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POST-EXCAVATION GROUNDWATER MONITORING REPORT SECOND EVENT DECEMBER 2010 AT BUILDING 502 TANK 502 NAS CECIL FIELD FL

03/04/2011

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PITT-03-11-007

March 4, 2011

Project Number 112G00746

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

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

Subject: Post-Excavation Groundwater Monitoring Report, Second Event – December 2010
Building 502, Tank 502
Naval Air Station Cecil Field
Jacksonville, Florida

Dear Mr. Grabka:

On behalf of the Navy, Tetra Tech NUS, Inc. (Tetra Tech) is pleased to submit this Groundwater Monitoring Report for the referenced Contract Task Order for Building 502, Tank 502. This Post-Excavation Groundwater Monitoring Report was prepared for Naval Facilities Engineering Command Southeast (NAVFAC SE) under the Comprehensive Long-Term Environmental Action Navy (CLEAN) Contract Number N62467-04-D-0055.

The primary objective of current activities at this site is to conduct sampling of groundwater associated with the intermediate zone of the surficial aquifer to determine the presence or absence of groundwater contamination following June 2010 soil excavation activities. The second post-excavation groundwater monitoring event was conducted based on Meeting Minute No. 2648 and associated Decision No. 791 from the Base Realignment and Closure (BRAC) Cleanup Team (BCT) November 3, 2010, meeting.

This Post-Excavation Groundwater Monitoring Report summarizes the field operations and analytical results for the subject site for the sampling event conducted on December 9 and 10, 2010.

BACKGROUND

Building 502 is located in the Main Base area of the former Naval Air Station Cecil Field, as shown on Figure 1. Tank 502, a 1,000-gallon fuel oil tank, was removed in 1997, and a subsequent Site Assessment was performed in 1998 by Harding Lawson Associates (HLA). HLA recommended a soil source removal in the area immediately surrounding the former location of the fuel tank. The source removal was conducted in January 1999, and the following items were noted in the report by CH2MHill Constructors, Inc. (CH2MHill):

- The contaminated soil associated with Tank 502 was removed.
- No free product was encountered in the excavation.
- Three monitoring wells (CEF-502-1S, CEF-502-2S, and CEF-502-5D) were abandoned because they were within the limits of the excavation.

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In April 1999, a follow-up Site Assessment Report (SAR) recommended that No Further Action (NFA) be conducted with regard to soil at the site. The SAR recommended groundwater monitoring only for natural attenuation because benzene, ethylbenzene, xylenes, naphthalene, and total petroleum hydrocarbons (TPH) were previously detected in excess of Florida Department of Environmental Protection (FDEP) Groundwater Cleanup Target Levels (GCTLs). The SAR noted that wells CEF-502-2S and CEF-502-5D had been abandoned and recommended that those wells be replaced and monitored along with CEF-502-4S. FDEP responded in July 1999 with a Monitoring Only Plan (MOP) approval letter that required semi-annual sampling of monitoring wells CEF-502-1S, CEF-502-2S, CEF-502-4S, and CEF-502-5D. HLA replaced abandoned wells CEF-502-2S and CEF-502-5D with CEF-502-6S and CEF-502-7D, respectively, before conducting the first semi-annual event in August 1999. Following the second semi-annual sampling event in March 2000, FDEP agreed that groundwater monitoring should continue but required that a monitoring well be installed at the former location of CEF-502-1S and that samples from the well be collected and analyzed for benzene, toluene, ethylbenzene, and total xylenes using United States Environmental Protection Agency (USEPA) Method 602, polynuclear aromatic hydrocarbons (PAHs) using USEPA Method 8310; and total recoverable petroleum hydrocarbons (TRPH) using the Florida Petroleum-Range Organics (FL-PRO) method.

During March and April 2001, Tetra Tech conducted a Supplemental Site Assessment in response to FDEP recommendations regarding the 1999 SAR. Tetra Tech personnel supervised the installation of a replacement well for CEF-502-1S (designated CEF-502-1SR) and sampled that well along with CEF-502-4S, CEF-502-6S, and CEF-502-7D for volatile organic compounds (VOCs), PAHs, and TRPH, as required in the MOP. The Supplemental SAR recommended several modifications to the monitoring program, including installation and sampling of a new well (CEF-502-8S) and sampling of an additional existing well (CEF-502-3S). The recommendations were approved by FDEP on August 3, 2001, and were implemented during the next semi-annual sampling event in December 2001.

Four semi-annual groundwater monitoring events were conducted from June 6, 2002, through January 28, 2004. The Second Semi-Annual, Fourth Year Groundwater Monitoring Report indicated that concentrations of benzene, ethylbenzene, and total xylenes were less than their respective milestone objectives for Year 4. However, concentrations of naphthalene and TRPH in well CEF-502-1SR were greater than the Year 4 milestone objectives.

Because the concentrations of naphthalene, 1-methylnaphthalene, 2-methylnaphthalene, and TRPH continued to exceed GCTLs in monitoring well CEF-502-1SR, Tetra Tech recommended that semi-annual monitoring of existing wells be continued and also recommended additional characterization of a potential source of contamination contributing to CEF-502-1SR. This recommendation was discussed and approved at the December 2005 BCT meeting. In November 2006, Tetra Tech installed 10 soil borings in the vicinity of CEF-502-1SR. Based on field screening results and visual observations, one soil sample was collected from each location and analyzed for PAHs using USEPA Method SW-846 8310 and for TRPH using the FL-PRO method. In addition, one round of groundwater samples was collected from the six existing groundwater monitoring wells (CEF-502-1SR, CEF-502-3S, CEF-502-4S, CEF-502-6S, CEF-502-7D, and CEF-502-8S) at the time of the soil sampling. The samples were analyzed for select VOCs using USEPA Method SW-846 8260B, PAHs including 1-methylnaphthalene and 2-methylnaphthalene using USEPA Method SW-846 8310, and TRPH using FL-PRO.

During the November 2006 sampling event, TRPH was detected in excess of its Soil Cleanup Target Level (SCTL) in soil samples from borings CEF-502-SB06 [at 5 feet below ground surface (bgs)], CEF-502-SB07 (at 5 feet bgs), CEF-502-SB09 (at 3 feet bgs), and CEF-502-SB10 (at 5 feet bgs). Also during the November 2006 sampling event, 1-methylnaphthalene and 2-methylnaphthalene were detected in monitoring well CEF-502-1SR at concentrations exceeding their respective GCTLs. Isopropylbenzene was also detected at concentrations greater than the GCTL in groundwater from wells CEF-502-1SR and CEF-502-4S. Based on these sampling results, Tetra Tech prepared an SAR Addendum (SARA), submitted May 11, 2007, recommending source removal in the vicinity of the soil borings in which TRPH

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had been detected at concentrations greater than the SCTL. The details of the excavation activities were further outlined in the Dig and Haul Package, Building 502, Tank 502, prepared by Tetra Tech and submitted on September 11, 2007.

Prior to the submittal of the SARA, the First Semi-Annual, Sixth Year sampling event was conducted in February 2007. Groundwater samples were collected from monitoring wells CEF-502-1SR, CEF-502-3S, CEF-502-4S, CEF-502-6S, CEF-502-7D, and CEF-502-8S. All samples were analyzed for VOCs using USEPA Method SW-846 8260B, PAHs using USEPA Method SW-846 8310, and TRPH using the FL-PRO method. During this event, 1-methylnaphthalene, 2-methylnaphthalene, and naphthalene were detected in monitoring well CEF-502-1SR at concentrations exceeding their respective GCTLs. All other analytes were either not detected or were detected at levels less than their respective GCTLs at CEF-502-1SR. The analytical results for the remaining wells (CEF-502-3S, CEF-502-4S, CEF-502-6S, CEF-502-7D, and CEF-502-8S) indicated that all analytes were either not detected or were detected at levels less than their respective GCTLs.

Based on the excavation details outlined in the Dig and Haul Package, an Excavation of Petroleum Contaminated Soil at Building 502 and 290A Work Plan was prepared by CH2MHill and submitted in March 2010. Subsequent excavation activities were conducted in June 2010, removing approximately 90 cubic yards of contaminated soil in the vicinity of the soil boring locations where TRPH had been detected at levels greater than SCTLs during the November 2006 sampling event. Following excavation and site restoration by CH2MHill, Tetra Tech installed monitoring well CEF-502-9S to replace monitoring well CEF-502-1SR in September 2010, which was abandoned during excavation activities. The first post-excavation groundwater monitoring event was conducted in September 2010 and included collection of groundwater samples from monitoring wells CEF-502-3S, CEF-502-4S, CEF-502-6S, CEF-502-7D, and CEF-502-9S. Samples were analyzed for select VOCs using USEPA Method SW-846 8260B, PAHs using USEPA Method SW-846 8270C, and TRPH using the FL-PRO method. The analytical results for this first event indicated that all analytes were either not detected or detected at concentrations less than their respective GCTLs (Tetra Tech, 2010). The second post-excavation groundwater monitoring event was conducted to confirm these results.

FIELD OPERATIONS

As agreed on by the BCT on November 3, 2010 (Decision No. 791), post-excavation groundwater samples were collected from monitoring wells CEF-502-3S, CEF-502-4S, CEF-502-6S, and CEF-502-9S on December 9 and 10, 2010. Monitoring well locations are provided on Figure 2. The samples were placed on ice and shipped via FedEx under chain of custody to Empirical Laboratories, Inc., in Nashville, Tennessee. The laboratory analyzed the samples for select VOCs using USEPA Method SW-846 8260B, PAHs using USEPA Method SW-846 8270C, and TRPH using the FL-PRO method.

Prior to obtaining groundwater samples, synoptic water levels and total well depths were measured and recorded on site-specific field data sheets for the four sampled wells and CEF-502-8S. The field data sheets can be found in Attachment A. On December 9, 2010, depths to water ranged from 7.63 feet below top of casing (btoc) (CEF-502-3S) to 8.80 feet btoc (CEF-502-9S). Depth to water measurements, top of casing elevations, and groundwater elevations are presented in Table 1. General sampling protocols were in accordance with FDEP Standard Operating Procedures (SOPs) and Tetra Tech SOP SA-1.1.

RESULTS

The December 2010 groundwater elevation data indicated that groundwater flow is to the west-southwest, which is consistent with the range of historical groundwater flow directions reported for this site. Table 1 provides the groundwater elevation data. A groundwater elevation contour map generated from December 2010 data is provided as Figure 3.

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The analytical results for this event are summarized in Table 2, and the laboratory report is provided as Attachment B. The results indicate that concentrations of isoproylbenzene in groundwater samples from wells CEF-502-4S and CEF-502-9S exceeded the GCTL. Concentrations of isopropylbenzene were not detected in groundwater samples from any other well. All other analytes were either not detected or detected at concentrations less than their respective GCTLs. Table 3 presents the analytical results by monitoring well, including results from previous sampling events, and Figure 4 shows the results from the current event, along with the past five sampling events.

CONCLUSIONS AND RECOMMENDATIONS

Prior to excavation activities conducted in June 2010, concentrations of 1-methylnaphthalene, 2-methylnaphthalene, and naphthalene in groundwater at monitoring well CEF-502-1SR were consistently greater than their respective GCTLs. During the first post-excavation monitoring event after the excavation of contaminated soil at Building 502 and subsequent replacement of monitoring well CEF-502-1SR by CEF-502-9S, all analytes were either not detected or detected at levels less than their respective GCTLs at all monitoring wells sampled (CEF-502-3S, CEF-502-4S, CEF-502-6S, CEF-502-7D, and CEF-502-9S). However, during the second post-excavation monitoring event, concentrations of isopropylbenzene exceeded the GCTL in groundwater from two monitoring wells (CEF-502-4S and CEF-502-9S).

It is recommended, based on discussions at the BCT meeting on February 9, 2011, that the four monitoring wells sampled during the December 2010 event (CEF-502-3S, CEF-502-4S, CEF-502-6S, and CEF-502-9S) be resampled for isopropylbenzene only to confirm the GCTL exceedences in groundwater samples from wells CEF-502-4S and CEF-502-9S. The sampling effort is tentatively scheduled for the week of March 21, 2011.

If you have any questions regarding this submittal, please feel free to contact me at (412) 921-8163 or via e-mail at Robert.Simcik@tetratech.com.

Sincerely,

Robert Simcik, P.E.
Task Order Manager

RS/clm

Enclosures (4)

c: A. Sanford, NAVFAC SE (electronic copy)
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D. Vaughn-Wright, USEPA (electronic copy)
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J. Johnson, Tetra Tech (1 copy for Information Repository)

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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 presented in this report. This Second Post-Excavation Groundwater Monitoring Report for Building 502, Tank 502, at the former Naval Air Station Cecil Field, Jacksonville, Florida, and should not be construed to apply to any other site.

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

March 4, 2011
Robert Singer, P.E.
P.E. License Number 61263

REFERENCES

ABB-ES (ABB Environmental Services, Inc.), 1996, Contamination Assessment Plan, Building 290A, Naval Air Station Cecil Field, Jacksonville, Florida.

BCT (Base Realignment and Closure Cleanup Team), 2010. Minutes of Meeting. Minutes Reference No. 2648, Decision No. 791, November 3.

CH2MHill (CH2MHill Constructors, Inc.), 2010, Excavation of Petroleum Contaminated Soil at Buildings 502 and 290A Work Plan.

CH2MHill, 2010, CH2M Excavation of Petroleum Contaminated Soil at Buildings 502 and 290A Source Removal Report, Naval Air Station Cecil Field, Jacksonville, Florida.

FDEP (Florida Department of Environmental Protection), 2004. Guidance for the Selection of Analytical Methods and for the Evaluation of Practical Quantitation Limits, prepared by the Division of Resource Assessment and Management for the Division of Waste Management Cleanup Program. October.

HLA (Harding Lawson Associates), 1998. Site Assessment Report, Building 502, Tank 502. Base Realignment and Closure. Underground Storage Tank and Aboveground Storage Tank Grey Sites. Naval Air Station Cecil Field, Jacksonville, Florida. October.

Tetra Tech (Tetra Tech NUS, Inc.), 1999, Sampling and Analysis Report, Facility 290, Naval Air Station Cecil Field, Jacksonville, Florida.

Tetra Tech, 2006, Supplemental Soil Assessment Letter Report for Tank G290-A, Naval Air Station Cecil Field, Jacksonville, Florida.

Tetra Tech, 2007, Dig and Haul Package, Building 290A, Tank G290A, Naval Air Station Cecil Field, Jacksonville, Florida.

Tetra Tech, 2010, Post-Excavation Groundwater Monitoring Report, First Event, Building 502, Tank 503, Naval Air Station Cecil Field, Jacksonville, Florida.

TABLES

TABLE 1
GROUNDWATER ANALYTICAL DATA
POST-EXCAVATION GROUNDWATER MONITORING REPORT, SECOND EVENT - DECEMBER 2010
BUILDING 502, TANK 502
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

Well Number	Total Depth (ft bgs)	Top of Casing Elevation (ft above msl)	April 9, 2001		December 11, 2001		March 4, 2002		June 6, 2002	
			Depth to Water (ft btoc)	Groundwater Elevation (ft above msl)	Depth to Water (ft btoc)	Groundwater Elevation (ft above msl)	Depth to Water (ft btoc)	Groundwater Elevation (ft above msl)	Depth to Water (ft btoc)	Groundwater Elevation (ft above msl)
CEF-502-1SR	12.48	82.16	6.31	75.85	5.27	76.89	4.65	77.51	8.38	73.78
CEF-502-3S	12.22	80.68	5.03	75.65	3.77	76.91	3.03	77.65	7.14	73.54
CEF-502-4S	12.36	80.64	5.07	75.57	3.73	76.91	3.02	77.62	7.18	73.46
CEF-502-6S	14.80	81.63	5.72	75.91	5.20	76.43	4.64	76.99	7.9	73.73
CEF-502-7D	29.95	81.65	6.00	75.65	4.87	76.78	4.21	77.44	7.84	73.81
CEF-502-8S	13.57	81.75	NM	NA	4.83	76.92	4.14	77.61	8.00	73.75

Well Number	Total Depth (ft bgs)	Top of Casing Elevation (ft above msl)	December 20, 2002		June 24, 2003		January 28, 2004		November 20, 2006	
			Depth to Water (ft btoc)	Groundwater Elevation (ft above msl)	Depth to Water (ft btoc)	Groundwater Elevation (ft above msl)	Depth to Water (ft btoc)	Groundwater Elevation (ft above msl)	Depth to Water (ft btoc)	Groundwater Elevation (ft above msl)
CEF-502-1SR	12.48	82.16	4.77	77.39	5.62	76.54	8.36	73.8	9.40	72.76
CEF-502-3S	12.22	80.68	3.52	77.16	4.44	76.24	7.07	73.61	8.46	72.22
CEF-502-4S	12.36	80.64	3.54	77.10	5.45	75.19	7.17	73.47	8.60	72.04
CEF-502-6S	14.80	81.63	4.29	77.34	5.00	76.63	7.96	73.67	9.44	72.19
CEF-502-7D	29.95	81.65	4.62	77.03	5.41	76.24	7.98	73.67	9.59	72.06
CEF-502-8S	13.57	81.75	4.47	77.28	5.30	76.45	8.02	73.73	9.33	72.42

Well Number	Total Depth (ft bgs)	Top of Casing Elevation (ft above msl)	February 7, 2007		September 15, 2010		December 9, 2010	
			Depth to Water (ft btoc)	Groundwater Elevation (ft above msl)	Depth to Water (ft btoc)	Groundwater Elevation (ft above msl)	Depth to Water (ft btoc)	Groundwater Elevation (ft above msl)
CEF-502-1SR[(1)]	12.48	82.16	9.11	73.05	NM	NA	NM	NA
CEF-502-3S	12.22	80.68	7.79	72.89	4.89	75.79	7.63	73.05
CEF-502-4S	12.36	80.64	7.87	72.77	4.95	75.69	7.72	72.92
CEF-502-6S	14.80	81.63	8.75	72.88	5.38	76.25	8.53	73.10
CEF-502-7D	29.95	81.65	8.78	72.87	5.81	75.84	NM	NA
CEF-502-8S	13.57	81.75	8.74	73.01	NM	NA	8.56	73.19
CEF-502-9S[(1)]	15.25	82.05	NM	NA	5.86	76.19	8.80	73.25

1 Well CEF-502-1SR was abanoned during June 2010 excavation activities and was replaced by well CEF-502-9S in September 2010
bgs = Below ground surface.
btoc = Below top of casing.
ft = Feet.
msl = Mean sea level.
All elevations are referenced to the North American Vertical Datum, 1988.
NA = Not applicable.
NM = Not measured.

TABLE 2
DECEMBER 2010 GROUNDWATER ANALYTICAL DATA
POST-EXCAVATION MONITORING REPORT,
SECOND EVENT - DECEMBER 2010
BUILDING 502, TANK 502
NAS CECIL FIELD
JACKSONVILLE, FLORIDA

CONSTITUENT	FDEP GCTL	CEF-502-				
		MW-3S		MW-4S	MW-6S	MW-9S
		Sample	Duplicate			
VOLATILE ORGANICS (µg/L)						
1,2,4-TRIMETHYLBENZENE	10	0.25 U	0.25 U	**0.259 J**	0.25 U	**2.66**
1,3,5-TRIMETHYLBENZENE	10	0.25 U	0.25 U	0.25 U	0.25 U	**0.271 J**
BENZENE	1	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
ETHYLBENZENE	30	0.25 U	0.25 U	**2.35**	0.25 U	**1.26**
ISOPROPYLBENZENE	0.8	0.25 U	0.25 U	**1.64**	0.25 U	**1.49**
TOTAL XYLENES	20	0.75 U	0.75 U	0.75 U	0.75 U	**1.64 J**
SEMIVOLATILE ORGANICS (µg/L)						
1-METHYLNAPHTHALENE	28	**0.963**	**7.54**	**0.306**	**1.48**	**5.48**
2-METHYLNAPHTHALENE	28	**0.261**	**3.91**	**5.83**	**1.79**	**2.86**
ACENAPHTHENE	20	**0.0997 J**	**0.829**	**0.354**	**0.896**	**0.56**
ANTHRACENE	2100	0.0463 U	0.0463 U	0.0463 U	0.0463 U	0.0463 U
DIBENZO(a,h)ANTHRACENE	0.005	0.0463 U*	0.0463 U*	0.0463 U*	0.0463 U*	0.0463 U*
FLUORENE	280	0.0463 U	**0.986**	**0.267**	**1.43**	**0.718**
NAPHTHALENE	14	**0.125 J**	**3.34**	**0.685**	**0.396**	**2.72**
PHENANTHRENE	210	0.0463 U	**0.565**	0.0463 U	**0.0519 J**	**0.426**
TOTAL RECOVERABLE PETROLEUM HYDROCARBONS (mg/L)						
TPH (C08-C40)	5	0.157 U	0.157 U	**1.12**	**0.522 J**	**1.5**

* Guidance for the Selection of Analytical Methods for the Evaluation of Practical Quantitation Limits" (FDEP, 2004) identifies a PQL for dibenzo(a,h)anthracene of 0.2 mg/L. This alternate CTL is used here for comparisons.

Concentration exceeds criterion.

Bolded values exceed detection limit.

J = Estimated concentration.

NS = Not sampled.

µg/L = Micrograms per liter.

mg/L = Milligrams per liter.

PQL = Practical Quatitation Limit.

U = Not detected at associated detection limit.

TABLE 3
GROUNDWATER ANALYTICAL DATA BY WELL
POST-EXCAVATION MONITORING REPORT,
SECOND EVENT - DECEMBER 2010
BUILDING 502, TANK 502
NAS CECIL FIELD
JACKSONVILLE, FLORIDA

CONSTITUENT	FDEP GCTL	MW-1SR				MW-9S			MW-3S					
		Jan-04	Nov-06	Sample	Duplicate	Sample	Duplicate	Dec-10	Jan-04	Nov-06	Feb-07	Sep-10	Sample	Duplicate
				Feb-07		Sep-10							Dec-10	
VOLATILE ORGANICS (µg/L)														
1,2,4-TRIMETHYLBENZENE	10	NS	6.9	NS	NS	**0.415 J**	**0.440 J**	**2.66**	NS	**0.5 J**	NS	0.3 U	0.25 U	0.25 U
1,3,5-TRIMETHYLBENZENE	10	NS	2.8	NS	NS	**0.396 J**	**0.418 J**	**0.271 J**	NS	0.2 U	NS	0.3 U	0.25 U	0.25 U
BENZENE	1	0.5 U	0.2 U	0.50 U	0.50 U	0.3 U	0.3 U	0.25 U	0.5 U	0.2 U	0.50 U	0.3 U	0.25 U	0.25 U
ETHYLBENZENE	30	**7.9**	**2.5**	3.3	3.2	**0.745 J**	**0.787 J**	**1.26**	0.5 U	0.3 U	0.5 U	0.3 U	0.25 U	0.25 U
ISOPROPYLBENZENE	0.8	NS	**2.7**	NS	NS	**0.376 J**	**0.408 J**	**1.49**	NS	0.1 U	NS	0.3 U	0.25 U	0.25 U
TOTAL XYLENES	20	**1.8 J**	0.3 U	1.0 U	1.0 U	0.3 U	0.3 U	**1.64 J**	1.0 U	0.3 U	1.0 U	0.3 U	0.75 U	0.75 U
SEMIVOLATILE ORGANICS (µg/L)														
1-METHYLNAPHTHALENE	28	**49.9**	**52.8 D**	**40.4**	**42.8**	**2.03**	**1.60**	**5.48**	**1.2 J**	**6.46**	0.49 U	0.519	**0.963**	**7.54**
2-METHYLNAPHTHALENE	28	**105**	**110 D**	**64.3**	**67.2**	**1.67**	**1.25**	**2.86**	0.51 U	**4.92**	0.49 U	**0.0547 J**	**0.261**	**3.91**
ACENAPHTHENE	20	1.1 U	**1.72**	**3.5**	**2.8**	0.0185 U	0.0187 U	**0.56**	1.0 U	**0.39**	0.98 U	0.0614 J	**0.0997 J**	**0.829**
ANTHRACENE	2100	1.1 U	**0.07 J**	0.98 U	0.98 U	0.0185 U	0.0187 U	0.0463 U	1.0 U	0.02 U	0.98 U	0.0185 U	0.0463 U	0.0463 U
DIBENZO(a,h)ANTHRACENE	0.005	0.11 U	0.02 U	0.049 U	0.049 U	0.0185 U	0.0187 U	0.0463 U	0.1 U	0.02 U	0.049 U	0.0185 U	0.0463 U	0.0463 U
FLUORENE	280	**5**	**2.78**	**3.9**	**4**	0.0185 U	0.0187 U	**0.718**	1.0 U	**0.58**	0.98 U	0.0185 U	0.0463 U	**0.986**
NAPHTHALENE	14	**40.4**	**11.2**	**21.1**	**17.1**	**0.879**	**0.695**	**2.72**	**0.92**	**0.92**	0.98 U	**0.0711 J**	**0.125 J**	**3.34**
PHENANTHRENE	210	**6.1**	**2.4**	**3.1**	**3.8**	0.0185 U	**0.459**	**0.426**	1.0 U	**0.13**	0.98 U	0.0185 U	0.0463 U	**0.565**
TOTAL PETROLEUM HYDROCARBONS (mg/L)														
TPH (C08-C40)	5	**7.42**	**2.11**	**3.93**	**4.65**	**2.36**	**2.26**	**1.5**	**0.617**	**0.166 J**	**0.526**	**0.330**	0.157 U	0.157 U

TABLE 3
GROUNDWATER ANALYTICAL DATA BY WELL
POST-EXCAVATION MONITORING REPORT,
SECOND EVENT - DECEMBER 2010
BUILDING 502, TANK 502
NAS CECIL FIELD
JACKSONVILLE, FLORIDA

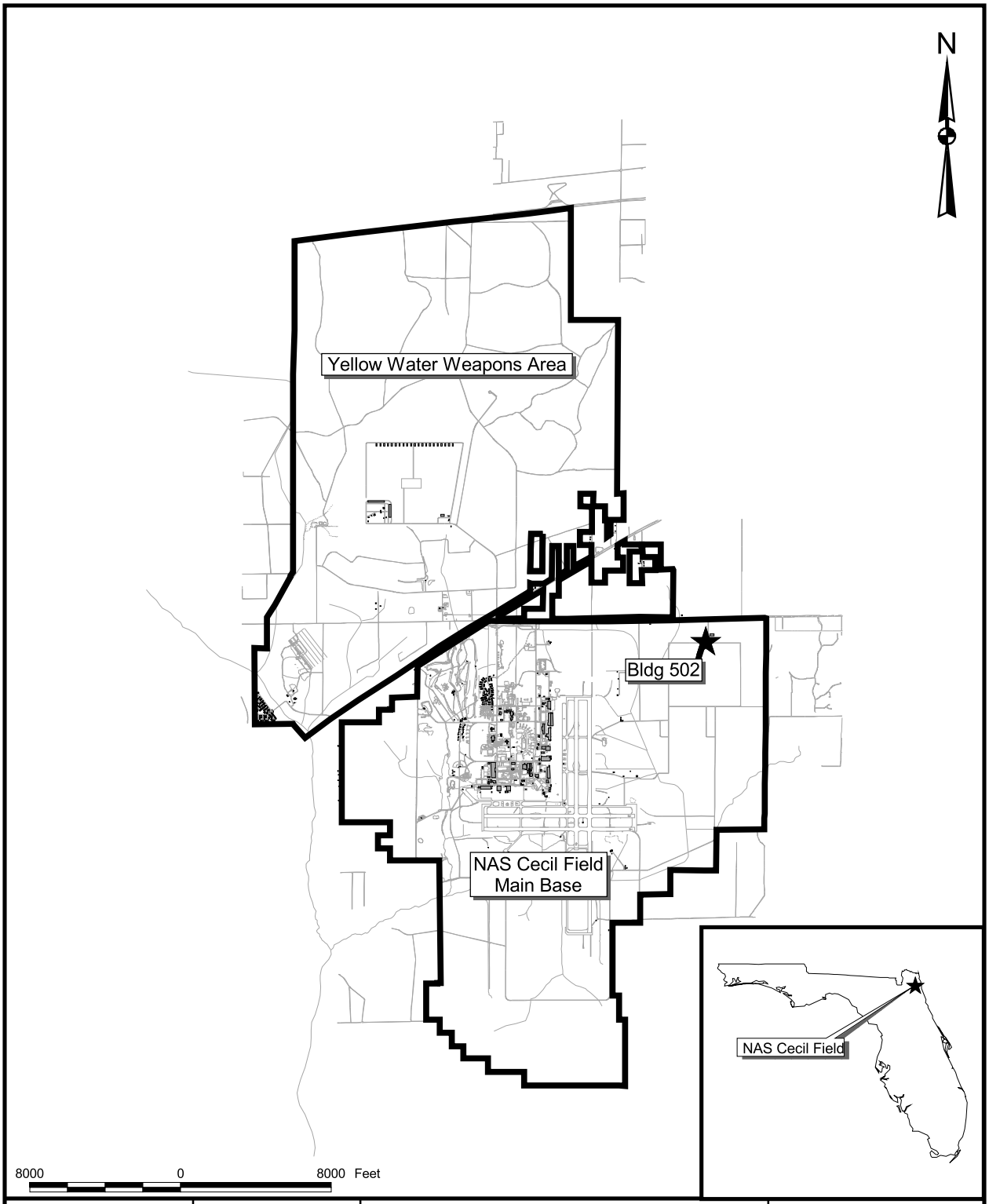
CONSTITUENT	FDEP GCTL	MW-4S					MW-6S				
		Jan-04	Nov-06	Feb-07	Sep-10	Dec-10	Jan-04	Nov-06	Feb-07	Sep-10	Dec-10
VOLATILE ORGANICS (µg/L)											
1,2,4-TRIMETHYLBENZENE	10	NS	**0.6 J**	NS	0.3 U	**0.259 J**	NS	0.2 U	NS	0.3 U	0.25 U
1,3,5-TRIMETHYLBENZENE	10	NS	**0.6 J**	NS	0.3 U	0.25 U	NS	0.2 U	NS	0.3 U	0.25 U
BENZENE	1	0.5 U	**0.3 J**	0.50 U	0.3 U	0.25 U	0.5 U	0.2 U	0.50 U	0.3 U	0.25 U
ETHYLBENZENE	30	**0.76 J**	**2.2**	**3.7**	0.3 U	**2.35**	**1.2**	**0.3 J**	0.5 U	0.3 U	0.25 U
ISOPROPYLBENZENE	0.8	NS	**1.2**	NS	0.3 U	**1.64**	NS	0.4 J	NS	0.3 U	0.25 U
TOTAL XYLENES	20	1.0 U	**0.9 J**	1.0 U	0.3 U	0.75 U	1.0 U	0.3 U	1.0 U	0.3 U	0.75 U
SEMIVOLATILE ORGANICS (µg/L)											
1-METHYLNAPHTHALENE	28	0.55 U	**1.48**	**1**	**0.0546 J**	**0.306**	**4**	**1.95**	**1.5**	**0.727**	**1.48**
2-METHYLNAPHTHALENE	28	**1.8 J**	**8.37**	**8.2**	**0.907**	**5.83**	**16.4**	**3.75**	**2.9**	**0.829**	**1.79**
ACENAPHTHENE	20	1.1 U	**0.29**	1 U	**0.0296 J**	**0.354**	1.1 U	**1.11**	0.97 U	**1.09**	**0.896**
ANTHRACENE	2100	1.1 U	0.02 U	1.0 U	0.0187 U	0.0463 U	1.1 U	0.02 U	0.97 U	0.0185 U	0.0463 U
DIBENZO(a,h)ANTHRACENE	0.005	0.11 U	0.02 U	0.052 U	0.0187 U	0.0463 U	0.11 U	0.02 U	0.049 U	**0.0271 J**	0.0463 U
FLUORENE	280	1.1 U	**0.22**	1 U	**0.0320 J**	**0.267**	**2.1 J**	**2.16**	**1.9**	0.0185 U	**1.43**
NAPHTHALENE	14	0.55 U	**2.69**	**4.3**	**0.120**	**0.685**	**2.5**	**0.43**	**0.97**	0.0185 U	**0.396**
PHENANTHRENE	210	1.1 U	0.02 U	1 U	**0.0195 J**	0.0463 U	1.1 U	**0.08 J**	**0.97**	0.0185 U	**0.0519 J**
TOTAL PETROLEUM HYDROCARBONS (mg/L)											
TPH (C08-C40)	5	**0.667**	**0.496**	**1.07**	0.0794 U	**1.12**	**0.815**	**0.33**	**0.794**	**0.652**	**0.522 J**

TABLE 3
GROUNDWATER ANALYTICAL DATA BY WELL
POST-EXCAVATION MONITORING REPORT,
SECOND EVENT - DECEMBER 2010
BUILDING 502, TANK 502
NAS CECIL FIELD
JACKSONVILLE, FLORIDA

CONSTITUENT	FDEP GCTL	MW-7D				MW-8S			
		Jan-04	Nov-06	Feb-07	Sep-10	Jan-04	Sample	Duplicate	Feb-07
							Nov-06		
VOLATILE ORGANICS (µg/L)									
1,2,4-TRIMETHYLBENZENE	10	NS	0.2 U	NS	0.3 U	NS	0.2 U	0.2 U	NS
1,3,5-TRIMETHYLBENZENE	10	NS	0.2 U	NS	0.3 U	NS	0.2 U	0.2 U	NS
BENZENE	1	0.5 U	0.2 U	0.50 U	0.3 U	0.5 U	0.2 U	0.2 U	0.50 U
ETHYLBENZENE	30	0.5 U	0.3 U	0.5	0.3 U	0.5 U	0.3 U	0.3 U	0.5 U
ISOPROPYLBENZENE	0.8	NS	0.1 U	NS	0.3 U	NS	0.1 U	0.1 U	NS
TOTAL XYLENES	20	1.0 U	0.3 U	1.0 U	0.3 U	1.0 U	0.3 U	0.3 U	1.0 U
SEMIVOLATILE ORGANICS (µg/L)									
1-METHYLNAPHTHALENE	28	0.53 U	0.02 U	0.5 U	0.0187 U	0.55 U	0.02 U	0.02 U	0.49 U
2-METHYLNAPHTHALENE	28	0.53 U	0.02 U	0.5 U	0.0187 U	0.55 U	0.02 U	0.02 U	0.49 U
ACENAPHTHENE	20	1.1 U	0.02 U	0.99 U	0.0187 U	1.1 U	0.02 U	0.02 U	0.99 U
ANTHRACENE	2100	1.1 U	0.02 U	0.99 U	0.0187 U	1.1 U	0.02 U	0.02 U	0.98 U
DIBENZO(a,h)ANTHRACENE	0.005	0.11 U	0.02 U	0.050 U	0.0187 U	0.11 U	0.02 U	0.02 U	0.049 U
FLUORENE	280	1.1 U	0.02 U	0.99 U	0.0187 U	1.1 U	0.02 U	0.02 U	0.99 U
NAPHTHALENE	14	0.53 U	0.02 U	0.99 U	0.0187 U	0.55 U	0.02 U	0.02 U	0.99 U
PHENANTHRENE	210	1.1 U	0.02 U	0.99 U	**0.0302 J**	1.1 U	0.02 U	0.02 U	0.99 U
TOTAL PETROLEUM HYDROCARBONS (mg/L)									
TPH (C08-C40)	5	0.27 U	0.094 U	0.16 U	0.787 U	**0.303**	0.094 U	0.094 U	0.17 U

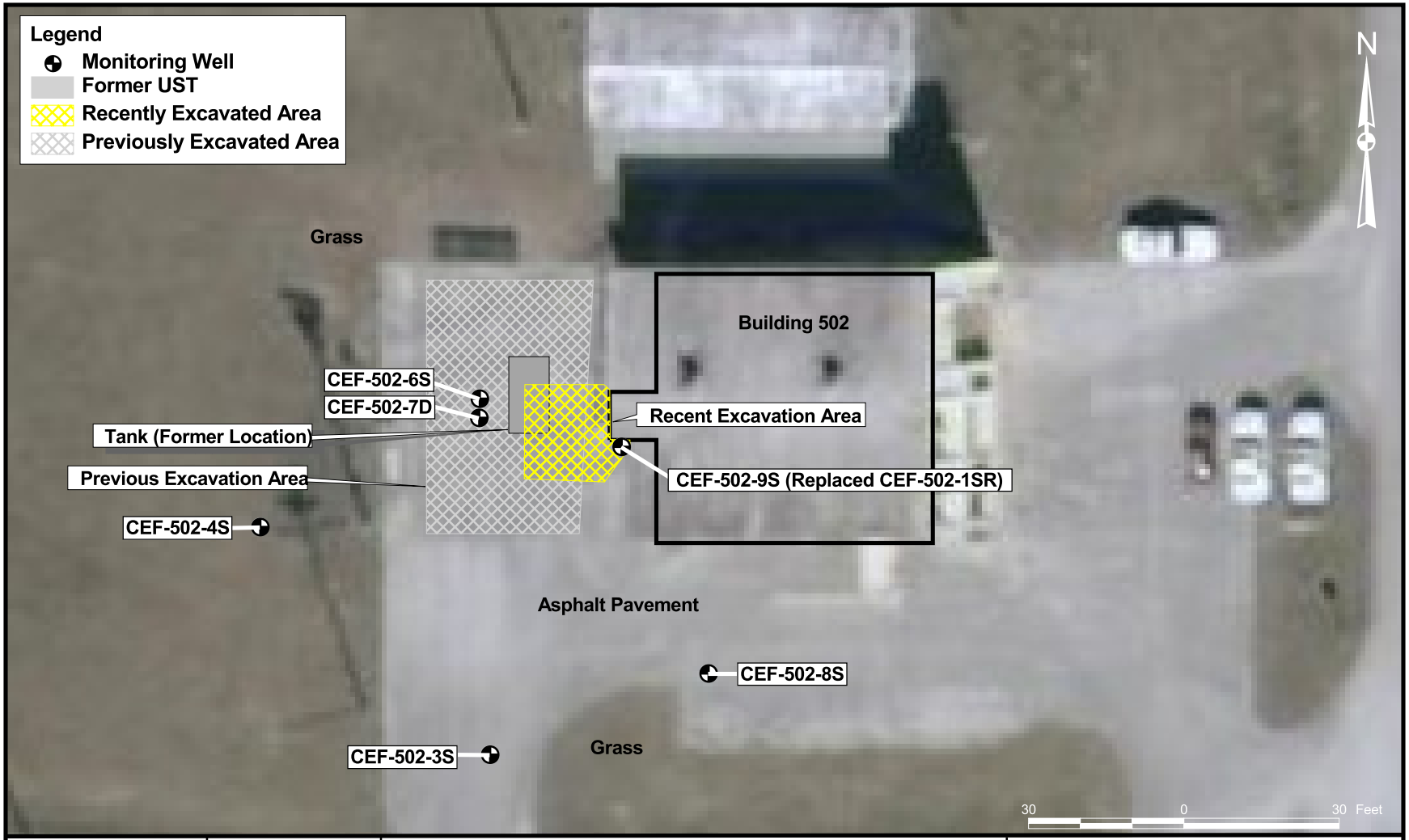
Concentration exceeds criterion.
Bolded values exceed detection limit.
D = Data reported from a dilution.
J = Estimated concentration.
U = Not detected at associated detection limit.
NS = Not sampled.
mg/L = Micrograms per liter.
µg/L = Milligrams per liter.

FIGURES



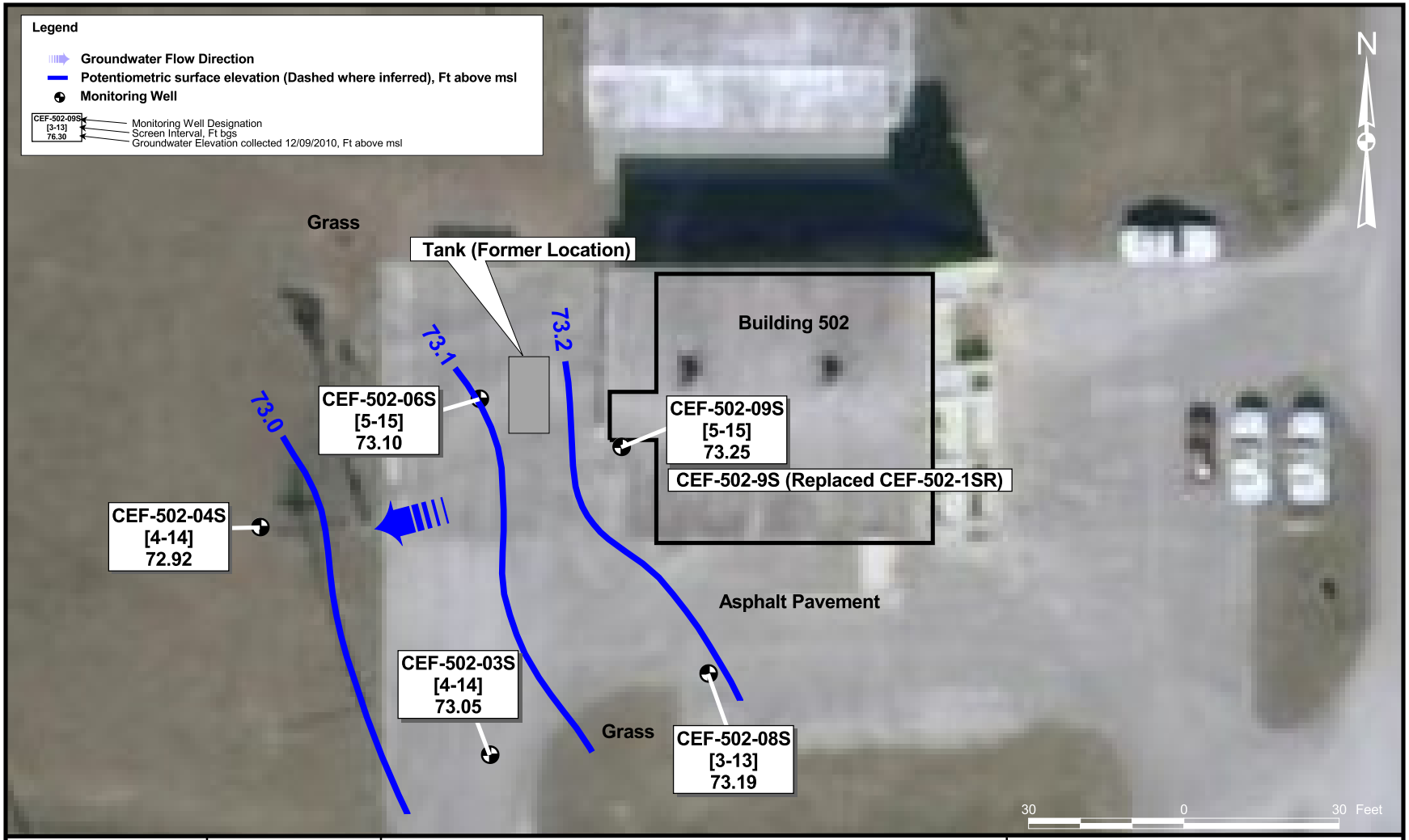
DRAWN BY MJJ	DATE 12Nov10	GENERAL LOCATION MAP BUILDING 502 NAVAL AIR STATION CECIL FIELD JACKSONVILLE, FLORIDA	CONTRACT NUMBER 0025
CHECKED BY	DATE		APPROVED BY DATE
COST/SCHEDULE-AREA			APPROVED BY DATE
SCALE AS NOTED			DRAWING NO. FIGURE 1 / REV 0

:\GIS\CECIL\Bldg0502.apr 19Nov10 MJJ Layout01



DRAWN BY MJJ	DATE 12Nov10	MONITORING WELL LOCATION MAP BUILDING 502 NAVAL AIR STATION CECIL FIELD JACKSONVILLE, FLORIDA	CONTRACT NUMBER 0025
CHECKED BY	DATE		APPROVED BY DATE
COST/SCHEDULE-AREA			APPROVED BY DATE
SCALE AS NOTED			DRAWING NO. FIGURE 2 / REV 0

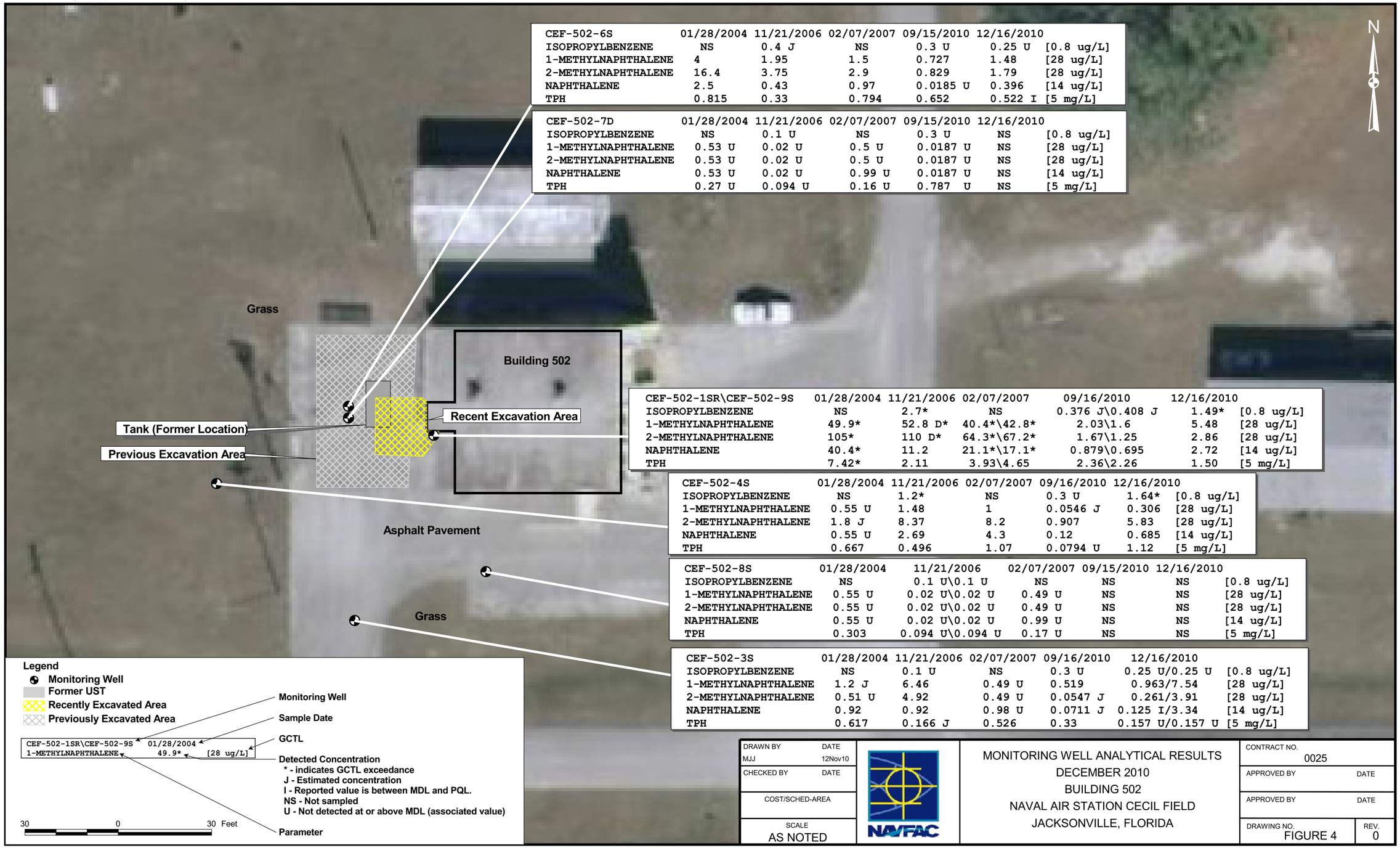
:\GIS\CECIL\Bldg0502.apr 26Feb11 MJJ Layout03



DRAWN BY MJJ	DATE 12Nov10	POTENTIOMETRIC SURFACE ELEVATION MAP DECEMBER 2010 BUILDING 502 NAVAL AIR STATION CECIL FIELD JACKSONVILLE, FLORIDA	CONTRACT NUMBER 0025
CHECKED BY	DATE		APPROVED BY DATE
COST/SCHEDULE-AREA			APPROVED BY DATE
SCALE AS NOTED			DRAWING NO. FIGURE 3 / REV 0

:\GIS\CECIL\Bldg0502.apr 26Feb11 MJJ Layout05

:\GIS\CECIL\Bldg0502.apr 26Feb11 MJJ Layout04



CEF-502-6S	01/28/2004	11/21/2006	02/07/2007	09/15/2010	12/16/2010	
ISOPROPYLBENZENE	NS	0.4 J	NS	0.3 U	0.25 U	[0.8 ug/L]
1-METHYLNAPHTHALENE	4	1.95	1.5	0.727	1.48	[28 ug/L]
2-METHYLNAPHTHALENE	16.4	3.75	2.9	0.829	1.79	[28 ug/L]
NAPHTHALENE	2.5	0.43	0.97	0.0185 U	0.396	[14 ug/L]
TPH	0.815	0.33	0.794	0.652	0.522 I	[5 mg/L]

CEF-502-7D	01/28/2004	11/21/2006	02/07/2007	09/15/2010	12/16/2010	
ISOPROPYLBENZENE	NS	0.1 U	NS	0.3 U	NS	[0.8 ug/L]
1-METHYLNAPHTHALENE	0.53 U	0.02 U	0.5 U	0.0187 U	NS	[28 ug/L]
2-METHYLNAPHTHALENE	0.53 U	0.02 U	0.5 U	0.0187 U	NS	[28 ug/L]
NAPHTHALENE	0.53 U	0.02 U	0.99 U	0.0187 U	NS	[14 ug/L]
TPH	0.27 U	0.094 U	0.16 U	0.787 U	NS	[5 mg/L]

CEF-502-1SR\CEF-502-9S	01/28/2004	11/21/2006	02/07/2007	09/16/2010	12/16/2010	
ISOPROPYLBENZENE	NS	2.7*	NS	0.376 J\0.408 J	1.49*	[0.8 ug/L]
1-METHYLNAPHTHALENE	49.9*	52.8 D*	40.4*\42.8*	2.03\1.6	5.48	[28 ug/L]
2-METHYLNAPHTHALENE	105*	110 D*	64.3*\67.2*	1.67\1.25	2.86	[28 ug/L]
NAPHTHALENE	40.4*	11.2	21.1*\17.1*	0.879\0.695	2.72	[14 ug/L]
TPH	7.42*	2.11	3.93\4.65	2.36\2.26	1.50	[5 mg/L]

CEF-502-4S	01/28/2004	11/21/2006	02/07/2007	09/16/2010	12/16/2010	
ISOPROPYLBENZENE	NS	1.2*	NS	0.3 U	1.64*	[0.8 ug/L]
1-METHYLNAPHTHALENE	0.55 U	1.48	1	0.0546 J	0.306	[28 ug/L]
2-METHYLNAPHTHALENE	1.8 J	8.37	8.2	0.907	5.83	[28 ug/L]
NAPHTHALENE	0.55 U	2.69	4.3	0.12	0.685	[14 ug/L]
TPH	0.667	0.496	1.07	0.0794 U	1.12	[5 mg/L]

CEF-502-8S	01/28/2004	11/21/2006	02/07/2007	09/15/2010	12/16/2010	
ISOPROPYLBENZENE	NS	0.1 U\0.1 U	NS	NS	NS	[0.8 ug/L]
1-METHYLNAPHTHALENE	0.55 U	0.02 U\0.02 U	0.49 U	NS	NS	[28 ug/L]
2-METHYLNAPHTHALENE	0.55 U	0.02 U\0.02 U	0.49 U	NS	NS	[28 ug/L]
NAPHTHALENE	0.55 U	0.02 U\0.02 U	0.99 U	NS	NS	[14 ug/L]
TPH	0.303	0.094 U\0.094 U	0.17 U	NS	NS	[5 mg/L]

CEF-502-3S	01/28/2004	11/21/2006	02/07/2007	09/16/2010	12/16/2010	
ISOPROPYLBENZENE	NS	0.1 U	NS	0.3 U	0.25 U/0.25 U	[0.8 ug/L]
1-METHYLNAPHTHALENE	1.2 J	6.46	0.49 U	0.519	0.963/7.54	[28 ug/L]
2-METHYLNAPHTHALENE	0.51 U	4.92	0.49 U	0.0547 J	0.261/3.91	[28 ug/L]
NAPHTHALENE	0.92	0.92	0.98 U	0.0711 J	0.125 I/3.34	[14 ug/L]
TPH	0.617	0.166 J	0.526	0.33	0.157 U/0.157 U	[5 mg/L]

DRAWN BY MJJ	DATE 12Nov10	MONITORING WELL ANALYTICAL RESULTS DECEMBER 2010 BUILDING 502 NAVAL AIR STATION CECIL FIELD JACKSONVILLE, FLORIDA	CONTRACT NO. 0025
CHECKED BY	DATE		APPROVED BY / DATE
COST/SCHED-AREA			APPROVED BY / DATE
SCALE AS NOTED	NAVFAC		DRAWING NO. FIGURE 4 / REV. 0

ATTACHMENT A

FIELD DATA SHEETS

Tetra Tech NUS, Inc.

GROUNDWATER LEVEL MEASUREMENT SHEET

Project Name: Cecil Site 502
Project No.: 112G00746
Location:
Personnel: Jeff Krone & Tod
Weather Conditions: Partly Cloudy 50°
Measuring Device:
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
502-6S	12/9/10	10:45		14.90	8.53	—		
502-~~15R~~ 09S	12/9/10	10:50		14.84	8.80	—		
502-3S	12/9/10	11:00		13.15	7.63	—		
502-8S	12/9/10	10:55		13.51	8.56	—		
502-4S	12/9/10	12:03		12.35	7.72	—		

* All measurements to the nearest 0.01 foot

Tetra Tech NUS / FDEP Groundwater Sampling Sheet

SITE NAME: NAS CECIL FIELD	SITE LOCATION: SITE 502	
WELL NO: CEF-502-3S	SAMPLE ID: CEF-502-3S-201012~~12~~09	DATE: 12~~12~~09/10

PURGING DATA

WELL DIAMETER (inches): 2"	TUBING DIAMETER (inches):3/8	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet): 7.63	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)
3.34 Liters 13.15 - 7.63 = 5.52 x 0.16 = 0.88 x 3.785 = 3.34

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): 9	FINAL PUMP OR TUBING DEPTH IN WELL (feet): 9	PURGING INITIATED AT: 1120	PURGING ENDED AT: 1246	TOTAL VOLUME PURGED (Liters): 5.6

TIME	VOLUME PURGED (Liters)	CUMUL. VOLUME PURGED (Liters)	PURGE RATE (lpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (µmhos/cm or µS/cm)	DISSOLVED OXYGEN (circle mg/L or % saturation)	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1120	—	—	100	7.63	—						
1240	5.0	5.0	100	7.77	5.21	23.45	0.079	0.70	5.51	CLEAR	-
1243	.3	5.3	100	7.78	5.20	23.36	0.080	0.69	5.24	CLEAR	-
1246	.3	5.6	100	7.77	5.19	23.37	0.081	0.68	5.07	CLEAR	-
1310 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: 1310	SAMPLING ENDED AT: 1325
PUMP OR TUBING DEPTH IN WELL (feet): 9	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 CEF-502-DUP01

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
	3	G	40ml	Hcl			VOCs	
	2	G	1 liter	Hcl			TRPH	
	2	G	1 liter				PAHs	

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)

SITE NAME: NAS CECIL FIELD	SITE LOCATION: SITE 502

Tetra Tech NUS / FDEP Groundwater Sampling Sheet

WELL NO: CEF-502-4S	SAMPLE ID: CEF-502-4S-201012 09	DATE: 12/ 4/10

PURGING DATA

WELL DIAMETER (inches): 2"	TUBING DIAMETER (inches):3/8	WELL SCREEN INTERVAL DEPTH: feet to 12.3 feet	STATIC DEPTH TO WATER (feet): 7.72	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)
2.80 Liters 12.35 - 7.72 = 4.63 x 0.16 = 0.74 x 3.785 = 2.80

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): 9	FINAL PUMP OR TUBING DEPTH IN WELL (feet): 12	PURGING INITIATED AT:	PURGING ENDED AT: 1210	TOTAL VOLUME PURGED (Liters): 5.0

TIME	VOLUME PURGED (Liters)	CUMUL. VOLUME PURGED (Liters)	PURGE RATE (lpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (µmhos/cm or µS/cm)	DISSOLVED OXYGEN (circle mg/L or % saturation)	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
12:10	—	—	100	7.72							
13:00				"PURGED DRY"							
1400	Sample Time										
Allowed to recharge											
12/10/10											
1200	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: 12/10/10 1200	SAMPLING ENDED AT: 1315
PUMP OR TUBING DEPTH IN WELL (feet): 9 - 12'	SAMPLE PUMP FLOW RATE (mL per minute): 100	TUBING MATERIAL CODE: Teflon	
FIELD DECONTAMINATION: Y (N)	FIELD-FILTERED: Y (N) FILTER SIZE: ____ µm Filtration Equipment Type: _____	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		
	3	G	40ml	Hcl			VOCs	
	2	G	1 liter	Hcl			TRPH	
	2	G	1 liter				PAHs	

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: NAS CECIL FIELD	SITE LOCATION: SITE 502	
WELL NO: CEF-502-6S	SAMPLE ID: CEF-502-6S-201012~~0~~09	DATE: 12~~0~~9/10

PURGING DATA

WELL DIAMETER (inches): 2	TUBING DIAMETER (inches):3/8	WELL SCREEN INTERVAL DEPTH: 4.8 feet to 4.8 feet	STATIC DEPTH TO WATER (feet): 8.53	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)
14.90 – 8.53 = 6.37 x 0.16 = 1.02 x 3.785 = 3.86
3.86 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): 10	FINAL PUMP OR TUBING DEPTH IN WELL (feet): 10	PURGING INITIATED AT: 1115	PURGING ENDED AT: 1221	TOTAL VOLUME PURGED (Liters): 6.6

TIME	VOLUME PURGED (Liters)	CUMUL. VOLUME PURGED (Liters)	PURGE RATE (lpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (µmhos/cm or µS/cm)	DISSOLVED OXYGEN (circle mg/L or % saturation)	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1115	—	—	100	8.53	—						
1215	6.0	6.0	100	9.18	5.20	23.81	0.098	0.46	4.69	CLEAR	—
1218	.3	6.3	100	9.20	5.17	23.83	0.098	0.42	3.98	CLEAR	—
1221	.3	6.6	100	9.23	5.14	23.89	0.099	0.40	4.45	CLEAR	—
1230	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: 1230	SAMPLING ENDED AT: 1250
PUMP OR TUBING DEPTH IN WELL (feet): 10	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		
	3	G	40ml	Hcl			VOCs	
	2	G	1 liter	Hcl			TRPH	
	2	G	1 liter				PAHs	

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

WELL NO: CEF-502-9S	SAMPLE ID: CEF-502-9S-201012 09	DATE: 12/09/10

PURGING DATA

WELL DIAMETER (inches): 2	TUBING DIAMETER (inches):3/8	WELL SCREEN INTERVAL DEPTH: 4.8 feet to 14.8 feet	STATIC DEPTH TO WATER (feet) 8.80	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)
3.6 Liters
14.8 - 8.80 = 6 x .16 = .96 x 3.785 3.6

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): 10	FINAL PUMP OR TUBING DEPTH IN WELL (feet): 10	PURGING INITIATED AT: 1105	PURGING ENDED AT: 1156	TOTAL VOLUME PURGED (Liters): 5.1

TIME	VOLUME PURGED (Liters)	CUMUL. VOLUME PURGED (Liters)	PURGE RATE (lpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (µmhos/cm or µS/cm)	DISSOLVED OXYGEN (circle mg/L or % saturation)	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1105	—	—	100	8.80							
1150	4.5	4.5	100	8.94	6.65	22.99	0.695	0.27	7.70	clear	—
1153	.3	4.8	100	8.94	6.65	22.99	0.690	0.25	7.53	clear	—
1156	.3	5.1	100	8.94	6.65	23.05	0.680	0.24	6.65	clear	—
1200	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: 1200	SAMPLING ENDED AT: 1220
PUMP OR TUBING DEPTH IN WELL (feet): 10	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		
	3	G	40ml	Hcl			VOCs	
	2	G	1 liter	Hcl			TRPH	
	2	G	1 liter	I			PAHs	

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)

EQUIPMENT CALIBRATION LOG

INSTRUMENT NAME/MODEL : See below

PROJECT NAME : Cecil Field Site 502

MANUFACTURER : See below

PROJECT NUMBER : 112G0746

CALIBRATION DATE	INITIAL SETTINGS	STANDARDS USED	PROCEDURE	ADJUSTMENTS MADE	FINAL SETTINGS	SIGNATURE	COMMENTS
12/9/10	YSI 556 MPS	10J100598					
~~12/10/10~~	pH 4.0			4.27	4.00		
	pH 7.0			6.55	7.00		
	cond 1.413			1.381	1.413		
	ORP 237.5			239.7	237.5		
	D.O.			106.8	100.0		
12/9/10	MICROTPW	20070413B		422.7	error		Reset to factory default
12/10/10	YSI 556 MPS	10J100598					
	pH 4.0			3.93	4.00		
	pH 7.0			6.91	7.00		
	cond 1.413			1.397	1.413		
	ORP 237.5			236.8	237.5		
	D.O			111.6	100.0		
12/10/10	MICROTPW	20081225		1			
		1000 NTU		993.0	1000		
		10.0		9.3	10.0		
		00.2		0.00	0.02		

Tetra Tech NUS, Inc.

DOCUMENTATION OF FIELD CALIBRATION

PROJECT NAME : NAS ~~Jacksonville~~ Cecil Field

SITE NAME: Hanger 101S Wells

PROJECT No.: 112G~~00148~~ 0746

INSTRUMENT NAME/MODEL: See below

MANUFACTURER: See below

SERIAL NUMBER: See below

Date of Calibration	Instrument Name and Model	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		
12/9/10	452556	0310262AA	JC	pH 4.0		3.95	4.00	none	available
				pH 7.0		6.85	7.00	none	
				Cond 1.413		1.313	1.413	none	
				ORP 237.5		240.6	237.5		
				D.O.		102.4	100.0		
12/9/10	[illegible]	[illegible] 1225	JC	1000 NTU		987.6	1000		
				10.0 NTU		9.8	10.0		
				0.02 NTU		0.00	0.02		
12/10/10									

TETRA TECH NUS, INC.

CHAIN OF CUSTODY

NUMBER № 2115

PAGE 1 OF 1

PROJECT NO:	FACILITY:	PROJECT MANAGER	PHONE NUMBER	LABORATORY NAME AND CONTACT:
112G00746	Cecil Field Site 502	Rob Simcik	412 921 8163	Empirical Labs / Kim Koster
SAMPLERS (SIGNATURE)		FIELD OPERATIONS LEADER	PHONE NUMBER	ADDRESS
Jeff Kronz		Kara Wimble	904 636 0125	621 Mainstream Drive Suite 270
		CARRIER/WAYBILL NUMBER		CITY, STATE
		8660 1730 2403 FedEx Airbill		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

TYPE OF ANALYSIS

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	BTEX (8260B)	PAH (8270C)	TRPH (FLPRO)						COMMENTS
12/9	1200	CEF-502-9$-20101209				GW	G	7	X	X	X						Cool to 4°C
12/9	0000	CEF-502-DUP01-20101209				GW	G	7	X	X	X						
12/9	1230	CEF-502-6$-20101209				GW	G	7	X	X	X						
12/9	1310	CEF-502-3$-20101209				GW	G	7	X	X	X						
12/10	1200	CEF-502-4$-20101210 *				GW	G	7	X	X	X						
		Trip Blank				QC	G	2	X								

1. RELINQUISHED BY	DATE 12/10/10	TIME 1830	1. RECEIVED BY	DATE	TIME
2. RELINQUISHED BY	DATE	TIME	2. RECEIVED BY	DATE	TIME
3. RELINQUISHED BY	DATE	TIME	3. RECEIVED BY	DATE	TIME

COMMENTS * Sample 502-4$-TRPH container only 2/3 full due to well pursing dry

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

4/02R
FORM NO. TtNUS-001

ATTACHMENT B

GROUNDWATER ANALYTICAL REPORT
DECEMBER 2010

Tetra Tech NUS **INTERNAL CORRESPONDENCE**

TO:	**R. SIMCIK**	**DATE:**	**FEBRUARY 3, 2011**
FROM:	**A. COGNETTI**	**COPIES:**	**DV FILE**

SUBJECT: **ORGANIC DATA VALIDATION – SELECT VOC/ PAH/ TRPH**
LIMITED REVIEW
NAS CECIL FIELD – CTO 0076
SAMPLE DELIVERY GROUP (SDG) –CTO076CF_001

SAMPLES: 6/Aqueous/Select VOC

CEF-502-3S-20101209	CEF-502-4S-20101209	CEF-502-6S-20101209
CEF-502-9S-20101209	CEF-502-DUP01-20101209	Trip Blank _20101210

5/Aqueous/PAH/TRPH

CEF-502-3S-20101209	CEF-502-4S-20101209	CEF-502-6S-20101209
CEF-502-9S-20101209	CEF-502-DUP01-20101209	

Overview

The sample set for NAS CECIL FIELD, CTO 0076, SDG CTO076CF_001, consists of five (5) aqueous environmental samples and one (1) trip blank. All samples were analyzed for select volatile organic compounds (VOC); benzene, ethylbenzene, isopropylbenzene, toluene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene and xylenes (total). The five (5) 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-502-3S-20101209/ CEF-502-DUP01-20101209.

The samples were collected by Tetra Tech NUS on December 9 and 10, 2010 and analyzed by Empirical Laboratories, LLC. 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. 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.

PAH

Field duplicate imprecision was noted in the field duplicate pair CEF-502-3S-20101209 and CEF-502-DUP01-20101209. The relative percent difference (RPD) was greater than the 30% quality control limit for 1-methylnaphthalene, 2-methylnaphthalene, acenaphthene, fluorene, naphthalene and phenanthrene. The variance was greater than 2X the reporting limit for 1-methylnaphthalene, 2-methylnaphthalene, fluorene, phenanthrene and naphthalene. The positive and nondetected 1-methylnaphthalene, 2-

methylnaphthalene, fluorene, phenanthrene and naphthalene results in samples CEF-502-3S-20101209 and CEF-502-DUP01-20101209 were qualified as estimated (J) and (UJ), respectively.

Notes

The TRPH continuing calibration percent difference (%D) was greater than the 25% quality control limit on December 15, 2010 @ 15:02 affecting only the blank associated with batch 0L35103. No action was taken.

The percent recovery of surrogate o-terphenyl was less than the lower quality control limit in samples CEF-502-3S-20101209, CEF-502-9S-20101209 and CEF-502-DUP01-20101209. No validation action was taken.

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: Field duplicate imprecision was noted for several PAHs in the field duplicate pair: CEF-502-3S-20101209/ CEF-502-DUP01-20101209.

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: 00746 SDG: CTO076CF_001 FRACTION: OV MEDIA: WATER	NSAMPLE	CEF-502-3S-20101209			CEF-502-4S-20101209			CEF-502-6S-20101209			CEF-502-9S-20101209		
	LAB_ID	1012124-04			1012124-05			1012124-03			1012124-01		
	SAMP_DATE	12/9/2010			12/10/2010			12/9/2010			12/9/2010		
	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												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,2,4-TRIMETHYLBENZENE		0.25	U		0.259	J	P	0.25	U		2.66		
1,3,5-TRIMETHYLBENZENE		0.25	U		0.25	U		0.25	U		0.271	J	P
BENZENE		0.25	U		0.25	U		0.25	U		0.25	U	
ETHYLBENZENE		0.25	U		2.35			0.25	U		1.26		
ISOPROPYLBENZENE		0.25	U		1.64			0.25	U		1.49		
TOLUENE		0.25	U		0.25	U		0.25	U		0.25	U	
TOTAL XYLENES		0.75	U		0.75	U		0.75	U		1.64		

PROJ_NO: 00746 SDG: CTO076CF_001 FRACTION: OV MEDIA: WATER	NSAMPLE	CEF-502-DUP01-20101209			TRIP BLANK_20101210		
	LAB_ID	1012124-02			1012124-06		
	SAMP_DATE	12/9/2010			12/10/2010		
	QC_TYPE	NM			NM		
	UNITS	UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0		
	DUP_OF	CEF-502-3S-20101209					
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,2,4-TRIMETHYLBENZENE		0.25	U		0.25	U	
1,3,5-TRIMETHYLBENZENE		0.25	U		0.25	U	
BENZENE		0.25	U		0.25	U	
ETHYLBENZENE		0.25	U		0.25	U	
ISOPROPYLBENZENE		0.25	U		0.25	U	
TOLUENE		0.25	U		0.25	U	
TOTAL XYLENES		0.75	U		0.75	U	

PROJ_NO: 00746 SDG: CTO076CF_001 FRACTION: PAH MEDIA: WATER	NSAMPLE	CEF-502-3S-20101209			CEF-502-4S-20101209			CEF-502-6S-20101209			CEF-502-9S-20101209		
	LAB_ID	1012124-04			1012124-05			1012124-03			1012124-01		
	SAMP_DATE	12/9/2010			12/10/2010			12/9/2010			12/9/2010		
	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												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1-METHYLNAPHTHALENE		0.963	J	G	0.306			1.48			5.48		
2-METHYLNAPHTHALENE		0.261	J	G	5.83			1.79			2.86		
ACENAPHTHENE		0.0997	J	P	0.354			0.896			0.56		
ACENAPHTHYLENE		0.0463	U		0.0463	U		0.0463	U		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		0.0463	UJ	G	0.267			1.43			0.718		
INDENO(1,2,3-CD)PYRENE		0.0463	U		0.0463	U		0.0463	U		0.0463	U	
NAPHTHALENE		0.125	J	GP	0.685			0.396			2.72		
PHENANTHRENE		0.0463	UJ	G	0.0463	U		0.0519	J	P	0.426		
PYRENE		0.0463	U		0.0463	U		0.0463	U		0.0463	U	

PROJ_NO: 00746	NSAMPLE	CEF-502-DUP01-20101209		
SDG: CTO076CF_001	LAB_ID	1012124-02		
FRACTION: PAH	SAMP_DATE	12/9/2010		
MEDIA: WATER	QC_TYPE	NM		
	UNITS	UG/L		
	PCT_SOLIDS	0.0		
	DUP_OF	CEF-502-3S-20101209		
PARAMETER		RESULT	VQL	QLCD
1-METHYLNAPHTHALENE		7.54	J	G
2-METHYLNAPHTHALENE		3.91	J	G
ACENAPHTHENE		0.829		
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		0.986	J	G
INDENO(1,2,3-CD)PYRENE		0.0463	U	
NAPHTHALENE		3.34	J	G
PHENANTHRENE		0.565	J	G
PYRENE		0.0463	U	

PROJ_NO: 00746 SDG: CTO076CF_001 FRACTION: PET MEDIA: WATER	NSAMPLE	CEF-502-3S-20101209			CEF-502-4S-20101209			CEF-502-6S-20101209			CEF-502-9S-20101209		
	LAB_ID	1012124-04			1012124-05			1012124-03			1012124-01		
	SAMP_DATE	12/9/2010			12/10/2010			12/9/2010			12/9/2010		
	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		1.12			0.522			1.5		

PROJ_NO: 00746	NSAMPLE	CEF-502-DUP01-20101209		
SDG: CTO076CF_001	LAB_ID	1012124-02		
FRACTION: PET	SAMP_DATE	12/9/2010		
MEDIA: WATER	QC_TYPE	NM		
	UNITS	MG/L		
	PCT_SOLIDS	0.0		
	DUP_OF	CEF-502-3S-20101209		
PARAMETER		RESULT	VQL	QLCD
TPH (C08-C40)		0.157	U	