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NAS CECIL FIELD, FL
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FIRST QUARTER TREATABILITY STUDY LETTER REPORT FOR BP WELLS NAS CECIL FIELD FL

4/22/2003

TETRA TECH NUS INC

TETRA TECH NUS, INC.
8640 Philips Highway, Suite 16 • Jacksonville, FL 32256
Tel 904.636.6125 • Fax 904.636.6165 • www.tetratech.com

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Project Number N4248

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 Contract Number N62467-94-D-0888
Contract Task Order Number 0248

Subject: First Quarter Treatability Study Letter Report – BP Wells
Naval Air Station Cecil Field
Jacksonville, Florida

Dear Mr. Grabka:

Tetra Tech NUS, Inc. (TtNUS) is pleased to submit this First Quarter Treatability Study Letter Report for the subject site. This report was prepared for the United States Navy (Navy) Southern Division, Naval Facilities Engineering Command (SOUTHNAVFACENGCOM) under Contract Task Order (CTO) 0248, for the Comprehensive Long-term Environmental Action Navy (CLEAN) Contract Number N62467-94-D-0888. This report provides a summary of the treatability study system installation and the results of the baseline and first quarter groundwater sampling events conducted at the site.

Site History

From 1999 to 2000, contamination assessment activities were performed at the BP Wells site (Figure 1), to determine the extent of petroleum-impacted soil and groundwater at the site. A due diligence investigation was conducted by Golder Associates, Inc. (1999) for the new property tenants (Jacksonville Airport Authority and Air Kaman). The reported results indicated the presence of petroleum-impacted groundwater at the site. Subsequently, the Navy directed TtNUS to conduct a site assessment. A Site Assessment Report (2000) was submitted to the Florida Department of Environmental Protection (FDEP) recommending that a natural attenuation monitoring plan be implemented at the site. The FDEP approved the plan and issued a Natural Attenuation Monitoring Plan Approval Order (NAMPAO) on August 31, 2000. In accordance with the NAMPAO, TtNUS performed the first two semi-annual groundwater sampling events in April and October of 2001. Since the contaminant concentrations at the source well were greater than the applicable natural attenuation default source concentrations, and because the contaminant concentrations were increasing, the second monitoring report recommended that the semi-annual monitoring program be suspended and that a Remedial Action Plan (RAP) be prepared for the site. On February 20, 2002, the FDEP agreed that a RAP was warranted. Subsequently, TtNUS recommended that a treatability study be performed to evaluate the effectiveness of in-situ enhanced bioremediation at the site. The in-situ submerged oxygen curtain (iSOC™) technology would be evaluated to perform this test. In June 2002, TtNUS submitted an Enhanced Natural Attenuation Treatability Study (ENATS) Work Plan for the BP Wells site.

Purpose and Goals

The purpose of the ENATS is to determine the effectiveness of the iSOC™ technology in reducing hydrocarbon concentrations in groundwater at the BP Wells site. iSOC™ is a specially designed microporous mass transfer device developed and manufactured by inVentures Technologies, Inc. (iTi) for use in groundwater remediation. iSOC™ is based on iTi's proprietary Gas inFusion™ technology. The iSOC® technology dissolves oxygen into the groundwater without bubbles through an iSOC® diffuser. The iSOC® diffuser looks similar to a stainless steel bladder pump from the outside and is 1.62 inches in diameter and 15 inches in length. The sizing allows the iSOC™ diffuser to be placed inside a 2-inch groundwater monitoring well. The iSOC™ diffuser is placed into a monitoring well, and the diffuser is connected to a tank of welding grade oxygen. The proprietary diffusion technology of iSOC™ increases dissolved oxygen (DO) concentrations in the groundwater from ambient conditions, which are usually less than 2 milligrams per liter (mg/L) to levels above the solubility limit for oxygen which is approximately 7 mg/L. In some cases, supersaturated conditions can be achieved with DO concentrations in the 50 to 70 mg/L range. The increase in DO creates aerobic conditions that can stimulate in-situ aerobic respiration or bioremediation of the petroleum hydrocarbon plume.

As part of the treatability study, it was proposed that three iSOC™ diffusers be installed in new monitoring wells (also called injection wells). A baseline sampling event and four quarters of groundwater sampling is planned. Groundwater samples will be collected from three selected monitoring wells. These wells include a source well (that was sampled as part of the NAMPAO), an upgradient well, and a downgradient well. Quarterly groundwater monitoring letter reports will be prepared, and a Treatability Study Evaluation Report will be submitted after the completion of the fourth quarter of groundwater sampling.

Injection Well Installation

On September 9, 2002, TtNUS personnel supervised the installation of three injection wells at the BP Wells site. The injection wells were identified as CEF-BP-7S, CEF-BP-8S, and CEF-BP-9S. The three injection wells were constructed as standard monitoring wells. Each injection well was installed to a depth of approximately 15 feet (ft) below land surface (bls). The injection wells are constructed of a 2-inch polyvinyl chloride (PVC) riser with a 10 ft long, 0.010-inch slotted PVC screen. The injection wells were finished at the surface with a 24-inch diameter traffic bearing manhole cover. The injection well locations are depicted on Figure 1. The boring logs, well construction sheets, and certificates of conformance are provided in Attachment A.

On September 12, 2002, the three injection wells were developed. Field parameters (pH, temperature, and specific conductance) were measured at equally spaced time intervals during well development. The wells were developed by pumping until the field measurements became stable and the development water was visibly clear. The well development logs are provided in Attachment A.

Baseline Groundwater Sampling Activities

On September 23 and 24, 2002, TtNUS personnel mobilized to the site to conduct the baseline groundwater sampling event. Prior to collecting groundwater samples, the depth-to-water was measured and recorded in select monitoring wells. Depth-to-water measurements were taken from the top of the well casings. Groundwater elevations were calculated from the depth-to-water measurements and the top-of-casing elevations. Depth-to-water measurements and groundwater elevations are summarized in Table 1. Groundwater elevations and estimated groundwater flow direction are depicted on Figure 2.

Groundwater samples were collected from three monitoring wells (CEF-BP-1S, CEF-BP-2S, and CEF-BP-6S) for the baseline sampling event. Groundwater sampling was conducted in general accordance with the FDEP Standard Operating Procedures. Prior to collecting the samples, each well was purged with a peristaltic pump using low-flow purging techniques. During purging, field parameters

(pH, conductivity, temperature, DO, and oxidation-reduction potential) were measured at approximately 5 to 10 minute intervals using a YSI® Model 556 water quality meter. The instrument was calibrated according to manufacturer's specifications at the beginning of the day. A Field Calibration Log is provided in Attachment B. Groundwater Sample Log Sheets and Low Flow Purge Data Sheets are also provided in Attachment B. After collection, groundwater samples were placed on ice and shipped overnight via Federal Express to Accutest Laboratories in Orlando, Florida. The groundwater samples were analyzed for the volatile organic compounds (VOCs) previously specified in the NAMPAO (specifically ethylbenzene; total xylenes; 1,2,4-trimethylbenzene; and 1,3,5-trimethylbenzene). However, as a result of a lab error, only the samples for CEF-BP-2S, CEF-BP-6S, and the duplicate of CEF-BP-1S were analyzed. The laboratory analytical report is provided in Attachment C.

As a result of the lab error, TtNUS returned to the site on October 3, 2002, to resample monitoring wells CEF-BP-1S and CEF-BP-2S. The field data sheets for this second baseline event are included in Attachment D. The laboratory analytical report is provided in Attachment E.

iSOC Installation Activities

TtNUS personnel mobilized to the site on October 9, 2002, to install the iSOC™ system. Each injection point consisted of one 40 cubic ft oxygen tank, a low-flow regulator, a control panel, and an iSOC™ oxygen diffuser. The regulator was attached to the oxygen tank to control the flow of gas to the control panel. High-density polyethylene (HDPE) tubing was used to connect the regulator to the control panel. The control panel is used to control the pressure and flow rate of the gas entering the diffuser. HDPE tubing was used to connect the control panel to the oxygen diffuser. The diffuser was lowered directly to the bottom of the injection well. On October 9, 2002, the flow rate at each iSOC™ injection point was adjusted to 15 cubic centimeters per minute according to the manufacturer's specifications.

After approximately one month of operation, the rate of oxygen demand depleted the oxygen supply in the tank in injection point CEF-BP-8S. As a result, the 40 cubic ft tanks were replaced with 80 cubic ft tanks. To accommodate the larger tanks, the vaults were modified by excavating a hole in the bottom of each vault and installing an 8-inch diameter PVC sleeve to a depth of approximately 3 ft bls next to each injection well. The 80 cubic ft oxygen tanks were then installed within the PVC sleeves. TtNUS personnel visit the site on a monthly basis to inspect the iSOC™ system and ensure that it is operating in accordance with the parameters specified in the work plan.

First Quarter Groundwater Sampling Activities

On January 6, 2003, TtNUS personnel mobilized to the site to conduct the first quarter groundwater sampling event. Prior to collecting groundwater samples, the depth-to-water was measured and recorded in select monitoring wells. Depth-to-water measurements were taken from the top of the well casings. Groundwater elevations were calculated from the depth-to-water measurements and the top-of-casing elevations. Depth to water measurements and groundwater elevations are summarized in Table 1. Groundwater elevations and estimated groundwater flow direction are depicted on Figure 3.

Groundwater samples were collected from three monitoring wells (CEF-BP-1S, CEF-BP-2S, and CEF-BP-6S) for the first quarter sampling event. The field data sheets for the first quarter sampling event are provided in Attachment F. After collection, groundwater samples were placed on ice and shipped overnight via Federal Express to Accutest Laboratories in Orlando, Florida. The groundwater samples were analyzed for the VOCs ethylbenzene; total xylenes; 1,2,4-trimethylbenzene; and 1,3,5-trimethylbenzene to maintain consistency with the previous sampling events conducted under the NAMPAO. The laboratory analytical report is provided in Attachment G.

TtNUS mobilized to the site on January 30, 2003, to collect select natural attenuation parameters from monitoring wells CEF-BP-1S, CEF-BP-2S, and CEF-BP-6S Samples were collected using field test kits for alkalinity, carbon dioxide, ferrous iron, hydrogen sulfide, sulfide, and DO. The field data sheets for these parameters are provided in Attachment H. Samples were collected for laboratory analysis for methane, total organic carbon, nitrite, nitrate, phosphate, and sulfate. The laboratory natural attenuation samples were shipped on ice overnight to Accutest Laboratories in Orlando, Florida. The laboratory report for this event is provided in Attachment I.

Discussion of Groundwater Flow Data

The groundwater flow elevation data from the baseline and first quarter sampling events indicate the groundwater is flowing to the southeast. The groundwater flow direction for both events is consistent with the data shown in the Site Assessment Report (TtNUS, 2000), and in the subsequent Groundwater Monitoring Reports (TtNUS, 2001 and 2002).

The seepage velocity was also calculated to estimate the time required for the elevated oxygen levels to reach the source well. The seepage velocity was calculated using a modified form of Darcy's equation as follows:

$$V = \left(\frac{K}{n}\right) x\, i$$

where:

V = average seepage velocity [ft per day (ft/day)]

K = average hydraulic conductivity (ft/day)

n = effective porosity (assumed, dimensionless)

i = average hydraulic gradient [feet per foot (ft/ft)]

A site specific K value was not available for this site; however, site-specific data collected from other sites near the BP Wells site indicate an average hydraulic conductivity of 5 ft/day. The value for "i" was calculated from water level data for wells CEF-BP-2S and CEF-BP-6S collected in September 2002. The approximate averaged value is 0.003 ft/ft. For this study, the effective porosity was approximated at 0.2 based on Halford's (USGS, 1998) estimation of specific yield for the surficial aquifer at Cecil Field of approximately 0.2 (Halford, 1998). Using these values, the seepage velocity was calculated as follows:

$$V = \left(\frac{5.0\ \text{ft/day}}{0.20}\right) x\ 0.003\ \text{ft/ft}$$

$$V = 0.075\ \text{ft/day}$$

The seepage velocity was then used to calculate the estimated time required for the elevated oxygen levels to reach the source well using the following equation:

$$D = R \times T \quad \text{or} \quad T = \left(\frac{D}{R}\right)$$

where:

D = distance from injection well to source well (ft)

R = rate (seepage velocity)(ft/day)

T = time (days)

Using the seepage velocity previously calculated (0.075 ft/day), and a distance of 15 ft (approximate distance from the injection well to the source well), the estimated time required for the elevated oxygen levels to reach the source well was calculated at approximately 200 days as follows:

$$T = \left(\frac{15}{0.075}\right) = 200 \text{ days}$$

Based on these calculations it is predicted that elevated oxygen levels should begin impacting the source area during the second quarter of operation. This estimate assumes that oxygen will flow conservatively with groundwater. This estimate also does not account for consumption of the oxygen by degradation processes.

Discussion of Groundwater Analytical Results

The laboratory analytical results from the baseline sampling event indicate that ethylbenzene; total xylenes; and 1,2,4-trimethylbenezene were detected in source monitoring well CEF-BP-1S at concentrations that exceeded their respective groundwater cleanup target levels (GCTLs). The concentration of 1,3,5-trimethylbenezene reported for monitoring well CEF-BP-1S was below standard laboratory detection limits (SLDL). The concentrations of all contaminants of concern (COCs) reported for perimeter monitoring wells CEF-BP-2S and CEF-BP-6S were below SLDLs. The laboratory analytical results are summarized in Table 2 and depicted on Figure 4.

The laboratory analytical results from the first quarter sampling event indicate that ethylbenzene; total xylenes; 1,2,4-trimethylbenezene; and 1,3,5-trimethylbenezene were detected in source monitoring well CEF-BP-1S at concentrations that exceeded their respective GCTLs. The concentrations of all COCs reported for perimeter monitoring wells CEF-BP-2S and CEF-BP-6S were below SLDLs. The laboratory analytical results are summarized in Table 2 and depicted on Figure 5.

A comparison of the baseline analytical results with the first quarter analytical results indicates that the concentration of 1,2,4-trimethylbenzene in monitoring well CEF-BP-1S decreased while the concentrations of ethylbenzene; total xylenes; and 1,3,5-trimethylbenezene increased. This phenomenon is not uncommon in aerobic degradation of petroleum compounds with the introduction of an oxygen source. Based upon other studies, this anticipated trend is expected to reverse as more time passes and the aerobic community becomes more acclimated to the enhanced conditions at the site.

The natural attenuation parameters collected during the first quarter sampling event were compared to general guidelines to determine if aerobic (oxidizing) or anaerobic (reducing) conditions exist at the site. The data suggests that the groundwater in the vicinity of wells CEF-BP-1S is in a reducing state, while the groundwater in the vicinity of upgradient well CEF-BP-2S is in an oxidizing state. It appears based upon the data that CEF-BP-6S is under marginal aerobic conditions. A summary of the natural attenuation parameters is provided in Table 3. Table 4 shows the concentrations of DO in the three injection wells and the select monitoring wells under study.

Conclusions

While the increase in concentration of the COCs is of concern, the elevated DO concentrations in the injection wells indicates that the groundwater in the vicinity of the injection wells has become supersaturated with DO. Furthermore, the DO levels have remained supersaturated as the iSOCs™ continue to operate. In addition, there are indications that there may be increased aerobic activity in the source area. The carbon dioxide level is an order of magnitude higher in the source well than in the other two wells, which may indicate excretion activity by microorganisms that are degrading the COCs.

Additional data is needed to draw definitive conclusions regarding the effectiveness of the treatability study.

Based on the data presented in this report, TtNUS recommends that the treatability study at the BP Wells Site be continued as specified in the treatability study work plan. The next quarterly sampling event is scheduled for April 2002. If you have any questions regarding the information presented in this document, please contact me by phone at (813) 806-0202 or via e-mail at calliganp@ttnus.com.

Sincerely,

Paul E. Calligan, P.G.
Task Order Manager

Mervin W. Dale, P.G.
Florida Professional Geologist
P.G. Number 0001917

PC/mwd

Attachments

pc: Mr. W. Hansel, SOUTHNAVFACENGCOM (CD only)
Ms. D. Wroblewski, TtNUS (cover letter only)
Mr. M. Perry, TtNUS (unbound and CD)
Project File

TABLES

Table 1
Groundwater Elevation and Monitoring Well Construction Data

First Quarter Treatability Study Letter Report
BP Wells
Naval Air Station Cecil Field
Jacksonville, Florida

Well Number	Total Depth of Well (ft, btoc)	Top of Casing Elevation (ft, NAVD)	9/23/2002		1/6/2003	
			Depth to Water (ft, btoc)	Groundwater Elevation (ft, msl)	Depth to Water (ft, btoc)	Groundwater Elevation (ft, msl)
CEF-BP-1S	14.72	71.28	5.10	66.18	6.00	65.28
CEF-BP-2S	14.48	71.78	5.42	66.36	6.41	65.37
CEF-BP-3S	14.57	72.38	6.32	66.06	NA	NA
CEF-BP-4S	14.75	72.28	6.30	65.98	NA	NA
CEF-BP-5I	34.39	71.63	5.45	66.18	NA	NA
CEF-BP-6S	14.20	71.87	5.79	66.08	6.72	65.15
CEF-308LN-1S	NA	NA	NF	NA	NF	NA

Notes:
NAVD = North American Vertical Datum, 1988
msl = mean sea level
NA = not available
NF = not found

Table 2
Groundwater Analytical Results

First Quarter Treatability Study Letter Report
BP Wells
Naval Air Station Cecil Field
Jacksonville, Florida

Sample Location		CEF-BP-1S		CEF-BP-2S		CEF-BP-6S	
Monitoring Well Type		Source Well		Upgradient Well		Downgradient Well	
Sample Identification Number		CEF-BP-01S-03	CEF-BP-GW-1S-04	CEF-BP-02S-3A	CEF-BP-GW-2S-04	CEF-BP-06S-03	CEF-BP-GW-6S-04
Collection Date		10/3/2002	1/6/2003	10/3/2002	1/6/2003	9/24/2002	1/6/2003
Compounds of Concern	**GCTL[1] (µg/L)**	**Baseline Sampling**	**First Quarter Event**	**Baseline Sampling**	**First Quarter Event**	**Baseline Sampling**	**First Quarter Event**
Ethylbenzene	30	**117**	**161**	1U	1U	1U	1U
1,2,4-trimethylbenzene	10	**262**	**224**	1U	1U	1U	1U
1,3,5-trimethylbenzene	10	5U	**71.5**	1U	1U	1U	1U
Total Xylenes	20	**658**	**811**	3U	3U	3U	3U

Notes:
[1]GCTLs, Chapter 62-770, Florida Administrative Code
µg/L = micrograms per liter
U = value shown adjacent to this letter is the reporting limit concentration.
Bold values shown on table are above respective GCTLs.

Table 3
Natural Attenuation Analytical Results

First Quarter Treatability Study Letter Report
BP Wells
Naval Air Station Cecil Field
Jacksonville, Florida

Sample Location		CEF-BP-1S	CEF-BP-2S	CEF-BP-6S
Monitoring Well Type		Source Well	Upgradient Well	Downgradient Well
Sample Identification Number		CEF-BP-01S-03	CEF-BP-02S-3A	CEF-BP-06S-03
Collection Date		1/30/2003	1/30/2003	1/30/2003
Compounds of Concern (COCs) and Data				
Fixed-Base Laboratory COCs	**Units**	**Fixed-Base Laboratory Results**		
Methane	µg/L	14.0	1.40	136
Nitrogen, Nitrate	mg/L	0.41	0.88	0.13
Nitrogen, Nitrite	mg/L	0.10U	0.10U	0.10U
Phosphate, Ortho	mg/L	0.10U	0.10U	0.10U
Sulfate	mg/L	20U	20U	20U
Total Organic Carbon	mg/L	12.0	4.0	9.0
Field Natural Attenuation COCs	**Units**	**Field Natural Attenuation Results**		
pH	S.U.	6.29	6.27	6.16
Conductivity	mS/cm	0.321	0.194	0.264
Turbidity	NTU	0	18	14
Dissolved Oxygen (by meter in flow cell)	mg/L	0.062	1.97	0.86
Temperature	°C	19.1	21.08	22.31
Oxidation Reduction Potential	mV	-110	130.3	26.1
Dissolved Oxygen (by kit)	mg/L	0.6	2.0	0.4
Sulfide	mg/L	0	0.0	0
Carbon Dioxide	mg/L	300	30	50
Alkalinity	mg/L	250	70	80
Ferrous Iron	mg/L	0.16	0.08	0.18
Hydrogen Sulfide	mg/L	0.3	0	0.0

Notes:
S.U. = standard units
mS/cm = millisiemens per centimeter
NTU = nephelometric turbidity units
°C = degrees celsius
mV = millivolt
U = value shown adjacent to this letter is the reporting limit concentration.

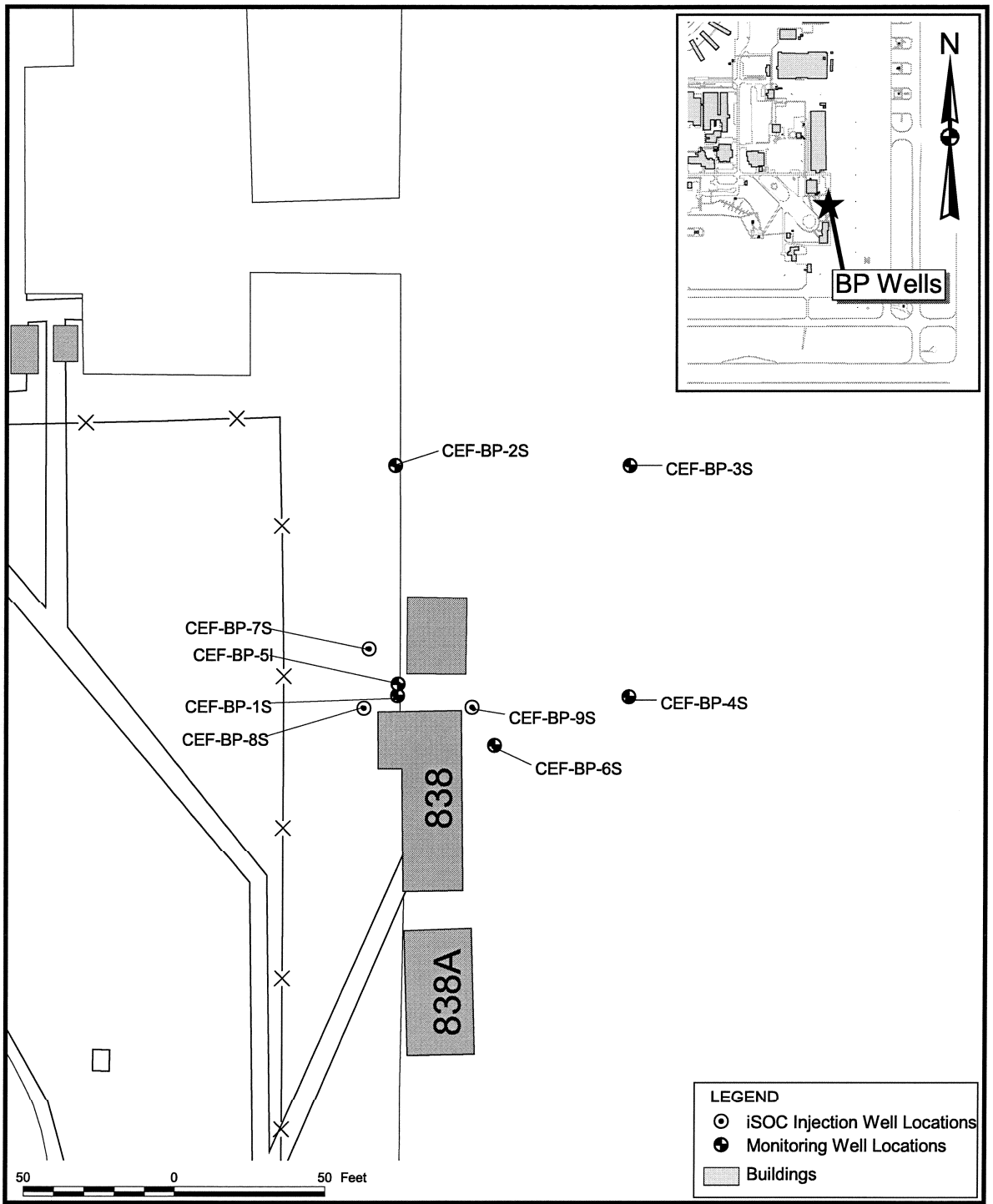
Table 4
Dissolved Oxygen Concentrations in Injection Wells and Select Monitoring Wells

First Quarter Treatability Study Letter Report
BP Wells
Naval Air Station Cecil Field
Jacksonville, Florida

		Collection Dates					
Sample Location	**Well type**	9/24/2002	10/3/2002	1/6/2003	1/29/2003	1/30/2003	3/14/2003
CEF-BP-1S (1)	monitoring well	0.90	0.05	0.62	NC	0.062	NC
CEF-BP-2S (1)	monitoring well	7.80	0.77	3.19	NC	1.97	NC
CEF-BP-6S (1)	monitoring well	0.93	NC	0.96	NC	0.86	NC
CEF-BP-7S (2)	injection well	NC	NC	NC	31.5	NC	39.03
CEF-BP-8S (2)	injection well	NC	NC	NC	18.75	NC	40.33
CEF-BP-9S (2)	injection well	NC	NC	NC	41.51	NC	39.00

Notes:
DO units in milligrams per liter (mg/L).
(1) Measurements collected by meter in a flow cell thus may be subject to outside influences and flucuation.
(2) Measurements collected by meter in the well.
(3) iSOC's began discharging oxygen on October 9, 2002.
NC = not collected.

FIGURES



DRAWN BY MJJ	DATE 24Mar03	SITE LOCATION MAP BP WELLS SITE TREATABILITY STUDY NAVAL AIR STATION CECIL FIELD JACKSONVILLE, FLORIDA	CONTRACT NUMBER 4248
CHECKED BY	DATE		APPROVED BY DATE
COST/SCHEDULE-AREA			APPROVED BY DATE
SCALE AS NOTED			DRAWING NO. FIGURE 1 / REV 0

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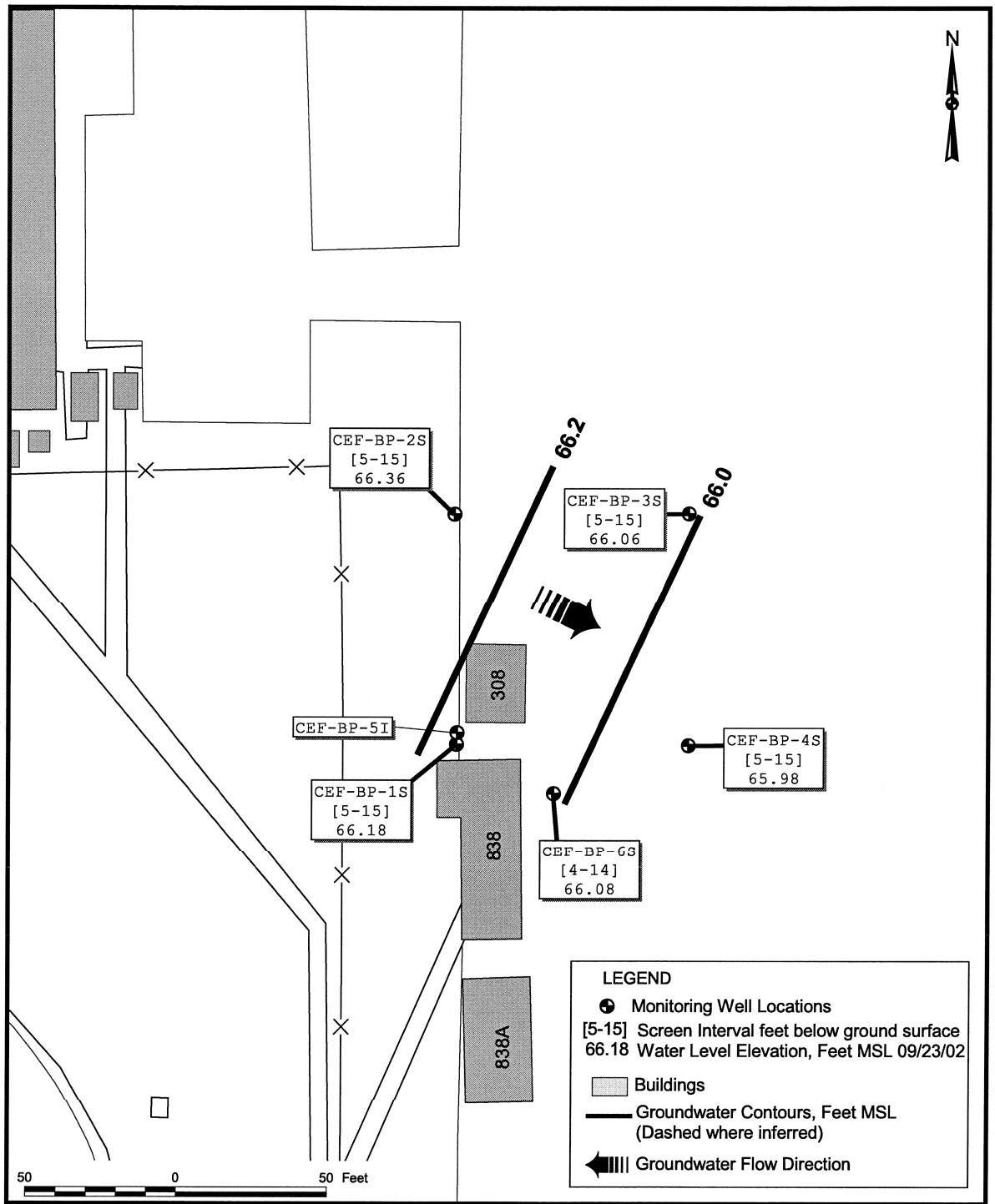

DRAWN BY MJJ	DATE 24Mar03	BASELINE GROUNDWATER FLOW MAP (09/23/02) BP WELLS SITE TREATABILITY STUDY NAVAL AIR STATION CECIL FIELD JACKSONVILLE, FLORIDA	CONTRACT NUMBER 4248
CHECKED BY	DATE		APPROVED BY DATE
COST/SCHEDULE-AREA			APPROVED BY DATE
SCALE AS NOTED			DRAWING NO. FIGURE 2 / REV 0

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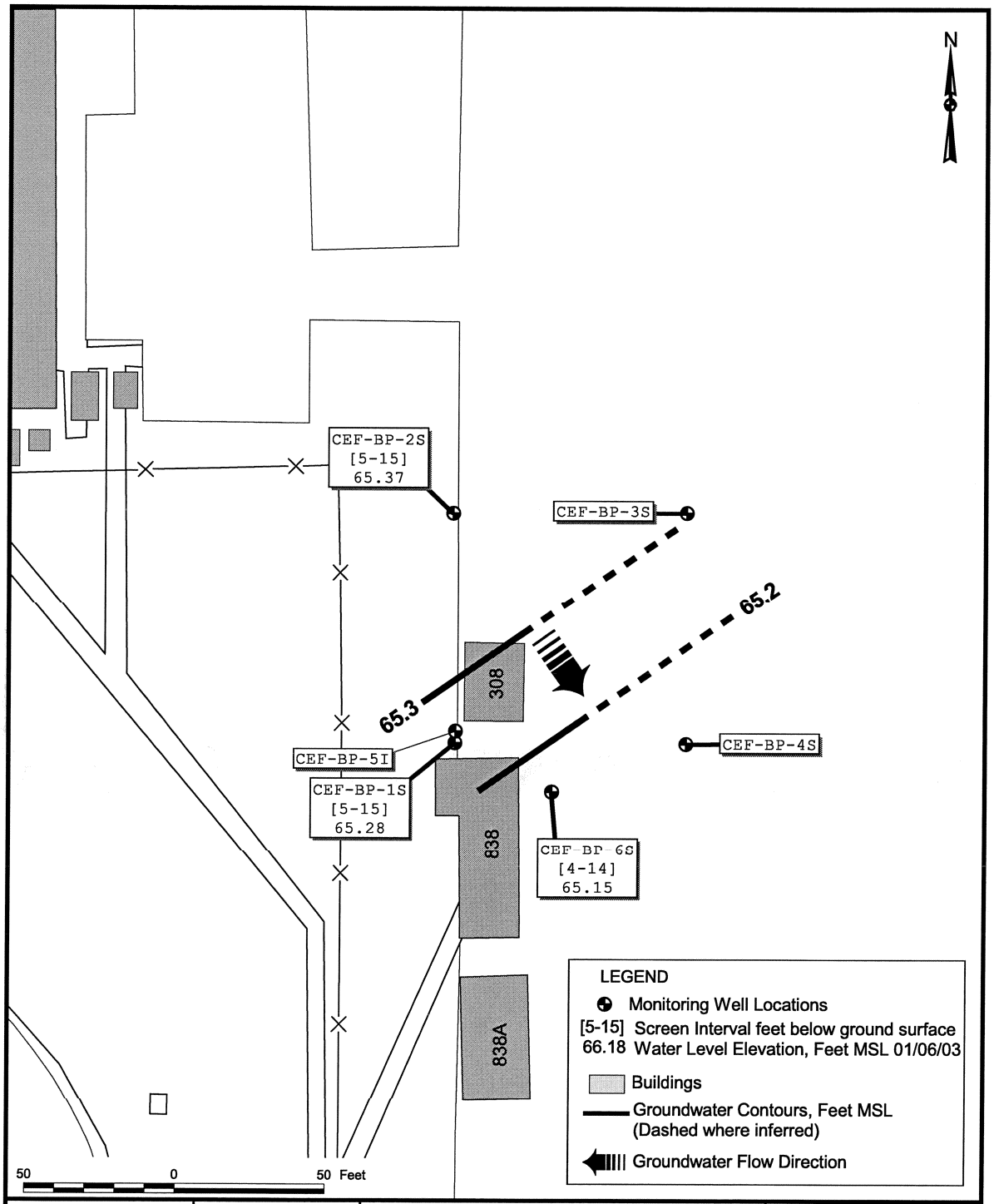

DRAWN BY MJJ	DATE 24Mar03	FIRST QUARTER GROUNDWATER FLOW MAP (01/06/03) BP WELLS SITE TREATABILITY STUDY NAVAL AIR STATION CECIL FIELD JACKSONVILLE, FLORIDA	CONTRACT NUMBER 4248
CHECKED BY	DATE		APPROVED BY DATE
COST/SCHEDULE-AREA			APPROVED BY DATE
SCALE AS NOTED			DRAWING NO. FIGURE 3 / REV 0

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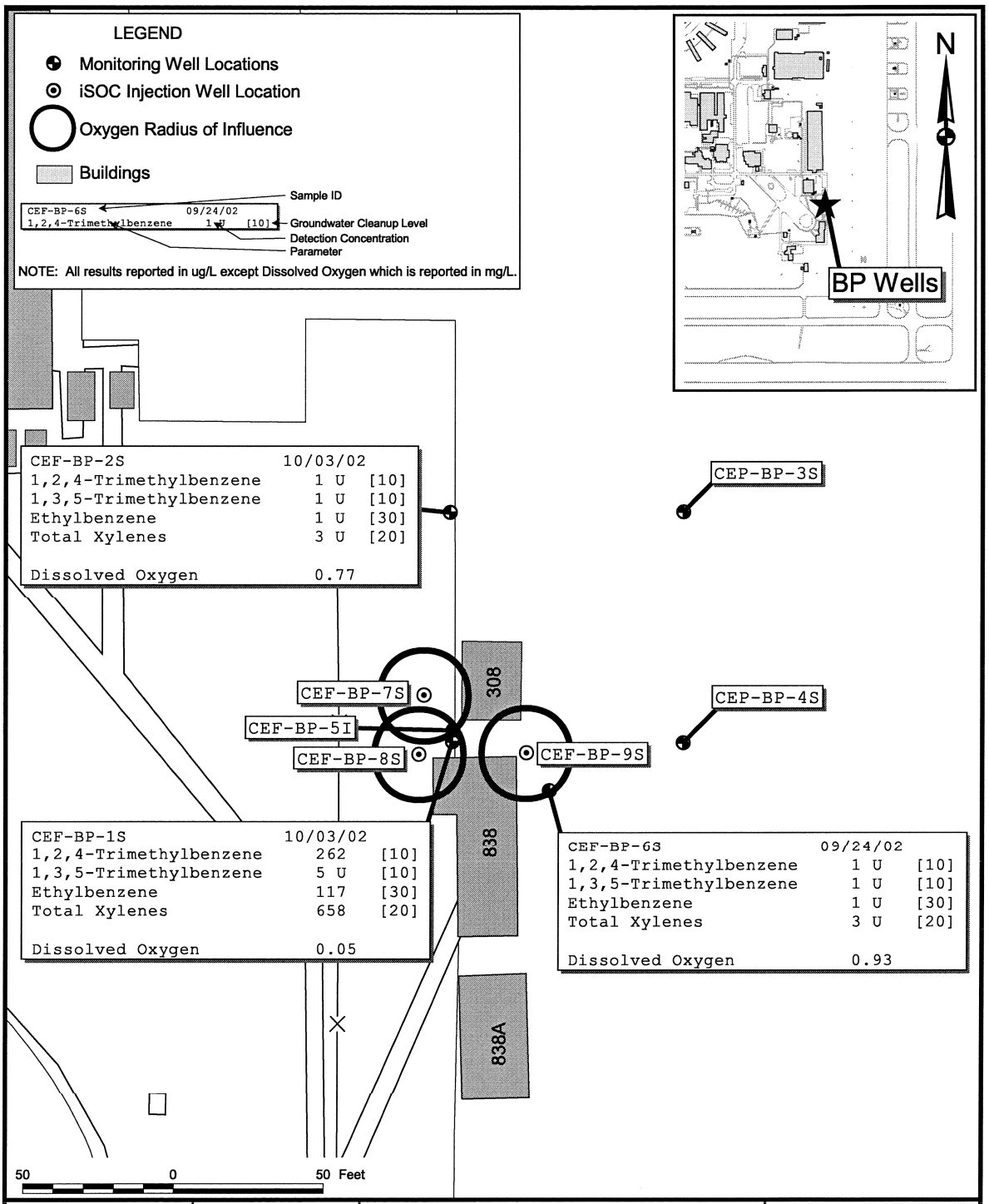

DRAWN BY	DATE			CONTRACT NUMBER
MJJ	24Mar03	COC AND DO MAP (09/24/02 - 10/06/02)		4248
CHECKED BY	DATE	BP WELLS SITE		APPROVED BY / DATE
COST/SCHEDULE-AREA		TREATABILITY STUDY		APPROVED BY / DATE
SCALE		NAVAL AIR STATION CECIL FIELD		DRAWING NO. FIGURE 4
AS NOTED		JACKSONVILLE, FLORIDA		REV 0

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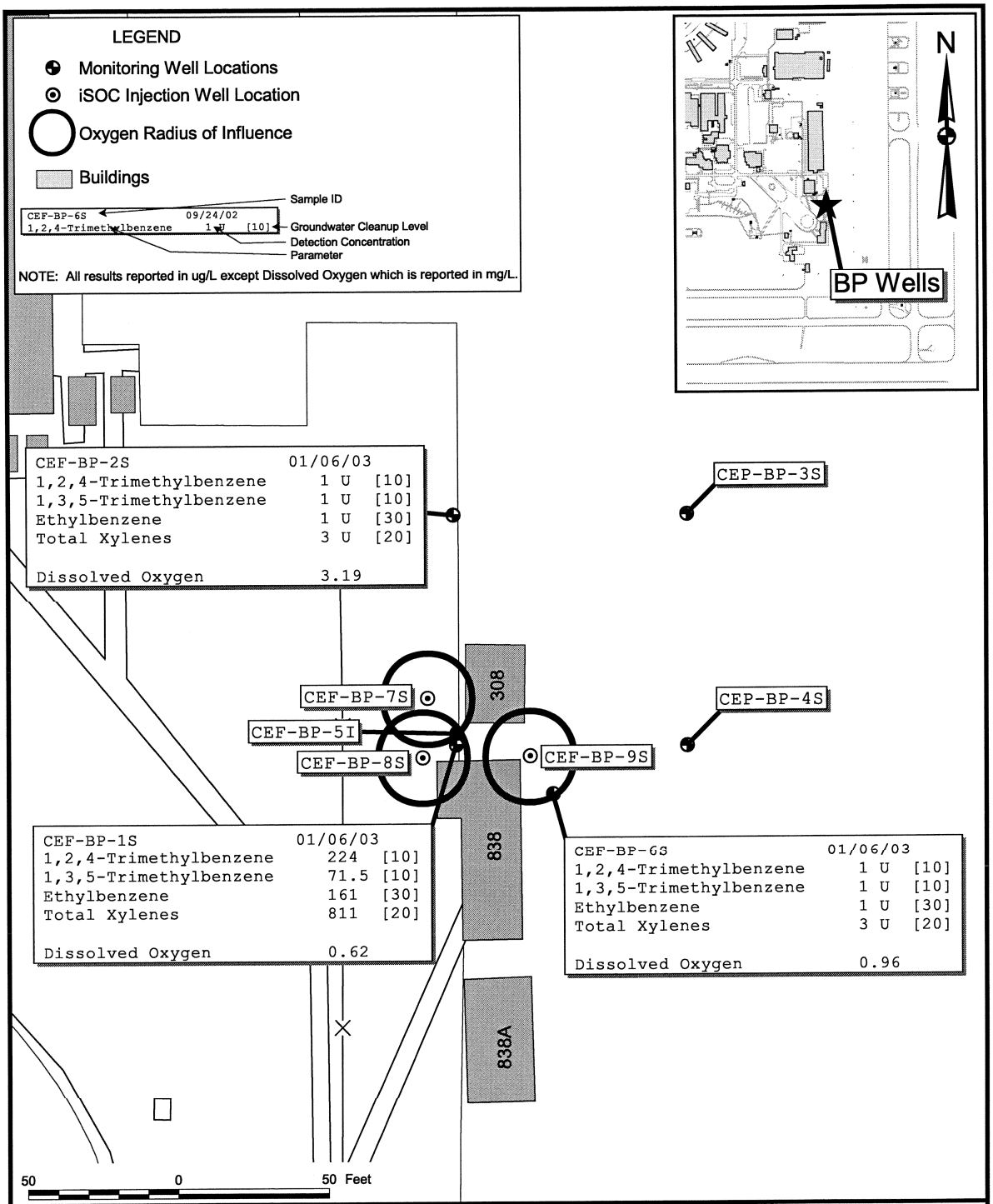

DRAWN BY	DATE		CONTRACT NUMBER 4248
MJJ	24Mar03	COC AND DO MAP (01/06/03)	APPROVED BY / DATE
CHECKED BY	DATE	BP WELLS SITE	APPROVED BY / DATE
COST/SCHEDULE-AREA		TREATABILITY STUDY	
SCALE AS NOTED		NAVAL AIR STATION CECIL FIELD JACKSONVILLE, FLORIDA	DRAWING NO. FIGURE 5 / REV 0

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ATTACHMENT A

BORING LOGS
MONITORING WELL CONSTRUCTION SHEETS
CERTIFICATES OF CONFORMANCE
MONITORING WELL DEVELOPMENT SHEETS

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: SFF, Truck Stand, Site 46, NSAP, DT1
PROJECT NUMBER: N4248MW0050
DRILLING COMPANY: Partridge
DRILLING RIG: Drillmaster 400

BORING NUMBER: ~~CEF-BP-07S~~ CB SB-01
DATE: 9/9/02
GEOLOGIST: Michale C Gleaton
DRILLER: Jeff Weatherford

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
	0-4					Or/Bn	Silty Sand	SM	Dry				
	4-6					Lt Bn	Silty Sand	SM	Moist				
	6-15.5					Lt Bn	Silty Sand	SM	Wet				

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Drilling Area Background (ppm):

Remarks: Or-Orange Bn-Brown (Fill Dirt) ~~7'~~ *PID Mal Functioned No OVA readings

Converted to Well: Yes X No ____ Well I.D. #: CEF-BP-07S

Tetra Tech NUS, Inc.

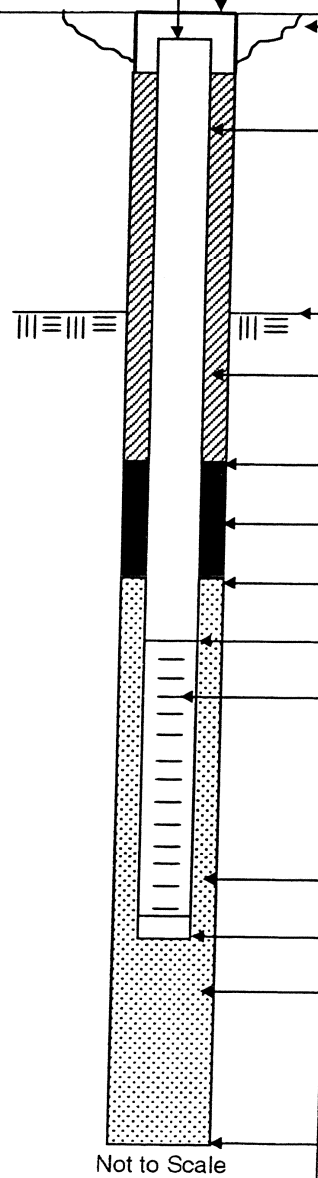
WELL No.: CEF-BP-07S

MONITORING WELL SHEET (SINGLE-CASED)

PROJECT:	Cecil Field	DRILLING Co.:	Partridge	BORING No.:	SB-01
PROJECT No.:	N4248	DRILLER:	Jeff Weatherford	DATE COMPLETED:	9/9/02
SITE:	BP Wells	DRILLING METHOD:	~~H~~ HSA	NORTHING:	
GEOLOGIST:	M Pole C Gloster	DEV. METHOD:		EASTING:	

Ground Elevation =

Datum:



Not to Scale

Elevation / Depth of Top of Riser:	1
Elevation / Height of Top of Surface Casing:	10 ft
I.D. of Surface Casing:	~~8~~ 24.5"
Type of Surface Casing:	Steel
Type of Surface Seal:	Concrete
I.D. of Riser:	2 inch
Type of Riser:	PVC
Borehole Diameter:	8 inch
Elevation / Depth Top of Rock:	N/A
Type of Backfill:	Type I-II Portland Cement
Elevation / Depth of Seal:	12 ft
Type of Seal:	30/65 Sand
Elevation / Depth of Top of Filter Pack:	13.5 ft
Elevation / Depth of Top of Screen:	15 ft
Type of Screen:	PVC
Slot Size x Length:	0.010 in x 10'
I.D. of Screen:	2 in
Type of Filter Pack:	20/30 Sand
Elevation / Depth of Bottom of Screen:	115 ft
Elevation / Depth of Bottom of Filter Pack:	115 ft
Type of Backfill Below Well:	20/30 Sand
Elevation / Total Depth of Borehole:	115.5 ft

MONITORING WELL MATERIALS
CERTIFICATE OF CONFORMANCE

Well Designation: CEF-BP-075
Site Name: BP Wells Cecil Field
Date Installed: 9/9/02
Project Name: Cecil Field

Site Geologist: Mervin Dale / C Gleaton
Drilling Company: Partridge
Driller: Jeff Weatherford
Project Number: N4248MW0050120

Material	Brand/Description	Source/Supplier	Sample Collected ?
Well Casing	Sch 40 PVC 2in Dia	Atlantic Drilling Supply, Jax Fl	No
Well Screen	Sch 40 PVC 2in 0.010 slots	ADS Jax Fl	No
End Cap	Sch 40 PVC 2in 6inch long	ADS Jax Fl	No
Drilling Fluid	None		
Drilling Fluid Additives	None		
Backfill Material	None		
Annular Filter Pack	Standard 20/30 Grade Sand	Standard Sand Jax Fl	No
Bentonite Seal	Standard 30/65 Grade Sand	Standard Sand Jax Fl	No
Annular Grout	Portland Cemente Type I-II	Lehigh Cement Allentown, PA	No
Surface Cement	Quikrete Concrete	Quikrete Company Atlanta GA	No
Protective Casing	8in Steel manhole	ADS Jax Fl	No
Paint	None		
Rod Lubricant	None		
Compressor Oil	None		

To the best of my knowledge, I certify that the above described materials were used during installation of this monitoring well.

Signature of Site Geologist: C Gleaton

Flowrate - 18 gallons/9 minutes
2gal/min.

Tetra Tech NUS, Inc.

MONITORING WELL DEVELOPMENT RECORD

Well: CEF-BP-75
Site: NAS Cecil Field BP
Date Installed: 9-10-02
Date Developed: 9-12-02
Dev. Method: Submersible
Pump Type: Submersible

Depth to Bottom (ft.): 15 ft
Static Water Level Before (ft.): 6.16
Static Water Level After (ft.): 6.09
Screen Length (ft.): 10 ft
Specific Capacity: N/A
Casing ID (in.): 2 in

Responsible Personnel: Mew Dale / Meg Ferguson
Drilling Co.: Partridge
Project Name: NAS CECIL FIELD
Project Number: 4248MW0050 120

Time	Estimated Sediment Thickness (Ft.)	Cumulative Water Volume (Gal.)	Water Level Readings (Ft. below TOC)	Temperature (Degrees C)	pH	Specific Conductance (Units ms/m)	Turbidity (NTU)	Remarks (odor, color, etc.) Background PID=0.0 BZ=0.0 BH=0.0
1330	—	—	6.16	25.9	5.95	25.8	—	
1335		10	6.18	25.5	6.15	20.3	730	
1340		20	6.13	25.5	6.13	19.6	238	
1345		30	6.14	25.5	6.11	18.9	87.6	
1350		40	6.14	25.5	6.1	18.9	37.5	
1355		50	6.12	25.5	6.10	18.3	28.0	Final Reading

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: SFF, Truck Stand, Site 46, NSAP, DT1
PROJECT NUMBER: N4248MW0050
DRILLING COMPANY: Portridge
DRILLING RIG: Drilmaster 400
BORING NUMBER: SB-02
DATE: 9/9/02
GEOLOGIST: M. Dale / C Gleason
DRILLER: Jeff Weatherford

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
	0-1.5					Bn	Silty Sand	SM	Dry				
	1.5-2					Gr Bn	Silty Sand	SM	Dry				
	2-5					Lt Bn	Silty Sand	SM	Dry				
	5-6.5					Lt Bn	Silty Sand	SM	Moist @ 6.5'				
	6.5-15					Lt Bn	Silty Sand	SM	Wet				

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Drilling Area Background (ppm):

Remarks: Bn - Brown Gr - Gray (Fill Dirt) @ 6.5'

Converted to Well: Yes X No

Well I.D. #: CEF-BP-085

Tetra Tech NUS, Inc.

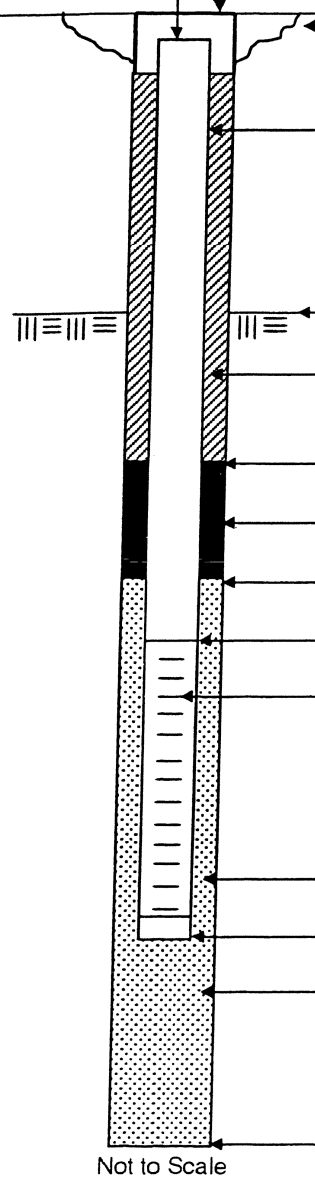
WELL No.: CEF-BP-08S

MONITORING WELL SHEET (SINGLE-CASED)

PROJECT:	Cecil Field	DRILLING Co.:	Portridge	BORING No.:	SB-02
PROJECT No.:	N4248	DRILLER:	Jeff Weatherford	DATE COMPLETED:	9/9/02
SITE:	BP Wells	DRILLING METHOD:	HSA	NORTHING:	
GEOLOGIST:	M. Dale C Gleaton	DEV. METHOD:		EASTING:	

Ground Elevation =

Datum:



Not to Scale

Elevation / Depth of Top of Riser:	1
Elevation / Height of Top of Surface Casing:	1 ~~0~~ ft
I.D. of Surface Casing:	~~8~~ 29.5"
Type of Surface Casing:	Steel
Type of Surface Seal:	Concrete
I.D. of Riser:	2 inch
Type of Riser:	PVC
Borehole Diameter:	8 inch
Elevation / Depth Top of Rock:	N/A
Type of Backfill:	Type I-II Portland Cement
Elevation / Depth of Seal:	12 ft
Type of Seal:	30/65 Sand
Elevation / Depth of Top of Filter Pack:	13.5 ft
Elevation / Depth of Top of Screen:	15 ft
Type of Screen:	PVC
Slot Size x Length:	0.010 in x 10'
I.D. of Screen:	2 inch
Type of Filter Pack:	20/30 Sand
Elevation / Depth of Bottom of Screen:	115 ft
Elevation / Depth of Bottom of Filter Pack:	115.5 ft
Type of Backfill Below Well:	20/30 Sand
Elevation / Total Depth of Borehole:	115.5 ft

MONITORING WELL MATERIALS
CERTIFICATE OF CONFORMANCE

Well Designation: CEF-BP-085
Site Name: BP Wells
Date Installed: 9/9/02
Project Name: Cecil Field

Site Geologist: M. Dale / C Gleaton
Drilling Company: Partridge
Driller: Jeff Weatherford
Project Number: N9248MW0050120

Material	Brand/Description	Source/Supplier	Sample Collected ?
Well Casing	Sch 40 PVC 2in Dia	Atlantic Drilling Supply, Jax Fl	No
Well Screen	Sch 40 PVC 2in 0.010 slots	ADS Jax Fl	No
End Cap	Sch 40 PVC 2in 6inch long	ADS Jax Fl	No
Drilling Fluid	None		
Drilling Fluid Additives	None		
Backfill Material	None		
Annular Filter Pack	Standard 20/30 Grade Sand	Standard Sand Jax Fl	No
Bentonite Seal	Standard 30/65 Grade Sand	Standard Sand Jax Fl	No
Annular Grout	Portland Cemente Type I-II	Lehigh Cement Allentown, PA	No
Surface Cement	Quikrete Concrete	Quikrete Company Altanta GA	No
Protective Casing	8in Steel manhole	ADS Jax Fl	No
Paint	None		
Rod Lubricant	None		
Compressor Oil	None		

To the best of my knowledge, I certify that the above described materials were used during installation of this monitoring well.

Signature of Site Geologist: C. Gleaton

Flow Rate 18 gal/9 min
2 gal/minute

Tetra Tech NUS, Inc.

MONITORING WELL DEVELOPMENT RECORD

Well: CEF-BP-8S
Site: BP Wells
Date Installed: 9-10-02
Date Developed: 9-12-02
Dev. Method: Submersible
Pump Type: "

Depth to Bottom (ft.): 15 ft
Static Water Level Before (ft.): 6.4
Static Water Level After (ft.): 6.35
Screen Length (ft.): 10 ft
Specific Capacity: N/A
Casing ID (in.): 2 inches

Responsible Personnel: Mem. Dale / Meg Ferguson
Drilling Co.: Partridge
Project Name: NAS CECIL FIELD
Project Number: 4248MW0050 120

Time	Estimated Sediment Thickness (Ft.)	Cumulative Water Volume (Gal.)	Water Level Readings (Ft. below TOC)	Temperature (Degrees C)	pH	Specific Conductance (Units mS/m)	Turbidity (NTU)	Remarks (odor, color, etc.)
1410		—	6.4	27.3	6.22	26.2	—	
1415		10	6.4	25.7	6.13	21.6	—	
1420		20	6.3	25.6	6.15	21.5	834.0	
1425		30	6.3	25.6	6.17	21.4	162.0	
1430		40	6.33	25.6	6.17	21.4	83.1	
1435		50	6.33	25.6	6.19	20.9	62.6	Final Reading

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: SFF, Truck Stand, Site 46, NSAP, DT1
PROJECT NUMBER: N4248MW0050
DRILLING COMPANY: Portridge
DRILLING RIG: Drilmaster 400

BORING NUMBER: SB-03
DATE: 9/9/02
GEOLOGIST: M. Dale C Gleaton
DRILLER: Jeff Wheatherford

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
	0-2					Lt Brn	Lino Sand	SP	Dry				
	2-4					Or Brn	Silty Sand	SM	Dry				
	4-6					Or Brn	Silty Sand	SM	Moist				
	6-10					Brn	Silty Sand	SM	Wet				
	10-15.5					Lt Brn	Silty Sand	SM	Wet				

* When rock coring, enter rock brokeness.
** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Drilling Area Background (ppm):

Remarks: Or Orange Δ 6.5
Brn Brown
Lt Light

Converted to Well: Yes X No

Well I.D. #: CSF-BP-095

Tetra Tech NUS, Inc.

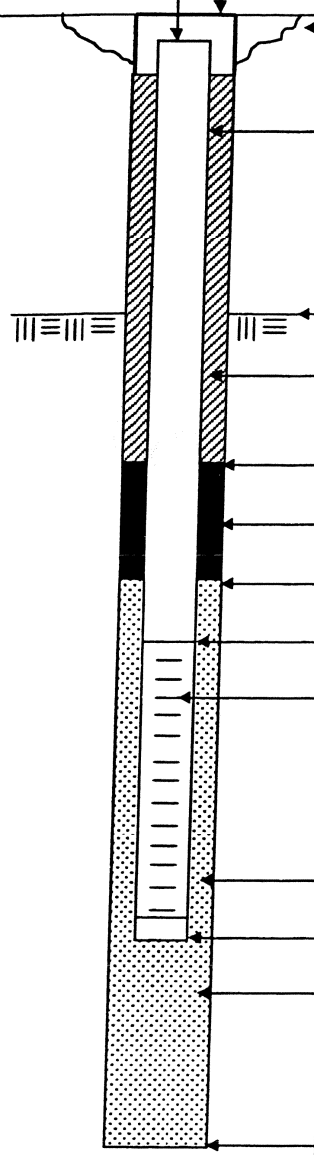
WELL No.: CEF-BP-095

MONITORING WELL SHEET (SINGLE-CASED)

PROJECT:	Cecil Field	DRILLING Co.:	Portridge	BORING No.:	SB-03
PROJECT No.:	N4248	DRILLER:	Jeff Weatherford	DATE COMPLETED:	9/9/02
SITE:	BP Wells	DRILLING METHOD:	HSA	NORTHING:	
GEOLOGIST:	M Dale C Gleaton	DEV. METHOD:		EASTING:	

Ground Elevation =

Datum:



Not to Scale

Elevation / Depth of Top of Riser:	1
Elevation / Height of Top of Surface Casing:	1 ~~0~~ ft
I.D. of Surface Casing:	~~8~~ 24.5"
Type of Surface Casing:	Steel
Type of Surface Seal:	Concrete
I.D. of Riser:	2 inch
Type of Riser:	PVC
Borehole Diameter:	8 inch
Elevation / Depth Top of Rock:	N/A
Type of Backfill:	Type I-II Portland Cement
Elevation / Depth of Seal:	12 ft
Type of Seal:	30/65 Sand
Elevation / Depth of Top of Filter Pack:	13.5 ft
Elevation / Depth of Top of Screen:	15 ft
Type of Screen:	PVC
Slot Size x Length:	0.010 in x 10'
I.D. of Screen:	2 inch
Type of Filter Pack:	20/30 Sand
Elevation / Depth of Bottom of Screen:	115 ft
Elevation / Depth of Bottom of Filter Pack:	115.5 ft
Type of Backfill Below Well:	20/30 Sand
Elevation / Total Depth of Borehole:	115.5 ft

MONITORING WELL MATERIALS
CERTIFICATE OF CONFORMANCE

Well Designation: CEF-BP-09S
Site Name: BP Wells
Date Installed: 9/9/02
Project Name: Cecil Field

Site Geologist: M Dale / C Gleaton
Drilling Company: Portridge
Driller: Jeff Weatherford
Project Number: N4248MWR0050120

Material	Brand/Description	Source/Supplier	Sample Collected ?
Well Casing	Sch 40 PVC 2in Dia	Alantic Drilling Supply, Jax Fl	No
Well Screen	Sch 40 PVC 2in 0.010 slots	ADS Jax Fl	No
End Cap	Sch 40 PVC 2in 6inch long	ADS Jax Fl	No
Drilling Fluid	None		
Drilling Fluid Additives	None		
Backfill Material	None		
Annular Filter Pack	Standard 20/30 Grade Sand	Standard Sand Jax Fl	No
Bentonite Seal	Standard 30/65 Grade Sand	Standard Sand Jax Fl	No
Annular Grout	Portland Cemente Type I-II	Lehigh Cement Allentown, PA	No
Surface Cement	Quikrete Concrete	Quikrete Company Altanta GA	No
Protective Casing	8in Steel manhole	ADS Jax Fl	No
Paint	None		
Rod Lubricant	None		
Compressor Oil	None		

To the best of my knowledge, I certify that the above described materials were used during installation of this monitoring well.

Signature of Site Geologist: C. Gleaton

Tetra Tech NUS, Inc.

MONITORING WELL DEVELOPMENT RECORD

Well: CEF-BP-95
Site: BP-Wells
Date Installed: 9/9/02
Date Developed: 9/12/02
Dev. Method: Pump
Pump Type: Submersible

Depth to Bottom (ft.): 15
Static Water Level Before (ft.): 6.34
Static Water Level After (ft.): 6.30
Screen Length (ft.): 10ft
Specific Capacity: N/A
Casing ID (in.): 2in

Responsible Personnel: Mark Dane / C. Gleaton
Drilling Co.: Partridge
Project Name: NAS CECIL FIELD
Project Number: 4248MW0050120

Time	Estimated Sediment Thickness (Ft.)	Cumulative Water Volume (Gal.)	Water Level Readings (Ft. below TOC)	Temperature (Degrees C)	pH	Specific Conductance (Units mS/cm)	Turbidity (NTU)	Remarks (odor, color, etc.) Bkgrd=0.0 BZ=0.0 Wrkh=0.0
1325		–	6.34	26.9	6.01	19.3	999.0	Milky Brown
1330		7	6.30	26.7	6.09	19.2	626.0	Milky Brown
1335		15	6.30	26.6	6.08	19.0	136	Milky Brown
1340		18	6.30	26.6	6.08	18.9	35.7	Clear
1345		28	6.30	26.6	6.08	18.7	30.0	Clear
1350		38	6.30	26.6	6.07	18.5	26.7	Clear
1355		42	6.30	26.5	6.07	18.4	26.9	Clear
1400		50	6.30	26.5	6.20	18.4	25.6	Clear

ATTACHMENT B

BASELINE FIELD DATA FOR SEPTEMBER 2002 EVENT:
FIELD CALIBRATION LOG
GROUNDWATER SAMPLE LOG SHEETS
LOW FLOW PURGE DATA SHEETS

1.478 Cond
7.70 DO
10.0 pH

DN 4248:4.4:28

EQUIPMENT CALIBRATION LOG

INSTRUMENT NAME/MODEL : see below

PROJECT NAME : SITE 46, FAC. 372, BP Wello

MANUFACTURER : see below

PROJECT NUMBER : N4248MW0 050 /22 & 225

CALIBRATION DATE	INITIAL SETTINGS	STANDARDS USED Lot # / Exp Date	INST. NAME (MODEL)	MANUFACTURER	FINAL SETTINGS	SIGNATURE	COMMENTS
9/23/02	100	00115-02	PID	PHOTOVAC	100	Alan L Pate	
9/23/02	1.409, 7.56, 10.0		YSI Meter	YSI, Inc	1.478, 7.70, 10.0		
9/23/02	1.409		YSI meter	YSI Inc	1.480		
	7.56				8.6		
	10.0				10.02		
9/23/02	1.52	PROVIDED	LAMOTTE (TURB METER)	LAMOTTE	1.0	Alan L Pate	
9/23/02	1.73	PROVIDED	LAMOTTE (TURB METER)	LAMOTTE	1.0	Alan L Pate	
9/24/02	100	00115-02	PID	PHOTOVAC	100	Alan L Pate	
9/24/02	1.30	PROVIDED	LAMOTTE (TURB METER)	LAMOTTE	1.0	Alan L Pate	
9/24/02	1.21	"	"	"	1.0	Alan L Pate	
9/24/02	1.30		YSI		1.476		
	8.51		YSI		7.70		
	10.0		YSI		10.0		
9/24/02	1.20		"		1.4		
	8.37		"		7.90		
	10.30		"		10.0		

CTO 248, 4.4

Tetra Tech NUS, Inc. **GROUNDWATER SAMPLE LOG SHEET**

Project Site Name: BP Wells, NASCF
Project No.: N4248MW0050 225, CTO 248

[ ] Domestic Well Data
[X] Monitoring Well Data
[ ] Other Well Type:
[ ] QA Sample Type:

Sample ID No.: CEF-BP-01S-03
Sample Location: CEF-BP-1S
Sampled By: MF
C.O.C. No.: 0297
Type of Sample:
MO [ ] Low Concentration
[X] High Concentration

SAMPLING DATA

	Color Visual	pH Standard	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/l	ORP mV	Other
Date: 9-24-02 Time: 0820								
Method: Low Flow Peristaltic	Clear	7.40	0.378	24.05	0.86	0.90	-172	

PURGE DATA

Date: 9-24-02	See Low Flow Purge Data Sheet
Method: Low Flow Peristaltic	
Air Monitor Reading (ppm): 0	
Well Casing Diameter: 2in	
Well Casing Material: PVC	
Total Well Depth (TD): 15 ft	
Static Water Level (WL): 5.2	
One Casing Volume(gal/L): 18L	
Start Purge (hrs): 0730	
End Purge (hrs): 0820	
Total Purge Time (min): 50 min	
Total Vol. Purged (gal/L): 18 L	

SAMPLE COLLECTION INFORMATION

Analysis	Preservative	Container Requirements	Collected
8260B: Total xylenes	HCl	3-40 ml vials	YES
8260B: 1,2,4-trimethylbenzene	HCl	3-40 ml vials	1
8260B: 1,3,5-trimethylbenzene	HCl	3-40 ml vials	
8260B: Ethylbenzene	HCl	3-40 ml vials	

OBSERVATIONS / NOTES

Air Monitor (ppm):
Background = 0.7
Borehole =
BZ = 1.3

Circle if Applicable:

MS/MSD	Duplicate ID No.: CEF-BP-D1-03	Signature(s): M Ferguson

Tetra Tech NUS, Inc.

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: Cecil Field - BP wells
PROJECT NUMBER: N4248MW0050

WELL ID.: CEF-BP-15-03
DATE: 9-24-02

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celsius)	ORP (mV)	Comments Volume
~~0725~~	5.2	—	—	—	—	—	—	—	0
0730	5.2	—	—	—	—	—	~~25.23~~	—	—
0735	5.2	400	7.81	0.400	5.1	1.50	25.23	-176	2
0740	5.2	400	7.59	0.394	5.1	0.51	25.23	-175	4
0745	**5.2**	**400**	**7.48**	**0.382**	**3.3**	**0.40**	**25.24**	**-172**	6
0750	5.2	400	7.37	0.303	4.0	0.33	25.24	-170	8
0755	5.2	400	7.33	0.303	0.85	0.50	25.09	-161	10
0800	5.2	400	7.34	0.313	0.81	1.24	24.84	-149	12
0805	5.2	400	7.50	0.320	0.95	1.31	24.83	-151	14
0810	5.2	400	7.34	0.334	1.0	0.68	24.83	-160	16
0815	5.2	400	7.40	0.378	0.86	0.90	24.85	-172	18
0820	Sampling	—	—	—	—	—	—	—	
~~0825~~ 0									

SIGNATURE(S): MGuguson

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: BP Wells, NASCF
Project No.: N4248MW0050 22S, CTO 248

[ ] Domestic Well Data
[X] Monitoring Well Data
[ ] Other Well Type:
[ ] QA Sample Type:

Sample ID No.: CEF-BP-02S-03
Sample Location: CEF-BP-2S
Sampled By: AP
C.O.C. No.: 0297
Type of Sample:
[X] Low Concentration
[ ] High Concentration

SAMPLING DATA

Date: 9/24/02 Time: 0825	Color Visual	pH Standard	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/l	ORP mV	Other
Method: Low Flow Peristaltic	Clear	7.29	0.003	26.21	2.4	7.80	101.3	—

PURGE DATA

Date: 9/24/02	See Low Flow Purge Data Sheet
Method: Low Flow Peristaltic	
Air Monitor Reading (ppm):	
Well Casing Diameter: 2"	
Well Casing Material: PVC	
Total Well Depth (TD): 19.7	
Static Water Level (WL): 5.60	
One Casing Volume(gal/L): 1.5	
Start Purge (hrs): 0740	
End Purge (hrs): 0825	
Total Purge Time (min): 45	
Total Vol. Purged (gal/L): 18.0	

SAMPLE COLLECTION INFORMATION

Analysis	Preservative	Container Requirements	Collected
8260B: Total xylenes, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, Ethylbenzene	HCl	3-40 ml vials	YES

OBSERVATIONS / NOTES

Air Monitor (ppm):
Background = 0.7
Borehole =
BZ = 3.7

14.70
5.60
9.10

9.10
6.17
6370
910
15470

321.50
3.74
1600
1050
450
3.6100

5.61
3
16.83L = 3 vol

1.5
3
4.5g = 3 vol

Circle if Applicable:

MS/MSD	Duplicate ID No.:
	None

Signature(s): Alan Pate

Tetra Tech NUS, Inc.

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: BP WELLS NAS CF
PROJECT NUMBER: N4248MW0050255

WELL ID.: CEF-BP-25
DATE: 9/24/02

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celsius)	ORP (mV)	Comments
0740	5.60	—	—	—	—	—	—		
0745	5.65	2.0 400	7.78	0.003	160	7.92	25.62	20.4	
0750	5.68	4.0 400	7.71	0.002	52.4	7.86	26.23	32.0	
0755	5.68	6.0 400	7.34	0.003	15.4	7.86	26.24	48.6	
0800	5.68	8.0 400	7.32	0.003	9.6	7.86	26.24	53.9	
0805	5.68	10.0 400	7.31	0.003	3.7	7.82	26.24	74.3	
0810	5.68	12.0 400	7.30	0.003	3.9	7.81	26.24	87.2	
0815	5.68	14.0 400	7.30	0.002	4.2	7.81	26.21	91.4	
0820	5.68	16.0 400	7.29	0.002	3.5	7.82	26.22	98.7	
0825	5.68	18.0 400	7.29	0.003	2.4	7.80	26.21	101.3	
	END PURGE START SAMPLE COLLECTION								

SIGNATURE(S): [illegible]

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: BP Wells, NASCF
Project No.: N4248MW0050 225, CTO 248

[ ] Domestic Well Data
[X] Monitoring Well Data
[ ] Other Well Type:
[ ] QA Sample Type:

Sample ID No.: CEF-BP-065-03
Sample Location: CEF-BP-65
Sampled By: MCA
C.O.C. No.: 0297
Type of Sample:
[X] Low Concentration
[ ] High Concentration

SAMPLING DATA

	Color Visual	pH Standard	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/l	ORP mV	Other
Date: 9-24-02 Time: 0915 Method: Low Flow Peristaltic	Clear	6.94	0.232	27.35	3.4	0.93	-100.7	

PURGE DATA

Date: 9-24-02	See Low Flow Purge Data Sheet
Method: Low Flow Peristaltic	
Air Monitor Reading (ppm): 0	
Well Casing Diameter: 2in	
Well Casing Material: PVC	
Total Well Depth (TD): 15ft	
Static Water Level (WL): 5.85	
One Casing Volume(gal/L): 6.0	
Start Purge (hrs): 0825	
End Purge (hrs): 0910	
Total Purge Time (min): 45	
Total Vol. Purged (gal/L): 18L	

SAMPLE COLLECTION INFORMATION

Analysis	Preservative	Container Requirements	Collected
8260B: Total xylenes	HCl	3-40 ml vials	Yes
8260B: 1,2,4-trimethylbenzene	HCl	3-40 ml vials	1
8260B: 1,3,5-trimethylbenzene	HCl	3-40 ml vials	
8260B: Ethylbenzene	HCl	3-40 ml vials	

OBSERVATIONS / NOTES

Air Monitor (ppm):
Background = 0.7
Borehole =
BZ = 10.2

Circle if Applicable:
MS/MSD
Same ID as sample
Duplicate ID No.:

Signature(s): MCAgnum

Tetra Tech NUS, Inc.

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: Cecil Field BP Wells
PROJECT NUMBER: N4248MW0050

WELL ID.: CEF-BP-65-03
DATE: 9-24-02

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celsius)	ORP (mV)	Comments
0825	5.85	—	—	—	—	—	—	—	—
0830	5.85	400	7.10	0.234	3.0	0.92	27.10	-46.2	2
0835	5.85	400	7.03	0.229	6.4	0.66	27.26	-57.6	4
0840	5.85	400	6.98	0.224	4.4	0.88	27.32	-94.7	6
0845	5.85	400	6.98	0.232	3.4	0.82	27.17	-107.1	8
0850	5.85	400	6.94	0.230	4.0	0.93	27.15	-114.9	10
0855	5.85	400	7.14	0.230	5.3	0.98	27.35	-113.6	12
0900	5.85	400	6.98	0.230	3.2	0.92	27.34	-132.1	14
0905	5.85	400	6.95	0.235	3.0	0.90	27.32	-120.1	16
0910	5.85	400	6.94	0.232	3.4	0.93	27.33	-100.7	18
0915	Sampling	—	—	—	—	—	—	—	—

SIGNATURE(S): MCFerguson

ATTACHMENT C

BASELINE LABORATORY REPORT FOR SEPTEMBER 2002 EVENT

Accutest Laboratories Southeast, Inc.
Analytical Narrative

Client:	Tetra Tech, NUS
Site:	NAS Cecil Field, CTO-248
Report Date:	October 23, 2002
Job Number:	F14729

This is a reissued report. Sample CEF-BP-01S-03 was inadvertently reported as sample CEF-BP-02S-03. After a conversation with Merv Dale this was discovered. This report contains the corrected sample information. We apologize for any confusion this may have caused.

3 samples were collected on September 24, 2002, and received on September 25, 2002.
Samples were properly cooled, preserved and intact. A listing of the Laboratory Sample ID, Client Sample ID, and dates of collection are presented in the Results Summary section of this report.
Per an e-mail and fax from Mervin Dale we were not to analyze sample CEF-BP-01S-03, even though it is listed on the chain of custody.

All method specified holding times, calibrations and quality control performance criteria were met.

Accutest Laboratories Southeast, Inc. certifies that this report meets the project requirements for analytical data produced for the samples as received at the Accutest Laboratories Southeast location as stated in the Analytical Task Order and the COC. In addition, Accutest Laboratories Southeast, Inc. certifies that data as reported meet the Data Quality Objectives for precision, accuracy and completeness as specified in the Accutest Laboratories Southeast, Inc. Quality Manual for other that conditions detailed above. ALSE routinely reports Organic target analytes down to 1/2 the Reporting Level. These positive results are flagged with a "J" qualifier. It is recommended by Accutest Laboratories Southeast, Inc. that this report is to be used in its entirety. Accutest Laboratories Southeast, Inc. is not responsible for any assumptions of data quality if partial data packages are used to interpret data. The Accutest Laboratories Southeast, Inc. Laboratory Director as verified by the signature on the front page has authorized release of this report.

Narrative prepared by:

Date: October 23, 2002

Sue O. Bell, Project Manager (signature on file)

Southeast ACCUTEST Laboratories

10/23/02

Technical Report for

Tetra Tech, NUS

NAS Cecil Field-CTO-248

N4248 WR#66 BP Wells

Accutest Job Number: F14729

Report to:

Total number of pages in report: 18

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference and/or state specific certification programs as applicable.

Harry Behzadi, Ph.D.
Laboratory Director

Certification: Florida DOH E83510

This report shall not be reproduced, except in its entirety, without the written approval of Accutest Laboratories.

Sample Summary

Tetra Tech, NUS

Job No: F14729

NAS Cecil Field-CTO-248
Project No: N4248 WR#66 BP Wells

Sample Number	Collected Date	Time By	Received	Matrix Code	Type	Client Sample ID
F14729-2	09/24/02	08:25 AP	09/25/02	AQ	Ground Water	CEF-BP-02S-03
F14729-3	09/24/02	09:15 AP	09/25/02	AQ	Ground Water	CEF-BP-06S-03
F14729-4	09/24/02	00:00 AP	09/25/02	AQ	Ground Water	CEF-BP-D1-03

Accutest Laboratories

Report of Analysis

Client Sample ID:	CEF-BP-02S-03		
Lab Sample ID:	F14729-2	Date Sampled:	09/24/02
Matrix:	AQ - Ground Water	Date Received:	09/25/02
Method:	SW846 8260B	Percent Solids:	n/a
Project:	NAS Cecil Field-CTO-248		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	B0011748.D	1	09/27/02	JG	n/a	n/a	VB516
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
100-41-4	Ethylbenzene	ND	1.0	0.70	ug/l	
95-63-6	1,2,4-Trimethylbenzene	ND	1.0	0.50	ug/l	
108-67-8	1,3,5-Trimethylbenzene	ND	1.0	0.50	ug/l	
1330-20-7	Xylene (total)	ND	3.0	1.0	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	100%		86-115%
17060-07-0	1,2-Dichloroethane-D4	102%		78-125%
2037-26-5	Toluene-D8	97%		87-113%
460-00-4	4-Bromofluorobenzene	100%		84-117%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	CEF-BP-06S-03		
Lab Sample ID:	F14729-3	Date Sampled:	09/24/02
Matrix:	AQ - Ground Water	Date Received:	09/25/02
Method:	SW846 8260B	Percent Solids:	n/a
Project:	NAS Cecil Field-CTO-248		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	B0011749.D	1	09/27/02	JG	n/a	n/a	VB516
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
100-41-4	Ethylbenzene	ND	1.0	0.70	ug/l	
95-63-6	1,2,4-Trimethylbenzene	ND	1.0	0.50	ug/l	
108-67-8	1,3,5-Trimethylbenzene	ND	1.0	0.50	ug/l	
1330-20-7	Xylene (total)	ND	3.0	1.0	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	99%		86-115%
17060-07-0	1,2-Dichloroethane-D4	101%		78-125%
2037-26-5	Toluene-D8	98%		87-113%
460-00-4	4-Bromofluorobenzene	99%		84-117%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	CEF-BP-D1-03		
Lab Sample ID:	F14729-4	Date Sampled:	09/24/02
Matrix:	AQ - Ground Water	Date Received:	09/25/02
Method:	SW846 8260B	Percent Solids:	n/a
Project:	NAS Cecil Field-CTO-248		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	B0011747.D	10	09/27/02	JG	n/a	n/a	VB516
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
100-41-4	Ethylbenzene	131	10	7.0	ug/l	
95-63-6	1,2,4-Trimethylbenzene	507	10	5.0	ug/l	
108-67-8	1,3,5-Trimethylbenzene	200	10	5.0	ug/l	
1330-20-7	Xylene (total)	1240	30	10	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	96%		86-115%
17060-07-0	1,2-Dichloroethane-D4	101%		78-125%
2037-26-5	Toluene-D8	94%		87-113%
460-00-4	4-Bromofluorobenzene	96%		84-117%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

GC/MS Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries
- Instrument Performance Checks (BFB)
- Internal Standard Area Summaries
- Surrogate Recovery Summaries
- Initial and Continuing Calibration Summaries

Blank Spike Summary

Job Number: F14729
Account: TETRPAPT Tetra Tech. NUS
Project: NAS Cecil Field-CTO-248

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VB516-BS	B0011727.D	1	09/27/02	JG	n/a	n/a	VB516

The QC reported here applies to the following samples: Method: SW846 8260B

F14729-2, F14729-3, F14729-4

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
100-41-4	Ethylbenzene	25	22.8	91	76-117
95-63-6	1,2,4-Trimethylbenzene	25	23.6	94	76-124
108-67-8	1,3,5-Trimethylbenzene	25	22.8	91	75-121
1330-20-7	Xylene (total)	75	71.3	95	78-120

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	100%	86-115%
17060-07-0	1,2-Dichloroethane-D4	100%	78-125%
2037-26-5	Toluene-D8	97%	87-113%
460-00-4	4-Bromofluorobenzene	95%	84-117%

Method Blank Summary

Job Number: F14729
Account: TETRPAPT Tetra Tech, NUS
Project: NAS Cecil Field-CTO-248

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VB516-MB	B0011728.D	1	09/27/02	JG	n/a	n/a	VB516

The QC reported here applies to the following samples: Method: SW846 8260B

F14729-2, F14729-3, F14729-4

CAS No.	Compound	Result	RL	Units	Q
100-41-4	Ethylbenzene	ND	2.0	ug/l	
95-63-6	1,2,4-Trimethylbenzene	ND	2.0	ug/l	
108-67-8	1,3,5-Trimethylbenzene	ND	2.0	ug/l	
1330-20-7	Xylene (total)	ND	6.0	ug/l	

CAS No.	Surrogate Recoveries		Limits
1868-53-7	Dibromofluoromethane	100%	86-115%
17060-07-0	1,2-Dichloroethane-D4	99%	78-125%
2037-26-5	Toluene-D8	97%	87-113%
460-00-4	4-Bromofluorobenzene	99%	84-117%

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: F14729
Account: TETRPAPT Tetra Tech, NUS
Project: NAS Cecil Field-CTO-248

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
F14594-9MS	B0011736.D	1	09/27/02	JG	n/a	n/a	VB516
F14594-9MSD	B0011737.D	1	09/27/02	JG	n/a	n/a	VB516
F14594-9 [a]	B0011731.D	1	09/27/02	JG	n/a	n/a	VB516

The QC reported here applies to the following samples: Method: SW846 8260B

F14729-2, F14729-3, F14729-4

CAS No.	Compound	F14594-9 ug/l	Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
100-41-4	Ethylbenzene	ND		25	22.6	90	23.1	92	2	72-119/7
95-63-6	1,2,4-Trimethylbenzene	ND		25	23.1	92	23.9	96	3	71-124/8
108-67-8	1,3,5-Trimethylbenzene	ND		25	21.8	87	23.0	92	5	71-119/7
1330-20-7	Xylene (total)	ND		75	70.1	93	72.1	96	3	73-123/8

CAS No.	Surrogate Recoveries	MS	MSD	F14594-9	Limits
1868-53-7	Dibromofluoromethane	100%	101%	99%	86-115%
17060-07-0	1,2-Dichloroethane-D4	105%	107%	100%	78-125%
2037-26-5	Toluene-D8	97%	96%	98%	87-113%
460-00-4	4-Bromofluorobenzene	92%	93%	99%	84-117%

(a) Sample was not preserved to a pH < 2; reported results are considered minimum values.

Instrument Performance Check (BFB)

Job Number: F14729
Account: TETRPAPT Tetra Tech, NUS
Project: NAS Cecil Field-CTO-248

Sample:	VB516-BFB	Injection Date:	09/27/02
Lab File ID:	B0011725.D	Injection Time:	10:27
Instrument ID:	GCMSB		

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
50	15.0 - 40.0% of mass 95	14740	20.8		Pass
75	30.0 - 60.0% of mass 95	33370	47.1		Pass
95	Base peak, 100% relative abundance	70781	100.0		Pass
96	5.0 - 9.0% of mass 95	4954	7.0		Pass
173	Less than 2.0% of mass 174	173	0.24	(0.29) [a]	Pass
174	50.0 - 100.0% of mass 95	60266	85.1		Pass
175	5.0 - 9.0% of mass 174	3858	5.5	(6.4) [a]	Pass
176	95.0 - 101.0% of mass 174	58650	82.9	(97.3) [a]	Pass
177	5.0 - 9.0% of mass 176	3515	5.0	(6.0) [b]	Pass

(a) Value is % of mass 174
(b) Value is % of mass 176

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
VB516-CC513	B0011726.D	09/27/02	10:43	00:16	Continuing cal 40PPB
VB516-BS	B0011727.D	09/27/02	11:17	00:50	Blank Spike
VB516-MB	B0011728.D	09/27/02	11:45	01:18	Method Blank
ZZZZZZ	B0011729.D	09/27/02	12:16	01:49	(unrelated sample)
ZZZZZZ	B0011730.D	09/27/02	12:44	02:17	(unrelated sample)
F14594-9	B0011731.D	09/27/02	13:12	02:45	(used for QC only; not part of job F14729)
ZZZZZZ	B0011732.D	09/27/02	13:40	03:13	(unrelated sample)
ZZZZZZ	B0011733.D	09/27/02	14:08	03:41	(unrelated sample)
ZZZZZZ	B0011734.D	09/27/02	14:37	04:10	(unrelated sample)
ZZZZZZ	B0011735.D	09/27/02	15:04	04:37	(unrelated sample)
F14594-9MS	B0011736.D	09/27/02	15:33	05:06	Matrix Spike
F14594-9MSD	B0011737.D	09/27/02	16:01	05:34	Matrix Spike Duplicate
VB527-BS	B0011738.D	09/27/02	16:29	06:02	Blank Spike
VB531-BS	B0011738.D	09/27/02	16:29	06:02	Blank Spike
VB527-MB	B0011739.D	09/27/02	17:05	06:38	Method Blank
VB531-MB	B0011739.D	09/27/02	17:05	06:38	Method Blank
ZZZZZZ	B0011740.D	09/27/02	17:33	07:06	(unrelated sample)
ZZZZZZ	B0011741.D	09/27/02	18:04	07:37	(unrelated sample)
ZZZZZZ	B0011743.D	09/27/02	19:00	08:33	(unrelated sample)
ZZZZZZ	B0011744.D	09/27/02	19:29	09:02	(unrelated sample)
ZZZZZZ	B0011745.D	09/27/02	19:57	09:30	(unrelated sample)
F14729-4	B0011747.D	09/27/02	20:59	10:32	CEF-BP-D1-03
F14729-2	B0011748.D	09/27/02	21:27	11:00	CEF-BP-02S-03
F14729-3	B0011749.D	09/27/02	21:55	11:28	CEF-BP-06S-03

Instrument Performance Check (BFB)

Job Number: F14729
Account: TETRPAPT Tetra Tech, NUS
Project: NAS Cecil Field-CTO-248

Sample:	VB513-BFB	Injection Date:	09/23/02
Lab File ID:	B0011664.D	Injection Time:	15:38
Instrument ID:	GCMSB		

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
50	15.0 - 40.0% of mass 95	10186	21.7		Pass
75	30.0 - 60.0% of mass 95	24232	51.7		Pass
95	Base peak, 100% relative abundance	46850	100.0		Pass
96	5.0 - 9.0% of mass 95	3064	6.5		Pass
173	Less than 2.0% of mass 174	245	0.52	(0.64) [a]	Pass
174	50.0 - 100.0% of mass 95	38389	81.9		Pass
175	5.0 - 9.0% of mass 174	2584	5.5	(6.7) [a]	Pass
176	95.0 - 101.0% of mass 174	37114	79.2	(96.7) [a]	Pass
177	5.0 - 9.0% of mass 176	2407	5.1	(6.5) [b]	Pass

(a) Value is % of mass 174
(b) Value is % of mass 176

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
VB513-IC513	B0011665.D	09/23/02	16:03	00:25	Initial cal 1PPB
VB513-IC513	B0011666.D	09/23/02	16:31	00:53	Initial cal 5PPB
VB513-IC513	B0011667.D	09/23/02	17:00	01:22	Initial cal 20PPB
VB513-ICC513	B0011668.D	09/23/02	17:28	01:50	Initial cal 40PPB
VB513-IC513	B0011669.D	09/23/02	17:56	02:18	Initial cal 70PPB
VB513-IC513	B0011670.D	09/23/02	18:24	02:46	Initial cal 100PPB

Volatile Internal Standard Area Summary

Job Number: F14729
Account: TETRPAPT Tetra Tech, NUS
Project: NAS Cecil Field-CTO-248

Check Std:	VB516-CC513	Injection Date:	09/27/02
Lab File ID:	B0011726.D	Injection Time:	10:43
Instrument ID:	GCMSB	Method:	SW846 8260B

	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT
Check Std	1338816	10.06	1329746	13.32	841724	15.87
Upper Limit [a]	2677632	10.56	2659492	13.82	1683448	16.37
Lower Limit [b]	669408	9.56	664873	12.82	420862	15.37

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT
VB516-BS	1354474	10.06	1320490	13.32	814815	15.87
VB516-MB	1315287	10.06	1268798	13.32	685170	15.87
ZZZZZZ	1280422	10.06	1233283	13.32	661894	15.87
ZZZZZZ	1250671	10.06	1200468	13.32	662215	15.87
F14594-9	1243511	10.06	1195201	13.32	653133	15.87
ZZZZZZ	1148231	10.06	1131418	13.32	613676	15.87
ZZZZZZ	1137458	10.06	1112824	13.32	595860	15.87
ZZZZZZ	1137194	10.06	1103698	13.32	592819	15.87
ZZZZZZ	1147638	10.06	1115540	13.32	600378	15.87
F14594-9MS	1214432	10.06	1229018	13.32	782077	15.87
F14594-9MSD	1238087	10.06	1244125	13.32	778171	15.87
VB527-BS	1503288	10.06	1448827	13.32	886751	15.87
VB531-BS	1503288	10.06	1448827	13.32	886751	15.87
VB527-MB	1536287	10.06	1422888	13.32	806766	15.87
VB531-MB	1536287	10.06	1422888	13.32	806766	15.87
ZZZZZZ	1468512	10.06	1381394	13.32	835240	15.87
ZZZZZZ	1316710	10.06	1239142	13.32	674230	15.87
ZZZZZZ	1261361	10.06	1212867	13.32	666523	15.87
ZZZZZZ	1198175	10.06	1168482	13.32	639851	15.87
ZZZZZZ	1110477	10.06	1084506	13.32	579828	15.87
F14729-4	1253241	10.06	1265643	13.32	746204	15.87
F14729-2	1233193	10.06	1197404	13.32	655817	15.87
F14729-3	1247903	10.06	1197773	13.32	647182	15.87

IS 1 = Fluorobenzene
IS 2 = Chlorobenzene-D5
IS 3 = 1,4-Dichlorobenzene-d4

(a) Upper Limit = + 100% of check standard area; Retention time + 0.5 minutes.
(b) Lower Limit = -50% of check standard area; Retention time -0.5 minutes.

Volatile Surrogate Recovery Summary

Job Number: F14729
Account: TETRPAPT Tetra Tech, NUS
Project: NAS Cecil Field-CTO-248

Method: SW846 8260B Matrix: AQ

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1	S2	S3	S4
F14729-2	B0011748.D	100.0	102.0	97.0	100.0
F14729-3	B0011749.D	99.0	101.0	98.0	99.0
F14729-4	B0011747.D	96.0	101.0	94.0	96.0
F14594-9MS	B0011736.D	100.0	105.0	97.0	92.0
F14594-9MSD	B0011737.D	101.0	107.0	96.0	93.0
VB516-BS	B0011727.D	100.0	100.0	97.0	95.0
VB516-MB	B0011728.D	100.0	99.0	97.0	99.0

Surrogate Compounds	Recovery Limits
S1 = Dibromofluoromethane	86-115%
S2 = 1,2-Dichloroethane-D4	78-125%
S3 = Toluene-D8	87-113%
S4 = 4-Bromofluorobenzene	84-117%

Initial Calibration Summary

Job Number: F14729
Account: TETRPAPT Tetra Tech, NUS
Project: NAS Cecil Field-CTO-248

Sample: VB513-ICC513
Lab FileID: B0011668.D

Response Factor Report MSVOA4

Method : C:\MSDCHEM\1\METHODS\8260A.M (RTE Integrator)
Title : EPA 624 & SWA 5030B/8260B
Last Update : Tue Sep 24 16:34:36 2002
Response via : Initial Calibration

Calibration Files
1 =B0011665.D 2 =B0011666.D 3 =B0011667.D
4 =B0011668.D 5 =B0011669.D 6 =B0011670.D

		Compound	1	2	3	4	5	6	Avg	%RSD
1)	I	Fluorobenzene	----------	----------	----------	ISTD	----------	----------	----------	
2)		Dichlorodifluoromet	0.384	0.411	0.434	0.429	0.419	0.412	0.415	4.28
3)	P	Chloromethane	0.401	0.471	0.450	0.435	0.436	0.416	0.435	5.71
4)	C	Vinyl Chloride	0.299	0.360	0.347	0.348	0.345	0.336	0.339	6.25
5)		Bromomethane	0.183	0.198	0.192	0.193	0.195	0.188	0.192	2.79
6)		Chloroethane	0.145	0.174	0.170	0.165	0.168	0.162	0.164	6.14
7)		Trichlorofluorometh	0.308	0.395	0.402	0.401	0.420	0.415	0.390	10.53
8)		Ethyl Ether	0.212	0.242	0.246	0.249	0.252	0.261	0.244	6.88
9)		Acrolein	0.012	0.015	0.015	0.016	0.018	0.018	0.016	13.68
10)	C	1,1-Dichloroethene	0.448	0.557	0.540	0.533	0.547	0.547	0.529	7.62
11)		Freon 113	0.226	0.235	0.225	0.220	0.219	0.212	0.223	3.54
12)		Acetone		0.080	0.079	0.076	0.078	0.077	0.078	2.00
13)		Iodomethane	0.256	0.373	0.309	0.368	0.378	0.387	0.345	14.99
14)		Methyl acetate	0.174	0.193	0.196	0.191	0.200	0.194	0.191	4.64
15)		Carbon Disulfide		0.900	0.788	0.760	0.767	0.761	0.795	7.49
16)		Methylene Chloride		0.586	0.559	0.535	0.543	0.530	0.551	4.08
17)		Tert Butyl Alcohol		0.018	0.020	0.020	0.022	0.022	0.021	8.70
18)		trans-1,2-Dichloroe	0.456	0.501	0.505	0.498	0.504	0.505	0.495	3.90
19)		Acrylonitrile	0.060	0.066	0.074	0.073	0.076	0.075	0.071	8.99
20)		Methyl Tert Butyl E	0.616	0.659	0.704	0.694	0.702	0.733	0.685	6.06
21)		Hexane	0.398	0.330	0.345	0.338	0.335	0.339	0.347	7.32
22)	P	1,1-Dichloroethane	0.595	0.652	0.645	0.630	0.645	0.638	0.634	3.23
23)		ETBE	0.797	0.878	0.932	0.938	0.953	0.978	0.913	7.20
24)		Vinyl acetate	0.322	0.480	0.471	0.479	0.501	0.488	0.457	14.68
25)		Di-isopropyl ether	1.067	1.202	1.229	1.205	1.235	1.210	1.192	5.23
26)		2,2-Dichloropropane	0.293	0.344	0.327	0.335	0.334	0.326	0.326	5.36
27)		cis-1,2-Dichloroeth	0.323	0.335	0.335	0.331	0.338	0.332	0.332	1.53
28)		2-Butanone	0.098	0.113	0.121	0.117	0.122	0.118	0.115	7.92
29)		Bromochloromethane	0.130	0.149	0.154	0.148	0.152	0.151	0.147	6.00
30)	C	Chloroform	0.686	0.660	0.618	0.604	0.615	0.608	0.632	5.23
31)		Tetrahydrofuran	0.054	0.076	0.074	0.072	0.076	0.074	0.071	11.87
32)		1,1,1-Trichloroetha	0.460	0.479	0.477	0.467	0.481	0.478	0.474	1.76
33)	S	Dibromofluoromethan	0.300	0.294	0.295	0.292	0.293	0.290	0.294	1.17
34)		Cyclohexane	0.486	0.559	0.555	0.550	0.558	0.550	0.543	5.16
35)		1,1-Dichloropropene	0.382	0.405	0.412	0.409	0.423	0.422	0.409	3.60
36)		Carbon Tetrachlorid	0.340	0.349	0.369	0.383	0.407	0.416	0.377	8.11
37)	S	1,2-Dichloroethane-	0.324	0.326	0.334	0.321	0.322	0.324	0.325	1.49
38)		TAME	0.638	0.726	0.749	0.759	0.787	0.784	0.740	7.43
39)		Benzene	1.254	1.276	1.232	1.210	1.219	1.185	1.229	2.65
40)		1,2-Dichloroethane	0.606	0.513	0.492	0.473	0.494	0.488	0.511	9.43
41)		Trichloroethene	0.314	0.336	0.326	0.325	0.333	0.332	0.328	2.34
42)		Methylcyclohexane	0.428	0.403	0.410	0.408	0.413	0.420	0.414	2.17
43)	C	1,2-Dichloropropane	0.355	0.358	0.358	0.357	0.367	0.362	0.360	1.24
44)		Dibromomethane	0.199	0.192	0.199	0.191	0.196	0.196	0.195	1.73
45)		1,4-Dioxane		0.002	0.002	0.002	0.002	0.002	0.002	13.50
46)		Bromodichloromethan	0.426	0.422	0.436	0.438	0.454	0.454	0.438	3.10

Initial Calibration Summary

Job Number: F14729
Account: TETRPAPT Tetra Tech, NUS
Project: NAS Cecil Field-CTO-248

Sample: VB513-ICC513
Lab FileID: B0011668.D

47)		2-Nitropropane	0.054	0.061	0.069	0.073	0.078	0.077	0.069	13.42
48)		2-Chloroethyl vinyl		0.122	0.143	0.146	0.154	0.150	0.143	8.61
49)		4-Methyl-2-pentanon	0.210	0.243	0.281	0.275	0.284	0.270	0.261	11.12
50)		cis-1,3-Dichloropro	0.458	0.449	0.485	0.496	0.522	0.531	0.490	6.76
51)	I	Chlorobenzene-d5	----------ISTD----------							
52)	S	Toluene-d8	1.173	1.176	1.153	1.150	1.143	1.178	1.162	1.30
53)	C	Toluene	1.541	1.496	1.428	1.417	1.434	1.440	1.459	3.33
54)		trans-1,3-Dichlorop	0.382	0.370	0.426	0.452	0.483	0.502	0.436	12.23
55)		1,1,2-Trichloroetha	0.238	0.251	0.243	0.243	0.245	0.245	0.244	1.79
56)		Tetrachloroethene	0.355	0.380	0.359	0.350	0.354	0.357	0.359	2.97
57)		2-hexanone	0.142	0.164	0.189	0.190	0.199	0.195	0.180	12.52
58)		1,3-Dichloropropane	0.443	0.505	0.501	0.495	0.502	0.507	0.492	4.98
59)		Dibromochloromethan	0.288	0.289	0.308	0.321	0.339	0.348	0.316	7.90
60)		1,2-Dibromoethane	0.275	0.281	0.288	0.289	0.299	0.306	0.290	3.89
61)		1-Chlorohexane	0.380	0.409	0.422	0.421	0.436	0.439	0.418	5.11
62)	P	Chlorobenzene	1.013	1.002	0.964	0.937	0.956	0.945	0.970	3.21
63)		1,1,1,2-Tetrachloro	0.367	0.348	0.351	0.361	0.374	0.383	0.364	3.66
64)	C	Ethylbenzene	1.611	1.630	1.629	1.613	1.639	1.638	1.627	0.75
65)		m,p-Xylene	1.194	1.270	1.268	1.252	1.274	1.262	1.253	2.39
66)		o-Xylene	1.211	1.281	1.313	1.317	1.331	1.325	1.296	3.49
67)		Styrene	0.791	0.932	0.992	0.990	1.010	1.004	0.953	8.85
68)	P	Bromoform	0.156	0.151	0.169	0.181	0.197	0.205	0.177	12.42
69)	I	1,4-Dichlorobenzene-d	----------ISTD----------							
70)		Isopropylbenzene	2.554	2.598	2.520	2.482	2.542	2.512	2.535	1.58
71)		Cyclohexanone		0.018	0.014	0.014	0.015	0.015	0.015	9.73
72)	S	4-Bromofluorobenzen	1.010	0.981	0.954	0.944	0.944	0.949	0.964	2.75
73)		Bromobenzene	0.828	0.788	0.741	0.709	0.714	0.699	0.747	6.87
74)	P	1,1,2,2-Tetrachloro	0.673	0.626	0.599	0.584	0.603	0.590	0.613	5.36
75)		trans-1,4-Dichloro-	0.074	0.017	0.021	0.028	0.045	0.055	0.040	55.39
76)		1,2,3-Trichloroprop	0.164	0.170	0.174	0.164	0.172	0.166	0.168	2.49
77)		n-Propylbenzene	3.237	3.303	3.213	3.127	3.208	3.132	3.204	2.07
78)		2-Chlorotoluene	2.447	2.399	2.297	2.191	2.244	2.197	2.296	4.64
79)		4-Chlorotoluene	2.112	2.120	2.035	2.030	2.109	2.081	2.081	1.92
80)		1,3,5-Trimethylbenz	2.152	2.192	2.190	2.144	2.185	2.146	2.168	1.06
81)		sec-Butylbenzene	2.725	2.520	2.586	2.556	2.626	2.578	2.598	2.74
82)		1,3-Dichlorobenzene	1.508	1.377	1.353	1.334	1.364	1.352	1.381	4.60
83)		4-Isopropyltoluene	1.936	2.005	2.092	2.066	2.145	2.129	2.062	3.86
84)		1,4-Dichlorobenzene	1.668	1.433	1.399	1.355	1.398	1.383	1.439	7.99
85)		tert-Butylbenzene	1.369	1.316	1.305	1.298	1.336	1.333	1.326	1.95
86)		Benzyl Chloride	0.587	0.489	0.708	0.827	0.931	0.965	0.751	25.38
87)		n-Butylbenzene	1.958	1.851	1.953	1.963	2.046	2.034	1.967	3.55
88)		1,2-Dichlorobenzene	1.418	1.313	1.303	1.266	1.301	1.282	1.314	4.10
89)		1,2,4-Trimethylbenz	2.016	2.223	2.245	2.216	2.300	2.277	2.213	4.60
90)		1,2-Dibromo-3-Chlor	0.117	0.091	0.088	0.087	0.095	0.095	0.096	11.54
91)		1,2,4-Trichlorobenz	0.873	0.611	0.647	0.675	0.717	0.718	0.707	12.94
92)		Hexachlorobutadiene		0.317	0.310	0.309	0.311	0.311	0.312	1.02
93)		Naphthalene		1.123	1.248	1.350	1.444	1.472	1.327	10.85
94)		1,2,3-Trichlorobenz		0.519	0.558	0.586	0.608	0.614	0.577	6.80

Average % RSD = 6.5

(#) = Out of Range

8260A.M Wed Sep 25 17:12:01 2002 RPT1

Continuing Calibration Summary

Job Number: F14729
Account: TETRPAPT Tetra Tech, NUS
Project: NAS Cecil Field-CTO-248

Sample: VB516-CC513
Lab FileID: B0011726.D

Evaluate Continuing Calibration Report

Data File : C:\MSDCHEM\1\DATA\092702\B0011726.D
Acq On : 27 Sep 2002 10:43 am
Sample : CC513-40ppb
Misc : ms1756,vb516,,,,,
MS Integration Params: Rteint.p

Vial: 1
Operator: JuanG
Inst : MSVOA4
Multiplr: 1.00

Method : C:\MSDCHEM\1\METHODS\8260A.M (RTE Integrator)
Title : EPA 624 & SWA 5030B/8260B
Last Update : Mon Sep 30 10:29:43 2002
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	Fluorobenzene	1.000	1.000	0.0	96	0.00
2		Dichlorodifluoromethane	0.415	0.351	15.4	79	0.00
3	P	Chloromethane	0.435	0.396	9.0	88	0.00
4	C	Vinyl Chloride	0.339	0.289	14.7	80	0.00
5		Bromomethane	0.192	0.162	15.6	81	0.01
6		Chloroethane	0.164	0.160	2.4	94	0.00
7		Trichlorofluoromethane	0.390	0.392	-0.5	94	-0.01
8		Ethyl Ether	0.244	0.265	-8.6	103	0.00
9		Acrolein	0.016	0.016	0.0	97	0.00
10	C	1,1-Dichloroethene	0.529	0.490	7.4	89	0.00
11		Freon 113	0.223	0.216	3.1	95	0.00
12		Acetone	0.078	0.089	-14.1	112	0.00
13		Iodomethane	0.345	0.241	30.1#	63	0.00
14		Methyl acetate	0.191	0.220	-15.2	111	0.00
15		Carbon Disulfide	0.795	0.781	1.8	99	-0.01
16		Methylene Chloride	0.551	0.573	-4.0	103	0.06
17		Tert Butyl Alcohol	0.021	0.023	-9.5	110	0.00
18		trans-1,2-Dichloroethene	0.495	0.462	6.7	90	0.00
19		Acrylonitrile	0.071	0.085	-19.7	111	0.00
20		Methyl Tert Butyl Ether	0.685	0.726	-6.0	101	0.00
21		Hexane	0.347	0.316	8.9	90	0.00
22	P	1,1-Dichloroethane	0.634	0.609	3.9	93	0.00
23		ETBE	0.913	0.942	-3.2	97	0.00
24		Vinyl acetate	0.457	0.544	-19.0	109	0.00
25		Di-isopropyl ether	1.192	1.198	-0.5	96	0.00
26		2,2-Dichloropropane	0.326	0.292	10.4	84	0.00
27		cis-1,2-Dichloroethene	0.332	0.325	2.1	95	0.00
28		2-Butanone	0.115	0.136	-18.3	112	0.00
29		Bromochloromethane	0.147	0.154	-4.8	100	0.00
30	C	Chloroform	0.632	0.574	9.2	91	0.00
31		Tetrahydrofuran	0.071	0.082	-15.5	110	0.00
32		1,1,1-Trichloroethane	0.474	0.415	12.4	86	0.00
33	S	Dibromofluoromethane	0.294	0.294	0.0	97	0.00
34		Cyclohexane	0.543	0.509	6.3	89	0.00
35		1,1-Dichloropropene	0.409	0.374	8.6	88	0.00
36		Carbon Tetrachloride	0.377	0.337	10.6	85	0.00
37	S	1,2-Dichloroethane-d4	0.325	0.329	-1.2	99	0.00
38		TAME	0.740	0.783	-5.8	99	0.00
39		Benzene	1.229	1.161	5.5	92	0.00
40		1,2-Dichloroethane	0.511	0.482	5.7	98	0.00
41		Trichloroethene	0.328	0.301	8.2	89	0.00
42		Methylcyclohexane	0.414	0.375	9.4	88	0.00

Continuing Calibration Summary

Job Number: F14729
Account: TETRPAPT Tetra Tech, NUS
Project: NAS Cecil Field-CTO-248

Sample: VB516-CC513
Lab FileID: B0011726.D

43	C	1,2-Dichloropropane	0.360	0.349	3.1	94	0.00
44		Dibromomethane	0.195	0.200	-2.6	101	0.00
45		1,4-Dioxane	0.002	0.002	0.0	106	0.00
46		Bromodichloromethane	0.438	0.429	2.1	94	0.00
47		2-Nitropropane	0.069	0.077	-11.6	101	0.00
48		2-Chloroethyl vinyl ether	0.143	0.111	22.4#	73	0.00
49		4-Methyl-2-pentanone	0.261	0.315	-20.7#	110	0.00
50		cis-1,3-Dichloropropene	0.490	0.496	-1.2	96	0.00
51	I	Chlorobenzene-d5	1.000	1.000	0.0	102	0.00
52	S	Toluene-d8	1.162	1.123	3.4	99	0.00
53	C	Toluene	1.459	1.297	11.1	93	0.00
54		trans-1,3-Dichloropropene	0.436	0.453	-3.9	102	0.00
55		1,1,2-Trichloroethane	0.244	0.242	0.8	101	0.00
56		Tetrachloroethene	0.359	0.311	13.4	90	0.00
57		2-hexanone	0.180	0.210	-16.7	112	0.00
58		1,3-Dichloropropane	0.492	0.498	-1.2	102	0.00
59		Dibromochloromethane	0.316	0.322	-1.9	102	0.00
60		1,2-Dibromoethane	0.290	0.295	-1.7	104	0.00
61		1-Chlorohexane	0.418	0.375	10.3	91	0.00
62	P	Chlorobenzene	0.970	0.875	9.8	95	0.00
63		1,1,1,2-Tetrachloroethane	0.364	0.339	6.9	95	0.00
64	C	Ethylbenzene	1.627	1.469	9.7	92	0.00
65		m,p-Xylene	1.253	1.153	8.0	94	0.00
66		o-Xylene	1.296	1.198	7.6	92	0.00
67		Styrene	0.953	0.942	1.2	97	0.00
68	P	Bromoform	0.177	0.198	-11.9	111	0.00
69	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	109	0.00
70		Isopropylbenzene	2.535	2.105	17.0	93	0.00
71		Cyclohexanone	0.015	0.014	6.7	109	0.00
72	S	4-Bromofluorobenzene	0.964	0.894	7.3	104	0.00
73		Bromobenzene	0.747	0.632	15.4	98	0.00
74	P	1,1,2,2-Tetrachloroethane	0.613	0.583	4.9	109	0.00
75		trans-1,4-Dichloro-2-Butene	0.040	0.083	-107.5#	323#	0.00
76		1,2,3-Trichloropropane	0.168	0.165	1.8	110	0.00
77		n-Propylbenzene	3.204	2.715	15.3	95	0.00
78		2-Chlorotoluene	2.296	1.920	16.4	96	0.00
79		4-Chlorotoluene	2.081	1.766	15.1	95	0.00
80		1,3,5-Trimethylbenzene	2.168	1.870	13.7	95	0.00
81		sec-Butylbenzene	2.598	2.208	15.0	95	0.00
82		1,3-Dichlorobenzene	1.381	1.208	12.5	99	0.00
83		4-Isopropyltoluene	2.062	1.815	12.0	96	0.00
84		1,4-Dichlorobenzene	1.439	1.249	13.2	101	0.00
85		tert-Butylbenzene	1.326	1.091	17.7	92	0.00
86		Benzyl Chloride	0.751	0.818	-8.9	108	0.00
87		n-Butylbenzene	1.967	1.731	12.0	96	0.00
88		1,2-Dichlorobenzene	1.314	1.184	9.9	102	0.00
89		1,2,4-Trimethylbenzene	2.213	1.962	11.3	97	0.00
90		1,2-Dibromo-3-Chloropropane	0.096	0.089	7.3	112	0.00
91		1,2,4-Trichlorobenzene	0.707	0.656	7.2	106	0.00
92		Hexachlorobutadiene	0.312	0.272	12.8	96	0.00
93		Naphthalene	1.327	1.382	-4.1	112	0.00
94		1,2,3-Trichlorobenzene	0.577	0.577	0.0	108	0.00

Average % D = 9.9

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Continuing Calibration Summary

Job Number: F14729
Account: TETRPAPT Tetra Tech, NUS
Project: NAS Cecil Field-CTO-248

Sample: VB516-CC513
Lab FileID: B0011726.D

B0011668.D 8260A.M Mon Sep 30 18:02:38 2002 RPT1

DN4248:4.6:08

TETRA TECH NUS, INC. | **CHAIN OF CUSTODY** | **NUMBER** 0297 | **PAGE** 1 **OF** ____

PROJECT NO: N4248	**FACILITY:** BP Wells, NASCF	**PROJECT MANAGER** P. CALLAGAN	**PHONE NUMBER** 813 806 0202	**LABORATORY NAME AND CONTACT:** Accutest
SAMPLERS (SIGNATURE) Alan L Pate, MJ		**FIELD OPERATIONS LEADER** M. DALE	**PHONE NUMBER** 904 636 6125	**ADDRESS** 4405 VINELAND Rd SUITE C-15
		CARRIER/WAYBILL NUMBER Fedex 834707904287		**CITY, STATE** ORLANDO, FL 32811

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

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

DATE YEAR 2002	TIME	SAMPLE ID	LOCATION ID	TOP DEPTH (FT)	BOTTOM DEPTH (FT)	MATRIX (GW, SO, SW, SD, QC, ETC.)	COLLECTION METHOD GRAP (G) COMP (C)	No. OF CONTAINERS	TOTAL XYLENES (8260B)	1,2,4 TRIMETHYLBENZENE (8260B)	1,3,5 TRIMETHYLBENZENE (8260B)	ETHYLBENZENE (8260B)				COMMENTS
9/24	0820	~~CEF-BP-015-03~~	BP-015	0	15	GW	G	~~1~~ 3	X	X	X	X				Cool to 4°C
9/24	0825	CEF-BP-025-03	BP-025	0	14.7	GW	G	3	X	X	X	X				
9/24	0915	CEF-BP-065-03	BP-065	0	15	GW	G	9	X	X	X	X				N4248 WR66
9/24	0000	CEF-BP-D1-03	–			GW	G	3	X	X	X	X				

Do Not Analyze Sample CEF-BP-015-03 MWL

1. RELINQUISHED BY Alan L Pate	DATE 9/24/02	TIME 1630	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

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

4/02R
FORM NO. TtNUS-001

ATTACHMENT D

BASELINE FIELD DATA FOR OCTOBER 2002 EVENT:
FIELD CALIBRATION LOG
GROUNDWATER SAMPLE LOG SHEETS
LOW FLOW PURGE DATA SHEETS

DN 4248:4.4:53

EQUIPMENT CALIBRATION LOG

INSTRUMENT NAME/MODEL : see below

MANUFACTURER : see below

PROJECT NAME : BP Wells Baseline Sampling B. 860 AND Re-sample of 125.

PROJECT NUMBER : N4248MW0 050 225 N4093 LCO 050140

CALIBRATION DATE	INITIAL SETTINGS	STANDARDS USED	PROCEDURE	~~ADJUSTMENTS~~ INSTRUMENT MADE ACCURATE	FINAL SETTINGS	SIGNATURE	COMMENTS
10-3-02		1,409 µ/cm	Solinst 02F1223	YSI meter	-3.8	CM	
10/3/02	11	10	2020 Lamotte	1004-4798	10.0	JT	
10/3/02	99.7	100 ppm ZSU	Mini Rae 2000	01098	100 ppm	CM	

CTD 248, 4.4

DN 4248.4.4.33

Tetra Tech NUS, Inc. **GROUNDWATER SAMPLE LOG SHEET**

Project / Site: NAS Cecil Field
Project No.: N4248MW0050225

Sample ID No.: CEF-BP- 01S-03
Sample Location: CEF-BP- 01S

[X] Monitoring Well
[ ] Domestic Well
[ ] Other:

Sampler: JF/CM

SAMPLING DATA

	Color	pH S.U.	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/L	ORP mV	
Date: 10/3/02								
Time: 1125								
Method: Peristaltic	clear	6.31	347	26.03	0.24	0.05	-81.1	

PURGE DATA

Date:	10/3/02
Method:	Peristaltic
Monitor Reading (ppm):	477
Well Casing Diameter:	2-inch
Well Casing Material:	PVC
Total Well Depth (ft):	14.5
Static Water Level (ft):	5.55
One Casing Volume(gal/L):	5.6L
Start Purge (hrs):	1047
End Purge (hrs):	1122
Total Purge Time (min):	39
Total Vol. Purged (gal/L):	17.5

See Attached Low Flow Purge Data Sheet for Purge Data

SAMPLE COLLECTION INFORMATION

Analysis	Preservative	Container Requirements	Laboratory	Collected
Select VOCs* 8260B	none	3 40-ml teflon capped vials	Accutest	✓

OBSERVATIONS / NOTES

* = ethylbenzene, total xylenes, 1,2,4-trimethylbenzene, and 1,3,5-trimethylbenzene

Dedicated tubing in situ.

LAB INFO

LAB: Accutest
4405 Vineland Rd., C-15
Orlando, FL 32811

COC #: 0301

Check if Collected:

☐ MS / MSD ☐ DUPLICATE / ID No.: None

Signature(s):

Tetra Tech NUS, Inc.

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: NAS CECIL FIELD
PROJECT NUMBER: N4248MW0050225

WELL ID.: CEF-BP-01S
DATE: 10/3/02

Time (Hrs.)	Water Level (Ft. below TOC)	Cum.Vol. (liters)	Flow (mL/Min.)	pH (S.U.)	Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celsius)	ORP (mV)	Comments
1047	5.55	—	500	—	—	—	—	—	—	
1052	5.56	2.5	500	6.60	420	4.52	0.6	26.37	-73.9	
1057	5.56	5.0	500	6.41	421	3.39	0.08	26.60	-92.6	
1102	5.56	7.5	500	6.42	421	2.45	0.08	26.59	-93.3	
1107	5.56	10.0	500	6.39	371	1.29	0.06	26.04	-85.5	
1112	5.56	12.5	500	6.38	370	1.20	0.06	26.05	-85.4	
1117	5.56	15.0	500	6.31	350	0.38	0.05	26.03	-81.0	
1122	5.56	17.5	500	6.31	347	0.24	0.05	26.07	-81.1	
1125	Sample									

SIGNATURE(S): [illegible]

Tetra Tech NUS, Inc. GROUNDWATER SAMPLE LOG SHEET

Project / Site:	NAS Cecil Field	Sample ID No.:	CEF-BP- 02S-03A
Project No.:	N4248MW0050225	Sample Location:	CEF-BP- 02S

[X] Monitoring Well
[ ] Domestic Well
[ ] Other:

Sampler: JF/CM

SAMPLING DATA

Date: 10/3/02 Time: 1037	Color	pH S.U.	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/L	ORP mV	
Method: Peristaltic	clear	6.32	190	27.47	9.36	0.77	49.9	

PURGE DATA

Date:	10/3/02
Method:	Peristaltic
Monitor Reading (ppm):	2.9
Well Casing Diameter:	2-inch
Well Casing Material:	PVC
Total Well Depth (ft):	14.5
Static Water Level (ft):	5.95
One Casing Volume(gal/L):	5.6 L
Start Purge (hrs):	0954
End Purge (hrs):	1036
Total Purge Time (min):	40
Total Vol. Purged (gal/L):	17 L

See Attached Low Flow Purge Data Sheet for Purge Data

SAMPLE COLLECTION INFORMATION

Analysis	Preservative	Container Requirements	Laboratory	Collected
Select VOCs* 8260B	none	3 40-ml teflon capped vials	Accutest	✓

OBSERVATIONS / NOTES

* = ethylbenzene, total xylenes, 1,2,4-trimethylbenzene, and 1,3,5-trimethylbenzene

Dedicated tubing in situ.

LAB INFO

LAB: Accutest
4405 Vineland Rd., C-15
Orlando, FL 32811

COC #: 0301

Check if Collected:

☐ MS / MSD ☐ DUPLICATE / ID No.: None

Signature(s):

Tetra Tech NUS, Inc.

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: NAS CECIL FIELD
PROJECT NUMBER: N4248MW0050225

WELL ID.: CEF-BP-02S
DATE: 10/3/02

Time (Hrs.)	Water Level (Ft. below TOC)	Cum.Vol. (liters)	Flow (mL/Min.)	pH (S.U.)	Cond. mS/cm (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celsius)	ORP (mV)	Comments
0954	5.95	–	400	–	–	–	–	–	–	
0959	5.96	2	400	6.60	196	130	4.30	27.73	73.9	
1004	5.96	4	400	6.41	185	37	1.39	27.46	63.9	
1009	5.96	6	400	6.41	185	28	1.34	27.44	64.0	
1014	5.96	8	400	6.35	187	21	1.11	27.48	60.7	
1019	5.96	10	400	6.32	188	19	1.10	27.47	56.4	
1024	5.96	12	400	6.33	190	10	0.91	27.45	58.7	
1029	5.96	14	400	6.33	187	9	0.84	27.47	53.0	
1034	5.96	16	400	6.32	189	9.88	0.77	27.47	50.0	
1036	5.96	17	400	6.32	190	9.36	0.77	27.47	49.9	
1037	SAMPLE									

SIGNATURE(S): [illegible]

ATTACHMENT E

BASELINE LABORATORY REPORT FOR OCTOBER 2002 EVENT

Tetra Tech NUS, Inc.

Internal Correspondence

TO: Mr. Paul Calligan

DATE: November 12, 2002

FROM: Michael T. Akers

CC: File

SUBJECT: Organic Data Validation – VOCs
CTO248 – NAS Cecil Field
SDG F14895

SAMPLES: 2/Aqueous

CEF-BP-01S-03 CEF-BP-02S-3A

OVERVIEW

The sample set for CTO248 SDG F14895; Naval Air Station Cecil Field, Jacksonville, Florida consists of two (2) aqueous environmental samples. The environmental samples were analyzed for Volatile Organic Compounds (VOCs) only.

The samples were collected by Tetra Tech NUS on October 3, 2002 and analyzed by Accutest Laboratories. All analyses were performed in accordance with Naval Facilities Engineering Service Center (NFESC) Quality Assurance/Quality Control (QA/QC) criteria and analyzed according to SW-846 Method 8260B (VOCs) analytical and reporting protocol. The data in this SDG was validated with regard to the following parameters:

* • Data Completeness
* • Holding Times
* • Laboratory method/field quality control blank results
* • Detection Limits

The symbol (*) indicates that all quality control criteria were met for this parameter.

Volatiles Fraction

All quality control criteria were met for this fraction.

Executive Summary

Laboratory performance: None.

Other factors affecting data quality: Sample names reported on laboratory names don't match the sample names listed on the chain-of-custody. CEF-BP-01S-3 is reported by the laboratory as CEF-BP-01S-3A and CEF-BP-02S-03A is reported by the laboratory as CEF-BP-02S-03. The laboratory was contacted and provided the corrected forms.

The data for these analyses were reviewed with reference to the EPA Functional Guidelines for Organic Data Validation (February, 1996), and the NFESC guidelines "Navy Installation Restoration Chemical Data Quality Manual" (September, 1999). The text of the report has been formulated to address only those problems affecting data quality.

"I attest that the data referenced herein was validated according to the agreed upon validation criteria as specified in the NFESC Guidelines and the Quality Assurance Project Plan (QAPP)."

Michael T. Akers
Project Chemist
Tetra Tech NUS, Inc.

PROJ_NO: 4248

SDG: F14895 MEDIA: WATER DATA FRACTION: OV

nsample	CEF-BP-01S-03
samp_date	10/3/2002
lab_id	F14895-1
qc_type	NM
units	UG/L
Pct_Solids	0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
1,2,4-TRIMETHYLBENZENE	262		
1,3,5-TRIMETHYLBENZENE	5	U	
ETHYLBENZENE	117		
TOTAL XYLENES	658		

nsample	CEF-BP-02S-3A
samp_date	10/3/2002
lab_id	F14895-2
qc_type	NM
units	UG/L
Pct_Solids	0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
1,2,4-TRIMETHYLBENZENE	1	U	
1,3,5-TRIMETHYLBENZENE	1	U	
ETHYLBENZENE	1	U	
TOTAL XYLENES	3	U	

F14895

HOLDING TIME
11/05/02

Units	Nsample	Lab Id	Qc Type	Sdg	Sort	Samp Date	Extr Date	Anal Date	SAMP_DATE TO EXTR_DATE	EXTR_DATE TO ANAL_DATE	SAMP_DATE TO ANAL_DATE
%	CEF-BP-01S-03	F14895-1	NORMAL	F14895	OV	10/03/02	/ /	10/16/02	0	0	13
%	CEF-BP-02S-3A	F14895-2	NORMAL	F14895	OV	10/03/02	/ /	10/16/02	0	0	13
%	F14933-5MS	F14933-5MS	MS	F14895	OV	10/16/02	/ /	10/16/02	0	0	0
%	F14933-5MSD	F14933-5MSD	MSD	F14895	OV	10/16/02	/ /	10/16/02	0	0	0
UG/L	VBLK1	VC558-MB	M_BLANK	F14895	OV	10/16/02	/ /	10/16/02	0	0	0
%	VC558-BS	VC558-BS	BSP	F14895	OV	10/16/02	/ /	10/16/02	0	0	0

Accutest Laboratories

Sample Summary

Tetra Tech, NUS

NAS Cecil Field-CTO-248
Project No: N4248-WR66

Job No: F14895

Sample Number	Collected Date	Time By	Received	Matrix Code	Matrix Type	Client Sample ID
F14895-1	10/03/02	11:25 CM	10/04/02	AQ	Ground Water	CEF-BP-01S-03
F14895-2	10/03/02	10:37 CM	10/04/02	AQ	Ground Water	CEF-BP-02S-3A

Accutest Laboratories

Report of Analysis

Client Sample ID:	CEF-BP-01S-03		
Lab Sample ID:	F14895-1		
Matrix:	AQ - Ground Water	**Date Sampled:**	10/03/02
Method:	SW846 8260B	**Date Received:**	10/04/02
Project:	NAS Cecil Field-CTO-248	**Percent Solids:**	n/a

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	C0012591.D	5	10/16/02	JG	n/a	n/a	VC558
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
100-41-4	Ethylbenzene	117	5.0	3.5	ug/l	
95-63-6	1,2,4-Trimethylbenzene	262	5.0	2.5	ug/l	
108-67-8	1,3,5-Trimethylbenzene	ND	5.0	2.5	ug/l	
1330-20-7	Xylene (total)	658	15	5.0	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	94%		86-115%
17060-07-0	1,2-Dichloroethane-D4	99%		78-125%
2037-26-5	Toluene-D8	107%		87-113%
460-00-4	4-Bromofluorobenzene	93%		84-117%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	CEF-BP-02S-3A		
Lab Sample ID:	F14895-2	**Date Sampled:**	10/03/02
Matrix:	AQ - Ground Water	**Date Received:**	10/04/02
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	NAS Cecil Field-CTO-248		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	C0012590.D	1	10/16/02	JG	n/a	n/a	VC558
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
100-41-4	Ethylbenzene	ND	1.0	0.70	ug/l	
95-63-6	1,2,4-Trimethylbenzene	ND	1.0	0.50	ug/l	
108-67-8	1,3,5-Trimethylbenzene	ND	1.0	0.50	ug/l	
1330-20-7	Xylene (total)	ND	3.0	1.0	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	96%		86-115%
17060-07-0	1,2-Dichloroethane-D4	100%		78-125%
2037-26-5	Toluene-D8	107%		87-113%
460-00-4	4-Bromofluorobenzene	97%		84-117%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

TETRA TECH NUS, INC.

CHAIN OF CUSTODY

NUMBER 0301

#14895

PAGE 1 OF 1

PROJECT NO: N4248

FACILITY: BP Wrbb NAS-CF

PROJECT MANAGER: PAUL CALLIGAN

PHONE NUMBER: 813 806 0202

LABORATORY NAME AND CONTACT: ACCUTEST Sue Bell

SAMPLERS (SIGNATURE): [signature] Charles [signature]

FIELD OPERATIONS LEADER: M. DALE

PHONE NUMBER: 904 636 6125

ADDRESS: 4405 Vineland Rd C-15

CARRIER/WAYBILL NUMBER: Fedex

CITY, STATE: ORLANDO FL 32811

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

TYPE OF ANALYSIS: SELECT VOCS + SW8260B

DATE YEAR 2002	TIME	SAMPLE ID	LOCATION ID	TOP DEPTH (FT)	BOTTOM DEPTH (FT)	MATRIX (GW, SO, SW, SD, QC, ETC.)	COLLECTION METHOD GRAP (G) COMP (C)	No. OF CONTAINERS	SELECT VOCS + SW8260B	COMMENTS
10/3	1037	CEF-BP-025-3A	MW-28	–	–	GW	G	3	X	Cool to 4°C
10/3	1125	CEF-BP-015-03	MW-13	–	–	GW	G	3	X	

N4248-WR66

* Total xylenes ethylbenzene 1,2,4-Trimethylbenzene and 1,3,5-trimethylbenzene

1. RELINQUISHED BY [signature]	DATE 10/3/02	TIME 1602	1. RECEIVED BY Fedex	DATE	TIME
2. RELINQUISHED BY Fedex	DATE 10/4/02	TIME 0830	2. RECEIVED BY [signature]	DATE 10/4/02	TIME 0830
3. RELINQUISHED BY	DATE	TIME	3. RECEIVED BY	DATE	TIME

COMMENTS

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

2.0°

000008

ATTACHMENT F

FIRST QUARTER FIELD DATA FOR EARLY JANUARY 2003:
FIELD CALIBRATION LOG
GROUNDWATER SAMPLE LOG SHEETS
LOW FLOW PURGE DATA SHEETS

Tetra Tech NUS, Inc.

DOCUMENTATION OF FIELD CALIBRATION

PROJECT NAME : NAS CECIL FIELD

SITE NAME: BP Wells Site

PROJECT No.: N4248

INSTRUMENT NAME/MODEL:

MANUFACTURER:

SERIAL NUMBER:

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		
1/6/03	YSI 556	02H0704	RLM		COND	1.507	1.413	1.413 COND	
			RLM		PH	4.08	4.00	4.0 PH	
			RLM		PH	10.05	10.00	10.00 pH	
			RLM		ORP	245.5	240.0	240 ORP	
	YSI 556	02H0167	RLM		COND	1.417	1.413	1.413 COND	
			RLM		PH	4.17	4.00	4.0 PH	
			RLM		PH	10.07	10.00	10.00 pH	
			RLM		ORP	245.9	240.0	240 ORP	
	PID	02617	RLM			85.6	101	100 PPM	ISOBUTYLENE
1/7/03	YSI 556	02H0704	RLM		COND	1.419	1.413	1.413 COND	
					pH	3.97	4.00	4.0 pH	
					pH	10.06	10.00	10.00 pH	
					ORP	236.6	240.0	240 ORP	
		02H0167			COND	1.444	1.413	1.413 COND	
					pH	3.96	4.00	4.0 pH	
					pH	10.06	10.00	10.00 pH	
					ORP	235.7	240.0	240 ORP	
	PID	02617				98.7	100	100 PPM	ISO [redacted]

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: **NASCF / BP Wells Site**
Project No.: **N4248**

[ ] Domestic Well Data
[X] Monitoring Well Data
[ ] Other Well Type:
[ ] QA Sample Type:

Sample ID No.: CEF-BP-GW-1S-04
Sample Location: CEF-BP-1S
Sampled By: D Levenette
C.O.C. No.: 392
Type of Sample:
[X] Low Concentration
[ ] High Concentration

SAMPLING DATA

	Color Visual	pH Standard	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/l	ORP mV	Other
Date: 1/6/03								
Time: 1115								
Method: Low Flow Peristaltic	CLEAR	6.42	0.364	20.25	1.15	0.62	-40.8	

PURGE DATA

	Time	pH	S.C.	Temp (°C)	Turbidity	DO	ORP	Other
Date: 1/6/03								
Method: Low Flow Peristaltic								
Monitor Reading (ppm): 0								
Well Casing Diameter: **2"**								
Well Casing Material: **PVC**								
Total Well Depth (TD): 13.95								
Static Water Level (WL): 6.00								
One ~~Casing Volume~~(gal/L): 2 - New Sop								
Start Purge (hrs): 1050								
End Purge (hrs): 1110								
Total Purge Time (min): 20								
Total Vol. Purged (gal/L): 7.00								

See Attached Low Flow Purge Data Sheet

SAMPLE COLLECTION INFORMATION

Analysis	Preservative	Container Requirements		Collected
SELECT VOCs SW846.8260B	HCL	3 - 40ml vials		✓

OBSERVATIONS / NOTES

Laboratory:

COC# 392

Circle if Applicable:

MS/MSD

Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: NACF BP Wells Site
PROJECT NUMBER: N4248

WELL ID.: CEF-BP-15
DATE: 1/6/03

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	Cum. Vol. (Liters)	pH (S.U.)	Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celsius)	ORP (mV)	Comments
1050	6.00	350	–	–	–	–	–	–	–	START PURGE
1055	6.02	350	1.75	6.48	0.416	2.96	0.46	19.98	-47.9	
1100	6.03	350	3.50	6.47	0.402	2.03	0.51	20.13	-46.9	
1105	6.03	350	5.25	6.45	0.398	1.73	0.42	20.26	-43.5	
1110	6.03	350	7.00	6.42	0.364	1.15	0.62	20.25	-40.8	
	SAMPLE TIME 11/5									

SIGNATURE(S): [signature]

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NASCF / BP Wells Site
Project No.: N4248

[ ] Domestic Well Data
[X] Monitoring Well Data
[ ] Other Well Type:
[ ] QA Sample Type:

Sample ID No.: CEF-BP-GW-25-04
Sample Location: CEF-BP-25
Sampled By: LM / PC
C.O.C. No.: 392
Type of Sample:
[X] Low Concentration
[ ] High Concentration

SAMPLING DATA

	Color Visual	pH Standard	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/l	ORP mV	Other
Date: 1/6/03								
Time: 1500								
Method: Low Flow Peristaltic	CLEAR	6.36	0.180	21.49	40.3	3.19	140.3	

PURGE DATA

	Time	pH	S.C.	Temp (°C)	Turbidity	DO	ORP	Other
Date: 1/6/03								
Method: Low Flow Peristaltic								
Monitor Reading (ppm): 0/0								
Well Casing Diameter: 2"								
Well Casing Material: PVC								
Total Well Depth (TD): 14.35								
Static Water Level (WL): 6.40								
One Casing Volume(gal/L): 2								
Start Purge (hrs): 1245								
End Purge (hrs): 1455								
Total Purge Time (min): 130								
Total Vol. Purged (gal/L): 25								

NEW 30F'S

See Attached Low Flow Purge Data Sheet

SAMPLE COLLECTION INFORMATION

Analysis	Preservative	Container Requirements	Collected
SELECT VOCs SW846, 8260B	HCL	3-40ml vials	X

OBSERVATIONS / NOTES

Laboratory:

COC# 392

Circle if Applicable:

MS/MSD

Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: NACF BP Wells Site
PROJECT NUMBER: N4248

WELL ID.: CEF-BP-2S
DATE: 1/6/03

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	Cum. Vol. (Liters)	pH (S.U.)	Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celsius)	ORP (mV)	Comments
1245	6.40	300	–	–	–	–	–	–	–	
1255	6.42	300	3	6.84	0.130	114	2.74	21.38	107.4	MILKY WHITE
1305	6.42	300	6	6.83	0.151	85.1	3.01	21.48	110.2	
1315	6.42	300	9	6.50	0.158	67.8	2.94	21.55	120.8	
1320	6.42	300	10.5	6.45	0.166	58.1	3.04	21.54	124.6	
1325	6.42	300	12	6.43	0.169	48.0	3.08	21.50	127.8	
1335	6.42	300	15	6.41	0.175	43.0	3.21	21.59	139.2	
1345	6.42	300	18	6.39	0.175	42.7	3.17	21.50	137.6	
1355	6.41	100	19	6.38	0.178	44.4	3.12	21.66	137.5	
1405	6.41	100	20	6.39	0.176	43.6	3.05	21.73	135.7	
1415	6.41	100	21	6.40	0.175	40.1	3.14	21.66	135.3	
1425	6.41	100	22	6.37	0.183	40.6	3.12	21.58	137.5	
1435	6.41	100	23	6.36	0.182	41.4	3.12	21.56	135.7	
1445	6.41	100	24	6.35	0.183	41.1	3.08	21.55	133.8	
1455	6.41	100	25	6.36	0.180	40.3	3.19	21.49	140.3	

SAMPLE TIME 1500

SIGNATURE(S): [illegible]

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: **NASCF / BP Wells Site**
Project No.: **N4248**

[ ] Domestic Well Data
[X] Monitoring Well Data
[ ] Other Well Type:
[ ] QA Sample Type:

Sample ID No.: CEF-BP-GW-6S-04
Sample Location: CEF-BP-6S
Sampled By: C. MIDDLETON
C.O.C. No.: 392
Type of Sample:
[X] Low Concentration
[ ] High Concentration

SAMPLING DATA

	Color Visual	pH Standard	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/l	ORP mV	Other
Date: 1/6/03								
Time: 1125								
Method: Low Flow Peristaltic	CLEAR	6.15	0.256	22.51	9.70	0.96	-128.7	

PURGE DATA

Date: 1/6/03	Time	pH	S.C.	Temp (°C)	Turbidity	DO	ORP	Other
Method: Low Flow Peristaltic								
Monitor Reading (ppm):								
Well Casing Diameter: **2"**								
Well Casing Material: **PVC**								
Total Well Depth (TD): 13.90								
Static Water Level (WL): 6.68								
One ~~Casing~~ Volume(gal/L): 2								
Start Purge (hrs): 1035								
End Purge (hrs): 1115								
Total Purge Time (min): 40								
Total Vol. Purged (gal/L): 12								

See Attached Low Flow Purge Data Sheet

NEW SOP'S FLOW THROUGH TUBING

SAMPLE COLLECTION INFORMATION

Analysis	Preservative	Container Requirements		Collected
SELECT VOCs SW846, 8260B	HCL	3-	40 ml Vials	X

OBSERVATIONS / NOTES

Laboratory:

COC # 392

Circle if Applicable:

MS/MSD

Duplicate ID No.: CEF-BP-GW-DUP1-04

Signature(s):

Tetra Tech NUS, Inc.

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: NACF BP Wells Site
PROJECT NUMBER: N4248

WELL ID.: CEF-BP-68
DATE: 1/6/03

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	Cum. Vol. (Liters)	pH (S.U.)	Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celsius)	ORP (mV)	Comments
1035	6.68	300	–	–	–	–	–	–	–	
1045	6.91	300	3	6.20	0.260	59.3	3.92	21.89	89.9	MILKY WHITE
1055	6.92	300	6	6.18	0.262	32.6	1.72	22.43	-26.2	
1105	6.92	300	9	6.19	0.258	19.2	1.56	22.48	-80.7	CLEAR
1115	6.92	300	12	6.15	0.256	9.70	0.96	22.51	-128.7	
END PURGE										

SIGNATURE(S): [illegible]

ATTACHMENT G

FIRST QUARTER LABORATORY REPORT FOR EARLY JANUARY 2003 EVENT

Southeast ACCUTEST Laboratories

01/17/03

Technical Report for

Tetra Tech, NUS

NAS Cecil Field-CTO-248

WR#N4248-WR301

Accutest Job Number: F16143

Report to:

Total number of pages in report: 32

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference and/or state specific certification programs as applicable.

Harry Behzadi, Ph.D.
Laboratory Director

Certifications: FL (DOH E83510), NC (573), NJ (FL002), MA (FL946), IA (366), LA (03051), KS (E-10327), SC, AK

This report shall not be reproduced, except in its entirety, without the written approval of Accutest Laboratories.

Sample Summary

Tetra Tech, NUS

Job No: F16143

NAS Cecil Field-CTO-248
Project No: WR#N4248-WR301

Sample Number	Collected Date	Time By	Received	Matrix Code	Type	Client Sample ID
F16143-1	01/06/03	11:15 RM	01/10/03	AQ	Ground Water	CEF-BP-GW-1S-04
F16143-2	01/06/03	15:00 RM	01/10/03	AQ	Ground Water	CEF-BP-GW-2S-04
F16143-3	01/06/03	11:25 RM	01/10/03	AQ	Ground Water	CEF-BP-GW-6S-04
F16143-4	01/06/03	00:00 RM	01/10/03	AQ	Ground Water	CEF-BP-GW-DUP-04

Accutest Laboratories

Report of Analysis

Client Sample ID:	CEF-BP-GW-1S-04		
Lab Sample ID:	F16143-1	Date Sampled:	01/06/03
Matrix:	AQ - Ground Water	Date Received:	01/10/03
Method:	SW846 8260B	Percent Solids:	n/a
Project:	NAS Cecil Field-CTO-248		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	C0014176.D	1	01/14/03	KW	n/a	n/a	VC622
Run #2	B013565.D	5	01/15/03	KW	n/a	n/a	VB597

	Purge Volume
Run #1	5.0 ml
Run #2	5.0 ml

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
100-41-4	Ethylbenzene	161 [a]	5.0	3.5	ug/l	
95-63-6	1,2,4-Trimethylbenzene	224	1.0	0.50	ug/l	
108-67-8	1,3,5-Trimethylbenzene	71.5	1.0	0.50	ug/l	
1330-20-7	Xylene (total)	811 [a]	15	5.0	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	96%	100%	86-115%
17060-07-0	1,2-Dichloroethane-D4	90%	95%	78-125%
2037-26-5	Toluene-D8	91%	99%	87-113%
460-00-4	4-Bromofluorobenzene	90%	96%	84-117%

(a) Result is from Run# 2

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	CEF-BP-GW-2S-04		
Lab Sample ID:	F16143-2	Date Sampled:	01/06/03
Matrix:	AQ - Ground Water	Date Received:	01/10/03
Method:	SW846 8260B	Percent Solids:	n/a
Project:	NAS Cecil Field-CTO-248		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	C0014177.D	1	01/14/03	KW	n/a	n/a	VC622
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
100-41-4	Ethylbenzene	ND	1.0	0.70	ug/l	
95-63-6	1,2,4-Trimethylbenzene	ND	1.0	0.50	ug/l	
108-67-8	1,3,5-Trimethylbenzene	ND	1.0	0.50	ug/l	
1330-20-7	Xylene (total)	ND	3.0	1.0	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	102%		86-115%
17060-07-0	1,2-Dichloroethane-D4	93%		78-125%
2037-26-5	Toluene-D8	97%		87-113%
460-00-4	4-Bromofluorobenzene	98%		84-117%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	CEF-BP-GW-6S-04		
Lab Sample ID:	F16143-3	Date Sampled:	01/06/03
Matrix:	AQ - Ground Water	Date Received:	01/10/03
Method:	SW846 8260B	Percent Solids:	n/a
Project:	NAS Cecil Field-CTO-248		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	C0014178.D	1	01/14/03	KW	n/a	n/a	VC622
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
100-41-4	Ethylbenzene	ND	1.0	0.70	ug/l	
95-63-6	1,2,4-Trimethylbenzene	ND	1.0	0.50	ug/l	
108-67-8	1,3,5-Trimethylbenzene	ND	1.0	0.50	ug/l	
1330-20-7	Xylene (total)	ND	3.0	1.0	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	100%		86-115%
17060-07-0	1,2-Dichloroethane-D4	93%		78-125%
2037-26-5	Toluene-D8	95%		87-113%
460-00-4	4-Bromofluorobenzene	97%		84-117%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	CEF-BP-GW-DUP-04		
Lab Sample ID:	F16143-4	Date Sampled:	01/06/03
Matrix:	AQ - Ground Water	Date Received:	01/10/03
Method:	SW846 8260B	Percent Solids:	n/a
Project:	NAS Cecil Field-CTO-248		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	C0014179.D	1	01/14/03	KW	n/a	n/a	VC622
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
100-41-4	Ethylbenzene	ND	1.0	0.70	ug/l	
95-63-6	1,2,4-Trimethylbenzene	ND	1.0	0.50	ug/l	
108-67-8	1,3,5-Trimethylbenzene	ND	1.0	0.50	ug/l	
1330-20-7	Xylene (total)	ND	3.0	1.0	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	100%		86-115%
17060-07-0	1,2-Dichloroethane-D4	92%		78-125%
2037-26-5	Toluene-D8	94%		87-113%
460-00-4	4-Bromofluorobenzene	95%		84-117%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

GC/MS Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries
- Instrument Performance Checks (BFB)
- Internal Standard Area Summaries
- Surrogate Recovery Summaries
- Initial and Continuing Calibration Summaries

Blank Spike Summary

Job Number: F16143
Account: TETRPAPT Tetra Tech, NUS
Project: NAS Cecil Field-CTO-248

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VB597-BS	B013562.D	1	01/15/03	KW	n/a	n/a	VB597

The QC reported here applies to the following samples: Method: SW846 8260B

F16143-1

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
100-41-4	Ethylbenzene	25	26.9	108	76-117
1330-20-7	Xylene (total)	75	79.7	106	78-120

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	103%	86-115%
17060-07-0	1,2-Dichloroethane-D4	104%	78-125%
2037-26-5	Toluene-D8	98%	87-113%
460-00-4	4-Bromofluorobenzene	96%	84-117%

Blank Spike Summary

Job Number: F16143
Account: TETRPAPT Tetra Tech, NUS
Project: NAS Cecil Field-CTO-248

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VC622-BS	C0014163.D	1	01/14/03	KW	n/a	n/a	VC622

The QC reported here applies to the following samples: Method: SW846 8260B

F16143-1, F16143-2, F16143-3, F16143-4

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
100-41-4	Ethylbenzene	25	25.5	102	76-117
95-63-6	1,2,4-Trimethylbenzene	25	24.0	96	76-124
108-67-8	1,3,5-Trimethylbenzene	25	24.8	99	75-121
1330-20-7	Xylene (total)	75	76.2	102	78-120

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	102%	86-115%
17060-07-0	1,2-Dichloroethane-D4	92%	78-125%
2037-26-5	Toluene-D8	94%	87-113%
460-00-4	4-Bromofluorobenzene	93%	84-117%

Method Blank Summary

Job Number: F16143
Account: TETRPAPT Tetra Tech, NUS
Project: NAS Cecil Field-CTO-248

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VB597-MB	B013563.D	1	01/15/03	KW	n/a	n/a	VB597

The QC reported here applies to the following samples: Method: SW846 8260B

F16143-1

CAS No.	Compound	Result	RL	Units	Q
100-41-4	Ethylbenzene	ND	2.0	ug/l	
1330-20-7	Xylene (total)	ND	6.0	ug/l	

CAS No.	Surrogate Recoveries		Limits
1868-53-7	Dibromofluoromethane	102%	86-115%
17060-07-0	1,2-Dichloroethane-D4	98%	78-125%
2037-26-5	Toluene-D8	99%	87-113%
460-00-4	4-Bromofluorobenzene	105%	84-117%

Method Blank Summary

Job Number: F16143
Account: TETRPAPT Tetra Tech, NUS
Project: NAS Cecil Field-CTO-248

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VC622-MB	C0014164.D	1	01/14/03	KW	n/a	n/a	VC622

The QC reported here applies to the following samples: Method: SW846 8260B

F16143-1, F16143-2, F16143-3, F16143-4

CAS No.	Compound	Result	RL	Units	Q
100-41-4	Ethylbenzene	ND	2.0	ug/l	
95-63-6	1,2,4-Trimethylbenzene	ND	2.0	ug/l	
108-67-8	1,3,5-Trimethylbenzene	ND	2.0	ug/l	
1330-20-7	Xylene (total)	ND	6.0	ug/l	

CAS No.	Surrogate Recoveries		Limits
1868-53-7	Dibromofluoromethane	102%	86-115%
17060-07-0	1,2-Dichloroethane-D4	92%	78-125%
2037-26-5	Toluene-D8	94%	87-113%
460-00-4	4-Bromofluorobenzene	97%	84-117%

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: F16143
Account: TETRPAPT Tetra Tech, NUS
Project: NAS Cecil Field-CTO-248

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
F16141-1MS	C0014168.D	1	01/14/03	KW	n/a	n/a	VC622
F16141-1MSD	C0014169.D	1	01/14/03	KW	n/a	n/a	VC622
F16141-1	C0014167.D	1	01/14/03	KW	n/a	n/a	VC622

The QC reported here applies to the following samples: Method: SW846 8260B

F16143-1, F16143-2, F16143-3, F16143-4

CAS No.	Compound	F16141-1 ug/l	Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
100-41-4	Ethylbenzene	ND		25	25.2	101	25.0	100	1	72-119/7
95-63-6	1,2,4-Trimethylbenzene	ND		25	22.9	92	22.6	90	1	71-124/8
108-67-8	1,3,5-Trimethylbenzene	ND		25	23.4	94	23.3	93	0	71-119/7
1330-20-7	Xylene (total)	ND		75	75.4	101	74.5	99	1	73-123/8

CAS No.	Surrogate Recoveries	MS	MSD	F16141-1	Limits
1868-53-7	Dibromofluoromethane	101%	100%	99%	86-115%
17060-07-0	1,2-Dichloroethane-D4	89%	89%	90%	78-125%
2037-26-5	Toluene-D8	93%	94%	95%	87-113%
460-00-4	4-Bromofluorobenzene	91%	90%	97%	84-117%

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: F16143
Account: TETRPAPT Tetra Tech, NUS
Project: NAS Cecil Field-CTO-248

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
F16143-1MS	B013568.D	5	01/15/03	KW	n/a	n/a	VB597
F16143-1MSD	B013569.D	5	01/15/03	KW	n/a	n/a	VB597
F16143-1	B013565.D	5	01/15/03	KW	n/a	n/a	VB597

The QC reported here applies to the following samples: Method: SW846 8260B

F16143-1

CAS No.	Compound	F16143-1 ug/l	Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
100-41-4	Ethylbenzene	161		125	253	74	248	70*	2	72-119/7
1330-20-7	Xylene (total)	811		375	988	47* [a]	965	41* [a]	2	73-123/8

CAS No.	Surrogate Recoveries	MS	MSD	F16143-1	Limits
1868-53-7	Dibromofluoromethane	101%	102%	100%	86 115%
17060-07-0	1,2-Dichloroethane-D4	101%	102%	95%	78-125%
2037-26-5	Toluene-D8	99%	97%	99%	87-113%
460-00-4	4-Bromofluorobenzene	97%	96%	96%	84-117%

(a) Outside control limits due to high level in sample relative to spike amount.

Instrument Performance Check (BFB)

Job Number: F16143
Account: TETRPAPT Tetra Tech, NUS
Project: NAS Cecil Field-CTO-248

Sample:	VC622-BFB	Injection Date:	01/14/03
Lab File ID:	C0014161.D	Injection Time:	09:19
Instrument ID:	GCMSC		

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
50	15.0 - 40.0% of mass 95	13782	35.2		Pass
75	30.0 - 60.0% of mass 95	16675	42.6		Pass
95	Base peak, 100% relative abundance	39112	100.0		Pass
96	5.0 - 9.0% of mass 95	2513	6.4		Pass
173	Less than 2.0% of mass 174	78	0.2	(0.2) [a]	Pass
174	50.0 - 100.0% of mass 95	38192	97.6		Pass
175	5.0 - 9.0% of mass 174	2571	6.6	(6.7) [a]	Pass
176	95.0 - 101.0% of mass 174	36642	93.7	(95.9) [a]	Pass
177	5.0 - 9.0% of mass 176	2333	6.0	(6.4) [b]	Pass

(a) Value is % of mass 174
(b) Value is % of mass 176

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
VC622-CC617	C0014162.D	01/14/03	09:45	00:26	Continuing cal 40
VC622-BS	C0014163.D	01/14/03	10:12	00:53	Blank Spike
VC622-MB	C0014164.D	01/14/03	10:39	01:20	Method Blank
ZZZZZZ	C0014165.D	01/14/03	11:06	01:47	(unrelated sample)
ZZZZZZ	C0014166.D	01/14/03	11:33	02:14	(unrelated sample)
F16141-1	C0014167.D	01/14/03	11:59	02:40	(used for QC only; not part of job F16143)
F16141-1MS	C0014168.D	01/14/03	12:26	03:07	Matrix Spike
F16141-1MSD	C0014169.D	01/14/03	12:53	03:34	Matrix Spike Duplicate
ZZZZZZ	C0014170.D	01/14/03	13:20	04:01	(unrelated sample)
ZZZZZZ	C0014171.D	01/14/03	13:47	04:28	(unrelated sample)
ZZZZZZ	C0014172.D	01/14/03	14:14	04:55	(unrelated sample)
ZZZZZZ	C0014173.D	01/14/03	14:41	05:22	(unrelated sample)
ZZZZZZ	C0014174.D	01/14/03	15:08	05:49	(unrelated sample)
ZZZZZZ	C0014175.D	01/14/03	15:35	06:16	(unrelated sample)
F16143-1	C0014176.D	01/14/03	16:02	06:43	CEF-BP-GW-1S-04
F16143-2	C0014177.D	01/14/03	16:29	07:10	CEF-BP-GW-2S-04
F16143-3	C0014178.D	01/14/03	16:56	07:37	CEF-BP-GW-6S-04
F16143-4	C0014179.D	01/14/03	17:22	08:03	CEF-BP-GW-DUP-04
ZZZZZZ	C0014180.D	01/14/03	17:49	08:30	(unrelated sample)
ZZZZZZ	C0014181.D	01/14/03	18:16	08:57	(unrelated sample)
ZZZZZZ	C0014182.D	01/14/03	18:42	09:23	(unrelated sample)
ZZZZZZ	C0014183.D	01/14/03	19:09	09:50	(unrelated sample)
ZZZZZZ	C0014184.D	01/14/03	19:36	10:17	(unrelated sample)
ZZZZZZ	C0014185.D	01/14/03	20:02	10:43	(unrelated sample)

Instrument Performance Check (BFB)

Job Number: F16143
Account: TETRPAPT Tetra Tech, NUS
Project: NAS Cecil Field-CTO-248

Sample:	VC622-BFB	Injection Date:	01/14/03
Lab File ID:	C0014161.D	Injection Time:	09:19
Instrument ID:	GCMSC		

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
ZZZZZZ	C0014186.D	01/14/03	20:29	11:10	(unrelated sample)

Instrument Performance Check (BFB)

Job Number: F16143
Account: TETRPAPT Tetra Tech, NUS
Project: NAS Cecil Field-CTO-248

Sample:	VB597-BFB	Injection Date:	01/15/03
Lab File ID:	B013560.D	Injection Time:	09:43
Instrument ID:	GCMSB		

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
50	15.0 40.0% of mass 95	36838	27.7		Pass
75	30.0 - 60.0% of mass 95	59461	44.7		Pass
95	Base peak, 100% relative abundance	132976	100.0		Pass
96	5.0 - 9.0% of mass 95	8918	6.7		Pass
173	Less than 2.0% of mass 174	713	0.54	(0.63) [a]	Pass
174	50.0 - 100.0% of mass 95	113656	85.5		Pass
175	5.0 - 9.0% of mass 174	7802	5.9	(6.9) [a]	Pass
176	95.0 - 101.0% of mass 174	108232	81.4	(95.2) [a]	Pass
177	5.0 - 9.0% of mass 176	6521	4.9	(6.0) [b]	Pass

(a) Value is % of mass 174
(b) Value is % of mass 176

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
VB597-CC591	B013561.D	01/15/03	10:09	00:26	Continuing cal 40
VB597-BS	B013562.D	01/15/03	10:36	00:53	Blank Spike
VB597-MB	B013563.D	01/15/03	11:04	01:21	Method Blank
ZZZZZZ	B013564.D	01/15/03	11:31	01:48	(unrelated sample)
F16143-1	B013565.D	01/15/03	12:00	02:17	CEF-BP-GW-1S-04
ZZZZZZ	B013566.D	01/15/03	12:27	02:44	(unrelated sample)
ZZZZZZ	B013567.D	01/15/03	12:54	03:11	(unrelated sample)
F16143-1MS	B013568.D	01/15/03	13:21	03:38	Matrix Spike
F16143-1MSD	B013569.D	01/15/03	13:48	04:05	Matrix Spike Duplicate
ZZZZZZ	B013570.D	01/15/03	14:15	04:32	(unrelated sample)
ZZZZZZ	B013571.D	01/15/03	14:42	04:59	(unrelated sample)
ZZZZZZ	B013572.D	01/15/03	15:10	05:27	(unrelated sample)
ZZZZZZ	B013573.D	01/15/03	15:37	05:54	(unrelated sample)
ZZZZZZ	B013574.D	01/15/03	16:04	06:21	(unrelated sample)
ZZZZZZ	B013575.D	01/15/03	16:31	06:48	(unrelated sample)
ZZZZZZ	B013576.D	01/15/03	16:57	07:14	(unrelated sample)
ZZZZZZ	B013578.D	01/15/03	17:53	08:10	(unrelated sample)
ZZZZZZ	B013579.D	01/15/03	18:20	08:37	(unrelated sample)
ZZZZZZ	B013580.D	01/15/03	18:47	09:04	(unrelated sample)
ZZZZZZ	B013581.D	01/15/03	19:14	09:31	(unrelated sample)
ZZZZZZ	B013582.D	01/15/03	19:41	09:58	(unrelated sample)
ZZZZZZ	B013583.D	01/15/03	20:08	10:25	(unrelated sample)

Instrument Performance Check (BFB)

Job Number: F16143
Account: TETRPAPT Tetra Tech, NUS
Project: NAS Cecil Field-CTO-248

Sample:	VC617-BFB	Injection Date:	01/03/03
Lab File ID:	C0014063.D	Injection Time:	13:18
Instrument ID:	GCMSC		

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
50	15.0 - 40.0% of mass 95	16317	37.5		Pass
75	30.0 - 60.0% of mass 95	19976	45.9		Pass
95	Base peak, 100% relative abundance	43528	100.0		Pass
96	5.0 - 9.0% of mass 95	3350	7.7		Pass
173	Less than 2.0% of mass 174	152	0.35	(0.37) [a]	Pass
174	50.0 - 100.0% of mass 95	41416	95.1		Pass
175	5.0 - 9.0% of mass 174	3273	7.5	(7.9) [a]	Pass
176	95.0 - 101.0% of mass 174	40938	94.0	(98.8) [a]	Pass
177	5.0 - 9.0% of mass 176	2616	6.0	(6.4) [b]	Pass

(a) Value is % of mass 174
(b) Value is % of mass 176

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
VC617-IC617	C0014064.D	01/03/03	13:44	00:26	Initial cal 1
VC617-IC617	C0014065.D	01/03/03	14:10	00:52	Initial cal 5
VC617-IC617	C0014066.D	01/03/03	14:37	01:19	Initial cal 20
VC617-ICC617	C0014067.D	01/03/03	15:03	01:45	Initial cal 40
VC617-IC617	C0014068.D	01/03/03	15:30	02:12	Initial cal 70
VC617 IC617	C0014069.D	01/03/03	15:56	02:38	Initial cal 100

Instrument Performance Check (BFB)

Job Number: F16143
Account: TETRPAPT Tetra Tech, NUS
Project: NAS Cecil Field-CTO-248

Sample:	VB591-BFB	Injection Date:	01/03/03
Lab File ID:	B013424.D	Injection Time:	13:22
Instrument ID:	GCMSB		

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
50	15.0 - 40.0% of mass 95	40938	27.1		Pass
75	30.0 - 60.0% of mass 95	69778	46.1		Pass
95	Base peak, 100% relative abundance	151338	100.0		Pass
96	5.0 - 9.0% of mass 95	9330	6.2		Pass
173	Less than 2.0% of mass 174	262	0.17	(0.21) [a]	Pass
174	50.0 - 100.0% of mass 95	124848	82.5		Pass
175	5.0 - 9.0% of mass 174	9059	6.0	(7.3) [a]	Pass
176	95.0 - 101.0% of mass 174	126037	83.3	(101.0) [a]	Pass
177	5.0 - 9.0% of mass 176	8110	5.4	(6.4) [b]	Pass

(a) Value is % of mass 174
(b) Value is % of mass 176

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
VB591-IC591	B013425.D	01/03/03	13:48	00:26	Initial cal 1
VB591-IC591	B013426.D	01/03/03	14:16	00:54	Initial cal 5
VB591-IC591	B013427.D	01/03/03	14:43	01:21	Initial cal 20
VB591-ICC591	B013428.D	01/03/03	15:11	01:49	Initial cal 40
VB591-IC591	B013429.D	01/03/03	15:38	02:16	Initial cal 70
VB591-IC591	B013430.D	01/03/03	16:05	02:43	Initial cal 100

Volatile Internal Standard Area Summary

Job Number: F16143
Account: TETRPAPT Tetra Tech, NUS
Project: NAS Cecil Field-CTO-248

Check Std:	VC622-CC617	Injection Date:	01/14/03
Lab File ID:	C0014162.D	Injection Time:	09:45
Instrument ID:	GCMSC	Method:	SW846 8260B

	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT
Check Std	1021048	10.27	938959	13.51	571752	16.05	77341	7.49
Upper Limit [a]	2042096	10.77	1877918	14.01	1143504	16.55	154682	7.99
Lower Limit [b]	510524	9.77	469480	13.01	285876	15.55	38671	6.99

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT
VC622-BS	1103436	10.27	986973	13.51	575528	16.05	91388	7.50
VC622-MB	1069580	10.27	930368	13.51	501548	16.05	86424	7.51
ZZZZZZ	981763	10.27	858917	13.51	462231	16.05	72151	7.50
ZZZZZZ	943961	10.27	824499	13.51	442789	16.06	70108	7.50
F16141-1	944302	10.27	827677	13.51	437771	16.05	68940	7.50
F16141-1MS	976161	10.27	888828	13.51	542003	16.05	73135	7.50
F16141-1MSD	1036854	10.27	937604	13.51	566129	16.06	81027	7.50
ZZZZZZ	998357	10.27	867199	13.51	467833	16.06	78477	7.50
ZZZZZZ	938752	10.27	820686	13.51	437845	16.05	71209	7.50
ZZZZZZ	912569	10.27	799523	13.51	429163	16.05	64651	7.50
ZZZZZZ	932377	10.27	805960	13.51	430045	16.05	68509	7.50
ZZZZZZ	902551	10.27	787481	13.51	424997	16.06	66588	7.50
ZZZZZZ	874881	10.27	771861	13.51	407651	16.05	66039	7.50
F16143-1	950159	10.28	910459	13.51	569033	16.06	62706	7.50
F16143-2	1121456	10.27	953008	13.51	516400	16.05	89328	7.51
F16143-3	1026877	10.27	901113	13.51	480451	16.06	79092	7.50
F16143-4	954264	10.27	837193	13.51	452259	16.06	68738	7.51
ZZZZZZ	914537	10.27	798908	13.51	426566	16.06	65756	7.50
ZZZZZZ	882216	10.28	774031	13.51	417139	16.05	65629	7.50
ZZZZZZ	875837	10.27	761985	13.51	408089	16.05	68303	7.50
ZZZZZZ	862475	10.27	758266	13.51	407757	16.06	63479	7.50
ZZZZZZ	843619	10.28	741469	13.51	399428	16.05	62478	7.50
ZZZZZZ	833035	10.27	726519	13.51	393179	16.05	61402	7.50
ZZZZZZ	822607	10.27	716441	13.51	392230	16.05	66640	7.50

IS 1 = Fluorobenzene
IS 2 = Chlorobenzene-D5
IS 3 = 1,4-Dichlorobenzene-d4
IS 4 = Tert Butyl Alcohol-D10

(a) Upper Limit = + 100% of check standard area; Retention time + 0.5 minutes.
(b) Lower Limit = -50% of check standard area; Retention time -0.5 minutes.

Volatile Internal Standard Area Summary

Job Number: F16143
Account: TETRPAPT Tetra Tech, NUS
Project: NAS Cecil Field-CTO-248

Check Std:	VB597-CC591	Injection Date:	01/15/03
Lab File ID:	B013561.D	Injection Time:	10:09
Instrument ID:	GCMSB	Method:	SW846 8260B

	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT
Check Std	2945560	9.57	2360718	12.79	1232494	15.34	168174	6.87
Upper Limit [a]	5891120	10.07	4721436	13.29	2464988	15.84	336348	7.37
Lower Limit [b]	1472780	9.07	1180359	12.29	616247	14.84	84087	6.37

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT
VB597-BS	3097832	9.58	2445325	12.79	1254734	15.34	184176	6.88
VB597-MB	2970114	9.58	2212903	12.79	959822	15.34	170254	6.89
ZZZZZZ	2835577	9.58	2094766	12.79	909537	15.34	158509	6.89
F16143-1	2926335	9.58	2263491	12.79	1138340	15.34	156537	6.88
ZZZZZZ	2969958	9.58	2214119	12.79	953207	15.34	172771	6.89
ZZZZZZ	2847810	9.58	2086637	12.79	937541	15.34	162467	6.89
F16143-1MS	3096804	9.58	2455843	12.79	1275732	15.34	169517	6.89
F16143-1MSD	3372244	9.58	2668076	12.79	1356047	15.34	198502	6.88
ZZZZZZ	3283693	9.58	2445495	12.79	1092163	15.34	215325	6.89
ZZZZZZ	3116794	9.58	2292863	12.79	1000109	15.34	188465	6.89
ZZZZZZ	2930497	9.58	2179075	12.79	956895	15.34	163711	6.89
ZZZZZZ	2878324	9.58	2161354	12.79	941292	15.34	167986	6.89
ZZZZZZ	2810386	9.58	2091956	12.79	912413	15.34	152011	6.89
ZZZZZZ	2906404	9.58	2258440	12.79	1001776	15.34	146757	6.88
ZZZZZZ	3224080	9.58	2622332	12.79	1245486	15.34	179448	6.89
ZZZZZZ	3145271	9.58	2310810	12.79	1019844	15.34	172823	6.88
ZZZZZZ	2988423	9.58	2201479	12.79	971822	15.34	176764	6.89
ZZZZZZ	2895567	9.58	2136184	12.79	925846	15.34	157487	6.89
ZZZZZZ	2782785	9.58	2063726	12.79	896776	15.34	138831	6.89
ZZZZZZ	2729537	9.58	2013512	12.79	873164	15.34	142511	6.89
ZZZZZZ	2672561	9.58	1996759	12.79	847875	15.34	145678	6.89

IS 1 = Fluorobenzene
IS 2 = Chlorobenzene-D5
IS 3 = 1,4-Dichlorobenzene-d4
IS 4 = Tert Butyl Alcohol-D10

(a) Upper Limit = + 100% of check standard area; Retention time + 0.5 minutes.
(b) Lower Limit = -50% of check standard area; Retention time -0.5 minutes.

Volatile Surrogate Recovery Summary

Job Number: F16143
Account: TETRPAPT Tetra Tech, NUS
Project: NAS Cecil Field-CTO-248

Method: SW846 8260B Matrix: AQ

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1	S2	S3	S4
F16143-1	B013565.D	100.0	95.0	99.0	96.0
F16143-1	C0014176.D	96.0	90.0	91.0	90.0
F16143-2	C0014177.D	102.0	93.0	97.0	98.0
F16143-3	C0014178.D	100.0	93.0	95.0	97.0
F16143-4	C0014179.D	100.0	92.0	94.0	95.0
F16141-1MS	C0014168.D	101.0	89.0	93.0	91.0
F16141-1MSD	C0014169.D	100.0	89.0	94.0	90.0
F16143-1MS	B013568.D	101.0	101.0	99.0	97.0
F16143-1MSD	B013569.D	102.0	102.0	97.0	96.0
VB597-BS	B013562.D	103.0	104.0	98.0	96.0
VB597-MB	B013563.D	102.0	98.0	99.0	105.0
VC622-BS	C0014163.D	102.0	92.0	94.0	93.0
VC622-MB	C0014164.D	102.0	92.0	94.0	97.0

Surrogate Compounds	Recovery Limits
S1 = Dibromofluoromethane	86-115%
S2 = 1,2-Dichloroethane-D4	78-125%
S3 = Toluene-D8	87-113%
S4 = 4-Bromofluorobenzene	84-117%

Initial Calibration Summary

Job Number: F16143
Account: TETRPAPT Tetra Tech, NUS
Project: NAS Cecil Field-CTO-248

Sample: VC617-ICC617
Lab FileID: C0014067.D

Response Factor Report MSVOA5

Method : C:\MSDCHEM\2\METHODS\826045.M (RTE Integrator)
Title : EPA 624 & SWA 5030B/8260B
Last Update : Fri Jan 03 16:30:41 2003
Response via : Initial Calibration

Calibration Files
1 =C0014064.D 2 =C0014065.D 3 =C0014066.D
4 =C0014067.D 5 =C0014068.D 6 =C0014069.D

		Compound	1	2	3	4	5	6	Avg	%RSD
1)	I	Fluorobenzene	----------ISTD----------							
2)		Dichlorodifluoromet	0.248	0.287	0.265	0.265	0.252	0.258	0.263	5.19
3)	P	Chloromethane	0.766	0.750	0.645	0.647	0.628	0.640	0.680	9.07
4)	C	Vinyl Chloride	0.452	0.487	0.435	0.434	0.413	0.418	0.440	6.13
5)		Bromomethane		0.191	0.173	0.173	0.167	0.159	0.172	6.69
6)		Chloroethane	0.211	0.226	0.202	0.202	0.201	0.199	0.207	5.03
7)		Trichlorofluorometh	0.314	0.327	0.299	0.314	0.310	0.321	0.314	3.14
8)		Ethyl ether	0.233	0.286	0.281	0.288	0.288	0.291	0.278	7.96
9)	C	1,1-Dichloroethene	0.435	0.416	0.456	0.485	0.485	0.502	0.463	7.25
10)		Freon 113	0.248	0.190	0.206	0.220	0.218	0.227	0.218	9.05
11)		Acetone		0.138	0.109	0.109	0.108	0.109	0.115	11.30
12)		Iodomethane	0.337	0.356	0.374	0.384	0.394	0.403	0.375	6.60
13)		Methyl Acetate	0.264	0.295	0.284	0.288	0.297	0.300	0.288	4.60
14)		Carbon Disulfide	0.752	0.634	0.660	0.706	0.703	0.725	0.697	6.21
15)		Hexane		0.389	0.412	0.452	0.451	0.469	0.434	7.59
16)		Methylene Chloride		0.631	0.623	0.628	0.627	0.636	0.629	0.79
17)		trans-1,2-Dichloroe	0.450	0.446	0.457	0.476	0.487	0.496	0.469	4.35
18)		Acrylonitrile	0.116	0.106	0.120	0.126	0.130	0.132	0.121	7.99
19)		Methyl Tert Butyl E		0.564	0.563	0.582	0.594	0.606	0.582	3.21
20)	P	1,1-Dichloroethane	0.538	0.530	0.544	0.561	0.570	0.579	0.554	3.50
21)		Vinyl acetate		1.231	1.234	1.316	1.345	1.327	1.291	4.21
22)		Di-isopropyl ether	1.386	1.638	1.649	1.679	1.700	1.699	1.625	7.39
23)		ETBE		1.025	1.092	1.130	1.167	1.184	1.120	5.68
24)		2,2-Dichloropropane	0.165	0.172	0.193	0.199	0.195	0.196	0.187	7.61
25)		cis-1,2-Dichloroeth	0.214	0.219	0.227	0.227	0.233	0.237	0.226	3.74
26)		2-Butanone	0.159	0.178	0.175	0.182	0.186	0.187	0.178	5.66
27)		Bromochloromethane	0.109	0.119	0.117	0.122	0.125	0.126	0.120	5.11
28)	C	Chloroform	0.320	0.355	0.344	0.356	0.358	0.365	0.350	4.57
29)		Tetrahydrofuran		0.121	0.114	0.118	0.123	0.122	0.119	3.02
30)		1,1,1-Trichloroetha	0.233	0.257	0.276	0.287	0.294	0.299	0.274	9.14
31)		Cyclohexane	0.652	0.543	0.605	0.657	0.671	0.691	0.636	8.44
32)	S	Dibromofluoromethan	0.256	0.258	0.255	0.252	0.257	0.255	0.255	0.80
33)		1,1-Dichloropropene	0.261	0.237	0.253	0.268	0.272	0.276	0.261	5.58
34)		Carbon Tetrachlorid	0.248	0.243	0.272	0.290	0.300	0.310	0.277	9.89
35)	S	1,2-Dichloroethane-	0.341	0.345	0.344	0.331	0.332	0.325	0.336	2.34
36)		Benzene	0.834	0.837	0.833	0.857	0.875	0.881	0.853	2.51
37)		TAME	0.492	0.587	0.594	0.617	0.636	0.647	0.596	9.33
38)		1,2-Dichloroethane	0.548	0.449	0.432	0.437	0.440	0.444	0.459	9.68
39)		Trichloroethene	0.212	0.195	0.202	0.211	0.216	0.221	0.209	4.51
40)		Methylcyclohexane		0.245	0.274	0.300	0.307	0.319	0.289	10.32
41)	C	1,2-Dichloropropane	0.289	0.328	0.327	0.338	0.346	0.348	0.330	6.52
42)		Dibromomethane	0.114	0.129	0.131	0.135	0.137	0.138	0.131	6.88
43)		Bromodichloromethan	0.230	0.265	0.267	0.272	0.279	0.285	0.266	7.30
44)		2-Nitropropane	0.100	0.108	0.110	0.116	0.118	0.118	0.112	6.25
45)		2-Chloroethyl vinyl		0.192	0.204	0.211	0.218	0.215	0.208	5.16
46)		4-Methyl-2-pentanon	0.356	0.414	0.419	0.426	0.438	0.439	0.415	7.35

Initial Calibration Summary

Job Number: F16143
Account: TETRPAPT Tetra Tech, NUS
Project: NAS Cecil Field-CTO-248

Sample: VC617-ICC617
Lab FileID: C0014067.D

47)		cis-1,3-Dichloropro	0.303	0.341	0.348	0.360	0.368	0.375	0.349	7.41
48)	I	Chlorobenzene-d5	----------ISTD----------							
49)	S	Toluene-d8	1.192	1.190	1.185	1.165	1.173	1.163	1.178	1.08
50)	C	Toluene	1.169	1.086	1.111	1.150	1.173	1.192	1.147	3.52
51)		trans-1,3-Dichlorop	0.319	0.369	0.378	0.404	0.410	0.416	0.383	9.49
52)		1,1,2-Trichloroetha	0.194	0.195	0.192	0.195	0.196	0.199	0.195	1.18
53)		Tetrachloroethene	0.303	0.267	0.282	0.295	0.302	0.317	0.294	5.95
54)		2-hexanone	0.316	0.335	0.349	0.362	0.370	0.370	0.350	6.14
55)		1,3-Dichloropropane	0.394	0.429	0.415	0.422	0.422	0.424	0.418	2.98
56)		Dibromochloromethan	0.231	0.253	0.270	0.283	0.291	0.302	0.272	9.62
57)		1,2-Dibromoethane	0.223	0.236	0.244	0.249	0.255	0.261	0.245	5.55
58)		1-Chlorohexane	0.346	0.268	0.319	0.348	0.361	0.374	0.336	11.33
59)	P	Chlorobenzene	0.781	0.753	0.755	0.776	0.792	0.814	0.778	2.96
60)		1,1,1,2-Tetrachloro	0.252	0.280	0.289	0.303	0.310	0.316	0.292	8.07
61)	C	Ethylbenzene	1.249	1.165	1.226	1.291	1.324	1.356	1.268	5.48
62)		m,p-Xylene	0.952	0.909	0.961	1.008	1.041	1.055	0.988	5.74
63)		o-Xylene	0.934	0.942	1.006	1.053	1.088	1.100	1.021	7.05
64)		Styrene		0.747	0.819	0.882	0.915	0.935	0.860	8.94
65)	P	Bromoform		0.183	0.197	0.207	0.221	0.230	0.207	8.85
66)	I	1,4-Dichlorobenzene-d	----------ISTD----------							
67)		Isopropylbenzene	1.910	1.765	1.978	2.066	2.167	2.209	2.016	8.26
68)	S	4-Bromofluorobenzen	0.873	0.853	0.843	0.832	0.832	0.836	0.845	1.89
69)		Bromobenzene	0.678	0.665	0.674	0.674	0.707	0.708	0.684	2.69
70)	P	1,1,2,2-Tetrachloro	0.572	0.551	0.533	0.525	0.536	0.531	0.541	3.25
71)		trans-1,4-Dichloro-	0.197	0.173	0.222	0.256	0.276	0.289	0.236	19.36
		----- Linear regression ----- Coefficient = 0.9974								
		Response Ratio = -0.01627 + 0.29159 *A								
72)		1,2,3-Trichloroprop	0.147	0.152	0.156	0.153	0.157	0.156	0.154	2.38
73)		n-Propylbenzene	2.789	2.355	2.522	2.633	2.730	2.790	2.636	6.52
74)		2-Chlorotoluene	1.989	1.715	1.772	1.810	1.910	1.913	1.851	5.54
75)		4-Chlorotoluene	1.662	1.584	1.622	1.651	1.719	1.755	1.665	3.77
76)		1,3,5-Trimethylbenz	1.808	1.639	1.746	1.827	1.935	1.940	1.816	6.32
77)		Benzyl chloride		0.877	0.981	1.011	1.058	1.060	0.998	7.54
78)		sec-Butylbenzene	2.326	1.738	1.987	2.063	2.153	2.205	2.079	9.80
79)		1,3-Dichlorobenzene	1.364	1.161	1.165	1.191	1.236	1.265	1.230	6.28
80)		4-Isopropyltoluene	1.889	1.482	1.677	1.787	1.847	1.895	1.763	9.05
81)		1,4-Dichlorobenzene	1.439	1.249	1.221	1.251	1.286	1.318	1.294	6.07
82)		tert-Butylbenzene	1.046	0.861	0.940	0.986	1.024	1.036	0.982	7.21
83)		n-Butylbenzene		1.348	1.502	1.589	1.622	1.667	1.546	8.15
84)		1,2-Dichlorobenzene	1.285	1.113	1.145	1.153	1.198	1.216	1.185	5.20
85)		1,2,4-Trimethylbenz	1.938	1.746	1.851	1.919	1.998	2.025	1.913	5.33
86)		1,2-Dibromo-3-Chlor		0.083	0.078	0.082	0.083	0.087	0.083	3.82
87)		1,2,4-Trichlorobenz		0.646	0.672	0.700	0.720	0.745	0.697	5.60
88)		Hexachlorobutadiene		0.259	0.245	0.268	0.265	0.275	0.262	4.26
89)		Naphthalene		1.344	1.381	1.450	1.520	1.570	1.453	6.46
90)		1,2,3-Trichlorobenz		0.585	0.606	0.617	0.645	0.661	0.623	4.86
91)	I	Tert Butyl alcohol-d1	----------ISTD----------							
92)		Acrolein	3.271	2.721	2.811	3.095	2.938	3.122	2.993	6.91
93)		Tert-Butyl Alcohol	1.890	2.133	2.042	2.161	2.156	2.202	2.097	5.46
94)		1,4-Dioxane	0.171	0.149	0.140	0.158	0.148	0.149	0.153	7.03
95)		Cyclohexanone		0.831	0.778	0.850	0.878	0.869	0.841	4.72

(#) = Out of Range

826045.M Tue Jan 07 09:16:32 2003 RPT1

Continuing Calibration Summary

Job Number: F16143
Account: TETRPAPT Tetra Tech, NUS
Project: NAS Cecil Field-CTO-248

Sample: VC622-CC617
Lab FileID: C0014162.D

Evaluate Continuing Calibration Report

Data File : C:\MSDCHEM\2\DATA\011403\C0014162.D
Acq On : 14 Jan 2003 9:45 am
Sample : CC617-40
Misc : ms2025,vc622,,,,,
MS Integration Params: RTEINT.P

Vial: 1
Operator: KarenW
Inst : MSVOA5
Multiplr: 1.00

Method : C:\MSDCHEM\2\METHODS\826045.M (RTE Integrator)
Title : EPA 624 & SWA 5030B/8260B
Last Update : Tue Jan 07 13:05:57 2003
Response via : Multiple Level Calibration

Min. RRF : 0.001 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	Fluorobenzene	1.000	1.000	0.0	80	0.00
2		Dichlorodifluoromethane	0.263	0.256	2.7	77	0.01
3	P	Chloromethane	0.680	0.628	7.6	78	0.00
4	C	Vinyl Chloride	0.440	0.406	7.7	75	0.02
5		Bromomethane	0.172	0.211	-22.7#	98	0.00
6		Chloroethane	0.207	0.204	1.4	81	0.00
7		Trichlorofluoromethane	0.314	0.420	-33.8#	107	0.00
8		Ethyl ether	0.278	0.267	4.0	74	0.00
9	C	1,1-Dichloroethene	0.463	0.440	5.0	72	0.00
10		Freon 113	0.218	0.225	-3.2	82	-0.01
11		Acetone	0.115	0.114	0.9	84	-0.01
12		Iodomethane	0.375	0.380	-1.3	79	0.00
13		Methyl Acetate	0.288	0.310	-7.6	86	0.00
14		Carbon Disulfide	0.697	0.731	-4.9	83	0.00
15		Hexane	0.434	0.424	2.3	75	0.00
16		Methylene Chloride	0.629	0.627	0.3	80	0.00
17		trans-1,2-Dichloroethene	0.469	0.443	5.5	74	0.00
18		Acrylonitrile	0.121	0.147	-21.5#	94	0.00
19		Methyl Tert Butyl Ether	0.582	0.596	-2.4	82	0.00
20	P	1,1-Dichloroethane	0.554	0.540	2.5	77	0.00
21		Vinyl acetate	1.291	1.322	-2.4	80	0.00
22		Di-isopropyl ether	1.625	1.650	-1.5	78	0.00
23		ETBE	1.120	1.054	5.9	74	0.00
24		2,2-Dichloropropane	0.187	0.182	2.7	73	0.00
25		cis-1,2-Dichloroethene	0.226	0.246	-8.8	87	0.00
26		2-Butanone	0.178	0.195	-9.6	86	0.00
27		Bromochloromethane	0.120	0.132	-10.0	86	0.00
28	C	Chloroform	0.350	0.360	-2.9	81	0.00
29		Tetrahydrofuran	0.119	0.122	-2.5	83	0.00
30		1,1,1-Trichloroethane	0.274	0.266	2.9	74	0.00
31		Cyclohexane	0.636	0.599	5.8	73	0.00
32	S	Dibromofluoromethane	0.255	0.256	-0.4	81	0.00
33		1,1-Dichloropropene	0.261	0.261	0.0	78	0.00
34		Carbon Tetrachloride	0.277	0.284	-2.5	78	0.00
35	S	1,2-Dichloroethane-d4	0.336	0.290	13.7	70	0.00
36		Benzene	0.853	0.904	-6.0	84	0.00
37		TAME	0.596	0.637	-6.9	82	0.00
38		1,2-Dichloroethane	0.459	0.391	14.8	71	0.00
39		Trichloroethene	0.209	0.220	-5.3	83	0.00
40		Methylcyclohexane	0.289	0.307	-6.2	82	0.00
41	C	1,2-Dichloropropane	0.330	0.336	-1.8	79	0.00
42		Dibromomethane	0.131	0.148	-13.0	87	0.00

Continuing Calibration Summary

Job Number: F16143
Account: TETRPAPT Tetra Tech, NUS
Project: NAS Cecil Field-CTO-248

Sample: VC622-CC617
Lab FileID: C0014162.D

43		Bromodichloromethane	0.266	0.280	-5.3	82	0.00
44		2-Nitropropane	0.112	0.120	-7.1	83	0.00
45		2-Chloroethyl vinyl ether	0.208	0.204	1.9	77	0.00
46		4-Methyl-2-pentanone	0.415	0.469	-13.0	88	0.00
47		cis-1,3-Dichloropropene	0.349	0.377	-8.0	84	0.00
48	I	Chlorobenzene-d5	1.000	1.000	0.0	91	0.00
49	S	Toluene-d8	1.178	1.084	8.0	85	0.00
50	C	Toluene	1.147	1.088	5.1	86	0.00
51		trans-1,3-Dichloropropene	0.383	0.373	2.6	84	0.00
52		1,1,2-Trichloroethane	0.195	0.201	-3.1	94	0.00
53		Tetrachloroethene	0.294	0.287	2.4	88	0.00
54		2-hexanone	0.350	0.360	-2.9	90	0.00
55		1,3-Dichloropropane	0.418	0.414	1.0	89	0.00
56		Dibromochloromethane	0.272	0.276	-1.5	89	0.00
57		1,2-Dibromoethane	0.245	0.255	-4.1	93	0.00
58		1-Chlorohexane	0.336	0.327	2.7	85	0.00
59	P	Chlorobenzene	0.778	0.765	1.7	89	0.00
60		1,1,1,2-Tetrachloroethane	0.292	0.295	-1.0	88	0.00
61	C	Ethylbenzene	1.268	1.225	3.4	86	0.00
62		m,p-Xylene	0.988	0.951	3.7	86	0.00
63		o-Xylene	1.021	1.017	0.4	88	0.00
64		Styrene	0.860	0.840	2.3	87	0.00
65	P	Bromoform	0.207	0.216	-4.3	95	0.00
66	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	99	0.00
67		Isopropylbenzene	2.016	1.851	8.2	88	0.00
68	S	4-Bromofluorobenzene	0.845	0.756	10.5	90	0.00
69		Bromobenzene	0.684	0.655	4.2	96	0.00
70	P	1,1,2,2-Tetrachloroethane	0.541	0.546	-0.9	103	0.00
71		trans-1,4-Dichloro-2-butene	0.236	0.200	15.3	77	0.00
72		1,2,3-Trichloropropane	0.154	0.151	1.9	97	0.00
73		n-Propylbenzene	2.636	2.408	8.6	90	0.00
74		2-Chlorotoluene	1.851	1.661	10.3	90	0.00
75		4-Chlorotoluene	1.665	1.526	8.3	91	0.00
76		1,3,5-Trimethylbenzene	1.816	1.681	7.4	91	0.00
77		Benzyl chloride	0.998	1.109	-11.1	108	0.00
78		sec-Butylbenzene	2.079	1.920	7.6	92	0.00
79		1,3-Dichlorobenzene	1.230	1.179	4.1	98	0.00
80		4-Isopropyltoluene	1.763	1.670	5.3	92	0.00
81		1,4-Dichlorobenzene	1.294	1.242	4.0	98	0.00
82		tert-Butylbenzene	0.982	0.890	9.4	89	0.00
83		n-Butylbenzene	1.546	1.513	2.1	94	0.00
84		1,2-Dichlorobenzene	1.185	1.166	1.6	100	0.00
85		1,2,4-Trimethylbenzene	1.913	1.789	6.5	92	0.00
86		1,2-Dibromo-3-Chloropropane	0.083	0.080	3.6	96	0.00
87		1,2,4-Trichlorobenzene	0.697	0.691	0.9	97	0.00
88		Hexachlorobutadiene	0.262	0.265	-1.1	98	0.00
89		Naphthalene	1.453	1.571	-8.1	107	0.00
90		1,2,3-Trichlorobenzene	0.623	0.638	-2.4	102	0.00
91	I	Tert Butyl alcohol-d10	1.000	1.000	0.0	90	0.00
92		Acrolein	2.993	1.987	33.6#	58	0.00
93		Tert-Butyl Alcohol	2.097	1.960	6.5	82	0.00
94		1,4-Dioxane	0.153	0.161	-5.2	92	0.00
95		Cyclohexanone	0.841	0.834	0.8	88	0.00

Average % D = 5.9

Continuing Calibration Summary

Job Number: F16143
Account: TETRPAPT Tetra Tech, NUS
Project: NAS Cecil Field-CTO-248

Sample: VC622-CC617
Lab FileID: C0014162.D

(#) = Out of Range
C0014067.D 826045.M

SPCC's out = 0 CCC's out = 0
Wed Jan 15 08:49:55 2003 RPT1

Initial Calibration Summary

Job Number: F16143
Account: TETRPAPT Tetra Tech, NUS
Project: NAS Cecil Field-CTO-248

Sample: VB591-ICC591
Lab FileID: B013428.D

Response Factor Report MSVOA4

Method : C:\MSDCHEM\1\METHODS\826045.M (RTE Integrator)
Title : EPA 624 & SWA 5030B/8260B
Last Update : Tue Jan 07 13:17:45 2003
Response via : Initial Calibration

Calibration Files
1 =B013425.D 2 =B013426.D 3 =B013427.D
4 =B013428.D 5 =B013429.D 6 =B013430.D

		Compound	1	2	3	4	5	6	Avg	%RSD
1)	I	Fluorobenzene	----------ISTD----------							
2)		Dichlorodifluoromet	0.242	0.328	0.289	0.290	0.282	0.289	0.287	9.48
3)	P	Chloromethane	0.639	0.638	0.589	0.575	0.546	0.526	0.586	8.00
4)	C	Vinyl Chloride	0.383	0.452	0.403	0.398	0.372	0.358	0.394	8.29
5)		Bromomethane	0.212	0.242	0.210	0.199	0.189	0.173	0.204	11.54
6)		Chloroethane	0.198	0.215	0.205	0.199	0.191	0.178	0.198	6.37
7)		Trichlorofluorometh	0.354	0.444	0.406	0.413	0.392	0.394	0.400	7.40
8)		Ethyl Ether	0.181	0.221	0.221	0.223	0.213	0.201	0.210	7.82
9)	C	1,1-Dichloroethene	0.363	0.384	0.403	0.418	0.423	0.435	0.404	6.61
10)		Freon 113	0.222	0.203	0.222	0.229	0.230	0.231	0.223	4.72
11)		Acetone		0.115	0.092	0.095	0.087	0.086	0.095	12.41
12)		Iodomethane	0.315	0.329	0.352	0.367	0.377	0.382	0.354	7.67
13)		Methyl acetate	0.219	0.226	0.219	0.230	0.225	0.224	0.224	1.98
14)		Carbon Disulfide	0.988	0.680	0.749	0.792	0.809	0.827	0.808	12.73
15)		Methylene Chloride	0.528	0.499	0.484	0.484	0.479	0.478	0.492	3.88
16)		trans-1,2-Dichloroe	0.361	0.345	0.376	0.385	0.393	0.408	0.378	5.95
17)		Acrylonitrile	0.079	0.076	0.081	0.091	0.091	0.089	0.085	7.73
18)		Methyl Tert Butyl E		0.498	0.535	0.573	0.590	0.610	0.561	7.99
19)		Hexane	0.326	0.282	0.329	0.365	0.364	0.378	0.341	10.45
20)	P	1,1-Dichloroethane	0.440	0.452	0.462	0.485	0.492	0.503	0.472	5.27
21)		ETBE		0.697	0.781	0.834	0.868	0.892	0.814	9.55
22)		Vinyl acetate		0.826	0.838	0.935	0.905	0.748	0.850	8.61
23)		Di-isopropyl ether		1.113	1.203	1.257	1.272	1.284	1.226	5.76
24)		2,2-Dichloropropane	0.182	0.195	0.203	0.212	0.214	0.219	0.204	6.79
25)		cis-1,2-Dichloroeth	0.222	0.254	0.248	0.255	0.253	0.255	0.248	5.18
26)		2-Butanone	0.113	0.123	0.126	0.136	0.135	0.134	0.128	7.11
27)		Bromochloromethane	0.120	0.126	0.127	0.131	0.128	0.128	0.127	3.05
28)	C	Chloroform	0.421	0.388	0.393	0.406	0.414	0.423	0.408	3.63
29)		Tetrahydrofuran	0.094	0.081	0.079	0.087	0.084	0.085	0.085	6.20
30)		1,1,1-Trichloroetha	0.268	0.267	0.290	0.310	0.317	0.332	0.297	8.97
31)	S	Dibromofluoromethan	0.263	0.266	0.261	0.261	0.260	0.259	0.262	0.93
32)		Cyclohexane		0.359	0.439	0.492	0.498	0.517	0.461	13.91
33)		1,1-Dichloropropene		0.218	0.259	0.278	0.284	0.300	0.268	11.69
34)		Carbon Tetrachlorid		0.210	0.226	0.249	0.261	0.284	0.246	11.82
35)	S	1,2-Dichloroethane-	0.300	0.298	0.306	0.306	0.318	0.321	0.308	3.02
36)		TAME		0.531	0.577	0.619	0.640	0.655	0.604	8.28
37)		Benzene	0.869	0.881	0.905	0.920	0.929	0.927	0.905	2.78
38)		1,2-Dichloroethane	0.441	0.365	0.349	0.354	0.361	0.367	0.373	9.13
39)		Trichloroethene	0.216	0.193	0.210	0.224	0.228	0.234	0.218	6.79
40)		Methylcyclohexane		0.247	0.299	0.333	0.337	0.352	0.314	13.42
41)	C	1,2-Dichloropropane	0.244	0.270	0.270	0.277	0.282	0.285	0.271	5.42
42)		Dibromomethane	0.125	0.145	0.144	0.147	0.147	0.148	0.143	6.20
43)		Bromodichloromethan	0.237	0.233	0.258	0.281	0.296	0.308	0.269	11.62
44)		2-Nitropropane		0.068	0.075	0.081	0.082	0.082	0.078	7.73
45)		2-Chloroethyl vinyl		0.100	0.117	0.129	0.135	0.133	0.123	11.96
46)		4-Methyl-2-pentanon		0.265	0.289	0.317	0.315	0.310	0.299	7.38

Initial Calibration Summary

Job Number: F16143
Account: TETRPAPT Tetra Tech, NUS
Project: NAS Cecil Field-CTO-248

Sample: VB591-ICC591
Lab FileID: B013428.D

47)		cis-1,3-Dichloropro	0.242	0.236	0.297	0.342	0.362	0.378	0.310	19.67
		----- Linear regression ----- Coefficient = 0.9980								
		Response Ratio = -0.01953 + 0.38159 *A								
48)	I	Chlorobenzene-d5	----------ISTD----------							
49)	S	Toluene-d8	1.296	1.289	1.291	1.286	1.289	1.287	1.290	0.26
50)	C	Toluene	1.225	1.218	1.276	1.329	1.336	1.363	1.291	4.71
51)		trans-1,3-Dichlorop	0.287	0.271	0.332	0.385	0.414	0.436	0.354	19.23
		----- Linear regression ----- Coefficient = 0.9971								
		Response Ratio = -0.02489 + 0.43968 *A								
52)		1,1,2-Trichloroetha	0.219	0.241	0.239	0.242	0.241	0.239	0.237	3.73
53)		Tetrachloroethene	0.264	0.263	0.286	0.302	0.305	0.304	0.287	6.84
54)		2-hexanone		0.217	0.252	0.277	0.277	0.275	0.260	10.04
55)		1,3-Dichloropropane	0.417	0.473	0.472	0.487	0.485	0.492	0.471	5.84
56)		Dibromochloromethan	0.198	0.177	0.219	0.252	0.273	0.290	0.235	18.78
		----- Linear regression ----- Coefficient = 0.9966								
		Response Ratio = -0.01734 + 0.29178 *A								
57)		1,2-Dibromoethane	0.222	0.270	0.274	0.286	0.289	0.291	0.272	9.51
58)		1-Chlorohexane	0.221	0.271	0.361	0.400	0.411	0.423	0.348	23.86
		----- Linear regression ----- Coefficient = 0.9993								
		Response Ratio = -0.01648 + 0.42694 *A								
59)	P	Chlorobenzene	0.857	0.877	0.881	0.913	0.895	0.900	0.887	2.20
60)		1,1,1,2-Tetrachloro	0.265	0.285	0.299	0.313	0.317	0.325	0.300	7.50
61)	C	Ethylbenzene	1.200	1.267	1.397	1.469	1.519	1.551	1.401	10.06
62)		m,p-Xylene		0.971	1.077	1.145	1.191	1.189	1.114	8.29
63)		o-Xylene		0.940	1.099	1.171	1.224	1.234	1.134	10.64
64)		Styrene		0.737	0.881	0.939	0.967	0.963	0.897	10.70
65)	P	Bromoform	0.098	0.060	0.083	0.113	0.128	0.144	0.104	29.13
		----- Quadratic regression ----- Coefficient = 0.9994								
		Response Ratio = -0.00260 + 0.09068 *A + 0.02750 *A^2								
66)	I	1,4-Dichlorobenzene-d	----------ISTD----------							
67)		Isopropylbenzene		2.032	2.417	2.565	2.622	2.764	2.480	11.27
68)	S	4-Bromofluorobenzen	0.975	0.969	0.956	0.944	0.959	0.990	0.965	1.68
69)		Bromobenzene	0.680	0.754	0.752	0.749	0.732	0.719	0.731	3.90
70)	P	1,1,2,2-Tetrachloro	0.731	0.770	0.712	0.717	0.694	0.701	0.721	3.80
71)		trans-1,4-Dichloro-	0.087	0.054	0.049	0.066	0.070	0.096	0.070	26.06
		----- Quadratic regression ----- Coefficient = 0.9957								
		Response Ratio = 0.00275 + 0.02800 *A + 0.03262 *A^2								
72)		1,2,3-Trichloroprop	0.193	0.202	0.194	0.198	0.193	0.194	0.196	1.81
73)		n-Propylbenzene		2.823	3.125	3.323	3.403	3.477	3.230	8.14
74)		2-Chlorotoluene	1.881	2.195	2.190	2.262	2.331	2.385	2.207	8.03
75)		4-Chlorotoluene		1.754	1.948	2.006	2.090	2.180	1.996	8.06
76)		1,3,5-Trimethylbenz		1.835	2.100	2.191	2.242	2.312	2.136	8.66
77)		sec-Butylbenzene		2.114	2.508	2.653	2.704	2.792	2.554	10.45
78)		1,3-Dichlorobenzene	1.170	1.288	1.287	1.338	1.328	1.348	1.293	5.09
79)		4-Isopropyltoluene		1.665	1.995	2.134	2.147	2.261	2.040	11.27
80)		1,4-Dichlorobenzene	1.170	1.373	1.357	1.382	1.359	1.374	1.336	6.14
81)		tert-Butylbenzene		0.970	1.156	1.219	1.248	1.336	1.186	11.55
82)		Benzyl Chloride	0.987	1.061	1.137	1.229	1.229	1.253	1.149	9.35
83)		n-Butylbenzene		1.603	1.846	2.012	2.047	2.138	1.929	10.93
84)		1,2-Dichlorobenzene	1.151	1.205	1.245	1.276	1.263	1.280	1.237	4.05
85)		1,2,4-Trimethylbenz		1.909	2.192	2.277	2.319	2.417	2.223	8.69
86)		1,2-Dibromo-3-Chlor		0.076	0.073	0.086	0.087	0.090	0.082	8.98

Initial Calibration Summary

Job Number: F16143
Account: TETRPAPT Tetra Tech, NUS
Project: NAS Cecil Field-CTO-248

Sample: VB591-ICC591
Lab FileID: B013428.D

87)	1,2,4-Trichlorobenz	0.779	0.646	0.657	0.705	0.708	0.721	0.702	6.82
88)	Hexachlorobutadiene		0.270	0.274	0.287	0.285	0.302	0.284	4.45
89)	Naphthalene		1.307	1.393	1.562	1.548	1.593	1.480	8.38
90)	1,2,3-Trichlorobenz	0.697	0.546	0.557	0.605	0.600	0.611	0.602	8.86
91) I	Tert Butyl alcohol-d1	----------ISTD----------							
92)	Acrolein		3.103	2.999	3.076	3.074	2.888	3.028	2.88
93)	Tert-Butyl Alcohol	1.683	1.824	1.977	1.949	2.022	2.032	1.915	7.09
94)	1,4-Dioxane	0.175	0.157	0.153	0.172	0.188	0.190	0.173	9.07
95)	Cyclohexanone		0.730	0.728	0.711	0.741	0.750	0.732	2.02

(#) = Out of Range

826045.M Wed Jan 08 08:45:21 2003 RPT1

Continuing Calibration Summary

Job Number: F16143
Account: TETRPAPT Tetra Tech, NUS
Project: NAS Cecil Field-CTO-248

Sample: VB597-CC591
Lab FileID: B013561.D

Evaluate Continuing Calibration Report

Data File : C:\MSDCHEM\1\DATA\011503\B013561.D
Acq On : 15 Jan 2003 10:09 am
Sample : CC591-40
Misc : ms2023,vb597,,,,,
MS Integration Params: RTEINT.P

Vial: 1
Operator: Karenw
Inst : MSVOA4
Multiplr: 1.00

Method : C:\MSDCHEM\1\METHODS\826045.M (RTE Integrator)
Title : EPA 624 & SWA 5030B/8260B
Last Update : Fri Jan 10 15:09:17 2003
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	Fluorobenzene	1.000	1.000	0.0	100	0.00
2		Dichlorodifluoromethane	0.287	0.229	20.2#	79	-0.01
3	P	Chloromethane	0.586	0.532	9.2	92	0.00
4	C	Vinyl Chloride	0.394	0.382	3.0	96	0.00
5		Bromomethane	0.204	0.210	-2.9	105	0.00
6		Chloroethane	0.198	0.208	-5.1	104	0.00
7		Trichlorofluoromethane	0.400	0.464	-16.0	112	0.00
8		Ethyl Ether	0.210	0.238	-13.3	106	0.00
9	C	1,1-Dichloroethene	0.404	0.446	-10.4	107	0.00
10		Freon 113	0.223	0.248	-11.2	108	-0.01
11		Acetone	0.095	0.097	-2.1	101	0.00
12		Iodomethane	0.354	0.362	-2.3	98	0.00
13		Methyl acetate	0.224	0.239	-6.7	104	0.00
14		Carbon Disulfide	0.808	0.810	-0.2	102	-0.01
15		Methylene Chloride	0.492	0.519	-5.5	107	0.00
16		trans-1,2-Dichloroethene	0.378	0.400	-5.8	104	-0.01
17		Acrylonitrile	0.085	0.099	-16.5	109	-0.01
18		Methyl Tert Butyl Ether	0.561	0.543	3.2	95	-0.01
19		Hexane	0.341	0.370	-8.5	101	0.00
20	P	1,1-Dichloroethane	0.472	0.516	-9.3	106	0.00
21		ETBE	0.814	0.815	-0.1	97	-0.01
22		Vinyl acetate	0.850	0.948	-11.5	101	0.00
23		Di-isopropyl ether	1.226	1.315	-7.3	104	-0.01
24		2,2-Dichloropropane	0.204	0.220	-7.8	104	0.00
25		cis-1,2-Dichloroethene	0.248	0.267	-7.7	105	0.00
26		2-Butanone	0.128	0.140	-9.4	103	0.00
27		Bromochloromethane	0.127	0.134	-5.5	102	-0.01
28	C	Chloroform	0.408	0.429	-5.1	106	0.00
29		Tetrahydrofuran	0.085	0.081	4.7	93	-0.01
30		1,1,1-Trichloroethane	0.297	0.326	-9.8	105	-0.01
31	S	Dibromofluoromethane	0.262	0.268	-2.3	103	0.00
32		Cyclohexane	0.461	0.496	-7.6	101	0.00
33		1,1-Dichloropropene	0.268	0.285	-6.3	102	-0.01
34		Carbon Tetrachloride	0.246	0.284	-15.4	114	-0.01
35	S	1,2-Dichloroethane-d4	0.308	0.308	0.0	101	0.00
36		TAME	0.604	0.611	-1.2	99	0.00
37		Benzene	0.905	0.990	-9.4	107	0.00
38		1,2-Dichloroethane	0.373	0.366	1.9	103	0.00
39		Trichloroethene	0.218	0.226	-3.7	100	-0.01
40		Methylcyclohexane	0.314	0.338	-7.6	101	0.00
41	C	1,2-Dichloropropane	0.271	0.287	-5.9	103	-0.01
42		Dibromomethane	0.143	0.155	-8.4	105	0.00

Continuing Calibration Summary

Job Number: F16143
Account: TETRPAPT Tetra Tech, NUS
Project: NAS Cecil Field-CTO-248

Sample: VB597-CC591
Lab FileID: B013561.D

43		Bromodichloromethane	0.269	0.319	-18.6	113	-0.01
44		2-Nitropropane	0.078	0.084	-7.7	104	-0.01
45		2-Chloroethyl vinyl ether	0.123	0.124	-0.8	96	0.00
46		4-Methyl-2-pentanone	0.299	0.332	-11.0	105	0.00
47		cis-1,3-Dichloropropene	0.310	0.378	-21.9#	110	0.00
48	I	Chlorobenzene-d5	1.000	1.000	0.0	106	0.00
49	S	Toluene-d8	1.290	1.286	0.3	106	0.00
50	C	Toluene	1.291	1.338	-3.6	106	0.00
51		trans-1,3-Dichloropropene	0.354	0.414	-16.9	113	0.00
52		1,1,2-Trichloroethane	0.237	0.242	-2.1	105	0.00
53		Tetrachloroethene	0.287	0.295	-2.8	103	0.00
54		2-hexanone	0.260	0.272	-4.6	104	0.00
55		1,3-Dichloropropane	0.471	0.483	-2.5	105	0.00
56		Dibromochloromethane	0.235	0.307	-30.6#	129	0.00
57		1,2-Dibromoethane	0.272	0.279	-2.6	103	0.00
58		1-Chlorohexane	0.348	0.392	-12.6	103	0.00
59	P	Chlorobenzene	0.887	0.912	-2.8	105	0.00
60		1,1,1,2-Tetrachloroethane	0.300	0.328	-9.3	111	0.00
61	C	Ethylbenzene	1.401	1.487	-6.1	107	0.00
62		m,p-Xylene	1.114	1.167	-4.8	108	0.00
63		o-Xylene	1.134	1.165	-2.7	105	0.00
64		Styrene	0.897	0.889	0.9	100	0.00
65	P	Bromoform	0.104	0.169	-62.5#	158	0.00
66	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	108	0.00
67		Isopropylbenzene	2.480	2.498	-0.7	105	0.00
68	S	4-Bromofluorobenzene	0.965	0.934	3.2	107	0.00
69		Bromobenzene	0.731	0.743	-1.6	107	0.00
70	P	1,1,2,2-Tetrachloroethane	0.721	0.687	4.7	104	0.00
71		trans-1,4-Dichloro-2-Butene	0.070	0.195	-178.6#	321#	0.00
72		1,2,3-Trichloropropane	0.196	0.191	2.6	104	0.00
73		n-Propylbenzene	3.230	3.301	-2.2	108	0.00
74		2-Chlorotoluene	2.207	2.248	-1.9	108	0.00
75		4-Chlorotoluene	1.996	1.972	1.2	106	0.00
76		1,3,5-Trimethylbenzene	2.136	2.165	-1.4	107	0.00
77		sec-Butylbenzene	2.554	2.579	-1.0	105	0.00
78		1,3-Dichlorobenzene	1.293	1.298	-0.4	105	0.00
79		4-Isopropyltoluene	2.040	2.065	-1.2	105	0.00
80		1,4-Dichlorobenzene	1.336	1.359	-1.7	107	0.00
81		tert-Butylbenzene	1.186	1.180	0.5	105	0.00
82		Benzyl Chloride	1.149	1.222	-6.4	108	0.00
83		n-Butylbenzene	1.929	1.952	-1.2	105	0.00
84		1,2-Dichlorobenzene	1.237	1.247	-0.8	106	0.00
85		1,2,4-Trimethylbenzene	2.223	2.224	-0.0	106	0.00
86		1,2-Dibromo-3-Chloropropane	0.082	0.087	-6.1	110	0.00
87		1,2,4-Trichlorobenzene	0.702	0.596	15.1	92	0.00
88		Hexachlorobutadiene	0.284	0.250	12.0	94	0.00
89		Naphthalene	1.480	1.376	7.0	95	0.00
90		1,2,3-Trichlorobenzene	0.602	0.503	16.4	90	0.00
91	I	Tert Butyl alcohol-d10	1.000	1.000	0.0	100	-0.01
92		Acrolein	3.028	1.969	35.0#	64	-0.01
93		Tert-Butyl Alcohol	1.915	1.898	0.9	98	0.00
94		1,4-Dioxane	0.173	0.168	2.9	98	0.00
95		Cyclohexanone	0.732	0.648	11.5	91	0.00

Average % D = 9.2

Continuing Calibration Summary

Job Number: F16143
Account: TETRPAPT Tetra Tech, NUS
Project: NAS Cecil Field-CTO-248

Sample: VB597-CC591
Lab FileID: B013561.D

(#) = Out of Range SPCC's out = 0 CCC's out = 0
B013428.D 826045.M Thu Jan 16 09:02:00 2003 RPT1

DN4248: 4.6.16

TETRA TECH NUS, INC. | **CHAIN OF CUSTODY** | **NUMBER** 0392 | **PAGE** 1 **OF** 1

PROJECT NO: N4248	**FACILITY:** WASCF BP WELLS	**PROJECT MANAGER** PAUL CALLIGAN	**PHONE NUMBER** 813-806-0202	**LABORATORY NAME AND CONTACT:** ALLTEST
SAMPLERS (SIGNATURE)		**FIELD OPERATIONS LEADER** MERV DALE	**PHONE NUMBER** 904-636-6125	**ADDRESS**
		CARRIER/WAYBILL NUMBER		**CITY, STATE**

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 2003	TIME	SAMPLE ID	LOCATION ID	TOP DEPTH (FT)	BOTTOM DEPTH (FT)	MATRIX (GW, SO, SW, SD, QC, ETC.)	COLLECTION METHOD GRAP (G) COMP (C)	No. OF CONTAINERS	TYPE OF ANALYSIS: SELECT VOCs SW8260B								COMMENTS
1/6	1115	CEF-BP-GW-15-04	15	MS/MSD		GW	G	9	9								COOL TO 4°C
1/6	1500	CEF-BP-GW-25-04	25			GW	G	3	3								
1/6	1125	CEF-BP-GW-65-04	65			GW	G	3	3								WR 301
1/6	0000	CEF-BP-GW-DUP-04				GW	G	3	3								

1. RELINQUISHED BY	DATE 1/10/03	TIME 1300	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

CTO 248, 4.6

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

4/02R
FORM NO. TtNUS-001

ATTACHMENT H

FIRST QUARTER FIELD NATURAL ATTENUATION DATA:
FIELD CALIBRATION LOG
GROUNDWATER SAMPLE LOG SHEETS
LOW FLOW PURGE DATA SHEETS

Tetra Tech NUS, Inc.

DOCUMENTATION OF FIELD CALIBRATION

PROJECT NAME : NAS CECIL FIELD

SITE NAME: BP Wells

PROJECT No.: N4248MW0050235

INSTRUMENT NAME/MODEL: See below

MANUFACTURER: "

SERIAL NUMBER: "

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		
01/30/03	VSE 556	02H0167	PL	~~1.452~~ 1.390	1.413			Rental Supply	CONDUCTIVITY STD is 1.404
"	"	"	"	3.98	4.00			"	pH STD is 4.00
"	"	"	PL	10.00	10.00			"	pH STD is 10.00
"	"	"	PL	239.1	240			"	ORP STD IS
01/30/03	T206202 ⇔ U-22		SM	4.13				2845	AUTO CAL
01/30/03	901203 4 ⇔ U-22		SM	6.65				2845	AUTO CAL ; Bad probe - set aside for return
01/30/03	PhotoVac P10	FD FM311	SM	0	100.0			00182-03	100 PPM ISOBUTYLene
01/30/03	U-22	2012071	MF	3.91	4.00			3128	
01/30/03	M Milkae	110 005149	MF	8.3	98.3			00182-02	
01/30/03	26856	LA MOTTE	PL	0.10	0.00			156PW	0 NTU STD. exp 6/03
"	"	"	"	9.85	10.00			BLMT13	10 NTU STD exp 6/03

CTO 248, 44

Tetra Tech NUS, Inc. **GROUNDWATER SAMPLE LOG SHEET**

Project / Site: NAS Cecil Field
Project No.: N4248MW0050235

Sample ID No.: CEF-BP-GW-~~BP~~ MB-15 -04A
Sample Location: CEF-BP-15

[X] Monitoring Well
[ ] Domestic Well
[ ] Other:

Sampler: MLF

SAMPLING DATA

	Color	pH S.U.	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/L	ORP mV	
Date: 1.30.03								
Time: 1400								
Method: Peristaltic	Clear	6.29	0.321	19.1	0	0.062	-110	

PURGE DATA

Date:	1.30.03
Method:	Peristaltic
Monitor Reading (ppm):	4200
Well Casing Diameter:	2-inch
Well Casing Material:	PVC
Total Well Depth (ft):	14.31
Static Water Level (ft):	6.73
One Casing Volume(gal/L):	4.5 L
Start Purge (hrs):	1325
End Purge (hrs):	1350
Total Purge Time (min):	25
Total Vol. Purged (gal/L):	10

See Attached Low Flow Purge Data Sheet for Purge Data

SAMPLE COLLECTION INFORMATION

Analysis	Preservative	Container Requirements	Laboratory	Collected
TOC	HCL	1 - 250 ml amber glass	Accutest	✓
NO3, NO2, PO4, SO4	none	1 - 1 liter HDPE	Accutest	✓
Dissolved Methane	HCL	3 - 40 ml vials	Accutest	✓

OBSERVATIONS / NOTES

BZ = 4.0 ppm

Dedicated tubing in situ.

LAB INFO

LAB: Accutest
4405 Vineland Rd., C-15
Orlando, FL 32811

COC #: 0345

Check if Collected:

☐ MS / MSD ☐ DUPLICATE / ID No.: None

Signature(s): MLFigueroa

Tetra Tech NUS, Inc.

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: NAS CECIL FIELD
PROJECT NUMBER: N4248MW0050235

WELL ID.: CEF-BP-15-04A
DATE: 1/30/03

Time (Hrs.)	Water Level (Ft. below TOC)	Cum.Vol. (liters)	Flow (mL/Min.)	pH (S.U.)	Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celsius)	ORP (mV)	Comments
1325	6.73	—	—	—	—	—	—	—	—	Lamotte
1330	6.78	2L	400	6.33	0.398	11.5	1.01	18.7	-94	
1335	6.78	4L	400	6.32	0.380	18.9	0.99	18.8	-107	3.2
1340	6.78	6L	400	6.31	0.379	8.3	0.57	18.9	-111	
1345	6.78	8L	400	6.30	0.371	14.4	0.63	19.0	-111	4.0
1350	6.78	10L	400	6.29	0.321	0	0.062	19.1	-110	1.1
1400	sampling	—	—	—	—	—	—	—	—	—

SIGNATURE(S): [signature]

Tetra Tech NUS, Inc.

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Project Site Name: NAS Cecil Field, BP Wells
Project No.: N4248.MW0050235
Sampled By: MCF
Field Analyst: MCF
Field Form Checked as per QA/QC Checklist (initials): MWA

Sample ID No.: CEF-BP-GW- 15 -04A
Sample Location: CEF-BP-GW- 15
Duplicate: ☐
Blank: ☐

SAMPLING DATA:

Date: 1.30.03	Color (Visual)	pH (SU)	S.C. (mS/cm)	Turbidity (NTU)	DO (Meter, mg/l)	Temp. (°C)	ORP (Eh) (+/- mv)
Time: 1400							
Method: Peristaltic	Clear	6.29	0.321	0	0.002	19.1	-110

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Dissolved Oxygen:

Equipment:
CHEMetrics Range ☒ 0 - 1.0 mg/L ☐ 1 - 12 mg/L
Analysis Time: 1416
CHEMetrics: 0.6 mg/L
Notes:

Sulfide (S^{2-}):

Equipment: Chemetrics (kit # K-9510)
Analysis Time: 1420
Concentration: 0 mg/L
Notes:
Filtered: ☐

Carbon Dioxide:

Equipment: —
CHEMetrics (Range: 100-1000 mg/L)
(1910, 1920, or 1925)
Analysis Time: 1435
CHEMetrics: 300 mg/L
Notes:

Standard Additions: ☐ Titrant Molarity:_____ Digits Required: 1st.:_____ 2nd.:_____ 3rd.:_____

Tetra Tech NUS, Inc.

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Project Site Name: NAS Cecil Field, BP Wells
Project No.: N4248.MW0050235
Sampled By: MCF
Field Analyst: MCF
Field Form Checked as per QA/QC Checklist (initials): MWL

Sample ID No.: CEF-BP-GW- 15 -04A
Sample Location: CEF-BP-GW- 15
Duplicate: ☐
Blank: ☐

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Alkalinity:

Equipment: —

CHEMetrics (Range: 10-500 mg/L)
Kits: 9810, (9815) 9820 (9815)

Analysis Time: 1426
Filtered: ☐

Parameter:	Hydroxide	Carbonate	Bicarbonate
Relationship:			

CHEMetrics: 250 mg/L

Notes:

Standard Additions: ☐ Titrant Molarity:_____ Digits Required: 1st.:_____ 2nd.:_____ 3rd.:_____

Ferrous Iron (Fe^{2+}):

Equipment: DR-700 (DR-8 9D) 33 IR-18C Color Wheel Other: _____

Analysis Time: 1418

Program/Module: 500nm

Concentration: 0.16 mg/L

Filtered: ☐

Notes:

Hydrogen Sulfide (H_2S):

Equipment: (HS-C) Other: _____

Analysis Time: 1415

Concentration: 0.3 mg/L

Exceeded 5.0 mg/L range on color chart: ☐

Notes:

QA/QC Checklist:

All data fields have been completed as necessary: ☑
Correct measurement units are cited in the SAMPLING DATA block: ☑
Multiplication is correct for each *Multiplier* table: ☑
Final calculated concentration is within the appropriate *Range Used* block: ☑
QA/QC sample (e.g., Std. Additions, etc.) frequency is appropriate as per the project planning documents: ☑
Title block is initialized by person who performed the QA/QC Checklist: ☑

Tetra Tech NUS, Inc. **GROUNDWATER SAMPLE LOG SHEET**

Project / Site: NAS Cecil Field
Project No.: N4248MW0050235

Sample ID No.: CEF-BP-GW- 2S -04A
Sample Location: CEF-BP- 2S

[X] Monitoring Well
[ ] Domestic Well
[ ] Other:

Sampler: P Lemmette

SAMPLING DATA

Date: 1-30-03	Color	pH S.U.	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/L	ORP mV	
Time: 1600								
Method: Peristaltic	CLEAR	6.27	0.194	21.08	18	1.97	130.3	

PURGE DATA

Date:	1-30-03
Method:	Peristaltic
Monitor Reading (ppm):	0
Well Casing Diameter:	2-inch
Well Casing Material:	PVC
Total Well Depth (ft):	14.5'
Static Water Level (ft):	7.15'
One Casing Volume(gal/L):	4.5
Start Purge (hrs):	1455
End Purge (hrs):	1555
Total Purge Time (min):	60
Total Vol. Purged (gal/L)	9.0

See Attached Low Flow Purge Data Sheet for Purge Data

SAMPLE COLLECTION INFORMATION

Analysis	Preservative	Container Requirements	Laboratory	Collected
TOC	HCL	1 - 250 ml amber glass	Accutest	✓
NO3, NO2, PO4, SO4	none	1 - 1 liter HDPE	Accutest	✓
Dissolved Methane	HCL	3 - 40 ml vials	Accutest	✓

OBSERVATIONS / NOTES

Dedicated tubing in situ.

LAB INFO

LAB: Accutest
4405 Vineland Rd., C-15
Orlando, FL 32811

COC #: 0345

Check if Collected:

☐ MS / MSD ☐ DUPLICATE / ID No.: None

Signature(s): [signature]

Tetra Tech NUS, Inc.

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: NAS CECIL FIELD
PROJECT NUMBER: N4248MW0050235

WELL ID.: CEF-BP-~~0~~28-01A
DATE: 1-30-03

Time (Hrs.)	Water Level (Ft. below TOC)	Cum.Vol. (liters)	Flow (mL/Min.)	pH (S.U.)	Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celsius)	ORP (mV)	Comments
1455	7.15	—	400	—	—	—	—	—	—	START PURGE
1500	7.22	2.0	400	6.48	0.171	60	3.29	20.66	94.4	
1505	7.22	4.0	400	6.34	0.175	50	2.43	20.80	96.3	
1510	7.18	4.5	100	6.36	0.181	40	2.26	21.19	104.0	
1520	7.19	5.5	100	6.33	0.188	35	2.14	21.35	112.8	
1530	7.18	6.5	100	6.32	0.186	29	2.09	21.23	122.9	
1540	7.18	7.5	100	6.29	0.193	24	1.90	21.12	125.9	
1550	7.19	8.5	100	6.28	0.196	20	1.95	20.95	127.0	
1555	7.18	9.0	100	6.27	0.194	18	1.97	21.08	130.3	

SAMPLE TIME 1600

PID
BZ: 0
BG: 0

SIGNATURE(S): [signature]

Tetra Tech NUS, Inc.

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Project Site Name: **NAS Cecil Field, BP Wells**
Project No.: **N4248.MW0050235**
Sampled By: P LEVENTITE
Field Analyst: M FERGUSON
Field Form Checked as per QA/QC Checklist (initials): MWD

Sample ID No.: **CEF-BP-GW-** 2 S' **-04A**
Sample Location: **CEF-BP-GW-** 2 S'
Duplicate: ☐
Blank: ☐

SAMPLING DATA:

	Color (Visual)	pH (SU)	S.C. (mS/cm)	Turbidity (NTU)	DO (Meter, mg/l)	Temp. (°C)	ORP (Eh) (+/- mv)	
Date: 1-30-03								
Time: 1600								
Method: Peristaltic	CLEAR	6.27	0.194	18	1.97	21.08	130.3	

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Dissolved Oxygen:

Equipment:
CHEMetrics Range ☐ 0 - 1.0 mg/L ☒ 1 - 12 mg/L
Analysis Time: 1610
CHEMetrics: 7.0 mg/L
Notes:

Sulfide (S^{2-}):

Equipment: Chemetrics (kit # K-9510)
Analysis Time: 1620
Concentration: 0.0 mg/L
Filtered: ☐
Notes:

Carbon Dioxide:

Equipment: —
CHEMetrics (Range: 0-100 mg/L) (1910, 1920, or 1925)
Analysis Time: 1618
CHEMetrics: 30 mg/L
Notes:

Standard Additions: ☐ Titrant Molarity:_____ Digits Required: 1st.:_____ 2nd.:_____ 3rd.:_____

Tetra Tech NUS, Inc.

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Project Site Name: **NAS Cecil Field, BP Wells**
Project No.: **N4248.MW0050235**
Sampled By: P LEVERETTE
Field Analyst: M FERGUSON
Field Form Checked as per QA/QC Checklist (initials):

Sample ID No.: **CEF-BP-GW-** 2S **-04A**
Sample Location: **CEF-BP-GW-** 2S
Duplicate: ☐
Blank: ☐

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Alkalinity:

Equipment: —

CHEMetrics (Range: 0-100 mg/L)
Kits: (9810), 9815, 9820

Analysis Time: 1613
Filtered: ☐

Parameter:	Hydroxide	Carbonate	Bicarbonate
Relationship:			

CHEMetrics: 70 mg/L

Notes:

Standard Additions: ☐ Titrant Molarity:_____ Digits Required: 1st.:_____ 2nd.:_____ 3rd.:_____

Ferrous Iron (Fe^{2+}):

Equipment: DR-700 (DR-8 90 / 33) IR-18C Color Wheel Other: _____ Analysis Time: 1604

Program/Module: 500nm

Concentration: 0.08 mg/L

Filtered: ☐

Notes:

Hydrogen Sulfide (H_2S):

Equipment: (HS-C) Other: _____ Analysis Time: 1615

Concentration: 0 mg/L Exceeded 5.0 mg/L range on color chart: ☐

Notes:

QA/QC Checklist:

All data fields have been completed as necessary: ☑
Correct measurement units are cited in the SAMPLING DATA block: ☑
Multiplication is correct for each *Multiplier* table: ☑
Final calculated concentration is within the appropriate *Range Used* block: ☑
QA/QC sample (e.g., Std. Additions, etc.) frequency is appropriate as per the project planning documents: ☑
Title block is initialized by person who performed the QA/QC Checklist: ☑

Tetra Tech NUS, Inc. **GROUNDWATER SAMPLE LOG SHEET**

Project / Site: NAS Cecil Field
Project No.: N4248MW0050235

Sample ID No.: CEF-BP-GW- 65 -04A
Sample Location: CEF-BP- 65

[X] Monitoring Well
[ ] Domestic Well
[ ] Other:

Sampler: P Levrette

SAMPLING DATA

	Color	pH S.U.	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/L	ORP mV	
Date: 1-30-03								
Time: 1430								
Method: Peristaltic	CLEAR	6.16	0.264	22.31	14	0.86	26.1	

PURGE DATA

Date:	1-30-03
Method:	Peristaltic
Monitor Reading (ppm):	0.4
Well Casing Diameter:	2-inch
Well Casing Material:	PVC
Total Well Depth (ft):	14.0'
Static Water Level (ft):	7.39'
One Casing Volume(gal/L):	4.1
Start Purge (hrs):	1325
End Purge (hrs):	1425
Total Purge Time (min):	60
Total Vol. Purged (gal/L):	7.5

See Attached Low Flow Purge Data Sheet for Purge Data

SAMPLE COLLECTION INFORMATION

Analysis	Preservative	Container Requirements	Laboratory	Collected
TOC	HCL	1 - 250 ml amber glass	Accutest	✓
NO3, NO2, PO4, SO4	none	1 - 1 liter HDPE	Accutest	✓
Dissolved Methane	HCL	3 - 40 ml vials	Accutest	✓

OBSERVATIONS / NOTES

Dedicated tubing in situ.

LAB INFO

LAB: Accutest
4405 Vineland Rd., C-15
Orlando, FL 32811

COC #: 0345

Check if Collected:

☐ MS / MSD ☐ DUPLICATE / ID No.: None

Signature(s): Peter Levrette

Tetra Tech NUS, Inc.

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: NAS CECIL FIELD
PROJECT NUMBER: N4248MW0050235

WELL ID.: CEF-BP-65
DATE: 1-30-03

Time (Hrs.)	Water Level (Ft. below TOC)	Cum.Vol. (liters)	Flow (mL/Min.)	pH (S.U.)	Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celsius)	ORP (mV)	Comments
1325	7.39	–	400	–	–	–	–	–	–	START PURGE
1330	7.62	2.0	400	6.21	0.273	85	1.99	21.52	111.7	
1335	7.60	2.5	100	6.19	0.270	74	1.86	21.57	99.0	
1345	7.60	3.5	100	6.21	0.270	60	1.25	21.93	78.2	
1355	7.58	4.5	100	6.19	0.269	39	1.25	22.09	69.1	
1405	7.58	5.5	100	6.18	0.267	32	0.96	22.32	46.9	
1420	7.58	7.0	100	6.16	0.265	16	0.82	22.36	28.3	
1425	7.58	7.5	100	6.16	0.264	14	0.86	22.31	26.1	

SAMPLE TIME 1430

PID
BZ: 0
BG: 0

SIGNATURE(S): [illegible]

Tetra Tech NUS, Inc.

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Project Site Name: **NAS Cecil Field, BP Wells**

Project No.: **N4248.MW0050235**

Sampled By: PL

Field Analyst: MCP

Field Form Checked as per QA/QC Checklist (initials): MWD

Sample ID No.: **CEF-BP-GW-** 65 **-04A**

Sample Location: **CEF-BP-GW-** 65

Duplicate: ☐

Blank: ☐

SAMPLING DATA:

	Color (Visual)	pH (SU)	S.C. (mS/cm)	Turbidity (NTU)	DO (Meter, mg/l)	Temp. (°C)	ORP (Eh) (+/- mv)
Date: 1.30.03							
Time: 1430							
Method: Peristaltic	CLEAR	6.16	0.264	~~22.3+~~ 14 MD	0.86	22.31	26.1

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Dissolved Oxygen:

Equipment:

CHEMetrics Range ☒ 0 - 1.0 mg/L ☐ 1 - 12 mg/L

Analysis Time: 1440

CHEMetrics: 0.4 mg/L

Notes:

Sulfide (S^{2-}):

Equipment: Chemetrics (kit # K-9510)

Analysis Time: 1450

Concentration: 0 mg/L

Filtered: ☐

Notes:

Carbon Dioxide:

Equipment:

CHEMetrics (Range: 10-100 mg/L)

(1910, 1920, or 1925)

Analysis Time: 1455

CHEMetrics: 50 mg/L

Notes:

Standard Additions: ☐ Titrant Molarity:_____ Digits Required: 1st.:_____ 2nd.:_____ 3rd.:_____

Tetra Tech NUS, Inc.

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Project Site Name: **NAS Cecil Field, BP Wells**
Project No.: **N4248.MW0050235**
Sampled By: PC
Field Analyst: MCF
Field Form Checked as per QA/QC Checklist (initials): MWD

Sample ID No.: **CEF-BP-GW-** 65 **-04A**
Sample Location: **CEF-BP-GW-** 65
Duplicate: ☐
Blank: ☐

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Alkalinity:

Equipment: —

CHEMetrics (Range: 60-500 mg/L)
Kits: 9810, 9815, 9820

Analysis Time: 1458
Filtered: ☐

Parameter:	Hydroxide	Carbonate	Bicarbonate
Relationship:			

CHEMetrics: 80 mg/L

Notes:

Standard Additions: ☐ Titrant Molarity:_____ Digits Required: 1st.:_____ 2nd.:_____ 3rd.:_____

Ferrous Iron (Fe^{2+}):

Equipment: DR-700 DR-8 90 33 IR-18C Color Wheel Other: _____ Analysis Time: 1444

Program/Module: 500nm

Concentration: 0.18 mg/L Filtered: ☐

Notes:

Hydrogen Sulfide (H_2S):

Equipment: HS-C Other: _____ Analysis Time: 1446

Concentration: 0.0 mg/L Exceeded 5.0 mg/L range on color chart: ☐

Notes:

QA/QC Checklist:

All data fields have been completed as necessary: ☑
Correct measurement units are cited in the SAMPLING DATA block: ☑
Multiplication is correct for each *Multiplier* table: ☑
Final calculated concentration is within the appropriate *Range Used* block: ☑
QA/QC sample (e.g., Std. Additions, etc.) frequency is appropriate as per the project planning documents: ☑
Title block is initialized by person who performed the QA/QC Checklist: ☑

ATTACHMENT I

TABLE OF NATURAL ATTENUATION PARAMETERS (LAB AND FIELD)

Natural Attenuation Laboratory Groundwater Analyses

Parameter	Analytical Method	Bottle/Preservation Requirements	Holding Time
Total Organic Carbon (TOC)	USEPA 415.1	1 – 125 ml amber glass container, HCL to pH < 2 Cool to 4°C	28 days to analysis
Anions: Nitrate (NO_3) Nitrite (NO_2) Phosphate (PO_4) Sulfate (SO_4)	USEPA 300	One 1 liter HDPE	28 days to analysis
Dissolved Methane (CH_4)	RSK SOP 147 & 175	3x40 ml glass vials Teflon-lined septum cap HCL to pH < 2 Cool to 4°C	Analysis within 14 days

Natural Attenuation Field Analyses

Parameter	Analytical Method	Holding Time	Analyze
Dissolved Oxygen (range 0 to 50 mg/l)	YSI 556 MPS Water Quality Meter	Analyze immediately	Field
Dissolved Oxygen (range 0 to 1 & 1 to 12 mg/l)	CHEMetrics K-7501/7512	Analyze immediately	Field
Temperature	YSI 556 MPS Water Quality Meter	Analyze immediately	Field
pH	YSI 556 MPS Water Quality Meter	Analyze immediately	Field
Conductivity	YSI 556 MPS Water Quality Meter	Analyze immediately	Field
Turbidity	YSI 556 MPS Water Quality Meter	Analyze immediately	Field
Carbon Dioxide	CHEMetrics K-1910/1920/1925	Analyze immediately	Field
Alkalinity (range 10 to 100, 50 to 500 & 100 to 1000 mg/l)	CHEMetrics K-9810/9815/9820	Analyze immediately	Field
Ferrous Iron	HACH 1,10 Phenanthroline Method (Low Range), HACH IR-18C (High Range)	Analyze immediately	Field
Hydrogen Sulfide (H_2S)	HACH HS-C	Analyze immediately	Field
Sulfide (S^{-2})	CHEMetrics K-9510	Analyze immediately	Field
Oxidation Reduction Potential (ORP)	YSI 556 MPS Water Quality Meter	Analyze immediately	Field

ATTACHMENT J

FIRST QUARTER LABORATORY REPORT OF NATURAL ATTENUATION DATA

Southeast ACCUTEST Laboratories

02/10/03

Technical Report for

Tetra Tech, NUS

NAS Cecil Field-CTO-248

WR#N4248-WR309 BP Wells

Accutest Job Number: F16396

Report to:

Total number of pages in report: 25

ACCREDITED IN ACCORDANCE WITH nelac

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference and/or state specific certification programs as applicable.

Harry Behzadi, Ph.D.
Laboratory Director

Certifications: FL (DOH E83510), NC (573), NJ (FL002), MA (FL946), IA (366), LA (03051), KS (E-10327), SC, AK

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Southeast • 4405 Vineland Road • Suite C-15 • Orlando, FL 32811 • tel: 407-425-6700 • fax: 407-425-0707 • http://www.accutest.com

Sample Summary

Tetra Tech, NUS

Job No: F16396

NAS Cecil Field-CTO-248
Project No: WR#N4248-WR309 BP Wells

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
F16396-1	01/30/03	14:00	MD	01/31/03	AQ	Ground Water	CEF-BP-GW-1S-04A
F16396-2	01/30/03	14:30	MD	01/31/03	AQ	Ground Water	CEF-BP-GW-6S-04A
F16396-3	01/30/03	16:00	MD	01/31/03	AQ	Ground Water	CEF-BP-GW-2S-04A

Accutest Laboratories

Report of Analysis

Client Sample ID:	CEF-BP-GW-1S-04A		
Lab Sample ID:	F16396-1	Date Sampled:	01/30/03
Matrix:	AQ - Ground Water	Date Received:	01/31/03
Method:	RSKSOP-147/175	Percent Solids:	n/a
Project:	NAS Cecil Field-CTO-248		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	XY009959.D	1	02/03/03	CV	n/a	n/a	GXY219
Run #2							

CAS No.	Compound	Result	RL	MDL	Units	Q
74-82-8	Methane	14.0	0.50	0.30	ug/l	

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	CEF-BP-GW-1S-04A		
Lab Sample ID:	F16396-1	Date Sampled:	01/30/03
Matrix:	AQ - Ground Water	Date Received:	01/31/03
		Percent Solids:	n/a
Project:	NAS Cecil Field-CTO-248		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Nitrogen, Nitrate	0.41	0.10	mg/l	1	01/31/03	LL	EPA 300/SW846 9056
Nitrogen, Nitrite	< 0.10	0.10	mg/l	1	01/31/03	LL	EPA 300/SW846 9056
Phosphate, Ortho	< 0.10	0.10	mg/l	1	01/31/03	SJL	EPA 365.3
Sulfate	< 20	20	mg/l	1	01/31/03	LL	EPA 300/SW846 9056
Total Organic Carbon	12.0	2.0	mg/l	2	02/05/03	ATX	EPA 415.1

RL = Reporting Limit

Accutest Laboratories

Report of Analysis

Client Sample ID:	CEF-BP-GW-6S-04A		
Lab Sample ID:	F16396-2	Date Sampled:	01/30/03
Matrix:	AQ - Ground Water	Date Received:	01/31/03
Method:	RSKSOP-147/175	Percent Solids:	n/a
Project:	NAS Cecil Field-CTO-248		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	XY009960.D	1	02/03/03	CV	n/a	n/a	GXY219
Run #2							

CAS No.	Compound	Result	RL	MDL	Units	Q
74-82-8	Methane	136	0.50	0.30	ug/l	

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	CEF-BP-GW-6S-04A		
Lab Sample ID:	F16396-2	Date Sampled:	01/30/03
Matrix:	AQ - Ground Water	Date Received:	01/31/03
		Percent Solids:	n/a
Project:	NAS Cecil Field-CTO-248		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Nitrogen, Nitrate	0.13	0.10	mg/l	1	01/31/03	LL	EPA 300/SW846 9056
Nitrogen, Nitrite	< 0.10	0.10	mg/l	1	01/31/03	LL	EPA 300/SW846 9056
Phosphate, Ortho	< 0.10	0.10	mg/l	1	01/31/03	SJL	EPA 365.3
Sulfate	< 20	20	mg/l	1	01/31/03	LL	EPA 300/SW846 9056
Total Organic Carbon	9.0	2.0	mg/l	2	02/05/03	ATX	EPA 415.1

RL = Reporting Limit

Accutest Laboratories

Report of Analysis

Client Sample ID:	CEF-BP-GW-2S-04A		
Lab Sample ID:	F16396-3	Date Sampled:	01/30/03
Matrix:	AQ - Ground Water	Date Received:	01/31/03
Method:	RSKSOP-147/175	Percent Solids:	n/a
Project:	NAS Cecil Field-CTO-248		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	XY009961.D	1	02/03/03	CV	n/a	n/a	GXY219
Run #2							

CAS No.	Compound	Result	RL	MDL	Units	Q
74-82-8	Methane	1.40	0.50	0.30	ug/l	

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	CEF-BP-GW-2S-04A		
Lab Sample ID:	F16396-3	Date Sampled:	01/30/03
Matrix:	AQ - Ground Water	Date Received:	01/31/03
		Percent Solids:	n/a
Project:	NAS Cecil Field-CTO-248		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed By		Method
Nitrogen, Nitrate	0.88	0.10	mg/l	1	01/31/03	LL	EPA 300/SW846 9056
Nitrogen, Nitrite	< 0.10	0.10	mg/l	1	01/31/03	LL	EPA 300/SW846 9056
Phosphate, Ortho	< 0.10	0.10	mg/l	1	01/31/03	SJL	EPA 365.3
Sulfate	< 20	20	mg/l	1	01/31/03	LL	EPA 300/SW846 9056
Total Organic Carbon	4.0	2.0	mg/l	2	02/05/03	ATX	EPA 415.1

RL = Reporting Limit

GC Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries
- Surrogate Recovery Summaries
- GC Surrogate Retention Time Summaries
- Initial and Continuing Calibration Summaries

Blank Spike Summary

Job Number: F16396
Account: TETRPAPT Tetra Tech, NUS
Project: NAS Cecil Field-CTO-248

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GXY219-BS	XY009949.D	1	02/03/03	CV	n/a	n/a	GXY219

The QC reported here applies to the following samples: Method: RSKSOP-147/175

F16396-1, F16396-2, F16396-3

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
74-82-8	Methane	108	94.1	87	50-126

Duplicate Summary

Job Number: F16396
Account: TETRPAPT Tetra Tech, NUS
Project: NAS Cecil Field-CTO-248

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
F16419-6DUP	XY009956.D	5	02/03/03	CV	n/a	n/a	GXY219
F16419-6	XY009962.D	5	02/03/03	CV	n/a	n/a	GXY219

The QC reported here applies to the following samples: Method: RSKSOP-147/175

F16396-1, F16396-2, F16396-3

CAS No.	Compound	F16419-6 ug/l	Q	DUP ug/l	Q	RPD	Limits
74-82-8	Methane	2490		2750		10	29

Method Blank Summary

Job Number: F16396
Account: TETRPAPT Tetra Tech, NUS
Project: NAS Cecil Field-CTO-248

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GXY219-MB	XY009948.D	1	02/03/03	CV	n/a	n/a	GXY219

The QC reported here applies to the following samples: Method: RSKSOP-147/175

F16396-1, F16396-2, F16396-3

CAS No.	Compound	Result	RL	Units	Q
74-82-8	Methane	ND	0.50	ug/l	

Matrix Spike Summary

Job Number: F16396
Account: TETRPAPT Tetra Tech, NUS
Project: NAS Cecil Field-CTO-248

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
F16429-5MS	XY009970.D	1	02/03/03	CV	n/a	n/a	GXY219
F16429-5	XY009967.D	1	02/03/03	CV	n/a	n/a	GXY219

The QC reported here applies to the following samples: Method: RSKSOP-147/175

F16396-1, F16396-2, F16396-3

CAS No.	Compound	F16429-5 ug/l	Q	Spike ug/l	MS ug/l	MS %	Limits
74-82-8	Methane	56.0		108	138	76	50-150 [a]

(a) Advisory control limits.

Initial Calibration Summary

Job Number: F16396
Account: TETRPAPT Tetra Tech, NUS
Project: NAS Cecil Field-CTO-248

Sample: GXY218-ICC218
Lab FileID: XY009918.D

Response Factor Report VOA5

Method : C:\HPCHEM\2\METHODS\DGMEE.M (Chemstation Integrator)
Title : Dissolved Gases in Water
Last Update : Thu Jan 16 11:25:31 2003
Response via : Initial Calibration

Calibration Files
1 =XY009916.D 2 =XY009917.D 3 =XY009918.D
4 =XY009919.D 5 =XY009920.D 6 =XY009921.D 7 =XY009922.D

Compound	1	2	3	4	5	6	7	Avg	%RSD
1) Methane		1.875	1.288	1.468	1.433	1.332	1.571	1.494 E4	14.17
2) Ethylene	2.208	3.147	2.438	2.834	2.744	2.599	2.982	2.707 E4	11.87
3) Ethane	1.710	3.100	2.437	2.844	2.760	2.657	3.051	2.651 E4	17.83

(#) = Out of Range

DGMEE.M Fri Jan 31 16:28:50 2003 EF

Continuing Calibration Summary

Job Number: F16396
Account: TETRPAPT Tetra Tech, NUS
Project: NAS Cecil Field-CTO-248

Sample: GXY219-CC218
Lab FileID: XY009958.D

Evaluate Continuing Calibration Report

```
Data File : C:\HPCHEM\2\DATA\020303\XY009958.D          Vial: 100
Acq On    :  3 Feb 2003  11:22 am                    Operator: ClaireV
Sample    : cc218-1000                               Inst    : VOA5
Misc      : gc2294,gxy219,,,,,1                      Multiplr: 1.00
IntFile   : EVENTS.E

Method       : C:\HPCHEM\2\METHODS\DGMEE.M (Chemstation Integrator)
Title        : Dissolved Gases in Water
Last Update  : Thu Jan 16 11:25:31 2003
Response via : Multiple Level Calibration

Min. RRF     :   0.000  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  30%     Max. Rel. Area : 150%
```

	Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	Methane	1000.000	890.369	11.0	93	-0.15
2	Ethylene	1000.000	951.941	4.8	94	-0.04
3	Ethane	1000.000	979.989	2.0	94	0.00

Average % D = 5.9

(#) = Out of Range SPCC's out = 0 CCC's out = 0
XY009920.D DGMEE.M Tue Feb 04 09:46:30 2003 EF

Continuing Calibration Summary

Job Number: F16396
Account: TETRPAPT Tetra Tech, NUS
Project: NAS Cecil Field-CTO-248

Sample: GXY219-CC218
Lab FileID: XY009969.D

Evaluate Continuing Calibration Report

```
Data File : C:\HPCHEM\2\DATA\020303\XY009969.D          Vial: 100
Acq On    :  3 Feb 2003   2:36 pm                    Operator: ClaireV
Sample    : cc218-5000                               Inst    : VOA5
Misc      : gc2294,gxy219,,,,,1                      Multiplr: 1.00
IntFile   : EVENTS.E

Method       : C:\HPCHEM\2\METHODS\DGMEE.M (Chemstation Integrator)
Title        : Dissolved Gases in Water
Last Update  : Thu Jan 16 11:25:31 2003
Response via : Multiple Level Calibration

Min. RRF     :   0.000  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  30%     Max. Rel. Area : 150%
```

	Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	Methane	5000.000	5133.751	-2.7	115	-0.06
2	Ethylene	5000.000	5452.546	-9.1	114	-0.06
3	Ethane	5000.000	5681.461	-13.6	113	-0.08

Average % D = 8.5

(#) = Out of Range SPCC's out = 0 CCC's out = 0
XY009921.D DGMEE.M Tue Feb 04 09:46:58 2003 EF

Continuing Calibration Summary

Job Number: F16396
Account: TETRPAPT Tetra Tech, NUS
Project: NAS Cecil Field-CTO-248

Sample: GXY219-CC218
Lab FileID: XY009946.D

Evaluate Continuing Calibration Report

```
Data File : C:\HPCHEM\2\DATA\020303\XY009946.D          Vial: 100
Acq On    :  3 Feb 2003   8:31 am                    Operator: ClaireV
Sample    : CC218-500                                 Inst    : VOA5
Misc      : gc2294,gxy219,,,,,                         Multiplr: 1.00
IntFile   : EVENTS.E

Method       : C:\HPCHEM\2\METHODS\DGMEE.M (Chemstation Integrator)
Title        : Dissolved Gases in Water
Last Update  : Thu Jan 16 11:25:31 2003
Response via : Multiple Level Calibration

Min. RRF     :   0.000  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  30%     Max. Rel. Area : 150%
```

	Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	Methane	500.000	484.213	3.2	99	-0.06
2	Ethylene	500.000	511.853	-2.4	98	0.00
3	Ethane	500.000	524.460	-4.9	98	0.02

Average % D = 3.5

(#) = Out of Range SPCC's out = 0 CCC's out = 0
XY009919.D DGMEE.M Tue Feb 04 09:46:02 2003 EF

Continuing Calibration Summary

Job Number: F16396
Account: TETRPAPT Tetra Tech, NUS
Project: NAS Cecil Field-CTO-248

Sample: GXY219-ECC218
Lab FileID: XY009973.D

Evaluate Continuing Calibration Report

Data File : C:\HPCHEM\2\DATA\020303\XY009973.D
Acq On : 3 Feb 2003 4:09 pm
Sample : ecc218-1000
Misc : gc2294,gxy219,,,,,1
IntFile : EVENTS.E

Vial: 100
Operator: ClaireV
Inst : VOA5
Multiplr: 1.00

Method : C:\HPCHEM\2\METHODS\DGMEE.M (Chemstation Integrator)
Title : Dissolved Gases in Water
Last Update : Thu Jan 16 11:25:31 2003
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 30% Max. Rel. Area : 150%

	Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	Methane	1000.000	1020.187	-2.0	106	-0.11
2	Ethylene	1000.000	1067.195	-6.7	105	0.00
3	Ethane	1000.000	1095.717	-9.6	105	0.02

Average % D = 6.1

(#) = Out of Range SPCC's out = 0 CCC's out = 0
XY009920.D DGMEE.M Tue Feb 04 09:46:30 2003 EF

General Chemistry

QC Data Summaries

Includes the following where applicable:

- Method Blank and Blank Spike Summaries
- Duplicate Summaries
- Matrix Spike Summaries
- Instrument Runlogs

METHOD BLANK AND SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: F16396
Account: TETRPAPT - Tetra Tech, NUS
Project: NAS Cecil Field-CTO-248

Analyte	Batch ID	RL	MB Result	Units	BSP %Recov	QC Limits
Nitrogen, Nitrate	GP3847/GN11113	0.10	<0.10	mg/l	104.0	90-110%
Nitrogen, Nitrite	GP3847/GN11113	0.10	<0.10	mg/l	105.0	90-110%
Phosphate, Ortho	GP3844/GN11110	0.10	<0.10	mg/l	98.6	87-112%
Sulfate	GP3847/GN11113	20	<20	mg/l	103.0	90-110%

Associated Samples:
Batch GP3844: F16396-1, F16396-2, F16396-3
Batch GP3847: F16396-1, F16396-2, F16396-3

DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: F16396
Account: TETRPAPT - Tetra Tech, NUS
Project: NAS Cecil Field-CTO-248

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Nitrogen, Nitrate	GP3847/GN11113	F16396-1	mg/l	0.41	0.39	5.0	0-20%
Nitrogen, Nitrite	GP3847/GN11113	F16396-1	mg/l	<0.050	<0.050	0.0	0-20%
Phosphate, Ortho	GP3844/GN11110	F16396-1	mg/l	<0.10	<0.10	138.0(a)	0-22%
Sulfate	GP3847/GN11113	F16396-1	mg/l	16.6	16.6	0.0	0-20%

Associated Samples:
Batch GP3844: F16396-1, F16396-2, F16396-3
Batch GP3847: F16396-1, F16396-2, F16396-3
(a) RPD acceptable due to low duplicate and sample concentrations.

MATRIX SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: F16396
Account: TETRPAPT - Tetra Tech, NUS
Project: NAS Cecil Field-CTO-248

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MS Result	%Rec	QC Limits
Nitrogen, Nitrate	GP3847/GN11113	F16396-1	mg/l	0.41	1	1.4	99.0	80-120%
Nitrogen, Nitrite	GP3847/GN11113	F16396-1	mg/l	<0.050	1	0.84	84.0	80-120%
Phosphate, Ortho	GP3844/GN11110	F16396-1	mg/l	<0.10	.300	0.31	104.0	74-126%
Sulfate	GP3847/GN11113	F16396-1	mg/l	16.6	100	112	95.4	80-120%

Associated Samples:
Batch GP3844: F16396-1, F16396-2, F16396-3
Batch GP3847: F16396-1, F16396-2, F16396-3

MATRIX SPIKE DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: F16396
Account: TETRPAPT - Tetra Tech, NUS
Project: NAS Cecil Field-CTO-248

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MSD Result	RPD	QC Limit
Nitrogen, Nitrate	GP3847/GN11113	F16396-1	mg/l	0.41	1	1.4	0.0	
Nitrogen, Nitrite	GP3847/GN11113	F16396-1	mg/l	<0.050	1	0.82	2.4	
Sulfate	GP3847/GN11113	F16396-1	mg/l	16.6	100	112	0.0	

Associated Samples:
Batch GP3847: F16396-1, F16396-2, F16396-3

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: F16396
Account: TETRPAPT - Tetra Tech, NUS
Project: NAS Cecil Field-CTO-248

File ID: 03013101.IC Date Analyzed: 01/31/03 Methods: EPA 300/SW846 9056
Analyst: LL Run ID: GN11113
Parameters: Nitrogen, Nitrate,Nitrogen, Nitrite,Sulfate

Time	Sample Description	Dilution Factor	PS Recov	Comments
08:41	GN11113-ICV1	1		
08:59	GN11113-ICB1	1		
09:17	GN11113-CCV1	1		
09:35	GN11113-CCB1	1		
09:55	GP3845-MB1	1		
10:13	GP3845-B1	1		
10:31	F16395-1	1		(sample used for QC only; not part of login F16396)
10:49	ZZZZZZ	1		
11:06	ZZZZZZ	1		
11:24	ZZZZZZ	1		
11:41	ZZZZZZ	1		
11:59	ZZZZZZ	1		
12:17	GN11113-CCV2	1		
12:34	GN11113-CCB2	1		
12:52	ZZZZZZ	1		
13:10	ZZZZZZ	1		
13:28	ZZZZZZ	1		
13:46	ZZZZZZ	1		
14:04	ZZZZZZ	1		
14:21	GP3845-D1	1		
14:39	GP3845-S1	1		
14:56	GP3845-S2	1		
15:14	GN11113-CCV3	1		
15:32	GN11113-CCB3	1		
15:50	ZZZZZZ	5		
16:07	ZZZZZZ	100		
16:25	ZZZZZZ	1		
16:43	ZZZZZZ	1		
17:00	ZZZZZZ	1		
17:18	ZZZZZZ	1		
17:53	ZZZZZZ	1		
18:11	GN11113-CCV4	1		
18:29	GN11113-CCB4	1		

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: F16396
Account: TETRPAPT - Tetra Tech, NUS
Project: NAS Cecil Field-CTO-248

File ID: 03013101.IC Date Analyzed: 01/31/03 Methods: EPA 300/SW846 9056
Analyst: LL Run ID: GN11113
Parameters: Nitrogen, Nitrate,Nitrogen, Nitrite,Sulfate

	Time	Sample Description	Dilution Factor	PS Recov	Comments
	18:47	ZZZZZZ	1		
	19:04	ZZZZZZ	1		
	19:22	GP3847-MB1	1		
	19:40	GP3847-B1	1		
	19:58	F16396-1	1		
	20:16	F16396-2	1		
	20:34	F16396-3	1		
---------->	Last reportable sample/prep for job F16396				
	20:51	GP3847-D1	1		
	21:09	GP3847-S1	1		
	21:27	GP3847-S2	1		
	21:45	GN11113-CCV5	1		
	22:03	GN11113-CCB5	1		
---------->	Last reportable CCB for job F16396				

Refer to raw data for calibration curve and standards.

TETRA TECH NUS, INC. | **CHAIN OF CUSTODY** | **NUMBER** 0345 | **PAGE** 1 **OF** 1

PROJECT NO: N4248, CTD248	**FACILITY:** BP Ne Hs	**PROJECT MANAGER** PAUL CALLAGAN	**PHONE NUMBER** 813 806 0202
LABORATORY NAME AND CONTACT: ACCUTEST Sue Bell	**SAMPLERS (SIGNATURE)**	**FIELD OPERATIONS LEADER** MERV DALE	**PHONE NUMBER** 904 636 6125
ADDRESS 4405 Vineland Rd C-15	**CARRIER/WAYBILL NUMBER** Fedex 8371 1005 7686	**CITY, STATE** ORLANDO, FL 32811	

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

DATE YEAR 2003	TIME	SAMPLE ID MO	~~LOCATION ID~~ MO	TOP DEPTH (FT)	BOTTOM DEPTH (FT)	MATRIX (GW, SO, SW, SD, QC, ETC.)	COLLECTION METHOD GRAP (G) COMP (C)	No. OF CONTAINERS	TOC	SELECT ANIONS * EPA 415.1	DISSOLVED METHANE EPA 300 RSK SOP 147/175						COMMENTS
								CONTAINER TYPE PLASTIC (P) or GLASS (G)	G	P	G						
								PRESERVATIVE USED		HCl	None	HCl					
1/30	1400	CEF-BP-GW-~~BP~~-15-04A				GW	G	5	1	1	3						Cool to 4°C
1/30	1430	CEF-BP-GW-6S-04A				GW	G	5	1	1	3						
1/30	1600	CEF-BP-GW-25-04A				GW	G	5	1	1	3						WR 309
																	* Nitrate, Nitrite, Phosphate, Sulfate

1. RELINQUISHED BY Merv W. Dale	DATE 1/30/03	TIME 1730	1. RECEIVED BY Fedex	DATE 1/30/03	TIME
2. RELINQUISHED BY	DATE	TIME	2. RECEIVED BY	DATE	TIME
3. RELINQUISHED BY	DATE	TIME	3. RECEIVED BY	DATE	TIME

COMMENTS CTD 248, 4.6

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

4/02R
FORM NO. TINUS 001