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NAS CECIL FIELD, FL
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FOURTH QUARTER 2005 OPERATIONS AND MAINTENANCE STATUS REPORT FOR DAY
TANK 1 SITE NAS CECIL FIELD FL
3/1/2006
TERRAINE INC ENVIRONMENTAL SERVICES

**FOURTH QUARTER 2005
Operations and Maintenance
Status Report
October 1, 2005 to December 31, 2005**

DAY TANK 1 SITE

**Contract No. N62467-02-G-0352
Contract Task Order No. 0001**

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

Submitted to:

**U.S. Naval Facilities
Engineering Command
Southern Division**

Prepared by:

SIGNATURE PAGE

We, the undersigned, do hereby affirm that the information contained in this report is accurate and correct to the best of our knowledge and belief.

James L. Young, P.G., REM President/CEO TERRAINE, Inc.	Date	<u>PG-FL2090, REM-6089</u> Registration Nos.
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Karen L. Baer Field Superintendent TERRAINE, Inc.	Date
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ACRONYMS

BOA	Basic Ordering Agreement
°C	Degrees Celsius
CTO	Contract Task Order
DO	Dissolved Oxygen
EPA	Environmental Protection Agency
FAC	Florida Administrative Code
FDEP	Florida Department of Environmental Protection
Ft.	Feet
Gal.	Gallon
Gal/min	Gallon per minute
GCTL	Groundwater Cleanup Target Levels
IDW	Investigation Derived Waste
LNAPL	Light Non-Aqueous Phase Liquids
mg/L	Milligrams per liter
µS/cm	Microsiemens per centimeter
mS/cm	Millisiemens per centimeter
mV	millivolts
NA	Not Analyzed / Not Available
NADSC	Natural Attenuation Default Source Criteria
NAS	Naval Air Station
NAVFAC	Naval Facilities Engineering Command
ND	Non Detect
NGVD	National Geodetic Vertical Datum
NM	Not Measured
NS	Not sampled
NTU	Nephelometric Turbidity Units
O&M	Operation and Maintenance
ORP	Oxidation Reduction Potential
S.U.	Standard Unit
SVOA	Semi-Volatile Organic Aromatics
SVOC	Semi-Volatile Organic Compounds
TERRAINE	Terraine Environmental Services, Inc.
VEW	Vapor Extraction Well
VOA	Volatile Organic Aromatics
VOC	Volatile Organic Compounds

EXECUTIVE SUMMARY

SCOPE

The objective of the remedial action at the site of Day Tank 1 was to reduce the concentrations of petroleum-related contaminants in the groundwater and unsaturated soils to target levels specified by Chapter 62-777 Florida Administrative Code (FAC). A biosparge and vapor extraction system was selected as the remediation system for the site.

Due to the substantial reduction of contaminant concentrations in wells within the area of influence of the remediation system, the Florida Department of Environmental Protection (FDEP) approved deactivating the remediation system on approximately August 15, 2003. Post-active remediation monitoring in accordance with Chapter 62-770.750, FAC began at that time.

As a part of the post-active remediation monitoring, the following wells were to be sampled quarterly for volatile organic aromatics (VOAs) and semi-volatile organic aromatics (SVOAs) for a period of one year to evaluate rebound: vapor extraction wells VEW-2, VEW-3, VEW-4, VEW-5, and VEW-7; and monitoring wells CEF-293-9, and CEF-293-22.

On September 30, 2004, the FDEP recommended to begin sampling groundwater from vapor extraction well VEW-1. Groundwater sampling at this location began during the 4th quarter of 2004.

In November 2005, FDEP agreed with the recommendation to monitor additional sampling locations (CEF-293-2, CEF-293-13, VEW-6, and VEW-8) to better determine site conditions. These additional wells were sampled in December 2005.

The purpose of this quarterly Groundwater Monitoring Report is to provide a summary of activities performed at the site during the period of October 1, 2005 to December 31, 2005.

CONCLUSIONS AND RECOMMENDATIONS

Excavation activities at and near the site began between the September 2003 and December 2003 sampling events and continued through September 2004. Excavation was performed on site to the north of the remediation system facility and offsite to the north of the Day Tank 1 site. Possible rebound, first noted in December 2003, may have been a result of once adsorbed contaminants being released into groundwater during the beginning of excavation activities. Currently, however, contaminant concentrations in groundwater sampled indicate decreasing or stabilizing concentrations in comparison to previous sampling events.

At this time, reactivating the system is not necessary and monitoring may continue based on the following:

- Free product is not present in any of the sampled monitoring wells at the Day Tank 1 site.
- Contaminants of concern present in groundwater at concentrations greater than their applicable Groundwater Cleanup Target Levels (GCTLs) do not appear to be migrating off-site. Contaminant concentrations in groundwater sampled from down-gradient wells (VEW-5, VEW-6, and CEF-293-22) were nondetect in December 2005.
- The current data indicate a general decrease in contaminant concentrations in comparison to data obtained during and immediately following excavation activities.
- The current data indicate no contaminant concentrations exceeding the Natural Attenuation Default Source Concentrations (NADSC).

Therefore, Terraine recommends the following:

- Continue groundwater sampling from monitoring wells CEF-293-2, CEF-293-9, CEF-293-13, and CEF-293-22 and vapor extraction wells VEW-1, VEW-2, VEW-3, VEW-4, VEW-5, VEW-6, VEW-7, and VEW-8 on a quarterly basis.
- Reevaluate the monitoring program in December 2006.

OPERATIONS AND MAINTENANCE STATUS REPORT

DAY TANK 1 SITE

NAVAL AIR STATION, CECIL FIELD

JACKSONVILLE, FLORIDA

DECEMBER 2005

<i>PREPARED FOR:</i>	Mr. Mark Davidson - SOUTHDIV
<i>PREPARED BY:</i>	<i>TERRAINE, Inc.</i>
<i>PERIOD OF PERFORMANCE:</i>	October 1, 2005 to December 31, 2005
<i>FIELD TEAM:</i>	Karen Baer, Larry Wolski
<i>CONTRACT NUMBER:</i>	N62467-02-G-0352
<i>TASK ORDER NUMBER:</i>	0001
<i>TASK ORDER MANAGER:</i>	James L. Young, P.G.; REM
<i>SUBMITTAL DATE:</i>	March 2006

1.0 INTRODUCTION

Terraine, Inc. (TERRAINE) has been contracted by the Department of the Navy, Southern Division Naval Facilities Engineering Command (NAVFAC), to provide Operation and Maintenance (O&M) services at Day Tank 1, Naval Air Station (NAS) Cecil Field, Jacksonville, Florida, under **Basic Ordering Agreement (BOA) Contract No. N62467-02-G-0352, Contract Task Order (CTO) No. 0001**. The purpose of this O&M Report is to provide a summary of activities performed at the site during the period of October 1, 2005 to December 31, 2005.

1.1 Purpose

The objective of the remedial action at the Day Tank 1 site was to reduce the concentrations of petroleum-related contaminants in the groundwater and unsaturated soils to target levels specified by Chapter 62-777 FAC. Biosparging/vapor collection was the technology utilized to achieve this objective.

A system description and a site background and history summary are included in the First Quarter 2004 Operations and Maintenance Status Report submitted by TERRAINE.

1.2 Site Location and Description

The Day Tank 1 site is located at the former NAS Cecil Field, approximately 1/8 mile south of the "A" Avenue gate on Jet Road. A base map illustrating the site location is included in **Figure 1, Appendix A**. A site map is included in **Figure 2, Appendix A**.

2.0 INVESTIGATION AND METHODOLOGY SUMMARY

2.1 System Performance Monitoring

A post-active remediation system check was performed on December 8, 2005. No operations issues were noted at this time.

2.2 Summary of Maintenance

No maintenance was performed on the system during the 4th Quarter 2005.

2.3 Water Level Measurements

Depth-to-groundwater measurements were recorded on December 8, 2005 at the Day Tank 1 site. Using data collected, a groundwater elevation map indicated a groundwater flow pattern to the southeast, away from well VEW-1 and is included in **Figure 3, Appendix A**. The top-of-casing elevations, historical calculated Light Non-Aqueous Phase Liquids (LNAPL) thickness, historical depth-to-LNAPL measurements, depth-to-water measurements, and calculated water level elevations are provided in **Table 1, Appendix B**.

No LNAPL was detected in any of the monitoring wells or vapor extraction wells during the Fourth Quarter 2005.

2.4 Groundwater Sampling

2.4.2 Methodology

Groundwater sampling was conducted at Day Tank 1 on December 8, 2005. Four (4) monitoring wells (CEF-293-2, CEF-293-9, CEF-293-13, and CEF-293-22) and eight (8) vapor extraction wells (VEW-1, VEW-2, VEW-3, VEW-4, VEW-5, VEW-6, VEW-7, and VEW-8) were purged and sampled using the low-flow methodology. Purging of wells consisted of removing groundwater with a Nomad[®] submersible pump or a Geotech[®] peristaltic pump at a flow rate equal to or less than the groundwater recharge rate in the well until field parameters (temperature, pH, conductivity, turbidity, Dissolved Oxygen [DO] and Oxidation Reduction Potential [ORP]) had stabilized. Water levels in the wells were continuously monitored to maintain drawdown at less than 0.3 feet.

The results from the field measurements are summarized on **Table 2, Appendix B**. Copies of the groundwater purging/sampling logs including all field parameter measurements are provided in **Appendix C**.

2.4.2 Chemical Analysis Suite

Groundwater samples from the monitoring wells were laboratory analyzed for the following analyte suite:

- Volatile Organic Compounds (VOCs) by U.S. Environmental Protection Agency (EPA) Method 8260B
- Semi Volatile Organic Compounds (SVOCs) by EPA Method 8270C

2.5 Investigative Derived Waste

Purge water collected from the monitoring wells was collected and containerized. All investigative derived waste (IDW) is stored at the Day Tank 1 remediation compound site in 55-gallon drums and will be transported to Industrial Water Services in Jacksonville, Florida by Southern Waste Services Environmental First Response within 90 days of the December 8, 2005 sampling event.

3.0 SUMMARY OF SAMPLING AND LABORATORY ANALYTICAL RESULTS

3.1 Data Validation

A review of quality control data was performed. This review evaluated data completeness, holding time compliance, laboratory blank contamination, and detection limits. The validation process resulted in qualifiers that are shown with the analyte concentrations in **Table 2, Appendix B**.

3.2 Groundwater Monitoring

3.2.1 VOCs

- Groundwater sampled from vapor extraction well VEW-7 exhibited benzene concentrations (2.05 µg/L) greater than the GCTL.
- Groundwater sampled from monitoring well VEW-4 exhibited xylene concentrations greater than the GCTL (31.0 µg/L).
- Groundwater sampled from monitoring wells CEF-293-2 (22.1 µg/L) and CEF-293-9 (87.7 µg/L) and vapor extraction wells VEW-1 (22.5 µg/L), VEW-7 (60.2 µg/L), and VEW-8 (80.7 µg/L) exhibited naphthalene concentrations greater than the GCTL by EPA Method 8260.
- Groundwater sampled from monitoring well CEF-293-9 (25.1 µg/L) and vapor extraction wells VEW-1 (57.2 µg/L), VEW-2 (14.1 µg/L) and VEW-8 (76.4 µg/L) exhibited 1,2,4-trimethylbenzene concentrations greater than the GCTL. Groundwater sampled from monitoring well CEF-293-9 and vapor extraction well VEW-8 exhibited 1,3,5-trimethylbenzene concentrations greater than the GCTL (11.4 µg/L and 27.2 µg/L, respectively).

3.2.2 PAHs

- Groundwater sampled from monitoring well CEF-293-2 and vapor extraction wells VEW-7 and VEW-8 exhibited naphthalene concentrations greater than the GCTL by EPA Method 8270 (30.1 µg/L, 61.9 µg/L, and 42.9 µg/L, respectively).
- Groundwater sampled from vapor extraction well VEW-7 exhibited 1-methylnaphthalene and 2-methylnaphthalene concentrations greater than the GCTL (21.9 µg/L and 20.8 µg/L, respectively).

4.0 CONCLUSIONS AND RECOMMENDATIONS

Excavation activities at and near the site began between the September 2003 and December 2003 sampling events and continued through September 2004. Excavation was performed on site to the north of the remediation system facility and offsite to the north of the Day Tank 1 site. Possible rebound, first noted in December 2003, may have been a result of once adsorbed contaminants being released into groundwater during the beginning of excavation activities. Currently, however, contaminant concentrations in groundwater sampled indicate decreasing or stabilizing concentrations in comparison to previous sampling events.

At this time, reactivating the system is not necessary and monitoring may continue based on the following:

- Free product is not present in any of the sampled monitoring wells at the Day Tank 1 site.
- Contaminants of concern present in groundwater at concentrations greater than their applicable GCTLs do not appear to be migrating off-site. Contaminant concentrations in groundwater sampled from down-gradient wells (VEW-5, VEW-6, and CEF-293-22) were nondetect in December 2005.
- The current data indicate a general decrease in contaminant concentrations in comparison to data obtained during and immediately following excavation activities.
- The current data indicate no contaminant concentrations exceeding the NADSC.

Therefore, Terraine recommends the following:

- Continue groundwater sampling from monitoring wells CEF-293-2, CEF-293-9, CEF-293-13, and CEF-293-22 and vapor extraction wells VEW-1, VEW-2, VEW-3, VEW-4, VEW-5, VEW-6, VEW-7, and VEW-8 on a quarterly basis.
- Reevaluate the monitoring program in December 2006.

5.0 REFERENCES

Terraine, Inc. First Quarter 2004 Operation and Maintenance Status Report, Biosparging and Soil Vapor Extraction System, Day Tank 1 Site, Naval Air Station, Cecil Field, Jacksonville, Florida.

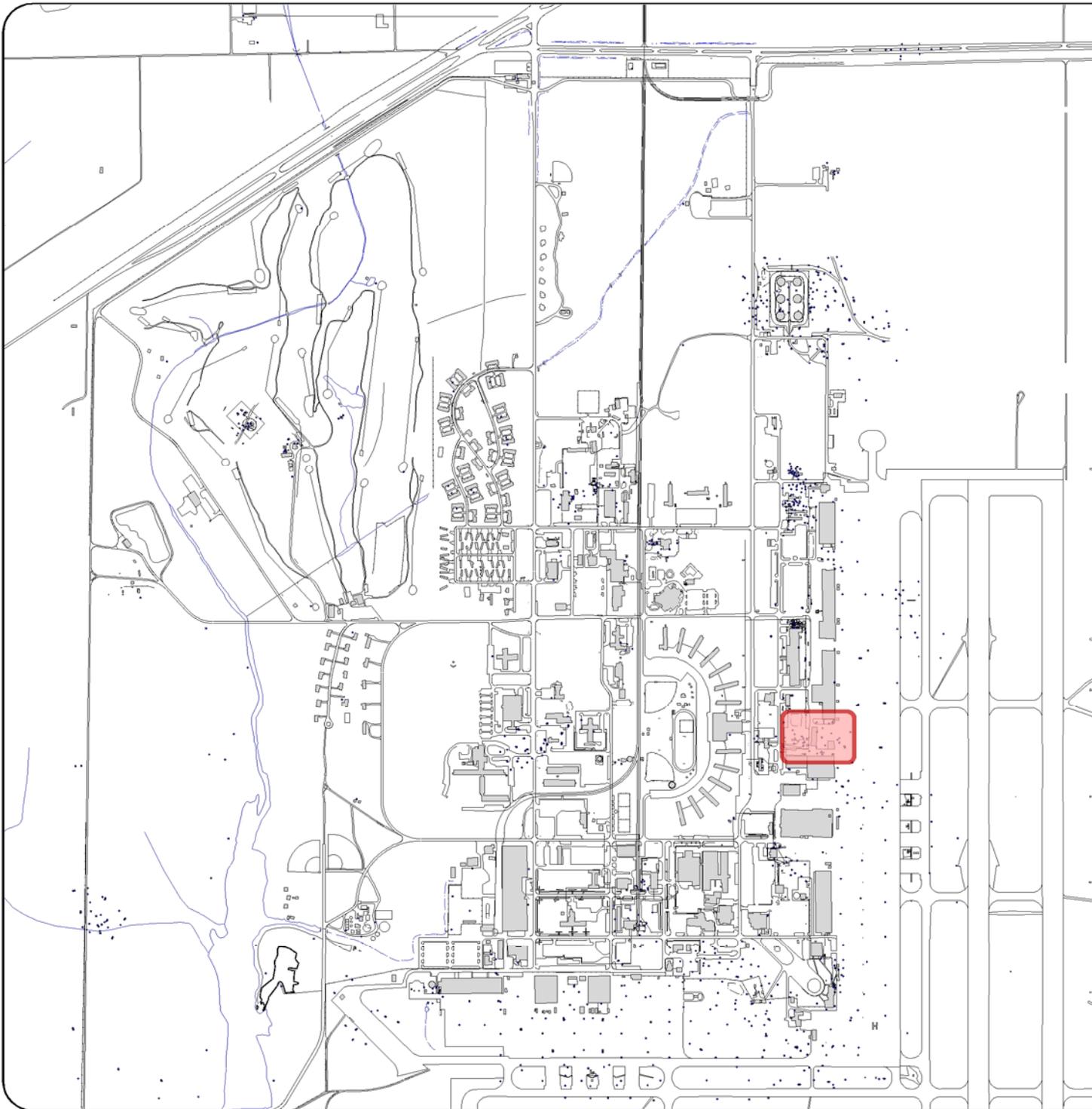
APPENDIX A

FIGURES

Figure 1 *Site Location Map, Day Tank 1*

Figure 2 *Site Map, Day Tank 1*

Figure 3 *Groundwater Elevation Map, December 2005*



NOTES

Sources: Environmental IR Gateway (www.sdirport.com)

LEGEND

 APPROXIMATE SITE BOUNDARY

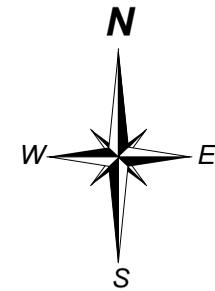
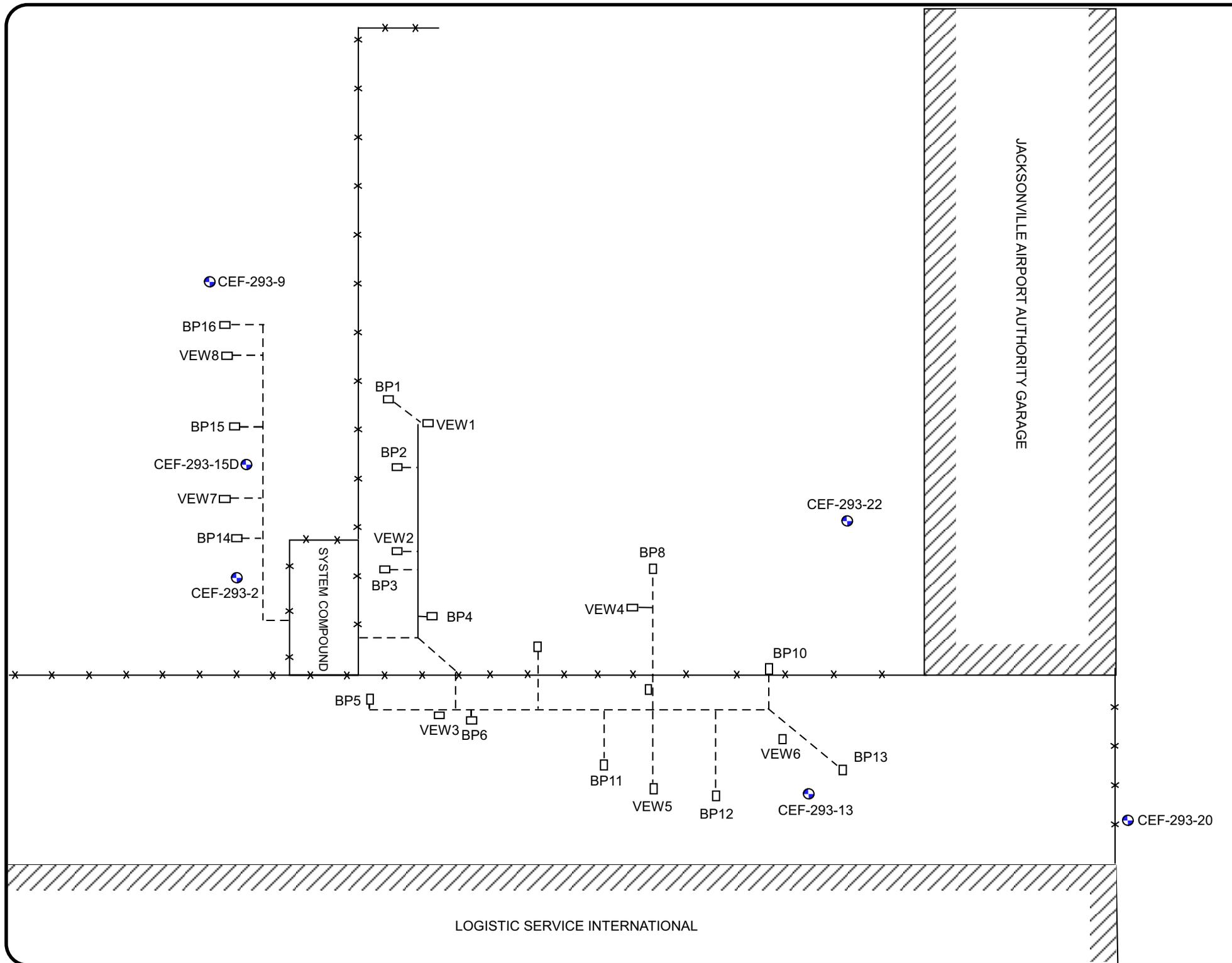
0  0.25 0.5
APPROXIMATE SCALE IN MILES



**NAS CECIL FIELD
FIGURE 1: SITE LOCATION MAP
DAY TANK 1**

Prepared For:
U.S. Naval Facilities Engineering
Command, Southern Division

DWN BY: LFW	CHK BY: KBG
SCALE: SEE LEGEND	APR BY: JLY
DATE: 10/12/04	FILE: N/A

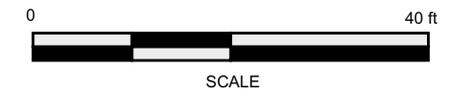


NOTES

DASHED LINES INDICATE SUBSURFACE FEATURES

LEGEND

- x — x — FENCE
- - - - UNDERGROUND LINES
- VAULT COVER
- MONITORING WELL



**NAS CECIL FIELD
FIGURE 2: SITE MAP
DAY TANK 1**

Prepared For:
U.S. Naval Facilities Engineering
Command, Southern Division

DWN BY: JLY

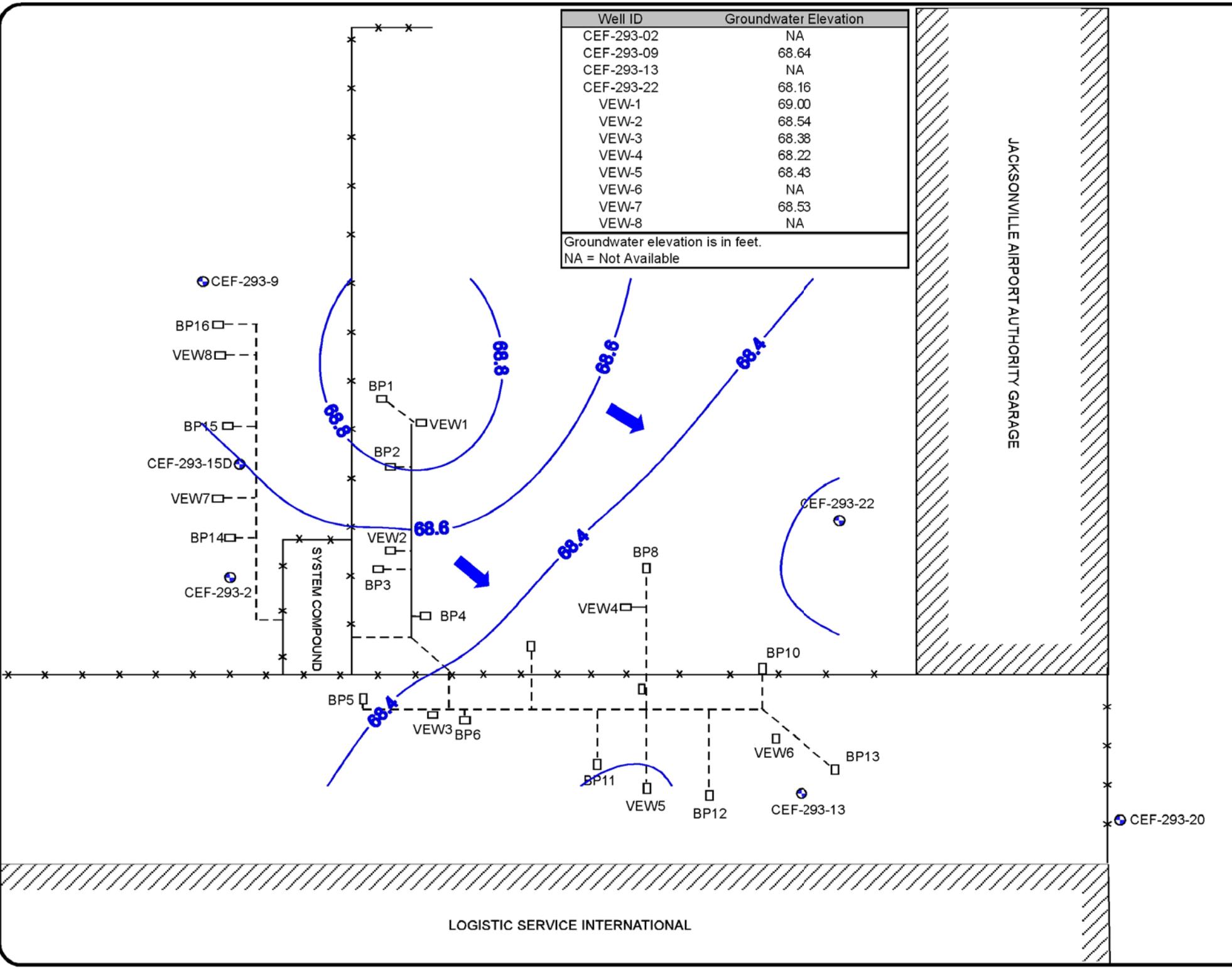
CHK BY:
MJP

SCALE: SEE LEGEND

APR BY: JLY

DATE: 8-03-05

FILE: 04-41001



Well ID	Groundwater Elevation
CEF-293-02	NA
CEF-293-09	68.64
CEF-293-13	NA
CEF-293-22	68.16
VEW-1	69.00
VEW-2	68.54
VEW-3	68.38
VEW-4	68.22
VEW-5	68.43
VEW-6	NA
VEW-7	68.53
VEW-8	NA

Groundwater elevation is in feet.
NA = Not Available



NOTES

DASHED LINES INDICATE SUBSURFACE FEATURES

LEGEND

- x — x — FENCE
- - - - UNDERGROUND LINES
- VAULT COVER
- MONITORING WELL



**NAS CECIL FIELD
FIGURE 3: GROUNDWATER
ELEVATION MAP
DECEMBER 2005**

Prepared For:
U.S. Naval Facilities Engineering
Command, Southern Division

DWN BY: JLY

CHK BY: MJP

SCALE: SEE LEGEND

APR BY: JLY

DATE: 8-03-05

FILE: 04-41001

APPENDIX B
TABLES

Table 1 *Depth to Groundwater/LNAPL Measurements*

Table 2 *Groundwater Field Analytical Results*

Table 3 *Groundwater Analytical Results*

TABLE 1
DEPTH TO GROUNDWATER/LNAPL MEASUREMENTS
DAY TANK 1 BIOSPARGE/VAPOR COLLECTION SYSTEM
NAS CECIL FIELD
JACKSONVILLE, FLORIDA

Well Identification	Date	Top of Casing Elevation (Feet)	Depth to LNAPL (Feet)	Depth to Water (Feet)	LNAPL Thickness (Feet)	Water Level Elevation (Feet)
CEF-293-02	12/08/05	NA	none present	8.60	0.00	NA
CEF-293-09	06/13/00	77.36	none present	9.93	0.00	67.43
	03/11/03		none present	6.09	0.00	71.27
	06/06/03		none present	7.85	0.00	69.51
	09/02/03		none present	7.29	0.00	70.07
	12/12/03		none present	9.62	0.00	67.74
	03/17/04		none present	9.84	0.00	67.52
	06/09/04		none present	9.83	0.00	67.53
	09/20/04		none present	6.30	0.00	71.06
	12/02/04		none present	8.75	0.00	68.61
	03/11/05		none present	8.79	0.00	68.57
	06/08/05		none present	8.65	0.00	68.71
	09/08/05		none present	7.08	0.00	70.28
	12/08/05		none present	8.72	0.00	68.64
CEF-293-13	12/08/05	NA	none present	7.92	0.00	NA
CEF-293-22	06/13/00	75.95	none present	8.88	0.00	67.07
	03/11/03		none present	8.33	0.00	67.62
	06/07/03		none present	7.00	0.00	68.95
	09/02/03		none present	6.34	0.00	69.61
	12/12/03		none present	8.65	0.00	67.30
	03/17/04		none present	8.80	0.00	67.15
	06/09/04		none present	8.56	0.00	67.39
	09/20/04		none present	5.60	0.00	70.35
	12/02/04		none present	7.90	0.00	68.05
	03/11/05		none present	7.90	0.00	68.05
	06/08/05		none present	7.71	0.00	68.24
	09/08/05		none present	6.31	0.00	69.64
	12/08/05		none present	7.79	0.00	68.16
VEW-01	06/13/00	76.32	8.60	10.89	2.29	67.03
	03/11/03		5.08	5.80	0.72	71.02
	06/07/03		6.90	7.40	0.50	69.27
	09/02/03		4.40	4.90	0.50	71.77
	12/12/03		none present	NM	0.00	NM
	03/17/04		none present	NM	0.00	NM
	06/09/04		none present	8.40	0.00	67.92
	09/20/04		none present	4.90	0.00	71.42
	12/02/04		none present	7.44	0.00	68.88
	03/11/05		none present	7.39	0.00	68.93
	06/08/05		none present	7.24	0.00	69.08
	09/08/05		none present	5.63	0.00	70.69
	12/08/05		none present	7.32	0.00	69.00
VEW-02	06/13/00	75.86	7.50	13.02	5.52	62.84
	03/11/03		none present	4.71	0.00	71.15
	06/07/03		none present	6.50	0.00	69.36
	09/02/03		none present	5.96	0.00	69.90
	12/12/03		none present	11.04	0.00	64.82
	03/17/04		none present	8.40	0.00	67.46
	06/09/04		none present	8.54	0.00	67.32
	09/20/04		none present	5.01	0.00	70.85
	12/02/04		none present	7.61	0.00	68.25
	03/11/05		none present	7.52	0.00	68.34
	06/08/05		none present	7.39	0.00	68.47
	09/08/05		none present	5.81	0.00	70.05
	12/08/05		none present	7.32	0.00	68.54

TABLE 1 DEPTH TO GROUNDWATER/LNAPL MEASUREMENTS DAY TANK 1 BIOSPARGE/VAPOR COLLECTION SYSTEM NAS CECIL FIELD JACKSONVILLE, FLORIDA						
Well Identification	Date	Top of Casing Elevation (Feet)	Depth to LNAPL (Feet)	Depth to Water (Feet)	LNAPL Thickness (Feet)	Water Level Elevation (Feet)
VEW-03	06/13/00	75.28	none present	8.05	0.00	67.23
	12/11/02		none present	6.23	0.00	69.05
	03/11/03		none present	4.07	0.00	71.21
	06/06/03		none present	6.10	0.00	69.18
	09/02/03		none present	5.35	0.00	69.93
	12/12/03		none present	7.80	0.00	67.48
	03/17/04		none present	8.02	0.00	67.26
	06/09/04		none present	8.01	0.00	67.27
	09/20/04		none present	4.30	0.00	70.98
	12/02/04		none present	7.10	0.00	68.18
	03/11/05		none present	7.05	0.00	68.23
	06/08/05		none present	6.90	0.00	68.38
	09/08/05		none present	5.35	0.00	69.93
	12/08/05		none present	6.90	0.00	68.38
VEW-04	06/13/00	75.54	none present	8.38	0.00	67.16
	03/11/03		none present	4.66	0.00	70.88
	06/07/03		none present	6.50	0.00	69.04
	09/02/03		none present	5.80	0.00	69.74
	12/12/03		none present	8.12	0.00	67.42
	03/17/04		none present	8.30	0.00	67.24
	06/09/04		none present	8.37	0.00	67.17
	09/20/04		none present	4.95	0.00	70.59
	12/02/04		none present	7.50	0.00	68.04
	03/11/05		none present	7.45	0.00	68.09
	06/08/05		none present	7.20	0.00	68.34
	09/08/05		none present	5.74	0.00	69.80
	12/08/05		none present	7.32	0.00	68.22
	VEW-05		06/13/00	74.63	none present	7.53
03/11/03		none present	3.80		0.00	70.83
06/06/06		none present	6.75		0.00	67.88
09/02/03		none present	4.95		0.00	69.68
12/12/03		none present	7.40		0.00	67.23
03/17/04		none present	7.50		0.00	67.13
06/09/04		none present	7.55		0.00	67.08
09/20/04		none present	4.10		0.00	70.53
12/02/04		none present	6.80		0.00	67.83
03/11/05		none present	6.25		0.00	68.38
06/08/05		none present	6.10		0.00	68.53
09/08/05		none present	4.70		0.00	69.93
12/08/05		none present	6.20		0.00	68.43
VEW-06		12/08/05	NA		none present	6.20
VEW-07	06/13/00	76.44	none present	9.06	0.00	67.38
	03/11/03		none present	5.01	0.00	71.43
	06/07/03		none present	6.97	0.00	69.47
	09/04/03		none present	6.45	0.00	69.99
	12/12/03		none present	8.90	0.00	67.54
	03/17/04		none present	9.00	0.00	67.44
	06/09/04		none present	8.99	0.00	67.45
	09/20/04		none present	5.39	0.00	71.05
	12/02/04		none present	8.37	0.00	68.07
	03/11/05		none present	7.96	0.00	68.48
	06/08/05		none present	7.90	0.00	68.54
	09/08/05		none present	6.25	0.00	70.19
	12/08/05		none present	7.91	0.00	68.53
	VEW-08		12/08/05	NA	none present	7.84

LNAPL = Light Non-Aqueous Phase Liquid

NA = Not available/Not applicable

NM = Not Measured

Elevation is referenced to National Geodetic Vertical Datum 1929 (NGVD 1929)

Depth to LNAPL is measured from top of casing

Depth to water is measured from top of casing

TABLE 2 GROUNDWATER FIELD ANALYTICAL RESULTS						
DAY TANK 1 BIOSPARGE/VAPOR COLLECTION SYSTEM NAS CECIL FIELD JACKSONVILLE, FLORIDA						
	Date	pH (S.U.)	Conductivity (mS/cm)	Dissolved Oxygen (mg/L)	Oxidation Reduction Potential (mV)	Temperature (°C)
CEF-293-2	12/8/2005	5.35	0.31	1.60	83.2	22.82
CEF-293-9	1/25/2000	5.99	0.088	NM	NM	21.40
	3/11/2003	5.90	0.29	4.29	177.00	20.85
	6/6/2003	6.00	0.472	0.00	-26.00	23.26
	9/2/2003	5.84	0.730	0.93	-90.00	26.10
	12/12/2003	5.86	0.998	0.01	-41.00	23.22
	3/17/2004	5.40	0.279	1.00	NM	21.10
	6/9/2004	5.61	0.280	0.26	-109.60	24.03
	9/20/2004	5.66	0.283	0.15	-148.80	25.79
	12/2/2004	5.82	0.342	0.19	-196.80	24.97
	3/11/2005	8.34	0.240	1.49	-118.00	22.08
	6/8/2005	5.44	0.263	0.23	-196.50	23.67
	9/8/2005	5.25	0.526	0.69	-249.90	25.97
12/8/2005	5.84	0.343	0.72	-34.50	22.72	
CEF-293-13	12/8/2005	5.38	0.322	0.95	124.00	22.88
CEF-293-22	1/25/2000	6.44	0.126	NM	NM	23.00
	3/11/2003	3.95	0.598	3.13	153.00	21.50
	6/7/2003	5.72	0.428	0.12	-20.00	25.90
	9/2/2003	5.57	0.929	0.72	52.00	28.75
	12/12/2003	5.63	0.626	4.24	99.00	24.35
	3/17/2004	5.71	0.480	NM	74.00	23.01
	6/9/2004	4.96	0.172	0.90	15.00	25.32
	9/20/2004	4.97	0.478	0.35	70.00	27.10
	12/2/2004	5.68	0.716	0.33	6.00	26.08
	3/11/2005	5.23	0.518	0.25	-83.30	21.87
	6/8/2005	5.41	0.378	0.09	-98.80	25.54
	9/8/2005	5.88	0.507	0.46	45.40	28.60
12/8/2005	5.61	0.548	1.42	194.30	22.99	
VEW-1	12/2/2004	5.92	0.302	0.10	-216.50	25.40
	3/11/2005	7.46	0.120	0.00	-100.00	21.55
	6/8/2005	5.16	0.134	0.08	-198.20	23.18
	9/8/2005	6.13	0.091	1.97	48.10	27.26
	12/8/2005	5.56	0.214	0.54	-24.40	22.89
VEW-2	1/25/2000	5.63	0.085	NM	NM	22.70
	3/11/2003	5.90	0.110	2.51	-53.00	21.10
	6/7/2003	6.09	0.132	0.00	-86.00	22.90
	9/4/2003	5.60	0.342	1.34	-163.00	26.85
	12/12/2003	5.82	0.563	4.01	23.00	22.78
	3/17/2004	5.48	0.172	0.80	NM	21.30
	6/9/2004	5.57	0.172	0.16	-75.90	23.45
	9/20/2004	6.49	0.777	0.10	-141.60	25.98
	12/2/2004	5.91	0.404	0.05	-225.70	24.79
	3/11/2005	8.53	0.310	0.98	-170.00	21.92
	6/8/2005	5.67	0.280	0.06	-209.00	23.53
	9/8/2005	5.57	0.710	0.39	-85.30	26.71
12/8/2005	6.19	0.511	0.74	-125.60	22.10	
VEW-3	1/25/2000	5.90	0.070	NM	NM	22.10
	3/11/2003	4.84	0.166	6.06	202.00	21.30
	6/7/2003	5.61	0.159	0.34	30.00	25.10
	9/2/2003	5.06	0.306	0.51	NM	27.40
	12/12/2003	5.10	0.354	0.66	-223.00	24.60
	3/17/2004	5.40	0.398	NM	176.00	21.80
	6/9/2004	4.70	0.145	0.42	70.00	25.63
	9/20/2004	5.62	0.137	0.00	-42.00	27.32
	12/2/2004	5.39	0.341	0.45	32.00	25.51
	3/11/2005	5.01	0.275	0.31	-10.30	22.06
	6/8/2005	4.91	0.145	0.82	-9.90	26.13
	9/8/2005	5.33	0.315	1.65	-156.20	23.50
12/8/2005	5.47	0.369	1.10	164.60	23.83	
VEW-4	1/25/2000	5.59	0.078	NM	NM	23.00
	3/11/2003	4.35	0.126	5.85	190.00	22.40
	6/7/2003	5.60	0.109	0.00	-41.00	25.10
	9/2/2003	5.35	0.277	0.00	106.00	27.53
	12/12/2003	5.37	0.358	0.28	182.00	24.34
	3/17/2004	5.17	0.316	NM	200.00	22.73
	6/9/2004	4.63	0.128	0.57	210.00	25.43
	9/20/2004	5.15	0.282	0.07	-46.10	27.60
	12/2/2004	4.83	0.683	0.27	103.20	26.27
	3/11/2005	4.39	0.393	0.24	44.90	22.55
	6/8/2005	4.69	0.203	0.05	64.30	26.93
	9/8/2005	5.24	0.254	0.30	150.80	29.26
12/8/2005	4.93	0.232	1.00	237.90	23.27	
VEW-5	1/25/2000	6.28	0.113	NM	NM	21.50
	3/11/2003	4.35	0.104	5.25	227.00	20.70
	6/6/2003	5.10	0.122	0.02	40.00	24.70
	9/2/2003	4.84	0.319	0.08	158.00	27.69
	12/12/2003	4.68	0.278	0.36	-214.00	23.62
	3/17/2004	5.00	0.245	NM	232.00	21.51
	6/9/2004	4.47	0.106	0.11	238.00	25.83
	9/20/2004	3.94	0.110	0.04	144.00	26.88
	12/2/2004	5.11	0.227	0.62	159.20	24.44
	3/11/2005	5.24	0.253	0.23	53.50	20.82
	6/8/2005	4.62	0.127	0.25	206.10	25.33
	9/8/2005	5.70	0.202	1.11	-168.20	28.55
12/8/2005	6.21	0.220	3.68	149.50	21.98	
VEW-6	12/8/2005	5.67	0.484	0.94	151.60	23.67
VEW-7	1/25/2000	5.63	0.074	NM	NM	21.80
	3/11/2003	4.98	0.111	2.69	86.00	18.50
	6/7/2003	5.70	0.134	0.00	-36.00	22.00
	9/4/2003	5.01	0.318	2.26	-42.00	25.31
	12/12/2003	5.07	0.469	0.17	-307.00	23.18
	3/17/2004	5.44	0.186	1.20	NM	21.40
	6/9/2004	5.36	0.214	0.18	-65.60	24.23
	9/20/2004	5.41	0.220	0.24	-137.90	25.36
	12/2/2004	5.71	0.295	0.18	-145.90	24.95
	3/11/2005	7.92	0.260	3.32	-107.00	22.00
	6/8/2005	5.26	0.241	0.3	-138.00	23.08
	9/8/2005	5.16	0.421	0.59	-203.60	25.70
12/8/2005	5.33	0.448	1.45	84.30	22.43	
VEW-8	12/8/2005	5.68	0.273	0.89	-35.10	22.18

S.U. = standard units
mS/cm = millisiemens per centimeter
mg/L = Milligrams per liter
°C = degrees Centigrade
NM = not measured

APPENDIX C

*December 2005 Groundwater Purging and Sampling
Logs*

GROUNDWATER PURGING & SAMPLING LOG



Project Information

Project No: 04-41001/5	Project Name: Day Tank 1 - Cecil Field LTM/RAO		
Technician 1: Karen Baer	Technician 2:	Weather: "Cloudy, Rain"	
Sampling ID: 04-41001/5:CEF-293-2:12/8/05			
Notes:			

Well Information

Well ID: CEF-293-2	Sampling Date: 12/8/2005		
Well Diam (in): 0.0	Total Well Depth (ft): 0.00	Well Screen Interval (ft):	
TOC Elevation (ft amsl): 0.00	Northing: 0	Easting: 0	
Static Depth to Water (ft): 8.60	Well Capacity (gal): 0.00		

Purge Setup

Purge Method: Peristaltic	Tubing Material: PPE		Pump Set at (ft): 12.00
pH Meter: YSI 556 MPS	Cond. Meter: YSI 556MPS	DO Meter: YSI 556 MPS	Turb. Meter: Hach 2100P
Purge Start: 08:34	Purge End: 08:51	Total Volume Purged (gal): 0.65	

Purging Data

Time	Water Level (ft)	Vol Purged (gal)	Pump Rate (gal/min)	DO (mg/L)	Temp (°C)	SEC (µS/cm)	pH	ORP (mV)	Turbidity (NTU)	Salinity	Color	Odor
08:43	8.70	0.30	0.03	3.60	22.52	329.0	4.19	69.2	1,000.00		turbid	none
08:47	8.70	0.40	0.02	1.90	22.73	315.0	5.38	78.7	1,000.00			
08:50	8.70	0.60	0.06	1.66	22.82	312.0	5.35	83.1	1,000.00			

Sampling Data

<u>Sample Information</u>		<u>Final Purge Readings</u>		<u>Hach Field Data (mg/L)</u>		<u>CHEMetrics Field Data (mg/L)</u>	
Sample Date:	12/8/2005	DO (mg/L):	1.60	DO:		DO High Range:	
Sample Start Time:	08:51	Temp (°C):	22.82	CO2:		DO High Range:	
Sample End Time:	09:02	SEC (uS/cm):	310	Alkalinity:		CO2 High Range:	
Field Filtered:	<input type="checkbox"/>	pH:	5.35	Ferrous Iron:		CO2 Low Range:	
Duplicate:	<input type="checkbox"/>	ORP (mV):	83.2	H2S:			
		Turb (NTU):	1000	Manganese:			
		Salinity:		Sulfate:		Alkalinity High Range:	
				Sulfide:		Alkalinity Low Range:	
				Nitrate:			
<u>Lab Analyses/Methods:</u>		<u>Technician Initials</u>					
"PAHs, VOCs"							

GROUNDWATER PURGING & SAMPLING LOG



Project Information

Project No: 04-41001/5	Project Name: Day Tank 1 - Cecil Field LTM/RAO		
Technician 1: Larry Wolski	Technician 2:	Weather: "Cloudy, Cool, Windy"	
Sampling ID: 04-41001/5:CEF-293-09:12/8/05			
Notes:			

Well Information

Well ID: CEF-293-09	Sampling Date: 12/8/2005		
Well Diam (in): 2.0	Total Well Depth (ft): 14.00	Well Screen Interval (ft):	
TOC Elevation (ft amsl): 77.36	Northing: 0	Easting: 0	
Static Depth to Water (ft): 8.72	Well Capacity (gal): 0.86		

Purge Setup

Purge Method: Peristaltic	Tubing Material: PPE		Pump Set at (ft): 12.00
pH Meter: YSI 556 MPS	Cond. Meter: YSI 556MPS	DO Meter: YSI 556 MPS	Turb. Meter: Hach 2100P
Purge Start: 11:07	Purge End: 11:30	Total Volume Purged (gal):	0.55

Purging Data

Time	Water Level (ft)	Vol Purged (gal)	Pump Rate (gal/min)	DO (mg/L)	Temp (°C)	SEC (µS/cm)	pH	ORP (mV)	Turbidity (NTU)	Salinity	Color	Odor
11:21	8.73	0.30	0.02	0.86	22.48	342.0	5.88	0.8	9.47		clear	none
11:25	8.76	0.40	0.02	0.92	22.65	343.0	5.84	-20.5	6.76			
11:28	8.76	0.50	0.03	0.77	22.69	343.0	5.85	-30.4	7.31			

Sampling Data

<u>Sample Information</u>		<u>Final Purge Readings</u>		<u>Hach Field Data (mg/L)</u>		<u>CHEMetrics Field Data (mg/L)</u>	
Sample Date:	12/8/2005	DO (mg/L):	0.72	DO:		DO High Range:	
Sample Start Time:	11:30	Temp (°C):	22.72	CO2:		DO High Range:	
Sample End Time:	11:40	SEC (uS/cm):	343	Alkalinity:		CO2 High Range:	
Field Filtered:	<input type="checkbox"/>	pH:	5.84	Ferrous Iron:		CO2 Low Range:	
Duplicate:	<input type="checkbox"/>	ORP (mV):	-34.5	H2S:			
		Turb (NTU):	6.99	Manganese:			
		Salinity:		Sulfate:		Alkalinity High Range:	
				Sulfide:		Alkalinity Low Range:	
				Nitrate:			
<u>Lab Analyses/Methods:</u>		<u>Technician Initials</u>					
"PAHs, VOCs"							

GROUNDWATER PURGING & SAMPLING LOG



Project Information

Project No: 04-41001/5	Project Name: Day Tank 1 - Cecil Field LTM/RAO	
Technician 1: Karen Baer	Technician 2:	Weather: "Cloudy, Light rain"
Sampling ID: 04-41001/5:CEF-293-13:12/8/05		
Notes:		

Well Information

Well ID: CEF-293-13	Sampling Date: 12/8/2005	
Well Diam (in): 2.0	Total Well Depth (ft): 14.80	Well Screen Interval (ft):
TOC Elevation (ft amsl): 75.97	Northing: 0	Easting: 0
Static Depth to Water (ft): 7.92	Well Capacity (gal): 1.12	

Purge Setup

Purge Method: Peristaltic	Tubing Material: PPE	Pump Set at (ft): 11.00
pH Meter: YSI 556 MPS	Cond. Meter: YSI 556MPS	DO Meter: YSI 556 MPS
Turb. Meter: Hach 2100P	Purge Start: 10:01	
Purge End: 10:19	Total Volume Purged (gal): 0.55	

Purging Data

Time	Water Level (ft)	Vol Purged (gal)	Pump Rate (gal/min)	DO (mg/L)	Temp (°C)	SEC (µS/cm)	pH	ORP (mV)	Turbidity (NTU)	Salinity	Color	Odor
10:12	7.97	0.30	0.02	1.23	22.68	322.0	5.42	115.9	5.74		clear	none
10:15	7.97	0.40	0.03	1.08	22.74	324.0	5.45	119.0	4.10			
10:18	7.97	0.50	0.03	0.98	22.85	323.0	5.37	122.8	3.71			

Sampling Data

<u>Sample Information</u>		<u>Final Purge Readings</u>		<u>Hach Field Data (mg/L)</u>		<u>CHEMetrics Field Data (mg/L)</u>	
Sample Date:	12/8/2005	DO (mg/L):	0.95	DO:		DO High Range:	
Sample Start Time:	10:19	Temp (°C):	22.88	CO2:		DO High Range:	
Sample End Time:	10:30	SEC (uS/cm):	322	Alkalinity:		CO2 High Range:	
Field Filtered:	<input type="checkbox"/>	pH:	5.38	Ferrous Iron:		CO2 Low Range:	
Duplicate:	<input type="checkbox"/>	ORP (mV):	124	H2S:			
		Turb (NTU):	3.71	Manganese:			
		Salinity:		Sulfate:		Alkalinity High Range:	
				Sulfide:		Alkalinity Low Range:	
				Nitrate:			
<u>Lab Analyses/Methods:</u>		<u>Technician Initials</u>					
"PAHs, VOCs"							

GROUNDWATER PURGING & SAMPLING LOG



Project Information

Project No: 04-41001/5	Project Name: Day Tank 1 - Cecil Field LTM/RAO		
Technician 1: Larry Wolski	Technician 2:	Weather: "Cloudy, Light rain"	
Sampling ID: 04-41001/5:CEF-293-22:12/8/05			
Notes:			

Well Information

Well ID: CEF-293-22	Sampling Date: 12/8/2005		
Well Diam (in): 2.0	Total Well Depth (ft): 14.70	Well Screen Interval (ft):	
TOC Elevation (ft amsl): 75.95	Northing: 0	Easting: 0	
Static Depth to Water (ft): 7.79	Well Capacity (gal): 1.12		

Purge Setup

Purge Method: Peristaltic	Tubing Material: PPE		Pump Set at (ft): 12.50
pH Meter: YSI 556 MPS	Cond. Meter: YSI 556MPS	DO Meter: YSI 556 MPS	Turb. Meter: Hach 2100P
Purge Start: 08:22	Purge End: 08:42	Total Volume Purged (gal):	0.55

Purging Data

Time	Water Level (ft)	Vol Purged (gal)	Pump Rate (gal/min)	DO (mg/L)	Temp (°C)	SEC (µS/cm)	pH	ORP (mV)	Turbidity (NTU)	Salinity	Color	Odor
08:33	7.93	0.30	0.02	1.69	22.59	553.0	5.35	206.0	7.29		clear	none
08:36	7.95	0.40	0.03	1.65	22.77	552.0	5.53	202.7	6.44			
08:40	7.96	0.50	0.02	1.48	22.97	548.0	5.60	195.6	5.96			

Sampling Data

<u>Sample Information</u>		<u>Final Purge Readings</u>		<u>Hach Field Data (mg/L)</u>		<u>CHEMetrics Field Data (mg/L)</u>	
Sample Date:	12/8/2005	DO (mg/L):	1.42	DO:		DO High Range:	
Sample Start Time:	08:42	Temp (°C):	22.99	CO2:		DO High Range:	
Sample End Time:	08:53	SEC (uS/cm):	548	Alkalinity:		CO2 High Range:	
Field Filtered:	<input type="checkbox"/>	pH:	5.61	Ferrous Iron:		CO2 Low Range:	
Duplicate:	<input type="checkbox"/>	ORP (mV):	194.3	H2S:			
		Turb (NTU):	5.36	Manganese:			
		Salinity:		Sulfate:		Alkalinity High Range:	
				Sulfide:		Alkalinity Low Range:	
				Nitrate:			
<u>Lab Analyses/Methods:</u>		<u>Technician Initials</u>					
"PAHs, VOCs"							

GROUNDWATER PURGING & SAMPLING LOG



Project Information

Project No: 04-41001/5	Project Name: Day Tank 1 - Cecil Field LTM/RAO		
Technician 1: Larry Wolski	Technician 2:	Weather: "Cloudy, Cool, Windy, Light rain"	
Sampling ID: 04-41001/5:VEW-01:12/8/05			
Notes:			

Well Information

Well ID: VEW-01	Sampling Date: 12/8/2005		
Well Diam (in): 2.0	Total Well Depth (ft): 14.50	Well Screen Interval (ft):	
TOC Elevation (ft amsl): 76.32	Northing: 0	Easting: 0	
Static Depth to Water (ft): 7.32	Well Capacity (gal): 1.17		

Purge Setup

Purge Method: Peristaltic	Tubing Material: PPE		Pump Set at (ft): 12.00
pH Meter: YSI 556 MPS	Cond. Meter: YSI 556MPS	DO Meter: YSI 556 MPS	Turb. Meter: Hach 2100P
Purge Start: 10:14	Purge End: 10:52	Total Volume Purged (gal):	0.95

Purging Data

Time	Water Level (ft)	Vol Purged (gal)	Pump Rate (gal/min)	DO (mg/L)	Temp (°C)	SEC (µS/cm)	pH	ORP (mV)	Turbidity (NTU)	Salinity	Color	Odor
10:43	7.35	0.70	0.02	0.54	22.80	215.0	5.55	-19.4	22.30		clear	none
10:47	7.36	0.80	0.02	0.51	22.86	215.0	5.54	-23.1	18.50			
10:51	7.34	0.90	0.02	0.57	22.89	215.0	5.55	-24.4	16.60			

Sampling Data

<u>Sample Information</u>		<u>Final Purge Readings</u>		<u>Hach Field Data (mg/L)</u>		<u>CHEMetrics Field Data (mg/L)</u>	
Sample Date:	12/8/2005	DO (mg/L):	0.54	DO:		DO High Range:	
Sample Start Time:	10:52	Temp (°C):	22.89	CO2:		DO High Range:	
Sample End Time:	11:02	SEC (uS/cm):	214	Alkalinity:		CO2 High Range:	
Field Filtered:	<input type="checkbox"/>	pH:	5.56	Ferrous Iron:		CO2 Low Range:	
Duplicate:	<input type="checkbox"/>	ORP (mV):	-24.4	H2S:			
		Turb (NTU):	17.8	Manganese:			
		Salinity:		Sulfate:		Alkalinity High Range:	
				Sulfide:		Alkalinity Low Range:	
				Nitrate:			
<u>Lab Analyses/Methods:</u>		<u>Technician Initials</u>					
"PAHs, VOCs"							

GROUNDWATER PURGING & SAMPLING LOG



Project Information

Project No: 04-41001/5	Project Name: Day Tank 1 - Cecil Field LTM/RAO		
Technician 1: Larry Wolski	Technician 2:	Weather: "Cool, Windy, Light rain"	
Sampling ID: 04-41001/5:VEW-02:12/8/05			
Notes:			

Well Information

Well ID: VEW-02	Sampling Date: 12/8/2005		
Well Diam (in): 2.0	Total Well Depth (ft): 16.00	Well Screen Interval (ft):	
TOC Elevation (ft amsl): 75.86	Northing: 0	Easting: 0	
Static Depth to Water (ft): 7.32	Well Capacity (gal): 1.41		

Purge Setup

Purge Method: Peristaltic	Tubing Material: PPE		Pump Set at (ft): 13.50
pH Meter: YSI 556 MPS	Cond. Meter: YSI 556MPS	DO Meter: YSI 556 MPS	Turb. Meter: Hach 2100P
Purge Start: 09:36	Purge End: 09:58	Total Volume Purged (gal):	0.55

Purging Data

Time	Water Level (ft)	Vol Purged (gal)	Pump Rate (gal/min)	DO (mg/L)	Temp (°C)	SEC (µS/cm)	pH	ORP (mV)	Turbidity (NTU)	Salinity	Color	Odor
09:48	7.49	0.30	0.02	0.94	21.57	514.0	6.11	-104.3	17.20		clear	none
09:52	7.51	0.40	0.02	0.64	21.99	515.0	6.18	-119.1	14.80			
09:56	7.51	0.50	0.02	0.73	22.11	512.0	6.17	-124.6	15.60			

Sampling Data

<u>Sample Information</u>		<u>Final Purge Readings</u>		<u>Hach Field Data (mg/L)</u>		<u>CHEMetrics Field Data (mg/L)</u>	
Sample Date:	12/8/2005	DO (mg/L):	0.74	DO:		DO High Range:	
Sample Start Time:	09:58	Temp (°C):	22.10	CO2:		DO High Range:	
Sample End Time:	10:10	SEC (uS/cm):	511	Alkalinity:		CO2 High Range:	
Field Filtered:	<input type="checkbox"/>	pH:	6.19	Ferrous Iron:		CO2 Low Range:	
Duplicate:	<input type="checkbox"/>	ORP (mV):	-125.6	H2S:			
		Turb (NTU):	15.1	Manganese:			
		Salinity:		Sulfate:		Alkalinity High Range:	
				Sulfide:		Alkalinity Low Range:	
				Nitrate:			
<u>Lab Analyses/Methods:</u>		<u>Technician Initials</u>					
"PAHs, VOCs"							

GROUNDWATER PURGING & SAMPLING LOG



Project Information

Project No: 04-41001/5	Project Name: Day Tank 1 - Cecil Field LTM/RAO	
Technician 1: Karen Baer	Technician 2:	Weather: "Cloudy, Cool"
Sampling ID: 04-41001/5:VEW-03:12/8/05		
Notes:		

Well Information

Well ID: VEW-03	Sampling Date: 12/8/2005	
Well Diam (in): 2.0	Total Well Depth (ft): 0.00	Well Screen Interval (ft):
TOC Elevation (ft amsl): 75.28	Northing: 0	Easting: 0
Static Depth to Water (ft): 6.90	Well Capacity (gal): -1.12	

Purge Setup

Purge Method: Peristaltic	Tubing Material: PPE		Pump Set at (ft): 13.00
pH Meter: YSI 556 MPS	Cond. Meter: YSI 556MPS	DO Meter: YSI 556 MPS	Turb. Meter: Hach 2100P
Purge Start: 11:59	Purge End: 12:20	Total Volume Purged (gal):	0.60

Purging Data

Time	Water Level (ft)	Vol Purged (gal)	Pump Rate (gal/min)	DO (mg/L)	Temp (°C)	SEC (µS/cm)	pH	ORP (mV)	Turbidity (NTU)	Salinity	Color	Odor
12:12	6.95	0.30	0.02	1.65	23.37	370.0	5.50	166.8	8.10		clear	none
12:15	6.95	0.40	0.03	1.29	23.68	373.0	5.49	166.2	5.39			
12:19	6.95	0.50	0.02	1.13	23.81	371.0	5.47	165.0	3.40			

Sampling Data

<u>Sample Information</u>		<u>Final Purge Readings</u>		<u>Hach Field Data (mg/L)</u>		<u>CHEMetrics Field Data (mg/L)</u>	
Sample Date:	12/8/2005	DO (mg/L):	1.10	DO:		DO High Range:	
Sample Start Time:	12:20	Temp (°C):	23.83	CO2:		DO High Range:	
Sample End Time:	12:35	SEC (uS/cm):	369	Alkalinity:		CO2 High Range:	
Field Filtered:	<input type="checkbox"/>	pH:	5.47	Ferrous Iron:		CO2 Low Range:	
Duplicate:	<input type="checkbox"/>	ORP (mV):	164.6	H2S:			
		Turb (NTU):	4.60	Manganese:			
		Salinity:		Sulfate:		Alkalinity High Range:	
				Sulfide:		Alkalinity Low Range:	
				Nitrate:			
<u>Lab Analyses/Methods:</u>		<u>Technician Initials</u>					
"PAHs, VOCs"							

GROUNDWATER PURGING & SAMPLING LOG



Project Information

Project No: 04-41001/5	Project Name: Day Tank 1 - Cecil Field LTM/RAO		
Technician 1: Larry Wolski	Technician 2:	Weather: "Cloudy, Windy, Light rain"	
Sampling ID: 04-41001/5:VEW-04:12/8/05			
Notes:			

Well Information

Well ID: VEW-04	Sampling Date: 12/8/2005		
Well Diam (in): 2.0	Total Well Depth (ft): 15.10	Well Screen Interval (ft):	
TOC Elevation (ft amsl): 75.54	Northing: 0	Easting: 0	
Static Depth to Water (ft): 7.32	Well Capacity (gal): 1.26		

Purge Setup

Purge Method: Peristaltic	Tubing Material: PPE		Pump Set at (ft): 12.50
pH Meter: YSI 556 MPS	Cond. Meter: YSI 556MPS	DO Meter: YSI 556 MPS	Turb. Meter: Hach 2100P
Purge Start: 08:59	Purge End: 09:19	Total Volume Purged (gal):	0.65

Purging Data

Time	Water Level (ft)	Vol Purged (gal)	Pump Rate (gal/min)	DO (mg/L)	Temp (°C)	SEC (µS/cm)	pH	ORP (mV)	Turbidity (NTU)	Salinity	Color	Odor
09:09	7.32	0.30	0.03	1.11	23.21	227.0	5.00	223.1	38.10		clear	none
09:14	7.32	0.50	0.04	1.04	23.23	230.0	4.96	235.1	22.30			
09:17	7.32	0.60	0.03	1.13	23.26	232.0	4.94	237.7	17.60			

Sampling Data

<u>Sample Information</u>		<u>Final Purge Readings</u>		<u>Hach Field Data (mg/L)</u>		<u>CHEMetrics Field Data (mg/L)</u>	
Sample Date:	12/8/2005	DO (mg/L):	1.00	DO:		DO High Range:	
Sample Start Time:	09:19	Temp (°C):	23.27	CO2:		DO High Range:	
Sample End Time:	09:29	SEC (uS/cm):	232	Alkalinity:		CO2 High Range:	
Field Filtered:	<input type="checkbox"/>	pH:	4.93	Ferrous Iron:		CO2 Low Range:	
Duplicate:	<input type="checkbox"/>	ORP (mV):	237.9	H2S:			
		Turb (NTU):	16.1	Manganese:			
		Salinity:		Sulfate:		Alkalinity High Range:	
				Sulfide:		Alkalinity Low Range:	
				Nitrate:			
<u>Lab Analyses/Methods:</u>		<u>Technician Initials</u>					
"PAHs, VOCs"							

GROUNDWATER PURGING & SAMPLING LOG



Project Information

Project No: 04-41001/5	Project Name: Day Tank 1 - Cecil Field LTM/RAO	
Technician 1: Karen Baer	Technician 2:	Weather: Cloudy
Sampling ID: 04-41001/5:VEW-05:12/8/05		
Notes:		

Well Information

Well ID: VEW-05	Sampling Date: 12/8/2005	
Well Diam (in): 2.0	Total Well Depth (ft): 16.85	Well Screen Interval (ft):
TOC Elevation (ft amsl): 74.63	Northing: 0	Easting: 0
Static Depth to Water (ft): 6.20	Well Capacity (gal): 1.73	

Purge Setup

Purge Method: Peristaltic	Tubing Material: PPE		Pump Set at (ft): 13.00
pH Meter: YSI 556 MPS	Cond. Meter: YSI 556MPS	DO Meter: YSI 556 MPS	Turb. Meter: Hach 2100P
Purge Start: 11:18	Purge End: 11:35	Total Volume Purged (gal):	0.55

Purging Data

Time	Water Level (ft)	Vol Purged (gal)	Pump Rate (gal/min)	DO (mg/L)	Temp (°C)	SEC (µS/cm)	pH	ORP (mV)	Turbidity (NTU)	Salinity	Color	Odor
11:27	6.21	0.30	0.03	3.63	21.74	218.0	5.89	158.8	26.50		clear	none
11:32	6.21	0.40	0.02	3.61	21.91	218.0	6.12	151.7	20.70			
11:35	6.21	0.50	0.03	3.64	21.98	218.0	6.20	149.4	17.10			

Sampling Data

<u>Sample Information</u>		<u>Final Purge Readings</u>		<u>Hach Field Data (mg/L)</u>		<u>CHEMetrics Field Data (mg/L)</u>	
Sample Date:	12/8/2005	DO (mg/L):	3.68	DO:		DO High Range:	
Sample Start Time:	11:35	Temp (°C):	21.98	CO2:		DO High Range:	
Sample End Time:	11:44	SEC (uS/cm):	220	Alkalinity:		CO2 High Range:	
Field Filtered:	<input type="checkbox"/>	pH:	6.21	Ferrous Iron:		CO2 Low Range:	
Duplicate:	<input type="checkbox"/>	ORP (mV):	149.5	H2S:			
		Turb (NTU):	15.9	Manganese:			
		Salinity:		Sulfate:		Alkalinity High Range:	
				Sulfide:		Alkalinity Low Range:	
				Nitrate:			
<u>Lab Analyses/Methods:</u>		<u>Technician Initials</u>					
"PAHs, VOCs"							

GROUNDWATER PURGING & SAMPLING LOG



Project Information

Project No: 04-41001/5	Project Name: Day Tank 1 - Cecil Field LTM/RAO	
Technician 1: Karen Baer	Technician 2:	Weather: "Cloudy, Rain"
Sampling ID: 04-41001/5:VEW-06:12/8/05		
Notes:		

Well Information

Well ID: VEW-06	Sampling Date: 12/8/2005	
Well Diam (in): 2.0	Total Well Depth (ft): 16.35	Well Screen Interval (ft):
TOC Elevation (ft amsl): 74.31	Northing: 0	Easting: 0
Static Depth to Water (ft): 6.20	Well Capacity (gal): 1.65	

Purge Setup

Purge Method: Peristaltic	Tubing Material: PPE		Pump Set at (ft): 13.00
pH Meter: YSI 556 MPS	Cond. Meter: YSI 556MPS	DO Meter: YSI 556 MPS	Turb. Meter: Hach 2100P
Purge Start: 10:38	Purge End: 10:59	Total Volume Purged (gal):	0.65

Purging Data

Time	Water Level (ft)	Vol Purged (gal)	Pump Rate (gal/min)	DO (mg/L)	Temp (°C)	SEC (µS/cm)	pH	ORP (mV)	Turbidity (NTU)	Salinity	Color	Odor
10:50	6.20	0.30	0.02	1.25	23.56	490.0	5.71	144.3	27.40		clear	none
10:54	6.20	0.40	0.02	1.05	23.67	491.0	5.68	147.5	29.20			
10:58	6.20	0.60	0.05	0.97	23.68	484.0	5.68	151.0	26.20			

Sampling Data

<u>Sample Information</u>		<u>Final Purge Readings</u>		<u>Hach Field Data (mg/L)</u>		<u>CHEMetrics Field Data (mg/L)</u>	
Sample Date:	12/8/2005	DO (mg/L):	0.94	DO:		DO High Range:	
Sample Start Time:	10:59	Temp (°C):	23.67	CO2:		DO High Range:	
Sample End Time:	11:09	SEC (uS/cm):	484	Alkalinity:		CO2 High Range:	
Field Filtered:	<input type="checkbox"/>	pH:	5.67	Ferrous Iron:		CO2 Low Range:	
Duplicate:	<input type="checkbox"/>	ORP (mV):	151.6	H2S:			
		Turb (NTU):	26.2	Manganese:			
		Salinity:		Sulfate:		Alkalinity High Range:	
				Sulfide:		Alkalinity Low Range:	
				Nitrate:			
<u>Lab Analyses/Methods:</u>		<u>Technician Initials</u>					
"PAHs, VOCs"							

GROUNDWATER PURGING & SAMPLING LOG



Project Information

Project No: 04-41001/5	Project Name: Day Tank 1 - Cecil Field LTM/RAO		
Technician 1: Karen Baer	Technician 2:	Weather: "Cloudy, Rain"	
Sampling ID: 04-41001/5:VEW-07:12/8/05			
Notes:			

Well Information

Well ID: VEW-07	Sampling Date: 12/8/2005		
Well Diam (in): 2.0	Total Well Depth (ft): 16.40	Well Screen Interval (ft):	
TOC Elevation (ft amsl): 76.44	Northing: 0	Easting: 0	
Static Depth to Water (ft): 7.91	Well Capacity (gal): 1.38		

Purge Setup

Purge Method: Peristaltic	Tubing Material: PPE		Pump Set at (ft): 11.00
pH Meter: YSI 556 MPS	Cond. Meter: YSI 556MPS	DO Meter: YSI 556 MPS	Turb. Meter: Hach 2100P
Purge Start: 09:16	Purge End: 09:38	Total Volume Purged (gal):	0.55

Purging Data

Time	Water Level (ft)	Vol Purged (gal)	Pump Rate (gal/min)	DO (mg/L)	Temp (°C)	SEC (µS/cm)	pH	ORP (mV)	Turbidity (NTU)	Salinity	Color	Odor
09:29	7.95	0.30	0.02	1.81	22.37	425.0	5.33	88.6	47.80		turbid	none
09:33	7.95	0.40	0.02	1.56	22.42	442.0	5.33	86.8	39.80			
09:37	7.95	0.50	0.02	1.47	22.44	447.0	5.33	84.9	35.80			

Sampling Data

<u>Sample Information</u>		<u>Final Purge Readings</u>		<u>Hach Field Data (mg/L)</u>		<u>CHEMetrics Field Data (mg/L)</u>	
Sample Date:	12/8/2005	DO (mg/L):	1.45	DO:		DO High Range:	
Sample Start Time:	09:38	Temp (°C):	22.43	CO2:		DO High Range:	
Sample End Time:	09:45	SEC (uS/cm):	448	Alkalinity:		CO2 High Range:	
Field Filtered:	<input type="checkbox"/>	pH:	5.33	Ferrous Iron:		CO2 Low Range:	
Duplicate:	<input type="checkbox"/>	ORP (mV):	84.3	H2S:			
		Turb (NTU):	33.7	Manganese:			
		Salinity:		Sulfate:		Alkalinity High Range:	
				Sulfide:		Alkalinity Low Range:	
				Nitrate:			
<u>Lab Analyses/Methods:</u>		<u>Technician Initials</u>					
"PAHs, VOCs"							

GROUNDWATER PURGING & SAMPLING LOG



Project Information

Project No: 04-41001/5	Project Name: Day Tank 1 - Cecil Field LTM/RAO		
Technician 1: Larry Wolski	Technician 2:	Weather: "Cloudy, Cool, Windy, Light rain"	
Sampling ID: 04-41001/5:VEW-08:12/8/05			
Notes:			

Well Information

Well ID: VEW-08	Sampling Date: 12/8/2005		
Well Diam (in): 2.0	Total Well Depth (ft): 15.00	Well Screen Interval (ft):	
TOC Elevation (ft amsl): 76.43	Northing: 0	Easting: 0	
Static Depth to Water (ft): 7.84	Well Capacity (gal): 1.16		

Purge Setup

Purge Method: Peristaltic	Tubing Material: PPE		Pump Set at (ft): 13.00
pH Meter: YSI 556 MPS	Cond. Meter: YSI 556MPS	DO Meter: YSI 556 MPS	Turb. Meter: Hach 2100P
Purge Start: 11:46	Purge End: 12:06	Total Volume Purged (gal):	0.55

Purging Data

Time	Water Level (ft)	Vol Purged (gal)	Pump Rate (gal/min)	DO (mg/L)	Temp (°C)	SEC (µS/cm)	pH	ORP (mV)	Turbidity (NTU)	Salinity	Color	Odor
11:56	7.91	0.30	0.03	1.05	21.93	213.0	5.27	1.8	83.60		turbid	none
11:59	7.91	0.40	0.03	0.89	22.12	256.0	5.49	-23.9	69.20			
12:02	7.91	0.50	0.03	1.33	22.16	269.0	5.58	-29.5	63.30			

Sampling Data

<u>Sample Information</u>		<u>Final Purge Readings</u>		<u>Hach Field Data (mg/L)</u>		<u>CHEMetrics Field Data (mg/L)</u>	
Sample Date:	12/8/2005	DO (mg/L):	0.89	DO:		DO High Range:	
Sample Start Time:	12:06	Temp (°C):	22.18	CO2:		DO High Range:	
Sample End Time:	12:16	SEC (uS/cm):	273	Alkalinity:		CO2 High Range:	
Field Filtered:	<input type="checkbox"/>	pH:	5.68	Ferrous Iron:		CO2 Low Range:	
Duplicate:	<input type="checkbox"/>	ORP (mV):	-35.1	H2S:			
		Turb (NTU):	59.1	Manganese:			
		Salinity:		Sulfate:		Alkalinity High Range:	
				Sulfide:		Alkalinity Low Range:	
				Nitrate:			
<u>Lab Analyses/Methods:</u>		<u>Technician Initials</u>					
"PAHs, VOCs"							