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NAS CECIL FIELD, FL
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TECHNICAL MEMORANDUM FOR NO FURTHER ACTION AT POTENTIAL SOURCE OF
CONTAMINATION 54 FACILITY 290 NAS CECIL FIELD FL
12/8/1999
TETRA TECH NUS INC

**Technical Memorandum
for
No Further Action**

**Potential Source of Contamination 54
Facility 290**

**Naval Air Station Cecil Field
Jacksonville, Florida**



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

December 1999

**TECHNICAL MEMORANDUM
FOR NO FURTHER ACTION**

**POTENTIAL SOURCE OF CONTAMINATION 54
FACILITY 290**

**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**

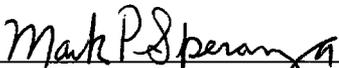
**Submitted by:
Tetra Tech NUS, Inc.
661 Andersen Drive
Foster Plaza 7
Pittsburgh, Pennsylvania 15220**

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

DECEMBER 1999

PREPARED UNDER THE SUPERVISION OF:

APPROVED FOR SUBMITTAL BY:



**MARK SPERANZA, P.E.
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**DEBBIE WROBLEWSKI
PROGRAM MANAGER
TETRA TECH NUS, INC.
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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: _____ November 11, 1999 _____

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



The professional opinions rendered in this decision document identified as Technical Memorandum for No Further Action, Potential Source of Contamination 51, Naval Air Station Cecil Field, Jacksonville, Florida were developed in accordance with commonly accepted procedures consistent with applicable standards of practice. Decision documents are based on information obtained from others and under the supervision of the signing engineer. If conditions are determined to exist differently than those described in this document, then the undersigned professional engineer should be notified to evaluate the effects of any additional information on this project described in this report.

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

Date: 3/30/00

Mark P. Speranza

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LIST OF ACRONYMS AND ABBREVIATIONS

ABB-ES	ABB Environmental Services, Inc.
BCT	BRAC Cleanup Team
BRAC	Base Realignment and Closure
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
F.A.C.	Florida Administrative Code
FDEP	Florida Department of Environmental Protection
GCTL	Groundwater cleanup target level
HLA	Harding Lawson Associates
mg/kg	Milligram per kilogram
µg/kg	Microgram per kilogram
NAS	Naval Air Station
NAVFAC	Naval Facilities Engineering Command
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
OU	Operable unit
PAH	Polycyclic aromatic hydrocarbons
PRE	Preliminary risk evaluation
PSC	Potential source of contamination
QA/QC	Quality assurance/quality control
RAC	Remedial action contractor
SAR	Sampling and analysis report
SOUTHNAVFACENGCOM	Southern Division Naval Facilities Engineering Command
TRPH	Total recoverable petroleum hydrocarbons
TtNUS	Tetra Tech NUS, Inc.
UCL	Upper confidence level
U.S. EPA	United States Environmental Protection Agency

1.0 INTRODUCTION

This Technical Memorandum for Potential Source of Contamination (PSC) 54, Facility 290, at Naval Air Station (NAS) Cecil Field, 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 Navy 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) elected to resample and evaluate the groundwater at PSC 54 that had a naphthalene exceedence in one sample.

TtNUS performed a field investigation at PSC 54 in July 1999 to supplement the results of previous investigations. The purpose of the TtNUS investigation was to install additional monitoring wells, collect groundwater samples, and evaluate the results to determine the extent of naphthalene contamination in the groundwater that exceeds regulatory requirements.

This technical memorandum presents information from the previous investigations and the PSC investigation conducted in July 1999 by TtNUS at PSC 54 including related field operations, results, conclusions, and recommendations.

2.0 SITE DESCRIPTION

2.1 PHYSICAL SETTING

PSC 54 is a radio transmitting station located along Perimeter Road, southeast of the intersection of Runways 36R and 9R (Figures 2-1 and 2-2). Facility 290, the radio transmitting station building, and Facility 290A, the standby generator building, are the main structures at the site. An underground storage tank (removed in 1995), aboveground storage tank, diesel-powered standby generator, one abandoned septic system, and one active septic system are located at PSC 54 (Harding Lawson Associates [HLA], 1999).

2.2 SITE HISTORY

Facility 290/290A was identified in the Environmental Baseline Survey (EBS) report (ABB Environmental Services, Inc. [ABB-ES], 1994) as a potential environmental concern related to storage of hazardous materials, potential for hazardous substances in the septic tank, and staining observed near the underground storage tank and generator. Facility 290/290A was color coded in the report 7/Gray to indicate that additional evaluation was required.

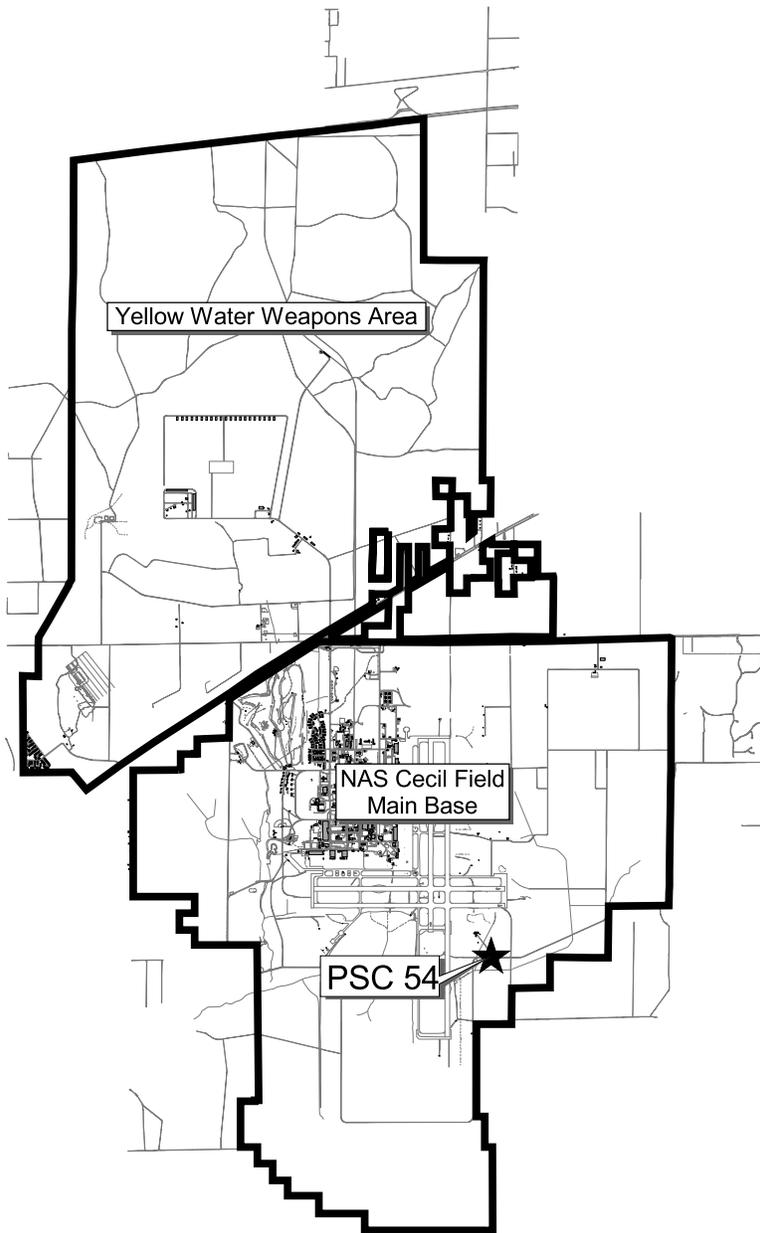
The underground storage tank was removed in 1995 and replaced with the existing aboveground storage tank. The closure assessment report prepared by Innovative Services International after the underground storage tank was removed indicated that there was no soil or groundwater contamination and the underground storage tank received a clean closure (HLA, 1998; HLA, 1999).

A confirmatory sampling investigation was conducted at the aboveground storage tank to assess the potential for soil and groundwater contamination in 1997. At that time, the tank was in compliance with state regulations and no soil or groundwater contamination associated with the aboveground storage tank was identified. The confirmatory sampling report recommended that no further action take place at the site until the tank was removed (HLA, 1998).

A sampling and analysis program was conducted in 1996 to address environmental concern related to the septic systems as a potential pathway for contamination to enter the groundwater. This sampling event was conducted to determine if the septic system was used improperly. A human health and ecological preliminary risk evaluation (PRE) was also conducted to assess the potential risks to human and ecological receptors using the results from the 1996 and 1997 investigations.

2.3 SITE GEOLOGY AND HYDROGEOLOGY

A site-specific geological investigation was conducted for the drilling activities for the monitoring well installation. Soil boring logs and groundwater monitoring well forms are provided in Appendix A. The geological and hydrogeological characteristics of the site are assumed to be similar to those described in other remedial investigation reports, such as Operable Unit 9, Sites 36 and 37 (TtNUS, 1999b), located approximately 6,500 feet northwest of PSC 54.



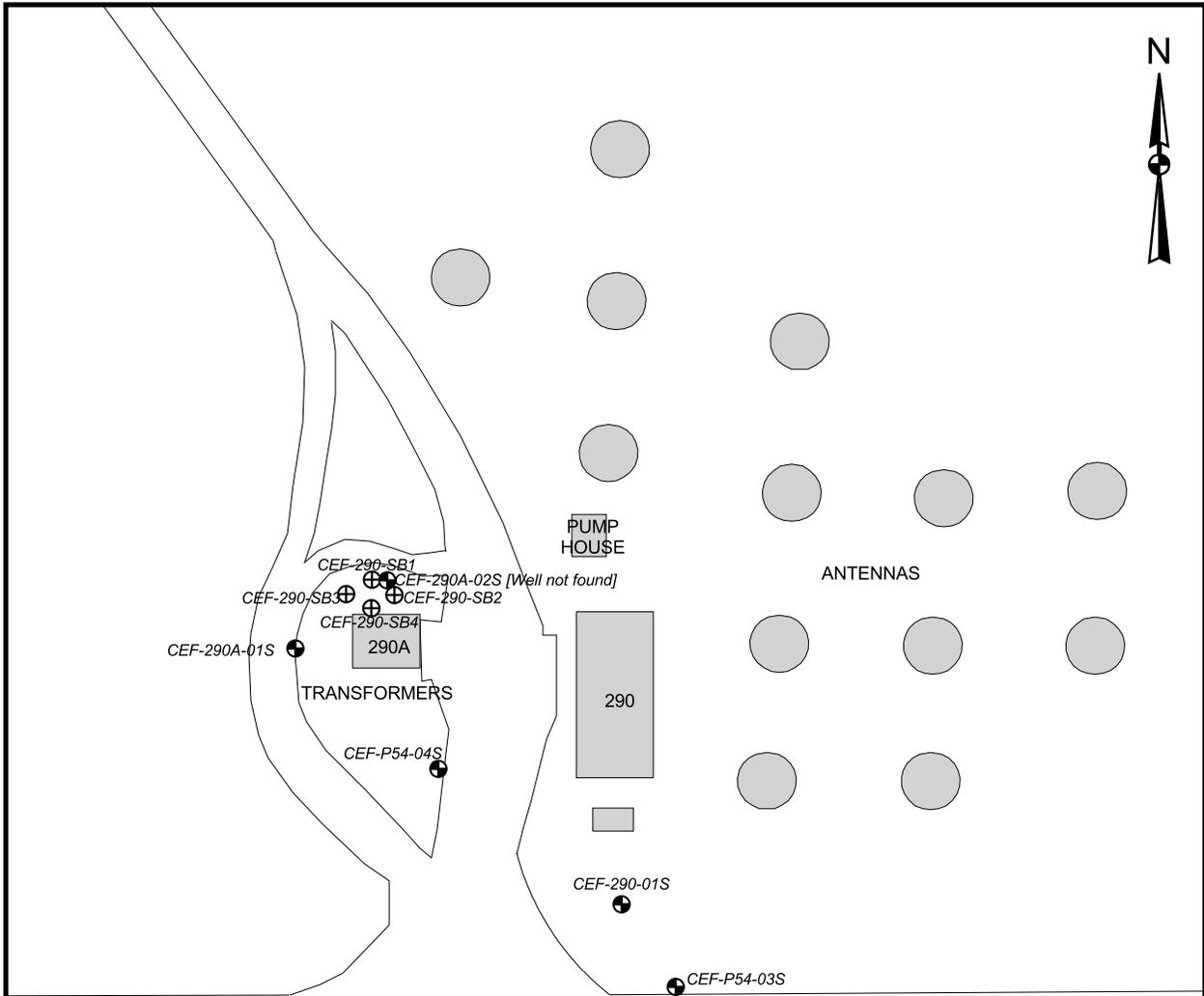
8000 0 8000 Feet

DRAWN BY MJJ	DATE 08Nov99
CHECKED BY	DATE
COST/SCHEDULE-AREA	
SCALE AS NOTED	



GENERAL LOCATION MAP
PSC 54, FACILITY 290
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

CONTRACT NUMBER 0039	
APPROVED BY	DATE
APPROVED BY	DATE
DRAWING NO. FIGURE 2-1	REV 0



LEGEND

- ⊕ Previous Sample Locations
- ⊙ Existing Monitoring Well Locations
- ▭ Buildings



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COST/SCHEDULE-AREA	
SCALE AS NOTED	



SITE LOCATION MAP
PSC 54, FACILITY 290
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

CONTRACT NUMBER 0039	
APPROVED BY	DATE
APPROVED BY	DATE
DRAWING NO. FIGURE 2-2	REV 0

3.0 PREVIOUS INVESTIGATIONS

Environmental investigations at PSC 54 began in 1993. The following reports describe the results of investigations conducted prior to the TtNUS investigation at the site:

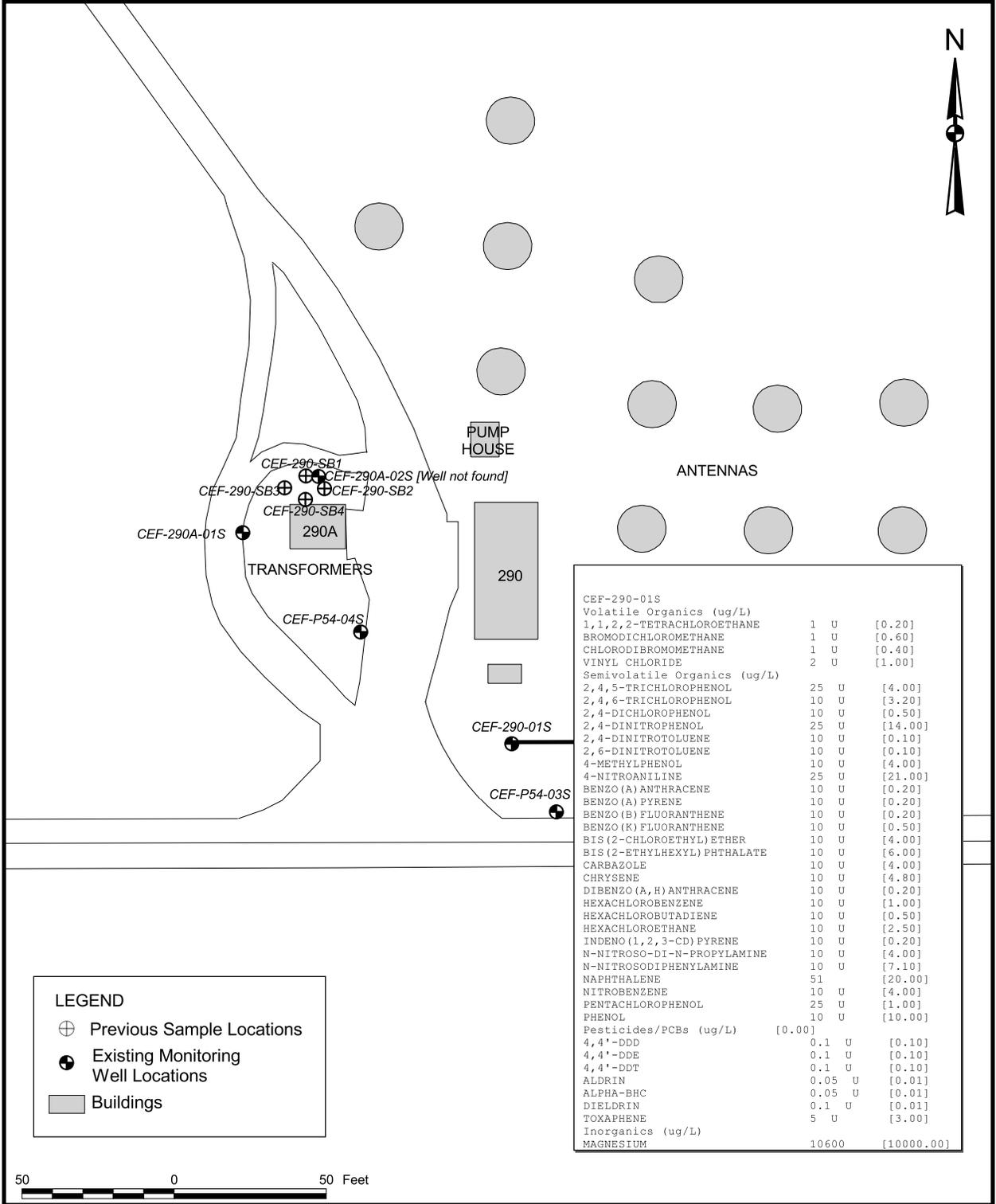
- EBS report (ABB-ES, 1994)
- Sampling and Analysis Outline, Facility 290 (ABB-ES, 1996)
- Confirmatory Sampling Report, Building 290A, Tank G290-A (HLA, 1998)
- SAR, Facility 290 (HLA, 1999)

A summary of the results of the 1996 sampling as presented in the SAR is shown on Figure 3-1. The SAR reported that

- Naphthalene was detected in a groundwater sample (CEF-290-01S) downgradient of the septic systems at a concentration that exceeds the Florida groundwater cleanup criteria.
- Further evaluation was required to verify the presence of naphthalene in the groundwater and determine the source and extent of contamination.
- The human health PRE calculated a hazard quotient for non-carcinogenic analytes of 0.03 for the detected concentration of naphthalene in the groundwater.
- The ecological PRE did not identify a complete exposure pathway to groundwater in the study area and, therefore, no further ecological risk evaluation was required for the site.

Based on these findings, the SAR recommended that Facility 290 be reclassified to 5/Yellow, an area where release, disposal, and/or migration of hazardous substances has occurred, removal or remedial actions are underway, but all required remedial actions have not been taken. Based on this reclassification, Facility 290 was designated as PSC 54 and TtNUS was directed to investigate the site further under the PSC program.

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CEP-290-01S		
Volatile Organics (ug/L)		
1,1,2,2-TETRACHLOROETHANE	1 U	[0.20]
BROMODICHLOROMETHANE	1 U	[0.60]
CHLORODIBROMOMETHANE	1 U	[0.40]
VINYL CHLORIDE	2 U	[1.00]
Semivolatile Organics (ug/L)		
2,4,5-TRICHLOROPHENOL	25 U	[4.00]
2,4,6-TRICHLOROPHENOL	10 U	[3.20]
2,4-DICHLOROPHENOL	10 U	[0.50]
2,4-DINITROPHENOL	25 U	[14.00]
2,4-DINITROTOLUENE	10 U	[0.10]
2,6-DINITROTOLUENE	10 U	[0.10]
4-METHYLPHENOL	10 U	[4.00]
4-NITROANILINE	25 U	[21.00]
BENZO (A) ANTHRACENE	10 U	[0.20]
BENZO (A) PYRENE	10 U	[0.20]
BENZO (B) FLUORANTHENE	10 U	[0.20]
BENZO (K) FLUORANTHENE	10 U	[0.50]
BIS (2-CHLOROETHYL) ETHER	10 U	[4.00]
BIS (2-ETHYLHEXYL) PHTHALATE	10 U	[6.00]
CARBAZOLE	10 U	[4.00]
CHRYSENE	10 U	[4.80]
DIBENZO (A, H) ANTHRACENE	10 U	[0.20]
HEXACHLOROBENZENE	10 U	[1.00]
HEXACHLOROBUTADIENE	10 U	[0.50]
HEXACHLOROETHANE	10 U	[2.50]
INDENO (1,2,3-CD) PYRENE	10 U	[0.20]
N-NITROSO-DI-N-PROPYLAMINE	10 U	[4.00]
N-NITROSODIPHENYLAMINE	10 U	[7.10]
NAPHTHALENE	51	[20.00]
NITROBENZENE	10 U	[4.00]
PENTACHLOROPHENOL	25 U	[1.00]
PHENOL	10 U	[10.00]
Pesticides/PCBs (ug/L) [0.00]		
4,4'-DDD	0.1 U	[0.10]
4,4'-DDE	0.1 U	[0.10]
4,4'-DDT	0.1 U	[0.10]
ALDRIN	0.05 U	[0.01]
ALPHA-BHC	0.05 U	[0.01]
DIELDRIN	0.1 U	[0.01]
TOXAPHENE	5 U	[3.00]
Inorganics (ug/L)		
MAGNESIUM	10600	[10000.00]

LEGEND

- ⊕ Previous Sample Locations
- Existing Monitoring Well Locations
- ▭ Buildings



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CHECKED BY	DATE
COST/SCHEDULE-AREA	
SCALE AS NOTED	



SUMMARY OF ANALYTES IN GROUNDWATER
 EXCEEDING SCREENING CRITERIA
 PSC 54, FACILITY 290
 NAVAL AIR STATION CECIL FIELD
 JACKSONVILLE, FLORIDA

CONTRACT NUMBER 0039	
APPROVED BY	DATE
APPROVED BY	DATE
DRAWING NO. FIGURE 3-1	REV 0

4.0 FIELD INVESTIGATION

Two shallow groundwater-monitoring wells were installed by TtNUS in July 1999 to a depth of 15 feet below ground surface. The boring logs and groundwater monitoring well forms are provided in Appendix A. Groundwater samples were collected from the two new wells (CEF-P54-03S and CEF-P54-04S) and the existing well CEF-290-01S. One duplicate groundwater sample was collected for quality assurance/quality control (QA/QC) purposes at CEF-P54-03S. The field investigation was performed in accordance with the PSC 54 Sampling and Analysis Work Plan (TtNUS, 1999a). The monitoring well locations are shown on Figure 3-1.

Groundwater samples were collected in accordance with the procedures described in the U.S. Environmental Protection Agency (U.S. EPA) Region 4 Environmental Investigations Standard Operating Procedures and Quality Assurance Manual (U.S. EPA Region 4, 1996) and the NAS Cecil Field Base-Wide Generic Work Plan (TtNUS, 1998). As agreed by the BCT, no rinsate and trip blanks were collected.

The samples were analyzed for polycyclic aromatic hydrocarbons (PAHs) by U.S. EPA Method SW-846 8310. ACCUTEST SouthEast in Orlando, Florida performed the analyses.

5.0 NATURE AND EXTENT OF CONTAMINATION

Analytical results for the groundwater samples collected during the field investigation and associated FDEP Groundwater Cleanup Target Levels (GCTLs) are shown on Table 5-1. The complete laboratory data are provided in Appendix B. The results of the groundwater analysis did not identify groundwater PAH contamination in excess of the FDEP GCTL. The results were below the method detection limit. Based on the results of this sampling and analysis, no further action is required at this site.

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TABLE 5-1

**GROUNDWATER ANALYTICAL RESULTS
SUMMARY OF POSITIVE DETECTIONS
PSC 54 – FACILITY 290
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA**

Sample Location	FDEP GCTLs F.A.C. 62-777	CEF-290-01S	CEF-P54-03S		CEF-P54-04S
			Sample	Duplicate	
POLYCYCLIC AROMATIC HYDROCARBONS (ug/L)					
1-Methylnaphthalene	20	1 U	1 U	1 U	1 U
2-Methylnaphthalene	20	1 U	1 U	1 U	1 U
Acenaphthene	20	1 U	1 U	1 U	1 U
Acenaphthylene	210	2 U	2 U	2 U	2 U
Anthracene	2100	0.15 U	0.15 U	0.15 U	0.15 U
Benzo(a)anthracene	0.2	0.15 U	0.15 U	0.15 U	0.15 U
Benzo(a)pyrene	0.2	0.15 U	0.15 U	0.15 U	0.15 U
Benzo(b)fluoranthene	0.2	0.15 U	0.15 U	0.15 U	0.15 U
Benzo(g,h,i)perylene	210	0.2 U	0.2 U	0.2 U	0.2 U
Benzo(k)fluoranthene	0.5	0.15 U	0.15 U	0.15 U	0.15 U
Chrysene	4.8	0.15 U	0.15 U	0.15 U	0.15 U
Dibenzo(a,h)anthracene	0.2	0.25 U	0.25 U	0.25 U	0.25 U
Fluoranthene	280	0.2 U	0.2 U	0.2 U	0.2 U
Fluorene	280	0.2 U	0.2 U	0.2 U	0.2 U
Indeno(1,2,3-cd)pyrene	0.2	0.15 U	0.15 U	0.15 U	0.15 U
Naphthalene	20	1 U	1 U	1 U	1 U
Phenanthrene	210	0.15 U	0.15 U	0.15 U	0.15 U
Pyrene	210	0.2 U	0.2 U	0.2 U	0.2 U

FDEP GCTLs – Florida Department of Environmental Protection Groundwater Cleanup Target Levels in F.A.C. 62-777.

U – Not detected at the method detection limit

Samples collected July 15, 1999

6.0 PRELIMINARY RISK EVALUATION

PAHs were not detected in the most recent groundwater samples from PSC 54. The PAH detection limits were less than the FDEP GCTL; therefore, no human health PRE was performed.

The PAH detection limits were less than the U.S. EPA Region 4 Ecological Screening Values (U.S. EPA, 1998), so no ecological risk assessment was required.

7.0 CONCLUSIONS AND RECOMMENDATIONS

7.1 CONCLUSIONS

Conclusions pertaining to PSC 54, Facility 290 are as follows:

- PAHs were not detected in groundwater samples collected from the monitoring wells downgradient of the septic systems.
- Since the PAHs were not detected, no contaminants or pathways pose a threat to the public health, welfare, or the environment.

7.2 RECOMMENDATIONS

The final recommendation for PSC 54 is no further action. It is also recommended that the color classification of PSC 54 be changed from 5/Yellow to 3/Light Green to denote that releases of hazardous substances have occurred, but at concentrations that do not require a remedial response.

REFERENCES

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

ABB-ES, 1995. Sampling and Analysis Outline, Facility 290, Base Realignment and Closure, Zone H, Undeveloped Eastern Area, Group VII. NAS Cecil Field, Prepared for SOUTHNAVFACENGOM, North Charleston, South Carolina, March.

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

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

HLA, 1998. Confirmatory Sampling Report, Building 290A, Tank G290-A, Base Realignment and Closure, Underground Storage Tank and Aboveground Storage Tank Grey Sites. NAS Cecil Field, Jacksonville, Florida. Prepared for SOUTHNAVFACENCOM, North Charleston, South Carolina, November.

HLA, 1999. Sampling and Analysis Report, Facility 290, Base Realignment and Closure, Zone H, Undeveloped Eastern Area. NAS Cecil Field, Jacksonville, Florida. Prepared for SOUTHNAVFACENCOM, North Charleston, South Carolina, March.

Tetra Tech NUS, Inc. (TtNUS), 1998. Base-Wide Generic Work Plan at NAS Cecil Field, Jacksonville, Florida. Prepared for SOUTHNAVFACENCOM, North Charleston, South Carolina, October.

TtNUS, 1999a. Sampling and Analysis Work Plan, PSC 54, Facility 290, NAS Cecil Field. Prepared for SOUTHNAVFACENGOM, North Charleston, South Carolina, June.

TtNUS, 1999b. Remedial Investigation for Site 36 – Control Tower TCE Plume and Site 37 – Hangars 13 and 14 DCE Plume. NAS Cecil Field, Jacksonville, Florida. Prepared for SOUTHNAVFACENGOM, North Charleston, South Carolina, August.

U.S. Environmental Protection Agency, Region 4 (U.S. EPA), 1996. Environmental Investigations Standard Operating Procedures and Quality Assurance Manual (EISOPQAM), Athens, Georgia.

APPENDIX A

SOIL BORING LOGS AND GROUNDWATER MONITORING FORMS



Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: NAS CECIL FIELD BORING NUMBER: CEF-P54-001
 PROJECT NUMBER: 0039 DATE: 7/8/99
 DRILLING COMPANY: Groundwater Protection GEOLOGIST: A. Wilcox
 DRILLING RIG: DeWitt D-25 DRILLER: S. Mowbray

Sample No. and Type or ROD	Depth (Pt.) or Run No.	Blows / 5' of ROD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/FL) or Screened Interval	MATERIAL DESCRIPTION			U S C S	Remarks	PIV/FID Reading (ppm)			
					Soil Density/Consistency or Rock Hardness	Color	Material Classification			Sample	Ammonia	Nitrate	Urea
	0-4	/	N/A			DL CLAY	F SILTY SAND DIG MAT	SC	DRY	0			0
	4-7	/				DL BEU	F SILTY SAND w/SOME CLAY	SC SM	MDIST WET				
	7-15	/	↓			DL BEU	F SILTY SAND w/SOME CLAY	SC SM	WET				↓
		/					EOB 15'						

* When rock coring, enter rock brokeness.
 - Include monitor reading in 8 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Remarks: Screened interval 5-15

Drilling Area
 Background (ppm): 0.00

Converted to Well: Yes No Well I.D. #: CEF-P54-25



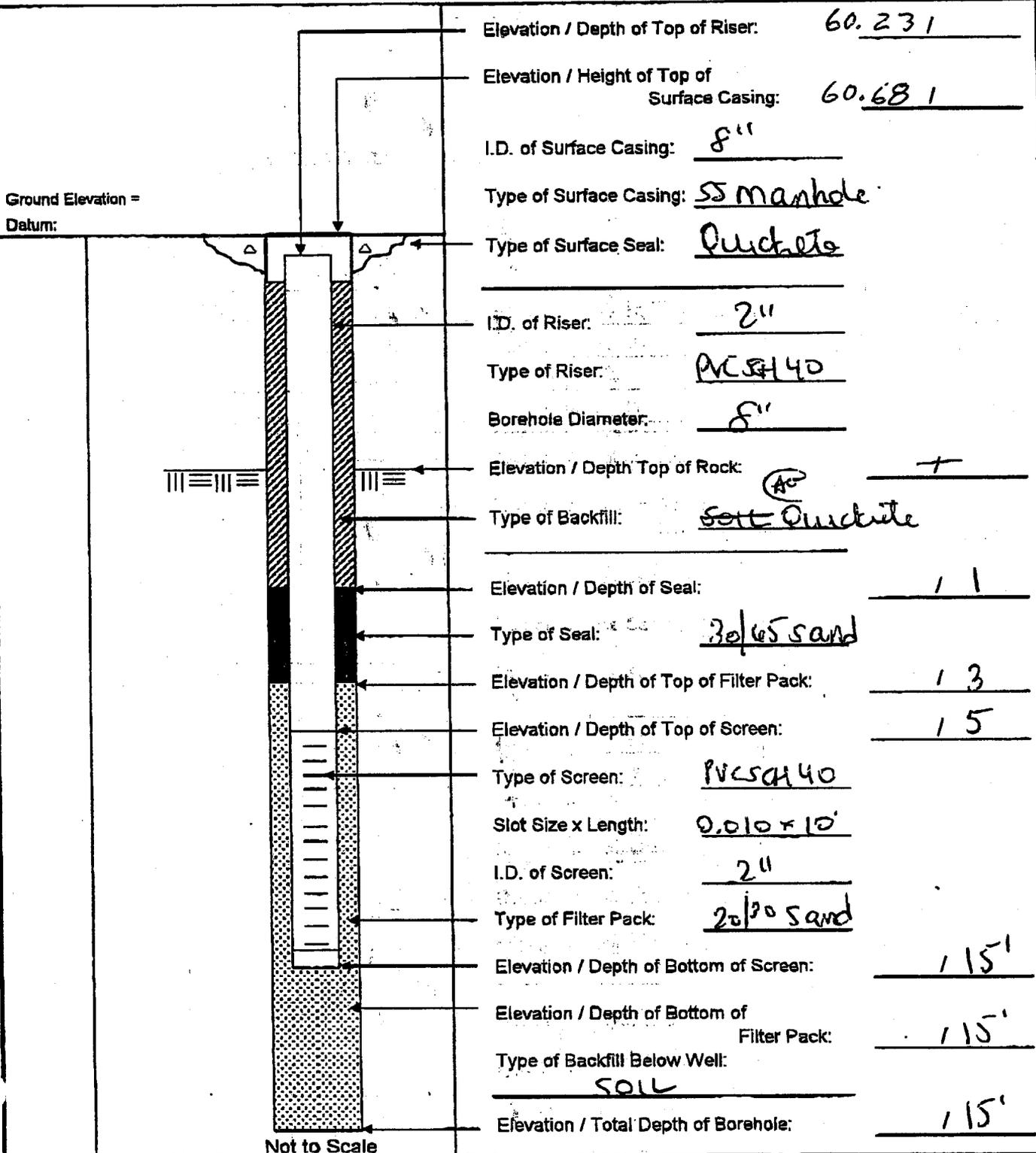
Tetra Tech NUS, Inc.

WELL No.:

CE-PS4-00 ³⁵ _{AW}

MONITORING WELL SHEET

PROJECT: NAS CECIL FIELD DRILLING Co.: Compound Protection BORING No.: CE-PS4-001
 PROJECT No.: 0039 DRILLER: Share Moulder DATE COMPLETED: 7/8/99
 SITE: NASCF 0254 DRILLING METHOD: HSA NORTHING: 2137287.09
 GEOLOGIST: Awilco DEV. METHOD: Submersible EASTING: 382043.51



P. 4/16

Tetra Tech NUS, Inc.
CERTIFICATE OF CONFORMANCE

Well Designation: CEF-PSY-35
 Site Name: PSC 54
 Date Installed: 7/8/99
 Project Name: PSC5

Site Geologist: A. Wilcox
 Drilling Company: Groundwater Protection
 Driller: S Nowlen
 Project Number: 0089

Material	Brand/Description	Source/Supplier	Sample Collected ?
Well Casing	PVC 2" SCH. 40	Toney Drilling	NO
Well Screen	PVC 2" SCH. 40 0.010 x 10'	↓	↓
End Cap	Expandable Lock Caps	↓	
Drilling Fluid	-		
Drilling Fluid Additives	-		
Backfill Material	Soil		
Annular Filter Pack	20/30 sand	Standard Sand	
Bentonite Seal	30/65 sand	↓	
Annular Grout	Quickrete	Quickrete	
Surface Cement	Quickrete	↓	
Protective Casing	SS manhole 4"	Toney Drilling	
Paint	-		
Rod Lubricant	-		
Compressor Oil	-		

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

Signature of Site Geologist: A. Wilcox

JUL 09 '99 06:02PM TETRA TECH NUS JAX



Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: NAS CECIL FIELD BORING NUMBER: CGF-PS4-002
 PROJECT NUMBER: 0039 DATE: 7/1/99
 DRILLING COMPANY: Groundwater Protection GEOLOGIST: A Wilcox
 DRILLING RIG: Deerick 025 DRILLER: S Nowden

Sample No. and Type or ROD	Depth (FL) or Run No.	Blows / 6" or ROD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/FT) or Screened Interval	MATERIAL DESCRIPTION			U S C S	Remarks	PID/FID Reading (ppm)				
					Soil Density / Compaction / Moisture	Color	Material Classification			TOC	THC	THM	THM	
	0-2	/	N/A			OL 6007	F SAND W/DEG MAT AND SOME BAD MAT	MSM	DRY		0			0
	2-8	/	↓			OL 6007	F SILTY SAND W/SOME CLAY	SM SC	DAMP WET					
	8B	/	↓			OL 6007	F SILTY SAND W/ SOME CLAY	SM SC	WET					
		/					EOB 13'							

* When rock coring, enter rock brokenness.

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

Remarks: Screen depth is 13' due to shallower water table at 5'

Drilling Area

Background (ppm): ND

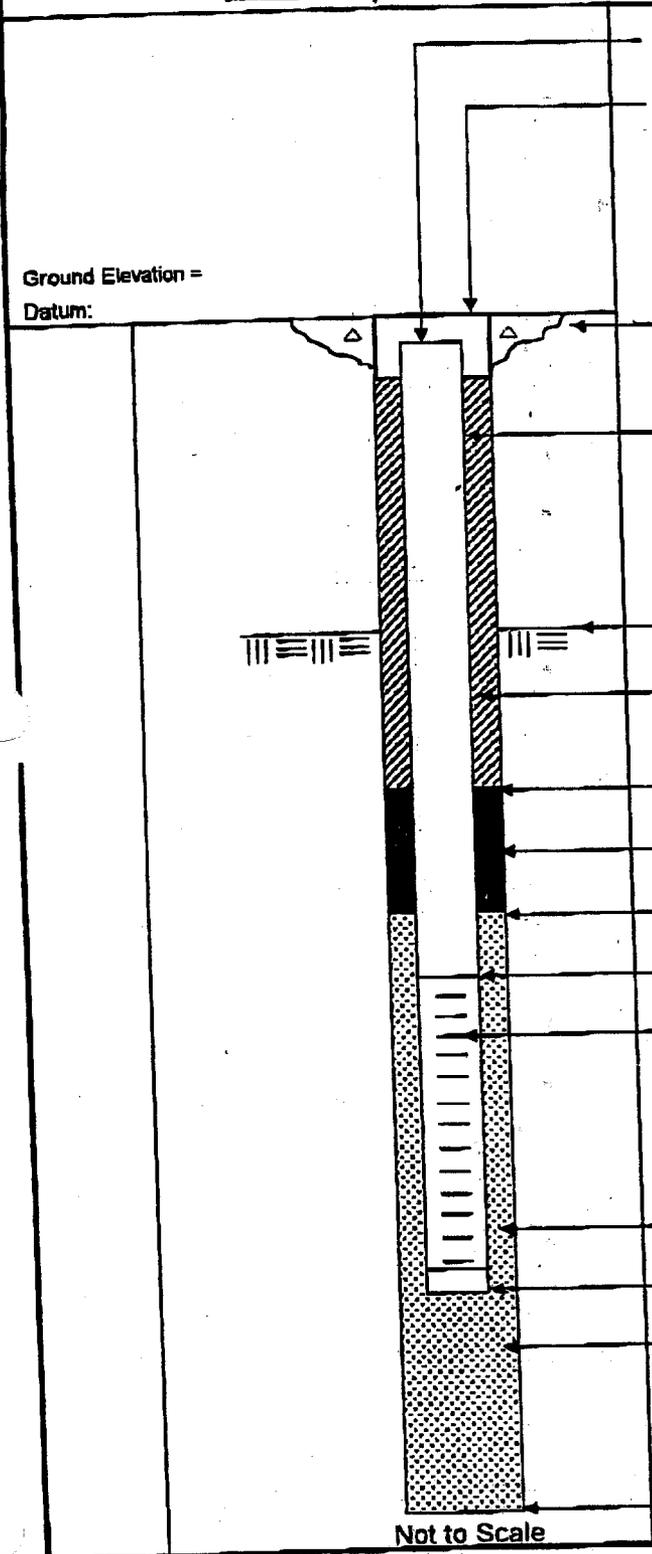
Converted to Well: Yes No

Well I.D. #: CGF-PS4-45



MONITORING WELL SHEET

PROJECT: NAS CECIL FIELD DRILLING Co.: Grandwater Packer BORING No.: CEP-PS4-002
 SUBJECT No.: 0039 DRILLER: Shane Nowlan DATE COMPLETED: 7/8/99
 SITE: PSC54 DRILLING METHOD: HDA NORTHING: 2137346.28
 GEOLOGIST: Amelcorp DEV. METHOD: Submersible EASTING: 381979.17



Elevation / Depth of Top of Riser: 60.061
 Elevation / Height of Top of Surface Casing: 60.411
 I.D. of Surface Casing: 8"
 Type of Surface Casing: SS Manhole
 Type of Surface Seal: Quicket
 I.D. of Riser: 2"
 Type of Riser: PVCsch40
 Borehole Diameter: 8"
 Elevation / Depth Top of Rock: 1-
 Type of Backfill: Quicket
 Elevation / Depth of Seal: 11.5
 Type of Seal: 30/65 Sand
 Elevation / Depth of Top of Filter Pack: 12.5
 Elevation / Depth of Top of Screen: 13
 Type of Screen: PVCsch402"
 Slot Size x Length: 0.010 x 10stk
 I.D. of Screen: 2"
 Type of Filter Pack: 20/30 sand
 Elevation / Depth of Bottom of Screen: 113'
 Elevation / Depth of Bottom of Filter Pack: 113'
 Type of Backfill Below Well: Soil
 Elevation / Total Depth of Borehole: 113'

Not to Scale

March 27, 1997

Tetra Tech NUS, Inc.
CERTIFICATE OF CONFORMANCE

Well Designation: CEF-P84-45
 Site Name: NASCF PSC 54
 Date Installed: 7/8/99
 Project Name: PSC

Site Geologist: A. Wilcox
 Drilling Company: Groundwater Protection
 Driller: S. Nowlan
 Project Number: 0039

Material	Brand/Description	Source/Supplier	Sample Collected ?
Well Casing	PVC SCH. 40 2"	Toney Drilling	No ↓
Well Screen	PVC SCH. 40 2" 0.010x10'	↓	
End Cap	Expandable Locking Cap		
Drilling Fluid	-		
Drilling Fluid Additives	-		
Backfill Material	Soil		
Annular Filter Pack	20/30 Sand	Standard Sand	
Bentonite Seal	30/65 Sand	↓	
Annular Grout	Quickrete	Quickrete	
Surface Cement	Quickrete	↓	
Protective Casing	SB Manhole	Toney Drilling	↓
Paint	-		
Rod Lubricant	-		
Compressor Oil	-		

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

Signature of Site Geologist: A. Wilcox

APPENDIX B

ANALYTICAL LABORATORY RESULTS

MEMO TO: MR. M. SPERANZA
DATE: AUGUST 18, 1999 – PAGE 2

EXECUTIVE SUMMARY

Laboratory performance: The continuing calibration %Ds exceeded the 15% quality control limits for benzo(a)pyrene on column two.

Other Factors Affecting Data Quality: None.

The data for these analyses were reviewed with reference to the EPA Functional Guidelines for Organic Data Validation (February, 1994), and the NFESC guidelines "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

CTO078 - NAS CECIL FIELD
WATER DATA
Accutest, NJ
SDG: F4524

SAMPLE NUMBER:	CEF-290-GW-01S-1	CEF-P54-GW-03S-1	CEF-P54-GW-04S-1	CEF-P54-GW-DU01
SAMPLE DATE:	07/14/99	07/15/99	07/15/99	07/15/99
LABORATORY ID:	F4524-1	F4524-2	F4524-3	F4524-4
QC_TYPE:	NORMAL	NORMAL	NORMAL	NORMAL
% SOLIDS:	0.0 %	0.0 %	0.0 %	0.0 %
UNITS:	UG/L	UG/L	UG/L	UG/L
FIELD DUPLICATE OF:				CEF-P54-GW-03S-1

	RESULT	QUAL	CODE									
POLYNUCLEAR AROMATIC HYDROCARBONS												
1-METHYLNAPHTHALENE	1	U		1	U		1	U		1	U	
2-METHYLNAPHTHALENE	1	U		1	U		1	U		1	U	
ACENAPHTHENE	1	U		1	U		1	U		1	U	
ACENAPHTHYLENE	2	U		2	U		2	U		2	U	
ANTHRACENE	0.15	U										
BENZO(A)ANTHRACENE	0.15	U										
BENZO(A)PYRENE	0.15	U										
BENZO(B)FLUORANTHENE	0.15	U										
BENZO(G,H,I)PERYLENE	0.2	U										
BENZO(K)FLUORANTHENE	0.15	U										
CHRYSENE	0.15	U										
DIBENZO(A,H)ANTHRACENE	0.25	U										
FLUORANTHENE	0.2	U										
FLUORENE	0.2	U										
INDENO(1,2,3-CD)PYRENE	0.15	U										
NAPHTHALENE	1	U		1	U		1	U		1	U	
PHENANTHRENE	0.15	U										
PYRENE	0.2	U										



Report of Analysis

Client Sample ID: CEF-290-GW-01S-1
Lab Sample ID: F4524-1
Matrix: AQ - Ground Water
Method: EPA 8310
Project: NAS Cecil Field

Date Sampled: 07/14/99
Date Received: 07/16/99
Percent Solids: n/a

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a		1	08/08/99	SUB	n/a	n/a	R6962
Run #2							

CAS No.	Compound	Result	RDL	Units	Q
83-32-9	Acenaphthene	ND	1.0	ug/l	
208-96-8	Acenaphthylene	ND	2.0	ug/l	
120-12-7	Anthracene	ND	0.15	ug/l	
56-55-3	Benzo(a)anthracene	ND	0.15	ug/l	
50-32-8	Benzo(a)pyrene	ND	0.15	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	0.15	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	0.20	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	0.15	ug/l	
218-01-9	Chrysene	ND	0.15	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	0.25	ug/l	
206-44-0	Fluoranthene	ND	0.20	ug/l	
86-73-7	Fluorene	ND	0.20	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.15	ug/l	
91-20-3	Naphthalene	ND	1.0	ug/l	
90-12-0	1-Methylnaphthalene	ND	1.0	ug/l	
91-57-6	2-Methylnaphthalene	ND	1.0	ug/l	
85-01-8	Phenanthrene	ND	0.15	ug/l	
129-00-0	Pyrene	ND	0.20	ug/l	

(a) Analyzed By Accutest Southeast Subcontract Lab.

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 block
N = Indicates presumptive evidence of a compound

000003



Report of Analysis

Client Sample ID: CEF-P54-GW-03S-1	
Lab Sample ID: F4524-2	Date Sampled: 07/15/99
Matrix: AQ - Ground Water	Date Received: 07/16/99
Method: EPA 8310	Percent Solids: n/a
Project: NAS Cecil Field	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a		1	08/08/99	SUB	n/a	n/a	R6962
Run #2							

CAS No.	Compound	Result	RDL	Units	Q
83-32-9	Acenaphthene	ND	1.0	ug/l	
208-96-8	Acenaphthylene	ND	2.0	ug/l	
120-12-7	Anthracene	ND	0.15	ug/l	
56-55-3	Benzo(a)anthracene	ND	0.15	ug/l	
50-32-8	Benzo(a)pyrene	ND	0.15	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	0.15	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	0.20	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	0.15	ug/l	
218-01-9	Chrysene	ND	0.15	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	0.25	ug/l	
206-44-0	Fluoranthene	ND	0.20	ug/l	
86-73-7	Fluorene	ND	0.20	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.15	ug/l	
91-20-3	Naphthalene	ND	1.0	ug/l	
90-12-0	1-Methylnaphthalene	ND	1.0	ug/l	
91-57-6	2-Methylnaphthalene	ND	1.0	ug/l	
85-01-8	Phenanthrene	ND	0.15	ug/l	
129-00-0	Pyrene	ND	0.20	ug/l	

(a) Analyzed By Accutest Southeast Subcontract Lab.

ND = Not detected
RDL = Reported Detection Limit
E = Indicates value exceeds calibration range

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



Report of Analysis

Client Sample ID: CEF-P54-GW-04S-1 Lab Sample ID: F4524-3 Matrix: AQ - Ground Water Method: EPA 8310 Project: NAS Cecil Field	Date Sampled: 07/15/99 Date Received: 07/16/99 Percent Solids: n/a
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Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a		1	08/08/99	SUB	n/a	n/a	R6962
Run #2							

CAS No.	Compound	Result	RDL	Units	Q
83-32-9	Acenaphthene	ND	1.0	ug/l	
208-96-8	Acenaphthylene	ND	2.0	ug/l	
120-12-7	Anthracene	ND	0.15	ug/l	
56-55-3	Benzo(a)anthracene	ND	0.15	ug/l	
50-32-8	Benzo(a)pyrene	ND	0.15	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	0.15	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	0.20	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	0.15	ug/l	
218-01-9	Chrysene	ND	0.15	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	0.25	ug/l	
206-44-0	Fluoranthene	ND	0.20	ug/l	
86-73-7	Fluorene	ND	0.20	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.15	ug/l	
91-20-3	Naphthalene	ND	1.0	ug/l	
90-12-0	1-Methylnaphthalene	ND	1.0	ug/l	
91-57-6	2-Methylnaphthalene	ND	1.0	ug/l	
85-01-8	Phenanthrene	ND	0.15	ug/l	
129-00-0	Pyrene	ND	0.20	ug/l	

(a) Analyzed By Accutest Southeast Subcontract Lab.

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 bi
 N = Indicates presumptive evidence of a compound

000005



Report of Analysis

Client Sample ID: CEF-P54-GW-DU01
Lab Sample ID: F4524-4
Matrix: AQ - Ground Water
Method: EPA 8310
Project: NAS Cecil Field

Date Sampled: 07/15/99
Date Received: 07/16/99
Percent Solids: n/a

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a		1	08/08/99	SUB	n/a	n/a	R6962
Run #2							

CAS No.	Compound	Result	RDL	Units	Q
83-32-9	Acenaphthene	ND	1.0	ug/l	
208-96-8	Acenaphthylene	ND	2.0	ug/l	
120-12-7	Anthracene	ND	0.15	ug/l	
56-55-3	Benzo(a)anthracene	ND	0.15	ug/l	
50-32-8	Benzo(a)pyrene	ND	0.15	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	0.15	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	0.20	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	0.15	ug/l	
218-01-9	Chrysene	ND	0.15	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	0.25	ug/l	
206-44-0	Fluoranthene	ND	0.20	ug/l	
86-73-7	Fluorene	ND	0.20	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.15	ug/l	
91-20-3	Naphthalene	ND	1.0	ug/l	
90-12-0	1-Methylnaphthalene	ND	1.0	ug/l	
91-57-6	2-Methylnaphthalene	ND	1.0	ug/l	
85-01-8	Phenanthrene	ND	0.15	ug/l	
129-00-0	Pyrene	ND	0.20	ug/l	

(a) Analyzed By Accutest Southeast Subcontract Lab.

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

030006