**APPENDIX A**  
**Qualified Analytical Results**

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- E = LCS/LCSD Noncompliance
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- 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
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- 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: F5729**

SAMPLE NUMBER:	CEF-P22-SS-006-01	CEF-P22-SS-007-01	CEF-P22-SS-008-01	
SAMPLE DATE:	01/25/00	01/25/00	01/25/00	//
LABORATORY ID:	F5729-1	F5729-2	F5729-3	
QC_TYPE:	NORMAL	NORMAL	NORMAL	
% SOLIDS:	79.6 %	87.0 %	90.7 %	100.0 %
UNITS:	MG/KG	MG/KG	MG/KG	
FIELD DUPLICATE OF:				

	RESULT	QUAL	CODE									
<b>INORGANICS</b>												
ARSENIC	0.45	U		0.4	U		0.37	U				



TETRA TECH NUS, INC.

CHAIN OF CUSTODY

NUMBER

22-2

PAGE 1 OF 1

PROJECT NO: N0039		SITE NAME: PSC 22		PROJECT MANAGER AND PHONE NUMBER: Job LOGAN 412 921 7231			LABORATORY NAME AND CONTACT: Accutest H. Behrhard				
SAMPLERS (SIGNATURE): <i>M. W. Dale</i>				FIELD OPERATIONS LEADER AND PHONE NUMBER: MERY DALL 904 201 0400			ADDRESS: 4405 Vineland Rd C-15				
STANDARD TAT <input type="checkbox"/> RUSH TAT <input type="checkbox"/> <input type="checkbox"/> 24 hr. <input type="checkbox"/> 48 hr. <input type="checkbox"/> 72 hr. <input checked="" type="checkbox"/> 7 day <input type="checkbox"/> 14 day				CARRIER/WAYBILL NUMBER: Fedex 79103632 9973			CITY, STATE: ORLANDO, FL 32811				
				CONTAINER TYPE PLASTIC (P) or GLASS (G)			PRESERVATIVE USED			COMMENTS	
DATE YEAR	TIME	SAMPLE ID	MATRIX	GRAB (G) COMP (C)	No. OF CONTAINERS	TYPE OF ANALYSIS					
1/25	1323	CEF-P22-S5-006-01	SO	G	2	PESTIC IDE	SOBIA	SOBIA	SOBIA	FS229-1	Cool to 4°C
1/25	1325	CEF-P22-S5-007-01	SO	G	2	Herbicide	SOBIA	SOBIA	SOBIA	-2	
1/25	1333	CEF-P22-S5-008-01	SO	G	2	AMVIC	SOBIA	SOBIA	SOBIA	-3	
1. RELINQUISHED BY <i>M. W. Dale</i>				DATE 1/20/00	TIME 1100	1 RECEIVED BY <i>Roby Wilson</i>			DATE 1/26/00	TIME 1200	
2. RELINQUISHED BY				DATE	TIME	2 RECEIVED BY			DATE	TIME	
3. RELINQUISHED BY				DATE	TIME	3 RECEIVED BY			DATE	TIME	
COMMENTS N0039. DSA. OSP. BK											



MEMO TO: MARK SPERANZA  
DATE: FEBRUARY 16, 2000 – PAGE 2

EXECUTIVE SUMMARY

**Laboratory performance:** None.

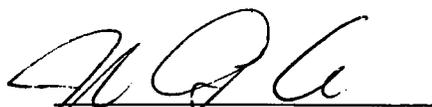
**Other Factors Affecting Data Quality:** None.

The data for these analyses were reviewed with reference to the EPA Functional Guidelines for Organic Data Validation (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. Samchuck

Data Validation Quality Assurance Officer  
Tetra Tech, NUS

**Attachments:**

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

**DATA QUALIFIER DEFINITIONS:**

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

**Qualifier Codes:**

- A = Lab Blank Contamination
- B = Field Blank Contamination
- C = Calibration (i.e., % RSDs, %Ds, ICVs, CCVs, RPDs, RRFs, etc.) Noncompliance
- D = MS/MSD Noncompliance
- E = LCS/LCSD Noncompliance
- F = Lab Duplicate Imprecision
- G = Field Duplicate Imprecision
- H = Holding Time Exceedance
- I = ICP Serial Dilution Noncompliance
- J = GFAA PDS - GFAA MSA's  $r < 0.995$
- K = ICP Interference - include ICSAB % R's
- L = Instrument Calibration Range Exceedance
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- N = Internal Standard Noncompliance
- O = Poor Instrument Performance (i.e., base-time drifting)
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- 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**

**SOIL DATA**  
**Accutest, NJ**  
**SDG: F5729**

SAMPLE NUMBER:	CEF-P22-SS-006-01	CEF-P22-SS-007-01	CEF-P22-SS-008-01	
SAMPLE DATE:	01/25/00	01/25/00	01/25/00	//
LABORATORY ID:	F5729-1	F5729-2	F5729-3	
QC_TYPE:	NORMAL	NORMAL	NORMAL	
% SOLIDS:	79.6 %	87.0 %	90.7 %	100.0 %
UNITS:	UG/KG	UG/KG	UG/KG	
FIELD DUPLICATE OF:				

	RESULT	QUAL	CODE									
<b>PESTICIDES/PCBs</b>												
4,4'-DDD	4.2	U		4.2	U		3.6	U				
4,4'-DDE	4.2	U		4.2	U		3.6	U				
4,4'-DDT	4.2	U		4.2	U		2.2	J	P			
ALDRIN	2.1	U		2.1	U		1.8	U				
ALPHA-BHC	2.1	U		2.1	U		1.8	U				
ALPHA-CHLORDANE	4.2	U		4.2	U		3.6	U				
BETA-BHC	2.1	U		2.1	U		1.8	U				
DELTA-BHC	2.1	U		2.1	U		1.8	U				
DIELDRIN	2.1	U		2.1	U		1.8	U				
ENDOSULFAN I	2.1	U		2.1	U		1.8	U				
ENDOSULFAN II	4.2	U		4.2	U		3.6	U				
ENDOSULFAN SULFATE	4.2	U		4.2	U		3.6	U				
ENDRIN	4.2	U		4.2	U		3.6	U				
ENDRIN ALDEHYDE	4.2	U		4.2	U		3.6	U				
ENDRIN KETONE	4.2	U		4.2	U		3.6	U				
GAMMA-BHC (LINDANE)	2.1	U		2.1	U		1.8	U				
GAMMA-CHLORDANE	4.2	U		4.2	U		3.6	U				
HEPTACHLOR	2.1	U		2.1	U		1.8	U				
HEPTACHLOR EPOXIDE	2.1	U		2.1	U		1.8	U				
METHOXYCHLOR	8.4	U		8.4	U		7.3	U				
TOXAPHENE	210	U		210	U		180	U				

**CTO078 - NAS CECIL FIELD**

**SOIL DATA**

Accutest, NJ

SDG: F5729

SAMPLE NUMBER:	CEF-P22-SS-006-01	CEF-P22-SS-007-01	CEF-P22-SS-008-01	
SAMPLE DATE:	01/25/00	01/25/00	01/25/00	//
LABORATORY ID:	F5729-1	F5729-2	F5729-3	
QC_TYPE:	NORMAL	NORMAL	NORMAL	
% SOLIDS:	79.6 %	87.0 %	90.7 %	100.0 %
UNITS:	UG/KG	UG/KG	UG/KG	
FIELD DUPLICATE OF:				

	RESULT	QUAL	CODE									
<b>HERBICIDES</b>												
2,4,5-T	4.2	U		3.8	U		3.7	U				
2,4,5-TP (SILVEX)	4.2	U		3.8	U		3.7	U				
2,4-D	21	U		19	U		18	U				
2,4-DB	21	U		19	U		18	U				
DALAPON	4.2	U		3.8	U		3.7	U				
DICAMBA	21	U		19	U		18	U				
DICHLOROPROP	21	U		19	U		18	U				
DINOSEB	21	U		19	U		18	U				
MCPA	2100	U		1900	U		1800	U				
MCPP	2100	U		1900	U		1800	U				
PENTACHLOROPHENOL	2.1	U		1.9	U		1.8	U				



TETRA TECH NUS, INC.

CHAIN OF CUSTODY

NUMBER

22-2

PAGE 1

PROJECT NO: N0039 SITE NAME: PSC 22 PROJECT MANAGER AND PHONE NUMBER: Job Logan 412 921 7231 LABORATORY NAME AND CONTACT: Accutest H. C.

SAMPLERS (SIGNATURE): *[Signature]* FIELD OPERATIONS LEADER AND PHONE NUMBER: MERV DACE 904 281 0400 ADDRESS: 4405 Vineland Rd 'C-C

CARRIER/WAYBILL NUMBER: FedEx 79103632 9973 CITY, STATE: ORLANDO, FL 32811

STANDARD TAT  RUSH TAT

24 hr.  48 hr.  72 hr.  7 day  14 day

DATE YEAR	TIME	SAMPLE ID	MATRIX	GRAB (G) COMP (G)	No. OF CONTAINERS	TYPE OF ANALYSIS			CONTAINER TYPE PLASTIC (P) or GLASS (G)	PRESERVATIVE USED	COMMENTS
						PESTIC IDE	Herbicide	AMBIENT			
1/25	1323	CEF-P22-SS-006-01	SO	G	2	✓	✓	✓	G	None	FS229-1 Cool to 4°C
1/25	1325	CEF-P22-SS-007-01	SO	G	2	✓	✓	✓	G	None	-2
1/25	1333	CEF-P22-SS-008-01	SO	G	2	✓	✓	✓	G	None	-3

1. RELINQUISHED BY: <i>[Signature]</i>	DATE: 1/20/00	TIME: 1100	1. RECEIVED BY: <i>[Signature]</i>	DATE: 1/26/00	TIME: 1200
2. RELINQUISHED BY:	DATE:	TIME:	2. RECEIVED BY:	DATE:	TIME:
3. RELINQUISHED BY:	DATE:	TIME:	3. RECEIVED BY:	DATE:	TIME:



MEMO TO: MARK SPERANZA  
DATE: FEBRUARY 16, 2000 - PAGE 2

EXECUTIVE SUMMARY

**Laboratory performance:** None.

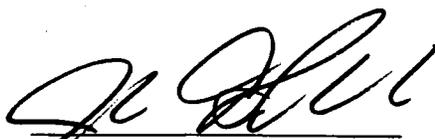
**Other Factors Affecting Data Quality:** None.

The data for these analyses were reviewed with reference to the EPA Functional Guidelines for Organic Data Validation (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. Samchuck

Data Validation Quality Assurance Officer  
Tetra Tech, NUS

**Attachments:**

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

**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.

**APPENDIX A**  
**Qualified Analytical Results**

**CTO078 - NAS CECIL FIELD**

**SOIL DATA**

Accutest, NJ

SDG: F5582

SAMPLE NUMBER:	CEF-P22-SS-001-01	CEF-P22-SS-002-01	CEF-P22-SS-003-01	CEF-P22-SS-004-01
SAMPLE DATE:	12/29/99	12/29/99	12/29/99	12/29/99
LABORATORY ID:	F5582-5	F5582-1	F5582-4	F5582-3
QC_TYPE:	NORMAL	NORMAL	NORMAL	NORMAL
% SOLIDS:	89.9 %	77.4 %	85.0 %	91.5 %
UNITS:	UG/KG	UG/KG	UG/KG	UG/KG
FIELD DUPLICATE OF:				

	RESULT	QUAL	CODE									
<b>PESTICIDES/PCBs</b>												
4,4'-DDD	3.7	U		4.3	U		3.9	U		3.6	U	
4,4'-DDE	3.7	U		4.3	U		3.9	U		3.6	U	
4,4'-DDT	3.7	U		4.3	U		3.9	U		3.6	U	
ALDRIN	1.8	U		2.2	U		2.0	U		1.8	U	
ALPHA-BHC	1.8	U		2.2	U		2.0	U		1.8	U	
ALPHA-CHLORDANE	3.7	U		4.3	U		3.9	U		3.6	U	
BETA-BHC	1.8	U		2.2	U		2.0	U		1.8	U	
DELTA-BHC	1.8	U		2.2	U		2.0	U		1.8	U	
DIELDRIN	1.8	U		2.6			2.0	U		1.8	U	
ENDOSULFAN I	1.8	U		2.2	U		2.0	U		1.8	U	
ENDOSULFAN II	3.7	U		4.3	U		3.9	U		3.6	U	
ENDOSULFAN SULFATE	3.7	U		4.3	U		3.9	U		3.6	U	
ENDRIN	3.7	U		4.3	U		3.9	U		3.6	U	
ENDRIN ALDEHYDE	3.7	U		4.3	U		3.9	U		3.6	U	
ENDRIN KETONE	3.7	U		4.3	U		3.9	U		3.6	U	
GAMMA-BHC (LINDANE)	1.8	U		2.2	U		2.0	U		1.8	U	
GAMMA-CHLORDANE	3.7	U		4.3	U		3.9	U		3.6	U	
HEPTACHLOR	1.8	U		2.2	U		2.0	U		1.8	U	
HEPTACHLOR EPOXIDE	1.8	U		2.2	U		2.0	U		1.8	U	
METHOXYCHLOR	7.4	U		8.6	U		7.8	U		7.3	U	
TOXAPHENE	180	U		220	U		200	U		180	U	

**CTO078 - NAS CECIL FIELD**

**SOIL DATA**

Accutest, NJ

SDG: F5582

SAMPLE NUMBER:	CEF-P22-SS-005-01	CEF-P22-SS-DU01		
SAMPLE DATE:	12/29/99	12/29/99	//	//
LABORATORY ID:	F5582-2	F5582-6		
QC_TYPE:	NORMAL	NORMAL		
% SOLIDS:	90.8 %	89.6 %	100.0 %	100.0 %
UNITS:	UG/KG	UG/KG		
FIELD DUPLICATE OF:		CEF-P22-SS-001-01		

	RESULT	QUAL	CODE									
<b>PESTICIDES/PCBs</b>												
4,4'-DDD	3.7	U		3.7	U							
4,4'-DDE	3.7	U		3.7	U							
4,4'-DDT	3.7	U		3.7	U							
ALDRIN	1.8	U		1.9	U							
ALPHA-BHC	1.8	U		1.9	U							
ALPHA-CHLORDANE	3.7	U		3.7	U							
BETA-BHC	1.8	U		1.9	U							
DELTA-BHC	1.8	U		1.9	U							
DIELDRIN	1.8	U		1.9	U							
ENDOSULFAN I	1.8	U		1.9	U							
ENDOSULFAN II	3.7	U		3.7	U							
ENDOSULFAN SULFATE	3.7	U		3.7	U							
ENDRIN	3.7	U		3.7	U							
ENDRIN ALDEHYDE	3.7	U		3.7	U							
ENDRIN KETONE	3.7	U		3.7	U							
GAMMA-BHC (LINDANE)	1.8	U		1.9	U							
GAMMA-CHLORDANE	3.7	U		3.7	U							
HEPTACHLOR	1.8	U		1.9	U							
HEPTACHLOR EPOXIDE	1.8	U		1.9	U							
METHOXYCHLOR	7.3	U		7.4	U							
TOXAPHENE	180	U		190	U							

**CTO078 - NAS CECIL FIELD**

**SOIL DATA**

**Accutest, NJ**

**SDG: F5582**

SAMPLE NUMBER:	CEF-P22-SS-001-01	CEF-P22-SS-002-01	CEF-P22-SS-003-01	CEF-P22-SS-004-01
SAMPLE DATE:	12/29/99	12/29/99	12/29/99	12/29/99
LABORATORY ID:	F5582-5	F5582-1	F5582-4	F5582-3
QC_TYPE:	NORMAL	NORMAL	NORMAL	NORMAL
% SOLIDS:	89.9 %	77.4 %	85.0 %	91.5 %
UNITS:	UG/KG	UG/KG	UG/KG	UG/KG
FIELD DUPLICATE OF:				

	RESULT	QUAL	CODE									
<b>HERBICIDES</b>												
2,4,5-T	2.2	U		3.2	U		2.4	U		2.2	U	
2,4,5-TP (SILVEX)	2.2	U		3.2	U		2.4	U		2.2	U	
2,4-D	11	U		16	U		12	U		11	U	
2,4-DB	11	U		16	U		12	U		11	U	
DALAPON	2.2	U		3.2	U		2.4	U		2.2	U	
DICAMBA	11	U		16	U		12	U		11	U	
DICHLOROPROP	11	U		16	U		12	U		11	U	
DINOSEB	11	U		16	U		12	U		11	U	
MCPA	1100	U		1600	U		1200	U		1100	U	
MCPP	1100	U		1600	U		1200	U		1100	U	
PENTACHLOROPHENOL	1.1	U		1.6	U		1.2	U		1.1	U	

**CTO078 - NAS CECIL FIELD**  
**SOIL DATA**  
**Accutest, NJ**  
**SDG: F5582**

SAMPLE NUMBER:	CEF-P22-SS-005-01	CEF-P22-SS-DU01		
SAMPLE DATE:	12/29/99	12/29/99	//	//
LABORATORY ID:	F5582-2	F5582-6		
QC_TYPE:	NORMAL	NORMAL		
% SOLIDS:	90.8 %	89.6 %	100.0 %	100.0 %
UNITS:	UG/KG	UG/KG		
FIELD DUPLICATE OF:		CEF-P22-SS-001-01		

	RESULT	QUAL	CODE									
<b>HERBICIDES</b>												
2,4,5-T	2.2	U		2.2	U							
2,4,5-TP (SILVEX)	2.2	U		2.2	U							
2,4-D	11	U		11	U							
2,4-DB	11	U		11	U							
DALAPON	2.2	U		2.2	U							
DICAMBA	11	U		11	U							
DICHLOROPROP	11	U		11	U							
DINOSEB	11	U		11	U							
MCPA	1100	U		1100	U							
MCPP	1100	U		1100	U							
PENTACHLOROPHENOL	1.1	U		1.1	U							

**CT0078 - NAS CECIL FIELD**

**SOIL DATA**

**Accutest, NJ**

**SDG: F5582**

SAMPLE NUMBER:	CEF-P22-SS-001-01	CEF-P22-SS-002-01	CEF-P22-SS-003-01	CEF-P22-SS-004-01
SAMPLE DATE:	12/29/99	12/29/99	12/29/99	12/29/99
LABORATORY ID:	F5582-5	F5582-1	F5582-4	F5582-3
QC_TYPE:	NORMAL	NORMAL	NORMAL	NORMAL
% SOLIDS:	89.9 %	77.4 %	85.0 %	91.5 %
UNITS:	UG/KG	UG/KG	UG/KG	UG/KG
FIELD DUPLICATE OF:				

	RESULT	QUAL	CODE									
<b>PESTICIDES/PCBs</b>												
4,4'-DDD	3.7	U		4.3	U		3.9	U		3.6	U	
4,4'-DDE	3.7	U		4.3	U		3.9	U		3.6	U	
4,4'-DDT	3.7	U		4.3	U		3.9	U		3.6	U	
ALDRIN	1.8	U		2.2	U		2.0	U		1.8	U	
ALPHA-BHC	1.8	U		2.2	U		2.0	U		1.8	U	
ALPHA-CHLORDANE	3.7	U		4.3	U		3.9	U		3.6	U	
BETA-BHC	1.8	U		2.2	U		2.0	U		1.8	U	
DELTA-BHC	1.8	U		2.2	U		2.0	U		1.8	U	
DIELDRIN	1.8	U		2.6			2.0	U		1.8	U	
ENDOSULFAN I	1.8	U		2.2	U		2.0	U		1.8	U	
ENDOSULFAN II	3.7	U		4.3	U		3.9	U		3.6	U	
ENDOSULFAN SULFATE	3.7	U		4.3	U		3.9	U		3.6	U	
ENDRIN	3.7	U		4.3	U		3.9	U		3.6	U	
ENDRIN ALDEHYDE	3.7	U		4.3	U		3.9	U		3.6	U	
ENDRIN KETONE	3.7	U		4.3	U		3.9	U		3.6	U	
GAMMA-BHC (LINDANE)	1.8	U		2.2	U		2.0	U		1.8	U	
GAMMA-CHLORDANE	3.7	U		4.3	U		3.9	U		3.6	U	
HEPTACHLOR	1.8	U		2.2	U		2.0	U		1.8	U	
HEPTACHLOR EPOXIDE	1.8	U		2.2	U		2.0	U		1.8	U	
METHOXYCHLOR	7.4	U		8.6	U		7.8	U		7.3	U	
TOXAPHENE	180	U		220	U		200	U		180	U	

**CTO078 - NAS CECIL FIELD**

**SOIL DATA**

Accutest, NJ

SDG: F5582

SAMPLE NUMBER:	CEF-P22-SS-005-01	CEF-P22-SS-DU01		
SAMPLE DATE:	12/29/99	12/29/99	//	//
LABORATORY ID:	F5582-2	F5582-6		
QC_TYPE:	NORMAL	NORMAL		
% SOLIDS:	90.8 %	89.6 %	100.0 %	100.0 %
UNITS:	UG/KG	UG/KG		
FIELD DUPLICATE OF:				

	RESULT	QUAL	CODE									
<b>PESTICIDES/PCBs</b>												
4,4'-DDD	3.7	U		3.7	U							
4,4'-DDE	3.7	U		3.7	U							
4,4'-DDT	3.7	U		3.7	U							
ALDRIN	1.8	U		1.9	U							
ALPHA-BHC	1.8	U		1.9	U							
ALPHA-CHLORDANE	3.7	U		3.7	U							
BETA-BHC	1.8	U		1.9	U							
DELTA-BHC	1.8	U		1.9	U							
DIELDRIN	1.8	U		1.9	U							
ENDOSULFAN I	1.8	U		1.9	U							
ENDOSULFAN II	3.7	U		3.7	U							
ENDOSULFAN SULFATE	3.7	U		3.7	U							
ENDRIN	3.7	U		3.7	U							
ENDRIN ALDEHYDE	3.7	U		3.7	U							
ENDRIN KETONE	3.7	U		3.7	U							
GAMMA-BHC (LINDANE)	1.8	U		1.9	U							
GAMMA-CHLORDANE	3.7	U		3.7	U							
HEPTACHLOR	1.8	U		1.9	U							
HEPTACHLOR EPOXIDE	1.8	U		1.9	U							
METHOXYCHLOR	7.3	U		7.4	U							
TOXAPHENE	180	U		190	U							

**CTO078 - NAS CECIL FIELD**

**SOIL DATA**  
**Accutest, NJ**  
**SDG: F5582**

SAMPLE NUMBER:	CEF-P22-SS-001-01	CEF-P22-SS-002-01	CEF-P22-SS-003-01	CEF-P22-SS-004-01
SAMPLE DATE:	12/29/99	12/29/99	12/29/99	12/29/99
LABORATORY ID:	F5582-5	F5582-1	F5582-4	F5582-3
QC_TYPE:	NORMAL	NORMAL	NORMAL	NORMAL
% SOLIDS:	89.9 %	77.4 %	85.0 %	91.5 %
UNITS:	UG/KG	UG/KG	UG/KG	UG/KG
FIELD DUPLICATE OF:				

	RESULT	QUAL	CODE									
<b>HERBICIDES</b>												
2,4,5-T	2.2	U		3.2	U		2.4	U		2.2	U	
2,4,5-TP (SILVEX)	2.2	U		3.2	U		2.4	U		2.2	U	
2,4-D	11	U		16	U		12	U		11	U	

**CTO078 - NAS CECIL FIELD**

**SOIL DATA**  
**Accutest, NJ**  
**SDG: F5582**

SAMPLE NUMBER:	CEF-P22-SS-005-01	CEF-P22-SS-DU01		
SAMPLE DATE:	12/29/99	12/29/99	//	//
LABORATORY ID:	F5582-2	F5582-6		
QC_TYPE:	NORMAL	NORMAL		
% SOLIDS:	90.8 %	89.6 %	100.0 %	100.0 %
UNITS:	UG/KG	UG/KG		
FIELD DUPLICATE OF:				

	RESULT	QUAL	CODE									
<b>HERBICIDES</b>												
2,4,5-T	2.2	U		2.2	U							
2,4,5-TP (SILVEX)	2.2	U		2.2	U							
2,4-D	11	U		11	U							



TETRA TECH NUS, INC.

CHAIN OF CUSTODY

NUMBER PSC 22-1

PAGE 1 OF 1

PROJECT NO: N0039		SITE NAME: PSC 22		PROJECT MANAGER AND PHONE NUMBER: JOE LOGAN 412-971-7212		LABORATORY NAME AND CONTACT: Accutest H. Beh Hadi	
SAMPLERS (SIGNATURE): <i>Mawin W. Dale</i>		FIELD OPERATIONS LEADER AND PHONE NUMBER: MARY DALL 904 281-0400		ADDRESS: 4405 Vine Land Rd., Ste C-15		CITY, STATE: ORLANDO FL 32811	
STANDARD TAT <input type="checkbox"/> RUSH TAT <input type="checkbox"/> <input type="checkbox"/> 24 hr. <input type="checkbox"/> 48 hr. <input type="checkbox"/> 72 hr. <input type="checkbox"/> 7 day <input checked="" type="checkbox"/> 14 day		CARRIER/WAYBILL NUMBER: FED EX 8154 3903 3980		CONTAINER TYPE: PLASTIC (P) or GLASS (G)		PRESERVATIVE USED: None	
DATE YEAR: 1999	TIME	SAMPLE ID	MATRIX	GRAB (G) COMP (C)	NO. OF CONTAINERS	TYPE OF ANALYSIS	COMMENTS
12/29	1406	CEF-P22-SS-002-01	SO	G	2	Plastic 15cc, 80 212/80 212/80 212/80	Cool to 4°C
12/29	1409	CEF-P22-SS-005-01	SO	G	2	Plastic 15cc, 80 212/80 212/80 212/80	
12/29	1412	CEF-P22-SS-004-01	SO	G	2	Plastic 15cc, 80 212/80 212/80 212/80	
12/29	1416	CEF-P22-SS-003-01	SO	G	2	Plastic 15cc, 80 212/80 212/80 212/80	
12/29	1420	CEF-P22-SS-001-01	SO	G	2	Plastic 15cc, 80 212/80 212/80 212/80	
12/29	1420	CEF-P22-SS-MSMS01	SO	G	2	Plastic 15cc, 80 212/80 212/80 212/80	
12/29	0000	CEF-P22-SS-DU01	SO	G	2	Plastic 15cc, 80 212/80 212/80 212/80	
1. RELINQUISHED BY: <i>Mawin W. Dale</i>		DATE: 12/29/99	TIME: 1700	1. RECEIVED BY: <i>Sachin R 28099</i>		DATE: 12/29/99	TIME: 1700
2. RELINQUISHED BY:		DATE:	TIME:	2. RECEIVED BY:		DATE:	TIME:
3. RELINQUISHED BY:		DATE:	TIME:	3. RECEIVED BY:		DATE:	TIME:

N0039. A10. 05P. B10