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SECOND QUARTER 2004 OPERATIONS AND MAINTENANCE STATUS REPORT FOR AIR
SPARGING SYSTEM AT BUILDING 271 NAS CECIL FIELD FL
11/1/2004
CH2MHILL CONSTRUCTORS INC

**Second Quarter 2004
Operations and Maintenance Status Report**

**Air Sparging System
Building 271**

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

**Contract No. N62467-98-D-0995
Contract Task Order No. 0086**

Submitted to:

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

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Acronyms

acfm	actual cubic feet per minute
AS	air sparging
bls	below land surface
BTEX	benzene, toluene, ethylbenzene, xylenes
CH2M HILL	CH2M HILL Constructors, Inc.
cfm	cubic feet per minute
CSR	Confirmatory Sampling Report
CTO	Contract Task Order
DO	dissolved oxygen
EPA	U.S. Environmental Protection Agency
FAC	Florida Administrative Code
FDEP	Florida Department of Environmental Protection
GCTLs	groundwater cleanup target levels
HLA	Harding Lawson Associates
JEA	Jacksonville Electric Authority
LCAR	Limited Closure Assessment Report
LNAPL	Light Non-Aqueous Phase Liquids
µg/L	micrograms per liter
mg/L	milligrams per liter
MTBE	methyl tert butyl ether
NADSC	Natural Attenuation Default Source Concentration
NAS	Naval Air Station
NAVFAC EFD	Naval Facilities Engineering Command, Southern Division
SOUTH	
O&M	Operation and Maintenance
ORP	oxygen-reduction potential
OWS	oil-water separator
PAH	polynuclear aromatic hydrocarbon
psi	pounds per square inch

PVC	polyvinyl chloride
RAP	Remedial Action Plan
RAPA	Remedial Action Plan Addendum
SA	Site Assessment
scfm	standard cubic feet per minute
TRPH	total recoverable petroleum hydrocarbon
TtNUS	Tetra Tech NUS
UST	underground storage tank
VOC	volatile organic compound

1.0 Introduction

CH2M HILL Constructors, Inc. (CH2M HILL) has been contracted by the Department of the Navy, Naval Facilities Engineering Command Engineering Field Division South (NAVFAC EFD SOUTH), to provide operation and maintenance (O&M) services at Building 271, at the former Naval Air Station (NAS) Cecil Field, Jacksonville, Florida, under Response Action Contract No. N62467-98-D-0995, Contract Task Order (CTO) No. 0086.

An air sparging (AS) system was installed at the Building 271 site to reduce the concentration and volume of petroleum hydrocarbon contaminants in site groundwater. The purpose of this 2nd Quarter 2004 Operation and Maintenance Status Report is to provide a summary of activities performed at the site during the period from April 1, 2004 to June 30, 2004.

1.1 Objective

The objective of the remedial action at the Building 271 site is to reduce the concentrations and volume of petroleum contaminants in the groundwater to Florida Department of Environmental Protection (FDEP) Groundwater Cleanup Target Levels (GCTLs), as specified in Table I of Chapter 62-777, Florida Administrative Code (FAC). AS is the technology currently utilized to achieve this objective.

1.2 Site History

Building 271 was a former retail gasoline facility that contained four underground storage tanks (USTs) (designated 271-D, 271-R, 271-UL, and 271-SUL) and two oil/water separators (OWSs). The USTs were grouped in a tank pit located on the west side of Building 271, while the OWSs were located on the east side of the building. USTs 271-UL, 271-R, and 271-SUL each had an approximate capacity of 10,000 gallons and UST 271-D had an approximate capacity of 6,000 gallons (Tetra Tech NUS, Inc. [TtNUS], 2002).

According to UST closure records, UST 271-D was removed on March 5, 1996, and no soil or groundwater contamination was detected. The report also indicates that the UST and associated piping were removed from the site (TtNUS, 2002).

In July 1999, Harding Lawson Associates (HLA) compiled a Confirmatory Sampling Report (CSR) for the USTs and the two OWSs that indicated petroleum-impacted soil was encountered at two locations relative to the USTs. The CSR concluded that soil or groundwater was not impacted as a result of past OWS operations. Based on the CSR finding of soil contamination, a Site Assessment (SA) was recommended for the UST site. An SA Plan for the assessment of soil and groundwater at the UST site was prepared by TtNUS (TtNUS, 2002).

Following completion of the planned investigation in the SA Plan, CH2M HILL removed the remaining three USTs, associated piping, and distribution systems. The UST and

associated soil removals addressed the soil contamination issues; however, groundwater samples collected following UST and soil removal indicated the presence of volatile organic compounds (VOCs) in site groundwater. TtNUS proceeded to plan and execute a second investigation in an SA Plan Addendum (2001) to further define the extent of contamination in the groundwater (TtNUS, 2002).

CH2M HILL also removed both OWSs, and submitted separate Limited Closure Assessment Reports (LCAR) for each OWS site in April 2001 to the FDEP. Both LCARs for the OWSs indicated that no petroleum contamination of the soil or groundwater existed in the immediate areas surrounding the former OWSs. On May 23, 2001, the FDEP issued separate letters agreeing with CH2M HILL's findings (TtNUS, 2002).

An SA report prepared by TtNUS in May 2002 concluded that petroleum constituents had impacted groundwater in the vicinity of the former USTs and that all of the contaminated soil was removed by CH2M HILL during the UST removal. TtNUS recommended the preparation and implementation of a Remedial Action Plan (RAP) to remediate groundwater at the site (TtNUS, 2002).

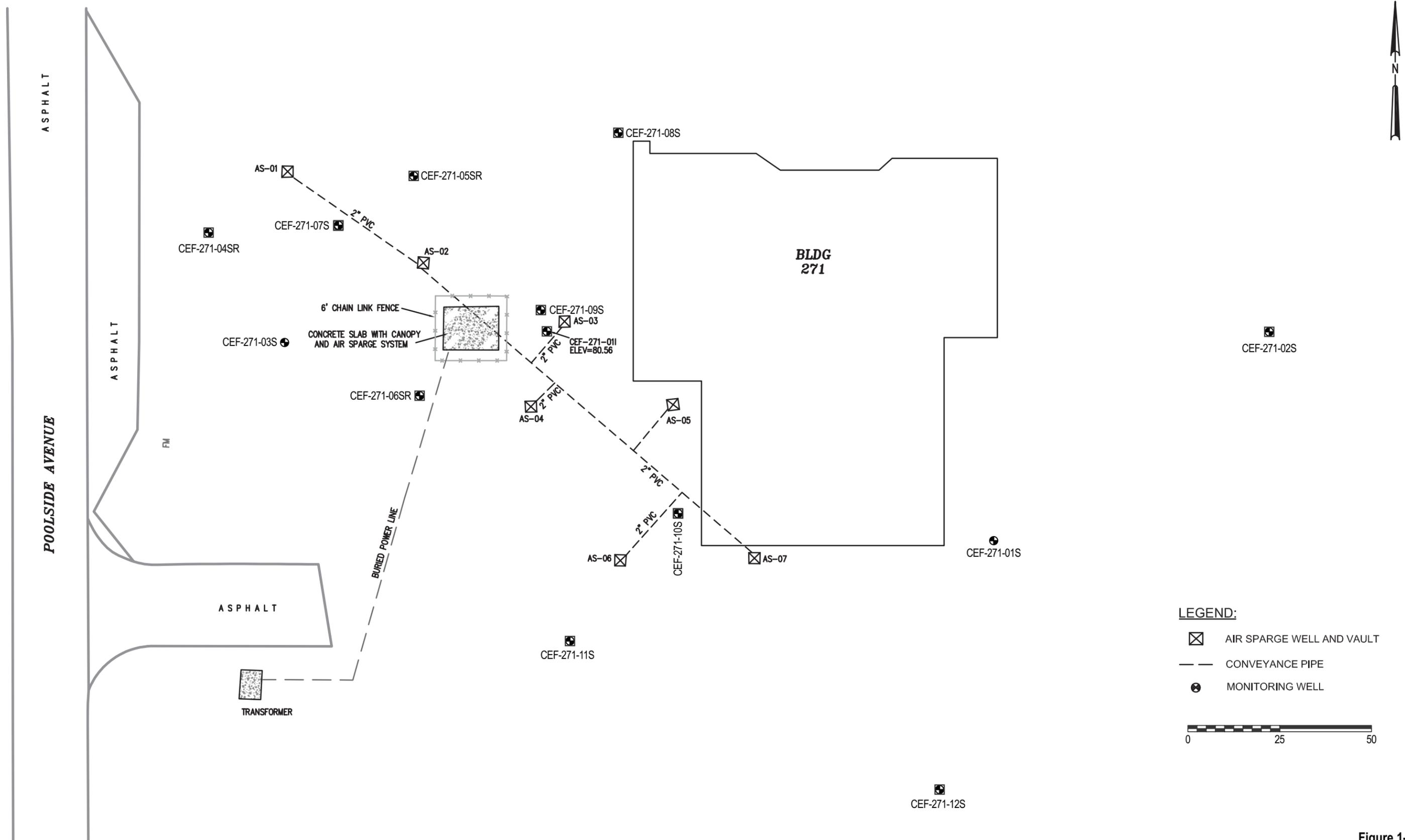
TtNUS submitted to FDEP for approval a RAP in September 2002 and a RAP Addendum (RAPA) in January 2003 to select the remedial alternative to remediate the contaminated groundwater at the site. AS was selected as the remedial alternative. FDEP approval on the RAP and RAPA was received in February 2003.

CH2M HILL installed an AS system in accordance with the RAP (TtNUS, 2002), RAPA (TtNUS, 2003), and Work Plan Addendum No. 18, Installation of Air Sparging Systems at the Jet Engine Test Cell (JETC) and Building 271 (CH2M HILL, 2003) from September to November 2003. The AS system commenced operation on November 17, 2003. A site plan showing the Building 271 site and the AS system layout is provided as Figure 1-1.

1.3 Remediation System/Technology Description

AS is a physical treatment method of expediting the transfer of VOCs from the soil and groundwater to the sparging air. Atmospheric air is injected into air sparge wells, which are screened within the groundwater contaminant plume. As the injected air passes upward through the VOC laden groundwater and soil, VOCs are partitioned to the passing air and migrate to the vadose zone.

The Building 271 AS system consists of seven AS wells (AS-1 through AS-7), rotary vane air compressor, receiver tank, and associated piping and instrumentation. The AS wells are screened from approximately 24 to 26 feet below land surface (bls). The AS system is designed for each AS well to operate at an airflow rate of 10 cubic feet per minute (cfm) and an injection pressure of 15 pounds per square inch (psi). The locations of the AS wells are shown on Figure 1-1.



LEGEND:

-  AIR SPARGE WELL AND VAULT
-  CONVEYANCE PIPE
-  MONITORING WELL



Figure 1-1
 Site Layout
 Building 271
 Former Naval Air Station, Cecil Field
 Jacksonville, Florida

2.0 System Performance Monitoring

O&M checks of the system were performed weekly during the monitoring period. During an O&M check, a preventative maintenance checklist (based upon manufacturers' recommendations) is completed, and any required maintenance activity is performed. All meters and gauges at the system are read and recorded during the O&M check. Well vault gauges and meters are read and recorded on a monthly basis.

2.1 Operational Efficiencies

	Period	To Date
Air Sparging System		
Hours of Possible Operation	2184	5436.5
Hours of Actual Operation	1257	4176.5
Percent Hours of Operation	57.5%	76.8%

2.2 AS System Summary of Maintenance and Downtime

During the period from April 01, 2004 to June 30, 2004, the AS system ran a total of 52.3 days out of a possible 91 days, resulting in 927 hours of downtime. The AS system downtime is detailed as follows:

- Manually shut down for a total of 2.1 hours for routine system maintenance.
- Down for a total of 719.2 hours due to power interruptions. After each occurrence, the panel alarm was reset and the air compressor was restarted.
- Down for a total of 100 hours due to a fuse that tripped on the Jacksonville Electric Authority (JEA) power supply. JEA replaced the fuse and the system was restarted.
- Manually shut down for a total of 105.7 hours to replace cracked underground AS piping polyvinyl chloride (PVC) fittings at the edge of the system compound. The fittings were replaced and the system restarted.

2.3 AS System Pressure/Flow Rate Monitoring

During the monitoring period, injection pressure was measured at each AS wellhead weekly for the first month and monthly thereafter. The wellhead pressures for the operating AS wells averaged 8.6 psi, compared to the design pressure of 15 psi. The wellhead flow rates for the operating AS wells averaged 9.3 scfm, compared to the design flow rate of 10 standard cubic feet per minute (scfm). The compressor is operating at maximum capacity and is achieving the specified flow rates but is unable to achieve the specified wellhead pressure. The AS wellhead pressure data is provided in Table 2-1.

TABLE 2-1
 Air Sparging Well Measurements
 Building 271, 2nd Quarter 2004

Air Sparge Well	Date	Wellhead Pressure (psi)	Flow Rate (scfm)
AS-01	04/30/2004	9	10.00
	05/17/2004	9	10.00
	06/24/2004	8	10.00
AS-02	04/30/2004	10	10.00
	05/17/2004	9	10
	06/24/2004	7	9
AS-03	04/30/2004	NM	NM
	05/17/2004	8.5	9
	06/24/2004	8.5	9
AS-04	04/30/2004	NM	NM
	05/17/2004	9	9
	06/24/2004	9	9
AS-05	04/30/2004	NM	NM
	05/17/2004	8.5	9
	06/24/2004	8	9
AS-06	04/30/2004	NM	NM
	05/17/2004	9	9
	06/24/2004	8	8
S-07	04/30/2004	NM	NM
	05/17/2004	9	10
	06/24/2004	8.5	9

NM = not measured
 psi = pounds per square inch
 scfm = standard cubic feet per minute

2.4 Water Level Measurements

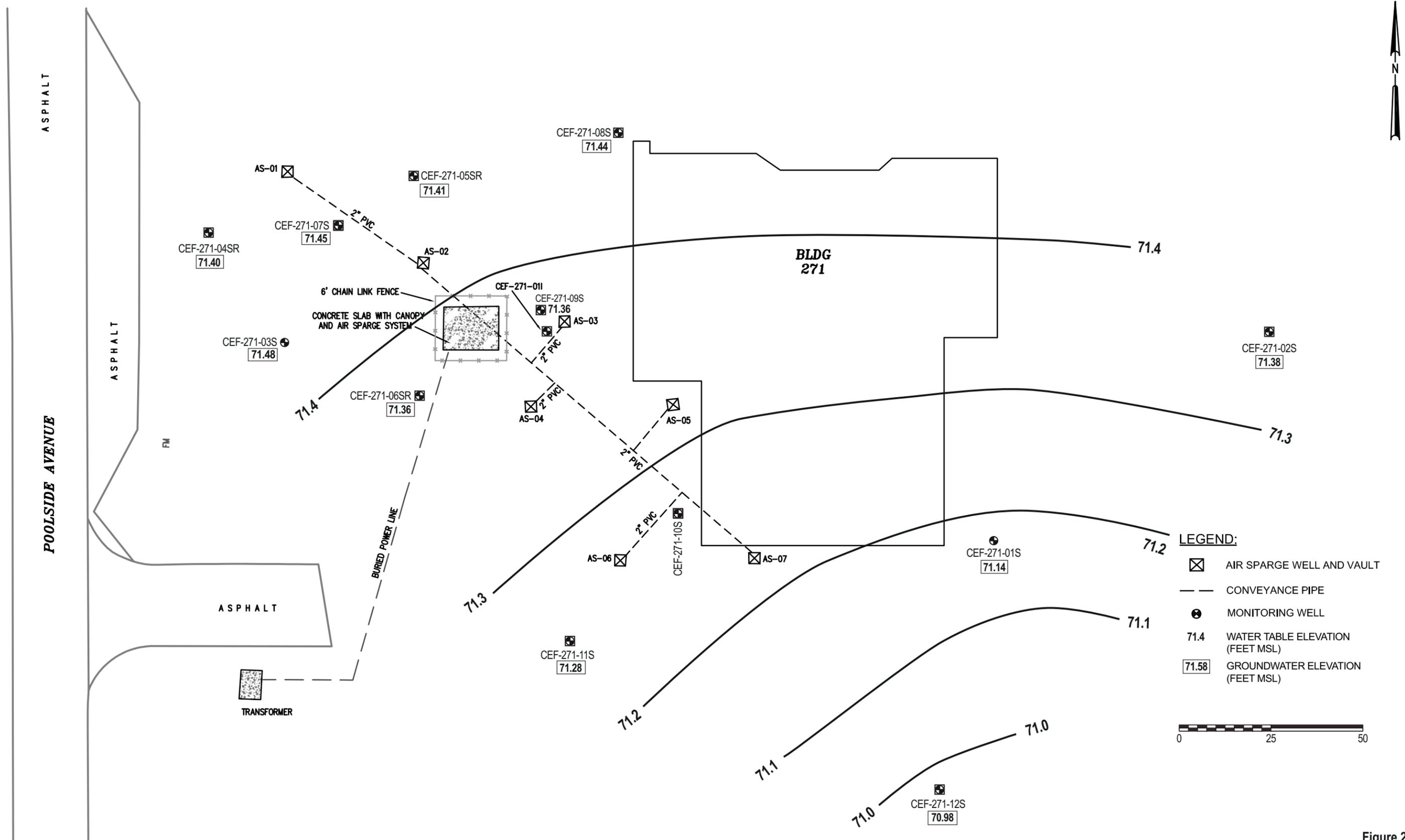
Depth to groundwater measurements were recorded on June 24, 2004 from 13 monitoring wells during the monitoring period. The results from the groundwater level measurement surveys are provided in Table 2-2. Light non-aqueous phase liquid (LNAPL) was not detected in monitoring wells during the monitoring period.

The potentiometric surface of the groundwater at the site based on June 24, 2004, water levels is depicted on Figure 2-1. In general, the groundwater at the site flows to the southeast.

TABLE 2-2
 Water Level Measurements
 Building 271 2nd Quarter 2004

Monitoring Well	Date	TOC Elevation (feet)	Depth to Water (feet bTOC)	Water Level Elevation (feet NGVD)
CEF-271-01S	06/24/04	81.15	10.01	71.14
CEF-271-02S	06/24/04	80.68	9.30	71.38
CEF-271-03S	06/24/04	79.88	8.40	71.48
CEF-271-04SR	06/24/04	79.17	7.71	71.46
CEF-271-05SR	06/24/04	79.85	8.44	71.41
CEF-271-06S	06/24/04	80.50	9.14	71.36
CEF-271-07S	06/24/04	79.99	8.54	71.45
CEF-271-08S	06/24/04	80.89	9.45	71.44
CEF-271-09S	06/24/04	80.51	9.15	71.36
CEF-271-10S	06/24/04	81.18	9.98	71.20
CEF-271-11S	06/24/04	80.29	9.01	71.28
CEF-271-12S	06/24/04	80.19	9.21	70.98
CEF-271-11	06/24/04	80.56	9.55	71.01

Top of Casing Elevations and data prior to 04/27/00 obtained from BEI.
 TOC - top of casing
 bTOC - Below top of casing
 Elevation is referenced to National Geodetic Vertical Datum 1929 (NGVD 1929)
 Depth to water measured from top of casing



- LEGEND:**
- AIR SPARGE WELL AND VAULT
 - CONVEYANCE PIPE
 - MONITORING WELL
 - 71.4 WATER TABLE ELEVATION (FEET MSL)
 - 71.58 GROUNDWATER ELEVATION (FEET MSL)

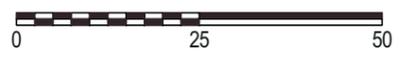


Figure 2-1
 Potentiometric Surface Map - June 24, 2004
 Building 271
 Former Naval Air Station, Cecil Field
 Jacksonville, Florida

3.0 Summary of Sampling and Laboratory Analytical Results

3.1 Vapor Monitoring

Air emissions concentrations were monitored on June 24, 2004, by collecting air samples from AS well vaults AS-02, AS-03, AS-05, AS-06, and AS-07, and monitoring well manholes CEF-271-7S and CEF-271-10S for volatile organic compound (VOC) analysis by U.S. Environmental Protection Agency (EPA) Method TO-14. Air emissions screening is required to demonstrate that the 13.7 pounds per day Hazardous Air Pollutant threshold is not exceeded and local receptors will not be exposed to hazardous vapor emissions including migration to confined spaces. The air emissions screening locations were selected as representative confined spaces within the AS system radius of influence.

Only one parameter (1,2,4-trimethylbenzene) was detected at low concentration (0.049 milligrams per cubic meter) in one air sample (AS-03 well vault); this supports the assumption that the 13.7 pounds per day of VOCs was not exceeded during the AS system operation.

Copies of the analytical laboratory reports from the air sampling events are provided in Appendix B, and analytical results are summarized in Table 3-1. Historic air sample analytical results are presented on Table A-1 in Appendix A.

3.2 Groundwater Monitoring

CH2M HILL conducted the 2nd Quarter 2004 groundwater monitoring event on June 24, 2004. Groundwater samples were collected from four monitoring wells (CEF-271-07S, CEF-271-09S, CEF-271-10, and CEF-271-12) during the 2nd Quarter 2004. The groundwater samples were laboratory analyzed for benzene, toluene, ethylbenzene, xylenes (BTEX) and methyl tert butyl ether (MTBE) by EPA Method 8260B and the 16 listed polynuclear aromatic hydrocarbons (PAHs) and 1- and 2-methylnaphthalene by EPA Method 8310. The laboratory analytical results for the detected parameters from the 2nd Quarter 2004 groundwater monitoring event is summarized in Table 3-2. A site map showing the locations of the monitoring wells is presented on Figure 1-1. Copies of the analytical laboratory reports from the groundwater monitoring events are provided in Appendix C.

Field parameters consisting of pH, temperature, dissolved oxygen (DO), and specific conductivity were measured during purging of the monitoring wells. The field parameters are summarized in Table 3-3. As expected, the aquifer at the Building 271 site within the treatment area remains highly aerobic with each DO measurement above 1 milligram per liter (mg/L) and oxidation-reduction potential (ORP) measurements greater than 50 millivolts in 6 of the 12 monitoring wells.

The groundwater samples from monitoring well CEF-271-01S detected the following contaminants at concentrations exceeding GCTLs: benzene, total xylenes, 1-methylnaphthalene, 2-methylnaphthalene, and naphthalene. In addition, the groundwater sample from monitoring well CEF-271-12S detected benzene at a concentration (2.04 micrograms per liter [$\mu\text{g}/\text{L}$]) slightly above the benzene GCTL (1 $\mu\text{g}/\text{L}$). The naphthalene concentration in well CEF-271-07S also exceeded the Natural Attenuation Default Source Concentrations (NADSC).

As compared to the baseline and 1st Quarter groundwater sampling results (See Table A-2 in Appendix A), in general, the 2nd Quarter 2004 groundwater analytical concentrations have decreased. This indicates that the air sparge system is successfully reducing the groundwater contamination at the site.

Table 3-1
 Summary of Air Analytical Results
 Building 271 - 2nd Quarter 2004

Parameter	Station ID	CEF-271-10S	CEF-271-7S	Air Sparge-2	Air Sparge-3	Air Sparge-5	Air Sparge-6	Air Sparge-7
	Sample ID	86-271-10S-A-0624-04	86-271-7S-A-0624-04	86-271-AS2-A-0624-04	86-271-AS3-A-0624-04	86-271-AS5-A-0624-04	86-271-AS6-A-0624-04RE	86-271-AS7-A-0624-04RE
	Sample Date	06/24/2004	06/24/2004	06/24/2004	06/24/2004	06/24/2004	06/24/2004	06/24/2004
Volatile Organic Compounds	milligrams per cubic meter (mg/m3)							
1,1,1-Trichloroethane	0.07 U	0.074 U	0.069 U	0.069 U	0.07 U	0.072 U	0.072 U	
1,1,2,2-Tetrachloroethane	0.07 U	0.074 U	0.069 U	0.069 U	0.07 U	0.072 U	0.072 U	
1,1,2-trichloro-1,2,2-trifluoroethane	0.07 U	0.074 U	0.069 U	0.069 U	0.07 U	0.072 U	0.072 U	
1,1,2-Trichloroethane	0.07 U	0.074 U	0.069 U	0.069 U	0.07 U	0.072 U	0.072 U	
1,1-Dichloroethane	0.07 U	0.074 U	0.069 U	0.069 U	0.07 U	0.072 U	0.072 U	
1,1-Dichloroethene	0.07 U	0.074 U	0.069 U	0.069 U	0.07 U	0.072 U	0.072 U	
1,2,4-Trichlorobenzene	0.07 U	0.074 U	0.069 U	0.069 U	0.07 U	0.072 U	0.072 U	
1,2,4-Trimethylbenzene	0.07 U	0.074 U	0.069 U	0.049 J	0.07 U	0.072 U	0.072 U	
1,2-Dibromoethane (Ethylene dibromide)	0.07 U	0.074 U	0.069 U	0.069 U	0.07 U	0.072 U	0.072 U	
1,2-Dichlorobenzene	0.07 U	0.074 U	0.069 U	0.069 U	0.07 U	0.072 U	0.072 U	
1,2-Dichloroethane	0.07 U	0.074 U	0.069 U	0.069 U	0.07 U	0.072 U	0.072 U	
1,2-Dichloropropane	0.07 U	0.074 U	0.069 U	0.069 U	0.07 U	0.072 U	0.072 U	
1,3,5-Trimethylbenzene (Mesitylene)	0.07 U	0.074 U	0.069 U	0.069 U	0.07 U	0.072 U	0.072 U	
1,3-Dichlorobenzene	0.07 U	0.074 U	0.069 U	0.069 U	0.07 U	0.072 U	0.072 U	
1,4-Dichlorobenzene	0.07 U	0.074 U	0.069 U	0.069 U	0.07 U	0.072 U	0.072 U	
2-Chlorotoluene	0.07 U	0.074 U	0.069 U	0.069 U	0.07 U	0.072 U	0.072 U	
4-Ethyltoluene	0.07 U	0.074 U	0.069 U	0.069 U	0.07 U	0.072 U	0.072 U	
Benzene	0.07 U	0.074 U	0.069 U	0.069 U	0.07 U	0.072 U	0.072 U	
Bromodichloromethane	0.07 U	0.074 U	0.069 U	0.069 U	0.07 U	0.072 U	0.072 U	
Bromoform	0.07 U	0.074 U	0.069 U	0.069 U	0.07 U	0.072 U	0.072 U	
Bromomethane	0.07 U	0.074 U	0.069 U	0.069 U	0.07 U	0.072 U	0.072 U	
Carbon disulfide	0.07 U	0.074 U	0.069 U	0.069 U	0.07 U	0.072 U	0.072 U	
Carbon tetrachloride	0.07 U	0.074 U	0.069 U	0.069 U	0.07 U	0.072 U	0.072 U	
Chlorobenzene	0.07 U	0.074 U	0.069 U	0.069 U	0.07 U	0.072 U	0.072 U	
Chloroethane	0.07 U	0.074 U	0.069 U	0.069 U	0.07 U	0.072 U	0.072 U	
Chloroform	0.07 U	0.074 U	0.069 U	0.069 U	0.07 U	0.072 U	0.072 U	
Chloromethane	0.07 U	0.074 U	0.069 U	0.069 U	0.07 U	0.072 U	0.072 U	
cis-1,2-Dichloroethene	0.07 U	0.074 U	0.069 U	0.069 U	0.07 U	0.072 U	0.072 U	
cis-1,3-Dichloropropene	0.07 U	0.074 U	0.069 U	0.069 U	0.07 U	0.072 U	0.072 U	
Dibromochloromethane	0.07 U	0.074 U	0.069 U	0.069 U	0.07 U	0.072 U	0.072 U	
Dichlorodifluoromethane	0.07 U	0.074 U	0.069 U	0.069 U	0.07 U	0.072 U	0.072 U	
Ethylbenzene	0.07 U	0.074 U	0.069 U	0.069 U	0.07 U	0.072 U	0.072 U	
Freon 114	0.07 U	0.074 U	0.069 U	0.069 U	0.07 U	0.072 U	0.072 U	

Table 3-1
 Summary of Air Analytical Results
 Building 271 - 2nd Quarter 2004

Parameter	Station ID	CEF-271-10S	CEF-271-7S	Air Sparge-2	Air Sparge-3	Air Sparge-5	Air Sparge-6	Air Sparge-7
	Sample ID	86-271-10S-A-0624-04	86-271-7S-A-0624-04	86-271-AS2-A-0624-04	86-271-AS3-A-0624-04	86-271-AS5-A-0624-04	86-271-AS6-A-0624-04RE	86-271-AS7-A-0624-04RE
	Sample Date	06/24/2004	06/24/2004	06/24/2004	06/24/2004	06/24/2004	06/24/2004	06/24/2004
Hexachlorobutadiene		0.07 U	0.074 U	0.069 U	0.069 U	0.07 U	0.072 U	0.072 U
Hexane		0.07 U	0.074 U	0.069 U	0.069 U	0.07 U	0.072 U	0.072 U
m,p-Xylene (sum of isomers)		0.14 U	0.15 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U
Methylene chloride		0.07 U	0.074 U	0.069 U	0.069 U	0.07 U	0.072 U	0.072 U
o-Xylene (1,2-Dimethylbenzene)		0.07 U	0.074 U	0.069 U	0.069 U	0.07 U	0.072 U	0.072 U
Styrene		0.07 U	0.074 U	0.069 U	0.069 U	0.07 U	0.072 U	0.072 U
tert-butyl methyl ether		0.07 U	0.074 U	0.069 U	0.069 U	0.07 U	0.072 U	0.072 U
Tetrachloroethene (PCE)		0.07 U	0.074 U	0.069 U	0.069 U	0.07 U	0.072 U	0.072 U
Toluene		0.07 U	0.074 U	0.069 U	0.069 U	0.07 U	0.072 U	0.072 U
trans-1,2-Dichloroethene		0.07 U	0.074 U	0.069 U	0.069 U	0.07 U	0.072 U	0.072 U
trans-1,3-Dichloropropene		0.07 U	0.074 U	0.069 U	0.069 U	0.07 U	0.072 U	0.072 U
trans-1,4-dichloro-2-butene		0.07 U	0.074 U	0.069 U	0.069 U	0.07 U	0.072 U	0.072 U
Trichloroethene (TCE)		0.07 U	0.074 U	0.069 U	0.069 U	0.07 U	0.072 U	0.072 U
Trichlorofluoromethane		0.07 U	0.074 U	0.069 U	0.069 U	0.07 U	0.072 U	0.072 U
Vinyl chloride		0.07 U	0.074 U	0.069 U	0.069 U	0.07 U	0.072 U	0.072 U

Notes
 Bolded analytical results were above detection limits.
 U - The analyte was analyzed for, but not detected.
 J - estimated value
 B- Analyte detected in Blank
 NA - Not analyzed

TABLE 3-2
 Summary of Groundwater Analytical Results
 Building 271 - 2nd Quarter 2004

Parameter	Station ID		CEF-271-7S	CEF-271-9S	CEF-271-10	CEF-271-12
	Sample ID		86-CEF271-7S-Q2-04	86-CEF271-9S-Q2-04	86-CEF271-10S-Q2-04	86-CEF271-12S-Q2-04
	Sample Date		6/24/2004	6/24/2004	6/24/2004	6/24/2004
	GCTL ¹	NADC ¹				
micrograms per liter (µg/L)						
Volatile organic compounds						
Benzene	1	10	165 J	0.5 U	0.5 U	2.04
Ethylbenzene	30	300	14	5 U	5 U	5 U
Tert-butyl methyl ether	50	500	2.1 J	5 U	5 U	0.281 J
Toluene	40	400	4.42 J	5 U	5 U	5 U
Xylenes, total	20	200	48.2 J	10 U	10 U	10 U
Semi-volatile organic compounds						
1-methylnaphthalene	20	200	44.5	1 U	1 U	1 U
2-Methylnaphthalene	20	200	86.3	1 U	1 U	1 U
Acenaphthene	20	200	20 U	1 U	1 U	1 U
Acenaphthylene	210	2100	157	1 U	1 U	1 U
Anthracene	2100	21000	2 U	0.1 U	0.1 U	0.1 U
Benzo(a)anthracene*	0.2	2	2 U	0.1 U	0.1 U	0.1 U
Benzo(a)pyrene*	0.2	2	2 U	0.1 U	0.1 U	0.1 U
Benzo(b)fluoranthene*	0.2	2	2 U	0.1 U	0.1 U	0.1 U
Benzo(g,h,i)perylene	210	2100	2 U	0.1 U	0.1 U	0.1 U
Benzo(k)fluoranthene*	0.5	5	2 U	0.1 U	0.1 U	0.1 U
Chrysene	4.8	48	2 U	0.1 U	0.1 U	0.1 U
Dibenz(a,h)anthracene*	0.2	2	2 U	0.1 U	0.1 U	0.1 U
Fluoranthene	280	2800	2 U	0.1 U	0.1 U	0.1 U
Fluorene	280	2800	10 U	0.5 U	0.5 U	0.5 U
Indeno(1,2,3-c,d)pyrene*	0.2	2	5 U	0.25 U	0.25 U	0.25 U
Naphthalene	20	200	422	0.25 U	0.25 U	0.25 U

Notes:

GCTL - Groundwater Cleanup Target Level

NADC - Natural Attenuation Default Concentration

1 = Chapter 62-777 FAC GCTLs reported in µg/L

U - The analyte was analyzed for , but not detected.

J - Result is estimated

Bold indicates concentration exceeds GCTL.

Shade indicates concentration exceeds NADC.

* Compound was analyzed using best developed available technology (BDAT).

Lower reporting or detection limits are not achievable by current technology.

TABLE 3-3
 Field Parameter Measurements
 Building 271 - 2nd Quarter 2004

Sample Date 6/24/2004	Groundwater					
Well	pH	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	ORP (mV)
CEF-271-01S	5.83	0.428	307	3.14	23	-18
CEF-271-02S	5.38	0.132	121	4.48	23	93
CEF-271-03S	6.56	0.498	70	4.03	24	7
CEF-271-04SR	6.86	0.243	74	6.03	23.9	-46
CEF-271-05SR	6.49	0.088	326	7.73	23.7	120
CEF-271-06S	6.95	0.278	82.3	5.72	23.3	39
CEF-271-07S	6.07	1.22	87	3.25	24.4	-170
CEF-271-08S	5.84	0.38	218	3.88	24	80
CEF-271-09S	7.02	0.274	999	6.3	23.4	-41
CEF-271-10S	5.63	0.462	999	5.97	24.5	98
CEF-271-11S	5.84	0.33	510	5.32	23.3	140
CEF-271-12S	5.87	0.248	525	4.59	26.8	123
CEF-271-1I	6.83	0.431	90.7	3.35	23.3	24

Note: All measurements taken using direct reading instruments in the field.

% = percent

mS/cm = milliSiemens per centimeter

NTU = nephelometric turbidity units

mg/L = milligrams per liter

°C = degrees Celsius

ORP = oxygen reducing potential

mV = millivolts

4.0 Conclusions and Recommendations

The AS systems operated with minimal downtime during the monitoring period with a resulting operational efficiency of 57.5 percent.

The parameter 1,2,4-trimethylbenzene at AS-03 well vault was the only analyte detected in the air samples. Based on only one parameter (1,2,4-trimethylbenzene) being detected in one air sample, the 13.7 pounds per day total VOC emission standard was not exceeded at any sampling location during the monitoring period. Because total emissions at the site were well below 13.7 pounds per day during the monitoring period, CH2M HILL recommends the air sampling program at the Building 271 site be discontinued.

The groundwater samples from monitoring well CEF-271-01S detected the following contaminants at concentrations exceeding GCTLs: benzene, total xylenes, 1-methylnaphthalene, 2-methylnaphthalene, and naphthalene. In addition, the groundwater sample from monitoring well CEF-271-12S detected benzene at a concentration (2.04 µg/L) slightly above the benzene GCTL (1 µg/L). The naphthalene concentration in well CEF-271-07S also exceeded the NADSC.

As compared to the baseline and 1st Quarter 2004 groundwater sampling results, in general, the 2nd Quarter 2004 groundwater analytical concentrations have decreased. This indicates that the air sparge system is successfully reducing the groundwater contamination at the site.

Based on contaminant concentrations in the groundwater at the site still exceeding the NADSCs as well as the decreasing contaminant trend since AS system start-up, CH2M HILL recommends continuing the operation of the AS system.

5.0 References

CH2M HILL Constructors, Inc. April 2001. Limited Closure Assessment Report, Oil/Water Separator Removal. NAS Cecil Field, Jacksonville, Florida.

CH2M HILL Constructors, Inc. August 2003. Work Plan Addendum No. 18, Work Plan Addendum No. 18 Installation of Air Sparging Systems at the Jet Engine Test Cell and Building 271, Naval Air Station Cecil Field, Jacksonville, Florida.

Tetra Tech NUS, Inc. September 2002. Remedial Action Plan for Building 271 Tanks UL/R/SUL/D at Naval Air Station Cecil Field, Jacksonville, Florida.

Tetra Tech NUS, Inc. January 2003. Remedial Action Plan Addendum for Building 271 Tanks UL/R/SUL/D at Naval Air Station Cecil Field, Jacksonville, Florida.

Appendix A

Historic Results

TABLE A-1
Summary of Air Analytical Results

Parameter	StationID	CEF-271-10S						CEF-271-7S						Air Sparg 2					
	Sample ID	86-10S-A-1125-03	86-271-10S-A-1202-03	86-271-10S-A-1210-03	86-271-10S-A-1215-03	86-271-10S-A-0120-04	86-271-10S-A-0407-04	86-271-7S-A-1202-03	86-271-7S-A-1210-03	86-271-7S-A-1215-03	86-271-7S-A-0120-04	86-271-7S-A-0407-04	86-271-AS2-A-1202-03	86-271-AS2-A-1210-03	86-271-AS2-A-1215-03	86-271-AS2-A-0120-04	86-271-AS2-A-0407-04		
	Sample Date	11/25/2003	12/02/2003	12/10/2003	12/15/2003	01/20/2004	04/07/2004	12/02/2003	12/10/2003	12/15/2003	01/20/2004	04/07/2004	12/02/2003	12/10/2003	12/15/2003	01/20/2004	04/07/2004		
Volatile Organic Compounds	milligrams per cubic meter (mg/m3)																		
1,2,4-Trimethylbenzene	0.071 U	0.066 U	0.069 U	0.068 U	0.065 U	0.067 U	40	2.2	1.7	0.11	0.098	9.5	1.7	0.6	0.14	0.067 U			
1,3,5-Trimethylbenzene (Mesitylene)	0.071 U	0.066 U	0.069 U	0.068 U	0.065 U	0.067 U	21	1.7	0.89	0.29	0.056 J	4	2	1	0.28	0.067 U			
4-ethyltoluene	0.071 U	0.066 U	0.069 U	0.068 U	0.065 U	0.067 U	55	3	2.1	0.24	0.14	6.4	1.8	0.72	0.22	0.067 U			
Benzene	0.071 U	0.066 U	0.069 U	0.068 U	0.065 U	0.067 U	0.065 U	0.067 U	0.066 U	0.066 U	0.066 U	0.082	0.068 U	0.068 U	0.065 U	0.067 U			
Carbon disulfide	0.35	0.12 JB	0.069 U	0.068 U	0.065 U	0.067 U	0.065 U	0.067 U	0.066 U	0.066 U	0.066 U	0.067 U	0.068 U	0.068 U	0.065 U	0.067 U			
Ethylbenzene	0.071 U	0.066 U	0.069 U	0.068 U	0.065 U	0.067 U	1.9	0.12	0.2	0.066 U	0.066 U	0.86	0.056 J	0.068 U	0.065 U	0.067 U			
HEXANE	0.071 U	0.066 U	0.069 U	0.068 U	0.065 U	0.067 U	0.4	0.067 U	0.07 B	0.066 U	0.066 U	0.24	0.092	0.068 U	0.065 U	0.067 U			
m,p-Xylene (sum of isomers)	NA	NA	NA	NA	NA	0.13 U	NA	NA	NA	NA	0.26	NA	NA	NA	NA	0.13 U			
m-xylene (1,3-dimethylbenzene)	0.14 U	0.13 U	0.14 U	0.14 U	0.13 U	NA	69	1.5	1.5	0.11 J	NA	3.3	0.26	0.14 U	0.13 U	NA			
o-Xylene (1,2-Dimethylbenzene)	0.071 U	0.066 U	0.069 U	0.068 U	0.065 U	0.067 U	40	1.3	0.97	0.28	0.12	1.7	0.2	0.07	0.065 U	0.067 U			
Tetrachloroethene (PCE)	0.071 U	0.066 U	0.069 U	0.068 U	0.065 U	0.067 U	0.065 U	0.067 U	0.066 U	0.066 U	0.066 U	0.067 U	0.068 U	0.068 U	0.065 U	0.067 U			
Toluene	0.071 U	0.066 U	0.069 U	0.068 U	0.065 U	0.067 U	1.1	0.13	0.16	0.066 U	0.074	0.31	0.068 U	0.068 U	0.065 U	0.049 J			

Notes
 U - The analyte was analyzed for, but not detected.
 J - estimated value
 B- Analyte detected in Blank
 NA - Not analyzed

TABLE A-1
Summary of Air Analytical Results

Parameter	StationID	Air Sparg 3					Air Sparg 5					Air Sparg 6				
	Sample ID	86-271-AS3-A-1202-03	86-271-AS3-A-1210-03	86-271-AS3-A-1215-03	86-271-AS3-A-0120-04	86-271-AS3-A-0407-04	86-271-AS5-A-1202-03	86-271-AS5-A-1210-03	86-271-AS5-A-1215-03	86-271-AS5-A-0120-04	86-271-AS5-A-0407-04	86-271-AS6-A-1202-03	86-271-AS6-A-1210-03	86-271-AS6-A-1215-03	86-271-AS6-A-0120-04	86-271-AS6-A-0407-04
	Sample Date	12/02/2003	12/10/2003	12/15/2003	01/20/2004	04/07/2004	12/02/2003	12/10/2003	12/15/2003	01/20/2004	04/07/2004	12/02/2003	12/10/2003	12/15/2003	01/20/2004	04/07/2004
Volatile Organic Compounds																
1,2,4-Trimethylbenzene	1.3	0.18	0.18	0.065 U	0.067 U	0.14	0.069 U	0.069 U	0.064 J	0.068 U	0.066 U	0.077	0.068 U	0.067 U	0.067 U	
1,3,5-Trimethylbenzene (Mesitylene)	0.5	0.1	0.061 J	0.065 U	0.067 U	0.065 U	0.069 U	0.069 U	0.068 U	0.068 U	0.066 U	0.068 U	0.068 U	0.067 U	0.067 U	
4-ethyltoluene	0.76	0.15	0.15	0.065 U	0.067 U	0.088	0.069 U	0.069 U	0.068 U	0.068 U	0.066 U	0.068 U	0.068 U	0.067 U	0.067 U	
Benzene	0.068 U	0.067 U	0.068 U	0.065 U	0.067 U	0.065 U	0.069 U	0.069 U	0.068 U	0.068 U	0.066 U	0.068 U	0.068 U	0.067 U	0.067 U	
Carbon disulfide	0.068 U	0.067 U	0.068 U	0.065 U	0.067 U	0.065 U	0.069 U	0.086	0.068 U	0.068 U	0.066 U	0.068 U	0.068 U	0.067 U	0.067 U	
Ethylbenzene	0.068 U	0.067 U	0.068 U	0.065 U	0.067 U	0.065 U	0.069 U	0.069 U	0.068 U	0.068 U	0.066 U	0.068 U	0.068 U	0.067 U	0.067 U	
HEXANE	0.068 U	0.067 U	0.052 J	0.065 U	0.067 U	0.065 U	0.069 U	0.08 B	0.068 U	0.068 U	0.066 U	0.068 U	0.068 U	0.067 U	0.067 U	
m,p-Xylene (sum of isomers)	NA	NA	NA	NA	0.13 U	NA	NA	NA	NA	0.14 U	NA	NA	NA	NA	0.13 U	
m-xylene (1,3-dimethylbenzene)	0.22	0.087 J	0.14 U	0.13 U	NA	0.13 U	0.14 U	0.14 U	0.14 U	NA	0.13 U	0.14 U	0.14 U	0.13 U	NA	
o-Xylene (1,2-Dimethylbenzene)	0.14	0.05 J	0.068 U	0.065 U	0.067 U	0.065 U	0.069 U	0.069 U	0.068 U	0.068 U	0.066 U	0.068 U	0.068 U	0.067 U	0.067 U	
Tetrachloroethene (PCE)	0.068 U	0.067 U	0.068 U	0.065 U	0.067 U	0.065 U	0.069 U	0.069 U	0.068 U	0.068 U	0.066 U	0.068 U	0.068 U	0.067 U	0.15	
Toluene	0.068 U	0.041 J	0.045 J	0.065 U	0.067 U	0.065 U	0.069 U	0.087	0.068 U	0.068 U	0.066 U	0.068 U	0.068 U	0.067 U	0.067 U	

Notes
 U - The analyte was analyzed for, but not detected.
 J - estimated value
 B- Analyte detected in Blank
 NA - Not analyzed

TABLE A-1

Summary of Air Analytical Results

Parameter	StationID	Air Sparg 7				
	Sample ID	86-271-AS7-A-1202-03	86-271-AS7-A-1210-03	86-271-AS7-A-1215-03	86-271-AS7-A-0120-04	86-271-AS7-A-0407-04
	Sample Date	12/02/2003	12/10/2003	12/15/2003	01/20/2004	04/07/2004
Volatile Organic Compounds						
1,2,4-Trimethylbenzene	0.16	0.068 U	0.26	0.067 U	0.066 U	
1,3,5-Trimethylbenzene (Mesitylene)	0.047 J	0.068 U	0.05 J	0.067 U	0.066 U	
4-ethyltoluene	0.084	0.068 U	0.27	0.067 U	0.066 U	
Benzene	0.065 U	0.068 U	0.069 U	0.067 U	0.066 U	
Carbon disulfide	0.065 U	0.068 U	0.069 U	0.039 J	0.066 U	
Ethylbenzene	0.065 U	0.068 U	0.069 U	0.067 U	0.066 U	
HEXANE	0.065 U	0.068 U	0.069 U	0.067 U	0.066 U	
m,p-Xylene (sum of isomers)	NA	NA	NA	NA	0.13 U	
m-xylene (1,3-dimethylbenzene)	0.13 U	0.14 U	0.14 U	0.13 U	NA	
o-Xylene (1,2-Dimethylbenzene)	0.065 U	0.068 U	0.05 J	0.067 U	0.066 U	
Tetrachloroethene (PCE)	0.065 U	0.068 U	0.069 U	0.067 U	0.066 U	
Toluene	0.065 U	0.068 U	0.069 U	0.067 U	0.066 U	

Notes

U - The analyte was analyzed for, but not detected.

J - estimated value

B- Analyte detected in Blank

NA - Not analyzed

TABLE A-2

Summary of Groundwater Analytical Results

Parameter	Station ID		CEF-271-1I	CEF-271-1S		CEF-271-3S	CEF-271-4SR	CEF-271-5SR	CEF-271-6S	CEF-271-7S	
	Sample ID		86-CEF271-1I-Q4-03	86-CEF271-1S-Q4-03	86-CEF271-2S-Q4-03	86-CEF271-3S-Q4-03	86-CEF271-4SR-Q4-03	86-CEF271-5SR-Q4-03	86-CEF271-6S-Q4-03	86-CEF271-7S-Q4-03	86-CEF271-7S-Q1-04
	Sample Date		10/27/2003	10/27/2003	10/27/2003	10/27/2003	10/27/2003	10/28/2003	10/28/2003	10/28/2003	04/26/2004
	GCTL ¹	NADSC ¹									
micrograms per liter (µg/L)											
Volatile organic compounds											
Benzene	1.0	10	0.5 U	0.5 U	0.5 U	188	324 J				
Ethylbenzene	30	300	5 U	5 U	5 U	5 U	5 U	5 U	5 U	398	133
Toluene	40	400	5 U	5 U	5 U	5 U	5 U	5 U	5 U	1180 JB	16.7 J
Xylenes, total	20	200	10 U	10 U	10 U	1690	17.2 J				
Semi-volatile organic compounds											
1-methylnaphthalene	20	200	1 U	1 U	1 U	1 U	1 U	1 U	1 U	21.1	37 J
2-Methylnaphthalene	20	200	1 U	1 U	1 U	1 U	1 U	1 U	1 U	58.9	74
Acenaphthene	20	200	1 U	1 U	1 U	1 U	1 U	1 U	1 U	20 U	50 U
Acenaphthylene	210	2100	1 U	1 U	1 U	1 U	1 U	1 U	1 U	117	50 U
Benzo(a)anthracene	0.2	2	0.1 U	0.216	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	2 U	5 U
Benzo(a)pyrene*	0.2	2	0.1 U	0.256	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	2 U	5 U
Benzo(b)fluoranthene	0.2	2	0.1 U	0.25	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	2 U	5 U
Dibenz(a,h)anthracene	0.2	2	0.1 U	0.553	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	2 U	5 U
Indeno(1,2,3-c,d)pyrene*	0.2	2	0.25 U	0.372	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	5 U	12.5 U
Naphthalene	20	200	0.25 U	0.25 U	0.25 U	184	476				
Phenanthrene	210	2100	0.1 U	0.1 U	0.1 U	4.19	7.78				

Notes:

GCTL - Groundwater Cleanup Target Level

NADC - Natural Attenuation Default Concentration

1 = Chapter 62-777 FAC Groundwater Cleanup Target Levels (GCTLs) reported in µg/L

U - The analyte was analyzed for, but not detected.

J - Result is estimated

B-The analyte was detected in the associated method and/or calibration blank.

Bold indicates concentration exceeds GCTL.

Shade indicates concentration exceeds NADC.

NA - Not Available at time of rule adoption

* Compound was analyzed using best developed available technology (BDAT), lower reporting or detection limits are not achievable by current technology.

TABLE A-2

Summary of Groundwater Analytical Results

Parameter	Station ID		CEF271-8S	CEF271-9S		CEF-271-10		CEF271-11S	CEF271-12S	
	Sample ID		86-CEF271-8S-Q4-03	86-CEF271-9S-Q4-03	86-CEF271-9S-Q1-04	86-CEF271-10S-Q4-03	86-CEF271-10S-Q1-04	86-CEF271-11S-Q4-03	86-CEF271-12S-Q4-03	86-CEF271-12S-Q1-04
	Sample Date		10/23/2003	10/23/2003	04/26/2004	10/27/2003	04/27/2004	10/23/2003	10/23/2003	04/27/2004
	GCTL ¹	NADSC ¹								
micrograms per liter (µg/L)										
Volatile organic compounds										
Benzene	1.0	10	0.5 U	1.93	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Ethylbenzene	30	300	5 U	25.8	5 U	5 U	5 U	5 U	5 U	5 U
Toluene	40	400	5 U	20.3	5 U	5 U	5 U	5 U	5 U	5 U
Xylenes, total	20	200	10 U	98.5	3.06 J	10 U				
Semi-volatile organic compounds										
1-methylnaphthalene	20	200	1 U	0.536 J	1 U	1 U	1 U	1 U	1 U	1 U
2-Methylnaphthalene	20	200	1 U	1.13 J	1 U	1 U	1 U	1 U	1 U	1 U
Acenaphthene	20	200	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Acenaphthylene	210	2100	1 U	3.05 J	1 U	1 U	1 U	1 U	1 U	1 U
Benzo(a)anthracene	0.2	2	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Benzo(a)pyrene*	0.2	2	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Benzo(b)fluoranthene	0.2	2	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Dibenz(a,h)anthracene	0.2	2	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Indeno(1,2,3-c,d)pyrene*	0.2	2	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
Naphthalene	20	200	0.25 U	5.89 J	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
Phenanthrene	210	2100	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U

Notes:

GCTL - Groundwater Cleanup Target Level

NADC - Natural Attenuation Default Concentration

1 = Chapter 62-777 FAC GCTLs reported in µg/L

U - The analyte was analyzed for , but not detected.

J - Result is estimated

B-The analyte was detected in the associated method and/or calibration blank.

Bold indicates concentration exceeds GCTL.

Shade indicates concentration exceeds NADC.

NA - Not Available at time of rule adoption

* Compound was analyzed using best developed available technology (BDAT), lower reporting or detection limits are not achievable by current technology.

Appendix B

Laboratory Analytical Reports for Air Samples



NAS Cecil Field

PREPARED FOR: CTO 86/NAS Cecil Field, Building 271 Air Monitoring 2nd Quarter 2004

**FINAL REVIEWER/
INITIAL REVIEWER** Camden Robinson/ Associate Project Chemist/CCI

COPIES: Mike Halil/J.A.Jones Env. Services

DATE: July 27, 2004

SUBJECT: Quality Assessment for Samples Collected June 24, 2004

This quality assurance memorandum is based upon a review of analytical data generated for the air samples collected June 24, 2004 at the Naval Air Station Cecil Field in Jacksonville, Florida. The samples were collected as a part of the Building 271 quarterly air monitoring sampling events conducted at the site. Table 1-1 presents a summary of the CCI sample identification numbers, laboratory sample identification numbers, dates of collection, sample matrices, and the analyses performed.

Severn Trent Laboratory (STL) of Pensacola, Florida served as the laboratory for the air samples collected during these sampling events for volatile organic compound (VOC) analysis by modified EPA method TO-14.

Data for the analyses were reviewed for adherence to the specified analytical protocols in accordance with CCI Sampling Analysis Plan. All analysis results have been validated or qualified according to general guidance provided in the Department of Defense (DOD) Quality Systems Manual - Version 2 Final (based on NELAP Voted Version 14 - 29 June 2002).

The findings of this quality assurance report are based upon the comprehensive review of the following results summaries reported according to the CCI Level C (CLP-like data deliverables format): chain of custody documentation, holding times, laboratory method blank analyses, bromofluorobenzene (BFB) mass tuning results, initial and continuing calibration, internal standard area performance summaries, target compound identification, laboratory control sample results, sample results, detection limits/sensitivity, and electronic data deliverables.

The analyses were performed acceptably, but require several qualifying statements; it is recommended that the analytical data be used only with the qualifying statements provided below. Any aspects of the data, which are not discussed in this report, should be considered qualitatively and quantitatively valid as reported, based on the deliverables reviewed. The validated and qualified results are presented in the data summary tables. Attachment A contains a copy of the chain of custody and the validated sample results.

Table 1-1

Summary Sample Data Reviewed
 NAS Cecil Field

Sample Number	Laboratory ID	Date Sampled	Matrix	Analysis
86-271-7S-A-0624-04	C407062*1	06/24/2004	Air	[1]
86-271-10S-A-0624-04	C407062*2	06/24/2004	Air	[1]
86-271-AS2-A-0624-04	C407062*3	06/24/2004	Air	[1]
86-271-AS3-A-0624-04	C407062*4	06/24/2004	Air	[1]
86-271-AS5-A-0624-04	C407062*5	06/24/2004	Air	[1]
86-271-AS6-A-0624-04	C407062*6	06/24/2004	Air	[1]
86-271-AS7-A-0624-04	C407062*7	06/24/2004	Air	[1]

ANALYSES PERFORMED CODES:

[1] - Volatile organic compounds (VOC) by EPA method TO-14

General Data Qualifiers

As required by U.S. EPA protocols, all compounds which were qualitatively identified at concentrations below their respective reporting limits (RL) but above the method detection limit (MDL) have been qualified with "J" qualifiers on the data summary reports to indicate that they are quantitative estimates.

Summary

The volatile air analyses were performed acceptably, but required qualifying statements. This analytical quality assurance report has identified the aspects of the data, which required qualification. These qualifiers are noted on the attached analytical sample summary reports. A support documentation package has been prepared for this quality assurance review and is filed with the NAS Cecil Field/Building 271 Quarterly Air Monitoring project file.

Attachment A

VALID QUALIFIERS

QUALIFIER	
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit
J	The analyte was positively identified: the associated numerical value is the approximate concentration of the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there was presumptive evidence to make a "tentative identification."
NJ	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.
UJ	The analyte was not deemed above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
R/UR	The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet the quality control criteria. The presence or absence of the analyte cannot be verified.
B	The analyte was detected in the associated method and/or calibration blank.
JB	The analyte detected in the associated field, equipment, and/or trip blank.

QUALIFICATION CODE REFERENCE

Qualifier	Organics	Inorganics
H	Holding times were exceeded.	Holding times were exceeded.
S	Surrogate recovery was outside QC limits.	The sequence or number of standards used for the calibration was incorrect.
C	Calibration %RSD or %D was noncompliant.	Correlation coefficient is <0.995.
K	Second source %D was noncompliant.	Second source %D was noncompliant.
R	Calibration RRF was <0.05.	%R for calibration is not within control limits.
MB	Presumed contamination from preparation (method) blank.	Presumed contamination from preparation (method) blank or calibration blank.
L	Laboratory Blank Spike/Blank Spike Duplicate %R was not within control limits.	Laboratory Control Sample %R was not within control limits.
Q	MS/MSD recovery was poor or high RPD.	MS/MSD recovery was poor or high RPD.
G	Result is over the calibration range. No other acceptable result was provided.	Result is over the calibration range. Not other acceptable result was provided.
E	Not applicable.	Lab duplicate RPD showed poor agreement.
Z	Field duplicate RPD showed poor agreement.	Field duplicate RPD showed poor agreement
I	Internal standard performance was unsatisfactory.	ICP ICS results were unsatisfactory.
A	Not applicable.	ICP Serial Dilution %D was not within control limits.
TN	Tuning (BFB or DFTPP) was noncompliant.	Not applicable.
T	Presumed contamination from trip blank.	Not applicable.
+	False positive—reported compound was not present.	Not applicable.
-	False negative—compound was present but not reported.	Not applicable.
F	Presumed contamination from FB or ER.	Presumed contamination from FB or ER.
\$	Reported result or other information was incorrect.	Reported result or other information was incorrect.
?	TIC identity or reported retention time has been changed.	Not applicable.
D	The analysis with this flag should not be used because another more technically sound analysis is available.	The analysis with this flag should not be used because another more technically sound analysis is available.
P	Confirmation analysis RPD exceeded 40%.	Post Digestion Spike recovery was not within control limits.
T/D	Not applicable.	Total metals results were less than the dissolved metals result.
SD	Not applicable.	Seed correction factor was below the acceptable limit.
M	Reported values may be biased due to apparent matrix interferences. (AIR ANALYSIS ONLY)	Not applicable

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
07062-1	86-271-7S-A-0624-04	Air	07/01/04	06/24/04 10:30	
07062-2	86-271-10S-A-0624-04	Air	07/01/04	06/24/04 10:33	
07062-3	86-271-AS2-A-0624-04	Air	07/01/04	06/24/04 10:36	
07062-4	86-271-AS3-A-0624-04	Air	07/01/04	06/24/04 10:39	
07062-5	86-271-AS5-A-0624-04	Air	07/01/04	06/24/04 10:42	

Lab Sample IDs

Parameter	Units	07062-1	07062-2	07062-3	07062-4	07062-5
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Volatile Organic Compounds in Air

Benzene	mg/m3	0.074U	0.070U	0.069U	0.069U	0.070U
Bromodichloromethane	mg/m3	0.074U	0.070U	0.069U	0.069U	0.070U
Bromoform	mg/m3	0.074U	0.070U	0.069U	0.069U	0.070U
Bromomethane (Methyl bromide)	mg/m3	0.074U	0.070U	0.069U	0.069U	0.070U
Carbon disulfide	mg/m3	0.074U	0.070U	0.069U	0.069U	0.070U
Carbon tetrachloride	mg/m3	0.074U	0.070U	0.069U	0.069U	0.070U
Chlorobenzene	mg/m3	0.074U	0.070U	0.069U	0.069U	0.070U
Chloroethane	mg/m3	0.074U	0.070U	0.069U	0.069U	0.070U
Chloroform	mg/m3	0.074U	0.070U	0.069U	0.069U	0.070U
Chloromethane (Methyl chloride)	mg/m3	0.074U	0.070U	0.069U	0.069U	0.070U
2-Chlorotoluene	mg/m3	0.074U	0.070U	0.069U	0.069U	0.070U
Dibromochloromethane	mg/m3	0.074U	0.070U	0.069U	0.069U	0.070U
1,2-Dibromoethane (EDB)	mg/m3	0.074U	0.070U	0.069U	0.069U	0.070U
1,2-Dichlorobenzene	mg/m3	0.074U	0.070U	0.069U	0.069U	0.070U
1,3-Dichlorobenzene	mg/m3	0.074U	0.070U	0.069U	0.069U	0.070U
1,4-Dichlorobenzene	mg/m3	0.074U	0.070U	0.069U	0.069U	0.070U
trans-1,4-Dichloro-2-butene	mg/m3	0.074U	0.070U	0.069U	0.069U	0.070U
Dichlorodifluoromethane	mg/m3	0.074U	0.070U	0.069U	0.069U	0.070U
1,1-Dichloroethane	mg/m3	0.074U	0.070U	0.069U	0.069U	0.070U
1,2-Dichloroethane	mg/m3	0.074U	0.070U	0.069U	0.069U	0.070U
1,1-Dichloroethene	mg/m3	0.074U	0.070U	0.069U	0.069U	0.070U
cis-1,2-Dichloroethene	mg/m3	0.074U	0.070U	0.069U	0.069U	0.070U
trans-1,2-Dichloroethene	mg/m3	0.074U	0.070U	0.069U	0.069U	0.070U
1,2-Dichloropropane	mg/m3	0.074U	0.070U	0.069U	0.069U	0.070U
cis-1,3-Dichloropropene	mg/m3	0.074U	0.070U	0.069U	0.069U	0.070U

C.L.R

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
07062-1	86-271-7S-A-0624-04	Air	07/01/04	06/24/04 10:30	
07062-2	86-271-10S-A-0624-04	Air	07/01/04	06/24/04 10:33	
07062-3	86-271-AS2-A-0624-04	Air	07/01/04	06/24/04 10:36	
07062-4	86-271-AS3-A-0624-04	Air	07/01/04	06/24/04 10:39	
07062-5	86-271-AS5-A-0624-04	Air	07/01/04	06/24/04 10:42	

Parameter	Units	Lab Sample IDs				
		07062-1	07062-2	07062-3	07062-4	07062-5

Volatile Organic Compounds in Air

trans-1,3-Dichloropropene	mg/m3	0.074U	0.070U	0.069U	0.069U	0.070U
Dichlorotetrafluoroethane	mg/m3	0.074U	0.070U	0.069U	0.069U	0.070U
Ethylbenzene	mg/m3	0.074U	0.070U	0.069U	0.069U	0.070U
Hexane	mg/m3	0.074U	0.070U	0.069U	0.069U	0.070U
4-Ethyltoluene	mg/m3	0.074U	0.070U	0.069U	0.069U	0.070U
Hexachlorobutadiene	mg/m3	0.074U	0.070U	0.069U	0.069U	0.070U
Methylene chloride (Dichloromethane)	mg/m3	0.074U	0.070U	0.069U	0.069U	0.070U
Methyl t-butyl ether (MTBE)	mg/m3	0.074U	0.070U	0.069U	0.069U	0.070U
Styrene	mg/m3	0.074U	0.070U	0.069U	0.069U	0.070U
1,1,2,2-Tetrachloroethane	mg/m3	0.074U	0.070U	0.069U	0.069U	0.070U
Tetrachloroethene	mg/m3	0.074U	0.070U	0.069U	0.069U	0.070U
Toluene	mg/m3	0.074U	0.070U	0.069U	0.069U	0.070U
1,2,4-Trichlorobenzene	mg/m3	0.074U	0.070U	0.069U	0.069U	0.070U
1,1,1-Trichloroethane	mg/m3	0.074U	0.070U	0.069U	0.069U	0.070U
1,1,2-Trichloroethane	mg/m3	0.074U	0.070U	0.069U	0.069U	0.070U
Trichloroethene	mg/m3	0.074U	0.070U	0.069U	0.069U	0.070U
Trichlorofluoromethane	mg/m3	0.074U	0.070U	0.069U	0.069U	0.070U
1,1,2-Trichloro-1,2,2-trifluor oethane	mg/m3	0.074U	0.070U	0.069U	0.069U	0.070U
1,2,4-Trimethylbenzene	mg/m3	0.074U	0.070U	0.069U	0.049J	0.070U
1,3,5-Trimethylbenzene	mg/m3	0.074U	0.070U	0.069U	0.069U	0.070U
Vinyl chloride	mg/m3	0.074U	0.070U	0.069U	0.069U	0.070U
o-Xylene	mg/m3	0.074U	0.070U	0.069U	0.069U	0.070U
m&p-Xylene	mg/m3	0.15U	0.14U	0.14U	0.14U	0.14U
Surrogate - 1,2-Dichloroethane-d4 *	%	104 %	103 %	106 %	104 %	104 %

C.L.R

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
07062-1	86-271-7S-A-0624-04	Air	07/01/04	06/24/04 10:30	
07062-2	86-271-10S-A-0624-04	Air	07/01/04	06/24/04 10:33	
07062-3	86-271-AS2-A-0624-04	Air	07/01/04	06/24/04 10:36	
07062-4	86-271-AS3-A-0624-04	Air	07/01/04	06/24/04 10:39	
07062-5	86-271-AS5-A-0624-04	Air	07/01/04	06/24/04 10:42	

Parameter	Units	Lab Sample IDs				
		07062-1	07062-2	07062-3	07062-4	07062-5

Volatile Organic Compounds in Air

Surrogate - Toluene-d8 *	%	96 %	95 %	93 %	96 %	97 %
Surrogate -						
4-Bromofluorobenzene *	%	91 %	91 %	90 %	91 %	89 %
Dilution Factor		1	1	1	1	1
Prep Date		07/07/04	07/07/04	07/07/04	07/07/04	07/07/04
Prep Time		14:09	14:45	15:20	15:58	16:36
Analysis Date		07/07/04	07/07/04	07/07/04	07/07/04	07/07/04
Analysis Time		14:09	14:45	15:20	15:58	16:36
Batch ID		MAA050	MAA050	MAA050	MAA050	MAA050
Prep Method		MOD-T014	MOD-T014	MOD-T014	MOD-T014	MOD-T014
Analyst		LAD	LAD	LAD	LAD	LAD
Quantitation Factor		2.43	2.35	2.31	2.31	2.35

C.L.R

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
07062-6	86-271-AS6-A-0624-04	Air	07/01/04	06/24/04 10:45	
07062-6-RE	86-271-AS6-A-0624-04	Air	07/01/04	06/24/04 10:45	
07062-7	86-271-AS7-A-0624-04	Air	07/01/04	06/24/04 10:48	
07062-7-RE	86-271-AS7-A-0624-04	Air	07/01/04	06/24/04 10:48	

Parameter	Units	Lab Sample IDs			
		07062-6	07062-6-RE	07062-7	07062-7-RE

Volatile Organic Compounds in Air

Benzene	mg/m3	0.072U ^{R-D}	0.072U	0.072U ^{R-D}	0.072U
Bromodichloromethane	mg/m3	0.072U	0.072U	0.072U	0.072U
Bromoform	mg/m3	0.072U	0.072U	0.072U	0.072U
Bromomethane (Methyl bromide)	mg/m3	0.072U	0.072U	0.072U	0.072U
Carbon disulfide	mg/m3	0.072U	0.072U	0.072U	0.072U
Carbon tetrachloride	mg/m3	0.072U	0.072U	0.072U	0.072U
Chlorobenzene	mg/m3	0.072U	0.072U	0.072U	0.072U
Chloroethane	mg/m3	0.072U	0.072U	0.072U	0.072U
Chloroform	mg/m3	0.072U	0.072U	0.072U	0.072U
Chloromethane (Methyl chloride)	mg/m3	0.072U	0.072U	0.072U	0.072U
2-Chlorotoluene	mg/m3	0.072U	0.072U	0.072U	0.072U
Dibromochloromethane	mg/m3	0.072U	0.072U	0.072U	0.072U
1,2-Dibromoethane (EDB)	mg/m3	0.072U	0.072U	0.072U	0.072U
1,2-Dichlorobenzene	mg/m3	0.072U	0.072U	0.072U	0.072U
1,3-Dichlorobenzene	mg/m3	0.072U	0.072U	0.072U	0.072U
1,4-Dichlorobenzene	mg/m3	0.072U	0.072U	0.072U	0.072U
trans-1,4-Dichloro-2-butene	mg/m3	0.072U	0.072U	0.072U	0.072U
Dichlorodifluoromethane	mg/m3	0.072U	0.072U	0.072U	0.072U
1,1-Dichloroethane	mg/m3	0.072U	0.072U	0.072U	0.072U
1,2-Dichloroethane	mg/m3	0.072U	0.072U	0.072U	0.072U
1,1-Dichloroethene	mg/m3	0.072U	0.072U	0.072U	0.072U
cis-1,2-Dichloroethene	mg/m3	0.072U	0.072U	0.072U	0.072U
trans-1,2-Dichloroethene	mg/m3	0.072U	0.072U	0.072U	0.072U
1,2-Dichloropropane	mg/m3	0.072U	0.072U	0.072U	0.072U
cis-1,3-Dichloropropene	mg/m3	0.072U	0.072U	0.072U	0.072U
trans-1,3-Dichloropropene	mg/m3	0.072U	0.072U	0.072U	0.072U

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Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
07062-6	86-271-AS6-A-0624-04	Air	07/01/04	06/24/04 10:45	
07062-6-RE	86-271-AS6-A-0624-04	Air	07/01/04	06/24/04 10:45	
07062-7	86-271-AS7-A-0624-04	Air	07/01/04	06/24/04 10:48	
07062-7-RE	86-271-AS7-A-0624-04	Air	07/01/04	06/24/04 10:48	

Parameter	Units	Lab Sample IDs			
		07062-6	07062-6-RE	07062-7	07062-7-RE

Volatile Organic Compounds in Air

Dichlorotetrafluoroethane	mg/m3	0.072U <i>R-D</i>	0.072U	0.072U <i>R-D</i>	0.072U
Ethylbenzene	mg/m3	0.072U	0.072U	0.072U	0.072U
Hexane	mg/m3	0.072U	0.072U	0.072U	0.072U
4-Ethyltoluene	mg/m3	0.072U	0.072U	0.072U	0.072U
Hexachlorobutadiene	mg/m3	0.072U	0.072U	0.072U	0.072U
Methylene chloride (Dichloromethane)	mg/m3	0.072U	0.072U	0.072U	0.072U
Methyl t-butyl ether (MTBE)	mg/m3	0.072U	0.072U	0.072U	0.072U
Styrene	mg/m3	0.072U	0.072U	0.072U	0.072U
1,1,2,2-Tetrachloroethane	mg/m3	0.072U	0.072U	0.072U	0.072U
Tetrachloroethene	mg/m3	0.072U	0.072U	0.072U	0.072U
Toluene	mg/m3	0.072U	0.072U	0.072U	0.072U
1,2,4-Trichlorobenzene	mg/m3	0.072U	0.072U	0.072U	0.072U
1,1,1-Trichloroethane	mg/m3	0.072U	0.072U	0.072U	0.072U
1,1,2-Trichloroethane	mg/m3	0.072U	0.072U	0.072U	0.072U
Trichloroethene	mg/m3	0.072U	0.072U	0.072U	0.072U
Trichlorofluoromethane	mg/m3	0.072U	0.072U	0.072U	0.072U
1,1,2-Trichloro-1,2,2-trifluor oethane	mg/m3	0.072U	0.072U	0.072U	0.072U
1,2,4-Trimethylbenzene	mg/m3	0.072U	0.072U	0.072U	0.072U
1,3,5-Trimethylbenzene	mg/m3	0.072U	0.072U	0.072U	0.072U
Vinyl chloride	mg/m3	0.072U	0.072U	0.072U	0.072U
o-Xylene	mg/m3	0.072U	0.072U	0.072U	0.072U
m&p-Xylene	mg/m3	0.14U	0.14U	0.14U	0.14U
Surrogate - 1,2-Dichloroethane-d4 *	%	108 %	105 %	105 %	105 %
Surrogate - Toluene-d8 *	%	89 %*	97 %	90 %	99 %

C.L.R

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
07062-6	86-271-AS6-A-0624-04	Air	07/01/04	06/24/04 10:45	
07062-6-RE	86-271-AS6-A-0624-04	Air	07/01/04	06/24/04 10:45	
07062-7	86-271-AS7-A-0624-04	Air	07/01/04	06/24/04 10:48	
07062-7-RE	86-271-AS7-A-0624-04	Air	07/01/04	06/24/04 10:48	

Parameter	Units	Lab Sample IDs			
		07062-6	07062-6-RE	07062-7	07062-7-RE

Volatile Organic Compounds in Air

Surrogate -					
4-Bromofluorobenzene *	%	85 %* <i>R-D</i>	97 %	86 %* <i>R-D</i>	97 %
Dilution Factor		1	1	1	1
Prep Date		07/07/04	07/07/04	07/07/04	07/07/04
Prep Time		17:11	18:24	17:48	18:59
Analysis Date		07/07/04	07/07/04	07/07/04	07/07/04
Analysis Time		17:11	18:24	17:48	18:59
Batch ID		MAA050	MAA050	MAA050	MAA050
Prep Method		MOD-T014	MOD-T014	MOD-T014	MOD-T014
Analyst		LAD	LAD	LAD	LAD
Quantitation Factor		2.38	2.38	2.40	2.40

C.L.R



115 Perimeter Center Place, Suite 700
Atlanta, GA 30346-1278
Tel No: (770) 604-9182
Fax No: (770) 604-9282

C407062

CHAIN-OF-CUSTODY RECORD

COC NUMBER

171591-028 page 1 of 1

PROJECT NAME: Former NAS Cecil Field	PROJECT NUMBER: 171591	LAB NAME AND CONTACT: STL - Pensacola Stephanie Akers	FAX AND MAIL REPORTS/EDD TO: RECIPIENT 1 (Name and Company): Jeff Marks J.A Jones Env. Services	RECIPIENT 1 (Address, Tel No. , and Fax No.): 6219 Authority Ave. Building 1 Jacksonville, FL 32221 (904) 7774812 FAX: (904) 7774262
PROJECT PHASE/SITE/TASK: Building 271 Quarterly Air Sampling Event	CTO OR DO NUMBER: 0086	LAB PO NUMBER: 6696	FAX AND MAIL REPORTS/EDD TO: RECIPIENT 2 (Name and Company): Bonnie Hogue CH2M Hill Constructors, Inc.	RECIPIENT 2 (Address, Tel No. , and Fax No.): 115 Perimeter Center Place, N.E. Suite 700 Atlanta, GA 30346 (770)604-9182 Ext.561 FAX:604-9282
PROJECT CONTACT: Jeff Marks	PROJECT TEL NO AND FAX NO: Ph:(904)777-4812 Fax:(904) 777-4262	LAB TEL NO AND FAX NO: Ph:(850) 474-1001 Fax: (850) 478-2671	FAX AND MAIL REPORTS/EDD TO: RECIPIENT 3 (Name and Company):	RECIPIENT 3 (Address, Tel No. , and Fax No.):

ITEM	SAMPLE IDENTIFIER	SAMPLE DESCRIPTION/LOCATION	MATRIX (see codes on back)	DATE COLLECTED	TIME COLLECTED	DATA PKG LEVEL (see codes on back)	TAT (calendar days)	ANALYSES REQUIRED (Include Method Numbers)												SAMPLE TYPE (see codes on back)	COMMENTS/ SCREENING READINGS	LAB ID
								Volatiles by 18/TO 14														
1	86-271-7S-A-0624-04	CEF-271-7S	Air	06/24/04	1030	III/C	14	1											Grab	Summa Canister	263	
2	86-271-10S-A-0624-04	CEF-271-10S	Air	06/24/04	1033	III/C	14	1											Grab	Summa Canister	286	
3	86-271-AS2-A-0624-04	Air Sparge - 2	Air	06/24/04	1036	III/C	14	1											Grab	Summa Canister	291	
4	86-271-AS3-A-0624-04	Air Sparge - 3	Air	06/24/04	1039	III/C	14	1											Grab	Summa Canister	290	
5	86-271-AS5-A-0624-04	Air Sparge - 5	Air	06/24/04	1042	III/C	14	1											Grab	Summa Canister	281	
6	86-271-AS6-A-0624-04	Air Sparge - 6	Air	06/24/04	1045	III/C	14	1											Grab	Summa Canister	254	
7	86-271-AS7-A-0624-04	Air Sparge - 7	Air	06/24/04	1048	III/C	14	1											Grab	Summa Canister	260	
8																						
9																						
10																						

SAMPLER(S) AND COMPANY: (please print) Randy Dumaop / Greg Ramey AGVIQ Environmental Services / CH2M HILL	COURIER AND SHIPPING NUMBER: Federal Express Tracking Numbers:790683203369, 790683203277, 790683203288.	SAMPLES TEMPERATURE AND CONDITION UPON RECEIPT:
---	---	---

RELINQUISHED BY	DATE	TIME	RECEIVED BY	DATE	TIME
Printed Name and Signature: R. Dumaop	6/29/2004	11:00	Printed Name and Signature: Federal Express Tracking Numbers:790683203369, 790683203277, 790683203288.	6/29/2004	11:00
Printed Name and Signature:			Printed Name and Signature: <i>Mick Swafford</i>	7/1/04	1115
Printed Name and Signature:			Printed Name and Signature:		

C407062 CT086 BL D271 OTLY CECL

Appendix C

Laboratory Analytical Reports for Groundwater Samples



Former NAS Cecil Field

PREPARED FOR: Former NAS Cecil Field Bldg. 271/Quarterly GW Sampling Event- 2nd Qtr.
FINAL REVEIWER: Camden Robinson/ Associate Project Chemist/CCI
COPIES: Mike Halil /Project Manager/CCI
DATE: July 27, 2004
SUBJECT: Quality Assessment for Samples Collected June 24, 2004

This quality assurance memorandum is based upon a review of analytical data generated for water samples and associated field quality control samples collected June 24, 2004 at the Former Naval Air Station Cecil Field Bldg. 271 in Jacksonville, Florida. The samples were collected as a part of the building 271 quarterly groundwater sampling event conducted at the site. Table 1-1 presents a summary of the CCI sample identification numbers, laboratory sample identification numbers, dates of collection, sample matrices, and the analyses performed.

Gulf Coast Laboratory of Baton Rouge, Louisiana served as the laboratory for this Building 271 Quarterly Groundwater sampling event for the following analyses:

- Benzene, Etylbenzene, Toluene, Total Xylenes, and MTBE (BTEX + MTBE) by SW-846 method 8260B
- Polyaromatic nuclear hydrocarbons (PAH) by HPLC method 8310

Table 1-1 *Summary Sample Data Reviewed
Former NAS Cecil Field*

Sample Number	Lab Sample ID	Date Sampled	Analysis Required
86-CEF271-7S-Q2-04	20406251901	06/24/2004	[1], [2]
86-CEF271-9S-Q2-04	20406251902	06/24/2004	[1], [2]
86-CEF271-10S-Q2-04	20406251903	06/24/2004	[1], [2]
86-CEF271-12S-Q2-04	20406251904	06/24/2004	[1], [2]
*86-271-DP-Q2-04	20406251907	06/24/2004	[1], [2]
86-271-EB-Q2-04	20406251908	06/24/2004	[1], [2]
86-271-TB-Q2-04	20406251909	06/24/2004	[1]

ANALYSES PERFORMED CODES:

- [1] –Benzene, Ethylbenzene, Toluene, Total Xylenes, and MTBE (BTEX + MTBE) by method SW846 8260B,
[2] –Polyaromatic nuclear hydrocarbons (PAH) by HPLC method 8310,
* 86-271-DP-Q2-04 blind field duplicate of 86-CEF271-9S-Q2-04

Data for the analyses were reviewed for adherence to the specified analytical protocols in accordance with CCI Sampling Analysis Plan. All analysis results have been validated or qualified according to general guidance provided in the "National Functional Guidelines for Organic and Inorganic Data Review," EPA 540/OR-99/008, October 1999 and EPA 540/R-94/013, February 1994. Additionally, the data were evaluated for adherence to the Department of Defense (DOD) Quality Systems Manual-Version 2 June 2002.

The findings of this quality assurance report are based upon the comprehensive review of the following results summaries reported according to the CCI Level C (CLP-like data deliverables format): chain of custody documentation, holding times, laboratory method and field blank analyses, surrogate compound recoveries, matrix spike compound recoveries and reproducibility, bromofluorobenzene (BFB) mass tuning results, initial and continuing calibration, second source recovery and internal standard area performance summaries, target compound identification, laboratory control sample results, laboratory and blind field duplicate sample results, detection limits/sensitivity, and electronic data deliverables.

The analyses were performed acceptably, but require several qualifying statements; it is recommended that the analytical data be used only with the qualifying statements provided below. Any aspects of the data, which are not discussed in this report, should be considered qualitatively and quantitatively valid as reported, based on the deliverables reviewed. A result summary report presenting the validated and qualified results is presented in Attachment I.

General Data Qualifiers

As required by U.S. EPA protocols, all compounds which were qualitatively identified at concentrations below their respective reporting limits (RL) but above the method detection limit (MDL) have been qualified with "J" qualifiers on the data summary reports to indicate that they are quantitative estimates.

Organic Data Qualifiers

The positive results for benzene and total xylenes in sample 86-CEF271-7S-Q2-04 should be considered bias low quantitative estimates and may be higher than reported. The associated recoveries for the client specific matrix spike (MS) and matrix spike duplicate (MSD) samples were below the established quality control (QC) limit for these analytes. The bias low recoveries for these compounds indicate the possible presence of matrix interferences in samples of similar matrix. This has been indicated by placing a "J" qualifier next to the benzene and total xylenes results for sample 86-CEF271-7S-Q2-04 on the data summary tables.

The sample presented below was analyzed at a dilution for the polyaromatic hydrocarbon analysis. This dilution may have resulted in surrogate compounds diluted below the instrument detection limit; therefore surrogate recoveries may not be reported for all diluted analysis. This dilution was required to prevent saturation of the instrument and to allow quantitation of the compounds within the linear range of the calibration curve. Positive results for these compounds in the samples below have been reported from the diluted analysis. All other results and quantitation limits have been reported on the sample report summary from the initial analysis. However, higher quantitation limits have resulted for specific polyaromatic hydrocarbon compounds, which were not detected, in this sample. This should be noted when assessing these samples for the qualitative absence of specific polyaromatic hydrocarbon compounds.

Sample ID	Analysis	Dilution Factor
86-CEF271-7S-Q2-04	PAH	20x

Sample 86-CEF271-9S-Q2-04 and its blind field duplicate sample 86-271-DP-Q2-04 were submitted to the laboratory to evaluate sampling and analytical precision for those compounds determined to be confidently detected. All compounds met CCI's blind duplicate precision criteria of 30% for water samples relative percent difference (RPD) for volatile organic and polyaromatic hydrocarbon analyses. The RPD was not calculated for the compounds that were not detected in both samples.

Summary

The organic analyses were performed acceptably, but required qualifying statements. This analytical quality assurance report has identified the aspects of the data, which required qualification. These qualifiers are noted on the attached analytical sample summary reports. A support documentation package has been prepared for this quality assurance review and is filed with the Former NAS Cecil Field CTO 86/Bldg. 271 quarterly groundwater sampling project file.

Attachment I

VALID QUALIFIERS

QUALIFIER	
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit
J	The analyte was positively identified: the associated numerical value is the approximate concentration of the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there was presumptive evidence to make a "tentative identification."
NJ	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.
UJ	The analyte was not deemed above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
R/UR	The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet the quality control criteria. The presence or absence of the analyte cannot be verified.
B	The analyte was detected in the associated method and/or calibration blank.
JB	The analyte detected in the associated field, equipment, and/or trip blank.

QUALIFICATION CODE REFERENCE

Qualifier	Organics	Inorganics
H	Holding times were exceeded.	Holding times were exceeded.
S	Surrogate recovery was outside QC limits.	The sequence or number of standards used for the calibration was incorrect.
C	Calibration %RSD or %D was noncompliant.	Correlation coefficient is <0.995.
K	Second source %D was noncompliant.	Second source %D was noncompliant.
R	Calibration RRF was <0.05.	%R for calibration is not within control limits.
MB	Presumed contamination from preparation (method) blank.	Presumed contamination from preparation (method) blank or calibration blank.
L	Laboratory Blank Spike/Blank Spike Duplicate %R was not within control limits.	Laboratory Control Sample %R was not within control limits.
Q	MS/MSD recovery was poor or high RPD.	MS/MSD recovery was poor or high RPD.
G	Result is over the calibration range. No other acceptable result was provided.	Result is over the calibration range. Not other acceptable result was provided.
E	Not applicable.	Lab duplicate RPD showed poor agreement.
Z	Field duplicate RPD showed poor agreement.	Field duplicate RPD showed poor agreement
I	Internal standard performance was unsatisfactory.	ICP ICS results were unsatisfactory.
A	Not applicable.	ICP Serial Dilution %D was not within control limits.
TN	Tuning (BFB or DFTPP) was noncompliant.	Not applicable.
T	Presumed contamination from trip blank.	Not applicable.
+	False positive—reported compound was not present.	Not applicable.
-	False negative—compound was present but not reported.	Not applicable.
F	Presumed contamination from FB or ER.	Presumed contamination from FB or ER.
\$	Reported result or other information was incorrect.	Reported result or other information was incorrect.
?	TIC identity or reported retention time has been changed.	Not applicable.
D	The analysis with this flag should not be used because another more technically sound analysis is available.	The analysis with this flag should not be used because another more technically sound analysis is available.
P	Confirmation analysis RPD exceeded 40%.	Post Digestion Spike recovery was not within control limits.
T/D	Not applicable.	Total metals results were less than the dissolved metals result.
SD	Not applicable.	Seed correction factor was below the acceptable limit.
M	Reported values may be biased due to apparent matrix interferences. (AIR ANALYSIS ONLY)	Not applicable

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

86-CEF271-7S-Q2-04

Lab Name: GCAL Contract:

Lab Code: LA024 Case No.: SAS No.: SDG No.: 204062519

Matrix: (soil/water) Water

Sample wt/vol: 5 (g/ml) mL

Lab Sample ID: 20406251901

Level: (low/med) LOW

Lab File ID: 2040629P/S1031

% Moisture: not dec.

Date Collected: 06/24/04 Time: 1630

GC Column: DB-624-30M ID: .53 (mm)

Date Received: 06/25/04

Instrument ID: MSV3

Date Analyzed: 06/29/04 Time: 1821

Soil Extract Volume: (µL)

Dilution Factor: 1 Analyst: JCK

Soil Aliquot Volume: (µL)

Prep Batch: Analytical Batch: 276491

Analytical Method: SW-846 8260

CONCENTRATION UNITS: ug/L

CAS NO.	COMPOUND	RESULT	Q	MDL	RL
71-43-2	Benzene	165	J	0.225	0.500
100-41-4	Ethylbenzene	14.0		0.227	5.00
108-88-3	Toluene	4.42	J	0.213	5.00
1330-20-7	Xylene (total)	48.2	J	0.509	10.0
1634-04-4	tert-Butyl methyl ether (MTBE)	2.10	J	0.179	5.00

C.L.R

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

86-CEF271-9S-Q2-04

Lab Name: GCAL

Contract:

Lab Code: LA024

Case No.:

SAS No.:

SDG No.: 204062519

Matrix: (soil/water) Water

Sample wt/vol: 5 (g/ml) mL

Lab Sample ID: 20406251902

Level: (low/med) LOW

Lab File ID: 2040629P/S1040

% Moisture: not dec.

Date Collected: 06/24/04

Time: 1540

GC Column: DB-624-30M ID: .53 (mm)

Date Received: 06/25/04

Instrument ID: MSV3

Date Analyzed: 06/29/04

Time: 2151

Soil Extract Volume: (µL)

Dilution Factor: 1

Analyst: RJO

Soil Aliquot Volume: (µL)

Prep Batch:

Analytical Batch: 276491

Analytical Method: SW-846 8260

CONCENTRATION UNITS: ug/L

CAS NO.	COMPOUND	RESULT	Q	MDL	RL
71-43-2	Benzene	0.500	U	0.225	0.500
100-41-4	Ethylbenzene	5.00	U	0.227	5.00
108-88-3	Toluene	5.00	U	0.213	5.00
1330-20-7	Xylene (total)	10.0	U	0.509	10.0
1634-04-4	tert-Butyl methyl ether (MTBE)	5.00	U	0.179	5.00

C.L.R

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

86-CEF271-10S-Q2-04

Lab Name: GCAL Contract:

Lab Code: LA024 Case No.: SAS No.: SDG No.: 204062519

Matrix: (soil/water) Water

Sample wt/vol: 5 (g/ml) mL

Lab Sample ID: 20406251903

Level: (low/med) LOW

Lab File ID: 2040629P/S1041

% Moisture: not dec.

Date Collected: 06/24/04 Time: 1455

GC Column: DB-624-30M ID: .53 (mm)

Date Received: 06/25/04

Instrument ID: MSV3

Date Analyzed: 06/29/04 Time: 2211

Soil Extract Volume: (µL)

Dilution Factor: 1 Analyst: RJO

Soil Aliquot Volume: (µL)

Prep Batch: Analytical Batch: 276491

CONCENTRATION UNITS: ug/L

Analytical Method: SW-846 8260

CAS NO.	COMPOUND	RESULT	Q	MDL	RL
71-43-2	Benzene	0.500	U	0.225	0.500
100-41-4	Ethylbenzene	5.00	U	0.227	5.00
108-88-3	Toluene	5.00	U	0.213	5.00
1330-20-7	Xylene (total)	10.0	U	0.509	10.0
1634-04-4	tert-Butyl methyl ether (MTBE)	5.00	U	0.179	5.00

C.L.R

VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

86-CEF271-12S-Q2-04

Lab Name: GCAL

Contract:

Lab Code: LA024

Case No.:

SAS No.:

SDG No.: 204062519

Matrix: (soil/water) Water

Sample wt/vol: 5 (g/ml) mL

Lab Sample ID: 20406251904

Level: (low/med) LOW

Lab File ID: 2040629P/S1029

% Moisture: not dec.

Date Collected: 06/24/04

Time: 1420

GC Column: DB-624-30M ID: .53 (mm)

Date Received: 06/25/04

Instrument ID: MSV3

Date Analyzed: 06/29/04

Time: 1649

Soil Extract Volume: (µL)

Dilution Factor: 1

Analyst: JCK

Soil Aliquot Volume: (µL)

Prep Batch:

Analytical Batch: 276491

CONCENTRATION UNITS: ug/L

Analytical Method: SW-846 8260

CAS NO.	COMPOUND	RESULT	Q	MDL	RL
71-43-2	Benzene	2.04		0.225	0.500
100-41-4	Ethylbenzene	5.00	U	0.227	5.00
108-88-3	Toluene	5.00	U	0.213	5.00
1330-20-7	Xylene (total)	10.0	U	0.509	10.0
1634-04-4	tert-Butyl methyl ether (MTBE)	0.281	J	0.179	5.00

C.L.R

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

86-271-DP-Q2-04

Lab Name: GCAL Contract: _____

Lab Code: LA024 Case No.: _____ SAS No.: _____ SDG No.: 204062519

Matrix: (soil/water) Water

Sample wt/vol: 5 (g/ml) mL

Lab Sample ID: 20406251907

Level: (low/med) LOW

Lab File ID: 2040630/S1073

% Moisture: not dec.

Date Collected: _____ Time: _____

GC Column: DB-624-30M ID: .53 (mm)

Date Received: 06/25/04

Instrument ID: MSV3

Date Analyzed: 06/30/04 Time: 1305

Soil Extract Volume: _____ (µL)

Dilution Factor: 1 Analyst: JCK

Soil Aliquot Volume: _____ (µL)

Prep Batch: _____ Analytical Batch: 276585

CONCENTRATION UNITS: ug/L

Analytical Method: SW-846 8260

CAS NO.	COMPOUND	RESULT	Q	MDL	RL
71-43-2	Benzene	0.500	U	0.225	0.500
100-41-4	Ethylbenzene	5.00	U	0.227	5.00
108-88-3	Toluene	5.00	U	0.213	5.00
1330-20-7	Xylene (total)	10.0	U	0.509	10.0
1634-04-4	tert-Butyl methyl ether (MTBE)	5.00	U	0.179	5.00

C.L.R

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

86-271-EB-Q2-04

Lab Name: GCAL Contract: _____
 Lab Code: LA024 Case No.: _____ SAS No.: _____ SDG No.: 204062519

Matrix: (soil/water) Water

Sample wt/vol: 5 (g/ml) mL Lab Sample ID: 20406251908
 Level: (low/med) LOW Lab File ID: 2040627/S0981
 % Moisture: not dec. Date Collected: 06/24/04 Time: 1700
 GC Column: DB-624-30M ID: .53 (mm) Date Received: 06/25/04
 Instrument ID: MSV3 Date Analyzed: 06/27/04 Time: 1747
 Soil Extract Volume: _____ (µL) Dilution Factor: 1 Analyst: JCK
 Soil Aliquot Volume: _____ (µL) Prep Batch: _____ Analytical Batch: 276391
 Analytical Method: SW-846 8260

CONCENTRATION UNITS: ug/L

CAS NO.	COMPOUND	RESULT	Q	MDL	RL
71-43-2	Benzene	0.500	U	0.225	0.500
100-41-4	Ethylbenzene	5.00	U	0.227	5.00
108-88-3	Toluene	5.00	U	0.213	5.00
1330-20-7	Xylene (total)	10.0	U	0.509	10.0
1634-04-4	tert-Butyl methyl ether (MTBE)	5.00	U	0.179	5.00

C.L.R

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

86-271-TB-Q2-04

Lab Name: GCAL

Contract:

Lab Code: LA024

Case No.:

SAS No.:

SDG No.: 204062519

Matrix: (soil/water) Water

Sample wt/vol: 5 (g/ml) mL

Lab Sample ID: 20406251909

Level: (low/med) LOW

Lab File ID: 2040627/S0982

% Moisture: not dec.

Date Collected:

Time:

GC Column: DB-624-30M ID: .53 (mm)

Date Received: 06/25/04

Instrument ID: MSV3

Date Analyzed: 06/27/04

Time: 1809

Soil Extract Volume: (µL)

Dilution Factor: 1

Analyst: JCK

Soil Aliquot Volume: (µL)

Prep Batch:

Analytical Batch: 276391

CONCENTRATION UNITS: ug/L

Analytical Method: SW-846 8260

CAS NO.	COMPOUND	RESULT	Q	MDL	RL
71-43-2	Benzene	0.500	U	0.225	0.500
100-41-4	Ethylbenzene	5.00	U	0.227	5.00
108-88-3	Toluene	5.00	U	0.213	5.00
1330-20-7	Xylene (total)	10.0	U	0.509	10.0
1634-04-4	tert-Butyl methyl ether (MTBE)	5.00	U	0.179	5.00

C.L.R

1D
ORGANICS ANALYSIS DATA SHEET

Lab Name: GCAL Sample ID 86-CEF271-7S-Q2-04
 Lab Code: LA024 Case No.: _____ Contract: _____
 Matrix: Water SAS No.: _____ SDG No.: 204062519
 Sample wt/vol: 1000 Units: mL Lab Sample ID: 20406251901
 Level: (low/med) LOW Date Collected 06/24/04 Time: 1630
 % Moisture: _____ decanted: (Y/N) _____ Date Received: 06/25/04
 GC Column: 201TP-0.15 ID: 2.1 (mm) Date Extracted: 06/25/04
 Concentrated Extract Volume: 1000 (µL) Date Analyzed: 06/30/04 Time: 1503
 Soil Aliquot Volume: _____ (µL) Dilution Factor: 20 Analyst: RLW
 Injection Volume: 1 (µL) Prep Method: SW-846 8310
 GPC Cleanup: (Y/N) N pH: _____ Analytical Method: SW-846 8310
 Prep Batch: 276356 Analytical Batch: 276604 Sulfur Cleanup: (Y/N) N Instrument ID: HPLC 1
 CONCENTRATION UNITS: ug/L Lab File ID: 040630/H0007095

CAS NO.	COMPOUND	RESULT	MDL	RL
90-12-0	1-Methylnaphthalene	44.5		20.0
91-57-6	2-Methylnaphthalene	86.3		20.0
83-32-9	Acenaphthene	20.0	U	20.0
208-96-8	Acenaphthylene	157		20.0
120-12-7	Anthracene	2.00	U	2.00
56-55-3	Benzo(a)anthracene	2.00	U	2.00
50-32-8	Benzo(a)pyrene	2.00	U	2.00
205-99-2	Benzo(b)fluoranthene	2.00	U	2.00
191-24-2	Benzo(g,h,i)perylene	2.00	U	2.00
207-08-9	Benzo(k)fluoranthene	2.00	U	2.00
218-01-9	Chrysene	2.00	U	2.00
53-70-3	Dibenz(a,h)anthracene	2.00	U	2.00
206-44-0	Fluoranthene	2.00	U	2.00
86-73-7	Fluorene	10.0	U	10.0
193-39-5	Indeno(1,2,3-cd)pyrene	5.00	U	5.00
91-20-3	Naphthalene	422		5.00
85-01-8	Phenanthrene	2.00	U	2.00
129-00-0	Pyrene	2.00	U	2.00

C.L.R

1D
ORGANICS ANALYSIS DATA SHEET

Lab Name: GCAL	Sample ID: 86-CEF271-9S-Q2-04
Lab Code: LA024	Contract:
Case No.:	SAS No.:
Matrix: Water	SDG No.: 204062519
Sample wt/vol: 1000 Units: mL	Lab Sample ID: 20406251902
Level: (low/med) LOW	Date Collected: 06/24/04 Time: 1540
% Moisture: decanted: (Y/N)	Date Received: 06/25/04
GC Column: 201TP-0.15 ID: 2.1 (mm)	Date Extracted: 06/25/04
Concentrated Extract Volume: 1000 (µL)	Date Analyzed: 06/29/04 Time: 1321
Soil Aliquot Volume: (µL)	Dilution Factor: 1 Analyst: RLW
Injection Volume: 1 (µL)	Prep Method: SW-846 8310
GPC Cleanup: (Y/N) N pH:	Analytical Method: SW-846 8310
Prep Batch: 276356 Analytical Batch: 276597	Sulfur Cleanup: (Y/N) N Instrument ID: HPLC 1
CONCENTRATION UNITS: ug/L	Lab File ID: 040629/H0007083

CAS NO.	COMPOUND	RESULT	MDL	RL
90-12-0	1-Methylnaphthalene	1.00	U	0.291
91-57-6	2-Methylnaphthalene	1.00	U	0.142
83-32-9	Acenaphthene	1.00	U	0.331
208-96-8	Acenaphthylene	1.00	U	0.153
120-12-7	Anthracene	0.100	U	0.024
56-55-3	Benzo(a)anthracene	0.100	U	0.032
50-32-8	Benzo(a)pyrene	0.100	U	0.033
205-99-2	Benzo(b)fluoranthene	0.100	U	0.016
191-24-2	Benzo(g,h,i)perylene	0.100	U	0.016
207-08-9	Benzo(k)fluoranthene	0.100	U	0.033
218-01-9	Chrysene	0.100	U	0.030
53-70-3	Dibenz(a,h)anthracene	0.100	U	0.029
206-44-0	Fluoranthene	0.100	U	0.044
86-73-7	Fluorene	0.500	U	0.099
193-39-5	Indeno(1,2,3-cd)pyrene	0.250	U	0.041
91-20-3	Naphthalene	0.250	U	0.124
85-01-8	Phenanthrene	0.100	U	0.025
129-00-0	Pyrene	0.100	U	0.034

C.L.R

1D
ORGANICS ANALYSIS DATA SHEET

Lab Name: GCAL	Sample ID: 86-CEF271-10S-Q2-04
Lab Code: LA024 Case No.:	Contract:
Matrix: Water	SAS No.: SDG No.: 204062519
Sample wt/vol: 1000 Units: mL	Lab Sample ID: 20406251903
Level: (low/med) LOW	Date Collected: 06/24/04 Time: 1455
% Moisture: decanted: (Y/N)	Date Received: 06/25/04
GC Column: 201TP-0.15 ID: 2.1 (mm)	Date Extracted: 06/25/04
Concentrated Extract Volume: 1000 (µL)	Date Analyzed: 06/29/04 Time: 1328
Soil Aliquot Volume: (µL)	Dilution Factor: 1 Analyst: RLW
Injection Volume: 1 (µL)	Prep Method: SW-846 8310
GPC Cleanup: (Y/N) N pH:	Analytical Method: SW-846 8310
Prep Batch: 276356 Analytical Batch: 276597	Sulfur Cleanup: (Y/N) N Instrument ID: HPLC 1
CONCENTRATION UNITS: ug/L	Lab File ID: 040629/H0007084

CAS NO.	COMPOUND	RESULT	MDL	RL
90-12-0	1-Methylnaphthalene	1.00	U	0.291
91-57-6	2-Methylnaphthalene	1.00	U	0.142
83-32-9	Acenaphthene	1.00	U	0.331
208-96-8	Acenaphthylene	1.00	U	0.153
120-12-7	Anthracene	0.100	U	0.024
56-55-3	Benzo(a)anthracene	0.100	U	0.032
50-32-8	Benzo(a)pyrene	0.100	U	0.033
205-99-2	Benzo(b)fluoranthene	0.100	U	0.016
191-24-2	Benzo(g,h,i)perylene	0.100	U	0.016
207-08-9	Benzo(k)fluoranthene	0.100	U	0.033
218-01-9	Chrysene	0.100	U	0.030
53-70-3	Dibenz(a,h)anthracene	0.100	U	0.029
206-44-0	Fluoranthene	0.100	U	0.044
86-73-7	Fluorene	0.500	U	0.099
193-39-5	Indeno(1,2,3-cd)pyrene	0.250	U	0.041
91-20-3	Naphthalene	0.250	U	0.124
85-01-8	Phenanthrene	0.100	U	0.025
129-00-0	Pyrene	0.100	U	0.034

C.L.R

1D
ORGANICS ANALYSIS DATA SHEET

Lab Name: GCAL
 Lab Code: LA024 Case No.: _____
 Matrix: Water
 Sample wt/vol: 1000 Units: mL
 Level: (low/med) LOW
 % Moisture: _____ decanted: (Y/N) _____
 GC Column: 201TP-0.15 ID: 2.1 (mm)
 Concentrated Extract Volume: 1000 (µL)
 Soil Aliquot Volume: _____ (µL)
 Injection Volume: 1 (µL)
 GPC Cleanup: (Y/N) N pH: _____
 Prep Batch: 276356 Analytical Batch: 276597

Sample ID 86-CEF271-12S-Q2-04
 Contract: _____
 SAS No.: _____ SDG No.: 204062519
 Lab Sample ID: 20406251904
 Date Collected 06/24/04 Time: 1420
 Date Received: 06/25/04
 Date Extracted: 06/25/04
 Date Analyzed: 06/29/04 Time: 1335
 Dilution Factor: 1 Analyst: RLW
 Prep Method: SW-846 8310
 Analytical Method: SW-846 8310
 Sulfur Cleanup: (Y/N) N Instrument ID: HPLC 1
 Lab File ID: 040629/H0007085

CONCENTRATION UNITS: ug/L

CAS NO. COMPOUND RESULT MDL RL

CAS NO.	COMPOUND	RESULT	MDL	RL
90-12-0	1-Methylnaphthalene	1.00	U	0.291
91-57-6	2-Methylnaphthalene	1.00	U	0.142
83-32-9	Acenaphthene	1.00	U	0.331
208-96-8	Acenaphthylene	1.00	U	0.153
120-12-7	Anthracene	0.100	U	0.024
56-55-3	Benzo(a)anthracene	0.100	U	0.032
50-32-8	Benzo(a)pyrene	0.100	U	0.033
205-99-2	Benzo(b)fluoranthene	0.100	U	0.016
191-24-2	Benzo(g,h,i)perylene	0.100	U	0.016
207-08-9	Benzo(k)fluoranthene	0.100	U	0.033
218-01-9	Chrysene	0.100	U	0.030
53-70-3	Dibenz(a,h)anthracene	0.100	U	0.029
206-44-0	Fluoranthene	0.100	U	0.044
86-73-7	Fluorene	0.500	U	0.099
193-39-5	Indeno(1,2,3-cd)pyrene	0.250	U	0.041
91-20-3	Naphthalene	0.250	U	0.124
85-01-8	Phenanthrene	0.100	U	0.025
129-00-0	Pyrene	0.100	U	0.034

C.L.R

1D
ORGANICS ANALYSIS DATA SHEET

Lab Name: GCAL	Sample ID 86-271-DP-Q2-04
Lab Code: LA024 Case No.:	Contract:
Matrix: Water	SAS No.: SDG No.: 204062519
Sample wt/vol: 1000 Units: mL	Lab Sample ID: 20406251907
Level: (low/med) LOW	Date Collected Time:
% Moisture: decanted: (Y/N)	Date Received: 06/25/04
GC Column: 201TP-0.15 ID: 2.1 (mm)	Date Extracted: 06/25/04
Concentrated Extract Volume: 1000 (µL)	Date Analyzed: 06/29/04 Time: 1356
Soil Aliquot Volume: (µL)	Dilution Factor: 1 Analyst: RLW
Injection Volume: 1 (µL)	Prep Method: SW-846 8310
GPC Cleanup: (Y/N) N pH:	Analytical Method: SW-846 8310
Prep Batch: 276356 Analytical Batch: 276597	Sulfur Cleanup: (Y/N) N Instrument ID: HPLC 1
CONCENTRATION UNITS: ug/L	Lab File ID: 040629/H0007088

CAS NO. COMPOUND	RESULT	MDL	RL
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CAS NO. COMPOUND	RESULT	MDL	RL
90-12-0	1-Methylnaphthalene	1.00	U 0.291 1.00
91-57-6	2-Methylnaphthalene	1.00	U 0.142 1.00
83-32-9	Acenaphthene	1.00	U 0.331 1.00
208-96-8	Acenaphthylene	1.00	U 0.153 1.00
120-12-7	Anthracene	0.100	U 0.024 0.100
56-55-3	Benzo(a)anthracene	0.100	U 0.032 0.100
50-32-8	Benzo(a)pyrene	0.100	U 0.033 0.100
205-99-2	Benzo(b)fluoranthene	0.100	U 0.016 0.100
191-24-2	Benzo(g,h,i)perylene	0.100	U 0.016 0.100
207-08-9	Benzo(k)fluoranthene	0.100	U 0.033 0.100
218-01-9	Chrysene	0.100	U 0.030 0.100
53-70-3	Dibenz(a,h)anthracene	0.100	U 0.029 0.100
206-44-0	Fluoranthene	0.100	U 0.044 0.100
86-73-7	Fluorene	0.500	U 0.099 0.500
193-39-5	Indeno(1,2,3-cd)pyrene	0.250	U 0.041 0.250
91-20-3	Naphthalene	0.250	U 0.124 0.250
85-01-8	Phenanthrene	0.100	U 0.025 0.100
129-00-0	Pyrene	0.100	U 0.034 0.100

C.L.R

1D
ORGANICS ANALYSIS DATA SHEET

Lab Name: GCAL
 Lab Code: LA024 Case No.: _____
 Matrix: Water
 Sample wt/vol: 1000 Units: mL
 Level: (low/med) LOW
 % Moisture: _____ decanted: (Y/N) _____
 GC Column: 201TP-0.15 ID: 2.1 (mm)
 Concentrated Extract Volume: 1000 (µL)
 Soil Aliquot Volume: _____ (µL)
 Injection Volume: 1 (µL)
 GPC Cleanup: (Y/N) N pH: _____
 Prep Batch: 276356 Analytical Batch: 276597

Sample ID 86-271-EB-Q2-04
 Contract: _____
 SAS No.: _____ SDG No.: 204062519
 Lab Sample ID: 20406251908
 Date Collected 06/24/04 Time: 1700
 Date Received: 06/25/04
 Date Extracted: 06/25/04
 Date Analyzed: 06/29/04 Time: 1403
 Dilution Factor: 1 Analyst: RLW
 Prep Method: SW-846 8310
 Analytical Method: SW-846 8310
 Sulfur Cleanup: (Y/N) N Instrument ID: HPLC 1
 Lab File ID: 040629/H0007089

CONCENTRATION UNITS: ug/L

CAS NO. COMPOUND RESULT MDL RL

CAS NO.	COMPOUND	RESULT	MDL	RL
90-12-0	1-Methylnaphthalene	1.00	U	0.291
91-57-6	2-Methylnaphthalene	1.00	U	0.142
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50-32-8	Benzo(a)pyrene	0.100	U	0.033
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129-00-0	Pyrene	0.100	U	0.034

C.L.R



115 Perimeter Center Place, Suite 700
Atlanta, GA 30346-1278
Tel No: (770) 604-9182
Fax No: (770) 604-9282

CHAIN-OF-CUSTODY RECORD

COC NUMBER:

171591-027

PROJECT NAME:	PROJECT NUMBER:	LAB NAME AND CONTACT:	FAX AND MAIL REPORTS/EDD TO: RECIPIENT 1 (Name and Company)	RECIPIENT 1 (Address, Tel No., and Fax No.):
Former N.A.S. Cecil Field Building 271	171591	Gulf Coast Labs. Dano Merril	Jeff Marks / CH2M Hill Constructors, Inc.	6219 Authority Ave. Jacksonville, FL 32221 (904) 7774812, FAX: (904) 7774262
PROJECT PHASE/SITE/TASK:	CTO OR DO NUMBER:	LAB PO NUMBER:	FAX AND MAIL REPORTS/EDD TO: RECIPIENT 2 (Name and Company)	RECIPIENT 2 (Address, Tel No., and Fax No.):
Building 271 Quarterly GW Sampling Event	0086	6421	Bonnie Hogue / CH2M Hill Constructors, Inc.	115 Perimeter Center Place, N.E. Suite 700 Atlanta, GA 30346 (770)604-9182 Ext.561 FAX:604-9282
PROJECT CONTACT:	PROJECT TEL NO AND FAX NO:	LAB TEL NO AND FAX NO:	FAX AND MAIL REPORTS/EDD TO: RECIPIENT 3 (Name and Company)	RECIPIENT 3 (Address, Tel No., and Fax No.):
Jeff Marks CH2M Hill Constructors, Inc.	Ph:(904)777-4812 Fax:(904) 777-4262	Ph:(225) 769-4900		

3rd

ANALYSES REQUIRED (Include Method Numbers)

ITEM	SAMPLE IDENTIFIER	SAMPLE DESCRIPTION/LOCATION	MATRIX (see codes on SOP)	DATE COLLECTED	TIME COLLECTED	DATA PKG LEVEL (see codes on SOP)	TAT (calendar days)	BTEX & MTBE by 8260B	To tested PAHs (incl 1- & 2-Methylanthralene) by 8310											SAMPLE TYPE (see codes on SOP)	COMMENTS/ SCREENING READINGS	LAB ID (for lab's use)
1	86-CEF271-7S-Q2-04	CEF-271-7S	W	06/24/04	1630	III/C	14	3	2											Grab	MS/MSD	1
2	86-CEF271-9S-Q2-04	CEF-271-9S	W	06/24/04	1540	III/C	14	3	2											Grab		2
3	86-CEF271-10S-Q2-04	CEF-271-10S	W	06/24/04	1455	III/C	14	3	2											Grab		3
4	86-CEF271-12S-Q2-04	CEF-271-12S	W	06/24/04	1420	III/C	14	3	2											Grab		4
5	086-271-MS-Q2-04	MS	W	06/24/04	1630	III/C	14	3	2											Grab	CEF-271-7S	5
6	086-271-MSD-Q2-04	MSD	W	06/24/04	1630	III/C	14	3	2											Grab	CEF-271-7S	6
7	086-271-DP-Q2-04	Field Duplicate	W	NA	NA	III/C	14	3	2											Grab		7
8	086-271-EB-Q2-04	Equipment Blank	W	06/24/04	1700	III/C	14	3	2											Grab		8
9	086-271-TB-Q2-04	Trip Blank	W	NA	NA	III/C	14	3												Grab	Prepared by Lab	9
10																						

SAMPLER(S) AND COMPANY: (please print) Randy Dumaop / Greg Ramey AGVIQ Environmental Services / CH2M HILL	COURIER AND SHIPPING NUMBER: Federal Express Tracking Numbers:792029648548, 792029648560.	SAMPLES TEMPERATURE AND CONDITION UPON RECEIPT (for lab's use):
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RELINQUISHED BY	DATE	TIME	RECEIVED BY	DATE	TIME
Printed Name and Signature: R. Dumaop	6/24/2004	18:00	Printed Name and Signature: Federal Express Tracking Numbers:792029648548, 792029648560.	6/24/2004	18:00
Printed Name and Signature: Fed-Ex 792029648548	6-24-04	0930	Printed Name and Signature: Robert W. Inghish	6-24-04	
Printed Name and Signature:			Printed Name and Signature:		