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NAS CECIL FIELD, FL
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SAMPLING AND ANALYSIS REPORT FOR BUILDING 631 WATER TOWER BASE REALIGNMENT AND CLOSURE NAS CECIL FIELD FL

7/27/2000

TETRA TECH NUS INC

Sampling and Analysis Report
for
Building 631 Water Tower
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

July 2000

060011/P

SAMPLING AND ANALYSIS REPORT
FOR
BUILDING 631 WATER TOWER
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

JULY 2000

PREPARED UNDER THE SUPERVISION OF:

Mark Speranza

MARK SPERANZA, P.E.
TASK ORDER MANAGER
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PITTSBURGH, PENNSYLVANIA

APPROVED FOR SUBMITTAL BY:

Debbie Wroblewski

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

02667

The professional opinions rendered in this decision document identified as Sampling and Analysis Report for Building 631 Water Tower, 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 the project described in this report.

Mark Speranza

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

Date: 7/27/00

Mark Speranza

Draft
Sampling and Analysis Report
for
Building 631 Water Tower
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

June 2000

TETRA TECH NUS, INC.

060011/P

DRAFT
SAMPLING AND ANALYSIS REPORT
FOR
BUILDING 631 WATER TOWER
BASE REALIGNMENT AND CLOSURE

NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

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PREPARED UNDER THE SUPERVISION OF:

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

APPROVED FOR SUBMITTAL BY:

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: June 20, 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 for Building 631 Water Tower, 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 the project described in this report.

_____

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

Date: _____

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LIST OF ACRONYMS AND ABBREVIATIONS

ABB-ES	ABB Environmental Services, Inc.
BCT	BRAC Cleanup Team
bgs	below ground surface
BRAC	Base Realignment and Closure
CTO	Contract Task Order
EBS	Environmental Baseline Survey
FAC	Florida Administrative Code
FDEP	Florida Department of Environmental Protection
ft^2	square foot
HLA	Harding Lawson Associates
IBDS	NAS Cecil Field Site-Specific Inorganic Background Data Set
mg/kg	milligram per killogram
mg/L	milligram per liter
NAS	Naval Air Station
PCB	polychlorinated biphenyl
RAC	Remedial Action Contractor
RCRA	Resource Conservation and Recovery Act
SAO	Sampling and Analysis Outline
SAR	Sampling and Analysis Report
SCTL	Soil Cleanup Target Level
SOUTHNAVFACENGCOM	Southern Division, Naval Facilities Engineering Command
TCLP	Toxicity Characteristics Leaching Procedure
TtNUS	Tetra Tech NUS, Inc.
U.S. EPA	U.S. Environmental Protection Agency
yd^3	cubic yard

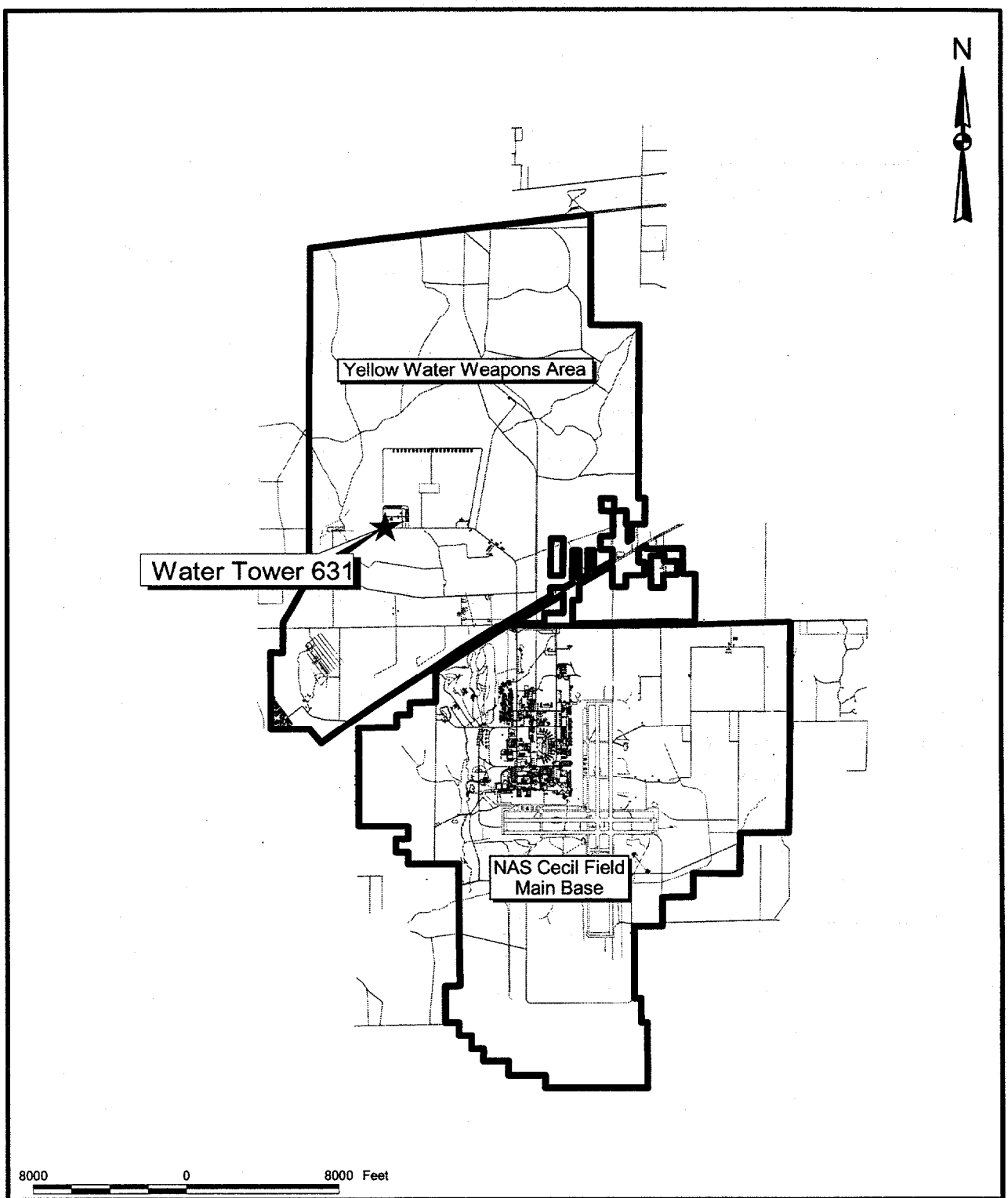
1.0 INTRODUCTION

Tetra Tech NUS, Inc. (TtNUS), under contract to Southern Division, Naval Facilities Engineering Command (SOUTHNAVFACENGCOM), has completed the Base Realignment and Closure (BRAC) Phase II Sampling and Analysis Program for the Building 631 Water Tower at Naval Air Station (NAS) Cecil Field. This program was conducted under Contract Number N62467-94-D-088, Contract Task Order (CTO) 0078. This Sampling and Analysis Report (SAR) summarizes the related operations, results, conclusions, and recommendation of the field investigations.

The Building 631 Water Tower is located in a grassy area at the southwestern corner in the Yellow Water Weapons Complex, near Access Road, as shown on Figures 1-1 and 1-2. The Building 631 Water Tower is a 75,000-gallon steel water tower that was constructed in 1959. The water tower and adjacent building, located directly north, are bordered by security fences to the south and west and an open grassy area to the east.

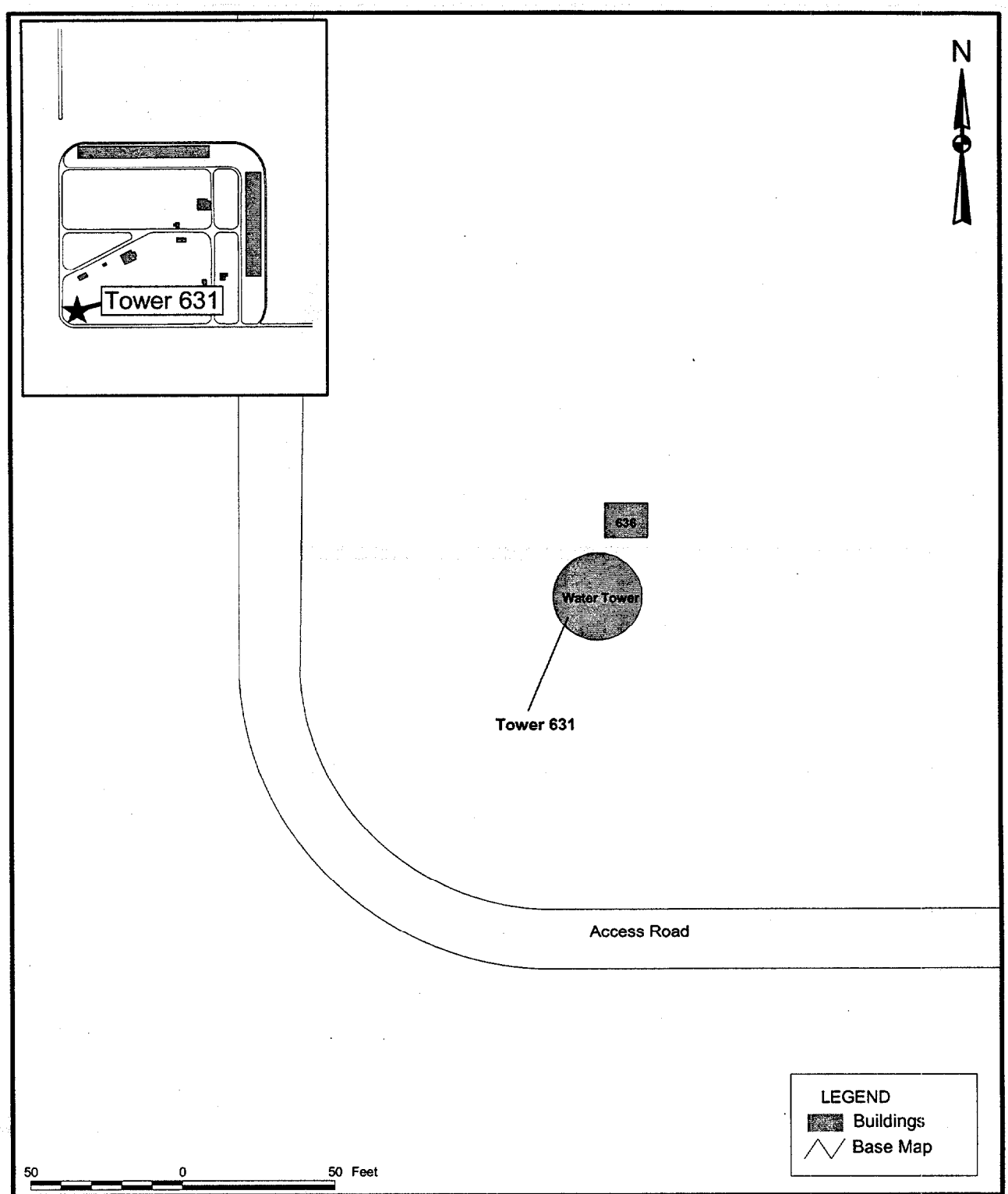
The Building 631 Water Tower was originally classified as 1 White in the Environmental Baseline Survey (EBS) [ABB Environmental Services, Inc. (ABB-ES), 1994] because there was no evidence that release or disposal of hazardous substances or petroleum products had occurred at this site. Because the tower is 39 years old, there is the possibility that it may have been painted with lead-based paint. The paint on the exterior of the water tower appeared to be in good condition; however, no testing had been conducted to verify the presence of lead-based paint. Lead-based paint could have been released during sandblasting and/or repainting of the water tower.

A Sampling and Analysis Outline (SAO) (TtNUS, 1999a) for the assessment of soil in the vicinity of the Building 631 Water Tower was prepared by TtNUS and approved by the BRAC Cleanup Team (BCT). The resulting investigations were used to delineate the extent of lead contamination in the surface soil, and a subsequent Dig and Haul Package (excavation plan) was prepared by TtNUS (TtNUS, 1999b). The contaminated soil was excavated by the Remedial Action Contractor (RAC), CH2MHill, in accordance with the Dig and Haul Package.



DRAWN BY MJJ	DATE 08Oct99	GENERAL LOCATION MAP SAMPLING AND ANALYSIS REPORT BUILDING 631 WATER TOWER NAVAL AIR STATION CECIL FIELD JACKSONVILLE, FLORIDA	CONTRACT NUMBER 0039
CHECKED BY	DATE		APPROVED BY DATE
COST/SCHEDULE-AREA			APPROVED BY DATE
SCALE AS NOTED			DRAWING NO. FIGURE 1-1 REV 0

P:\GIS\NAS_CecilField\tank_631.apr 06Jun00 MJJ 0_Facility Location Map-Layout



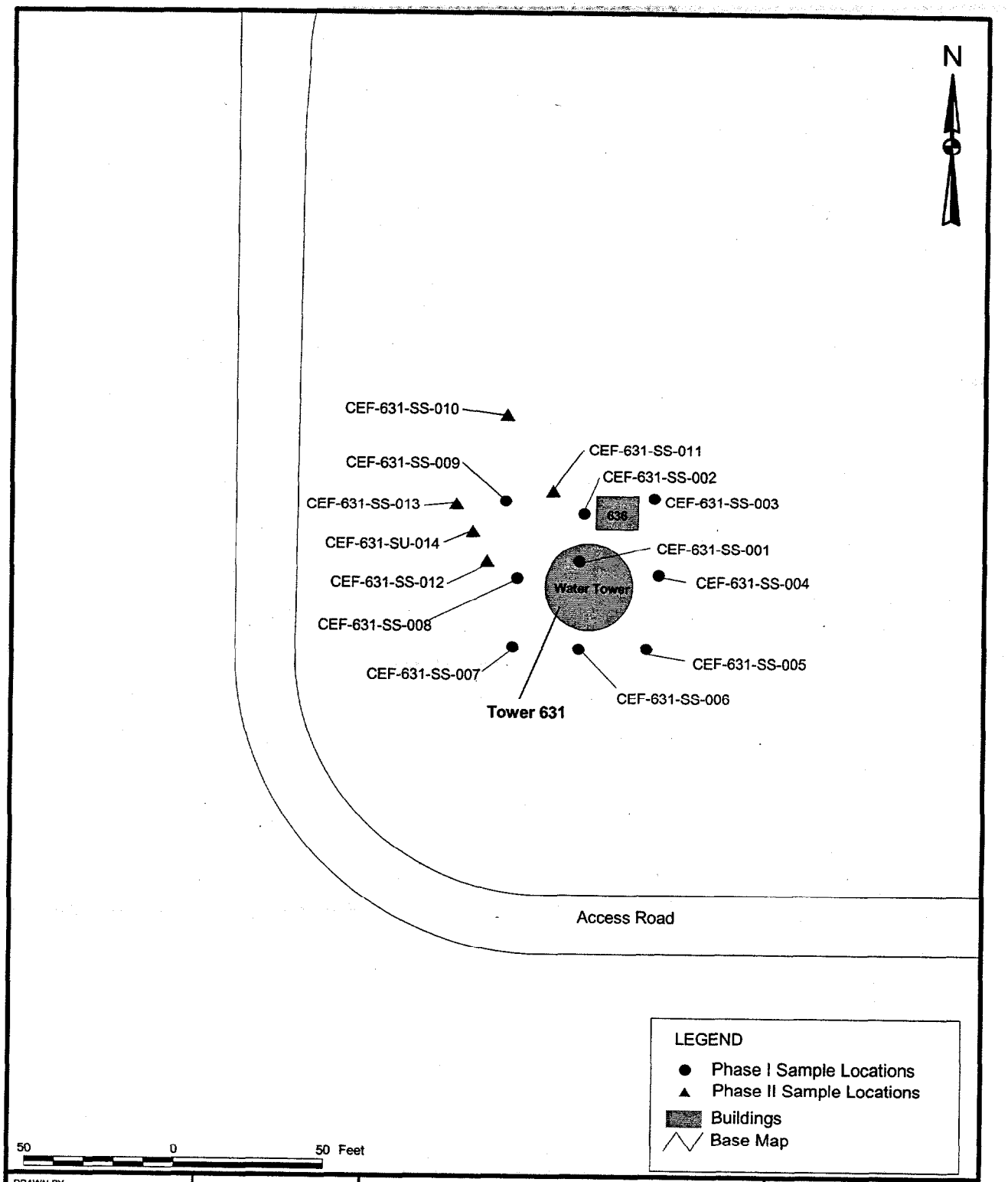
DRAWN BY MJJ	DATE 18Oct99	SITE LOCATION SAMPLING AND ANALYSIS REPORT BUILDING 631 WATER TOWER NAVAL AIR STATION CECIL FIELD JACKSONVILLE, FLORIDA	CONTRACT NUMBER 0039
CHECKED BY JL	DATE		APPROVED BY / DATE
COST/SCHEDULE-AREA			APPROVED BY / DATE
SCALE AS NOTED			DRAWING NO. FIGURE 1-2 / REV 0

P:\GIS\NAS_CecilField\tank_631.apr 20Jun00 MJJ 1 - Site Location Layout

2.0 FIELD INVESTIGATIONS

Field investigations were conducted from February to April 1999 to assess potential contamination of surface soil in the vicinity of the tower. Field investigations consisted of collecting and analyzing 15 surface soil samples. The investigations were conducted as an iterative process until contaminant concentrations were less than the Florida Department of Environmental Protection (FDEP) criteria (FDEP, 1999) or the NAS Cecil Field Inorganic Background Data Set (IBDS) [Harding Lawson Associates (HLA), 1998]. For the Building 631 Water Tower, this required two phases of sampling; nine surface soil samples were collected and analyzed as part of Phase I, and four additional surface soil samples and one subsurface soil sample were collected and analyzed as part of Phase II. During Phase II, one additional surface soil sample was collected in the area of the highest contamination and analyzed to determine the Resource Conservation and Recovery Act (RCRA) characteristics of the contaminated soil.

Field activities were conducted in general conformance with the Base-Wide Generic Work Plan (TtNUS, 1998). The surface soil samples were collected adjacent to and near the perimeter of the Building 631 Water Tower. Surface soil samples were collected from a depth of 0 to 1 foot below ground surface (bgs) at 14 locations (CEF-631-SS-001 to -013 and CEF-631-SS-015) and the subsurface soil sample was collected from a depth of 1 to 2 feet bgs at one location (CEF-631-SU-014). Figure 2-1 shows the sampling locations. The samples were analyzed for lead by U.S. Environmental Protection Agency (U.S. EPA) Method SW-846 6010B. In addition, two of the Phase I samples collected adjacent to the tower (CEF-631-SS-001 and -004) were analyzed for arsenic by U.S. EPA Method SW-846 6010B and polychlorinated biphenyls (PCBs) by U.S. EPA Method SW-846 8082. The Toxicity Characteristics Leaching Procedure (TCLP) was performed on one sample (CEF-631-SS-015), and the extract was analyzed for lead.



DRAWN BY MJJ	DATE 18Oct99	SAMPLE LOCATION MAP SAMPLING AND ANALYSIS REPORT BUILDING 631 WATER TOWER NAVAL AIR STATION CECIL FIELD JACKSONVILLE, FLORIDA	CONTRACT NUMBER 0039
CHECKED BY JL	DATE		APPROVED BY DATE
COST/SCHEDULE-AREA			APPROVED BY DATE
SCALE AS NOTED			DRAWING NO. FIGURE 2-1 / REV 0

P:\GIS\NAS_CecilField\tank_631.apr 20Jun00 MJJ 2 - Sample Location Layout

3.0 DATA EVALUATION AND REMOVAL ACTION

3.1 DATA EVALUATION

As shown on Table 3-1 and Figure 3-1, lead was detected in one sample (CEF-631-SS-009) at a concentration of 563 mg/kg, which is in excess of both the FDEP Soil Cleanup Target Level (SCTL) for residential exposure of 400 mg/kg (FDEP, 1999) and the NAS Cecil Field site-specific IBDS concentration of 197 mg/kg (HLA, 1998). Lead concentrations in the remaining samples were below FDEP SCTLs. The detailed laboratory analytical data are provided in Appendix A.

The concentrations of individual samples were screened against the NAS Cecil Field site-specific IBDS and the FDEP criteria, as proposed in the Florida Administrative Code (FAC) Chapter 62-777. The remediation goal for any site should never be less than the IBDS values. However, if a FDEP criterion is greater than the IBDS value, the FDEP criterion is regarded as the remediation goal. Analytical results were also compared to SCTLs for leachability based on groundwater criteria. For the analytes at this site, the SCTLs for leachability are less restrictive than the SCTLs for residential exposure.

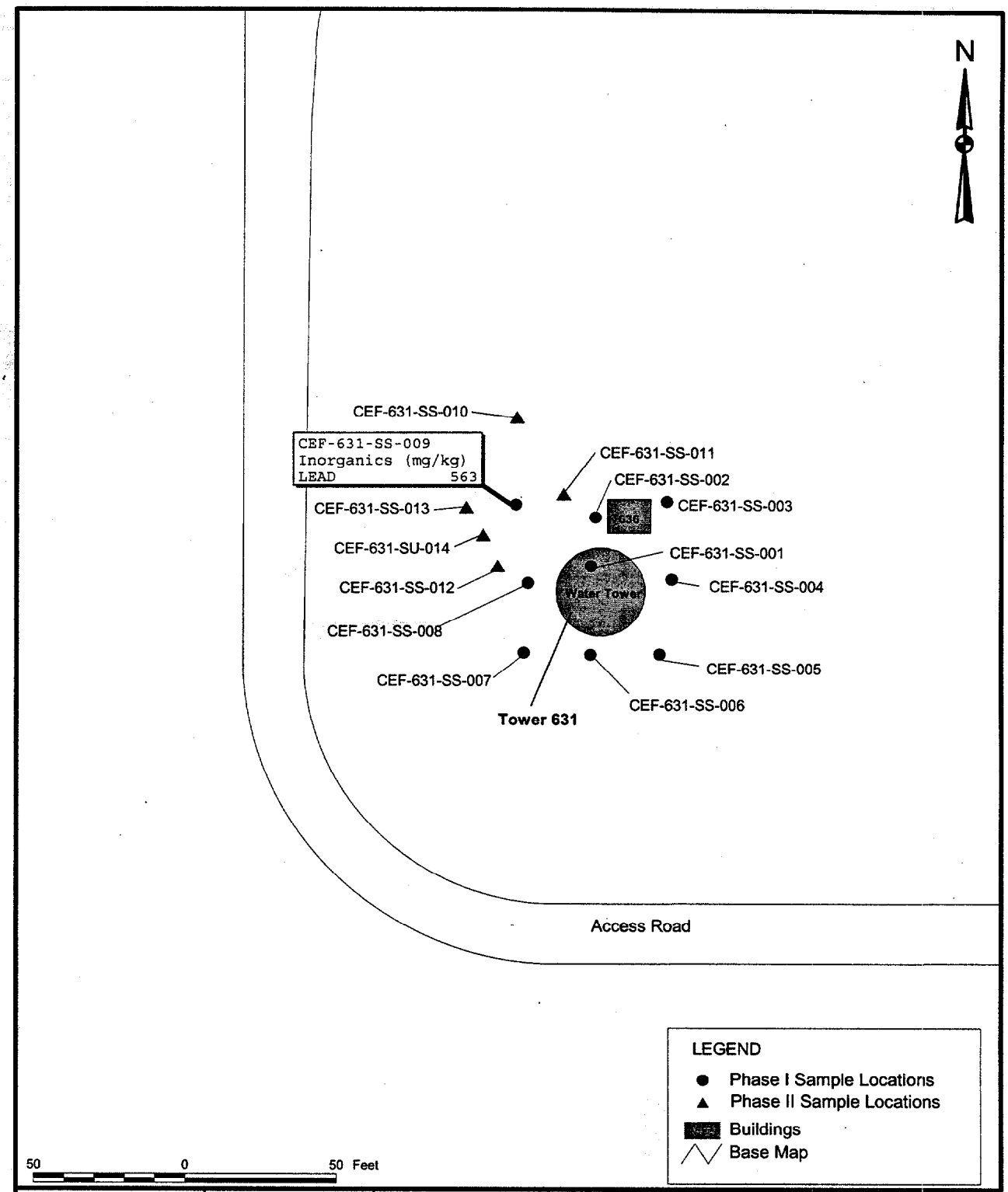
Results of the TCLP testing of the sample (CEF-631-SS-015) collected near the location of greatest lead contamination showed that the lead concentration of the extract (0.15 mg/L) did not exceed the U.S. EPA criterion for toxicity characteristic (5.0 mg/L).

3.2 REMOVAL ACTION

The BCT decided that a removal action was required at Building 631 Water Tower and agreed upon the proposed removal area presented in the Dig and Haul Package. On December 27 and 28, 1999, a total of 48.70 tons of lead-contaminated soil were excavated. The excavated soil was transported and disposed off site on December 30, 1999. As shown on Figure 3-2, approximately 800 square feet (ft^2) of soil was excavated to a depth of 1 foot bgs, for a total estimated volume of 30 cubic yards (yd^3). The soil was excavated using a mini-excavator and was stockpiled, bermed, and covered before it was loaded into a truck for transportation and disposal. The soil was characterized by the RAC prior to disposal. The excavated soil was transported by Pritchett Trucking to the Chesser Island Road Landfill, a Subtitle D solid waste disposal facility in Folkston, Georgia (CH2MHill, 2000).

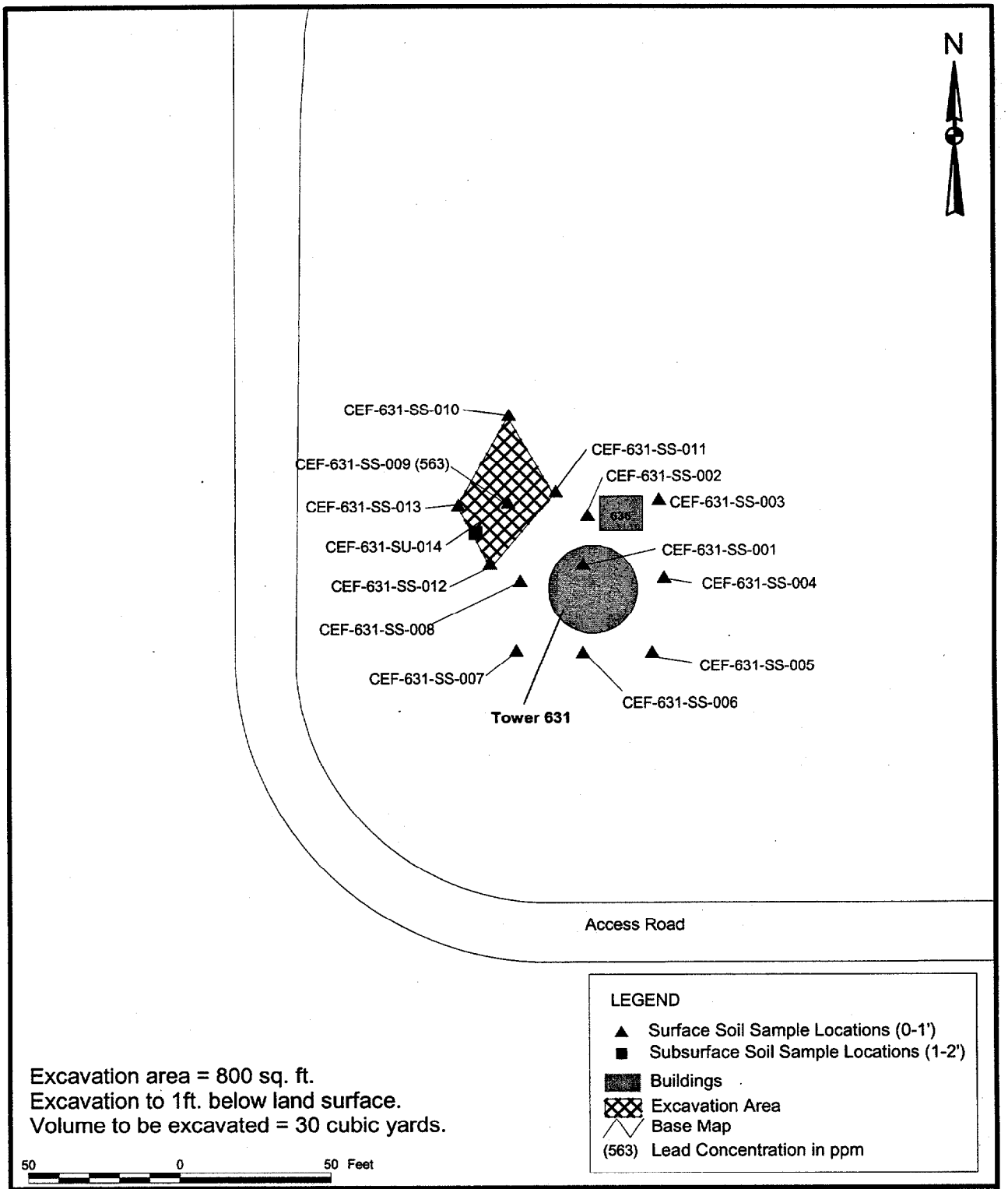
Clean fill material from the Dallas Harts Borrow Pit was used to backfill the excavation. The site was graded and seeded with a mixture of rye and bahia grass. No confirmatory sampling was performed.

Detailed information on the remedial activities, including photographs, laboratory results, copies of the soil manifests, certificates of disposal, and certificates of clean fill, is provided in the Source Removal Report (CH2MHill, 2000).



DRAWN BY MJJ — DATE 18Oct99		SAMPLING LOCATIONS AND ACTION LEVELS EXCEEDANCES SAMPLING AND ANALYSIS REPORT BUILDING 631 WATER TOWER NAVAL AIR STATION CECIL FIELD JACKSONVILLE, FLORIDA	CONTRACT NUMBER 0039
CHECKED BY JL — DATE			APPROVED BY — DATE
COST/SCHEDULE-AREA			APPROVED BY — DATE
SCALE AS NOTED			DRAWING NO. FIGURE 3-1 — REV 0

P:\GIS\NAS_CecilField\tank_631.apr 06Jun00 MJJ 3 - Tag Map Layout



Excavation area = 800 sq. ft.
Excavation to 1ft. below land surface.
Volume to be excavated = 30 cubic yards.

DRAWN BY MJJ	DATE 18Oct99	SOIL EXCAVATION MAP SAMPLING AND ANALYSIS REPORT BUILDING 631 WATER TOWER NAVAL AIR STATION CECIL FIELD JACKSONVILLE, FLORIDA	CONTRACT NUMBER 0039
CHECKED BY JL	DATE		APPROVED BY DATE
COST/SCHEDULE-AREA			APPROVED BY DATE
SCALE AS NOTED			DRAWING NO. FIGURE 3-2 / REV 0

P:\GIS\NAS_CecilField\tank_631.apr 06Jun00 MJJ 4 - Excavation Area Layout

TABLE 3-1

ANALYTICAL RESULTS SUMMARY FOR SURFACE SOIL
SAMPLING AND ANALYSIS REPORT
BUILDING 631 WATER TOWER
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

Sample Location	Lead (mg/kg)			Arsenic (mg/kg)			PCBs (µg/kg)		TCLP Lead (mg/L)	
	Concentration	IBDS(1)	FDEP SCTL(2)	Concentration	IBDS(1)	FDEP SCTL(2)	Concentration	FDEP SCTL(2)	Concentration	RCRA TCLP(3)
Phase I										
CEF-631-SS-001	56.8	197	400	0.32 U	2.04	0.8	39 U	500	NA	5.0
CEF-631-SS-002	18.4	197	400	NA	2.04	0.8	NA	500	NA	5.0
CEF-631-SS-003	115	197	400	NA	2.04	0.8	NA	500	NA	5.0
CEF-631-SS-004	98.5	197	400	0.33 U	2.04	0.8	40 U	500	NA	5.0
CEF-631-SS-004 DU	66.3	197	400	0.60 U	2.04	0.8	40 U	500	NA	5.0
CEF-631-SS-005	124	197	400	NA	2.04	0.8	NA	500	NA	5.0
CEF-631-SS-006	256	197	400	NA	2.04	0.8	NA	500	NA	5.0
CEF-631-SS-007	116	197	400	NA	2.04	0.8	NA	500	NA	5.0
CEF-631-SS-008	88.2	197	400	NA	2.04	0.8	NA	500	NA	5.0
CEF-631-SS-009	563	197	400	NA	2.04	0.8	NA	500	NA	5.0
Phase II										
CEF-631-SS-010	51.1	197	400	NA	2.04	0.8	NA	500	NA	5.0
CEF-631-SS-011	67.7	197	400	NA	2.04	0.8	NA	500	NA	5.0
CEF-631-SS-012	54.7	197	400	NA	2.04	0.8	NA	500	NA	5.0
CEF-631-SS-013	186	197	400	NA	2.04	0.8	NA	500	NA	5.0
CEF-631-SU-014	10.4	197	400	NA	2.04	0.8	NA	500	NA	5.0
CEF-631-SS-015	NA	197	400	NA	2.04	0.8	NA	500	0.15	5.0

NOTES:

Shading indicates exceedance of criterion

NA Not analyzed
SS Surface soil, 0 to 1 foot bgs
SU Subsurface soil, 1 to 2 feet bgs
U Not detected at detection limit (see Appendix A for detailed analytical data)

1 NAS Cecil Field site-specific Inorganic Background Data Set concentration (HLA, 1998).
2 Lower values of the FDEP Soil Cleanup Target Levels (SCTLs) for direct residential exposure or leachability to groundwater (FAC 62-777).
3 Maximum Concentration of Contaminant for Toxicity Characteristic as listed on Table 1 of 49CFR261.24(b).

4.0 CONCLUSIONS AND RECOMMENDATION

Field investigations identified approximately 30 yd^3 of soil contaminated with lead at concentrations greater than the IBDS value. The BCT decided that a removal action should be performed to excavate and dispose the contaminated soil off site. This removal action occurred in December 1999. Following excavation, the soil contaminant concentrations are less than the IBDS values and no longer represent a risk to human health and the environment.

Based upon these conclusions, the recommendation for Building 631 Water Tower is No Further Action. It is also recommended that the EBS color code for the Building 631 Water Tower should be changed to Dark Green to denote areas where release, disposal, and/or migration of hazardous substances have occurred and that remedial actions to protect human health and the environment have been taken. Residual lead concentrations in surface soil no longer represent a hazard to human health or the environment.

REFERENCES

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

CH2MHill, 2000. Source Removal Report, Excavation of Lead-Contaminated Soil at Building 631 Water Tower. Prepared for SOUTHNAVFACENGCOM, Charleston, SC. NAS Cecil Field, Jacksonville, FL, March.

FDEP (Florida Department of Environmental Protection), 1999. Contaminant Target Rule, Soil, Groundwater, and Surface Water Target Cleanup Levels. Florida Administrative Code (FAC) 62-777, August.

HLA (Harding Lawson Associates), 1998. Inorganic Background Data Set.

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

TtNUS, 1999a. Sampling and Analysis Outline for Building 631 Water Tower, Base Realignment and Closure, Naval Air Station, Cecil Field, Jacksonville, Florida. Pittsburgh, PA, January.

TtNUS, 1999b. Dig and Haul Package for Building 631 Water Tower, Naval Air Station Cecil Field, Jacksonville, Florida. Pittsburgh, PA, June.

APPENDIX A

Analytical Laboratory Results

Tetra Tech NUS **INTERNAL CORRESPONDENCE**

PITT-02-9-179

TO: **M. SPERANZA** **DATE:** **FEBRUARY 22, 1999**

FROM: **GRETCHEN PHIPPS** **COPIES:** **DV FILE**

SUBJECT: **INORGANIC DATA VALIDATION – ARSENIC AND LEAD**
CTO 078 - CECIL FIELD
SDG – F3612

SAMPLES: 57/Soils/

CEF-16A-SS-001	CEF-16A-SS-002	CEF-16A-SS-003
CEF-16A-SS-004	CEF-16A-SS-005	CEF-16A-SS-006
CEF-16A-SS-007	CEF-16A-SS-008	CEF-16B-SS-001
CEF-16B-SS-002	CEF-16B-SS-003	CEF-16B-SS-004
CEF-16B-SS-005	CEF-16B-SS-006	CEF-16B-SS-007
CEF-16B-SS-008	CEF-16B-SS-009	CEF-16B-SS-DU02
CEF-16C-SS-001	CEF-16C-SS-002	CEF-16C-SS-003
CEF-16C-SS-004	CEF-16C-SS-005	CEF-16C-SS-006
CEF-16C-SS-007	CEF-16C-SS-008	CEF-16C-SS-009
CEF-16C-SS-DU01	CEF-16D-SS-001	CEF-16D-SS-002
CEF-16D-SS-003	CEF-16D-SS-004	CEF-16D-SS-005
CEF-16D-SS-006	CEF-16D-SS-007	CEF-16D-SS-008
CEF-16D-SS-009	CEF-16D-SS-DU03	CEF-631-SS-007
CEF-631-SS-008	CEF-631-SS-009	CEF-631-SS-DU05
CEF-362-SS-001	CEF-362-SS-002	CEF-362-SS-003
CEF-362-SS-004	CEF-362-SS-005	CEF-362-SS-006
CEF-362-SS-007	CEF-362-SS-008	CEF-362-SS-DU04
CEF-631-SS-001	CEF-361-SS-002	CEF-631-SS-003
CEF-631-SS-004	CEF-631-SS-005	CEF-631-SS-005

Overview

The sample set for CTO 078, Cecil Field, SDG F3612, consists of fifty-seven (57) soil environmental samples. Five (5) field duplicate pairs (CEF-16C-SS-001/CEF-16C-SS-DU01, CEF-16B-SS-004/CEF-16B-SS-DU02, CEF-16D-SS-001/CEF-16D-SS-DU03, CEF-362-SS-004/CEF-362-SS-DU04 and CEF-631-SS-004/CEF-631-SS-DU05) were included within this SDG.

All samples were analyzed for lead. The following samples were also analyzed for arsenic: CEF-16A-SS-004, CEF-16A-SS-008, CEF-16B-SS-001, CEF-16B-SS-004, CEF-16B-SS-DU02, CEF-16C-SS-001, CEF-16C-SS-003, CEF-16C-SS-DU01, CEF-16D-SS-001, CEF-16D-SS-004, CEF-16D-SS-DU03, CEF-631-SS-DU05, CEF-362-SS-004, CEF-362-SS-008, CEF-362-SS-DU04 and CEF-631-SS-003. The samples were collected by Tetra Tech NUS on February 2, 1999 and analyzed by Accutest Laboratory. Arsenic and lead analyses were conducted using SW 846 method 6010B.

The data was evaluated based on the following parameters:

* • Data Completeness
* • Holding Times
* • Calibration Verifications
• Laboratory Blank Analyses

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

The attached Table 1 summarizes the validation recommendations which were based on the following information:

Laboratory Blank Analyses

Affected samples: All

Analyte	Maximum Concentration	Action Level(soil)
Arsenic	5.8µg/L	2.9 mg/kg
Lead	3.9µg/L	1.95 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 < the action level for arsenic were qualified as, "U", as a result of blank contamination. No action was taken for the remaining analytes since either the results were greater than the action level or were nondetects.

Notes

Samples CEF-631-SS-007, CEF-631-SS-008, CEF-631-SS-009 and CEF-631-SS-DU05 were mislabeled on the Form 1s and data summary tables. The sample IDs were corrected.

Executive Summary

Laboratory Performance: Arsenic and lead were present in the laboratory method 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 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)."

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

Tetra Tech NUS **INTERNAL CORRESPONDENCE**

PITT-05-9-085

TO: **M. SPERANZA** **DATE:** **MAY 21, 1999**

FROM: **GRETCHEN PHIPPS** **COPIES:** **DV FILE**

SUBJECT: **INORGANIC DATA VALIDATION – ARSENIC AND LEAD**
CTO 078 - CECIL FIELD
SDG – F3970

SAMPLES: 26/Soil/

CEF-16A-SS-009	CEF-16A-SS-010	CEF-16A-SS-011
CEF-16A-SS-012	CEF-16A-SU-013	CEF-16B-SS-010
CEF-16B-SS-011	CEF-16B-SU-012	CEF-16B-SU-013
CEF-16C-SS-010	CEF-16C-SS-011	CEF-16C-SS-012
CEF-16C-SS-013	CEF-16C-SS-014	CEF-16C-SS-015
CEF-16C-SS-016	CEF-16C-SS-017	CEF-16C-SS-DUP01
CEF-16C-SS-DUP02	CEF-16C-SU-018	CEF-16C-SU-019
CEF-631-SS-010	CEF-631-SS-011	CEF-631-SS-012
CEF-631-SS-013	CEF-631-SU-014	

2/Leachates/

CEF-16B-SS-004B CEF-16C-SU-019

Overview

The sample set for CTO 078, Cecil Field, SDG F3970, consists of twenty-six (26) soil environmental samples and two (2) leachate samples.

The soil samples designated by 16A and 631 were analyzed for lead. The soil samples designated by 16B and 16C were analyzed for arsenic and lead. The leachate samples were analyzed for toxicity characteristic leaching procedure (TCLP) lead. The sample was collected by Tetra Tech NUS on April 6 and 7, 1999 and analyzed by Accutest Laboratory. Arsenic and lead analyses were conducted using SW 846 method 6010A.

The data was evaluated based on the following parameters:

* • Data Completeness
* • Holding Times
• Calibration Verifications
• Laboratory Blank Analyses

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

The attached Table 1 summarizes the validation recommendations which were based on the following information:

Laboratory Blank Analyses

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

Affected samples: All

Analyte	Maximum Concentration	Action Level(soil)	Action Level(leachate)
Arsenic	3.3µg/L	1.65 mg/kg	16.5µg/L
Lead	4.5µg/L	2.25 mg/kg	22.5µg/L

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. The positive results < the blank action level for arsenic and lead were qualified, "U", as a result of blank contamination.

Notes

Contract Required Detection Limit (CRDL) Percent Recoveries (%Rs) for arsenic were both above and below the 80-120% quality control limit. However, no validation action was required.

The Form 1 for sample CEF-16C-SU-019 listed the incorrect IDL for arsenic. The form was amended by the data reviewer.

Executive Summary

Laboratory Performance: Arsenic and lead 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 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

Tetra Tech NUS **INTERNAL CORRESPONDENCE**

PITT-05-9-158

TO: [redacted]ERANZA **DATE:** **MA 24, 1999**

FROM: **GRETCHEN PHIPPS** **COPIES:** **DV FILE**

SUBJECT: **INORGANIC DATA VALIDATION – TCLP LEAD**
CTO 078 - CECIL FIELD
SDG – F4096

SAMPLES: 2/Leachates/

CEF-16A-SS-014 CEF-631-SS-015

Overview

The sample set for CTO 078, Cecil Field, SDG F4096, consists of two (2) leachate environmental samples.

The samples were analyzed for toxicity characteristic leaching procedure (TCLP) lead. The samples were collected by Tetra Tech NUS on April 29 and 30, 1999 and analyzed by Accutest Laboratory. Lead analyses were conducted using SW 846 method 6010B.

The data was evaluated based on the following parameters:

* • Data Completeness
* • Holding Times
• Calibration Verifications
• Laboratory Blank Analyses

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

The attached Table 1 summarizes the validation recommendations which were based on the following information:

Notes

The following contaminant was present in a laboratory method / preparation blanks at the following maximum concentration:

Affected samples: All

Analyte	Maximum Concentration	Action Level(leachate)
Lead	3.7µg/L	18.5µg/L

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. No action was required as the results reported for lead were greater than the action level.

The Contract Required Detection Limit (CRDL) Percent Recovery (%R) for lead was >120% quality control limit. However, no validation action was required.

Executive Summary

Laboratory Performance: Lead 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 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

Tetra Tech NUS

INTERNAL CORRESPONDENCE

PITT-02-9-195

TO: ~~MARK SPERANZA~~

DATE: MARCH 4, 1999

FROM: DANA PIETO

CC: DV FILE

SUBJECT: ORGANIC DATA VALIDATION – PCBs
CTO 078, CECIL FIELD, JACKSONVILLE, FLORIDA
SDG F3612

SAMPLES: Soils\PCB:

CEF-16A-SS-004	CEF-16A-SS-008	CEF-16B-SS-001
CEF-16B-SS-004	CEF-16B-SS-DU02	CEF-16C-SS-001
CEF-16C-SS-004	CEF-16C-SS-DU01	CEF-16D-SS-001
CEF-16D-SS-004	CEF-16D-SS-DU03	CEF-631-SS-DU05
CEF-362-SS-004	CEF-362-SS-008	CEF-362-SS-DU04
CEF-631-SS-001	CEF-631-SS-004	

The sample set for CTO 078, Cecil Field, Jacksonville, Florida, SDG F3612, consists of seventeen soil environmental samples. The samples were analyzed for polychlorinated biphenyl (PCB) organic compounds. Five field duplicates (CEF-16C-SS-001/CEF-16C-SS-DU01, CEF-16B-SS-004/CEF-16B-SS-DU02, CEF-16D-SS-001/CEF-16D-SS-DU03, CEF-362-SS-004/CEF-362-SS-DU04, CEF-631-SS-004/ CEF-631-SS-DU05) were included in this SDG.

The samples were collected by Tetra Tech NUS on February 2, 1999, and analyzed by Accutest Laboratories. The PCB compounds were conducted in accordance with Naval Facilities Engineering Service Center (NFESC) Quality Assurance/Quality Control (QA/QC) criteria using the SW-846 Method 8082 analytical and reporting protocol.

The data were evaluated according to the following parameters:

* • Holding times
* • Initial and continuing calibrations
* • Laboratory and field blank analyses
* • Detection Limits

The symbol (*) indicates that quality control criteria were met for this parameter. Problems affecting data usability are discussed below and the attached Table 1 summarizes the validation qualifications.

PCBs

No validation issues are present.

MEMO TO: MARK SPERANZA
DATE: MARCH 4, 1999 - PAGE 2

It should be noted that the Form I for sample CEF-631-SS-DU05 was incorrectly labeled as CEF-361-SS-DU05. The appropriate corrections were made.

Executive Summary

***Laboratory Performance*:** There are no validation issues present.

The data for these analyses were reviewed with reference to method-specific quality control criteria, the "National Functional Guidelines for Organic Data Evaluation" and the NFESC Interim Guidance Document entitled "Navy Installation Restoration Laboratory Quality Assurance Guide" (February 1996).

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)."

Dana L. Pieto

Dana L. Pieto

Tetra Tech NUS
Data Validator

Joseph A. Samchuck

Tetra Tech NUS
Data Validation Quality Assurance Officer

Attachments:

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

CTO078 - NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F3612

SAMPLE NUMBER:	CEF-362-SS-006	CEF-362-SS-007	CEF-362-SS-008	CEF-631-SS-001
SAMPLE DATE:	02/02/99	02/02/99	02/02/99	02/02/99
LABORATORY ID:	F3612-4	F3612-5	F3612-6	F3612-48
QC_TYPE:	NORMAL	NORMAL	NORMAL	NORMAL
% SOLIDS:	88.2 %	92.0 %	86.1 %	85.0 %
UNITS:	MG/KG	MG/KG	MG/KG	MG/KG
FIELD DUPLICATE OF:				

	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
INORGANICS												
ARSENIC							0.39	U	A	0.32	U	
LEAD	7.2			5.2			10.4			56.8		

CTO078 - NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F3612

SAMPLE NUMBER:	CEF-631-SS-002			CEF-631-SS-003			CEF-631-SS-004			CEF-631-SS-DU05		
SAMPLE DATE:	02/02/99			02/02/99			02/02/99			02/02/99		
LABORATORY ID:	F3612-49			F3612-50			F3612-51			F3612-57		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	84.2 %			80.1 %			82.4 %			83.8 %		
UNITS:	MG/KG			MG/KG			MG/KG			MG/KG		
FIELD DUPLICATE OF:										CEF-631-SS-004		
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
INORGANICS												
ARSENIC							0.33	U		0.60	U	A
LEAD	18.4			115			98.5			66.3		

CTO078 - NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F3612

SAMPLE NUMBER:	CEF-631-SS-005			CEF-631-SS-006			CEF-631-SS-007			CEF-631-SS-008		
SAMPLE DATE:	02/02/99			02/02/99			02/02/99			02/02/99		
LABORATORY ID:	F3612-52			F3612-53			F3612-54			F3612-55		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	80.1 %			80.4 %			78.9 %			76.2 %		
UNITS:	MG/KG			MG/KG			MG/KG			MG/KG		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
INORGANICS												
LEAD	124			256			116			88.2		

CTO078 - NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F3612

SAMPLE NUMBER:	CEF-631-SS-009											
SAMPLE DATE:	02/02/99			/ /			/ /			/ /		
LABORATORY ID:	F3612-56											
QC_TYPE:	NORMAL											
% SOLIDS:	85.1 %			100.0 %			100.0 %			100.0 %		
UNITS:	MG/KG											
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
INORGANICS												
LEAD	563											

CTO078 - NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F3970

SAMPLE NUMBER:	CEF-16C-SU-019			CEF-631-SS-010			CEF-631-SS-011			CEF-631-SS-012		
SAMPLE DATE:	04/07/99			04/06/99			04/06/99			04/06/99		
LABORATORY ID:	F3970-22			F3970-1			F3970-2			F3970-3		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	95.3 %			82.8 %			85.8 %			82.6 %		
UNITS:	MG/KG			MG/KG			MG/KG			MG/KG		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
INORGANICS												
ARSENIC	0.28	U										
LEAD	1.4	U	A	51.1			67.7			54.7		

CTO078 - NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F3970

SAMPLE NUMBER:	CEF-631-SS-013			CEF-631-SU-014								
SAMPLE DATE:	04/06/99			04/06/99			/ /			/ /		
LABORATORY ID:	F3970-4			F3970-5								
QC_TYPE:	NORMAL			NORMAL								
% SOLIDS:	89.4 %			82.0 %			100.0 %			100.0 %		
UNITS:	MG/KG			MG/KG								
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
INORGANICS												
LEAD	186			10.4								

C 078 AS IL ID

LEACHATE DATA
Accutest, NJ
SDG: F4096

SAMPLE NUMBER:	CEF-16A-SS-014			CEF-631-SS-015								
SAMPLE DATE:	04/29/99			04/29/99			/ /			/ /		
LABORATORY ID:	F4096-1			F4096-2								
QC_TYPE:	NORMAL			NORMAL								
% SOLIDS:	0.0 %			0.0 %			100.0 %			100.0 %		
UNITS:	MG/L			MG/L								
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
INORGANICS												
LEAD	1070			0.15								

CTO078 - NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F3612

SAMPLE NUMBER:	CEF-362-SS-DU04			CEF-362-SS-008			CEF-631-SS-001			CEF-631-SS-004		
SAMPLE DATE:	02/02/99			02/02/99			02/02/99			02/02/99		
LABORATORY ID:	F3612-7			F3612-6			F3612-48			F3612-51		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	89.0 %			86.1 %			85.0 %			82.4 %		
UNITS:	UG/KG			UG/KG			UG/KG			UG/KG		
FIELD DUPLICATE OF:	CEF-362-SS-004											
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
PESTICIDES/PCBs												
AROCLOR-1016	37	U		39	U		39	U		40	U	
AROCLOR-1221	37	U		39	U		39	U		40	U	
AROCLOR-1232	37	U		39	U		39	U		40	U	
AROCLOR-1242	37	U		39	U		39	U		40	U	
AROCLOR-1248	37	U		39	U		39	U		40	U	
AROCLOR-1254	37	U		39	U		39	U		40	U	
AROCLOR-1260	37	U		39	U		39	U		40	U	

CTO078 - NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F3612

SAMPLE NUMBER:	CEF-631-SS-DU05											
SAMPLE DATE:	02/02/99			/ /			/ /			/ /		
LABORATORY ID:	F3612-57											
QC_TYPE:	NORMAL											
% SOLIDS:	83.8 %			100.0 %			100.0 %			100.0 %		
UNITS:	UG/KG											
FIELD DUPLICATE OF:	CEF-631-SS-004											
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
PESTICIDES/PCBs												
AROCLOR-1016	40	U										
AROCLOR-1221	40	U										
AROCLOR-1232	40	U										
AROCLOR-1242	40	U										
AROCLOR-1248	40	U										
AROCLOR-1254	40	U										
AROCLOR-1260	40	U										

Report of Analysis

Client Sample ID:	CEF-631-SS-001		
Lab Sample ID:	F3612-48	**Date Sampled:**	02/02/99
Matrix:	SO - Soil	**Date Received:**	02/04/99
		Percent Solids:	85.0
Project:	NAS Cecil Field		

Metals Analysis

Analyte	Result	RDL	Units	DF	Prep	Analyzed By		Method
Arsenic	0.32 U	1.2	mg/kg	1	02/11/99	02/15/99	JK	SW846 6010A
Lead	56.8	11.8	mg/kg	1	02/11/99	02/15/99	JK	SW846 6010A

RDL = Reported Detection Limit

Report of Analysis

Client Sample ID:	CEF-631-SS-002		
Lab Sample ID:	F3612-49	**Date Sampled:**	02/02/99
Matrix:	SO - Soil	**Date Received:**	02/04/99
		Percent Solids:	84.2
Project:	NAS Cecil Field		

Metals Analysis

Analyte	Result	RDL	Units	DF	Prep	Analyzed By		Method
Lead	18.4	11.9	mg/kg	1	02/11/99	02/15/99	JK	SW846 6010A

RDL = Reported Detection Limit

Report of Analysis

Client Sample ID:	CEF-631-SS-003		
Lab Sample ID:	F3612-50	**Date Sampled:**	02/02/99
Matrix:	SO - Soil	**Date Received:**	02/04/99
		Percent Solids:	80.1
Project:	NAS Cecil Field		

Metals Analysis

Analyte	Result	RDL	Units	DF	Prep	Analyzed By		Method
Lead	115	12.5	mg/kg	1	02/11/99	02/15/99	JK	SW846 6010A

RDL = Reported Detection Limit

Report of Analysis

Client Sample ID:	CEF-631-SS-004		
Lab Sample ID:	F3612-51	**Date Sampled:**	02/02/99
Matrix:	SO - Soil	**Date Received:**	02/04/99
		Percent Solids:	82.4
Project:	NAS Cecil Field		

Metals Analysis

Analyte	Result	RDL	Units	DF	Prep	Analyzed By		Method
Arsenic	0.33 U	1.2	mg/kg	1	02/11/99	02/15/99	JK	SW846 6010A
Lead	98.5	12.1	mg/kg	1	02/11/99	02/15/99	JK	SW846 6010A

RDL = Reported Detection Limit

Report of Analysis

Client Sample ID:	CEF-631-SS-005		
Lab Sample ID:	F3612-52	**Date Sampled:**	02/02/99
Matrix:	SO - Soil	**Date Received:**	02/04/99
		Percent Solids:	80.1
Project:	NAS Cecil Field		

Metals Analysis

Analyte	Result	RDL	Units	DF	Prep	Analyzed By		Method
Lead	124	12.5	mg/kg	1	02/11/99	02/15/99	JK	SW846 6010A

RDL = Reported Detection Limit

Report of Analysis

Client Sample ID:	CEF-631-SS-006		
Lab Sample ID:	F3612-53	**Date Sampled:**	02/02/99
Matrix:	SO - Soil	**Date Received:**	02/04/99
		Percent Solids:	80.4
Project:	NAS Cecil Field		

Metals Analysis

Analyte	Result	RDL	Units	DF	Prep	Analyzed	By	Method
Lead	256	12.4	mg/kg	1	02/11/99	02/15/99	JK	SW846 6010A

RDL = Reported Detection Limit

63 CTP 2-22-99

Report of Analysis

Client Sample ID:	CEF-~~361~~-SS-007		
Lab Sample ID:	F3612-54	**Date Sampled:**	02/02/99
Matrix:	SO - Soil	**Date Received:**	02/04/99
		Percent Solids:	78.9
Project:	NAS Cecil Field		

Metals Analysis

Analyte	Result	RDL	Units	DF	Prep	Analyzed	By	Method
Lead	116	12.7	mg/kg	1	02/11/99	02/15/99	JK	SW846 6010A

RDL = Reported Detection Limit

Report of Analysis

Client Sample ID:	CEF-361-SS-008		
Lab Sample ID:	F3612-55	**Date Sampled:**	02/02/99
Matrix:	SO - Soil	**Date Received:**	02/04/99
		Percent Solids:	76.2
Project:	NAS Cecil Field		

Metals Analysis

Analyte	Result	RDL	Units	DF	Prep	Analyzed By		Method
Lead	88.2	13.1	mg/kg	1	02/12/99	02/15/99	JK	SW846 6010A

RDL = Reported Detection Limit

Report of Analysis

Client Sample ID:	CEF-361-SS-009		
Lab Sample ID:	F3612-56	**Date Sampled:**	02/02/99
Matrix:	SO - Soil	**Date Received:**	02/04/99
		Percent Solids:	85.1
Project:	NAS Cecil Field		

Metals Analysis

Analyte	Result	RDL	Units	DF	Prep	Analyzed By	Method
Lead	563	11.8	mg/kg	1	02/12/99	02/15/99 JK	SW846 6010A

RDL = Reported Detection Limit

Report of Analysis

Client Sample ID:	CEF-361-SS-DU05		
Lab Sample ID:	F3612-57	**Date Sampled:**	02/02/99
Matrix:	SO - Soil	**Date Received:**	02/04/99
		Percent Solids:	83.8
Project:	NAS Cecil Field		

Metals Analysis

Analyte	Result	RDL	Units	DF	Prep	Analyzed By		Method
Arsenic	0.60 B	1.2	mg/kg	1	02/12/99	02/15/99	JK	SW846 6010A
Lead	66.3	11.9	mg/kg	1	02/12/99	02/15/99	JK	SW846 6010A

RDL = Reported Detection Limit

Report of Analysis

Client Sample ID:	CEF-631-SS-010		
Lab Sample ID:	F3970-1	**Date Sampled:**	04/06/99
Matrix:	SO - Soil	**Date Received:**	04/08/99
		Percent Solids:	82.8
Project:	NAS Cecil Field		

Metals Analysis

Analyte	Result	RDL	Units	DF	Prep	Analyzed	By	Method
Lead	51.1	12.1	mg/kg	1	04/16/99	04/20/99	JK	SW846 6010A

RDL = Reported Detection Limit

Report of Analysis

Client Sample ID:	CEF-631-SS-011		
Lab Sample ID:	F3970-2	**Date Sampled:**	04/06/99
Matrix:	SO - Soil	**Date Received:**	04/08/99
		Percent Solids:	85.8
Project:	NAS Cecil Field		

Metals Analysis

Analyte	Result	RDL	Units	DF	Prep	Analyzed	By	Method
Lead	67.7	11.7	mg/kg	1	04/16/99	04/20/99	JK	SW846 6010A

RDL = Reported Detection Limit

Report of Analysis

Client Sample ID:	CEF-631-SS-012		
Lab Sample ID:	F3970-3	**Date Sampled:**	04/06/99
Matrix:	SO - Soil	**Date Received:**	04/08/99
		Percent Solids:	82.6
Project:	NAS Cecil Field		

Metals Analysis

Analyte	Result	RDL	Units	DF	Prep	Analyzed	By	Method
Lead	54.7	12.1	mg/kg	1	04/16/99	04/20/99	JK	SW846 6010A

RDL = Reported Detection Limit

Report of Analysis

Client Sample ID:	CEF-631-SS-013		
Lab Sample ID:	F3970-4	**Date Sampled:**	04/06/99
Matrix:	SO - Soil	**Date Received:**	04/08/99
		Percent Solids:	89.4
Project:	NAS Cecil Field		

Metals Analysis

Analyte	Result	RDL	Units	DF	Prep	Analyzed By		Method
Lead	186	11.2	mg/kg	1	04/16/99	04/20/99	JK	SW846 6010A

RDL = Reported Detection Limit

Report of Analysis

Client Sample ID:	CEF-631-SU-014		
Lab Sample ID:	F3970-5	**Date Sampled:**	04/06/99
Matrix:	SO - Soil	**Date Received:**	04/08/99
		Percent Solids:	82.0
Project:	NAS Cecil Field		

Metals Analysis

Analyte	Result	RDL	Units	DF	Prep	Analyzed By		Method
Lead	10.4 B	12.2	mg/kg	1	04/16/99	04/20/99	JK	SW846 6010A

RDL = Reported Detection Limit

Report of Analysis

Client Sample ID:	CEF-631-SS-015		
Lab Sample ID:	F4096-2	**Date Sampled:**	04/29/99
Matrix:	SO - Soil	**Date Received:**	05/05/99
		Percent Solids:	n/a
Project:	NAS Cecil Field-Water Towers (BRAC)		

Metals Analysis

Analyte	Result	RDL	Units	DF	Prep	Analyzed By		Method
Lead	0.15	0.0030	mg/l	1	05/07/99	05/07/99	JK	SW846 6010A

RDL = Reported Detection Limit

DP 2-23-99

Report of Analysis

Client Sample ID:	CEF-~~361~~ 631-SS-DU05		
Lab Sample ID:	F3612-57	**Date Sampled:**	02/02/99
Matrix:	SO - Soil	**Date Received:**	02/04/99
Method:	SW846 8082	**Percent Solids:**	83.8
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	AB07266.D	1	02/06/99	SKW	02/05/99	OP670	GAB283
Run #2							

PCB List

CAS No.	Compound	Result	RDL	Units	Q
12674-11-2	Aroclor 1016	ND	40	ug/kg	
11104-28-2	Aroclor 1221	ND	40	ug/kg	
11141-16-5	Aroclor 1232	ND	40	ug/kg	
53469-21-9	Aroclor 1242	ND	40	ug/kg	
12672-29-6	Aroclor 1248	ND	40	ug/kg	
11097-69-1	Aroclor 1254	ND	40	ug/kg	
11096-82-5	Aroclor 1260	ND	40	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	110%		40-150%
2051-24-3	Decachlorobiphenyl	99%		30-160%

ND = Not detected
RDL = Reported Detection 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-631-SS-001		
Lab Sample ID:	F3612-48	**Date Sampled:**	02/02/99
Matrix:	SO - Soil	**Date Received:**	02/04/99
Method:	SW846 8082	**Percent Solids:**	85.0
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	AB07264.D	1	02/05/99	SKW	02/05/99	OP670	GAB283
Run #2							

PCB List

CAS No.	Compound	Result	RDL	Units	Q
12674-11-2	Aroclor 1016	ND	39	ug/kg	
11104-28-2	Aroclor 1221	ND	39	ug/kg	
11141-16-5	Aroclor 1232	ND	39	ug/kg	
53469-21-9	Aroclor 1242	ND	39	ug/kg	
12672-29-6	Aroclor 1248	ND	39	ug/kg	
11097-69-1	Aroclor 1254	ND	39	ug/kg	
11096-82-5	Aroclor 1260	ND	39	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	111%		40-150%
2051-24-3	Decachlorobiphenyl	94%		30-160%

ND = Not detected
RDL = Reported Detection 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-631-SS-004		
Lab Sample ID:	F3612-51	**Date Sampled:**	02/02/99
Matrix:	SO - Soil	**Date Received:**	02/04/99
Method:	SW846 8082	**Percent Solids:**	82.4
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	AB07265.D	1	02/05/99	SKW	02/05/99	OP670	GAB283
Run #2							

PCB List

CAS No.	Compound	Result	RDL	Units	Q
12674-11-2	Aroclor 1016	ND	40	ug/kg	
11104-28-2	Aroclor 1221	ND	40	ug/kg	
11141-16-5	Aroclor 1232	ND	40	ug/kg	
53469-21-9	Aroclor 1242	ND	40	ug/kg	
12672-29-6	Aroclor 1248	ND	40	ug/kg	
11097-69-1	Aroclor 1254	ND	40	ug/kg	
11096-82-5	Aroclor 1260	ND	40	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	99%		40-150%
2051-24-3	Decachlorobiphenyl	88%		30-160%

ND = Not detected
RDL = Reported Detection 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