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"FIRST QUARTER THIRD YEAR GROUNDWATER MONITORING LETTER REPORT FOR BUILDING 81 TANKS 81 A, B AND C NAS CECIL FIELD FL"
7/1/2008
TETRA TECH NUS INC

TETRA TECH

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July 1, 2008

Project Number 112G01264

Mr. David Grabka
Remedial Project Manager
Technical Review/Federal Facilities
Florida Department of Environmental Protection
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Reference: CLEAN IV Contract Number N62467-04-D-0055
Contract Task Order 0102

Subject: Groundwater Monitoring Report, 1st Quarter, 3rd Year (March 2008)
Building 81, Tanks 81 A, B, and C (2nd Quarter since revised NAMP)
Naval Air Station Cecil Field
Jacksonville, Florida

Dear Mr. Grabka:

Tetra Tech NUS, Inc. (TtNUS) is pleased to submit this Quarterly Groundwater Monitoring Report for the referenced Contract Task Order for Building 81, Tanks 81 A, B, and C. This Groundwater Monitoring Report was prepared for Naval Facilities Engineering Command Southeast (NAVFAC SE) under the Comprehensive Long-Term Environmental Action Navy (CLEAN) IV Contract Number N62467-04-D-0055.

The primary objective of current activities at this site is to conduct quarterly monitoring of groundwater associated with the shallow and intermediate zones of the surficial aquifer. The sampling program is being conducted in accordance with the revised Natural Attenuation Monitoring Plan (NAMP) submitted to the Florida Department of Environmental Protection (FDEP) on November 21, 2007, based on Chapter 62-770.690, Florida Administrative Code. The parameters of the NAMP were discussed and agreed upon during the September 2007 Base Realignment and Closure Cleanup Team meeting and were implemented during this sampling event. The formal Natural Attenuation Monitoring Plan Approval Order (NAMPAO) was received June 27, 2008. The revised NAMP and NAMPAO are provided in Attachments A and B, respectively. This report summarizes the field operations and analytical results for the subject site for the sampling event conducted during the week of March 31, 2008. The work was performed in general accordance with FDEP Standard Operating Procedures (SOPs) under DEP-SOP-001/01.

FIELD OPERATIONS

Groundwater samples were collected from existing wells CEF-081-04I, CEF-081-08SR, CEF-081-09S, CEF-081-14S, CEF-081-15S, CEF-081-16S, CEF-081-17S, CEF-081-18I, CEF-081-19I, CEF-081-21I, and CEF-081-22I on March 31 and April 1, 2008. Monitoring well locations are provided on Figure 1. The samples were placed on ice and subsequently hand-delivered under chain of custody to Columbia Analytical Services in Jacksonville, Florida, for analysis. The laboratory analyzed the samples for isopropyl benzene using United States Environmental Protection Agency Method SW-846 8260B.

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Prior to obtaining groundwater samples, synoptic water levels and total well depths were measured and recorded on a site-specific groundwater measurement sheet for all wells located around former building 81. On March 31, 2008, the depth to water ranged from 5.03 feet below top of casing (btoc) (CEF-081-12S) to 7.39 feet btoc (CEF-081-21I). Depth to water measurements, top of casing elevations, and groundwater elevations are presented in Table 1. General sampling protocols were in accordance with FDEP SOPs and TtNUS SOP SA-1.1.

RESULTS

The groundwater elevation data and flow direction for the shallow zone are shown on Figure 2. Based on the data, the inferred general direction of shallow zone groundwater flow is northernly and westernly direction. Groundwater elevation data and flow direction for the intermediate zone are shown on Figure 3. Based on the data, the inferred general direction of intermediate zone groundwater flow is north to northwest.

The only constituent of concern (COC) identified in the NAMPAO and revised NAMP is isopropyl benzene. COC concentrations reported by the laboratory for the groundwater samples collected for this sampling event were compared to FDEP Groundwater Cleanup Target Levels (GCTLs) and Natural Attenuation Default Source Concentrations. The data and standards are presented in Table 2, and the results are presented on Figure 4. The laboratory data (see Attachment B) indicate that isopropyl benzene was detected at 2.7 micrograms per liter (μg/L) in CEF-081-04I, and 2.8 μg/L in CEF-081-19I. These concentrations exceed the GCTL of 0.8 μg/L. In all other wells, isopropyl benzene was either not detected or was detected at estimated concentrations less than their respective GCTLs.

CONCLUSIONS AND RECOMMENDATIONS

The shallow groundwater flow direction is consistent with previous sampling events. Intermediate zone groundwater flow showed north to northwest flow components during the March 2008 sampling event, which not consistent with other sampling events. From June 2007 to December 2007, the intermediate zone groundwater flow was estimated to the northwest and southeast.

March 2008 concentrations of isopropyl benzene in groundwater exceeded the GCTL in only two (CEF-081-04I and CEF-081-19I) of the 11 monitoring wells being sampled under the revised NAMP. Isopropyl benzene concentrations in monitoring wells CEF-081-09S and CEF-081-15S have decreased to less than the GCTL in the last two sampling events and CEF-081-18I decreased to less than the GCTL in this monitoring event. The isopropyl benzene concentration increased slightly in CEF-081-04I since the last sampling event to the maximum concentration to date. The isopropyl benzene concentration in CEF-081-19I decreased slightly since the last sampling event but still exceeds the GCTL.

The March 2008 sampling event was the fourth quarterly sampling event after the perimeter wells (CEF-081-21I and CEF-081-22I) were installed in June 2007 and the second quarterly event since the revised NAMP was submitted. The November 2007 NAMP proposed quarterly sampling for the first 2 years and then semi-annual sampling for 3 additional years. The NAMPAO identified quarterly sampling shall be conducted for one year and after one year of quarterly sampling the data evaluated to determine if sampling will continue on a quarterly basis or whether a different sampling frequency is appropriate. The next quarterly sampling event is scheduled for early July 2008.

If you have any questions regarding this submittal, please feel free to contact Kara Wimble at (904) 730-4669, extension 214, or via e-mail at Kara.Wimble@tetratech.com.

Sincerely,

Robert Simcik, P.E.
Task Order Manager
P.E. Number 61263

Kara F. Wimble
Project Scientist

Enclosures (8)

c: J. Ferro, NAVFAC SE (1 copy)
S. Naik, CH2M Hill (electronic only)
M. Perry, TtNUS (unbound)
D. Humbert, TtNUS (letter only)
M. Speranza, TtNUS (letter only)
M. Jonnet, TtNUS (Cecil DMS)
J. Logan, TtNUS
R. Simcik, TtNUS (Bookcase File)
J. Johnson, TtNUS (Information Repository)
CTO 0102 Project File

CERTIFICATION

The information contained herein is based on the investigation data and information obtained from previously submitted reports. If conditions are determined to exist that differ from those described, the undersigned engineer should be notified to evaluate the effects of any additional information on the information described in this report. This Groundwater Monitoring Report, 1st Quarter, 3rd Year (March 2008) is the second quarterly report since the revised NAMP was submitted for Building 81, Tanks 81 A, B, and C at Former Naval Air Station Cecil Field, Jacksonville, Florida, and should not be construed to apply to any other site.

July 1, 2008
Robert Simcik, P.E.
P.E. License Number 61263

ROBERT FRANK SIMCIK
LICENSE
No. 00061263
7/1/08
STATE OF
FLORIDA
PROFESSIONAL ENGINEER

TABLES

Table 1
Groundwater Elevation Data

Groundwater Monitoring Report, 1st Quarter, 3rd Year - March 2008
Building 81, Tanks 81 A, B, and C
Naval Air Station Cecil Field
Jacksonville, Florida

Monitoring Well Identification	Well Depth (feet btoc)	TOC Elevation (feet above msl)	January 11, 2002		May 23, 2002		January 7, 2003	
			Depth to Water (feet btoc)	Water-Level Elevation (feet above msl)	Depth to Water (feet btoc)	Water-Level Elevation (feet above msl)	Depth to Water (feet btoc)	Water-Level Elevation (feet above msl)
CEF-80-3S	15.12	77.68	4.74	72.94	5.22	72.46	5.07	72.61
CEF-80-13S	14.90	78.17	4.96	73.21	5.48	72.69	5.51	72.66
CEF-81-2S	15.00	78.41	NM	NM	6.02	72.39	NM	NM
CEF-81-8SR	12.94	77.61	4.62	72.99	5.06	72.55	5.14	72.47
CEF-81-9S	12.74	77.72	4.73	72.99	5.19	72.53	5.16	72.56
CEF-81-10S	12.99	78.46	5.45	73.01	5.98	72.48	5.68	72.78
CEF-81-11S	12.88	78.47	5.46	73.01	5.97	72.50	5.56	72.91
CEF-81-12S	11.68	77.37	4.37	73.00	4.81	72.56	4.91	72.46
CEF-81-13S	12.14	77.91	4.92	72.99	5.36	72.55	5.27	72.64
CEF-81-14S	13.00	78.30	NI	NI	5.85	72.45	6.13	72.17
CEF-81-1I	29.25	77.73	4.77	72.96	4.77	72.96	5.65	72.08
CEF-P25-1S	12.00	77.57	NM	NM	5.17	72.40	6.00	71.57
CEF-81-2I	30.00	77.42	NI	NI	NI	NI	NI	NI
CEF-81-3I	30.00	77.78	NI	NI	NI	NI	NI	NI
CEF-81-4I	30.00	77.54	NI	NI	NI	NI	NI	NI
CEF-81-5I	30.00	77.84	NI	NI	NI	NI	NI	NI
CEF-81-1D	55.00	77.77	NI	NI	NI	NI	NI	NI
CEF-81-15S	15.00	78.03	NI	NI	NI	NI	NI	NI
CEF-81-16S	15.00	78.53	NI	NI	NI	NI	NI	NI
CEF-81-17S	15.00	78.35	NI	NI	NI	NI	NI	NI
CEF-81-18I	35.00	78.33	NI	NI	NI	NI	NI	NI
CEF-81-19I	35.00	78.15	NI	NI	NI	NI	NI	NI
CEF-81-20I	35.00	77.63	NI	NI	NI	NI	NI	NI
CEF-81-21I	35.00	78.78	NI	NI	NI	NI	NI	NI
CEF-81-22I	35.00	78.35	NI	NI	NI	NI	NI	NI

TOC= Top of casing. btoc= below top of casing. NM = Not measured. NI= Not Installed. msl= Mean sea level.

Table 1
Groundwater Elevation Data

Groundwater Monitoring Report, 1st Quarter, 3rd Year - March 2008
Building 81, Tanks 81 A, B, and C
Naval Air Station Cecil Field
Jacksonville, Florida

Monitoring Well Identification	Well Depth (feet btoc)	TOC Elevation (feet above msl)	February 18, 2005		January 5, 2007		February 5, 2007	
			Depth to Water (feet btoc)	Water-Level Elevation (feet above msl)	Depth to Water (feet btoc)	Water-Level Elevation (feet above msl)	Depth to Water (feet btoc)	Water-Level Elevation (feet above msl)
CEF-80-3S	15.12	77.68	6.61	71.07	NM	NM	NM	NM
CEF-80-13S	14.90	78.17	7.09	71.08	NM	NM	NM	NM
CEF-81-2S	15.00	78.41	7.34	71.07	9.84	68.57	NM	NM
CEF-81-8SR	12.94	77.61	6.57	71.04	8.97	68.64	8.44	69.17
CEF-81-9S	12.74	77.72	6.78	70.94	9.15	68.57	8.70	69.02
CEF-81-10S	12.99	78.46	7.52	70.94	9.83	68.63	NM	NM
CEF-81-11S	12.88	78.47	7.48	70.99	9.81	68.66	NM	NM
CEF-81-12S	11.68	77.37	6.21	71.16	9.65	67.72	6.77	70.60
CEF-81-13S	12.14	77.91	6.91	71.00	7.34	70.57	6.65	71.26
CEF-81-14S	13.00	78.30	7.41	70.89	9.79	68.51	9.44	68.86
CEF-81-1I	29.25	77.73	6.79	70.94	9.19	68.54	8.86	68.87
CEF-P25-1S	12.00	77.57	6.52	71.05	9.03	68.54	8.69	68.88
CEF-81-2I	30.00	77.42	6.54	70.88	8.94	68.48	8.62	68.80
CEF-81-3I	30.00	77.78	6.95	70.83	9.34	68.44	9.05	68.73
CEF-81-4I	30.00	77.54	6.74	70.80	9.09	68.45	8.77	68.77
CEF-81-5I	30.00	77.84	7.01	70.83	9.33	68.51	9.01	68.83
CEF-81-1D	55.00	77.77	6.83	70.94	NM	NM	8.97	68.80
CEF-81-15S	15.00	78.03	NI	NI	9.51	68.52	9.15	68.88
CEF-81-16S	15.00	78.53	NI	NI	10.05	68.48	9.73	68.80
CEF-81-17S	15.00	78.35	NI	NI	9.82	68.53	9.48	68.87
CEF-81-18I	35.00	78.33	NI	NI	9.79	68.54	9.50	68.83
CEF-81-19I	35.00	78.15	NI	NI	9.61	68.54	9.31	68.84
CEF-81-20I	35.00	77.63	NI	NI	9.09	68.54	8.77	68.86
CEF-81-21I	35.00	78.78	NI	NI	NI	NI	NI	NI
CEF-81-22I	35.00	78.35	NI	NI	NI	NI	NI	NI

TOC= Top of casing. btoc= below top of casing. NM = Not measured. NI= Not Installed. msl= Mean sea level.

Table 1
Groundwater Elevation Data

Groundwater Monitoring Report, 1st Quarter, 3rd Year - March 2008
Building 81, Tanks 81 A, B, and C
Naval Air Station Cecil Field
Jacksonville, Florida

Monitoring Well Identification	Well Depth (feet btoc)	TOC Elevation (feet above msl)	June 21, 2007		September 19, 2007		December 17, 2007		March 31, 2008	
			Depth to Water (feet btoc)	Water-Level Elevation (feet above msl)	Depth to Water (feet btoc)	Water-Level Elevation (feet above msl)	Depth to Water (feet btoc)	Water-Level Elevation (feet above msl)	Depth to Water (feet btoc)	Water-Level Elevation (feet above msl)
CEF-80-3S	15.12	77.68	NM	NM	NM	NM	NM	NM	NM	NM
CEF-80-13S	14.90	78.17	NM	NM	NM	NM	NM	NM	NM	NM
CEF-81-2S	15.00	78.41	NM	NM	8.84	69.57	8.1	70.31	6.66	71.75
CEF-81-8SR	12.94	77.61	8.07	69.54	7.94	69.67	7.12	70.49	5.63	71.98
CEF-81-9S	12.74	77.72	8.35	69.37	8.15	69.57	7.34	70.38	5.56	72.16
CEF-81-10S	12.99	78.46	9.32	69.14	8.79	69.67	8.16	70.30	6.85	71.61
CEF-81-11S	12.88	78.47	NM	NM	8.79	69.68	8.14	70.33	6.83	71.64
CEF-81-12S	11.68	77.37	6.31	71.06	7.68	69.69	5.18	72.19	5.03	72.34
CEF-81-13S	12.14	77.91	8.66	69.25	6.19	71.72	5.41	72.50	5.62	72.29
CEF-81-14S	13.00	78.30	9.12	69.18	8.81	69.49	8.04	70.26	6.73	71.57
CEF-81-1I	29.25	77.73	8.58	69.15	8.23	69.50	7.52	70.21	6.18	71.55
CEF-P25-1S	12.00	77.57	NM	NM	8.05	69.52	7.31	70.26	5.87	71.70
CEF-81-2I	30.00	77.42	8.32	69.10	7.97	69.45	7.28	70.14	5.91	71.51
CEF-81-3I	30.00	77.78	NM	NM	8.40	69.38	7.64	70.14	6.35	71.43
CEF-81-4I	30.00	77.54	NM	NM	8.12	69.42	7.41	70.13	6.12	71.42
CEF-81-5I	30.00	77.84	8.73	69.11	8.37	69.47	7.67	70.17	6.33	71.51
CEF-81-1D	55.00	77.77	NM	NM	NM	NM	NM	NM	NM	NM
CEF-81-15S	15.00	78.03	NM	NM	8.51	69.52	7.75	70.28	6.42	71.61
CEF-81-16S	15.00	78.53	9.45	69.08	9.09	69.44	8.34	70.19	7.05	71.48
CEF-81-17S	15.00	78.35	9.20	69.15	8.87	69.48	8.1	70.25	6.83	71.52
CEF-81-18I	35.00	78.33	9.20	69.13	8.85	69.48	8.11	70.22	6.83	71.50
CEF-81-19I	35.00	78.15	9.02	69.13	8.65	69.50	7.98	70.17	6.67	71.48
CEF-81-20I	35.00	77.63	8.50	69.13	8.11	69.52	7.41	70.22	6.09	71.54
CEF-81-21I	35.00	78.78	9.73	69.05	9.40	69.38	8.65	70.13	7.39	71.39
CEF-81-22I	35.00	78.35	9.31	69.04	8.90	69.45	8.28	70.07	6.99	71.36

TOC= Top of casing. btoc= below top of casing. NM = Not measured. NI= Not Installed. msl= Mean sea level.

Table 2
Groundwater Analytical Data

Groundwater Monitoring Report, 1st Quarter, 3rd Year - March 2008
Building 81, Tanks 81 A, B, and C
Naval Air Station Cecil Field
Jacksonville, Florida

Parameter	GCTL	NADSC	CEF-081-													
			01I			04I						08SR				
			02/18/05	02/05/07	06/06/07	02/18/05	09/19/07	12/17/07 Sample	12/17/07 Duplicate	04/01/08	02/18/05	02/05/07	06/07/07	09/20/07	12/19/07	04/01/08
VOCs (µg/L)																
Ethylbenzene	30	300	0.5 U	0.3 U	0.30 U	1.5	NA	NA	NA	NA	0.5 U	0.3 U	0.20 U	NA	NA	NA
Isopropylbenzene	0.8	8	0.69 J	0.36 J	0.10 U	**1.7**	**2.3**	**1.6**	**1.5**	**2.7**	0.5 U	0.1 U	**2.1**	0.21 U	0.093 U	0.36 U
Toluene	40	400	0.5 U	0.2 U	0.20 U	0.50 U	NA	NA	NA	NA	0.5 U	0.2 U	0.29 J	NA	NA	NA
Benzene	1	10	0.5 U	0.2 U	0.20 U	0.50 U	NA	NA	NA	NA	0.5 U	0.2 U	0.20 U	NA	NA	NA
MTBE	20	200	NA	0.2 U	0.20 U	NA	NA	NA	NA	NA	NA	0.2 U	0.20 U	NA	NA	NA
PAHs (µg/L)																
1-Methylnaphthalene	28	280	0.49 U	0.02 U	0.02 U	NA	NA	NA	NA	NA	0.49 U	0.02 U	12.4	NA	NA	NA
2-Methylnaphthalene	28	280	0.49 U	0.02 U	0.02 U	NA	NA	NA	NA	NA	0.49 U	0.02 U	4.58	NA	NA	NA
Acenaphthene	20	200	0.98 U	0.24	0.02 U	1.0 U	NA	NA	NA	NA	0.98 U	0.02 U	0.38	NA	NA	NA
Fluorene	280	2800	0.98 U	0.51	0.05 U	1.1	NA	NA	NA	NA	0.98 U	0.02 U	0.94	NA	NA	NA
Naphthalene	14	140	0.98 U	0.22	0.05 U	2.2	NA	NA	NA	NA	0.98 U	0.02 U	0.95	NA	NA	NA
Phenanthrene	210	2100	0.98 U	0.02 U	0.04 U	1.0 U	NA	NA	NA	NA	0.98 U	0.02 U	0.13	NA	NA	NA
Pyrene	210	2100	0.49 U	0.02 U	0.03 U	0.50 U	NA	NA	NA	NA	0.49 U	0.02 U	0.03 U	NA	NA	NA

Parameter	GCTL	NADSC	CEF-081-													
			09S						13S				14S			
			02/18/05	02/05/07	06/08/07	09/19/07	12/17/07	04/01/08	02/21/05	02/06/07	06/08/07 Sample	06/08/07 Duplicate	02/18/05	02/06/07	06/07/07	09/20/07
VOCs (µg/L)																
Ethylbenzene	30	300	0.6 J	0.3 U	0.30 U	NA	NA	NA	0.5 U	0.3 U	0.30 U	0.30 U	0.5 U	0.3 U	0.30 U	NA
Isopropylbenzene	0.8	8	**2.8**	**2.29**	0.10 U	**1.3**	0.67 J	0.36 U	0.5 U	0.1 U	0.10 U	0.10 U	**3.3**	**0.95 J**	0.21 J	0.21 U
Toluene	40	400	0.5 U	0.2 U	0.25 J	NA	NA	NA	0.5 U	0.24 J	0.20 U	0.52 J	0.5 U	0.2 U	0.22 J	NA
Benzene	1	10	0.5 U	0.2 U	0.20 U	NA	NA	NA	0.5 U	0.2 U	0.20 U	0.20 U	0.5 U	0.2 U	0.20 U	NA
MTBE	20	200	NA	0.2 U	0.20 U	NA	NA	NA	NA	0.2 U	0.20 U	0.20 U	NA	0.2 U	0.20 U	NA
PAHs (µg/L)																
1-Methylnaphthalene	28	280	9.2	0.47	0.02 U	NA	NA	NA	0.48 U	0.02 U	0.02 U	0.02 U	9.9	0.02 U	0.02 U	NA
2-Methylnaphthalene	28	280	5.7	0.07 J	0.02 U	NA	NA	NA	0.48 U	0.02 U	0.02 U	0.02 U	6.2	0.02 U	0.02 U	NA
Acenaphthene	20	200	0.99 U	0.07 J	0.02 U	NA	NA	NA	0.96 U	0.02 U	0.02 U	0.02 U	0.97 U	0.02 U	0.02 U	NA
Fluorene	280	2800	0.99 U	0.1	0.05 U	NA	NA	NA	0.96 U	0.02 U	0.05 U	0.05 U	0.97 U	0.02 U	0.05 U	NA
Naphthalene	14	140	4.2	0.16	0.05 U	NA	NA	NA	0.96 U	0.02 U	0.05 U	0.05 U	7.8	0.16	0.05 U	NA
Phenanthrene	210	2100	0.99 U	0.02 U	0.04 U	NA	NA	NA	0.96 U	0.02 U	0.04 U	0.04 U	0.97 U	0.02 U	0.04 U	NA
Pyrene	210	2100	0.5 U	0.02 U	0.03 U	NA	NA	NA	0.48 U	0.02 U	0.03 U	0.03 U	0.49 U	0.02 U	0.03 U	NA

Table 2
Groundwater Analytical Data

Groundwater Monitoring Report, 1st Quarter, 3rd Year - March 2008
Building 81, Tanks 81 A, B, and C
Naval Air Station Cecil Field
Jacksonville, Florida

Parameter	GCTL	NADSC	CEF-081-													
			14S (cont'd)		15S						16S					
			12/18/07	04/01/08	11/21/06	02/06/07	06/07/07	09/19/07	12/18/07	4/1/2008	11/21/06	02/06/07	06/07/07	09/20/07	12/18/07	03/31/08
VOCs (µg/L)																
Ethylbenzene	30	300	NA	NA	0.3 U	0.3 U	0.30 U	NA	NA	NA	0.3 U	0.3 U	0.30 U	NA	NA	NA
Isopropylbenzene	0.8	8	0.093 U	0.36 U	0.1 U	0.1 U	**1.3**	**1.0**	0.093 U	0.36 U	0.1 U	0.1 U	0.10 U	0.21 U	0.093 U	0.36 U
Toluene	40	400	NA	NA	0.2 U	0.21 J	0.33 J	NA	NA	NA	0.2 U	0.2 U	0.20 U	NA	NA	NA
Benzene	1	10	NA	NA	0.2 U	0.2 U	0.20 U	NA	NA	NA	0.2 U	0.2 U	0.20 U	NA	NA	NA
MTBE	20	200	NA	NA	0.2 U	0.2 U	0.20 U	NA	NA	NA	0.2 U	0.2 U	0.20 U	NA	NA	NA
PAHs (µg/L)																
1-Methylnaphthalene	28	280	NA	NA	0.02 U	0.02 U	0.02 U	NA	NA	NA	0.02 U	0.02 U	0.02 U	NA	NA	NA
2-Methylnaphthalene	28	280	NA	NA	0.02 U	0.02 U	0.02 U	NA	NA	NA	0.02 U	0.02 U	0.02 U	NA	NA	NA
Acenaphthene	20	200	NA	NA	0.02 U	0.02 U	0.02 U	NA	NA	NA	0.02 U	0.02 U	0.02 U	NA	NA	NA
Fluorene	280	2800	NA	NA	0.02 U	0.02 U	0.05 U	NA	NA	NA	0.02 U	0.02 U	0.05 U	NA	NA	NA
Naphthalene	14	140	NA	NA	0.55	0.06 J	0.05 U	NA	NA	NA	0.02 U	0.02 U	0.05 U	NA	NA	NA
Phenanthrene	210	2100	NA	NA	0.02 U	0.02 U	0.04 U	NA	NA	NA	0.02 U	0.02 U	0.04 U	NA	NA	NA
Pyrene	210	2100	NA	NA	0.02 U	0.02 U	0.03 U	NA	NA	NA	0.02 U	0.02 U	0.03 U	NA	NA	NA

Parameter	GCTL	NADSC	CEF-081-													
			17S				18I							19I		
			06/07/07	09/20/07	12/18/07	03/31/08	11/22/06		02/05/07		9/20/2007	12/17/2007	4/1/2008	11/22/06	02/06/07	06/08/07
							Sample	Duplicate	Sample	Duplicate						
VOCs (µg/L)																
Ethylbenzene	30	300	0.30 U	NA	NA	NA	0.3 U	0.3 U	0.3 U	0.3 U	NA	NA	NA	0.7 J	1.18	1.3
Isopropylbenzene	0.8	8	0.10 U	0.21 U	0.093 U	0.36 U	**1**	**1.2**	**1.26**	**1.19**	**1.5**	**0.92 J**	0.54 J	**2.8**	**5.32**	**4.2**
Toluene	40	400	0.20 U	NA	NA	NA	0.5 J	0.2 U	0.23 J	0.2 U	NA	NA	NA	0.2 U	0.2 U	0.20 U
Benzene	1	10	0.20 U	NA	NA	NA	0.2 U	0.5 U	0.2 U	0.20 U	NA	NA	NA	0.2 U	0.20 U	0.2 U
MTBE	20	200	0.20 U	NA	NA	NA	0.2 U	NA	0.2 U	0.20 U	NA	NA	NA	0.2 U	0.20 U	0.2 U
PAHs (µg/L)																
1-Methylnaphthalene	28	280	0.02 U	NA	NA	NA	0.09 J	0.08 J	0.02 U	0.02 U	NA	NA	NA	6.5	11.6	0.02 U
2-Methylnaphthalene	28	280	0.02 U	NA	NA	NA	0.02 U	0.02 U	0.02 U	0.02 U	NA	NA	NA	4.31	8.43	0.02 U
Acenaphthene	20	200	0.24	NA	NA	NA	0.16	0.18	0.16	0.14	NA	NA	NA	0.28	0.27	0.05 J
Fluorene	280	2800	0.43	NA	NA	NA	0.23	0.27	0.23	0.2	NA	NA	NA	0.65	0.64	0.09 J
Naphthalene	14	140	0.31	NA	NA	NA	0.26	0.29	0.31	0.2	NA	NA	NA	1.01	1.29	0.05 U
Phenanthrene	210	2100	0.04 U	NA	NA	NA	0.02 U	0.02 U	0.02 U	0.02 U	NA	NA	NA	0.1	0.09 J	0.04 U
Pyrene	210	2100	0.03 U	NA	NA	NA	0.02 U	0.02 U	0.06 J	0.02 U	NA	NA	NA	0.02 U	0.02 U	0.03 U

Table 2
Groundwater Analytical Data

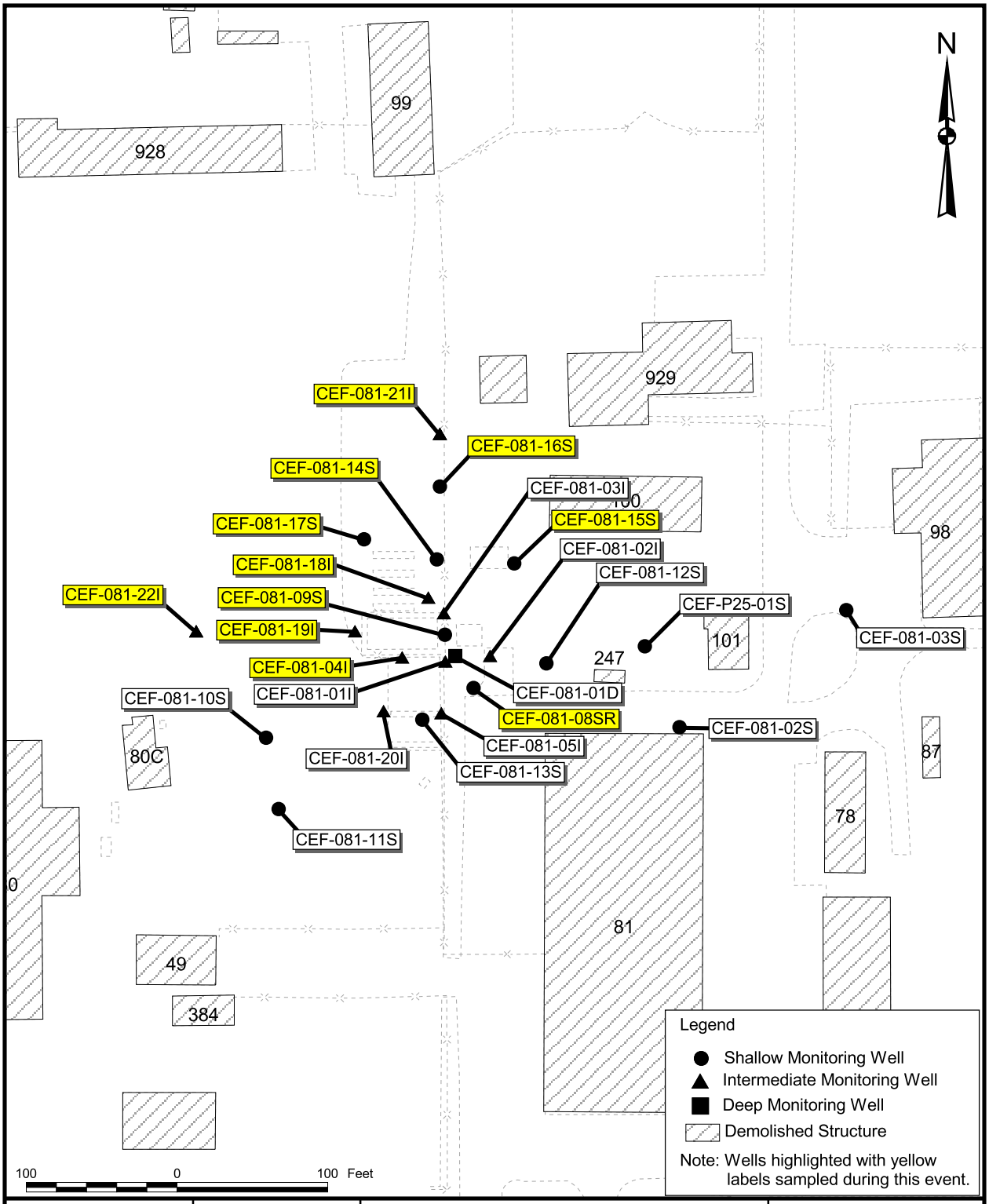
Groundwater Monitoring Report, 1st Quarter, 3rd Year - March 2008
Building 81, Tanks 81 A, B, and C
Naval Air Station Cecil Field
Jacksonville, Florida

Parameter	GCTL	NADSC	CEF-081-												
			19I (continued)				20I			21I				22I	
			09/20/07		12/17/2007	3/31/2008	11/22/06	02/06/07	06/08/07	06/07/07	09/21/07	12/18/2007	03/31/08	6/7/2007	9/19/2007
			Sample	Duplicate											
VOCs (µg/L)															
Ethylbenzene	30	300	NS	NA	NA	NA	0.3 U	0.3 U	0.30 U	0.30 U	NA	NA	NA	0.93 J	NA
Isopropylbenzene	0.8	8	**2.8**	**2.8**	**3.3**	**2.8**	0.2 J	0.1 U	0.10 U	0.10 U	0.21 U	0.093 U	0.36 U	0.52J	0.43 J
Toluene	40	400	NA	NA	NA	NA	0.3 J	0.37 J	0.20 U	0.53 J	NA	NA	NA	0.43 U	NA
Benzene	1	10	NA	NA	NA	NA	0.2 U	0.20 U	0.2 U	0.20 U	NA	NA	NA	0.28 J	NA
MTBE	20	200	NA	NA	NA	NA	0.2 U	0.20 U	0.2 U	0.20 U	NA	NA	NA	1.8	NA
PAHs (µg/L)															
1-Methylnaphthalene	28	280	NA	NA	NA	NA	0.02 U	0.03 U	0.02 U	0.02 U	NA	NA	NA	0.02 U	NA
2-Methylnaphthalene	28	280	NA	NA	NA	NA	0.02 U	0.03 U	0.02 U	0.02 U	NA	NA	NA	0.02 U	NA
Acenaphthene	20	200	NA	NA	NA	NA	0.08 J	0.03 U	0.08 J	0.02 U	NA	NA	NA	0.23	NA
Fluorene	280	2800	NA	NA	NA	NA	0.15	0.06 J	0.05 U	0.05 U	NA	NA	NA	0.52	NA
Naphthalene	14	140	NA	NA	NA	NA	0.07 J	0.03 U	0.05 J	0.05 U	NA	NA	NA	0.17	NA
Phenanthrene	210	2100	NA	NA	NA	NA	0.02 U	0.03 U	0.04 U	0.04 U	NA	NA	NA	0.04 U	NA
Pyrene	210	2100	NA	NA	NA	NA	0.02 U	0.02 U	0.03 U	0.03 U	NA	NA	NA	0.03 U	NA

Parameter	GCTL	NADSC	CEF-081-	
			22I	
			12/18/2007	3/31/2008
VOCs (µg/L)				
Ethylbenzene	30	300	NA	NA
Isopropylbenzene	0.8	8	0.32 J	0.58 J
Toluene	40	400	NA	NA
Benzene	1	10	NA	NA
MTBE	20	200	NA	NA
PAHs (µg/L)				
1-Methylnaphthalene	28	280	NA	NA
2-Methylnaphthalene	28	280	NA	NA
Acenaphthene	20	200	NA	NA
Fluorene	280	2800	NA	NA
Naphthalene	14	140	NA	NA
Phenanthrene	210	2100	NA	NA
Pyrene	210	2100	NA	NA

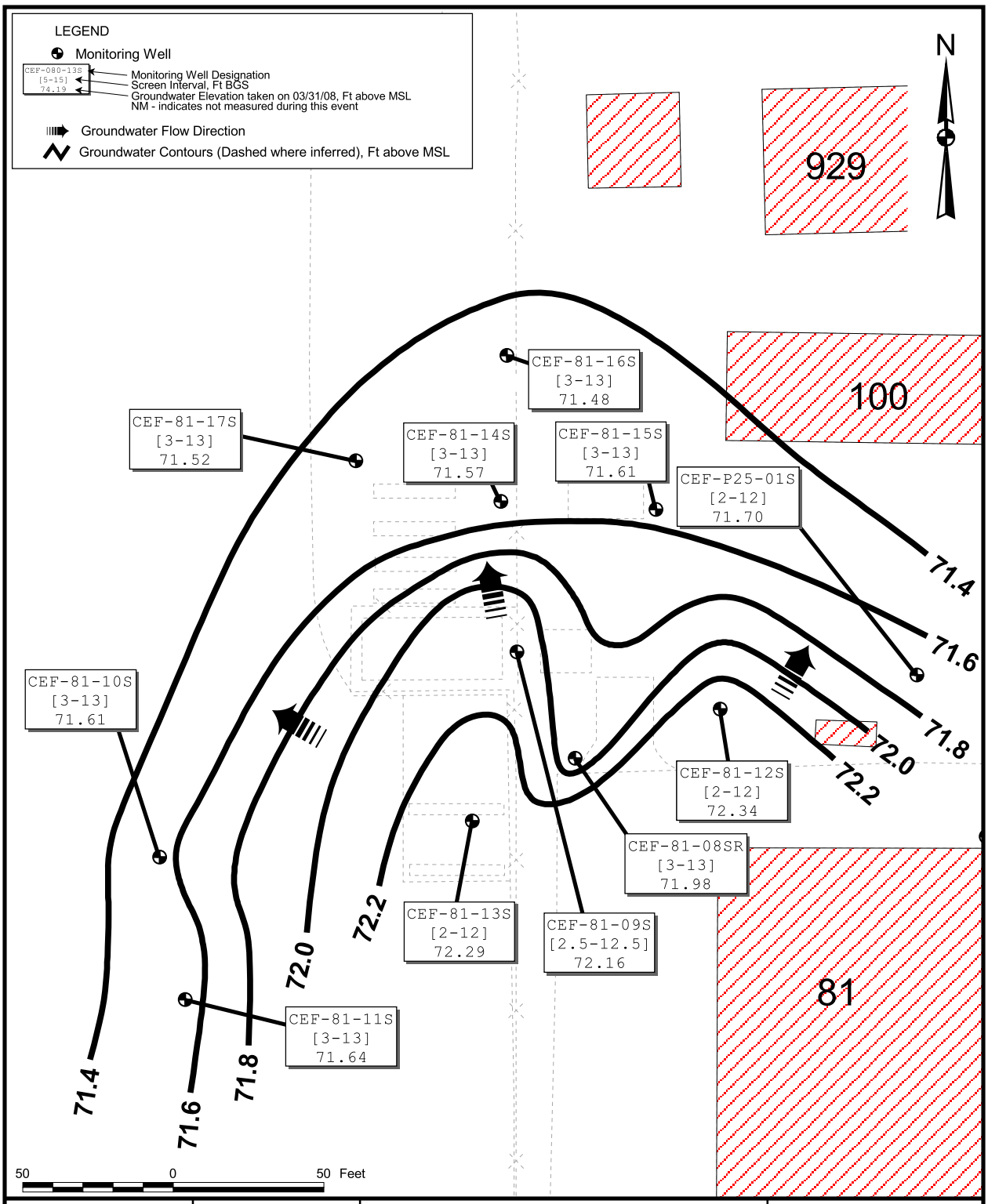
GCTL = Groundwater Cleanup Target Level.
NADSC = Natural Attenuation Default Source Concentration.
VOCs = Volatile organic compounds.
µg/L = Micrograms per liter.
MTBE = Methyl tertiary butyl ether.
PAHs = Polynuclear aromatic hydrocarbons.
U = Not detected at detection limit shown.
J = Estimated concentration.
Shading indicates concentration greater than FDEP criterion.
FDEP GCTLs from Chapter 62-777, Florida Administrative Code (F.A.C).
NADSCs from Chapter 62-777, F.A.C.
NA = Not analyzed.

FIGURES



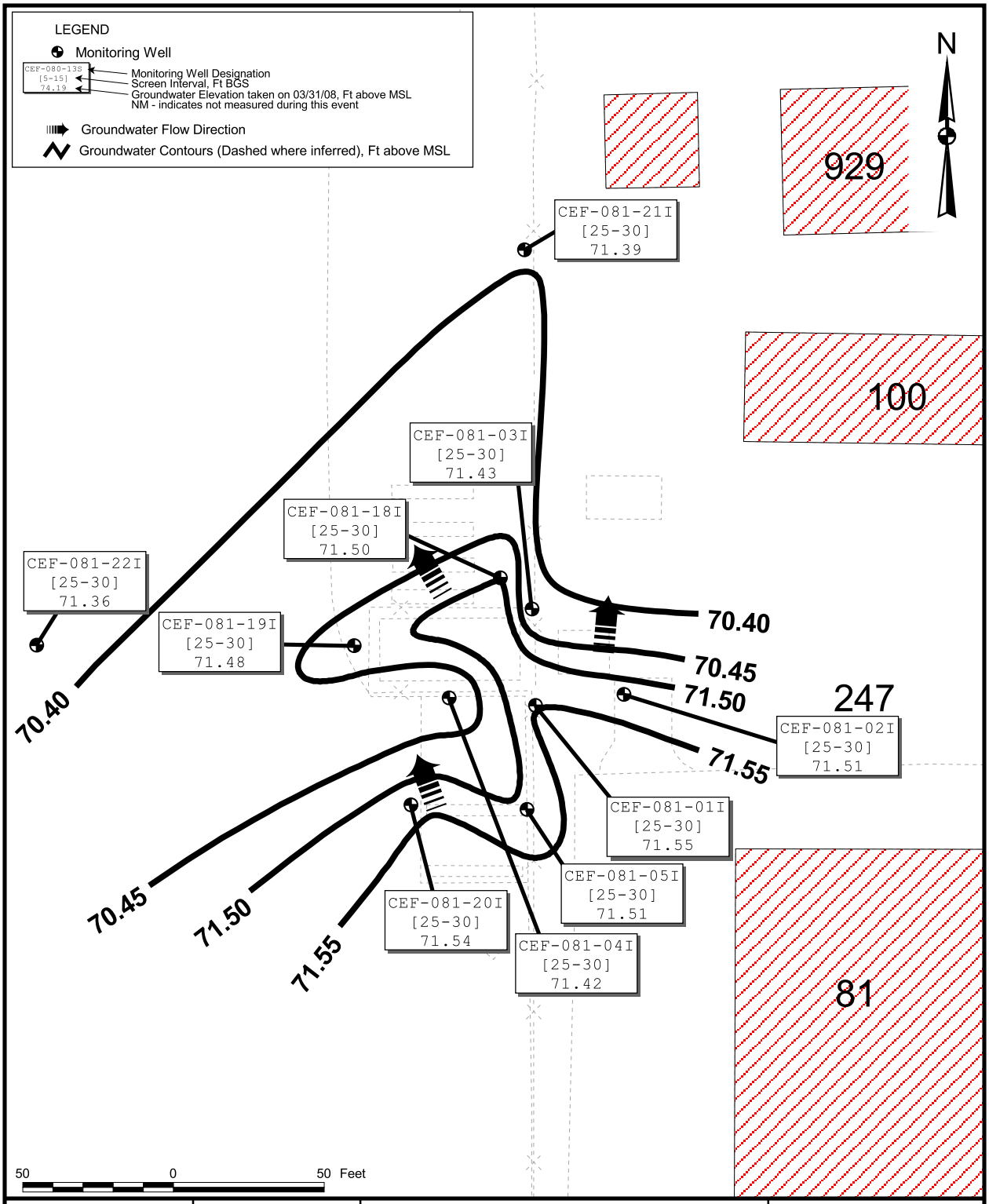
DRAWN BY MJJ	DATE 30Aug07	MONITORING WELL LOCATION MAP TANKS 81 A, B, AND C 1ST QUARTER, 3RD YEAR GROUNDWATER MONITORING REPORT NAVAL AIR STATION CECIL FIELD JACKSONVILLE, FLORIDA	CONTRACT NUMBER 1264
CHECKED BY	DATE		APPROVED BY DATE
COST/SCHEDULE-AREA			APPROVED BY DATE
SCALE AS NOTED			DRAWING NO. FIGURE 1 / REV 0

P:\GIS\NAS_CecilField\Tank_81abc_20080513.apr 24Jun08 MJJ Layout12



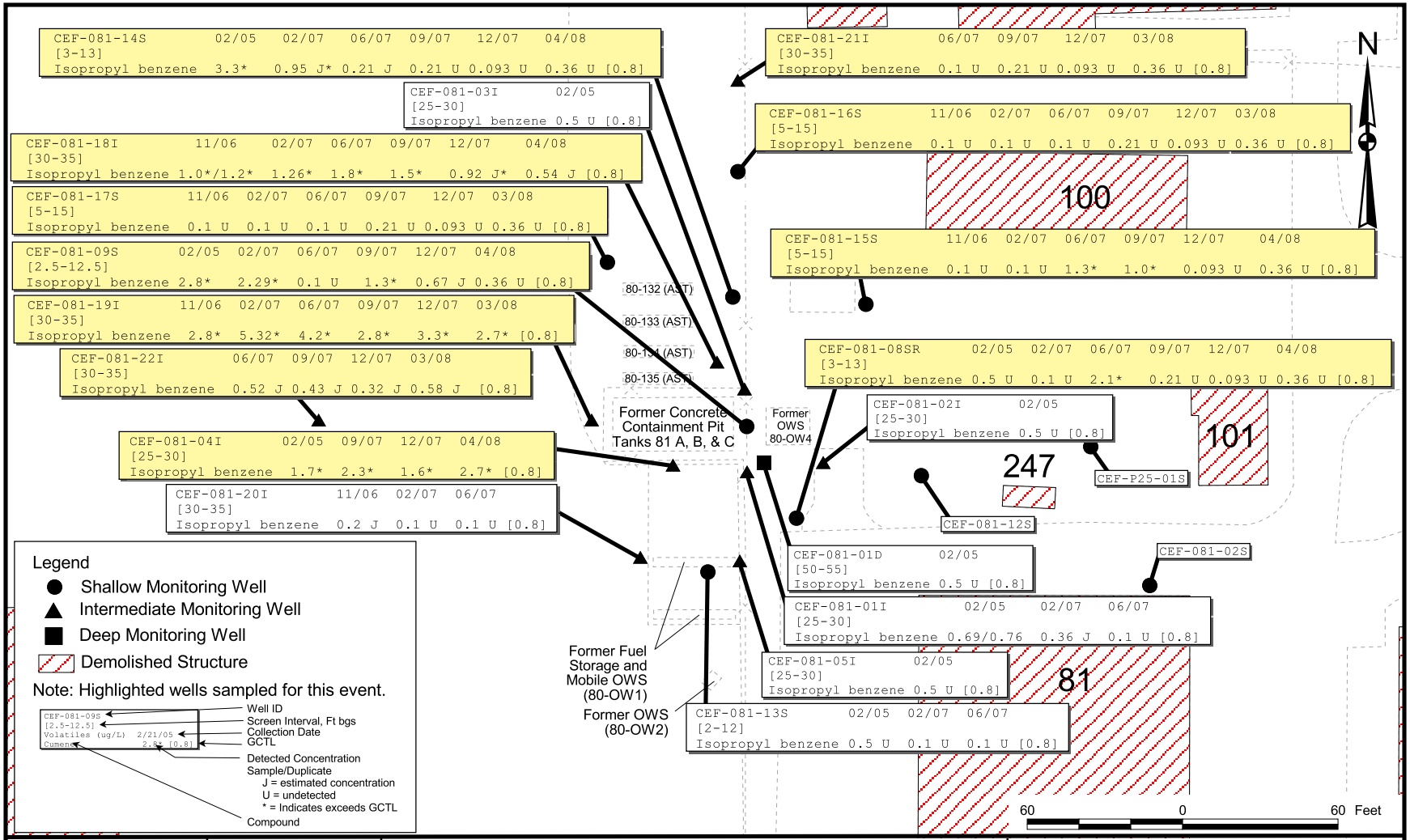
DRAWN BY MJJ	DATE 08Dec07	GROUNDWATER FLOW MAP (03/31/08) SHALLOW ZONE TANKS 81 A, B, AND C 1ST QUARTER, 3RD YEAR GROUNDWATER MONITORING REPORT NAVAL AIR STATION CECIL FIELD JACKSONVILLE, FLORIDA	CONTRACT NUMBER 1264
CHECKED BY	DATE		APPROVED BY DATE
COST/SCHEDULE-AREA			APPROVED BY DATE
SCALE AS NOTED			DRAWING NO. FIGURE 2 / REV 0

P:\GIS\NAS_CecilField\Tank_81abc_20080513.apr 24Jun08 MJJ Layout10



DRAWN BY MJJ	DATE 08Dec07	GROUNDWATER FLOW MAP (03/31/08) INTERMEDIATE ZONE TANKS 81 A, B, AND C 1ST QUARTER, 3RD YEAR GROUNDWATER MONITORING REPORT NAVAL AIR STATION CECIL FIELD JACKSONVILLE, FLORIDA	CONTRACT NUMBER 1264
CHECKED BY	DATE		APPROVED BY DATE
COST/SCHEDULE-AREA			APPROVED BY DATE
SCALE AS NOTED			DRAWING NO. FIGURE 3 / REV 0

P:\GIS\NAS_CecilField\Tank_81abc_20080513.apr 24Jun08 MJJ Layout11



DATE MJJ 07Feb08	NAVFAC	ANALTYICAL RESULTS TANKS 81 A, B, AND C 1ST QUARTER, 3RD YEAR GROUNDWATER MONITORING REPORT NAVAL AIR STATION CECIL FIELD JACKSONVILLE, FLORIDA	DRAWN BY / CONTRACT NUMBER 1264
CHECKED BY / DATE			APPROVED BY / DATE
COST/SCHEDULE-AREA			APPROVED BY / DATE
SCALE AS NOTED			DRAWING NO. FIGURE 4 / REV 0

P:\GIS\NAS_CecilField\Tank_81abc_20080513.apr 24Jun08 MJJ Layout15

ATTACHMENT A

REVISED NATURAL ATTENUATION MONITORING PLAN (NAMP)
NOVEMBER 21, 2007

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Document Tracking Number 07JAX0135

November 21, 2007

Project Number 112G00746

Mr. David Grabka
Florida Department of Environmental Protection
Twin Towers Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Reference: CLEAN IV Contract Number N62467-04-D-0055
Contract Task Order Number 0076

Subject: Natural Attenuation Monitoring Plan
Building 81, Tanks 81 A, B, and C
Naval Air Station Cecil Field
Jacksonville, Florida

Dear Mr. Grabka:

Tetra Tech NUS, Inc. (TtNUS) is pleased to submit this Natural Attenuation Monitoring Plan (NAMP) for Building 81, Tanks 81 A, B, and C. This document was prepared for the United States Department of the Navy, Naval Facilities Engineering Command Southeast (NAVFAC SE) under the Comprehensive Long-Term Environmental Action Navy (CLEAN) Contract Number N62467-04-D-0055, Contract Task Order 0076.

INTRODUCTION

This Natural Attenuation Monitoring Plan (NAMP) addresses the proposed groundwater monitoring activities for Tanks 81 A, B, and C at Former Naval Air Station (NAS) Cecil Field, Jacksonville, Florida. This NAMP was drafted to set and meet the milestone objectives in accordance with Chapter 62-770.690, Florida Administrative Code (FAC) and ultimately to meet the applicable No Further Action criteria of Rule 62-770.680, FAC at Tanks 81 A, B, and C.

PURPOSE

This monitoring plan for Tanks 81 A, B, and C is an integral component of the remedial action taken at this site under the Navy's Base Realignment and Closure (BRAC) Program at Former NAS Cecil Field. It is also the purpose of this plan to establish a reasonable exit strategy that will define when a satisfactory level of clean up has been achieved. The following sections describe the site background, objective of the monitoring plan, the specific monitoring plan components, and the exit strategy.

SITE BACKGROUND

The majority of NAS Cecil Field is located in southwestern Duval County, and the southernmost portion is located in Clay County. The base was operated by the Navy from approximately 1943 to 1999. Building 81, Tanks 81 A, B, and C were located in the Main Base area of NAS Cecil Field west of the Alpha runway at NAS Cecil Field. Figure 1 provides a location map for the site.

Former Tanks 81 A, B, and C consisted of three aboveground storage tanks (ASTs) located northwest of Building 81. No structures are currently located on the site. The location of the former Tanks 81 A, B,

and C is a relatively flat area with a mix of an asphalt parking lot and a grassy vacant lot. A topographic map of the area surrounding the site is presented in Figure 2.

According to the Environmental Baseline Survey for NAS Cecil Field, this site was on the eastern edge of an area called the Transportation and Fuel Management (TFM) compound (TtNUS, 2002). The TFM compound consisted of seven buildings (Buildings 49, 80, 80C, 178, 180, 384, and 584). Figure 3 shows the location of three of those buildings to the southwest of the site. Automotive maintenance for the base was managed from the TFM compound. Immediately east of the TFM compound, a series of buildings existed that housed the operations of a Navy subcontractor hired to handle plumbing, carpentry, general painting, and welding, electrical and light machine work related to general maintenance on base. This area was known as the Public Works Maintenance Area (PWMA). The central building of the PWMA was Building 81. Support buildings to the north and east of Building 81, shown on Figure 3, included Buildings 78, 98, 100, 101, 201, 247 and 929. Although the site's identification (Building 81, Tanks 81 A, B, and C) indicates a relationship to the PWMA, this information appears to establish a closer relationship between this site and the TFM compound.

Tanks 81 A, B, and C were contained in a secondary concrete containment pit that was approximately 2 feet deep. There is limited available information about the construction or possible contents of the three ASTs kept in this pit. (TtNUS, 2002).

TtNUS personnel conducted a Site Assessment and prepared a Site Assessment Report (SAR) for Building 81, Tanks 81 A, B, and C on July 18, 2002. The conclusions and recommendations from the SAR were as follows:

- Soil contamination was adequately addressed and removed by previous source removal actions.
- Groundwater contamination was delineated to the water table.
- There was no free product and contamination did not appear to extend deeper than the water table.
- Monitoring of contaminated groundwater in five water table wells (CEF-81-8SR, CEF-81-9S, CEF-81-12S, CEF-81-13S, and CEF-81-14S) for the four constituents of concern (COCs) [isopropylbenzene, naphthalene, 1,2,4-trimethylbenzene (TMB), and 1,3,5-TMB] for 5 years is recommended.
- Institutional controls were recommended to prevent use of groundwater as a potable water source.

The Florida Department of Environmental Protection (FDEP) generally accepted the recommendations from the SAR in the Monitoring Only Plan Approval Order dated October 1, 2002, with the exception of altering the recommended monitoring well list. The monitoring well list specified in the order was as follows: CEF-81-08SR, CEF-81-13S, CEF-81-14S, and CEF-81-01I.

The first quarterly monitoring event, conducted in January 2003, indicated that concentrations of COCs in intermediate well CEF-81-01I exceeded GCTLs. The associated report (TtNUS, 2003) recommended that the monitoring program be discontinued and that a supplemental site assessment be conducted. The FDEP approved the recommendation for a supplemental investigation in a letter dated February 5, 2004.

In response to these exceedances of COCs in CEF-81-01I during quarterly monitoring events in 2003, FDEP approved TtNUS's recommendation for a supplemental investigation on February 5, 2004. Additional monitoring wells were installed at the site for analysis as part of the supplemental site assessment. Four intermediate monitoring wells (CEF-81-02I, CEF-81-03I, CEF-81-04I, and CEF-81-05I) and one deep monitoring well (CEF-81-01D) were installed and developed in February 2005. The newly installed wells along with the original five Monitoring Only Plan wells were sampled for the COCs during the February 2005 groundwater sampling event.

The Supplemental Site Assessment Letter Report dated August 3, 2005, indicated that isopropyl benzene was migrating downgradient in the shallow and intermediate zones of the surficial aquifer; however, the deep zone had been delineated. FDEP approved an additional recommendation to further delineate the shallow and intermediate zones of the surficial aquifer in December 2005. In response, three shallow monitoring wells (CEF-081-15S, CEF-081-16S, and CEF-081-17S) and three intermediate monitoring wells (CEF-081-18I, CEF-081-19I, and CEF-081-20I) were installed and sampled in November 2006.

The laboratory analytical results from the November 2006 sampling event indicate that concentrations of isopropyl benzene in groundwater exceeded its GCTL in monitoring wells CEF-81-18I and CEF-18-19I. No GCTLs were exceeded for the other four newly installed wells (CEF-81-15S, CEF-81-16S, CEF-81-17S, and CEF-81-20I) during this sampling event (TtNUS, 2007).

The laboratory analytical results from the February 2007 sampling events indicate that concentrations of isopropyl benzene in groundwater exceed the GCTL in monitoring wells CEF-81-09S, CEF-81-14S, CEF-81-18I, and CEF-81-19I. No other COCs exceeded their respective GCTLs.

During the May 2007 BRAC Team (BCT) meeting, the installation of additional wells to further delineate contamination in the intermediate zone of the aquifer was discussed and the BCT agreed that adding two intermediate wells was the best course of action, and that the shallow zone was delineated.

In June 2007, two additional wells, CEF-081-21I and CEF-081-22I, were installed, developed, and sampled. The laboratory analytical results from the June 2007 sampling events indicated that concentrations of isopropyl benzene in groundwater exceeded the GCTL in monitoring wells CEF-81-08SR, CEF-81-15S, CEF-81-18I, and CEF-81-19I. The isopropyl benzene concentrations have decreased to below the GCTLs since the last sampling event (February 2007) in monitoring wells CEF-081-09S and CEF-081-14S. However, isopropyl benzene was first detected in monitoring wells CEF-081-08SR and CEF-081-15S during this June 2007 sampling event. No other COCs exceeded their respective GCTLs. Analytical results for the June 2007 sampling event are presented on Figure 4.

Based on the results of the June 2007 groundwater sampling event, TtNUS recommends that a revised NAMP be prepared and implemented for the site. Chapter 62-770.690(7)(a), FAC requires a minimum of two wells for the NAMP to monitor the area of maximum concentration of contaminants and the downgradient edge of the plume. TtNUS also recommended that quarterly sampling continue.

OBJECTIVES

The objective of this NAMP is to ensure that UST requirements are acceptable to meet the goals of protecting human health and the environment by satisfying the following objectives:

- Assure the public, the regulators, and the scientific community that the selected monitoring plan is working as expected and continues to be protective of human health and the environment.
- Collect sufficient groundwater quality data to enable reliable assessment of data trends and projections of time to reach remedial goals defined by the milestones and FDEP GCTLs for groundwater.
- Make timely decisions for the need to implement contingent actions and/or modify the NAMP.
- Assess the progress for the cleanup against the exit strategy.

NAMP COMPONENTS AND SUMMARY

This NAMP provides groundwater sample collection and analysis methodology for the monitoring effort at Tanks 81 A, B, and C. The following sections provide the components of the plan for Tanks 81 A, B, and C.

Components of the Plan – TANKS 81 A, B, AND C

Groundwater will be monitored for the COC isopropyl benzene to assess the effectiveness of natural attenuation as a treatment for the surficial aquifer at Tanks 81 A, B, and C. Six shallow monitoring wells and five intermediate monitoring wells located throughout the groundwater plume at Tanks 81 A, B, and C will be sampled to monitor groundwater plume size, chemical concentrations, and movement of the plume. The monitoring program will begin with quarterly sampling for years one and two and semi-annual sampling in years three, four, and five. Groundwater monitoring will continue until the FDEP GCTL is attained or unless, during an annual review, site conditions suggest that a different cleanup method should be considered. Figure 5 presents the location of the groundwater monitoring wells that will be sampled as part of this monitoring plan.

Groundwater Measurements and Sampling

During each sampling event, synoptic groundwater level measurements will be obtained from each monitoring well at the site. Because the aquifer is very flat, groundwater levels will be collected from all of the wells in the vicinity of the plume as listed below:

Shallow Aquifer

- CEF-P25-01S
- CEF-081-02S
- CEF-081-08SR
- CEF-081-09S
- CEF-081-10S
- CEF-081-11S
- CEF-081-12S
- CEF-081-13S
- CEF-081-14S
- CEF-081-15S
- CEF-081-16S
- CEF-081-17S

Intermediate Aquifer

- CEF-081-01I
- CEF-081-02I
- CEF-081-03I
- CEF-081-04I
- CEF-081-05I
- CEF-081-18I
- CEF-081-19I
- CEF-081-20I
- CEF-081-21I
- CEF-081-22I

Measurements will be collected with a water interface probe (or equivalent) using the marked location on the top of the well casing as the reference point. Groundwater level measurements will be recorded to the nearest 0.01 foot.

Groundwater samples will be obtained from 11 monitoring wells during each sampling event and submitted for fixed-base laboratory analysis (Figure 5). The following wells will be sampled and analyzed for isopropyl benzene only:

- CEF-081-04I
- CEF-081-17S
- CEF-081-08SR
- CEF-081-09S
- CEF-081-14S
- CEF-081-15S
- CEF-081-16S
- CEF-081-18I
- CEF-081-19I
- CEF-081-21I
- CEF-081-22I

Teflon® and surgical-grade silicon tubing will be used for sample collection. Groundwater samples will be collected using the "straw" method for volatile organic compounds (VOCs) and will be discharged into the appropriate sample bottles for analysis. Samples requiring preservation will be collected in pre-preserved bottles provided by the laboratory.

Procedures will be in accordance with TtNUS SOPs and FDEP SOPs. Since the site is in Florida, the FDEP SOPs will take precedence if there is a conflict between the two guidance documents unless otherwise directed.

Monitoring Parameters

During this monitoring period, data evaluation will be conducted after each sampling event. The results of the data evaluation will be used to make recommendations for continued monitoring and/or modifications in approach or methodology to ensure adequate and appropriate data collection to achieve the purposes of this NAMP. In anticipation of natural attenuation in 5 years, recommended milestone objectives for annual evaluation of remediation progress will also be provided in accordance with Chapter 62-770.690(7)(g), FAC.

The recommended COC for this NAMP is isopropyl benzene and is the only parameter to be analyzed for groundwater samples collected at Tanks 81 A, B, and C under United States Environmental Protection Agency Method SW-846 8620B (VOCs). In addition to regular calibration of field equipment and appropriate documentation, quality control samples will be collected during the field monitoring activities.

During sampling activities, one trip blank, consisting of one vial, shall be placed in each cooler that contains environmental samples destined for VOC analysis. One field duplicate will also be collected during each sampling event.

In anticipation of natural attenuation in 5 years for the extent of the plume, the following recommended milestone objectives for annual evaluation of remediation progress is provided in accordance with Chapter 62-770.690(7)(g), FAC:

Timeline	Isopropyl benzene
End of Year 1	4 micrograms per liter (µg/L)
End of Year 2	3 µg/L
End of Year 3	2 µg/L
End of Year 4	0.8 µg/L
End of Year 5	<0.8 µg/L

DATA ASSESSMENT AND REPORTING

The recommended frequency of monitoring events will be quarterly for the first 2 years and semi-annually for the last 3 years. Upon completion of each monitoring event, plume concentrations will be documented in a groundwater monitoring report. Monitoring reports will be prepared and submitted to NAVFAC SE and the FDEP. The monitoring report will contain the following information:

- Introduction describing site location and brief discussion of site history.
- Description of groundwater activities.
- Groundwater analytical results.
- Groundwater flow conditions.
- Any other pertinent data or site changes that might affect analytical results.
- Recommendations that would assist in reaching milestones of this NAMP.

EXIT STRATEGIES

Natural Attenuation Exit Strategy

Natural attenuation monitoring is required to measure the progress of achieving the milestones at Tanks 81 A, B, and C. To prevent overly long periods of monitoring that are not cost-effectively remediating the site, various exit strategy components are included in this section. The following components of the Tanks 81 A, B, and C exit strategy should be considered during the natural attenuation monitoring program.

- **Achievement of GCTLs and Milestones:** This exit point is clear and will lead to discontinuing of the monitoring program. Once the concentration of the COC (isopropyl benzene) is less than its GCTL in all wells being monitored for two successive sampling events, then monitoring will cease and the site will be closed.

- **No Continued Reduction in COC:** An evaluation of the progress of natural attenuation at Tanks 81 A, B, and C will be performed after each natural attenuation event to evaluate potential natural attenuation pathways and to identify direct evidence of COC degradation. If at any time the Navy deems the process ineffective, they may opt to change the remediation strategy to a more active technology. The concentrations in the wells should be compared to the milestones regularly. If at any point progress toward the milestones is not being achieved, the Navy may consider exiting the natural attenuation process and opting for an active remediation alternative.

In addition to the exit from the natural attenuation program, individual wells may be removed from the program if the Navy, with agreement from FDEP, decides that continued monitoring no longer provides pertinent information. The party that is performing the sampling and reporting will provide recommendations regarding the sampling program.

Please provide any comments or direct any questions to Kara Wimble at 904-730-4669, extension 214, or myself at 412-921-8163.

Sincerely,

Robert F. Simcik, P.E.
Task Order Manager

RS/kw

Enclosure

c: Barbara Nwokike (1 copy)
Mike Halil, CH2M Hill (electronic only)
Rob Simcik, TtNUS (Bookcase File)
Mark Speranza, TtNUS (cover letter only)
Mark Jonnet, TtNUS (Cecil DMS)
Mark Perry, TtNUS (unbound)
Debra Humbert, TtNUS (cover letter only)
Project File CTO 0076 (1 copy)

CERTIFICATION

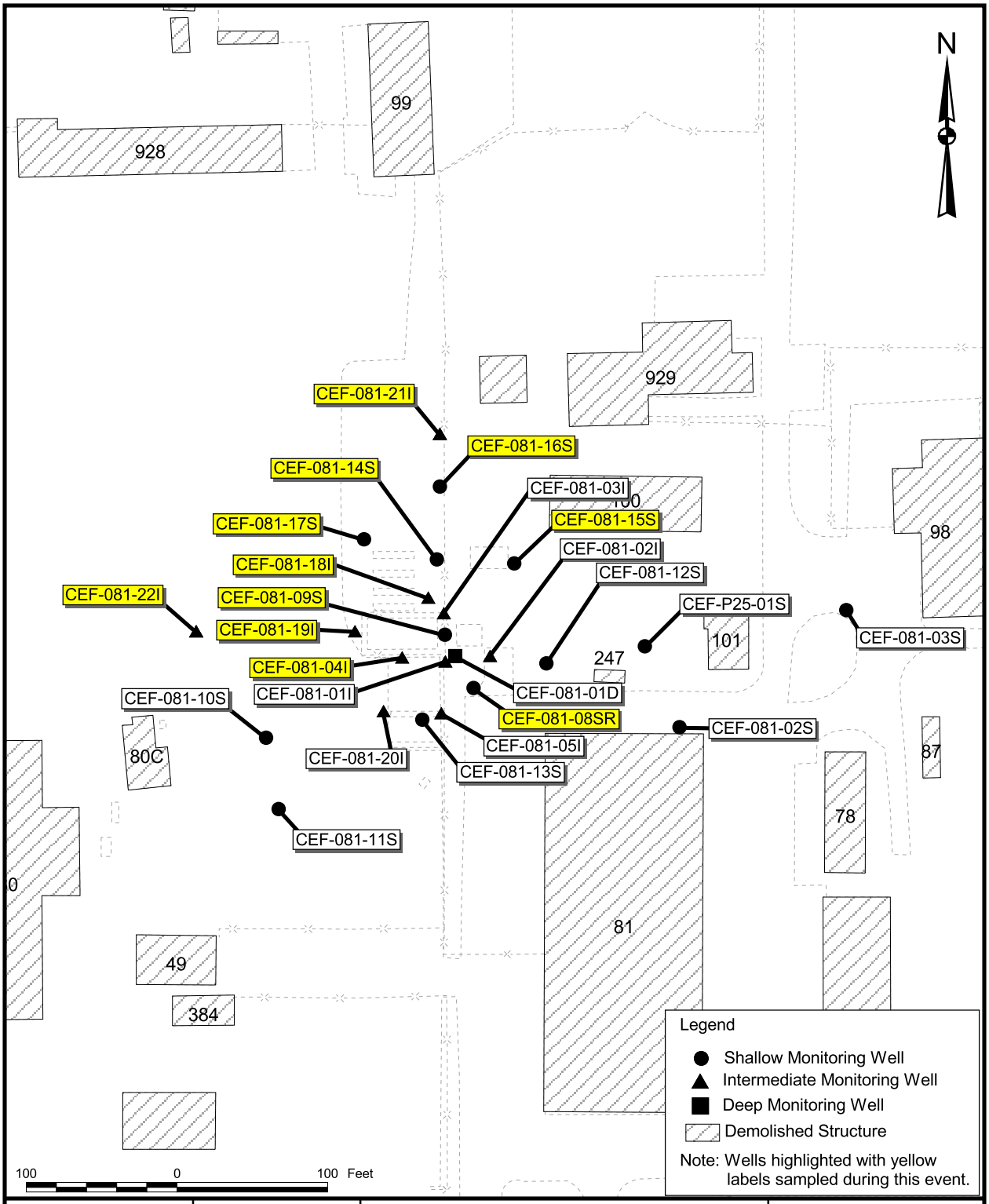
The information contained in this report is based on the investigation and associated information detailed in the text, appended to this report, and supporting documents referenced in this report. If conditions are determined to exist that differ from those described, the undersigned professional engineer should be notified to evaluate the effects of any additional information on the information described in this report. This Natural Attenuation Monitoring Plan was developed for Tanks 81 A, B, and C at Naval Air Station Cecil Field, Jacksonville, Florida, and should not be construed to apply to any other site.

ROBERT FRANK SIMCIK
LICENSE
No. 00061263
STATE OF FLORIDA
PROFESSIONAL ENGINEER

Robert F Simcik, P.E.
Florida License Number 61263

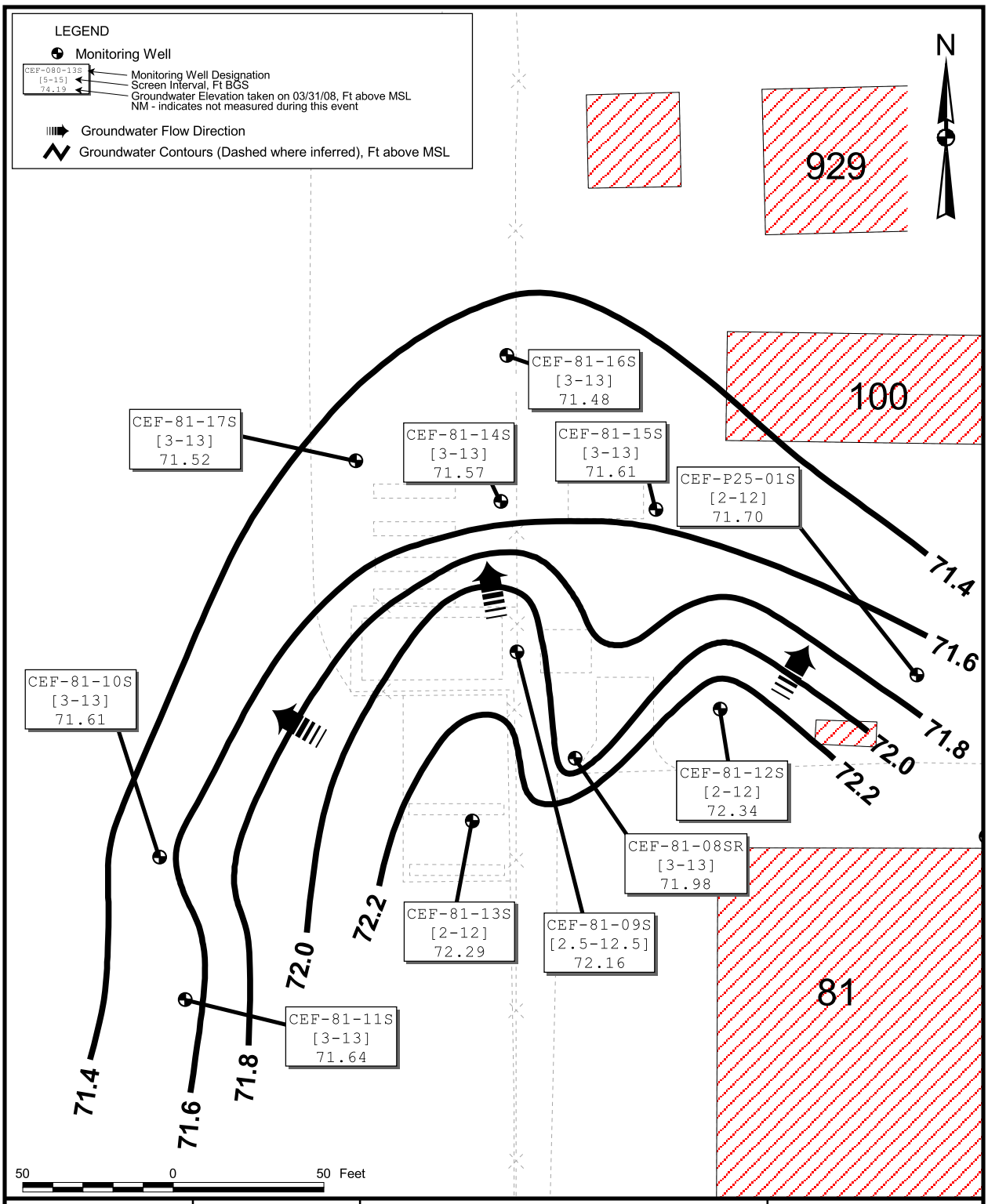
11/21/07
Date

FIGURES



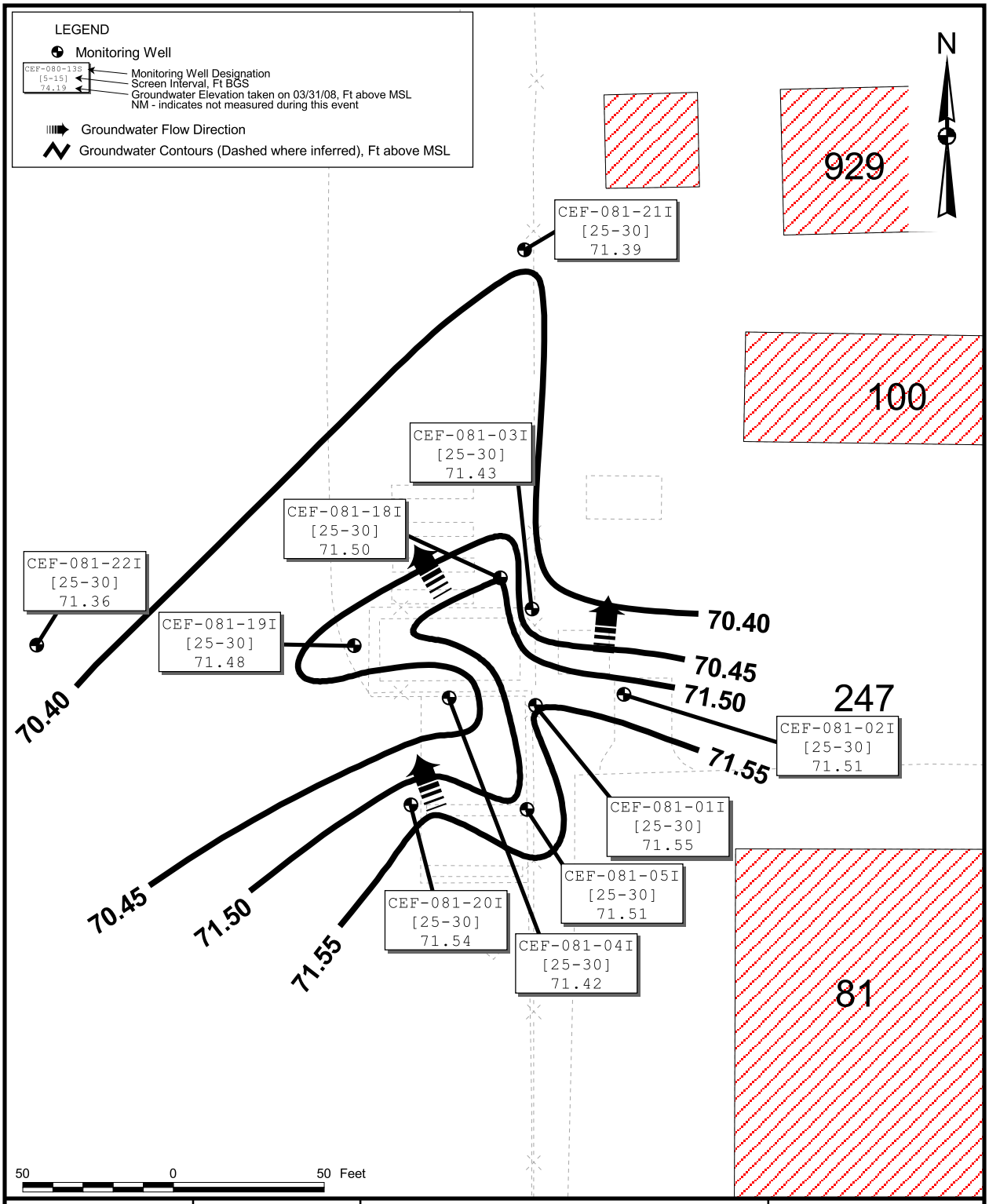
DRAWN BY MJJ	DATE 30Aug07	MONITORING WELL LOCATION MAP TANKS 81 A, B, AND C 1ST QUARTER, 3RD YEAR GROUNDWATER MONITORING REPORT NAVAL AIR STATION CECIL FIELD JACKSONVILLE, FLORIDA	CONTRACT NUMBER 1264
CHECKED BY	DATE		APPROVED BY DATE
COST/SCHEDULE-AREA			APPROVED BY DATE
SCALE AS NOTED			DRAWING NO. FIGURE 1 / REV 0

P:\GIS\NAS_CecilField\Tank_81abc_20080513.apr 24Jun08 MJJ Layout12



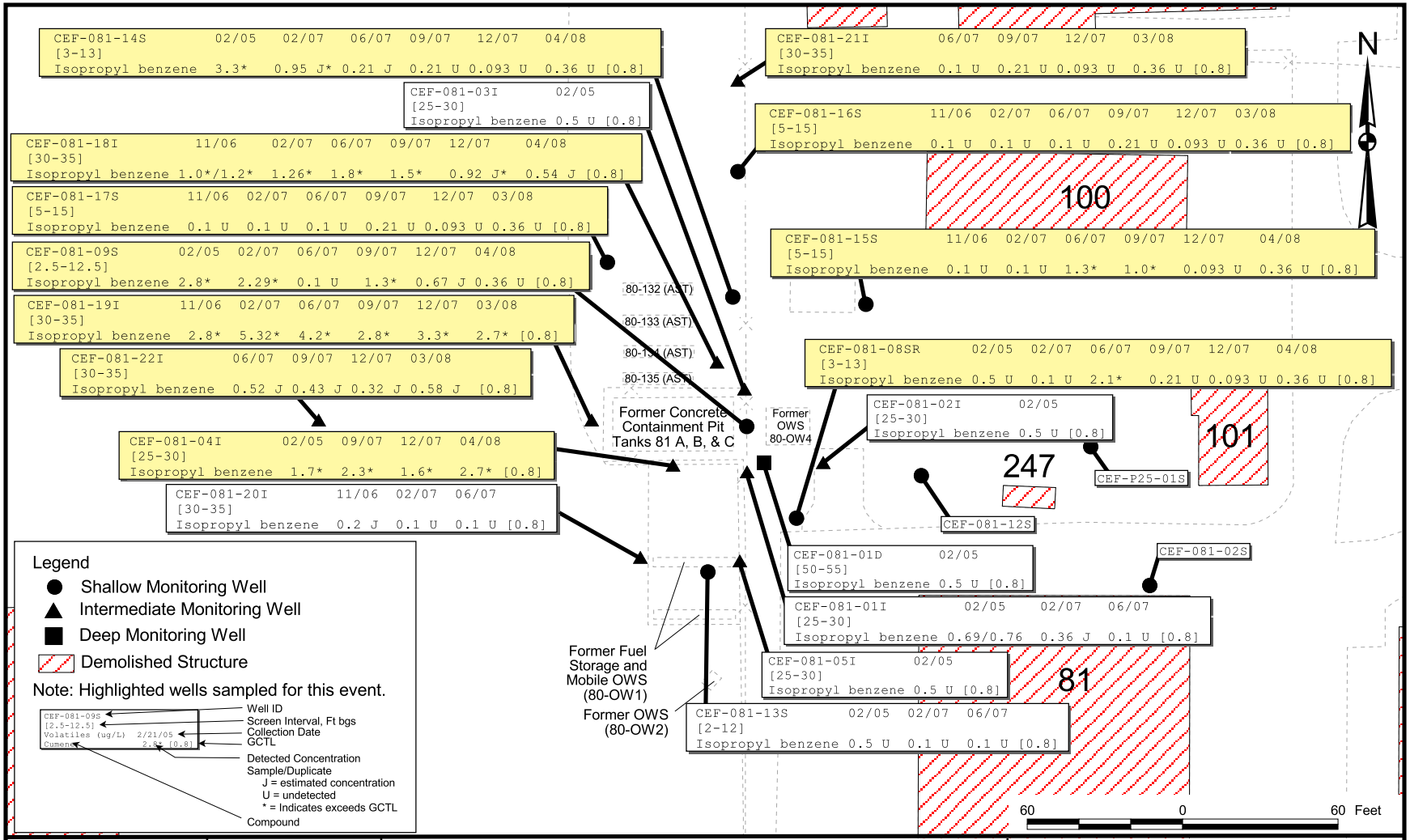
DRAWN BY MJJ	DATE 08Dec07	GROUNDWATER FLOW MAP (03/31/08) SHALLOW ZONE TANKS 81 A, B, AND C 1ST QUARTER, 3RD YEAR GROUNDWATER MONITORING REPORT NAVAL AIR STATION CECIL FIELD JACKSONVILLE, FLORIDA	CONTRACT NUMBER 1264
CHECKED BY	DATE		APPROVED BY DATE
COST/SCHEDULE-AREA			APPROVED BY DATE
SCALE AS NOTED			DRAWING NO. FIGURE 2 / REV 0

P:\GIS\NAS_CecilField\Tank_81abc_20080513.apr 24Jun08 MJJ Layout10



DRAWN BY MJJ	DATE 08Dec07	GROUNDWATER FLOW MAP (03/31/08) INTERMEDIATE ZONE TANKS 81 A, B, AND C 1ST QUARTER, 3RD YEAR GROUNDWATER MONITORING REPORT NAVAL AIR STATION CECIL FIELD JACKSONVILLE, FLORIDA	CONTRACT NUMBER 1264
CHECKED BY	DATE		APPROVED BY DATE
COST/SCHEDULE-AREA			APPROVED BY DATE
SCALE AS NOTED			DRAWING NO. FIGURE 3 / REV 0

P:\GIS\NAS_CecilField\Tank_81abc_20080513.apr 24Jun08 MJJ Layout11



DATE MJJ 07Feb08	NAVFAC	ANALTYICAL RESULTS TANKS 81 A, B, AND C 1ST QUARTER, 3RD YEAR GROUNDWATER MONITORING REPORT NAVAL AIR STATION CECIL FIELD JACKSONVILLE, FLORIDA	DRAWN BY / CONTRACT NUMBER 1264
CHECKED BY / DATE			APPROVED BY / DATE
COST/SCHEDULE-AREA			APPROVED BY / DATE
SCALE AS NOTED			DRAWING NO. FIGURE 4 / REV 0

P:\GIS\NAS_CecilField\Tank_81abc_20080513.apr 24Jun08 MJJ Layout15

ATTACHMENT B

NATURAL ATTENUATION MONITORING PLAN APPROVAL ORDER (NAMPAO)
JUNE 27, 2008

Florida Department of Environmental Protection

Bob Martinez Center
2600 Blairstone Road
Tallahassee, Florida 32399-2400

Charlie Crist
Governor

Jeff Kottkamp
Lt. Governor

Michael W. Sole
Secretary

June 27, 2008

BRAC PMO SE
Attn: Mr. Jim Ferro
4130 Faber Place Drive
Suite 202
North Charleston, SC 29405

RE: Natural Attenuation Monitoring Plan, Building 81, Tanks 81 A, B, and C, Naval Air Station Cecil Field, Jacksonville, Florida

Dear Mrs. Nwokike:

I have completed my review of the Site Assessment Report Addendum and Natural Attenuation Monitoring Plan, Building 81, Tanks 81 A, B, and C, Naval Air Station Cecil Field, dated May 4, 2007 and November 21, 2007, respectively (received May 8, 2007 and November 26, 2007, respectively), prepared and submitted by Tetra Tech NUS, Inc. Based upon my review, the enclosed Natural Attenuation Monitoring Plan Approval Order (NAMPAO) was signed by Mr. Doug Jones, Chief, Bureau of Waste Cleanup.

If you have any concerns regarding this letter, please contact me at (850) 245-8997.

Sincerely,

David P. Grabka, P.G.
Remedial Project Manager

DAVID P. GRABKA
LICENSE
NO. 2192
STATE OF FLORIDA
PROFESSIONAL GEOLOGIST

20 June 2008
Date

CC: Doyle Brittain, USEPA, Atlanta
John Flowe, City of Jacksonville
Mark Speranza, TtNUS, Pittsburgh
Mike Halil, CH2M Hill, Jacksonville
Mike Fitzsimmons, FDEP, Northeast District
Mark Peterson, TtNUS, Jacksonville

JJC ESN ESN

Florida Department of
Environmental Protection
Bob Martinez Center
2600 Blairstone Road
Tallahassee, Florida 32399-2400

Charlie Crist
Governor

Jeff Kottkamp
Lt. Governor

Michael W. Sole
Secretary

June 27, 2008

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Mr. Jim Ferro
BRAC Program Management Office Southeast
4130 Faber Place Drive
Suite 202
North Charleston, South Carolina 29405

Subject: Natural Attenuation Monitoring Plan Approval Order
Building 81, Tanks 81 A, B, and C
Naval Air Station Cecil Field
Jacksonville, Duval County

Dear Mr. Ferro:

The Bureau of Waste Cleanup has reviewed the Site Assessment Report Addendum and the Natural Attenuation Monitoring Plan, dated May 4, 2007 and November 21, 2007, respectively, (received May 8, 2007 and November 26, 2007, respectively), prepared and submitted by Tetra Tech NUS, Inc., for the petroleum product discharge discovered at this site. Pursuant to Paragraph 62-770.690(5)(a), Florida Administrative Code (F.A.C.), the Florida Department of Environmental Protection (Department) approves the Natural Attenuation Monitoring Plan. Pursuant to Rule 62-770.690(8), F.A.C., you are required to complete the monitoring program outlined below. The first sampling event must be performed within 60 days of the installation of replacement monitoring well CEF-502-1SR following the excavation of contaminated soil proposed in the May 25, 2007 Dig and Haul Package for Building 502, Tank 502; or as otherwise approved in a Site Management Plan. Water-level measurements must be made immediately prior to each sampling event. The analytical results (laboratory report), chain of custody record form, cumulative summary tables as required by Subparagraph 62-770.600(8)(a)25., F.A.C. (updated as applicable), site map(s) that illustrate the most recent analytical results, and the water-level elevation information (cumulative summary table and most recent flow interpretation map), must be submitted to the Department within 60 days of sample collection.

The monitoring wells to be sampled, the sampling parameters, and the sampling frequency are as follows:

Monitoring Wells	Contaminants of Concern	Frequency	Duration
CEF-081-04I, 17S, 08SR, 09S, 14S, 15S, 16S, 18I, 19I, 21I, and 22I	Cumene (isopropylbenzene)	Quarterly	One year

The approved Remedial Action by Natural Attenuation monitoring period is five years. The sampling frequency will be evaluated following the submittal of the first annual report to determine whether to continue quarterly or whether a different sampling frequency may be appropriate.

If concentrations of contaminants of concern in any of the designated wells increase above the action levels listed below, the well or wells must be resampled no later than 30 days after the initial positive results are known. If the results of the resampling confirm the initial sampling results, then the monitoring report referenced in Paragraph 62-770.690(8)(d), F.A.C., must be signed and sealed by an appropriate registered professional pursuant to Rule 62-770.490, F.A.C., and must include a proposal as described in Paragraph 62-770.690(8)(e), F.A.C.

Contaminated wells:
CEF-081-09S, 19I, 08SR, 04I, 15S, 18I: 8 µg/L cumene (isopropylbenzene).
Perimeter wells (temporary points of compliance):
CEF-081-21I, 16S, 14S, 17S, 22I: .8 µg/L cumene (isopropylbenzene).

If the applicable No Further Action criteria of Rule 62-770.680, F.A.C., are met for two consecutive sampling events, a Site Rehabilitation Completion Report with a No Further Action Proposal, that summarizes the monitoring program and contains documentation to support the opinion that the cleanup objectives have been achieved, must be submitted as required in Subsection 62-770.690(10), F.A.C. If the applicable No Further Action criteria of Rule 62-770.680, F.A.C., are not met following five years of monitoring, then the monitoring report must include a proposal as described in Subsection 62-770.690(8)(f), F.A.C.

Legal Issues

The Department's Order shall become final unless a timely petition for an administrative hearing is filed under Sections 120.569 and 120.57, Florida Statutes (F.S.), within 21 days of receipt of this Order. The procedures for petitioning for an administrative hearing are set forth below.

Persons affected by this Order have the following options:

(A) If you choose to accept the Department's decision regarding the Second Quarter 2006 Operations and Maintenance Status Report, you do not have to do anything. This Order is final and effective as of the date on the top of the first page of this Order.

(B) If you choose to challenge the decision, you may do the following:

(1) File a request for an extension of time to file a petition for an administrative hearing with the Department's Agency Clerk in the Office of General Counsel within 21 days of receipt of this Order; such a request should be made if you wish to meet with the Department in an attempt to informally resolve any disputes without first filing a petition for an administrative hearing; or

(2) File a petition for an administrative hearing with the Department's Agency Clerk in the Office of General Counsel within 21 days of receipt of this Order.

Please be advised that mediation of this decision pursuant to Section 120.573, F.S., is not available.

How to Request an Extension of Time to File a Petition for an Administrative Hearing

For good cause shown, pursuant to Subsection 62-110.106(4), F.A.C., the Department may grant a request for an extension of time to file a petition for an administrative hearing. Such a request must be filed (received) by the Department's Agency Clerk in the Office of General Counsel at 3900 Commonwealth Boulevard, Mail Station 35, Tallahassee, Florida, 32399-3000, within 21 days of receipt of this Order. Petitioner, if different from BRAC Program Management Office Southeast, shall mail a copy of the request to BRAC Program Management Office Southeast at the time of filing. Timely filing a request for an extension of time tolls the time period within which a petition for an administrative hearing must be made.

How to File a Petition for an Administrative Hearing

A person whose substantial interests are affected by this Order may petition for an administrative hearing under Sections 120.569 and 120.57, F.S. The petition must contain the information set forth below and must be filed (received) by the Department's Agency Clerk in the Office of General Counsel at 3900 Commonwealth Boulevard, Mail Station 35, Tallahassee, Florida, 32399-3000, within 21 days of receipt of this Order. Petitioner, if different from BRAC Program Management Office Southeast, shall mail a copy of the petition to BRAC Program Management Office Southeast at the time of filing. Failure to file a petition within this time period shall waive the right of anyone who may request an administrative hearing under Sections 120.569 and 120.57, F.S.

Pursuant to Subsection 120.569(2), F.S. and Rule 28-106.201, F.A.C., a petition for an administrative hearing shall contain the following information:

(a) The name, address, and telephone number of each petitioner; the name, address, and telephone number of the petitioner's representative, if any; the facility owner's name and address, if different from the petitioner; the FDEP facility number, and the name and address of the facility;
(b) A statement of when and how each petitioner received notice of the Department's action or proposed action;
(c) An explanation of how each petitioner's substantial interests are or will be affected by the Department's action or proposed action;
(d) A statement of the disputed issues of material fact, or a statement that there are no disputed facts;
(e) A statement of the ultimate facts alleged, including a statement of the specific facts the petitioner contends warrant reversal or modification of the Department's action or proposed action;
(f) A statement of the specific rules or statutes the petitioner contends require reversal or modification of the Department's action or proposed action; and
(g) A statement of the relief sought by the petitioner, stating precisely the action petitioner wishes the Department to take with respect to the Department's action or proposed action.

This Order is final and effective as of the date on the top of the first page of this Order. Timely filing a petition for an administrative hearing postpones the date this Order takes effect until the Department issues either a final order pursuant to an administrative hearing or an Order Responding to Supplemental Information provided to the Department pursuant to meetings with the Department.

Judicial Review

Any party to this Order has the right to seek judicial review of it under Section 120.68, F.S., by filing a notice of appeal under Rule 9.110 of the Florida Rules of Appellate Procedure with the Department's Agency Clerk in the Office of General Counsel at 3900 Commonwealth Boulevard, Mail Station 35, Tallahassee, Florida, 32399-3000, and by filing a copy of the notice of appeal accompanied by the applicable filing fees with the appropriate district court of appeal. The notice of appeal must be filed within 30 days after this Order is filed with the Department's clerk (see below).

Questions

Any questions regarding the Department's review of your Second Quarter 2006 Operations and Maintenance Status Report should be directed to David Grabka at (850) 245-8997. Questions regarding legal issues should be referred to the Department's Office of General Counsel at (850) 245-2242. Contact with any of the above does not constitute a petition for administrative hearing or request for an extension of time to file a petition for administrative hearing.

Sincerely,

Douglas A. Jones, Chief
Bureau of Waste Cleanup
Division of Waste Management

DAJ/dpg

cc: David Grabka, DEP – BWC
File

FILING AND ACKNOWLEDGMENT
FILED, on this date, pursuant to §120.52 Florida Statutes, with the designated Department Clerk, receipt of which is hereby acknowledged.

Minnie L Nunson — June 27, 2008
Clerk (or Deputy Clerk) — Date

ATTACHMENT C

GROUNDWATER ANALYTICAL REPORT
MARCH 2008

Tetra Tech NUS **INTERNAL CORRESPONDENCE**

TO:	**R. SIMCIK**	**DATE:**	**MAY 2, 2008**
FROM:	**J.SAMCHUCK**	**COPIES:**	**DV FILE**

SUBJECT: **ORGANIC DATA VALIDATION- ISOPROPYLBENZENE**
CTO 102, NAS CECIL FIELD
SDG J0801543

SAMPLES: 13/Aqueous

CEF-081-04I-20080401 CEF-081-08S-20080401 CEF-081-09S-20080401
CEF-081-14S-20080401 CEF-081-15S-20080401 CEF-081-16S-20080331
CEF-081-17S-20080331 CEF-081-18I-20080401 CEF-081-19I-20080331
CEF-081-21I-20080331 CEF-081-22I-20080331 CEF-081-DUP01-20080331
Trip Blank

OVERVIEW

The sample set for CTO 102 NAS Cecil Field, SDG J0801543 consists of thirteen (13) aqueous environmental samples. The samples were analyzed for isopropylbenzene. The following field duplicate was associated with this SDG: CEF-081-17S-20080331/ CEF-081-DUP01-20080331.

The samples were collected by TetraTech NUS on March 31, and April 1, 2008 and were analyzed by Columbia Analytical Services. All analyses were conducted in accordance with SW-846 Method 8260B analysis and reporting protocols. The data contained in this SDG were validated with regard to the following parameters:

* • Data completeness
* • Holding times
* • Initial/continuing calibrations
* • Laboratory method blank results
* • Field Duplicate Results
* • Detection Limits

The symbol (*) indicates that quality control criteria were met for this parameter. Problems affecting data quality are discussed below; documentation supporting these findings is presented in Appendix C. Qualified Analytical results are presented in Appendix A. Results as reported by the laboratory are presented in Appendix B.

No data quality issues were noted. All holding times, calibrations, and method blanks met quality control criteria.

Additional Comments:

Positive results reported below the quantitation limit but above the method detection limit were qualified as estimated, J.

EXECUTIVE SUMMARY

Laboratory Performance Issues: None.

Other Factors Affecting Data Quality: None.

The data for these analyses were reviewed with reference to the EPA Functional Guidelines for Organic Data Validation (October 1999) and Department of Defense (DoD) document entitled "Quality Systems Manual (QSM) for Environmental Laboratories" (January 2006). The text of this report has been formulated to address only those problem areas affecting data quality.

TetraTech NUS

Joseph A. Samchuck
Data Validation Quality Assurance Officer

Attachments:

Appendix A – Qualified Analytical Results
Appendix B – Results as Reported by the Laboratory
Appendix C – Support Documentation

APPENDIX A

QUALIFIED ANALYTICAL RESULTS

PROJ_NO: 01264

SDG: J0801543 MEDIA: WATER DATA FRACTION: OV

nsample	CEF-081-04I-20080401
samp_date	4/1/2008
lab_id	J0801543-007
qc_type	NM
units	UG/L
Pct_Solids	
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
ISOPROPYLBENZENE	2.7		

nsample	CEF-081-08S-20080401
samp_date	4/1/2008
lab_id	J0801543-012
qc_type	NM
units	UG/L
Pct_Solids	
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
ISOPROPYLBENZENE	0.36	U	

nsample	CEF-081-09S-20080401
samp_date	4/1/2008
lab_id	J0801543-008
qc_type	NM
units	UG/L
Pct_Solids	
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
ISOPROPYLBENZENE	0.36	U	

PROJ_NO: 01264

SDG: J0801543 MEDIA: WATER DATA FRACTION: OV

nsample	CEF-081-14S-20080401
samp_date	4/1/2008
lab_id	J0801543-010
qc_type	NM
units	UG/L
Pct_Solids	
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
ISOPROPYLBENZENE	0.36	U	

nsample	CEF-081-15S-20080401
samp_date	4/1/2008
lab_id	J0801543-011
qc_type	NM
units	UG/L
Pct_Solids	
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
ISOPROPYLBENZENE	0.36	U	

nsample	CEF-081-16S-20080331
samp_date	3/31/2008
lab_id	J0801543-004
qc_type	NM
units	UG/L
Pct_Solids	
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
ISOPROPYLBENZENE	0.36	U	

PROJ_NO: 01264

SDG: J0801543 MEDIA: WATER DATA FRACTION: OV

nsample	CEF-081-17S-20080331	nsample	CEF-081-18I-20080401	nsample	CEF-081-19I-20080331
samp_date	3/31/2008	samp_date	4/1/2008	samp_date	3/31/2008
lab_id	J0801543-003	lab_id	J0801543-009	lab_id	J0801543-002
qc_type	NM	qc_type	NM	qc_type	NM
units	UG/L	units	UG/L	units	UG/L
Pct_Solids		Pct_Solids		Pct_Solids	
DUP_OF:		DUP_OF:		DUP_OF:	

Parameter	Result	Val Qual	Qual Code
ISOPROPYLBENZENE	0.36	U	

Parameter	Result	Val Qual	Qual Code
ISOPROPYLBENZENE	0.54	J	P

Parameter	Result	Val Qual	Qual Code
ISOPROPYLBENZENE	2.7		

PROJ_NO: 01264

SDG: J0801543 MEDIA: WATER DATA FRACTION: OV

nsample	CEF-081-21I-20080331	nsample	CEF-081-22I-20080331	nsample	CEF-081-DUP01-20080331
samp_date	3/31/2008	samp_date	3/31/2008	samp_date	3/31/2008
lab_id	J0801543-005	lab_id	J0801543-001	lab_id	J0801543-006
qc_type	NM	qc_type	NM	qc_type	NM
units	UG/L	units	UG/L	units	UG/L
Pct_Solids		Pct_Solids		Pct_Solids	
DUP_OF:		DUP_OF:		DUP_OF:	

Parameter	Result	Val Qual	Qual Code
ISOPROPYLBENZENE	0.36	U	

Parameter	Result	Val Qual	Qual Code
ISOPROPYLBENZENE	0.58	J	P

Parameter	Result	Val Qual	Qual Code
ISOPROPYLBENZENE	0.36	U	

PROJ_NO: 01264

SDG: J0801543 MEDIA: WATER DATA FRACTION: OV

nsample	TRIP BLANK
samp_date	4/1/2008
lab_id	J0801543-013
qc_type	NM
units	UG/L
Pct_Solids	
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
ISOPROPYLBENZENE	0.36	U	

APPENDIX B

RESULTS AS REPORTED BY THE LABORATORY

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client:	Tetra Tech NUS, Inc.	**Service Request:**	J0801543
Project:	NAS Cecil Field/112G01264	**Date Collected:**	04/01/2008
Sample Matrix:	Water	**Date Received:**	04/01/2008

Volatile Organic Compounds by GC/MS

Sample Name:	CEF-081-04I-20080401	**Units:**	ug/L
Lab Code:	J0801543-007	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	8260B		

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Isopropylbenzene	**2.7**		1.0	0.36	1	04/03/08	04/03/08	JWG0801253	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
1,2-Dichloroethane-d4	102	71-122	04/03/08	Acceptable
4-Bromofluorobenzene	104	75-120	04/03/08	Acceptable
Dibromofluoromethane	99	82-116	04/03/08	Acceptable
Toluene-d8	109	88-117	04/03/08	Acceptable

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client:	Tetra Tech NUS, Inc.	**Service Request:**	J0801543
Project:	NAS Cecil Field/112G01264	**Date Collected:**	04/01/2008
Sample Matrix:	Water	**Date Received:**	04/01/2008

Volatile Organic Compounds by GC/MS

Sample Name:	CEF-081-08S-20080401	**Units:**	ug/L
Lab Code:	J0801543-012	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	8260B		

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Isopropylbenzene	ND	U	1.0	0.36	1	04/03/08	04/03/08	JWG0801253	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
1,2-Dichloroethane-d4	103	71-122	04/03/08	Acceptable
4-Bromofluorobenzene	106	75-120	04/03/08	Acceptable
Dibromofluoromethane	100	82-116	04/03/08	Acceptable
Toluene-d8	110	88-117	04/03/08	Acceptable

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client:	Tetra Tech NUS, Inc.	**Service Request:**	J0801543
Project:	NAS Cecil Field/112G01264	**Date Collected:**	04/01/2008
Sample Matrix:	Water	**Date Received:**	04/01/2008

Volatile Organic Compounds by GC/MS

Sample Name:	CEF-081-09S-20080401	**Units:**	ug/L
Lab Code:	J0801543-008	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	8260B		

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Isopropylbenzene	ND	U	1.0	0.36	1	04/03/08	04/03/08	JWG0801253	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
1,2-Dichloroethane-d4	103	71-122	04/03/08	Acceptable
4-Bromofluorobenzene	104	75-120	04/03/08	Acceptable
Dibromofluoromethane	99	82-116	04/03/08	Acceptable
Toluene-d8	110	88-117	04/03/08	Acceptable

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client:	Tetra Tech NUS, Inc.	**Service Request:**	J0801543
Project:	NAS Cecil Field/112G01264	**Date Collected:**	04/01/2008
Sample Matrix:	Water	**Date Received:**	04/01/2008

Volatile Organic Compounds by GC/MS

Sample Name:	CEF-081-14S-20080401	**Units:**	ug/L
Lab Code:	J0801543-010	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	8260B		

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Isopropylbenzene	ND	U	1.0	0.36	1	04/03/08	04/03/08	JWG0801253	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
1,2-Dichloroethane-d4	104	71-122	04/03/08	Acceptable
4-Bromofluorobenzene	103	75-120	04/03/08	Acceptable
Dibromofluoromethane	99	82-116	04/03/08	Acceptable
Toluene-d8	110	88-117	04/03/08	Acceptable

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client:	Tetra Tech NUS, Inc.	**Service Request:**	J0801543
Project:	NAS Cecil Field/112G01264	**Date Collected:**	04/01/2008
Sample Matrix:	Water	**Date Received:**	04/01/2008

Volatile Organic Compounds by GC/MS

Sample Name:	CEF-081-15S-20080401	**Units:**	ug/L
Lab Code:	J0801543-011	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	8260B		

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Isopropylbenzene	ND	U	1.0	0.36	1	04/03/08	04/03/08	JWG0801253	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
1,2-Dichloroethane-d4	104	71-122	04/03/08	Acceptable
4-Bromofluorobenzene	104	75-120	04/03/08	Acceptable
Dibromofluoromethane	100	82-116	04/03/08	Acceptable
Toluene-d8	110	88-117	04/03/08	Acceptable

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client:	Tetra Tech NUS, Inc.	**Service Request:**	J0801543
Project:	NAS Cecil Field/112G01264	**Date Collected:**	03/31/2008
Sample Matrix:	Water	**Date Received:**	04/01/2008

Volatile Organic Compounds by GC/MS

Sample Name:	CEF-081-16S-20080331	**Units:**	ug/L
Lab Code:	J0801543-004	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	8260B		

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Isopropylbenzene	ND	U	1.0	0.36	1	04/03/08	04/03/08	JWG0801253	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
1,2-Dichloroethane-d4	105	71-122	04/03/08	Acceptable
4-Bromofluorobenzene	105	75-120	04/03/08	Acceptable
Dibromofluoromethane	99	82-116	04/03/08	Acceptable
Toluene-d8	110	88-117	04/03/08	Acceptable

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client:	Tetra Tech NUS, Inc.	**Service Request:**	J0801543
Project:	NAS Cecil Field/112G01264	**Date Collected:**	03/31/2008
Sample Matrix:	Water	**Date Received:**	04/01/2008

Volatile Organic Compounds by GC/MS

Sample Name:	CEF-081-17S-20080331	**Units:**	ug/L
Lab Code:	J0801543-003	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	8260B		

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Isopropylbenzene	ND	U	1.0	0.36	1	04/03/08	04/03/08	JWG0801253	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
1,2-Dichloroethane-d4	103	71-122	04/03/08	Acceptable
4-Bromofluorobenzene	106	75-120	04/03/08	Acceptable
Dibromofluoromethane	99	82-116	04/03/08	Acceptable
Toluene-d8	111	88-117	04/03/08	Acceptable

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client:	Tetra Tech NUS, Inc.	**Service Request:**	J0801543
Project:	NAS Cecil Field/112G01264	**Date Collected:**	04/01/2008
Sample Matrix:	Water	**Date Received:**	04/01/2008

Volatile Organic Compounds by GC/MS

Sample Name:	CEF-081-18I-20080401	**Units:**	ug/L
Lab Code:	J0801543-009	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	8260B		

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Isopropylbenzene	**0.54**	I	1.0	0.36	1	04/03/08	04/03/08	JWG0801253	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
1,2-Dichloroethane-d4	104	71-122	04/03/08	Acceptable
4-Bromofluorobenzene	105	75-120	04/03/08	Acceptable
Dibromofluoromethane	99	82-116	04/03/08	Acceptable
Toluene-d8	108	88-117	04/03/08	Acceptable

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client:	Tetra Tech NUS, Inc.	**Service Request:**	J0801543
Project:	NAS Cecil Field/112G01264	**Date Collected:**	03/31/2008
Sample Matrix:	Water	**Date Received:**	04/01/2008

Volatile Organic Compounds by GC/MS

Sample Name:	CEF-081-19I-20080331	**Units:**	ug/L
Lab Code:	J0801543-002	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	8260B		

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Isopropylbenzene	**2.7**		1.0	0.36	1	04/03/08	04/03/08	JWG0801253	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
1,2-Dichloroethane-d4	103	71-122	04/03/08	Acceptable
4-Bromofluorobenzene	105	75-120	04/03/08	Acceptable
Dibromofluoromethane	99	82-116	04/03/08	Acceptable
Toluene-d8	110	88-117	04/03/08	Acceptable

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client:	Tetra Tech NUS, Inc.	**Service Request:**	J0801543
Project:	NAS Cecil Field/112G01264	**Date Collected:**	03/31/2008
Sample Matrix:	Water	**Date Received:**	04/01/2008

Volatile Organic Compounds by GC/MS

Sample Name:	CEF-081-21I-20080331	**Units:**	ug/L
Lab Code:	J0801543-005	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	8260B		

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Isopropylbenzene	ND	U	1.0	0.36	1	04/03/08	04/03/08	JWG0801253	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
1,2-Dichloroethane-d4	103	71-122	04/03/08	Acceptable
4-Bromofluorobenzene	105	75-120	04/03/08	Acceptable
Dibromofluoromethane	99	82-116	04/03/08	Acceptable
Toluene-d8	109	88-117	04/03/08	Acceptable

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client:	Tetra Tech NUS, Inc.	**Service Request:**	J0801543
Project:	NAS Cecil Field/112G01264	**Date Collected:**	03/31/2008
Sample Matrix:	Water	**Date Received:**	04/01/2008

Volatile Organic Compounds by GC/MS

Sample Name:	CEF-081-22I-20080331	**Units:**	ug/L
Lab Code:	J0801543-001	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	8260B		

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Isopropylbenzene	**0.58**	I	1.0	0.36	1	04/03/08	04/03/08	JWG0801253	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
1,2-Dichloroethane-d4	103	71-122	04/03/08	Acceptable
4-Bromofluorobenzene	106	75-120	04/03/08	Acceptable
Dibromofluoromethane	98	82-116	04/03/08	Acceptable
Toluene-d8	110	88-117	04/03/08	Acceptable

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client:	Tetra Tech NUS, Inc.	**Service Request:**	J0801543
Project:	NAS Cecil Field/112G01264	**Date Collected:**	03/31/2008
Sample Matrix:	Water	**Date Received:**	04/01/2008

Volatile Organic Compounds by GC/MS

Sample Name:	CEF-081-DUP01-20080331	**Units:**	ug/L
Lab Code:	J0801543-006	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	8260B		

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Isopropylbenzene	ND	U	1.0	0.36	1	04/03/08	04/03/08	JWG0801253	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
1,2-Dichloroethane-d4	104	71-122	04/03/08	Acceptable
4-Bromofluorobenzene	105	75-120	04/03/08	Acceptable
Dibromofluoromethane	98	82-116	04/03/08	Acceptable
Toluene-d8	110	88-117	04/03/08	Acceptable

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client:	Tetra Tech NUS, Inc.	**Service Request:**	J0801543
Project:	NAS Cecil Field/112G01264	**Date Collected:**	04/01/2008
Sample Matrix:	Water	**Date Received:**	04/01/2008

Volatile Organic Compounds by GC/MS

Sample Name:	TRIP BLANK	**Units:**	ug/L
Lab Code:	J0801543-013	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	8260B		

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Isopropylbenzene	ND	U	1.0	0.36	1	04/03/08	04/03/08	JWG0801253	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
1,2-Dichloroethane-d4	103	71-122	04/03/08	Acceptable
4-Bromofluorobenzene	105	75-120	04/03/08	Acceptable
Dibromofluoromethane	98	82-116	04/03/08	Acceptable
Toluene-d8	109	88-117	04/03/08	Acceptable

Comments:

APPENDIX C

SUPPORT DOCUMENTATION

TETRA TECH NUS, INC. | CHAIN OF CUSTODY | NUMBER 26315 | J0801543 | PAGE 1 OF 1

PROJECT NO: 112G01264	FACILITY: NAS Cecil Field	PROJECT MANAGER: Kara Wimble	PHONE NUMBER: 904-636-6125	LABORATORY NAME AND CONTACT: Columbia Analytical
SAMPLERS (SIGNATURE): K. Weichert		FIELD OPERATIONS LEADER: Kevin Weichert	PHONE NUMBER: 904-636-6125	ADDRESS: 9143 Philips Hwy Suite 200
		CARRIER/WAYBILL NUMBER		CITY, STATE: Jacksonville, FL 32256

STANDARD TAT ☐
RUSH TAT ☐
☐ 24 hr. ☐ 48 hr. ☐ 72 hr. ☐ 7 day ☒ 14 day

CONTAINER TYPE PLASTIC (P) or GLASS (G): G
PRESERVATIVE USED: HCL
[redacted]

DATE YEAR 2008	TIME	SAMPLE ID	LOCATION ID	TOP DEPTH (FT)	BOTTOM DEPTH (FT)	MATRIX (GW, SO, SW, SD, QC, ETC.)	COLLECTION METHOD GRAP (G) COMP (C)	No. OF CONTAINERS	TYPE OF ANALYSIS: VOC's / 8260B								COMMENTS
3/31	1228	CEF-081-22I-20080331				GW	G	3	X								Cool to 4°
	1338	CEF-081-19I-20080331						3	X								
	1445	CEF-081-17S-20080331						3	X								
	1547	CEF-081-16S-20080331						3	X								
	1630	CEF-081-21I-20080331						3	X								
	0000	CEF-081-DUP01-20080331						3	X								
4/1	0815	CEF-081-04I-20080401						3	X								
	0943	CEF-081-09S-20080401						3	X								
	1045	CEF-081-18I-20080401						3	X								
	1133	CEF-081-14S-20080401						3	X								
	1235	CEF-081-15S-20080401						3	X								
	1336	CEF-081-08SR-20080401						3	X								
	0000	TRIPBLANK						9									TRIPBLANK

1. RELINQUISHED BY: K. Weichert	DATE: 4-1-08	TIME: 1520	1. RECEIVED BY: [signature]	DATE: 4-1-08	TIME: 15:20
2. RELINQUISHED BY	DATE	TIME	2. RECEIVED BY	DATE	TIME
3. RELINQUISHED BY	DATE	TIME	3. RECEIVED BY	DATE	TIME

COMMENTS

DISTRIBUTION: WHITE (ACCOMPANIES SAMPLE) YELLOW (FIELD COPY) PINK (FILE COPY)

4/02R
FORM NO. TtNUS-001

HOLDTIME

SDG J0801543

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
OV	%	TRIP BLANK	J0801543-013	NM	4/1/2008	4/3/2008	4/3/2008	2	0	2
OV	%	CEF-081-08S-20080401	J0801543-012	NM	4/1/2008	4/3/2008	4/3/2008	2	0	2
OV	%	CEF-081-09S-20080401	J0801543-008	NM	4/1/2008	4/3/2008	4/3/2008	2	0	2
OV	%	CEF-081-14S-20080401	J0801543-010	NM	4/1/2008	4/3/2008	4/3/2008	2	0	2
OV	%	CEF-081-15S-20080401	J0801543-011	NM	4/1/2008	4/3/2008	4/3/2008	2	0	2
OV	%	CEF-081-16S-20080331	J0801543-004	NM	3/31/2008	4/3/2008	4/3/2008	3	0	3
OV	%	CEF-081-17S-20080331	J0801543-003	NM	3/31/2008	4/3/2008	4/3/2008	3	0	3
OV	%	CEF-081-18I-20080401	J0801543-009	NM	4/1/2008	4/3/2008	4/3/2008	2	0	2
OV	%	CEF-081-19I-20080331	J0801543-002	NM	3/31/2008	4/3/2008	4/3/2008	3	0	3
OV	%	CEF-081-21I-20080331	J0801543-005	NM	3/31/2008	4/3/2008	4/3/2008	3	0	3
OV	%	CEF-081-22I-20080331	J0801543-001	NM	3/31/2008	4/3/2008	4/3/2008	3	0	3
OV	%	CEF-081-04I-20080401	J0801543-007	NM	4/1/2008	4/3/2008	4/3/2008	2	0	2
OV	%	CEF-081-DUP01-2008033	J0801543-006	NM	3/31/2008	4/3/2008	4/3/2008	3	0	3
OV	UG/L	TRIP BLANK	J0801543-013	NM	4/1/2008	4/3/2008	4/3/2008	2	0	2
OV	UG/L	CEF-081-08S-20080401	J0801543-012	NM	4/1/2008	4/3/2008	4/3/2008	2	0	2

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
OV	UG/L	CEF-081-09S-20080401	J0801543-008	NM	4/1/2008	4/3/2008	4/3/2008	2	0	2
OV	UG/L	CEF-081-14S-20080401	J0801543-010	NM	4/1/2008	4/3/2008	4/3/2008	2	0	2
OV	UG/L	CEF-081-15S-20080401	J0801543-011	NM	4/1/2008	4/3/2008	4/3/2008	2	0	2
OV	UG/L	CEF-081-16S-20080331	J0801543-004	NM	3/31/2008	4/3/2008	4/3/2008	3	0	3
OV	UG/L	CEF-081-17S-20080331	J0801543-003	NM	3/31/2008	4/3/2008	4/3/2008	3	0	3
OV	UG/L	CEF-081-18I-20080401	J0801543-009	NM	4/1/2008	4/3/2008	4/3/2008	2	0	2
OV	UG/L	CEF-081-19I-20080331	J0801543-002	NM	3/31/2008	4/3/2008	4/3/2008	3	0	3
OV	UG/L	CEF-081-21I-20080331	J0801543-005	NM	3/31/2008	4/3/2008	4/3/2008	3	0	3
OV	UG/L	CEF-081-22I-20080331	J0801543-001	NM	3/31/2008	4/3/2008	4/3/2008	3	0	3
OV	UG/L	CEF-081-DUP01-2008033	J0801543-006	NM	3/31/2008	4/3/2008	4/3/2008	3	0	3
OV	UG/L	CEF-081-04I-20080401	J0801543-007	NM	4/1/2008	4/3/2008	4/3/2008	2	0	2

9143 Philips Highway, Suite 200 Jacksonville, FL 32256 (904) 739-2277 (904) 739-2011 fax

Columbia Analytical Services INC.
An Employee - Owned Company

April 07, 2008 Service Request No: J0801543

Amy Thomson
Tetra Tech NUS, Inc.
Foster Plaza 7
661 Andersen Drive
Pittsburgh, PA 15220

RE: NAS Cecil Field/112G01264

Dear Amy:

Enclosed are the results of the sample(s) submitted to our laboratory on April 1, 2008. For your reference, these analyses have been assigned our service request number **J0801543**.

All analyses were performed according to our laboratory's quality assurance program. The test results meet requirements of the NELAP standards except as noted in the case narrative report. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report. In accordance to the NELAC 2003 Standard, a statement on the estimated uncertainty of measurement of any quantitative analysis will be supplied upon request.

Please call if you have any questions. My extension is 4409. You may also contact me via email at CMyers@caslab.com.

Respectfully submitted,

Columbia Analytical Services, Inc.

Craig Myers
Project Chemist

Laboratory Manager: Greg Jordan
Quality Assurance Officer: Kathy Brungard

CAS Jacksonville is NELAC-accredited by the State of Florida, #E82502 valid through 6/30/08. Other state accreditations include: Arkansas, #88-0600 valid through 1/12/06; Georgia, #958 valid through 6/30/08; Louisiana, #02086 valid through 6/30/08; Texas, #T104704197-06-TX valid through 5/31/08; North Carolina, #527 valid through 12/31/07; South Carolina, #96021001 valid through 6/30/08.

NELAP Accredited ACIL Seal of Excellence Award 100% Recycled

COLUMBIA ANALYTICAL SERVICES, INC.

Client:	Tetra Tech NUS, Inc.	**Service Request No.:**	J0801543
Project:	NAS Cecil Field	**Date Received:**	4/1/08
Sample Matrix:	Water		

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of Columbia Analytical Services, Inc. (CAS). This report contains analytical results for samples designated for Tier III data deliverables including validation summary forms. When appropriate to the procedure, method blank results have been reported with each analytical test. Analytical procedures performed by the lab are validated in accordance with NELAC standards. Parameters that are included in the NELAC Fields of Testing but are not included in the lab's NELAC accreditation are identified in the discussion of each analytical procedure.

Sample Receipt

Twelve water samples and one trip blank were received for analysis at Columbia Analytical Services on 4/1/08. The samples were received in good condition and consistent with the accompanying chain of custody form. Samples are refrigerated at 4±2°C upon receipt at the lab except for aqueous samples designated for metals analyses, which were stored at room temperature.

Volatile Organic Compounds by GC-MS

The samples were analyzed for Volatile Organics using EPA Method 8260. No problems were observed.

Batch QC Notes and Discussion

Quality control samples for MS/DMS were performed using samples from another sample delivery group (SDG). The frequency requirement for quality control sample analysis was consistent with the project's requirements. Matrix specific quality control results have no bearing on sample data from a different matrix or location. Therefore, control of the batch has been evaluated using the method blank and the laboratory control sample.

Approved by Craig R. Hy **Date** 4/7/08

Client: Tetra Tech NUS, Inc.
Project: NAS Cecil Field/112G01264

Service Request: J0801543

SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
J0801543-001	CEF-081-22I-20080331	03/31/08	12:28
J0801543-002	CEF-081-19I-20080331	03/31/08	13:38
J0801543-003	CEF-081-17S-20080331	03/31/08	14:45
J0801543-004	CEF-081-16S-20080331	03/31/08	15:47
J0801543-005	CEF-081-21I-20080331	03/31/08	16:30
J0801543-006	CEF-081-DUP01-20080331	03/31/08	00:00
J0801543-007	CEF-081-04I-20080401	04/01/08	08:15
J0801543-008	CEF-081-09S-20080401	04/01/08	09:43
J0801543-009	CEF-081-18I-20080401	04/01/08	10:45
J0801543-010	CEF-081-14S-20080401	04/01/08	11:33
J0801543-011	CEF-081-15S-20080401	04/01/08	12:35
J0801543-012	CEF-081-08S-20080401	04/01/08	13:36
J0801543-013	TRIP BLANK	04/01/08	00:00

Columbia Analytical Services, Inc.
Cooler Receipt and Preservation Form

Client: Tetra Tech

Service Request # J0801543

Project: NAS Cecil Field / 112G01264

Cooler received on 4-1-08 and opened on 4-1-08 by DMe

COURIER: CAS UPS FEDEX DHL CLIENT Tracking # —

1	Were custody seals on outside of cooler?	Yes	No	N/A
2	Were seals intact, signed and dated?	Yes	No	N/A
3	Were custody papers properly filled out?	Yes	No	N/A
4	Temperature of cooler(s) upon receipt (Should be 4 +/- 2 degrees C) 0-5			
5	Correct Temperature?	Yes	No	N/A
6	Were Ice or Ice Packs present	Yes	No	N/A
7	Did all bottles arrive in good condition (unbroken, etc....)?	Yes	No	N/A
8	Were all bottle labels complete (sample ID, preservation, etc....)?	Yes	No	N/A
9	Did all bottle labels and tags agree with custody papers?	Yes	No	N/A
10	Were the correct bottles used for the tests indicated?	Yes	No	N/A
11	Were all of the preserved bottles received with the appropriate preservative?	Yes	No	N/A

HNO3 pH<2 H2SO4 pH<2 ZnAc2/NaOH pH>9 NaOH pH>12 HCl pH<2

Preservative additions noted below

12	Were all samples received within analysis holding times?	Yes	No	N/A
13	Were VOA vials checked for absence of air bubbles? If present, note below	Yes	No	N/A
14	Where did the bottles originate?	CAS	Client	

Sample ID	Reagent	Manuf. Lot # or CAS Chem ID	ml added	Inititials

Additional comments and/or explanation of all discrepancies noted above:

Client approval to run samples if discrepancies noted: Date:

SR # : J 0807543 Date: 4-1-08 Initials: DMR

Note that pH is checked and meets the required pH criterion listed in the column heading unless otherwise noted on cooler receipt form.

	Bottle Code																													
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
	40mL	40mL	40mL	40mL	125mL	125mL	125mL	125mL	250mL	250mL	250mL	250mL	250mL	250mL	250mL	500mL	500mL	500mL	1L	1L	1L	1L	1L	2oz	4oz	8oz	16oz	5g	100mL	Misc.
Container	G	G	G	G	P	P	P	P	P	P	P	P	P	G	G	P	P	P	P	P	G	G	G	G	G	G	G	ENC	P	Misc.
Pres.		HCl	Sodium Thiosulfate	H2SO4		HCl	H2SO4	HNO3		H2SO4	HNO3	ZnAcetate NaOH	NaOH		HNO3		H2SO4	HNO3		HNO3		HCl	H2SO4						Sodium Thiosulfate	
Req. pH	N/A	<2	N/A	<2	N/A	<2	<2	<2	N/A	<2	<2	>9	>12	N/A	<2	N/A	<2	<2	N/A	<2	N/A	<2	<2	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Sample #	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-		-	-	-				-	-
-001		3																												
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-036																														
-037																														
-038																														
-039																														
-040																														

COLUMBIA ANALYTICAL SERVICES, INC.

Client: Tetra Tech NUS, Inc.
Project: NAS Cecil Field/112G01264

Service Request: J0801543

Cover Page - Organic Analysis Data Package
Volatile Organic Compounds by GC/MS

Sample Name	Lab Code	Date Collected	Date Received
CEF-081-22I-20080331	J0801543-001	03/31/2008	04/01/2008
CEF-081-19I-20080331	J0801543-002	03/31/2008	04/01/2008
CEF-081-17S-20080331	J0801543-003	03/31/2008	04/01/2008
CEF-081-16S-20080331	J0801543-004	03/31/2008	04/01/2008
CEF-081-21I-20080331	J0801543-005	03/31/2008	04/01/2008
CEF-081-DUP01-20080331	J0801543-006	03/31/2008	04/01/2008
CEF-081-04I-20080401	J0801543-007	04/01/2008	04/01/2008
CEF-081-09S-20080401	J0801543-008	04/01/2008	04/01/2008
CEF-081-18I-20080401	J0801543-009	04/01/2008	04/01/2008
CEF-081-14S-20080401	J0801543-010	04/01/2008	04/01/2008
CEF-081-15S-20080401	J0801543-011	04/01/2008	04/01/2008
CEF-081-08S-20080401	J0801543-012	04/01/2008	04/01/2008
TRIP BLANK	J0801543-013	04/01/2008	04/01/2008

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed in the case narrative. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on floppy diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature: _____ Name: Jerry Allen

Date: 4/4/08 Title: Organic Manager

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client:	Tetra Tech NUS, Inc.	**Service Request:**	J0801543
Project:	NAS Cecil Field/112G01264	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA

Volatile Organic Compounds by GC/MS

Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	JWG0801253-4	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	8260B		

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Isopropylbenzene	ND	U	1.0	0.36	1	04/03/08	04/03/08	JWG0801253	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
1,2-Dichloroethane-d4	103	71-122	04/03/08	Acceptable
4-Bromofluorobenzene	106	75-120	04/03/08	Acceptable
Dibromofluoromethane	99	82-116	04/03/08	Acceptable
Toluene-d8	109	88-117	04/03/08	Acceptable

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: Tetra Tech NUS, Inc.
Project: NAS Cecil Field/112G01264
Sample Matrix: Water

Service Request: J0801543

Surrogate Recovery Summary
Volatile Organic Compounds by GC/MS

Extraction Method: EPA 5030B
Analysis Method: 8260B

Units: PERCENT
Level: Low

Sample Name	Lab Code	Sur1	Sur2	Sur3	Sur4
CEF-081-22I-20080331	J0801543-001	103	106	98	110
CEF-081-19I-20080331	J0801543-002	103	105	99	110
CEF-081-17S-20080331	J0801543-003	103	106	99	111
CEF-081-16S-20080331	J0801543-004	105	105	99	110
CEF-081-21I-20080331	J0801543-005	103	105	99	109
CEF-081-DUP01-20080331	J0801543-006	104	105	98	110
CEF-081-04I-20080401	J0801543-007	102	104	99	109
CEF-081-09S-20080401	J0801543-008	103	104	99	110
CEF-081-18I-20080401	J0801543-009	104	105	99	108
CEF-081-14S-20080401	J0801543-010	104	103	99	110
CEF-081-15S-20080401	J0801543-011	104	104	100	110
CEF-081-08S-20080401	J0801543-012	103	106	100	110
TRIP BLANK	J0801543-013	103	105	98	109
Method Blank	JWG0801253-4	103	106	99	109
Lab Control Sample	JWG0801253-3	105	103	101	107

Surrogate Recovery Control Limits (%)

Sur1 =	1,2-Dichloroethane-d4	71-122
Sur2 =	4-Bromofluorobenzene	75-120
Sur3 =	Dibromofluoromethane	82-116
Sur4 =	Toluene-d8	88-117

Results flagged with an asterisk (*) indicate values outside control criteria.
Results flagged with a pound (#) indicate the control criteria is not applicable.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: Tetra Tech NUS, Inc.
Project: NAS Cecil Field/112G01264

Service Request: J0801543
Date Analyzed: 04/03/2008
Time Analyzed: 12:17

Internal Standard Area and RT Summary
Volatile Organic Compounds by GC/MS

File ID: \\JACKSONVILLE1\ACQUDATA\MS52\DATA\MS528D03.B\0
Instrument ID: MS52.i
Analysis Method: 8260B

Lab Code: JWG0801254-2
Analysis Lot: JWG0801254
Column : DB-VRX

		1,4-Dichlorobenzene-d4		Chlorobenzene-d5		Fluorobenzene	
		Area	RT	Area	RT	Area	RT
	Results ==>	288,518	11.17	326,752	8.74	696,823	5.36
	Upper Limit ==>	577,036	11.67	653,504	9.24	1,393,646	5.86
	Lower Limit ==>	144,259	10.67	163,376	8.24	348,412	4.86
	ICAL Result ==>	310,029	11.17	346,958	8.74	749,338	5.36
Associated Analyses							
Lab Control Sample	JWG0801253-3	278,545	11.17	323,910	8.74	694,525	5.36
Method Blank	JWG0801253-4	269,200	11.17	319,291	8.74	703,768	5.36
CEF-081-22I-20080331	J0801543-001	266,915	11.17	312,409	8.74	694,305	5.37
CEF-081-19I-20080331	J0801543-002	270,974	11.17	311,325	8.75	700,880	5.36
CEF-081-17S-20080331	J0801543-003	268,290	11.17	315,731	8.74	706,243	5.36
CEF-081-16S-20080331	J0801543-004	269,976	11.17	316,771	8.74	695,062	5.36
CEF-081-21I-20080331	J0801543-005	266,986	11.17	314,374	8.74	696,850	5.37
CEF-081-DUP01-20080331	J0801543-006	266,528	11.18	316,519	8.74	695,211	5.37
CEF-081-04I-20080401	J0801543-007	272,575	11.17	318,232	8.74	694,378	5.36
CEF-081-09S-20080401	J0801543-008	267,751	11.17	314,477	8.74	693,231	5.36
CEF-081-18I-20080401	J0801543-009	271,412	11.17	315,914	8.74	688,425	5.36
CEF-081-14S-20080401	J0801543-010	269,948	11.17	312,479	8.74	688,556	5.36
CEF-081-15S-20080401	J0801543-011	265,698	11.17	311,081	8.74	687,387	5.37
CEF-081-08S-20080401	J0801543-012	266,546	11.17	315,251	8.75	696,933	5.36
TRIP BLANK	J0801543-013	267,623	11.17	317,310	8.74	694,201	5.36

Results flagged with an asterisk (*) indicate values outside control criteria.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	Tetra Tech NUS, Inc.	**Service Request:**	J0801543
Project:	NAS Cecil Field/112G01264	**Date Extracted:**	04/03/2008
Sample Matrix:	Water	**Date Analyzed:**	04/03/2008

Lab Control Spike Summary
Volatile Organic Compounds by GC/MS

Extraction Method:	EPA 5030B	**Units:**	ug/L
Analysis Method:	8260B	**Basis:**	NA
		Level:	Low
		Extraction Lot:	JWG0801253

	Lab Control Sample JWG0801253-3 Lab Control Spike			
Analyte Name	**Result**	**Expected**	**%Rec**	**%Rec Limits**
Isopropylbenzene	22.8	20.0	114	83-122

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	Tetra Tech NUS, Inc.	**Service Request:**	J0801543
Project:	NAS Cecil Field/112G01264	**Date Extracted:**	04/03/2008
Sample Matrix:	Water	**Date Analyzed:**	04/03/2008
		Time Analyzed:	13:37

Method Blank Summary
Volatile Organic Compounds by GC/MS

Sample Name:	Method Blank	**File ID:**	J:\MS52\DATA\MS528D03.B\0403-22.D
Lab Code:	JWG0801253-4	**Instrument ID:**	MS52.i
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	8260B	**Extraction Lot:**	JWG0801253

This Method Blank applies to the following analyses:

Sample Name	Lab Code	File ID	Date Analyzed	Time Analyzed
Lab Control Sample	JWG0801253-3	J:\MS52\DATA\MS528D03.B\0403-20.D	04/03/08	12:44
CEF-081-22I-20080331	J0801543-001	J:\MS52\DATA\MS528D03.B\0403-26.D	04/03/08	15:24
CEF-081-19I-20080331	J0801543-002	J:\MS52\DATA\MS528D03.B\0403-27.D	04/03/08	15:51
CEF-081-17S-20080331	J0801543-003	J:\MS52\DATA\MS528D03.B\0403-28.D	04/03/08	16:18
CEF-081-16S-20080331	J0801543-004	J:\MS52\DATA\MS528D03.B\0403-29.D	04/03/08	16:46
CEF-081-21I-20080331	J0801543-005	J:\MS52\DATA\MS528D03.B\0403-30.D	04/03/08	17:12
CEF-081-DUP01-20080331	J0801543-006	J:\MS52\DATA\MS528D03.B\0403-31.D	04/03/08	17:39
CEF-081-04I-20080401	J0801543-007	J:\MS52\DATA\MS528D03.B\0403-32.D	04/03/08	18:05
CEF-081-09S-20080401	J0801543-008	J:\MS52\DATA\MS528D03.B\0403-33.D	04/03/08	18:32
CEF-081-18I-20080401	J0801543-009	J:\MS52\DATA\MS528D03.B\0403-34.D	04/03/08	18:59
CEF-081-14S-20080401	J0801543-010	J:\MS52\DATA\MS528D03.B\0403-35.D	04/03/08	19:26
CEF-081-15S-20080401	J0801543-011	J:\MS52\DATA\MS528D03.B\0403-36.D	04/03/08	19:53
CEF-081-08S-20080401	J0801543-012	J:\MS52\DATA\MS528D03.B\0403-37.D	04/03/08	20:19
TRIP BLANK	J0801543-013	J:\MS52\DATA\MS528D03.B\0403-38.D	04/03/08	20:45

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	Tetra Tech NUS, Inc.	**Service Request:**	J0801543
Project:	NAS Cecil Field/112G01264	**Date Extracted:**	04/03/2008
Sample Matrix:	Water	**Date Analyzed:**	04/03/2008
		Time Analyzed:	12:44

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Sample Name:	Lab Control Sample	**File ID:**	J:\MS52\DATA\MS528D03.B\0403-20.D
Lab Code:	JWG0801253-3	**Instrument ID:**	MS52.i
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	8260B	**Extraction Lot:**	JWG0801253

This Lab Control Sample applies to the following analyses:

Sample Name	Lab Code	File ID	Date Analyzed	Time Analyzed
Method Blank	JWG0801253-4	J:\MS52\DATA\MS528D03.B\0403-22.D	04/03/08	13:37
CEF-081-22I-20080331	J0801543-001	J:\MS52\DATA\MS528D03.B\0403-26.D	04/03/08	15:24
CEF-081-19I-20080331	J0801543-002	J:\MS52\DATA\MS528D03.B\0403-27.D	04/03/08	15:51
CEF-081-17S-20080331	J0801543-003	J:\MS52\DATA\MS528D03.B\0403-28.D	04/03/08	16:18
CEF-081-16S-20080331	J0801543-004	J:\MS52\DATA\MS528D03.B\0403-29.D	04/03/08	16:46
CEF-081-21I-20080331	J0801543-005	J:\MS52\DATA\MS528D03.B\0403-30.D	04/03/08	17:12
CEF-081-DUP01-20080331	J0801543-006	J:\MS52\DATA\MS528D03.B\0403-31.D	04/03/08	17:39
CEF-081-04I-20080401	J0801543-007	J:\MS52\DATA\MS528D03.B\0403-32.D	04/03/08	18:05
CEF-081-09S-20080401	J0801543-008	J:\MS52\DATA\MS528D03.B\0403-33.D	04/03/08	18:32
CEF-081-18I-20080401	J0801543-009	J:\MS52\DATA\MS528D03.B\0403-34.D	04/03/08	18:59
CEF-081-14S-20080401	J0801543-010	J:\MS52\DATA\MS528D03.B\0403-35.D	04/03/08	19:26
CEF-081-15S-20080401	J0801543-011	J:\MS52\DATA\MS528D03.B\0403-36.D	04/03/08	19:53
CEF-081-08S-20080401	J0801543-012	J:\MS52\DATA\MS528D03.B\0403-37.D	04/03/08	20:19
TRIP BLANK	J0801543-013	J:\MS52\DATA\MS528D03.B\0403-38.D	04/03/08	20:45

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Results

Client: Tetra Tech NUS, Inc.
Project: NAS Cecil Field/112G01264

Service Request: J0801543
Date Analyzed: 04/03/2008
Time Analyzed: 11:56

Tune Summary
Volatile Organic Compounds by GC/MS

File ID: \\JACKSONVILLE1\ACQUDATA\MS52\DATA\MS528D03.B\0403-18.D
Instrument ID: MS52.i
Column:

Analysis Method: 8260B
Analysis Lot: JWG0801254

Target Mass	Relative to Mass	Lower Limit%	Upper Limit%	Relative Abundance %	Raw Abundance	Result Pass/Fail
50	95	15	40	22.1	7659	PASS
75	95	30	60	51.5	17872	PASS
95	95	100	100	100.0	34672	PASS
96	95	5	9	6.6	2303	PASS
173	174	0	2	0.0	0	PASS
174	95	50	120	75.0	25992	PASS
175	174	5	9	7.1	1845	PASS
176	174	95	101	100.4	26096	PASS
177	176	5	9	6.5	1699	PASS

Sample Name	Lab Code	File ID	Date Analyzed	Time Analyzed	Q
Continuing Calibration Verification	JWG0801254-2	J:\MS52\DATA\MS528D03.B\0403-1	04/03/2008	12:17	
Lab Control Sample	JWG0801253-3	J:\MS52\DATA\MS528D03.B\0403-2	04/03/2008	12:44	
Method Blank	JWG0801253-4	J:\MS52\DATA\MS528D03.B\0403-2	04/03/2008	13:37	
CEF-081-22I-20080331	J0801543-001	J:\MS52\DATA\MS528D03.B\0403-2	04/03/2008	15:24	
CEF-081-19I-20080331	J0801543-002	J:\MS52\DATA\MS528D03.B\0403-2	04/03/2008	15:51	
CEF-081-17S-20080331	J0801543-003	J:\MS52\DATA\MS528D03.B\0403-2	04/03/2008	16:18	
CEF-081-16S-20080331	J0801543-004	J:\MS52\DATA\MS528D03.B\0403-2	04/03/2008	16:46	
CEF-081-21I-20080331	J0801543-005	J:\MS52\DATA\MS528D03.B\0403-3	04/03/2008	17:12	
CEF-081-DUP01-20080331	J0801543-006	J:\MS52\DATA\MS528D03.B\0403-3	04/03/2008	17:39	
CEF-081-04I-20080401	J0801543-007	J:\MS52\DATA\MS528D03.B\0403-3	04/03/2008	18:05	
CEF-081-09S-20080401	J0801543-008	J:\MS52\DATA\MS528D03.B\0403-3	04/03/2008	18:32	
CEF-081-18I-20080401	J0801543-009	J:\MS52\DATA\MS528D03.B\0403-3	04/03/2008	18:59	
CEF-081-14S-20080401	J0801543-010	J:\MS52\DATA\MS528D03.B\0403-3	04/03/2008	19:26	
CEF-081-15S-20080401	J0801543-011	J:\MS52\DATA\MS528D03.B\0403-3	04/03/2008	19:53	
CEF-081-08S-20080401	J0801543-012	J:\MS52\DATA\MS528D03.B\0403-3	04/03/2008	20:19	
TRIP BLANK	J0801543-013	J:\MS52\DATA\MS528D03.B\0403-3	04/03/2008	20:45	

Results flagged with an asterisk (*) indicate the analysis performed outside specified tune window

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Results

Client: Tetra Tech NUS, Inc. **Service Request:** J0801543
Project: NAS Cecil Field/112G01264 **ICAL Date:** 03/27/2008

Initial Calibration Summary
Volatile Organic Compounds by GC/MS

ICAL ID: CAL1389 **Column:** DB-VRX
Instrument ID: MS52.i

		Calibration Evaluation					RRF Evaluation		
Analyte Name	Compound Type	Fit Type	Eval.	Eval. Result	Q	Control Criteria	Average RRF	Q	Minimum RRF
1,2-Dichloroethane-d4	SURR	AverageRF	% RSD	2.9		≤ 15	0.311		
4-Bromofluorobenzene	SURR	AverageRF	% RSD	3.2		≤ 15	0.792		
Dibromofluoromethane	SURR	AverageRF	% RSD	4.7		≤ 15	0.249		
Isopropylbenzene	MS	AverageRF	% RSD	5.7		≤ 15	2.26		0.01
Toluene-d8	SURR	AverageRF	% RSD	7.1		≤ 15	1.69		
‡ Ethylbenzene	MS	AverageRF	% RSD	7.2		≤ 15	2.29		0.01
‡ Toluene	MS	AverageRF	% RSD	7.7		≤ 15	2.12		0.01
† Chlorobenzene	MS	AverageRF	% RSD	8.9		≤ 15	1.44		0.3
‡ Chloroform	MS	AverageRF	% RSD	3.3		≤ 15	0.479		0.01
† Chloromethane	MS	AverageRF	% RSD	12.9		≤ 15	0.333		0.1
‡ Vinyl Chloride	MS	AverageRF	% RSD	12.9		≤ 15	0.274		0.01
† Bromoform	MS	Linear	R2	0.999		≥ 0.99	0.232		0.1
† 1,1-Dichloroethane	MS	AverageRF	% RSD	2.8		≤ 15	0.492		0.1
‡ 1,1-Dichloroethene	MS	AverageRF	% RSD	4.9		≤ 15	0.427		0.01
‡ 1,2-Dichloropropane	MS	AverageRF	% RSD	2.0		≤ 15	0.263		0.01
† 1,1,2,2-Tetrachloroethane	MS	AverageRF	% RSD	7.1		≤ 15	0.569		0.3

Results flagged with an asterisk (*) indicate values outside control criteria.

† SPCC Compound **‡ CCC Compound**

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Results

Client: Tetra Tech NUS, Inc.
Project: NAS Cecil Field/112G01264

Service Request: J0801543
ICAL Date: 03/27/2008
Date Analyzed: 03/27/2008

Second Source Calibration Verification
Volatile Organic Compounds by GC/MS

ICAL Type: Internal Standard
Analysis Method: 8260B

ICAL ID: CAL1389
Units: ug/L

File ID: \\Jacksonville1\ACQUDATA\MS52\DATA\MS528C27.B\0327-12.D

Column ID: DB-VRX

Analyte Name	Expected	Result	Average RF	SSV RF	%D	%Drift	Criteria	Curve Fit
Isopropylbenzene	50	52	2.26	2.33	3	NA	± 30 %	AverageRF
† 1,1,2,2-Tetrachloroethane	50	54	0.569	0.617	9	NA	± 30 %	AverageRF
† 1,1-Dichloroethane	50	50	0.492	0.493	0	NA	± 30 %	AverageRF
‡ 1,1-Dichloroethene	50	49	0.427	0.421	-2	NA	± 30 %	AverageRF
‡ 1,2-Dichloropropane	50	52	0.263	0.271	3	NA	± 30 %	AverageRF
† Bromoform	50	49	0.232	0.294	NA	-1	± 30 %	Linear
† Chlorobenzene	50	50	1.44	1.44	0	NA	± 30 %	AverageRF
‡ Chloroform	50	53	0.479	0.505	5	NA	± 30 %	AverageRF
† Chloromethane	50	55	0.333	0.365	10	NA	± 30 %	AverageRF
‡ Ethylbenzene	50	52	2.29	2.37	4	NA	± 30 %	AverageRF
‡ Toluene	50	51	2.12	2.16	2	NA	± 30 %	AverageRF
‡ Vinyl Chloride	50	51	0.274	0.279	2	NA	± 30 %	AverageRF

Results flagged with an asterisk (*) indicate values outside control criteria.

† **SPCC Compound** ‡ **CCC Compound**

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Results

Client: Tetra Tech NUS, Inc.
Project: NAS Cecil Field/112G01264

Service Request: J0801543
Date Analyzed: 04/03/2008

Continuing Calibration Verification Summary
Volatile Organic Compounds by GC/MS

ICAL Type: Internal Standard
Analysis Method: 8260B

ICAL Date: 03/27/2008
ICAL ID: CAL1389
Analysis Lot: JWG0801254
Units: ug/L

File ID: \\JACKSONVILLE1\ACQUDATA\MS52\DATA\MS528D03.B\0403-19.D

Column ID: DB-VRX

Analyte Name	Expected	Result	Min RF	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
1,2-Dichloroethane-d4	50	50		0.311	0.311	0	NA	± 30 %	AverageRF
4-Bromofluorobenzene	50	50		0.792	0.792	0	NA	± 30 %	AverageRF
Dibromofluoromethane	50	51		0.249	0.252	1	NA	± 30 %	AverageRF
Isopropylbenzene	50	52	0.01	2.26	2.36	5	NA	± 30 %	AverageRF
Toluene-d8	50	53		1.69	1.79	6	NA	± 30 %	AverageRF
‡ Ethylbenzene	50	52	0.01	2.29	2.38	4	NA	± 20 %	AverageRF
‡ Toluene	50	51	0.01	2.12	2.15	2	NA	± 20 %	AverageRF
† Chlorobenzene	50	50	0.3	1.44	1.45	1	NA	± 30 %	AverageRF
‡ Chloroform	50	51	0.01	0.479	0.486	1	NA	± 20 %	AverageRF
† Chloromethane	50	54	0.1	0.333	0.360	8	NA	± 30 %	AverageRF
‡ Vinyl Chloride	50	49	0.01	0.274	0.267	-2	NA	± 20 %	AverageRF
† Bromoform	50	49	0.1	0.232	0.290	NA	-3	± 30 %	Linear
† 1,1-Dichloroethane	50	51	0.1	0.492	0.499	1	NA	± 30 %	AverageRF
‡ 1,1-Dichloroethene	50	50	0.01	0.427	0.425	0	NA	± 20 %	AverageRF
‡ 1,2-Dichloropropane	50	51	0.01	0.263	0.269	2	NA	± 20 %	AverageRF
† 1,1,2,2-Tetrachloroethane	50	52	0.3	0.569	0.596	5	NA	± 30 %	AverageRF

Results flagged with an asterisk (*) indicate values outside control criteria.

† SPCC Compound **‡ CCC Compound**

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Results

Client: Tetra Tech NUS, Inc.
Project: NAS Cecil Field/112G01264

Service Request: J0801543

Analysis Run Log
Volatile Organic Compounds by GC/MS

Analysis Method: 8260B

Analysis Lot: JWG0801254
Instrument ID: MS52.i
Column: DB-VRX

File ID	Sample Name	Lab Code	Date Analysis Started	Start Time	Q	Date Analysis Finished	Finish Time
\0403-18.D	GC/MS Tuning - Bromofluorobenzene	JWG0801254-1	4/3/2008	11:56		4/3/2008	11:56
\0403-19.D	Continuing Calibration Verification	JWG0801254-2	4/3/2008	12:17		4/3/2008	12:17
\0403-20.D	Lab Control Sample	JWG0801253-3	4/3/2008	12:44		4/3/2008	12:44
\0403-22.D	Method Blank	JWG0801253-4	4/3/2008	13:37		4/3/2008	13:37
\0403-23.D	ZZZZZZ	ZZZZZZ	4/3/2008	14:04		4/3/2008	14:04
\0403-24.D	ZZZZZZ	ZZZZZZ	4/3/2008	14:31		4/3/2008	14:31
\0403-25.D	ZZZZZZ	ZZZZZZ	4/3/2008	14:57		4/3/2008	14:57
\0403-26.D	CEF-081-22I-20080331	J0801543-001	4/3/2008	15:24		4/3/2008	15:24
\0403-27.D	CEF-081-19I-20080331	J0801543-002	4/3/2008	15:51		4/3/2008	15:51
\0403-28.D	CEF-081-17S-20080331	J0801543-003	4/3/2008	16:18		4/3/2008	16:18
\0403-29.D	CEF-081-16S-20080331	J0801543-004	4/3/2008	16:46		4/3/2008	16:46
\0403-30.D	CEF-081-21I-20080331	J0801543-005	4/3/2008	17:12		4/3/2008	17:12
\0403-31.D	CEF-081-DUP01-20080331	J0801543-006	4/3/2008	17:39		4/3/2008	17:39
\0403-32.D	CEF-081-04I-20080401	J0801543-007	4/3/2008	18:05		4/3/2008	18:05
\0403-33.D	CEF-081-09S-20080401	J0801543-008	4/3/2008	18:32		4/3/2008	18:32
\0403-34.D	CEF-081-18I-20080401	J0801543-009	4/3/2008	18:59		4/3/2008	18:59
\0403-35.D	CEF-081-14S-20080401	J0801543-010	4/3/2008	19:26		4/3/2008	19:26
\0403-36.D	CEF-081-15S-20080401	J0801543-011	4/3/2008	19:53		4/3/2008	19:53
\0403-37.D	CEF-081-08S-20080401	J0801543-012	4/3/2008	20:19		4/3/2008	20:19
\0403-38.D	TRIP BLANK	J0801543-013	4/3/2008	20:45		4/3/2008	20:45
\0403-39.D	ZZZZZZ	ZZZZZZ	4/3/2008	21:12		4/3/2008	21:12
\0403-40.D	ZZZZZZ	ZZZZZZ	4/3/2008	21:39		4/3/2008	21:39
\0403-41.D	ZZZZZZ	ZZZZZZ	4/3/2008	22:06		4/3/2008	22:06
\0403-42.D	ZZZZZZ	ZZZZZZ	4/3/2008	22:32		4/3/2008	22:32
\0403-43.D	ZZZZZZ	ZZZZZZ	4/3/2008	23:00		4/3/2008	23:00
\0403-44.D	ZZZZZZ	ZZZZZZ	4/3/2008	23:27		4/3/2008	23:27

Results flagged with an asterisk (*) indicate the holding time was exceeded for the analysis

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Results

Client: Tetra Tech NUS, Inc.
Project: NAS Cecil Field/112G01264
Sample Matrix: Water

Service Request: J0801543
Date Extracted: 04/03/2008

Extraction Prep Log
Volatile Organic Compounds by GC/MS

Extraction Method: EPA 5030B
Analysis Method: 8260B

Extraction Lot: JWG0801253
Level: Low

Sample Name	Lab Code	Date Collected	Date Received	Sample Amount	Final Volume	% Solids	Note
CEF-081-22I-20080331	J0801543-001	03/31/08	04/01/08	5ml	5ml	NA	
CEF-081-19I-20080331	J0801543-002	03/31/08	04/01/08	5ml	5ml	NA	
CEF-081-17S-20080331	J0801543-003	03/31/08	04/01/08	5ml	5ml	NA	
CEF-081-16S-20080331	J0801543-004	03/31/08	04/01/08	5ml	5ml	NA	
CEF-081-21I-20080331	J0801543-005	03/31/08	04/01/08	5ml	5ml	NA	
CEF-081-DUP01-20080331	J0801543-006	03/31/08	04/01/08	5ml	5ml	NA	
CEF-081-04I-20080401	J0801543-007	04/01/08	04/01/08	5ml	5ml	NA	
CEF-081-09S-20080401	J0801543-008	04/01/08	04/01/08	5ml	5ml	NA	
CEF-081-18I-20080401	J0801543-009	04/01/08	04/01/08	5ml	5ml	NA	
CEF-081-14S-20080401	J0801543-010	04/01/08	04/01/08	5ml	5ml	NA	
CEF-081-15S-20080401	J0801543-011	04/01/08	04/01/08	5ml	5ml	NA	
CEF-081-08S-20080401	J0801543-012	04/01/08	04/01/08	5ml	5ml	NA	
TRIP BLANK	J0801543-013	04/01/08	04/01/08	5ml	5ml	NA	
Method Blank	JWG0801253-4	NA	NA	5ml	5ml	NA	
Lab Control Sample	JWG0801253-3	NA	NA	5ml	5ml	NA	

Results flagged with an asterisk (*) indicate the holding time was exceeded for the analysis