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FINAL TECHNICAL MEMORANDUM FOR NO FURTHER ACTION AT OPERABLE UNIT 12 (OU 12) OLD GOLF COURSE NAS CECIL FIELD FL

8/29/2001

TETRA TECH NUS INC

Technical Memorandum
for
No Further Action

Operable Unit 12
Old Golf Course
Main Base Area 3

Naval Air Station Cecil Field
Jacksonville, Florida

Southern Division
Naval Facilities Engineering Command
Contract Number N62467-94-D-0888
Contract Task Order 0078

August 2001

TECHNICAL MEMORANDUM
FOR NO FURTHER ACTION

OLD GOLF COURSE
OPERABLE UNIT 12
MAIN BASE AREA 3

NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

COMPREHENSIVE LONG-TERM
ENVIRONMENTAL ACTION NAVY (CLEAN) CONTRACT

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

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

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

AUGUST 2001

PREPARED UNDER THE SUPERVISION OF:

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The professional opinions rendered in this decision document identified as Technical Memorandum for No Further Action, Operable Unit 12, Old Golf Course, MB3, 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

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

Date: 8/29/01

Mark Speranza

CERTIFICATION OF TECHNICAL
DATA CONFORMITY

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

DATE: August 29, 2001

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

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ACRONYMS

ABB-ES	ABB Environmental Services, Inc.
BCT	BRAC Cleanup Team
bgs	below ground surface
BRAC	Base Realignment and Closure
CH_2M Hill	CH_2M Hill Constructors, Inc.
CLEAN	Comprehensive Long-Term Environmental Action Navy
CTO	Contract Task Order
EBS	Environmental Baseline Survey
EISOPQAM	Environmental Investigations Standard Operating Procedures and Quality Assurance Manual
FAC	Florida Administrative Code
FDEP	Florida Department of Environmental Protection
HLA	Harding Lawson Associates
IBDS	Inorganic Background Data Set
MB3	Main Base Area 3
mg/kg	milligram per kilogram
NAS	Naval Air Station
NFF	North Field Farm
OGC	Old Golf Course
OU	Operable Unit
PRE	Preliminary Risk Evaluation
QA/QC	quality assurance/quality control
RAC	Remedial Action Contractor
RI	Remedial Investigation
SAOR	Sampling and Analysis Outline And Report
SAR	Sampling and Analysis Report
SCTL	Soil Cleanup Target Level
SOUTHNAVFACENGCOM	Southern Division Navy Facilities Engineering Command
TtNUS	Tetra Tech NUS, Inc.
U.S. EPA	U.S. Environmental Protection Agency
UCL	Upper confidence limit

1.0 INTRODUCTION

This Technical Memorandum for Operable Unit 12 (OU 12) Old Golf Course (OGC), at Naval Air Station (NAS) Cecil Field located in Jacksonville, Florida, has been prepared by Tetra Tech NUS, Inc. (TtNUS) for the Department of the Navy Southern Division Naval Facilities Engineering Command (SOUTHNAVFACENGCOM). The work was conducted under the Comprehensive Long-Term Environmental Action Navy (CLEAN) Program, Contract Number N62467-94-D-0888, Contract Task Order (CTO) 0078. The Base Realignment and Closure (BRAC) Cleanup Team (BCT) agreed to delineate, excavate, and dispose of soil at the OGC that is contaminated with arsenic.

TtNUS performed field investigations at the OGC from November 1999 through May 2000. The results of the OGC field investigations were used to develop a dig and haul package (remedial design plan) for a removal action consisting of soil excavation and off-site disposal of the arsenic-contaminated surface soil. The removal action at OU12, OGC was conducted under an Action Memorandum (TtNUS, 2000b) in accordance with Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) requirements for a time-critical removal as identified in Section 300.415(b)(4)(1) of the National Oil and Hazardous Substance Pollution Contingency Plan (NCP).

This technical memorandum summarizes the related field operations, results, conclusions, and recommendations of the OGC investigations conducted by TtNUS and the activities related to the removal action, as described in the Source Removal Report for this site (CH_2M Hill, 2001). The results of the investigation and the subsequent removal action indicate that no further action is needed at this site.

2.0 SITE DESCRIPTION

2.1 PHYSICAL SETTING

The OGC was located in the northern portion of the Main Base (Figure 2-1). The OGC occupied the area bound by New World Avenue (formerly "D" Avenue) on the east, Lake Newman Street (formerly 6th Street) on the north, Lake Fretwell Street (formerly 4th Street) on the south, and Residence Avenue (formerly "G" Avenue) on the west. The eastern one-third of the area is occupied by Building 331 (Bachelor Officer Quarters), Building 800 (Memorial Chapel), and Building 808 (Dispensary/Dental Clinic) (Figure 2-2). The OGC was identified from historic aerial photographs. The eastern portion was reworked during the construction of buildings and parking lots. The remainder of the site has not significantly changed and is overgrown with vegetation. The area currently is a commercial and undeveloped setting, and the reuse plan identifies this area for offices and parks.

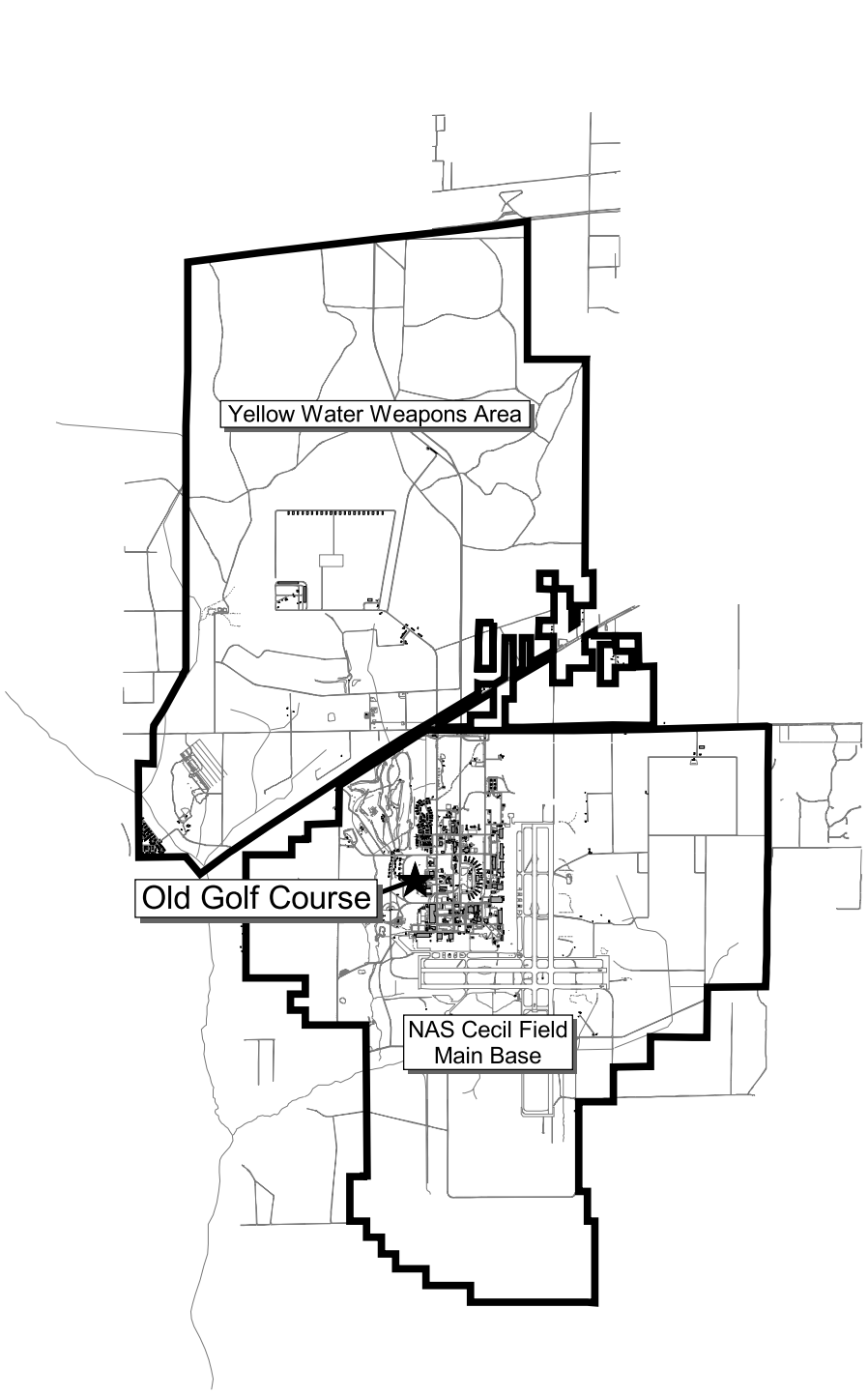
2.2 SITE HISTORY

No specific documented historic information is available about the OGC. Based on historic aerial photographs, however, the OGC appears to have been constructed in the early 1940s and operated until 1946, when the current golf course was constructed (ABB-ES, 1994). Building 331 was constructed in 1957, Building 800 was constructed in 1965, and Building 808 was constructed in 1976. The railroad spur that served Building 68 passed through the southeastern corner of the OGC, south of Building 331. The railroad tracks were removed in 1986. Figure 2-3 shows the current site arrangement superimposed on an old aerial photograph.

This area was identified as Main Base Area 3 (MB3) and classified as Grey during the Environmental Baseline Survey (EBS) (ABB-ES, 1994). MB3 and Buildings 331, 800, and 808 were initially evaluated during the EBS and identified as requiring additional evaluation. ABB-ES conducted a Phase II Sampling and Analysis program for MB3. The results of the investigation were presented in the Sampling and Analysis Outline and Report (SAOR) for MB3 (HLA, 1998a). No sampling and analysis reports (SARs) were required for Buildings 331, 800, and 808 based on the activities in the buildings. The investigation at MB3 included the collection of one soil sample; the sample contained 4,4'-DDE and 4,4'-DDT at concentrations below the Florida Department of Environmental Protection (FDEP) residential Soil Cleanup Target Levels (SCTLs). The SAOR recommended no further action at MB3. During other Cecil Field investigations, the BCT reconsidered the status of the OGC and determined that additional investigation was required at the former locations of tee boxes and greens.

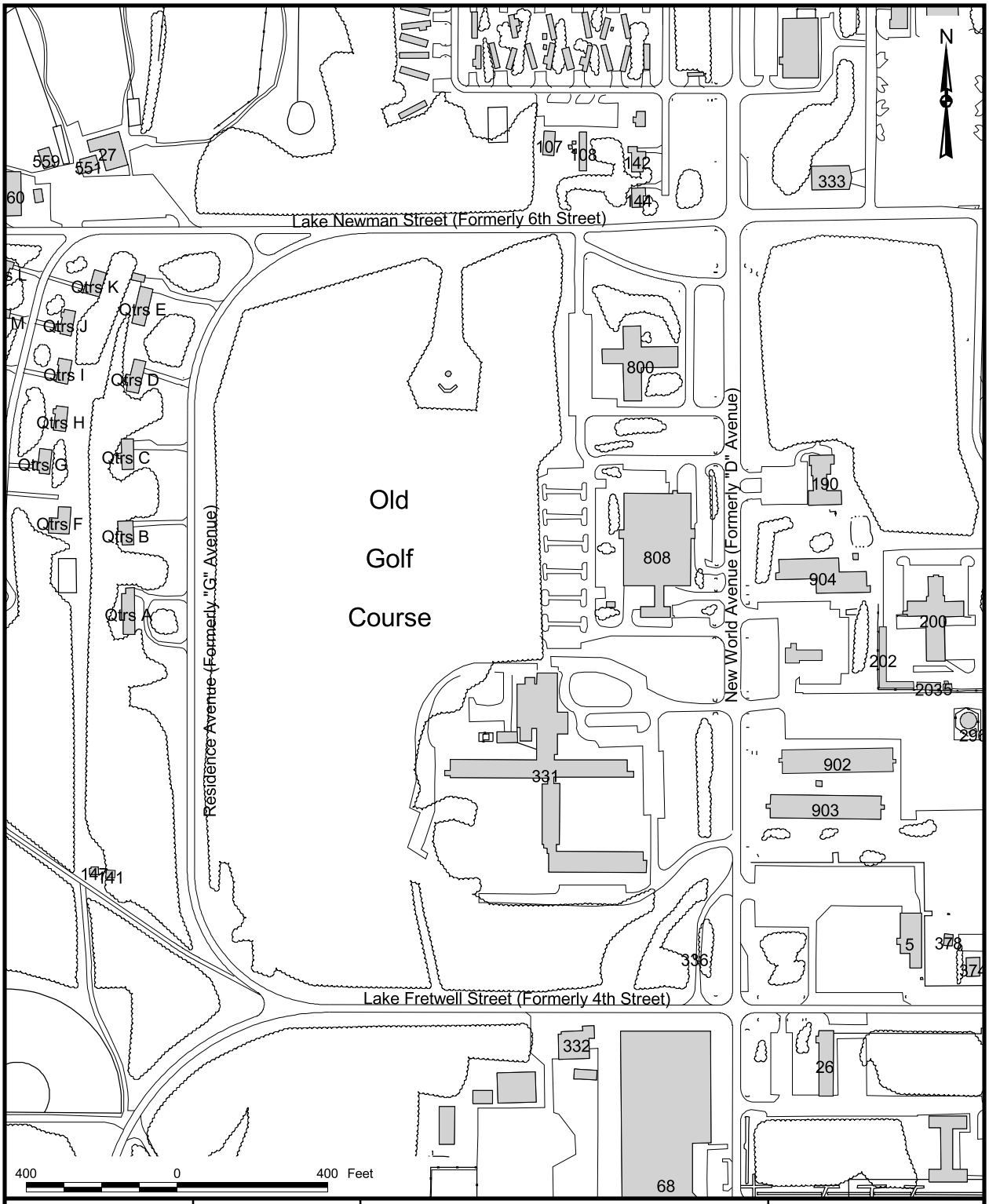
2.3 SITE GEOLOGY AND HYDROGEOLOGY

The OGC is located in the vicinity of Site 11, the Golf Course Pesticide Disposal Area. Although no site-specific subsurface investigation was performed at the OGC, the geological and hydrogeological characteristics of the site are similar to those described in the Remedial Investigation (RI) Report for Operable Unit (OU) 6, Site 11 (ABB-ES, 1997).



DRAWN BY MJJ	DATE 08May00	GENERAL LOCATION MAP OLD GOLF COURSE TECHNICAL MEMORANDUM 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 2-1 / REV 0

p:\gis\cecil\ogc_actionmemo02.apr 07May01 MJJ Site Location Map Layout



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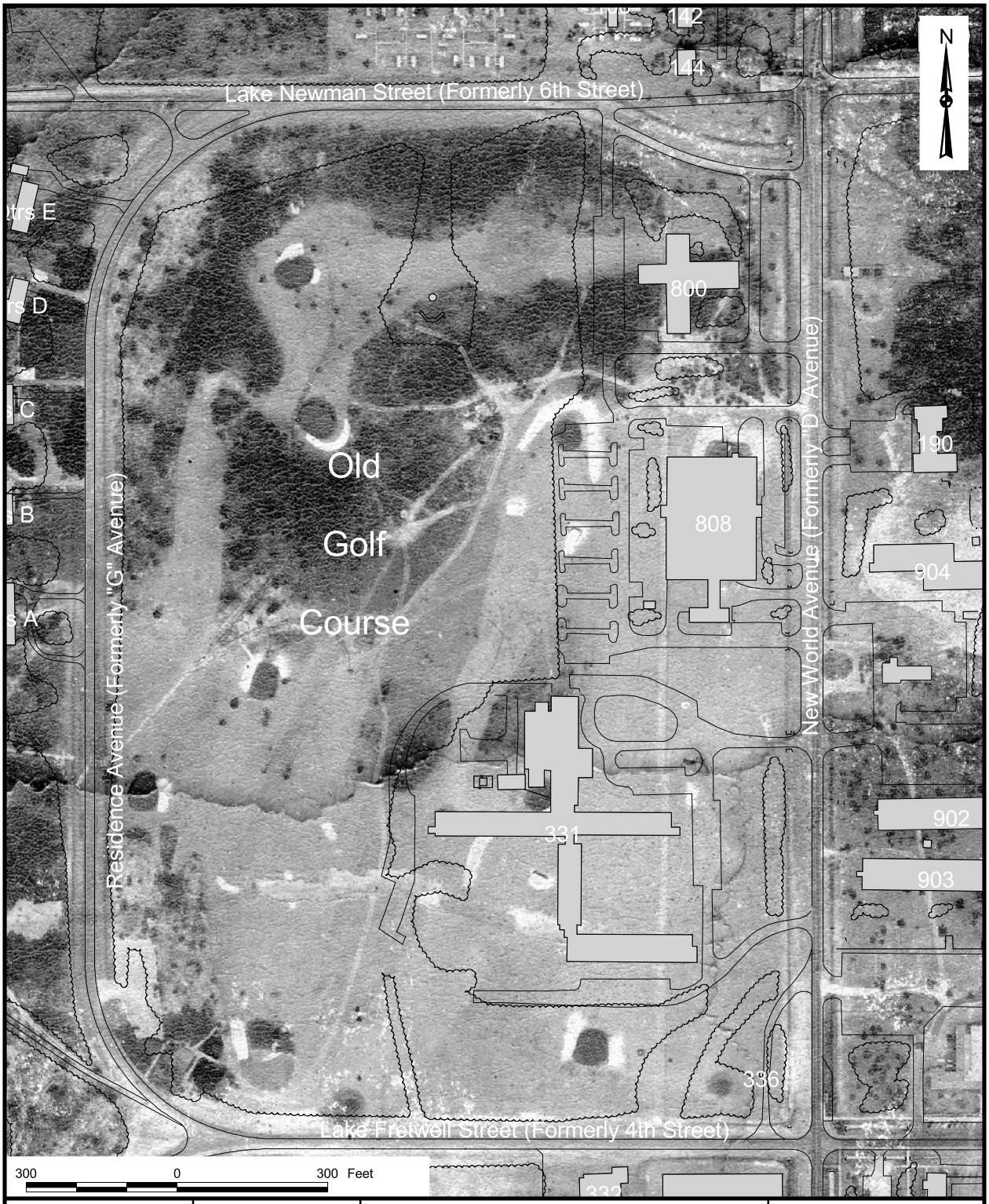
COST/SCHEDULE-AREA			APPROVED BY DATE
SCALE AS NOTED			DRAWING NO. FIGURE 2-2 / REV 0

p:\gis\cecil\ogc_actionmemo02.apr 07May01 MJJ Facility Location Layout



DRAWN BY MJJ	DATE 08May00	CURRENT (OUTLINE) AND HISTORIC (AERIAL PHOTOGRAPH) CONDITIONS OLD GOLF COURSE TECHNICAL MEMORANDUM NAVAL AIR STATION CECIL FIELD JACKSONVILLE, FLORIDA	CONTRACT NUMBER 0039
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COST/SCHEDULE-AREA			APPROVED BY DATE
SCALE AS NOTED			DRAWING NO. FIGURE 2-3 / REV 0

p:\gis\cecil\ogc_actionmemo02.apr 07May01 MJJ 2a_Facility Location Layout

3.0 PREVIOUS INVESTIGATIONS

Environmental investigations at OU 12, OGC began in 1993 as part of the base-wide EBS. The following reports describe the results of investigations conducted prior to the TtNUS investigation at the site:

- EBS Report (ABB-ES, 1994).
- SAOR, Main Base Area 3 (HLA, 1998a).

The SAOR (HLA, 1998a) indicated the following:

- No SARs were required for Buildings 331, 800 and 808 based on activities in the buildings.
- One soil sample was taken during the investigation; it was found to contain concentrations of 4,4'-DDE and 4,4'-DDT at levels below FDEP residential SCTLs (see Figure 3-1).
- No further action was recommended for MB3.

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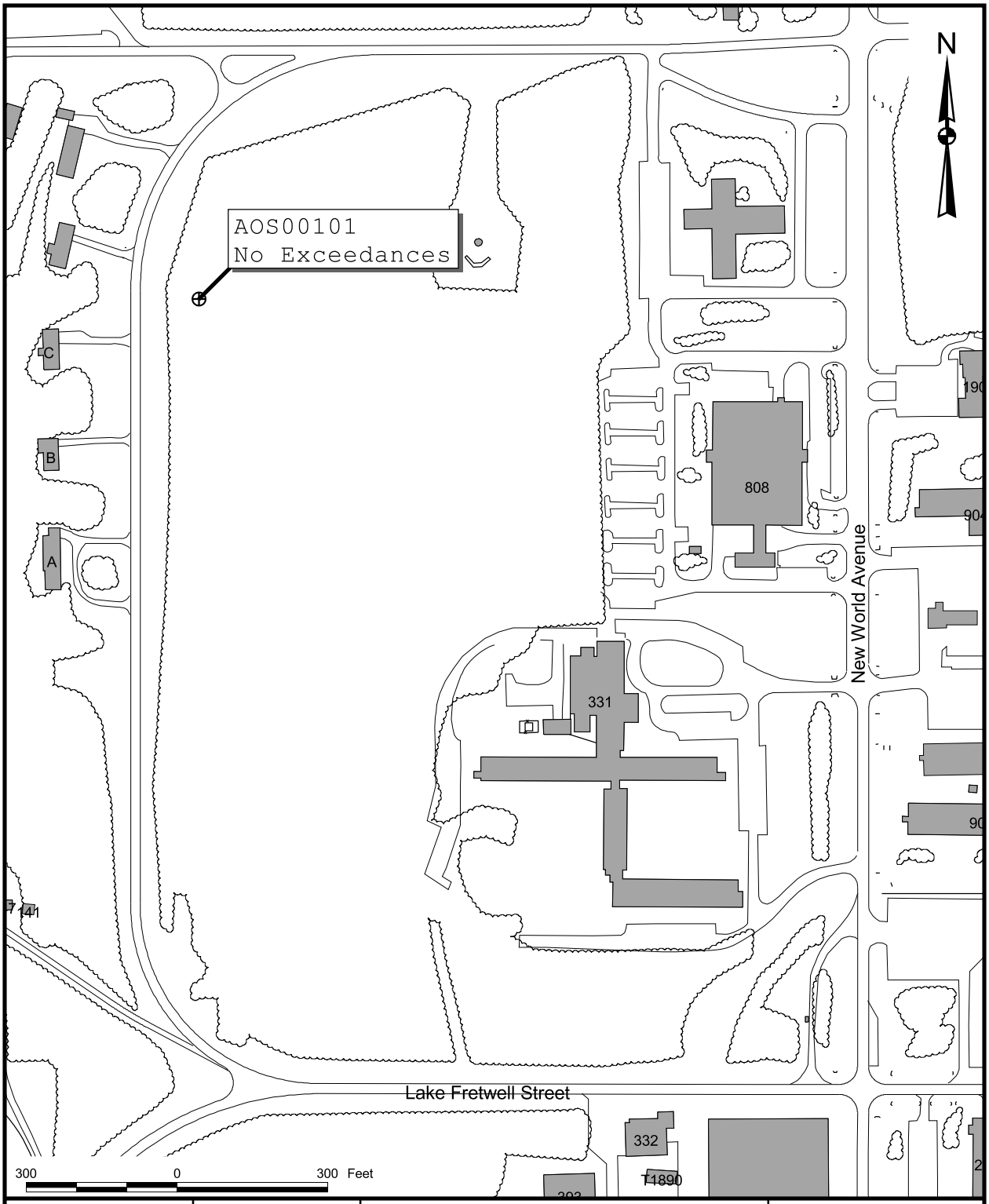

DRAWN BY MJJ	DATE 29Apr01	SAMPLE LOCATION AND EXCEEDANCE MAP PREVIOUS CONDITIONS OLD GOLF COURSE TECHNICAL MEMORANDUM NAVAL AIR STATION CECIL FIELD JACKSONVILLE, FLORIDA	CONTRACT NUMBER 0039
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SCALE AS NOTED			DRAWING NO. FIGURE 3-1 / REV 0

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4.0 FIELD INVESTIGATION

Due to the possibility of past pesticide application at the Old Golf Course, the BCT determined that further investigations were necessary at the former tee boxes and greens. A four phased sampling investigation was conducted between November 1999 and May 2000. During the first phase of this investigation, it was determined that there were elevated levels of arsenic exceeding the screening criteria in the vicinity of the former tee boxes and greens. Subsequent soil sampling and analysis events (Phases II, III, and IV) were conducted at the OGC from January through May 2000 to determine the horizontal and vertical extent of arsenic-contaminated surface soil detected during the first phase of the investigation. The field events were performed in accordance with the OGC Sampling and Analysis Work Plans (TtNUS, 1999 and 2000a). During the four phases, a total of 71 soil samples were collected, as follows:

- During Phase I, in November 1999, 12 surface soil samples were collected from the 0- to 1-foot below ground surface (bgs) depth interval (CEF-OGC-SS-001 through CEF-OGC-SS-012).

- During Phase II, in January 2000, 24 surface soil samples were collected from the 0- to 1-foot depth interval (CEF-OGC-SS-102 through CEF-OGC-SS-104, CEF-OGC-SS-106 through CEF-OGC-SS-111, and CEF-OGC-SS-113 through CEF-OGC-SS-127). Three surface soil samples were collected from the 1- to 2-foot bgs depth interval (CEF-OGC-SS-101, CEF-OGC-SS-105 and CEF-OGC-SS-112) at locations previously sampled during Phase I.

- Phase III soil sampling occurred in March 2000 and consisted of 22 surface soil samples collected from the 0- to 1-foot bgs interval (CEF-OGC-SS-201 through CEF-OGC-SS-222). Three soil samples (CEF-OGC-SS-224 through CEF-OGC-SS-226) were collected from the 1- to 2-foot bgs depth interval at locations sampled in previous phases. Additionally, CEF-OGC-SU-223 was collected at the 2- to 3-foot bgs depth inteval.

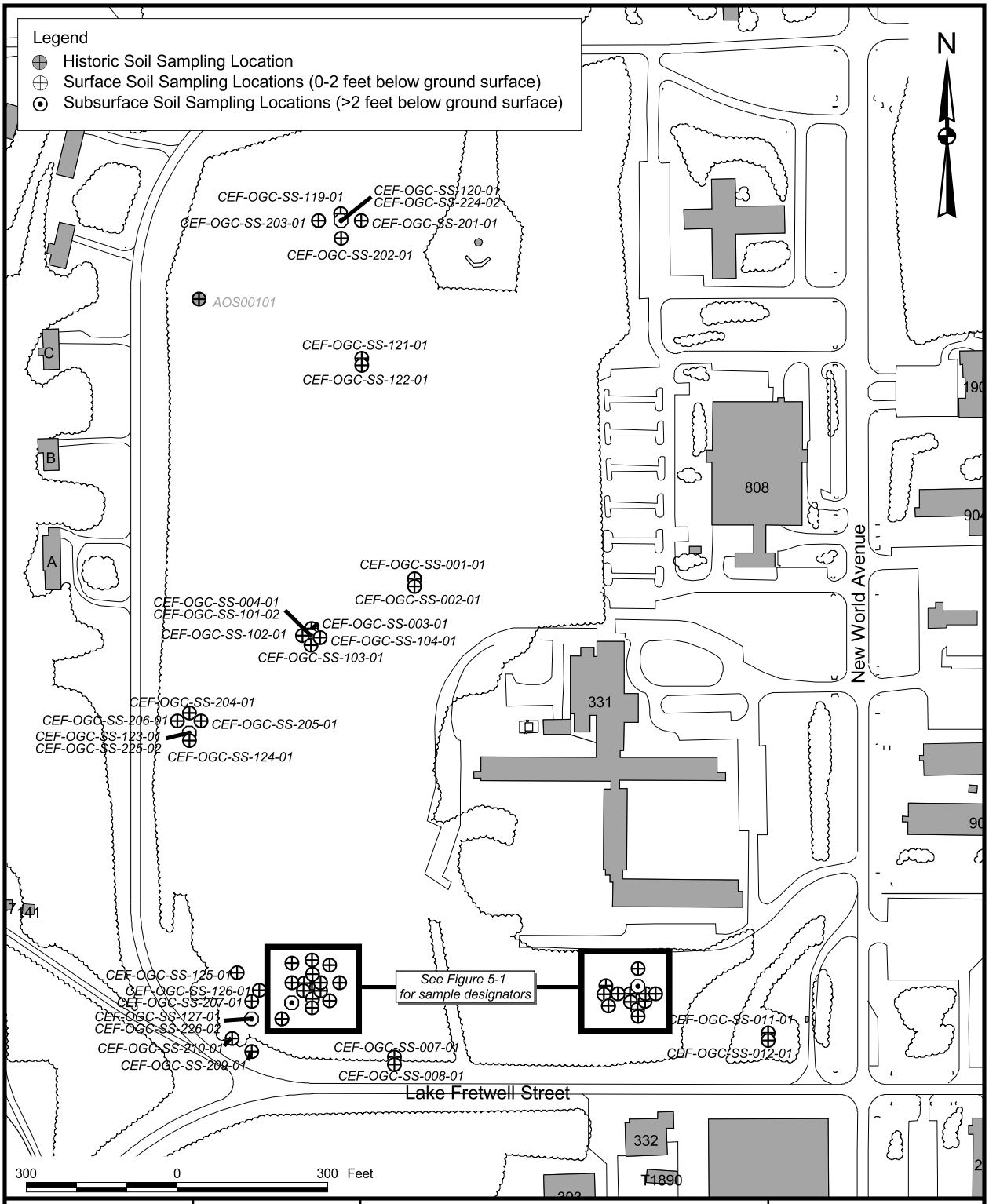
- In May 2000, the Phase IV surface soil sampling was initiated at the OGC. It consisted of three surface soil samples (CEF-OGC-SS-301 through CEF-OGC-SS-303) taken at the 0- to 1-foot bgs depth interval. Two samples (CEF-OGC-SS-304 and CEF-OGC-SS-305) were collected from the 1- to 2-foot bgs interval at locations sampled in previous phases. Also, CEF-OGC-SU-306 was collected at a former sampling location from a depth of 2- to 3-feet bgs.

During the investigation, five duplicate surface soil samples were collected for quality assurance/quality control (QA/QC) purposes. The field duplicates were collected at CEF-OGC-SS-001, CEF-OGC-SS-004, CEF-OGC-SS-203, CEF-OGC-SS-208, and CEF-OGC-SS-303.

Sampling locations for the four phases of field sampling are shown on Figure 4-1 and Figure 5-1. Analytical results are discussed in Section 5 and are included in Appendix A.

Soil samples were collected as grab samples using plastic, disposable trowels. Sampling activities were performed in accordance with the procedures described in the U.S. Environmental Protection Agency (U.S. EPA) Region IV Environmental Investigations Standard Operating Procedures and Quality Assurance Manual (EISOPQAM) (U.S. EPA, 1996) and the NAS Cecil Field Base-Wide Generic Work Plan (TtNUS, 1998). As agreed by the BCT, no rinsate or trip blanks were collected. In addition, field blanks were not collected because the sampling equipment was disposable.

Phase I samples were analyzed for pesticides by U.S. EPA Method SW846-3550B/8081A, organophosphorus pesticides using U.S. EPA Method SW846-8141, herbicides using U.S. EPA Method SW846-8151, and arsenic using U.S. EPA Method SW846-6010B. Samples in subsequent phases were analyzed for arsenic only using U.S. EPA Method SW846-6010B. Accutest Southeast in Orlando, Florida performed the analyses.



DRAWN BY MJJ	DATE 29Apr01	SAMPLE LOCATIONS MAP OLD GOLF COURSE TECHNICAL MEMORANDUM NAVAL AIR STATION CECIL FIELD JACKSONVILLE, FLORIDA	CONTRACT NUMBER 0039
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SCALE AS NOTED			DRAWING NO. FIGURE 4-1 / REV 0

p:\gis\cecil\ogc_actionmemo02.apr 07May01 MJJ 5_Phase IV Sample Locations Layout

5.0 NATURE AND EXTENT OF CONTAMINATION

Analytical results for the soil samples collected during the TtNUS field investigation are shown on Table 5-1, and complete laboratory data are included in Appendix A. Table 5-1 also compares the results to the FDEP SCTLs for residential direct exposure and for leachability to groundwater (FDEP, 1999) and the IBDS value for arsenic (HLA, 1998b). Figure 5-1 shows the locations where the sample results exceed the IBDS value.

Based on the results of the sampling and analysis and the statistical analysis discussed in Section 6.0, a remedial design (dig and haul package) was prepared for excavation of the delineated areas of arsenic contamination.

Two excavation areas, with an approximate total area of 4,965 square feet, were delineated based on sample locations where the analytical results for arsenic concentrations exceeded the IBDS value. Vertical delineation sampling results indicated that excavation was required to a depth of 2 feet bgs in Area 4 and 1 foot bgs in Area 5. The estimated volume of excavated soil for an area of 5,425 square feet to 1 foot bgs is approximately 279 cubic yards. The excavation limits are shown on Figure 5-1.

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TABLE 5-1

SOIL ANALYTICAL RESULTS
OPERABLE UNIT 12, OLD GOLF COURSE
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

PARAMETER	Inorganic Background Data Set Levels[1]	FDEP SCTLs[2]		PHASE I / NOVEMBER 1999								
				CEF-OGC-								
		Residential Direct Exposure	Leachability to Groundwater	SS-001 0-1 ft	SS-001 (DUP) 0-1 ft	SS-002 0-1 ft	SS-003 0-1 ft	SS-004 0-1 ft	SS-004 (DUP) 0-1 ft	SS-005 0-1 ft	SS-006 0-1 ft	SS-007 0-1 ft
Pesticides/PCBs (µg/kg)												
4-4'-DDD	NC	4600	4000	1.6	1.6J	2.8	3.7U	1.6J	1.1J	3.6U	2.4J	3.5
4-4'-DDE	NC	3300	18000	2	1.8J	5.8	3.7U	2.7J	2.4J	3.6U	4.7	24.9
4-4'-DDT	NC	3300	11000	3.3	2.9J	6.5	3.7U	2.5J	2.2J	3.6U	4.9J	19.2J
Alpha-Chlordane	NC	3100	9600	3.8U	3.7U	3.7U	3.7U	3.6	3.6	3.6U	2.9J	2.6J
Gamma-Chlordane	NC	3100	9600	3.8U	3.7U	3.7U	3.7U	2.7J	2.3J	3.6U	2.7J	2J
Heptachlor Epoxide	NC	100	600	1.9U	1.9U	1.8U	1.8U	1.8U	1.8U	1.8U	1.8U	1.8U
Inorganics (mg/kg)												
Arsenic	2.04	0.8	29	1.6U	1.3U	1.6U	0.55U	**4.6**	1.0U	**13.6**	3.2U	1.2U

TABLE 5-1

SOIL ANALYTICAL RESULTS
OPERABLE UNIT 12, OLD GOLF COURSE
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

PARAMETER	Inorganic Background Data Set Levels[1]	FDEP SCTLs[2]		PHASE I / NOVEMBER 1999					PHASE II / JANUARY 2000		
				CEF-OGC-					CEF-OGC-		
		Residential Direct Exposure	Leachability to Groundwater	SS-008 0-1 ft	SS-009 0-1 ft	SS-010 0-1 ft	SS-011 0-1 ft	SS-012 0-1 ft	SS-101 1-2 ft	SS-102 0-1 ft	SS-103 0-1 ft
Pesticides/PCBs (μg/kg)											
4-4'-DDD	NC	4600	4000	1.3J	71U	23.4J	3.6U	3.6U	NA	NA	NA
4-4'-DDE	NC	3300	18000	4.6	172	149	1.6J	3.6U	NA	NA	NA
4-4'-DDT	NC	3300	11000	3.2J	160	112J	1.6J	3.6U	NA	NA	NA
Alpha-Chlordane	NC	3100	9600	3.5U	564	176	3.6U	3.6U	NA	NA	NA
Gamma-Chlordane	NC	3100	9600	3.5U	310	89.6	3.6U	3.6U	NA	NA	NA
Heptachlor Epoxide	NC	100	600	1.7U	44.8	13.4J	1.8U	1.8U	NA	NA	NA
Inorganics (mg/kg)											
Arsenic	2.04	0.8	29	0.66U	**11.8**	**3.5**	0.54U	0.38U	0.38U	1.5	2

TABLE 5-1

SOIL ANALYTICAL RESULTS
OPERABLE UNIT 12, OLD GOLF COURSE
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

PARAMETER	Inorganic Background Data Set Levels[1]	FDEP SCTLs[2]		PHASE II / JANUARY 2000							
				CEF-OGC-							
		Residential Direct Exposure	Leachability to Groundwater	SS-104 0-1 ft	SS-105 1-2 ft	SS-106 0-1 ft	SS-107 0-1 ft	SS-108 0-1 ft	SS-109 0-1 ft	SS-110 0-1 ft	SS-111 0-1 ft
Pesticides/PCBs (μg/kg)											
4-4'-DDD	NC	4600	4000	NA	NA	NA	NA	NA	NA	NA	NA
4-4'-DDE	NC	3300	18000	NA	NA	NA	NA	NA	NA	NA	NA
4-4'-DDT	NC	3300	11000	NA	NA	NA	NA	NA	NA	NA	NA
Alpha-Chlordane	NC	3100	9600	NA	NA	NA	NA	NA	NA	NA	NA
Gamma-Chlordane	NC	3100	9600	NA	NA	NA	NA	NA	NA	NA	NA
Heptachlor Epoxide	NC	100	600	NA	NA	NA	NA	NA	NA	NA	NA
Inorganics (mg/kg)											
Arsenic	2.04	0.8	29	0.93	**11.9**	**5.6**	**20.3**	**2.2**	**4.2**	0.39U	**2.2**

TABLE 5-1

SOIL ANALYTICAL RESULTS
OPERABLE UNIT 12, OLD GOLF COURSE
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

PARAMETER	Inorganic Background Data Set Levels[1]	FDEP SCTLs[2]		PHASE II / JANUARY 2000							
				CEF-OGC-							
		Residential Direct Exposure	Leachability to Groundwater	SS-112 1-2 ft	SS-113 0-1 ft	SS-114 0-1 ft	SS-115 0-1 ft	SS-116 0-1 ft	SS-117 0-1 ft	SS-118 0-1 ft	SS-119 0-1 ft
Pesticides/PCBs (μg/kg)											
4-4'-DDD	NC	4600	4000	NA	NA	NA	NA	NA	NA	NA	NA
4-4'-DDE	NC	3300	18000	NA	NA	NA	NA	NA	NA	NA	NA
4-4'-DDT	NC	3300	11000	NA	NA	NA	NA	NA	NA	NA	NA
Alpha-Chlordane	NC	3100	9600	NA	NA	NA	NA	NA	NA	NA	NA
Gamma-Chlordane	NC	3100	9600	NA	NA	NA	NA	NA	NA	NA	NA
Heptachlor Epoxide	NC	100	600	NA	NA	NA	NA	NA	NA	NA	NA
Inorganics (mg/kg)											
Arsenic	2.04	0.8	29	1.1	**4**	**3.4**	**3.8**	**11.5**	**5**	**14.5**	1.4

TABLE 5-1

SOIL ANALYTICAL RESULTS
OPERABLE UNIT 12, OLD GOLF COURSE
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

PARAMETER	Inorganic Background Data Set Levels[1]	FDEP SCTLs[2]		PHASE II / JANUARY 2000							
				CEF-OGC-							
		Residential Direct Exposure	Leachability to Groundwater	SS-120 0-1 ft	SS-121 0-1 ft	SS-122 0-1 ft	SS-123 0-1 ft	SS-124 0-1 ft	SS-125 0-1 ft	SS-126 0-1 ft	SS-127 0-1 ft
Pesticides/PCBs (μg/kg)											
4-4'-DDD	NC	4600	4000	NA	NA	NA	NA	NA	NA	NA	NA
4-4'-DDE	NC	3300	18000	NA	NA	NA	NA	NA	NA	NA	NA
4-4'-DDT	NC	3300	11000	NA	NA	NA	NA	NA	NA	NA	NA
Alpha-Chlordane	NC	3100	9600	NA	NA	NA	NA	NA	NA	NA	NA
Gamma-Chlordane	NC	3100	9600	NA	NA	NA	NA	NA	NA	NA	NA
Heptachlor Epoxide	NC	100	600	NA	NA	NA	NA	NA	NA	NA	NA
Inorganics (mg/kg)											
Arsenic	2.04	0.8	29	**3.3**	0.81	0.76	**2.5**	0.86	0.38U	0.35U	**4.1**

TABLE 5-1

SOIL ANALYTICAL RESULTS
OPERABLE UNIT 12, OLD GOLF COURSE
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

PARAMETER	Inorganic Background Data Set Levels[1]	FDEP SCTLs[2]		PHASE III / MARCH 2000								
				CEF-OGC-								
		Residential Direct Exposure	Leachability to Groundwater	SS-201 0-1 ft	SS-202 0-1 ft	SS-203 0-1 ft	SS-203 (DUP) 0-1 ft	SS-204 0-1 ft	SS-205 1-2 ft	SS-206 0-1 ft	SS-207 0-1 ft	SS-208 0-1 ft
Pesticides/PCBs (µg/kg)												
4-4'-DDD	NC	4600	4000	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-4'-DDE	NC	3300	18000	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-4'-DDT	NC	3300	11000	NA	NA	NA	NA	NA	NA	NA	NA	NA
Alpha-Chlordane	NC	3100	9600	NA	NA	NA	NA	NA	NA	NA	NA	NA
Gamma-Chlordane	NC	3100	9600	NA	NA	NA	NA	NA	NA	NA	NA	NA
Heptachlor Epoxide	NC	100	600	NA	NA	NA	NA	NA	NA	NA	NA	NA
Inorganics (mg/kg)												
Arsenic	2.04	0.8	29	0.59U	0.88U	0.69U	0.38U	0.63U	0.7U	0.66U	0.36U	0.49U

TABLE 5-1

SOIL ANALYTICAL RESULTS
OPERABLE UNIT 12, OLD GOLF COURSE
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

PARAMETER	Inorganic Background Data Set Levels[1]	FDEP SCTLs[2]		PHASE III / MARCH 2000							
				CEF-OGC-							
		Residential Direct Exposure	Leachability to Groundwater	SS-208 (DUP) 0-1 ft	SS-209 0-1 ft	SS-210 0-1 ft	SS-211 0-1 ft	SS-212 0-1 ft	SS-213 0-1 ft	SS-214 0-1 ft	SS-215 0-1 ft
Pesticides/PCBs (μg/kg)											
4-4'-DDD	NC	4600	4000	NA	NA	NA	NA	NA	NA	NA	NA
4-4'-DDE	NC	3300	18000	NA	NA	NA	NA	NA	NA	NA	NA
4-4'-DDT	NC	3300	11000	NA	NA	NA	NA	NA	NA	NA	NA
Alpha-Chlordane	NC	3100	9600	NA	NA	NA	NA	NA	NA	NA	NA
Gamma-Chlordane	NC	3100	9600	NA	NA	NA	NA	NA	NA	NA	NA
Heptachlor Epoxide	NC	100	600	NA	NA	NA	NA	NA	NA	NA	NA
Inorganics (mg/kg)											
Arsenic	2.04	0.8	29	0.99U	**5.2**	0.37U	0.37U	0.36U	0.49U	0.69U	1.6U

TABLE 5-1

SOIL ANALYTICAL RESULTS
OPERABLE UNIT 12, OLD GOLF COURSE
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

PARAMETER	Inorganic Background Data Set Levels[1]	FDEP SCTLs[2]		PHASE III / MARCH 2000							
				CEF-OGC-							
		Residential Direct Exposure	Leachability to Groundwater	SS-216 0-1 ft	SS-217 0-1 ft	SS-218 0-1 ft	SS-219 0-1 ft	SS-220 0-1 ft	SS-221 0-1 ft	SS-222 0-1 ft	SU-223 2-3 ft
Pesticides/PCBs (μg/kg)											
4-4'-DDD	NC	4600	4000	NA	NA	NA	NA	NA	NA	NA	NA
4-4'-DDE	NC	3300	18000	NA	NA	NA	NA	NA	NA	NA	NA
4-4'-DDT	NC	3300	11000	NA	NA	NA	NA	NA	NA	NA	NA
Alpha-Chlordane	NC	3100	9600	NA	NA	NA	NA	NA	NA	NA	NA
Gamma-Chlordane	NC	3100	9600	NA	NA	NA	NA	NA	NA	NA	NA
Heptachlor Epoxide	NC	100	600	NA	NA	NA	NA	NA	NA	NA	NA
Inorganics (mg/kg)											
Arsenic	2.04	0.8	29	**23.3**	2.3U	0.36U	0.44U	3.7U	1.8U	**4.3**	0.35U

TABLE 5-1

SOIL ANALYTICAL RESULTS
OPERABLE UNIT 12, OLD GOLF COURSE
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

PARAMETER	Inorganic Background Data Set Levels[1]	FDEP SCTLs[2]		PHASE III / MARCH 2000			PHASE IV / MAY 2000			
				CEF-OGC-			CEF-OGC-			
		Residential Direct Exposure	Leachability to Groundwater	SS-224 1-2 ft	SS-225 1-2 ft	SS-226 1-2 ft	SS-301 0-1 ft	SS-302 0-1 ft	SS-303 0-1 ft	SS-303 (DUP) 0-1 ft
Pesticides/PCBs (µg/kg)										
4-4'-DDD	NC	4600	4000	NA	NA	NA	NA	NA	NA	NA
4-4'-DDE	NC	3300	18000	NA	NA	NA	NA	NA	NA	NA
4-4'-DDT	NC	3300	11000	NA	NA	NA	NA	NA	NA	NA
Alpha-Chlordane	NC	3100	9600	NA	NA	NA	NA	NA	NA	NA
Gamma-Chlordane	NC	3100	9600	NA	NA	NA	NA	NA	NA	NA
Heptachlor Epoxide	NC	100	600	NA	NA	NA	NA	NA	NA	NA
Inorganics (mg/kg)										
Arsenic	2.04	0.8	29	0.55U	0.42U	0.52U	0.37U	0.36U	0.35U	0.36U

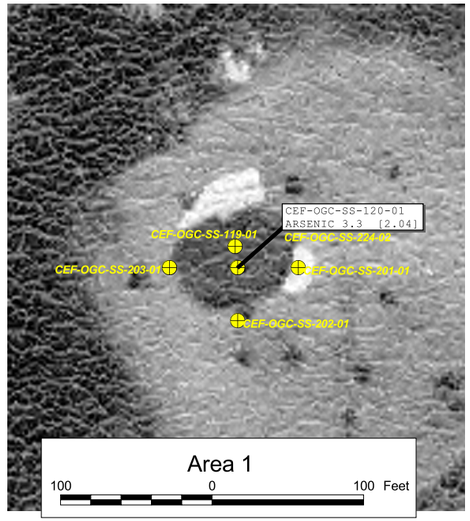
TABLE 5-1

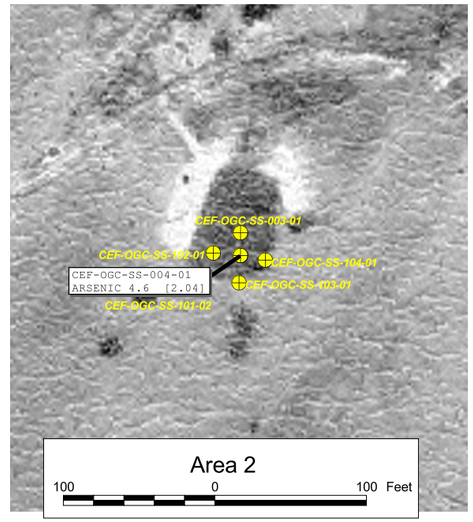
SOIL ANALYTICAL RESULTS
OPERABLE UNIT 12, OLD GOLF COURSE
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

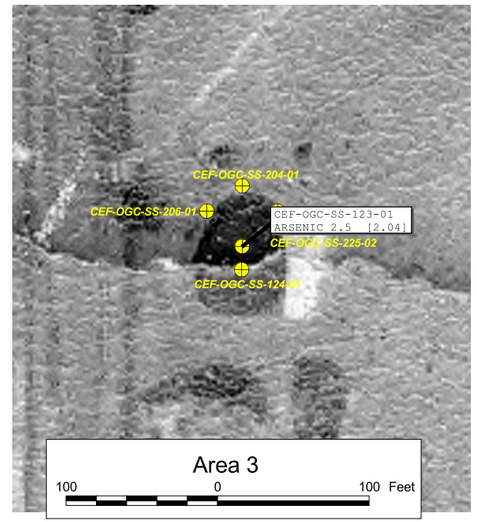
PARAMETER	Inorganic Background Data Set Levels[1]	FDEP SCTLs[2]		PHASE IV / MAY 2000		
				CEF-OGC-		
		Residential Direct Exposure	Leachability to Groundwater	SS-304 1-2 ft	SS-305 1-2 ft	SS-306 2-3 ft
Pesticides/PCBs (µg/kg)						
4-4'-DDD	NC	4600	4000	NA	NA	NA
4-4'-DDE	NC	3300	18000	NA	NA	NA
4-4'-DDT	NC	3300	11000	NA	NA	NA
Alpha-Chlordane	NC	3100	9600	NA	NA	NA
Gamma-Chlordane	NC	3100	9600	NA	NA	NA
Heptachlor Epoxide	NC	100	600	NA	NA	NA
Inorganics (mg/kg)						
Arsenic	2.04	0.8	29	1.9U	**5.8**	1U

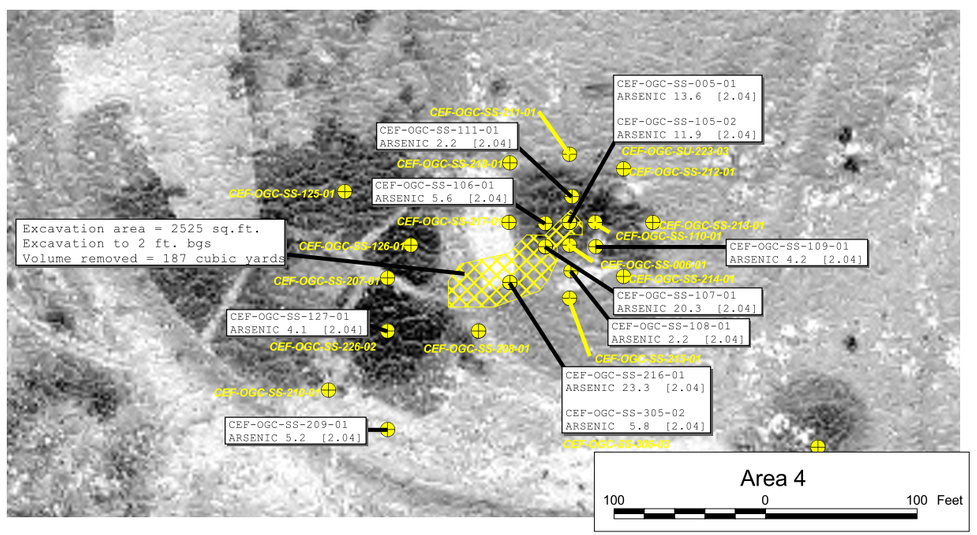
NOTES:
Only detected analytes are reported.
J - Positive result is estimated as a result of a value below the Contract Required Quantitation Limit (CRQL) or a technical noncompliance.
NA - Not Analyzed.
NC - No Criteria.
ND - Not Detected.
U - Value is a nondetected result as reported by the laboratory and should not be considered present.
1 NAS Cecil Field Inorganic Background Data Set (HLA, 1998b).
2 Florida Soil Cleanup Target Level, Florida Administrative Code (FAC) Chapter 62-777 (FDEP, 1999).
Analyte concentration must be greater than NAS Cecil Field background concentrations to be considered an exceedance.

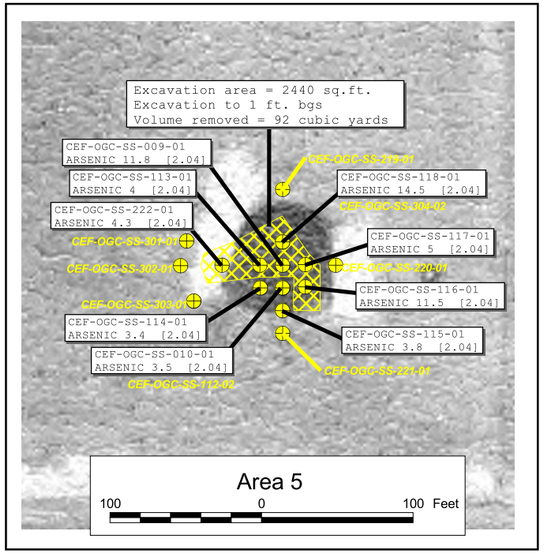
p:\gis\cecil\ogc_actionmemo02.apr 07May01 MJJ 7_Phase VII Sample Locations Layout

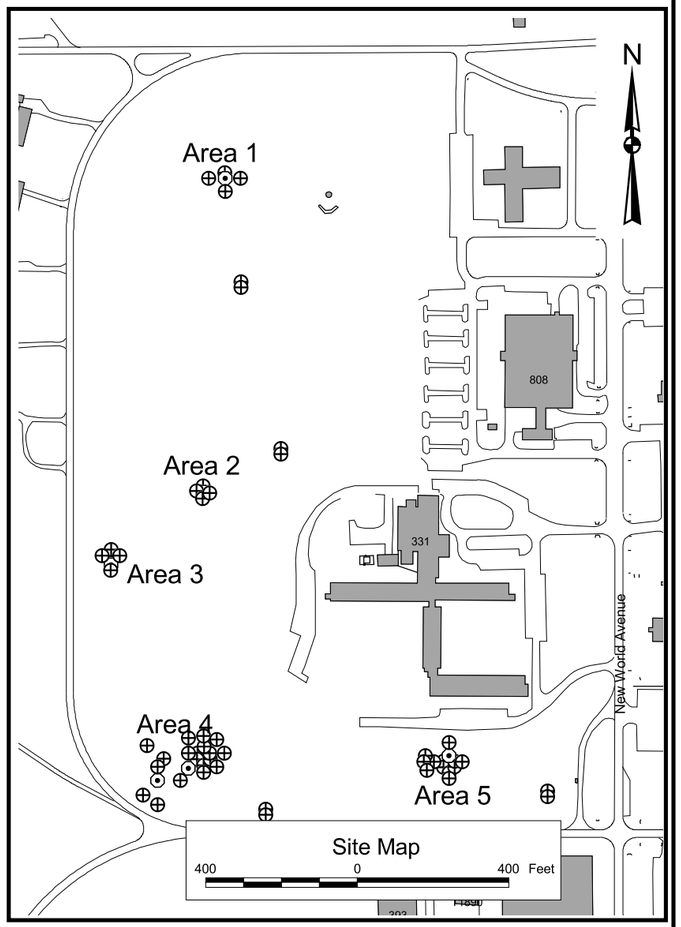












Legend
- Surface Soil Sample
- Surface and Subsurface Soil Sample
- Subsurface Soil Sample

CEF-OGC-SS-118-01
ARSENIC 14.5 [2.04]

Sample ID
IBDS for Arsenic mg/kg
Detection Concentration
Parameter

DRAWN BY MJJ	DATE 29Feb00	ARSENIC EXCEEDANCES AND REMEDIAL ACTIVITIES OLD GOLF COURSE TECHNICAL MEMORANDUM NAVAL AIR STATION CECIL FIELD JACKSONVILLE, FLORIDA	CONTRACT NO. 0039
CHECKED BY	DATE		APPROVED BY / DATE
COST/SCHED-AREA			APPROVED BY / DATE
SCALE AS NOTED			DRAWING NO. FIGURE 5-1 / REV. 0

6.0 RISK EVALUATION

6.1 HUMAN HEALTH RISK EVALUATION

The detected inorganic analyte and organic compounds were compared to readily available risk-based screening levels to assess the likelihood of adverse human health effects associated with potential exposure to surface soil or groundwater. 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 goals 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. For arsenic, the IBDS value was greater than the FDEP SCTL for residential direct exposure; therefore, the IBDS value was used as the remediation goal.

The results of the sampling at the OGC identified the extent of arsenic contamination in excess of the NAS Cecil Field IBDS value of 2.04 milligrams per kilograms (mg/kg). A statistically based approach was used to determine how much excavation would be required. It was determined that not all samples with arsenic concentrations greater than the IBDS value would need to be removed. The exceedance of a criterion by an individual sample does not necessarily indicate a significant exceedance of a target risk level. Exposure to arsenic in the soil is a result of exposure to an area, not an individual sampling location. Therefore, the entire data set was used to determine a post-excavation exposure concentration that would be less than the IBDS value for arsenic.

The statistical approach uses an iterative process to determine above which arsenic concentration the soil must be removed to achieve a 95 percent upper confidence limit (UCL) less than or equal to the IBDS value for arsenic. In theory, the sampling locations with the highest arsenic concentrations would be excavated and replaced with clean fill. The excavated sample points were assumed to be replaced with clean fill having an arsenic concentration of 0.5 mg/kg, a value equal to one-half the method detection limit. The data set was evaluated in a stepwise manner by replacing the highest concentration with the clean fill concentration, then recalculating the UCL. When the UCL was less than the IBDS value, the calculations were stopped.

This iterative process indicated that soil with arsenic concentrations greater than 5.6 mg/kg in Area 4 and 3.8 mg/kg in Area 5 would require removal to achieve a UCL less than 2.04 mg/kg. The areas with arsenic concentrations greater than the target concentrations are shown on Figure 5-1. Some samples within the shaded area have concentrations less than 2.04 mg/kg; these were included to facilitate definition of the excavation area. The UCLs for Areas 1, 2, and 3 were less than 2.04 mg/kg, so no

excavation was required in those areas. The results of the statistical calculations are provided in Table 6-1.

The soil samples with arsenic concentrations in excess of 5.6 mg/kg in Area 4 and 3.8 mg/kg in Area 5 were excavated and disposed in a permitted solid waste disposal facility. The UCL concentrations for arsenic in the areas outside the excavation area did not exceed the IBDS value. Therefore, a Human Health Preliminary Risk Evaluation (PRE) does not need to be performed.

6.2 ECOLOGICAL RISK EVALUATION

Most of the site is wooded and consists of pine flatwoods habitat. As such, the site provides habitat for a variety of birds, mammals, reptiles, and invertebrates. However, soils were excavated in areas where arsenic concentrations were elevated. Arsenic concentrations in all remaining samples are less than 10 mg/kg, which is the EPA Region IV ecological screening value for arsenic (U.S. EPA, 2000). Therefore, based on the samples collected and remedial activities conducted at the site, arsenic poses negligible risks to ecological receptors at the site.

TABLE 6-1

ATTAINMENT OF ARSENIC CLEANUP LEVEL
OPERABLE UNIT 12, OLD GOLF COURSE
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

AREA 1	
Sample	PRE
N	6
Mean	1
St Dev	1.2
t	0.25473
95% UCL	1.1
SS-119-01	1.4
SS-120-01	3.3
SS-201-01	0.3
SS-202-01	0.44
SS-203-01	0.35
SS-224-02	0.28

AREA 2	
Sample	PRE
N	6
Mean	1
St Dev	0.8
t	0.62084
95% UCL	2
SS-004-01	4.6
SS-103-01	2
SS-102-01	1.5
SS-104-01	0.93
SS-003-01	0.28
SS-101-02	0.19

AREA 3	
Sample	PRE
N	6
Mean	0.8
St Dev	0.9
t	-0.00132
95% UCL	0.8
SS-123-01	2.5
SS-124-01	0.86
SS-204-01	0.32
SS-205-01	0.35
SS-206-01	0.33
SS-225-02	0.21

AREA 4		
Sample	PRE	POST
N	29	29
Mean	3.6	1.2
St Dev	6.1	1.6
t	0.59761	0.405231
95% UCL	4.2	1.4
Goal	2.04	2.04
Remediation Level	0.5	0.5
SS-216-01	**23.3**	**0.5**
SS-107-01	**20.3**	**0.5**
SS-005-01	**13.6**	**0.5**
SS-105-02	**11.9**	**0.5**
SS-106-01	5.6	5.6
SS-209-01	5.2	5.2
SS-109-01	4.2	4.2
SS-127-01	4.1	4.1
SS-217-01	2.3	2.3
SS-108-01	2.2	2.2
SS-111-01	2.2	2.2
SS-006-01	1.6	1.6
SS-215-01	1.6	1.6
SS-218-01	1.1	1.1
SS-214-01	0.35	0.35
SS-226-02	0.26	0.26
SS-208-01	0.25	0.25
SS-213-01	0.25	0.25
SS-110-01	0.2	0.2
SS-125-01	0.19	0.19
SS-210-01	0.19	0.19
SS-211-01	0.19	0.19
SS-301-01	0.19	0.19
SS-126-01	0.18	0.18
SS-207-01	0.18	0.18
SS-212-01	0.18	0.18
SS-302-01	0.18	0.18
SS-303-01	0.18	0.18
SS-304-02	1.0	1.0

AREA 5		
Sample	PRE	POST
N	15	15
Mean	5.0	1.4
St Dev	4.3	1.4
t	1.1888628	0.5570464
95% UCL	6.3	1.6
Goal	2.04	2.04
Remediation Level	0.5	0.5
SS-118-01	**14.5**	**0.5**
SS-009-01	**11.8**	**0.5**
SS-116-01	**11.5**	**0.5**
SS-305-02	**5.8**	**0.5**
SS-117-01	**5**	**0.5**
SS-222-01	**4.3**	**0.5**
SS-113-01	**4**	**0.5**
SS-115-01	3.8	3.8
SS-220-01	3.7	3.7
SS-010-01	3.5	3.5
SS-114-01	3.4	3.4
SS-221-01	1.8	1.8
SS-112-02	1.1	1.1
SS-306-03	0.5	0.5
SS-219-01	0.22	0.22

NOTES:
Arsenic cleanup level is the IBDS value of 2.04 mg/kg.
Bold samples are those that were remediated.
Concentrations are in mg/kg.

7.0 REMEDIAL ACTIVITIES

The Navy's Remedial Action Contractor (RAC), CH_2M Hill Constructors, Inc. (CH2M Hill), conducted a source removal at OU 12, OGC on August 18 through August 22, 2000. A total of 482.9 tons of arsenic-contaminated soil were excavated from the areas surrounding the sampling locations with the highest arsenic concentrations. The depth of the excavation was hand measured to a depth of 1 to 2 feet below grade as specified in the Removal Action Design Package, which was included in the Action Memorandum for the OGC (TtNUS, 2000b). The excavated soil was transported and disposed off site the same day that the soil removal occurred. Figure 5-1 shows the area where soil was excavated and removed. The soil was excavated using a hydraulic track excavator and was loaded directly into tarp-covered dump trucks for transportation and disposal. The soil was characterized prior to disposal by the RAC. The excavated soil was transported by Beaver Bulk Trucking to the Broadhurst Landfill in Jessup, Georgia (CH2M Hill, 2001).

The material used to backfill the excavation was certified clean fill brought in from the North Fuel Farm (NFF) at NAS Cecil Field. The site was graded and seeded with hydro-seed containing a mixture of brown millet, rye, bahia grass, fertilizer, and mulch. No confirmatory soil sampling was performed based on the specifications outlined in the Removal Action Design Package for the OGC (TtNUS, 2000b).

Detailed information on the remedial activities, including photographs, laboratory results, copies of the soil manifests, certificates of disposal, and certificate of clean fill, is provided in the Source Removal Report (CH2M Hill, 2001).

8.0 CONCLUSIONS AND RECOMMENDATIONS

8.1 CONCLUSIONS

Conclusions pertaining to OU 12, OGC are as follows:

- Areas of soil where arsenic concentrations were greater than the residential cleanup level established by statistical analyses have been excavated and disposed at a permitted solid waste disposal facility. This resulted in a 95 percent UCL concentraton of arsenic below the IBDS value, which allows for unrestricted reuse of the site.

- The excavated area was restored to pre-excavation conditions with clean fill material.

- Arsenic concentrations in the soil samples collected outside the excavation area did not exceed the cleanup level established by the statistical analysis, which was based on the IBDS value for arsenic.

- Since the removal action has been conducted, no contaminants or pathways pose a threat to the public health, welfare, or the environment.

8.2 RECOMMENDATIONS

The removal action conducted at OU 12, OGC met the requirements of the Action Memorandum, is protective of human health and the environment, and utilized permanent solutions for the site. Because the removal action is complete, no further action is warranted. The final recommendation is no further action. No land use controls are required because the removal action was conducted to meet residential SCTLs. Unrestricted reuse of the site is permitted.

It is also recommended that the color classification of OGC be changed from Grey to Dark Green to denote that releases of hazardous substances have occurred and remedial actions have been taken to protect human health and the environment.

APPENDIX A

ANALYTICAL LABORATORY RESULTS

PHASE I ANALYTICAL RESULTS

Tetra Tech NUS **INTERNAL CORRESPONDENCE**

PITT-01-9-001

TO: **MARK SPERANZA** **DATE: FEBRUARY 10, 2000**

FROM: **JUSTIN ORBICH** **CC: DV FILE**

SUBJECT: **ORGANIC DATA VALIDATION – PEST/HERB/OPEST**
CTO 078 – NAS CECIL FIELD
SDG F5326

SAMPLES: 16/Soil

CEF-OGC-SS-001-01	CEF-OGC-SS-002-01
CEF-OGC-SS-003-01	CEF-OGC-SS-004-01
CEF-OGC-SS-005-01	CEF-OGC-SS-006-01
CEF-OGC-SS-007-01	CEF-OGC-SS-008-01
CEF-OGC-SS-009-01	CEF-OGC-SS-010-01
CEF-OGC-SS-011-01	CEF-OGC-SS-012-01
CEF-OGC-SS-007-01	CEF-OGC-SS-008-01
CEF-OGC-SS-DU01	CEF-OGC-SS-DU02

OVERVIEW

The sample set for CTO 078, SDG F5326 Naval Air Station (NAS) Cecil Field; Florida consists of sixteen (16) soil environmental samples. The samples were analyzed for Target Compound List (TCL) pesticide, herbicide, and organophosphorous pesticide organic compounds. Two (2) field duplicate pairs (CEF-OGC-SS-001-01/CEF-OGC-SS-DU01 and CEF-OGC-SS-004-01/CEF-OGC-SS-DU02) were included within this SDG.

The samples were collected by Tetra Tech, NUS on and November 18th, 1999 and analyzed by Accutest Laboratories. All analyses were performed in accordance with Naval Facilities Engineering Service Center (NFESC) Quality Assurance/Quality Control (QA/QC) criteria and analyzed according to SW 846 Method 8081A, 8151A, and 8141A analytical and reporting protocols. The data in this SDG was validated with regard to the following parameters:

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

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

MEMO TO: MR. M. SPERANZA
DATE: FEBRUARY 10, 2000 – PAGE 2

PESTICIDE FRACTION

Samples CEF-OGC-SS-009-01 and CEF-OGC-SS-010-01 were analyzed at a dilution thus causing elevated reporting limits.

HERBICIDE FRACTION

It should be noted that in sample CEF-OGC-SS-005-01, the Form I and the electronic data did not contain any sample results. The laboratory was notified and amended the associated forms for the aforementioned sample.

ORGANOPHOSPHOROUS PESTICIDE FRACTION

All quality control parameters were met for this fraction.

ADDITIONAL COMMENTS

It should be noted that the laboratory did not provide the calibration data for the herbicide and organophosphorous pesticide fractions. The laboratory was notified and in return provided the calibration data.

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

EXECUTIVE SUMMARY

Laboratory performance: In the herbicide fraction, sample CEF-OGC-SS-005-01 did not contain sample results on the Form I and the electronic data.

Other Factors Affecting Data Quality: Several samples were analyzed at a dilution in the pesticide fraction.

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

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

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

Justin Orbich

Chemist/Data Validator
Tetra Tech, NUS

Joseph A. 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 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%

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.

CTO078 - NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F5326

SAMPLE NUMBER:	CEF-OGC-SS-001-01			CEF-OGC-SS-002-01			CEF-OGC-SS-003-01			CEF-OGC-SS-004-01		
SAMPLE DATE:	11/18/99			11/18/99			11/18/99			11/18/99		
LABORATORY ID:	F5326-1			F5326-2			F5326-3			F5326-4		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	87.9 %			89.8 %			89.9 %			93.1 %		
UNITS:	UG/KG			UG/KG			UG/KG			UG/KG		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
PESTICIDES/PCBs												
4,4'-DDD	1.6	J	P	2.8	J	P	3.7	U		1.6	J	P
4,4'-DDE	2	J	P	5.8			3.7	U		2.7	J	P
4,4'-DDT	3.3	J	P	6.5	J	P	3.7	U		2.5	J	P
ALDRIN	1.9	U		1.8	U		1.8	U		1.8	U	
ALPHA-BHC	1.9	U		1.8	U		1.8	U		1.8	U	
ALPHA-CHLORDANE	3.8	U		3.7	U		3.7	U		3.6		
BETA-BHC	1.9	U		1.8	U		1.8	U		1.8	U	
DELTA-BHC	1.9	U		1.8	U		1.8	U		1.8	U	
DIELDRIN	1.9	U		1.8	U		1.8	U		1.8	U	
ENDOSULFAN I	1.9	U		1.8	U		1.8	U		1.8	U	
ENDOSULFAN II	3.8	U		3.7	U		3.7	U		3.6	U	
ENDOSULFAN SULFATE	3.8	U		3.7	U		3.7	U		3.6	U	
ENDRIN	3.8	U		3.7	U		3.7	U		3.6	U	
ENDRIN ALDEHYDE	3.8	U		3.7	U		3.7	U		3.6	U	
ENDRIN KETONE	3.8	U		3.7	U		3.7	U		3.6	U	
GAMMA-BHC (LINDANE)	1.9	U		1.8	U		1.8	U		1.8	U	
GAMMA-CHLORDANE	3.8	U		3.7	U		3.7	U		2.7	J	P
HEPTACHLOR	1.9	U		1.8	U		1.8	U		1.8	U	
HEPTACHLOR EPOXIDE	1.9	U		1.8	U		1.8	U		1.8	U	
METHOXYCHLOR	7.6	U		7.4	U		7.4	U		7.2	U	
TOXAPHENE	190	U		180	U		180	U		180	U	

CTO078 - NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F5326

SAMPLE NUMBER:	CEF-OGC-SS-005-01			CEF-OGC-SS-006-01			CEF-OGC-SS-007-01			CEF-OGC-SS-008-01		
SAMPLE DATE:	11/18/99			11/18/99			11/18/99			11/18/99		
LABORATORY ID:	F5326-5			F5326-6			F5326-7			F5326-8		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	92.6 %			92.6 %			94.2 %			95.4 %		
UNITS:	UG/KG			UG/KG			UG/KG			UG/KG		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
PESTICIDES/PCBs												
4,4'-DDD	3.6	U		2.4	J	P	3.5			1.3	J	P
4,4'-DDE	3.6	U		4.7			24.9			4.6		
4,4'-DDT	3.6	U		4.9	J	P	19.2	J	P	3.2	J	P
ALDRIN	1.8	U		1.8	U		1.8	U		1.7	U	
ALPHA-BHC	1.8	U		1.8	U		1.8	U		1.7	U	
ALPHA-CHLORDANE	3.6	U		2.9	J	P	2.6	J	P	3.5	U	
BETA-BHC	1.8	U		1.8	U		1.8	U		1.7	U	
DELTA-BHC	1.8	U		1.8	U		1.8	U		1.7	U	
DIELDRIN	1.8	U		1.8	U		1.8	U		1.7	U	
ENDOSULFAN I	1.8	U		1.8	U		1.8	U		1.7	U	
ENDOSULFAN II	3.6	U		3.6	U		3.5	U		3.5	U	
ENDOSULFAN SULFATE	3.6	U		3.6	U		3.5	U		3.5	U	
ENDRIN	3.6	U		3.6	U		3.5	U		3.5	U	
ENDRIN ALDEHYDE	3.6	U		3.6	U		3.5	U		3.5	U	
ENDRIN KETONE	3.6	U		3.6	U		3.5	U		3.5	U	
GAMMA-BHC (LINDANE)	1.8	U		1.8	U		1.8	U		1.7	U	
GAMMA-CHLORDANE	3.6	U		2.7	J	P	2	J	P	3.5	U	
HEPTACHLOR	1.8	U		1.8	U		1.8	U		1.7	U	
HEPTACHLOR EPOXIDE	1.8	U		1.8	U		1.8	U		1.7	U	
METHOXYCHLOR	7.2	U		7.2	U		7.1	U		7	U	
TOXAPHENE	180	U		180	U		180	U		170	U	

CTO078 - NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F5326

SAMPLE NUMBER:	CEF-OGC-SS-009-01			CEF-OGC-SS-010-01			CEF-OGC-SS-011-01			CEF-OGC-SS-012-01		
SAMPLE DATE:	11/18/99			11/18/99			11/18/99			11/18/99		
LABORATORY ID:	F5326-9			F5326-10			F5326-11			F5326-12		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	94.0 %			93.3 %			92.8 %			93.4 %		
UNITS:	UG/KG			UG/KG			UG/KG			UG/KG		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
PESTICIDES/PCBs												
4,4'-DDD	71	U		23.4	J	P	3.6	U		3.6	U	
4,4'-DDE	172			149			1.6	J	P	3.6	U	
4,4'-DDT	160			112	J	P	1.6	J	P	3.6	U	
ALDRIN	35	U		18	U		1.8	U		1.8	U	
ALPHA-BHC	35	U		18	U		1.8	U		1.8	U	
ALPHA-CHLORDANE	564			176			3.6	U		3.6	U	
BETA-BHC	35	U		18	U		1.8	U		1.8	U	
DELTA-BHC	35	U		18	U		1.8	U		1.8	U	
DIELDRIN	35	U		18	U		1.8	U		1.8	U	
ENDOSULFAN I	35	U		18	U		1.8	U		1.8	U	
ENDOSULFAN II	71	U		36	U		3.6	U		3.6	U	
ENDOSULFAN SULFATE	71	U		36	U		3.6	U		3.6	U	
ENDRIN	71	U		36	U		3.6	U		3.6	U	
ENDRIN ALDEHYDE	71	U		36	U		3.6	U		3.6	U	
ENDRIN KETONE	71	U		36	U		3.6	U		3.6	U	
GAMMA-BHC (LINDANE)	35	U		18	U		1.8	U		1.8	U	
GAMMA-CHLORDANE	310			89.6			3.6	U		3.6	U	
HEPTACHLOR	35	U		18	U		1.8	U		1.8	U	
HEPTACHLOR EPOXIDE	44.8			13.4	J	P	1.8	U		1.8	U	
METHOXYCHLOR	140	U		72	U		7.2	U		7.1	U	
TOXAPHENE	3500	U		1800	U		180	U		180	U	

CTO078 - NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F5326

SAMPLE NUMBER:	CEF-OGC-SS-DU01			CEF-OGC-SS-DU02								
SAMPLE DATE:	11/18/99			11/18/99			/ /			/ /		
LABORATORY ID:	F5326-13			F5326-14								
QC_TYPE:	NORMAL			NORMAL								
% SOLIDS:	89.0 %			92.9 %			100.0 %			100.0 %		
UNITS:	UG/KG			UG/KG								
FIELD DUPLICATE OF:	CEF-OGC-SS-001-01			CEF-OGC-SS-004-01								
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
PESTICIDES/PCBs												
4,4'-DDD	1.6	J	P	1.1	J	P						
4,4'-DDE	1.8	J	P	2.4	J	P						
4,4'-DDT	2.9	J	P	2.2	J	P						
ALDRIN	1.9	U		1.8	U							
ALPHA-BHC	1.9	U		1.8	U							
ALPHA-CHLORDANE	3.7	U		3.6								
BETA-BHC	1.9	U		1.8	U							
DELTA-BHC	1.9	U		1.8	U							
DIELDRIN	1.9	U		1.8	U							
ENDOSULFAN I	1.9	U		1.8	U							
ENDOSULFAN II	3.7	U		3.6	U							
ENDOSULFAN SULFATE	3.7	U		3.6	U							
ENDRIN	3.7	U		3.6	U							
ENDRIN ALDEHYDE	3.7	U		3.6	U							
ENDRIN KETONE	3.7	U		3.6	U							
GAMMA-BHC (LINDANE)	1.9	U		1.8	U							
GAMMA-CHLORDANE	3.7	U		2.3	J	P						
HEPTACHLOR	1.9	U		1.8	U							
HEPTACHLOR EPOXIDE	1.9	U		1.8	U							
METHOXYCHLOR	7.5	U		7.2	U							
TOXAPHENE	190	U		180	U							

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-OGC-SS-001-01		
Lab Sample ID:	F5326-1	**Date Sampled:**	11/18/99
Matrix:	SO - Soil	**Date Received:**	11/19/99
Method:	SW846 3550B/8081A	**Percent Solids:**	87.9
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	ST01467.D	1	12/02/99	SKW	11/30/99	OP1118	GST66
Run #2							

Pesticide TCL List

CAS No.	Compound	Result	RL	Units	Q
309-00-2	Aldrin	ND	1.9	ug/kg	
319-84-6	alpha-BHC	ND	1.9	ug/kg	
319-85-7	beta-BHC	ND	1.9	ug/kg	
319-86-8	delta-BHC	ND	1.9	ug/kg	
58-89-9	gamma-BHC (Lindane)	ND	1.9	ug/kg	
5103-71-9	alpha-Chlordane	ND	3.8	ug/kg	
5103-74-2	gamma-Chlordane	ND	3.8	ug/kg	
60-57-1	Dieldrin	ND	1.9	ug/kg	
72-54-8	4,4'-DDD	1.6	3.8	ug/kg	J
72-55-9	4,4'-DDE	2.0	3.8	ug/kg	J
50-29-3	4,4'-DDT [b]	3.3	3.8	ug/kg	J
72-20-8	Endrin	ND	3.8	ug/kg	
1031-07-8	Endosulfan sulfate	ND	3.8	ug/kg	
7421-93-4	Endrin aldehyde	ND	3.8	ug/kg	
53494-70-5	Endrin ketone	ND	3.8	ug/kg	
959-98-8	Endosulfan-I	ND	1.9	ug/kg	
33213-65-9	Endosulfan-II	ND	3.8	ug/kg	
76-44-8	Heptachlor	ND	1.9	ug/kg	
1024-57-3	Heptachlor epoxide	ND	1.9	ug/kg	
72-43-5	Methoxychlor	ND	7.6	ug/kg	
8001-35-2	Toxaphene	ND	190	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	88%		40-150%
2051-24-3	Decachlorobiphenyl	80%		30-160%

(a) All hits confirmed by dual column analysis.
(b) Sample matrix caused CCV to fail low, sample was reanalyzed with similar results. All values are considered estimated.

000004

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

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-OGC-SS-002-01		
Lab Sample ID:	F5326-2	**Date Sampled:**	11/18/99
Matrix:	SO - Soil	**Date Received:**	11/19/99
Method:	SW846 3550B/8081A	**Percent Solids:**	89.8
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	ST01470.D	1	12/02/99	SKW	11/30/99	OP1118	GST66
Run #2							

Pesticide TCL List

CAS No.	Compound	Result	RL	Units	Q
309-00-2	Aldrin	ND	1.8	ug/kg	
319-84-6	alpha-BHC	ND	1.8	ug/kg	
319-85-7	beta-BHC	ND	1.8	ug/kg	
319-86-8	delta-BHC	ND	1.8	ug/kg	
58-89-9	gamma-BHC (Lindane)	ND	1.8	ug/kg	
5103-71-9	alpha-Chlordane	ND	3.7	ug/kg	
5103-74-2	gamma-Chlordane	ND	3.7	ug/kg	
60-57-1	Dieldrin	ND	1.8	ug/kg	
72-54-8	4,4'-DDD	2.8	3.7	ug/kg	J
72-55-9	4,4'-DDE	5.8	3.7	ug/kg	
50-29-3	4,4'-DDT [b]	6.5	3.7	ug/kg	J
72-20-8	Endrin	ND	3.7	ug/kg	
1031-07-8	Endosulfan sulfate	ND	3.7	ug/kg	
7421-93-4	Endrin aldehyde	ND	3.7	ug/kg	
53494-70-5	Endrin ketone	ND	3.7	ug/kg	
959-98-8	Endosulfan-I	ND	1.8	ug/kg	
33213-65-9	Endosulfan-II	ND	3.7	ug/kg	
76-44-8	Heptachlor	ND	1.8	ug/kg	
1024-57-3	Heptachlor epoxide	ND	1.8	ug/kg	
72-43-5	Methoxychlor	ND	7.4	ug/kg	
8001-35-2	Toxaphene	ND	180	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	92%		40-150%
2051-24-3	Decachlorobiphenyl	77%		30-160%

(a) All hits confirmed by dual column analysis.
(b) Sample matrix caused CCV to fail low, sample was reanalyzed with similar results. All values are considered estimated.

000008

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

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

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-OGC-SS-003-01		
Lab Sample ID:	F5326-3	**Date Sampled:**	11/18/99
Matrix:	SO - Soil	**Date Received:**	11/19/99
Method:	SW846 3550B/8081A	**Percent Solids:**	89.9
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	ST01471.D	1	12/02/99	SKW	11/30/99	OP1118	GST66
Run #2							

Pesticide TCL List

CAS No.	Compound	Result	RL	Units	Q
309-00-2	Aldrin	ND	1.8	ug/kg	
319-84-6	alpha-BHC	ND	1.8	ug/kg	
319-85-7	beta-BHC	ND	1.8	ug/kg	
319-86-8	delta-BHC	ND	1.8	ug/kg	
58-89-9	gamma-BHC (Lindane)	ND	1.8	ug/kg	
5103-71-9	alpha-Chlordane	ND	3.7	ug/kg	
5103-74-2	gamma-Chlordane	ND	3.7	ug/kg	
60-57-1	Dieldrin	ND	1.8	ug/kg	
72-54-8	4,4'-DDD	ND	3.7	ug/kg	
72-55-9	4,4'-DDE	ND	3.7	ug/kg	
50-29-3	4,4'-DDT	ND	3.7	ug/kg	
72-20-8	Endrin	ND	3.7	ug/kg	
1031-07-8	Endosulfan sulfate	ND	3.7	ug/kg	
7421-93-4	Endrin aldehyde	ND	3.7	ug/kg	
53494-70-5	Endrin ketone	ND	3.7	ug/kg	
959-98-8	Endosulfan-I	ND	1.8	ug/kg	
33213-65-9	Endosulfan-II	ND	3.7	ug/kg	
76-44-8	Heptachlor	ND	1.8	ug/kg	
1024-57-3	Heptachlor epoxide	ND	1.8	ug/kg	
72-43-5	Methoxychlor	ND	7.4	ug/kg	
8001-35-2	Toxaphene	ND	180	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	83%		40-150%
2051-24-3	Decachlorobiphenyl	64%		30-160%

000012

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

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

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-OGC-SS-004-01		
Lab Sample ID:	F5326-4	**Date Sampled:**	11/18/99
Matrix:	SO - Soil	**Date Received:**	11/19/99
Method:	SW846 3550B/8081A	**Percent Solids:**	93.1
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	ST01472.D	1	12/02/99	SKW	11/30/99	OP1118	GST66
Run #2							

Pesticide TCL List

CAS No.	Compound	Result	RL	Units	Q
309-00-2	Aldrin	ND	1.8	ug/kg	
319-84-6	alpha-BHC	ND	1.8	ug/kg	
319-85-7	beta-BHC	ND	1.8	ug/kg	
319-86-8	delta-BHC	ND	1.8	ug/kg	
58-89-9	gamma-BHC (Lindane)	ND	1.8	ug/kg	
5103-71-9	alpha-Chlordane	3.6	3.6	ug/kg	
5103-74-2	gamma-Chlordane	2.7	3.6	ug/kg	J
60-57-1	Dieldrin	ND	1.8	ug/kg	
72-54-8	4,4'-DDD	1.6	3.6	ug/kg	J
72-55-9	4,4'-DDE	2.7	3.6	ug/kg	J
50-29-3	4,4'-DDT [b]	2.5	3.6	ug/kg	J
72-20-8	Endrin	ND	3.6	ug/kg	
1031-07-8	Endosulfan sulfate	ND	3.6	ug/kg	
7421-93-4	Endrin aldehyde	ND	3.6	ug/kg	
53494-70-5	Endrin ketone	ND	3.6	ug/kg	
959-98-8	Endosulfan-I	ND	1.8	ug/kg	
33213-65-9	Endosulfan-II	ND	3.6	ug/kg	
76-44-8	Heptachlor	ND	1.8	ug/kg	
1024-57-3	Heptachlor epoxide	ND	1.8	ug/kg	
72-43-5	Methoxychlor	ND	7.2	ug/kg	
8001-35-2	Toxaphene	ND	180	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	95%		40-150%
2051-24-3	Decachlorobiphenyl	58%		30-160%

(a) All hits confirmed by dual column analysis.
(b) Sample matrix caused CCV to fail low, sample was reanalyzed with similar results. All values are considered estimated.

000016

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

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

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-OGC-SS-005-01		
Lab Sample ID:	F5326-5	**Date Sampled:**	11/18/99
Matrix:	SO - Soil	**Date Received:**	11/19/99
Method:	SW846 3550B/8081A	**Percent Solids:**	92.6
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	ST01473.D	1	12/02/99	SKW	11/30/99	OP1118	GST66
Run #2							

Pesticide TCL List

CAS No.	Compound	Result	RL	Units	Q
309-00-2	Aldrin	ND	1.8	ug/kg	
319-84-6	alpha-BHC	ND	1.8	ug/kg	
319-85-7	beta-BHC	ND	1.8	ug/kg	
319-86-8	delta-BHC	ND	1.8	ug/kg	
58-89-9	gamma-BHC (Lindane)	ND	1.8	ug/kg	
5103-71-9	alpha-Chlordane	ND	3.6	ug/kg	
5103-74-2	gamma-Chlordane	ND	3.6	ug/kg	
60-57-1	Dieldrin	ND	1.8	ug/kg	
72-54-8	4,4'-DDD	ND	3.6	ug/kg	
72-55-9	4,4'-DDE	ND	3.6	ug/kg	
50-29-3	4,4'-DDT	ND	3.6	ug/kg	
72-20-8	Endrin	ND	3.6	ug/kg	
1031-07-8	Endosulfan sulfate	ND	3.6	ug/kg	
7421-93-4	Endrin aldehyde	ND	3.6	ug/kg	
53494-70-5	Endrin ketone	ND	3.6	ug/kg	
959-98-8	Endosulfan-I	ND	1.8	ug/kg	
33213-65-9	Endosulfan-II	ND	3.6	ug/kg	
76-44-8	Heptachlor	ND	1.8	ug/kg	
1024-57-3	Heptachlor epoxide	ND	1.8	ug/kg	
72-43-5	Methoxychlor	ND	7.2	ug/kg	
8001-35-2	Toxaphene	ND	180	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	90%		40-150%
2051-24-3	Decachlorobiphenyl	70%		30-160%

000020

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

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

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-OGC-SS-006-01		
Lab Sample ID:	F5326-6	**Date Sampled:**	11/18/99
Matrix:	SO - Soil	**Date Received:**	11/19/99
Method:	SW846 3550B/8081A	**Percent Solids:**	92.6
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	ST01474.D	1	12/02/99	SKW	11/30/99	OP1118	GST66
Run #2							

Pesticide TCL List

CAS No.	Compound	Result	RL	Units	Q
309-00-2	Aldrin	ND	1.8	ug/kg	
319-84-6	alpha-BHC	ND	1.8	ug/kg	
319-85-7	beta-BHC	ND	1.8	ug/kg	
319-86-8	delta-BHC	ND	1.8	ug/kg	
58-89-9	gamma-BHC (Lindane)	ND	1.8	ug/kg	
5103-71-9	alpha-Chlordane	2.9	3.6	ug/kg	J
5103-74-2	gamma-Chlordane	2.7	3.6	ug/kg	J
60-57-1	Dieldrin	ND	1.8	ug/kg	
72-54-8	4,4'-DDD	2.4	3.6	ug/kg	J
72-55-9	4,4'-DDE	4.7	3.6	ug/kg	
50-29-3	4,4'-DDT [b]	4.9	3.6	ug/kg	J
72-20-8	Endrin	ND	3.6	ug/kg	
1031-07-8	Endosulfan sulfate	ND	3.6	ug/kg	
7421-93-4	Endrin aldehyde	ND	3.6	ug/kg	
53494-70-5	Endrin ketone	ND	3.6	ug/kg	
959-98-8	Endosulfan-I	ND	1.8	ug/kg	
33213-65-9	Endosulfan-II	ND	3.6	ug/kg	
76-44-8	Heptachlor	ND	1.8	ug/kg	
1024-57-3	Heptachlor epoxide	ND	1.8	ug/kg	
72-43-5	Methoxychlor	ND	7.2	ug/kg	
8001-35-2	Toxaphene	ND	180	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	98%		40-150%
2051-24-3	Decachlorobiphenyl	71%		30-160%

(a) All hits confirmed by dual column analysis.
(b) Sample matrix caused CCV to fail low, sample was reanalyzed with similar results. All values are considered estimated.

000024

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

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

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-OGC-SS-007-01		
Lab Sample ID:	F5326-7	**Date Sampled:**	11/18/99
Matrix:	SO - Soil	**Date Received:**	11/19/99
Method:	SW846 3550B/8081A	**Percent Solids:**	94.2
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	ST01477.D	1	12/02/99	SKW	11/30/99	OP1118	GST66
Run #2							

Pesticide TCL List

CAS No.	Compound	Result	RL	Units	Q
309-00-2	Aldrin	ND	1.8	ug/kg	
319-84-6	alpha-BHC	ND	1.8	ug/kg	
319-85-7	beta-BHC	ND	1.8	ug/kg	
319-86-8	delta-BHC	ND	1.8	ug/kg	
58-89-9	gamma-BHC (Lindane)	ND	1.8	ug/kg	
5103-71-9	alpha-Chlordane	2.6	3.5	ug/kg	J
5103-74-2	gamma-Chlordane	2.0	3.5	ug/kg	J
60-57-1	Dieldrin	ND	1.8	ug/kg	
72-54-8	4,4'-DDD	3.5	3.5	ug/kg	
72-55-9	4,4'-DDE	24.9	3.5	ug/kg	
50-29-3	4,4'-DDT [b]	19.2	3.5	ug/kg	J
72-20-8	Endrin	ND	3.5	ug/kg	
1031-07-8	Endosulfan sulfate	ND	3.5	ug/kg	
7421-93-4	Endrin aldehyde	ND	3.5	ug/kg	
53494-70-5	Endrin ketone	ND	3.5	ug/kg	
959-98-8	Endosulfan-I	ND	1.8	ug/kg	
33213-65-9	Endosulfan-II	ND	3.5	ug/kg	
76-44-8	Heptachlor	ND	1.8	ug/kg	
1024-57-3	Heptachlor epoxide	ND	1.8	ug/kg	
72-43-5	Methoxychlor	ND	7.1	ug/kg	
8001-35-2	Toxaphene	ND	180	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	88%		40-150%
2051-24-3	Decachlorobiphenyl	62%		30-160%

(a) All hits confirmed by dual column analysis.
(b) Sample matrix caused CCV to fail low, sample was reanalyzed with similar results. All values are considered estimated.

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

000028

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-OGC-SS-008-01		
Lab Sample ID:	F5326-8	**Date Sampled:**	11/18/99
Matrix:	SO - Soil	**Date Received:**	11/19/99
Method:	SW846 3550B/8081A	**Percent Solids:**	95.4
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	ST01478.D	1	12/02/99	SKW	11/30/99	OP1118	GST66
Run #2							

Pesticide TCL List

CAS No.	Compound	Result	RL	Units	Q
309-00-2	Aldrin	ND	1.7	ug/kg	
319-84-6	alpha-BHC	ND	1.7	ug/kg	
319-85-7	beta-BHC	ND	1.7	ug/kg	
319-86-8	delta-BHC	ND	1.7	ug/kg	
58-89-9	gamma-BHC (Lindane)	ND	1.7	ug/kg	
5103-71-9	alpha-Chlordane	ND	3.5	ug/kg	
5103-74-2	gamma-Chlordane	ND	3.5	ug/kg	
60-57-1	Dieldrin	ND	1.7	ug/kg	
72-54-8	4,4'-DDD	1.3	3.5	ug/kg	J
72-55-9	4,4'-DDE	4.6	3.5	ug/kg	
50-29-3	4,4'-DDT [b]	3.2	3.5	ug/kg	J
72-20-8	Endrin	ND	3.5	ug/kg	
1031-07-8	Endosulfan sulfate	ND	3.5	ug/kg	
7421-93-4	Endrin aldehyde	ND	3.5	ug/kg	
53494-70-5	Endrin ketone	ND	3.5	ug/kg	
959-98-8	Endosulfan-I	ND	1.7	ug/kg	
33213-65-9	Endosulfan-II	ND	3.5	ug/kg	
76-44-8	Heptachlor	ND	1.7	ug/kg	
1024-57-3	Heptachlor epoxide	ND	1.7	ug/kg	
72-43-5	Methoxychlor	ND	7.0	ug/kg	
8001-35-2	Toxaphene	ND	170	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	83%		40-150%
2051-24-3	Decachlorobiphenyl	63%		30-160%

(a) All hits confirmed by dual column analysis.
(b) Sample matrix caused CCV to fail low, sample was reanalyzed with similar results. All values are considered estimated.

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

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

000032

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-OGC-SS-009-01		
Lab Sample ID:	F5326-9	**Date Sampled:**	11/18/99
Matrix:	SO - Soil	**Date Received:**	11/19/99
Method:	SW846 3550B/8081A	**Percent Solids:**	94.0
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	ST01505.D	20	12/03/99	SKW	11/30/99	OP1118	GST67
Run #2 [a]	ST01500.D	50	12/03/99	SKW	11/30/99	OP1118	GST67

Pesticide TCL List

CAS No.	Compound	Result	RL	Units	Q
309-00-2	Aldrin	ND	35	ug/kg	
319-84-6	alpha-BHC	ND	35	ug/kg	
319-85-7	beta-BHC	ND	35	ug/kg	
319-86-8	delta-BHC	ND	35	ug/kg	
58-89-9	gamma-BHC (Lindane)	ND	35	ug/kg	
5103-71-9	alpha-Chlordane	564 [b]	180	ug/kg	
5103-74-2	gamma-Chlordane	310	71	ug/kg	
60-57-1	Dieldrin	ND	35	ug/kg	
72-54-8	4,4'-DDD	ND	71	ug/kg	
72-55-9	4,4'-DDE	172	71	ug/kg	
50-29-3	4,4'-DDT	160	71	ug/kg	
72-20-8	Endrin	ND	71	ug/kg	
1031-07-8	Endosulfan sulfate	ND	71	ug/kg	
7421-93-4	Endrin aldehyde	ND	71	ug/kg	
53494-70-5	Endrin ketone	ND	71	ug/kg	
959-98-8	Endosulfan-I	ND	35	ug/kg	
33213-65-9	Endosulfan-II	ND	71	ug/kg	
76-44-8	Heptachlor	ND	35	ug/kg	
1024-57-3	Heptachlor epoxide	44.8	35	ug/kg	
72-43-5	Methoxychlor	ND	140	ug/kg	
8001-35-2	Toxaphene	ND	3500	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	89%	107%	40-150%
2051-24-3	Decachlorobiphenyl	87%	110%	30-160%

(a) All hits confirmed by dual column analysis.
(b) Result is from Run# 2

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

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

000036

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-OGC-SS-010-01		
Lab Sample ID:	F5326-10	**Date Sampled:**	11/18/99
Matrix:	SO - Soil	**Date Received:**	11/19/99
Method:	SW846 3550B/8081A	**Percent Solids:**	93.3
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	ST01480.D	10	12/02/99	SKW	11/30/99	OP1118	GST66
Run #2							

Pesticide TCL List

CAS No.	Compound	Result	RL	Units	Q
309-00-2	Aldrin	ND	18	ug/kg	
319-84-6	alpha-BHC	ND	18	ug/kg	
319-85-7	beta-BHC	ND	18	ug/kg	
319-86-8	delta-BHC	ND	18	ug/kg	
58-89-9	gamma-BHC (Lindane)	ND	18	ug/kg	
5103-71-9	alpha-Chlordane	176	36	ug/kg	
5103-74-2	gamma-Chlordane	89.6	36	ug/kg	
60-57-1	Dieldrin	ND	18	ug/kg	
72-54-8	4,4'-DDD	23.4	36	ug/kg	J
72-55-9	4,4'-DDE	149	36	ug/kg	
50-29-3	4,4'-DDT [b]	112	36	ug/kg	J
72-20-8	Endrin	ND	36	ug/kg	
1031-07-8	Endosulfan sulfate	ND	36	ug/kg	
7421-93-4	Endrin aldehyde	ND	36	ug/kg	
53494-70-5	Endrin ketone	ND	36	ug/kg	
959-98-8	Endosulfan-I	ND	18	ug/kg	
33213-65-9	Endosulfan-II	ND	36	ug/kg	
76-44-8	Heptachlor	ND	18	ug/kg	
1024-57-3	Heptachlor epoxide	13.4	18	ug/kg	J
72-43-5	Methoxychlor	ND	72	ug/kg	
8001-35-2	Toxaphene	ND	1800	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	94%		40-150%
2051-24-3	Decachlorobiphenyl	86%		30-160%

(a) All hits confirmed by dual column analysis.
(b) Sample matrix caused CCV to fail low, sample was reanalyzed with similar results. All values are considered estimated.

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

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

000040

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-OGC-SS-011-01		
Lab Sample ID:	F5326-11	**Date Sampled:**	11/18/99
Matrix:	SO - Soil	**Date Received:**	11/19/99
Method:	SW846 3550B/8081A	**Percent Solids:**	92.8
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	ST01481.D	1	12/02/99	SKW	11/30/99	OP1118	GST66
Run #2							

Pesticide TCL List

CAS No.	Compound	Result	RL	Units	Q
309-00-2	Aldrin	ND	1.8	ug/kg	
319-84-6	alpha-BHC	ND	1.8	ug/kg	
319-85-7	beta-BHC	ND	1.8	ug/kg	
319-86-8	delta-BHC	ND	1.8	ug/kg	
58-89-9	gamma-BHC (Lindane)	ND	1.8	ug/kg	
5103-71-9	alpha-Chlordane	ND	3.6	ug/kg	
5103-74-2	gamma-Chlordane	ND	3.6	ug/kg	
60-57-1	Dieldrin	ND	1.8	ug/kg	
72-54-8	4,4'-DDD	ND	3.6	ug/kg	
72-55-9	4,4'-DDE	1.6	3.6	ug/kg	J
50-29-3	4,4'-DDT [b]	1.6	3.6	ug/kg	J
72-20-8	Endrin	ND	3.6	ug/kg	
1031-07-8	Endosulfan sulfate	ND	3.6	ug/kg	
7421-93-4	Endrin aldehyde	ND	3.6	ug/kg	
53494-70-5	Endrin ketone	ND	3.6	ug/kg	
959-98-8	Endosulfan-I	ND	1.8	ug/kg	
33213-65-9	Endosulfan-II	ND	3.6	ug/kg	
76-44-8	Heptachlor	ND	1.8	ug/kg	
1024-57-3	Heptachlor epoxide	ND	1.8	ug/kg	
72-43-5	Methoxychlor	ND	7.2	ug/kg	
8001-35-2	Toxaphene	ND	180	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	92%		40-150%
2051-24-3	Decachlorobiphenyl	62%		30-160%

(a) All hits confirmed by dual column analysis.
(b) Sample matrix caused CCV to fail low, sample was reanalyzed with similar results. All values are considered estimated.

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

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

000044

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-OGC-SS-012-01		
Lab Sample ID:	F5326-12	**Date Sampled:**	11/18/99
Matrix:	SO - Soil	**Date Received:**	11/19/99
Method:	SW846 3550B/8081A	**Percent Solids:**	93.4
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	ST01482.D	1	12/02/99	SKW	11/30/99	OP1118	GST66
Run #2							

Pesticide TCL List

CAS No.	Compound	Result	RL	Units	Q
309-00-2	Aldrin	ND	1.8	ug/kg	
319-84-6	alpha-BHC	ND	1.8	ug/kg	
319-85-7	beta-BHC	ND	1.8	ug/kg	
319-86-8	delta-BHC	ND	1.8	ug/kg	
58-89-9	gamma-BHC (Lindane)	ND	1.8	ug/kg	
5103-71-9	alpha-Chlordane	ND	3.6	ug/kg	
5103-74-2	gamma-Chlordane	ND	3.6	ug/kg	
60-57-1	Dieldrin	ND	1.8	ug/kg	
72-54-8	4,4'-DDD	ND	3.6	ug/kg	
72-55-9	4,4'-DDE	ND	3.6	ug/kg	
50-29-3	4,4'-DDT	ND	3.6	ug/kg	
72-20-8	Endrin	ND	3.6	ug/kg	
1031-07-8	Endosulfan sulfate	ND	3.6	ug/kg	
7421-93-4	Endrin aldehyde	ND	3.6	ug/kg	
53494-70-5	Endrin ketone	ND	3.6	ug/kg	
959-98-8	Endosulfan-I	ND	1.8	ug/kg	
33213-65-9	Endosulfan-II	ND	3.6	ug/kg	
76-44-8	Heptachlor	ND	1.8	ug/kg	
1024-57-3	Heptachlor epoxide	ND	1.8	ug/kg	
72-43-5	Methoxychlor	ND	7.1	ug/kg	
8001-35-2	Toxaphene	ND	180	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	95%		40-150%
2051-24-3	Decachlorobiphenyl	61%		30-160%

000048

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

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

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-OGC-SS-DU01		
Lab Sample ID:	F5326-13	**Date Sampled:**	11/18/99
Matrix:	SO - Soil	**Date Received:**	11/19/99
Method:	SW846 3550B/8081A	**Percent Solids:**	89.0
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	ST01483.D	1	12/02/99	SKW	11/30/99	OP1118	GST66
Run #2							

Pesticide TCL List

CAS No.	Compound	Result	RL	Units	Q
309-00-2	Aldrin	ND	1.9	ug/kg	
319-84-6	alpha-BHC	ND	1.9	ug/kg	
319-85-7	beta-BHC	ND	1.9	ug/kg	
319-86-8	delta-BHC	ND	1.9	ug/kg	
58-89-9	gamma-BHC (Lindane)	ND	1.9	ug/kg	
5103-71-9	alpha-Chlordane	ND	3.7	ug/kg	
5103-74-2	gamma-Chlordane	ND	3.7	ug/kg	
60-57-1	Dieldrin	ND	1.9	ug/kg	
72-54-8	4,4'-DDD	1.6	3.7	ug/kg	J
72-55-9	4,4'-DDE	1.8	3.7	ug/kg	J
50-29-3	4,4'-DDT [b]	2.9	3.7	ug/kg	J
72-20-8	Endrin	ND	3.7	ug/kg	
1031-07-8	Endosulfan sulfate	ND	3.7	ug/kg	
7421-93-4	Endrin aldehyde	ND	3.7	ug/kg	
53494-70-5	Endrin ketone	ND	3.7	ug/kg	
959-98-8	Endosulfan-I	ND	1.9	ug/kg	
33213-65-9	Endosulfan-II	ND	3.7	ug/kg	
76-44-8	Heptachlor	ND	1.9	ug/kg	
1024-57-3	Heptachlor epoxide	ND	1.9	ug/kg	
72-43-5	Methoxychlor	ND	7.5	ug/kg	
8001-35-2	Toxaphene	ND	190	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	94%		40-150%
2051-24-3	Decachlorobiphenyl	59%		30-160%

(a) All hits confirmed by dual column analysis.
(b) Sample matrix caused CCV to fail low, sample was reanalyzed with similar results. All values are considered estimated.

000052

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

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

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-OGC-SS-DU02		
Lab Sample ID:	F5326-14	**Date Sampled:**	11/18/99
Matrix:	SO - Soil	**Date Received:**	11/19/99
Method:	SW846 3550B/8081A	**Percent Solids:**	92.9
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	ST01484.D	1	12/02/99	SKW	11/30/99	OP1118	GST66
Run #2							

Pesticide TCL List

CAS No.	Compound	Result	RL	Units	Q
309-00-2	Aldrin	ND	1.8	ug/kg	
319-84-6	alpha-BHC	ND	1.8	ug/kg	
319-85-7	beta-BHC	ND	1.8	ug/kg	
319-86-8	delta-BHC	ND	1.8	ug/kg	
58-89-9	gamma-BHC (Lindane)	ND	1.8	ug/kg	
5103-71-9	alpha-Chlordane	3.6	3.6	ug/kg	
5103-74-2	gamma-Chlordane	2.3	3.6	ug/kg	J
60-57-1	Dieldrin	ND	1.8	ug/kg	
72-54-8	4,4'-DDD	1.1	3.6	ug/kg	J
72-55-9	4,4'-DDE	2.4	3.6	ug/kg	J
50-29-3	4,4'-DDT [b]	2.2	3.6	ug/kg	J
72-20-8	Endrin	ND	3.6	ug/kg	
1031-07-8	Endosulfan sulfate	ND	3.6	ug/kg	
7421-93-4	Endrin aldehyde	ND	3.6	ug/kg	
53494-70-5	Endrin ketone	ND	3.6	ug/kg	
959-98-8	Endosulfan-I	ND	1.8	ug/kg	
33213-65-9	Endosulfan-II	ND	3.6	ug/kg	
76-44-8	Heptachlor	ND	1.8	ug/kg	
1024-57-3	Heptachlor epoxide	ND	1.8	ug/kg	
72-43-5	Methoxychlor	ND	7.2	ug/kg	
8001-35-2	Toxaphene	ND	180	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	95%		40-150%
2051-24-3	Decachlorobiphenyl	53%		30-160%

(a) All hits confirmed by dual column analysis.
(b) Sample matrix caused CCV to fail low, sample was reanalyzed with similar results. All values are considered estimated.

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

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

000055

CTO078 - NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F5326

SAMPLE NUMBER:	CEF-OGC-SS-001-01	CEF-OGC-SS-002-01	CEF-OGC-SS-003-01	CEF-OGC-SS-004-01
SAMPLE DATE:	11/18/99	11/18/99	11/18/99	11/18/99
LABORATORY ID:	F5326-1	F5326-2	F5326-3	F5326-4
QC_TYPE:	NORMAL	NORMAL	NORMAL	NORMAL
% SOLIDS:	87.9 %	89.8 %	89.9 %	93.1 %
UNITS:	UG/KG	UG/KG	UG/KG	UG/KG
FIELD DUPLICATE OF:				

	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
HERBICIDES												
2,4,5-T	17	U		17	U		17	U		17	U	
2,4,5-TP (SILVEX)	17	U		17	U		17	U		17	U	
2,4-D	170	U		170	U		170	U		170	U	
2,4-DB	170	U		170	U		170	U		170	U	
4-NITROPHENOL	170	U		170	U		170	U		170	U	
DALAPON	330	U		330	U		330	U		330	U	
DICAMBA	17	U		17	U		17	U		17	U	
DICHLOROPROP	170	U		170	U		170	U		170	U	
DINOSEB	83	U		83	U		83	U		83	U	
MCPA	17000	U		17000	U		17000	U		17000	U	
MCPP	17000	U		17000	U		17000	U		17000	U	
PENTACHLOROPHENOL	17	U		17	U		17	U		17	U	

CTO078 - NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F5326

SAMPLE NUMBER:	CEF-OGC-SS-005-01			CEF-OGC-SS-006-01			CEF-OGC-SS-007-01			CEF-OGC-SS-008-01		
SAMPLE DATE:	11/18/99			11/18/99			11/18/99			11/18/99		
LABORATORY ID:	F5326-5			F5326-6			F5326-7			F5326-8		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	92.6 %			92.6 %			94.2 %			95.4 %		
UNITS:	UG/KG			UG/KG			UG/KG			UG/KG		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
HERBICIDES												
2,4,5-T	17	U		17	U		17	U		17	U	
2,4,5-TP (SILVEX)	17	U		17	U		17	U		17	U	
2,4-D	170	U		170	U		170	U		170	U	
2,4-DB	170	U		170	U		170	U		170	U	
4-NITROPHENOL	170	U		170	U		170	U		170	U	
DALAPON	330	U		330	U		330	U		330	U	
DICAMBA	17	U		17	U		17	U		17	U	
DICHLOROPROP	170	U		170	U		170	U		170	U	
DINOSEB	83	U		83	U		83	U		83	U	
MCPA	17000	U		17000	U		17000	U		17000	U	
MCPP	17000	U		17000	U		17000	U		17000	U	
PENTACHLOROPHENOL	17	U		17	U		17	U		17	U	

CTO078 - NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F5326

SAMPLE NUMBER:	CEF-OGC-SS-009-01			CEF-OGC-SS-010-01			CEF-OGC-SS-011-01			CEF-OGC-SS-012-01		
SAMPLE DATE:	11/18/99			11/18/99			11/18/99			11/18/99		
LABORATORY ID:	F5326-9			F5326-10			F5326-11			F5326-12		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	94.0 %			93.3 %			92.8 %			93.4 %		
UNITS:	UG/KG			UG/KG			UG/KG			UG/KG		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
HERBICIDES												
2,4,5-T	17	U		17	U		17	U		17	U	
2,4,5-TP (SILVEX)	17	U		17	U		17	U		17	U	
2,4-D	170	U		170	U		170	U		170	U	
2,4-DB	170	U		170	U		170	U		170	U	
4-NITROPHENOL	170	U		170	U		170	U		170	U	
DALAPON	330	U		330	U		330	U		330	U	
DICAMBA	17	U		17	U		17	U		17	U	
DICHLOROPROP	170	U		170	U		170	U		170	U	
DINOSEB	83	U		83	U		83	U		83	U	
MCPA	17000	U		17000	U		17000	U		17000	U	
MCPP	17000	U		17000	U		17000	U		17000	U	
PENTACHLOROPHENOL	17	U		17	U		17	U		17	U	

CTO078 - NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F5326

SAMPLE NUMBER:	CEF-OGC-SS-DU01			CEF-OGC-SS-DU02								
SAMPLE DATE:	11/18/99			11/18/99			/ /			/ /		
LABORATORY ID:	F5326-13			F5326-14								
QC_TYPE:	NORMAL			NORMAL								
% SOLIDS:	89.0 %			92.9 %			100.0 %			100.0 %		
UNITS:	UG/KG			UG/KG								
FIELD DUPLICATE OF:	CEF-OGC-SS-001-01			CEF-OGC-SS-004-01								
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
HERBICIDES												
2,4,5-T	17	U		17	U							
2,4,5-TP (SILVEX)	17	U		17	U							
2,4-D	170	U		170	U							
2,4-DB	170	U		170	U							
4-NITROPHENOL	170	U		170	U							
DALAPON	330	U		330	U							
DICAMBA	17	U		17	U							
DICHLOROPROP	170	U		170	U							
DINOSEB	83	U		83	U							
MCPA	17000	U		17000	U							
MCPP	17000	U		17000	U							
PENTACHLOROPHENOL	17	U		17	U							

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-OGC-SS-001-01		
Lab Sample ID:	F5326-1	**Date Sampled:**	11/18/99
Matrix:	SO - Soil	**Date Received:**	11/19/99
Method:	SW846 8151	**Percent Solids:**	87.9
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]		1	12/04/99	SUB	11/19/99	R7281	R7281
Run #2							

Herbicide List

CAS No.	Compound	Result	RL	Units	Q
94-75-7	2,4-D	ND	170	ug/kg	
93-72-1	2,4,5-TP (Silvex)	ND	17	ug/kg	
93-76-5	2,4,5-T	ND	17	ug/kg	
1918-00-9	Dicamba	ND	17	ug/kg	
88-85-7	Dinoseb	ND	83	ug/kg	
75-99-0	Dalapon	ND	330	ug/kg	
120-36-5	Dichloroprop	ND	170	ug/kg	
94-82-6	2,4-DB	ND	170	ug/kg	
93-65-2	MCPP	ND	17000	ug/kg	
94-74-6	MCPA	ND	17000	ug/kg	
87-86-5	Pentachlorophenol	ND	17	ug/kg	
100-02-7	4-Nitrophenol	ND	170	ug/kg	

(a) Analyzed By Accutest Southeast Subcontract Lab.

000003

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

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

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-OGC-SS-002-01		
Lab Sample ID:	F5326-2	**Date Sampled:**	11/18/99
Matrix:	SO - Soil	**Date Received:**	11/19/99
Method:	SW846 8151	**Percent Solids:**	89.8
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]		1	12/04/99	SUB	11/19/99	R7281	R7281
Run #2							

Herbicide List

CAS No.	Compound	Result	RL	Units	Q
94-75-7	2,4-D	ND	170	ug/kg	
93-72-1	2,4,5-TP (Silvex)	ND	17	ug/kg	
93-76-5	2,4,5-T	ND	17	ug/kg	
1918-00-9	Dicamba	ND	17	ug/kg	
88-85-7	Dinoseb	ND	83	ug/kg	
75-99-0	Dalapon	ND	330	ug/kg	
120-36-5	Dichloroprop	ND	170	ug/kg	
94-82-6	2,4-DB	ND	170	ug/kg	
93-65-2	MCPP	ND	17000	ug/kg	
94-74-6	MCPA	ND	17000	ug/kg	
87-86-5	Pentachlorophenol	ND	17	ug/kg	
100-02-7	4-Nitrophenol	ND	170	ug/kg	

(a) Analyzed By Accutest Southeast Subcontract Lab.

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

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

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Report of Analysis

Client Sample ID:	CEF-OGC-SS-003-01		
Lab Sample ID:	F5326-3	**Date Sampled:**	11/18/99
Matrix:	SO - Soil	**Date Received:**	11/19/99
Method:	SW846 8151	**Percent Solids:**	89.9
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]		1	12/04/99	SUB	11/19/99	R7281	R7281
Run #2							

Herbicide List

CAS No.	Compound	Result	RL	Units	Q
94-75-7	2,4-D	ND	170	ug/kg	
93-72-1	2,4,5-TP (Silvex)	ND	17	ug/kg	
93-76-5	2,4,5-T	ND	17	ug/kg	
1918-00-9	Dicamba	ND	17	ug/kg	
88-85-7	Dinoseb	ND	83	ug/kg	
75-99-0	Dalapon	ND	330	ug/kg	
120-36-5	Dichloroprop	ND	170	ug/kg	
94-82-6	2,4-DB	ND	170	ug/kg	
93-65-2	MCPP	ND	17000	ug/kg	
94-74-6	MCPA	ND	17000	ug/kg	
87-86-5	Pentachlorophenol	ND	17	ug/kg	
100-02-7	4-Nitrophenol	ND	170	ug/kg	

(a) Analyzed By Accutest Southeast Subcontract Lab.

000011

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

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

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Report of Analysis

Client Sample ID:	CEF-OGC-SS-004-01		
Lab Sample ID:	F5326-4	**Date Sampled:**	11/18/99
Matrix:	SO - Soil	**Date Received:**	11/19/99
Method:	SW846 8151	**Percent Solids:**	93.1
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]		1	12/04/99	SUB	11/19/99	R7281	R7281
Run #2							

Herbicide List

CAS No.	Compound	Result	RL	Units	Q
94-75-7	2,4-D	ND	170	ug/kg	
93-72-1	2,4,5-TP (Silvex)	ND	17	ug/kg	
93-76-5	2,4,5-T	ND	17	ug/kg	
1918-00-9	Dicamba	ND	17	ug/kg	
88-85-7	Dinoseb	ND	83	ug/kg	
75-99-0	Dalapon	ND	330	ug/kg	
120-36-5	Dichloroprop	ND	170	ug/kg	
94-82-6	2,4-DB	ND	170	ug/kg	
93-65-2	MCPP	ND	17000	ug/kg	
94-74-6	MCPA	ND	17000	ug/kg	
87-86-5	Pentachlorophenol	ND	17	ug/kg	
100-02-7	4-Nitrophenol	ND	170	ug/kg	

(a) Analyzed By Accutest Southeast Subcontract Lab.

000015

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

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

Report of Analysis

Client Sample ID:	CEF-OGC-SS-005-01		
Lab Sample ID:	F5326-5	**Date Sampled:**	11/18/99
Matrix:	SO - Soil	**Date Received:**	11/19/99
Method:	SW846 8151	**Percent Solids:**	92.6
Project:	NAS Cecil Field PO#N0039-P98655A-01		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]		1	12/04/99	SUB	11/19/99	R7281	R7281
Run #2							

Herbicide List

CAS No.	Compound	Result	RL	Units	Q
94-75-7	2,4-D	ND	170	ug/kg	
93-72-1	2,4,5-TP (Silvex)	ND	17	ug/kg	
93-76-5	2,4,5-T	ND	17	ug/kg	
1918-00-9	Dicamba	ND	17	ug/kg	
88-85-7	Dinoseb	ND	83	ug/kg	
75-99-0	Dalapon	ND	330	ug/kg	
120-36-5	Dichloroprop	ND	170	ug/kg	
94-82-6	2,4-DB	ND	170	ug/kg	
93-65-2	MCPP	ND	17000	ug/kg	
94-74-6	MCPA	ND	17000	ug/kg	
87-86-5	Pentachlorophenol	ND	17	ug/kg	
100-02-7	4-Nitrophenol	ND	170	ug/kg	

(a) Analyzed By Accutest Southeast Subcontract Lab.

2-10-2000

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

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

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Report of Analysis

Client Sample ID:	CEF-OGC-SS-006-01		
Lab Sample ID:	F5326-6	**Date Sampled:**	11/18/99
Matrix:	SO - Soil	**Date Received:**	11/19/99
Method:	SW846 8151	**Percent Solids:**	92.6
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]		1	12/04/99	SUB	11/19/99	R7281	R7281
Run #2							

Herbicide List

CAS No.	Compound	Result	RL	Units	Q
94-75-7	2,4-D	ND	170	ug/kg	
93-72-1	2,4,5-TP (Silvex)	ND	17	ug/kg	
93-76-5	2,4,5-T	ND	17	ug/kg	
1918-00-9	Dicamba	ND	17	ug/kg	
88-85-7	Dinoseb	ND	83	ug/kg	
75-99-0	Dalapon	ND	330	ug/kg	
120-36-5	Dichloroprop	ND	170	ug/kg	
94-82-6	2,4-DB	ND	170	ug/kg	
93-65-2	MCPP	ND	17000	ug/kg	
94-74-6	MCPA	ND	17000	ug/kg	
87-86-5	Pentachlorophenol	ND	17	ug/kg	
100-02-7	4-Nitrophenol	ND	170	ug/kg	

(a) Analyzed By Accutest Southeast Subcontract Lab.

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

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

000083

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-OGC-SS-007-01		
Lab Sample ID:	F5326-7	**Date Sampled:**	11/18/99
Matrix:	SO - Soil	**Date Received:**	11/19/99
Method:	SW846 8151	**Percent Solids:**	94.2
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]		1	12/04/99	SUB	11/19/99	R7281	R7281
Run #2							

Herbicide List

CAS No.	Compound	Result	RL	Units	Q
94-75-7	2,4-D	ND	170	ug/kg	
93-72-1	2,4,5-TP (Silvex)	ND	17	ug/kg	
93-76-5	2,4,5-T	ND	17	ug/kg	
1918-00-9	Dicamba	ND	17	ug/kg	
88-85-7	Dinoseb	ND	83	ug/kg	
75-99-0	Dalapon	ND	330	ug/kg	
120-36-5	Dichloroprop	ND	170	ug/kg	
94-82-6	2,4-DB	ND	170	ug/kg	
93-65-2	MCPP	ND	17000	ug/kg	
94-74-6	MCPA	ND	17000	ug/kg	
87-86-5	Pentachlorophenol	ND	17	ug/kg	
100-02-7	4-Nitrophenol	ND	170	ug/kg	

(a) Analyzed By Accutest Southeast Subcontract Lab.

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

000027

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-OGC-SS-008-01		
Lab Sample ID:	F5326-8	**Date Sampled:**	11/18/99
Matrix:	SO - Soil	**Date Received:**	11/19/99
Method:	SW846 8151	**Percent Solids:**	95.4
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]		1	12/04/99	SUB	11/19/99	R7281	R7281
Run #2							

Herbicide List

CAS No.	Compound	Result	RL	Units	Q
94-75-7	2,4-D	ND	170	ug/kg	
93-72-1	2,4,5-TP (Silvex)	ND	17	ug/kg	
93-76-5	2,4,5-T	ND	17	ug/kg	
1918-00-9	Dicamba	ND	17	ug/kg	
88-85-7	Dinoseb	ND	83	ug/kg	
75-99-0	Dalapon	ND	330	ug/kg	
120-36-5	Dichloroprop	ND	170	ug/kg	
94-82-6	2,4-DB	ND	170	ug/kg	
93-65-2	MCPP	ND	17000	ug/kg	
94-74-6	MCPA	ND	17000	ug/kg	
87-86-5	Pentachlorophenol	ND	17	ug/kg	
100-02-7	4-Nitrophenol	ND	170	ug/kg	

(a) Analyzed By Accutest Southeast Subcontract Lab.

000031

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

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-OGC-SS-009-01		
Lab Sample ID:	F5326-9	**Date Sampled:**	11/18/99
Matrix:	SO - Soil	**Date Received:**	11/19/99
Method:	SW846 8151	**Percent Solids:**	94.0
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]		1	12/04/99	SUB	11/19/99	R7281	R7281
Run #2							

Herbicide List

CAS No.	Compound	Result	RL	Units	Q
94-75-7	2,4-D	ND	170	ug/kg	
93-72-1	2,4,5-TP (Silvex)	ND	17	ug/kg	
93-76-5	2,4,5-T	ND	17	ug/kg	
1918-00-9	Dicamba	ND	17	ug/kg	
88-85-7	Dinoseb	ND	83	ug/kg	
75-99-0	Dalapon	ND	330	ug/kg	
120-36-5	Dichloroprop	ND	170	ug/kg	
94-82-6	2,4-DB	ND	170	ug/kg	
93-65-2	MCPP	ND	17000	ug/kg	
94-74-6	MCPA	ND	17000	ug/kg	
87-86-5	Pentachlorophenol	ND	17	ug/kg	
100-02-7	4-Nitrophenol	ND	170	ug/kg	

(a) Analyzed By Accutest Southeast Subcontract Lab.

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

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Report of Analysis

Client Sample ID:	CEF-OGC-SS-010-01		
Lab Sample ID:	F5326-10	**Date Sampled:**	11/18/99
Matrix:	SO - Soil	**Date Received:**	11/19/99
Method:	SW846 8151	**Percent Solids:**	93.3
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]		1	12/04/99	SUB	11/19/99	R7281	R7281
Run #2							

Herbicide List

CAS No.	Compound	Result	RL	Units	Q
94-75-7	2,4-D	ND	170	ug/kg	
93-72-1	2,4,5-TP (Silvex)	ND	17	ug/kg	
93-76-5	2,4,5-T	ND	17	ug/kg	
1918-00-9	Dicamba	ND	17	ug/kg	
88-85-7	Dinoseb	ND	83	ug/kg	
75-99-0	Dalapon	ND	330	ug/kg	
120-36-5	Dichloroprop	ND	170	ug/kg	
94-82-6	2,4-DB	ND	170	ug/kg	
93-65-2	MCPP	ND	17000	ug/kg	
94-74-6	MCPA	ND	17000	ug/kg	
87-86-5	Pentachlorophenol	ND	17	ug/kg	
100-02-7	4-Nitrophenol	ND	170	ug/kg	

(a) Analyzed By Accutest Southeast Subcontract Lab.

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

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

000039

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-OGC-SS-011-01		
Lab Sample ID:	F5326-11	**Date Sampled:**	11/18/99
Matrix:	SO - Soil	**Date Received:**	11/19/99
Method:	SW846 8151	**Percent Solids:**	92.8
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]		1	12/04/99	SUB	11/19/99	R7281	R7281
Run #2							

Herbicide List

CAS No.	Compound	Result	RL	Units	Q
94-75-7	2,4-D	ND	170	ug/kg	
93-72-1	2,4,5-TP (Silvex)	ND	17	ug/kg	
93-76-5	2,4,5-T	ND	17	ug/kg	
1918-00-9	Dicamba	ND	17	ug/kg	
88-85-7	Dinoseb	ND	83	ug/kg	
75-99-0	Dalapon	ND	330	ug/kg	
120-36-5	Dichloroprop	ND	170	ug/kg	
94-82-6	2,4-DB	ND	170	ug/kg	
93-65-2	MCPP	ND	17000	ug/kg	
94-74-6	MCPA	ND	17000	ug/kg	
87-86-5	Pentachlorophenol	ND	17	ug/kg	
100-02-7	4-Nitrophenol	ND	170	ug/kg	

(a) Analyzed By Accutest Southeast Subcontract Lab.

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

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

000043

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-OGC-SS-012-01		
Lab Sample ID:	F5326-12	**Date Sampled:**	11/18/99
Matrix:	SO - Soil	**Date Received:**	11/19/99
Method:	SW846 8151	**Percent Solids:**	93.4
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]		1	12/04/99	SUB	11/19/99	R7281	R7281
Run #2							

Herbicide List

CAS No.	Compound	Result	RL	Units	Q
94-75-7	2,4-D	ND	170	ug/kg	
93-72-1	2,4,5-TP (Silvex)	ND	17	ug/kg	
93-76-5	2,4,5-T	ND	17	ug/kg	
1918-00-9	Dicamba	ND	17	ug/kg	
88-85-7	Dinoseb	ND	83	ug/kg	
75-99-0	Dalapon	ND	330	ug/kg	
120-36-5	Dichloroprop	ND	170	ug/kg	
94-82-6	2,4-DB	ND	170	ug/kg	
93-65-2	MCPP	ND	17000	ug/kg	
94-74-6	MCPA	ND	17000	ug/kg	
87-86-5	Pentachlorophenol	ND	17	ug/kg	
100-02-7	4-Nitrophenol	ND	170	ug/kg	

(a) Analyzed By Accutest Southeast Subcontract Lab.

000047

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

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

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-OGC-SS-DU01		
Lab Sample ID:	F5326-13	**Date Sampled:**	11/18/99
Matrix:	SO - Soil	**Date Received:**	11/19/99
Method:	SW846 8151	**Percent Solids:**	89.0
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]		1	12/04/99	SUB	11/19/99	R7281	R7281
Run #2							

Herbicide List

CAS No.	Compound	Result	RL	Units	Q
94-75-7	2,4-D	ND	170	ug/kg	
93-72-1	2,4,5-TP (Silvex)	ND	17	ug/kg	
93-76-5	2,4,5-T	ND	17	ug/kg	
1918-00-9	Dicamba	ND	17	ug/kg	
88-85-7	Dinoseb	ND	83	ug/kg	
75-99-0	Dalapon	ND	330	ug/kg	
120-36-5	Dichloroprop	ND	170	ug/kg	
94-82-6	2,4-DB	ND	170	ug/kg	
93-65-2	MCPP	ND	17000	ug/kg	
94-74-6	MCPA	ND	17000	ug/kg	
87-86-5	Pentachlorophenol	ND	17	ug/kg	
100-02-7	4-Nitrophenol	ND	170	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
19719-28-9	2,4-DCAA	0%		40-160%

(a) Analyzed By Accutest Southeast Subcontract Lab.

000051

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

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

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-OGC-SS-DU02		
Lab Sample ID:	F5326-14	**Date Sampled:**	11/18/99
Matrix:	SO - Soil	**Date Received:**	11/19/99
Method:	SW846 8151	**Percent Solids:**	92.9
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]		1	12/04/99	SUB	11/19/99	R7281	R7281
Run #2							

Herbicide List

CAS No.	Compound	Result	RL	Units	Q
94-75-7	2,4-D	ND	170	ug/kg	
93-72-1	2,4,5-TP (Silvex)	ND	17	ug/kg	
93-76-5	2,4,5-T	ND	17	ug/kg	
1918-00-9	Dicamba	ND	17	ug/kg	
88-85-7	Dinoseb	ND	83	ug/kg	
75-99-0	Dalapon	ND	330	ug/kg	
120-36-5	Dichloroprop	ND	170	ug/kg	
94-82-6	2,4-DB	ND	170	ug/kg	
93-65-2	MCPP	ND	17000	ug/kg	
94-74-6	MCPA	ND	17000	ug/kg	
87-86-5	Pentachlorophenol	ND	17	ug/kg	
100-02-7	4-Nitrophenol	ND	170	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
19719-28-9	2,4-DCAA	0%		40-160%

(a) Analyzed By Accutest Southeast Subcontract Lab.

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

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

000054

CTO078 - NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F5326

SAMPLE NUMBER:	CEF-OGC-SS-001-01			CEF-OGC-SS-002-01			CEF-OGC-SS-003-01			CEF-OGC-SS-004-01		
SAMPLE DATE:	11/18/99			11/18/99			11/18/99			11/18/99		
LABORATORY ID:	F5326-1			F5326-2			F5326-3			F5326-4		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	87.9 %			89.8 %			89.9 %			93.1 %		
UNITS:	UG/KG			UG/KG			UG/KG			UG/KG		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
ORGANOPHOSPHOROUS PESTICIDES												
BOLSTAR	100	U		100	U		100	U		100	U	
CHLORPYRIFOS	100	U		100	U		100	U		100	U	
COUMAPHOS	100	U		100	U		100	U		100	U	
DEMETON-S	100	U		100	U		100	U		100	U	
DIAZINON	100	U		100	U		100	U		100	U	
DICHLORVOS	100	U		100	U		100	U		100	U	
DIMETHOATE	200	U		200	U		200	U		200	U	
DISULFOTON	100	U		100	U		100	U		100	U	
EPN	100	U		100	U		100	U		100	U	
ETHOPROP	100	U		100	U		100	U		100	U	
ETHYL PARATHION	100	U		100	U		100	U		100	U	
FENSULFOTHION	200	U		200	U		200	U		200	U	
FENTHION	100	U		100	U		100	U		100	U	
MALATHION	100	U		100	U		100	U		100	U	
MERPHOS	100	U		100	U		100	U		100	U	
METHYL AZINPHOS	100	U		100	U		100	U		100	U	
METHYL PARATHION	100	U		100	U		100	U		100	U	
MEVINPHOS	200	U		200	U		200	U		200	U	
NALED	1000	U		1000	U		1000	U		1000	U	
PHORATE	100	U		100	U		100	U		100	U	
RONNEL	100	U		100	U		100	U		100	U	
STIROPHOS	100	U		100	U		100	U		100	U	
SULFOTEP	100	U		100	U		100	U		100	U	
TEPP	1000	U		1000	U		1000	U		1000	U	
TOKUTHION	100	U		100	U		100	U		100	U	
TRICHLORONATE	100	U		100	U		100	U		100	U	

CTO078 - NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F5326

SAMPLE NUMBER:	CEF-OGC-SS-005-01			CEF-OGC-SS-006-01			CEF-OGC-SS-007-01			CEF-OGC-SS-008-01		
SAMPLE DATE:	11/18/99			11/18/99			11/18/99			11/18/99		
LABORATORY ID:	F5326-5			F5326-6			F5326-7			F5326-8		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	92.6 %			92.6 %			94.2 %			95.4 %		
UNITS:	UG/KG			UG/KG			UG/KG			UG/KG		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
ORGANOPHOSPHOROUS PESTICIDES												
BOLSTAR	100	U		100	U		100	U		100	U	
CHLORPYRIFOS	100	U		100	U		100	U		100	U	
COUMAPHOS	100	U		100	U		100	U		100	U	
DEMETON-S	100	U		100	U		100	U		100	U	
DIAZINON	100	U		100	U		100	U		100	U	
DICHLORVOS	100	U		100	U		100	U		100	U	
DIMETHOATE	200	U		200	U		200	U		200	U	
DISULFOTON	100	U		100	U		100	U		100	U	
EPN	100	U		100	U		100	U		100	U	
ETHOPROP	100	U		100	U		100	U		100	U	
ETHYL PARATHION	100	U		100	U		100	U		100	U	
FENSULFOTHION	200	U		200	U		200	U		200	U	
FENTHION	100	U		100	U		100	U		100	U	
MALATHION	100	U		100	U		100	U		100	U	
MERPHOS	100	U		100	U		100	U		100	U	
METHYL AZINPHOS	100	U		100	U		100	U		100	U	
METHYL PARATHION	100	U		100	U		100	U		100	U	
MEVINPHOS	200	U		200	U		200	U		200	U	
NALED	1000	U		1000	U		1000	U		1000	U	
PHORATE	100	U		100	U		100	U		100	U	
RONNEL	100	U		100	U		100	U		100	U	
STIROPHOS	100	U		100	U		100	U		100	U	
SULFOTEP	100	U		100	U		100	U		100	U	
TEPP	1000	U		1000	U		1000	U		1000	U	
TOKUTHION	100	U		100	U		100	U		100	U	
TRICHLORONATE	100	U		100	U		100	U		100	U	

CTO078 - NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F5326

SAMPLE NUMBER:	CEF-OGC-SS-009-01	CEF-OGC-SS-010-01	CEF-OGC-SS-011-01	CEF-OGC-SS-012-01
SAMPLE DATE:	11/18/99	11/18/99	11/18/99	11/18/99
LABORATORY ID:	F5326-9	F5326-10	F5326-11	F5326-12
QC_TYPE:	NORMAL	NORMAL	NORMAL	NORMAL
% SOLIDS:	94.0 %	93.3 %	92.8 %	93.4 %
UNITS:	UG/KG	UG/KG	UG/KG	UG/KG
FIELD DUPLICATE OF:				

	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
ORGANOPHOSPHOROUS PESTICIDES												
BOLSTAR	100	U		100	U		100	U		100	U	
CHLORPYRIFOS	100	U		100	U		100	U		100	U	
COUMAPHOS	100	U		100	U		100	U		100	U	
DEMETON-S	100	U		100	U		100	U		100	U	
DIAZINON	100	U		100	U		100	U		100	U	
DICHLORVOS	100	U		100	U		100	U		100	U	
DIMETHOATE	200	U		200	U		200	U		200	U	
DISULFOTON	100	U		100	U		100	U		100	U	
EPN	100	U		100	U		100	U		100	U	
ETHOPROP	100	U		100	U		100	U		100	U	
ETHYL PARATHION	100	U		100	U		100	U		100	U	
FENSULFOTHION	200	U		200	U		200	U		200	U	
FENTHION	100	U		100	U		100	U		100	U	
MALATHION	100	U		100	U		100	U		100	U	
MERPHOS	100	U		100	U		100	U		100	U	
METHYL AZINPHOS	100	U		100	U		100	U		100	U	
METHYL PARATHION	100	U		100	U		100	U		100	U	
MEVINPHOS	200	U		200	U		200	U		200	U	
NALED	1000	U		1000	U		1000	U		1000	U	
PHORATE	100	U		100	U		100	U		100	U	
RONNEL	100	U		100	U		100	U		100	U	
STIROPHOS	100	U		100	U		100	U		100	U	
SULFOTEP	100	U		100	U		100	U		100	U	
TEPP	1000	U		1000	U		1000	U		1000	U	
TOKUTHION	100	U		100	U		100	U		100	U	
TRICHLORONATE	100	U		100	U		100	U		100	U	

CTO078 - NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F5326

SAMPLE NUMBER:	CEF-OGC-SS-DU02											
SAMPLE DATE:	11/18/99			/ /			/ /			/ /		
LABORATORY ID:	F5326-14											
QC_TYPE:	NORMAL											
% SOLIDS:	92.9 %			100.0 %			100.0 %			100.0 %		
UNITS:	UG/KG											
FIELD DUPLICATE OF:	CEF-OGC-SS-004-01											
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
ORGANOPHOSPHOROUS PESTICIDES												
BOLSTAR	100	U										
CHLORPYRIFOS	100	U										
COUMAPHOS	100	U										
DEMETON-S	100	U										
DIAZINON	100	U										
DICHLORVOS	100	U										
DIMETHOATE	200	U										
DISULFOTON	100	U										
EPN	100	U										
ETHOPROP	100	U										
ETHYL PARATHION	100	U										
FENSULFOTHION	200	U										
FENTHION	100	U										
MALATHION	100	U										
MERPHOS	100	U										
METHYL AZINPHOS	100	U										
METHYL PARATHION	100	U										
MEVINPHOS	200	U										
NALED	1000	U										
PHORATE	100	U										
RONNEL	100	U										
STIROPHOS	100	U										
SULFOTEP	100	U										
TEPP	1000	U										
TOKUTHION	100	U										
TRICHLORONATE	100	U										

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Report of Analysis

Client Sample ID:	CEF-OGC-SS-001-01		
Lab Sample ID:	F5326-1	**Date Sampled:**	11/18/99
Matrix:	SO - Soil	**Date Received:**	11/19/99
Method:	SW846-8141	**Percent Solids:**	87.9
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]		1	12/04/99	SUB	n/a	n/a	R7281
Run #2							

CAS No.	Compound	Result	RL	Units	Q
21646-99-1	TEPP	ND	1000	ug/kg	
62-73-7	Dichlorvos	ND	100	ug/kg	
7786-34-7	Mevinphos	ND	200	ug/kg	
8065-48-3	Demeton-S	ND	100	ug/kg	
13194-48-4	Ethoprop	ND	100	ug/kg	
298-02-2	Phorate	ND	100	ug/kg	
300-76-5	Naled	ND	1000	ug/kg	
3689-24-5	Sulfotep	ND	100	ug/kg	
333-41-5	Diazinon	ND	100	ug/kg	
298-04-4	Disulfoton	ND	100	ug/kg	
60-51-5	Dimethoate	ND	200	ug/kg	
299-84-3	Ronnel	ND	100	ug/kg	
150-50-5	Merphos	ND	100	ug/kg	
2921-88-2	Chlorpyrifos	ND	100	ug/kg	
55-38-9	Fenthion	ND	100	ug/kg	
327-98-0	Trichloronate	ND	100	ug/kg	
298-00-0	Methyl parathion	ND	100	ug/kg	
121-75-5	Malathion	ND	100	ug/kg	
34643-46-4	Tokuthion	ND	100	ug/kg	
56-38-2	Ethyl Parathion	ND	100	ug/kg	
22248-79-9	Stirophos	ND	100	ug/kg	
35400-43-2	Bolstar	ND	100	ug/kg	
115-90-2	Fensulfothion	ND	200	ug/kg	
2104-64-5	EPN	ND	100	ug/kg	
86-50-0	Methyl Azinphos	ND	100	ug/kg	
56-72-4	Coumaphos	ND	100	ug/kg	

(a) Analyzed By Accutest Southeast Subcontract Lab.

000005

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

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

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-OGC-SS-002-01		
Lab Sample ID:	F5326-2	**Date Sampled:**	11/18/99
Matrix:	SO - Soil	**Date Received:**	11/19/99
Method:	SW846-8141	**Percent Solids:**	89.8
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]		1	12/04/99	SUB	n/a	n/a	R7281
Run #2							

CAS No.	Compound	Result	RL	Units	Q
21646-99-1	TEPP	ND	1000	ug/kg	
62-73-7	Dichlorvos	ND	100	ug/kg	
7786-34-7	Mevinphos	ND	200	ug/kg	
8065-48-3	Demeton-S	ND	100	ug/kg	
13194-48-4	Ethoprop	ND	100	ug/kg	
298-02-2	Phorate	ND	100	ug/kg	
300-76-5	Naled	ND	1000	ug/kg	
3689-24-5	Sulfotep	ND	100	ug/kg	
333-41-5	Diazinon	ND	100	ug/kg	
298-04-4	Disulfoton	ND	100	ug/kg	
60-51-5	Dimethoate	ND	200	ug/kg	
299-84-3	Ronnel	ND	100	ug/kg	
150-50-5	Merphos	ND	100	ug/kg	
2921-88-2	Chlorpyrifos	ND	100	ug/kg	
55-38-9	Fenthion	ND	100	ug/kg	
327-98-0	Trichloronate	ND	100	ug/kg	
298-00-0	Methyl parathion	ND	100	ug/kg	
121-75-5	Malathion	ND	100	ug/kg	
34643-46-4	Tokuthion	ND	100	ug/kg	
56-38-2	Ethyl Parathion	ND	100	ug/kg	
22248-79-9	Stirophos	ND	100	ug/kg	
35400-43-2	Bolstar	ND	100	ug/kg	
115-90-2	Fensulfothion	ND	200	ug/kg	
2104-64-5	EPN	ND	100	ug/kg	
86-50-0	Methyl Azinphos	ND	100	ug/kg	
56-72-4	Coumaphos	ND	100	ug/kg	

(a) Analyzed By Accutest Southeast Subcontract Lab.

000009

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

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

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-OGC-SS-003-01		
Lab Sample ID:	F5326-3	**Date Sampled:**	11/18/99
Matrix:	SO - Soil	**Date Received:**	11/19/99
Method:	SW846-8141	**Percent Solids:**	89.9
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]		1	12/04/99	SUB	n/a	n/a	R7281
Run #2							

CAS No.	Compound	Result	RL	Units	Q
21646-99-1	TEPP	ND	1000	ug/kg	
62-73-7	Dichlorvos	ND	100	ug/kg	
7786-34-7	Mevinphos	ND	200	ug/kg	
8065-48-3	Demeton-S	ND	100	ug/kg	
13194-48-4	Ethoprop	ND	100	ug/kg	
298-02-2	Phorate	ND	100	ug/kg	
300-76-5	Naled	ND	1000	ug/kg	
3689-24-5	Sulfotep	ND	100	ug/kg	
333-41-5	Diazinon	ND	100	ug/kg	
298-04-4	Disulfoton	ND	100	ug/kg	
60-51-5	Dimethoate	ND	200	ug/kg	
299-84-3	Ronnel	ND	100	ug/kg	
150-50-5	Merphos	ND	100	ug/kg	
2921-88-2	Chlorpyrifos	ND	100	ug/kg	
55-38-9	Fenthion	ND	100	ug/kg	
327-98-0	Trichloronate	ND	100	ug/kg	
298-00-0	Methyl parathion	ND	100	ug/kg	
121-75-5	Malathion	ND	100	ug/kg	
34643-46-4	Tokuthion	ND	100	ug/kg	
56-38-2	Ethyl Parathion	ND	100	ug/kg	
22248-79-9	Stirophos	ND	100	ug/kg	
35400-43-2	Bolstar	ND	100	ug/kg	
115-90-2	Fensulfothion	ND	200	ug/kg	
2104-64-5	EPN	ND	100	ug/kg	
86-50-0	Methyl Azinphos	ND	100	ug/kg	
56-72-4	Coumaphos	ND	100	ug/kg	

(a) Analyzed By Accutest Southeast Subcontract Lab.

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

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Report of Analysis

Client Sample ID:	CEF-OGC-SS-004-01		
Lab Sample ID:	F5326-4	**Date Sampled:**	11/18/99
Matrix:	SO - Soil	**Date Received:**	11/19/99
Method:	SW846-8141	**Percent Solids:**	93.1
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]		1	12/04/99	SUB	n/a	n/a	R7281
Run #2							

CAS No.	Compound	Result	RL	Units	Q
21646-99-1	TEPP	ND	1000	ug/kg	
62-73-7	Dichlorvos	ND	100	ug/kg	
7786-34-7	Mevinphos	ND	200	ug/kg	
8065-48-3	Demeton-S	ND	100	ug/kg	
13194-48-4	Ethoprop	ND	100	ug/kg	
298-02-2	Phorate	ND	100	ug/kg	
300-76-5	Naled	ND	1000	ug/kg	
3689-24-5	Sulfotep	ND	100	ug/kg	
333-41-5	Diazinon	ND	100	ug/kg	
298-04-4	Disulfoton	ND	100	ug/kg	
60-51-5	Dimethoate	ND	200	ug/kg	
299-84-3	Ronnel	ND	100	ug/kg	
150-50-5	Merphos	ND	100	ug/kg	
2921-88-2	Chlorpyrifos	ND	100	ug/kg	
55-38-9	Fenthion	ND	100	ug/kg	
327-98-0	Trichloronate	ND	100	ug/kg	
298-00-0	Methyl parathion	ND	100	ug/kg	
121-75-5	Malathion	ND	100	ug/kg	
34643-46-4	Tokuthion	ND	100	ug/kg	
56-38-2	Ethyl Parathion	ND	100	ug/kg	
22248-79-9	Stirophos	ND	100	ug/kg	
35400-43-2	Bolstar	ND	100	ug/kg	
115-90-2	Fensulfothion	ND	200	ug/kg	
2104-64-5	EPN	ND	100	ug/kg	
86-50-0	Methyl Azinphos	ND	100	ug/kg	
56-72-4	Coumaphos	ND	100	ug/kg	

(a) Analyzed By Accutest Southeast Subcontract Lab.

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

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

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ACCUTEST

Report of Analysis

Client Sample ID:	CEF-OGC-SS-005-01		
Lab Sample ID:	F5326-5	**Date Sampled:**	11/18/99
Matrix:	SO - Soil	**Date Received:**	11/19/99
Method:	SW846-8141	**Percent Solids:**	92.6
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]		1	12/04/99	SUB	n/a	n/a	R7281
Run #2							

CAS No.	Compound	Result	RL	Units	Q
21646-99-1	TEPP	ND	1000	ug/kg	
62-73-7	Dichlorvos	ND	100	ug/kg	
7786-34-7	Mevinphos	ND	200	ug/kg	
8065-48-3	Demeton-S	ND	100	ug/kg	
13194-48-4	Ethoprop	ND	100	ug/kg	
298-02-2	Phorate	ND	100	ug/kg	
300-76-5	Naled	ND	1000	ug/kg	
3689-24-5	Sulfotep	ND	100	ug/kg	
333-41-5	Diazinon	ND	100	ug/kg	
298-04-4	Disulfoton	ND	100	ug/kg	
60-51-5	Dimethoate	ND	200	ug/kg	
299-84-3	Ronnel	ND	100	ug/kg	
150-50-5	Merphos	ND	100	ug/kg	
2921-88-2	Chlorpyrifos	ND	100	ug/kg	
55-38-9	Fenthion	ND	100	ug/kg	
327-98-0	Trichloronate	ND	100	ug/kg	
298-00-0	Methyl parathion	ND	100	ug/kg	
121-75-5	Malathion	ND	100	ug/kg	
34643-46-4	Tokuthion	ND	100	ug/kg	
56-38-2	Ethyl Parathion	ND	100	ug/kg	
22248-79-9	Stirophos	ND	100	ug/kg	
35400-43-2	Bolstar	ND	100	ug/kg	
115-90-2	Fensulfothion	ND	200	ug/kg	
2104-64-5	EPN	ND	100	ug/kg	
86-50-0	Methyl Azinphos	ND	100	ug/kg	
56-72-4	Coumaphos	ND	100	ug/kg	

(a) Analyzed By Accutest Southeast Subcontract Lab.

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

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

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Report of Analysis

Client Sample ID:	CEF-OGC-SS-006-01		
Lab Sample ID:	F5326-6	**Date Sampled:**	11/18/99
Matrix:	SO - Soil	**Date Received:**	11/19/99
Method:	SW846-8141	**Percent Solids:**	92.6
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]		1	12/04/99	SUB	n/a	n/a	R7281
Run #2							

CAS No.	Compound	Result	RL	Units	Q
21646-99-1	TEPP	ND	1000	ug/kg	
62-73-7	Dichlorvos	ND	100	ug/kg	
7786-34-7	Mevinphos	ND	200	ug/kg	
8065-48-3	Demeton-S	ND	100	ug/kg	
13194-48-4	Ethoprop	ND	100	ug/kg	
298-02-2	Phorate	ND	100	ug/kg	
300-76-5	Naled	ND	1000	ug/kg	
3689-24-5	Sulfotep	ND	100	ug/kg	
333-41-5	Diazinon	ND	100	ug/kg	
298-04-4	Disulfoton	ND	100	ug/kg	
60-51-5	Dimethoate	ND	200	ug/kg	
299-84-3	Ronnel	ND	100	ug/kg	
150-50-5	Merphos	ND	100	ug/kg	
2921-88-2	Chlorpyrifos	ND	100	ug/kg	
55-38-9	Fenthion	ND	100	ug/kg	
327-98-0	Trichloronate	ND	100	ug/kg	
298-00-0	Methyl parathion	ND	100	ug/kg	
121-75-5	Malathion	ND	100	ug/kg	
34643-46-4	Tokuthion	ND	100	ug/kg	
56-38-2	Ethyl Parathion	ND	100	ug/kg	
22248-79-9	Stirophos	ND	100	ug/kg	
35400-43-2	Bolstar	ND	100	ug/kg	
115-90-2	Fensulfothion	ND	200	ug/kg	
2104-64-5	EPN	ND	100	ug/kg	
86-50-0	Methyl Azinphos	ND	100	ug/kg	
56-72-4	Coumaphos	ND	100	ug/kg	

(a) Analyzed By Accutest Southeast Subcontract Lab.

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N = Indicates presumptive evidence of a compound

000025

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-OGC-SS-007-01		
Lab Sample ID:	F5326-7	**Date Sampled:**	11/18/99
Matrix:	SO - Soil	**Date Received:**	11/19/99
Method:	SW846-8141	**Percent Solids:**	94.2
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]		1	12/04/99	SUB	n/a	n/a	R7281
Run #2							

CAS No.	Compound	Result	RL	Units	Q
21646-99-1	TEPP	ND	1000	ug/kg	
62-73-7	Dichlorvos	ND	100	ug/kg	
7786-34-7	Mevinphos	ND	200	ug/kg	
8065-48-3	Demeton-S	ND	100	ug/kg	
13194-48-4	Ethoprop	ND	100	ug/kg	
298-02-2	Phorate	ND	100	ug/kg	
300-76-5	Naled	ND	1000	ug/kg	
3689-24-5	Sulfotep	ND	100	ug/kg	
333-41-5	Diazinon	ND	100	ug/kg	
298-04-4	Disulfoton	ND	100	ug/kg	
60-51-5	Dimethoate	ND	200	ug/kg	
299-84-3	Ronnel	ND	100	ug/kg	
150-50-5	Merphos	ND	100	ug/kg	
2921-88-2	Chlorpyrifos	ND	100	ug/kg	
55-38-9	Fenthion	ND	100	ug/kg	
327-98-0	Trichloronate	ND	100	ug/kg	
298-00-0	Methyl parathion	ND	100	ug/kg	
121-75-5	Malathion	ND	100	ug/kg	
34643-46-4	Tokuthion	ND	100	ug/kg	
56-38-2	Ethyl Parathion	ND	100	ug/kg	
22248-79-9	Stirophos	ND	100	ug/kg	
35400-43-2	Bolstar	ND	100	ug/kg	
115-90-2	Fensulfothion	ND	200	ug/kg	
2104-64-5	EPN	ND	100	ug/kg	
86-50-0	Methyl Azinphos	ND	100	ug/kg	
56-72-4	Coumaphos	ND	100	ug/kg	

(a) Analyzed By Accutest Southeast Subcontract Lab.

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N = Indicates presumptive evidence of a compound

000029

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Report of Analysis

Client Sample ID:	CEF-OGC-SS-008-01		
Lab Sample ID:	F5326-8	**Date Sampled:**	11/18/99
Matrix:	SO - Soil	**Date Received:**	11/19/99
Method:	SW846-8141	**Percent Solids:**	95.4
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]		1	12/04/99	SUB	n/a	n/a	R7281
Run #2							

CAS No.	Compound	Result	RL	Units	Q
21646-99-1	TEPP	ND	1000	ug/kg	
62-73-7	Dichlorvos	ND	100	ug/kg	
7786-34-7	Mevinphos	ND	200	ug/kg	
8065-48-3	Demeton-S	ND	100	ug/kg	
13194-48-4	Ethoprop	ND	100	ug/kg	
298-02-2	Phorate	ND	100	ug/kg	
300-76-5	Naled	ND	1000	ug/kg	
3689-24-5	Sulfotep	ND	100	ug/kg	
333-41-5	Diazinon	ND	100	ug/kg	
298-04-4	Disulfoton	ND	100	ug/kg	
60-51-5	Dimethoate	ND	200	ug/kg	
299-84-3	Ronnel	ND	100	ug/kg	
150-50-5	Merphos	ND	100	ug/kg	
2921-88-2	Chlorpyrifos	ND	100	ug/kg	
55-38-9	Fenthion	ND	100	ug/kg	
327-98-0	Trichloronate	ND	100	ug/kg	
298-00-0	Methyl parathion	ND	100	ug/kg	
121-75-5	Malathion	ND	100	ug/kg	
34643-46-4	Tokuthion	ND	100	ug/kg	
56-38-2	Ethyl Parathion	ND	100	ug/kg	
22248-79-9	Stirophos	ND	100	ug/kg	
35400-43-2	Bolstar	ND	100	ug/kg	
115-90-2	Fensulfothion	ND	200	ug/kg	
2104-64-5	EPN	ND	100	ug/kg	
86-50-0	Methyl Azinphos	ND	100	ug/kg	
56-72-4	Coumaphos	ND	100	ug/kg	

(a) Analyzed By Accutest Southeast Subcontract Lab.

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Report of Analysis

Client Sample ID:	CEF-OGC-SS-009-01		
Lab Sample ID:	F5326-9	**Date Sampled:**	11/18/99
Matrix:	SO - Soil	**Date Received:**	11/19/99
Method:	SW846-8141	**Percent Solids:**	94.0
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]		1	12/04/99	SUB	n/a	n/a	R7281
Run #2							

CAS No.	Compound	Result	RL	Units	Q
21646-99-1	TEPP	ND	1000	ug/kg	
62-73-7	Dichlorvos	ND	100	ug/kg	
7786-34-7	Mevinphos	ND	200	ug/kg	
8065-48-3	Demeton-S	ND	100	ug/kg	
13194-48-4	Ethoprop	ND	100	ug/kg	
298-02-2	Phorate	ND	100	ug/kg	
300-76-5	Naled	ND	1000	ug/kg	
3689-24-5	Sulfotep	ND	100	ug/kg	
333-41-5	Diazinon	ND	100	ug/kg	
298-04-4	Disulfoton	ND	100	ug/kg	
60-51-5	Dimethoate	ND	200	ug/kg	
299-84-3	Ronnel	ND	100	ug/kg	
150-50-5	Merphos	ND	100	ug/kg	
2921-88-2	Chlorpyrifos	ND	100	ug/kg	
55-38-9	Fenthion	ND	100	ug/kg	
327-98-0	Trichloronate	ND	100	ug/kg	
298-00-0	Methyl parathion	ND	100	ug/kg	
121-75-5	Malathion	ND	100	ug/kg	
34643-46-4	Tokuthion	ND	100	ug/kg	
56-38-2	Ethyl Parathion	ND	100	ug/kg	
22248-79-9	Stirophos	ND	100	ug/kg	
35400-43-2	Bolstar	ND	100	ug/kg	
115-90-2	Fensulfothion	ND	200	ug/kg	
2104-64-5	EPN	ND	100	ug/kg	
86-50-0	Methyl Azinphos	ND	100	ug/kg	
56-72-4	Coumaphos	ND	100	ug/kg	

(a) Analyzed By Accutest Southeast Subcontract Lab.

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

000037

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-OGC-SS-010-01		
Lab Sample ID:	F5326-10	**Date Sampled:**	11/18/99
Matrix:	SO - Soil	**Date Received:**	11/19/99
Method:	SW846-8141	**Percent Solids:**	93.3
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]		1	12/04/99	SUB	n/a	n/a	R7281
Run #2							

CAS No.	Compound	Result	RL	Units	Q
21646-99-1	TEPP	ND	1000	ug/kg	
62-73-7	Dichlorvos	ND	100	ug/kg	
7786-34-7	Mevinphos	ND	200	ug/kg	
8065-48-3	Demeton-S	ND	100	ug/kg	
13194-48-4	Ethoprop	ND	100	ug/kg	
298-02-2	Phorate	ND	100	ug/kg	
300-76-5	Naled	ND	1000	ug/kg	
3689-24-5	Sulfotep	ND	100	ug/kg	
333-41-5	Diazinon	ND	100	ug/kg	
298-04-4	Disulfoton	ND	100	ug/kg	
60-51-5	Dimethoate	ND	200	ug/kg	
299-84-3	Ronnel	ND	100	ug/kg	
150-50-5	Merphos	ND	100	ug/kg	
2921-88-2	Chlorpyrifos	ND	100	ug/kg	
55-38-9	Fenthion	ND	100	ug/kg	
327-98-0	Trichloronate	ND	100	ug/kg	
298-00-0	Methyl parathion	ND	100	ug/kg	
121-75-5	Malathion	ND	100	ug/kg	
34643-46-4	Tokuthion	ND	100	ug/kg	
56-38-2	Ethyl Parathion	ND	100	ug/kg	
22248-79-9	Stirophos	ND	100	ug/kg	
35400-43-2	Bolstar	ND	100	ug/kg	
115-90-2	Fensulfothion	ND	200	ug/kg	
2104-64-5	EPN	ND	100	ug/kg	
86-50-0	Methyl Azinphos	ND	100	ug/kg	
56-72-4	Coumaphos	ND	100	ug/kg	

(a) Analyzed By Accutest Southeast Subcontract Lab.

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RL = Reporting Limit
E = Indicates value exceeds calibration range

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

000041

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-OGC-SS-011-01		
Lab Sample ID:	F5326-11	**Date Sampled:**	11/18/99
Matrix:	SO - Soil	**Date Received:**	11/19/99
Method:	SW846-8141	**Percent Solids:**	92.8
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]		1	12/04/99	SUB	n/a	n/a	R7281
Run #2							

CAS No.	Compound	Result	RL	Units	Q
21646-99-1	TEPP	ND	1000	ug/kg	
62-73-7	Dichlorvos	ND	100	ug/kg	
7786-34-7	Mevinphos	ND	200	ug/kg	
8065-48-3	Demeton-S	ND	100	ug/kg	
13194-48-4	Ethoprop	ND	100	ug/kg	
298-02-2	Phorate	ND	100	ug/kg	
300-76-5	Naled	ND	1000	ug/kg	
3689-24-5	Sulfotep	ND	100	ug/kg	
333-41-5	Diazinon	ND	100	ug/kg	
298-04-4	Disulfoton	ND	100	ug/kg	
60-51-5	Dimethoate	ND	200	ug/kg	
299-84-3	Ronnel	ND	100	ug/kg	
150-50-5	Merphos	ND	100	ug/kg	
2921-88-2	Chlorpyrifos	ND	100	ug/kg	
55-38-9	Fenthion	ND	100	ug/kg	
327-98-0	Trichloronate	ND	100	ug/kg	
298-00-0	Methyl parathion	ND	100	ug/kg	
121-75-5	Malathion	ND	100	ug/kg	
34643-46-4	Tokuthion	ND	100	ug/kg	
56-38-2	Ethyl Parathion	ND	100	ug/kg	
22248-79-9	Stirophos	ND	100	ug/kg	
35400-43-2	Bolstar	ND	100	ug/kg	
115-90-2	Fensulfothion	ND	200	ug/kg	
2104-64-5	EPN	ND	100	ug/kg	
86-50-0	Methyl Azinphos	ND	100	ug/kg	
56-72-4	Coumaphos	ND	100	ug/kg	

(a) Analyzed By Accutest Southeast Subcontract Lab.

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RL = Reporting Limit
E = Indicates value exceeds calibration range

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

000045

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-OGC-SS-012-01		
Lab Sample ID:	F5326-12	**Date Sampled:**	11/18/99
Matrix:	SO - Soil	**Date Received:**	11/19/99
Method:	SW846-8141	**Percent Solids:**	93.4
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]		1	12/04/99	SUB	n/a	n/a	R7281
Run #2							

CAS No.	Compound	Result	RL	Units	Q
21646-99-1	TEPP	ND	1000	ug/kg	
62-73-7	Dichlorvos	ND	100	ug/kg	
7786-34-7	Mevinphos	ND	200	ug/kg	
8065-48-3	Demeton-S	ND	100	ug/kg	
13194-48-4	Ethoprop	ND	100	ug/kg	
298-02-2	Phorate	ND	100	ug/kg	
300-76-5	Naled	ND	1000	ug/kg	
3689-24-5	Sulfotep	ND	100	ug/kg	
333-41-5	Diazinon	ND	100	ug/kg	
298-04-4	Disulfoton	ND	100	ug/kg	
60-51-5	Dimethoate	ND	200	ug/kg	
299-84-3	Ronnel	ND	100	ug/kg	
150-50-5	Merphos	ND	100	ug/kg	
2921-88-2	Chlorpyrifos	ND	100	ug/kg	
55-38-9	Fenthion	ND	100	ug/kg	
327-98-0	Trichloronate	ND	100	ug/kg	
298-00-0	Methyl parathion	ND	100	ug/kg	
121-75-5	Malathion	ND	100	ug/kg	
34643-46-4	Tokuthion	ND	100	ug/kg	
56-38-2	Ethyl Parathion	ND	100	ug/kg	
22248-79-9	Stirophos	ND	100	ug/kg	
35400-43-2	Bolstar	ND	100	ug/kg	
115-90-2	Fensulfothion	ND	200	ug/kg	
2104-64-5	EPN	ND	100	ug/kg	
86-50-0	Methyl Azinphos	ND	100	ug/kg	
56-72-4	Coumaphos	ND	100	ug/kg	

(a) Analyzed By Accutest Southeast Subcontract Lab.

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B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

000079

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-OGC-SS-DU02		
Lab Sample ID:	F5326-14	**Date Sampled:**	11/18/99
Matrix:	SO - Soil	**Date Received:**	11/19/99
Method:	SW846-8141	**Percent Solids:**	92.9
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]		1	12/04/99	SUB	n/a	n/a	R7281
Run #2							

CAS No.	Compound	Result	RL	Units	Q
21646-99-1	TEPP	ND	1000	ug/kg	
62-73-7	Dichlorvos	ND	100	ug/kg	
7786-34-7	Mevinphos	ND	200	ug/kg	
8065-48-3	Demeton-S	ND	100	ug/kg	
13194-48-4	Ethoprop	ND	100	ug/kg	
298-02-2	Phorate	ND	100	ug/kg	
300-76-5	Naled	ND	1000	ug/kg	
3689-24-5	Sulfotep	ND	100	ug/kg	
333-41-5	Diazinon	ND	100	ug/kg	
298-04-4	Disulfoton	ND	100	ug/kg	
60-51-5	Dimethoate	ND	200	ug/kg	
299-84-3	Ronnel	ND	100	ug/kg	
150-50-5	Merphos	ND	100	ug/kg	
2921-88-2	Chlorpyrifos	ND	100	ug/kg	
55-38-9	Fenthion	ND	100	ug/kg	
327-98-0	Trichloronate	ND	100	ug/kg	
298-00-0	Methyl parathion	ND	100	ug/kg	
121-75-5	Malathion	ND	100	ug/kg	
34643-46-4	Tokuthion	ND	100	ug/kg	
56-38-2	Ethyl Parathion	ND	100	ug/kg	
22248-79-9	Stirophos	ND	100	ug/kg	
35400-43-2	Bolstar	ND	100	ug/kg	
115-90-2	Fensulfothion	ND	200	ug/kg	
2104-64-5	EPN	ND	100	ug/kg	
86-50-0	Methyl Azinphos	ND	100	ug/kg	
56-72-4	Coumaphos	ND	100	ug/kg	

(a) Analyzed By Accutest Southeast Subcontract Lab.

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

000056

Tetra Tech NUS **INTERNAL CORRESPONDENCE**

TO:	**M. SPERANZA**	**DATE:**	**JANUARY 5, 2000**
FROM:	**GRETCHEN PHIPPS**	**COPIES:**	**DV FILE**

SUBJECT: **INORGANIC DATA VALIDATION – ARSENIC**
CTO 078 - CECIL FIELD
SDGs – F5326

SAMPLES: 14/Soils/

CEF-OGC-SS-001-01	CEF-OGC-SS-002-01
CEF-OGC-SS-003-01	CEF-OGC-SS-004-01
CEF-OGC-SS-005-01	CEF-OGC-SS-006-01
CEF-OGC-SS-007-01	CEF-OGC-SS-008-01
CEF-OGC-SS-009-01	CEF-OGC-SS-010-01
CEF-OGC-SS-011-01	CEF-OGC-SS-012-01
CEF-OGC-SS-DU01	CEF-OGC-SS-DU02

Overview

The sample set for CTO 078, Cecil Field, SDG F5326 consists of fourteen (14) soil environmental samples. Two (2) field duplicate pairs (CEF-OGC-SS-001-01 / CEF-OGC-SS-DU01 and CEF-OGC-SS-004-01 / CEF-OGC-SS-DU02) were included within this SDG.

The samples were analyzed for arsenic. The samples were collected by Tetra Tech NUS on November 18, 1999 and analyzed by Accutest Laboratory under Naval Facilities Engineering Service Center (NFESC) Quality Assurance / Quality Control (QA / QC) criteria. Metals 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
- * Field Duplicate Precision
- * Detection Limits

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

Laboratory Blank Analyses

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

Analyte	Maximum Concentration	Action Level(soil)
Arsenic	6.0µg/L	3.0mg/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 level for arsenic were qualified, "U", as a result of blank contamination.

Notes

A comparison of field duplicate pairs (CEF-OGC-SS-001-01 / CEF-OGC-SS-DU01 and CEF-OGC-SS-004-01 / CEF-OGC-SS-DU02) is included in Appendix C.

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)."

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: F5326

SAMPLE NUMBER:	CEF-OGC-SS-001-01			CEF-OGC-SS-002-01			CEF-OGC-SS-003-01			CEF-OGC-SS-004-01		
SAMPLE DATE:	11/18/99			11/18/99			11/18/99			11/18/99		
LABORATORY ID:	F5326-1			F5326-2			F5326-3			F5326-4		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	87.9 %			89.8 %			89.9 %			93.1 %		
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	1.6	U	A	1.6	U	A	0.55	U	A	4.6		

CTO078 - NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F5326

SAMPLE NUMBER:	CEF-OGC-SS-005-01			CEF-OGC-SS-006-01			CEF-OGC-SS-007-01			CEF-OGC-SS-008-01		
SAMPLE DATE:	11/18/99			11/18/99			11/18/99			11/18/99		
LABORATORY ID:	F5326-5			F5326-6			F5326-7			F5326-8		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	92.6 %			92.6 %			94.2 %			95.4 %		
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	13.6			3.2	U	A	1.2	U	A	0.66	U	A

CTO078 - NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F5326

SAMPLE NUMBER:	CEF-OGC-SS-009-01			CEF-OGC-SS-010-01			CEF-OGC-SS-011-01			CEF-OGC-SS-012-01		
SAMPLE DATE:	11/18/99			11/18/99			11/18/99			11/18/99		
LABORATORY ID:	F5326-9			F5326-10			F5326-11			F5326-12		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	94.0 %			93.3 %			92.8 %			93.4 %		
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	11.8			3.5			0.54	U	A	0.38	U	A

CTO078 - NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F5326

SAMPLE NUMBER:	CEF-OGC-SS-DU01			CEF-OGC-SS-DU02			/ /			/ /		
SAMPLE DATE:	11/18/99			11/18/99								
LABORATORY ID:	F5326-13			F5326-14								
QC_TYPE:	NORMAL			NORMAL								
% SOLIDS:	89.0 %			92.9 %			100.0 %			100.0 %		
UNITS:	MG/KG			MG/KG								
FIELD DUPLICATE OF:	CEF-OGC-SS-001-01			CEF-OGC-SS-004-01								
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
INORGANICS												
ARSENIC	1.3	U	A	1.0	U	A						

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-OGC-SS-001-01		
Lab Sample ID:	F5326-1	**Date Sampled:**	11/18/99
Matrix:	SO - Soil	**Date Received:**	11/19/99
		Percent Solids:	87.9
Project:	NAS Cecil Field		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By		Method
Arsenic	1.6	1.1	mg/kg	1	12/22/99	12/23/99	JK	SW846 6010A

000006

RL = Reporting Limit

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-OGC-SS-002-01		
Lab Sample ID:	F5326-2	**Date Sampled:**	11/18/99
Matrix:	SO - Soil	**Date Received:**	11/19/99
		Percent Solids:	89.8
Project:	NAS Cecil Field		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By		Method
Arsenic	1.6	1.1	mg/kg	1	12/22/99	12/23/99	JK	SW846 6010A

000010

RL = Reporting Limit

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-OGC-SS-003-01		
Lab Sample ID:	F5326-3	**Date Sampled:**	11/18/99
Matrix:	SO - Soil	**Date Received:**	11/19/99
		Percent Solids:	89.9
Project:	NAS Cecil Field		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By		Method
Arsenic	0.55 B	1.1	mg/kg	1	12/22/99	12/23/99	JK	SW846 6010A

000014

RL = Reporting Limit

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-OGC-SS-004-01		
Lab Sample ID:	F5326-4	**Date Sampled:**	11/18/99
Matrix:	SO - Soil	**Date Received:**	11/19/99
		Percent Solids:	93.1
Project:	NAS Cecil Field		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By		Method
Arsenic	4.6	1.0	mg/kg	1	12/22/99	12/23/99	JK	SW846 6010A

000018

RL = Reporting Limit

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-OGC-SS-005-01		
Lab Sample ID:	F5326-5	**Date Sampled:**	11/18/99
Matrix:	SO - Soil	**Date Received:**	11/19/99
		Percent Solids:	92.6
Project:	NAS Cecil Field		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method
Arsenic	13.6	1.1	mg/kg	1	12/22/99	12/23/99 JK	SW846 6010A

000022

RL = Reporting Limit

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-OGC-SS-006-01		
Lab Sample ID:	F5326-6	**Date Sampled:**	11/18/99
Matrix:	SO - Soil	**Date Received:**	11/19/99
		Percent Solids:	92.6
Project:	NAS Cecil Field		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By		Method
Arsenic	3.2	1.0	mg/kg	1	12/22/99	12/23/99	JK	SW846 6010A

000026

RL = Reporting Limit

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-OGC-SS-007-01	**Date Sampled:**	11/18/99
Lab Sample ID:	F5326-7	**Date Received:**	11/19/99
Matrix:	SO - Soil	**Percent Solids:**	94.2
Project:	NAS Cecil Field		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method
Arsenic	1.2	1.1	mg/kg	1	12/22/99	12/23/99 JK	SW846 6010A

RL = Reporting Limit

000030

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-OGC-SS-008-01		
Lab Sample ID:	F5326-8	**Date Sampled:**	11/18/99
Matrix:	SO - Soil	**Date Received:**	11/19/99
		Percent Solids:	95.4
Project:	NAS Cecil Field		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method
Arsenic	0.66 B	1.1	mg/kg	1	12/22/99	12/23/99	JK	SW846 6010A

RL = Reporting Limit

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Report of Analysis

Client Sample ID:	CEF-OGC-SS-009-01		
Lab Sample ID:	F5326-9	**Date Sampled:**	11/18/99
Matrix:	SO - Soil	**Date Received:**	11/19/99
		Percent Solids:	94.0
Project:	NAS Cecil Field		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By		Method
Arsenic	11.8	1.0	mg/kg	1	12/22/99	12/23/99	JK	SW846 6010A

RL = Reporting Limit

000038

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-OGC-SS-010-01		
Lab Sample ID:	F5326-10	**Date Sampled:**	11/18/99
Matrix:	SO - Soil	**Date Received:**	11/19/99
		Percent Solids:	93.3
Project:	NAS Cecil Field		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By		Method
Arsenic	3.5	1.1	mg/kg	1	12/22/99	12/23/99	JK	SW846 6010A

RL = Reporting Limit

000042

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-OGC-SS-011-01		
Lab Sample ID:	F5326-11	**Date Sampled:**	11/18/99
Matrix:	SO - Soil	**Date Received:**	11/19/99
		Percent Solids:	92.8
Project:	NAS Cecil Field		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method
Arsenic	0.54 B	1.1	mg/kg	1	12/22/99	12/23/99	JK	SW846 6010A

RL = Reporting Limit

000046

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-OGC-SS-012-01		
Lab Sample ID:	F5326-12	**Date Sampled:**	11/18/99
Matrix:	SO - Soil	**Date Received:**	11/19/99
		Percent Solids:	93.4
Project:	NAS Cecil Field		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By		Method
Arsenic	0.38 B	1.0	mg/kg	1	12/22/99	12/23/99	JK	SW846 6010A

000050

RL = Reporting Limit

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-OGC-SS-DU01		
Lab Sample ID:	F5326-13	**Date Sampled:**	11/18/99
Matrix:	SO - Soil	**Date Received:**	11/19/99
		Percent Solids:	89.0
Project:	NAS Cecil Field		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By		Method
Arsenic	1.3	1.1	mg/kg	1	12/22/99	12/23/99	JK	SW846 6010A

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Report of Analysis

Client Sample ID:	CEF-OGC-SS-DU02		
Lab Sample ID:	F5326-14	**Date Sampled:**	11/18/99
Matrix:	SO - Soil	**Date Received:**	11/19/99
		Percent Solids:	92.9
Project:	NAS Cecil Field		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method
Arsenic	1.0	1.0	mg/kg	1	12/22/99	12/23/99	JK	SW846 6010A

RL = Reporting Limit

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PHASE II ANALYTICAL RESULTS

Tetra Tech NUS

INTERNAL CORRESPONDENCE

TO:	**M. SPERANZA**	**DATE:**	**MARCH 7, 2000**
FROM:	**GRETCHEN PHIPPS**	**COPIES:**	**DV FILE**

SUBJECT: **INORGANIC DATA VALIDATION – ARSENIC**
CTO 078 - CECIL FIELD
SDGs – F5792

SAMPLES: 29/Soils/

CEF-OGC-SS-101-02	CEF-OGC-SS-102-01
CEF-OGC-SS-103-01	CEF-OGC-SS-104-01
CEF-OGC-SS-105-02	CEF-OGC-SS-106-01
CEF-OGC-SS-107-01	CEF-OGC-SS-108-01
CEF-OGC-SS-109-01	CEF-OGC-SS-110-01
CEF-OGC-SS-111-01	CEF-OGC-SS-112-02
CEF-OGC-SS-113-01	CEF-OGC-SS-114-01
CEF-OGC-SS-115-01	CEF-OGC-SS-116-01
CEF-OGC-SS-117-01	CEF-OGC-SS-118-01
CEF-OGC-SS-119-01	CEF-OGC-SS-120-01
CEF-OGC-SS-121-01	CEF-OGC-SS-122-01
CEF-OGC-SS-123-01	CEF-OGC-SS-124-01
CEF-OGC-SS-125-01	CEF-OGC-SS-126-01
CEF-OGC-SS-127-01	CEF-OGC-SS-DUP01
CEF-OGC-SS-DUP02	

Overview

The sample set for CTO 078, Cecil Field, SDG F5792 consists of twenty-nine (29) soil environmental samples.

The samples were analyzed for arsenic. The samples were collected by Tetra Tech NUS on January 31 and February 1, 2000 and analyzed by Accutest Laboratory under Naval Facilities Engineering Service Center (NFESC) Quality Assurance / Quality Control (QA / QC) criteria. Arsenic 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
* • Detection Limits

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

Notes

The samples associated with field duplicate samples (CEF-OGC-SS-DUP01 and CEF-OGC-SS-DUP02) were not included within this SDG. Therefore, a comparison was not made.

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)."

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: F5792

SAMPLE NUMBER:	CEF-OGC-SS-101-02			CEF-OGC-SS-102-01			CEF-OGC-SS-103-01			CEF-OGC-SS-104-01		
SAMPLE DATE:	01/31/00			01/31/00			01/31/00			01/31/00		
LABORATORY ID:	F5792-3			F5792-4			F5792-5			F5792-6		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	91.6 %			87.1 %			87.6 %			88.6 %		
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	0.38	U		1.5			2.0			0.93		

CTO078 - NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F5792

SAMPLE NUMBER:	CEF-OGC-SS-105-02			CEF-OGC-SS-106-01			CEF-OGC-SS-107-01			CEF-OGC-SS-108-01		
SAMPLE DATE:	02/01/00			02/01/00			02/01/00			02/01/00		
LABORATORY ID:	F5792-23			F5792-24			F5792-25			F5792-26		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	91.3 %			91.2 %			88.3 %			88.8 %		
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	11.9			5.6			20.3			2.2		

CTO078 - NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F5792

SAMPLE NUMBER:	CEF-OGC-SS-109-01	CEF-OGC-SS-110-01	CEF-OGC-SS-111-01	CEF-OGC-SS-112-02
SAMPLE DATE:	02/01/00	02/01/00	02/01/00	01/31/00
LABORATORY ID:	F5792-27	F5792-28	F5792-29	F5792-14
QC_TYPE:	NORMAL	NORMAL	NORMAL	NORMAL
% SOLIDS:	91.0 %	89.3 %	90.3 %	90.3 %
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	4.2			0.39	U		2.2			1.1		

CTO078 - NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F5792

SAMPLE NUMBER:	CEF-OGC-SS-113-01			CEF-OGC-SS-114-01			CEF-OGC-SS-115-01			CEF-OGC-SS-116-01		
SAMPLE DATE:	01/31/00			01/31/00			01/31/00			01/31/00		
LABORATORY ID:	F5792-15			F5792-18			F5792-19			F5792-20		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	92.2 %			90.3 %			92.1 %			90.9 %		
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	4.0			3.4			3.8			11.5		

CTO078 - NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F5792

SAMPLE NUMBER:	CEF-OGC-SS-117-01			CEF-OGC-SS-118-01			CEF-OGC-SS-119-01			CEF-OGC-SS-120-01		
SAMPLE DATE:	01/31/00			01/31/00			01/31/00			01/31/00		
LABORATORY ID:	F5792-17			F5792-16			F5792-7			F5792-8		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	91.3 %			89.9 %			84.2 %			84.6 %		
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	5.0			14.5			1.4			3.3		

CTO078 - NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F5792

SAMPLE NUMBER:	CEF-OGC-SS-121-01			CEF-OGC-SS-122-01			CEF-OGC-SS-123-01			CEF-OGC-SS-124-01		
SAMPLE DATE:	01/31/00			01/31/00			01/31/00			01/31/00		
LABORATORY ID:	F5792-9			F5792-10			F5792-1			F5792-2		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	81.0 %			87.7 %			84.4 %			88.7 %		
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	0.81			0.76			2.5			0.86		

CTO078 - NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F5792

SAMPLE NUMBER:	CEF-OGC-SS-125-01			CEF-OGC-SS-126-01			CEF-OGC-SS-127-01			CEF-OGC-SS-DUP01		
SAMPLE DATE:	01/31/00			01/31/00			01/31/00			01/31/00		
LABORATORY ID:	F5792-11			F5792-12			F5792-13			F5792-21		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	90.7 %			90.1 %			89.5 %			92.3 %		
UNITS:	MG/KG			MG/KG			MG/KG			MG/KG		
FIELD DUPLICATE OF:										CEF-OGC-SS-004-01		
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
INORGANICS												
ARSENIC	0.38	U		0.35	U		4.1			0.40	U	

CTO078 - NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F5792

SAMPLE NUMBER:	CEF-OGC-SS-DUP02											
SAMPLE DATE:	02/01/00			/ /			/ /			/ /		
LABORATORY ID:	F5792-22											
QC_TYPE:	NORMAL											
% SOLIDS:	79.5 %			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												
ARSENIC	7.0											

Report of Analysis

Client Sample ID:	CEF-OGC-SS-101-02		
Lab Sample ID:	F5792-3	**Date Sampled:**	01/31/00
Matrix:	SO - Soil	**Date Received:**	02/01/00
		Percent Solids:	91.6
Project:	NAS Cecil Field PO#N0039-P98655A-01		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By		Method
Arsenic	0.38 U	1.1	mg/kg	1	02/05/00	02/07/00	JK	SW846 6010A

RL = Reporting Limit

Report of Analysis

Client Sample ID:	CEF-OGC-SS-102-01		
Lab Sample ID:	F5792-4	**Date Sampled:**	01/31/00
Matrix:	SO - Soil	**Date Received:**	02/01/00
		Percent Solids:	87.1
Project:	NAS Cecil Field PO#N0039-P98655A-01		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method
Arsenic	1.5	1.2	mg/kg	1	02/05/00	02/07/00 JK	SW846 6010A

RL = Reporting Limit

Report of Analysis

Client Sample ID:	CEF-OGC-SS-103-01		
Lab Sample ID:	F5792-5	**Date Sampled:**	01/31/00
Matrix:	SO - Soil	**Date Received:**	02/01/00
		Percent Solids:	87.6
Project:	NAS Cecil Field PO#N0039-P98655A-01		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method
Arsenic	2.0	1.2	mg/kg	1	02/05/00	02/07/00	JK	SW846 6010A

RL = Reporting Limit

Report of Analysis

Client Sample ID:	CEF-OGC-SS-104-01		
Lab Sample ID:	F5792-6	**Date Sampled:**	01/31/00
Matrix:	SO - Soil	**Date Received:**	02/01/00
		Percent Solids:	88.6
Project:	NAS Cecil Field PO#N0039-P98655A-01		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method
Arsenic	0.93 B	1.1	mg/kg	1	02/05/00	02/07/00	JK	SW846 6010A

RL = Reporting Limit

Report of Analysis

Client Sample ID:	CEF-OGC-SS-105-02		
Lab Sample ID:	F5792-23	**Date Sampled:**	02/01/00
Matrix:	SO - Soil	**Date Received:**	02/01/00
		Percent Solids:	91.3
Project:	NAS Cecil Field PO#N0039-P98655A-01		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By		Method
Arsenic	11.9	1.1	mg/kg	1	02/05/00	02/07/00	JK	SW846 6010A

RL = Reporting Limit

Report of Analysis

Client Sample ID:	CEF-OGC-SS-106-01		
Lab Sample ID:	F5792-24	**Date Sampled:**	02/01/00
Matrix:	SO - Soil	**Date Received:**	02/01/00
		Percent Solids:	91.2
Project:	NAS Cecil Field PO#N0039-P98655A-01		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By		Method
Arsenic	5.6	1.0	mg/kg	1	02/05/00	02/07/00	JK	SW846 6010A

RL = Reporting Limit

Report of Analysis

Client Sample ID:	CEF-OGC-SS-107-01		
Lab Sample ID:	F5792-25	**Date Sampled:**	02/01/00
Matrix:	SO - Soil	**Date Received:**	02/01/00
		Percent Solids:	88.3
Project:	NAS Cecil Field PO#N0039-P98655A-01		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By		Method
Arsenic	20.3	1.2	mg/kg	1	02/05/00	02/07/00	JK	SW846 6010A

RL = Reporting Limit

Report of Analysis

Client Sample ID:	CEF-OGC-SS-108-01		
Lab Sample ID:	F5792-26	**Date Sampled:**	02/01/00
Matrix:	SO - Soil	**Date Received:**	02/01/00
		Percent Solids:	88.8
Project:	NAS Cecil Field PO#N0039-P98655A-01		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By		Method
Arsenic	2.2	1.1	mg/kg	1	02/05/00	02/07/00	JK	SW846 6010A

RL = Reporting Limit

Report of Analysis

Client Sample ID:	CEF-OGC-SS-109-01		
Lab Sample ID:	F5792-27	**Date Sampled:**	02/01/00
Matrix:	SO - Soil	**Date Received:**	02/01/00
		Percent Solids:	91.0
Project:	NAS Cecil Field PO#N0039-P98655A-01		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method
Arsenic	4.2	1.1	mg/kg	1	02/05/00	02/07/00 JK	SW846 6010A

RL = Reporting Limit

Report of Analysis

Client Sample ID:	CEF-OGC-SS-110-01		
Lab Sample ID:	F5792-28	**Date Sampled:**	02/01/00
Matrix:	SO - Soil	**Date Received:**	02/01/00
		Percent Solids:	89.3
Project:	NAS Cecil Field PO#N0039-P98655A-01		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By		Method
Arsenic	0.39 U	1.1	mg/kg	1	02/05/00	02/07/00	JK	SW846 6010A

RL = Reporting Limit

Report of Analysis

Client Sample ID:	CEF-OGC-SS-111-01		
Lab Sample ID:	F5792-29	**Date Sampled:**	02/01/00
Matrix:	SO - Soil	**Date Received:**	02/01/00
		Percent Solids:	90.3
Project:	NAS Cecil Field PO#N0039-P98655A-01		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method
Arsenic	2.2	1.2	mg/kg	1	02/09/00	02/11/00 JK	SW846 6010A

RL = Reporting Limit

Report of Analysis

Client Sample ID:	CEF-OGC-SS-112-02		
Lab Sample ID:	F5792-14	**Date Sampled:**	01/31/00
Matrix:	SO - Soil	**Date Received:**	02/01/00
		Percent Solids:	90.3
Project:	NAS Cecil Field PO#N0039-P98655A-01		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method
Arsenic	1.1	1.1	mg/kg	1	02/05/00	02/07/00	JK	SW846 6010A

RL = Reporting Limit

Report of Analysis

Client Sample ID:	CEF-OGC-SS-113-01		
Lab Sample ID:	F5792-15	**Date Sampled:**	01/31/00
Matrix:	SO - Soil	**Date Received:**	02/01/00
		Percent Solids:	92.2
Project:	NAS Cecil Field PO#N0039-P98655A-01		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method
Arsenic	4.0	1.1	mg/kg	1	02/05/00	02/07/00	JK	SW846 6010A

RL = Reporting Limit

Report of Analysis

Client Sample ID:	CEF-OGC-SS-114-01		
Lab Sample ID:	F5792-18	**Date Sampled:**	01/31/00
Matrix:	SO - Soil	**Date Received:**	02/01/00
		Percent Solids:	90.3
Project:	NAS Cecil Field PO#N0039-P98655A-01		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By		Method
Arsenic	3.4	1.1	mg/kg	1	02/05/00	02/07/00	JK	SW846 6010A

RL = Reporting Limit

Report of Analysis

Client Sample ID:	CEF-OGC-SS-115-01		
Lab Sample ID:	F5792-19	**Date Sampled:**	01/31/00
Matrix:	SO - Soil	**Date Received:**	02/01/00
		Percent Solids:	92.1
Project:	NAS Cecil Field PO#N0039-P98655A-01		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method
Arsenic	3.8	1.0	mg/kg	1	02/05/00	02/07/00	JK	SW846 6010A

RL = Reporting Limit

Report of Analysis

Client Sample ID:	CEF-OGC-SS-116-01		
Lab Sample ID:	F5792-20	**Date Sampled:**	01/31/00
Matrix:	SO - Soil	**Date Received:**	02/01/00
		Percent Solids:	90.9
Project:	NAS Cecil Field PO#N0039-P98655A-01		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By		Method
Arsenic	11.5	1.0	mg/kg	1	02/05/00	02/07/00	JK	SW846 6010A

RL = Reporting Limit

Report of Analysis

Client Sample ID:	CEF-OGC-SS-117-01		
Lab Sample ID:	F5792-17	**Date Sampled:**	01/31/00
Matrix:	SO - Soil	**Date Received:**	02/01/00
		Percent Solids:	91.3
Project:	NAS Cecil Field PO#N0039-P98655A-01		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method
Arsenic	5.0	1.1	mg/kg	1	02/05/00	02/07/00	JK	SW846 6010A

RL = Reporting Limit

Report of Analysis

Client Sample ID:	CEF-OGC-SS-118-01		
Lab Sample ID:	F5792-16	**Date Sampled:**	01/31/00
Matrix:	SO - Soil	**Date Received:**	02/01/00
		Percent Solids:	89.9
Project:	NAS Cecil Field PO#N0039-P98655A-01		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method
Arsenic	14.5	1.1	mg/kg	1	02/05/00	02/07/00	JK	SW846 6010A

RL = Reporting Limit

Report of Analysis

Client Sample ID:	CEF-OGC-SS-119-01		
Lab Sample ID:	F5792-7	**Date Sampled:**	01/31/00
Matrix:	SO - Soil	**Date Received:**	02/01/00
		Percent Solids:	84.2
Project:	NAS Cecil Field PO#N0039-P98655A-01		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By		Method
Arsenic	1.4	1.2	mg/kg	1	02/05/00	02/07/00	JK	SW846 6010A

RL = Reporting Limit

Report of Analysis

Client Sample ID:	CEF-OGC-SS-120-01		
Lab Sample ID:	F5792-8	**Date Sampled:**	01/31/00
Matrix:	SO - Soil	**Date Received:**	02/01/00
		Percent Solids:	84.6
Project:	NAS Cecil Field PO#N0039-P98655A-01		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method
Arsenic	3.3	1.1	mg/kg	1	02/05/00	02/07/00 JK	SW846 6010A

RL = Reporting Limit

Report of Analysis

Client Sample ID:	CEF-OGC-SS-121-01		
Lab Sample ID:	F5792-9	**Date Sampled:**	01/31/00
Matrix:	SO - Soil	**Date Received:**	02/01/00
		Percent Solids:	81.0
Project:	NAS Cecil Field PO#N0039-P98655A-01		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By		Method
Arsenic	0.81 B	1.2	mg/kg	1	02/05/00	02/07/00	JK	SW846 6010A

RL = Reporting Limit

Report of Analysis

Client Sample ID:	CEF-OGC-SS-122-01		
Lab Sample ID:	F5792-10	**Date Sampled:**	01/31/00
Matrix:	SO - Soil	**Date Received:**	02/01/00
		Percent Solids:	87.7
Project:	NAS Cecil Field PO#N0039-P98655A-01		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method
Arsenic	0.76 B	1.0	mg/kg	1	02/05/00	02/07/00 JK	SW846 6010A

RL = Reporting Limit

Report of Analysis

Client Sample ID:	CEF-OGC-SS-123-01		
Lab Sample ID:	F5792-1	**Date Sampled:**	01/31/00
Matrix:	SO - Soil	**Date Received:**	02/01/00
		Percent Solids:	84.4
Project:	NAS Cecil Field PO#N0039-P98655A-01		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By		Method
Arsenic	2.5	1.2	mg/kg	1	02/05/00	02/07/00	JK	SW846 6010A

RL = Reporting Limit

Report of Analysis

Client Sample ID:	CEF-OGC-SS-124-01		
Lab Sample ID:	F5792-2	**Date Sampled:**	01/31/00
Matrix:	SO - Soil	**Date Received:**	02/01/00
		Percent Solids:	88.7
Project:	NAS Cecil Field PO#N0039-P98655A-01		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method
Arsenic	0.86 B	1.1	mg/kg	1	02/05/00	02/07/00 JK	SW846 6010A

RL = Reporting Limit

Report of Analysis

Client Sample ID:	CEF-OGC-SS-125-01		
Lab Sample ID:	F5792-11	**Date Sampled:**	01/31/00
Matrix:	SO - Soil	**Date Received:**	02/01/00
		Percent Solids:	90.7
Project:	NAS Cecil Field PO#N0039-P98655A-01		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method
Arsenic	0.38 U	1.1	mg/kg	1	02/05/00	02/07/00 JK	SW846 6010A

RL = Reporting Limit

Report of Analysis

Client Sample ID:	CEF-OGC-SS-126-01		
Lab Sample ID:	F5792-12	**Date Sampled:**	01/31/00
Matrix:	SO - Soil	**Date Received:**	02/01/00
		Percent Solids:	90.1
Project:	NAS Cecil Field PO#N0039-P98655A-01		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method
Arsenic	0.35 U	1.0	mg/kg	1	02/05/00	02/07/00 JK	SW846 6010A

RL = Reporting Limit

Report of Analysis

Client Sample ID:	CEF-OGC-SS-127-01		
Lab Sample ID:	F5792-13	**Date Sampled:**	01/31/00
Matrix:	SO - Soil	**Date Received:**	02/01/00
		Percent Solids:	89.5
Project:	NAS Cecil Field PO#N0039-P98655A-01		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By		Method
Arsenic	4.1	1.2	mg/kg	1	02/05/00	02/07/00	JK	SW846 6010A

RL = Reporting Limit

Report of Analysis

Client Sample ID:	CEF-OGC-SS-DUP01		
Lab Sample ID:	F5792-21	**Date Sampled:**	01/31/00
Matrix:	SO - Soil	**Date Received:**	02/01/00
		Percent Solids:	92.3
Project:	NAS Cecil Field PO#N0039-P98655A-01		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By		Method
Arsenic	0.40 U	1.2	mg/kg	1	02/05/00	02/07/00	JK	SW846 6010A

RL = Reporting Limit

Report of Analysis

Client Sample ID:	CEF-OGC-SS-DUP02		
Lab Sample ID:	F5792-22	**Date Sampled:**	02/01/00
Matrix:	SO - Soil	**Date Received:**	02/01/00
		Percent Solids:	79.5
Project:	NAS Cecil Field PO#N0039-P98655A-01		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method
Arsenic	7.0	1.3	mg/kg	1	02/05/00	02/07/00	JK	SW846 6010A

RL = Reporting Limit

PHASE III ANALYTICAL RESULTS

Tetra Tech NUS **INTERNAL CORRESPONDENCE**

TO:	**M. SPERANZA**	**DATE:**	**MAY 15, 2000**
FROM:	**GRETCHEN PHIPPS**	**COPIES:**	**DV FILE**

SUBJECT: **INORGANIC DATA VALIDATION – ARSENIC**
CTO 078 - CECIL FIELD
SDG – F6019

SAMPLES: 28/Soils/

CEF-OGC-SS-201-01	CEF-OGC-SS-202-01
CEF-OGC-SS-203-01	CEF-OGC-SS-204-01
CEF-OGC-SS-205-01	CEF-OGC-SS-206-01
CEF-OGC-SS-207-01	CEF-OGC-SS-208-01
CEF-OGC-SS-209-01	CEF-OGC-SS-210-01
CEF-OGC-SS-211-01	CEF-OGC-SS-212-01
CEF-OGC-SS-213-01	CEF-OGC-SS-214-01
CEF-OGC-SS-215-01	CEF-OGC-SS-216-01
CEF-OGC-SS-217-01	CEF-OGC-SS-218-01
CEF-OGC-SS-219-01	CEF-OGC-SS-220-01
CEF-OGC-SS-221-01	CEF-OGC-SS-222-01
CEF-OGC-SS-224-02	CEF-OGC-SS-225-02
CEF-OGC-SS-226-02	CEF-OGC-SS-DU05
CEF-OGC-SS-223-03	CEF-OGC-SS-DU06

Overview

The sample set for CTO 078, Cecil Field, SDG F6019 consists of twenty-eight (28) soil environmental samples. Two (2) field duplicate pairs (CEF-OGC-SS-203-01 / CEF-OGC-SS-DU06 and CEF-OGC-SS-208-01 / CEF-OGC-SS-DU05) were included within this SDG.

All samples were analyzed for arsenic. The samples were collected by Tetra Tech NUS on March 7 and 8, 2000 and analyzed by Accutest Laboratory under Naval Facilities Engineering Service Center (NFESC) Quality Assurance / Quality Control (QA / QC) criteria. Arsenic 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
- * Field Duplicate Results
- * Detection Limits

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

Laboratory Blank Analyses

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

Affected samples: All

Analyte	Maximum Concentration	Action Level
Arsenic	7.7µg/L	3.85 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 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)."

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/PCD% between columns for positive results
V = Non-linear calibrations, tuning $r < 0.995$ (correlation coefficient)
W = EMPC result
X = Signal to noise response drop

CTO078 - NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F6019

SAMPLE NUMBER:	CEF-OGC-SS-201-01			CEF-OGC-SS-202-01			CEF-OGC-SS-203-01			CEF-OGC-SS-204-01		
SAMPLE DATE:	03/08/00			03/08/00			03/08/00			03/08/00		
LABORATORY ID:	F6019-1			F6019-2			F6019-3			F6019-4		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	86.2 %			88.7 %			90.1 %			88.6 %		
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	0.59	U	A	0.88	U	A	0.69	U	A	0.63	U	A

CTO078 - NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F6019

SAMPLE NUMBER:	CEF-OGC-SS-205-01			CEF-OGC-SS-206-01			CEF-OGC-SS-207-01			CEF-OGC-SS-208-01		
SAMPLE DATE:	03/08/00			03/08/00			03/07/00			03/08/00		
LABORATORY ID:	F6019-5			F6019-6			F6019-7			F6019-8		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	88.4 %			90.4 %			93.3 %			93.4 %		
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	0.70	U	A	0.66	U	A	0.36	U		0.49	U	A

CTO078 - NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F6019

SAMPLE NUMBER:	CEF-OGC-SS-209-01			CEF-OGC-SS-210-01			CEF-OGC-SS-211-01			CEF-OGC-SS-212-01		
SAMPLE DATE:	03/07/00			03/07/00			03/08/00			03/08/00		
LABORATORY ID:	F6019-9			F6019-10			F6019-11			F6019-12		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	95.2 %			95.8 %			91.1 %			91.7 %		
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	5.2			0.37	U	A	0.37	U		0.36	U	

CTO078 - NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F6019

SAMPLE NUMBER:	CEF-OGC-SS-213-01			CEF-OGC-SS-214-01			CEF-OGC-SS-215-01			CEF-OGC-SS-216-01		
SAMPLE DATE:	03/08/00			03/07/00			03/07/00			03/07/00		
LABORATORY ID:	F6019-13			F6019-14			F6019-15			F6019-16		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	92.4 %			92.6 %			92.3 %			89.3 %		
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	0.49	U	A	0.69	U	A	1.6	U	A	23.3		

CTO078 - NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F6019

SAMPLE NUMBER:	CEF-OGC-SS-217-01			CEF-OGC-SS-218-01			CEF-OGC-SS-219-01			CEF-OGC-SS-220-01		
SAMPLE DATE:	03/07/00			03/08/00			03/08/00			03/08/00		
LABORATORY ID:	F6019-17			F6019-18			F6019-19			F6019-20		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	94.1 %			94.1 %			95.2 %			94.7 %		
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	2.3	U	A	0.36	U		0.44	U	A	3.7	U	A

CTO078 - NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F6019

SAMPLE NUMBER:	CEF-OGC-SS-221-01			CEF-OGC-SS-222-01			CEF-OGC-SS-224-02			CEF-OGC-SS-225-02		
SAMPLE DATE:	03/08/00			03/08/00			03/08/00			03/08/00		
LABORATORY ID:	F6019-21			F6019-22			F6019-24			F6019-25		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	96.5 %			95.8 %			93.9 %			95.3 %		
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	1.8	U	A	4.3			0.55	U	A	0.42	U	A

CTO078 - NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F6019

SAMPLE NUMBER:	CEF-OGC-SS-226-02			CEF-OGC-SS-DU05			CEF-OGC-SU-223-03			CEF-OGC-SU-DU06		
SAMPLE DATE:	03/08/00			03/08/00			03/08/00			03/08/00		
LABORATORY ID:	F6019-26			F6019-27			F6019-23			F6019-28		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	95.2 %			92.7 %			94.6 %			94.9 %		
UNITS:	MG/KG			MG/KG			MG/KG			MG/KG		
FIELD DUPLICATE OF:				CEF-OGC-SS-208-01						CEF-OGC-SS-203-01		
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
INORGANICS												
ARSENIC	0.52	U	A	0.99	U	A	0.35	U		0.38	U	

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-OGC-SS-201-01		
Lab Sample ID:	F6019-1	**Date Sampled:**	03/08/00
Matrix:	SO - Soil	**Date Received:**	03/09/00
		Percent Solids:	86.2
Project:	NAS Cecil Field		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method
Arsenic	0.59 B	1.1	mg/kg	1	03/13/00	03/14/00	JK	SW846 6010A

RL = Reporting Limit

000005

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-OGC-SS-202-01		
Lab Sample ID:	F6019-2	**Date Sampled:**	03/08/00
Matrix:	SO - Soil	**Date Received:**	03/09/00
		Percent Solids:	88.7
Project:	NAS Cecil Field		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By		Method
Arsenic	0.88 B	1.2	mg/kg	1	03/13/00	03/14/00	JK	SW846 6010A

RL = Reporting Limit

00000

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-OGC-SS-203-01		
Lab Sample ID:	F6019-3	**Date Sampled:**	03/08/00
Matrix:	SO - Soil	**Date Received:**	03/09/00
		Percent Solids:	90.1
Project:	NAS Cecil Field		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By		Method
Arsenic	0.69 B	1.1	mg/kg	1	03/14/00	03/15/00	JK	SW846 6010A

RL = Reporting Limit

00000

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-OGC-SS-204-01		
Lab Sample ID:	F6019-4	**Date Sampled:**	03/08/00
Matrix:	SO - Soil	**Date Received:**	03/09/00
		Percent Solids:	88.6
Project:	NAS Cecil Field		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method
Arsenic	0.63 B	1.1	mg/kg	1	03/14/00	03/15/00	JK	SW846 6010A

RL = Reporting Limit

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-OGC-SS-205-01		
Lab Sample ID:	F6019-5	**Date Sampled:**	03/08/00
Matrix:	SO - Soil	**Date Received:**	03/09/00
		Percent Solids:	88.4
Project:	NAS Cecil Field		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method
Arsenic	0.70 B	1.2	mg/kg	1	03/14/00	03/15/00	JK	SW846 6010A

RL = Reporting Limit

00000

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-OGC-SS-206-01		
Lab Sample ID:	F6019-6	**Date Sampled:**	03/08/00
Matrix:	SO - Soil	**Date Received:**	03/09/00
		Percent Solids:	90.4
Project:	NAS Cecil Field		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method
Arsenic	0.66 B	1.1	mg/kg	1	03/14/00	03/15/00	JK	SW846 6010A

RL = Reporting Limit

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-OGC-SS-207-01		
Lab Sample ID:	F6019-7	**Date Sampled:**	03/07/00
Matrix:	SO - Soil	**Date Received:**	03/09/00
		Percent Solids:	93.3
Project:	NAS Cecil Field		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method
Arsenic	0.36 U	1.0	mg/kg	1	03/14/00	03/15/00 JK	SW846 6010A

RL = Reporting Limit

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-OGC-SS-208-01		
Lab Sample ID:	F6019-8	**Date Sampled:**	03/08/00
Matrix:	SO - Soil	**Date Received:**	03/09/00
		Percent Solids:	93.4
Project:	NAS Cecil Field		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By		Method
Arsenic	0.49 B	1.1	mg/kg	1	03/14/00	03/15/00	JK	SW846 6010A

RL = Reporting Limit

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-OGC-SS-209-01		
Lab Sample ID:	F6019-9	**Date Sampled:**	03/07/00
Matrix:	SO - Soil	**Date Received:**	03/09/00
		Percent Solids:	95.2
Project:	NAS Cecil Field		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method
Arsenic	5.2	0.99	mg/kg	1	03/14/00	03/15/00 JK	SW846 6010A

RL = Reporting Limit

000013

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-OGC-SS-210-01		
Lab Sample ID:	F6019-10	**Date Sampled:**	03/07/00
Matrix:	SO - Soil	**Date Received:**	03/09/00
		Percent Solids:	95.8
Project:	NAS Cecil Field		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By		Method
Arsenic	0.37 B	0.98	mg/kg	1	03/14/00	03/15/00	JK	SW846 6010A

RL = Reporting Limit

00001

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-OGC-SS-211-01		
Lab Sample ID:	F6019-11	**Date Sampled:**	03/08/00
Matrix:	SO - Soil	**Date Received:**	03/09/00
		Percent Solids:	91.1
Project:	NAS Cecil Field		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method
Arsenic	0.37 U	1.1	mg/kg	1	03/14/00	03/15/00 JK	SW846 6010A

RL = Reporting Limit

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Report of Analysis

Client Sample ID:	CEF-OGC-SS-212-01		
Lab Sample ID:	F6019-12	**Date Sampled:**	03/08/00
Matrix:	SO - Soil	**Date Received:**	03/09/00
		Percent Solids:	91.7
Project:	NAS Cecil Field		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By		Method
Arsenic	0.36 U	1.0	mg/kg	1	03/14/00	03/15/00	JK	SW846 6010A

RL = Reporting Limit

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-OGC-SS-213-01		
Lab Sample ID:	F6019-13	**Date Sampled:**	03/08/00
Matrix:	SO - Soil	**Date Received:**	03/09/00
		Percent Solids:	92.4
Project:	NAS Cecil Field		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By		Method
Arsenic	0.49 B	1.0	mg/kg	1	03/15/00	03/22/00	JK	SW846 6010A

RL = Reporting Limit

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-OGC-SS-214-01		
Lab Sample ID:	F6019-14	**Date Sampled:**	03/07/00
Matrix:	SO - Soil	**Date Received:**	03/09/00
		Percent Solids:	92.6
Project:	NAS Cecil Field		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method
Arsenic	0.69 B	1.1	mg/kg	1	03/15/00	03/22/00	JK	SW846 6010A

RL = Reporting Limit

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-OGC-SS-215-01		
Lab Sample ID:	F6019-15	**Date Sampled:**	03/07/00
Matrix:	SO - Soil	**Date Received:**	03/09/00
		Percent Solids:	92.3
Project:	NAS Cecil Field		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method
Arsenic	1.6	1.2	mg/kg	1	03/15/00	03/22/00	JK	SW846 6010A

RL = Reporting Limit

00001

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-OGC-SS-216-01		
Lab Sample ID:	F6019-16	**Date Sampled:**	03/07/00
Matrix:	SO - Soil	**Date Received:**	03/09/00
		Percent Solids:	89.3
Project:	NAS Cecil Field		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By		Method
Arsenic	23.3	1.1	mg/kg	1	03/15/00	03/22/00	JK	SW846 6010A

RL = Reporting Limit

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Report of Analysis

Client Sample ID:	CEF-OGC-SS-217-01		
Lab Sample ID:	F6019-17	**Date Sampled:**	03/07/00
Matrix:	SO - Soil	**Date Received:**	03/09/00
		Percent Solids:	94.1
Project:	NAS Cecil Field		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method
Arsenic	2.3	1.1	mg/kg	1	03/15/00	03/22/00	JK	SW846 6010A

RL = Reporting Limit

00002

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-OGC-SS-218-01		
Lab Sample ID:	F6019-18	**Date Sampled:**	03/08/00
Matrix:	SO - Soil	**Date Received:**	03/09/00
		Percent Solids:	94.1
Project:	NAS Cecil Field		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method
Arsenic	0.36 U	1.1	mg/kg	1	03/15/00	03/22/00	JK	SW846 6010A

RL = Reporting Limit

00001

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-OGC-SS-219-01		
Lab Sample ID:	F6019-19	**Date Sampled:**	03/08/00
Matrix:	SO - Soil	**Date Received:**	03/09/00
		Percent Solids:	95.2
Project:	NAS Cecil Field		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method
Arsenic	0.44 B	1.0	mg/kg	1	03/15/00	03/22/00	JK	SW846 6010A

RL = Reporting Limit

000023

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-OGC-SS-220-01		
Lab Sample ID:	F6019-20	**Date Sampled:**	03/08/00
Matrix:	SO - Soil	**Date Received:**	03/09/00
		Percent Solids:	94.7
Project:	NAS Cecil Field		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method
Arsenic	3.7	1.1	mg/kg	1	03/15/00	03/22/00	JK	SW846 6010A

RL = Reporting Limit

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-OGC-SS-221-01		
Lab Sample ID:	F6019-21	**Date Sampled:**	03/08/00
Matrix:	SO - Soil	**Date Received:**	03/09/00
		Percent Solids:	96.5
Project:	NAS Cecil Field		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method
Arsenic	1.8	1.0	mg/kg	1	03/15/00	03/22/00	JK	SW846 6010A

RL = Reporting Limit

000025

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-OGC-SS-222-01		
Lab Sample ID:	F6019-22	**Date Sampled:**	03/08/00
Matrix:	SO - Soil	**Date Received:**	03/09/00
		Percent Solids:	95.8
Project:	NAS Cecil Field		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By		Method
Arsenic	4.3	1.1	mg/kg	1	03/15/00	03/20/00	JK	SW846 6010A

RL = Reporting Limit

00001.0

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-OGC-SS-224-02		
Lab Sample ID:	F6019-24	**Date Sampled:**	03/08/00
Matrix:	SO - Soil	**Date Received:**	03/09/00
		Percent Solids:	93.9
Project:	NAS Cecil Field		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By		Method
Arsenic	0.55 B	1.1	mg/kg	1	03/15/00	03/20/00	JK	SW846 6010A

RL = Reporting Limit

000028

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-OGC-SS-225-02		
Lab Sample ID:	F6019-25	**Date Sampled:**	03/08/00
Matrix:	SO - Soil	**Date Received:**	03/09/00
		Percent Solids:	95.3
Project:	NAS Cecil Field		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By		Method
Arsenic	0.42 B	0.99	mg/kg	1	03/15/00	03/20/00	JK	SW846 6010A

RL = Reporting Limit

000029

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-OGC-SS-226-02		
Lab Sample ID:	F6019-26	**Date Sampled:**	03/08/00
Matrix:	SO - Soil	**Date Received:**	03/09/00
		Percent Solids:	95.2
Project:	NAS Cecil Field		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By		Method
Arsenic	0.52 B	1.0	mg/kg	1	03/15/00	03/20/00	JK	SW846 6010A

RL = Reporting Limit

00003

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-OGC-SS-DU05		
Lab Sample ID:	F6019-27	**Date Sampled:**	03/08/00
Matrix:	SO - Soil	**Date Received:**	03/09/00
		Percent Solids:	92.7
Project:	NAS Cecil Field		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method
Arsenic	0.99 B	1.0	mg/kg	1	03/15/00	03/20/00	JK	SW846 6010A

RL = Reporting Limit

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ACCUTEST

Report of Analysis

Client Sample ID:	CEF-OGC-SU-223-03		
Lab Sample ID:	F6019-23	**Date Sampled:**	03/08/00
Matrix:	SO - Soil	**Date Received:**	03/09/00
		Percent Solids:	94.6
Project:	NAS Cecil Field		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method
Arsenic	0.35 U	1.0	mg/kg	1	03/15/00	03/20/00	JK	SW846 6010A

RL = Reporting Limit

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ACCUTEST

Report of Analysis

Client Sample ID:	CEF-OGC-SU-DU06		
Lab Sample ID:	F6019-28	**Date Sampled:**	03/08/00
Matrix:	SO - Soil	**Date Received:**	03/09/00
		Percent Solids:	94.9
Project:	NAS Cecil Field		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method
Arsenic	0.38 U	1.1	mg/kg	1	03/15/00	03/20/00	JK	SW846 6010A

RL = Reporting Limit

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PHASE IV ANALYTICAL RESULTS

Tetra Tech NUS **INTERNAL CORRESPONDENCE**

TO:	**M. SPERANZA**	**DATE:**	**MAY 30, 2000**
FROM:	**GRETCHEN PHIPPS**	**COPIES:**	**DV FILE**

SUBJECT: **INORGANIC DATA VALIDATION – SELECT METALS**
CTO 078 - CECIL FIELD
SDGs – F6478 AND F6503

SAMPLES: **F6478**

2/Aqueous/

CEF-334-GW-02S-02 CEF-334-GW-DU02-02

F6503

7/Soil/

CEF-OGC-SS-301-01 CEF-OGC-SS-302-01
CEF-OGC-SS-303-01 CEF-OGC-SS-304-02
CEF-OGC-SS-305-02 CEF-OGC-SS-306-03
CEF-OGC-SS-DU07

Overview

The sample set for CTO 078, Cecil Field, SDGs F6478 and F6503 consist of tow (2) aqueous environmental samples and seven (7) subsurface soil environmental samples. Two (2) field duplicate pairs (CEF-334-GW-02S-02 / CEF-334-GW-DU02-02 and CEF-OGC-SS-303-01 / CEF-OGC-SS-DU07) were included within this SDG.

The samples in SDG F6478 were analyzed for arsenic, cadmium, chromium and lead. The samples is SDG F6503 were analyzed for arsenic. The samples were collected by Tetra Tech NUS on May 9 and 10, 2000 and analyzed by Accutest Laboratory under Naval Facilities Engineering Service Center (NFESC) Quality Assurance / Quality Control (QA / QC) criteria. Metals analyses were conducted using SW 846 methods 6010B.

The data was evaluated based on the following parameters:

- * Data Completeness
- * Holding Times
- * Calibration Verifications
- Laboratory Blank Analyses
- * Detection Limits

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

Laboratory Blank Analyses

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

Affected samples: SDG F6478

Analyte	Maximum Concentration	Action Level(aqueous)
Arsenic	3.8µg/L	19µg/L
Cadmium	1.1µg/L	5.5µg/L
Chromium	2.4µg/L	12.0µg/L
Lead	2.7µg/L	13.5µg/L

Affected samples: SDG F6503

Analyte	Maximum Concentration	Action Level(soil)
Arsenic	5.1µg/L	2.55 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 level for arsenic and lead were qualified, "U", as a result of blank contamination.

Executive Summary

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

Other Factors Affecting Data Quality: None.

The data for these analyses were reviewed with reference to the "National Functional Guidelines for Inorganic Review", February 1994 and the NFESC document 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/PCD% between columns for positive results
V = Non-linear calibrations, tuning $r < 0.995$ (correlation coefficient)
W = EMPC result
X = Signal to noise response drop

CTO078-NAS CECIL FIELD
WATER DATA
Accutest, NJ
SDG: F6478

SAMPLE NUMBER:	CEF-334-GW-02S-02			CEF-334-GW-DU02-02								
SAMPLE DATE:	05/09/00			05/09/00			/ /			/ /		
LABORATORY ID:	F6478-1			F6478-2								
QC_TYPE:	NORMAL			NORMAL								
% SOLIDS:	0.0 %			0.0 %			100.0 %			100.0 %		
UNITS:	UG/L			UG/L								
FIELD DUPLICATE OF:				CEF-334-GW-02S-02								
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
INORGANICS												
ARSENIC	5.0	U	A	5.6	U	A						
CADMIUM	0.33	U		0.33	U							
CHROMIUM	0.64	U		0.64	U							
LEAD	1.6	U		1.9	U	A						

Report of Analysis

Client Sample ID:	CEF-334-GW-02S-02		
Lab Sample ID:	F6478-1	**Date Sampled:**	05/09/00
Matrix:	AQ - Ground Water	**Date Received:**	05/10/00
		Percent Solids:	n/a
Project:	NAS Cecil Field		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By		Method
Arsenic	5.0 B	10.0	ug/l	1	05/13/00	05/16/00	JK	SW846 6010A
Cadmium	0.33 U	5.0	ug/l	1	05/13/00	05/16/00	JK	SW846 6010A
Chromium	0.64 U	10.0	ug/l	1	05/13/00	05/16/00	JK	SW846 6010A
Lead	1.6 U	5.0	ug/l	1	05/13/00	05/16/00	JK	SW846 6010A

RL = Reporting Limit

Report of Analysis

Client Sample ID:	CEF-334-GW-DUO2-02		
Lab Sample ID:	F6478-2	**Date Sampled:**	05/09/00
Matrix:	AQ - Ground Water	**Date Received:**	05/10/00
		Percent Solids:	n/a
Project:	NAS Cecil Field		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method
Arsenic	5.6 B	10.0	ug/l	1	05/13/00	05/16/00	JK	SW846 6010A
Cadmium	0.33 U	5.0	ug/l	1	05/13/00	05/16/00	JK	SW846 6010A
Chromium	0.64 U	10.0	ug/l	1	05/13/00	05/16/00	JK	SW846 6010A
Lead	1.9 B	5.0	ug/l	1	05/13/00	05/16/00	JK	SW846 6010A

RL = Reporting Limit

CTO078-NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F6503

SAMPLE NUMBER:	CEF-OGC-SS-301-01			CEF-OGC-SS-302-01			CEF-OGC-SS-303-01			CEF-OGC-SS-304-02		
SAMPLE DATE:	05/10/00			05/10/00			05/10/00			05/10/00		
LABORATORY ID:	F6503-1			F6503-2			F6503-3			F6503-4		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	95.6 %			96.7 %			94.9 %			95.5 %		
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	0.37	U		0.36	U		0.35	U		1.9	U	A

CTO078-NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F6503

SAMPLE NUMBER:	CEF-OGC-SS-305-02			CEF-OGC-SS-306-03			CEF-OGC-SS-DU07			/ /		
SAMPLE DATE:	05/10/00			05/10/00			05/10/00					
LABORATORY ID:	F6503-5			F6503-6			F6503-7					
QC_TYPE:	NORMAL			NORMAL			NORMAL					
% SOLIDS:	95.9 %			96.6 %			95.3 %			100.0 %		
UNITS:	MG/KG			MG/KG			MG/KG					
FIELD DUPLICATE OF:							CEF-OGC-SS-303-01					
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
INORGANICS												
ARSENIC	5.8			1.0	U	A	0.36	U				

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-OGC-SS-301-01		
Lab Sample ID:	F6503-1	**Date Sampled:**	05/10/00
Matrix:	SO - Soil	**Date Received:**	05/11/00
		Percent Solids:	95.6
Project:	NAS Cecil Field		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method
Arsenic	0.37 U	0.53	mg/kg	1	05/13/00	05/17/00	JK	SW846 6010A

RL = Reporting Limit

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-OGC-SS-302-01		
Lab Sample ID:	F6503-2	**Date Sampled:**	05/10/00
Matrix:	SO - Soil	**Date Received:**	05/11/00
		Percent Solids:	96.7
Project:	NAS Cecil Field		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method
Arsenic	0.36 U	0.52	mg/kg	1	05/13/00	05/17/00 JK	SW846 6010A

RL = Reporting Limit

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-OGC-SS-303-01		
Lab Sample ID:	F6503-3	**Date Sampled:**	05/10/00
Matrix:	SO - Soil	**Date Received:**	05/11/00
		Percent Solids:	94.9
Project:	NAS Cecil Field		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By		Method
Arsenic	0.35 U	0.51	mg/kg	1	05/13/00	05/17/00	JK	SW846 6010A

RL = Reporting Limit

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-OGC-SS-304-02		
Lab Sample ID:	F6503-4	**Date Sampled:**	05/10/00
Matrix:	SO - Soil	**Date Received:**	05/11/00
		Percent Solids:	95.5
Project:	NAS Cecil Field		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By		Method
Arsenic	1.9	0.50	mg/kg	1	05/13/00	05/17/00	JK	SW846 6010A

RL = Reporting Limit

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-OGC-SS-305-02		
Lab Sample ID:	F6503-5	**Date Sampled:**	05/10/00
Matrix:	SO - Soil	**Date Received:**	05/11/00
		Percent Solids:	95.9
Project:	NAS Cecil Field		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method
Arsenic	5.8	0.50	mg/kg	1	05/13/00	05/17/00	JK	SW846 6010A

RL = Reporting Limit

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-OGC-SS-306-03		
Lab Sample ID:	F6503-6	**Date Sampled:**	05/10/00
Matrix:	SO - Soil	**Date Received:**	05/11/00
		Percent Solids:	96.6
Project:	NAS Cecil Field		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By		Method
Arsenic	1.0	0.49	mg/kg	1	05/13/00	05/17/00	JK	SW846 6010A

RL = Reporting Limit

ACCUTEST

Report of Analysis

Client Sample ID:	CEF-OGC-SS-DU07		
Lab Sample ID:	F6503-7	**Date Sampled:**	05/10/00
Matrix:	SO - Soil	**Date Received:**	05/11/00
		Percent Solids:	95.3
Project:	NAS Cecil Field		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method
Arsenic	0.36 U	0.52	mg/kg	1	05/13/00	05/17/00	JK	SW846 6010A

RL = Reporting Limit