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NAS CECIL FIELD
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DRAFT SAMPLING AND ANALYSIS REPORT FOR BUILDING 362 WATER TANK NAS CECIL FIELD FL

4/1/1999

TETRA TECH

Draft
Sampling and Analysis Report
for
Building 362 Water Tank
Base Realignment and Closure

Naval Air Station, Cecil Field
Jacksonville, Florida

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

April 1999

049904/P

DRAFT
SAMPLING AND ANALYSIS REPORT
FOR
BUILDING 362 WATER TANK
BASE REALIGNMENT AND CLOSURE

NAVAL AIR STATION, CECIL FIELD
JACKSONVILLE, FLORIDA

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

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

Submitted by:
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CONTRACT NUMBER N62467-94-D-0888
CONTRACT TASK ORDER 0078

APRIL 1999

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FIGURE

ACRONYMS

ABB-ES	ABB Environmental Services, Inc.
BCT	BRAC Cleanup Team
BRAC	Base Realignment and Closure
CTO	Contract Task Order
ELCR	Excess Lifetime Cancer Risk
FDEP	Florida Department of Environmental Protection
FOSL	Finding of Suitability to Lease
HI	Hazard Index
HQ	Hazard Quotient
NAS	Naval Air Station
PCB	Polychlorinated Biphenyl
PRE	Preliminary Risk Evaluation
SAO	Sampling and Analysis Outline
SCTL	Soil Target Cleanup Levels
TtNUS	Tetra Tech NUS, Inc.
USEPA	U.S. Environmental Protection Agency

1.0 INTRODUCTION

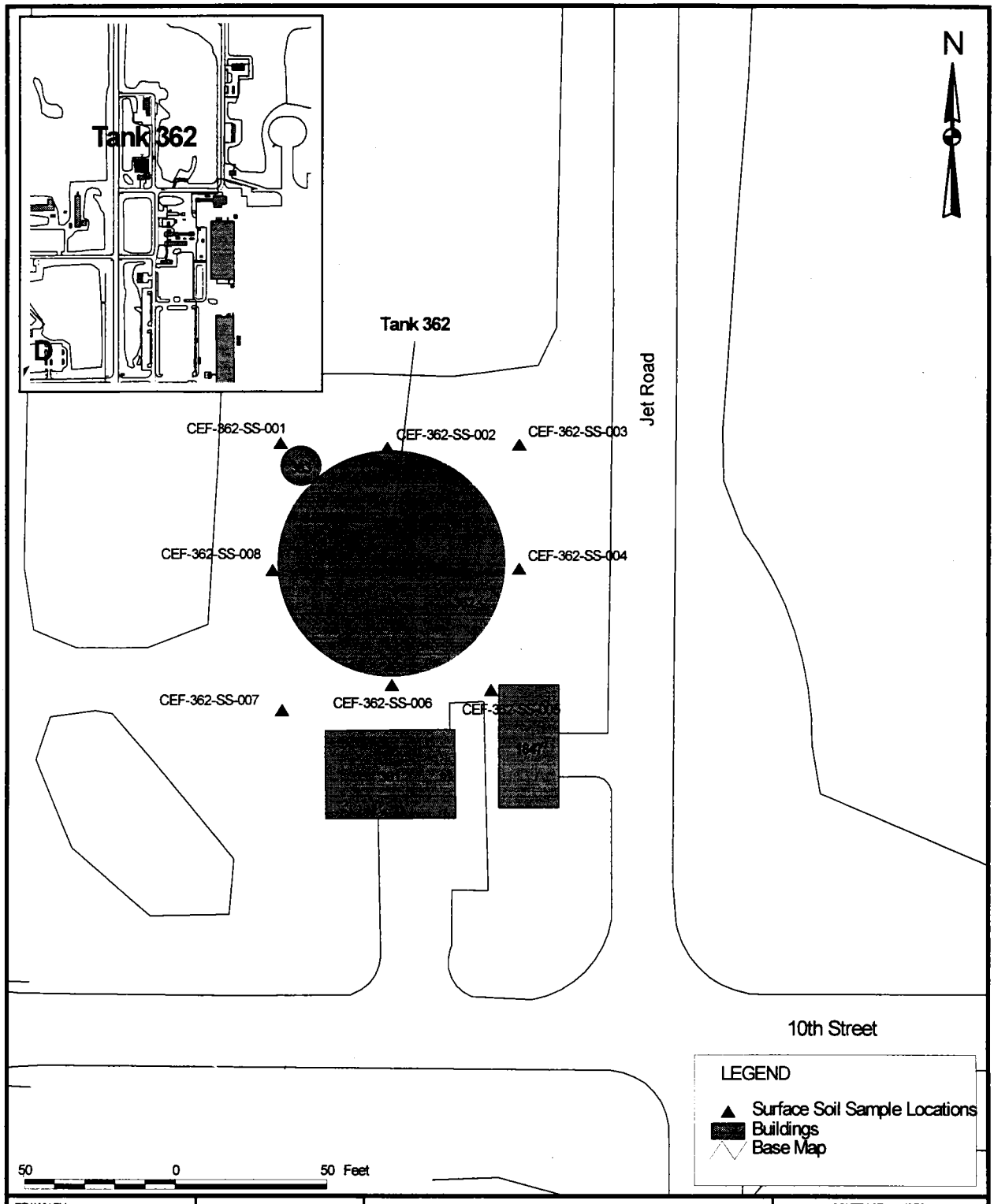
Tetra Tech NUS, Inc. (TtNUS), under contract to Southern Division, Naval Facilities Engineering Command, has completed the Base Realignment and Closure (BRAC) Phase II Sampling and Analysis Program for the Building 362 Water Tank at Naval Air Station (NAS) Cecil Field. This program was conducted under Contract Number N62467-94-D-088, Contract Task Order (CTO) 0078. This report summarizes the related field operations, results, conclusions and recommendation of the Phase II investigation.

The Building 362 Water Tank is located in a grassy area at the northwestern corner of Jet Road and 10th Street. Building 362 is a 500,000-gallon concrete water tank that serves Building 361 and Building 1847. The tank, which was constructed in 1957, has only been used to store water. The water in the tank is used for a Base drinking water supply via Building 361 and for fire control via Building 1847. The water passes through a series of fine mesh screens prior to storage in the tank. The screens are in the tower located on the northwestern side of the tank. This process aerates the water in the tank.

Environmental concerns identified with this water tank include potential soil contamination associated with past activities. Because the water tank is 42 years old, there is the possibility that the tank was painted with lead-based paint. The paint on the exterior of the tank appeared to be in good condition; however, there has been no testing conducted to verify the presence of lead-based paint. Lead-based paint could have been released during sandblasting and/or repainting of the water tank. A Sampling and Analysis Outline (SAO) for the assessment of soil in the vicinity of the water tank was prepared by TtNUS and approved by the BRAC Cleanup Team (BCT) (TtNUS, 1999).

2.0 PHASE II INVESTIGATION

This Phase II investigation included the collection and analysis of eight surface soil samples. Field activities were conducted in general conformance with the Base-wide Generic Work Plan (TtNUS, 1998). The surface soil samples were collected adjacent to and near the perimeter of the Building 362 Water Tank. All soil samples were collected from a depth of 0- to 1-foot below the ground surface and were analyzed for lead. Two of the samples were also analyzed for arsenic, pesticides, and polychlorinated biphenyls (PCBs). A site plan indicating the location of the soil samples is presented on Figure 1. All analytical results are provided in Appendix B.



DRAWN BY: YLI — DATE: 04/05/98		BUILDING 362 WATER TANK SAMPLING AND ANALYSIS REPORT SAMPLE LOCATION PLAN NAVAL AIR STATION CECIL FIELD JACKSONVILLE, FLORIDA	CONTRACT NUMBER: 0039
CHECKED BY: KT — DATE: 11/17/98			APPROVED BY — DATE —
COST/SCHEDULE-AREA			APPROVED BY — DATE —
SCALE: AS NOTED			DRAWING NO.: FIGURE 1 — REV: 0

P:\GIS\CECIL\TOWERS_TANKS.APR 11/09/98 YLI LAYOUT TOWER 362

3.0 PRELIMINARY RISK EVALUATION

A preliminary risk evaluation (PRE) was conducted to assess potential risks to human and ecological receptors posed by contaminants in the soil. Primary exposure pathways were evaluated to determine those pathways that potentially contribute to human health and ecological risks. The evaluation was conducted in general conformance with methodology provided in the following:

- U.S. Environmental Protection Agency (USEPA) Region 4 memorandum on PREs for the purposes of reaching a Finding of Suitability to Lease (FOSL) (USEPA, 1994)
-
- USEPA Region IV bulletins on ecological risk assessment (USEPA, 1995)
-
- USEPA Region 4 memorandum on ecological risk assessment at military bases (USEPA, 1998a).

Site background information and rationale for sample collection and analysis are detailed in the Environmental Baseline Survey Report (ABB-ES, 1994) and the SAO (TtNUS, 1999).

Inorganic analytes were compared to NAS Cecil Field screening criteria (background or "Hi-Cut" values) for inorganics established by the NAS Cecil Field partnering team. These Hi-Cut Values were developed from data collected throughout NAS Cecil Field. No risk evaluation is conducted for inorganic analytes detected below the Hi-Cut values.

3.1 PUBLIC HEALTH PRELIMINARY RISK EVALUATION

All detected analytes 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. Risk-based screening values were obtained from USEPA Region III Risk-Based Concentrations (RBCs) (USEPA, 1998) and Florida Department of Environmental Protection (FDEP) Soil Cleanup Target Levels (SCTLs) proposed in FAC 62-777.

Most screening levels published in the references listed above are based on toxicity constants and standard human exposure scenarios and correspond to fixed levels of risk. The designated level of risk for noncarcinogenic chemicals is based on a hazard quotient (HQ) of 1.0. The level of risk for carcinogenic chemicals is based on an excess lifetime cancer risk (ELCR) of 1E-06. Cancer and noncancer risks associated with industrial and residential land use are estimated by dividing the maximum detected analyte concentration by the corresponding USEPA Region III RBC value at the designated level of risk (HQ of 1.0 or ELCR of 1E-06). For noncarcinogens, the HQs are summed to

determine the cumulative noncancer risk or hazard index (HI). No risk evaluation is performed for analytes detected at concentrations less than the SCTL based on direct residential exposure.

Concentrations of detected analytes in soil have been compared with RBCs and FDEP SCTLs (Direct Residential Exposure, Leachability Based on Groundwater Criteria, and Leachability Based on Surface Water Criteria) (Appendix A, Table A-1). PCBs and arsenic were not detected in any soil samples. Lead was detected in all eight soil samples; however, all concentrations were below its Hi-Cut value. Pesticides, including 4,4'-DDE, 4,4'-DDT, alpha-chlordane, gamma-chlordane, and heptachlor epoxide, were detected at two locations. No compounds or analytes were detected at concentrations in excess of NAS Cecil Field screening criteria for inorganics or SCTLs based on Direct Residential Exposure. Therefore, no ELCR or HI was calculated in association with a potential soil exposure scenario.

No compounds or analytes were detected at concentrations in excess of the SCTL for Leachability Based on Groundwater Criteria. Although alpha- and gamma-chlordane were detected at concentrations in excess of the SCTL for Leachability Based on Surface Water Criteria, the Building 362 Water Tank is in a built-up area of the main base. Because this location is far from surface waters, the Leachability Based on Surface Water Criteria should not be considered applicable.

3.2 ECOLOGICAL PRELIMINARY RISK EVALUATION

All detected analytes were compared to USEPA Region 4 ecological screening values for soil (USEPA, 1998a) to assess the likelihood of adverse ecological effects associated with potential exposure to surface soil.

Concentrations of detected analytes in soil have been compared to the USEPA Region 4 ecological screening values for soil (Appendix A, Table A-2). PCBs and arsenic were not detected in any soil samples. Lead, 4,4'-DDE, 4,4'-DDT, alpha-chlordane, gamma-chlordane, and heptachlor epoxide were detected in soil samples. Although the individual concentrations of 4,4'-DDE and 4,4'-DDT were higher than the EPA Region 4 ecological screening level, the concentration of total pesticides was below this screening level.

4.0 CONCLUSIONS AND RECOMMENDATION

Analytes detected in soil collected at the Building 362 Water Tank do not represent a hazard to human health or the environment at the detected concentrations. No other environmental concerns have been identified for this facility.

Based upon the findings of this evaluation, the color code for the Building 362 Water Tank should be reclassified to 3/Light Green. Pesticide compounds were detected in two surface soil samples at a concentration that does not represent a hazard to human health or the environment. No remedial action or further evaluation is recommended.

APPENDIX A
PRELIMINARY RISK EVALUATION TABLES

TABLE A-1

PRELIMINARY HUMAN HEALTH RISK EVALUATION TABLE FOR ANALYTES DETECTED IN SURFACE SOIL
BUILDING 362 WATER TANK
NAS CECIL FIELD
JACKSONVILLE, FLORIDA

Analyte	Maximum Detected Concentration	Screening Levels					Calculated Risk Values		Location of Maximum Concentration
		Hi-Cut	SCTL				ELCR	HQ	
			Direct Exposure Residential	LBGW Criteria	LBSW Criteria	RBC(R)			
Pesticides (µg/kg)									
4,4'-DDE	4.4		3,300	18,000	100	1,900 c			CEF-362-SS-004-D
4,4'-DDT	9.4		3,300	11,000	60	1,900 c			CEF-362-SS-008
alpha-Chlordane	8.9		3,100	9,600	3.0	1,800 c			CEF-362-SS-004-D
gamma-Chlordane	6.9		3,100	9,600	3.0	1,800 c			CEF-362-SS-004-D
Heptachlor epoxide	2.5		100	600	6.0	70 c			CEF-362-SS-004-D
Metals (mg/kg)									
Lead	14.1	197	400						CEF-362-SS-005

Notes:

All detected analytes are reported.
ELCR and HQ are only calculated for analytes detected at concentrations in excess of Hi-Cut and Direct Exposure Residential values.
Hi-Cut - NAS Cecil Field Inorganic Background Data Set.
SCTL - Soil Cleanup Target Level, FDEP, proposed Chapter 62-777, F.A.C.
LBGW - Leachability Based on Groundwater
LBSW - Leachability Based on Surface Water
RBC(R) - Risk Based Concentration (Residential), USEPA Region III (USEPA, 1998b)
c - carcinogenic risk
n - noncarcinogenic risk
ELCR - Calculated excess lifetime cancer risk based on RBC(R). ELCR = concentration*1E-06/RBC(R)
HQ - Calculated hazard quotient for noncarcinogenic analytes. HQ = concentration/RBC(R)
D - field duplicate sample

TABLE A-2

PRELIMINARY ECOLOGICAL RISK EVALUATION TABLE
ANALYTES DETECTED IN SURFACE SOIL
NAS CECIL FIELD
JACKSONVILLE, FLORIDA

Analyte	Maximum Detected Concentration	Screening Level		Location of Maximum Concentration
		Hi-Cut	EPA Region 4 Ecological	
Pesticides (µg/kg)				
4,4'-DDE	4.4		2.5	CEF-362-SS-004-D
4,4'-DDT	9.4		2.5	CEF-362-SS-008
alpha-Chlordane	8.9		100	CEF-362-SS-004-D
gamma-Chlordane	6.9		100	CEF-362-SS-004-D
Heptachlor epoxide	2.5		100	CEF-362-SS-004-D
Total pesticides	31.8		100	CEF-362-SS-004-D
Metals (mg/kg)				
Lead	14.1	197	50	CEF-362-SS-005

Notes:

All detected analytes are reported.
Hi-Cut - NAS Cecil Field Inorganic Background Data Set.
EPA Region 4 screening level from USEPA, 1998a.
D - field duplicate sample

APPENDIX B
LABORATORY ANALYTICAL DATA

recno	53	54	55	56	57	58	59	60	61
location	needs defined	needs defined	needs defined	needs defined	needs defined	needs defined	needs defined	needs defined	needs defined
tag	362	362	362	362	362	362	362	362	362
nsample	CEF-362-SS-001 02/02/99	CEF-362-SS-002 02/02/99	CEF-362-SS-003 02/02/99	CEF-362-SS-004 02/02/99	CEF-362-SS-004-D 02/02/99	CEF-362-SS-005 02/02/99	CEF-362-SS-006 02/02/99	CEF-362-SS-007 02/02/99	CEF-362-SS-008 02/02/99
sample	CEF-362-SS-001	CEF-362-SS-002	CEF-362-SS-003	CEF-362-SS-004	CEF-362-SS-DU04	CEF-362-SS-005	CEF-362-SS-006	CEF-362-SS-007	CEF-362-SS-008
sample_dat									
sort	c_053	c_054	c_055	c_056	c_057	c_058	c_059	c_060	c_061
Pesticides/PCBs (ug/kg)									
4,4'-DDD				3.7 U	3.7 U				3.9 U
4,4'-DDE				2.8 J	4.4				3.6 J
4,4'-DDT				7.8	9.1				9.4
ALDRIN				1.8 U	1.9 U				1.9 U
ALPHA-BHC				1.8 U	1.9 U				1.9 U
ALPHA-CHLORDANE				5.6	8.9				4
AROCLOR-1016				37 U	37 U				39 U
AROCLOR-1221				37 U	37 U				39 U
AROCLOR-1232				37 U	37 U				39 U
AROCLOR-1242				37 U	37 U				39 U
AROCLOR-1248				37 U	37 U				39 U
AROCLOR-1254				37 U	37 U				39 U
AROCLOR-1260				37 U	37 U				39 U
BETA-BHC				1.8 U	1.9 U				1.9 U
DELTA-BHC				1.8 U	1.9 U				1.9 U
DIELDRIN				1.8 U	1.9 U				1.9 U
ENDOSULFAN I				1.8 U	1.9 U				1.9 U
ENDOSULFAN II				3.7 U	3.7 U				3.9 U
ENDOSULFAN SULFATE				3.7 U	3.7 U				3.9 U
ENDRIN				3.7 U	3.7 U				3.9 U
ENDRIN ALDEHYDE				3.7 U	3.7 U				3.9 U
ENDRIN KETONE				3.7 U	3.7 U				3.9 U
GAMMA-BHC (LINDANE)				1.8 U	1.9 U				1.9 U
GAMMA-CHLORDANE				4.9	6.9				4.1
HEPTACHLOR				1.8 U	1.9 U				1.9 U
HEPTACHLOR EPOXIDE				1.8 U	2.5				2
METHOXYCHLOR				18 U	19 U				19 U
TOXAPHENE				180 U	190 U				190 U
Inorganics (mg/kg)									
ARSENIC				0.3 U	0.58 U				0.39 U
LEAD	5.7	12.1	5.3	8.9	10.2	14.1	7.2	5.2	10.4

Tetra Tech NUS **INTERNAL CORRESPONDENCE**

TO: **MR. MARK SPERANZA** **DATE:** **APRIL 8, 1999**

FROM: **LINDA KARSONOVICH** **COPIES:** **DV FILE**

SUBJECT: **ORGANIC DATA VALIDATION- PEST**
CTO 078, CECIL FIELD
SDG F3612

SAMPLES: 17/Solid/

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

OVERVIEW

The sample set for CTO 078, Cecil Field, SDG F3612 consists of seventeen (17) solid environmental samples. The samples were analyzed for Target Compound List (TCL) pesticides. Five field duplicate pairs were included in the SDG:

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

The samples were collected by TetraTech NUS on February 2nd, 1999 and analyzed by Accutest Laboratory. All analyses were conducted in accordance with Naval Facilities Engineering Service Center (NFESC) Quality Assurance/Quality Control (QA/QC) criteria using SW-846 8081A analytical and reporting protocols. The data contained in this SDG were validated with regard to the following parameters:

* • Holding times
* • Laboratory method and field quality control blank results
* • Surrogate spike recoveries
• Initial and continuing calibration

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.

No initial and/or continuing calibration data or quantitation reports were included in the original data package. The laboratory was able to provide the data; however, this delayed completion of the data validation by three weeks.

Continuing calibration percent differences exceeded the 15% quality control limit on both analytical columns for Endrin ketone, Methoxychlor, Endosulfan sulfate, Endrin aldehyde, 4,4'-DDT, and Endosulfan II. Nondetected and positive results were qualified as estimated, UJ and J.

Positive results below the CRQL were qualified as estimated, J, due to uncertainty near the detection limit.

Several samples were analyzed at dilutions ranging from 2X to 8X due to the presence of target compounds above the instrument's linear calibration range.

EXECUTIVE SUMMARY

Laboratory Performance Issues: Several compounds exceeded the continuing calibration %D quality control limit.

Other Factors Affecting Data Quality: None.

The data for these analyses were reviewed with reference to the EPA Functional Guidelines for Organic Data Validation (2/94) and the NFESC guidelines "Navy Installation Restoration Program Laboratory Quality Assurance Guide" (February, 1996). The text of this report has been formulated to address only those problem areas affecting data quality.

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

TetraTech NUS

Linda Karsonovich
Chemist/Data Validator

TetraTech NUS

Joseph A. Samchuck
Data Validation Quality Assurance Officer

Attachments:

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

FIELD DUPLICATES

COMPOUND	CEF-16B-SS-004	CEF-16B-SS-DU02	%RPD
4,4'-DDE	17.4	21.5	21%
4,4'-DDT	32.2	39.6	21%
a-Chlordane	12.1	7.6 U	NC
g-Chlordane	9.3	7.6 U	NC
COMPOUND	**CEF-16C-SS-001**	**CEF-16C-SS-DU01**	**%RPD**
4,4'-DDE	12	7.4 J	47%
4,4'-DDT	12.4	9.6	25%
COMPOUND	**CEF-16D-SS-001**	**CEF-16D-SS-DU03**	**%RPD**
4,4'-DDE	20.7	12.2	52%
4,4'-DDT	67.2	33.9	66%
COMPOUND	**CEF-362-SS-004**	**CEF-362-SS-DU04**	**%RPD**
4,4'-DDE	2.8 J	3.6 J	25%
4,4'-DDT	7.8	9.4	19%
a-Chlordane	5.6	4	33%
g-Chlordane	4.9	4.1	18%
Heptachlor epoxide	1.8 U	2	NC
COMPOUND	**CEF-631-SS-004**	**CEF-631-SS-DU05**	**%RPD**
	ND	ND	

NC – Not Calculated

ND – Not Detected

APPENDIX A

QUALIFIED ANALYTICAL RESULTS

SAMPLE NUMBER:	CEF-16D-SS-001			CEF-16D-SS-004			CEF-16D-SS-DU03			CEF-362-SS-004		
SAMPLE DATE:	02/02/99			02/02/99			02/02/99			02/02/99		
LABORATORY ID:	F3612-38			F3612-41			F3612-47			F3612-2		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	91.1 %			90.4 %			95.7 %			89.6 %		
UNITS:	UG/KG			UG/KG			UG/KG			UG/KG		
FIELD DUPLICATE OF:							CEF-16D-SS-001					
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
PESTICIDES/PCBs												
4,4'-DDD	29	U		7.4	U		14	U		3.7	U	
4,4'-DDE	20.7			5.6			12.2			2.8	J	P
4,4'-DDT	67.2	J	C	12.6			33.9	J	C	7.8		
ALDRIN	15	U		1.8	U		3.5	U		1.8	U	
ALPHA-BHC	15	U		1.8	U		3.5	U		1.8	U	
ALPHA-CHLORDANE	29	U		3.7	U		7	U		5.6		
BETA-BHC	15	U		1.8	U		3.5	U		1.8	U	
DELTA-BHC	15	U		1.8	U		3.5	U		1.8	U	
DIELDRIN	15	U		1.8	U		3.5	U		1.8	U	
ENDOSULFAN I	15	U		1.8	U		3.5	U		1.8	U	
ENDOSULFAN II	29	UJ	C	3.7	U		7	UJ	C	3.7	U	
ENDOSULFAN SULFATE	29	UJ	C	3.7	U		7	UJ	C	3.7	U	
ENDRIN	29	U		3.7	U		7	U		3.7	U	
ENDRIN ALDEHYDE	29	UJ	C	3.7	U		7	UJ	C	3.7	U	
ENDRIN KETONE	29	UJ	C	3.7	U		7	UJ	C	3.7	U	
GAMMA-BHC (LINDANE)	15	U		1.8	U		3.5	U		1.8	U	
GAMMA-CHLORDANE	29	U		3.7	U		7	U		4.9		
HEPTACHLOR	15	U		1.8	U		3.5	U		1.8	U	
HEPTACHLOR EPOXIDE	15	U		1.8	U		3.5	U		1.8	U	
METHOXYCHLOR	150	UJ	C	18	U		35	UJ	C	18	U	
TOXAPHENE	1500	U		180	U		350	U		180	U	

SAMPLE NUMBER:	CEF-362-SS-008			CEF-362-SS-DU04			CEF-631-SS-001			CEF-631-SS-004		
SAMPLE DATE:	02/02/99			02/02/99			02/02/99			02/02/99		
LABORATORY ID:	F3612-6			F3612-7			F3612-48			F3612-51		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	86.1 %			89.0 %			85.0 %			82.4 %		
UNITS:	UG/KG			UG/KG			UG/KG			UG/KG		
FIELD DUPLICATE OF:				CEF-362-SS-004								
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
PESTICIDES/PCBs												
4,4'-DDD	3.9	U		3.7	U		3.9	U		4	U	
4,4'-DDE	3.6	J	P	4.4			3.9	U		4	U	
4,4'-DDT	9.4			9.1			3.9	U		4	U	
ALDRIN	1.9	U		1.9	U		2	U		2	U	
ALPHA-BHC	1.9	U		1.9	U		2	U		2	U	
ALPHA-CHLORDANE	4			8.9			3.9	U		4	U	
BETA-BHC	1.9	U		1.9	U		2	U		2	U	
DELTA-BHC	1.9	U		1.9	U		2	U		2	U	
DIELDRIN	1.9	U		1.9	U		2	U		2	U	
ENDOSULFAN I	1.9	U		1.9	U		2	U		2	U	
ENDOSULFAN II	3.9	U		3.7	U		3.9	U		4	U	
ENDOSULFAN SULFATE	3.9	U		3.7	U		3.9	U		4	U	
ENDRIN	3.9	U		3.7	U		3.9	U		4	U	
ENDRIN ALDEHYDE	3.9	U		3.7	U		3.9	U		4	U	
ENDRIN KETONE	3.9	U		3.7	U		3.9	U		4	U	
GAMMA-BHC (LINDANE)	1.9	U		1.9	U		2	U		2	U	
GAMMA-CHLORDANE	4.1			6.9			3.9	U		4	U	
HEPTACHLOR	1.9	U		1.9	U		2	U		2	U	
HEPTACHLOR EPOXIDE	2			2.5			2	U		2	U	
METHOXYCHLOR	19	U		19	U		20	U		20	U	
TOXAPHENE	190	U		190	U		200	U		200	U	

APPENDIX A

QUALIFIED ANALYTICAL RESULTS

SAMPLE NUMBER:	CEF-16D-SS-001			CEF-16D-SS-004			CEF-16D-SS-DU03			CEF-362-SS-004		
SAMPLE DATE:	02/02/99			02/02/99			02/02/99			02/02/99		
LABORATORY ID:	F3612-38			F3612-41			F3612-47			F3612-2		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	91.1 %			90.4 %			95.7 %			89.6 %		
UNITS:	UG/KG			UG/KG			UG/KG			UG/KG		
FIELD DUPLICATE OF:							CEF-16D-SS-001					
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
PESTICIDES/PCBs												
4,4'-DDD	29	U		7.4	U		14	U		3.7	U	
4,4'-DDE	20.7			5.6			12.2			2.8	J	P
4,4'-DDT	67.2	J	C	12.6			33.9	J	C	7.8		
ALDRIN	15	U		1.8	U		3.5	U		1.8	U	
ALPHA-BHC	15	U		1.8	U		3.5	U		1.8	U	
ALPHA-CHLORDANE	29	U		3.7	U		7	U		5.6		
BETA-BHC	15	U		1.8	U		3.5	U		1.8	U	
DELTA-BHC	15	U		1.8	U		3.5	U		1.8	U	
DIELDRIN	15	U		1.8	U		3.5	U		1.8	U	
ENDOSULFAN I	15	U		1.8	U		3.5	U		1.8	U	
ENDOSULFAN II	29	UJ	C	3.7	U		7	UJ	C	3.7	U	
ENDOSULFAN SULFATE	29	UJ	C	3.7	U		7	UJ	C	3.7	U	
ENDRIN	29	U		3.7	U		7	U		3.7	U	
ENDRIN ALDEHYDE	29	UJ	C	3.7	U		7	UJ	C	3.7	U	
ENDRIN KETONE	29	UJ	C	3.7	U		7	UJ	C	3.7	U	
GAMMA-BHC (LINDANE)	15	U		1.8	U		3.5	U		1.8	U	
GAMMA-CHLORDANE	29	U		3.7	U		7	U		4.9		
HEPTACHLOR	15	U		1.8	U		3.5	U		1.8	U	
HEPTACHLOR EPOXIDE	15	U		1.8	U		3.5	U		1.8	U	
METHOXYCHLOR	150	UJ	C	18	U		35	UJ	C	18	U	
TOXAPHENE	1500	U		180	U		350	U		180	U	

ACCUTEST.

Report of Analysis

Client Sample ID:	CEF-362-SS-004		
Lab Sample ID:	F3612-2	**Date Sampled:**	02/02/99
Matrix:	SO - Soil	**Date Received:**	02/04/99
Method:	SW846 3550B/8081A	**Percent Solids:**	89.6
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	MN02591.D	1	02/19/99	SKW	02/16/99	OP686	GMN112
Run #2							

Pesticide TCL List

CAS No.	Compound	Result	RDL	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	5.6	3.7	ug/kg	
5103-74-2	gamma-Chlordane	4.9	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	2.8	3.7	ug/kg	J
50-29-3	4,4'-DDT	7.8	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	18	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	60%		30-160%

(a) All hits confirmed by dual column analysis.

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

ACCUTEST.

Report of Analysis

Client Sample ID:	CEF-362-SS-008		
Lab Sample ID:	F3612-6	**Date Sampled:**	02/02/99
Matrix:	SO - Soil	**Date Received:**	02/04/99
Method:	SW846 3550B/8081A	**Percent Solids:**	86.1
Project:	NAS Cecil Field		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	MN02592.D	1	02/19/99	SKW	02/16/99	OP686	GMN112
Run #2							

Pesticide TCL List

CAS No.	Compound	Result	RDL	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	4.0	3.9	ug/kg	
5103-74-2	gamma-Chlordane	4.1	3.9	ug/kg	
60-57-1	Dieldrin	ND	1.9	ug/kg	
72-54-8	4,4'-DDD	ND	3.9	ug/kg	
72-55-9	4,4'-DDE	3.6	3.9	ug/kg	J
50-29-3	4,4'-DDT	9.4	3.9	ug/kg	
72-20-8	Endrin	ND	3.9	ug/kg	
1031-07-8	Endosulfan sulfate	ND	3.9	ug/kg	
7421-93-4	Endrin aldehyde	ND	3.9	ug/kg	
53494-70-5	Endrin ketone	ND	3.9	ug/kg	
959-98-8	Endosulfan-I	ND	1.9	ug/kg	
33213-65-9	Endosulfan-II	ND	3.9	ug/kg	
76-44-8	Heptachlor	ND	1.9	ug/kg	
1024-57-3	Heptachlor epoxide	2.0	1.9	ug/kg	
72-43-5	Methoxychlor	ND	19	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	46%		30-160%

(a) All hits confirmed by dual column analysis.

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

ACCUTEST.

Report of Analysis

Client Sample ID:	CEF-362-SS-DU04		
Lab Sample ID:	F3612-7	**Date Sampled:**	02/02/99
Matrix:	SO - Soil	**Date Received:**	02/04/99
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]	MN02593.D	1	02/19/99	SKW	02/16/99	OP686	GMN112
Run #2							

Pesticide TCL List

CAS No.	Compound	Result	RDL	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	8.9	3.7	ug/kg	
5103-74-2	gamma-Chlordane	6.9	3.7	ug/kg	
60-57-1	Dieldrin	ND	1.9	ug/kg	
72-54-8	4,4'-DDD	ND	3.7	ug/kg	
72-55-9	4,4'-DDE	4.4	3.7	ug/kg	
50-29-3	4,4'-DDT	9.1	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	1.9	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	2.5	1.9	ug/kg	
72-43-5	Methoxychlor	ND	19	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	91%		40-150%
2051-24-3	Decachlorobiphenyl	44%		30-160%

(a) All hits confirmed by dual column analysis.

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

APPENDIX C

SUPPORT DOCUMENTATION

ACCUTEST.

02/26/99

CTO 078

SDG F3612

Technical Report for

Tetra Tech, NUS

NAS Cecil Field

0039/GROUNDWATER SAMPLING-EXISISTING WEL

Accutest Job Number: F3612

Report to:

Tetra-Tech, NUS
661 Andersen Drive
Pittsburgh, PA 15220

ATTN: Tom Dickson

Total number of pages in report:

Harry Behzadi, Ph.D.
Laboratory Director

ACCUTEST.

Sample Summary

Tetra Tech, NUS

Date: 02/26/99
Job No: F3612

NAS Cecil Field
Project No: 0039/GROUNDWATER SAMPLING-EXISISTING WEL

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
F3612-1	02/02/99	10:10	JJK	02/04/99	SO	Soil	CEF-362-SS-003
F3612-2	02/02/99	10:00	JJK	02/04/99	SO	Soil	CEF-362-SS-004
F3612-3	02/02/99	10:17	JJK	02/04/99	SO	Soil	CEF-362-SS-005
F3612-4	02/02/99	10:15	JJK	02/04/99	SO	Soil	CEF-362-SS-006
F3612-5	02/02/99	10:05	JJK	02/04/99	SO	Soil	CEF-362-SS-007
F3612-6	02/02/99	10:02	JJK	02/04/99	SO	Soil	CEF-362-SS-008
F3612-7	02/02/99	00:00	JJK	02/04/99	SO	Soil	CEF-362-SS-DU04
F3612-8	02/02/99	11:12	JJK	02/04/99	SO	Soil	CEF-16B-SS-001
F3612-9	02/02/99	11:15	JJK	02/04/99	SO	Soil	CEF-16B-SS-002
F3612-10	02/02/99	11:05	JJK	02/04/99	SO	Soil	CEF-16B-SS-003
F3612-11	02/02/99	09:42	JJK	02/04/99	SO	Soil	CEF-16A-SS-001
F3612-12	02/02/99	09:40	JJK	02/04/99	SO	Soil	CEF-16A-SS-002
F3612-13	02/02/99	09:48	JJK	02/04/99	SO	Soil	CEF-16A-SS-003

ACCUTEST.

Sample Summary
(continued)

Tetra Tech, NUS

Date: 02/26/99
Job No: F3612

NAS Cecil Field
Project No: 0039/GROUNDWATER SAMPLING-EXISISTING WEL

Sample Number	Collected Date	Time	By	Received	Matrix Code	Matrix Type	Client Sample ID
F3612-14	02/02/99	09:38	JJK	02/04/99	SO	Soil	CEF-16A-SS-004
F3612-15	02/02/99	09:25	JJK	02/04/99	SO	Soil	CEF-16A-SS-005
F3612-16	02/02/99	09:30	JJK	02/04/99	SO	Soil	CEF-16A-SS-006
F3612-17	02/02/99	09:35	JJK	02/04/99	SO	Soil	CEF-16A-SS-007
F3612-18	02/02/99	09:45	JJK	02/04/99	SO	Soil	CEF-16A-SS-008
F3612-19	02/02/99	10:12	JJK	02/04/99	SO	Soil	CEF-362-SS-001
F3612-20	02/02/99	10:07	JJK	02/04/99	SO	Soil	CEF-362-SS-002
F3612-21	02/02/99	11:00	JJK	02/04/99	SO	Soil	CEF-16B-SS-004
F3612-22	02/02/99	10:55	JJK	02/04/99	SO	Soil	CEF-16B-SS-005
F3612-23	02/02/99	10:57	JJK	02/04/99	SO	Soil	CEF-16B-SS-006
F3612-24	02/02/99	11:10	JJK	02/04/99	SO	Soil	CEF-16B-SS-007
F3612-25	02/02/99	11:07	JJK	02/04/99	SO	Soil	CEF-16B-SS-008
F3612-26	02/02/99	11:07	JJK	02/04/99	SO	Soil	CEF-16B-SS-009

ACCUTEST.

Sample Summary
(continued)

Tetra Tech, NUS

Date: 02/26/99
Job No: F3612

NAS Cecil Field
Project No: 0039/GROUNDWATER SAMPLING-EXISISTING WEL

Sample Number	Collected Date	Time By	Received	Matrix Code	Matrix Type	Client Sample ID
F3612-27	02/02/99	00:00 JJK	02/04/99	SO	Soil	CEF-16B-SS-DU02
F3612-28	02/02/99	11:25 JJK	02/04/99	SO	Soil	CEF-16C-SS-001
F3612-29	02/02/99	11:26 JJK	02/04/99	SO	Soil	CEF-16C-SS-002
F3612-30	02/02/99	11:32 JJK	02/04/99	SO	Soil	CEF-16C-SS-003
F3612-31	02/02/99	11:30 JJK	02/04/99	SO	Soil	CEF-16C-SS-004
F3612-32	02/02/99	11:38 JJK	02/04/99	SO	Soil	CEF-16C-SS-005
F3612-33	02/02/99	11:42 JJK	02/04/99	SO	Soil	CEF-16C-SS-006
F3612-34	02/02/99	11:28 JJK	02/04/99	SO	Soil	CEF-16C-SS-007
F3612-35	02/02/99	11:40 JJK	02/04/99	SO	Soil	CEF-16C-SS-008
F3612-36	02/02/99	11:35 JJK	02/04/99	SO	Soil	CEF-16C-SS-009
F3612-37	02/02/99	00:00 JJK	02/04/99	SO	Soil	CEF-16C-SS-DU01
F3612-38	02/02/99	11:55 JJK	02/04/99	SO	Soil	CEF-16D-SS-001
F3612-39	02/02/99	12:25 JJK	02/04/99	SO	Soil	CEF-16D-SS-002

ACCUTEST.

Sample Summary
(continued)

Tetra Tech, NUS

Date: 02/26/99
Job No: F3612

NAS Cecil Field
Project No: 0039/GROUNDWATER SAMPLING-EXISISTING WEL

Sample Number	Collected Date	Time By	Received	Matrix Code	Matrix Type	Client Sample ID
F3612-40	02/02/99	12:12 JJK	02/04/99	SO	Soil	CEF-16D-SS-003
F3612-41	02/02/99	12:15 JJK	02/04/99	SO	Soil	CEF-16D-SS-004
F3612-42	02/02/99	12:00 JJK	02/04/99	SO	Soil	CEF-16D-SS-005
F3612-43	02/02/99	12:10 JJK	02/04/99	SO	Soil	CEF-16D-SS-006
F3612-44	02/02/99	12:17 JJK	02/04/99	SO	Soil	CEF-16D-SS-007
F3612-45	02/02/99	12:20 JJK	02/04/99	SO	Soil	CEF-16D-SS-008
F3612-46	02/02/99	12:23 JJK	02/04/99	SO	Soil	CEF-16D-SS-009
F3612-47	02/02/99	00:00 JJK	02/04/99	SO	Soil	CEF-16D-SS-DU03
F3612-48	02/02/99	15:20 JJK	02/04/99	SO	Soil	CEF-631-SS-001
F3612-49	02/02/99	15:05 JJK	02/04/99	SO	Soil	CEF-631-SS-002
F3612-50	02/02/99	15:03 JJK	02/04/99	SO	Soil	CEF-631-SS-003
F3612-51	02/02/99	14:53 JJK	02/04/99	SO	Soil	CEF-631-SS-004
F3612-52	02/02/99	15:15 JJK	02/04/99	SO	Soil	CEF-631-SS-005

ACCUTEST.

Sample Summary
(continued)

Tetra Tech, NUS

Date: 02/26/99
Job No: F3612

NAS Cecil Field
Project No: 0039/GROUNDWATER SAMPLING-EXISISTING WEL

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
F3612-53	02/02/99	15:08	JJK	02/04/99	SO	Soil	CEF-631-SS-006
F3612-54	02/02/99	14:55	JJK	02/04/99	SO	Soil	CEF-361-SS-007
F3612-55	02/02/99	15:00	JJK	02/04/99	SO	Soil	CEF-361-SS-008
F3612-56	02/02/99	15:10	JJK	02/04/99	SO	Soil	CEF-361-SS-009
F3612-57	02/02/99	00:00	JJK	02/04/99	SO	Soil	CEF-361-SS-DU05

Sequence Name: C:\HPCHEM\2\SEQUENCE\0219PEST.S
Comment:
Operator: stephw
Data Path: C:\HPCHEM\2\DATA\0219pest\
Pre-Seq Cmd:
Post-Seq Cmd:

gmn112

Method Sections To Run
(X) Full Method
( ) Reprocessing Only

On A Barcode Mismatch
(X) Inject Anyway
( ) Don't Inject

Line	Type	Vial	DataFile	Method	Sample Name
1	Sample	1	MN02575	ACQ_PEST	cond std
2	Sample	2	MN02576	ACQ_PEST	ddt/endrin breakdown
3	Sample	3	MN02577	ACQ_PEST	5ppb pest p428
4	Sample	4	MN02578	ACQ_PEST	10ppb pest p428
5	Sample	5	MN02579	ACQ_PEST	20ppb pest p428
6	Sample	6	MN02580	ACQ_PEST	40ppb pest p428
7	Sample	7	MN02581	ACQ_PEST	60ppb pest p428
8	Sample	8	MN02582	ACQ_PEST	80ppb pest p428
9	Sample	9	MN02583	ACQ_PEST	500ppb toxpahene p429
10	Sample	10	MN02584	ACQ_PEST	200ppb chlordane p430
11	Sample	11	MN02585	ACQ_PEST	ddt/endrin
12	Sample	12	MN02586	ACQ_PEST	op686-mb
13	Sample	13	MN02587	ACQ_PEST	op686-bs
14	Sample	14	MN02588	ACQ_PEST	F3612-57
15	Sample	15	MN02589	ACQ_PEST	op686-ms
16	Sample	16	MN02590	ACQ_PEST	op686-msd
17	Sample	17	MN02591	ACQ_PEST	F3612-2
18	Sample	18	MN02592	ACQ_PEST	F3612-6
19	Sample	19	MN02593	ACQ_PEST	F3612-7
20	Sample	20	MN02594	ACQ_PEST	F3612-8
21	Sample	21	MN02595	ACQ_PEST	F3612-14
22	Sample	22	MN02596	ACQ_PEST	40ppb ccv
23	Sample	22	MN02597	ACQ_PEST	40ppb ccv
24	Sample	23	MN02598	ACQ_PEST	F3612-18
25	Sample	24	MN02599	ACQ_PEST	F3612-21,2x
26	Sample	25	MN02600	ACQ_PEST	F3612-27,2x
27	Sample	26	MN02601	ACQ_PEST	F3612-28
28	Sample	27	MN02602	ACQ_PEST	F3612-31,4x
29	Sample	28	MN02603	ACQ_PEST	F3612-37
30	Sample	29	MN02604	ACQ_PEST	F3612-38,8x
31	Sample	30	MN02605	ACQ_PEST	F3612-41
32	Sample	31	MN02606	ACQ_PEST	F3612-47,2x
33	Sample	32	MN02607	ACQ_PEST	F3612-48
34	Sample	33	MN02608	ACQ_PEST	F3612-51
35	Sample	34	MN02609	ACQ_PEST	40ppb ccv
36	Sample	34	MN02610	ACQ_PEST	40ppb ccv
37	Sample	35	MN02611	ACQ_PEST	ddt/endrin breakdown
38	Sample	36	MN02612	ACQ_PEST	500ppb toxpahene
39	Sample	37	MN02613	ACQ_PEST	200ppb chlordane
40	Sample	38	MN02614	ACQ_PEST	F3612-21 CEF-16B-SS-004
41	Sample	39	MN02615	ACQ_PEST	F3612-27 CEF-16B-SS-0002
42	Sample	40	MN02616	ACQ_PEST	F3612-31 CEF-16C-SS-004
43	Sample	41	MN02617	ACQ_PEST	F3612-38,2x CEF-16D-SS-001

Sequence Name: C:\HPCHEM\2\SEQUENCE\0219PEST.S

Line	Type	Vial	DataFile	Method	Sample Name
44	Sample	42	MN02618	ACQ_PEST	F3612-47 CEF-160-SS-DUO3
45	Sample	43	MN02619	ACQ_PEST	40ppb ccv
46	Sample	43	MN02620	ACQ_PEST	40ppb ccv
47	Sample	44	MN02621	ACQ_PEST	meth/hex
48	Sample	45	MN02622	ACQ_PEST	hex

endrin ketone
methoxychlor
endo. sulfate
endrin aldehyde
DDT
Endo II
out both columns

Signal #1 : C:\HPCHEM\3\DATA\0219PEST\MN02619.D\ECD1B.CH Vial: 43
Signal #2 : C:\HPCHEM\3\DATA\0219PEST\MN02619.D\ECD2A.CH
Acq On : 20 Feb 1999 12:17 am Operator: stephw
Sample : 40ppb ccv Inst : ECD 2
Misc : op686,gmn112,soil,,,10, Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: events2.e

Method : C:\HPCHEM\3\METHODS\8081A.M (Chemstation Integrator)
Title : Pesticides by 608 or 8081
Last Update : Mon Feb 22 16:53:43 1999
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.10min
Max. RRF Dev : 15% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	S	Tetrachloro-m-xylene	40.000	42.459	-6.1	106	0.00
2		alpha-BHC	40.000	39.865	0.3	100	0.00
3		gamma-BHC (Lindane)	40.000	38.554	3.6	97	0.00
4		beta-BHC	40.000	37.370	6.6	95	0.00
5		Heptachlor	40.000	40.645	-1.6	105	0.00
6		delta-BHC	40.000	37.106	7.2	95	0.00
7		Aldrin	40.000	33.926	15.2#	84	0.00
8		Heptachlor Epoxide	40.000	34.911	12.7	88	0.00
9		gamma-Chlordane	40.000	33.058	17.4#	83	0.00
10		alpha-Chlordane	40.000	33.536	16.2#	84	0.00
11		Endosulfan I	40.000	33.903	15.2#	86	0.00
12		4,4'-DDE	40.000	34.386	14.0	88	0.00
13		Dieldrin	40.000	34.428	13.9	88	0.00
14		Endrin	40.000	33.120	17.2#	84	0.00
15		4,4'-DDD	40.000	28.957	27.6#	74	0.00
16		Endosulfan II	40.000	33.144	17.1#	85	0.00
17		4,4'-DDT	40.000	29.074	27.3#	75	0.00
18		Endrin Aldehyde	40.000	27.777	30.6#	72	0.00
19		Endosulfan Sulfate	40.000	24.489	38.8#	62	0.00
20		Methoxychlor	40.000	25.606	36.0#	66	0.00
21		Endrin Ketone	40.000	21.452	46.4#	53	0.00
29	S	Decachlorobiphenyl	40.000	16.827	57.9#	43	0.00
		Signal #2					
1	S	Tetrachloro-m-xylene	40.000	49.440	-23.6#	130	0.00
2		alpha-BHC	40.000	44.528	-11.3	121	0.00
3		gamma-BHC (Lindane)	40.000	44.443	-11.1	123	0.00
4		beta-BHC	40.000	45.029	-12.6	118	0.00
5		Heptachlor	40.000	43.950	-9.9	120	0.00
6		delta-BHC	40.000	42.858	-7.1	118	0.00
7		Aldrin	40.000	43.729	-9.3	120	0.00
8		Heptachlor Epoxide	40.000	40.524	-1.3	109	0.00
9		gamma-Chlordane	40.000	40.868	-2.2	114	0.00
10		alpha-Chlordane	40.000	41.424	-3.6	112	0.00
11		Endosulfan I	40.000	42.083	-5.2	113	0.00
12		4,4'-DDE	40.000	42.794	-7.0	120	0.00
13		Dieldrin	40.000	40.299	-0.7	110	0.00
14		Endrin	40.000	38.074	4.8	102	0.00
15		4,4'-DDD	40.000	37.146	7.1	102	0.00

(#) = Out of Range

Signal #1 : C:\HPCHEM\3\DATA\0219PEST\MN02619.D\ECD1B.CH Vial: 43
Signal #2 : C:\HPCHEM\3\DATA\0219PEST\MN02619.D\ECD2A.CH
Acq On : 20 Feb 1999 12:17 am Operator: stephw
Sample : 40ppb ccv Inst : ECD 2
Misc : op686,gmn112,soil,,,10, Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: events2.e

Method : C:\HPCHEM\3\METHODS\8081A.M (Chemstation Integrator)
Title : Pesticides by 608 or 8081
Last Update : Mon Feb 22 16:53:43 1999
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.10min
Max. RRF Dev : 15% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
16		Endosulfan II	40.000	33.927	15.2#	89	0.00
17		4,4'-DDT	40.000	30.073	24.8#	81	0.00
18		Endrin Aldehyde	40.000	33.257	16.9#	89	0.00
19		Endosulfan Sulfate	40.000	30.270	24.3#	79	0.00
20		Methoxychlor	40.000	29.908	25.2#	79	0.00
21		Endrin Ketone	40.000	26.429	33.9#	68	0.00
29	S	Decachlorobiphenyl	40.000	22.315	44.2#	57	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Evaluate Continuing Calibration Report

Signal #1 : C:\HPCHEM\3\DATA\0219PEST\MN02620.D\ECD1B.CH Vial: 43
Signal #2 : C:\HPCHEM\3\DATA\0219PEST\MN02620.D\ECD2A.CH
Acq On : 20 Feb 1999 12:39 am Operator: stephw
Sample : 40ppb ccv Inst : ECD 2
Misc : op686,gmn112,soil,,,10, Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: events2.e

Method : C:\HPCHEM\3\METHODS\8081A.M (Chemstation Integrator)
Title : Pesticides by 608 or 8081
Last Update : Mon Feb 22 16:53:43 1999
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.10min
Max. RRF Dev : 15% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	S	Tetrachloro-m-xylene	40.000	45.231	-13.1	113	0.00
2		alpha-BHC	40.000	42.142	-5.4	106	0.00
3		gamma-BHC (Lindane)	40.000	40.905	-2.3	103	0.00
4		beta-BHC	40.000	40.429	-1.1	103	0.00
5		Heptachlor	40.000	43.322	-8.3	112	0.00
6		delta-BHC	40.000	40.051	-0.1	103	0.00
7		Aldrin	40.000	35.267	11.8	88	0.00
8		Heptachlor Epoxide	40.000	38.135	4.7	97	0.00
9		gamma-Chlordane	40.000	36.206	9.5	92	0.00
10		alpha-Chlordane	40.000	36.386	9.0	92	0.00
11		Endosulfan I	40.000	36.881	7.8	94	0.00
12		4,4'-DDE	40.000	38.061	4.8	98	0.00
		Dieldrin	40.000	37.718	5.7	97	0.00
14		Endrin	40.000	36.077	9.8	92	0.00
15		4,4'-DDD	40.000	31.951	20.1#	83	0.00
16		Endosulfan II	40.000	29.679	25.8#	76	0.00
17		4,4'-DDT	40.000	29.241	26.9#	75	0.00
18		Endrin Aldehyde	40.000	29.552	26.1#	77	0.00
19		Endosulfan Sulfate	40.000	27.672	30.8#	70	0.00
20		Methoxychlor	40.000	29.972	25.1#	78	0.00
21		Endrin Ketone	40.000	24.438	38.9#	61	0.00
29	S	Decachlorobiphenyl	40.000	19.090	52.3#	49	0.00
		Signal #2					
1	S	Tetrachloro-m-xylene	40.000	51.527	-28.8#	136	0.00
2		alpha-BHC	40.000	47.263	-18.2#	130	0.00
3		gamma-BHC (Lindane)	40.000	46.438	-16.1#	129	0.00
4		beta-BHC	40.000	47.619	-19.0#	125	0.00
5		Heptachlor	40.000	45.100	-12.8	123	0.00
6		delta-BHC	40.000	45.485	-13.7	126	0.00
7		Aldrin	40.000	44.892	-12.2	123	0.00
8		Heptachlor Epoxide	40.000	42.364	-5.9	114	0.00
9		gamma-Chlordane	40.000	43.007	-7.5	120	0.00
10		alpha-Chlordane	40.000	43.137	-7.8	117	0.00
11		Endosulfan I	40.000	43.895	-9.7	119	0.00
12		4,4'-DDE	40.000	45.472	-13.7	129	0.00
3		Dieldrin	40.000	42.217	-5.5	116	0.00
14		Endrin	40.000	38.365	4.1	103	0.00
15		4,4'-DDD	40.000	39.708	0.7	111	0.00

(#) = Out of Range

Signal #1 : C:\HPCHEM\3\DATA\0219PEST\MN02620.D\ECD1B.CH Vial: 43
Signal #2 : C:\HPCHEM\3\DATA\0219PEST\MN02620.D\ECD2A.CH
Acq On : 20 Feb 1999 12:39 am Operator: stephw
Sample : 40ppb ccv Inst : ECD 2
Misc : op686,gmn112,soil,,,10, Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: events2.e

Method : C:\HPCHEM\3\METHODS\8081A.M (Chemstation Integrator)
Title : Pesticides by 608 or 8081
Last Update : Mon Feb 22 16:53:43 1999
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.10min
Max. RRF Dev : 15% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
16		Endosulfan II	40.000	36.279	9.3	96	0.00
17		4,4'-DDT	40.000	32.873	17.8#	90	0.00
18		Endrin Aldehyde	40.000	36.700	8.2	99	0.00
19		Endosulfan Sulfate	40.000	33.816	15.5#	90	0.00
20		Methoxychlor	40.000	33.671	15.8#	90	0.00
21		Endrin Ketone	40.000	29.504	26.2#	77	0.00
29	S	Decachlorobiphenyl	40.000	24.059	39.9#	61	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0