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GROUNDWATER MONITORING REPORT FIRST SEMI-ANNUAL THIRD YEAR OCTOBER 2010 FOR BUILDING 82 TANK G82 NAS CECIL FIELD FL

02/15/2011

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PITT-02-11-037

February 15, 2011

Project Number 112G02267

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 V Contract Number N62470-08-D-1001
Contract Task Order JM09

Subject: Groundwater Monitoring Report, 1st Semi-Annual, 3rd Year – October 2010
Building 82, Tank G82
Naval Air Station Cecil Field
Jacksonville, Florida

Dear Mr. Grabka:

On behalf of the Navy, Tetra Tech, Inc. is pleased to submit this 1st Semi-Annual, 3rd Year Groundwater Monitoring Report for the referenced Contract Task Order for Building 82, Tank G82, at former Naval Air Station (NAS) Cecil Field, Jacksonville, Florida. This Groundwater Monitoring Report was prepared for the United States Navy, Naval Facilities Engineering Command Southeast (NAVFAC SE), under the Comprehensive Long-Term Environmental Action Navy (CLEAN).

The primary objective of current activities at this site is to conduct semi-annual monitoring of groundwater associated with the shallow and intermediate zones of the surficial aquifer. The sampling program is being conducted in accordance with the Uniform Federal Policy – Sampling and Analysis Plan (UFP-SAP) submitted by Tetra Tech to the Florida Department of Environmental Protection (FDEP) on May 10, 2010, based on Chapter 62-770.690, Florida Administrative Code (Tetra Tech, 2010). Select worksheets of the UFP-SAP are provided in ttachment A. This report summarizes the field operations and analytical results for the sampling event conducted on October 27 and 28, 2010, and select resampling on December 29, 2010, at the subject site. The work was performed in general accordance with Tetra Tech Standard Operating Procedures (SOPs) and FDEP SOPs under DEP-SOP-001/01.

BACKGROUND

Building 82 is the air traffic control tower, and associated underground storage tank (UST) G82 was used to store diesel fuel for emergency generators. Prior to UST removal in June 1997, the tank released an unknown volume of fuel into the surrounding environment, and soil and groundwater were adversely impacted. In 1998, a piezometer was sampled, and 1-methylnaphthalene and 2-methylnaphthalene were detected in the groundwater sample at concentrations greater than FDEP Groundwater Cleanup Target Levels (GCTLs). A confirmatory sampling investigation was performed in January 1999, and the Confirmatory Sampling Report (Tetra Tech, 2000) recommended a Site Assessment (SA).

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SA field activities were performed from October 1999 to July 2000. The SA Report (SAR) (Tetra Tech, 2000) recommended a Remedial Action Plan (RAP) for soil and Monitoring Only for Natural Attenuation (MONA) for groundwater. FDEP approved the recommendation for the RAP but did not approve the MONA recommendation.

In October 2000, the Navy directed CH2MHill to remove the contaminated soil from the site. Because of piping and the proximity to Building 82, all of the contaminated soil could not be removed. Additional sampling to evaluate the leachability of the contaminants remaining in the soil was performed to support a SAR Addendum (SARA). The SARA (Tetra Tech, 2001) concluded that xylenes, naphthalene, 1-methylnaphthalene, and 2-methylnaphthalene could leach from the soil and result in groundwater concentrations greater than GCTLs. The presence of the concrete slabs and runways limits the amount of precipitation that can leach through the soil; therefore, the recommendation was to leave the soil in place with institutional controls to require maintenance of the slabs and to allow only industrial use of the site (contaminant concentrations in the soil met industrial criteria but not residential criteria).

In April 2002, soil samples were collected for total recoverable petroleum hydrocarbon (TRPH) subclassification to verify that the appropriate land use controls (LUCs) were in place at the Tank G82 site. The results of the subclassification analyses showed that the residential Soil Cleanup Target Level (SCTL) was exceeded for only one fraction (C_{12} to C_{16} aliphatics) in one sample (CEF-G82-SU-203-6). The associated report (Tetra Tech, 2002) recommended a treatability study to evaluate the suitability of air sparging of groundwater to address site contaminants. The Navy instructed CH2MHill to perform the treatability study.

In November 2006, monitoring wells were sampled and analyzed as a baseline for the treatability study. Only groundwater from wells CEF-G82-1S and CEF-G82-2S (see Figure 1) had constituents at levels exceeding GCTLs (isopropyl benzene, naphthalene, 1-methylnaphthalene, 2-methylnaphthalene, benzo(a)anthracene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, and dibenz(a,h)anthracene). During the September 2007 Base Realignment and Closure (BRAC) Cleanup Team (BCT) meeting, FDEP agreed that, based on the 2006 site-wide groundwater sampling results, monitoring only with LUCs was appropriate and that no active remediation such as air sparging was needed at the Tank G82 site. This decision was based on the likelihood that natural attenuation was occurring because the concentrations of the contaminants of concern had been decreasing in the absence of active remediation.

On May 29, 2008, CH2MHill submitted an updated Natural Attenuation Monitoring Plan (NAMP) for both Building 82 (Tank G82) and the adjacent BP Wells site based on the results of the November 2006 sampling event. The updated NAMP recommended that Tank G82 be sampled for chemical parameters (volatile organic compounds [VOCs] and naphthalene, polynuclear aromatic hydrocarbons [PAHs], TRPH, and natural attenuation parameters [alkalinity, nitrate, nitrite, sulfate, sulfide, and methane]) on a quarterly basis for the first 2 years. Year 1 and 1st Semi-Annual, 2nd Year (October 2009) sampling was performed in accordance with verbal approval of the NAMP from FDEP during the July 2008 BCT meeting. A Uniform Federal Policy – Sampling and Analysis Plan (UFP-SAP) detailing the monitoring plans for several Petroleum Program sites, including Tank G82, was prepared and submitted as draft final in February 2010, The document was accepted by FDEP and submitted as final in May 2010. The 2nd Semi-Annual, 2nd Year (April 2010) event was revised in accordance with February 2, 2010, BCT meeting, Decision No. 777, to eliminate (due to lack of background concentration data) analysis for natural attenuation parameters and continue with semi-annual monitoring, as identified in the UFP-SAP. The current, 1st Semi-Annual, 3rd Year (October 2010) event was conducted in accordance with the UFP-SAP.

FIELD OPERATIONS

Groundwater samples were collected from existing wells CEF-G82-1S, CEF-G82-2S, CEF-G82-2I, CEF-G82-3S, CEF-G82-4S, CEF-G82-5S, and CEF-G82-6S on October 27 and 28, 2010. Monitoring well locations are provided on Figure 1. The samples were placed on ice immediately upon collection and delivered via FedEx under chain of custody to Empirical Laboratories in Nashville, Tennessee. The laboratory analytical report is included as Attachment B.

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The laboratory analyzed the samples for the following:

- VOCs including isopropyl benzene, 1,2,4-trimethylbenzene, and 1,3,5-trimethylbenzene using United States Environmental Protection Agency (USEPA) Method SW-846 8260B.
- PAHs including 1-methylnaphthalene and 2-methylnaphthalene using USEPA Method 8270.
- TRPH using the Florida Petroleum-Range Organics (FL-PRO) method.

Based on preliminary results and discussions with the sampling crew, it appeared that the samples from wells CEF-G82-1S and CEF-G82-3S were mislabeled (reversed). In addition, the isopropyl benzene concentration in CEF-G82-5S exceeded the GCTL for the first time. To evaluate these potentially anomalous results, wells CEF-G82-1S, CEF-G82-3S, and CEF-G82-5S were resampled on December 29, 2010, for isopropyl benzene only. Because the December 2010 isopropyl benzene results from CEF-G82-1S and CEF-G82-3S were consistent with previous data, the October 2010 results for all parameters in these two wells were reversed in Tables 2 and 3 and on Figure 3 to correct the error. The sample labeling error for these two wells is still reflected in the attached laboratory report (the October 2010 data from these wells is reversed in the laboratory report). The tables and figures will be clearly marked and footnoted to identify the special reporting of these results.

Prior to obtaining groundwater samples during October sampling, synoptic water levels and total well depths were measured and recorded on a site-specific groundwater measurement sheet for CEF-G82-1S, CEF-G82-2S, CEF-G82-3S, CEF-G82-4S, CEF-G82-5S, and CEF-G82-6S (see Figure 2) located around Building 82. On October 26, 2010, the depth to water ranged from 6.91 feet below top of casing (btoc) (CEF-G82-1S) to 10.27 feet below top of casing (btoc) (CEF-G82-6S). Depth to water measurements, top of casing elevations, and groundwater elevations are presented in Table 1. Attachment C includes the field log sheets. General sampling protocols were in accordance with FDEP SOPs and Tetra Tech SOP SA-1.1 – Groundwater Sample Acquisition and On-Site Water Quality Testing.

RESULTS

The groundwater elevation data and flow direction for the shallow zone across the Tank G82 site are shown on Figure 2. Based on the data, the general direction of shallow zone groundwater flow is east.

Groundwater analytical results from October and December 2010 sampling were compared to FDEP GCTLs and Natural Attenuation Default Concentrations (NADCs). The data and standards are presented in Table 2, and results since the 1st Quarter, 1st Year – July 2008 monitoring event are presented in Table 3 and on Figure 3. During the October 2010 event, concentrations of benzene, 1,2,4-trimethylbenzene, 1-methylnaphthalene, 2-methylnaphthlene, and naphthalene in source area well CEF-G82-2S exceeded GCTLs, and the isopropyl benzene concentration exceeded the NADC. Isopropyl benzene concentrations in CEF-G82-1S (1.62 µg/L in October and 3.52 µg/L in December) exceeded the GCTL of 0.8 µg/L. In CEF-G82-5S, although the October 2010 isopropyl benzene concentration was greater than the GCTL (1.08 µg/L), the December 2010 resample result (0.792 µg/L) was less than the GCTL.

In all other wells, including intermediate well CEF-G82-2I, analytes were either not detected or were detected at concentrations less than their GCTLs.

CONCLUSIONS AND RECOMMENDATIONS

Shallow groundwater flow direction in the area of Tank G82 site is to the east, which is consistent with previous results.

GCTL exceedances based on October 2010 data, and December 2010 data for wells CEF-G82-1S, 3S, and 5S, include benzene, isopropyl benzene, 1,2,4-trimethylbenzene, 1-methylnaphthalene, 2-methylnaphthlene, and naphthalene in CEF-G82-2S, and isopropyl benzene in CEF-G82-1S (both events) and CEF-G82-5S (October event only). The CEF-G82-5S concentration during the most recent

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re-sampling event was less than the GCTL. In addition, the concentration of isopropyl benzene exceeded its NADC in CEF-G82-2S. No other analytes were detected in excess of their GCTLs in any of the other wells sampled per the UFP-SAP.

The next semi-annual sampling event is scheduled for April 2011, and no changes are recommended to the sampling plan.

The electronic copy of this submittal is available on the Cecil Field Document Warehouse System (DWS) at http://dws.navy-env.com/. If you have any questions regarding this submittal, please contact me at (412) 921-8163, or by email at Robert.Simcik@tetratech.com.

Sincerely,

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

Kara F. Wimble
Project Manager

RFS/clm

Enclosures (6)

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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 Semi-Annual Groundwater Monitoring Report, 1st Semi-Annual, 3rd Year – October 2010 is the second report since the UFP-SAP was submitted for Building 82, Tank G82, at Former 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

February 15, 2011
Robert F. Simcik, P.E.
P.E. Number 61263

TABLES

TABLE 1
GROUNDWATER ELEVATION AND MONITORING WELL CONSTRUCTION DATA
THIRD YEAR, FIRST SEMI-ANNUAL GROUNDWATER MONITORING REPORT
BUILDING 82, TANK G82
NAVAL AIR STATION CECIL FIELD, JACKSONVILLE, FLORIDA

Well Number	Total Depth of Well (feet btoc)	Top of Casing Elevation* (feet above msl)	July 24, 2008		October 20, 2008		January 26, 2009		April 28, 2009	
			Depth to Water (feet btoc)	Groundwater Elevation (feet above msl)	Depth to Water (feet btoc)	Groundwater Elevation (feet above msl)	Depth to Water (feet btoc)	Groundwater Elevation (feet above msl)	Depth to Water (feet btoc)	Groundwater Elevation (feet above msl)
CEF-G82-1S	15	71.13	5.41	65.72	6.20	64.93	7.39	63.74	6.59	64.54
CEF-G82-2I	35	71.28	5.68	65.60	6.63	64.65	8.05	63.23	7.01	64.27
CEF-G82-2S	14	71.23	5.68	65.55	6.45	64.78	7.56	63.67	6.80	64.43
CEF-G82-3S	14	71.20	5.27	65.93	6.18	65.02	7.42	63.78	6.58	64.62
CEF-G82-4S	15	71.74	6.24	65.50	7.05	64.69	8.37	63.37	7.41	64.33
CEF-G82-5S	15	71.53	6.87	64.66	7.21	64.32	8.16	63.37	7.31	64.22
CEF-G82-6S	15	74.44	9.19	65.25	9.92	64.52	10.73	63.71	10.16	64.28

TABLE 1
GROUNDWATER ELEVATION AND MONITORING WELL CONSTRUCTION DATA
THIRD YEAR, FIRST SEMI-ANNUAL GROUNDWATER MONITORING REPORT
BUILDING 82, TANK G82
NAVAL AIR STATION CECIL FIELD, JACKSONVILLE, FLORIDA

Well Number	Total Depth of Well (feet btoc)	Top of Casing Elevation* (feet above msl)	October 21, 2009		April 19, 2010		October 26, 2010	
			Depth to Water (feet btoc)	Groundwater Elevation (feet above msl)	Depth to Water (feet btoc)	Groundwater Elevation (feet above msl)	Depth to Water (feet btoc)	Groundwater Elevation (feet above msl)
CEF-G82-1S	15	71.13	6.42	64.71	6.77	64.36	6.91	64.22
CEF-G82-2I	35	71.28	6.92	64.36	7.31	63.97	7.48	63.80
CEF-G82-2S	14	71.23	6.60	64.63	6.95	64.28	7.09	64.14
CEF-G82-3S	14	71.20	6.41	64.79	6.79	64.41	6.95	64.25
CEF-G82-4S	15	71.74	7.32	64.42	7.66	64.08	7.82	63.92
CEF-G82-5S	15	71.53	7.26	64.27	7.49	64.04	7.68	63.85
CEF-G82-6S	15	74.44	9.89	64.55	10.14	64.30	10.27	64.17

* CEF-G82-1S, 2I, and 6S tops of casing were resurveyed in February 2009; groundwater elevations shown are referenced to the new elevations.

msl = Mean sea level referenced to the North American Vertical Datum of 1988.

btoc = Below top of casing.

TABLE 2
SUMMARY OF OCTOBER/DECEMBER 2010 GROUNDWATER DATA
THIRD YEAR, FIRST SEMI-ANNUAL GROUNDWATER MONITORING REPORT
BUILDING 82, TANK G82
NAVAL AIR STATION CECIL FIELD, JACKSONVILLE, FLORIDA

Parameter	FDEP Criteria		CEF-G82-1S*		CEF-G82-2S	CEF-G82-2I	CEF-G82-3S*			CEF-G82-4S	CEF-G82-5S		CEF-G82-6S
	GCTL	NADC	10/27/2010	12/29/2010	10/27/2010	10/27/2010	Sample	Duplicate	12/29/2010	10/28/2010	10/28/2010	12/29/2010	10/28/2010
							10/27/2010						
VOCs (USEPA Method 8260B) (µg/L)													
Benzene	0	10	0.25 U	NA	**1.31 [G]**	0.25 U	0.25 U	0.25 U	NA	0.25 U	0.25 U	NA	0.25 U
Toluene	40	400	0.25 U	NA	0.25 U	0.25 U	0.25 U	0.25 U	NA	0.25 U	0.25 U	NA	0.25 U
Ethylbenzene	30	300	2.66	NA	25.10	0.25 U	0.25 U	0.25 U	NA	0.25 U	0.25 U	NA	0.25 U
Total Xylenes	20	200	1.31 J	NA	14.80	0.75 U	0.75 U	0.75 U	NA	0.75 U	0.75 U	NA	0.75 U
Isopropyl benzene	0.8	8	**1.62 [G]**	**3.52 [G]**	**9.66 [G] [N]**	0.25 U	0.25 U	0.25 U	0.150 U	0.25 U	**1.08 [G]**	0.792 J	0.25 U
1,2,4-Trimethylbenzene	10	100	3.20	NA	**28.3 [G]**	0.25 U	0.25 U	0.25 U	NA	0.25 U	0.25 U	NA	0.25 U
1,3,5-Trimethylbenzene	10	100	0.57	NA	6.86	0.25 U	0.25 U	0.25 U	NA	0.25 U	0.25 U	NA	0.25 U
PAHs (USEPA Method 8270C SIM) (µg/L)													
1-Methylnaphthalene	28	280	2.05	NA	**60.7 [G]**	0.0463 U	0.0463 U	0.0463 U	NA	0.269	5.35	NA	0.0463 U
2-Methylnaphthalene	28	280	4.21	NA	**86.4 [G]**	0.0463 U	0.0463 U	0.0463 U	NA	0.0463 U	4.93	NA	0.0463 U
Naphthalene	14	140	3.76	NA	**58.5 [G]**	0.0463 U	0.0463 U	0.0463 U	NA	0.0463 U	0.0463 U	NA	0.0463 U
Acenaphthene	20	200	0.235	NA	3.32	0.0463 U	0.0463 U	0.0463 U	NA	0.0931 J	0.447	NA	0.0463 U
Acenaphthylene	210	2100	0.0463 U	NA	0.231 U	0.0463 U	0.0463 U	0.0463 U	NA	0.0463 U	0.164 J	NA	0.0463 U
Benzo(a)pyrene	0.2	2	0.0463 U	NA	0.231 U	0.0463 U	0.0463 U	0.0463 U	NA	0.0463 U	0.0463 U	NA	0.0463 U
Benzo(a)anthracene	0.05	5	0.0463 U	NA	0.231 U	0.0463 U	0.0463 U	0.0463 U	NA	0.0463 U	0.0463 U	NA	0.0463 U
Dibenz(a,h)anthracene	0.005	0.05	0.0463 U	NA	0.231 U	0.0463 U	0.0463 U	0.0463 U	NA	0.0463 U	0.0463 U	NA	0.0463 U
Fluorene	280	2800	0.28	NA	4.95	0.0463 U	0.0463 U	0.0463 U	NA	0.0463 U	0.0463 U	NA	0.0463 U
Phenanthrene	210	2100	0.09	NA	3.20	0.0463 U	0.0463 U	0.0463 U	NA	0.0463 U	0.0463 U	NA	0.0463 U
TRPH (FL-PRO) (mg/L)													
TRPH	5	50	0.382 J	NA	3.76	0.157 U	0.157 U	0.157 U	NA	0.157 U	0.346 J	NA	0.157 U

*** In October 2010, samples from from CEF-G82-1S and 3S are assumed to have been mislabeled (IDs were reversed), as supporterd by December resampling results. Therefore, October 2010 results for these wells have been reversed here.**

[G] - GCTL = Groundwater Cleanup Target Level.
[N] - NADC = Natural Attenuation Default Concentration.
J - Estimated value.
U = Not detected at detection limit shown.
Shaded value indicates concentration greater than GCTL.
µg/L = Micrograms per liter.
mg/L = Milligrams per liter.

NS = Not sampled.
NA = Not analyzed.
VOCs - Volatile organic compounds.
PAHs - Polynuclear aromatic hydrocarbons.
TRPH - Total recoverable petroleum hydrocarbons.

TABLE 3
SUMMARY OF HISTORICAL GROUNDWATER DATA
THIRD YEAR, FIRST SEMI-ANNUAL GROUNDWATER MONITORING REPORT
NAVAL AIR STATION CECIL FIELD, JACKSONVILLE, FLORIDA

Parameter	FDEP Criteria		CEF-G82-1S**							
	GCTL	NADC	7/22/2008	10/21/2008	1/27/2009	4/28/2009	10/22/2009	4/20/2010	10/27/2010	12/29/2010
VOCs (USEPA Method 8260B) (µg/L)										
Benzene	1	10	0.23 U	1 U	0.4 U	0.40 U	0.12 U	0.21 U	0.25 U	NA
Toluene	40	400	0.28 U	1 U	0.35 U	0.35 U	0.14 U	0.20 U	0.25 U	NA
Ethylbenzene	30	300	0.34 U	0.42 J	5	1.0	2.0	2.90	2.66	NA
Total Xylenes	20	200	0.38 U	7	3	1.2 U	1.5	2.00 J	1.31 J	NA
Isopropyl benzene	0.8	8	0.23 U	0.29 J	**1.4 [G]**	0.77 J	**1.2 [G]**	**1.4 [G]**	**1.62 [G]**	**3.52 [G]**
1,2,4-Trimethylbenzene	10	100	0.38 U	0.31 J	**11 [G]**	2.7	4.3	7.40	3.20	NA
1,3,5-Trimethylbenzene	10	100	0.22 U	0.14 J	2	0.45 J	1.4	1.4 J	0.57	NA
PAHs (USEPA Method 8270C SIM) (µg/L)										
1-Methylnaphthalene	28	280	0.04 J	1.5	14.7	4.9	5.8	11.60	2.05	NA
2-Methylnaphthalene	28	280	0.13	1.2	23	5.4	7.1	16.90	4.21	NA
Naphthalene	14	140	1.2	0.8 J	39.9	10.8	4.6	9.80	3.76	NA
Acenaphthene	20	200	0.07 J	0.4	1.1	0.48 U	0.46 U	0.69 J	0.235	NA
Acenaphthylene	210	2100	0.01 U	0.028 U	0.48 U	0.48 U	0.018 U	0.48 U	0.0463 U	NA
Benzo(a)pyrene	0.2	2	0.01 U	0.028 U	0.048 U	0.048 U	0.018 U	0.048 U	0.0463 U	NA
Benzo(a)anthracene	0.05	5	0.01 U	0.028 U	0.048 U	0.048 U	0.018 U	0.048 U	0.0463 U	NA
Dibenz(a,h)anthracene	0.005	0.05	0.02 U	0.018 U	0.048 U	0.048 U	0.018 U	0.048 U	0.0463 U	NA
Fluorene	280	2800	0.08 J	0.38	1.5	0.48 U	0.46 U	0.90 J	0.28	NA
Phenanthrene	210	2100	0.02 U	0.1 U	0.53 J	0.24 U	0.083 U	0.39 J	0.09	NA
TRPH (FL-PRO) (mg/L)										
TRPH	5	50	0.042 U	0.460 U	0.752	0.163	0.260 J	0.384	0.382 J	NA
Miscellaneous Parameters (mg/L)										
Methane	NA	NA	0.098	0.5	2.85	0.953	1.8	NS	NS	NS
Sulfate	250	NA	7.3	3.1	5.4	6.2	3.5	NS	NS	NS
Sulfide	NA	NA	0.53 J	1.1	2.5	1.4	1.4	NS	NS	NS
Nitrate as N	10	NA	0.24 J	0.15 U	0.05 U	0.09 J	0.033 U	NS	NS	NS
Nitrite	1	NA	0.002 U	0.25 U	**1.6**	0.05 U	0.033 U	NS	NS	NS
Alkalinity	NA	NA	100	94.7	55*	75.7	78.2	NS	NS	NS
Dissolved oxygen	NA	NA	2	0.3	0.4	0.5	0.3	NS	NS	NS
Dissolved carbon dioxide	NA	NA	70	48	75	90	90	NS	NS	NS

TABLE 3
SUMMARY OF HISTORICAL GROUNDWATER DATA
THIRD YEAR, FIRST SEMI-ANNUAL GROUNDWATER MONITORING REPORT
NAVAL AIR STATION CECIL FIELD, JACKSONVILLE, FLORIDA

Parameter	FDEP Criteria		CEF-G82-2S								
	GCTL	NADC	7/22/2008	10/20/2008	1/27/2009	4/28/2009		10/22/2009		4/20/2010	10/27/2010
						Sample	Duplicate	Sample	Duplicate		
VOCs (USEPA Method 8260B) (µg/L)											
Benzene	1	10	0.69 I	1 U	0.4 U	2.2 [G]	2 [G]	0.97 J	1 [G]	1.4 [G]	1.31 [G]
Toluene	40	400	0.28 U	1 U	0.35 U	0.35 U	0.35 U	0.14 U	0.14 U	0.20 U	0.25 U
Ethylbenzene	30	300	15	11	18.1	26.4	23.6	25	25	26.20	25.10
Total Xylenes	20	200	18	6.6	6.9	19.6	13.5	24 [G]	25 [G]	15.10	14.80
Isopropyl benzene	0.8	8	4.8 [G]	6.3 [G]	7.3 [G]	7.8 [G]	6.5 [G]	9.6 [G] [N]	9.8 [G] [N]	7.1 [G]	9.66 [G} [N]
1,2,4-Trimethylbenzene	10	100	21 [G]	18 [G]	13.3 [G]	21.1 [G]	13.7 [G]	26 [G]	26 [G]	30.7 [G]	28.3 [G]
1,3,5-Trimethylbenzene	10	100	5.0	0.13 U	3.4	5.2	3.2	6.4	6.8	6.20	6.86
PAHs (USEPA Method 8270C SIM) (µg/L)											
1-Methylnaphthalene	28	280	44 [G]	120 [G]	82.6 [G]	58.6 [G]	41.5 [G]	100 [G]	100 [G]	63.1 [G]	60.7 [G]
2-Methylnaphthalene	28	280	66 [G]	140 [G]	97 [G]	65 [G]	60.3 [G]	130 [G]	130 [G]	73.7 [G]	86.4 [G]
Naphthalene	14	140	65 [G]	67 [G]	115 [G]	85.7 [G]	93.3 [G]	66 [G]	68 [G]	64.2 [G]	58.5 [G]
Acenaphthene	20	200	1.4	5.7	3.3	1.8	1.6	4.9	4.8	3.00	3.32
Acenaphthylene	210	2100	0.01 U	0.028 U	0.59 J	0.48 U	0.48 U	2.6	2.4	0.56 J	0.231 U
Benzo(a)pyrene	0.2	2	0.01 U	0.028 U	0.048 U	0.048 U	0.048 U	0.018 U	0.035 U	0.048 U	0.231 U
Benzo(a)anthracene	0.05	5	0.04 J	0.028 U	0.048 U	0.048 U	0.048 U	0.018 U	0.047 U	0.048 U	0.231 U
Dibenz(a,h)anthracene	0.005	0.05	0.02 U	0.018 U	0.048 U	0.048 U	0.048 U	0.018 U	0.031 J [G]	0.048 U	0.231 U
Fluorene	280	2800	1.6	8	4	3.4	2.9	7.4	6.9	4.80	4.95
Phenanthrene	210	2100	0.28	5.2	1.4	1.0	0.74	5.4	5.0	2.60	3.20
TRPH (FL-PRO) (mg/L)											
TRPH	5	50	0.926	2.3	2.21	1.37	1.82	2.7	3.3	2.340	3.76
Miscellaneous Parameters (mg/L)											
Methane	NA	NA	1.39	4.5	4.88	4.45	3.91	7.2	9.34	NS	NS
Sulfate	250	NA	3.8 J	2.3	1.4 J	1.6 J	2.1	0.33 U	0.33 U	NS	NS
Sulfide	NA	NA	0.85 J	1.4	2.5	1.6	1.8	1.9	1.93	NS	NS
Nitrate as N	10	NA	0.15 J	0.15 U	0.05 U	0.050 U	0.13	0.033 U	0.033 U	NS	NS
Nitrite	1	NA	0.002 U	0.300 U	2.6 [G]	0.050 U	0.050 U	0.033 U	0.033 U	NS	NS
Alkalinity	NA	NA	150	124	130*	165	167	138	140	NS	NS
Dissolved oxygen	NA	NA	2	0.3	0.7	0.4	N/S	0.2	NA	NS	NS
Dissolved carbon dioxide	NA	NA	30	60	85	75.0	N/S	80	NA	NS	NS

TABLE 3
SUMMARY OF HISTORICAL GROUNDWATER DATA
THIRD YEAR, FIRST SEMI-ANNUAL GROUNDWATER MONITORING REPORT
NAVAL AIR STATION CECIL FIELD, JACKSONVILLE, FLORIDA

Parameter	FDEP Criteria		CEF-G82-2I						
	GCTL	NADC	7/22/2008	10/20/2008	1/27/2009	4/28/2009	10/22/2009	4/20/2010	10/27/2010
VOCs (USEPA Method 8260B) (µg/L)									
Benzene	1	10	0.23 U	1 U	0.4 U	0.4 U	0.12 U	0.21 U	0.25 U
Toluene	40	400	0.28 U	1 U	0.35 U	0.35 U	0.14 U	0.20 U	0.25 U
Ethylbenzene	30	300	0.34 U	1 U	0.43 U	0.43 U	0.10 U	0.20 U	0.25 U
Total Xylenes	20	200	0.38 U	1 U	1.2 U	1.2 U	0.21 U	0.54 U	0.75 U
Isopropyl benzene	0.8	8	0.23 U	0.8 U	0.2 U	0.2 U	0.11 U	0.20 U	0.25 U
1,2,4-Trimethylbenzene	10	100	0.38 U	0.10 U	0.22 U	0.22 U	0.17 J	0.22 U	0.25 U
1,3,5-Trimethylbenzene	10	100	0.22 U	0.13 U	0.2 U	0.20 U	0.10 U	0.21 U	0.25 U
PAHs (USEPA Method 8270C SIM) (µg/L)									
1-Methylnaphthalene	28	280	0.01 U	0.046 U	0.24 U	0.24 U	0.46 U	0.24 U	0.0463 U
2-Methylnaphthalene	28	280	0.02 U	0.0085 U	0.24 U	0.24 U	0.46 U	0.24 U	0.0463 U
Naphthalene	14	140	0.04 I	1 U	1 U	1.0 U	0.46 U	0.24 U	0.0463 U
Acenaphthene	20	200	0.02 U	0.046 U	0.48 U	0.48 U	0.46 U	0.48 U	0.0463 U
Acenaphthylene	210	2100	0.01 U	0.028 U	0.48 U	0.48 U	0.018 U	0.48 U	0.0463 U
Benzo(a)pyrene	0.2	2	0.01 U	0.028 U	0.048 U	0.048 U	0.018 U	0.048 U	0.0463 U
Benzo(a)anthracene	0.05	5	0.01 U	0.028 U	0.048 U	0.048 U	0.018 U	0.048 U	0.0463 U
Dibenz(a,h)anthracene	0.005	0.05	0.02 U	0.018 U	0.048 U	0.048 U	0.018 U	0.048 U	0.0463 U
Fluorene	280	2800	0.01 U	0.046 U	0.48 U	0.48 U	0.46 U	0.48 U	0.0463 U
Phenanthrene	210	2100	0.02 U	0.012 U	0.24 U	0.24 U	0.027 U	0.24 U	0.0463 U
TRPH (FL-PRO) (mg/L)									
TRPH	5	50	0.042 U	0.46 U	0.16 U	0.16 U	0.157 U	0.16 U	0.157 U
Miscellaneous Parameters (mg/L)									
Methane	NA	NA	0.001	0.0024 U	0.002	0.00152	4.64 U	NS	NS
Sulfate	250	NA	8.4	18.1	10.1	8.4	8.9	NS	NS
Sulfide	NA	NA	0.53 J	2.1 U	0.970 J	0.60 U	1.8	NS	NS
Nitrate as N	10	NA	0.004 U	0.15 U	0.05 U	0.050 U	0.033 U	NS	NS
Nitrite	1	NA	0.002 U	0.300 U	0.49	0.050 U	0.033 U	NS	NS
Alkalinity	NA	NA	4.3 J	8.8	0*	2.8 J	4.1	NS	NS
Dissolved oxygen	NA	NA	0.9	0.1	0.7	0.7	0.3	NS	NS
Dissolved carbon dioxide	NA	NA	60	37	32	55	60	NS	NS

TABLE 3
SUMMARY OF HISTORICAL GROUNDWATER DATA
THIRD YEAR, FIRST SEMI-ANNUAL GROUNDWATER MONITORING REPORT
NAVAL AIR STATION CECIL FIELD, JACKSONVILLE, FLORIDA

Parameter	FDEP Criteria		CEF-G82-3S**									
	GCTL	NADC	7/22/2008		10/21/2008	1/27/2009	4/29/2009	10/22/2009	4/20/2010	10/27/2010		12/29/2010
			Sample	Duplicate						Sample	Duplicate	
VOCs (USEPA Method 8260B) (µg/L)												
Benzene	1	10	0.23 U	0.23 U	1 U	0.4 U	0.40 U	0.12 U	0.21 U	0.25 U	0.25 U	NA
Toluene	40	400	0.28 U	0.28 U	1 U	0.35 U	0.35 U	0.14 U	0.20 U	0.25 U	0.25 U	NA
Ethylbenzene	30	300	0.34 U	0.34 U	1 U	0.43 U	0.43 U	0.10 U	0.20 U	0.25 U	0.25 U	NA
Total Xylenes	20	200	0.38 U	0.38 U	1 U	1.2 U	1.2 U	0.21 U	0.54 U	0.75 U	0.75 U	NA
Isopropyl benzene	0.8	8	0.23 U	0.23 U	0.8 U	0.2 U	0.20 U	0.11 U	0.20 U	0.25 U	0.25 U	0.150 U
1,2,4-Trimethylbenzene	10	100	0.38 U	0.38 U	0.14 U	0.22 U	0.22 U	0.14 U	0.22 U	0.25 U	0.25 U	NA
1,3,5-Trimethylbenzene	10	100	0.22 U	0.22 U	0.10 U	0.2 U	0.20 U	0.10 U	0.21 U	0.25 U	0.25 U	NA
PAHs (USEPA Method 8270C SIM) (µg/L)												
1-Methylnaphthalene	28	280	0.04 J	0.01 U	0.0093 U	0.24 U	0.24 U	0.46 U	0.24 U	0.0463 U	0.0463 U	NA
2-Methylnaphthalene	28	280	0.05 J	0.02 U	0.014 U	0.24 U	0.24 U	0.46 U	0.24 U	0.0463 U	0.0463 U	NA
Naphthalene	14	140	0.90 J	0.35 U	1 U	1 U	1.0 U	0.46 U	0.24 U	0.0463 U	0.0463 U	NA
Acenaphthene	20	200	0.02 U	0.02 U	0.0097 U	0.48 U	0.48 U	0.46 U	0.48 U	0.0463 U	0.0463 U	NA
Acenaphthylene	210	2100	0.01 U	0.01 U	0.028 U	0.48 U	0.48 U	0.018 U	0.48 U	0.0463 U	0.0463 U	NA
Benzo(a)pyrene	0.2	2	0.01 U	0.01 U	0.0066 J	0.048 U	0.048 U	0.018 U	0.048 U	0.0463 U	0.0463 U	NA
Benzo(a)anthracene	0.05	5	0.01 U	0.01 U	0.018 U	0.048 U	0.048 U	0.018 U	0.048 U	0.0463 U	0.0463 U	NA
Dibenz(a,h)anthracene	0.005	0.05	0.02 U	0.02 U	**0.0056 J [G]**	0.048 U	0.048 U	0.018 U	0.048 U	0.0463 U	0.0463 U	NA
Fluorene	280	2800	0.01 U	0.01 U	0.014 U	0.48 U	0.24 U	0.46 U	0.48 U	0.0463 U	0.0463 U	NA
Phenanthrene	210	2100	0.02 U	0.02 U	0.035 U	0.24 U	0.24 U	0.026 U	0.24 U	0.0463 U	0.0463 U	NA
TRPH (FL-PRO) (mg/L)												
TRPH	5	50	0.042 U	0.042 U	0.46 U	0.16 U	0.16 U	0.157 U	0.16 U	0.157 U	0.157 U	NA
Miscellaneous Parameters (mg/L)												
Methane	NA	NA	0.004	0.001	0.00096 U	0.0005	0.00094	1.0 U	NS	NS	NS	NS
Sulfate	250	NA	21	22	17.7	22.8	20.3	19.7	NS	NS	NS	NS
Sulfide	NA	NA	0.45 U	0.45 U	2.1 U	0.6 U	0.6 U	0.678 U	NS	NS	NS	NS
Nitrate as N	10	NA	1.3	1.7	0.61	1.4	1.0	1.3	NS	NS	NS	NS
Nitrite	1	NA	0.002 U	0.002 U	0.25 U	**1.7 [G]**	0.050 U	0.330 U	NS	NS	NS	NS
Alkalinity	NA	NA	130	120	102	50*	104	62.8	NS	NS	NS	NS
Dissolved oxygen	NA	NA	1.5	1.5	0.3	0.7	1.5	0.2	NS	NS	NS	NS
Dissolved carbon dioxide	NA	NA	80	80	60	70	90	70	NS	NS	NS	NS

TABLE 3
SUMMARY OF HISTORICAL GROUNDWATER DATA
THIRD YEAR, FIRST SEMI-ANNUAL GROUNDWATER MONITORING REPORT
NAVAL AIR STATION CECIL FIELD, JACKSONVILLE, FLORIDA

Parameter	FDEP Criteria		CEF-G82-4S								CEF-G82-5S							
	GCTL	NADC	7/22/2008	10/21/2008	1/28/2009	4/29/2009	4/29/2009	10/23/2009	4/21/2010	10/28/2010	7/22/2008	10/21/2008	1/27/2009	4/29/2009	10/23/2009	4/21/2010	10/28/2010	12/29/2010
VOCs (USEPA Method 8260B) (µg/L)																		
Benzene	1	10	0.23 U	1 U	0.4 U	0.40 U	0.40 U	0.12 U	0.21 U	0.25 U	0.23 U	1 U	0.4 U	0.4 U	0.13 J	0.21 U	0.25 U	NA
Toluene	40	400	0.28 U	1 U	0.35 U	0.35 U	0.35 U	0.14 U	0.20 U	0.25 U	0.28 U	1 U	0.35 U	0.35 U	0.14 U	0.20 U	0.25 U	NA
Ethylbenzene	30	300	0.34 U	1 U	0.43 U	0.43 U	0.43 U	0.10 U	0.20 U	0.25 U	0.34 U	1 U	0.43 U	0.43 U	0.14 J	0.20 U	0.25 U	NA
Total Xylenes	20	200	0.38 U	1 U	1.2 U	1.2 U	1.2 U	0.21 U	0.54 U	0.75 U	0.38 U	1 U	1.2 U	1.2 U	0.21 U	0.54 U	0.75 U	NA
Isopropyl benzene	0.8	8	0.23 U	0.8 U	0.2 U	0.20 U	0.20 U	0.11 U	0.20 U	0.25 U	0.23 U	0.19 J	0.25 J	0.2 U	0.44 J	0.20 U	**1.08 [G]**	**0.792 J**
1,2,4-Trimethylbenzene	10	100	0.38 U	0.14 U	0.22 U	0.22 U	0.22 U	0.14 U	0.22 U	0.25 U	0.38 U	0.14 U	0.22 U	0.22 U	0.14 U	0.22 U	0.25 U	NA
1,3,5-Trimethylbenzene	10	100	0.22 U	0.10 U	0.2 U	0.20 U	0.20 U	0.10 U	0.21 U	0.25 U	0.22 U	0.10 U	0.2 U	0.2 U	0.10 U	0.21 U	0.25 U	NA
PAHs (USEPA Method 8270C SIM) (µg/L)																		
1-Methylnaphthalene	28	280	0.67	0.65	0.32 J	0.46 J	0.46 J	0.71 J	0.31 J	0.269	2.8	8.5	3.7	3.4	5.2	4.70	5.35	NA
2-Methylnaphthalene	28	280	0.04 J	0.046 U	0.24 U	0.24 U	0.24 U	0.46 U	0.24 U	0.0463 U	3.4	5.7	2.7	2.3	2.9	3.40	4.93	NA
Naphthalene	14	140	0.87 J	0.33 U	1 U	1.0 U	1.0 U	0.46 U	0.24 U	0.0463 U	0.35 U	2.1	7.8	7.8	0.46 U	0.40 J	0.0463 U	NA
Acenaphthene	20	200	0.28	0.18	0.48 U	0.48 U	0.48 U	0.46 U	0.48 U	0.0931 J	0.28	0.6	0.48 U	0.24 U	0.46 U	0.48 U	0.447	NA
Acenaphthylene	210	2100	0.1 U	0.028 U	0.48 U	0.48 U	0.48 U	0.018 U	0.48 U	0.0463 U	0.06 J	0.028 U	0.48 U	0.24 U	0.12 U	0.48 U	0.164 J	NA
Benzo(a)pyrene	0.2	2	0.01 U	0.028 U	0.048 U	0.048 U	0.048 U	0.018 U	0.048 U	0.0463 U	0.01 U	0.0078 J	0.048 U	0.048 U	0.018 U	0.048 U	0.0463 U	NA
Benzo(a)anthracene	0.05	5	0.01 U	0.028 U	0.048 U	0.048 U	0.048 U	0.018 U	0.048 U	0.0463 U	0.01 U	0.027 U	0.048 U	0.048 U	0.018 U	0.048 U	0.0463 U	NA
Dibenz(a,h)anthracene	0.005	0.05	0.02 U	0.018 U	0.048 U	0.048 U	0.048 U	0.018 U	0.048 U	0.0463 U	0.02 U	0.018 U	0.048 U	0.048 U	0.018 U	0.048 U	0.0463 U	NA
Fluorene	280	2800	0.30	0.17	0.48 U	0.48 U	0.48 U	0.46 U	0.48 U	0.0463 U	0.11	0.24	3.8	0.48 U	0.46 U	0.48 U	0.0463 U	NA
Phenanthrene	210	2100	0.02 U	0.18	0.24 U	0.24 U	0.24 U	0.032 U	0.24 U	0.0463 U	0.02 U	0.037 U	0.24 U	0.24 U	0.018 U	0.24 U	0.0463 U	NA
TRPH (FL-PRO) (mg/L)																		
TRPH	5	50	0.094 J	0.46 U	0.16 U	0.16 U	0.16 U	0.157 U	0.16 U	0.157 U	0.125 J	0.46 U	228 J	0.17 J	0.216 J	0.232 J	0.346 J	NA
Miscellaneous Parameters (mg/L)																		
Methane	NA	NA	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Sulfate	250	NA	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Sulfide	NA	NA	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Nitrate as N	10	NA	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Nitrite	1	NA	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Alkalinity	NA	NA	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Dissolved oxygen	NA	NA	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Dissolved carbon dioxide	NA	NA	NS	NA	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

TABLE 3
SUMMARY OF HISTORICAL GROUNDWATER DATA
THIRD YEAR, FIRST SEMI-ANNUAL GROUNDWATER MONITORING REPORT
NAVAL AIR STATION CECIL FIELD, JACKSONVILLE, FLORIDA

Parameter	FDEP Criteria		CEF-G82-6S								
	GCTL	NADC	7/28/2008	10/21/2008		1/28/2009		4/29/2009	10/23/2009	4/21/2010	10/28/2010
				Sample	Duplicate	Sample	Duplicate				
VOCs (USEPA Method 8260B) (µg/L)											
Benzene	1	10	0.23 U	1 U	1 U	0.4 U	0.4 U	0.4 U	0.12 U	0.21 U	0.25 U
Toluene	40	400	0.28 U	1 U	1 U	0.35 U	0.35 U	0.35 U	0.14 U	0.20 U	0.25 U
Ethylbenzene	30	300	0.34 U	1 U	1 U	0.43 U	0.43 U	0.43 U	0.10 U	0.20 U	0.25 U
Total Xylenes	20	200	0.38 U	1 U	1 U	1.2 U	1.2 U	1.2 U	0.21 U	0.54 U	0.75 U
Isopropyl benzene	0.8	8	0.23 U	0.8 U	0.8 U	0.2 U	0.2 U	0.2 U	0.11 U	0.20 U	0.25 U
1,2,4-Trimethylbenzene	10	100	0.38 U	0.14 U	0.14 U	0.22 U	0.22 U	0.22 U	0.14 U	0.22 U	0.25 U
1,3,5-Trimethylbenzene	10	100	0.22 U	0.10 U	0.10 U	0.2 U	0.2 U	0.2 U	0.10 U	0.21 U	0.25 U
PAHs (USEPA Method 8270C SIM) (µg/L)											
1-Methylnaphthalene	28	280	0.01 U	0.031 U	0.013 U	0.24 U	0.24 U	0.24 U	0.46 U	0.24 U	0.0463 U
2-Methylnaphthalene	28	280	0.02 U	0.043 U	0.016 U	0.24 U	0.24 U	0.24 U	0.46 U	0.24 U	0.0463 U
Naphthalene	14	140	0.35 U	1 U	1 U	1 U	1 U	1 U	0.46 U	0.24 U	0.0463 U
Acenaphthene	20	200	0.02 U	0.012 U	0.02 U	0.48 U	0.48 U	0.24 U	0.46 U	0.48 U	0.0463 U
Acenaphthylene	210	2100	0.01 U	0.028 U	0.013 J	0.48 U	0.48 U	0.24 U	0.026 U	0.48 U	0.0463 U
Benzo(a)pyrene	0.2	2	0.01 U	0.028 U	0.022 J	0.048 U	0.048 U	0.048 U	0.018 U	0.048 U	0.0463 U
Benzo(a)anthracene	0.05	5	0.01U	0.014 U	0.043 U	0.048 U	0.048 U	0.048 U	0.018 U	0.048 U	0.0463 U
Dibenz(a,h)anthracene	0.005	0.05	0.02 U	0.018 U	0.018 U	0.048 U	0.048 U	0.048 U	0.018 U	0.048 U	0.0463 U
Fluorene	280	2800	0.01 U	0.018 U	0.025 U	0.48 U	0.48 U	0.48 U	0.46 U	0.48 U	0.0463 U
Phenanthrene	210	2100	0.06 J	0.032 U	0.046 U	0.24 U	0.24 U	0.24 U	0.056 U	0.24 U	0.0463 U
TRPH (FL-PRO) (mg/L)											
TRPH	5	50	0.035 U	0.46 U	0.46 U	0.16 U	0.16 U	0.16 U	0.157 U	0.16 U	0.157 U
Miscellaneous Parameters (mg/L)											
Methane	NA	NA	NS	NS	NS	NS	NS	NS	NS	NS	NS
Sulfate	250	NA	NS	NS	NS	NS	NS	NS	NS	NS	NS
Sulfide	NA	NA	NS	NS	NS	NS	NS	NS	NS	NS	NS
Nitrate as N	10	NA	NS	NS	NS	NS	NS	NS	NS	NS	NS
Nitrite	1	NA	NS	NS	NS	NS	NS	NS	NS	NS	NS
Alkalinity	NA	NA	NS	NS	NS	NS	NS	NS	NS	NS	NS
Dissolved oxygen	NA	NA	NS	NS	NS	NS	NS	NS	NS	NS	NS
Dissolved carbon dioxide	NA	NA	NS	NS	NS	NS	NS	NS	NS	NS	NS

* Due to laboratory error, the alkalinity could not be laboratory analyzed; therefore, these readings are field-based results.

** In October 2010, samples from from CEF-G82-1S and 3S are assumed to have been mislabeled (IDs were reversed), as supporterd by December resampling results. Therefore, October 2010 results for these wells have been reversed here.

GCTL = Groundwater Cleanup Target Level.

NADC = Natural Attenuation Default Concentration

J - Estimated value.

U = Not detected at detection limit shown.

Shaded value indcates concentration greater than GCTL.

µg/L = Micrograms per liter.

mg/L = Milligrams per liter.

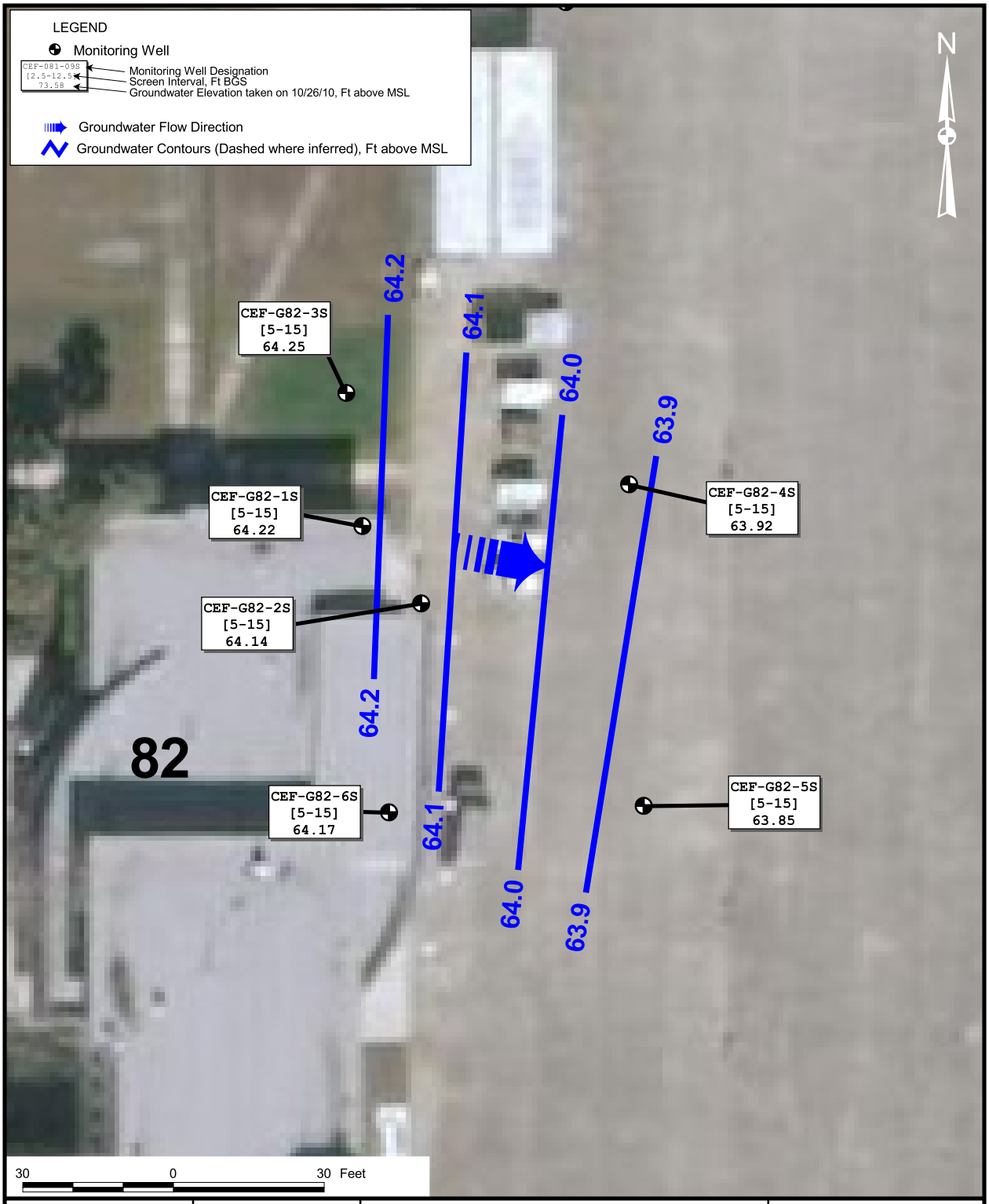
NS = Not sampled.

NA = Not available.

FIGURES

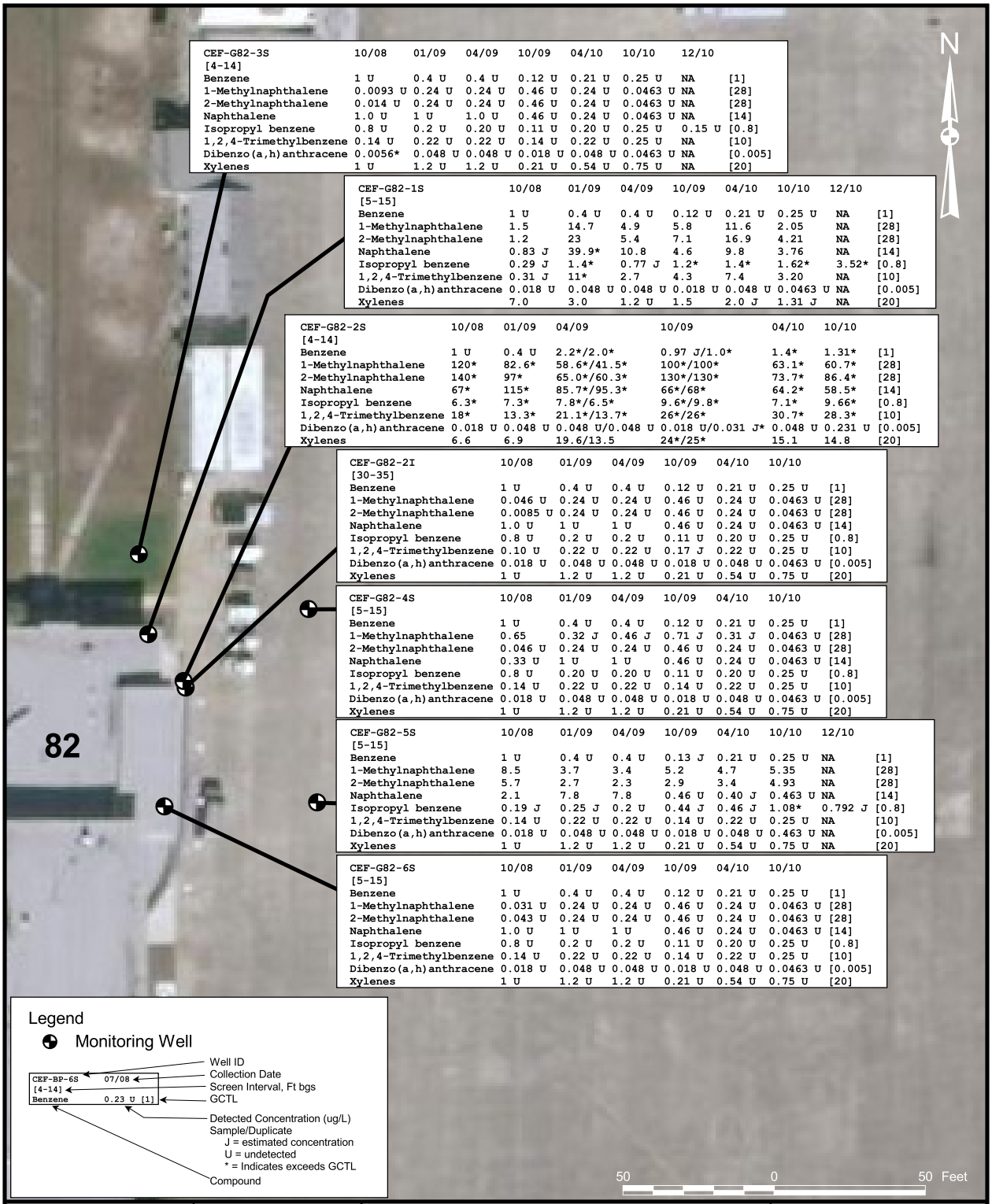
DRAWN BY MJJ	DATE 29Dec09	MONTORING WELL LOCATION MAP 1ST SEMI ANNUAL, 3RD YEAR GROUNDWATER BUILDING 82, TANK G82 NAVAL AIR STATION CECIL FIELD JACKSONVILLE, FLORIDA	CONTRACT NUMBER 2267
CHECKED BY	DATE		APPROVED BY DATE
COST/SCHEDULE-AREA			APPROVED BY DATE
SCALE AS NOTED			DRAWING NO. FIGURE 1 / REV 0

:\GIS\NAS_CecilField\bp-g82_20101012.apr 22Jan11 MJJ Layout03



DRAWN BY MJJ	DATE 29Dec09	GROUNDWATER FLOW MAP 1ST SEMI ANNUAL, 3RD YEAR GROUNDWATER BUILDING 82, TANK G82 NAVAL AIR STATION CECIL FIELD JACKSONVILLE, FLORIDA	CONTRACT NUMBER 2267
CHECKED BY	DATE		APPROVED BY / DATE
COST/SCHEDULE-AREA			APPROVED BY / DATE
SCALE AS NOTED			DRAWING NO. FIGURE 2 / REV 0

:\GIS\NAS_CecilField\bp-g82_20101012.apr 22Jan11 MJJ Layout07



CEF-G82-3S [4-14]	10/08	01/09	04/09	10/09	04/10	10/10	12/10	
Benzene	1 U	0.4 U	0.4 U	0.12 U	0.21 U	0.25 U	NA	[1]
1-Methylnaphthalene	0.0093 U	0.24 U	0.24 U	0.46 U	0.24 U	0.0463 U	NA	[28]
2-Methylnaphthalene	0.014 U	0.24 U	0.24 U	0.46 U	0.24 U	0.0463 U	NA	[28]
Naphthalene	1.0 U	1 U	1.0 U	0.46 U	0.24 U	0.0463 U	NA	[14]
Isopropyl benzene	0.8 U	0.2 U	0.20 U	0.11 U	0.20 U	0.25 U	0.15 U	[0.8]
1,2,4-Trimethylbenzene	0.14 U	0.22 U	0.22 U	0.14 U	0.22 U	0.25 U	NA	[10]
Dibenzo(a,h)anthracene	0.0056*	0.048 U	0.048 U	0.018 U	0.048 U	0.0463 U	NA	[0.005]
Xylenes	1 U	1.2 U	1.2 U	0.21 U	0.54 U	0.75 U	NA	[20]

CEF-G82-1S [5-15]	10/08	01/09	04/09	10/09	04/10	10/10	12/10	
Benzene	1 U	0.4 U	0.4 U	0.12 U	0.21 U	0.25 U	NA	[1]
1-Methylnaphthalene	1.5	14.7	4.9	5.8	11.6	2.05	NA	[28]
2-Methylnaphthalene	1.2	23	5.4	7.1	16.9	4.21	NA	[28]
Naphthalene	0.83 J	39.9*	10.8	4.6	9.8	3.76	NA	[14]
Isopropyl benzene	0.29 J	1.4*	0.77 J	1.2*	1.4*	1.62*	3.52*	[0.8]
1,2,4-Trimethylbenzene	0.31 J	11*	2.7	4.3	7.4	3.20	NA	[10]
Dibenzo(a,h)anthracene	0.018 U	0.048 U	0.048 U	0.018 U	0.048 U	0.0463 U	NA	[0.005]
Xylenes	7.0	3.0	1.2 U	1.5	2.0 J	1.31 J	NA	[20]

CEF-G82-2S [4-14]	10/08	01/09	04/09	10/09	04/10	10/10	
Benzene	1 U	0.4 U	2.2*/2.0*	0.97 J/1.0*	1.4*	1.31*	[1]
1-Methylnaphthalene	120*	82.6*	58.6*/41.5*	100*/100*	63.1*	60.7*	[28]
2-Methylnaphthalene	140*	97*	65.0*/60.3*	130*/130*	73.7*	86.4*	[28]
Naphthalene	67*	115*	85.7*/95.3*	66*/68*	64.2*	58.5*	[14]
Isopropyl benzene	6.3*	7.3*	7.8*/6.5*	9.6*/9.8*	7.1*	9.66*	[0.8]
1,2,4-Trimethylbenzene	18*	13.3*	21.1*/13.7*	26*/26*	30.7*	28.3*	[10]
Dibenzo(a,h)anthracene	0.018 U	0.048 U	0.048 U/0.048 U	0.018 U/0.031 J*	0.048 U	0.231 U	[0.005]
Xylenes	6.6	6.9	19.6/13.5	24*/25*	15.1	14.8	[20]

CEF-G82-2I [30-35]	10/08	01/09	04/09	10/09	04/10	10/10	
Benzene	1 U	0.4 U	0.4 U	0.12 U	0.21 U	0.25 U	[1]
1-Methylnaphthalene	0.046 U	0.24 U	0.24 U	0.46 U	0.24 U	0.0463 U	[28]
2-Methylnaphthalene	0.0085 U	0.24 U	0.24 U	0.46 U	0.24 U	0.0463 U	[28]
Naphthalene	1.0 U	1 U	1 U	0.46 U	0.24 U	0.0463 U	[14]
Isopropyl benzene	0.8 U	0.2 U	0.2 U	0.11 U	0.20 U	0.25 U	[0.8]
1,2,4-Trimethylbenzene	0.10 U	0.22 U	0.22 U	0.17 J	0.22 U	0.25 U	[10]
Dibenzo(a,h)anthracene	0.018 U	0.048 U	0.048 U	0.018 U	0.048 U	0.0463 U	[0.005]
Xylenes	1 U	1.2 U	1.2 U	0.21 U	0.54 U	0.75 U	[20]

CEF-G82-4S [5-15]	10/08	01/09	04/09	10/09	04/10	10/10	
Benzene	1 U	0.4 U	0.4 U	0.12 U	0.21 U	0.25 U	[1]
1-Methylnaphthalene	0.65	0.32 J	0.46 J	0.71 J	0.31 J	0.0463 U	[28]
2-Methylnaphthalene	0.046 U	0.24 U	0.24 U	0.46 U	0.24 U	0.0463 U	[28]
Naphthalene	0.33 U	1 U	1 U	0.46 U	0.24 U	0.0463 U	[14]
Isopropyl benzene	0.8 U	0.20 U	0.20 U	0.11 U	0.20 U	0.25 U	[0.8]
1,2,4-Trimethylbenzene	0.14 U	0.22 U	0.22 U	0.14 U	0.22 U	0.25 U	[10]
Dibenzo(a,h)anthracene	0.018 U	0.048 U	0.048 U	0.018 U	0.048 U	0.0463 U	[0.005]
Xylenes	1 U	1.2 U	1.2 U	0.21 U	0.54 U	0.75 U	[20]

CEF-G82-5S [5-15]	10/08	01/09	04/09	10/09	04/10	10/10	12/10	
Benzene	1 U	0.4 U	0.4 U	0.13 J	0.21 U	0.25 U	NA	[1]
1-Methylnaphthalene	8.5	3.7	3.4	5.2	4.7	5.35	NA	[28]
2-Methylnaphthalene	5.7	2.7	2.3	2.9	3.4	4.93	NA	[28]
Naphthalene	2.1	7.8	7.8	0.46 U	0.40 J	0.463 U	NA	[14]
Isopropyl benzene	0.19 J	0.25 J	0.2 U	0.44 J	0.46 J	1.08*	0.792 J	[0.8]
1,2,4-Trimethylbenzene	0.14 U	0.22 U	0.22 U	0.14 U	0.22 U	0.25 U	NA	[10]
Dibenzo(a,h)anthracene	0.018 U	0.048 U	0.048 U	0.018 U	0.048 U	0.463 U	NA	[0.005]
Xylenes	1 U	1.2 U	1.2 U	0.21 U	0.54 U	0.75 U	NA	[20]

CEF-G82-6S [5-15]	10/08	01/09	04/09	10/09	04/10	10/10	
Benzene	1 U	0.4 U	0.4 U	0.12 U	0.21 U	0.25 U	[1]
1-Methylnaphthalene	0.031 U	0.24 U	0.24 U	0.46 U	0.24 U	0.0463 U	[28]
2-Methylnaphthalene	0.043 U	0.24 U	0.24 U	0.46 U	0.24 U	0.0463 U	[28]
Naphthalene	1.0 U	1 U	1 U	0.46 U	0.24 U	0.0463 U	[14]
Isopropyl benzene	0.8 U	0.2 U	0.2 U	0.11 U	0.20 U	0.25 U	[0.8]
1,2,4-Trimethylbenzene	0.14 U	0.22 U	0.22 U	0.14 U	0.22 U	0.25 U	[10]
Dibenzo(a,h)anthracene	0.018 U	0.048 U	0.048 U	0.018 U	0.048 U	0.0463 U	[0.005]
Xylenes	1 U	1.2 U	1.2 U	0.21 U	0.54 U	0.75 U	[20]

Legend

Monitoring Well

CEF-BP-6S 07/08
[4-14]
Benzene 0.23 U [1]

- Well ID
- Collection Date
- Screen Interval, Ft bgs
- GCTL
- Detected Concentration (ug/L)
- Sample/Duplicate
  - J = estimated concentration
  - U = undetected
  - * = Indicates exceeds GCTL
- Compound

DRAWN BY	DATE		CONTRACT NUMBER
MJJ	29Dec09	ANALYTICAL RESULTS	2267
CHECKED BY	DATE	1ST SEMI ANNUAL, 3RD YEAR GROUNDWATER	APPROVED BY DATE
COST/SCHEDULE-AREA		BUILDING 82, TANK G82	APPROVED BY DATE
SCALE		NAVAL AIR STATION CECIL FIELD	DRAWING NO. FIGURE 3 / REV 0
AS NOTED		JACKSONVILLE, FLORIDA	

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ATTACHMENT A

SELECT WORKSHEETS FROM
THE UFP-SAP FOR PETROLEUM SITES
MAY 2010

SAP Worksheet #11 -- Project Quality Objectives/Systematic Planning Process Statements

(UFP-QAPP Manual Section 2.6.1)

11B BUILDING 82, TANK G82

11B.1 PROBLEM DEFINITION

Contaminant concentrations in source area well CEF-G82-2S exceed GCTLs. Soil contamination that exceeds leachability SCTLs remains at this site. Approximately 49 yd^3 of impacted soil was not accessible for removal due to proximity to Building 82 and is now capped with a concrete handicap ramp, thus groundwater is the medium of concern. Natural attenuation is the selected remedy for groundwater at the site, so groundwater monitoring is required to determine whether natural attenuation is occurring at the site or a different remedy should be considered.

11B.2 INFORMATION INPUTS

Requirements for groundwater sampling and analysis methods are described below. Additional detail (e.g., the exact methods and SOPs to be used) is provided in Worksheet #s 15, 19, and 21.

Required Analyses

COC	USEPA Method	GCTL (µg/L)	NADC (µg/L)
Benzene	8260	1.0	100
1-Methylnaphthalene	8270	28	280
2-Methylnaphthalene	8270	28	280
Isopropyl benzene (LOQ = 1.0 µg/L)	8260	0.8	8
Naphthalene	8270	14	140
1,2,4-TMB	8260	10	100
TRPH	FDEP FLPRO	5000	50000

Analytical Methods

Analytical methods were selected to be the same as those used previously or at least comparable to previously used analytical methods with respect to PARCCS parameters. See Worksheets Nos. 20 and 23 for a list of the analytical methods applicable to each site.

Sampling Methods

Sampling methods were selected to be the same as those used previously or to at least be consistent with the representativeness and comparability of data for each media being sampled at each site. See Worksheet No. 21 for a list of sampling methods.

Action Levels

A full list of PALs is included within Worksheet 15. The BCT has ensured that the selected laboratory LOQs are generally low enough to measure constituent concentrations in site media that are less than the PALs in order to conduct comparisons of site data to the PALs. Results of a magnitude between the LOQ and MDL will be "J" flagged to indicate than the reported results are less precise than results that are greater than the LOQ. The BCT will accept these analytic results as usable (without additional qualification) unless quality evaluations indicate that the data quality has been compromised. If, for any analyte in any site medium, the PAL is less than the laboratory MDL, the BCT accepts the laboratory LOQ as the PAL for decision making purposes, as is suggested in "Guidance for the Selection of Analytical Methods for the Evaluation of Practical Quantitation Limits" (FDEP, 2004).

The groundwater COC concentrations for individual samples and temporal concentration trends for individual wells (using new and previously collected data) will be compared with the FDEP GCTLs listed PALs in WS #15 to determine whether natural attenuation has caused COC concentrations to attain, or will lead to attainment, of the GCTLs within two consecutive sampling rounds.

11B.3 STUDY BOUNDARIES

The Building 82, Tank G82 area covers approximately 100 ft by 75 ft, or 7,500 ft^2. This is delineated from the northwest corner to the southeast corner by CEF-G82-3S and CEF-G82-5S, respectively, as shown on Figure 10B-1. The vertical boundary for the groundwater plume is from the 5 ft to no deeper than 15 ft below ground surface (bgs). The contaminated groundwater plume is the population of interest and constitutes the spatial decision unit. The temporal decision unit is each round of monitoring when determined whether an exceedance of GCTL has occurred and it is two consecutive monitoring rounds when determining whether parameters or wells may be eliminated from monitoring.

11B.4 ANALYTIC APPROACH

A direct comparison of measured concentrations within the groundwater will be made against the appropriate PAL. PALs are detailed for each COC in Worksheet No. 15. Additionally, if none of the measured COC concentrations within any groundwater sample exceed criteria after two consecutive

rounds of monitoring, then the monitoring program will be discontinued after coordination with the BCT. The following decision rules govern data use for the monitoring programs at Building 82, Tank 82.

Decision Rule #1: If any measured concentration of any COC from any sample is greater than or equal to the GCTL in non-compliance/source wells, then continue long-term monitoring until levels of COCs in a particular well are less than the GCTL for two consecutive sampling rounds.

Decision Rule #2: If any sample taken from a compliance well has a measured COC concentration that is greater than or equal to the GCTL, then conduct additional delineation of groundwater contamination. An FTMR would be issued to govern the delineation.

Decision Rule #3: If any measured COC concentration is greater than or equal to the GCTL in any sample but no migration is detected outside of the compliance wells for two consecutive semi-annual events, then a permanent groundwater restriction will be evaluated for RMO III (62-780.680, F.A.C). This will indicate that contamination exists and the contaminated area is defined. RMO III will put a restriction on the use of the groundwater, but allow it to remain onsite.

Decision Rule #4: If all measured concentrations of COCs in all groundwater samples are less than action levels for two consecutive quarters in all wells at the site, then recommend NFA.

Decision Rule #5: Throughout the groundwater monitoring, if any particular measured COC concentration is less than its GCTL for two consecutive sampling rounds or all measured COC concentrations in any particular well are less than GCTLs for at least two consecutive sampling rounds, then the BCT will discuss the elimination of the well or COC from the monitoring program, in accordance with the Navy guidance on groundwater monitoring well optimization. The well (or COC) will be eliminated unless the well is a compliance well, or the BCT determines that the inclusion of the well (or COC) provides useful information on evaluating the overall program and should not be removed.

11B.5 PERFORMANCE CRITERIA

Refer to Section 11A.5.

Attachment A - The following was extracted from the UFP SAP for Petroleum Sites – North-South Apron; Building G82, Tank G82; BP Wells; and 815 Wash Rack for information purposes and is not the complete approved document.

11B.6 PLAN FOR OBTAINING DATA

The plan for obtaining data at Building 82, Tank G82 is described in detail on Worksheet #17 along with the sampling designs and rationales.

Attachment A - The following was extracted from the UFP SAP for Petroleum Sites – North-South Apron; Building G82, Tank G82; BP Wells; and 815 Wash Rack for information purposes and is not the complete approved document.

SAP Worksheet #14 -- Summary of Project Tasks

(UFP-QAPP Manual Section 2.8.1)

Long-term monitoring at the petroleum sites includes the following tasks:

- Mobilization/Demobilization
- Site-Specific Health and Safety Training
- Monitoring Equipment Calibration
- Groundwater Sampling
- Water Level Measurements
- Investigation-Derived Waste (IDW) Management
- Field Decontamination Procedures

Mobilization/Demobilization

Mobilization shall consist of the delivery of all equipment, materials, and supplies to the site; the complete assembly in satisfactory working order of all such equipment at the site; and the satisfactory storage of all such materials and supplies at the site. Tetra Tech will coordinate with the Base to identify locations for the storage of equipment and supplies. Site-specific Health and Safety Training to all Tetra Tech subcontractors will be provided as part of the site mobilization.

Demobilization shall consist of the prompt and timely removal of all equipment, materials, and supplies from the site following completion of the work. Demobilization includes the cleanup and removal of IDW generated during the conduct of the investigation.

Site-Specific Health and Safety Training

Site-specific health and safety training to all Tetra Tech field staff and subcontractors will be provided as part of the site mobilization and is also addressed in Worksheet #8. A photoionization detector (PID) will be used as field instrumentation for health and safety reasons.

Monitoring Equipment Calibration

These procedures are described in Worksheet #22.

Water Level Measurements

One synoptic round of water-level measurements will be conducted at the site as part of each groundwater sampling event to provide information regarding groundwater flow patterns and gradients. Water-level measurements will be completed within the shortest time possible on the same day, and no sooner than 24 hours after a significant precipitation event to minimize the precipitation effects on the data sets. Water level measurements will be recorded to the nearest 0.01 foot and referenced to a top of casing notch or, if a notch is absent, to the north side of the top of the well casing. The measurement instrument will be decontaminated prior to conducting the measurement event and between each monitoring well.

Groundwater Sampling

Groundwater samples will be collected using low-flow purging techniques (discharge rate of less than 1 liter per minute) with a peristaltic pump using Teflon™ tubing dedicated to each well. When a well is developed for sampling, a water quality meter will be used to monitor pH, ORP, dissolved oxygen, turbidity, and conductivity. All groundwater samples will be collected using the procedures specified in FS 2200, Groundwater Sampling. Worksheet #s 17 and 18 specify the groundwater sample locations and analytes for this investigation Worksheet #23 specifies the analytical methods to be used.

Prior to groundwater sample collection, the monitoring wells will be purged. Both purging and sampling operations will be conducted at a flow rate that results in a groundwater turbidity measurement of 20 Nephelometric turbidity units (NTUs) or less (inherent turbidity will be minimized to the greatest extent possible using low flow techniques; individual well conditions and local geology may preclude meeting the 20 NTU criteria).

The sample aliquot for VOC analysis will be collected last by slowly pulling the Teflon™ tubing out of the well to minimize agitation of the water in the monitoring well and then transferring the contents of the tubing to a VOC vial. After collection, the samples will be placed in a cooler, chilled with ice, and shipped under chain of custody protocol to the off-site laboratory for analysis.

IDW Management

IDW generated during the activities will be managed in accordance with the NAS Cecil Field IDW Plan and will be conducted in an environmentally responsible manner consistent with NAS Cecil Field requirements (e.g. designation of staging areas). The objectives of the IDW management are:

- Management of IDW in a manner that prevents contamination of uncontaminated areas (by IDW) and that is protective of human health and the environment.

- Minimization of IDW, thereby reducing costs and the potential for human or ecological exposure to contaminated materials.

- Compliance with federal and state requirements that are Applicable or Relevant and Appropriate Requirements.

- Used personal protective equipment, such as gloves, will be bagged and disposed of as regular trash in an appropriate facility waste container.

Field Decontamination Procedure

Decontamination of major equipment and sampling equipment will be in general accordance with FDEP SOP FC 1000, Cleaning / Decontamination Procedures.

Field Documentation Procedures

Pre-preserved, certified-clean bottleware will be supplied by the subcontracted laboratory. Matrix-specific sample logsheets will be maintained for each sample collected. In addition, sample collection information will be recorded in bound field notebooks or specific field forms. Samples will be packaged and shipped according to FDEP SOP FS 1000, General Sampling Procedures.

Field documentation will be performed in accordance with Tetra Tech SOP SA-6.3. A summary of all field activities will be properly recorded in a bound logbook with consecutively number pages that cannot be removed. Logbooks will be assigned to field personnel and will be stored in a secured area when not in use. Field documentation forms and SOPs can be found in Appendix A.

At a minimum, the following information will be recorded in the site logbook:

- Name of the person to whom the logbook is assigned.
- Project name.
- Project start date.
- Names and responsibilities of on-site project personnel including subcontractor personnel.
- Arrival/departure of site visitors.
- Arrival/departure of equipment.
- Sampling activities and sample log sheet references.

- Description of subcontractor activities.
- Sample pick-up information, including chain of custody numbers, air bill numbers, carrier, time, and date.
- Description of borehole or monitoring well installation activities and operations.
- Health and safety issues.
- Description of photographs including date, time, photographer, roll and picture number, location, and compass direction of photograph.

All entries will be written in ink and no erasures will be made. If an incorrect entry is made, striking a single line through the incorrect information will make the correction; the person making the correction will initial and date the change.

Long-term Monitoring Reports

Long-term monitoring reports will be issued following each sampling event. The reports will include appropriate sections concerning site background, investigation activities, physical characteristics, nature and extent of contamination, and conclusions and recommendations.

Each long-term monitoring report will be issued in draft to BRAC PMO SE for initial review. BRAC PMO SE comments will be addressed, and the draft final report will be issued for regulatory review.

Attachment A - The following was extracted from the UFP SAP for Petroleum Sites – North-South Apron; Building G82, Tank G82; BP Wells; and 815 Wash Rack for information purposes and is not the complete approved document.

SAP Worksheet #15 -- Reference Limits for Groundwater

(UFP-QAPP Manual Section 2.8.1)

SAP Worksheet #15B -- Reference Limits for Groundwater – Building 82, Tank G82

Matrix: Groundwater
Analytical Group: VOCs

Analyte	CAS Number	PAL (1) (µg/L)	PAL Reference	Project QL Goal (µg/L)	Empirical(2)		
					LOQ (µg/L)	LOD (µg/L)	MDL (µg/L)
Benzene	71-43-2	1.0	FDEP GCTL	0.3	1.0	0.50	0.3
Isopropyl benzene	98-82-8	0.8	FDEP GCTL	0.26(3)	1.0	0.50	0.3
1,2,4-TMB	95-63-6	10	FDEP GCTL	3.3	1.0	0.50	0.3

1 FDEP GCTLs. Groundwater Cleanup Target Levels F.A.C. 62-777 Table I, April 2005.
2 Empirical MDLs are current as of May 2009.
3 The laboratory LOQ does not meet the Project QL Goal or the PAL; however, the MDL is below the Action Level. The LOQ will be used as the comparison criteria for this analyte. Results reported between the LOQ and the MDL will be flagged by the laboratory ("J") and will also receive additional scrutiny. Project Chemist to ensure the data support attainment of project objectives.

Matrix: Groundwater
Analytical Group: PAHs

Analyte	CAS Number	PAL (1) (µg/L)	PAL Reference	Project QL Goal (µg/L)	Empirical(2)		
					LOQ (µg/L)	LOD (µg/L)	MDL (µg/L)
Naphthalene	91-20-3	14	FDEP GCTL	4.6	0.10	0.04	0.013
1-Methylnaphthalene	90-12-0	28	FDEP GCTL	9.3	0.10	0.04	0.015
2-Methylnaphthalene	91-57-6	28	FDEP GCTL	9.3	0.10	0.04	0.013

Attachment A - The following was extracted from the UFP SAP for Petroleum Sites – North-South Apron; Building G82, Tank G82; BP Wells; and 815 Wash Rack for information purposes and is not the complete approved document.

1 FDEP GCTLs. Groundwater Cleanup Target Levels F.A.C. 62-777 Table I, April 2005.
2 Empirical MDLs are current as of May 2009.

Matrix: Groundwater
Analytical Group: TRPH

Analyte	CAS Number	PAL [1] (mg/L)	PAL Reference	Project QL Goal (mg/L)	Empirical[2]		
					LOQ (mg/L)	LOD (µg/L)	MDL (mg/L)
TRPH	No CAS	5	FDEP GCTL	1.67	0.34	0.17	0.085

1 FDEP GCTLs. Groundwater Cleanup Target Levels F.A.C. 62-777 Table I, April 2005.
2 Empirical MDLs are current as of May 2009.

Attachment A - The following was extracted from the UFP SAP for Petroleum Sites – North-South Apron; Building G82, Tank G82; BP Wells; and 815 Wash Rack for information purposes and is not the complete approved document.

SAP Worksheet #18 -- Sampling Locations and Methods/SOP Requirements Table

(UFP-QAPP Manual Section 3.1.1)

SAP Worksheet #18B -- Sampling Locations and Methods/SOP Requirements Table – Building 82, Tank G82

Sampling Location / Identification Number	Matrix	Screen Interval	Analytical Group	Number of Samples (identify field duplicates)[1]	Sampling SOP Reference[2]
CEF-G82-1S, CEF-G82-2S, CEF-G82-3S, CEF-G82-4S, CEF-G82-5S, CEF-G82-6S	Groundwater	5 to 15 feet bgs or 4 to 14 feet bgs	VOCs (Benzene, Isopropyl benzene, 1,2,4-TMB) PAHs (Naphthalene, 1-Methylnaphthalene, 2-Methylnaphthalene), TRPH	7 plus 1 duplicate for each Analytical Group	FDEP FS 2200, 2008; TtNUS, SA-1.1, April 2008
CEF-G82-2I		30 to 35 feet bgs			

1 Field duplicates may be consolidated across sites at FOL's discretion so as to yield one field duplicate per 10 environmental samples.
2 SOP that describes the sample collection procedures.

ATTACHMENT B

GROUNDWATER ANALYTICAL REPORT
OCTOBER 2010 and DECEMBER 2010

Tetra Tech NUS **INTERNAL CORRESPONDENCE**

TO:	**R. SIMCIK**	**DATE:**	**DECEMBER 20, 2010**
FROM:	**A. COGNETTI**	**COPIES:**	**DV FILE**

SUBJECT: **ORGANIC DATA VALIDATION – SELECT VOC/ PAH/ TRPH**
LIMITED REVIEW
NAS CECIL FIELD – CTO JM09
SAMPLE DELIVERY GROUP (SDG) –CTOJM09CFG82_001

SAMPLES: 9/Aqueous/Select VOC

CEF-G82-1S-20101027	CEF-G82-2I-20101027	CEF-G82-2S-20101027
CEF-G82-3S-20101027	CEF-G82-4S-20101027	CEF-G82-5S-20101028
CEF-G82-6S-20101028	CEF-G82-DUP01-20101027	Trip Blank

8/Aqueous/PAH/TRPH

CEF-G82-1S-20101027	CEF-G82-2I-20101027	CEF-G82-2S-20101027
CEF-G82-3S-20101027	CEF-G82-4S-20101027	CEF-G82-5S-20101028
CEF-G82-6S-20101028	CEF-G82-DUP01-20101027	

Overview

The sample set for NAS CECIL FIELD, CTO JM09, SDG CTOJM09CFG82_001, consists of eight (9) aqueous environmental samples and one (1) trip blank. All samples were analyzed for select volatile organic compounds (VOC); benzene, ethylbenzene, isopropylbenzene, naphthalene, toluene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene and xylenes (total). The eight (8) aqueous environmental samples were also analyzed for polycyclic aromatic hydrocarbons (PAH) and Total Recoverable Petroleum Hydrocarbons (TRPH).There is one field duplicate pair associated with this SDG: CEF-G82-1S-20101027/ CEF-G82-DUP01-20101027.

The samples were collected by Tetra Tech NUS on October 27 and 28, 2010 and analyzed by Empirical Laboratory. All analyses were performed under Naval Facilities Engineering Service Center (NFESC) Quality Assurance / Quality Control (QA/QC) criteria. VOC analyses were conducted using SW-846 method 8260B. PAH analyses followed SW-846 Method 8270C SIM. TRPH analyses followed the Florida PRO method.

These data were evaluated based on the following parameters:

* • Data Completeness
* • Holding Times
* • Initial and Continuing Calibrations
* • Laboratory Method Blank Analyses
* • Detection Limits
* • Field Duplicate Precision

* - All quality control criteria were met for this parameter.

Notes

The percent recovery of surrogate o-terphenyl was less than the lower quality control limit in sample CEF-G82-1S-20101027. No validation action was taken on the nondetected petroleum range organics result.

Naphthalene was analyzed in both the volatile and PAH fraction. The naphthalene results from the PAH fraction were used for validation purposes.

Sample CEF-G82-2S-20101027 was diluted 5X in order to obtain a concentration of naphthalene, 1-methylnaphthalene and 2-methylnaphthalene within instrument calibration range.

Positive results reported below the reporting limit (RL) but above the method detection limit (MDL) for the organic analyses were qualified as estimated, "J".

Executive Summary

Laboratory Performance: None.

Other Factors Affecting Data Quality: None.

The data for these analyses were reviewed with reference to the "National Functional Guidelines for Organic Review", October 1999 and the 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.

Ann Cognetti

Tetra Tech NUS
Ann Cognetti
Chemist/ Data Validator

Tetra Tech NUS
Joseph A. Samchuck
Quality Assurance Officer

Attachments:

1. Appendix A - Qualified Analytical Results
2. Appendix B - Results as reported by the Laboratory
3. Appendix C - Support Documentation

Appendix A

Qualified Analytical Results

Data Validation Qualifier Codes:

A = Lab Blank Contamination
B = Field Blank Contamination
C = Calibration Noncompliance (e.g. % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
C01 = GC/MS Tuning Noncompliance
D = MS/MSD Recovery Noncompliance
E = LCS/LCSD Recovery Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = GFAA PDS - GFAA MSA's $r < 0.995$
K = ICP Interference - includes ICS % R Noncompliance
L = Instrument Calibration Range Exceedance
M = Sample Preservation Noncompliance
N = Internal Standard Noncompliance
N01 = Internal Standard Recovery Noncompliance Dioxins
N02 = Recovery Standard Noncompliance Dioxins
N03 = Clean-up Standard Noncompliance Dioxins
O = Poor Instrument Performance (e.g. base-line drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can be any number of issues; e.g. poor chromatography,interferences, etc.)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = % Difference between columns/detectors >25% for positive results determined via GC/HPLC
V = Non-linear calibrations; correlation coefficient $r < 0.995$
W = EMPC result
X = Signal to noise response drop
Y = Percent solids <30%
Z = Uncertainty at 2 sigma deviation is greater than sample activity

PROJ_NO: 02267	NSAMPLE	CEF-G82-1S-20101027			CEF-G82-2I-20101027			CEF-G82-2S-20101027			CEF-G82-3S-20101027		
SDG: CTOJM09CF_001	LAB_ID	1010287-03			1010287-05			1010287-04			1010287-01		
FRACTION: OV	SAMP_DATE	10/28/2010			10/28/2010			10/28/2010			10/28/2010		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,2,4-TRIMETHYLBENZENE		0.25	U		0.25	U		28.3			3.2		
1,3,5-TRIMETHYLBENZENE		0.25	U		0.25	U		6.86			0.567	J	P
BENZENE		0.25	U		0.25	U		1.31			0.25	U	
ETHYLBENZENE		0.25	U		0.25	U		25.1			2.66		
ISOPROPYLBENZENE		0.25	U		0.25	U		9.66			1.62		
M+P-XYLENES		0.5	U		0.5	U		12.3			1.16	J	P
O-XYLENE		0.25	U		0.25	U		2.51			0.25	U	
TOLUENE		0.25	U		0.25	U		0.25	U		0.25	U	
TOTAL XYLENES		0.75	U		0.75	U		14.8			1.31	J	P

PROJ_NO: 02267 SDG: CTOJM09CF_001 FRACTION: OV MEDIA: WATER	NSAMPLE	CEF-G82-4S-20101028			CEF-G82-5S-20101028			CEF-G82-6S-20101028			CEF-G82-DUP01-20101027		
	LAB_ID	1010287-06			1010287-07			1010287-08			1010287-02		
	SAMP_DATE	10/28/2010			10/28/2010			10/28/2010			10/28/2010		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF										CEF-G82-1S-20101027		
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,2,4-TRIMETHYLBENZENE		0.25	U		0.25	U		0.25	U		0.25	U	
1,3,5-TRIMETHYLBENZENE		0.25	U		0.25	U		0.25	U		0.25	U	
BENZENE		0.25	U		0.25	U		0.25	U		0.25	U	
ETHYLBENZENE		0.25	U		0.25	U		0.25	U		0.25	U	
ISOPROPYLBENZENE		0.25	U		1.08			0.25	U		0.25	U	
M+P-XYLENES		0.5	U		0.5	U		0.5	U		0.5	U	
O-XYLENE		0.25	U		0.25	U		0.25	U		0.25	U	
TOLUENE		0.25	U		0.25	U		0.25	U		0.25	U	
TOTAL XYLENES		0.75	U		0.75	U		0.75	U		0.75	U	

PROJ_NO: 02267	NSAMPLE	Trip Blank-20101028		
SDG: CTOJM09CF_001	LAB_ID	1010287-09		
FRACTION: OV	SAMP_DATE	10/28/2010		
MEDIA: WATER	QC_TYPE	NM		
	UNITS	UG/L		
	PCT_SOLIDS	0.0		
	DUP_OF			
PARAMETER		RESULT	VQL	QLCD
1,2,4-TRIMETHYLBENZENE		0.25	U	
1,3,5-TRIMETHYLBENZENE		0.25	U	
BENZENE		0.25	U	
ETHYLBENZENE		0.25	U	
ISOPROPYLBENZENE		0.25	U	
M+P-XYLENES		0.5	U	
O-XYLENE		0.25	U	
TOLUENE		0.25	U	
TOTAL XYLENES		0.75	U	

PROJ_NO: 02267	NSAMPLE	CEF-G82-1S-20101027			CEF-G82-2I-20101027			CEF-G82-2S-20101027			CEF-G82-2S-20101027DL		
SDG: CTOJM09CF_001	LAB_ID	1010287-03			1010287-05			1010287-04			1010287-04RE1		
FRACTION: PAH	SAMP_DATE	10/28/2010			10/28/2010			10/28/2010			10/28/2010		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1-METHYLNAPHTHALENE		0.0463	U		0.0463	U					60.7		
2-METHYLNAPHTHALENE		0.0463	U		0.0463	U					86.4		
ACENAPHTHENE		0.0463	U		0.0463	U		3.18					
ACENAPHTHYLENE		0.0463	U		0.0463	U		1.11					
ANTHRACENE		0.0463	U		0.0463	U		0.0463	U				
BENZO(A)ANTHRACENE		0.0463	U		0.0463	U		0.0463	U				
BENZO(A)PYRENE		0.0463	U		0.0463	U		0.0463	U				
BENZO(B)FLUORANTHENE		0.0463	U		0.0463	U		0.0463	U				
BENZO(G,H,I)PERYLENE		0.0463	U		0.0463	U		0.0463	U				
BENZO(K)FLUORANTHENE		0.0463	U		0.0463	U		0.0463	U				
CHRYSENE		0.0463	U		0.0463	U		0.0463	U				
DIBENZO(A,H)ANTHRACENE		0.0463	U		0.0463	U		0.0463	U				
FLUORANTHENE		0.0463	U		0.0463	U		0.0463	U				
FLUORENE		0.0463	U		0.0463	U		4.94					
INDENO(1,2,3-CD)PYRENE		0.0463	U		0.0463	U		0.0463	U				
NAPHTHALENE		0.0463	U		0.0463	U					58.5		
PHENANTHRENE		0.0463	U		0.0463	U		3.09					
PYRENE		0.0463	U		0.0463	U		0.0463	U				

PROJ_NO: 02267	NSAMPLE	CEF-G82-3S-20101027			CEF-G82-4S-20101028			CEF-G82-5S-20101028			CEF-G82-6S-20101028		
SDG: CTOJM09CF_001	LAB_ID	1010287-01			1010287-06			1010287-07			1010287-08		
FRACTION: PAH	SAMP_DATE	10/28/2010			10/28/2010			10/28/2010			10/28/2010		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1-METHYLNAPHTHALENE		2.05			0.269			5.35			0.0463	U	
2-METHYLNAPHTHALENE		4.21			0.0463	U		4.93			0.0463	U	
ACENAPHTHENE		0.235			0.0931	J	P	0.447			0.0463	U	
ACENAPHTHYLENE		0.0463	U		0.0463	U		0.164	J	P	0.0463	U	
ANTHRACENE		0.0463	U		0.0463	U		0.0463	U		0.0463	U	
BENZO(A)ANTHRACENE		0.0463	U		0.0463	U		0.0463	U		0.0463	U	
BENZO(A)PYRENE		0.0463	U		0.0463	U		0.0463	U		0.0463	U	
BENZO(B)FLUORANTHENE		0.0463	U		0.0463	U		0.0463	U		0.0463	U	
BENZO(G,H,I)PERYLENE		0.0463	U		0.0463	U		0.0463	U		0.0463	U	
BENZO(K)FLUORANTHENE		0.0463	U		0.0463	U		0.0463	U		0.0463	U	
CHRYSENE		0.0463	U		0.0463	U		0.0463	U		0.0463	U	
DIBENZO(A,H)ANTHRACENE		0.0463	U		0.0463	U		0.0463	U		0.0463	U	
FLUORANTHENE		0.0463	U		0.0463	U		0.0463	U		0.0463	U	
FLUORENE		0.278			0.0888	J	P	0.624			0.0463	U	
INDENO(1,2,3-CD)PYRENE		0.0463	U		0.0463	U		0.0463	U		0.0463	U	
NAPHTHALENE		3.76			0.0463	U		0.0463	U		0.0463	U	
PHENANTHRENE		0.0882	J	P	0.0463	U		0.0463	U		0.0463	U	
PYRENE		0.0463	U		0.0463	U		0.0463	U		0.0463	U	

PROJ_NO: 02267	NSAMPLE	CEF-G82-DUP01-20101027
SDG: CTOJM09CF_001	LAB_ID	1010287-02
FRACTION: PAH	SAMP_DATE	10/28/2010
MEDIA: WATER	QC_TYPE	NM
	UNITS	UG/L
	PCT_SOLIDS	0.0
	DUP_OF	CEF-G82-1S-20101027

PARAMETER	RESULT	VQL	QLCD
1-METHYLNAPHTHALENE	0.0463	U	
2-METHYLNAPHTHALENE	0.0463	U	
ACENAPHTHENE	0.0463	U	
ACENAPHTHYLENE	0.0463	U	
ANTHRACENE	0.0463	U	
BENZO(A)ANTHRACENE	0.0463	U	
BENZO(A)PYRENE	0.0463	U	
BENZO(B)FLUORANTHENE	0.0463	U	
BENZO(G,H,I)PERYLENE	0.0463	U	
BENZO(K)FLUORANTHENE	0.0463	U	
CHRYSENE	0.0463	U	
DIBENZO(A,H)ANTHRACENE	0.0463	U	
FLUORANTHENE	0.0463	U	
FLUORENE	0.0463	U	
INDENO(1,2,3-CD)PYRENE	0.0463	U	
NAPHTHALENE	0.0463	U	
PHENANTHRENE	0.0463	U	
PYRENE	0.0463	U	

PROJ_NO: 02267	NSAMPLE	CEF-G82-1S-20101027			CEF-G82-2I-20101027			CEF-G82-2S-20101027			CEF-G82-3S-20101027		
SDG: CTOJM09CF_001	LAB_ID	1010287-03			1010287-05			1010287-04			1010287-01		
FRACTION: PET	SAMP_DATE	10/28/2010			10/28/2010			10/28/2010			10/28/2010		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/L			MG/L			MG/L			MG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
TPH (C08-C40)		0.157	U		0.157	U		3.76			0.382	J	P

PROJ_NO: 02267	NSAMPLE	CEF-G82-4S-20101028			CEF-G82-5S-20101028			CEF-G82-6S-20101028			CEF-G82-DUP01-20101027		
SDG: CTOJM09CF_001	LAB_ID	1010287-06			1010287-07			1010287-08			1010287-02		
FRACTION: PET	SAMP_DATE	10/28/2010			10/28/2010			10/28/2010			10/28/2010		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/L			MG/L			MG/L			MG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF										CEF-G82-1S-20101027		
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
TPH (C08-C40)		0.157	U		0.346	J	P	0.157	U		0.157	U	

Appendix B

Results as Reported by the Laboratory

ANALYSIS DATA SHEET

CEF-G82-1S-20101027

Laboratory:	Empirical Laboratories, LLC			SDG:	CTOJM09CFG82_001
Client:	Tetra Tech NUS, Inc. (T010)			Project:	NAS Cecil Field CTOJM09 (G-82)
Matrix:	Ground Water	Laboratory ID:	1010287-03	File ID:	1028703.D
Sampled:	10/28/10 12:34	Prepared:	11/02/10 10:00	Analyzed:	11/02/10 15:12
Solids:		Preparation:	5030B	Dilution:	1

Batch: 0K02007 Sequence: 0K30711 Calibration: 0298002 Instrument: MS-VOA5

CAS NO.	COMPOUND	CONC. (ug/L)	MDL	MRL	Q
71-43-2	Benzene		0.250	1.00	U
100-41-4	Ethylbenzene		0.250	1.00	U
98-82-8	Isopropylbenzene		0.250	1.00	U
91-20-3	Naphthalene		0.250	1.00	U
108-88-3	Toluene		0.250	1.00	U
108-67-8	1,3,5-Trimethylbenzene		0.250	1.00	U
95-63-6	1,2,4-Trimethylbenzene		0.250	1.00	U
108-38-3/106-42-	m,p-Xylene		0.500	2.00	U
95-47-6	o-Xylene		0.250	1.00	U
1330-20-7	Xylenes (total)		0.750	3.00	U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Bromofluorobenzene	30.00	31.86	106	75 - 120	
Dibromofluoromethane	30.00	32.08	107	85 - 115	
1,2-Dichloroethane-d4	30.00	30.49	102	70 - 120	
Toluene-d8	30.00	28.59	95.3	85 - 120	

ANALYSIS DATA SHEET

CEF-G82-2I-20101027

Laboratory:	Empirical Laboratories, LLC			SDG:	CTOJM09CFG82_001
Client:	Tetra Tech NUS, Inc. (T010)			Project:	NAS Cecil Field CTOJM09 (G-82)
Matrix:	Ground Water	Laboratory ID:	1010287-05	File ID:	1028705.D
Sampled:	10/28/10 15:29	Prepared:	11/02/10 10:00	Analyzed:	11/02/10 15:42
Solids:		Preparation:	5030B	Dilution:	1

Batch: 0K02007 Sequence: 0K30711 Calibration: 0298002 Instrument: MS-VOA5

CAS NO.	COMPOUND	CONC. (ug/L)	MDL	MRL	Q
71-43-2	Benzene		0.250	1.00	U
100-41-4	Ethylbenzene		0.250	1.00	U
98-82-8	Isopropylbenzene		0.250	1.00	U
91-20-3	Naphthalene		0.250	1.00	U
108-88-3	Toluene		0.250	1.00	U
108-67-8	1,3,5-Trimethylbenzene		0.250	1.00	U
95-63-6	1,2,4-Trimethylbenzene		0.250	1.00	U
108-38-3/106-42-	m,p-Xylene		0.500	2.00	U
95-47-6	o-Xylene		0.250	1.00	U
1330-20-7	Xylenes (total)		0.750	3.00	U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Bromofluorobenzene	30.00	32.34	108	75 - 120	
Dibromofluoromethane	30.00	32.63	109	85 - 115	
1,2-Dichloroethane-d4	30.00	30.74	102	70 - 120	
Toluene-d8	30.00	30.25	101	85 - 120	

ANALYSIS DATA SHEET

CEF-G82-2S-20101027

Laboratory:	Empirical Laboratories, LLC			SDG:	CTOJM09CFG82_001
Client:	Tetra Tech NUS, Inc. (T010)			Project:	NAS Cecil Field CTOJM09 (G-82)
Matrix:	Ground Water	Laboratory ID:	1010287-04	File ID:	1028704.D
Sampled:	10/28/10 14:24	Prepared:	11/02/10 10:00	Analyzed:	11/02/10 17:42
Solids:		Preparation:	5030B	Dilution:	1

Batch: 0K02007 Sequence: 0K30711 Calibration: 0298002 Instrument: MS-VOA5

CAS NO.	COMPOUND	CONC. (ug/L)	MDL	MRL	Q
71-43-2	Benzene	1.31	0.250	1.00	
100-41-4	Ethylbenzene	25.1	0.250	1.00	
98-82-8	Isopropylbenzene	9.66	0.250	1.00	
91-20-3	Naphthalene	110	0.250	1.00	
108-88-3	Toluene		0.250	1.00	U
108-67-8	1,3,5-Trimethylbenzene	6.86	0.250	1.00	
95-63-6	1,2,4-Trimethylbenzene	28.3	0.250	1.00	
108-38-3/106-42-	m,p-Xylene	12.3	0.500	2.00	
95-47-6	o-Xylene	2.51	0.250	1.00	
1330-20-7	Xylenes (total)	14.8	0.750	3.00	

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Bromofluorobenzene	30.00	32.80	109	75 - 120	
Dibromofluoromethane	30.00	31.46	105	85 - 115	
1,2-Dichloroethane-d4	30.00	29.38	97.9	70 - 120	
Toluene-d8	30.00	30.08	100	85 - 120	

ANALYSIS DATA SHEET

CEF-G82-3S-20101027

Laboratory:	Empirical Laboratories, LLC			SDG:	CTOJM09CFG82_001
Client:	Tetra Tech NUS, Inc. (T010)			Project:	NAS Cecil Field CTOJM09 (G-82)
Matrix:	Ground Water	Laboratory ID:	1010287-01	File ID:	1028701.D
Sampled:	10/28/10 12:04	Prepared:	11/02/10 10:00	Analyzed:	11/02/10 14:11
Solids:		Preparation:	5030B	Dilution:	1

Batch: 0K02007 Sequence: 0K30711 Calibration: 0298002 Instrument: MS-VOA5

CAS NO.	COMPOUND	CONC. (ug/L)	MDL	MRL	Q
71-43-2	Benzene		0.250	1.00	U
100-41-4	Ethylbenzene	2.66	0.250	1.00	
98-82-8	Isopropylbenzene	1.62	0.250	1.00	
91-20-3	Naphthalene	13.4	0.250	1.00	
108-88-3	Toluene		0.250	1.00	U
108-67-8	1,3,5-Trimethylbenzene	0.567	0.250	1.00	I
95-63-6	1,2,4-Trimethylbenzene	3.20	0.250	1.00	
108-38-3/106-42-	m,p-Xylene	1.16	0.500	2.00	I
95-47-6	o-Xylene		0.250	1.00	U
1330-20-7	Xylenes (total)	1.31	0.750	3.00	I

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Bromofluorobenzene	30.00	31.76	106	75 - 120	
Dibromofluoromethane	30.00	32.66	109	85 - 115	
1,2-Dichloroethane-d4	30.00	29.62	98.7	70 - 120	
Toluene-d8	30.00	29.37	97.9	85 - 120	

ANALYSIS DATA SHEET

CEF-G82-4S-20101028

Laboratory:	Empirical Laboratories, LLC			SDG:	CTOJM09CFG82_001
Client:	Tetra Tech NUS, Inc. (T010)			Project:	NAS Cecil Field CTOJM09 (G-82)
Matrix:	Ground Water	Laboratory ID:	1010287-06	File ID:	1028706.D
Sampled:	10/28/10 10:53	Prepared:	11/02/10 10:00	Analyzed:	11/02/10 16:12
Solids:		Preparation:	5030B	Dilution:	1

Batch: 0K02007 Sequence: 0K30711 Calibration: 0298002 Instrument: MS-VOA5

CAS NO.	COMPOUND	CONC. (ug/L)	MDL	MRL	Q
71-43-2	Benzene		0.250	1.00	U
100-41-4	Ethylbenzene		0.250	1.00	U
98-82-8	Isopropylbenzene		0.250	1.00	U
91-20-3	Naphthalene		0.250	1.00	U
108-88-3	Toluene		0.250	1.00	U
108-67-8	1,3,5-Trimethylbenzene		0.250	1.00	U
95-63-6	1,2,4-Trimethylbenzene		0.250	1.00	U
108-38-3/106-42-	m,p-Xylene		0.500	2.00	U
95-47-6	o-Xylene		0.250	1.00	U
1330-20-7	Xylenes (total)		0.750	3.00	U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Bromofluorobenzene	30.00	32.39	108	75 - 120	
Dibromofluoromethane	30.00	32.07	107	85 - 115	
1,2-Dichloroethane-d4	30.00	28.79	96.0	70 - 120	
Toluene-d8	30.00	29.69	99.0	85 - 120	

ANALYSIS DATA SHEET

CEF-G82-5S-20101028

Laboratory:	Empirical Laboratories, LLC			SDG:	CTOJM09CFG82_001
Client:	Tetra Tech NUS, Inc. (T010)			Project:	NAS Cecil Field CTOJM09 (G-82)
Matrix:	Ground Water	Laboratory ID:	1010287-07	File ID:	1028707.D
Sampled:	10/28/10 11:36	Prepared:	11/02/10 10:00	Analyzed:	11/02/10 16:42
Solids:		Preparation:	5030B	Dilution:	1

Batch: 0K02007 Sequence: 0K30711 Calibration: 0298002 Instrument: MS-VOA5

CAS NO.	COMPOUND	CONC. (ug/L)	MDL	MRL	Q
71-43-2	Benzene		0.250	1.00	U
100-41-4	Ethylbenzene		0.250	1.00	U
98-82-8	Isopropylbenzene	1.08	0.250	1.00	
91-20-3	Naphthalene	0.705	0.250	1.00	I
108-88-3	Toluene		0.250	1.00	U
108-67-8	1,3,5-Trimethylbenzene		0.250	1.00	U
95-63-6	1,2,4-Trimethylbenzene		0.250	1.00	U
108-38-3/106-42-	m,p-Xylene		0.500	2.00	U
95-47-6	o-Xylene		0.250	1.00	U
1330-20-7	Xylenes (total)		0.750	3.00	U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Bromofluorobenzene	30.00	31.23	104	75 - 120	
Dibromofluoromethane	30.00	31.87	106	85 - 115	
1,2-Dichloroethane-d4	30.00	30.38	101	70 - 120	
Toluene-d8	30.00	29.30	97.7	85 - 120	

ANALYSIS DATA SHEET

CEF-G82-6S-20101028

Laboratory:	Empirical Laboratories, LLC			SDG:	CTOJM09CFG82_001
Client:	Tetra Tech NUS, Inc. (T010)			Project:	NAS Cecil Field CTOJM09 (G-82)
Matrix:	Ground Water	Laboratory ID:	1010287-08	File ID:	1028708.D
Sampled:	10/28/10 12:22	Prepared:	11/02/10 10:00	Analyzed:	11/02/10 17:12
Solids:		Preparation:	5030B	Dilution:	1

Batch: 0K02007 Sequence: 0K30711 Calibration: 0298002 Instrument: MS-VOA5

CAS NO.	COMPOUND	CONC. (ug/L)	MDL	MRL	Q
71-43-2	Benzene		0.250	1.00	U
100-41-4	Ethylbenzene		0.250	1.00	U
98-82-8	Isopropylbenzene		0.250	1.00	U
91-20-3	Naphthalene		0.250	1.00	U
108-88-3	Toluene		0.250	1.00	U
108-67-8	1,3,5-Trimethylbenzene		0.250	1.00	U
95-63-6	1,2,4-Trimethylbenzene		0.250	1.00	U
108-38-3/106-42-	m,p-Xylene		0.500	2.00	U
95-47-6	o-Xylene		0.250	1.00	U
1330-20-7	Xylenes (total)		0.750	3.00	U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Bromofluorobenzene	30.00	31.74	106	75 - 120	
Dibromofluoromethane	30.00	33.02	110	85 - 115	
1,2-Dichloroethane-d4	30.00	28.98	96.6	70 - 120	
Toluene-d8	30.00	29.91	99.7	85 - 120	

ANALYSIS DATA SHEET

CEF-G82-DUP01-20101027

Laboratory:	Empirical Laboratories, LLC			SDG:	CTOJM09CFG82_001
Client:	Tetra Tech NUS, Inc. (T010)			Project:	NAS Cecil Field CTOJM09 (G-82)
Matrix:	Ground Water	Laboratory ID:	1010287-02	File ID:	1028702.D
Sampled:	10/28/10 00:00	Prepared:	11/02/10 10:00	Analyzed:	11/02/10 14:42
Solids:		Preparation:	5030B	Dilution:	1

Batch: 0K02007 Sequence: 0K30711 Calibration: 0298002 Instrument: MS-VOA5

CAS NO.	COMPOUND	CONC. (ug/L)	MDL	MRL	Q
71-43-2	Benzene		0.250	1.00	U
100-41-4	Ethylbenzene		0.250	1.00	U
98-82-8	Isopropylbenzene		0.250	1.00	U
91-20-3	Naphthalene	0.334	0.250	1.00	I
108-88-3	Toluene		0.250	1.00	U
108-67-8	1,3,5-Trimethylbenzene		0.250	1.00	U
95-63-6	1,2,4-Trimethylbenzene		0.250	1.00	U
108-38-3/106-42-	m,p-Xylene		0.500	2.00	U
95-47-6	o-Xylene		0.250	1.00	U
1330-20-7	Xylenes (total)		0.750	3.00	U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Bromofluorobenzene	30.00	31.42	105	75 - 120	
Dibromofluoromethane	30.00	31.99	107	85 - 115	
1,2-Dichloroethane-d4	30.00	29.19	97.3	70 - 120	
Toluene-d8	30.00	29.17	97.2	85 - 120	

ANALYSIS DATA SHEET

Trip Blank

Laboratory:	Empirical Laboratories, LLC			SDG:	CTOJM09CFG82_001
Client:	Tetra Tech NUS, Inc. (T010)			Project:	NAS Cecil Field CTOJM09 (G-82)
Matrix:	Water	Laboratory ID:	1010287-09	File ID:	1028709.D
Sampled:	10/28/10 00:00	Prepared:	11/02/10 10:00	Analyzed:	11/02/10 13:11
Solids:		Preparation:	5030B	Dilution:	1

Batch: 0K02007 Sequence: 0K30711 Calibration: 0298002 Instrument: MS-VOA5

CAS NO.	COMPOUND	CONC. (ug/L)	MDL	MRL	Q
71-43-2	Benzene		0.250	1.00	U
100-41-4	Ethylbenzene		0.250	1.00	U
98-82-8	Isopropylbenzene		0.250	1.00	U
91-20-3	Naphthalene		0.250	1.00	U
108-88-3	Toluene		0.250	1.00	U
108-67-8	1,3,5-Trimethylbenzene		0.250	1.00	U
95-63-6	1,2,4-Trimethylbenzene		0.250	1.00	U
108-38-3/106-42-	m,p-Xylene		0.500	2.00	U
95-47-6	o-Xylene		0.250	1.00	U
1330-20-7	Xylenes (total)		0.750	3.00	U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Bromofluorobenzene	30.00	32.31	108	75 - 120	
Dibromofluoromethane	30.00	33.32	111	85 - 115	
1,2-Dichloroethane-d4	30.00	30.88	103	70 - 120	
Toluene-d8	30.00	29.51	98.4	85 - 120	

ANALYSIS DATA SHEET

CEF-G82-1S-20101027

Laboratory:	Empirical Laboratories, LLC			SDG:	CTOJM09CFG82_001
Client:	Tetra Tech NUS, Inc. (T010)			Project:	NAS Cecil Field CTOJM09 (G-82)
Matrix:	Ground Water	Laboratory ID:	1010287-03	File ID:	1028703.D
Sampled:	10/28/10 12:34	Prepared:	11/01/10 15:30	Analyzed:	11/08/10 19:07
Solids:		Preparation:	EXT_3510	Dilution:	1

Batch: 0K01006 Sequence: 0K31302 Calibration: 0237003 Instrument: MS-BNA4

CAS NO.	COMPOUND	CONC. (ug/L)	MDL	MRL	Q
83-32-9	Acenaphthene		0.0463	0.185	U
208-96-8	Acenaphthylene		0.0463	0.185	U
120-12-7	Anthracene		0.0463	0.185	U
56-55-3	Benzo(a)anthracene		0.0463	0.185	U
50-32-8	Benzo(a)pyrene		0.0463	0.185	U
205-99-2	Benzo(b)fluoranthene		0.0463	0.185	U
191-24-2	Benzo(g,h,i)perylene		0.0463	0.185	U
207-08-9	Benzo(k)fluoranthene		0.0463	0.185	U
218-01-9	Chrysene		0.0463	0.185	U
53-70-3	Dibenz(a,h)anthracene		0.0463	0.185	U
206-44-0	Fluoranthene		0.0463	0.185	U
86-73-7	Fluorene		0.0463	0.185	U
193-39-5	Indeno(1,2,3-cd)pyrene		0.0463	0.185	U
90-12-0	1-Methylnaphthalene		0.0463	0.185	U
91-57-6	2-Methylnaphthalene		0.0463	0.185	U
91-20-3	Naphthalene		0.0463	0.185	U
85-01-8	Phenanthrene		0.0463	0.185	U
129-00-0	Pyrene		0.0463	0.185	U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
2-Fluorobiphenyl	46.30	25.56	55.2	34 - 167	
Terphenyl-d14	46.30	10.74	23.2	34 - 167	*

ANALYSIS DATA SHEET

CEF-G82-2I-20101027

Laboratory:	Empirical Laboratories, LLC			SDG:	CTOJM09CFG82_001
Client:	Tetra Tech NUS, Inc. (T010)			Project:	NAS Cecil Field CTOJM09 (G-82)
Matrix:	Ground Water	Laboratory ID:	1010287-05	File ID:	1028705.D
Sampled:	10/28/10 15:29	Prepared:	11/01/10 15:30	Analyzed:	11/08/10 20:00
Solids:		Preparation:	EXT_3510	Dilution:	1

Batch: 0K01006 Sequence: 0K31302 Calibration: 0237003 Instrument: MS-BNA4

CAS NO.	COMPOUND	CONC. (ug/L)	MDL	MRL	Q
83-32-9	Acenaphthene		0.0463	0.185	U
208-96-8	Acenaphthylene		0.0463	0.185	U
120-12-7	Anthracene		0.0463	0.185	U
56-55-3	Benzo(a)anthracene		0.0463	0.185	U
50-32-8	Benzo(a)pyrene		0.0463	0.185	U
205-99-2	Benzo(b)fluoranthene		0.0463	0.185	U
191-24-2	Benzo(g,h,i)perylene		0.0463	0.185	U
207-08-9	Benzo(k)fluoranthene		0.0463	0.185	U
218-01-9	Chrysene		0.0463	0.185	U
53-70-3	Dibenz(a,h)anthracene		0.0463	0.185	U
206-44-0	Fluoranthene		0.0463	0.185	U
86-73-7	Fluorene		0.0463	0.185	U
193-39-5	Indeno(1,2,3-cd)pyrene		0.0463	0.185	U
90-12-0	1-Methylnaphthalene		0.0463	0.185	U
91-57-6	2-Methylnaphthalene		0.0463	0.185	U
91-20-3	Naphthalene		0.0463	0.185	U
85-01-8	Phenanthrene		0.0463	0.185	U
129-00-0	Pyrene		0.0463	0.185	U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
2-Fluorobiphenyl	46.30	25.68	55.5	34 - 167	
Terphenyl-d14	46.30	28.89	62.4	34 - 167	

ANALYSIS DATA SHEET

CEF-G82-2S-20101027

Laboratory:	Empirical Laboratories, LLC			SDG:	CTOJM09CFG82_001
Client:	Tetra Tech NUS, Inc. (T010)			Project:	NAS Cecil Field CTOJM09 (G-82)
Matrix:	Ground Water	Laboratory ID:	1010287-04	File ID:	1028704.D
Sampled:	10/28/10 14:24	Prepared:	11/01/10 15:30	Analyzed:	11/08/10 19:33
Solids:		Preparation:	EXT_3510	Dilution:	1

Batch: 0K01006 Sequence: 0K31302 Calibration: 0237003 Instrument: MS-BNA4

CAS NO.	COMPOUND	CONC. (ug/L)	MDL	MRL	Q
83-32-9	Acenaphthene	3.18	0.0463	0.185	
208-96-8	Acenaphthylene	1.11	0.0463	0.185	
120-12-7	Anthracene		0.0463	0.185	U
56-55-3	Benzo(a)anthracene		0.0463	0.185	U
50-32-8	Benzo(a)pyrene		0.0463	0.185	U
205-99-2	Benzo(b)fluoranthene		0.0463	0.185	U
191-24-2	Benzo(g,h,i)perylene		0.0463	0.185	U
207-08-9	Benzo(k)fluoranthene		0.0463	0.185	U
218-01-9	Chrysene		0.0463	0.185	U
53-70-3	Dibenz(a,h)anthracene		0.0463	0.185	U
206-44-0	Fluoranthene		0.0463	0.185	U
86-73-7	Fluorene	4.94	0.0463	0.185	
193-39-5	Indeno(1,2,3-cd)pyrene		0.0463	0.185	U
90-12-0	1-Methylnaphthalene	53.3	0.0463	0.185	L
91-57-6	2-Methylnaphthalene	71.3	0.0463	0.185	L
91-20-3	Naphthalene	51.4	0.0463	0.185	L
85-01-8	Phenanthrene	3.09	0.0463	0.185	
129-00-0	Pyrene		0.0463	0.185	U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
2-Fluorobiphenyl	46.30	24.10	52.0	34 - 167	
Terphenyl-d14	46.30	25.14	54.3	34 - 167	

ANALYSIS DATA SHEET

CEF-G82-2S-20101027

Laboratory:	Empirical Laboratories, LLC		SDG:	CTOJM09CFG82_001	
Client:	Tetra Tech NUS, Inc. (T010)		Project:	NAS Cecil Field CTOJM09 (G-82)	
Matrix:	Ground Water	Laboratory ID:	1010287-04RE1	File ID:	1028704D.D
Sampled:	10/28/10 14:24	Prepared:	11/01/10 15:30	Analyzed:	11/09/10 08:34
Solids:		Preparation:	EXT_3510	Dilution:	5

Batch: 0K01006 Sequence: 0K31303 Calibration: 0237003 Instrument: MS-BNA4

CAS NO.	COMPOUND	CONC. (ug/L)	MDL	MRL	Q
83-32-9	Acenaphthene	3.32	0.231	0.926	
208-96-8	Acenaphthylene		0.231	0.926	U
120-12-7	Anthracene		0.231	0.926	U
56-55-3	Benzo(a)anthracene		0.231	0.926	U
50-32-8	Benzo(a)pyrene		0.231	0.926	U
205-99-2	Benzo(b)fluoranthene		0.231	0.926	U
191-24-2	Benzo(g,h,i)perylene		0.231	0.926	U
207-08-9	Benzo(k)fluoranthene		0.231	0.926	U
218-01-9	Chrysene		0.231	0.926	U
53-70-3	Dibenz(a,h)anthracene		0.231	0.926	U
206-44-0	Fluoranthene		0.231	0.926	U
86-73-7	Fluorene	4.95	0.231	0.926	
193-39-5	Indeno(1,2,3-cd)pyrene		0.231	0.926	U
90-12-0	1-Methylnaphthalene	60.7	0.231	0.926	
91-57-6	2-Methylnaphthalene	86.4	0.231	0.926	
91-20-3	Naphthalene	58.5	0.231	0.926	
85-01-8	Phenanthrene	3.20	0.231	0.926	
129-00-0	Pyrene		0.231	0.926	U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
2-Fluorobiphenyl	46.30	26.03	56.2	34 - 167	
Terphenyl-d14	46.30	26.95	58.2	34 - 167	

ANALYSIS DATA SHEET

CEF-G82-3S-20101027

Laboratory:	Empirical Laboratories, LLC			SDG:	CTOJM09CFG82_001
Client:	Tetra Tech NUS, Inc. (T010)			Project:	NAS Cecil Field CTOJM09 (G-82)
Matrix:	Ground Water	Laboratory ID:	1010287-01	File ID:	1028701.D
Sampled:	10/28/10 12:04	Prepared:	11/01/10 15:30	Analyzed:	11/08/10 23:20
Solids:		Preparation:	EXT_3510	Dilution:	1

Batch: 0K01006 Sequence: 0K31303 Calibration: 0237003 Instrument: MS-BNA4

CAS NO.	COMPOUND	CONC. (ug/L)	MDL	MRL	Q
83-32-9	Acenaphthene	0.235	0.0463	0.185	
208-96-8	Acenaphthylene		0.0463	0.185	U
120-12-7	Anthracene		0.0463	0.185	U
56-55-3	Benzo(a)anthracene		0.0463	0.185	N U
50-32-8	Benzo(a)pyrene		0.0463	0.185	U
205-99-2	Benzo(b)fluoranthene		0.0463	0.185	N U
191-24-2	Benzo(g,h,i)perylene		0.0463	0.185	U
207-08-9	Benzo(k)fluoranthene		0.0463	0.185	N U
218-01-9	Chrysene		0.0463	0.185	U
53-70-3	Dibenz(a,h)anthracene		0.0463	0.185	U
206-44-0	Fluoranthene		0.0463	0.185	U
86-73-7	Fluorene	0.278	0.0463	0.185	
193-39-5	Indeno(1,2,3-cd)pyrene		0.0463	0.185	U
90-12-0	1-Methylnaphthalene	2.05	0.0463	0.185	N
91-57-6	2-Methylnaphthalene	4.21	0.0463	0.185	N
91-20-3	Naphthalene	3.76	0.0463	0.185	N
85-01-8	Phenanthrene	0.0882	0.0463	0.185	I
129-00-0	Pyrene		0.0463	0.185	U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
2-Fluorobiphenyl	46.30	27.90	60.3	34 - 167	
Terphenyl-d14	46.30	16.67	36.0	34 - 167	

ANALYSIS DATA SHEET

CEF-G82-4S-20101028

Laboratory:	Empirical Laboratories, LLC			SDG:	CTOJM09CFG82_001
Client:	Tetra Tech NUS, Inc. (T010)			Project:	NAS Cecil Field CTOJM09 (G-82)
Matrix:	Ground Water	Laboratory ID:	1010287-06	File ID:	1028706.D
Sampled:	10/28/10 10:53	Prepared:	11/01/10 15:30	Analyzed:	11/08/10 20:27
Solids:		Preparation:	EXT_3510	Dilution:	1

Batch: 0K01006 Sequence: 0K31302 Calibration: 0237003 Instrument: MS-BNA4

CAS NO.	COMPOUND	CONC. (ug/L)	MDL	MRL	Q
83-32-9	Acenaphthene	0.0931	0.0463	0.185	I
208-96-8	Acenaphthylene		0.0463	0.185	U
120-12-7	Anthracene		0.0463	0.185	U
56-55-3	Benzo(a)anthracene		0.0463	0.185	U
50-32-8	Benzo(a)pyrene		0.0463	0.185	U
205-99-2	Benzo(b)fluoranthene		0.0463	0.185	U
191-24-2	Benzo(g,h,i)perylene		0.0463	0.185	U
207-08-9	Benzo(k)fluoranthene		0.0463	0.185	U
218-01-9	Chrysene		0.0463	0.185	U
53-70-3	Dibenz(a,h)anthracene		0.0463	0.185	U
206-44-0	Fluoranthene		0.0463	0.185	U
86-73-7	Fluorene	0.0888	0.0463	0.185	I
193-39-5	Indeno(1,2,3-cd)pyrene		0.0463	0.185	U
90-12-0	1-Methylnaphthalene	0.269	0.0463	0.185	
91-57-6	2-Methylnaphthalene		0.0463	0.185	U
91-20-3	Naphthalene		0.0463	0.185	U
85-01-8	Phenanthrene		0.0463	0.185	U
129-00-0	Pyrene		0.0463	0.185	U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
2-Fluorobiphenyl	46.30	25.22	54.5	34 - 167	
Terphenyl-d14	46.30	27.72	59.9	34 - 167	

ANALYSIS DATA SHEET

CEF-G82-5S-20101028

Laboratory:	Empirical Laboratories, LLC		SDG:	CTOJM09CFG82_001	
Client:	Tetra Tech NUS, Inc. (T010)		Project:	NAS Cecil Field CTOJM09 (G-82)	
Matrix:	Ground Water	Laboratory ID:	1010287-07	File ID:	1028707.D
Sampled:	10/28/10 11:36	Prepared:	11/01/10 15:30	Analyzed:	11/08/10 20:53
Solids:		Preparation:	EXT_3510	Dilution:	1

Batch: 0K01006 Sequence: 0K31302 Calibration: 0237003 Instrument: MS-BNA4

CAS NO.	COMPOUND	CONC. (ug/L)	MDL	MRL	Q
83-32-9	Acenaphthene	0.447	0.0463	0.185	
208-96-8	Acenaphthylene	0.164	0.0463	0.185	I
120-12-7	Anthracene		0.0463	0.185	U
56-55-3	Benzo(a)anthracene		0.0463	0.185	U
50-32-8	Benzo(a)pyrene		0.0463	0.185	U
205-99-2	Benzo(b)fluoranthene		0.0463	0.185	U
191-24-2	Benzo(g,h,i)perylene		0.0463	0.185	U
207-08-9	Benzo(k)fluoranthene		0.0463	0.185	U
218-01-9	Chrysene		0.0463	0.185	U
53-70-3	Dibenz(a,h)anthracene		0.0463	0.185	U
206-44-0	Fluoranthene		0.0463	0.185	U
86-73-7	Fluorene	0.624	0.0463	0.185	
193-39-5	Indeno(1,2,3-cd)pyrene		0.0463	0.185	U
90-12-0	1-Methylnaphthalene	5.35	0.0463	0.185	
91-57-6	2-Methylnaphthalene	4.93	0.0463	0.185	
91-20-3	Naphthalene		0.0463	0.185	U
85-01-8	Phenanthrene		0.0463	0.185	U
129-00-0	Pyrene		0.0463	0.185	U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
2-Fluorobiphenyl	46.30	26.94	58.2	34 - 167	
Terphenyl-d14	46.30	28.34	61.2	34 - 167	

ANALYSIS DATA SHEET

CEF-G82-6S-20101028

Laboratory:	Empirical Laboratories, LLC			SDG:	CTOJM09CFG82_001
Client:	Tetra Tech NUS, Inc. (T010)			Project:	NAS Cecil Field CTOJM09 (G-82)
Matrix:	Ground Water	Laboratory ID:	1010287-08	File ID:	1028708.D
Sampled:	10/28/10 12:22	Prepared:	11/01/10 15:30	Analyzed:	11/08/10 21:20
Solids:		Preparation:	EXT_3510	Dilution:	1

Batch: 0K01006 Sequence: 0K31302 Calibration: 0237003 Instrument: MS-BNA4

CAS NO.	COMPOUND	CONC. (ug/L)	MDL	MRL	Q
83-32-9	Acenaphthene		0.0463	0.185	U
208-96-8	Acenaphthylene		0.0463	0.185	U
120-12-7	Anthracene		0.0463	0.185	U
56-55-3	Benzo(a)anthracene		0.0463	0.185	U
50-32-8	Benzo(a)pyrene		0.0463	0.185	U
205-99-2	Benzo(b)fluoranthene		0.0463	0.185	U
191-24-2	Benzo(g,h,i)perylene		0.0463	0.185	U
207-08-9	Benzo(k)fluoranthene		0.0463	0.185	U
218-01-9	Chrysene		0.0463	0.185	U
53-70-3	Dibenz(a,h)anthracene		0.0463	0.185	U
206-44-0	Fluoranthene		0.0463	0.185	U
86-73-7	Fluorene		0.0463	0.185	U
193-39-5	Indeno(1,2,3-cd)pyrene		0.0463	0.185	U
90-12-0	1-Methylnaphthalene		0.0463	0.185	U
91-57-6	2-Methylnaphthalene		0.0463	0.185	U
91-20-3	Naphthalene		0.0463	0.185	U
85-01-8	Phenanthrene		0.0463	0.185	U
129-00-0	Pyrene		0.0463	0.185	U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
2-Fluorobiphenyl	46.30	25.68	55.5	34 - 167	
Terphenyl-d14	46.30	29.38	63.5	34 - 167	

ANALYSIS DATA SHEET

CEF-G82-DUP01-20101027

Laboratory:	Empirical Laboratories, LLC			SDG:	CTOJM09CFG82_001
Client:	Tetra Tech NUS, Inc. (T010)			Project:	NAS Cecil Field CTOJM09 (G-82)
Matrix:	Ground Water	Laboratory ID:	1010287-02	File ID:	1028702.D
Sampled:	10/28/10 00:00	Prepared:	11/01/10 15:30	Analyzed:	11/08/10 18:40
Solids:		Preparation:	EXT_3510	Dilution:	1

Batch: 0K01006 Sequence: 0K31302 Calibration: 0237003 Instrument: MS-BNA4

CAS NO.	COMPOUND	CONC. (ug/L)	MDL	MRL	Q
83-32-9	Acenaphthene		0.0463	0.185	U
208-96-8	Acenaphthylene		0.0463	0.185	U
120-12-7	Anthracene		0.0463	0.185	U
56-55-3	Benzo(a)anthracene		0.0463	0.185	U
50-32-8	Benzo(a)pyrene		0.0463	0.185	U
205-99-2	Benzo(b)fluoranthene		0.0463	0.185	U
191-24-2	Benzo(g,h,i)perylene		0.0463	0.185	U
207-08-9	Benzo(k)fluoranthene		0.0463	0.185	U
218-01-9	Chrysene		0.0463	0.185	U
53-70-3	Dibenz(a,h)anthracene		0.0463	0.185	U
206-44-0	Fluoranthene		0.0463	0.185	U
86-73-7	Fluorene		0.0463	0.185	U
193-39-5	Indeno(1,2,3-cd)pyrene		0.0463	0.185	U
90-12-0	1-Methylnaphthalene		0.0463	0.185	U
91-57-6	2-Methylnaphthalene		0.0463	0.185	U
91-20-3	Naphthalene		0.0463	0.185	U
85-01-8	Phenanthrene		0.0463	0.185	U
129-00-0	Pyrene		0.0463	0.185	U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
2-Fluorobiphenyl	46.30	28.03	60.5	34 - 167	
Terphenyl-d14	46.30	16.48	35.6	34 - 167	

ANALYSIS DATA SHEET

CEF-G82-1S-20101027

Laboratory:	Empirical Laboratories, LLC			SDG:	CTOJM09CFG82_001
Client:	Tetra Tech NUS, Inc. (T010)			Project:	NAS Cecil Field CTOJM09 (G-82)
Matrix:	Ground Water	Laboratory ID:	1010287-03	File ID:	016F1701.D
Sampled:	10/28/10 12:34	Prepared:	11/02/10 10:45	Analyzed:	11/09/10 03:04
Solids:		Preparation:	EXT_3510	Dilution:	1

Batch: 0K01018 Sequence: 0K31312 Calibration: 0313003 Instrument: GL-GCFID2

CAS NO.	COMPOUND	CONC. (mg/L)	MDL	MRL	Q
	Petroleum Range Organics		0.157	0.630	U

SYSTEM MONITORING COMPOUND	ADDED (mg/L)	CONC (mg/L)	% REC	QC LIMITS	Q
2-Fluorobiphenyl	0.04630	0.03912	84.5	50 - 150	
o-Terphenyl	0.04630	0.03600	77.8	82 - 142	*

ANALYSIS DATA SHEET

CEF-G82-2I-20101027

Laboratory:	Empirical Laboratories, LLC			SDG:	CTOJM09CFG82_001
Client:	Tetra Tech NUS, Inc. (T010)			Project:	NAS Cecil Field CTOJM09 (G-82)
Matrix:	Ground Water	Laboratory ID:	1010287-05	File ID:	018F1901.D
Sampled:	10/28/10 15:29	Prepared:	11/02/10 10:45	Analyzed:	11/09/10 04:28
Solids:		Preparation:	EXT_3510	Dilution:	1

Batch: 0K01018 Sequence: 0K31312 Calibration: 0313003 Instrument: GL-GCFID2

CAS NO.	COMPOUND	CONC. (mg/L)	MDL	MRL	Q
	Petroleum Range Organics		0.157	0.630	U

SYSTEM MONITORING COMPOUND	ADDED (mg/L)	CONC (mg/L)	% REC	QC LIMITS	Q
2-Fluorobiphenyl	0.04630	0.04962	107	50 - 150	
o-Terphenyl	0.04630	0.04649	100	82 - 142	

ANALYSIS DATA SHEET

CEF-G82-2S-20101027

Laboratory:	Empirical Laboratories, LLC			SDG:	CTOJM09CFG82_001
Client:	Tetra Tech NUS, Inc. (T010)			Project:	NAS Cecil Field CTOJM09 (G-82)
Matrix:	Ground Water	Laboratory ID:	1010287-04	File ID:	017F1801.D
Sampled:	10/28/10 14:24	Prepared:	11/02/10 10:45	Analyzed:	11/09/10 03:46
Solids:		Preparation:	EXT_3510	Dilution:	1

Batch: 0K01018 Sequence: 0K31312 Calibration: 0313003 Instrument: GL-GCFID2

CAS NO.	COMPOUND	CONC. (mg/L)	MDL	MRL	Q
	Petroleum Range Organics	3.76	0.157	0.630	

SYSTEM MONITORING COMPOUND	ADDED (mg/L)	CONC (mg/L)	% REC	QC LIMITS	Q
2-Fluorobiphenyl	0.04630	0.05358	116	50 - 150	
o-Terphenyl	0.04630	0.04783	103	82 - 142	

ANALYSIS DATA SHEET

CEF-G82-3S-20101027

Laboratory:	Empirical Laboratories, LLC			SDG:	CTOJM09CFG82_001
Client:	Tetra Tech NUS, Inc. (T010)			Project:	NAS Cecil Field CTOJM09 (G-82)
Matrix:	Ground Water	Laboratory ID:	1010287-01	File ID:	012F1301.D
Sampled:	10/28/10 12:04	Prepared:	11/02/10 10:45	Analyzed:	11/09/10 00:15
Solids:		Preparation:	EXT_3510	Dilution:	1

Batch: 0K01018 Sequence: 0K31312 Calibration: 0313003 Instrument: GL-GCFID2

CAS NO.	COMPOUND	CONC. (mg/L)	MDL	MRL	Q
	Petroleum Range Organics	0.382	0.157	0.630	I

SYSTEM MONITORING COMPOUND	ADDED (mg/L)	CONC (mg/L)	% REC	QC LIMITS	Q
2-Fluorobiphenyl	0.04630	0.04666	101	50 - 150	
o-Terphenyl	0.04630	0.03846	83.1	82 - 142	

ANALYSIS DATA SHEET

CEF-G82-4S-20101028

Laboratory:	Empirical Laboratories, LLC			SDG:	CTOJM09CFG82_001
Client:	Tetra Tech NUS, Inc. (T010)			Project:	NAS Cecil Field CTOJM09 (G-82)
Matrix:	Ground Water	Laboratory ID:	1010287-06	File ID:	019F2001.D
Sampled:	10/28/10 10:53	Prepared:	11/02/10 10:45	Analyzed:	11/09/10 05:10
Solids:		Preparation:	EXT_3510	Dilution:	1
Batch:	0K01018	Sequence:	0K31312	Calibration:	0313003
Instrument:	GL-GCFID2				

CAS NO.	COMPOUND	CONC. (mg/L)	MDL	MRL	Q
	Petroleum Range Organics		0.157	0.630	U

SYSTEM MONITORING COMPOUND	ADDED (mg/L)	CONC (mg/L)	% REC	QC LIMITS	Q
2-Fluorobiphenyl	0.04630	0.04361	94.2	50 - 150	
o-Terphenyl	0.04630	0.04292	92.7	82 - 142	

ANALYSIS DATA SHEET

CEF-G82-5S-20101028

Laboratory:	Empirical Laboratories, LLC			SDG:	CTOJM09CFG82_001
Client:	Tetra Tech NUS, Inc. (T010)			Project:	NAS Cecil Field CTOJM09 (G-82)
Matrix:	Ground Water	Laboratory ID:	1010287-07	File ID:	020F2101.D
Sampled:	10/28/10 11:36	Prepared:	11/02/10 10:45	Analyzed:	11/09/10 05:52
Solids:		Preparation:	EXT_3510	Dilution:	1

Batch: 0K01018 Sequence: 0K31312 Calibration: 0313003 Instrument: GL-GCFID2

CAS NO.	COMPOUND	CONC. (mg/L)	MDL	MRL	Q
	Petroleum Range Organics	0.346	0.157	0.630	I

SYSTEM MONITORING COMPOUND	ADDED (mg/L)	CONC (mg/L)	% REC	QC LIMITS	Q
2-Fluorobiphenyl	0.04630	0.04788	103	50 - 150	
o-Terphenyl	0.04630	0.04450	96.1	82 - 142	

ANALYSIS DATA SHEET

CEF-G82-6S-20101028

Laboratory:	Empirical Laboratories, LLC			SDG:	CTOJM09CFG82_001
Client:	Tetra Tech NUS, Inc. (T010)			Project:	NAS Cecil Field CTOJM09 (G-82)
Matrix:	Ground Water	Laboratory ID:	1010287-08	File ID:	021F2201.D
Sampled:	10/28/10 12:22	Prepared:	11/02/10 10:45	Analyzed:	11/09/10 06:35
Solids:		Preparation:	EXT_3510	Dilution:	1

Batch: 0K01018 Sequence: 0K31312 Calibration: 0313003 Instrument: GL-GCFID2

CAS NO.	COMPOUND	CONC. (mg/L)	MDL	MRL	Q
	Petroleum Range Organics		0.157	0.630	U

SYSTEM MONITORING COMPOUND	ADDED (mg/L)	CONC (mg/L)	% REC	QC LIMITS	Q
2-Fluorobiphenyl	0.04630	0.04656	101	50 - 150	
o-Terphenyl	0.04630	0.04219	91.1	82 - 142	

ANALYSIS DATA SHEET

CEF-G82-DUP01-20101027

Laboratory:	Empirical Laboratories, LLC			SDG:	CTOJM09CFG82_001
Client:	Tetra Tech NUS, Inc. (T010)			Project:	NAS Cecil Field CTOJM09 (G-82)
Matrix:	Ground Water	Laboratory ID:	1010287-02	File ID:	015F1601.D
Sampled:	10/28/10 00:00	Prepared:	11/02/10 10:45	Analyzed:	11/09/10 02:21
Solids:		Preparation:	EXT_3510	Dilution:	1

Batch: 0K01018 Sequence: 0K31312 Calibration: 0313003 Instrument: GL-GCFID2

CAS NO.	COMPOUND	CONC. (mg/L)	MDL	MRL	Q
	Petroleum Range Organics		0.157	0.630	U

SYSTEM MONITORING COMPOUND	ADDED (mg/L)	CONC (mg/L)	% REC	QC LIMITS	Q
2-Fluorobiphenyl	0.04630	0.04006	86.5	50 - 150	
o-Terphenyl	0.04630	0.03280	70.9	82 - 142	*

Appendix C

Support Documentation

Sample Delivery Group Case Narrative

Receipt Information
The samples were received within the preservation guidelines for the associated methods. The information associated with sample receipt and the Sample Delivery Group (SDG) are included within section 4 of this package, which also provides information on the link between the client sample ID listed on the COC and laboratory's assigned unique sample ID or WorkOrder #. The sample is tracked through the laboratory for all analysis via the assigned WorkOrder #.

All samples that were received were analyzed and none of the samples were placed on hold without analyses. There were no subcontracted analyses for this SDG.

Changes to the Revision
This is an original submittal of the final report package.

Analytical Information
All samples were prepped (where applicable) and analyzed within the standard allowed holding times, unless noted within the exceptions listed below. The laboratory analyzed all samples within the program and method guidelines. The following information is provided specific to individual methods:

Chromatographic Flags for Manual Integration:
The following letters are used to denote manual integrations on the laboratory's raw data in association with chromatographic integrations:

A: The peak was manually integrated as it was not integrated in the original chromatogram.
B: The peak was manually integrated due to resolution or coelution issues in the original chromatogram.
C: The peak was manually integrated to correct the baseline from the original chromatogram.
D: The peak was manually integrated to identify the correct peak as the wrong peak was identified in the original chromatogram.
E: The peak was manually integrated to include the entire peak as the original chromatogram only integrated part of the peak.

SW8260B:
No anomalies or deviations are noted.

SW8270C:
The surrogate Terphenyl-d14 exceeded criteria with a negative bias in sample 1010287-03 and in the matrix spikes associated to sample 1010287-01.

The matrix spikes associated to sample 1010287-01 exceeded criteria with a negative bias for Benzo(a)anthracene, Benzo(b)fluoranthene and Benzo(k)fluoranthene and with a positive bias for 1-Methylnaphthalene, 2-Methylnaphthalene and Naphthalene.

No additional anomalies or deviations are noted and the data is properly qualified.

FL-PRO:
The surrogate o-Terphenyl exceeded criteria with a negative bias in samples 1010287-02 and -03.

No additional anomalies or deviations are noted.

TETRA TECH NUS, INC. CHAIN OF CUSTODY | NUMBER № 2104 | PAGE 1 OF 2

PROJECT NO: 112G02267	FACILITY: Cecil Field Site G-82	PROJECT MANAGER: Rob Simcik	PHONE NUMBER: 412 921 8163	LABORATORY NAME AND CONTACT: Empirical / Kim Kostzer
SAMPLERS (SIGNATURE): Jeff Krone		FIELD OPERATIONS LEADER: Kara Wimble	PHONE NUMBER: 904 636-6125	ADDRESS: 621 Mainstream Drive Suite 270
		CARRIER/WAYBILL NUMBER: FedEx Airbill 8660 1730 2182		CITY, STATE: Nashville, TN 37228

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

DATE YEAR 2010	TIME	SAMPLE ID	LOCATION ID	TOP DEPTH (FT)	BOTTOM DEPTH (FT)	MATRIX (GW, SO, SW, SD, QC, ETC.)	COLLECTION METHOD GRAB (G) COMP (C)	No. OF CONTAINERS	VOCs (8260B)	TRPH (FL-PRO)	PAHs (8270 SIM)						COMMENTS 1010287
CONTAINER TYPE PLASTIC (P) or GLASS (G)									G	G	G						
PRESERVATIVE USED									HCl	HCl	-						
10/27	1204	CEF-G82-35-20101027				GW	G	21	9	6	6						ms/msd -01
10/27	0000	CEF-G82-DUP01-20101027				GW	G	7	3	2	2						cool to 4°C -02
10/27	1234	CEF-G82-15-20101027				GW	G	7	3	2	2						-03
10/27	1424	CEF-G82-25-20101027				GW	G	7	3	2	2						-04
10/27	1529	CEF-G82-27-20101027				GW	G	7	3	2	2						-05

1. RELINQUISHED BY	DATE 10/28/10	TIME 1700	1. RECEIVED BY 1.1°C	DATE 10-29-10	TIME 0800
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

CTOJM09CFG82_001

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TETRA TECH NUS, INC.

CHAIN OF CUSTODY | NUMBER № 2105 | PAGE 2 OF 2

PROJECT NO: 112G0267	FACILITY: Cecil Field Site 6-82	PROJECT MANAGER: Rob Simcik	PHONE NUMBER: 412 921 8163
SAMPLERS (SIGNATURE): Jeff Krone		FIELD OPERATIONS LEADER: Kara Wimble	PHONE NUMBER: 904 636-6125
		CARRIER/WAYBILL NUMBER: FEDEX Airbill 8660 1730 2182	

LABORATORY NAME AND CONTACT: Empirical Labs / Kim Kostner
ADDRESS: 601 Mainstream Drive, Suite 270
CITY, STATE: Nashville, TN 37228

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

DATE YEAR 2010	TIME	SAMPLE ID	LOCATION ID	TOP DEPTH (FT)	BOTTOM DEPTH (FT)	MATRIX (GW, SO, SW, SD, QC, ETC.)	COLLECTION METHOD GRAB (G) COMP (C)	No. OF CONTAINERS	VOCs (8260B)	TPH (FL-PRO)	PAHs (8270SIM)					COMMENTS 10102287
CONTAINER TYPE PLASTIC (P) or GLASS (G)									G	G	G					
PRESERVATIVE USED									HCl	HCl	—					
10/28	1053	CEF-682-4S-20101028				GW	G	7	3	2	2					Cool to 4° C06
10/28	1136	CEF-682-5S-20101028				GW	G	7	3	2	2					-07
10/28	1202	CEF-682-6S-20101028				GW	G	7	3	2	2					-08
		Trip Blank							2							-09

1. RELINQUISHED BY	DATE 10/28/10	TIME 1700	1. RECEIVED BY	DATE 10-29-10	TIME 08:00
2. RELINQUISHED BY	DATE	TIME	2. RECEIVED BY	DATE	TIME
3. RELINQUISHED BY	DATE	TIME	3. RECEIVED BY	DATE	TIME

1.1°C

COMMENTS

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

4/02R
FORM NO. TtNUS-001

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CTOJM09CFG82_001

EMPIRICAL LABORATORIES
COOLER RECEIPT FORM

LIMS Number: 1010287 Number of Coolers: 1 of 5

Client: Tetra tech Project: 112G02267

Date/Time Received: **10/29/10** **08:00** Date cooler(s) opened: **10/29/10**

Opened By (print): Chris Donald (signature): [signature]

Circle response below as appropriate

1. How did the samples arrive? **FedEx** UPS DHL Hand Delivered

EL Courier Other: _____

If applicable, enter airbill number here: 8994

2. Were custody seals on outside of cooler(s)? ..... Yes No

How many: 2 Seal date: 10-28-10 Seal Initials: ?

3. Were custody seals unbroken and intact at the date and time of arrival? ..... Yes No N/A
4. Were custody papers sealed in a plastic bag included in the sample cooler? ..... Yes No N/A
5. Were custody papers filled out properly (ink, signed, etc.)? ..... Yes No N/A
6. Did you sign custody papers in the appropriate place for acceptance? ..... Yes No N/A
7. Was project identifiable from custody papers? ..... Yes No N/A
8. If required, was enough ice present in the cooler(s)? ..... Yes No N/A

Type of Coolant: WET DRY BLUE NONE

Temperature of Samples upon Receipt: Initial Value: 0.6 °C Correction Factor: +0.5 °C Final Value: 1.1 °C

Dates samples were logged-in: 10-29-10

9. Initial this form to acknowledge login of sample(s): (Name): Chris Donald (Initial): CD

10. Were all bottle lids intact and sealed tightly? ..... Yes No N/A
11. Did all bottles arrive unbroken? ..... Yes No N/A
12. Was all required bottle label information complete? ..... Yes No N/A
13. Did all bottle labels agree with custody papers? ..... Yes No N/A
14. Were correct containers used for the analyses indicated? ..... Yes No N/A
15. Were preservative levels correct in all applicable sample containers? ..... Yes No N/A
16. Was residual chlorine present in any applicable sample containers? ..... Yes No N/A
17. Was sufficient amount of sample sent for the analyses required? ..... Yes No N/A
18. Was headspace present in any included VOA vials? ..... Yes No N/A

CD 10-29-10

pH<2 for all EPH's

If Non-Conformance issues were present, list by sample ID: _____

EMPIRICAL LABORATORIES
COOLER RECEIPT FORM

LIMS Number: 1010287 Number of Coolers: 2 of 5

Client: Tetra tech Project: 112G22267

Date/Time Received: 10/29/10 08:00 Date cooler(s) opened: 10/29/10

Opened By (print): Chris Donald (signature): [signature]

Circle response below as appropriate

1. How did the samples arrive? **FedEx** UPS DHL Hand Delivered

EL Courier Other: _____

If applicable, enter airbill number here: 2182

2. Were custody seals on outside of cooler(s)? ..... Yes No

How many: 2 Seal date: 10-29-10 Seal Initials: ?

3. Were custody seals unbroken and intact at the date and time of arrival? ..... Yes No N/A
4. Were custody papers sealed in a plastic bag included in the sample cooler? ..... Yes No N/A
5. Were custody papers filled out properly (ink, signed, etc.)? ..... Yes No N/A
6. Did you sign custody papers in the appropriate place for acceptance? ..... Yes No N/A
7. Was project identifiable from custody papers? ..... Yes No N/A
8. If required, was enough ice present in the cooler(s)? ..... Yes No N/A

Type of Coolant: WET DRY BLUE NONE

Temperature of Samples upon Receipt: Initial Value: 2.2 °C Correction Factor: +0.5 °C Final Value: 2.7 °C

Dates samples were logged-in: 10-29-10

9. Initial this form to acknowledge login of sample(s): (Name): Chris Donald (Initial): CD

10. Were all bottle lids intact and sealed tightly? ..... Yes No N/A
11. Did all bottles arrive unbroken? ..... Yes No N/A PAH container for CCF-G82-DUP 01-20101027 Arrived broken.
12. Was all required bottle label information complete? ..... Yes No N/A
13. Did all bottle labels agree with custody papers? ..... Yes No N/A
14. Were correct containers used for the analyses indicated? ..... Yes No N/A
15. Were preservative levels correct in all applicable sample containers? ..... Yes No N/A
16. Was residual chlorine present in any applicable sample containers? ..... Yes No N/A
17. Was sufficient amount of sample sent for the analyses required? ..... Yes No N/A
18. Was headspace present in any included VOA vials? ..... Yes No N/A

If Non-Conformance issues were present, list by sample ID: _____

EMPIRICAL LABORATORIES
COOLER RECEIPT FORM

LIMS Number: 1010287 Number of Coolers: 3 of 5

Client: Tetra tech Project: 112G0267

Date/Time Received: 10/29/10 08:00 Date cooler(s) opened: 10/29/10

Opened By (print): Chris Donald (signature): [signature]

Circle response below as appropriate

1. How did the samples arrive? **FedEx** UPS DHL Hand Delivered
EL Courier Other: _____

If applicable, enter airbill number here: 0663

2. Were custody seals on outside of cooler(s)? ..... (Yes) No

How many: 2 Seal date: 10-28-10 Seal Initials: T

3. Were custody seals unbroken and intact at the date and time of arrival? ..... (Yes) No N/A
4. Were custody papers sealed in a plastic bag included in the sample cooler? ..... (Yes) No N/A
5. Were custody papers filled out properly (ink, signed, etc.)? ..... (Yes) No N/A
6. Did you sign custody papers in the appropriate place for acceptance? ..... (Yes) No N/A
7. Was project identifiable from custody papers? ..... (Yes) No N/A
8. If required, was enough ice present in the cooler(s)? ..... (Yes) No N/A

Type of Coolant: (WET) DRY BLUE NONE

Temperature of Samples upon Receipt: Initial Value: 3.4 °C Correction Factor: +0.5 °C Final Value: 3.9 °C

Dates samples were logged-in: 10-29-10

9. Initial this form to acknowledge login of sample(s): (Name): Chris Donald (Initial): CD
10. Were all bottle lids intact and sealed tightly? ..... (Yes) No N/A
11. Did all bottles arrive unbroken? ..... (Yes) No N/A
12. Was all required bottle label information complete? ..... (Yes) No N/A
13. Did all bottle labels agree with custody papers? ..... (Yes) No N/A
14. Were correct containers used for the analyses indicated? ..... (Yes) No N/A
15. Were preservative levels correct in all applicable sample containers? ..... (Yes) No N/A
16. Was residual chlorine present in any applicable sample containers? ..... Yes No (N/A)
17. Was sufficient amount of sample sent for the analyses required? ..... (Yes) No N/A
18. Was headspace present in any included VOA vials? ..... Yes (No) N/A

If Non-Conformance issues were present, list by sample ID: _____

EMPIRICAL LABORATORIES
COOLER RECEIPT FORM

LIMS Number: 1010287 Number of Coolers: 4 of 5

Client: Tetra tech Project: 112G2267

Date/Time Received: 10/29/10 08:00 Date cooler(s) opened: 10/29/10

Opened By (print): Chris Donald (signature): [signature]

CD 10-29-10

Circle response below as appropriate

1. How did the samples arrive? **FedEx** UPS DHL Hand Delivered

EL Courier Other: _____

If applicable, enter airbill number here: 8972

2. Were custody seals on outside of cooler(s)? ..... Yes No

How many: 1 Seal date: 10-28-10 Seal Initials: ?

3. Were custody seals unbroken and intact at the date and time of arrival? ..... Yes No N/A
4. Were custody papers sealed in a plastic bag included in the sample cooler? ..... Yes No N/A
5. Were custody papers filled out properly (ink, signed, etc.)? ..... Yes No N/A
6. Did you sign custody papers in the appropriate place for acceptance? ..... Yes No N/A
7. Was project identifiable from custody papers? ..... Yes No N/A
8. If required, was enough ice present in the cooler(s)? ..... Yes No N/A

Type of Coolant: WET DRY BLUE NONE

Temperature of Samples upon Receipt: Initial Value: 0.2 °C Correction Factor: +0.5 °C Final Value: 0.7 °C

Dates samples were logged-in: 10-29-10

9. Initial this form to acknowledge login of sample(s): (Name): Chris Donald (Initial): CD
10. Were all bottle lids intact and sealed tightly? ..... Yes No N/A
11. Did all bottles arrive unbroken? ..... Yes No N/A
12. Was all required bottle label information complete? ..... Yes No N/A
13. Did all bottle labels agree with custody papers? ..... Yes No N/A
14. Were correct containers used for the analyses indicated? ..... Yes No N/A
15. Were preservative levels correct in all applicable sample containers? ..... Yes No N/A
16. Was residual chlorine present in any applicable sample containers? ..... Yes No N/A
17. Was sufficient amount of sample sent for the analyses required? ..... Yes No N/A
18. Was headspace present in any included VOA vials? ..... Yes No N/A

If Non-Conformance issues were present, list by sample ID: _____

EMPIRICAL LABORATORIES
COOLER RECEIPT FORM

LIMS Number: 1010287 Number of Coolers: 5 of 5

Client: Tetra tech Project: 112G0226 7

Date/Time Received: 10/29/10 08:00 Date cooler(s) opened: 10/29/10

Opened By (print): Chris Donald (signature): [signature]

Circle response below as appropriate

1. How did the samples arrive? **FedEx** UPS DHL Hand Delivered

EL Courier Other: _____

If applicable, enter airbill number here: 8961

2. Were custody seals on outside of cooler(s)? ..... Yes No

How many: 2 Seal date: 10-28-10 Seal Initials: ?

3. Were custody seals unbroken and intact at the date and time of arrival? ..... Yes No N/A
4. Were custody papers sealed in a plastic bag included in the sample cooler? ..... Yes No N/A
5. Were custody papers filled out properly (ink, signed, etc.)? ..... Yes No N/A
6. Did you sign custody papers in the appropriate place for acceptance? ..... Yes No N/A
7. Was project identifiable from custody papers? ..... Yes No N/A
8. If required, was enough ice present in the cooler(s)? ..... Yes No N/A

Type of Coolant: WET DRY BLUE NONE

Temperature of Samples upon Receipt: Initial Value: 1.8 °C Correction Factor: +0.5 °C Final Value: 2.3 °C

Dates samples were logged-in:

9. Initial this form to acknowledge login of sample(s): (Name): Chris Donald (Initial): CD
10. Were all bottle lids intact and sealed tightly? ..... Yes No N/A
11. Did all bottles arrive unbroken? ..... Yes No N/A
12. Was all required bottle label information complete? ..... Yes No N/A
13. Did all bottle labels agree with custody papers? ..... Yes No N/A
14. Were correct containers used for the analyses indicated? ..... Yes No N/A
15. Were preservative levels correct in all applicable sample containers? ..... Yes No N/A
16. Was residual chlorine present in any applicable sample containers? ..... Yes No N/A
17. Was sufficient amount of sample sent for the analyses required? ..... Yes No N/A
18. Was headspace present in any included VOA vials? ..... Yes No N/A

If Non-Conformance issues were present, list by sample ID: _____

HOLDTIME

SDG CTOJM09CFG

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
OV	UG/L	CEF-G82-DUP01-2010102	1010287-02	NM	10/28/2010	11/02/2010	11/02/2010	5	0	5
OV	UG/L	CEF-G82-1S-20101027	1010287-03	NM	10/28/2010	11/02/2010	11/02/2010	5	0	5
OV	UG/L	Trip Blank	1010287-09	NM	10/28/2010	11/02/2010	11/02/2010	5	0	5
OV	UG/L	CEF-G82-6S-20101028	1010287-08	NM	10/28/2010	11/02/2010	11/02/2010	5	0	5
OV	UG/L	CEF-G82-5S-20101028	1010287-07	NM	10/28/2010	11/02/2010	11/02/2010	5	0	5
OV	UG/L	CEF-G82-4S-20101028	1010287-06	NM	10/28/2010	11/02/2010	11/02/2010	5	0	5
OV	UG/L	CEF-G82-3S-20101027	1010287-01	NM	10/28/2010	11/02/2010	11/02/2010	5	0	5
OV	UG/L	CEF-G82-2S-20101027	1010287-04	NM	10/28/2010	11/02/2010	11/02/2010	5	0	5
OV	UG/L	CEF-G82-2I-20101027	1010287-05	NM	10/28/2010	11/02/2010	11/02/2010	5	0	5
SIM	UG/L	CEF-G82-3S-20101027	1010287-01	SUR	10/28/2010	11/01/2010	11/08/2010	4	7	11
SIM	UG/L	CEF-G82-3S-20101027	1010287-01	NM	10/28/2010	11/01/2010	11/08/2010	4	7	11
SIM	UG/L	CEF-G82-1S-20101027	1010287-03	SUR	10/28/2010	11/01/2010	11/08/2010	4	7	11
SIM	UG/L	CEF-G82-2I-20101027	1010287-05	NM	10/28/2010	11/01/2010	11/08/2010	4	7	11
SIM	UG/L	CEF-G82-2I-20101027	1010287-05	SUR	10/28/2010	11/01/2010	11/08/2010	4	7	11
SIM	UG/L	CEF-G82-2S-20101027	1010287-04	NM	10/28/2010	11/01/2010	11/08/2010	4	7	11

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
SIM	UG/L	CEF-G82-2S-20101027	1010287-04	SUR	10/28/2010	11/01/2010	11/08/2010	4	7	11
SIM	UG/L	CEF-G82-1S-20101027	1010287-03	NM	10/28/2010	11/01/2010	11/08/2010	4	7	11
SIM	UG/L	CEF-G82-DUP01-2010102	1010287-02	NM	10/28/2010	11/01/2010	11/08/2010	4	7	11
SIM	UG/L	CEF-G82-2S-20101027DL	1010287-04RE1	NM	10/28/2010	11/01/2010	11/09/2010	4	8	12
SIM	UG/L	CEF-G82-DUP01-2010102	1010287-02	SUR	10/28/2010	11/01/2010	11/08/2010	4	7	11
SIM	UG/L	CEF-G82-6S-20101028	1010287-08	SUR	10/28/2010	11/01/2010	11/08/2010	4	7	11
SIM	UG/L	CEF-G82-6S-20101028	1010287-08	NM	10/28/2010	11/01/2010	11/08/2010	4	7	11
SIM	UG/L	CEF-G82-5S-20101028	1010287-07	SUR	10/28/2010	11/01/2010	11/08/2010	4	7	11
SIM	UG/L	CEF-G82-5S-20101028	1010287-07	NM	10/28/2010	11/01/2010	11/08/2010	4	7	11
SIM	UG/L	CEF-G82-4S-20101028	1010287-06	SUR	10/28/2010	11/01/2010	11/08/2010	4	7	11
SIM	UG/L	CEF-G82-4S-20101028	1010287-06	NM	10/28/2010	11/01/2010	11/08/2010	4	7	11
TPH	MG/L	CEF-G82-DUP01-2010102	1010287-02	NM	10/28/2010	11/02/2010	11/09/2010	5	7	12
TPH	MG/L	CEF-G82-2I-20101027	1010287-05	NM	10/28/2010	11/02/2010	11/09/2010	5	7	12
TPH	MG/L	CEF-G82-2S-20101027	1010287-04	NM	10/28/2010	11/02/2010	11/09/2010	5	7	12
TPH	MG/L	CEF-G82-3S-20101027	1010287-01	NM	10/28/2010	11/02/2010	11/09/2010	5	7	12
TPH	MG/L	CEF-G82-4S-20101028	1010287-06	NM	10/28/2010	11/02/2010	11/09/2010	5	7	12
TPH	MG/L	CEF-G82-5S-20101028	1010287-07	NM	10/28/2010	11/02/2010	11/09/2010	5	7	12
TPH	MG/L	CEF-G82-6S-20101028	1010287-08	NM	10/28/2010	11/02/2010	11/09/2010	5	7	12

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
TPH	MG/L	CEF-G82-1S-20101027	1010287-03	NM	10/28/2010	11/02/2010	11/09/2010	5	7	12

NAS CECIL FIELD
WATER DATA
CTOJM09CF_001

FRACTION	CHEMICAL	CEPG82-IS-20101027	UNITS	EF-G82-DUP01-20101027	RPD	D
OV	NAPHTHALENE	ND	UG/L	0.334 J	200.00	0.33

Current RPD Quality Control Limit: 30 %.
Shaded cells indicate RPDs that exceed the applicable quality control limit.

HOLDING TIME SUMMARY

SW8260B

Laboratory: Empirical Laboratories, LLC SDG: CTOJM09CFG82_001

Client: Tetra Tech NUS, Inc. (T010) Project: NAS Cecil Field CTOJM09 (G-82)

Sample Name	Date Collected	Date Received	Date Prepared	Days to Prep	Max Days to Prep	Date Analyzed	Days to Analysis	Max Days to Analysis	Q
CEF-G82-3S-20101027	10/28/10 12:04	10/29/10 08:00	11/02/10 10:00	N/A	14.00	11/02/10 14:11	5.13	14.00	
CEF-G82-DUP01-20101027	10/28/10 00:00	10/29/10 08:00	11/02/10 10:00	N/A	14.00	11/02/10 14:42	5.65	14.00	
CEF-G82-1S-20101027	10/28/10 12:34	10/29/10 08:00	11/02/10 10:00	N/A	14.00	11/02/10 15:12	5.15	14.00	
CEF-G82-2S-20101027	10/28/10 14:24	10/29/10 08:00	11/02/10 10:00	N/A	14.00	11/02/10 17:42	5.18	14.00	
CEF-G82-2I-20101027	10/28/10 15:29	10/29/10 08:00	11/02/10 10:00	N/A	14.00	11/02/10 15:42	5.05	14.00	
CEF-G82-4S-20101028	10/28/10 10:53	10/29/10 08:00	11/02/10 10:00	N/A	14.00	11/02/10 16:12	5.26	14.00	
CEF-G82-5S-20101028	10/28/10 11:36	10/29/10 08:00	11/02/10 10:00	N/A	14.00	11/02/10 16:42	5.25	14.00	
CEF-G82-6S-20101028	10/28/10 12:22	10/29/10 08:00	11/02/10 10:00	N/A	14.00	11/02/10 17:12	5.24	14.00	
Trip Blank	10/28/10 00:00	10/29/10 08:00	11/02/10 10:00	N/A	14.00	11/02/10 13:11	5.59	14.00	

ANALYSIS SEQUENCE SUMMARY

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	CTOJM09CFG82_001
Client:	Tetra Tech NUS, Inc. (T010)	Project:	NAS Cecil Field CTOJM09 (G-82)
Sequence:	0J29803	Instrument:	MS-VOA5
Calibration:	0298002		

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
MS Tune	0J29803-TUN1	SEQ-TUN1.D	10/22/10 11:47
Cal Standard	0J29803-CAL1	SEQ-CAL1.D	10/22/10 12:28
Cal Standard	0J29803-CAL2	SEQ-CAL2.D	10/22/10 12:59
Cal Standard	0J29803-CAL3	SEQ-CAL3.D	10/22/10 13:29
Cal Standard	0J29803-CAL4	SEQ-CAL4.D	10/22/10 13:59
Cal Standard	0J29803-CAL5	SEQ-CAL5.D	10/22/10 14:29
Cal Standard	0J29803-CAL6	SEQ-CAL6.D	10/22/10 15:00
Cal Standard	0J29803-CAL7	SEQ-CAL7.D	10/22/10 15:30
Cal Standard	0J29803-CAL8	SEQ-CAL8.D	10/22/10 16:00
Cal Standard	0J29803-CAL9	SEQ-CAL9.D	10/22/10 16:30
Initial Cal Check	0J29803-ICV1	SEQ-ICV1.D	10/22/10 17:01

MASS SPECTROMETER INSTRUMENT PERFORMANCE CHECK

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	CTOJM09CFG82_001
Client:	Tetra Tech NUS, Inc. (T010)	Project:	NAS Cecil Field CTOJM09 (G-82)
Lab File ID:	SEQ-TUN1.D	Injection Date:	10/22/10
Instrument ID:	MS-VOA5	Injection Time:	11:47
Sequence:	0J29803	Lab Sample ID:	0J29803-TUN1

m/z	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE	
50	15 - 40% of 95	26.5	PASS
75	30 - 60% of 95	51.2	PASS
95	Base peak, 100% relative abundance	100	PASS
96	5 - 9% of 95	7.27	PASS
173	Less than 2% of 174	0	PASS
174	50 - 200% of 95	61.9	PASS
175	5 - 9% of 174	7.93	PASS
176	95 - 101% of 174	97.8	PASS
177	5 - 9% of 176	6.77	PASS

INITIAL CALIBRATION DATA (Continued)

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	CTOJM09CFG82_001
Client:	Tetra Tech NUS, Inc. (T010)	Project:	NAS Cecil Field CTOJM09 (G-82)
Calibration:	0298002	Instrument:	MS-VOA5
Matrix:	Water	Calibration Date:	10/22/2010 11:22:30AM

Compound	Mean RF	RF RSD	Mean RT	RT RSD	Linear r	Quad COD	LIMIT	Q
Acetone	7.924269E-02	8.795758	6.4625	0.1086751			15	
Acrolein	3.764228E-02	5.483296	6.264	0.1633056			15	
Acrylonitrile	8.386993E-02	9.408429	7.255	8.701654E-02			15	
Benzene	0.8547143	5.373305	13.05444	4.491979E-02			15	
Bromobenzene	0.632833	6.357078	18.00222	2.181659E-02			15	
Bromochloromethane	0.1179581	12.99374	11.11444	3.807873E-02			15	
Tert-Amyl Methyl Ether	0.7816701	13.34278	13.34938	5.300554E-02			15	
Bromodichloromethane	0.328638	9.911197	13.97222	5.219936E-02			15	
Bromoform	0.31215	13.07375	17.271	2.561973E-02			SPCC (0.1)	
Bromomethane	0.1772179	11.59316	5.277889	0.1383334			15	
Bromofluorobenzene	0.8360644	6.507098	17.81733	2.164617E-02			15	
n-Butylbenzene	1.588749	6.601492	19.22856	2.800362E-02			15	
2-Butanone	0.1069138	12.63453	10.51633	0.1393448	0.99947		0.995	
sec-Butylbenzene	1.997111	4.217481	18.75456	2.067387E-02			15	
tert-Butylbenzene	1.540979	4.629418	18.88367	2.912328E-02			15	
Carbon disulfide	0.6372676	7.98852	7.883333	0.1015293			15	
Carbon tetrachloride	0.2391148	15.04923	13.02289	3.821694E-02	0.999044		0.995	
Chlorobenzene	1.150906	8.411039	16.85589	2.931033E-02			SPCC (0.3)	
Chloroethane	0.1390471	6.388867	5.470444	0.1917845			15	
Chloroform	0.4411837	6.19173	11.21544	6.347433E-02			CCC (20)	
2-Chloroethyl vinyl ether	0.1459066	14.18162	14.50867	4.376122E-02			15	
Chloromethane	0.2556218	3.626658	4.503667	9.362048E-02			SPCC (0.1)	
1-Chlorohexane	0.6224832	12.98595	16.79578	2.417738E-02			15	
2-Chlorotoluene	1.71594	3.507821	18.22344	0.0290316			15	
4-Chlorotoluene	1.804453	3.275187	18.28156	2.076341E-02			15	
Cyclohexane	0.3267276	10.65221	12.92422	4.284799E-02			15	
Dibromochloromethane	0.468519	9.025086	15.86933	3.424312E-02			15	
1,2-Dibromo-3-chloropropane	0.1193209	18.70586	19.62933	0.0312582	0.9989738		0.995	
1,2-Dibromoethane (EDB)	0.4775361	5.538215	16.09711	3.168883E-02			15	
Dibromomethane	0.177134	8.580371	13.811	3.763585E-02			15	
1,2-Dichlorobenzene	1.010345	4.682532	19.222	0.0279027			15	
1,3-Dichlorobenzene	1.087811	3.885513	18.85389	2.875289E-02			15	

INITIAL CALIBRATION DATA (Continued)

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	CTOJM09CFG82_001
Client:	Tetra Tech NUS, Inc. (T010)	Project:	NAS Cecil Field CTOJM09 (G-82)
Calibration:	0298002	Instrument:	MS-VOA5
Matrix:	Water	Calibration Date:	10/22/2010 11:22:30AM

Compound	Mean RF	RF RSD	Mean RT	RT RSD	Linear r	Quad COD	LIMIT	Q
1,4-Dichlorobenzene	1.131319	4.764564	18.90311	2.736767E-02			15	
Dichlorodifluoromethane	0.2063485	15.16225	4.248445	0.1663369	0.9966434		0.995	
1,1-Dichloroethane	0.435834	8.267276	9.410778	0.1297156			SPCC (0.1)	
1,2-Dichloroethane	0.3583052	7.178788	12.32411	6.256343E-02			15	
1,1-Dichloroethene	0.169781	11.16525	7.200222	0.1287136	0.9995169		CCC (20)	
cis-1,2-Dichloroethene	0.2366388	4.558686	10.82644	9.717694E-02			15	
trans-1,2-Dichloroethene	0.2129119	7.924475	8.810778	0.145738			15	
1,2-Dichloroethene (total)	0.2247753	6.027974	0	0			15	
1,2-Dichloropropane	0.2631589	6.976571	13.86256	5.425551E-02			CCC (20)	
1,3-Dichloropropane	0.796343	7.322383	15.623	3.414796E-02			15	
2,2-Dichloropropane	0.3132719	6.187605	11.38367	8.439046E-02			15	
1,1-Dichloropropene	0.3011432	11.98453	12.78956	5.401018E-02			15	
cis-1,3-Dichloropropene	0.399046	8.875848	14.75478	4.080356E-02			15	
trans-1,3-Dichloropropene	0.7030432	6.095002	15.22011	3.549513E-02			15	
Diisopropyl Ether	0.9510713	7.429871	10.626	0.1213837			15	
Ethylbenzene	1.949634	8.825316	17.00711	2.203285E-03			CCC (20)	
Ethyl tert-Butyl Ether	0.7567205	7.706683	11.41889	7.581628E-02			15	
Ethyl Methacrylate	0.6197392	8.723372	15.66156	3.823458E-02			15	
Hexachlorobutadiene	0.218932	9.057451	21.32489	2.359322E-02			15	
2-Hexanone	0.3605877	8.563267	15.78378	3.223305E-02			15	
Iodomethane	0.3247796	12.75049	7.2485	6.081368E-02			15	
Isopropylbenzene	1.473313	7.439968	17.77767	2.482891E-02			15	
p-Isopropyltoluene	1.318334	3.167259	18.577	1.157817E-02			15	
Methylene chloride	0.2554485	4.945895	7.449889	0.1206796			15	
Methyl Acetate	0.2396946	6.088451	7.509333	0.1423047			15	
Methylcyclohexane	0.251966	13.33684	14.56211	0.0428962			15	
Naphthalene	1.352382	11.57054	21.29667	2.279631E-02			15	
Methyl Methacrylate	0.2403381	11.39376	14.19744	5.925694E-02			15	
4-Methyl-2-pentanone	0.2379415	7.504479	14.88922	2.317044E-02			15	
Methyl t-Butyl Ether	0.6037554	9.284827	9.124	0.2365044			15	
n-Propylbenzene	2.658926	4.023493	18.12478	2.773861E-02			15	
Styrene	1.201783	6.724732	17.42844	2.897281E-02			15	

INITIAL CALIBRATION DATA (Continued)

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	CTOJM09CFG82_001
Client:	Tetra Tech NUS, Inc. (T010)	Project:	NAS Cecil Field CTOJM09 (G-82)
Calibration:	0298002	Instrument:	MS-VOA5
Matrix:	Water	Calibration Date:	10/22/2010 11:22:30AM

Compound	Mean RF	RF RSD	Mean RT	RT RSD	Linear r	Quad COD	LIMIT	Q
1,1,2,2-Tetrachloroethane	0.7565619	3.653684	17.50067	1.213082E-02			SPCC (0.3)	
1,1,1,2-Tetrachloroethane	0.4117163	7.635895	16.79689	2.446208E-02			15	
tert-Butyl alcohol	2.338072E-02	11.82013	7.21175	9.254626E-02			15	
Tetrachloroethene	0.4160129	4.717048	16.27333	3.354811E-02			15	
Toluene	1.047753	7.990827	15.56167	3.820079E-02			CCC (20)	
1,2,3-Trichlorobenzene	0.5094332	12.18127	21.56267	2.119663E-02			15	
1,2,4-Trichlorobenzene	0.5874041	9.105935	20.99656	2.504784E-02			15	
1,1,2-Trichloroethane	0.3945239	7.493582	15.37567	3.930067E-02			15	
1,1,1-Trichloroethane	0.3068774	10.36691	12.49644	5.551284E-02			15	
Tetrahydrofuran	7.224355E-02	10.56901	11.83589	0.1602303			15	
Trichloroethene	0.2295034	7.557056	13.93589	4.587642E-02			15	
Trichlorofluoromethane	0.3036318	11.71105	6.307889	0.118945			15	
1,2,3-Trichloropropane	0.1491528	8.60342	17.61044	1.770859E-02			15	
1,3,5-Trimethylbenzene	1.705009	4.200021	18.33278	3.187324E-02			15	
1,2,4-Trimethylbenzene	1.766152	4.409543	18.65678	0.0280125			15	
1,1,2-Trichloro-1,2,2-trifluoroethane	0.1795629	10.4273	7.569444	0.1143874			15	
Vinyl chloride	0.2102642	7.095413	4.732556	0.2191018			CCC (20)	
m,p-Xylene	1.466961	12.69405	17.16133	3.291167E-02			15	
o-Xylene	1.554092	10.58128	17.48967	1.507451E-02			15	
Vinyl acetate	0.5247327	20.14484	9.740444	0.148909	0.9995467		0.995	
Xylenes (total)	1.496005	11.82659	0	0			15	
Dibromofluoromethane	0.3046964	1.378341	11.42856	7.899745E-02			15	
1,2-Dichloroethane-d4	6.525281E-02	2.317079	12.20044	5.886681E-02			15	
Toluene-d8	1.905309	4.308167	15.48833	2.734596E-02			15	
tert-Amyl alcohol	1.506474E-02	20.77519	12.07087	8.328726E-02	0.9985844		0.995	
tert-Amyl ethyl ether	0.6360994	8.508874	14.43189	3.430507E-02			15	

INITIAL CALIBRATION CHECK

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	CTOJM09CFG82_001
Client:	Tetra Tech NUS, Inc. (T010)	Project:	NAS Cecil Field CTOJM09 (G-82)
Instrument ID:	MS-VOA5	Calibration:	0298002
Lab File ID:	SEQ-ICV1.D	Calibration Date:	10/22/10 11:22
Sequence:	0J29803	Injection Date:	10/22/10
Lab Sample ID:	0J29803-ICV1	Injection Time:	17:01

		CONC. (ug/L)		RESPONSE FACTOR			% DIFF / DRIFT	
COMPOUND	TYPE	STD	ICV	ICAL	ICV	MIN (#)	ICV	LIMIT (#)
Benzene	A	100.0	103.1	0.8547143	0.8808699		3.1	20
Ethylbenzene	A	100.0	100.8	1.949634	1.964409		0.8	20
Isopropylbenzene	A	100.0	108.4	1.473313	1.597479		8.4	20
Naphthalene	A	100.0	111.6	1.352382	1.509786		11.6	20
Toluene	A	100.0	100.2	1.047753	1.049723		0.2	20
1,3,5-Trimethylbenzene	A	100.0	104.4	1.705009	1.78004		4.4	20
1,2,4-Trimethylbenzene	A	100.0	103.3	1.766152	1.823753		3.3	20
m,p-Xylene	A	200.0	194.2	1.466961	1.424651		-2.9	20
o-Xylene	A	100.0	99.42	1.554092	1.545065		-0.6	20
Xylenes (total)	A	300.0	293.7	1.496005	1.464789		-2.1	20
Bromofluorobenzene	A	30.00	29.31	0.8360644	0.8169665		-2.3	20
Dibromofluoromethane	A	30.00	29.93	0.3046964	0.3040137		-0.2	20
1,2-Dichloroethane-d4	A	30.00	31.85	6.525281E-02	6.927138E-02		6.2	20
Toluene-d8	A	30.00	29.90	1.905309	1.899235		-0.3	20

Column to be used to flag Response Factor and %Diff/Drift values with an asterisk

* Values outside of QC limits

ANALYSIS SEQUENCE SUMMARY

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	CTOJM09CFG82_001
Client:	Tetra Tech NUS, Inc. (T010)	Project:	NAS Cecil Field CTOJM09 (G-82)
Sequence:	0K30711	Instrument:	MS-VOA5
Calibration:	0298002		

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
MS Tune	0K30711-TUN1	1102TU1.D	11/02/10 09:30
Calibration Check	0K30711-CCV1	1102CC1.D	11/02/10 10:01
LCS	0K02007-BS1	1102LS1.D	11/02/10 10:42
Blank	0K02007-BLK1	1102BL1.D	11/02/10 12:11
Trip Blank	1010287-09	1028709.D	11/02/10 13:11
CEF-G82-3S-20101027	1010287-01	1028701.D	11/02/10 14:11
CEF-G82-DUP01-20101027	1010287-02	1028702.D	11/02/10 14:42
CEF-G82-1S-20101027	1010287-03	1028703.D	11/02/10 15:12
CEF-G82-2I-20101027	1010287-05	1028705.D	11/02/10 15:42
CEF-G82-4S-20101028	1010287-06	1028706.D	11/02/10 16:12
CEF-G82-5S-20101028	1010287-07	1028707.D	11/02/10 16:42
CEF-G82-6S-20101028	1010287-08	1028708.D	11/02/10 17:12
CEF-G82-2S-20101027	1010287-04	1028704.D	11/02/10 17:42
CEF-G82-3S-20101027	0K02007-MS1	1028701M.D	11/02/10 19:43
CEF-G82-3S-20101027	0K02007-MSD1	1028701S.D	11/02/10 20:13

MASS SPECTROMETER INSTRUMENT PERFORMANCE CHECK

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	CTOJM09CFG82_001
Client:	Tetra Tech NUS, Inc. (T010)	Project:	NAS Cecil Field CTOJM09 (G-82)
Lab File ID:	1102TU1.D	Injection Date:	11/02/10
Instrument ID:	MS-VOA5	Injection Time:	09:30
Sequence:	0K30711	Lab Sample ID:	0K30711-TUN1

m/z	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE	
50	15 - 40% of 95	23.9	PASS
75	30 - 60% of 95	50.8	PASS
95	Base peak, 100% relative abundance	100	PASS
96	5 - 9% of 95	6.85	PASS
173	Less than 2% of 174	0	PASS
174	50 - 200% of 95	70.3	PASS
175	5 - 9% of 174	7.76	PASS
176	95 - 101% of 174	98	PASS
177	5 - 9% of 176	6.76	PASS

CONTINUING CALIBRATION CHECK

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	CTOJM09CFG82_001
Client:	Tetra Tech NUS, Inc. (T010)	Project:	NAS Cecil Field CTOJM09 (G-82)
Instrument ID:	MS-VOA5	Calibration:	0298002
Lab File ID:	1102CC1.D	Calibration Date:	10/22/10 11:22
Sequence:	0K30711	Injection Date:	11/02/10
Lab Sample ID:	0K30711-CCV1	Injection Time:	10:01

		CONC. (ug/L)		RESPONSE FACTOR			% DIFF / DRIFT	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN (#)	CCV	LIMIT (#)
Benzene	A	100.0	99.18	0.8547143	0.8476987		-0.8	20
Ethylbenzene	A	100.0	99.59	1.949634	1.941697		-0.4	20
Isopropylbenzene	A	100.0	101.5	1.473313	1.495891		1.5	20
Naphthalene	A	100.0	98.29	1.352382	1.329225		-1.7	20
Toluene	A	100.0	94.81	1.047753	0.9933879		-5.2	20
1,3,5-Trimethylbenzene	A	100.0	104.2	1.705009	1.775883		4.2	20
1,2,4-Trimethylbenzene	A	100.0	104.2	1.766152	1.840355		4.2	20
m,p-Xylene	A	200.0	196.1	1.466961	1.43815		-2.0	20
o-Xylene	A	100.0	99.54	1.554092	1.546881		-0.5	20
Xylenes (total)	A	300.0	295.6	1.496005	1.474394		-1.4	20
Bromofluorobenzene	A	30.00	30.66	0.8360644	0.8544412		2.2	20
Dibromofluoromethane	A	30.00	31.20	0.3046964	0.3169251		4.0	20
1,2-Dichloroethane-d4	A	30.00	29.38	6.525281E-02	6.391353E-02		-2.1	20
Toluene-d8	A	30.00	27.37	1.905309	1.738366		-8.8	20

Column to be used to flag Response Factor and %Diff/Drift values with an asterisk

* Values outside of QC limits

PREPARATION BATCH SUMMARY

SW8260B

Laboratory: Empirical Laboratories, LLC

SDG: CTOJM09CFG82_001

Client: Tetra Tech NUS, Inc. (T010)

Project: NAS Cecil Field CTOJM09 (G-82)

Batch: 0K02007 Batch Matrix: Water

Preparation: 5030B

SAMPLE NAME	LAB SAMPLE ID	DATE PREPARED	INITIAL VOL./WEIGHT	FINAL VOL.
Blank	0K02007-BLK1	11/02/10 10:00	5.00	5.00
LCS	0K02007-BS1	11/02/10 10:00	5.00	5.00
CEF-G82-3S-20101027	0K02007-MS1	11/02/10 10:00	5.00	5.00
CEF-G82-3S-20101027	0K02007-MSD1	11/02/10 10:00	5.00	5.00
CEF-G82-3S-20101027	1010287-01	11/02/10 10:00	5.00	5.00
CEF-G82-DUP01-20101027	1010287-02	11/02/10 10:00	5.00	5.00
CEF-G82-1S-20101027	1010287-03	11/02/10 10:00	5.00	5.00
CEF-G82-2S-20101027	1010287-04	11/02/10 10:00	5.00	5.00
CEF-G82-21-20101027	1010287-05	11/02/10 10:00	5.00	5.00
CEF-G82-4S-20101028	1010287-06	11/02/10 10:00	5.00	5.00
CEF-G82-5S-20101028	1010287-07	11/02/10 10:00	5.00	5.00
CEF-G82-6S-20101028	1010287-08	11/02/10 10:00	5.00	5.00
Trip Blank	1010287-09	11/02/10 10:00	5.00	5.00

ANALYSIS DATA SHEET

Blank

Laboratory:	Empirical Laboratories, LLC		SDG:	CTOJM09CFG82_001	
Client:	Tetra Tech NUS, Inc. (T010)		Project:	NAS Cecil Field CTOJM09 (G-82)	
Matrix:		Laboratory ID:	0K02007-BLK1	File ID:	1102BL1.D
Sampled:		Prepared:		Analyzed:	11/02/10 12:11
Solids:		Preparation:	5030B	Dilution:	

Batch: 0K02007 Sequence: 0K30711 Calibration: 0298002 Instrument: MS-VOA5

CAS NO.	COMPOUND	CONC. (ug/L)	MDL	MRL	Q
71-43-2	Benzene		0.250	1.00	U
100-41-4	Ethylbenzene		0.250	1.00	U
98-82-8	Isopropylbenzene		0.250	1.00	U
91-20-3	Naphthalene		0.250	1.00	U
108-88-3	Toluene		0.250	1.00	U
108-67-8	1,3,5-Trimethylbenzene		0.250	1.00	U
95-63-6	1,2,4-Trimethylbenzene		0.250	1.00	U
108-38-3/106-42-	m,p-Xylene		0.500	2.00	U
95-47-6	o-Xylene		0.250	1.00	U
1330-20-7	Xylenes (total)		0.750	3.00	U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Bromofluorobenzene	30.00	31.69	106	75 - 120	
Dibromofluoromethane	30.00	32.54	108	85 - 115	
1,2-Dichloroethane-d4	30.00	29.91	99.7	70 - 120	
Toluene-d8	30.00	28.84	96.1	85 - 120	

HOLDING TIME SUMMARY

SW8270C

Laboratory: Empirical Laboratories, LLC

SDG: CTOJM09CFG82_001

Client: Tetra Tech NUS, Inc. (T010)

Project: NAS Cecil Field CTOJM09 (G-82)

Sample Name	Date Collected	Date Received	Date Prepared	Days to Prep	Max Days to Prep	Date Analyzed	Days to Analysis	Max Days to Analysis	Q
CEF-G82-3S-20101027	10/28/10 12:04	10/29/10 08:00	11/01/10 15:30	4.18	7.00	11/08/10 23:20	7.33	40.00	
CEF-G82-DUP01-20101027	10/28/10 00:00	10/29/10 08:00	11/01/10 15:30	4.69	7.00	11/08/10 18:40	7.13	40.00	
CEF-G82-1S-20101027	10/28/10 12:34	10/29/10 08:00	11/01/10 15:30	4.16	7.00	11/08/10 19:07	7.15	40.00	
CEF-G82-2S-20101027	10/28/10 14:24	10/29/10 08:00	11/01/10 15:30	4.09	7.00	11/08/10 19:33	7.17	40.00	
CEF-G82-2S-20101027	10/28/10 14:24	10/29/10 08:00	11/01/10 15:30	4.09	7.00	11/09/10 08:34	7.71	40.00	
CEF-G82-2I-20101027	10/28/10 15:29	10/29/10 08:00	11/01/10 15:30	4.04	7.00	11/08/10 20:00	7.19	40.00	
CEF-G82-4S-20101028	10/28/10 10:53	10/29/10 08:00	11/01/10 15:30	4.23	7.00	11/08/10 20:27	7.21	40.00	
CEF-G82-5S-20101028	10/28/10 11:36	10/29/10 08:00	11/01/10 15:30	4.20	7.00	11/08/10 20:53	7.22	40.00	
CEF-G82-6S-20101028	10/28/10 12:22	10/29/10 08:00	11/01/10 15:30	4.17	7.00	11/08/10 21:20	7.24	40.00	

ANALYSIS SEQUENCE SUMMARY

SW8270C

Laboratory:	Empirical Laboratories, LLC	SDG:	CTOJM09CFG82_001
Client:	Tetra Tech NUS, Inc. (T010)	Project:	NAS Cecil Field CTOJM09 (G-82)
Sequence:	0H23613	Instrument:	MS-BNA4
Calibration:	0237003		

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
MS Tune	0H23613-TUN1	SEQ-TUN1.D	08/23/10 10:58
Cal Standard	0H23613-CAL1	SEQ-CAL1.D	08/23/10 11:18
Cal Standard	0H23613-CAL2	SEQ-CAL2.D	08/23/10 11:46
Cal Standard	0H23613-CAL3	SEQ-CAL3.D	08/23/10 12:14
Cal Standard	0H23613-CAL4	SEQ-CAL4.D	08/23/10 12:43
Cal Standard	0H23613-CAL5	SEQ-CAL5.D	08/23/10 13:12
Cal Standard	0H23613-CAL6	SEQ-CAL6.D	08/23/10 13:41
Cal Standard	0H23613-CAL7	SEQ-CAL7.D	08/23/10 14:09
Cal Standard	0H23613-CAL8	SEQ-CAL8.D	08/23/10 14:38
Cal Standard	0H23613-CAL9	SEQ-CAL9.D	08/23/10 15:07
Cal Standard	0H23613-CALA	SEQ-CALA.D	08/23/10 15:35
Cal Standard	0H23613-CALB	SEQ-CALB.D	08/23/10 16:04
Initial Cal Check	0H23613-ICV1	SEQ-ICV1.D	08/23/10 16:33

MASS SPECTROMETER INSTRUMENT PERFORMANCE CHECK

SW8270C

Laboratory:	Empirical Laboratories, LLC	SDG:	CTOJM09CFG82_001
Client:	Tetra Tech NUS, Inc. (T010)	Project:	NAS Cecil Field CTOJM09 (G-82)
Lab File ID:	SEQ-TUN1.D	Injection Date:	08/23/10
Instrument ID:	MS-BNA4	Injection Time:	10:58
Sequence:	0H23613	Lab Sample ID:	0H23613-TUN1

m/z	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE	
51	30 - 60% of 198	37.1	PASS
68	Less than 2% of 69	1.35	PASS
69	Less than 200% of 198	35.2	PASS
70	Less than 2% of 69	0.535	PASS
127	40 - 60% of 198	44.6	PASS
197	Less than 1% of 198	0.57	PASS
198	Base peak, 100% relative abundance	100	PASS
199	5 - 9% of 198	6.65	PASS
275	10 - 30% of 198	29.4	PASS
365	1 - 200% of 198	4.31	PASS
441	0.001 - 100% of 443	81.1	PASS
442	40 - 200% of 198	171	PASS
443	17 - 23% of 442	19.6	PASS

INITIAL CALIBRATION DATA (Continued)

SW8270C

Laboratory:	Empirical Laboratories, LLC	SDG:	CTOJM09CFG82_001
Client:	Tetra Tech NUS, Inc. (T010)	Project:	NAS Cecil Field CTOJM09 (G-82)
Calibration:	0237003	Instrument:	MS-BNA4
Matrix:	Water	Calibration Date:	8/23/2010 2:19:08PM

Compound	Mean RF	RF RSD	Mean RT	RT RSD	Linear r	Quad COD	LIMIT	Q
Acenaphthene	0.8490211	6.818824	8.672363	7.491158E-02			CCC (30)	
Acenaphthylene	1.256297	7.321474	8.503636	4.741883E-02			15	
Anthracene	1.162297	5.411094	10.16845	5.870715E-02			15	
Benzo(a)anthracene	1.05022	6.564346	12.73	5.763089E-02			15	
Benzo(a)pyrene	1.281052	3.796487	14.64482	9.160048E-02			CCC (30)	
Benzo(b)fluoranthene	1.518281	6.790712	14.14373	0.0922259			15	
Benzo(g,h,i)perylene	1.255234	5.124687	17.09564	0.1289391			15	
Benzo(k)fluoranthene	1.472463	7.737223	14.18955	9.274443E-02			15	
Chrysene	1.036307	8.192401	12.77309	5.757095E-02			15	
Dibenz(a,h)anthracene	1.117366	8.548531	16.66327	0.1020264			15	
Fluoranthene	1.238826	5.482849	11.28455	5.677501E-02			CCC (30)	
Fluorene	0.8096793	5.615516	9.182	4.516641E-02			15	
2-Fluorobiphenyl	0.9978073	5.609346	7.992182	4.747639E-02			15	
2-Fluorophenol							15	
Indeno(1,2,3-cd)pyrene	1.182429	8.792795	16.60736	0.0996987			15	
1-Methylnaphthalene	0.7624406	5.428982	7.722637	4.959277E-02			15	
2-Methylnaphthalene	0.8439543	5.17593	7.628818	3.890384E-02			15	
Naphthalene	1.34026	5.556837	6.945	0.1089812			15	
Nitrobenzene-d5							15	
Phenanthrene	1.181841	6.256198	10.12082	4.272592E-02			15	
Phenol-d6							15	
Pyrene	1.285122	5.967861	11.50618	3.003483E-02			15	
Terphenyl-d14	0.9438304	6.047221	11.67445	3.428681E-02			15	
2,4,6-Tribromophenol	0.171283	18.26313	9.417909	7.753255E-02	0.9989515		0.995	
Acenaphthene-d10							15	
Chrysene-d12							15	

INITIAL CALIBRATION CHECK

SW8270C

Laboratory:	Empirical Laboratories, LLC	SDG:	CTOJM09CFG82_001
Client:	Tetra Tech NUS, Inc. (T010)	Project:	NAS Cecil Field CTOJM09 (G-82)
Instrument ID:	MS-BNA4	Calibration:	0237003
Lab File ID:	SEQ-ICV1.D	Calibration Date:	08/23/10 14:19
Sequence:	0H23613	Injection Date:	08/23/10
Lab Sample ID:	0H23613-ICV1	Injection Time:	16:33

		CONC. (ug/mL)		RESPONSE FACTOR			% DIFF / DRIFT	
COMPOUND	TYPE	STD	ICV	ICAL	ICV	MIN (#)	ICV	LIMIT (#)
Acenaphthene	A	5.000	5.459	0.8490211	0.9269866		9.2	20
Acenaphthylene	A	5.000	5.703	1.256297	1.432929		14.1	20
Anthracene	A	5.000	5.160	1.162297	1.199487		3.2	20
Benzo(a)anthracene	A	5.000	5.178	1.05022	1.087508		3.6	20
Benzo(a)pyrene	A	5.000	5.685	1.281052	1.456646		13.7	20
Benzo(b)fluoranthene	A	5.000	5.211	1.518281	1.582416		4.2	20
Benzo(g,h,i)perylene	A	5.000	5.197	1.255234	1.304654		3.9	20
Benzo(k)fluoranthene	A	5.000	5.510	1.472463	1.622768		10.2	20
Chrysene	A	5.000	5.161	1.036307	1.069754		3.2	20
Dibenz(a,h)anthracene	A	5.000	5.628	1.117366	1.257663		12.6	20
Fluoranthene	A	5.000	5.209	1.238826	1.290573		4.2	20
Fluorene	A	5.000	5.488	0.8096793	0.8887667		9.8	20
Indeno(1,2,3-cd)pyrene	A	5.000	5.500	1.182429	1.300687		10.0	20
1-Methylnaphthalene	A	5.000	5.971	0.7624406	0.9105566		19.4	20
2-Methylnaphthalene	A	5.000	5.658	0.8439543	0.9550044		13.2	20
Naphthalene	A	5.000	5.701	1.34026	1.528177		14.0	20
Phenanthrene	A	5.000	5.284	1.181841	1.249062		5.7	20
Pyrene	A	5.000	5.200	1.285122	1.336607		4.0	20

Column to be used to flag Response Factor and %Diff/Drift values with an asterisk

* Values outside of QC limits

ANALYSIS SEQUENCE SUMMARY

SW8270C

Laboratory:	Empirical Laboratories, LLC	SDG:	CTOJM09CFG82_001
Client:	Tetra Tech NUS, Inc. (T010)	Project:	NAS Cecil Field CTOJM09 (G-82)
Sequence:	0K31302	Instrument:	MS-BNA4
Calibration:	0237003		

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
MS Tune	0K31302-TUN1	SEQ-TUN1.D	11/08/10 10:37
Calibration Check	0K31302-CCV1	SEQ-CCV1.D	11/08/10 10:54
LCS	0K01006-BS1	K01006LS1.D	11/08/10 12:18
Blank	0K01006-BLK1	K01006BL1.D	11/08/10 12:46
CEF-G82-DUP01-20101027	1010287-02	1028702.D	11/08/10 18:40
CEF-G82-1S-20101027	1010287-03	1028703.D	11/08/10 19:07
CEF-G82-2S-20101027	1010287-04	1028704.D	11/08/10 19:33
CEF-G82-2I-20101027	1010287-05	1028705.D	11/08/10 20:00
CEF-G82-4S-20101028	1010287-06	1028706.D	11/08/10 20:27
CEF-G82-5S-20101028	1010287-07	1028707.D	11/08/10 20:53
CEF-G82-6S-20101028	1010287-08	1028708.D	11/08/10 21:20

MASS SPECTROMETER INSTRUMENT PERFORMANCE CHECK

SW8270C

Laboratory:	Empirical Laboratories, LLC	SDG:	CTOJM09CFG82_001
Client:	Tetra Tech NUS, Inc. (T010)	Project:	NAS Cecil Field CTOJM09 (G-82)
Lab File ID:	SEQ-TUN1.D	Injection Date:	11/08/10
Instrument ID:	MS-BNA4	Injection Time:	10:37
Sequence:	0K31302	Lab Sample ID:	0K31302-TUN1

m/z	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE	
51	30 - 60% of 198	43.9	PASS
68	Less than 2% of 69	1.28	PASS
69	Less than 200% of 198	41.9	PASS
70	Less than 2% of 69	0.417	PASS
127	40 - 60% of 198	49.4	PASS
197	Less than 1% of 198	0.617	PASS
198	Base peak, 100% relative abundance	100	PASS
199	5 - 9% of 198	6.84	PASS
275	10 - 30% of 198	27	PASS
365	1 - 200% of 198	4.51	PASS
441	0.001 - 100% of 443	83	PASS
442	40 - 200% of 198	178	PASS
443	17 - 23% of 442	19.5	PASS

CONTINUING CALIBRATION CHECK

SW8270C

Laboratory:	Empirical Laboratories, LLC	SDG:	CTOJM09CFG82_001
Client:	Tetra Tech NUS, Inc. (T010)	Project:	NAS Cecil Field CTOJM09 (G-82)
Instrument ID:	MS-BNA4	Calibration:	0237003
Lab File ID:	SEQ-CCV1.D	Calibration Date:	08/23/10 14:19
Sequence:	0K31302	Injection Date:	11/08/10
Lab Sample ID:	0K31302-CCV1	Injection Time:	10:54

		CONC. (ug/mL)		RESPONSE FACTOR			% DIFF / DRIFT	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN (#)	CCV	LIMIT (#)
Acenaphthene	A	5.000	4.565	0.8490211	0.7751232		-8.7	20
Acenaphthylene	A	5.000	4.688	1.256297	1.178012		-6.2	20
Anthracene	A	5.000	5.222	1.162297	1.213995		4.4	20
Benzo(a)anthracene	A	5.000	4.437	1.05022	0.9320187		-11.3	20
Benzo(a)pyrene	A	5.000	4.973	1.281052	1.274088		-0.5	20
Benzo(b)fluoranthene	A	5.000	4.315	1.518281	1.31034		-13.7	20
Benzo(g,h,i)perylene	A	5.000	4.254	1.255234	1.068066		-14.9	20
Benzo(k)fluoranthene	A	5.000	5.874	1.472463	1.729806		17.5	20
Chrysene	A	5.000	4.548	1.036307	0.942744		-9.0	20
Dibenz(a,h)anthracene	A	5.000	4.490	1.117366	1.003355		-10.2	20
Fluoranthene	A	5.000	4.842	1.238826	1.199581		-3.2	20
Fluorene	A	5.000	4.897	0.8096793	0.7930238		-2.1	20
Indeno(1,2,3-cd)pyrene	A	5.000	4.064	1.182429	0.9611547		-18.7	20
1-Methylnaphthalene	A	5.000	4.784	0.7624406	0.7295533		-4.3	20
2-Methylnaphthalene	A	5.000	4.311	0.8439543	0.7276461		-13.8	20
Naphthalene	A	5.000	4.536	1.34026	1.215937		-9.3	20
Phenanthrene	A	5.000	4.648	1.181841	1.098775		-7.0	20
Pyrene	A	5.000	4.695	1.285122	1.206687		-6.1	20
2-Fluorobiphenyl	A	5.000	4.148	0.9978073	0.8276809		-17.1	20
Terphenyl-d14	A	5.000	4.060	0.9438304	0.7662979		-18.8	20

Column to be used to flag Response Factor and %Diff/Drift values with an asterisk

* Values outside of QC limits

PREPARATION BATCH SUMMARY

SW8270C

Laboratory: Empirical Laboratories, LLC

SDG: CTOJM09CFG82_001

Client: Tetra Tech NUS, Inc. (T010)

Project: NAS Cecil Field CTOJM09 (G-82)

Batch: 0K01006 Batch Matrix: Water

Preparation: EXT_3510

SAMPLE NAME	LAB SAMPLE ID	DATE PREPARED	INITIAL VOL./WEIGHT	FINAL VOL.
Blank	0K01006-BLK1	11/01/10 15:30	1,000.00	1.00
LCS	0K01006-BS1	11/01/10 15:30	1,000.00	1.00
CEF-G82-3S-20101027	0K01006-MS1	11/01/10 15:30	1,080.00	1.00
CEF-G82-3S-20101027	0K01006-MSD1	11/01/10 15:30	1,080.00	1.00
CEF-G82-3S-20101027	1010287-01	11/01/10 15:30	1,080.00	1.00
CEF-G82-DUP01-20101027	1010287-02	11/01/10 15:30	1,080.00	1.00
CEF-G82-1S-20101027	1010287-03	11/01/10 15:30	1,080.00	1.00
CEF-G82-2S-20101027	1010287-04	11/01/10 15:30	1,080.00	1.00
CEF-G82-2S-20101027	1010287-04RE1	11/01/10 15:30	1,080.00	1.00
CEF-G82-2I-20101027	1010287-05	11/01/10 15:30	1,080.00	1.00
CEF-G82-4S-20101028	1010287-06	11/01/10 15:30	1,080.00	1.00
CEF-G82-5S-20101028	1010287-07	11/01/10 15:30	1,080.00	1.00
CEF-G82-6S-20101028	1010287-08	11/01/10 15:30	1,080.00	1.00

ANALYSIS DATA SHEET

Blank

Laboratory:	Empirical Laboratories, LLC	SDG:	CTOJM09CFG82_001
Client:	Tetra Tech NUS, Inc. (T010)	Project:	NAS Cecil Field CTOJM09 (G-82)

Matrix:		Laboratory ID:	0K01006-BLK1	File ID:	K01006BL1.D
Sampled:		Prepared:		Analyzed:	11/08/10 12:46
Solids:		Preparation:	EXT_3510	Dilution:	

Batch:	0K01006	Sequence:	0K31302	Calibration:	0237003	Instrument:	MS-BNA4

CAS NO.	COMPOUND	CONC. (ug/L)	MDL	MRL	Q
83-32-9	Acenaphthene		0.0500	0.200	U
208-96-8	Acenaphthylene		0.0500	0.200	U
120-12-7	Anthracene		0.0500	0.200	U
56-55-3	Benzo(a)anthracene		0.0500	0.200	U
50-32-8	Benzo(a)pyrene		0.0500	0.200	U
205-99-2	Benzo(b)fluoranthene		0.0500	0.200	U
191-24-2	Benzo(g,h,i)perylene		0.0500	0.200	U
207-08-9	Benzo(k)fluoranthene		0.0500	0.200	U
218-01-9	Chrysene		0.0500	0.200	U
53-70-3	Dibenz(a,h)anthracene		0.0500	0.200	U
206-44-0	Fluoranthene		0.0500	0.200	U
86-73-7	Fluorene		0.0500	0.200	U
193-39-5	Indeno(1,2,3-cd)pyrene		0.0500	0.200	U
90-12-0	1-Methylnaphthalene		0.0500	0.200	U
91-57-6	2-Methylnaphthalene		0.0500	0.200	U
91-20-3	Naphthalene		0.0500	0.200	U
85-01-8	Phenanthrene		0.0500	0.200	U
129-00-0	Pyrene		0.0500	0.200	U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
2-Fluorobiphenyl	50.00	33.65	67.3	34 - 167	
Terphenyl-d14	50.00	27.80	55.6	34 - 167	

ANALYSIS SEQUENCE SUMMARY

SW8270C

Laboratory:	Empirical Laboratories, LLC	SDG:	CTOJM09CFG82_001
Client:	Tetra Tech NUS, Inc. (T010)	Project:	NAS Cecil Field CTOJM09 (G-82)
Sequence:	0K31303	Instrument:	MS-BNA4
Calibration:	0237003		

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
MS Tune	0K31303-TUN1	SEQ-TUN2.D	11/08/10 22:37
Calibration Check	0K31303-CCV1	SEQ-CCV2.D	11/08/10 22:53
CEF-G82-3S-20101027	1010287-01	1028701.D	11/08/10 23:20
CEF-G82-3S-20101027	0K01006-MS1	1028701M.D	11/08/10 23:48
CEF-G82-3S-20101027	0K01006-MSD1	1028701S.D	11/09/10 00:15
CEF-G82-2S-20101027	1010287-04RE1	1028704D.D	11/09/10 08:34

MASS SPECTROMETER INSTRUMENT PERFORMANCE CHECK

SW8270C

Laboratory:	Empirical Laboratories, LLC	SDG:	CTOJM09CFG82_001
Client:	Tetra Tech NUS, Inc. (T010)	Project:	NAS Cecil Field CTOJM09 (G-82)
Lab File ID:	SEQ-TUN2.D	Injection Date:	11/08/10
Instrument ID:	MS-BNA4	Injection Time:	22:37
Sequence:	0K31303	Lab Sample ID:	0K31303-TUN1

m/z	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE	
51	30 - 60% of 198	51.5	PASS
68	Less than 2% of 69	1.33	PASS
69	Less than 200% of 198	48.3	PASS
70	Less than 2% of 69	0.469	PASS
127	40 - 60% of 198	51.5	PASS
197	Less than 1% of 198	0.778	PASS
198	Base peak, 100% relative abundance	100	PASS
199	5 - 9% of 198	6.74	PASS
275	10 - 30% of 198	27	PASS
365	1 - 200% of 198	4.79	PASS
441	0.001 - 100% of 443	83.5	PASS
442	40 - 200% of 198	185	PASS
443	17 - 23% of 442	19.7	PASS

CONTINUING CALIBRATION CHECK

SW8270C

Laboratory:	Empirical Laboratories, LLC	SDG:	CTOJM09CFG82_001
Client:	Tetra Tech NUS, Inc. (T010)	Project:	NAS Cecil Field CTOJM09 (G-82)
Instrument ID:	MS-BNA4	Calibration:	0237003
Lab File ID:	SEQ-CCV2.D	Calibration Date:	08/23/10 14:19
Sequence:	0K31303	Injection Date:	11/08/10
Lab Sample ID:	0K31303-CCV1	Injection Time:	22:53

COMPOUND	TYPE	CONC. (ug/mL)		RESPONSE FACTOR			% DIFF / DRIFT	
		STD	CCV	ICAL	CCV	MIN (#)	CCV	LIMIT (#)
Acenaphthene	A	5.000	4.584	0.8490211	0.778426		-8.3	20
Acenaphthylene	A	5.000	4.800	1.256297	1.206038		-4.0	20
Anthracene	A	5.000	5.403	1.162297	1.256014		8.1	20
Benzo(a)anthracene	A	5.000	4.594	1.05022	0.9649543		-8.1	20
Benzo(a)pyrene	A	5.000	5.253	1.281052	1.345938		5.1	20
Benzo(b)fluoranthene	A	5.000	4.483	1.518281	1.361207		-10.3	20
Benzo(g,h,i)perylene	A	5.000	4.283	1.255234	1.075237		-14.3	20
Benzo(k)fluoranthene	A	5.000	5.960	1.472463	1.755168		19.2	20
Chrysene	A	5.000	4.912	1.036307	1.018057		-1.8	20
Dibenz(a,h)anthracene	A	5.000	4.574	1.117366	1.022093		-8.5	20
Fluoranthene	A	5.000	4.970	1.238826	1.231518		-0.6	20
Fluorene	A	5.000	5.044	0.8096793	0.8168421		0.9	20
Indeno(1,2,3-cd)pyrene	A	5.000	4.025	1.182429	0.9517941		-19.5	20
1-Methylnaphthalene	A	5.000	4.859	0.7624406	0.7409461		-2.8	20
2-Methylnaphthalene	A	5.000	4.668	0.8439543	0.7879335		-6.6	20
Naphthalene	A	5.000	4.652	1.34026	1.246951		-7.0	20
Phenanthrene	A	5.000	4.781	1.181841	1.130179		-4.4	20
Pyrene	A	5.000	4.781	1.285122	1.228862		-4.4	20
2-Fluorobiphenyl	A	5.000	4.249	0.9978073	0.8479468		-15.0	20
Terphenyl-d14	A	5.000	4.165	0.9438304	0.786212		-16.7	20

Column to be used to flag Response Factor and %Diff/Drift values with an asterisk

* Values outside of QC limits

HOLDING TIME SUMMARY
FLPRO

Laboratory: Empirical Laboratories, LLC SDG: CTOJM09CFG82_001

Client: Tetra Tech NUS, Inc. (T010) Project: NAS Cecil Field CTOJM09 (G-82)

Sample Name	Date Collected	Date Received	Date Prepared	Days to Prep	Max Days to Prep	Date Analyzed	Days to Analysis	Max Days to Analysis	Q
CEF-G82-3S-20101027	10/28/10 12:04	10/29/10 08:00	11/02/10 10:45	4.99	7.00	11/09/10 00:15	6.56	40.00	
CEF-G82-DUP01-20101027	10/28/10 00:00	10/29/10 08:00	11/02/10 10:45	5.49	7.00	11/09/10 02:21	6.65	40.00	
CEF-G82-1S-20101027	10/28/10 12:34	10/29/10 08:00	11/02/10 10:45	4.97	7.00	11/09/10 03:04	6.68	40.00	
CEF-G82-2S-20101027	10/28/10 14:24	10/29/10 08:00	11/02/10 10:45	4.89	7.00	11/09/10 03:46	6.71	40.00	
CEF-G82-2I-20101027	10/28/10 15:29	10/29/10 08:00	11/02/10 10:45	4.84	7.00	11/09/10 04:28	6.74	40.00	
CEF-G82-4S-20101028	10/28/10 10:53	10/29/10 08:00	11/02/10 10:45	5.04	7.00	11/09/10 05:10	6.77	40.00	
CEF-G82-5S-20101028	10/28/10 11:36	10/29/10 08:00	11/02/10 10:45	5.01	7.00	11/09/10 05:52	6.80	40.00	
CEF-G82-6S-20101028	10/28/10 12:22	10/29/10 08:00	11/02/10 10:45	4.97	7.00	11/09/10 06:35	6.83	40.00	

ANALYSIS SEQUENCE SUMMARY
FLPRO

Laboratory:	Empirical Laboratories, LLC	SDG:	CTOJM09CFG82_001
Client:	Tetra Tech NUS, Inc. (T010)	Project:	NAS Cecil Field CTOJM09 (G-82)
Sequence:	0K31311	Instrument:	GL-GCFID2
Calibration:	0313003		

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
Cal Standard	0K31311-CAL5	003F0401.D	11/08/10 17:55
Cal Standard	0K31311-CAL6	002F0301.D	11/08/10 18:13
Cal Standard	0K31311-CAL4	004F0501.D	11/08/10 18:37
Cal Standard	0K31311-CAL3	005F0601.D	11/08/10 19:19
Cal Standard	0K31311-CAL2	006F0701.D	11/08/10 20:02
Cal Standard	0K31311-CAL1	007F0801.D	11/08/10 20:44
Initial Cal Check	0K31311-ICV1	008F0901.D	11/08/10 21:26

INITIAL CALIBRATION STANDARDS

FLPRO

Laboratory:	Empirical Laboratories, LLC	SDG:	CTOJM09CFG82_001
Client:	Tetra Tech NUS, Inc. (T010)	Project:	NAS Cecil Field CTOJM09 (G-82)
Sequence:	0K31311	Instrument:	GL-GCFID2
Calibration:	0313003		

Standard ID	Description	Lab Sample ID	Lab File ID	Analysis Date/Time
10K0199	FLPRO CAL5 850ppm	0K31311-CAL5	003F0401.D	11/08/10 17:55
10K0198	FLPRO CAL6 85ppm	0K31311-CAL6	002F0301.D	11/08/10 18:13
10K0200	FLPRO CAL4 2550ppm	0K31311-CAL4	004F0501.D	11/08/10 18:37
10K0201	FLPRO CAL3 4250ppm	0K31311-CAL3	005F0601.D	11/08/10 19:19
10K0202	FLPRO CAL2 5950ppm	0K31311-CAL2	006F0701.D	11/08/10 20:02
10K0203	FLPRO CAL1 8500ppm	0K31311-CAL1	007F0801.D	11/08/10 20:44

INITIAL CALIBRATION DATA (Continued)

FLPRO

Laboratory:	Empirical Laboratories, LLC	SDG:	CTOJM09CFG82_001
Client:	Tetra Tech NUS, Inc. (T010)	Project:	NAS Cecil Field CTOJM09 (G-82)
Calibration:	0313003	Instrument:	GL-GCFID2
Matrix:	Water	Calibration Date:	11/8/2010 12:00:33AM

Compound	Mean RF	RF RSD	Mean RT	RT RSD	Linear r	Quad COD	LIMIT	Q
Petroleum Range Organics	3207.786	7.794381	4.219	2.106938E-02			20	
2-Fluorobiphenyl	4904.614	2.901558	13.5015	9.256223E-02			20	
o-Terphenyl	5587.336	5.584501	18.7965	0.0961471			20	

INITIAL CALIBRATION CHECK

FLPRO

Laboratory:	Empirical Laboratories, LLC	SDG:	CTOJM09CFG82_001
Client:	Tetra Tech NUS, Inc. (T010)	Project:	NAS Cecil Field CTOJM09 (G-82)
Instrument ID:	GL-GCFID2	Calibration:	0313003
Lab File ID:	008F0901.D	Calibration Date:	11/08/10 00:00
Sequence:	0K31311	Injection Date:	11/08/10
Lab Sample ID:	0K31311-ICV1	Injection Time:	21:26

COMPOUND	TYPE	CONC. (mg/L)		RESPONSE FACTOR			% DIFF / DRIFT	
		STD	ICV	ICAL	ICV	MIN (#)	ICV	LIMIT (#)
Petroleum Range Organics	A	4000	4080	3207.786	3271.57		2.0	25

Column to be used to flag Response Factor and %Diff/Drift values with an asterisk

* Values outside of QC limits

ANALYSIS SEQUENCE SUMMARY

FLPRO

Laboratory:	Empirical Laboratories, LLC	SDG:	CTOJM09CFG82_001
Client:	Tetra Tech NUS, Inc. (T010)	Project:	NAS Cecil Field CTOJM09 (G-82)
Sequence:	0K31312	Instrument:	GL-GCFID2
Calibration:	0313003		

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
Calibration Check	0K31312-CCV1	009F1001.D	11/08/10 22:08
Blank	0K01018-BLK1	010F1101.D	11/08/10 22:50
LCS	0K01018-BS1	011F1201.D	11/08/10 23:32
CEF-G82-3S-20101027	1010287-01	012F1301.D	11/09/10 00:15
CEF-G82-3S-20101027	0K01018-MS1	013F1401.D	11/09/10 00:57
CEF-G82-3S-20101027	0K01018-MSD1	014F1501.D	11/09/10 01:39
CEF-G82-DUP01-20101027	1010287-02	015F1601.D	11/09/10 02:21
CEF-G82-1S-20101027	1010287-03	016F1701.D	11/09/10 03:04
CEF-G82-2S-20101027	1010287-04	017F1801.D	11/09/10 03:46
CEF-G82-2I-20101027	1010287-05	018F1901.D	11/09/10 04:28
CEF-G82-4S-20101028	1010287-06	019F2001.D	11/09/10 05:10
CEF-G82-5S-20101028	1010287-07	020F2101.D	11/09/10 05:52
CEF-G82-6S-20101028	1010287-08	021F2201.D	11/09/10 06:35
Calibration Check	0K31312-CCV2	022F2301.D	11/09/10 08:38

CONTINUING CALIBRATION CHECK

FLPRO

Laboratory:	Empirical Laboratories, LLC	SDG:	CTOJM09CFG82_001
Client:	Tetra Tech NUS, Inc. (T010)	Project:	NAS Cecil Field CTOJM09 (G-82)
Instrument ID:	GL-GCFID2	Calibration:	0313003
Lab File ID:	009F1001.D	Calibration Date:	11/08/10 00:00
Sequence:	0K31312	Injection Date:	11/08/10
Lab Sample ID:	0K31312-CCV1	Injection Time:	22:08

COMPOUND	TYPE	CONC. (mg/L)		RESPONSE FACTOR			% DIFF / DRIFT	
		STD	CCV	ICAL	CCV	MIN (#)	CCV	LIMIT (#)
Petroleum Range Organics	A	4250	4052	3207.786	3058.614		-4.7	25
2-Fluorobiphenyl	A	25.00	24.76	4904.614	4856.72		-1.0	25
o-Terphenyl	A	25.00	24.06	5587.336	5378.44		-3.7	25

Column to be used to flag Response Factor and %Diff/Drift values with an asterisk

* Values outside of QC limits

CONTINUING CALIBRATION CHECK

FLPRO

Laboratory:	Empirical Laboratories, LLC	SDG:	CTOJM09CFG82_001
Client:	Tetra Tech NUS, Inc. (T010)	Project:	NAS Cecil Field CTOJM09 (G-82)
Instrument ID:	GL-GCFID2	Calibration:	0313003
Lab File ID:	022F2301.D	Calibration Date:	11/08/10 00:00
Sequence:	0K31312	Injection Date:	11/09/10
Lab Sample ID:	0K31312-CCV2	Injection Time:	08:38

COMPOUND	TYPE	CONC. (mg/L)		RESPONSE FACTOR			% DIFF / DRIFT	
		STD	CCV	ICAL	CCV	MIN (#)	CCV	LIMIT (#)
Petroleum Range Organics	A	4250	3621	3207.786	2733.285		-14.8	25
2-Fluorobiphenyl	A	25.00	25.44	4904.614	4991.84		1.8	25
o-Terphenyl	A	25.00	24.11	5587.336	5387.88		-3.6	25

Column to be used to flag Response Factor and %Diff/Drift values with an asterisk

* Values outside of QC limits

PREPARATION BATCH SUMMARY

FLPRO

Laboratory: Empirical Laboratories, LLC

SDG: CTOJM09CFG82_001

Client: Tetra Tech NUS, Inc. (T010)

Project: NAS Cecil Field CTOJM09 (G-82)

Batch: 0K01018 Batch Matrix: Water

Preparation: EXT_3510

SAMPLE NAME	LAB SAMPLE ID	DATE PREPARED	INITIAL VOL./WEIGHT	FINAL VOL.
Blank	0K01018-BLK1	11/02/10 10:45	1,000.00	2.00
LCS	0K01018-BS1	11/02/10 10:45	1,000.00	2.00
CEF-G82-3S-20101027	0K01018-MS1	11/02/10 10:45	1,080.00	2.00
CEF-G82-3S-20101027	0K01018-MSD1	11/02/10 10:45	1,080.00	2.00
CEF-G82-3S-20101027	1010287-01	11/02/10 10:45	1,080.00	2.00
CEF-G82-DUP01-20101027	1010287-02	11/02/10 10:45	1,080.00	2.00
CEF-G82-1S-20101027	1010287-03	11/02/10 10:45	1,080.00	2.00
CEF-G82-2S-20101027	1010287-04	11/02/10 10:45	1,080.00	2.00
CEF-G82-2I-20101027	1010287-05	11/02/10 10:45	1,080.00	2.00
CEF-G82-4S-20101028	1010287-06	11/02/10 10:45	1,080.00	2.00
CEF-G82-5S-20101028	1010287-07	11/02/10 10:45	1,080.00	2.00
CEF-G82-6S-20101028	1010287-08	11/02/10 10:45	1,080.00	2.00

ANALYSIS DATA SHEET

Blank

Laboratory:	Empirical Laboratories, LLC		SDG:	CTOJM09CFG82_001	
Client:	Tetra Tech NUS, Inc. (T010)		Project:	NAS Cecil Field CTOJM09 (G-82)	
Matrix:		Laboratory ID:	0K01018-BLK1	File ID:	010F1101.D
Sampled:		Prepared:		Analyzed:	11/08/10 22:50
Solids:		Preparation:	EXT_3510	Dilution:	

Batch: 0K01018 Sequence: 0K31312 Calibration: 0313003 Instrument: GL-GCFID2

CAS NO.	COMPOUND	CONC. (mg/L)	MDL	MRL	Q
	Petroleum Range Organics		0.170	0.680	U

SYSTEM MONITORING COMPOUND	ADDED (mg/L)	CONC (mg/L)	% REC	QC LIMITS	Q
2-Fluorobiphenyl	0.05000	0.05572	111	50 - 150	
o-Terphenyl	0.05000	0.05104	102	82 - 142	

METHOD DETECTION AND REPORTING LIMITS

Laboratory: Empirical Laboratories, LLC

SDG: CTOJM09CFG82_001

Client: Tetra Tech NUS, Inc. (T010)

Project: NAS Cecil Field CTOJM09 (G-82)

Matrix: Water

Instrument: GL-GCFID2

Analyte	MDL	MRL	Units	Method
Petroleum Range Organics	0.170	0.680	mg/L	FLPRO

ANALYTICAL DATA PACKAGE
SDG # CTOJM09CFG82_002

PROJECT NAME: NAS CECIL FIELD CTOJM09 (G-82)
PROJECT LOCATION: JACKSONVILLE, FLORIDA
CONTRACT #: N62470-08-D-1001

SUBMITTAL TO:
Tobrena Skeen
Tetra Tech NUS, Inc.
Foster Plaza 7
661 Andersen Drive
Pittsburgh, PA 15220

SUBMITTAL BY:
Empirical Laboratories, LLC (EL)
621 Mainstream Drive, Suite 270
Nashville, TN 37228
Tel (615)345-1115
Fax (615)846-5426

LABORATORY CONTACT PERSON:
Project Manager: Kim Kostzer
Tel (615)345-1115
Fax (615)846-5426
Email: kkostzer@empirlabs.com

Original Report Date: January 17, 2011
Report Revision #: N/A
Revision Date: N/A
Total # of Pages: 46

THIS DOCUMENT MEETS DoD QSM 4.1 STANDARDS

The results relate to only the samples associated with the referenced SDG and the submitted data has been produced in accordance with laboratory procedures. The Laboratory's Technical Lab Director, Mr. Rick Davis, is responsible for the final data produced and reported. His signature is listed at the end of the Case Narrative within the Analytical Data Package. If applicable to this report package, details on report revisions and the information on subcontracted analysis are listed in the package Case Narrative. This report shall not be reproduced, except in full, without the written approval of Empirical Laboratories, LLC.

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Sample Delivery Group Case Narrative

Receipt Information
The samples were received within the preservation guidelines for the associated methods. The information associated with sample receipt and the Sample Delivery Group (SDG) are included within section 4 of this package, which also provides information on the link between the client sample ID listed on the COC and laboratory's assigned unique sample ID or WorkOrder #. The sample is tracked through the laboratory for all analysis via the assigned WorkOrder #.

All samples that were received were analyzed and none of the samples were placed on hold without analyses. There were no subcontracted analyses for this SDG.

Changes to the Revision
This is an original submittal of the final report package.

Analytical Information
All samples were prepped (where applicable) and analyzed within the standard allowed holding times, unless noted within the exceptions listed below. The laboratory analyzed all samples within the program and method guidelines. The following information is provided specific to individual methods:

Chromatographic Flags for Manual Integration:
The following letters are used to denote manual integrations on the laboratory's raw data in association with chromatographic integrations:

A: The peak was manually integrated as it was not integrated in the original chromatogram.
B: The peak was manually integrated due to resolution or coelution issues in the original chromatogram.
C: The peak was manually integrated to correct the baseline from the original chromatogram.
D: The peak was manually integrated to identify the correct peak as the wrong peak was identified in the original chromatogram.
E: The peak was manually integrated to include the entire peak as the original chromatogram only integrated part of the peak.

SW8260B:
No anomalies or deviations are noted.

Data Qualifiers
As applicable and where required, the following general qualifiers are associated with the sample results. Additional qualifiers will be specified within the reporting sections of the data package or within the body of the Case Narrative.

Analytical Report Terms and Qualifiers

MDL: The method detection limit (MDL) is defined as the minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is greater than zero. The MDL is determined from analysis of a sample containing the analyte in a given matrix.

EQL: The estimated quantitation limit (EQL), also known as Reporting Limit **(RL),** is defined as the estimated concentration above which quantitative results can be obtained with a specific degree of confidence. Empirical Laboratories defines the EQL to be at or near the lowest standard of the calibration curve.

*****: An exceeding quality control criteria is associated with the reported result.

B: The presence of a "B" to the right of an analytical value indicates that this compound was also detected in the method blank and the data should be interpreted with caution. One should consider the possibility that the correct sample result might be less than the reported result and, perhaps, zero. **For Florida DEP reports this qualifier is "V".**

D: When a sample (or sample extract) is rerun diluted because one of the compound concentrations exceeded the highest concentration range for the standard curve, all of the values obtained in the dilution run will be flagged with a "D".

E: The concentration for any compound found which exceeds the highest concentration level on the standard curve for that compound will be flagged with an "E". Usually the sample will be rerun at a dilution to quantitate the flagged compound. **For Florida DEP reports this qualifier is "L".**

H1: The result was analyzed outside of the EPA recommended holding time.

H2: The result was extracted outside of the EPA recommended holding time.

H3: The sample for this analyte was received outside of the EPA recommended holding time.

J: The presence of a "J" to the right of an analytical result indicates that the reported result is estimated. The mass spectral data pass the identification criteria showing that the compound is present, but the calculated result is less than the EQL. One should feel confident that the result is greater than zero and less than the EQL. **For Florida DEP reports this qualifier is "I".**

M: Indicates that the sample matrix interfered with the quantitation of the analyte. In dual column analysis the result is reported from the column with the lower concentration. In inorganics, it indicates that the parameters MDL/RL has been raised.

N: The MS/MSD accuracy and/or precision are outside criteria. The predigested spike recovery is not within control limits for the associated parameter.

P: The associated numerical value is an estimated quantity. There is greater than a 40% difference between the two GC columns for the detected concentrations. The higher of the two values is reported unless matrix interference is obvious or for HPLC analysis where the primary column is reported.

Q: The RPD and/or percent recovery exceeded limits in the associated Blank Spike and/or Blank Spike Duplicate.

S: The associated internal standard failed criteria.

U: The presence of a "U" indicates that the analyte was analyzed for but was not detected or the concentration of the analyte quantitated below the DL.

X: The parameter shows a potential positive bias on a reported concentration due to an ICV or CCV exceeding the upper control limit on the high side.

Y: The parameter shows a potential negative bias on a reported concentration due to an ICV or CCV exceeding the lower control limit on the low side.

Z: The parameter shows lack of confirmation/detection, which may be due to a negative bias in the ICV or CCV which exceeds the lower control limit.

LIMS Definitions / Naming Conventions:
The following are general naming conventions that are used throughout the laboratory; however, on a method by method basis, there are additional QAQC items that are named in a consistent format.

BLK: LIMS assigns a unique identifier to the Method Blank by naming it as the letters BLK appended to the Batch ID. A Method Blank is an analyte-free matrix to which all reagents are added in the same volumes or proportions as used in sample processing. The Method Blank is used to assess for possible contamination during preparation and/or analysis steps. Method Blanks within a Batch or Analytical sequence will be appended with a numerical value beginning with 1 that will increase incrementally.

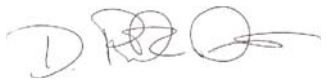
BS: LIMS assigns a unique identifier to the Blank Spike by naming it as the letters BS appended to the Batch ID. The Blank Spike or Lab Control Sample is a

controlled analyte-free matrix, which is spiked with known and verified concentrations of target analytes. Spiking concentrations can be referenced in the method SOP. The BS is used to evaluate the viability of analytes taken through the entire prep (when applicable) and analytical process. Blank Spikes within a Batch or Analytical sequence will be appended with a numerical value beginning with 1 that will increase incrementally. A duplicate Blank Spike will be designated as a BSD.

MS: The LIMS assigns each Client sample with a unique identifier. The Matrix Spike is designated with a MS at the end of the sample's unique identifier. The Matrix Spike sample is used to assess the effect of the sample matrix on the precision and accuracy of the results generated using the selected method. A duplicate Matrix Spike will be designated as a MSD.

IDs: The LIMS assigns each Client sample with a unique identifier. The letter "RE" may potentially be appended to the end of the LIMS Sample ID. And "**RE"** implies that the sample was either re-prepped, re-analyzed straight, or re-analyzed at a dilution. Subsequent re-analysis for the sample will be appended with a numerical value beginning with 1 that will increase incrementally. Eg: RE1, RE2, RE3, etc.

Statement of Data Authenticity:
I certify that, based upon my inquiry of those individuals immediately responsible for obtaining the information and to the best of my knowledge, the data package is in compliance with the terms and conditions of the contract, both technically and for completeness, with the exception of the conditions detailed in this Case Narrative, as verified by my signature below. During absences, Ms. Marcia K. McGinnity is authorized to sign this Statement of Data Authenticity.



_____
Mr. Rick D. Davis
Laboratory Technical Director / VP Operations

Sample Receipt Information

TETRA TECH NUS, INC.

CHAIN OF CUSTODY | NUMBER № 2129 | PAGE 1 OF 1

PROJECT NO: 112G02267	FACILITY: Cecil Field SHC 682	PROJECT MANAGER: Rob Simcik	PHONE NUMBER: 412 921-7090	LABORATORY NAME AND CONTACT: Empirical Labs/ Kim Kostzer
SAMPLERS (SIGNATURE): Jeff Krone		FIELD OPERATIONS LEADER: Kara Wimble	PHONE NUMBER: 904 636-6125	ADDRESS: 621 Mainstream Drive Suite 270
		CARRIER/WAYBILL NUMBER: FEDEX Airbill 8660 1730 2399		CITY, STATE: Nashville TN 37228

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

DATE YEAR 2010	TIME	SAMPLE ID	LOCATION ID	TOP DEPTH (FT)	BOTTOM DEPTH (FT)	MATRIX (GW, SO, SW, SD, QC, ETC.)	COLLECTION METHOD GRAB (G) COMP (C)	No. OF CONTAINERS	TYPE OF ANALYSIS: VOCs 5 8260B TPA only	COMMENTS
12/29	1010	CEF-682-1S-201012				GW	G	3	X	cool to 4°C -01
12/29	~~1010~~ 0941	CEF-682-3S-201012				GW	G	3	X	1012234 -02
12/29	1044	CEF-682-5S-201012				GW	G	3	X	-03
12/29		Trip Blank				QC	G	2	X	-04

1. RELINQUISHED BY	DATE 12/29/10	TIME 1400	1. RECEIVED BY	DATE	TIME
2. RELINQUISHED BY	DATE	TIME	2. RECEIVED BY	DATE	TIME
3. RELINQUISHED BY	DATE	TIME	3. RECEIVED BY	DATE 12/30/10	TIME 08:20

COMMENTS

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

3.7°C

4/02R FORM NO. TtNUS-001

8

CTOJM09CFG82_002

EMPIRICAL LABORATORIES
COOLER RECEIPT FORM

LIMS Number: 1012234 Number of Coolers: 1 of 1

Client: TeTRA Tech NUS, Inc Project: Cecil Field SHC G82

Date/Time Received: 12-30-10 / 08:20 Date cooler(s) opened: 12.30.10

Opened By (print): Kitta Khammouanvichit (signature): Kitta K

Circle response below as appropriate

1. How did the samples arrive? FedEx UPS DHL Hand Delivered

EL Courier Other: _____

If applicable, enter airbill number here: 2399

2. Were custody seals on outside of cooler(s)? ..... Yes No

How many: 1 Seal date: 12-29-10 Seal Initials: P

3. Were custody seals unbroken and intact at the date and time of arrival? ..... Yes No N/A

4. Were custody papers sealed in a plastic bag included in the sample cooler? ..... Yes No N/A

5. Were custody papers filled out properly (ink, signed, etc.)? ..... Yes No N/A

6. Did you sign custody papers in the appropriate place for acceptance? ..... Yes No N/A

7. Was project identifiable from custody papers? ..... Yes No N/A

8. If required, was enough ice present in the cooler(s)? ..... Yes No N/A

Type of Coolant: WET DRY BLUE NONE

Temperature of Samples upon Receipt: Initial Value: 4.0 °C Correction Factor: -0.3 °C Final Value: 3.7 °C

Dates samples were logged-in: 12/30/10

9. Initial this form to acknowledge login of sample(s): (Name): Will Schwab (Initial): WS

10. Were all bottle lids intact and sealed tightly? ..... Yes No N/A

11. Did all bottles arrive unbroken? ..... Yes No N/A

12. Was all required bottle label information complete? ..... Yes No N/A

13. Did all bottle labels agree with custody papers? ..... Yes No N/A

14. Were correct containers used for the analyses indicated? ..... Yes No N/A

15. Were preservative levels correct in all applicable sample containers? ..... Yes No N/A

16. Was residual chlorine present in any applicable sample containers? ..... Yes No N/A

17. Was sufficient amount of sample sent for the analyses required? ..... Yes No N/A

18. Was headspace present in any included VOA vials? ..... Yes No N/A

If Non-Conformance issues were present, list by sample ID: _____

WORK ORDER

1012234

Printed: 1/17/2011 11:39:04AM

Empirical Laboratories, LLC

Client: Tetra Tech NUS, Inc. (T010)
Project: NAS Cecil Field CTOJM09 (G-82)

Project Manager: Kim Kostzer
Project Number: TT10_CTOJM09

Report To:
Tetra Tech NUS, Inc. (T010)
Kara Wimble
Foster Plaza 7, 661 Anderson Drive
Pittsburgh, PA 15220
Phone: (904) 636-6125
Fax: (904) 636-6165

Invoice To:
Tetra Tech NUS, Inc. (T010)
Accounts Payable
661 Andersen Drive
Pittsburgh, PA 15220-2745
Phone :(412) 921-8182
Fax: (412) 921-4040

Date Due: 01/14/2011 16:00 (10 day TAT)
Received By: William Schwab
Logged In By: William Schwab

Date Received: 12/30/2010 08:20
Date Logged In 12/30/2010 09:48

Samples Received at: **3.7°C**

Custody Seals	Yes	Received On Ice	Yes
Containers Intact	Yes		
COC/Labels Agree	Yes		
Preservation Confir	Yes		

Analysis	Due	TAT	Expires	Version	Comments
1012234-01 CEF-G82-1S-201012 [Water] Sampled 12/29/2010 10:10 Eastern					**isopropylbenzene only**
SW8260B	01/11/2011 14:00	10	01/12/2011 09:10	Isopropylbenzene only	
1012234-02 CEF-G82-3S-201012 [Water] Sampled 12/29/2010 09:41 Eastern					**isopropylbenzene only**
SW8260B	01/11/2011 14:00	10	01/12/2011 08:41	Isopropylbenzene only	
1012234-03 CEF-G82-5S-201012 [Water] Sampled 12/29/2010 10:44 Eastern					**isopropylbenzene only**
SW8260B	01/11/2011 14:00	10	01/12/2011 09:44	Isopropylbenzene only	
1012234-04 Trip Blank [Water] Sampled 12/29/2010 00:00 Eastern					**isopropylbenzene only**
SW8260B	01/11/2011 14:00	10	01/11/2011 23:00	Isopropylbenzene only	

Sample Delivery Group Assignment Form

CLIENT: Tetra Tech NUS, Inc. (T010)
PROJECT NAME: NAS Cecil Field CTOJM09 (G-82)
SDG #: CTOJM09CFG82_002
MATRIX: Water

QC LEVEL: EDD/IIIQSM
Report Due: 1/14/2011
Client Sample Count: 3

Sample Type	Sampled	Received	Lab ID	Client ID	SW8260B
Client Sample	12/29/2010	12/30/2010	1012234-01	CEF-G82-1S-201012	isopropylbenzene only
Client Sample	12/29/2010	12/30/2010	1012234-02	CEF-G82-3S-201012	isopropylbenzene only
Client Sample	12/29/2010	12/30/2010	1012234-03	CEF-G82-5S-201012	isopropylbenzene only
Trip Blank	12/29/2010	12/30/2010	1012234-04	Trip Blank	isopropylbenzene only

Data for SW8260B Forms

ANALYSIS DATA SHEET

CEF-G82-1S-201012

Laboratory:	Empirical Laboratories, LLC			SDG:	CTOJM09CFG82_002
Client:	Tetra Tech NUS, Inc. (T010)			Project:	NAS Cecil Field CTOJM09 (G-82)
Matrix:	Ground Water	Laboratory ID:	1012234-01	File ID:	1223401.D
Sampled:	12/29/10 10:10	Prepared:	01/03/11 00:00	Analyzed:	01/03/11 15:19
Solids:		Preparation:	5030B	Dilution:	1

Batch: 1A03001 Sequence: 1A00405 Calibration: 0349001 Instrument: MS-VOA3

CAS NO.	COMPOUND	CONC. (ug/L)	MDL	MRL	Q
98-82-8	Isopropylbenzene	3.52	0.150	1.00	

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Bromofluorobenzene	30.00	28.52	95.1	75 - 120	
Dibromofluoromethane	30.00	29.45	98.2	85 - 115	
1,2-Dichloroethane-d4	30.00	29.28	97.6	70 - 120	
Toluene-d8	30.00	29.26	97.5	85 - 120	

ANALYSIS DATA SHEET

CEF-G82-3S-201012

Laboratory:	Empirical Laboratories, LLC			SDG:	CTOJM09CFG82_002
Client:	Tetra Tech NUS, Inc. (T010)			Project:	NAS Cecil Field CTOJM09 (G-82)
Matrix:	Ground Water	Laboratory ID:	1012234-02	File ID:	1223402.D
Sampled:	12/29/10 09:41	Prepared:	01/03/11 00:00	Analyzed:	01/03/11 15:49
Solids:		Preparation:	5030B	Dilution:	1

Batch: 1A03001 Sequence: 1A00405 Calibration: 0349001 Instrument: MS-VOA3

CAS NO.	COMPOUND	CONC. (ug/L)	MDL	MRL	Q
98-82-8	Isopropylbenzene		0.150	1.00	U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Bromofluorobenzene	30.00	26.18	87.3	75 - 120	
Dibromofluoromethane	30.00	30.18	101	85 - 115	
1,2-Dichloroethane-d4	30.00	30.97	103	70 - 120	
Toluene-d8	30.00	29.70	99.0	85 - 120	

ANALYSIS DATA SHEET

CEF-G82-5S-201012

Laboratory:	Empirical Laboratories, LLC			SDG:	CTOJM09CFG82_002
Client:	Tetra Tech NUS, Inc. (T010)			Project:	NAS Cecil Field CTOJM09 (G-82)
Matrix:	Ground Water	Laboratory ID:	1012234-03	File ID:	1223403.D
Sampled:	12/29/10 10:44	Prepared:	01/03/11 00:00	Analyzed:	01/03/11 16:18
Solids:		Preparation:	5030B	Dilution:	1

Batch: 1A03001 Sequence: 1A00405 Calibration: 0349001 Instrument: MS-VOA3

CAS NO.	COMPOUND	CONC. (ug/L)	MDL	MRL	Q
98-82-8	Isopropylbenzene	0.792	0.150	1.00	I

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Bromofluorobenzene	30.00	28.17	93.9	75 - 120	
Dibromofluoromethane	30.00	31.55	105	85 - 115	
1,2-Dichloroethane-d4	30.00	29.34	97.8	70 - 120	
Toluene-d8	30.00	28.16	93.9	85 - 120	

ANALYSIS DATA SHEET

Trip Blank

Laboratory:	Empirical Laboratories, LLC			SDG:	CTOJM09CFG82_002
Client:	Tetra Tech NUS, Inc. (T010)			Project:	NAS Cecil Field CTOJM09 (G-82)
Matrix:	Water	Laboratory ID:	1012234-04	File ID:	1223404.D
Sampled:	12/29/10 00:00	Prepared:	01/03/11 00:00	Analyzed:	01/03/11 09:53
Solids:		Preparation:	5030B	Dilution:	1

Batch: 1A03001 Sequence: 1A00405 Calibration: 0349001 Instrument: MS-VOA3

CAS NO.	COMPOUND	CONC. (ug/L)	MDL	MRL	Q
98-82-8	Isopropylbenzene		0.150	1.00	U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Bromofluorobenzene	30.00	29.28	97.6	75 - 120	
Dibromofluoromethane	30.00	31.70	106	85 - 115	
1,2-Dichloroethane-d4	30.00	28.31	94.4	70 - 120	
Toluene-d8	30.00	30.10	100	85 - 120	

SURROGATE STANDARD RECOVERY AND RT SUMMARY

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	CTOJM09CFG82_002
Client:	Tetra Tech NUS, Inc. (T010)	Project:	NAS Cecil Field CTOJM09 (G-82)
Sequence:	1A00405	Instrument:	MS-VOA3
		Calibration:	0349001

Surrogate Compound	Spike Level	% Recovery	Recovery Limits	RT	CCV RT	RT Diff	RT Diff Limit	Q
Calibration Check (1A00405-CCV1) ug/L				Lab File ID: 0103CC1.D		Analyzed: 01/03/11 07:28		
Bromofluorobenzene	30.00	93.0	80 - 120	17.049	17.049	0.0000	+/-1.000	
Dibromofluoromethane	30.00	102	80 - 120	10.089	10.089	0.0000	+/-1.000	
1,2-Dichloroethane-d4	30.00	109	80 - 120	11.123	11.123	0.0000	+/-1.000	
Toluene-d8	30.00	95.3	80 - 120	14.706	14.706	0.0000	+/-1.000	
LCS (1A03001-BS1) ug/L				Lab File ID: 0103LS1.D		Analyzed: 01/03/11 07:57		
Bromofluorobenzene	30.00	92.8	75 - 120	17.049	17.049	0.0000	+/-1.000	
Dibromofluoromethane	30.00	92.9	85 - 115	10.089	10.089	0.0000	+/-1.000	
1,2-Dichloroethane-d4	30.00	93.3	70 - 120	11.117	11.123	-0.0060	+/-1.000	
Toluene-d8	30.00	93.2	85 - 120	14.707	14.706	0.0010	+/-1.000	
Blank (1A03001-BLK1) ug/L				Lab File ID: 0103BL1.D		Analyzed: 01/03/11 09:24		
Bromofluorobenzene	30.00	94.2	75 - 120	17.049	17.049	0.0000	+/-1.000	
Dibromofluoromethane	30.00	98.6	85 - 115	10.083	10.089	-0.0060	+/-1.000	
1,2-Dichloroethane-d4	30.00	97.0	70 - 120	11.111	11.123	-0.0120	+/-1.000	
Toluene-d8	30.00	96.5	85 - 120	14.707	14.706	0.0010	+/-1.000	
Trip Blank (1012234-04) ug/L				Lab File ID: 1223404.D		Analyzed: 01/03/11 09:53		
Bromofluorobenzene	30.00	97.6	75 - 120	17.049	17.049	0.0000	+/-1.000	
Dibromofluoromethane	30.00	106	85 - 115	10.095	10.089	0.0060	+/-1.000	
1,2-Dichloroethane-d4	30.00	94.4	70 - 120	11.111	11.123	-0.0120	+/-1.000	
Toluene-d8	30.00	100	85 - 120	14.706	14.706	0.0000	+/-1.000	
CEF-G82-1S-201012 (1012234-01) ug/L				Lab File ID: 1223401.D		Analyzed: 01/03/11 15:19		
Bromofluorobenzene	30.00	95.1	75 - 120	17.055	17.049	0.0060	+/-1.000	
Dibromofluoromethane	30.00	98.2	85 - 115	10.113	10.089	0.0240	+/-1.000	
1,2-Dichloroethane-d4	30.00	97.6	70 - 120	11.129	11.123	0.0060	+/-1.000	
Toluene-d8	30.00	97.5	85 - 120	14.712	14.706	0.0060	+/-1.000	
CEF-G82-3S-201012 (1012234-02) ug/L				Lab File ID: 1223402.D		Analyzed: 01/03/11 15:49		
Bromofluorobenzene	30.00	87.3	75 - 120	17.055	17.049	0.0060	+/-1.000	
Dibromofluoromethane	30.00	101	85 - 115	10.107	10.089	0.0180	+/-1.000	
1,2-Dichloroethane-d4	30.00	103	70 - 120	11.123	11.123	0.0000	+/-1.000	
Toluene-d8	30.00	99.0	85 - 120	14.712	14.706	0.0060	+/-1.000	
CEF-G82-5S-201012 (1012234-03) ug/L				Lab File ID: 1223403.D		Analyzed: 01/03/11 16:18		
Bromofluorobenzene	30.00	93.9	75 - 120	17.055	17.049	0.0060	+/-1.000	
Dibromofluoromethane	30.00	105	85 - 115	10.107	10.089	0.0180	+/-1.000	
1,2-Dichloroethane-d4	30.00	97.8	70 - 120	11.123	11.123	0.0000	+/-1.000	
Toluene-d8	30.00	93.9	85 - 120	14.713	14.706	0.0070	+/-1.000	

LCS / LCS DUPLICATE RECOVERY

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	CTOJM09CFG82_002
Client:	Tetra Tech NUS, Inc. (T010)	Project:	NAS Cecil Field CTOJM09 (G-82)
Matrix:	Water		
Batch:	1A03001	Laboratory ID:	1A03001-BS1
Preparation:	5030B	Initial/Final:	5 mL / 5 mL

ANALYTE	SPIKE ADDED (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC.	QC LIMITS REC.
Isopropylbenzene	50.00	55.1	110	75 - 125

PREPARATION BATCH SUMMARY

SW8260B

Laboratory: Empirical Laboratories, LLC SDG: CTOJM09CFG82_002

Client: Tetra Tech NUS, Inc. (T010) Project: NAS Cecil Field CTOJM09 (G-82)

Batch: 1A03001 Batch Matrix: Water Preparation: 5030B

SAMPLE NAME	LAB SAMPLE ID	DATE PREPARED	INITIAL VOL./WEIGHT	FINAL VOL.
CEF-G82-1S-201012	1012234-01	01/03/11 00:00	5.00	5.00
CEF-G82-3S-201012	1012234-02	01/03/11 00:00	5.00	5.00
CEF-G82-5S-201012	1012234-03	01/03/11 00:00	5.00	5.00
Trip Blank	1012234-04	01/03/11 00:00	5.00	5.00
Blank	1A03001-BLK1	01/03/11 00:00	5.00	5.00
LCS	1A03001-BS1	01/03/11 00:00	5.00	5.00

MASS SPECTROMETER INSTRUMENT PERFORMANCE CHECK

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	CTOJM09CFG82_002
Client:	Tetra Tech NUS, Inc. (T010)	Project:	NAS Cecil Field CTOJM09 (G-82)
Lab File ID:	1213TU1.D	Injection Date:	12/13/10
Instrument ID:	MS-VOA3	Injection Time:	15:51
Sequence:	0L34801	Lab Sample ID:	0L34801-TUN1

m/z	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE	
50	15 - 40% of 95	19.9	PASS
75	30 - 60% of 95	47.4	PASS
95	Base peak, 100% relative abundance	100	PASS
96	5 - 9% of 95	7.48	PASS
173	Less than 2% of 174	0.696	PASS
174	50 - 200% of 95	80.7	PASS
175	5 - 9% of 174	7.13	PASS
176	95 - 101% of 174	96.3	PASS
177	5 - 9% of 176	7.31	PASS

MASS SPECTROMETER INSTRUMENT PERFORMANCE CHECK

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	CTOJM09CFG82_002
Client:	Tetra Tech NUS, Inc. (T010)	Project:	NAS Cecil Field CTOJM09 (G-82)
Lab File ID:	0103TU1.D	Injection Date:	01/03/11
Instrument ID:	MS-VOA3	Injection Time:	07:01
Sequence:	1A00405	Lab Sample ID:	1A00405-TUN1

m/z	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE	
50	15 - 40% of 95	21	PASS
75	30 - 60% of 95	46.7	PASS
95	Base peak, 100% relative abundance	100	PASS
96	5 - 9% of 95	7.46	PASS
173	Less than 2% of 174	0.397	PASS
174	50 - 200% of 95	64.2	PASS
175	5 - 9% of 174	7.53	PASS
176	95 - 101% of 174	101	PASS
177	5 - 9% of 176	6.71	PASS

ANALYSIS SEQUENCE SUMMARY

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	CTOJM09CFG82_002
Client:	Tetra Tech NUS, Inc. (T010)	Project:	NAS Cecil Field CTOJM09 (G-82)
Sequence:	0L34801	Instrument:	MS-VOA3
Calibration:	0349001		

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
MS Tune	0L34801-TUN1	1213TU1.D	12/13/10 15:51
Cal Standard	0L34801-CAL1	SEQ-CAL1.D	12/13/10 16:19
Cal Standard	0L34801-CAL2	SEQ-CAL2.D	12/13/10 16:49
Cal Standard	0L34801-CAL3	SEQ-CAL3.D	12/13/10 17:18
Cal Standard	0L34801-CAL4	SEQ-CAL4.D	12/13/10 17:48
Cal Standard	0L34801-CAL5	SEQ-CAL5.D	12/13/10 18:18
Cal Standard	0L34801-CAL6	SEQ-CAL6.D	12/13/10 18:47
Cal Standard	0L34801-CAL7	SEQ-CAL7.D	12/13/10 19:17
Cal Standard	0L34801-CAL8	SEQ-CAL8.D	12/13/10 19:47
Cal Standard	0L34801-CAL9	SEQ-CAL9.D	12/13/10 20:16
Initial Cal Check	0L34801-ICV1	SEQ-ICV1.D	12/13/10 20:46

ANALYSIS SEQUENCE SUMMARY

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	CTOJM09CFG82_002
Client:	Tetra Tech NUS, Inc. (T010)	Project:	NAS Cecil Field CTOJM09 (G-82)
Sequence:	1A00405	Instrument:	MS-VOA3
Calibration:	0349001		

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
MS Tune	1A00405-TUN1	0103TU1.D	01/03/11 07:01
Calibration Check	1A00405-CCV1	0103CC1.D	01/03/11 07:28
LCS	1A03001-BS1	0103LS1.D	01/03/11 07:57
Blank	1A03001-BLK1	0103BL1.D	01/03/11 09:24
Trip Blank	1012234-04	1223404.D	01/03/11 09:53
CEF-G82-1S-201012	1012234-01	1223401.D	01/03/11 15:19
CEF-G82-3S-201012	1012234-02	1223402.D	01/03/11 15:49
CEF-G82-5S-201012	1012234-03	1223403.D	01/03/11 16:18

INTERNAL STANDARD AREA AND RT SUMMARY
SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	CTOJM09CFG82_002
Client:	Tetra Tech NUS, Inc. (T010)	Project:	NAS Cecil Field CTOJM09 (G-82)
Sequence:	1A00405	Instrument:	MS-VOA3
		Calibration:	0349001

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
Calibration Check (1A00405-CCV1)			Lab File ID: 0103CC1.D			Analyzed: 01/03/11 07:28			
Fluorobenzene	1523376	12.462	1178088	12.468	129	50 - 200	-0.0060	+/-0.50	
Chlorobenzene-d5	876667	16.075	637120	16.075	138	50 - 200	0.0000	+/-0.50	
1,4-Dichlorobenzene-d4	851851	18.058	689945	18.058	123	50 - 200	0.0000	+/-0.50	
LCS (1A03001-BS1)			Lab File ID: 0103LS1.D			Analyzed: 01/03/11 07:57			
Fluorobenzene	1726997	12.462	1523376	12.462	113	50 - 200	0.0000	+/-0.50	
Chlorobenzene-d5	906080	16.075	876667	16.075	103	50 - 200	0.0000	+/-0.50	
1,4-Dichlorobenzene-d4	858470	18.059	851851	18.058	101	50 - 200	0.0010	+/-0.50	
Blank (1A03001-BLK1)			Lab File ID: 0103BL1.D			Analyzed: 01/03/11 09:24			
Fluorobenzene	1598126	12.456	1523376	12.462	105	50 - 200	-0.0060	+/-0.50	
Chlorobenzene-d5	834645	16.075	876667	16.075	95	50 - 200	0.0000	+/-0.50	
1,4-Dichlorobenzene-d4	796937	18.059	851851	18.058	94	50 - 200	0.0010	+/-0.50	
Trip Blank (1012234-04)			Lab File ID: 1223404.D			Analyzed: 01/03/11 09:53			
Fluorobenzene	1495586	12.462	1523376	12.462	98	50 - 200	0.0000	+/-0.50	
Chlorobenzene-d5	780875	16.075	876667	16.075	89	50 - 200	0.0000	+/-0.50	
1,4-Dichlorobenzene-d4	794676	18.058	851851	18.058	93	50 - 200	0.0000	+/-0.50	
CEF-G82-1S-201012 (1012234-01)			Lab File ID: 1223401.D			Analyzed: 01/03/11 15:19			
Fluorobenzene	1354514	12.468	1523376	12.462	89	50 - 200	0.0060	+/-0.50	
Chlorobenzene-d5	694095	16.081	876667	16.075	79	50 - 200	0.0060	+/-0.50	
1,4-Dichlorobenzene-d4	706721	18.065	851851	18.058	83	50 - 200	0.0070	+/-0.50	
CEF-G82-3S-201012 (1012234-02)			Lab File ID: 1223402.D			Analyzed: 01/03/11 15:49			
Fluorobenzene	1348041	12.474	1523376	12.462	88	50 - 200	0.0120	+/-0.50	
Chlorobenzene-d5	716058	16.081	876667	16.075	82	50 - 200	0.0060	+/-0.50	
1,4-Dichlorobenzene-d4	704968	18.065	851851	18.058	83	50 - 200	0.0070	+/-0.50	
CEF-G82-5S-201012 (1012234-03)			Lab File ID: 1223403.D			Analyzed: 01/03/11 16:18			
Fluorobenzene	1337014	12.468	1523376	12.462	88	50 - 200	0.0060	+/-0.50	
Chlorobenzene-d5	722331	16.082	876667	16.075	82	50 - 200	0.0070	+/-0.50	
1,4-Dichlorobenzene-d4	710927	18.065	851851	18.058	83	50 - 200	0.0070	+/-0.50	

INITIAL CALIBRATION DATA

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	CTOJM09CFG82_002
Client:	Tetra Tech NUS, Inc. (T010)	Project:	NAS Cecil Field CTOJM09 (G-82)
Calibration:	0349001	Instrument:	MS-VOA3
Matrix:	Water	Calibration Date:	12/13/2010 3:51:50PM

Compound	Level 01		Level 02		Level 03		Level 04		Level 05		Level 06	
	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF
Acetone												
Acrolein	2.501	3.708742E-02	5.002	4.204077E-02	10	4.313154E-02	25.01	3.533338E-02	50.02	3.723318E-02	250.1	0.0367876
Acrylonitrile	2.499	7.779325E-02	4.998	8.450267E-02	9.996	8.304287E-02	24.99	8.028168E-02	49.98	8.626692E-02	249.9	8.051838E-02
Benzene	0.5	0.7752808	1	0.9204116	2	0.9407176	5	0.8772694	10	0.9025897	50	0.8516094
Bromobenzene	0.5	0.5664705	1	0.6939259	2	0.631802	5	0.6238013	10	0.6325905	50	0.613781
Bromochloromethane	0.5	0.1250317	1	0.1032607	2	0.1104906	5	0.1081304	10	0.1165884	50	0.1141338
Tert-Amyl Methyl Ether	0.5	~~1.346045~~	1	~~1.071559~~	2	0.8566788	5	0.728124	10	0.7142524	50	0.6614816
Bromodichloromethane	0.5	0.3042703	1	0.2948992	2	0.2892035	5	0.2938199	10	0.2953715	50	0.3141748
Bromoform	0.5	0.2348527	1	0.2245905	2	0.2502591	5	0.2416927	10	0.2735691	50	0.31921
Bromomethane	0.5	0.1017199	1	9.880502E-02	2	9.357141E-02	5	0.1177217	10	0.1257867	50	0.1313178
Bromofluorobenzene	30	0.9760963	30	0.9656477	30	0.9966808	30	0.9744447	30	1.000578	30	1.00413
n-Butylbenzene	0.5	1.751109	1	1.55402	2	1.573738	5	1.522659	10	1.593665	50	1.506074
2-Butanone												
sec-Butylbenzene	0.5	1.996378	1	2.117945	2	2.099414	5	1.92253	10	2.024372	50	1.935422
tert-Butylbenzene	0.5	1.713418	1	1.606341	2	1.558501	5	1.561262	10	1.552726	50	1.50482
Carbon disulfide	0.5	0.5722154	1	0.5752831	2	0.5796875	5	0.6233893	10	0.6108229	50	0.6191675
Carbon tetrachloride	0.5	0.2456632	1	0.2769159	2	0.2746911	5	0.2847565	10	0.2894173	50	0.3091423
Chlorobenzene	0.5	1.453899	1	1.388842	2	1.505849	5	1.347412	10	1.424026	50	1.355937
Chloroethane	0.5	0.1614037	1	0.1285935	2	0.1072419	5	0.1129648	10	0.1104129	50	0.1047857
Chloroform	0.5	0.4044455	1	0.441545	2	0.4387612	5	0.4165262	10	0.4297192	50	0.4020035
2-Chloroethyl vinyl ether	0.9975	0.1559187	1.995	0.1544733	3.99	0.1546098	9.975	0.1608951	19.95	0.175251	99.75	0.1633442
Chloromethane	0.5	0.1580801	1	0.2399846	2	0.2382206	5	0.2296838	10	0.2310365	50	0.2292635
1-Chlorohexane	0.501	1.3523	1.002	1.232024	2.004	1.173793	5.01	1.164572	10.02	1.199008	50.1	1.116763
2-Chlorotoluene	0.5	1.766138	1	1.693906	2	1.714427	5	1.67738	10	1.739007	50	1.590064
4-Chlorotoluene	0.5	1.732067	1	1.643834	2	1.801961	5	1.684225	10	1.727439	50	1.626659
Cyclohexane	0.5	0.3354931	1	0.3157075	2	0.3617652	5	0.3542793	10	0.3569891	50	0.3673807
Dibromochloromethane	0.5	0.3613967	1	0.3732488	2	0.3617692	5	0.3616357	10	0.4126652	50	0.4691757
1,2-Dibromo-3-chloropropane	0.5	7.451696E-02	1	9.821375E-02	2	8.882287E-02	5	9.592389E-02	10	0.1113203	50	0.1184407
1,2-Dibromoethane (EDB)	0.5	0.5158449	1	0.4485482	2	0.479489	5	0.43307	10	0.4808174	50	0.482107
Dibromomethane	0.5	0.1365472	1	0.1634807	2	0.1791278	5	0.1508894	10	0.1637437	50	0.1534594
1,2-Dichlorobenzene	0.5	1.045362	1	1.033736	2	1.053562	5	1.002069	10	1.049303	50	0.9664789

INITIAL CALIBRATION DATA

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	CTOJM09CFG82_002
Client:	Tetra Tech NUS, Inc. (T010)	Project:	NAS Cecil Field CTOJM09 (G-82)
Calibration:	0349001	Instrument:	MS-VOA3
Matrix:	Water	Calibration Date:	12/13/2010 3:51:50PM

Compound	Level 01		Level 02		Level 03		Level 04		Level 05		Level 06	
	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF
1,3-Dichlorobenzene	0.5	1.01491	1	1.038478	2	1.05344	5	0.9977502	10	1.040239	50	0.989085
1,4-Dichlorobenzene	0.5	1.257582	1	1.078864	2	1.142733	5	1.075707	10	1.080514	50	1.016859
Dichlorodifluoromethane	0.5	0.1691275	1	0.1510325	2	0.1609637	5	0.2022951	10	0.2145927	50	0.2119695
1,1-Dichloroethane	0.5	0.3916661	1	0.3860102	2	0.3924142	5	0.3879459	10	0.4068209	50	0.4006129
1,2-Dichloroethane	0.5	0.3816018	1	0.3548896	2	0.3431386	5	0.3516441	10	0.3659734	50	0.3603553
1,1-Dichloroethene	0.5	0.2161724	1	0.1956119	2	0.1809182	5	0.1786462	10	0.1833161	50	0.1760829
cis-1,2-Dichloroethene	0.5	0.2119126	1	0.214445	2	0.2584003	5	0.2309917	10	0.2483197	50	0.2233035
trans-1,2-Dichloroethene	0.5	0.2500634	1	0.2056026	2	0.2155035	5	0.2137515	10	0.199231	50	0.2112407
1,2-Dichloroethene (total)	1	0.230988	2	0.2100238	4	0.2369519	10	0.2223716	20	0.2237753	100	0.2172721
1,2-Dichloropropane	0.5	0.2151425	1	0.2340361	2	0.241576	5	0.2337722	10	0.2451189	50	0.2368997
1,3-Dichloropropane	0.5	0.4365428	1	0.7125813	2	0.7196188	5	0.7017577	10	0.7456469	50	0.7019485
2,2-Dichloropropane	0.5	0.3821635	1	0.3342191	2	0.3417633	5	0.3477882	10	0.346877	50	0.3398229
1,1-Dichloropropene	0.5	0.3059555	1	0.2932456	2	0.2962937	5	0.2993519	10	0.3127412	50	0.3071439
cis-1,3-Dichloropropene	0.5	0.3739716	1	0.3642143	2	0.3777833	5	0.3771387	10	0.3979016	50	0.4022559
trans-1,3-Dichloropropene	0.5	0.5602879	1	0.5770845	2	0.6341806	5	0.623044	10	0.6575215	50	0.665018
Diisopropyl Ether	0.5	0.7390492	1	0.8688732	2	0.852197	5	0.8387055	10	0.8786261	50	0.8393825
Ethylbenzene	0.5	2.29009	1	2.40338	2	2.453882	5	2.312139	10	2.440321	50	2.282524
Ethyl tert-Butyl Ether	0.5	~~0.7304828~~	1	0.7092739	2	0.7561594	5	0.7462506	10	0.783534	50	0.7371365
Ethyl Methacrylate	0.5	0.5270404	1	0.4659704	2	0.5722158	5	0.5556879	10	0.6079377	50	0.5930442
Hexachlorobutadiene	0.5	0.2953138	1	0.2758746	2	0.2744858	5	0.2755238	10	0.2822196	50	0.2955866
2-Hexanone												
Iodomethane	0.5	0.1975885	1	0.2126076	2	0.2161794	5	0.2418231	10	0.2626618	50	0.2719385
Isopropylbenzene	0.5	1.918515	1	1.987314	2	2.050781	5	1.887725	10	1.998174	50	1.88681
p-Isopropyltoluene	0.5	1.449264	1	1.440013	2	1.410674	5	1.351014	10	1.404071	50	1.344695
Methylene chloride	0.5	0.2647152	1	0.2816012	2	0.254547	5	0.2389603	10	0.2349058	50	0.2218837
Methyl Acetate	0.5		1	0.1612529	2	0.1555334	5	0.1615222	10	0.1914707	50	0.1616761
Methylcyclohexane	0.5	0.2979977	1	0.2897086	2	0.2932821	5	0.2770883	10	0.2953499	50	0.2975039
Naphthalene	0.5	1.457133	1	1.488477	2	1.56073	5	1.432489	10	1.571682	50	1.545924
Methyl Methacrylate	0.5	~~5.462822E-02~~	1	0.1594615	2	0.1905456	5	0.198541	10	0.2340858	50	0.2325355
4-Methyl-2-pentanone												
Methyl t-Butyl Ether	0.5	0.5845735	1	0.5882366	2	0.6688245	5	0.5853	10	0.6312203	50	0.5982356

INITIAL CALIBRATION DATA

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	CTOJM09CFG82_002
Client:	Tetra Tech NUS, Inc. (T010)	Project:	NAS Cecil Field CTOJM09 (G-82)
Calibration:	0349001	Instrument:	MS-VOA3
Matrix:	Water	Calibration Date:	12/13/2010 3:51:50PM

Compound	Level 01		Level 02		Level 03		Level 04		Level 05		Level 06	
	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF
n-Propylbenzene	0.5	2.433329	1	2.515944	2	2.514589	5	2.477855	10	2.50874	50	2.348189
Styrene	0.5	1.550503	1	1.54349	2	1.683067	5	1.543849	10	1.597325	50	1.567725
1,1,2,2-Tetrachloroethane	0.5	0.5737098	1	0.5848219	2	0.5716528	5	0.5338554	10	0.578875	50	0.5209569
1,1,1,2-Tetrachloroethane	0.5	0.4451939	1	0.3824872	2	0.4122394	5	0.3961206	10	0.4263303	50	0.4371133
tert-Butyl alcohol	2.5	~~2.149553E-02~~	5	2.163513E-02	10	2.127054E-02	25	2.199519E-02	50	0.0228146	250	2.099016E-02
Tetrachloroethene	0.5	0.482767	1	0.4876111	2	0.5020376	5	0.4996718	10	0.5101614	50	0.4800443
Toluene	0.5	1.247035	1	1.212974	2	1.252529	5	1.185599	10	1.238227	50	1.189405
1,2,3-Trichlorobenzene	0.5	0.6080961	1	0.5763427	2	0.5893233	5	0.5638707	10	0.5779804	50	0.5670644
1,2,4-Trichlorobenzene	0.5	0.7085799	1	0.6891037	2	0.6744443	5	0.6051668	10	0.6704001	50	0.6386562
1,1,2-Trichloroethane	0.5	0.3991394	1	0.3201807	2	0.3385819	5	0.345621	10	0.359205	50	0.3456522
1,1,1-Trichloroethane	0.5	0.3687288	1	0.3738835	2	0.3402575	5	0.3425662	10	0.365882	50	0.3743074
Tetrahydrofuran	0.5	~~0.331561~~	1	~~7.524064E-02~~	2	5.154016E-02	5	6.611734E-02	10	6.244244E-02	50	5.737525E-02
Trichloroethene	0.5	0.3183136	1	0.2694975	2	0.2417182	5	0.2463136	10	0.2494619	50	0.2426902
Trichlorofluoromethane	0.5	0.3458383	1	0.3633875	2	0.375993	5	0.3590265	10	0.3698499	50	0.3683429
1,2,3-Trichloropropane	0.5	0.1532607	1	0.1444399	2	0.185652	5	0.1604444	10	0.1778821	50	0.1695226
1,3,5-Trimethylbenzene	0.5	1.930123	1	1.802769	2	1.829714	5	1.792972	10	1.855304	50	1.73292
1,2,4-Trimethylbenzene	0.5	1.940038	1	1.94153	2	1.946413	5	1.85076	10	1.929432	50	1.778362
1,1,2-Trichloro-1,2,2-trifluoroethan	0.5	0.1762895	1	0.1694522	2	0.1884945	5	0.1909454	10	0.1951885	50	0.1946
Vinyl chloride	0.5	0.1483903	1	0.1995852	2	0.1871665	5	0.202145	10	0.1997336	50	0.1977506
m,p-Xylene	1	2.055322	2	1.963648	4	2.038175	10	1.879889	20	1.974607	100	1.737417
o-Xylene	0.5	2.124446	1	1.991406	2	2.150863	5	1.978831	10	2.047861	50	1.877664
Vinyl acetate	0.9995		1.999	0.2480553	3.998	0.2649412	9.995	0.2823836	19.99	0.2901648	99.95	0.2877945
Xylenes (total)	1.5	2.078363	3	1.972901	6	2.075738	15	1.91287	30	1.999025	150	1.784166
Dibromofluoromethane	30	0.2705314	30	0.2559628	30	0.2574518	30	0.2612367	30	0.2583508	30	0.2647555
1,2-Dichloroethane-d4	30	5.500115E-02	30	5.371499E-02	30	5.507418E-02	30	5.668504E-02	30	5.431509E-02	30	5.463436E-02
Toluene-d8	30	2.038742	30	1.982436	30	2.085078	30	2.033422	30	2.032512	30	2.113504
tert-Amyl alcohol	2.5	~~1.461434E-02~~	5	~~1.020664E-02~~	10	1.312039E-02	25	0.0122934	50	1.455852E-02	250	1.329994E-02
tert-Amyl ethyl ether	0.5	0.6359718	1	0.6834128	2	0.7208271	5	0.6947044	10	0.7380332	50	0.6782045

INITIAL CALIBRATION DATA (Continued)

SW8260B

Laboratory: Empirical Laboratories, LLC
SDG: CTOJM09CFG82_002
Client: Tetra Tech NUS, Inc. (T010)
Project: NAS Cecil Field CTOJM09 (G-82)
Calibration: 0349001
Instrument: MS-VOA3
Matrix: Water
Calibration Date: 12/13/2010 3:51:50PM

Compound	Level 07		Level 08		Level 09		Level 10		Level 11		Level 12	
	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF
Acetone							1	6.924801E-02	2	7.004323E-02	4	7.166361E-02
Acrolein	500.2	3.828619E-02	750.3	0.0384596	1000	3.704978E-02						
Acrylonitrile	499.8	8.206378E-02	749.7	8.326204E-02	999.6	7.707657E-02						
Benzene	100	0.8637814	150	0.8643363	200	0.8278845						
Bromobenzene	100	0.6145379	150	0.6144702	200	0.591971						
Bromochloromethane	100	0.1145513	150	0.117402	200	0.1146124						
Tert-Amyl Methyl Ether	100	0.6799489	150	0.6837358	200	0.6651655						
Bromodichloromethane	100	0.3257019	150	0.3339067	200	0.3202048						
Bromoform	100	0.3568635	150	0.3747126	200	0.3616281						
Bromomethane	100	0.13663	150	0.1439066	200	0.1420813						
Bromofluorobenzene	30	0.9757677	30	0.9784898	30	0.9463768						
n-Butylbenzene	100	1.460117	150	1.430709	200	1.301689						
2-Butanone							1	~~5.375996E-02~~	2	9.746882E-02	4	3.130207E-02
sec-Butylbenzene	100	1.877194	150	1.820049	200	1.68558						
tert-Butylbenzene	100	1.450458	150	1.414223	200	1.29641						
Carbon disulfide	100	0.6666282	150	0.6836866	200	0.6673172						
Carbon tetrachloride	100	0.328396	150	0.3397571	200	0.3277616						
Chlorobenzene	100	1.299024	150	1.22112	200	1.120586						
Chloroethane	100	0.1116156	150	0.1149069	200	0.1109666						
Chloroform	100	0.4136086	150	0.4208561	200	0.408767						
2-Chloroethyl vinyl ether	199.5	0.1646961	299.2	0.1669243	399	0.151603						
Chloromethane	100	0.2287215	150	0.2323317	200	0.2212954						
1-Chlorohexane	100.2	1.03369	150.3	0.9713967	200.4	0.8711421						
2-Chlorotoluene	100	1.582092	150	1.560091	200	1.443689						
4-Chlorotoluene	100	1.602025	150	1.578837	200	1.404999						
Cyclohexane	100	0.3656237	150	0.3701137	200	0.359461						
Dibromochloromethane	100	0.4910082	150	0.4978901	200	0.482151						
1,2-Dibromo-3-chloropropane	100	0.1331671	150	0.1393588	200	0.1339187						
1,2-Dibromoethane (EDB)	100	0.4745954	150	0.4741722	200	0.4536428						
Dibromomethane	100	0.1577298	150	0.1571603	200	0.1540797						
1,2-Dichlorobenzene	100	0.9776871	150	0.9618022	200	0.8922544						

INITIAL CALIBRATION DATA (Continued)

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	CTOJM09CFG82_002
Client:	Tetra Tech NUS, Inc. (T010)	Project:	NAS Cecil Field CTOJM09 (G-82)
Calibration:	0349001	Instrument:	MS-VOA3
Matrix:	Water	Calibration Date:	12/13/2010 3:51:50PM

Compound	Level 07		Level 08		Level 09		Level 10		Level 11		Level 12	
	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF
1,3-Dichlorobenzene	100	0.9682114	150	0.9649406	200	0.9079863						
1,4-Dichlorobenzene	100	0.9760724	150	0.9528481	200	0.8737436						
Dichlorodifluoromethane	100	0.2222112	150	0.2231951	200	0.2174144						
1,1-Dichloroethane	100	0.4021943	150	0.4111743	200	0.394473						
1,2-Dichloroethane	100	0.3647481	150	0.3716969	200	0.3625117						
1,1-Dichloroethene	100	0.1817293	150	0.1767042	200	0.1747987						
cis-1,2-Dichloroethene	100	0.2299435	150	0.24056	200	0.2318847						
trans-1,2-Dichloroethene	100	0.2116245	150	0.214973	200	0.2072686						
1,2-Dichloroethene (total)	200	0.220784	300	0.2277665	400	0.2195766						
1,2-Dichloropropane	100	0.2419356	150	0.2493389	200	0.2391677						
1,3-Dichloropropane	100	0.7004935	150	0.6955713	200	0.6537341						
2,2-Dichloropropane	100	0.351391	150	0.3571775	200	0.3483935						
1,1-Dichloropropene	100	0.3246441	150	0.3277977	200	0.3192688						
cis-1,3-Dichloropropene	100	0.4000485	150	0.4114682	200	0.3924478						
trans-1,3-Dichloropropene	100	0.6862714	150	0.7035245	200	0.6480896						
Diisopropyl Ether	100	0.8688388	150	0.9080615	200	0.8782371						
Ethylbenzene	100	2.12056	150	1.97899	200	1.761797						
Ethyl tert-Butyl Ether	100	0.7809032	150	0.8086737	200	0.791471						
Ethyl Methacrylate	100	0.5952338	150	0.5930545	200	0.5472426						
Hexachlorobutadiene	100	0.304053	150	0.3151297	200	0.308474						
2-Hexanone							1	~~0.1332829~~	2	0.2361711	4	0.2585611
Iodomethane	100	0.2872692	150	0.2915461	200	0.2879952						
Isopropylbenzene	100	1.757892	150	1.662689	200	1.516641						
p-Isopropyltoluene	100	1.337683	150	1.331424	200	1.227972						
Methylene chloride	100	0.226279	150	0.2190184	200	0.2250599						
Methyl Acetate	100	0.1678954	150	0.1695401	200	0.1593868						
Methylcyclohexane	100	0.3000107	150	0.3078257	200	0.2901031						
Naphthalene	100	1.55877	150	1.584748	200	1.461923						
Methyl Methacrylate	100	0.245171	150	0.2530167	200	0.2324815						
4-Methyl-2-pentanone							1	~~0.1208167~~	2	0.2035136	4	0.2253249
Methyl t-Butyl Ether	100	0.6195965	150	0.6368412	200	0.6089342						

INITIAL CALIBRATION DATA (Continued)

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	CTOJM09CFG82_002
Client:	Tetra Tech NUS, Inc. (T010)	Project:	NAS Cecil Field CTOJM09 (G-82)
Calibration:	0349001	Instrument:	MS-VOA3
Matrix:	Water	Calibration Date:	12/13/2010 3:51:50PM

Compound	Level 07		Level 08		Level 09		Level 10		Level 11		Level 12	
	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF
n-Propylbenzene	100	2.261209	150	2.130417	200	1.944995						
Styrene	100	1.489009	150	1.408933	200	1.28643						
1,1,2,2-Tetrachloroethane	100	0.5165797	150	0.5157781	200	0.4732074						
1,1,1,2-Tetrachloroethane	100	0.4335159	150	0.4296834	200	0.3987062						
tert-Butyl alcohol	500	2.315795E-02	750	0.0238508	1000	2.202951E-02						
Tetrachloroethene	100	0.4815017	150	0.4765631	200	0.4448649						
Toluene	100	1.159464	150	1.130034	200	1.034179						
1,2,3-Trichlorobenzene	100	0.5717627	150	0.6058397	200	0.5715773						
1,2,4-Trichlorobenzene	100	0.6485093	150	0.6679303	200	0.6384897						
1,1,2-Trichloroethane	100	0.3546281	150	0.3470393	200	0.3274408						
1,1,1-Trichloroethane	100	0.3841155	150	0.4001614	200	0.3844855						
Tetrahydrofuran	100	6.403116E-02	150	6.777032E-02	200	6.185409E-02						
Trichloroethene	100	0.2536167	150	0.2533344	200	0.2411768						
Trichlorofluoromethane	100	0.3734831	150	0.3764668	200	0.3641211						
1,2,3-Trichloropropane	100	0.1777841	150	0.1757025	200	0.1661717						
1,3,5-Trimethylbenzene	100	1.683992	150	1.642599	200	1.502635						
1,2,4-Trimethylbenzene	100	1.738126	150	1.694609	200	1.537815						
1,1,2-Trichloro-1,2,2-trifluoroethan	100	0.1956468	150	0.1983906	200	0.1910924						
Vinyl chloride	100	0.1983568	150	0.1969915	200	0.1887952						
m,p-Xylene	200	1.544131	300	1.390569	400	~~1.227289~~						
o-Xylene	100	1.737617	150	1.6147	200	1.450261						
Vinyl acetate	199.9	0.3044303	299.8	0.3025895	399.8	0.2911864						
Xylenes (total)	300	1.608626	450	1.465279	600	~~1.301613~~						
Dibromofluoromethane	30	0.2557741	30	0.2556111	30	0.2641592						
1,2-Dichloroethane-d4	30	5.354104E-02	30	5.854333E-02	30	5.553817E-02						
Toluene-d8	30	2.061741	30	2.048771	30	2.041381						
tert-Amyl alcohol	500	1.593537E-02	750	1.712602E-02	1000	1.640884E-02						
tert-Amyl ethyl ether	100	0.6880044	150	0.6763446	200	0.6427264						

INITIAL CALIBRATION DATA (Continued)

SW8260B

Laboratory: Empirical Laboratories, LLC
SDG: CTOJM09CFG82_002
Client: Tetra Tech NUS, Inc. (T010)
Project: NAS Cecil Field CTOJM09 (G-82)
Calibration: 0349001
Instrument: MS-VOA3
Matrix: Water
Calibration Date: 12/13/2010 3:51:50PM

Compound	Level 13		Level 14		Level 15		Level 16		Level 17		Level 18	
	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF
Acetone	10	7.176034E-02	20	7.483526E-02	100	6.989271E-02	200	7.175376E-02	300	7.202975E-02	400	7.148737E-02
Acrolein												
Acrylonitrile												
Benzene												
Bromobenzene												
Bromochloromethane												
Tert-Amyl Methyl Ether												
Bromodichloromethane												
Bromoform												
Bromomethane												
Bromofluorobenzene												
n-Butylbenzene												
2-Butanone	10	9.687901E-02	20	9.291952E-02	100	0.1035663	200	0.1103997	300	0.1065589	400	0.1059766
sec-Butylbenzene												
tert-Butylbenzene												
Carbon disulfide												
Carbon tetrachloride												
Chlorobenzene												
Chloroethane												
Chloroform												
2-Chloroethyl vinyl ether												
Chloromethane												
1-Chlorohexane												
2-Chlorotoluene												
4-Chlorotoluene												
Cyclohexane												
Dibromochloromethane												
1,2-Dibromo-3-chloropropane												
1,2-Dibromoethane (EDB)												
Dibromomethane												
1,2-Dichlorobenzene												

INITIAL CALIBRATION DATA (Continued)

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	CTOJM09CFG82_002
Client:	Tetra Tech NUS, Inc. (T010)	Project:	NAS Cecil Field CTOJM09 (G-82)
Calibration:	0349001	Instrument:	MS-VOA3
Matrix:	Water	Calibration Date:	12/13/2010 3:51:50PM

Compound	Level 13		Level 14		Level 15		Level 16		Level 17		Level 18	
	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF
1,3-Dichlorobenzene												
1,4-Dichlorobenzene												
Dichlorodifluoromethane												
1,1-Dichloroethane												
1,2-Dichloroethane												
1,1-Dichloroethene												
cis-1,2-Dichloroethene												
trans-1,2-Dichloroethene												
1,2-Dichloroethene (total)												
1,2-Dichloropropane												
1,3-Dichloropropane												
2,2-Dichloropropane												
1,1-Dichloropropene												
cis-1,3-Dichloropropene												
trans-1,3-Dichloropropene												
Diisopropyl Ether												
Ethylbenzene												
Ethyl tert-Butyl Ether												
Ethyl Methacrylate												
Hexachlorobutadiene												
2-Hexanone	10	0.2806426	20	0.3277251	100	0.3276049	200	0.3492807	300	0.318353	400	0.3159359
Iodomethane												
Isopropylbenzene												
p-Isopropyltoluene												
Methylene chloride												
Methyl Acetate												
Methylcyclohexane												
Naphthalene												
Methyl Methacrylate												
4-Methyl-2-pentanone	10	0.2067375	20	0.2359888	100	0.2438151	200	0.2559225	300	0.2441126	400	0.2359799
Methyl t-Butyl Ether												

INITIAL CALIBRATION DATA (Continued)

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	CTOJM09CFG82_002
Client:	Tetra Tech NUS, Inc. (T010)	Project:	NAS Cecil Field CTOJM09 (G-82)
Calibration:	0349001	Instrument:	MS-VOA3
Matrix:	Water	Calibration Date:	12/13/2010 3:51:50PM

Compound	Level 13		Level 14		Level 15		Level 16		Level 17		Level 18	
	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF
n-Propylbenzene												
Styrene												
1,1,2,2-Tetrachloroethane												
1,1,1,2-Tetrachloroethane												
tert-Butyl alcohol												
Tetrachloroethene												
Toluene												
1,2,3-Trichlorobenzene												
1,2,4-Trichlorobenzene												
1,1,2-Trichloroethane												
1,1,1-Trichloroethane												
Tetrahydrofuran												
Trichloroethene												
Trichlorofluoromethane												
1,2,3-Trichloropropane												
1,3,5-Trimethylbenzene												
1,2,4-Trimethylbenzene												
1,1,2-Trichloro-1,2,2-trifluoroethan												
Vinyl chloride												
m,p-Xylene												
o-Xylene												
Vinyl acetate												
Xylenes (total)												
Dibromofluoromethane												
1,2-Dichloroethane-d4												
Toluene-d8												
tert-Amyl alcohol												
tert-Amyl ethyl ether												

INITIAL CALIBRATION DATA (Continued)

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	CTOJM09CFG82_002
Client:	Tetra Tech NUS, Inc. (T010)	Project:	NAS Cecil Field CTOJM09 (G-82)
Calibration:	0349001	Instrument:	MS-VOA3
Matrix:	Water	Calibration Date:	12/13/2010 3:51:50PM

Compound	Level 19		Level 20		Level 21		Level 22		Level 23		Level 24	
	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF
Acetone												
Acrolein												
Acrylonitrile												
Benzene												
Bromobenzene												
Bromochloromethane												
Tert-Amyl Methyl Ether												
Bromodichloromethane												
Bromoform												
Bromomethane												
Bromofluorobenzene												
n-Butylbenzene												
2-Butanone												
sec-Butylbenzene												
tert-Butylbenzene												
Carbon disulfide												
Carbon tetrachloride												
Chlorobenzene												
Chloroethane												
Chloroform												
2-Chloroethyl vinyl ether												
Chloromethane												
1-Chlorohexane												
2-Chlorotoluene												
4-Chlorotoluene												
Cyclohexane												
Dibromochloromethane												
1,2-Dibromo-3-chloropropane												
1,2-Dibromoethane (EDB)												
Dibromomethane												
1,2-Dichlorobenzene												

INITIAL CALIBRATION DATA (Continued)

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	CTOJM09CFG82_002
Client:	Tetra Tech NUS, Inc. (T010)	Project:	NAS Cecil Field CTOJM09 (G-82)
Calibration:	0349001	Instrument:	MS-VOA3
Matrix:	Water	Calibration Date:	12/13/2010 3:51:50PM

Compound	Level 19		Level 20		Level 21		Level 22		Level 23		Level 24	
	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF
1,3-Dichlorobenzene												
1,4-Dichlorobenzene												
Dichlorodifluoromethane												
1,1-Dichloroethane												
1,2-Dichloroethane												
1,1-Dichloroethene												
cis-1,2-Dichloroethene												
trans-1,2-Dichloroethene												
1,2-Dichloroethene (total)												
1,2-Dichloropropane												
1,3-Dichloropropane												
2,2-Dichloropropane												
1,1-Dichloropropene												
cis-1,3-Dichloropropene												
trans-1,3-Dichloropropene												
Diisopropyl Ether												
Ethylbenzene												
Ethyl tert-Butyl Ether												
Ethyl Methacrylate												
Hexachlorobutadiene												
2-Hexanone												
Iodomethane												
Isopropylbenzene												
p-Isopropyltoluene												
Methylene chloride												
Methyl Acetate												
Methylcyclohexane												
Naphthalene												
Methyl Methacrylate												
4-Methyl-2-pentanone												
Methyl t-Butyl Ether												

INITIAL CALIBRATION DATA (Continued)

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	CTOJM09CFG82_002
Client:	Tetra Tech NUS, Inc. (T010)	Project:	NAS Cecil Field CTOJM09 (G-82)
Calibration:	0349001	Instrument:	MS-VOA3
Matrix:	Water	Calibration Date:	12/13/2010 3:51:50PM

Compound	Level 19		Level 20		Level 21		Level 22		Level 23		Level 24	
	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF	ug/L	RF
n-Propylbenzene												
Styrene												
1,1,2,2-Tetrachloroethane												
1,1,1,2-Tetrachloroethane												
tert-Butyl alcohol												
Tetrachloroethene												
Toluene												
1,2,3-Trichlorobenzene												
1,2,4-Trichlorobenzene												
1,1,2-Trichloroethane												
1,1,1-Trichloroethane												
Tetrahydrofuran												
Trichloroethene												
Trichlorofluoromethane												
1,2,3-Trichloropropane												
1,3,5-Trimethylbenzene												
1,2,4-Trimethylbenzene												
1,1,2-Trichloro-1,2,2-trifluoroethan												
Vinyl chloride												
m,p-Xylene												
o-Xylene												
Vinyl acetate												
Xylenes (total)												
Dibromofluoromethane												
1,2-Dichloroethane-d4												
Toluene-d8												
tert-Amyl alcohol												
tert-Amyl ethyl ether												

INITIAL CALIBRATION DATA (Continued)

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	CTOJM09CFG82_002
Client:	Tetra Tech NUS, Inc. (T010)	Project:	NAS Cecil Field CTOJM09 (G-82)
Calibration:	0349001	Instrument:	MS-VOA3
Matrix:	Water	Calibration Date:	12/13/2010 3:51:50PM

Compound	Mean RF	RF RSD	Mean RT	RT RSD	Linear r	Quad COD	LIMIT	Q
Acetone	7.141267E-02	2.283392	5.380222	0.1161561			15	
Acrolein	3.837883E-02	6.679093	5.221333	6.921031E-02			15	
Acrylonitrile	8.164535E-02	3.702574	6.065333	9.991203E-02			15	
Benzene	0.8693201	5.723872	12.115	3.879217E-02			15	
Bromobenzene	0.6203722	5.562394	17.223	2.639792E-02			15	
Bromochloromethane	0.1138001	5.402698	9.639	8.055648E-02			15	
Tert-Amyl Methyl Ether	0.7127696	9.54379	12.46114	1.033009E-02			15	
Bromodichloromethane	0.3079503	5.224727	13.11622	1.620503E-02			15	
Bromoform	0.293042	20.56356	16.51433	2.448315E-02	0.9987915		SPCC (0.1)	
Bromomethane	0.1212823	15.88542	4.390333	6.191229E-02	0.9994355		0.995	
Bromofluorobenzene	0.9798013	1.870278	17.055	2.105815E-02			15	
n-Butylbenzene	1.521531	8.125579	18.40633	1.570071E-02			15	
2-Butanone	9.313386E-02	27.54904	8.8875	0.2775983	0.999558		0.995	
sec-Butylbenzene	1.942098	7.067644	17.95633	1.042928E-02			15	
tert-Butylbenzene	1.517573	7.911336	18.08433	2.031522E-02			15	
Carbon disulfide	0.622022	6.829421	6.605667	4.366265E-02			15	
Carbon tetrachloride	0.297389	10.39837	12.07333	1.440845E-02			15	
Chlorobenzene	1.346299	8.860194	16.10867	1.499684E-02			SPCC (0.3)	
Chloroethane	0.1180991	14.87566	4.557667	0.1098222			15	
Chloroform	0.4195814	3.427673	9.799	0.1016528			CCC (20)	
2-Chloroethyl vinyl ether	0.1608573	4.686945	13.711	4.719969E-02			15	
Chloromethane	0.2231797	11.20807	3.729889	0.1126941			SPCC (0.1)	
1-Chlorohexane	1.123854	12.93171	16.06833	2.076101E-02			15	
2-Chlorotoluene	1.640755	6.330958	17.44133	2.088678E-02			15	
4-Chlorotoluene	1.644672	6.956288	17.49967	1.775187E-02			15	
Cyclohexane	0.3540904	4.974101	11.96367	0.0279755			15	
Dibromochloromethane	0.4234378	14.40268	15.09467	2.312328E-02			15	
1,2-Dibromo-3-chloropropane	0.1104092	20.47113	18.75733	2.486783E-02	0.9987271		0.995	
1,2-Dibromoethane (EDB)	0.4713652	5.069841	15.32833	1.248373E-02			15	
Dibromomethane	0.1573576	7.291752	12.938	4.494394E-02			15	
1,2-Dichlorobenzene	0.9980283	5.39051	18.38033	3.976783E-03			15	
1,3-Dichlorobenzene	0.9972267	4.614311	18.036	1.195149E-02			15	

INITIAL CALIBRATION DATA (Continued)

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	CTOJM09CFG82_002
Client:	Tetra Tech NUS, Inc. (T010)	Project:	NAS Cecil Field CTOJM09 (G-82)
Calibration:	0349001	Instrument:	MS-VOA3
Matrix:	Water	Calibration Date:	12/13/2010 3:51:50PM

Compound	Mean RF	RF RSD	Mean RT	RT RSD	Linear r	Quad COD	LIMIT	Q
1,4-Dichlorobenzene	1.050547	10.70503	18.08433	2.031522E-02			15	
Dichlorodifluoromethane	0.196978	14.45822	3.521667	9.130799E-02	0.9996804		0.995	
1,1-Dichloroethane	0.3970346	2.173926	7.909	0.1001988			SPCC (0.1)	
1,2-Dichloroethane	0.3618399	3.117376	11.27444	5.922584E-02			15	
1,1-Dichloroethene	0.1848867	7.173388	6.027667	0.1119975			CCC (20)	
cis-1,2-Dichloroethene	0.2321957	6.51156	9.263333	0.1166118			15	
trans-1,2-Dichloroethene	0.2143621	6.699331	7.398667	6.897512E-02			15	
1,2-Dichloroethene (total)	0.2232789	3.538246	0	0			15	
1,2-Dichloropropane	0.2374431	4.113964	13.00033	3.669978E-02			CCC (20)	
1,3-Dichloropropane	0.6742105	13.69647	14.853	1.392896E-02			15	
2,2-Dichloropropane	0.3499551	3.946072	10.03344	0.0892213			15	
1,1-Dichloropropene	0.3096047	4.004482	11.82367	3.756467E-02			15	
cis-1,3-Dichloropropene	0.3885811	4.067808	13.95333	2.095492E-02			15	
trans-1,3-Dichloropropene	0.6394469	7.377868	14.443	3.121757E-02			15	
Diisopropyl Ether	0.8524412	5.59544	9.040222	0.1016453			15	
Ethylbenzene	2.227076	10.4301	16.27267	2.137116E-02			CCC (20)	
Ethyl tert-Butyl Ether	0.7641753	4.286409	10.1225	7.275247E-02			15	
Ethyl Methacrylate	0.5619364	7.945655	14.91922	3.445866E-02			15	
Hexachlorobutadiene	0.2918512	5.293205	20.315	1.883089E-02			15	
2-Hexanone	0.3017843	12.94959	15.0305	6.273039E-02			15	
Iodomethane	0.2521788	14.37537	6.07	4.826222E-02	0.9997996		0.995	
Isopropylbenzene	1.851838	9.416512	17.02478	2.088716E-02			15	
p-Isopropyltoluene	1.366312	5.016463	17.78767	5.717893E-03			15	
Methylene chloride	0.2407745	8.997654	6.24	0.1166582			15	
Methyl Acetate	0.1660347	6.750793	6.2855	0.1506604			15	
Methylcyclohexane	0.2943189	2.884429	13.74367	2.768822E-02			15	
Naphthalene	1.517986	3.801356	20.27433	2.092311E-02			15	
Methyl Methacrylate	0.2182298	14.6991	13.39375	6.718718E-02			15	
4-Methyl-2-pentanone	0.2314244	7.970874	14.0965	3.427182E-02			15	
Methyl t-Butyl Ether	0.6135292	4.639121	7.661333	0.1385543			15	
n-Propylbenzene	2.348363	8.559379	17.36033	0.0247832			15	
Styrene	1.518926	7.533105	16.68667	2.514641E-02			15	

INITIAL CALIBRATION DATA (Continued)

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	CTOJM09CFG82_002
Client:	Tetra Tech NUS, Inc. (T010)	Project:	NAS Cecil Field CTOJM09 (G-82)
Calibration:	0349001	Instrument:	MS-VOA3
Matrix:	Water	Calibration Date:	12/13/2010 3:51:50PM

Compound	Mean RF	RF RSD	Mean RT	RT RSD	Linear r	Quad COD	LIMIT	Q
1,1,2,2-Tetrachloroethane	0.5410486	7.051772	16.752	1.727606E-02			SPCC (0.3)	
1,1,1,2-Tetrachloroethane	0.4179322	5.143498	16.05033	0.0131012			15	
tert-Butyl alcohol	2.221799E-02	4.415061	6.02425	0.1354799			15	
Tetrachloroethene	0.4850248	3.904585	15.51789	1.665171E-02			15	
Toluene	1.183272	5.857981	14.78989	2.991216E-02			CCC (20)	
1,2,3-Trichlorobenzene	0.5813175	2.795132	20.51667	5.221391E-03			15	
1,2,4-Trichlorobenzene	0.6601423	4.682353	20.00911	1.387888E-02			15	
1,1,2-Trichloroethane	0.3486098	6.477077	14.595	2.904031E-02			15	
1,1,1-Trichloroethane	0.3704875	5.232186	11.47467	4.130506E-02			15	
Tetrahydrofuran	6.159011E-02	8.996479	10.63586	0.1499273			15	
Trichloroethene	0.257347	9.517283	13.07867	2.338694E-02			15	
Trichlorofluoromethane	0.3662788	2.644332	5.268333	0.116333			15	
1,2,3-Trichloropropane	0.1678733	7.878045	16.85667	7.977424E-03			15	
1,3,5-Trimethylbenzene	1.752559	7.324779	17.56333	1.933134E-02			15	
1,2,4-Trimethylbenzene	1.817454	7.825182	17.86667	0.0186587			15	
1,1,2-Trichloro-1,2,2-trifluoroethane	0.1889	5.13942	6.346556	9.148294E-02			15	
Vinyl chloride	0.1909905	8.770908	3.933778	0.1326098			CCC (20)	
m,p-Xylene	1.82297	13.41064	16.4295	2.639917E-02			15	
o-Xylene	1.885961	12.69374	16.745	7.701285E-03			15	
Vinyl acetate	0.2839432	6.688655	8.19775	0.1540793			15	
Xylenes (total)	1.862121	12.07325	0	0			15	
Dibromofluoromethane	0.2604259	1.982991	10.10711	7.492134E-02			15	
1,2-Dichloroethane-d4	5.522748E-02	2.834664	11.12567	3.965812E-02			15	
Toluene-d8	2.048621	1.787892	14.714	2.238763E-02			15	
tert-Amyl alcohol	0.0146775	12.62285	10.97786	7.327972E-02			15	
tert-Amyl ethyl ether	0.6842477	4.766204	13.63533	1.971528E-02			15	

INITIAL CALIBRATION CHECK

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	CTOJM09CFG82_002
Client:	Tetra Tech NUS, Inc. (T010)	Project:	NAS Cecil Field CTOJM09 (G-82)
Instrument ID:	MS-VOA3	Calibration:	0349001
Lab File ID:	SEQ-ICV1.D	Calibration Date:	12/13/10 15:51
Sequence:	0L34801	Injection Date:	12/13/10
Lab Sample ID:	0L34801-ICV1	Injection Time:	20:46

		CONC. (ug/L)		RESPONSE FACTOR			% DIFF / DRIFT	
COMPOUND	TYPE	STD	ICV	ICAL	ICV	MIN (#)	ICV	LIMIT (#)
Isopropylbenzene	A	50.00	54.85	1.851838	2.031544		9.7	20
Bromofluorobenzene	A	30.00	30.31	0.9798013	0.9898197		1.0	20
Dibromofluoromethane	A	30.00	30.97	0.2604259	0.2688347		3.2	20
1,2-Dichloroethane-d4	A	30.00	31.16	5.522748E-02	5.736291E-02		3.9	20
Toluene-d8	A	30.00	30.80	2.048621	2.103532		2.7	20

Column to be used to flag Response Factor and %Diff/Drift values with an asterisk

* Values outside of QC limits

CONTINUING CALIBRATION CHECK

SW8260B

Laboratory:	Empirical Laboratories, LLC	SDG:	CTOJM09CFG82_002
Client:	Tetra Tech NUS, Inc. (T010)	Project:	NAS Cecil Field CTOJM09 (G-82)
Instrument ID:	MS-VOA3	Calibration:	0349001
Lab File ID:	0103CC1.D	Calibration Date:	12/13/10 15:51
Sequence:	1A00405	Injection Date:	01/03/11
Lab Sample ID:	1A00405-CCV1	Injection Time:	07:28

		CONC. (ug/L)		RESPONSE FACTOR			% DIFF / DRIFT	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN (#)	CCV	LIMIT (#)
Isopropylbenzene	A	100.0	91.74	1.851838	1.698839		-8.3	20
Bromofluorobenzene	A	30.00	27.89	0.9798013	0.9109445		-7.0	20
Dibromofluoromethane	A	30.00	30.47	0.2604259	0.264544		1.6	20
1,2-Dichloroethane-d4	A	30.00	32.58	5.522748E-02	5.996812E-02		8.6	20
Toluene-d8	A	30.00	28.58	2.048621	1.951587		-4.7	20

Column to be used to flag Response Factor and %Diff/Drift values with an asterisk

* Values outside of QC limits

ANALYSIS DATA SHEET

Blank

Laboratory:	Empirical Laboratories, LLC	SDG:	CTOJM09CFG82_002
Client:	Tetra Tech NUS, Inc. (T010)	Project:	NAS Cecil Field CTOJM09 (G-82)

Matrix:		Laboratory ID:	1A03001-BLK1	File ID:	0103BL1.D
Sampled:		Prepared:		Analyzed:	01/03/11 09:24
Solids:		Preparation:	5030B	Dilution:	

Batch:	1A03001	Sequence:	1A00405	Calibration:	0349001	Instrument:	MS-VOA3

CAS NO.	COMPOUND	CONC. (ug/L)	MDL	MRL	Q
98-82-8	Isopropylbenzene		0.150	1.00	U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Bromofluorobenzene	30.00	28.27	94.2	75 - 120	
Dibromofluoromethane	30.00	29.57	98.6	85 - 115	
1,2-Dichloroethane-d4	30.00	29.10	97.0	70 - 120	
Toluene-d8	30.00	28.94	96.5	85 - 120	

ANALYSIS DATA SHEET

LCS

Laboratory:	Empirical Laboratories, LLC	SDG:	CTOJM09CFG82_002
Client:	Tetra Tech NUS, Inc. (T010)	Project:	NAS Cecil Field CTOJM09 (G-82)

Matrix:		Laboratory ID:	1A03001-BS1	File ID:	0103LS1.D
Sampled:		Prepared:		Analyzed:	01/03/11 07:57
Solids:		Preparation:	5030B	Dilution:	

Batch:	1A03001	Sequence:	1A00405	Calibration:	0349001	Instrument:	MS-VOA3

CAS NO.	COMPOUND	CONC. (ug/L)	MDL	MRL	Q
98-82-8	Isopropylbenzene	55.1	0.150	1.00	

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Bromofluorobenzene	30.00	27.83	92.8	75 - 120	
Dibromofluoromethane	30.00	27.88	92.9	85 - 115	
1,2-Dichloroethane-d4	30.00	27.99	93.3	70 - 120	
Toluene-d8	30.00	27.96	93.2	85 - 120	

HOLDING TIME SUMMARY

SW8260B

Laboratory: Empirical Laboratories, LLC

SDG: CTOJM09CFG82_002

Client: Tetra Tech NUS, Inc. (T010)

Project: NAS Cecil Field CTOJM09 (G-82)

Sample Name	Date Collected	Date Received	Date Prepared	Days to Prep	Max Days to Prep	Date Analyzed	Days to Analysis	Max Days to Analysis	Q
CEF-G82-1S-201012	12/29/10 10:10	12/30/10 08:20	01/03/11 00:00	N/A	14.00	01/03/11 15:19	5.26	14.00	
CEF-G82-3S-201012	12/29/10 09:41	12/30/10 08:20	01/03/11 00:00	N/A	14.00	01/03/11 15:49	5.30	14.00	
CEF-G82-5S-201012	12/29/10 10:44	12/30/10 08:20	01/03/11 00:00	N/A	14.00	01/03/11 16:18	5.27	14.00	
Trip Blank	12/29/10 00:00	12/30/10 08:20	01/03/11 00:00	N/A	14.00	01/03/11 09:53	5.45	14.00	

PREPARATION BENCH SHEET

1A03001

Empirical Laboratories, LLC

Printed: 1/17/2011 11:19:14AM

Matrix: Water **Prepared using: MS - 5030B** **Surrogate used: 10J0413**

Lab Number	Test Code	Prepared	Initial (mL)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	Extraction Comments
1012226-01	VOC_8260B_REG	01/03/2011 00:00	5	5				1	version based on site
1012226-02	VOC_8260B_REG	01/03/2011 00:00	5	5				1	version based on site
1012226-03	VOC_8260B_REG	01/03/2011 00:00	5	5				1	version based on site
1012226-04	VOC_8260B_REG	01/03/2011 00:00	5	5				1	MS/MSD,version based on site
1012226-05	VOC_8260B_REG	01/03/2011 00:00	5	5				1	version based on site
1012226-06	VOC_8260B_REG	01/03/2011 00:00	5	5				1	version based on site
1012226-07	VOC_8260B_REG	01/03/2011 00:00	5	5				1	version based on site
1012234-01	VOC_8260B_REG	01/03/2011 00:00	5	5				1	
1012234-02	VOC_8260B_REG	01/03/2011 00:00	5	5				1	
1012234-03	VOC_8260B_REG	01/03/2011 00:00	5	5				1	
1012234-04	VOC_8260B_REG	01/03/2011 00:00	5	5				1	
1012238-01	VOC_8260B_REG	01/03/2011 00:00	5	5				1	MS/MSD.
1012238-02	VOC_8260B_REG	01/03/2011 00:00	5	5				1	
1012238-03	VOC_8260B_REG	01/03/2011 00:00	5	5				1	
1012238-04	VOC_8260B_REG	01/03/2011 00:00	5	5				1	
1012238-05	VOC_8260B_REG	01/03/2011 00:00	5	5				1	
1A03001-BLK1	QC	01/03/2011 00:00	5	5				1	
1A03001-BS1	QC	01/03/2011 00:00	5	5	10L0793		2.5	1	
1A03001-MS1	QC	01/03/2011 00:00	5	5	10L0793	1012226-04	2.5	1	
1A03001-MS2	QC	01/03/2011 00:00	5	5	10L0793	1012238-01	2.5	1	
1A03001-MSD1	QC	01/03/2011 00:00	5	5	10L0793	1012226-04	2.5	1	
1A03001-MSD2	QC	01/03/2011 00:00	5	5	10L0793	1012238-01	2.5	1	

Spiking Witnessed By Date

Preparation Reviewed By Date

Extracts Received By Date

45

CTOJM09CFG82_002

PREPARATION BENCH SHEET

1A03001

Empirical Laboratories, LLC

Printed: 1/17/2011 11:19:14AM

Matrix: Water **Prepared using: MS - 5030B** **Surrogate used: 10J0413**

Lab Number	Test Code	Prepared	Initial (mL)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	Extraction Comments

Spiking Witnessed By Date

Preparation Reviewed By Date

Extracts Received By Date

46

CTOJM09CFG82_002

ATTACHMENT C

COMPLETED FIELD FORMS

Tetra Tech NUS / FDEP Groundwater Sampling Sheet

SITE NAME: **G82/BP Wells**	SITE LOCATION: **NAS Cecil Field**	
WELL NO: CEF-G82-1S	SAMPLE ID: CEF-G82-1S-201010 27	DATE: 10 / 27 / 2010

PURGING DATA

WELL DIAMETER (in): 2	TUBING DIAMETER (inches): 3/16	WELL SCREEN INTERVAL DEPTH: 5 – 15'	STATIC DEPTH TO WATER (ft): 6.91	PURGE PUMP TYPE OR BAILER: Peristaltic Pump

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
only fill out if applicable) _____ Liters

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable) _____ Liters

INITIAL PUMP OR TUBING DEPTH IN WELL (feet): 7.5	FINAL PUMP OR TUBING DEPTH IN WELL (feet): 7.5	PURGE INITIATED AT: 1045	PURGE ENDED AT: 1221	TOTAL VOLUME PURGED (Liters): 9.6

TIME	VOLUME PURGED (Liters)	CUMUL. VOLUME PURGED (Liters)	PURGE RATE (mlpm)	DEPTH TO WATER (ft)	pH (standard units)	TEMP. (°C)	COND. (µS/cm)	DISSOLVED OXYGEN (mg/L)	TURBIDITY (NTUs)	ORP (mV)	COLOR
1045	—	—	100	6.91	—	—	—	—	—	—	—
1215	9.0	9.0	100	6.97	5.87	25.87	0.246	0.40	1.23	115.4	clear
1218	.3	9.3	100	6.97	5.87	25.89	0.246	0.42	3.71	116.0	clear
1221	.3	9.6	100	6.98	5.87	25.89	0.246	0.42	2.33	115.8	clear
1234	Sample time										

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: Jeff Krone TtNUS/	SAMPLER(S) SIGNATURES:	SAMPLING INITIATED AT: 1234	SAMPLING ENDED AT: 1302
PUMP OR TUBING DEPTH IN WELL (feet): 7.5	SAMPLE PUMP FLOW RATE (mL per minute): 100	TUBING MATERIAL CODE: Teflon	
FIELD DECONTAMINATION: Y (N)	FIELD-FILTERED: Y (N) Filtration Equipment Type: _____	FILTER SIZE: ____ µm	DUPLICATE: (Y) N

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH		
TRPH	2	AG	1 L	H_2SO_4			FL-PRO	
VOC's	3	CG	40 ml	HCl			8260B	
PAHS	2	AG	1 L	None			8270 SIM	

REMARKS: **NA field testing** not required

Duplicate CEF-G82-DUP01-201010 25

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **PE** = Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING/PURGING EQUIPMENT CODES: **APP** = After Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **VT** = Vacuum Trap; **O** = Other (Specify)

Tetra Tech NUS / FDEP Groundwater Sampling Sheet

SITE NAME: **G82/BP Wells**	SITE LOCATION: **NAS Cecil Field**	
WELL NO: CEF-G82-2S	SAMPLE ID: CEF-G82-2S-201010 27	DATE: 10 / 27 / 2010

PURGING DATA

WELL DIAMETER (in): 2	TUBING DIAMETER (inches): 3/16	WELL SCREEN INTERVAL DEPTH: 4 – 14'	STATIC DEPTH TO WATER (ft): 7.09	PURGE PUMP TYPE OR BAILER: Peristaltic Pump

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
only fill out if applicable) 14 - 7.09 = 6.91 x .16 = 1.10 = 4.18 L

4.18 Liters

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)

Liters

INITIAL PUMP OR TUBING DEPTH IN WELL (feet): 8	FINAL PUMP OR TUBING DEPTH IN WELL (feet): 8	PURGE INITIATED AT: 1345	PURGE ENDED AT: 1416	TOTAL VOLUME PURGED (Liters): 6.2

TIME	VOLUME PURGED (Liters)	CUMUL. VOLUME PURGED (Liters)	PURGE RATE (mlpm)	DEPTH TO WATER (ft)	pH (standard units)	TEMP. (°C)	COND. (µS/cm)	DISSOLVED OXYGEN (mg/L)	TURBIDITY (NTUs)	ORP (mV)	COLOR
1345	—	—	200	7.09	—						
1410	5.0	5.0	200	7.24	6.00	27.35	0.344	0.08	1.46	-61.1	Clear
1413	.6	5.6	200	7.25	5.99	27.36	0.350	0.08	0.93	-60.3	clear
1416	.6	6.2	200	7.25	5.99	27.35	0.350	0.08	0.81	-59.7	clear
1424	Sample time										

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: Jeff Krone TtNUS/	SAMPLER(S) SIGNATURES:	SAMPLING INITIATED AT: 1424	SAMPLING ENDED AT: 1435
PUMP OR TUBING DEPTH IN WELL (feet): 8	SAMPLE PUMP FLOW RATE (mL per minute): 200	TUBING MATERIAL CODE: Teflon	
FIELD DECONTAMINATION: Y (N)	FIELD-FILTERED: Y (N) Filtration Equipment Type: ____	FILTER SIZE: ____ µm	DUPLICATE: Y (N)

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH		
TRPH	2	AG	1 L	H_2SO_4			FL-PRO	
VOC's	3	CG	40 ml	HCl			8260B	
PAHS	2	AG	1 L	None			8270 SIM	

REMARKS: **NA field testing** not required

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **PE** = Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING/PURGING EQUIPMENT CODES: **APP** = After Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **VT** = Vacuum Trap; **O** = Other (Specify)

Tetra Tech NUS / FDEP Groundwater Sampling Sheet

SITE NAME: **G82/BP Wells**	SITE LOCATION: **NAS Cecil Field**	
WELL NO: CEF-G82-2I	SAMPLE ID: CEF-G82-2I-201010 27	DATE: 10 / 27 / 2010

PURGING DATA

WELL DIAMETER (in): 2	TUBING DIAMETER (inches): 3/16	WELL SCREEN INTERVAL DEPTH: 30 – 35'	STATIC DEPTH TO WATER (ft): 7.48	PURGE PUMP TYPE OR BAILER: Peristaltic Pump

WELL VOLUME PURGE: **1 WELL VOLUME** = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
only fill out if applicable) 5x = 15.5 _____ Liters

EQUIPMENT VOLUME PURGE: **1 EQUIPMENT VOL.** = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable) 3x = 3.63 1.21 Liters .0014 x 40 = .056 x 3.785 = .21 x 1 = 1.21 L

INITIAL PUMP OR TUBING DEPTH IN WELL (feet): 32	FINAL PUMP OR TUBING DEPTH IN WELL (feet): 32	PURGE INITIATED AT: 1400	PURGE ENDED AT: 1521	TOTAL VOLUME PURGED (Liters): 16.2

TIME	VOLUME PURGED (Liters)	CUMUL. VOLUME PURGED (Liters)	PURGE RATE (mlpm)	DEPTH TO WATER (ft)	pH (standard units)	TEMP. (°C)	COND. (µS/cm)	DISSOLVED OXYGEN (mg/L)	TURBIDITY (NTUs)	ORP (mV)	COLOR
1400	—	—	200	7.48							
1430	6.0	6.0	200	7.55	5.00	26.70	0.055	0.26	17.3	4.2	cloudy
1450	4.0	10.0	200	7.55	4.86	21.86	0.052	0.17	17.5	2.1	cloudy
1515	5.0	15.0	200	7.54	4.84	24.56	0.052	0.14	18.1	-3.5	cloudy
1518	.6	15.6	200	7.54	4.84	24.54	0.052	0.15	17.8	-4.2	cloudy
1521	.6	16.2	200	7.54	4.83	22.66	0.052	0.15	18.0	-5.0	cloudy
1529	Sample time										

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: Jeff KroneTtNUS/	SAMPLER(S) SIGNATURES:	SAMPLING INITIATED AT:	SAMPLING ENDED AT:
PUMP OR TUBING DEPTH IN WELL (feet): 32	SAMPLE PUMP FLOW RATE (mL per minute): 200	TUBING MATERIAL CODE: Teflon	
FIELD DECONTAMINATION: Y (N)	FIELD-FILTERED: Y (N) Filtration Equipment Type: _____	FILTER SIZE: ____ µm	DUPLICATE: Y (N)

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH		
TRPH	2	AG	1 L	H_2SO_4			FL-PRO	
VOC's	3	CG	40 ml	HCl			8260B	
PAHS	2	AG	1 L	None			8270 SIM	

REMARKS: **NA field testing** not required
Purged 5 well volumes due to high turbidity

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **PE** = Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING/PURGING EQUIPMENT CODES: **APP** = After Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **VT** = Vacuum Trap; **O** = Other (Specify)

Tetra Tech NUS / FDEP Groundwater Sampling Sheet

SITE NAME: **G82/BP Wells**	SITE LOCATION: **NAS Cecil Field**	
WELL NO: CEF-G82-3S	SAMPLE ID: CEF-G82-3S-201010 27	DATE: 10/ 27 /2010

PURGING DATA

WELL DIAMETER (in): 2	TUBING DIAMETER (inches): 3/16	WELL SCREEN INTERVAL DEPTH: 4 – 14'	STATIC DEPTH TO WATER (ft): 6.95	PURGE PUMP TYPE OR BAILER: Peristaltic Pump

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
only fill out if applicable) 14 - 6.95 = 7.05 X .16 = 1.128 X 3.785 = 4.26
4.26 Liters

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
Liters

INITIAL PUMP OR TUBING DEPTH IN WELL (feet): 7.5	FINAL PUMP OR TUBING DEPTH IN WELL (feet): 7.5	PURGE INITIATED AT: 1040	PURGE ENDED AT: 1156	TOTAL VOLUME PURGED (Liters): 7.6	

TIME	VOLUME PURGED (Liters)	CUMUL. VOLUME PURGED (Liters)	PURGE RATE (mlpm)	DEPTH TO WATER (ft)	pH (standard units)	TEMP. (°C)	COND. (µS/cm)	DISSOLVED OXYGEN (mg/L)	TURBIDITY (NTUs)	ORP (mV)	COLOR
1040	—	—	100	6.95	—	—	—	—	—	—	—
1150	7.0	7.0	100	7.21	5.88	25.32	0.225	0.44	4.20	-60.6	Clear
1153	.3	7.3	100	7.21	5.87	25.34	0.226	0.45	3.83	-61.3	Clear
1156	.3	7.6	100	7.22	5.87	25.31	0.227	0.47	3.80	-61.5	Clear
1204	Sample time										

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: Jeff Krone TtNUS/	SAMPLER(S) SIGNATURES:	SAMPLING INITIATED AT: 1204	SAMPLING ENDED AT: 1230
PUMP OR TUBING DEPTH IN WELL (feet): 7.5	SAMPLE PUMP FLOW RATE (mL per minute): 100	TUBING MATERIAL CODE: Teflon	
FIELD DECONTAMINATION: Y (N)	FIELD-FILTERED: Y (N) Filtration Equipment Type:	FILTER SIZE: ____ µm	DUPLICATE: Y (N) ms/msD

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH		
TRPH	2	AG	1 L	~~H_2SO_4~~ HCl			FL-PRO	
VOC's	3	CG	40 ml	HCl			8260B	
PAHS	2	AG	1 L	None			8270 SIM	

REMARKS: ~~NA field testing~~

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **PE** = Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING/PURGING EQUIPMENT CODES: **APP** = After Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **VT** = Vacuum Trap; **O** = Other (Specify)

Tetra Tech NUS / FDEP Groundwater Sampling Sheet

SITE NAME: **G82/BP Wells**	SITE LOCATION: **NAS Cecil Field**	
WELL NO: CEF-G82-4S	SAMPLE ID: CEF-G82-4S-201010 28	DATE: 10 / 28 / 2010

PURGING DATA

WELL DIAMETER (in): 2	TUBING DIAMETER (inches): 3/16	WELL SCREEN INTERVAL DEPTH: 5 – 15'	STATIC DEPTH TO WATER (ft): 7.86	PURGE PUMP TYPE OR BAILER: Peristaltic Pump

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
only fill out if applicable)
4.32 Liters 15 - 7.86 = 7.14 x .16 = 1.124 x 3.785 = 4.32

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
Liters

INITIAL PUMP OR TUBING DEPTH IN WELL (feet): 8	FINAL PUMP OR TUBING DEPTH IN WELL (feet): 8	PURGE INITIATED AT: 1000	PURGE ENDED AT: 1046	TOTAL VOLUME PURGED (Liters): 4.6

TIME	VOLUME PURGED (Liters)	CUMUL. VOLUME PURGED (Liters)	PURGE RATE (mlpm)	DEPTH TO WATER (ft)	pH (standard units)	TEMP. (°C)	COND. (µS/cm)	DISSOLVED OXYGEN (mg/L)	TURBIDITY (NTUs)	ORP (mV)	COLOR
1000	—	—	100	7.86	—						
1040	4.00	4.00	100	7.90	4.92	28.97	0.147	0.36	1.75	136.8	clear
1043	0.3	4.3	100	7.91	4.94	28.98	0.147	0.35	1.38	132.4	clear
1046	.3	4.6	100	7.91	4.94	28.97	0.147	0.34	1.22	128.0	clear
1053	Sample time										

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: TtNUS/ Jeff Krone	SAMPLER(S) SIGNATURES:	SAMPLING INITIATED AT: 1053	SAMPLING ENDED AT: 1115
PUMP OR TUBING DEPTH IN WELL (feet): 8	SAMPLE PUMP FLOW RATE (mL per minute): 100	TUBING MATERIAL CODE: Teflon	
FIELD DECONTAMINATION: Y (N)	FIELD-FILTERED: Y (N) Filtration Equipment Type: ____	FILTER SIZE: ____ µm	DUPLICATE: Y (N)

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION				
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH	INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE
TRPH	2	AG	1 L	H_2SO_4			FL-PRO	
VOC's	3	CG	40 ml	HCl			8260B	
PAHS	2	AG	1 L	None			8270 SIM	

REMARKS:

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **PE** = Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING/PURGING EQUIPMENT CODES: **APP** = After Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **VT** = Vacuum Trap; **O** = Other (Specify)

Tetra Tech NUS / FDEP Groundwater Sampling Sheet

SITE NAME: **G82/BP Wells**	SITE LOCATION: **NAS Cecil Field**	
WELL NO: CEF-G82-5S	SAMPLE ID: CEF-G82-5S-201010 28	DATE: 10 / 28 / 2010

PURGING DATA

WELL DIAMETER (in): 2	TUBING DIAMETER (inches): 3/16	WELL SCREEN INTERVAL DEPTH: 5 – 15'	STATIC DEPTH TO WATER (ft): 7.69	PURGE PUMP TYPE OR BAILER: Peristaltic Pump

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
only fill out if applicable) 4.42 Liters 15-7.69=7.31 x .016=1.16 x 3.785=

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable) Liters

INITIAL PUMP OR TUBING DEPTH IN WELL (feet): 8	FINAL PUMP OR TUBING DEPTH IN WELL (feet): 8	PURGE INITIATED AT: 1010	PURGE ENDED AT: 1126	TOTAL VOLUME PURGED (Liters): 7.6

TIME	VOLUME PURGED (Liters)	CUMUL. VOLUME PURGED (Liters)	PURGE RATE (mlpm)	DEPTH TO WATER (ft)	pH (standard units)	TEMP. (°C)	COND. (µS/cm)	DISSOLVED OXYGEN (mg/L)	TURBIDITY (NTUs)	ORP (mV)	COLOR
1010	—	—	100	7.69	—	—	—	—	—	—	—
1120	7.0	7.0	100	7.73	5.68	28.14	0.160	0.62	2.03	10.6	clear
1123	.3	7.3	100	7.72	5.68	28.14	0.160	0.60	1.95	9.1	clear
1126	.3	7.6	100	7.72	5.68	28.10	0.159	0.61	1.11	8.3	clear
1136	Sample time										

WELL CAPACITY (Gallons Per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 5" = 1.02; 6" = 1.47; 12" = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: Jeff Krone TtNUS/	SAMPLER(S) SIGNATURES:	SAMPLING INITIATED AT: 1136	SAMPLING ENDED AT: 1200
PUMP OR TUBING DEPTH IN WELL (feet): 8	SAMPLE PUMP FLOW RATE (mL per minute): 100	TUBING MATERIAL CODE: Teflon	
FIELD DECONTAMINATION: Y (N)	FIELD-FILTERED: Y (N) Filtration Equipment Type: _____	FILTER SIZE: ____ µm	DUPLICATE: Y (N)

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH		
TRPH	2	AG	1 L	H_2SO_4			FL-PRO	
VOC's	3	CG	40 ml	HCl			8260B	
PAHS	1	AG	1 L	None			8270 SIM	

REMARKS:

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **PE** = Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING/PURGING EQUIPMENT CODES: **APP** = After Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **VT** = Vacuum Trap; **O** = Other (Specify)

Tetra Tech NUS / FDEP Groundwater Sampling Sheet

SITE NAME: **G82/BP Wells**	SITE LOCATION: **NAS Cecil Field**	
WELL NO: CEF-G82-6S	SAMPLE ID: CEF-G82-6S-201010 28	DATE: 10 / 28 / 2010

PURGING DATA

WELL DIAMETER (in): 2	TUBING DIAMETER (inches): 3/16	WELL SCREEN INTERVAL DEPTH: 5 - 15	STATIC DEPTH TO WATER (ft): 10.51	PURGE PUMP TYPE OR BAILER: Peristaltic Pump

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
only fill out if applicable) 2.71 Liters 19 - 10.51 = 8.49 X .16 = 1.718 X 3.785 = 2.71

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable) Liters

INITIAL PUMP OR TUBING DEPTH IN WELL (feet): 11	FINAL PUMP OR TUBING DEPTH IN WELL (feet): 11	PURGE INITIATED AT: 1115	PURGE ENDED AT: 1216	TOTAL VOLUME PURGED (Liters): 12.2

TIME	VOLUME PURGED (Liters)	CUMUL. VOLUME PURGED (Liters)	PURGE RATE (mlpm)	DEPTH TO WATER (ft)	pH (standard units)	TEMP. (°C)	COND. (µS/cm)	DISSOLVED OXYGEN (mg/L)	TURBIDITY (NTUs)	ORP (mV)	COLOR
1115	—	—	200	—	—	—	—	—	—	—	—
1210	11.0	11.0	200	10.53	6.13	28.50	0.219	0.52	9.31	111.9	clear
1213	.6	11.6	200	10.53	6.13	28.51	0.219	0.53	9.02	112.3	clear
1216	.6	12.2	200	10.53	6.14	28.53	0.219	0.53	8.21	113.7	clear
1222 Sample time											

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: TtNUS/ Jeff Krone	SAMPLER(S) SIGNATURES:	SAMPLING INITIATED AT: 1222	SAMPLING ENDED AT: 1240
PUMP OR TUBING DEPTH IN WELL (feet): 11	SAMPLE PUMP FLOW RATE (mL per minute): 200	TUBING MATERIAL CODE: Teflon	
FIELD DECONTAMINATION: Y (N)	FIELD-FILTERED: Y (N) Filtration Equipment Type: ____ FILTER SIZE: ____ µm		DUPLICATE: Y (N)

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH		
TRPH	2	AG	1 L	H_2SO_4			FL-PRO	
VOC's	3	CG	40 ml	HCl			8260B	
PAHS	2	AG	1 L	None			8270 SIM	

REMARKS:

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **PE** = Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING/PURGING EQUIPMENT CODES: **APP** = After Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **VT** = Vacuum Trap; **O** = Other (Specify)

NAS Cecil Field Various Site Surveying 112602267 26 Oct 10

Personnel: Jeff Krone, Arc Surveying Crew
Truck: 2001 F-250
PPE: Level D
Weather: Partly Cloudy 85°
Objective: Survey of new and existing wells

0810 Departed office for Cecil Field.
0845 Arrived at Cecil, surveyors establishing 2nd base Station.
0920 Arrived at Site 502, surveyed wells 502-4S, 6S + 9S.
0938 Completed Site 502, proceeded to BP Site while Surveyors check in at base station.
0955 Arrived at G-82
1130 Completed Survey of BP wells and survey effort, Surveying crew going to check elevations of some previous well heights to double check calculations.
1145 JK Began uncapping G-82 wells for water levels.
1255 Completed G-82 water level measurements.
1320 Departed Cecil Field
1500 Arrived at office

JK

U.S. Naval Station Cecil Field Site G-82 11260 2267 27 Oct 10

Personnel: Jeff Krone
Truck: 2001 F-250
PPE: Level D
Weather: Partly Cloudy 88°
Objective: Groundwater Sampling

0855 Departed office.
1010 Arrived at G-82, commenced instrument calibration.
1135 Completed calibration, commenced sampling event. See table below for details.

Well ID	Sample ID	Start	Stop	Sample time	analysis
G-82-3S	CEF-G82-3S-20101027 *	1040	1156	1204	1,2,3
G82-1S	CEF-G82-1S-20101027 * *	1045	1221	1234	1,2,3
G82-2S	CEF-G82-2S-20101027	1345	1416	1424	1,2,3
G82-21	CEF-G82-21-20101027	1400	1521	1529	1,2,3

* indicates MS/MSD ** indicates Duplicate 01 CEF-G82-DUP01-20101027
analysis Key 1= VOCs 2= TRPH 3= PAH

1605 completed sampling for the day, packed samples on ice for transport and secured equipment.
1630 Transferred IDW to Tote 3.
1645 Departed Cecil Field
1730 Arrived at office

NAS Cecil Field Site G-82 11260226.7 GW Sampling 28 Oct 10

Personnel: Jeff Krona
Truck: 2001 F-250
PPE: Level D
Weather: Partly Cloudy 88°
Objective: GW Sampling

0845 Departed office for Cecil Field
0945 Arrived at site, commenced calibration.
1025 completed calibration, resumed gw sampling, see table below for details.

Well ID	Sample ID	Start	Stop	Sample time	analyses
G-82-4$	CEF-G82-4$-20101028	1000	1046	1053	1,2,3
G82-5$	CEF-G82-5$-20101028	1010	1126	1136	1,2,3
G82-6$	CEF-G82-6$-20101028	1115	1216	1222	1,2,3

Analysis Key 1= VOCs 2= TRPH 3= PAHs

1315 Completed sampling, packed equipment and samples for transportation to the office
1400 Transferred IDW To Tote 3 ~20 gal, pH 4.57, departed Cecil Field.
1515 Arrived at office, began packing samples for transport to Empirical Labs.
1730 Relinquished Samples to Empirical Labs via FEDEX Airbill 8660 1730 2182.

Tetra Tech NUS, Inc.

GROUNDWATER LEVEL MEASUREMENT SHEET

Project Name: Bldg G82 and BP Wells Site
Project No.: CTO JM09 112G02267
Location: NAS Cecil Field
Personnel: Jeff Krone
Weather Conditions: Sunny 85°
Measuring Device: Heron Water Tape
Tidally Influenced: Yes ___ No _X_
Remarks:

Well or Piezometer Number	Date	Time	Elevation of Reference Point (feet)*	Total Well Depth (feet)*	Water Level Indicator Reading (feet)*	Thickness of Free Product (feet)*	Groundwater Elevation (feet)*	Comments
CEF-G82-1S	10/26/10	1231	71.46	15.00	6.91			
CEF-G82-2I		1234	71.60	35.00	7.48			
CEF-G-82-2S		1233	71.23	14.00	7.09			
CEF-G82-3S		1230	71.20	14.00	6.95			
CEF-G82-4S		1237	71.74	15.00	7.82			
CEF-G82-5S		1240	71.53	15.00	7.68			
CEF-G82-6S	10/26/10	1241	71.95	15.00	10.27			

* All measurements to the nearest 0.01 foot

FIGURE 8-1

SITE-SPECIFIC TRAINING DOCUMENTATION

My signature below indicates that I am aware of the potential hazardous nature of performing remedial investigation activities at Cecil Field sites and that I have received site-specific training which included the elements presented below:

- Names of designated personnel and alternates responsible for site safety and health
- Safety, health, and other hazards present at the sites
- Use of personal protective equipment
- Safe use of engineering controls and equipment
- Medical surveillance requirements
- Signs and symptoms of overexposure
- Emergency response procedures (evacuation and assembly points)
- Initial response procedures
- Review of the contents of relevant Material Safety Data Sheets
- Review of the use of Safe Work Permits
- Stop work procedure

I have been given the opportunity to ask questions and these questions have been answered to my satisfaction. The training dates listed (introductory, refresher, and supervisory, as applicable) and my medical surveillance requirements are accurate and correct.

Name (Printed and Signature)	Site-Specific Training Date	40-Hour Training (Date)	8-Hour Refresher Training (Date)	8-Hour Supervisory Training (Date)	Medical Exam
Jeff Kronz	10/24/10	7/90	7/10	7/10	7/10

SAFE WORK PERMIT
MOBILIZATION AND DEMOBILIZATION ACTIVITIES
CECIL FIELD PETRO SITES

Permit No. 1 Date: 10/25-10/29/10 Time: From 0800 to 1800

I. **Work limited to the following (description, area, equipment used):** Mobilization and demobilization activities

II. **Primary Hazards:** Lifting; slips, trips and falls; vehicular and foot traffic; insect/animal bites and stings; poisonous plants; inclement weather.

III. **Field Crew:**

IV. **On-site Inspection conducted** ☒ Yes ☐ No Initials of Inspector JS Tetra Tech
Equipment Inspection required ☐ Yes ☒ No Initials of Inspector Tetra Tech

V. **Protective equipment required**
Level D ☒ Level B ☐
Level C ☐ Level A ☐

Respiratory equipment required
Yes ☐ Specify on the reverse
No ☒

Modifications/Exceptions: Minimum requirement include sleeved shirt and long pants, or coveralls, safety, glasses and safety footwear. Hard hats and hearing protection will be worn when working near operating equipment.

VI.

Chemicals of Concern	Hazard Monitoring	Action Level(s)	Response Measures
None anticipated	None	None	None

Primary Route(s) of Exposure/Hazard: NA

(Note to FOL and/or SHSO: Each item in Sections VII, VIII, and IX must be checked Yes, No, or NA)

VII. **Additional Safety Equipment/Procedures**

Hard-hat	☐ Yes	☒ No	Hearing Protection (Plugs/Muffs)	☒ Yes	☐ No
Safety Glasses	☐ Yes	☒ No	Safety belt/harness	☐ Yes	☒ No
Chemical/splash goggles	☐ Yes	☒ No	Radio/Cellular Phone	☐ Yes	☒ No
Splash Shield	☐ Yes	☒ No	Barricades	☐ Yes	☒ No
Splash suits/coveralls	☐ Yes	☒ No	Gloves (Type – Work)	☒ Yes	☐ No
Impermeable apron	☐ Yes	☒ No	Work/rest regimen	☐ Yes	☒ No
Safety toe work shoes/boots	☒ Yes	☐ No	Chemical Resistant Boot Covers	☐ Yes	☒ No
High visibility vest	☒ Yes	☐ No	Tape up/use insect repellent	☐ Yes	☒ No
First Aid Kit	☒ Yes	☐ No	Fire Extinguisher	☒ Yes	☐ No
Safety Shower/Eyewash	☐ Yes	☒ No	Other	☐ Yes	☐ No

Modifications/Exceptions: Tyvek coverall to protect against natural hazards (e.g., ticks) if working/walking through areas of high grass. Use insect repellants containing at least 10% DEET and tape up in such areas. Follow manufacturer's recommendations for proper application and reapplication. Hard hat when overhead hazards exist. Safety glasses when near eye hazards. Hearing protection when in high noise areas.

VIII. **Site Preparation**

	Yes	No	NA
Utility Locating and Excavation Clearance completed	☐	☐	☒
Vehicle and Foot Traffic Routes Established/Traffic Control Barricades/Signs in Place	☐	☐	☒
Physical Hazards Identified and Isolated (Splash and containment barriers)	☐	☐	☒
Emergency Equipment Staged (Spill control, fire extinguishers, first aid kits, etc).	☐	☐	☒

IX. **Additional Permits required** (Hot work, confined space entry, excavation etc.). ☐ Yes ☒ No
If yes, SHSO to complete or contact Health Sciences, Pittsburgh Office (412)921-7090

X. **Special instructions, precautions:** Preview work locations to identify potential hazards (slips, trips, and falls, natural hazards, etc.) Review PPE needs based on activities being performed and the associated hazards. Use safe lifting procedures and obtain assistance when handling heavy or awkward objects. Suspend site activities in the event of inclement weather. Observe site workers for signs and symptoms of heat/cold stress. Use sun block (SPF > 15) to prevent sunburn if necessary.

Permit Issued by: _____ Permit Accepted by: _____

SAFE WORK PERMIT
GROUNDWATER SAMPLING ACTIVITIES
CECIL FIELD PETRO SITES

Permit No. 2 Date: 10/25-10/29/10 Time: From 0800 to 1800

I. **Work limited to the following (description, area, equipment used):** Groundwater sampling

II. **Primary Hazards:** Lifting; slips, trips and falls; vehicular and foot traffic; insect/animal bites and stings; poisonous plants; inclement weather. Chemical contamination.

III. **Field Crew:**

IV. **On-site Inspection conducted** ☒ Yes ☐ No Initials of Inspector JK Tetra Tech
Equipment Inspection required ☐ Yes ☒ No Initials of Inspector _____ Tetra Tech

V. **Protective equipment required**
Level D ☒ Level B ☐
Level C ☐ Level A ☐

Respiratory equipment required
Yes ☐ Specify on the reverse
No ☒

Modifications/Exceptions: Minimum requirement include sleeved shirt and long pants, or coveralls, safety, glasses and safety footwear. Hard hats and hearing protection will be worn when working near operating equipment.

VI.

Chemicals of Concern	Hazard Monitoring / Action Level(s)	Response Measures
VOCs	FID with 1.25 ppm for 4 exposures for 5 minutes in one work day	Suspend site activities and report to an unaffected area

Primary Route(s) of Exposure/Hazard: inhalation, ingestion, direct contact

(Note to FOL and/or SHSO: Each item in Sections VII, VIII, and IX must be checked Yes, No, or NA)

VII. **Additional Safety Equipment/Procedures**

Hard-hat	☐ Yes	☒ No	Hearing Protection (Plugs/Muffs)	☒ Yes	☐ No
Safety Glasses	☐ Yes	☒ No	Safety belt/harness	☐ Yes	☒ No
Chemical/splash goggles	☐ Yes	☒ No	Radio/Cellular Phone	☐ Yes	☒ No
Splash Shield	☐ Yes	☒ No	Barricades	☐ Yes	☒ No
Splash suits/coveralls	☐ Yes	☒ No	Gloves (Type – Work)	☒ Yes	☐ No
Impermeable apron	☐ Yes	☒ No	Work/rest regimen	☐ Yes	☒ No
Safety toe work shoes/boots	☒ Yes	☐ No	Chemical Resistant Boot Covers	☐ Yes	☒ No
High visibility vest	☒ Yes	☐ No	Tape up/use insect repellent	☐ Yes	☒ No
First Aid Kit	☒ Yes	☐ No	Fire Extinguisher	☒ Yes	☐ No
Safety Shower/Eyewash	☐ Yes	☒ No	Other	☐ Yes	☒ No

Modifications/Exceptions: Minimum requirement include sleeved shirt and long pants, safety footwear, and nitrile gloves Tyvek coverall to protect against natural hazards (e.g., ticks) if working/walking through areas of high grass. Use insect repellants containing at least 10% DEET and tape up in such areas. Follow manufacturer's recommendations for proper application and reapplication. Hard hat when overhead hazards exist. Safety glasses when near eye hazards. Hearing protection when in high noise areas.

VIII. **Site Preparation**

	Yes	No	NA
Utility Locating and Excavation Clearance completed	☐	☐	☒
Vehicle and Foot Traffic Routes Established/Traffic Control Barricades/Signs in Place	☐	☐	☒
Physical Hazards Identified and Isolated (Splash and containment barriers)	☐	☐	☒
Emergency Equipment Staged (Spill control, fire extinguishers, first aid kits, etc).	☐	☐	☒

IX. **Additional Permits required** (Hot work, confined space entry, excavation etc.). ☐ Yes ☒ No
If yes, SHSO to complete or contact Health Sciences, Pittsburgh Office (412)921-7090

X. **Special instructions, precautions:** Preview work locations to identify potential hazards (slips, trips, and falls, natural hazards, etc.) Review PPE needs based on activities being performed and the associated hazards. Use safe lifting procedures and obtain assistance when handling heavy or awkward objects. Suspend site activities in the event of inclement weather. Observe site workers for signs and symptoms of heat/cold stress. Use sun block (SPF > 15) to prevent sunburn if necessary.

Permit Issued by: _____ Permit Accepted by: _____

SAFE WORK PERMIT
IDW MANAGEMENT
CECIL FIELD PETRO SITES

Permit No. 3 Date: ~~10/29/10~~ 10/25/10 Time: From 0800 to 1800

SECTION I: General Job Scope

I. **Work limited to the following (description, area, equipment used):** IDW management activities includes containerization, staging, monitoring for leaks of IDW accumulated wastes. Wastes types include soil cutting, purge and decontamination wash waters.

II. **Primary Hazards:** Lifting, pinches and compressions; flying projectiles; slips, trips, and falls and chemical contamination.

III. **Field Crew:**

IV. **On-site Inspection conducted** ☒ Yes ☐ No Initials of Inspector JK Tetra Tech
Equipment Inspection required ☐ Yes ☒ No Initials of Inspector _____ Tetra Tech

SECTION II: General Safety Requirements (To be filled in by permit issuer)

V. **Protective equipment required**
Level D ☒ Level B ☐
Level C ☐ Level A ☐

Respiratory equipment required
Yes ☐ See Reverse
No ☒

Modifications/Exceptions: None anticipated

VI.

Chemicals of Concern	**Hazard Monitoring / Action Level(s)**	**Response Measures**
VOCs	FID with 1.25 ppm for 4 exposures for 5 minutes in one work day	Suspend site activities and report to an unaffected area

Primary Route(s) of Exposure/Hazard: inhalation

(Note to FOL and/or SHSO: Each item in Sections VII, VIII, and IX must be checked Yes or No)

VII. **Additional Safety Equipment/Procedures**

Hard-hat	☐ Yes	☒ No	Hearing Protection (Plugs/Muffs)	☐ Yes	☒ No
Safety Glasses	☐ Yes	☒ No	Safety belt/harness	☐ Yes	☒ No
Chemical/splash goggles	☐ Yes	☒ No	Radio/Cellular Phone	☒ Yes	☐ No
Splash Shield	☐ Yes	☒ No	Barricades	☐ Yes	☒ No
Splash suits/coveralls	☐ Yes	☒ No	Gloves (Type – Leather/Cotton)	☒ Yes	☒ No
Impermeable apron	☐ Yes	☒ No	Work/rest regimen	☐ Yes	☒ No
Safety toe work shoes/boots	☒ Yes	☐ No	Chemical Resistant Boot Covers	☐ Yes	☒ No
High visibility vest	☒ Yes	☐ No	Tape up/use insect repellent	☐ Yes	☒ No
First Aid Kit	☒ Yes	☐ No	Fire Extinguisher	☒ Yes	☐ No
Safety Shower/Eyewash	☐ Yes	☒ No	Other	☐ Yes	☐ No

Modifications/Exceptions: If using pneumatic/electric power to open drums – Safety glasses are required; If power equipment is used to move drums or you are working near operating equipment hard hats will be worn. Tyvek coverall to protect against natural hazards (e.g., ticks) if working/walking through areas of high grass. Use insect repellants containing at least 10% DEET if necessary. Follow manufacturer's recommendations for proper application and reapplication. If working in areas where snakes are a threat, wear snake chaps to protect against bites.

VIII. **Site Preparation**

	Yes	No	NA
Utility Locating and Excavation Clearance completed	☐	☐	☒
Vehicle and Foot Traffic Routes Established/Traffic Control Barricades/Signs in Place	☐	☐	☒
Physical Hazards Identified and Isolated	☐	☐	☒
Emergency Equipment Staged (Spill control, fire extinguishers, first aid kits, etc).	☐	☐	☒

IX. **Additional Permits required** (Hot work, confined space entry, excavation etc.). ☐ Yes ☒ No
If yes, SHSO to complete or contact Health Sciences, Pittsburgh Office (412)921-7090

X. **Special instructions, precautions:** Suspend site activities in the event of inclement weather. Use proper lifting techniques. When/where possible use heavy equipment to move and place containers. When placing drums – Place the label and retention ring nut on the outside where it is readily visible. Place 4-drums to a pallet. Maintain a minimum distance of 4-feet between pallet rows.

Permit Issued by: _____ Permit Accepted by: _____

MEDICAL DATA SHEET

This Medical Data Sheet must be completed by on-site personnel and kept in the command post during the conduct of site operations. This data sheet will accompany any personnel when medical assistance is needed or if transport to hospital facilities is required.

Project: Cecil Field Site G 82

Name: Jeff Krone Home Telephone: 2606062

Address: 3667 Torre Grande Dr, Jax, Fl 32257

Age: 52 Height: 5' 11" Weight: 210

Person to notify in the event of an emergency: Name: Bonnie Krone

Phone: 699 8849

Drug or other Allergies: none

Particular Sensitivities : none

Do You Wear Contacts? no

What medications are you presently using? Toprol

Name, Address, and Phone Number of personal physician: Dr Browning / Brielle Buckley PA 10898 Baymeadows Road Suite 100 Jacksonville, Fl 32256 904 519 5338

Note: Health Insurance Portability and Accountability Act (HIPAA) Requirements

HIPAA took effect in 1996 and was amended April 14, 2003. Loosely interpreted, HIPAA regulates the disclosure of Protected Health Information (PHI) by the entity collecting that information. PHI is any information about health status (such as that you may report on this Medical Data Sheet), provision of health care, or other information. HIPAA also requires TtNUS to ensure the confidentiality of PHI. This Act can affect the ability of the Medical Data Sheet to contain and convey information you would want a Doctor to know if you were incapacitated. So before you complete the Medical Data Sheet understand that this form will not be maintained in a secure location. It will be maintained in a file box or binder accessible to other members of the field crew so that the can accompany an injured party to the hospital.

DO NOT include information that you do not wish others to know, only information that may be pertinent in an emergency situation or treatment.

Jeff Krone [signature] 10/22/10

Name (Print clearly) Signature Date

TETRA TECH NUS, INC.

CHAIN OF CUSTODY

NUMBER № 2104

PAGE 1 OF 2

PROJECT NO: 112G02267	FACILITY: Cecil Field Site G-82	PROJECT MANAGER: Rob Simcik	PHONE NUMBER: 412 921 8163	LABORATORY NAME AND CONTACT: Empirical / Kim Kostzer
SAMPLERS (SIGNATURE): Jeff Krone		FIELD OPERATIONS LEADER: Kara Wimble	PHONE NUMBER: 904 636-6125	ADDRESS: 621 Mainstream Drive Suite 270
		CARRIER/WAYBILL NUMBER: FEDEX airbill 8660 1730 2182		CITY, STATE: Nashville, TN 37228

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

CONTAINER TYPE PLASTIC (P) or GLASS (G): G G G

PRESERVATIVE USED: HCl HCl –

DATE YEAR 2010	TIME	SAMPLE ID	LOCATION ID	TOP DEPTH (FT)	BOTTOM DEPTH (FT)	MATRIX (GW, SO, SW, SD, QC, ETC.)	COLLECTION METHOD GRAB (G) COMP (C)	No. OF CONTAINERS	VOCs (8260B)	TRPH (FL-PRO)	PAHs (8270 sim)						COMMENTS
10/27	1204	CEF-G82-35-20101027				GW	G	21	9	6	6						ms/msd
10/27	00000	CEF-G82-DUP01-20101027				GW	G	7	3	2	2						cool to 4°c
10/27	1234	CEF-G82-13-20101027				GW	G	7	3	2	2						
10/27	1424	CEF-G82-23-20101027				GW	G	7	3	2	2						
10/27	1529	CEF-G82-27-20101027				GW	G	7	3	2	2						

	DATE	TIME		DATE	TIME
1. RELINQUISHED BY	10/28/10	1700	1. RECEIVED BY		
2. RELINQUISHED BY			2. RECEIVED BY		
3. RELINQUISHED BY			3. RECEIVED BY		

COMMENTS

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

4/02R
FORM NO. TtNUS-001

TETRA TECH NUS, INC. | CHAIN OF CUSTODY | NUMBER № 2105 | PAGE 2 OF 2

PROJECT NO:	FACILITY:	PROJECT MANAGER	PHONE NUMBER	LABORATORY NAME AND CONTACT:
126022067	Cecil Field Site 6-82	Rob Simcik	412 921 8163	Empirical Labs / Kim Kostzer
SAMPLERS (SIGNATURE)		FIELD OPERATIONS LEADER	PHONE NUMBER	ADDRESS
Jeff Krone		Kara Wimble	904 636-6125	601 Mainstream Drive, Suite 270
		CARRIER/WAYBILL NUMBER		CITY, STATE
		FEDEX Airbill 8660 1730 2182		Nashville, TN 37228

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

DATE YEAR 2010	TIME	SAMPLE ID	LOCATION ID	TOP DEPTH (FT)	BOTTOM DEPTH (FT)	MATRIX (GW, SO, SW, SD, QC, ETC.)	COLLECTION METHOD GRAB (G) COMP (C)	No. OF CONTAINERS	VOCs (8260B)	TRPH (FL-PRO)	PAHs (8270SIM)						COMMENTS
		CONTAINER TYPE PLASTIC (P) or GLASS (G)							G	G	G						
		PRESERVATIVE USED							HCl	HCl	—						
10/28	1053	CEF-G82-4S-20101028				GW	G	7	3	2	2						Cool to 4°C
10/28	1136	CEF-G82-5S-20101028				GW	G	7	3	2	2						
10/28	1202	CEF-G82-6S-20101028				GW	G	7	3	2	2						
		Trip Blank							2								

1. RELINQUISHED BY	DATE	TIME	1. RECEIVED BY	DATE	TIME
	10/28/10	1700			
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

Tetra Tech NUS, Inc.

EQUIPMENT CALIBRATION LOG

PROJECT NAME : NAS Cecil Field

INSTRUMENT NAME/MODEL: Lamotte 2020e Turbidimeter

SITE NAME: G82 Wells

MANUFACTURER: Lamotte

PROJECT No.: CTO JM09 112G02267

SERIAL NUMBER: me 13302

Date of Calibration	Instrument I.D. Number	Person Performing Calibration	Instrument Settings		Instrument Readings		Calibration Standard (Lot No.)	Remarks and Comments
			Pre-calibration	Post-calibration	Pre-calibration	Post-calibration		
10/27/10	me 13302	K	1.0NTU 10.0NTUs	1.0NTU 10.0NTUs	7.48	10.00		
10/27/10	"	K	1.0NTU 10.0NTUs	1.0NTU 10.0NTUs	1.45	1.00		
10/28/10	"	K	1.0NTU 10.0NTUs	1.0NTU 10.0NTUs	7.00	10.00		
10/28/10	"	K	1.0NTU 10.0NTUs	1.0NTU 10.0NTUs	1.20	1.00		
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Tetra Tech NUS, Inc.

YSI EQUIPMENT CALIBRATION SHEET

PROJECT NAME : NAS Cecil Field

INSTRUMENT NAME/MODEL: YSI 556 MPS

SITE NAME: G82 Wells

MANUFACTURER: YSI

PROJECT No.: 112G02267

SERIAL NUMBER: 09J100705/10J100598

		Date of Calibration (mm/dd/yy)	Person Performing Calibration (Name)	Machine Serial No.	Machine Settings	Instrument Readings Pre-cal	Instrument Readings Post-cal	Calibration Standard (Lot#/Expiration Date)	Comments
pH (4)	(S.U.)	10/27/10	K		4.00	4.05/5.07	4.00	Lot# 2803109 Exp.Date: 6/11	
pH (10)	(S.U.)	10/27/10	K		10.00	10.82/8.86	10.00	Lot# 1906640 Exp.Date: 12/10	
D.O.	%	10/27/10	K		100%	~~1518~~/~~1407~~ 94.2/99.1	100% ~~1.413~~	Lot# ~~7807~~ Exp.Date: ~~3/11~~	
Cond.	(mS/cm)	10/27/10	K		1.413	1512/1407	1.413	Lot# 7807 Exp.Date: 3/11	
Temp.	°C							Lot# Exp.Date:	
ORP	(mV)	10/27/10	K		240	237.7/194.1	240.0	Lot# 2282 Exp.Date: 3/15	
								Lot# Exp.Date:	
pH (4)	(S.U.)	10/28/10	K			3.86	4.00	Lot# 2803109 Exp.Date: 6/11	
pH (10)	(S.U.)		K			9.92	10.00	Lot# 1906640 Exp.Date: 6/11	
D.O.	%					103.5	100.0	Lot# Exp.Date:	
Cond.	(mS/cm)		K			1.344	1.413	Lot# 7807 Exp.Date: 3/11	
Temp.	°C							Lot# Exp.Date:	
ORP	(mV)	10/28/10	K		240	245.7	240.0	Lot# 2282 Exp.Date: 3/15	

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