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NAS CECIL FIELD, FL
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FOURTH QUARTER 2002 OPERATIONS AND MAINTENANCE STATUS REPORT FOR
BIOSPARGING AND SOIL VAPOR EXTRACTION SYSTEM AT DAY TANK 1 SITE NAS CECIL
FIELD FL
3/1/2003
TERRAINE INC ENVIRONMENTAL SERVICES



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**Fourth Quarter 2002
Operations and Maintenance Status Report
Revision 01**

**Biosparging and Soil Vapor Extraction System
Day Tank 1 Site
October 1, 2002 – December 31, 2002**

**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**

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March 2003

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A	Laboratory Analytical Reports for Air Samples (on CD only)
B	Laboratory Analytical Reports for Groundwater Samples (on CD only)

Acronyms

ABB-ES	ABB Environmental Services, Inc.
acfh	actual cubic feet per hour
acfm	actual cubic feet per minute
AST	aboveground storage tank
bls	below land surface
CCI	CH2M HILL Constructors, Inc.
CLEAN	Comprehensive Long-Term Environmental Action, Navy
CTO	Contract Task Order
DO	dissolved oxygen
EPA	U.S. Environmental Protection Agency
FAC	Florida Administrative Code
GCTLs	groundwater cleanup target levels
J.A. Jones	J.A. Jones Environmental Services
LNAPL	light non-aqueous phase liquids
NAS	Naval Air Station
NAVFAC	Naval Facilities Engineering Command
O&M	operation and maintenance
psi	pounds per square inch
RAP	Remedial Action Plan
SVOAs	semivolatile organic aromatics
TERRAINE	Terraine, Inc.
VCS	vapor collection system
VEW	vapor extraction well
VOAs	volatile organic aromatics
VOCs	volatile organic compounds

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 Blanket Ordering Agreement (BOA) Contract No. N62467-02-G-0352, Contract Task Order 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 to December 31, 2002.

1.1 Objective

The objective of the remedial action at the Day Tank 1 site is 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). Biosparging/vapor collection is the technology being utilized to achieve this objective.

1.2 Site History

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. The site formerly contained a 200,000-gallon aboveground storage tank (AST), piping, and associated equipment to supply jet propellant fuel to the high-speed refuelers located on the flightline. It was reported that numerous spills occurred at the site over the course of the operation of the fuel delivery system (ABB Environmental Services, Inc. [ABB-ES], 1997). ABB-ES completed a contamination assessment for the facility in 1996, which documented the presence of petroleum-contaminated soil and groundwater at the site. A Remedial Action Plan (RAP) was subsequently developed by ABB-ES in 1997 for the excavation of 20,000 tons of petroleum-contaminated soil and the installation of a biosparging/vapor collection remediation system to address the contaminated groundwater at the site. The AST was removed and 24,000 tons of contaminated soil was excavated in November 1999 by CCI/J.A. Jones Environmental Services (J.A. Jones) under Response Action Contract No. N62467-98-D-0995, CTO No. 0002 (CCI, 2000). The biosparge/vapor collection system (VCS) was constructed by CCI/J.A. Jones from January 2000 to February 2000 and start-up was performed on February 29, 2000. The system was operated and maintained by CCI/J.A. Jones under Response Action Contract No. N62467-98-D-0995, Contract Task Order (CTO) No. 0002 for the first year of operation and then operated and maintained by CCI/J.A. Jones under Response Action Contract No. N62467-98-D-0995, CTO No. 0062 through September 30, 2002. TERRAINE has been operating and maintaining the system since October 1, 2002 under BOA Contract No. N62467-02-G-0352, CTO No. 0001.

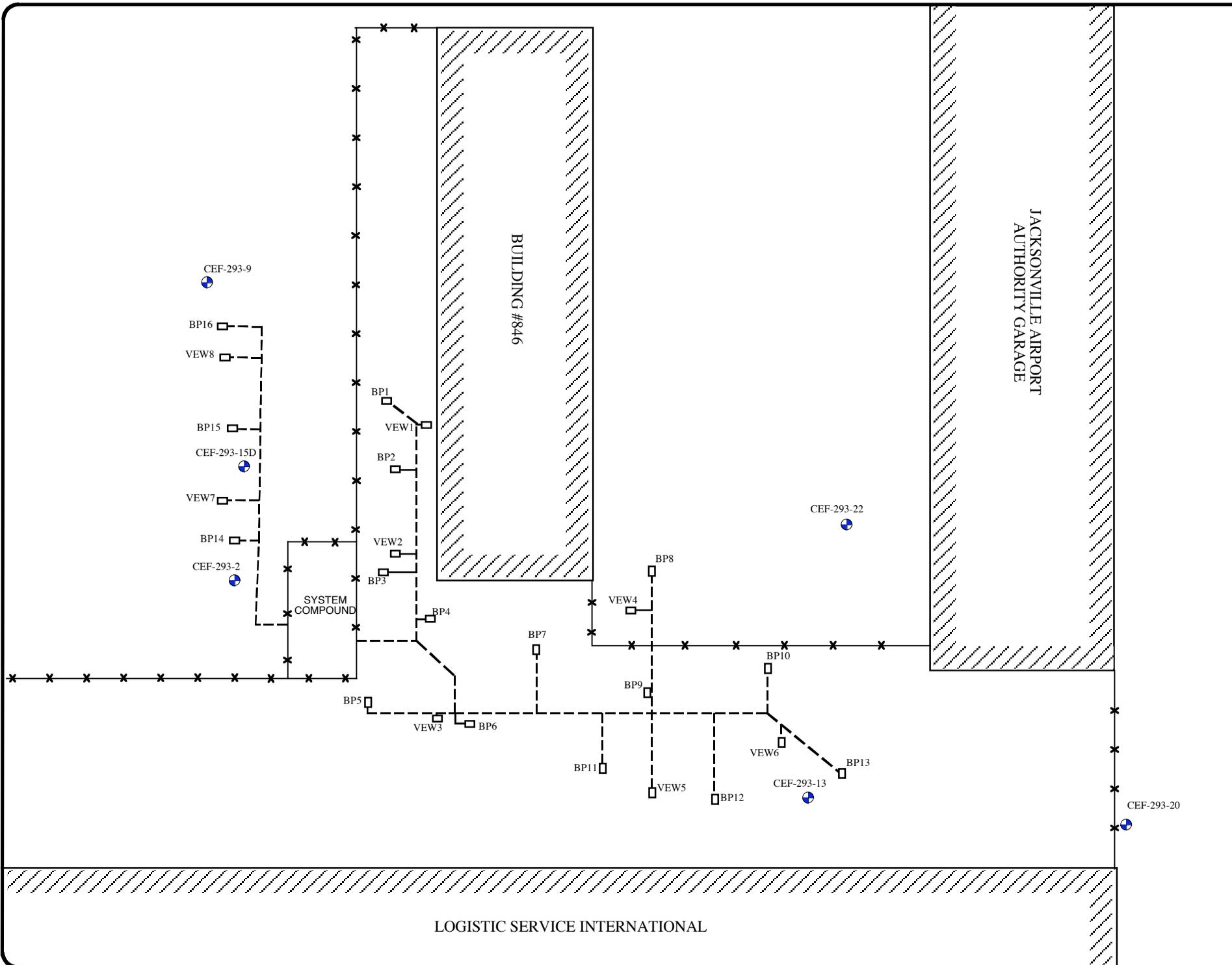
1.3 Remediation System/Technology Description

The chosen technology utilizes the injection of compressed air into the groundwater to volatilize and promote biodegradation of dissolved organic compounds. The vapor collection system (VCS) was installed to recover the undissolved portion of the injected air.

The biosparge system consists of 16 injection wells that are screened from 32 to 35 feet below land surface (bls), a rotary screw-type compressor, a receiver tank, two oil coalescing filters, and associated piping and instrumentation. The biosparge system is designed for each biosparge well to operate at an airflow rate of 60 actual cubic feet per hour (acfh) and at a wellhead pressure of 18 pounds per square inch (psi).

The VCS consists of eight extraction wells that are screened from 3 to 18 feet bls, a regenerative vacuum blower, a moisture separator equipped with a centrifugal transfer pump and storage tank, and associated piping and instrumentation. The VCS was initially equipped with two 1,000-pound granular activated carbon units (installed in series), which were removed after the first 30 days of operation based upon the concentrations of the pre-treatment air stream. The VCS is designed for each vapor extraction well to operate at an airflow rate of 6 actual cubic feet per minute (acfm) and at a vacuum pressure of 23 inches of water (in H₂O).

The locations of the biosparge/vapor extraction wells and the remediation system are shown on Figure 1-1.



NOTES

DASHED LINES INDICATE SUBSURFACE FEATURES

LEGEND

- FENCE
- UNDERGROUND LINES
- VAULT COVER
- MONITORING WELL



DAY TANK 1
 NAVAL AIR STATION JACKSONVILLE
 JACKSONVILLE, FL



DWN BY: DNH	CHK BY: MJP
SCALE: 1" = 40'	APR BY: JLY
DATE: 12/30/02	FILE:

2.0 System Performance Monitoring

O&M and system checks were performed weekly during the monitoring period. During an O&M check, a preventative maintenance checklist (based upon manufacturer's recommendations) is completed, any required maintenance activity is performed, and system performance is conducted, which consists of recording system meter and gauge readings.

2.1 Operational Efficiencies

2.1.1 Biosparging System

	Period	To Date
Hours of Possible Operation:	2,208	20,495
Hours of Actual Operation:	2,080	18,075
Percent hours of Operation:	94.2	88.2

2.1.2 Vapor Collection System

	Period	To Date
Hours of Possible Operation:	2,208	20,495
Hours of Actual Operation:	2,152	19,280
Percent hours of Operation:	97.5	94.1

2.2 Summary of Maintenance and System Downtime

Maintenance was performed during the period in accordance with manufacturer's specifications.

The biosparge system was shut down for a total of 128 hours (5.3 days) during the monitoring period as described below:

- The system was down for approximately 72 hours between October 25-31, 2002. The system was restarted October 31, 2002.
- The system was manually shut down for a total of 56 hours during quarterly sampling conducted December 9-10, 2002. The system was restarted after completion of sampling and water level tagging activities.
- The vapor collection system was shut down for a total of 56 hours (2.3 days) during the monitoring period as described below:
- The system was manually shut down for a total of 56 hours during quarterly sampling conducted December 9-10, 2002. The system was restarted after completion of sampling and water level tagging activities.

2.3 Pressure/Flow Rate Monitoring

2.3.1 Air Sparge System

During the monitoring period, pressure was measured at each sparge wellhead on a monthly basis. The airflow rate at each header pipe was measured on the same schedule. The data from the flow and pressure measurement events are provided on Table 2-1.

During normal operation, the wellhead pressures for the shallow sparge wells averaged 11.4 psi, compared to the design pressure of 18 psi. The air injection rate averaged 47.1 acfh for each sparge well compared to the design injection rate of 60 acfh per sparge well.

2.3.2 Vapor Extraction System

During the monitoring period, vacuum pressure was measured at each vapor extraction wellhead on a monthly basis. The airflow rate at each header pipe was measured on the same schedule. The data from the flow and vacuum pressure measurement events are provided on Table 2-2.

During normal operation, the wellhead vacuum pressures for the vapor extraction wells averaged 19.8 inches of water, compared to the design vacuum pressure of 23 inches of water. The airflow rates averaged 9.5 acfm for each extraction well, compared to the design extraction rate of 6 acfm.

2.4 Groundwater Level Measurements

Depth to groundwater/light non-aqueous phase liquid (LNAPL) measurements were recorded at selected monitoring wells on a quarterly basis during the monitoring period. The top of casing elevation, depth to LNAPL measurements, depth to water measurements, calculated LNAPL thickness, and calculated water level elevations are provided on Table 2-3.

Approximately 0.95 feet of LNAPL was noted in VEW-1 during the monitoring period. LNAPL was not recovered from VEW-1 during the monitoring period. Total LNAPL recovered to date is 17.9 gallons.

TABLE 2-1
BIOSPARGE WELLHEAD PRESSURE/FLOW MEASUREMENTS
DAY TANK 1 BIOSPARGE/VAPOR COLLECTION SYSTEM
NAS CECIL FIELD
JACKSONVILLE, FLORIDA

AS Well	Date	Wellhead Flow (acfh)	Wellhead Pressure (psi)
BP-01	2/29/00	60	3
	3/1/00	60	5
	3/2/00	60	6
	4/7/00	65	NM
	4/24/00	60	12
	5/30/00	60	11
	7/24/00	60	12
	8/22/00	60	12
	10/30/00	60	11
	11/27/00	60	11
	12/11/00	60	10
	1/29/01	60	11
	2/26/01	70	10
	4/16/01	55	11
	5/21/01	55	10.5
	7/3/01	55	10
	7/30/01	50	11
	8/29/01	55	10
	9/18/01	40	10
	10/29/01	60	10
	11/26/01	60	10
	12/12/01	55	10
	1/30/02	50	10
	2/25/02	60	10
	3/28/02	50	12
	4/15/02	60	12
	5/20/02	60	12
	6/26/02	60	12
	7/29/02	60	12
	8/12/02	60	12
	9/23/02	NM	NM
10/17/02	60	10	
11/14/02	14	15	
12/19/02	60	15	

TABLE 2-1
BIOSPARGE WELLHEAD PRESSURE/FLOW MEASUREMENTS
DAY TANK 1 BIOSPARGE/VAPOR COLLECTION SYSTEM
NAS CECIL FIELD
JACKSONVILLE, FLORIDA

AS Well	Date	Wellhead Flow (acfh)	Wellhead Pressure (psi)
BP-02	2/29/00	60	10
	3/1/00	60	10
	3/2/00	62	10
	4/7/00	65	10
	4/24/00	60	10
	5/30/00	60	10
	7/24/00	55	10
	8/22/00	60	10
	10/30/00	60	10
	11/27/00	60	10
	12/11/00	60	10
	1/29/01	65	10
	2/26/01	75	9
	4/16/01	60	10
	5/21/01	55	10
	7/3/01	45	10
	7/30/01	60	10
	8/29/01	50	10
	9/18/01	55	10
	10/29/01	60	10
	11/26/01	60	10
	12/12/01	55	10
	1/30/02	55	10
	2/25/02	60	10
	3/28/02	60	10
	4/15/02	60	10
	5/20/02	60	10
	6/26/02	60	10
	7/29/02	60	10
	8/12/02	60	10
9/23/02	NM	NM	
10/17/02	50	14	
11/14/02	16	13	
12/19/02	62	11	

TABLE 2-1
BIOSPARGE WELLHEAD PRESSURE/FLOW MEASUREMENTS
DAY TANK 1 BIOSPARGE/VAPOR COLLECTION SYSTEM
NAS CECIL FIELD
JACKSONVILLE, FLORIDA

AS Well	Date	Wellhead Flow (acfh)	Wellhead Pressure (psi)
BP-03	2/29/00	60	10
	3/1/00	60	10
	3/2/00	64	9.5
	4/7/00	65	8
	4/24/00	60	10
	5/30/00	NM	10
	7/24/00	120	10
	8/22/00	NM	10
	10/30/00	120	10
	11/27/00	120	10
	12/11/00	NM	10
	1/29/01	NM	10
	2/26/01	120	9
	4/16/01	NM	10
	5/21/01	NM	10
	7/3/01	NM	10
	7/30/01	NM	10
	8/29/01	NM	10
	9/18/01	NM	10
	10/29/01	NM	10
	11/26/01	NM	10
	12/12/01	NM	10
	1/30/02	NM	10
	2/25/02	60	10
	3/28/02	NM	10
	4/15/02	60	10
	5/20/02	60	10
	6/26/02	60	10
	7/29/02	60	10
	8/12/02	60	10
9/23/02	NM	NM	
10/17/02	60	11	
11/14/02	13	13	
12/19/02	62	10	

TABLE 2-1
BIOSPARGE WELLHEAD PRESSURE/FLOW MEASUREMENTS
DAY TANK 1 BIOSPARGE/VAPOR COLLECTION SYSTEM
NAS CECIL FIELD
JACKSONVILLE, FLORIDA

AS Well	Date	Wellhead Flow (acfh)	Wellhead Pressure (psi)
BP-04	2/29/00	60	10
	3/1/00	60	10
	3/2/00	62	10
	4/7/00	65	10
	4/24/00	60	10
	5/30/00	60	10
	7/24/00	50	10
	8/22/00	60	10
	10/30/00	60	11
	11/27/00	60	10
	12/11/00	60	10
	1/29/01	60	10
	2/26/01	50	10
	4/16/01	60	10
	5/21/01	60	10
	7/3/01	60	10
	7/30/01	60	10
	8/29/01	60	10
	9/18/01	60	10
	10/29/01	55	10
	11/26/01	60	10
	12/12/01	65	10
	1/30/02	60	10
	2/25/02	60	10
	3/28/02	60	10
	4/15/02	60	10
	5/20/02	60	10
	6/26/02	55	10
	7/29/02	55	10
	8/12/02	60	12
9/23/02	NM	NM	
10/17/02	60	12	
11/14/02	15	9	
12/19/02	61	11	

TABLE 2-1
BIOSPARGE WELLHEAD PRESSURE/FLOW MEASUREMENTS
DAY TANK 1 BIOSPARGE/VAPOR COLLECTION SYSTEM
NAS CECIL FIELD
JACKSONVILLE, FLORIDA

AS Well	Date	Wellhead Flow (acfh)	Wellhead Pressure (psi)
BP-05	2/29/00	60	10
	3/1/00	60	10
	3/2/00	60	10
	4/7/00	60	10
	4/24/00	60	10
	5/30/00	60	10
	7/24/00	50	10
	8/22/00	60	10
	10/30/00	60	10
	11/27/00	60	10
	12/11/00	65	10
	1/29/01	60	10
	2/26/01	70	9
	4/16/01	60	10
	5/21/01	60	10
	7/3/01	35	10
	7/30/01	40	10
	8/29/01	45	10
	9/18/01	50	10
	10/29/01	60	10
	11/26/01	60	10
	12/12/01	60	10
	1/30/02	60	10
	2/25/02	60	10
	3/28/02	60	10
	4/15/02	60	10
	5/20/02	40	10
	6/26/02	60	10
	7/29/02	50	10
	8/12/02	60	10
9/23/02	NM	NM	
10/17/02	50	13	
11/14/02	15	10	
12/19/02	61	10	

TABLE 2-1
BIOSPARGE WELLHEAD PRESSURE/FLOW MEASUREMENTS
DAY TANK 1 BIOSPARGE/VAPOR COLLECTION SYSTEM
NAS CECIL FIELD
JACKSONVILLE, FLORIDA

AS Well	Date	Wellhead Flow (acfh)	Wellhead Pressure (psi)
BP-06	2/29/00	60	10
	3/1/00	60	10
	3/2/00	60	10
	4/7/00	65	10
	4/24/00	60	10
	5/30/00	60	10
	7/24/00	60	10
	8/22/00	60	10
	10/30/00	60	10
	11/27/00	60	10
	12/11/00	70	10
	1/29/01	60	10
	2/26/01	80	10
	4/16/01	60	10
	5/21/01	60	10
	7/3/01	40	10
	7/30/01	50	10
	8/29/01	60	10
	9/18/01	60	10
	10/29/01	50	10
	11/26/01	NA	NA
	12/12/01	60	10
	1/30/02	60	9
	2/25/02	60	10
	3/28/02	60	10
	4/15/02	60	10
	5/20/02	60	10
	6/26/02	50	10
	7/29/02	60	10
	8/12/02	60	10
9/23/02	NM	NM	
10/17/02	60	11	
11/14/02	15	10	
12/19/02	61	12	

TABLE 2-1
BIOSPARGE WELLHEAD PRESSURE/FLOW MEASUREMENTS
DAY TANK 1 BIOSPARGE/VAPOR COLLECTION SYSTEM
NAS CECIL FIELD
JACKSONVILLE, FLORIDA

AS Well	Date	Wellhead Flow (acfh)	Wellhead Pressure (psi)
BP-07	2/29/00	65	10
	3/1/00	65	10
	3/2/00	60	10
	4/7/00	60	10
	4/24/00	55	10
	5/30/00	60	10
	7/24/00	50	10
	8/22/00	60	10
	10/30/00	60	10
	11/27/00	60	10
	12/11/00	70	10
	1/29/01	60	10
	2/26/01	80	8
	4/16/01	60	10
	5/21/01	65	10
	7/3/01	60	10
	7/30/01	60	10
	8/29/01	60	10
	9/18/01	55	10
	10/29/01	55	10
	11/26/01	60	10
	12/12/01	60	10
	1/30/02	60	10
	2/25/02	60	10
	3/28/02	55	10
	4/15/02	60	10
	5/20/02	50	10
	6/26/02	60	10
	7/29/02	55	10
	8/12/02	60	10
9/23/02	NM	NM	
10/17/02	50	10	
11/14/02	16	11	
12/19/02	60	10	

TABLE 2-1
BIOSPARGE WELLHEAD PRESSURE/FLOW MEASUREMENTS
DAY TANK 1 BIOSPARGE/VAPOR COLLECTION SYSTEM
NAS CECIL FIELD
JACKSONVILLE, FLORIDA

AS Well	Date	Wellhead Flow (acfh)	Wellhead Pressure (psi)
BP-08	2/29/00	65	10
	3/1/00	65	10
	3/2/00	60	10
	4/7/00	60	10
	4/24/00	NM	NM
	5/30/00	50	10
	7/24/00	60	10
	8/22/00	60	10
	10/30/00	60	10
	11/27/00	60	10
	12/11/00	60	10
	1/29/01	50	10
	2/26/01	25	9
	4/16/01	70	10
	5/21/01	55	10
	7/3/01	30	10
	7/30/01	50	10
	8/29/01	60	10
	9/18/01	45	10
	10/29/01	55	10
	11/26/01	60	10
	12/12/01	60	10
	1/30/02	60	10
	2/25/02	60	10
	3/28/02	60	11
	4/15/02	60	10
	5/20/02	60	10
	6/26/02	60	11
	7/29/02	60	10
	8/12/02	NM	NM
9/23/02	NM	NM	
10/17/02	60	10	
11/14/02	15	10	
12/19/02	60	11	

TABLE 2-1
BIOSPARGE WELLHEAD PRESSURE/FLOW MEASUREMENTS
DAY TANK 1 BIOSPARGE/VAPOR COLLECTION SYSTEM
NAS CECIL FIELD
JACKSONVILLE, FLORIDA

AS Well	Date	Wellhead Flow (acfh)	Wellhead Pressure (psi)
BP-09	2/29/00	60	10
	3/1/00	65	12
	3/2/00	NM	NM
	4/7/00	65	10
	4/24/00	NM	NM
	5/30/00	60	10
	7/24/00	60	10
	8/22/00	60	10
	10/30/00	60	10
	11/27/00	60	10
	12/11/00	60	10
	1/29/01	70	10
	2/26/01	70	10
	4/16/01	65	10
	5/21/01	60	10
	7/3/01	50	10
	7/30/01	60	10
	8/29/01	60	10
	9/18/01	60	10
	10/29/01	55	10
	11/26/01	60	10
	12/12/01	60	10
	1/30/02	65	10
	2/25/02	60	10
	3/28/02	60	10
	4/15/02	60	10
	5/20/02	60	10
	6/26/02	65	10
	7/29/02	60	10
	8/12/02	60	10
9/23/02	NM	NM	
10/17/02	50	11	
11/14/02	16	10	
12/19/02	61	12	

TABLE 2-1
BIOSPARGE WELLHEAD PRESSURE/FLOW MEASUREMENTS
DAY TANK 1 BIOSPARGE/VAPOR COLLECTION SYSTEM
NAS CECIL FIELD
JACKSONVILLE, FLORIDA

AS Well	Date	Wellhead Flow (acfh)	Wellhead Pressure (psi)
BP-10	2/29/00	60	10
	3/1/00	60	10
	3/2/00	60	10
	4/7/00	NM	10
	4/24/00	NM	NM
	5/30/00	60	10
	7/24/00	50	10
	8/22/00	55	10
	10/30/00	60	10
	11/27/00	60	10
	12/11/00	65	10
	1/29/01	60	10
	2/26/01	80	10
	4/16/01	80	10
	5/21/01	70	10
	7/3/01	40	10
	7/30/01	50	10
	8/29/01	55	10
	9/18/01	60	10
	10/29/01	60	10
	11/26/01	60	10
	12/12/01	60	10
	1/30/02	60	10
	2/25/02	60	9
	3/28/02	60	12
	4/15/02	60	10
	5/20/02	60	12
	6/26/02	50	10
	7/29/02	60	10
	8/12/02	NM	NM
9/23/02	NM	NM	
10/17/02	60	10	
11/14/02	16	10	
12/19/02	NM	NM	

TABLE 2-1
BIOSPARGE WELLHEAD PRESSURE/FLOW MEASUREMENTS
DAY TANK 1 BIOSPARGE/VAPOR COLLECTION SYSTEM
NAS CECIL FIELD
JACKSONVILLE, FLORIDA

AS Well	Date	Wellhead Flow (acfh)	Wellhead Pressure (psi)
BP-11	2/29/00	60	10
	3/1/00	60	10
	3/2/00	60	10
	4/7/00	60	10
	4/24/00	NM	NM
	5/30/00	60	10
	7/24/00	60	10
	8/22/00	60	10
	10/30/00	60	10
	11/27/00	60	10
	12/11/00	60	10
	1/29/01	50	10
	2/26/01	50	10
	4/16/01	55	11
	5/21/01	50	10
	7/3/01	30	10
	7/30/01	60	10
	8/29/01	50	10
	9/18/01	60	10
	10/29/01	55	10
	11/26/01	60	10
	12/12/01	60	10
	1/30/02	60	10
	2/25/02	66	10
	3/28/02	60	10
	4/15/02	60	10
	5/20/02	55	10
	6/26/02	60	11
	7/29/02	60	10
	8/12/02	60	10
9/23/02	NM	NM	
10/17/02	60	10	
11/14/02	16	9	
12/19/02	NM	NM	

TABLE 2-1
BIOSPARGE WELLHEAD PRESSURE/FLOW MEASUREMENTS
DAY TANK 1 BIOSPARGE/VAPOR COLLECTION SYSTEM
NAS CECIL FIELD
JACKSONVILLE, FLORIDA

AS Well	Date	Wellhead Flow (acfh)	Wellhead Pressure (psi)
BP-12	2/29/00	NM	NM
	3/1/00	65	NM
	3/2/00	60	NM
	4/7/00	65	NM
	4/24/00	NM	NM
	5/30/00	55	10
	7/24/00	60	10
	8/22/00	60	10
	10/30/00	60	10.5
	11/27/00	60	10
	12/11/00	65	10
	1/29/01	NM	NM
	2/26/01	60	10
	4/16/01	60	10
	5/21/01	50	10
	7/3/01	20	10
	7/30/01	50	10
	8/29/01	50	10
	9/18/01	60	12
	10/29/01	60	10
	11/26/01	40	10
	12/12/01	60	10
	1/30/02	55	10
	2/25/02	60	11
	3/28/02	50	10
	4/15/02	60	12
	5/20/02	40	12
	6/26/02	55	10
	7/29/02	60	10
	8/12/02	60	11
9/23/02	NM	NM	
10/17/02	60	10	
11/14/02	15	9	
12/19/02	61	14	

TABLE 2-1
BIOSPARGE WELLHEAD PRESSURE/FLOW MEASUREMENTS
DAY TANK 1 BIOSPARGE/VAPOR COLLECTION SYSTEM
NAS CECIL FIELD
JACKSONVILLE, FLORIDA

AS Well	Date	Wellhead Flow (acfh)	Wellhead Pressure (psi)
BP-13	2/29/00	65	10
	3/1/00	65	10
	3/2/00	60	10
	4/7/00	65	10
	4/24/00	60	10
	5/30/00	60	10
	7/24/00	40	10
	8/22/00	60	10
	10/30/00	65	10
	11/27/00	60	10
	12/11/00	65	10
	1/29/01	50	10
	2/26/01	20	9
	4/16/01	60	10
	5/21/01	65	10
	7/3/01	65	10
	7/30/01	60	10
	8/29/01	60	10
	9/18/01	60	10
	10/29/01	60	10
	11/26/01	60	10
	12/12/01	60	10
	1/30/02	60	10
	2/25/02	60	10
	3/28/02	60	10
	4/15/02	60	10
	5/20/02	70	10
	6/26/02	60	10
	7/29/02	60	10
	8/12/02	60	10
9/23/02	NM	NM	
10/17/02	50	11	
11/14/02	16	11	
12/19/02	62	15	

TABLE 2-1
BIOSPARGE WELLHEAD PRESSURE/FLOW MEASUREMENTS
DAY TANK 1 BIOSPARGE/VAPOR COLLECTION SYSTEM
NAS CECIL FIELD
JACKSONVILLE, FLORIDA

AS Well	Date	Wellhead Flow (acfh)	Wellhead Pressure (psi)
BP-14	2/29/00	60	16
	3/1/00	60	16
	3/2/00	60	16
	4/7/00	55	16
	4/24/00	55	16
	5/30/00	NM	10
	7/24/00	60	16
	8/22/00	60	16
	10/30/00	70	18
	11/27/00	60	18
	12/11/00	60	10
	1/29/01	65	10
	2/26/01	70	12
	4/16/01	60	10
	5/21/01	60	16
	7/3/01	50	18
	7/30/01	50	14
	8/29/01	55	15
	9/18/01	60	16
	10/29/01	60	10
	11/26/01	60	15
	12/12/01	60	10
	1/30/02	60	10
	2/25/02	60	16
	3/28/02	55	12
	4/15/02	60	16
	5/20/02	60	14
	6/26/02	60	10
	7/29/02	55	16
	8/12/02	60	17
9/23/02	NM	NM	
10/17/02	60	14	
11/14/02	NM	NM	
12/19/02	80	18	

TABLE 2-1
BIOSPARGE WELLHEAD PRESSURE/FLOW MEASUREMENTS
DAY TANK 1 BIOSPARGE/VAPOR COLLECTION SYSTEM
NAS CECIL FIELD
JACKSONVILLE, FLORIDA

AS Well	Date	Wellhead Flow (acfh)	Wellhead Pressure (psi)
BP-15	2/29/00	60	10
	3/1/00	60	10
	3/2/00	60	10
	4/7/00	60	10
	4/24/00	55	10
	5/30/00	60	10
	7/24/00	60	10
	8/22/00	60	10
	10/30/00	60	10
	11/27/00	60	10
	12/11/00	60	10
	1/29/01	60	10
	2/26/01	60	9
	4/16/01	50	10
	5/21/01	50	10
	7/3/01	30	10
	7/30/01	50	10
	8/29/01	50	10
	9/18/01	60	10
	10/29/01	60	10
	11/26/01	60	10
	12/12/01	60	10
	1/30/02	65	10
	2/25/02	60	10
	3/28/02	60	10
	4/15/02	60	10
	5/20/02	55	10
	6/26/02	60	10
	7/29/02	60	10
	8/12/02	60	11
9/23/02	NM	NM	
10/17/02	50	12	
11/14/02	NM	NM	
12/19/02	80	12	

TABLE 2-1
BIOSPARGE WELLHEAD PRESSURE/FLOW MEASUREMENTS
DAY TANK 1 BIOSPARGE/VAPOR COLLECTION SYSTEM
NAS CECIL FIELD
JACKSONVILLE, FLORIDA

AS Well	Date	Wellhead Flow (acfh)	Wellhead Pressure (psi)
BP-16	2/29/00	60	10
	3/1/00	60	10
	3/2/00	60	10
	4/7/00	65	10
	4/24/00	60	10
	5/30/00	60	10
	7/24/00	60	10
	8/22/00	60	10
	10/30/00	70	10
	11/27/00	60	10
	12/11/00	60	10
	1/29/01	60	10
	2/26/01	70	10
	4/16/01	60	10
	5/21/01	60	10
	7/3/01	50	10
	7/30/01	50	10
	8/29/01	60	10
	9/18/01	60	10
	10/29/01	60	10
	11/26/01	60	10
	12/12/01	60	10
	1/30/02	60	10
	2/25/02	60	10
	3/28/02	60	10
	4/15/02	60	10
	5/20/02	55	10
	6/26/02	55	10
	7/29/02	60	10
	8/12/02	60	10
	9/23/02	NM	NM
	10/17/02	60	10
11/14/02	NM	NM	
12/19/02	60	10	

NM = not measured

psi = pounds per square inch

acfh = actual cubic feet per hour

TABLE 2-2
VAPOR COLLECTION SYSTEM WELLHEAD VACUUM/FLOW MEASUREMENTS
DAY TANK 1 BIOSPARGE/VAPOR COLLECTION SYSTEM
NAS CECIL FIELD
JACKSONVILLE, FLORIDA

Vapor Extraction Well	Date	Wellhead Flow (acfm)	Wellhead Vacuum (in H ₂ O)
VEW-1	2/29/00	4	38
	3/1/00	4	38
	3/2/00	2	39
	4/7/00	3	41
	4/24/00	2	40
	5/30/00	6	6
	7/24/00	11	2
	8/22/00	7	8
	10/30/00	4	10
	11/27/00	6	10
	12/11/00	5	8
	1/29/01	4	21
	2/26/01	5	15
	4/16/01	6	8
	5/21/01	5	36
	7/3/01	5	42
	7/30/01	6	50
	8/29/01	5	NM
	9/18/01	3	22
	10/29/01	5	45
	11/26/01	6	35
	12/12/01	5	45
	1/30/02	6	44
	2/25/02	8	20
	3/28/02	7	35
	4/15/02	8	40
	5/20/02	9	33
	6/26/02	7	35
	7/29/02	7	40
	8/12/02	8	32
9/23/02	NM	NM	
10/17/02	6	37	
11/14/02	14	11	
12/19/02	NM	NM	

TABLE 2-2
VAPOR COLLECTION SYSTEM WELLHEAD VACUUM/FLOW MEASUREMENTS
DAY TANK 1 BIOSPARGE/VAPOR COLLECTION SYSTEM
NAS CECIL FIELD
JACKSONVILLE, FLORIDA

Vapor Extraction Well	Date	Wellhead Flow (acfm)	Wellhead Vacuum (in H ₂ O)
VEW-2	2/29/00	6	26
	3/1/00	6	26
	3/2/00	5	23
	4/7/00	NM	40
	4/24/00	NM	28
	5/30/00	1	26
	7/24/00	2	27
	8/22/00	0	25
	10/30/00	7	26
	11/27/00	4	20
	12/11/00	6	20
	1/29/01	4	25
	2/26/01	8	25
	4/16/01	6	20
	5/21/01	3	34
	7/3/01	4	20
	7/30/01	6	25
	8/29/01	5	20
	9/18/01	4	27
	10/29/01	6	28
	11/26/01	6	32
	12/12/01	5	46
	1/30/02	7	49
	2/25/02	7	32
	3/28/02	6	20
	4/15/02	5	23
	5/20/02	6	23
	6/26/02	6	23
	7/29/02	5	36
	8/12/02	3	23
9/23/02	NM	NM	
10/17/02	0	22	
11/14/02	16	23	
12/19/02	6	25	

TABLE 2-2
VAPOR COLLECTION SYSTEM WELLHEAD VACUUM/FLOW MEASUREMENTS
DAY TANK 1 BIOSPARGE/VAPOR COLLECTION SYSTEM
NAS CECIL FIELD
JACKSONVILLE, FLORIDA

Vapor Extraction Well	Date	Wellhead Flow (acfm)	Wellhead Vacuum (in H ₂ O)
VEW-3	2/29/00	8	28
	3/1/00	8	28
	3/2/00	6	19
	4/7/00	6	18
	4/24/00	6	16
	5/30/00	6	13
	7/24/00	2	30
	8/22/00	6	1
	10/30/00	5	10.5
	11/27/00	6	15
	12/11/00	6.5	14
	1/29/01	6	15
	2/26/01	6	15
	4/16/01	5	14
	5/21/01	6	10
	7/3/01	7	8
	7/30/01	6	10
	8/29/01	6	10
	9/18/01	6	10
	10/29/01	6	10
	11/26/01	NA	NA
	12/12/01	8	60
	1/30/02	6	42
	2/25/02	6	27
	3/28/02	8	28
	4/15/02	7	42
	5/20/02	9	25
	6/26/02	8	29
	7/29/02	7	31
	8/12/02	13	23
9/23/02	NM	NM	
10/17/02	14	11	
11/14/02	16	10	
12/19/02	6	25	

TABLE 2-2
VAPOR COLLECTION SYSTEM WELLHEAD VACUUM/FLOW MEASUREMENTS
DAY TANK 1 BIOSPARGE/VAPOR COLLECTION SYSTEM
NAS CECIL FIELD
JACKSONVILLE, FLORIDA

Vapor Extraction Well	Date	Wellhead Flow (acfm)	Wellhead Vacuum (in H ₂ O)
VEW-4	2/29/00	8	38
	3/1/00	8	38
	3/2/00	5	37
	4/7/00	7	14
	4/24/00	NM	NM
	5/30/00	6	31
	7/24/00	6	15
	8/22/00	6	8
	10/30/00	7	8
	11/27/00	7	8
	12/11/00	7	7
	1/29/01	6	5
	2/26/01	6	12
	4/16/01	8	5
	5/21/01	10	15
	7/3/01	8	6
	7/30/01	6	10
	8/29/01	8	5
	9/18/01	5	4
	10/29/01	6	12
	11/26/01	6	31
	12/12/01	6	54
	1/30/02	6	40
	2/25/02	6	30
	3/28/02	6	31
	4/15/02	6	32
	5/20/02	6	27
	6/26/02	6	31
	7/29/02	6	36
	8/12/02	NM	NM
9/23/02	NM	NM	
10/17/02	NM	NM	
11/14/02	15	20	
12/19/02	5	20	

TABLE 2-2
VAPOR COLLECTION SYSTEM WELLHEAD VACUUM/FLOW MEASUREMENTS
DAY TANK 1 BIOSPARGE/VAPOR COLLECTION SYSTEM
NAS CECIL FIELD
JACKSONVILLE, FLORIDA

Vapor Extraction Well	Date	Wellhead Flow (acfm)	Wellhead Vacuum (in H ₂ O)
VEW-5	2/29/00	5	38
	3/1/00	5	38
	3/2/00	4	37
	4/7/00	6	40
	4/24/00	5	24
	5/30/00	6	5
	7/24/00	6	0
	8/22/00	6	6
	10/30/00	6	32
	11/27/00	6	15
	12/11/00	6	18
	1/29/01	7	10
	2/26/01	7	18
	4/16/01	6	18
	5/21/01	6	24
	7/3/01	6	NM
	7/30/01	6	32
	8/29/01	6	15
	9/18/01	4	29
	10/29/01	6	30
	11/26/01	6	25
	12/12/01	6	51
	1/30/02	10	36
	2/25/02	6	33
	3/28/02	6	38
	4/15/02	6	39
	5/20/02	6	33
	6/26/02	6	34
	7/29/02	5	40
	8/12/02	5	35
9/23/02	NM	NM	
10/17/02	0	3	
11/14/02	16	21	
12/19/02	8	25	

TABLE 2-2
VAPOR COLLECTION SYSTEM WELLHEAD VACUUM/FLOW MEASUREMENTS
DAY TANK 1 BIOSPARGE/VAPOR COLLECTION SYSTEM
NAS CECIL FIELD
JACKSONVILLE, FLORIDA

Vapor Extraction Well	Date	Wellhead Flow (acfm)	Wellhead Vacuum (in H ₂ O)
VEW-6	2/29/00	4	38
	3/1/00	4	38
	3/2/00	4	39
	4/7/00	6	43
	4/24/00	6	40
	5/30/00	6	41
	7/24/00	6	40
	8/22/00	6	10
	10/30/00	6	39
	11/27/00	7	13
	12/11/00	8	20
	1/29/01	7	15
	2/26/01	10	56
	4/16/01	6	20
	5/21/01	6	17
	7/3/01	5	NM
	7/30/01	6	45
	8/29/01	6	18
	9/18/01	4	NM
	10/29/01	6	35
	11/26/01	6	15
	12/12/01	6	55
	1/30/02	6	40
	2/25/02	6	33
	3/28/02	6	39
	4/15/02	6	39
	5/20/02	6	35
	6/26/02	9	35
	7/29/02	6	34
	8/12/02	9	32
9/23/02	NM	NM	
10/17/02	9	32	
11/14/02	16	21	
12/19/02	10	30	

TABLE 2-2
VAPOR COLLECTION SYSTEM WELLHEAD VACUUM/FLOW MEASUREMENTS
DAY TANK 1 BIOSPARGE/VAPOR COLLECTION SYSTEM
NAS CECIL FIELD
JACKSONVILLE, FLORIDA

Vapor Extraction Well	Date	Wellhead Flow (acfm)	Wellhead Vacuum (in H ₂ O)
VEW-7	2/29/00	11	22
	3/1/00	11	24
	3/2/00	6	18
	4/7/00	6	40
	4/24/00	6	15
	5/30/00	5	32
	7/24/00	6	5
	8/22/00	6	5
	10/30/00	7	5
	11/27/00	7	7
	12/11/00	7	5
	1/29/01	6	6
	2/26/01	10	5
	4/16/01	7	5
	5/21/01	6	16
	7/3/01	10	7
	7/30/01	6	5
	8/29/01	8	6
	9/18/01	5	NM
	10/29/01	5	6
	11/26/01	8	6
	12/12/01	8	58
	1/30/02	6	26
	2/25/02	6	20
	3/28/02	7	23
	4/15/02	7	30
	5/20/02	9	19
	6/26/02	9	23
	7/29/02	7	42
	8/12/02	7	32
9/23/02	NM	NM	
10/17/02	6	2	
11/14/02	16	20	
12/19/02	5	0	

TABLE 2-2
VAPOR COLLECTION SYSTEM WELLHEAD VACUUM/FLOW MEASUREMENTS
DAY TANK 1 BIOSPARGE/VAPOR COLLECTION SYSTEM
NAS CECIL FIELD
JACKSONVILLE, FLORIDA

Vapor Extraction Well	Date	Wellhead Flow (acfm)	Wellhead Vacuum (in H ₂ O)
VEW-8	2/29/00	8	24
	3/1/00	8	24
	3/2/00	6	22
	4/7/00	7	20
	4/24/00	6	20
	5/30/00	6	17
	7/24/00	6	14
	8/22/00	6	14
	10/30/00	6	14
	11/27/00	6	15
	12/11/00	6	14
	1/29/01	6	15
	2/26/01	7	15
	4/16/01	6	15
	5/21/01	6	14
	7/3/01	8	25
	7/30/01	6	25
	8/29/01	6	20
	9/18/01	4	6
	10/29/01	5	25
	11/26/01	6	15
	12/12/01	6	53
	1/30/02	6	36
	2/25/02	6	27
	3/28/02	6	31
	4/15/02	6	37
	5/20/02	6	27
	6/26/02	6	27
	7/29/02	6	32
	8/12/02	6	31
9/23/02	NM	NM	
10/17/02	4	28	
11/14/02	16	21	
12/19/02	6	25	

NM = not measured
in H₂O = inches of water
acfm = actual cubic feet per minute

TABLE 2-3
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-293-01	06/13/00	NA	none present	8.79	0.00	NA
	09/14/00		none present	5.55	0.00	NA
	12/21/00		none present	7.72	0.00	NA
	03/15/01		none present	8.03	0.00	NA
	06/25/01		none present	7.37	0.00	NA
	09/19/01		none present	4.17	0.00	NA
	10/03/01		none present	NM	0.00	NA
	12/19/01		none present	7.43	0.00	NA
	03/20/02		none present	7.00	0.00	NA
	06/04/02		none present	7.99	0.00	NA
	09/23/02		none present	5.69	0.00	NA
	12/11/02		none present	NM	0.00	NA
CEF-293-02	06/13/00	NA	none present	9.70	0.00	NA
	09/14/00		none present	6.83	0.00	NA
	12/21/00		none present	8.81	0.00	NA
	03/15/01		none present	9.22	0.00	NA
	06/25/01		none present	8.36	0.00	NA
	09/19/01		none present	5.87	0.00	NA
	10/03/01		none present	NM	0.00	NA
	12/19/01		none present	8.53	0.00	NA
	03/20/02		none present	8.06	0.00	NA
	06/04/02		none present	9.00	0.00	NA
	09/23/02		none present	6.50	0.00	NA
	12/11/02		none present	NM	0.00	NA
CEF-293-04	06/13/00	77.22	none present	9.45	0.00	67.77
	09/14/00		none present	5.44	0.00	71.78
	12/21/00		none present	8.33	0.00	68.89
	03/15/01		none present	8.62	0.00	68.60
	06/25/01		none present	7.75	0.00	69.47
	09/19/01		none present	1.85	0.00	75.37
	10/03/01		none present	6.33	0.00	70.89
	12/19/01		none present	7.74	0.00	69.48
	03/20/02		none present	7.39	0.00	69.83
	06/04/02		none present	8.61	0.00	68.61
	09/23/02		none present	2.85	0.00	74.37
	12/11/02		none present	3.12	0.00	74.10

TABLE 2-3
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-293-05	06/13/00	NA	none present	9.01	0.00	NA
	09/14/00		none present	3.18	0.00	NA
	12/21/00		none present	7.95	0.00	NA
	03/15/01		none present	NM	0.00	NA
	06/25/01		none present	NM	0.00	NA
	09/19/01		none present	1.95	0.00	NA
	10/03/01		none present	NM	0.00	NA
	12/19/01		none present	7.59	0.00	NA
	03/20/02		none present	7.26	0.00	NA
	06/04/02		none present	8.22	0.00	NA
	09/23/02		none present	5.81	0.00	NA
	12/11/02		none present	NM	0.00	NA
CEF-293-06	06/13/00	NA	none present	9.77	0.00	NA
	09/14/00		none present	6.89	0.00	NA
	12/21/00		none present	8.75	0.00	NA
	03/15/01		none present	9.00	0.00	NA
	06/25/01		none present	8.39	0.00	NA
	09/19/01		none present	5.85	0.00	NA
	10/03/01		none present	NM	0.00	NA
	12/19/01		none present	8.44	0.00	NA
	03/20/02		none present	8.15	0.00	NA
	06/04/02		none present	9.03	0.00	NA
	09/23/02		none present	6.99	0.00	NA
	12/11/02		none present	NM	0.00	NA
CEF-293-07	06/13/00	NA	none present	9.95	0.00	NA
	09/14/00		none present	6.85	0.00	NA
	12/21/00		none present	8.92	0.00	NA
	03/15/01		none present	9.29	0.00	NA
	06/25/01		none present	8.60	0.00	NA
	09/19/01		none present	5.44	0.00	NA
	10/03/01		none present	NM	0.00	NA
	12/19/01		none present	8.55	0.00	NA
	03/20/02		none present	8.21	0.00	NA
	06/04/02		none present	9.10	0.00	NA
	09/23/02		none present	7.21	0.00	NA
	12/11/02		none present	NM	0.00	NA

TABLE 2-3
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-293-09	06/13/00	77.36	none present	9.93	0.00	67.43
	09/14/00		none present	7.01	0.00	70.35
	12/21/00		none present	8.96	0.00	68.40
	03/15/01		none present	9.29	0.00	68.07
	06/25/01		none present	8.37	0.00	68.99
	09/19/01		none present	5.81	0.00	71.55
	10/03/01		none present	7.29	0.00	70.07
	12/19/01		none present	8.70	0.00	68.66
	03/20/02		none present	8.13	0.00	69.23
	06/04/02		none present	9.21	0.00	68.15
	09/23/02		none present	7.20	0.00	70.16
	12/11/02		none present	8.19	0.00	69.17
CEF-293-10	06/13/00	NA	none present	9.46	0.00	NA
	09/14/00		none present	6.75	0.00	NA
	12/21/00		none present	8.52	0.00	NA
	03/15/01		none present	8.80	0.00	NA
	06/25/01		none present	8.21	0.00	NA
	09/19/01		none present	5.69	0.00	NA
	10/03/01		none present	NM	0.00	NA
	12/19/01		none present	8.28	0.00	NA
	03/20/02		none present	8.01	0.00	NA
	06/04/02		none present	8.77	0.00	NA
	09/23/02		none present	6.10	0.00	NA
	12/11/02		none present	NM	0.00	NA
CEF-293-11	06/13/00	NA	none present	9.62	0.00	NA
	09/14/00		none present	6.91	0.00	NA
	12/21/00		none present	8.70	0.00	NA
	03/15/01		none present	9.12	0.00	NA
	06/25/01		none present	8.46	0.00	NA
	09/19/01		none present	5.85	0.00	NA
	10/03/01		none present	NM	0.00	NA
	12/19/01		none present	8.48	0.00	NA
	03/20/02		none present	8.31	0.00	NA
	06/04/02		none present	8.97	0.00	NA
	09/23/02		none present	7.15	0.00	NA
	12/11/02		none present	NM	0.00	NA

TABLE 2-3
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-293-13	06/13/00	75.97	none present	9.05	0.00	66.92
	09/14/00		none present	6.31	0.00	69.66
	12/21/00		none present	8.11	0.00	67.86
	03/15/01		none present	8.63	0.00	67.34
	06/25/01		none present	8.06	0.00	67.91
	09/19/01		none present	7.40	0.00	68.57
	10/03/01		none present	6.67	0.00	69.30
	12/19/01		none present	7.89	0.00	68.08
	03/20/02		none present	7.69	0.00	68.28
	06/04/02		none present	8.32	0.00	67.65
	09/23/02		none present	6.56	0.00	69.41
	12/11/02		none present	NM	0.00	NA
CEF-293-14	06/13/00	NA	none present	9.34	0.00	NA
	09/14/00		none present	6.45	0.00	NA
	12/21/00		none present	8.40	0.00	NA
	03/15/01		none present	9.71	0.00	NA
	06/25/01		none present	8.10	0.00	NA
	09/19/01		none present	5.19	0.00	NA
	10/03/01		none present	NM	0.00	NA
	12/19/01		none present	8.14	0.00	NA
	03/20/02		none present	7.73	0.00	NA
	06/04/02		none present	8.56	0.00	NA
	09/23/02		none present	NM	0.00	NA
	12/11/02		none present	NM	0.00	NA
CEF-293-19	06/13/00	NA	none present	8.95	0.00	NA
	09/14/00		none present	6.99	0.00	NA
	12/21/00		none present	8.75	0.00	NA
	03/15/01		none present	9.11	0.00	NA
	06/25/01		none present	8.55	0.00	NA
	09/19/01		none present	5.93	0.00	NA
	10/03/01		none present	NM	0.00	NA
	12/19/01		none present	8.54	0.00	NA
	03/20/02		none present	8.26	0.00	NA
	06/04/02		none present	NM	0.00	NA
	09/23/02		none present	7.10	0.00	NA
	12/11/02		none present	NM	0.00	NA

TABLE 2-3
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-293-20	06/13/00	76.14	none present	9.40	0.00	66.74
	09/14/00		none present	6.85	0.00	69.29
	12/21/00		none present	8.53	0.00	67.61
	03/15/01		none present	8.81	0.00	67.33
	06/25/01		none present	8.25	0.00	67.89
	09/19/01		none present	5.70	0.00	70.44
	10/03/01		none present	6.98	0.00	69.16
	12/19/01		none present	8.35	0.00	67.79
	03/20/02		none present	7.97	0.00	68.17
	06/04/02		none present	8.76	0.00	67.38
	09/23/02		none present	6.80	0.00	69.34
	12/11/02		none present	7.82	0.00	68.32
CEF-293-21	06/13/00	NA	none present	9.51	0.00	NA
	09/14/00		none present	6.98	0.00	NA
	12/21/00		none present	8.62	0.00	NA
	03/15/01		none present	8.94	0.00	NA
	06/25/01		none present	8.37	0.00	NA
	09/19/01		none present	5.81	0.00	NA
	10/03/01		none present	NM	0.00	NA
	12/19/01		none present	8.46	0.00	NA
	03/20/02		none present	8.07	0.00	NA
	06/04/02		none present	8.85	0.00	NA
	09/23/02		none present	6.94	0.00	NA
	12/11/02		none present	NM	0.00	NA
CEF-293-22	06/13/00	75.95	none present	8.88	0.00	67.07
	09/14/00		none present	6.20	0.00	69.75
	12/21/00		none present	7.89	0.00	68.06
	03/15/01		none present	8.34	0.00	67.61
	06/25/01		none present	7.70	0.00	68.25
	09/19/01		none present	5.10	0.00	70.85
	10/03/01		none present	6.51	0.00	69.44
	12/19/01		none present	7.79	0.00	68.16
	03/20/02		none present	7.62	0.00	68.33
	06/04/02		none present	8.27	0.00	67.68
	09/23/02		none present	6.48	0.00	69.47
	12/11/02		none present	NM	0.00	NA

TABLE 2-3
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-01	06/13/00	76.32	8.60	10.89	2.29	67.03
	09/14/00		4.85	7.70	2.85	70.62
	10/12/00		6.26	7.39	1.13	69.72
	10/18/00		6.39	7.29	0.90	69.66
	10/24/00		6.55	7.56	1.01	69.47
	10/30/00		6.80	7.70	0.90	69.25
	11/07/00		6.95	7.20	0.25	69.30
	11/13/00		7.05	8.13	1.08	68.95
	11/20/00		7.10	8.30	1.20	68.86
	11/27/00		7.05	9.05	2.00	68.67
	12/06/01		7.25	10.15	2.90	68.20
	12/11/00		7.35	10.10	2.75	68.15
	12/18/00		7.32	10.80	3.48	67.96
	12/21/00		7.80	9.61	1.81	67.98
	01/03/01		7.45	11.85	4.40	67.55
	01/17/01		8.16	9.36	1.20	67.80
	01/29/01		7.68	11.11	3.43	67.61
	02/13/01		7.57	11.48	3.91	67.58
	02/19/01		7.61	11.45	3.84	67.56
	02/26/01		7.70	11.68	3.98	67.43
	03/06/01		7.55	11.10	3.55	67.71
	03/12/01		7.59	11.31	3.72	67.61
	03/15/01		8.34	10.50	2.16	67.33
	04/09/01		7.29	8.08	0.79	68.79
	04/16/01		7.31	8.29	0.98	68.72
	05/03/01		7.20	11.00	3.80	67.98
	05/08/01		7.35	11.10	3.75	67.85
	05/14/01		7.52	11.58	4.06	67.58
	05/21/01		7.59	11.50	3.91	67.56
	06/25/01		7.70	10.55	2.85	67.77
	07/03/01		6.55	10.67	4.12	68.53
	08/06/01		5.60	8.49	2.89	69.85
	09/19/01		5.21	6.15	0.94	70.83
10/03/01		NM	NM	NM	NM	
12/07/01	4.90	5.70	0.80	71.18		
12/12/01	7.80	10.70	2.90	67.65		
12/19/01	7.48	9.08	1.60	68.36		
03/20/02	7.36	9.21	1.85	68.41		
06/04/02	8.15	9.20	1.05	67.86		
09/23/02	6.21	6.81	0.60	69.93		
12/11/02	7.10	8.05	0.95	68.94		

TABLE 2-3
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-02	06/13/00	75.86	7.50	13.02	5.52	62.84
	09/14/00		5.75	5.76	0.01	70.10
	12/21/00		7.70	7.73	0.03	68.13
	03/15/01		8.34	8.36	0.02	67.50
	06/25/01		7.92	7.96	0.04	67.90
	09/19/01		none present	4.98	0.00	70.88
	10/03/01		none present	6.20	0.00	69.66
	12/19/01		none present	7.40	0.00	68.46
	03/20/02		none present	7.42	0.00	68.44
	06/04/02		none present	7.89	0.00	67.97
	09/23/02		none present	6.01	0.00	69.85
	12/11/02		none present	6.69	0.00	69.17
VEW-03	06/13/00	75.28	none present	8.05	0.00	67.23
	09/14/00		none present	5.25	0.00	70.03
	12/21/00		none present	7.21	0.00	68.07
	03/15/01		none present	7.75	0.00	67.53
	06/25/01		none present	7.06	0.00	68.22
	09/19/01		none present	4.15	0.00	71.13
	10/03/01		none present	5.55	0.00	69.73
	12/19/01		none present	6.93	0.00	68.35
	03/20/02		none present	6.85	0.00	68.43
	06/04/02		none present	7.38	0.00	67.90
	09/23/02		none present	5.60	0.00	69.68
	12/11/02		none present	6.23	0.00	69.05
VEW-04	06/13/00	75.54	none present	8.38	0.00	67.16
	09/14/00		none present	5.68	0.00	69.86
	12/21/00		none present	7.60	0.00	67.94
	03/15/01		none present	8.07	0.00	67.47
	06/25/01		none present	7.70	0.00	67.84
	09/19/01		none present	4.67	0.00	70.87
	10/03/01		none present	6.04	0.00	69.50
	12/19/01		none present	7.31	0.00	68.23
	03/20/02		none present	7.23	0.00	68.31
	06/04/02		none present	7.78	0.00	67.76
	09/23/02		none present	6.05	0.00	69.49
	12/11/02		none present	6.78	0.00	68.76

TABLE 2-3
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-05	06/13/00	74.63	none present	7.53	0.00	67.10
	09/14/00		none present	4.85	0.00	69.78
	12/21/00		none present	6.75	0.00	67.88
	03/15/01		none present	7.18	0.00	67.45
	06/25/01		none present	6.56	0.00	68.07
	09/19/01		none present	3.83	0.00	70.80
	10/03/01		none present	5.16	0.00	69.47
	12/19/01		none present	7.42	0.00	67.21
	03/20/02		none present	6.38	0.00	68.25
	06/04/02		none present	6.91	0.00	67.72
	09/23/02		none present	5.14	0.00	69.49
	12/11/02		none present	5.98	0.00	68.65
VEW-06	06/13/00	74.31	none present	7.26	0.00	67.05
	09/14/00		none present	4.60	0.00	69.71
	12/21/00		none present	6.40	0.00	67.91
	03/15/01		none present	6.94	0.00	67.37
	06/25/01		none present	6.45	0.00	67.86
	09/19/01		none present	3.72	0.00	70.59
	10/03/01		none present	5.03	0.00	69.28
	12/19/01		none present	6.16	0.00	68.15
	03/20/02		none present	6.13	0.00	68.18
	06/04/02		none present	6.63	0.00	67.68
	09/23/02		none present	4.88	0.00	69.43
	12/11/02		none present	5.75	0.00	68.56
VEW-07	06/13/00	76.44	none present	9.06	0.00	67.38
	09/14/00		none present	6.15	0.00	70.29
	12/21/00		none present	8.15	0.00	68.29
	03/15/01		none present	8.65	0.00	67.79
	06/25/01		none present	8.36	0.00	68.08
	09/19/01		none present	5.15	0.00	71.29
	10/03/01		none present	6.50	0.00	69.94
	12/19/01		none present	7.80	0.00	68.64
	03/20/02		none present	7.71	0.00	68.73
	06/04/02		none present	8.36	0.00	68.08
	09/23/02		none present	6.29	0.00	70.15
	12/11/02		none present	7.16	0.00	69.28

TABLE 2-3
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-08	06/13/00	76.43	none present	9.06	0.00	67.37
	09/14/00		none present	6.16	0.00	70.27
	12/21/00		none present	8.11	0.00	68.32
	03/15/01		none present	8.57	0.00	67.86
	06/25/01		none present	8.33	0.00	68.10
	09/19/01		none present	5.35	0.00	71.08
	10/03/01		none present	6.41	0.00	70.02
	12/19/01		none present	7.76	0.00	68.67
	03/20/02		none present	7.61	0.00	68.82
	06/04/02		none present	8.30	0.00	68.13
	09/23/02		none present	6.37	0.00	70.06
	12/11/02		none present	7.23	0.00	69.20

LNAPL = Light Non-Aqueous Phase Liquid

NA = Not Available

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

3.0 Summary of Sampling and Laboratory Analytical Results

3.1 Vapor Monitoring

The VCS discharge stack was sampled monthly during the monitoring period for analyses by United States Environmental Protection Agency (USEPA) Method TO-15. Copies of the analytical laboratory reports from the air sampling events are provided in Appendix A, and current analytical results are summarized on Table 3-1. Table 3-2 provides historical post-treatment analytical results (through March 23, 2000), while the pounds per day loading rate is summarized on Table 3-3.

Based upon an average pounds per day, volatile organic compound (VOC) removal rate of 0.0007 pounds per day and an on-stream time of 89.7 days, a total of 0.07 pound of VOCs were removed from the subsurface during the monitoring period via volatilization and 22.97 pounds have been removed to date. It should be noted that this calculation does not take into account the reductions that were a result of biodegradation of the contaminants in the groundwater or the mass removed via recovery of LNAPL.

3.2 Groundwater Monitoring

Twelve monitoring locations (five monitoring wells and seven vapor extraction wells) at the site were sampled on December 9-10, 2002 for volatile organic aromatics (VOAs) and semi-volatile organic aromatics (SVOAs) by USEPA Methods 8021 and 8310, respectively. All sampling points exhibited decreases in contaminant concentrations from the baseline groundwater sampling event that was performed on January 25, 2000. The contaminant concentrations for all monitoring locations are below groundwater cleanup target levels (GCTLs) per Chapter 62-777 F.A.C. for all constituents. Monitoring well CEF 293-22, which previously exhibited contaminant concentrations above the GCTLs, no longer contains contaminant concentrations above the GCTLs. Vapor extraction well VEW-1 was not sampled due to the continued presence of LNAPL (discussed in Section 2.4).

The locations of the monitoring/vapor extraction wells are shown on Figure 1-1. Copies of the analytical laboratory reports from the groundwater sampling events are provided in Appendix B, and analytical results are summarized on Table 3-4.

Dissolved oxygen (DO) and other field parameter measurements were recorded at selected monitoring and vapor extraction wells. The results are summarized on Table 3-5. Results indicate that the DO concentrations in the monitoring/vapor extraction wells within the treatment zone were elevated as a result of remediation system operation.

TABLE 3-1
Pre-Treatment Vapor
Analytical Results
NAS Cecil Field, Jacksonville,
Florida

Compound	2/28/00	3/7/00	3/16/00	3/23/00	5/30/00	6/19/00	7/24/00	8/15/00	09/18/00	10/18/00	11/13/00	12/11/00
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA
1,1-Dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,4-Trimethylbenzene	2130	3580	824	5060	4690	8640	7750	2840	1610	ND	1120	878
1,2-Dibromoethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA
1,3-Dichlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA
1,4-Dichlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA
1,2-Dichloropropane	ND	ND	ND	ND	ND	62.8	ND	ND	ND	ND	ND	ND
1,3,5-Trimethylbenzene	898	1780	422	2870	3380	5940	6330	2650	1600	ND	1520	1010
2-Chlorotoluene	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA
4-Ethyltoluene	605	1080	224	1470	1510	3030	2580	782	336	ND	NS	654
Alpha-Chlorotoluene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA
Benzene	112	1350	210	979	83.3	138	161	33.5	9.6	12	30	ND
Bromoform	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA
Bromomethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromodichloromethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA
Carbon Disulfide	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA
Carbon Tetrachloride	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	ND	ND	19	ND	72.9	21	ND	ND	ND	1.2	ND	ND
Chloromethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.3	ND	ND
cis-1,2-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibromochloromethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA
Dichlorodifluoromethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.8	ND	ND
Dichlorotetrafluoroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA
Ethylbenzene	1540	3060	585	4510	1740	3320	3360	811	260	107	392	165
Freon 113	229	ND	2350	305	263	389	1860	165	47	ND	ND	68
Freon 114	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hexachlorobutadiene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hexane	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA
m,p-Xylene	2840	6460	1200	9410	4640	7540	7460	1820	141	275	811	397
m-Dichlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methyl Tert Butyl Ether	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ND	ND	87.3	114	163	46.7	105	ND	11	ND	ND	ND
o-Dichlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
o-Xylene	397	1820	375	2940	2270	3620	3760	1340	91.9	168	759	572
p-Dichlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	ND	ND	43	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	90.7	1410	1060	2770	452	500	715	112	23	17	54.6	13
trans-1,2-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	NS	NS	NA
trans-1,3-Dichloropropene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,4-Dichloro-2-butene	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA
Trichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	2	ND	ND
Trichlorotrifluoroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA
Vinyl Chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cyclohexane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dioxane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Propylene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3-Butadiene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Hexanone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylisobutyl ketone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Heptane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrahydrofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vinyl Acetate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl Acetate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isoprpyl Alcohol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Butanone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Xylenes (total)	3230	8280	1570	12300	6940	11200	11200	3170	233	443	1570	971
Total Volatile Organics (ug/m ³)	8842	20540	7399	30428	19264.2	33247.5	34081	10553.5	4129.5	585.3	4686.6	3757

TABLE 3-1
Pre-Treatment Vapor
Analytical Results
NAS Cecil Field, Jacksonville,
Florida

Compound	1/17/01	2/13/01	3/12/01	4/16/01	5/3/01	5/29/01	6/15/01	7/17/01	8/14/01	9/27/01	10/15/01	11/20/01	12/12/01
1,1,1-Trichloroethane	ND	ND	ND										
1,1,2,2-Tetrachloroethane	ND	ND	ND										
1,1,2-Trichloroethane	ND	ND	ND										
1,1,2-Trichloro-1,2,2-trifluoroethane	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ND	ND	ND										
1,1-Dichloroethene	ND	ND	ND										
1,2,4-Trichlorobenzene	ND	ND	ND										
1,2,4-Trimethylbenzene	550	446	932	317	457	460	170	280	140	ND	ND	40	60
1,2-Dibromoethane	ND	ND	ND										
1,2-Dichloroethane	ND	ND	ND										
1,2-Dichlorobenzene	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	ND	ND	ND										
1,3,5-Trimethylbenzene	957	662	1320	NA	898	860	380	530	60	ND	100	210	300
2-Chlorotoluene	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND
4-Ethyltoluene	152	144	165	70.3	79.6	430	170	240	160	ND	ND	50	70
Alpha-Chlorotoluene	NA	NA	NA										
Benzene	12	27	19	12	12	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND
Bromomethane	ND	ND	ND										
Bromodichloromethane	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Disulfide	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ND	ND	ND										
Chlorobenzene	ND	ND	ND										
Chloroethane	ND	ND	ND										
Chloroform	ND	ND	ND	3.2	0.77	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	ND	ND	ND	1.2	ND	ND	ND						
cis-1,2-Dichloroethene	ND	ND	ND										
cis-1,3-Dichloropropene	ND	ND	ND										
Dibromochloromethane	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND
Dichlorodifluoromethane	ND	ND	3.1	3.6	2.4	ND	ND	ND	ND	ND	ND	ND	ND
Dichlorotetrafluoroethane	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	134	213	198	91.9	98.8	190	90	120	ND	ND	ND	ND	ND
Freon 113	ND	93.6	27	20	22	NA	NA	NA	NA	NA	NA	NA	NA
Freon 114	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorobutadiene	ND	ND	ND										
Hexane	NA	NA	NA	NA	NA	840	380	410	ND	ND	80	140	150
m,p-Xylene	451	681	793	405	376	650	290	390	130	ND	120	90	80
m-Dichlorobenzene	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA
Methyl Tert Butyl Ether	ND	ND	ND	ND	1.0	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ND	9.3	2.3	0.41	2.4	ND	ND	ND	ND	ND	ND	ND	ND
o-Dichlorobenzene	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	432	370	581	200	344	330	140	170	60	ND	ND	50	60
p-Dichlorobenzene	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	ND	230	ND	ND									
Tetrachloroethene	ND	ND	ND										
Toluene	39.1	79.4	63.6	32	33	70	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene	ND	ND	ND										
trans-1,4-Dichloro-2-butene	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	ND	ND	ND										
Trichlorofluoromethane	ND	ND	ND	1.3	0.89	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorotrifluoroethane	NA	NA	NA										
Vinyl Chloride	ND	ND	ND										
Cyclohexane	NA	NA	NA										
1,4-Dioxane	NA	NA	NA										
Propylene	NA	NA	NA										
Bromomethane	NA	NA	NA										
1,3-Butadiene	NA	NA	NA										
2-Hexanone	NA	NA	NA										
Methylisobutyl ketone	NA	NA	NA										
Heptane	NA	NA	NA										
Tetrahydrofuran	NA	NA	NA										
Vinyl Acetate	NA	NA	NA										
Ethyl Acetate	NA	NA	NA										
Isoprpyl Alcohol	NA	NA	NA										
Acetone	NA	NA	NA										
2-Butanone	NA	NA	NA										
Xylenes (total)	880	1050	1370	607	720	980	430	ND	ND	ND	ND	140	ND
Total Volatile Organics (ug/m ³)	2727.1	2725.3	4104	1157.91	2327.86	3830	1620	2140	550	0	530	580	720

TABLE 3-1
Pre-Treatment Vapor
Analytical Results
NAS Cecil Field, Jacksonville,
Florida

Compound	1/30/02	2/19/02	3/11/02	04/08/02	05/06/02	06/10/02	07/15/02	08/21/02	09/09/02	10/21/02	11/22/02	12/16/02
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA
1,1-Dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA
1,1-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,4-Trimethylbenzene	ND	50	420	ND	ND	ND	ND	60	ND	ND	ND	ND
1,2-Dibromoethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,3,5-Trimethylbenzene	100	80	440	70	ND	ND	ND	270	180	ND	ND	ND
2-Chlorotoluene	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA
4-Ethyltoluene	ND	50	340	ND	ND	ND	ND	70	ND	ND	ND	ND
Alpha-Chlorotoluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromomethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromodichloromethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Disulfide	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibromochloromethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dichlorodifluoromethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.50
Dichlorotetrafluoroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	ND	ND	60	ND								
Freon 113	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Freon 114	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorobutadiene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hexane	ND	ND	120	60	ND	ND	ND	ND	99	ND	22.5	ND
m,p-Xylene	ND	ND	250	ND	ND	ND	ND	90	ND	ND	ND	1.30
m-Dichlorobenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	ND
Methyl Tert Butyl Ether	ND	ND	110	ND	ND	ND	ND	ND	ND	NA	NA	NA
Methylene Chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
o-Dichlorobenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	ND	ND	120	ND	ND	ND	ND	80	ND	ND	ND	3.00
p-Dichlorobenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	2.4	ND
trans-1,2-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,4-Dichloro-2-butene	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA
Trichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorotrifluoroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	ND
Vinyl Chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cyclohexane	NA	NA	NA	NA	NA	NA	NA	NA	NA	30.0	92.0	44.7
1,4-Dioxane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Propylene	NA	NA	NA	NA	NA	NA	NA	NA	NA	50.0	1.2	ND
Bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	ND
1,3-Butadiene	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	ND
2-Hexanone	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	ND
Methylisobutyl ketone	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	ND
Heptane	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	37.5	9.40
Tetrahydrofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	ND
Vinyl Acetate	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	ND
Ethyl Acetate	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	ND
Isoprpyl Alcohol	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	ND
Acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	0.2	ND
2-Butanone	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	11.2
Xylenes (total)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	4.30
Total Volatile Organics (ug/m ³)	100	180	1860	130	0	0	0	570	279	80	155.8	74.4

Note:

1. Total Volatile Organics = Sum of all detected volatile organic compounds
2. In computing Total Volatile Organics not detected compounds were assumed to be zero.
3. All from February 2000 till May 2002, all the samples were analyzed by EPA Method 18, TO-14. October 2002 samples were analyzed by TO-15.
4. All concentrations are in micrograms per cubic meter. (ug/m³)
5. ND= Not Detected, please see Appendix D for detection limits
6. NA= Not analyzed for listed parameter
7. No data from April 2002 till September 2002

TABLE 3-2
 Post-Treatment Vapor Analytical Results
 NAS Cecil Field, Jacksonville, Florida

Compound	02/28/2000	03/07/2000	03/16/2000	03/23/2000
1,1,1-Trichloroethane	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND
1,1,2-Trichloroethane	ND	ND	ND	ND
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ND	ND	ND
1,1-Dichloroethane	ND	ND	ND	ND
1,1-Dichloroethene	ND	ND	ND	ND
1,2,4-Trichlorobenzene	ND	ND	ND	ND
1,2,4-Trimethylbenzene	1.5	0.74	0.83	ND
1,2-Dibromoethane	ND	ND	ND	ND
1,2-Dichloroethane	ND	ND	ND	ND
1,2-Dichlorobenzene	ND	ND	ND	ND
1,3-Dichlorobenzene	ND	ND	ND	ND
1,4-Dichlorobenzene	ND	ND	ND	ND
1,2-Dichloropropane	ND	ND	ND	ND
1,3,5-Trimethylbenzene	ND	ND	ND	ND
2-Chlorotoluene	ND	ND	ND	ND
4-Ethyltoluene	ND	ND	ND	ND
Alpha-Chlorotoluene	ND	ND	ND	ND
Benzene	0.32	ND	0.86	ND
Bromoform	ND	ND	ND	ND
Bromomethane	ND	ND	ND	ND
Bromodichloromethane	ND	ND	ND	ND
Carbon Disulfide	ND	ND	ND	ND
Carbon Tetrachloride	ND	ND	ND	ND
Chlorobenzene	ND	ND	ND	ND
Chloroethane	ND	ND	ND	ND
Chloroform	ND	ND	0.68	ND
Chloromethane	ND	0.63	0.70	0.98
cis-1,2-Dichloroethene	ND	ND	ND	ND
cis-1,3-Dichloropropene	ND	ND	ND	ND
Dibromochloromethane	ND	ND	ND	ND
Dichlorodifluoromethane	ND	0.78	1.5	1.6
Dichlorotetrafluoroethane	ND	ND	ND	ND
Ethylbenzene	3.8	0.74	0.74	0.65
Freon 113	2.0	1.8	73	7.6
Freon 114	ND	ND	ND	ND
Hexachlorobutadiene	ND	ND	ND	ND
Hexane	ND	ND	ND	ND
m,p-Xylene	5.2	1.1	1.6	1.1
m-Dichlorobenzene	6.6	5.6	5.0	3.9
Methyl Tert Butyl Ether	ND	ND	ND	ND
Methylene Chloride	1.4	ND	2.9	1.2
o-Dichlorobenzene	ND	ND	ND	ND
o-Xylene	1.7	0.56	0.61	0.52
p-Dichlorobenzene	0.66	ND	ND	ND
Styrene	6.8	1.3	1.2	2
Tetrachloroethane	0.94	4.3	3.4	ND
Toluene	13.0	1	34	1.4
trans-1,2-Dichloroethene	ND	ND	ND	ND
trans-1,3-Dichloropropene	ND	ND	ND	ND
trans-1,4-Dichloro-2-butene	ND	ND	ND	ND
Trichloroethene	ND	ND	ND	ND
Trichlorofluoromethane	ND	ND	ND	ND
Trichlorotrifluoroethane	ND	ND	ND	ND
Vinyl Chloride	ND	0.56	0.25	ND
Xylenes (total)	6.9	1.6	2.2	1.6
Total Volatile Organics	43.92	19.11	127.27	20.95

Note:

1. Total Volatile Organics = Sum of all detected volatile organic compounds
2. In computing Total Volatile Organics not detected compounds were assumed to be zero.
3. All samples were analyzed by EPA Method 18, TO-14.
4. All concentrations are in micrograms per cubic meter.
5. ND= Not Detected, please see Appendix D for detection limits

TABLE 3-3
POUNDS PER DAY LOADING/EMISSIONS RATES
DAY TANK 1 BIOSPARGE/VAPOR COLLECTION SYSTEM
NAS CECIL FIELD
JACKSONVILLE, FLORIDA

Location	Sample Date	Flow Rate (SCFM)	Total VOC Concentration (mg/m ³)	Loading Rate (lbs/day)
Pre-Treatment	2/28/00	44	8.842	0.035
	3/7/00	56	20.54	0.103
	3/16/00	61	7.399	0.041
	3/23/00	46	19.26	0.080
	5/30/00	44	30.42	0.120
	6/19/00	45	33.25	0.135
	7/24/00	50	34.08	0.153
	8/15/00	49	10.55	0.046
	9/18/00	51	4.13	0.019
	10/18/00	48	0.79	0.003
	11/13/00	48	4.69	0.020
	12/11/00	48	3.78	0.016
	1/17/01	45	2.27	0.009
	2/13/01	49	2.730	0.012
	3/12/01	70	4.104	0.026
	4/16/01	63	1.764	0.010
	5/3/01	65	3.047	0.018
	5/29/01	70	4.810	0.030
	6/15/01	70	2.050	0.013
	7/17/01	70	2.140	0.013
	8/14/01	60	0.550	0.003
	9/27/01	75	0.000	0.000
	10/15/01	70	0.530	0.003
11/20/01	70	0.580	0.004	
12/12/01	70	0.720	0.005	
1/30/02	70	0.100	0.001	
2/19/02	70	0.180	0.001	
3/11/02	70	1.860	0.012	
4/8/02	70	0.130	0.001	
5/6/02	77	0.000	0.000	
6/10/02	77	0.000	0.000	
7/15/02	75	0.000	0.000	
8/21/02	70	0.570	0.004	
9/9/02	65	0.279	0.002	
10/21/02	39	0.080	0.000	
11/22/02	125	0.156	0.002	
12/16/02	46	0.074	0.000	
Post-Treatment	2/28/00	44	0.044	0.00017
	3/7/00	56	0.019	0.00010
	3/16/00	61	0.127	0.00070
	3/23/00	46	0.030	0.00012

NOTE: Sample date for 10/21/02-12/16/02 is the date of Total VOC sample, Flow Rate sample data is 10/17/02, 11/14/02, and 12/19/02.

TABLE 3-4
Groundwater Analytical Results
NAS Cecil Field, Jacksonville, Florida

Sample I.D.	Date	Benzene	Ethylbenzene	Toluene	Xylenes (total)	Acenaphthylene	Acenaphthene	Fluoranthene	Pyrene	Chrysene	Benzo (a) anthracene	Benzo(b) Fluoranthene	Benzo(k) Fluoranthene	Benzo(a) Pyrene	Benzo(g,h,i) Perylene	Indeno (1,2,3-cd) Pyrene	Naphthalene	1-Methylnaphthalene	2-Methylnaphthalene	Phenanthrene
CEF-293-04	01/25/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	06/13/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	09/14/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	12/21/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	03/15/01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	06/25/01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	09/19/01	0.18	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	10/03/01	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	12/19/01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	03/20/02	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	06/04/02	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	09/23/02	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	12/09/02	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	CEF 293-09	01/25/00	43.1	602	826	2191	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	378	128	182
06/13/00		ND	1.4	ND	2.7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
09/14/00		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
12/21/00		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
03/15/01		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
06/25/01		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
09/19/01		ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10/03/01		NA	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
12/19/01		ND	ND	ND	0.28	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
03/20/02		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
06/05/02		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
09/23/02		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
12/09/02		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CEF 293-13		01/25/00	57.6	43	2.3	70.7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	124	54.2	68
	06/13/00	128	124	3.1	193	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	157	64.2	82.2	ND
	09/14/00	112	106	2.2	161	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	163	61.1	75	ND
	12/21/00	1.6	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	40.7	29.6	39.2	ND
	03/15/01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	4.6	15.5	20.6	ND
	06/25/01	0.24	1.3	ND	0.51	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1	7	11	0.22
	09/19/01	ND	0.13	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	10/03/01	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.86	1.9	ND
	12/19/01	ND	0.53	ND	0.25	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.38	0.97	1.8	0.3
	03/20/02	ND	0.58	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.61	ND
	06/04/02	ND	0.44	ND	0.3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.63	0.26
	09/23/02	ND	0.4	ND	0.17	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.34	ND	0.26
	12/09/02	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	CEF 293-20	01/25/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
06/13/00		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
09/14/00		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
12/21/00		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
03/15/01		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
06/25/01		0.67	0.25	0.37	0.46	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	54	19	21	0.34
09/19/01		0.72	0.35	ND	1.13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10/03/01		NA	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
12/19/01		0.68	ND	0.52	0.69	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
03/20/02		0.45	ND	ND	0.32	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
06/04/02		0.77	0.39	0.47	0.48	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.99	ND	0.24	ND
09/23/02		0.55	0.3	0.24	0.34	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.61	ND	ND	ND
12/10/02		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

TABLE 3-4
Groundwater Analytical Results
NAS Cecil Field, Jacksonville, Florida

Sample I.D.	Date	Benzene	Ethylbenzene	Toluene	Xylenes (total)	Acenaphylene	Acenaphthene	Fluoranthene	Pyrene	Chrysene	Benzo (a) anthracene	Benzo(b) Fluoranthene	Benzo(k) Fluoranthene	Benzo(a) Pyrene	Benzo(g,h,i) Perylene	Indeno (1,2,3-cd) Pyrene	Naphthalene	1-Methylnaphthalene	2-Methylnaphthalene	Phenanthrene
CEF 293-22	01/25/00	24.2	19.4	0.88	47.8	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	142	59.6	67	ND
	06/13/00	43.2	60.6	5.5	318	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	188	80.3	95.4	ND
	09/14/00	6.4	8.4	ND	20.7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	38.7	22	25.1	ND
	12/21/00	19.7	9.7	<1	11.9	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	95	31.6	42.4	ND
	03/15/01	32.6	28.2	0.97	72.4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	148	49.7	71.3	ND
	06/25/01	25	12	ND	18.9	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	45	16	22	ND
	09/19/01	1.9	0.44	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	10/03/01	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	9.9	4.8	6.8	ND
	12/19/01	8.7	1.2	ND	1.57	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	34.2	13.4	17	0.57
	03/20/02	2.2	0.43	ND	0.41	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	20.8	14	17.8	0.57
	06/04/02	1	0.92	ND	0.6	0.28	0.19	ND	ND	ND	ND	ND	ND	ND	ND	ND	20.5	21.6	26.2	2.3
	09/23/02	0.35	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	2.7	5.9	8.5	0.52
	12/10/02	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	2.66	1.79	ND
	VEW-01	01/25/00	18.5	257	59.4	726	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	350	220	307
06/13/00	FREE PRODUCT																			
09/14/00	FREE PRODUCT																			
12/21/00	FREE PRODUCT																			
03/15/01	FREE PRODUCT																			
06/25/01	FREE PRODUCT																			
09/19/01	FREE PRODUCT																			
10/03/01	FREE PRODUCT																			
12/19/01	FREE PRODUCT																			
03/20/02	FREE PRODUCT																			
06/04/02	FREE PRODUCT																			
09/23/02	FREE PRODUCT																			
12/10/02	FREE PRODUCT																			
VEW-02	01/25/00	91.6	149	29.2	573	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	283	118	139	ND
06/13/00	FREE PRODUCT																			
09/14/00	ND	ND	ND	156	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
12/21/00	FREE PRODUCT																			
03/15/01	FREE PRODUCT																			
06/25/01	FREE PRODUCT																			
09/19/01	ND	14	ND	7.1	NA	ND	NA	NA	NA	ND	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA
10/03/01	NA	NA	NA	NA	2.1	ND	5.9	0.28	0.69	ND	0.76	0.49	0.51	1.8	ND	ND	4.6	2.2	2.1	2.1
12/19/01	ND	22	ND	12.6	8.9	2.2	11.6	18.2	1.3	1.2	0.93	0.86	ND	0.34	0.38	ND	19.3	18.7	7.5	
03/20/02	ND	ND	ND	0.85	ND	0.39	0.27	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.84	0.96	ND	
06/05/02	ND	0.45	ND	0.62	0.39	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.42	
09/23/02	ND	ND	ND	0.21	0.59	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.24	0.3	
12/10/02	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
VEW-03	01/25/00	24.4	85.6	11.5	128	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	320	78	102	ND
06/13/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
09/14/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
12/21/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
03/15/01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
06/25/01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
09/19/01	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10/03/01	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
12/19/01	ND	ND	ND	0.29	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
03/20/02	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
06/04/02	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.22	ND
09/23/02	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
12/09/02	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

TABLE 3-4
Groundwater Analytical Results
NAS Cecil Field, Jacksonville, Florida

Sample I.D.	Date	Benzene	Ethylbenzene	Toluene	Xylenes (total)	Acenaphthylene	Acenaphthene	Fluoranthene	Pyrene	Chrysene	Benzo (a) anthracene	Benzo(b) Fluoranthene	Benzo(k) Fluoranthene	Benzo(a) Pyrene	Benzo(g,h,i) Perylene	Indeno (1,2,3-cd) Pyrene	Naphthalene	1-Methylnaphthalene	2-Methylnaphthalene	Phenanthrene	
VEW-04	01/25/00	81	138	7.8	288	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	232	88.7	108	ND	
	06/13/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	09/14/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	12/21/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	03/15/01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	06/25/01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	09/19/01	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	10/03/01	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	12/19/01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	03/20/02	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	06/04/02	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	09/23/02	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	12/10/02	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
VEW-05	01/25/00	118	72.5	11.3	110	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	194	59.8	86.1	ND	
	06/13/00	33.2	ND	ND	3.1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
	09/14/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
	12/21/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
	03/15/01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
	06/25/01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
	09/19/01	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
	10/03/01	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
	12/19/01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
	03/20/02	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
	06/04/02	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
	09/23/02	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
	12/09/02	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
VEW-06	01/25/00	31.1	97.9	12.7	283	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	189	64.6	77.2	ND	
	06/13/00	1.8	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
	09/14/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
	12/21/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
	03/15/01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
	06/25/01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
	09/19/01	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
	10/03/01	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
	12/19/01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
	03/20/02	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
	06/04/02	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
	09/23/02	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
	12/09/02	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
VEW-07	01/25/00	48	213	97.8	439	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	481	172	210	ND	
	06/13/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
	09/14/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
	12/21/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
	03/15/01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
	06/25/01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
	09/19/01	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
	10/03/01	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
	12/19/01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
	03/20/02	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
	06/05/02	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
	09/23/02	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
	12/09/02	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	

TABLE 3-4
Groundwater Analytical Results
NAS Cecil Field, Jacksonville, Florida

Sample I.D.	Date	Benzene	Ethylbenzene	Toluene	Xylenes (total)	Acenaphthylene	Acenaphthene	Fluoranthene	Pyrene	Chrysene	Benzo (a) anthracene	Benzo(b) Fluoranthene	Benzo(k) Fluoranthene	Benzo(a) Pyrene	Benzo(g,h,i) Perylene	Indeno (1,2,3-cd) Pyrene	Naphthalene	1-Methylnaphthalene	2-Methylnaphthalene	Phenanthrene	
VEV-08	01/25/00	53.4	242	4.5	451	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	393	124	162	ND	
	06/13/00	4	41.8	1.4	37.2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	86.6	44.9	39.6	ND	
	09/14/00	ND	4.8	ND	5.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	5.5	6.5	5.2	ND	
	12/21/00	ND	10.6	<1	9.4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	15.7	16	17.1	ND	
	03/15/01	ND	6.4	ND	5.4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	3.7	3.7	3.8	ND	
	06/25/01	ND	1.5	ND	0.78	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.36	0.46	0.96	ND	
	09/19/01	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	10/03/01	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.16	ND	0.5	ND
	12/19/01	ND	1.9	ND	1.42	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.84	0.67	ND
	03/20/02	ND	0.89	ND	0.88	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.3	0.95	1.2	ND
	06/05/02	ND	1.7	ND	2.07	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	09/23/02	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	12/10/02	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	Cleanup Goal - RAP	1	NA	NA	50	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
GCTL	1	30	40	20	210	20	280	210	4.8	0.2	0.2	0.5	0.2	210	0.2	20	20	20	20	210	
NADSC	100	300	400	200	2100	200	2800	2100	480	20	20	50	20	2100	20	200	200	200	2100		

Notes:

1. All concentrations are in [µg/L].
2. No data for June, September, and October 2002 has been received.
3. ND= Not Detected, please see Appendix C for detection limits
4. NS = Not Sampled
5. NA = Not Analyzed

 = above GC
 = above NADSC

TABLE 3-5
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)	Temperature (°C)
CEF-293-4	1/25/00	6.69	0.218	NM	21.3
	6/13/00	6.15	0.259	-0.50	26.3
	9/14/00	6.30	0.246	1.94	27.4
	12/21/00	8.44	0.263	2.90	20.5
	3/15/01	6.30	0.247	1.22	20.6
	6/25/01	6.22	0.259	NM	25.2
	9/19/01	6.06	0.416	0.57	26.3
	12/19/01	7.22	0.232	3.75	22.7
	3/20/02	6.19	0.244	3.19	21.2
	6/4/02	6.23	0.241	3.09	26.4
	9/24/02	6.23	0.212	1.44	27.4
	12/9/02	5.51	0.251	2.80	24.6
CEF-293-9	1/25/00	5.99	0.088	NM	21.4
	6/13/00	5.55	0.068	-0.36	24.6
	9/14/00	6.03	0.830	2.82	26.0
	12/21/00	7.71	0.075	5.50	22.4
	3/15/01	6.29	0.066	7.80	20.7
	6/25/01	6.31	0.094	NM	23.3
	9/19/01	5.94	0.244	4.93	25.0
	12/19/01	7.19	0.079	5.88	23.2
	3/20/02	7.03	0.119	6.33	21.8
	6/4/02	7.00	0.235	3.90	24.2
	9/23/02	6.70	0.221	5.99	26.1
	12/9/02	5.48	0.202	6.60	24.0
CEF-293-13	1/25/00	5.64	0.039	NM	21.4
	6/13/00	4.99	0.068	-0.33	24.4
	9/14/00	4.87	0.054	2.14	26.1
	12/21/00	7.41	0.075	1.42	21.5
	3/15/01	5.50	0.063	2.14	19.8
	6/25/01	5.01	0.069	NM	24.4
	9/19/01	5.43	0.157	2.34	26.9
	12/19/01	6.22	0.068	2.22	23.0
	3/20/02	5.44	0.099	1.32	21.1
	6/4/02	5.79	0.115	1.54	26.1
	9/23/02	5.18	0.112	0.55	28.2
	12/9/02	4.98	0.118	0.50	23.9
CEF-293-20	1/25/00	5.96	0.062	NM	20.8
	6/13/00	5.04	0.083	-0.16	27.0
	9/14/00	5.19	0.100	1.38	29.3
	12/21/00	7.65	0.101	2.24	24.6
	3/15/01	5.49	0.105	2.78	23.4
	6/25/01	4.83	0.103	NM	26.3
	9/19/01	5.34	0.149	2.00	29.0
	12/19/01	7.17	0.113	2.34	24.8
	3/20/02	5.99	0.234	1.90	23.6
	6/4/02	5.84	0.198	1.49	27.7
	9/23/02	5.99	0.317	0.17	30.2
	12/10/02	3.90	0.114	0.55	24.2

TABLE 3-5
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)	Temperature (°C)
CEF-293-22	1/25/00	6.44	0.126	NM	23.0
	6/13/00	5.71	0.180	-0.47	27.7
	9/14/00	5.74	0.812	1.83	28.0
	12/21/00	8.14	0.573	2.80	23.1
	3/15/01	5.86	0.230	2.27	22.0
	6/25/01	5.55	0.365	NM	25.2
	9/19/01	5.69	1.030	3.22	27.6
	12/19/01	6.91	0.416	2.30	24.0
	3/20/02	5.87	0.463	6.50	21.8
	6/4/02	5.80	0.345	1.74	26.8
	9/23/02	5.74	0.677	0.58	28.5
	12/9/02	5.00	0.487	0.60	24.8
VEW-1	1/25/00	5.33	0.057	NM	23.0
	6/13/00	NM	NM	NM	NM
	9/14/00	NM	NM	NM	NM
	12/21/00	NM	NM	NM	NM
	3/15/01	NM	NM	NM	NM
	6/25/01	NM	NM	NM	NM
	9/19/01	NM	NM	NM	NM
	12/19/01	NM	NM	NM	NM
	3/20/02	NM	NM	NM	NM
	6/4/02	NM	NM	NM	NM
	9/23/02	NM	NM	NM	NM
	12/9/02	NM	NM	NM	NM
VEW-2	1/25/00	5.63	0.085	NM	22.7
	6/13/00	NM	NM	NM	NM
	9/14/00	6.20	0.114	2.26	26.2
	12/21/00	NM	NM	NM	NM
	3/15/01	NM	NM	NM	NM
	6/25/01	NM	NM	NM	NM
	9/19/01	6.04	0.137	5.06	26.7
	12/19/01	7.00	0.095	2.26	24.8
	3/20/02	6.47	0.084	3.82	23.5
	6/5/02	6.46	0.096	2.89	25.5
	9/23/02	6.46	0.102	2.40	27.6
	12/10/02	5.20	0.109	0.80	25.2
VEW-3	1/25/00	5.90	0.070	NM	22.1
	6/13/00	4.86	0.034	-0.57	26.2
	9/14/00	5.44	0.040	5.23	26.8
	12/21/00	7.74	0.047	6.02	22.8
	3/15/01	6.24	0.047	8.02	21.8
	6/25/01	4.80	0.056	NM	24.7
	9/19/01	6.38	0.130	5.86	26.9
	12/19/01	6.94	0.057	6.79	23.9
	3/20/02	5.64	0.081	5.91	23.0
	6/4/02	5.51	0.089	5.35	25.7
	9/23/02	6.57	0.130	5.33	28.1
	12/9/02	4.56	0.076	7.40	24.9

TABLE 3-5
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)	Temperature (°C)
VEW-4	1/25/00	5.59	0.078	NM	23.0
	6/13/00	NM	NM	NM	NM
	9/14/00	6.48	0.086	2.48	26.6
	12/21/00	7.92	0.045	4.55	23.8
	3/15/01	5.31	0.045	6.81	22.2
	6/25/01	5.40	0.045	NM	24.8
	9/19/01	6.59	0.098	5.64	26.8
	12/19/01	7.42	0.050	5.34	24.0
	3/20/02	6.54	0.060	5.96	22.5
	6/4/02	5.27	0.054	4.77	27.6
	9/23/02	5.77	0.056	5.93	27.8
	12/10/02	5.00	0.065	5.60	25.1
VEW-5	1/25/00	6.28	0.113	NM	21.5
	6/13/00	4.87	0.080	-0.59	25.5
	9/14/00	5.96	0.066	3.23	26.8
	12/21/00	7.84	0.069	3.42	21.6
	3/15/01	5.58	0.061	5.80	20.7
	6/25/01	5.35	0.060	NM	24.7
	9/19/01	6.14	0.106	4.78	27.4
	12/19/01	6.74	0.057	5.03	22.9
	3/20/02	6.17	0.074	6.85	21.7
	6/4/02	5.52	0.082	3.81	25.6
	9/23/02	6.23	0.094	4.51	28.3
	12/9/02	NM	0.091	5.80	24.1
VEW-6	1/25/00	5.78	0.076	NM	21.4
	6/13/00	5.28	0.151	-0.60	26.0
	9/14/00	8.81	0.066	3.08	26.9
	12/21/00	7.37	0.083	4.33	22.3
	3/15/01	6.57	0.127	7.26	20.9
	6/25/01	5.54	0.064	NM	25.3
	9/19/01	6.30	0.145	5.18	27.3
	12/19/01	6.61	0.050	5.76	23.8
	3/20/02	6.39	0.120	5.98	22.5
	6/4/02	6.08	0.160	4.25	26.0
	9/23/02	6.10	0.171	4.80	28.2
	12/9/02	4.61	0.161	6.10	24.7
VEW-7	1/25/00	5.63	0.074	NM	21.8
	6/13/00	5.12	0.126	-0.56	24.9
	9/14/00	5.52	0.070	2.22	25.8
	12/21/00	7.78	0.700	2.67	22.5
	3/15/01	5.96	0.068	6.65	21.5
	6/25/01	5.60	0.078	NM	24.0
	9/19/01	5.49	0.109	8.56	25.4
	12/19/01	6.83	0.064	3.04	23.3
	3/20/02	6.20	0.075	4.71	22.5
	6/5/02	6.24	0.083	2.60	24.5
	9/24/02	5.76	0.071	0.66	25.8
	12/10/02	4.90	0.144	0.65	24.3

TABLE 3-5
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)	Temperature (°C)
VEW-8	1/25/00	6.29	0.206	NM	22.1
	6/13/00	5.60	0.219	-0.60	24.2
	9/14/00	5.77	0.118	1.92	25.9
	12/21/00	7.87	0.156	1.31	22.5
	3/15/01	6.35	0.137	2.06	21.2
	6/25/01	5.86	0.128	NM	23.4
	9/19/01	4.69	0.162	7.21	25.5
	12/19/01	5.5	0.089	3.75	23.0
	3/20/02	6.14	0.134	1.41	22.3
	6/5/02	6.11	0.153	1.83	24.4
	9/23/02	5.45	0.145	1.09	26.3
	12/10/02	5.10	0.231	0.20	24.6

s. u. = standard units
mS/cm = milli siemens per centimeter
mg/L = Milligrams per liter
°C = degrees Centigrade
NM = not measured

4.0 Conclusions and Recommendations

None of the five monitoring wells (CEF-293-4, 9, 13, 20 and 22) or seven extraction wells (VEW-2 through VEW-8) sampled during the fourth quarter were found to exhibit contaminant concentrations greater than the GCTL specified by Chapter 62-777 FAC.

Vapor extraction well VEW-1 was not sampled during the monitoring period due to the presence of LNAPL. LNAPL has been bailed periodically from VEW-1 since October 2000, and a total of approximately 17.9 gallons has been recovered to date. No significant decreases in LNAPL thickness at VEW-1 were noted during the monitoring period.

Due to substantial reduction of contaminant concentrations in most of the wells at the site, it is recommended that the remediation system be de-activated, followed by Post Active Remediation Monitoring in accordance with Florida Administrative Code, Chapter 62-770.750. Quarterly monitoring for a period of one year should be conducted from wells located at the downgradient edge of the plume as well as from wells located in the areas of maximum concentration of contaminants of concern.¹ As such, monitoring wells CEF-293-13 and CEF-293-22, and vapor extraction well VEW-2 and VEW-7 should be sampled quarterly for VOAs and SVOAs for a period of one year.

It is also recommended that recovery of LNAPL continue to be performed in vapor extraction well VEW-1 until LNAPL is no longer present in VEW-1. The source of the LNAPL in the vicinity of VEW-1 and VEW-2 is believed to be due to an underground abandoned fuel pipe that still contains product. The underground piping has been located and the location mapped. A project to pig the line to remove any remaining product will be conducted by JA Jones in the first quarter of 2003 (according to sources at JA Jones). Additional plans for delineation and recovery of LNAPL in the vicinity of VEW-1 and VEW-2 are currently being developed by the Comprehensive Long-Term Environmental Action, Navy (CLEAN) contractor. VEW-1 should be sampled after LNAPL is no longer present to ensure that the groundwater in this area has been remediated.

¹ Florida Administrative Code, Chapter 62-770.750(4) - page 46

5.0 References

ABB Environmental Services, Inc. January 1997. Remedial Action Plan, Day Tank 1, Facility 293, Naval Air Station Cecil Field, Jacksonville, Florida.

CH2MHILL Constructors, Inc. January 2000. Work Plan Addendum No. 03, Day Tank 1 Biosparge and Vapor Collection System Installation, Naval Air Station Cecil Field, Jacksonville, Florida.

Appendix A

Laboratory Analytical Reports for Air Samples

(on CD only)

Appendix B

Laboratory Analytical Reports for Groundwater Samples

(on CD only)