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NAS CECIL FIELD, FL
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SITE ASSESSMENT REPORT ADDENDUM LETTER REPORT FOR SITE 9 RIGHT LENS
NAS CECIL FIELD FL
11/17/2003
TETRA TECH NUS INC

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Document Tracking Number 04JAX0029

November 17, 2003

Project Number N0486

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

Reference: CLEAN III Contract Number N62467-94-D-0888
Contract Task Order Number 0121

Subject: Site Assessment Report Addendum
Site 9 Right (9RT) Lens
Naval Air Station Cecil Field
Jacksonville, Florida

Dear Mr. Grabka:

Tetra Tech NUS, Inc. (TtNUS) is pleased to submit this Site Assessment Report Addendum (SARA) II for the subject site. This report has been prepared for the U.S. Navy Southern Division Naval Facilities Engineering Command (NAVFAC EFD SOUTH) under Contract Task Order (CTO) 0121, for the Comprehensive Long-term Environmental Action Navy (CLEAN) III Contract Number N62467-94-D-0888. This SARA addresses comments issued by the Florida Department of Environmental Protection (FDEP) in a technical review letter dated March 6, 2003 (see Attachment A).

BACKGROUND

Site 9RT Lens is a former landing light unit located adjacent to Runway 9 Right. The site is located near the northwest end of Runway 9 as depicted on Figure 1. Approximately 250 to 300 gallons of diesel fuel were reportedly spilled due to a loose fuel connection from a temporary aboveground storage tank (AST) that was connected to a temporary generator on site to power the landing light known as 9RT Lens. The exact date of the spill is not reported; however, soon thereafter in August 1998, a source removal was performed and contaminated soil was delineated by soil headspace analysis and confirmatory soil sampling. In August 1999, the Remedial Action Contractor (RAC) submitted a SAR. The RAC reported that the soil contamination was handled through a source removal and that no soil contamination existed at the site. Therefore, the RAC only installed three temporary monitoring wells, sampled the groundwater, and determined the direction of groundwater flow. The RAC's data indicated that no petroleum contaminants were detected above the FDEP groundwater cleanup target levels (GCTLs). In January 2003, TtNUS performed additional site assessment activities to answer some questions informally issued by the FDEP from their review of the SAR submitted by the RAC.

In response to TtNUS' SARA, a review letter was issued by the FDEP on March 6, 2003 (see Attachment A). The FDEP response letter requested further assessment and clarification of some of the

information provided in the SARA. Each of the comments from the FDEP review letter is addressed below.

Comment 1

The data from the monitoring wells is suspect in that they are from temporary wells that only have a five foot screen interval. Please replace these wells with permanent wells with a ten foot screen interval that bracket the water table and collect a round of groundwater samples for analysis.

Response 1

Temporary wells CEF-9RT-TMW1, CEF-9RT-TMW2 and CEF-9RT-TMW3 were properly abandoned in accordance with Chapter 40C-3, Florida Administrative Code (FAC) (St. Johns River Water Management District Water Well Standards), and they were replaced with permanent wells CEF-9RT-01S, CEF-9RT-02S, and CEF-9RT-03S, respectively, in May 2003. Figure 2 shows the locations of the new wells; CEF-9RT-01S and CEF-9RT-02S were installed adjacent to the location of the temporary wells, while CEF-9RT-03S was installed approximately 10 feet (ft) east of the location of CEF-9RT-TMW3. The permanent wells were installed to approximately 13 ft below land surface (bls) with a screened interval from 3 to 13 ft. Boring logs, well construction diagrams, and certificates of conformance are provided as Attachment B. Following installation and development, groundwater samples were collected from the monitoring wells on June 5, 2003. The groundwater sample log sheets and low flow purge data sheets are provided as Attachment C. Following collection, the samples were placed on ice and shipped under chain-of-custody to Accutest Laboratories in Orlando, Florida. The laboratory analyzed the samples for constituents of the gasoline analytical group (GAG) and kerosene analytical group (KAG) in accordance with Chapter 62-770, FAC, Table B.

Comment 2

Also, as the groundwater flow apparently is to the north-northeast, please locate the downgradient compliance well more directly downgradient than temporary well CEF-9RT-TMW3.

Response 2

Monitoring well CEF-9RT-3S was installed approximately 10 ft east of the location of CEF-9RT-TMW3, (see Figure 1). This appears to place the compliance well directly downgradient of the source well (CEF-9RT-01S).

RESULTS

The top of casing (TOC) elevations of the three new permanent wells were surveyed relative to the top of a 24-inch steel manhole cover, which was assigned an arbitrary elevation of 75.00 ft above mean sea level (msl) based on local topographic map data. Figure 1 indicates the location of the manhole cover relative to the wells. The survey data and TOC elevation calculations for each new well are provided in Attachment D.

One round of synoptic water levels was collected from the new wells on June 3, 2003. The depth to water measurements, TOC elevations and groundwater elevations are summarized on Table 1. Figure 1 illustrates that the groundwater flow direction to the north has remained generally unchanged for this site.

The laboratory report (see Attachment E) indicates that no volatile organic compounds (VOCs) or total recoverable petroleum hydrocarbons (TRPH) were detected in the upgradient well (CEF-9RT-02S) or the downgradient well (CEF-9RT-03S). Only one polynuclear aromatic hydrocarbon (PAH) was detected in monitoring well CEF-9RT-03S (at a concentration below the respective GCTL), and it was not detected in

the upgradient well. Lead was detected in the sample from the upgradient well (at a concentration below the GCTL), and it was not detected in the downgradient well.

The laboratory analytical report indicates that four PAHs and TRPH were detected in the sample collected from the source monitoring well source well (CEF-9RT-01S). However, the concentrations were below their respective GCTLs. The laboratory analytical results are summarized in Table 2 and depicted on Figure 2.

CONCLUSIONS AND RECOMMENDATIONS

Groundwater flow has been adequately established to the north for this site.

The laboratory data indicates that the concentrations of all contaminants of concern were below the applicable GCTLs in the three monitoring wells that were sampled. Based on the results of this supplemental assessment, and the data provided in the Site Assessment Report previously submitted for this site, TtNUS recommends that a No Further Action Order be issued for this site.

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
Project Geologist
Florida License Number PG-0001917

MERVIN W. DALE
LICENSE
NO. 1917
STATE OF
FLORIDA
PROFESSIONAL GEOLOGIST

PC/md

Attachments (9)

pc: Gabriel Magwood, NAVFAC EFD SOUTH (CD only)
Mark Perry (unbound copy and CD)
Debbie Wroblewski (Cover Letter Only)
CTO 0121 Project File

TABLES

Table 1
Water Table Elevation Data

Site Assessment Report Addendeum II
9RT Lens
Naval Air Station Cecil Field
Jacksonville, Florida

Monitoring Well Identification	Well Depth (ft, btoc)	Top-of-Casing Elevation (ft, msl)	June 6, 2003		August 29, 2002		January 7, 2002	
			Depth to Water (ft, btoc)	Water Level Elevation (ft, msl)	Depth to Water (ft, btoc)	Water Level Elevation (ft, msl)	Depth to Water (ft, btoc)	Water Level Elevation (ft, msl)
CEF-9RT-01S	13.45	73.96	2.90	71.06				
CEF-9RT-02S	13.20	74.17	2.85	71.32				
CEF-9RT-03S	13.40	73.50	2.63	70.87				
CEF-9RT-TMW1	9.80	74.84			3.73	71.11	5.60	69.24
CEF-9RT-TMW2	10.34	75.76			4.38	71.38	6.21	69.55
CEF-9RT-TMW3	10.40	75.11			4.24	70.87	5.93	69.18

Notes:
btcc = below top of casing

Table 2
Summary of Detections in Groundwater

Site Assessment Report Addendum
9RT Lens
Naval Air Station Cecil Field
Jacksonville, Florida

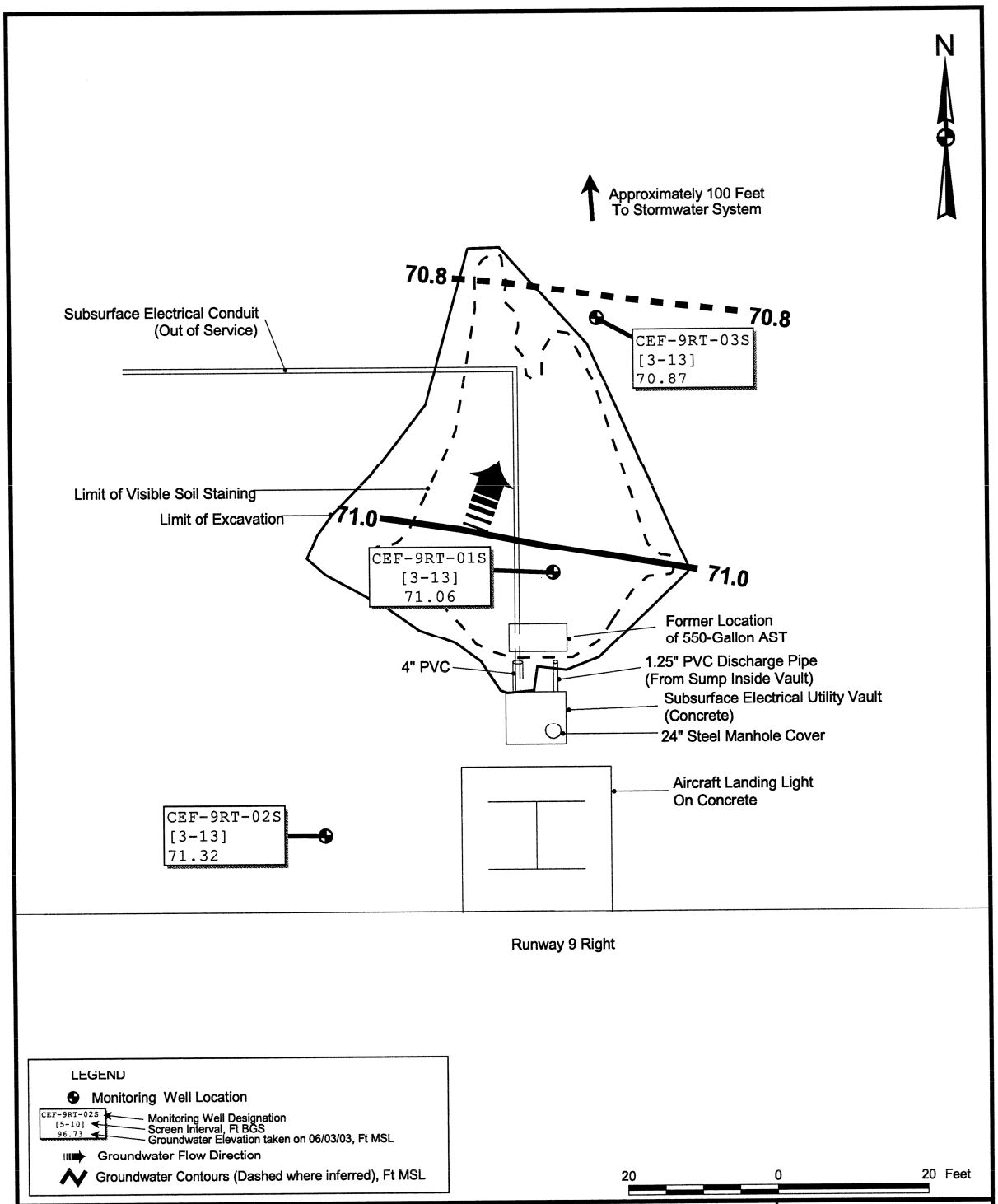
Compounds Detected	Source Area Well		Perimeter Monitoring Wells				GCTL[1]
	CEF-9RT-		CEF-9RT-				
	TMW1	01S	TMW2	02S	TMW3	03S	
	1/7/2003	6/5/2003	1/7/2003	6/5/2003	1/7/2003	6/4/2003	
PAHs (USEPA Method 8270C) (µg/L)							
Acenaphthene	1.6	<1.1	<1.1	<1.1	<1.1	<1.1	20
Fluorene	2	0.28	<1.1	<1.1	<1.1	<1.1	280
1-Methylnaphthalene	**21**	1.3	<1.1	<1.1	<1.1	0.35	20
2-Methylnaphthalene	**27**	0.34	<1.1	<1.1	<1.1	<1.1	20
Naphthalene	9.8	0.31	<1.1	<1.1	<1.1	<1.1	20
Phenanthrene	0.30J	<1.1	<1.1	<1.1	<1.1	<1.1	210
Select VOCs (USEPA Method 8260B) (µg/L)							
Ethylbenzene	1.9J	<1.0	<5.0	<1.0	<5.0	<1.0	30
TRPH (FL-PRO) (mg/L)	2.1	0.354	<0.86	<0.26	<0.89	<0.26	5
Total Lead (USEPA Method 6010B) (mg/L)	0.0052JB	1.2U	0.0038JB	4.9B	0.0030JB	1.2U	0.015

Notes:

[1]GCTLs based on Chapter 62-777, FAC.
USEPA = United States Environmental Protection Agency
µg/L = micrograms per liter
FL-PRO = Florida Petroleum Range Organics
mg/L = milligrams per liter

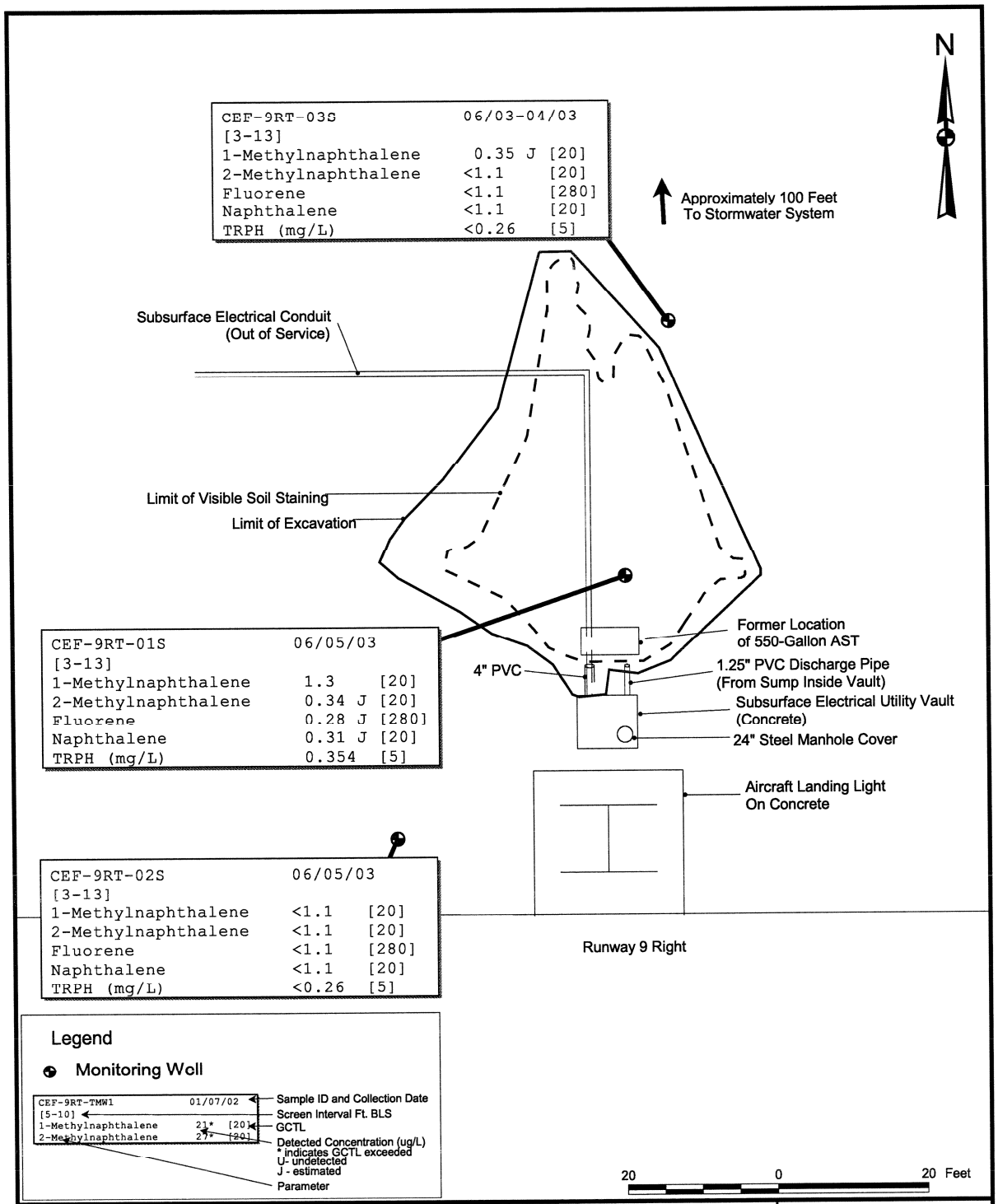
< = less than
Bold indicates values exceeding GCTLs.
J = estimated
B indicates compound is present in method blank.
U indicates a result less than instrument detection limit.

FIGURES



DRAWN BY	DATE	GROUNDWATER FLOW MAP	CONTRACT NUMBER 0486
MJJ	03Jul03	9RT LENS	APPROVED BY — DATE —
CHECKED BY	DATE	SITE ASSESSMENT REPORT ADDENDUM II	APPROVED BY — DATE —
COST/SCHEDULE-AREA		NAS CECIL FIELD	DRAWING NO. FIGURE 1
SCALE AS NOTED		JACKSONVILLE, FLORIDA	REV 0

P:\GIS\NAS_CecilField\9RT-Lens-02.apr 14Aug03 MJJ Layout01



DRAWN BY	DATE		CONTRACT NUMBER
MJJ	03Jul03	GROUNDWATER CONCENTRATION MAP 9RT LENS SITE ASSESSMENT REPORT ADDENDUM II NAS CECIL FIELD JACKSONVILLE, FLORIDA	0486
CHECKED BY	DATE		APPROVED BY — DATE —
COST/SCHEDULE-AREA			APPROVED BY — DATE —
SCALE AS NOTED			DRAWING NO. FIGURE 2 / REV 0

P:\GIS\NAS_CecilField\9RT-Lens-02.apr 14Aug03 MJJ Layout02

ATTACHMENT A

FDEP RESPONSE LETTER
DATED MARCH 6, 2003

Department of Environmental Protection

Jeb Bush
Governor

Twin Towers Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

David B. Struhs
Secretary

March 6, 2003

Mr. Wayne Hansel
Code ES245 (UST RPM)
Southern Division
Naval Facilities Engineering Command
P.O. Box 190010
North Charleston, South Carolina 29419-9010

RE: Site Assessment Report Addendum, Site 9 Right (9RT) Lens, Naval Air Station Cecil Field, Jacksonville, Florida

Dear Mr. Hansel:

I have completed my review of the Site Assessment Report Addendum for Site 9 Right (9RT) Lens, Naval Air Station Cecil Field, dated November 2002 (received November 18, 2002), prepared and submitted by Tetra Tech NUS, Inc. I cannot concur at this time with the recommendation to place this site into Natural Attenuation Monitoring. The data from the monitoring wells is suspect in that they are from temporary wells that only have a five foot screen interval. Please replace these wells with permanent wells with a ten foot screen interval that bracket the water table and collect a round of groundwater samples for analysis. Also, as groundwater flow apparently is to the north-northeast, please locate the downgradient compliance well more directly downgradient than temporary well CEF-9RT-TMW3.

If I can be of any further assistance with this matter, please contact me at (850) 245-8997.

Sincerely,

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

cc: Brian Cheary, FDEP Northeast District
Debbie Vaughn-Wright, USEPA Region 4
Paul Calligan, Tetra Tech NUS, Tampa
Mark Davidson, SouthDiv, Charleston

TJB JJC ESN

ATTACHMENT B

BORING LOGS, MONITORING WELL SHEETS, AND CERTIFICATES OF CONFORMANCE

BORING LOG

Tetra Tech NUS, Inc.

PROJECT NAME: NAS CECIL FIELD
PROJECT NUMBER: N0486
DRILLING COMPANY: Prosonic
DRILLING RIG: Hollow Stem Auger

BORING NO.: CEF-9RT- SB 006
DATE: 5.16.03
GEOLOGIST: Louis Knight
DRILLER: Adam Peterson

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**
							SAND, fine; dk gray						
							and brown-gray						
				3									
							SAND, as above,						
							v. dk gray to 4'						
							yellow-brown 4-7'						
							v. dk brown 7-10						
							yellow-brown 10-13						
				13			EOB = 13' bls						

* 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:

Converted to Well: Yes x No

Well I.D. #: CEF-9RT- 01S

BORING LOG

Tetra Tech NUS, Inc.

PROJECT NAME: NAS CECIL FIELD
PROJECT NUMBER: N0486
DRILLING COMPANY: Prosonic
DRILLING RIG: Hollow Stem Auger

BORING NO.: CEF-9RT- SB 007
DATE: 5.16.03
GEOLOGIST: Louis Knight
DRILLER: Adam Peterson

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**
							FILL SAND W/ CONCRETE DEBRIS						
				1.0			SAND: fine & v. fine;						
							yellow brown						
				3.0									
							SAND: v. dark						
							gray becoming						
							brown-gray at 4'						
							and yellow-brown						
							at 11'						
				13.0			EOB = 13.0 ft						

* 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:

Converted to Well: Yes x No

Well I.D. #: CEF-9RT- 025

BORING LOG

Tetra Tech NUS, Inc.

PROJECT NAME: NAS CECIL FIELD
PROJECT NUMBER: N0486
DRILLING COMPANY: Prosonic
DRILLING RIG: Hollow Stem Auger

BORING NO.: CEF-9RT- SB 008
DATE: 5.16.03
GEOLOGIST: Louis Knight
DRILLER: Adam Peterson

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**
							SAND; fine;						
							brown						
				3			SAND (AA);						
							yellow-brown,						
							becoming dark						
							brown at 6 ft						
							and yellow-brown						
							at 11'						
				13.0									
							EOB = 13' bls						

* 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:

Converted to Well: Yes x No

Well I.D. #: CEF-9RT- 03S

Tetra Tech NUS, Inc.

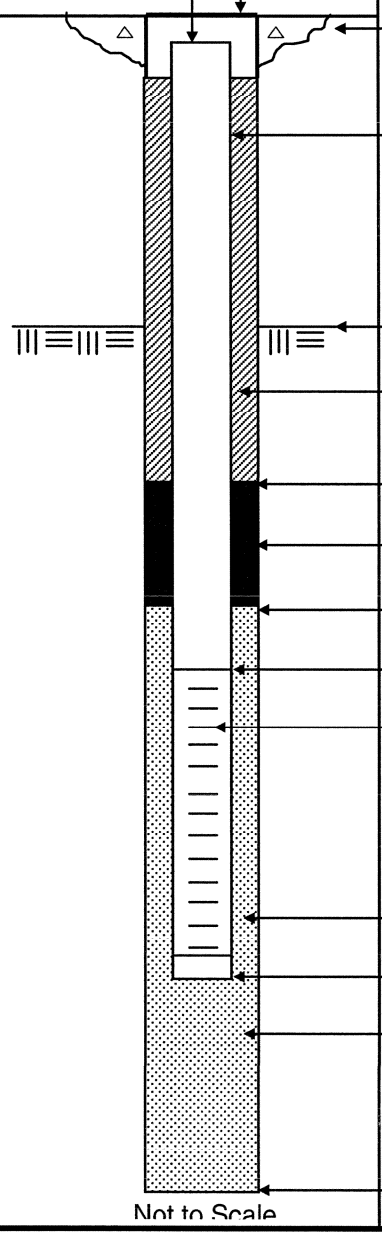
WELL No.: CEF-9RT-015

MONITORING WELL SHEET

PROJECT:	NAS CECIL FIELD	DRILLING Co.:	Prosonic	BORING No.:	CEF-9RT-SB006
PROJECT No.:	N0486	DRILLER:	A. Peterson	DATE COMPLETED:	5.16.03
SITE:	9RT Lens	DRILLING METHOD:	Hollow Stem	NORTHING:	
GEOLOGIST:	L. Knight	DEV. METHOD:		EASTING:	

Ground Elevation =

Datum:



Not to Scale

Elevation / Depth of Top of Riser: 1

Elevation / Height of Top of Surface Casing: 1

I.D. of Surface Casing: N/A

Type of Surface Casing: NA (MANHOLE - 8")

Type of Surface Seal: QUIKLETE

I.D. of Riser: 2"

Type of Riser: SCH 40 PVC

Borehole Diameter: 8"

Elevation / Depth Top of Rock: N/A

Type of Backfill: TYPE I PORTLAND CEMENT

Elevation / Depth of Seal: 11.0

Type of Seal: 30/65 FINE SAND

Elevation / Depth of Top of Filter Pack: 12.0

Elevation / Depth of Top of Screen: 13.0

Type of Screen: SCH 40 PVC

Slot Size x Length: .010" X 10'

I.D. of Screen: 2"

Type of Filter Pack: 20/30 SILICA SAND

Elevation / Depth of Bottom of Screen: 113.0

Elevation / Depth of Bottom of Filter Pack: 113.0

Type of Backfill Below Well:

Elevation / Total Depth of Borehole: 113.0

Tetra Tech NUS, Inc.

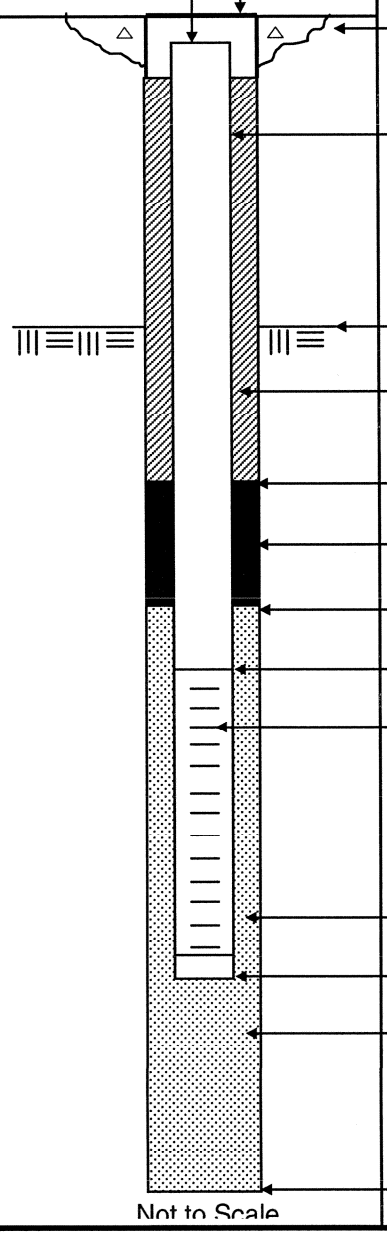
WELL No.: CEF-9RT-02S

MONITORING WELL SHEET

PROJECT:	NAS CECIL FIELD	DRILLING Co.:	Prosonic	BORING No.:	CEF-9RT-SB007
PROJECT No.:	N0486	DRILLER:	A. Peterson	DATE COMPLETED:	5-16-03
SITE:	9RT Lens	DRILLING METHOD:	Hollow Stem	NORTHING:	
GEOLOGIST:	L. Knight	DEV. METHOD:		EASTING:	

Ground Elevation =

Datum:



Not to Scale

Elevation / Depth of Top of Riser: 1

Elevation / Height of Top of Surface Casing: 1

I.D. of Surface Casing: N/A

Type of Surface Casing: NONE (8" STEEL MANHOLE

Type of Surface Seal: QUIKRETE

I.D. of Riser: 2"

Type of Riser: SCH 40 PVC

Borehole Diameter: 8"

Elevation / Depth Top of Rock: N/A

Type of Backfill: TYPE I PORTLAND CEMENT

Elevation / Depth of Seal: 11.0

Type of Seal: 30/65 FINE SAND

Elevation / Depth of Top of Filter Pack: 12.0

Elevation / Depth of Top of Screen: 13.0

Type of Screen: SCH 40 PVC

Slot Size x Length: .010" x 10'

I.D. of Screen: 2"

Type of Filter Pack: 20/30 SILICA SAND

Elevation / Depth of Bottom of Screen: 13.0

Elevation / Depth of Bottom of Filter Pack: 13.0

Type of Backfill Below Well:

Elevation / Total Depth of Borehole: 13.0

Tetra Tech NUS, Inc.

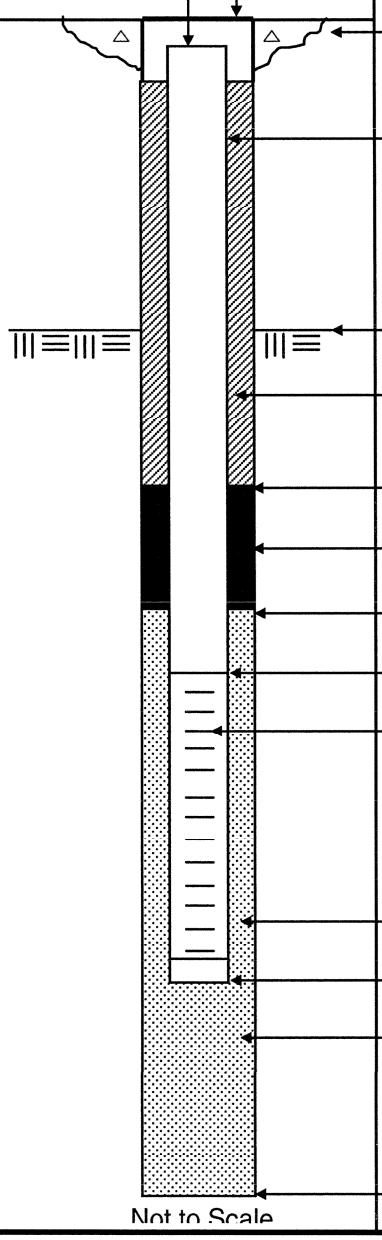
WELL No.: CEF-9RT-03S

MONITORING WELL SHEET

PROJECT:	NAS CECIL FIELD	DRILLING Co.:	Prosonic	BORING No.:	CEF-9RT- SB008
PROJECT No.:	N0486	DRILLER:	A. Peterson	DATE COMPLETED:	5-16-03
SITE:	9RT Lens	DRILLING METHOD:	Hollow Stem	NORTHING:	
GEOLOGIST:	L. Knight	DEV. METHOD:		EASTING:	

Ground Elevation =

Datum:



Not to Scale

Elevation / Depth of Top of Riser:	/
Elevation / Height of Top of Surface Casing:	/
I.D. of Surface Casing:	N/A
Type of Surface Casing:	NONE (8" STEEL MANHOLE)
Type of Surface Seal:	QUIKRETE
I.D. of Riser:	2"
Type of Riser:	SCH 40 PVC
Borehole Diameter:	8"
Elevation / Depth Top of Rock:	N/A
Type of Backfill:	TYPE I PORTLAND CEMENT
Elevation / Depth of Seal:	11.0
Type of Seal:	30/65 FINE SAND
Elevation / Depth of Top of Filter Pack:	12.0
Elevation / Depth of Top of Screen:	13.0
Type of Screen:	SCH 40 PVC
Slot Size x Length:	.010" X 10'
I.D. of Screen:	2"
Type of Filter Pack:	20/30 Silica Sand
Elevation / Depth of Bottom of Screen:	13.0
Elevation / Depth of Bottom of Filter Pack:	13.0
Type of Backfill Below Well:	
Elevation / Total Depth of Borehole:	13.0

MONITORING WELL MATERIALS
CERTIFICATE OF CONFORMANCE

Well Designation: CEF-9RT-1S
Site Name: 9RT LENS, CECIL FIELD
Date Installed: 5/16/03
Project Name: SARA INVESTIGATION

Site Geologist: Louis KNIGHT
Drilling Company: PROSONIC
Driller: A. Peterson
Project Number: N0486

Material	Brand/Description	Source/Supplier	Sample Collected ?
Well Casing	2IN. I.D. SCH.40 PVC Flush Thread	MONOFLEX, LARGO, FL	NO
Well Screen	2IN. I.D., SCH.40 PVC, Flush Th., 0.010" slots	MONOFLEX, LARGO, FL	NO
End Cap	2IN. I.D. SCH.40 PVC, Flush Th., 6" long	MONOFLEX, LARGO, FL	NO
Drilling Fluid	NONE	—	—
Drilling Fluid Additives	NONE	—	—
Backfill Material	NONE	—	—
Annular Filter Pack	20/30 SAND	STANDARD SAND, JAX, FL	NO
~~Bentonite~~ Seal, FINE SAND	30/65 SAND	STANDARD SAND, JAX, FL	NO
Annular Grout	Type I Portland Cement	CEMEX, TIFTON, GA	NO
Surface Cement	QUIKRETE	QUIKRETE COS. Atlanta, GA	NO
Protective Casing	8" Boltdown steel manhole	MONOFLEX, LARGO, 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: Louis Knight

MONITORING WELL MATERIALS
CERTIFICATE OF CONFORMANCE

Well Designation: CEF-9RT-2S
Site Name: 9RT LENS, CECIL FIELD
Date Installed: 5/16/03
Project Name: SARA INVESTIGATION

Site Geologist: Louis KNIGHT
Drilling Company: PROSONIC
Driller: A. Peterson
Project Number: N0486

Material	Brand/Description	Source/Supplier	Sample Collected ?
Well Casing	2 IN. I.D. SCH. 40 PVC Flush Thread	MONOFLEX LARGO, FL	NO
Well Screen	2 IN. I.D., SCH. 40 PVC, Flush Th., 0.010" slots	MONOFLEX LARGO, FL	NO
End Cap	2 IN. I.D. SCH. 40 PVC, Flush Th., 6" long	MONOFLEX, LARGO, FL	NO
Drilling Fluid	NONE	—	—
Drilling Fluid Additives	NONE	—	—
Backfill Material	NONE	—	—
Annular Filter Pack	20/30 SAND	STANDARD SAND, JAX, FL	NO
~~Bentonite~~ Seal, FINE SAND	30/65 SAND	STANDARD SAND, JAX, FL	NO
Annular Grout	Type I Portland Cement	CEMEX, TIFTON, GA	NO
Surface Cement	QUIKRETE	QUIKRETE COS. Atlanta, GA	NO
Protective Casing	8" Boltdown steel manhole	MONOFLEX, LARGO, 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: Louis Knight

MONITORING WELL MATERIALS
CERTIFICATE OF CONFORMANCE

Well Designation: CEF-9RT-3S
Site Name: 9RT LENS, CECIL FIELD
Date Installed: 5/16/03
Project Name: SARA INVESTIGATION

Site Geologist: Louis KNIGHT
Drilling Company: PROSONIC
Driller: A. Peterson
Project Number: N0486

Material	Brand/Description	Source/Supplier	Sample Collected ?
Well Casing	2IN. I.D. SCH.40 PVC Flush Thread	MONOFLEX LARGO, FL	NO
Well Screen	2IN. I.D., SCH.40 PVC, Flush Th., 0.010" slots	MONOFLEX LARGO, FL	NO
End Cap	2IN. I.D. SCH.40 PVC, Flush Th., 6" long	MONOFLEX, LARGO, FL	NO
Drilling Fluid	NONE	—	—
Drilling Fluid Additives	NONE	—	—
Backfill Material	NONE	—	—
Annular Filter Pack	20/30 SAND	STANDARD SAND, JAX, FL	NO
~~Bentonite~~ Seal, FINE SAND	30/65 SAND	STANDARD SAND, JAX, FL	NO
Annular Grout	Type I Portland Cement	CEMEX, TIFTON, GA	NO
Surface Cement	QUIKRETE	QUIKRETE COS. Atlanta, GA	NO
Protective Casing	8" Boltdown steel manhole	MONOFLEX, LARGO, 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: Louis Knight

ATTACHMENT C

GROUNDWATER SAMPLE LOG SHEETS AND LOW FLOW PURGE DATA SHEETS

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: *NAS Cecil Field, 9RT Lens*
Project No.: *N0486GH0050190, CTO 121*

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

Sample ID No.: CEF-9RT-GW-1S-01
Sample Location: CEF-9RT-1S
Sampled By: Pete Leverette
C.O.C. No.: 2316
Type of Sample:
[X] Low Concentration
[ ] High Concentration

SAMPLING DATA

	Color Visual	pH Std. Units	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/l	ORP mV	Other
Date: 6/5/03								
Time: 1030								
Method: Peristaltic	CLEAR	~~4.92~~ 5.01	~~0.067~~ 0.072	24.31	6.8	0.10	84.2	

LOW FLOW PURGE DATA

Date: 6/5/03	Time	pH	S.C.	Temp (°C)	Turbidity	DO	ORP	Other
Method: Peristaltic								
Monitor Reading (ppm): 38.6								
Well Casing Diameter: **2"**								
Well Casing Material: **PVC**								
Total Well Depth (TD): 13 ft.								
Static Water Level (WL): 2.11								
One Casing Volume(gal/L): 6.2								
Start Purge (hrs): 0930								
End Purge (hrs): 1020								
Total Purge Time (min): 50								
Total Vol. Purged (gal/L): 20								

SEE ATTACHED LOW FLOW PURGE DATA SHEET

SAMPLE COLLECTION INFORMATION

Analysis		Preservative	Container Requirements	Collected
See below*	SW846, 8260B	***HCl***	***3-40ml vials***	✓
PAH	SW846, 8310	~~	***2-1L Amber***	✓
Lead	SW846, 6010B	***HNO3***	***1-500ml HDPE***	✓
TRPH	FL-PRO	***H_2SO_4***	***2-1L Amber***	✓
EDB	EPA 504.1	***~~ or HCl***	***3-40ml vials***	✓

OBSERVATIONS / NOTES

Lab: Accutest
POC: Sue Bell

*** BTEX, 1,2-dichloroethane, MTBE, and VOHs**

Circle if Applicable:
MS/MSD
Duplicate ID No.: CEF-9RT-GW-DU02

Signature(s):

Tetra Tech NUS, Inc.

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: NAS CECIL FIELD 9RT Lens
PROJECT NUMBER: *N0486GH0050190, CTO 121*

WELL ID.: CEF-9RT- 1st
DATE: 6/5/03

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
0930	2.11	400	—	—	—	—	—	—	—	START PURGE
0935	2.22	400	2.0	4.92	0.067	74.6	0.91	23.99	149.9	
0945	2.23	400	6.0	4.81	0.062	39.4	0.22	23.98	148.0	
0955	2.23	400	10.0	4.91	0.067	28.9	0.12	24.23	123.3	
1005	2.23	400	14.0	4.98	0.071	13.7	0.08	24.33	99.9	
1010	2.23	400	16.0	4.98	0.072	10.9	0.09	24.31	94.4	
1015	2.23	400	18.0	4.98	0.071	8.4	0.07	24.40	88.6	
1020	2.23	400	20.0	5.01	0.072	6.8	0.10	24.31	84.2	
	SAMPLE	TIME	1030							

SIGNATURE(S):

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: *NAS Cecil Field, 9RT Lens*
Project No.: *N0486GH0050190, CTO 121*

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

Sample ID No.: CEF-9RT-GW-2S-01
Sample Location: CEF-9RT-2S
Sampled By: Pete Leverette
C.O.C. No.: 2316
Type of Sample:
[X] Low Concentration
[ ] High Concentration

SAMPLING DATA

Date: 6/5/03	Color	pH	S.C.	Temp.	Turbidity	DO	ORP	Other
Time: 1330	Visual	Std. Units	mS/cm	°C	NTU	mg/l	mV	
Method: Peristaltic	Lt. Brown	6.41	0.115	26.06	184	3.03	131.5	

LOW FLOW PURGE DATA

Date: 6/5/03	Time	pH	S.C.	Temp (°C)	Turbidity	DO	ORP	Other
Method: Peristaltic								
Monitor Reading (ppm): 28.4								
Well Casing Diameter: **2"**								
Well Casing Material: **PVC**								
Total Well Depth (TD): 13 ft.	SEE ATTACHED LOW FLOW PURGE DATA SHEET							
Static Water Level (WL): 2.15								
One Casing Volume(gal/L): 6.2								
Start Purge (hrs): 1055								
End Purge (hrs): 1320								
Total Purge Time (min): 145								
Total Vol. Purged (gal/L): 31								

SAMPLE COLLECTION INFORMATION

Analysis		Preservative	Container Requirements	Collected
See below*	SW846, 8260B	***HCl***	***3-40ml vials***	✓
PAH	SW846, 8310	***~~***	***2-1L Amber***	✓
Lead	SW846, 6010B	***HNO3***	***1-500ml HDPE***	✓
TRPH	FL-PRO	***H_2SO_4***	***2-1L Amber***	✓
EDB	EPA 504.1	***~~ or HCl***	***3-40ml vials***	✓

OBSERVATIONS / NOTES

Lab: Accutest
POC: Sue Bell

*** BTEX, 1,2-dichloroethane, MTBE, and VOHs**

Circle if Applicable:		Signature(s):
MS/MSD	Duplicate ID No.: NONE	

Tetra Tech NUS, Inc.

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: NAS CECIL FIELD 9RT Lens **WELL ID.:** CEF-9RT-2,5'
PROJECT NUMBER: N0486GH0050190, CTO 121 **DATE:** 6/5/03

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
1055	2.15	400	—	—	—	—	—	—	—	START PURGE
1100	2.38	400	2.0	6.55	0.174	147	5.70	25.26	70.5	
1110	2.41	400	6.0	6.61	0.173	213	5.35	25.03	110.0	
1120	2.41	400	10.0	6.61	0.166	289	5.24	25.00	115.6	
1130	2.40	300	13.0	6.56	0.155	386	4.22	24.98	120.7	
1140	2.40	300	16.0	6.52	0.143	357	3.66	24.93	122.7	
1150	2.38	200	18.0	6.51	0.135	324	2.97	25.44	125.9	
1200	2.38	200	20.0	6.51	0.130	308	2.93	25.79	128.6	
1210	2.37	150	21.5	6.51	0.127	275	3.01	26.17	127.3	
1220	2.37	150	23.0	6.50	0.125	254	2.97	26.38	128.3	
1230	2.37	150	24.5	6.48	0.123	235	2.83	26.55	129.4	
1240	2.37	150	26.0	6.45	0.120	227	2.85	26.19	133.7	
1250	2.37	150	27.5	6.43	0.117	211	2.93	26.02	132.4	
1300	2.37	150	28.0	6.42	0.116	194	2.97	26.14	131.8	
1310	2.37	150	29.5	6.41	0.116	191	3.00	26.12	131.7	
1320	2.37	150	31.0	6.41	0.115	184	3.03	26.06	131.5	

SAMPLE TIME 1330

SIGNATURE(S): [signature]

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: *NAS Cecil Field, 9RT Lens*
Project No.: *N0486GH0050190, CTO 121*

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

Sample ID No.: CEF-9RT-GW-3S - 01
Sample Location: CEF-9RT-3S
Sampled By: Pete Leverette
C.O.C. No.: 2316
Type of Sample:
[X] Low Concentration
[ ] High Concentration

SAMPLING DATA

	Color Visual	pH Std. Units	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/l	ORP mV	Other
Date: 6/3/03								
Time: 1430								
Method: Peristaltic	CLEAR	4.97	0.081	23.78	7.9	0.11	154.7	

LOW FLOW PURGE DATA

Date: 6/3/03	Time	pH	S.C.	Temp (°C)	Turbidity	DO	ORP	Other
Method: Peristaltic								
Monitor Reading (ppm): 0								
Well Casing Diameter: **2"**								
Well Casing Material: **PVC**								
Total Well Depth (TD): 13 ft.	SEE ATTACHED LOW FLOW PURGE DATA SHEET							
Static Water Level (WL): 2.63								
One Casing Volume(gal/L): 6.2								
Start Purge (hrs): 1325								
End Purge (hrs):								
Total Purge Time (min):								
Total Vol. Purged (gal/L):								

SAMPLE COLLECTION INFORMATION

Analysis		Preservative	Container Requirements		Collected
*See below**	SW846, 8260B	*HCl*	*3-40ml vials*		PL ✓
PAH	SW846, 8310	*~~*	*2-1L Amber*		✓ MD
Lead	SW846, 6010B	*HNO3*	*1-500ml HDPE*		PL ✓
TRPH	FL-PRO	*H_2SO_4*	*2-1L Amber*		PL ✓
EDB	EPA 504.1	*~~ or HCl*	*3-40ml vials*		PL ✓

OBSERVATIONS / NOTES

ONLY COLLECTED EDB, today.

Lab: Accutest
POC: Sue Bell

*** BTEX, 1,2-dichloroethane, MTBE, and VOHs**

Circle if Applicable:

MS/MSD	Duplicate ID No.:	Signature(s):
✓	CEF-9RT-GW-3S-01	[signature]

Tetra Tech NUS, Inc.

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: NAS CECIL FIELD 9RT Lens

PROJECT NUMBER: N0486GH0050190, CTO 121

WELL ID.: CEF-9RT-3S

DATE: 6/3/03

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
1325	2.63	400	—	—	—	—	—	—	—	START PURGE
1330	2.70	400	2.0	4.97	0.092	70.9	0.30	24.54	168.7	
1340	2.71	400	6.0	4.99	0.087	39.2	0.17	24.33	168.7	
1350	2.71	400	10.0	4.99	0.085	24.9	0.14	24.16	168.4	
1400	2.71	400	14.0	4.98	0.082	17.3	0.12	23.97	160.0	
1405	2.71	400	16.0	4.97	0.082	12.4	0.12	23.81	158.1	
1410	2.71	400	18.0	4.97	0.081	9.3	0.12	23.82	156.3	
1420	2.71	400	20.0	4.97	0.081	7.9	0.11	23.78	154.7	
	SAMPLE TIME			1430						

SIGNATURE(S): [illegible]

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: *NAS Cecil Field, 9RT Lens*
Project No.: *N0486GH0050190, CTO 121*

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

Sample ID No.: CEF-9RT-GW-3S-01
Sample Location: CEF-9RT-3S
Sampled By: Pete Leverette
C.O.C. No.: 2316
Type of Sample:
[X] Low Concentration
[ ] High Concentration

SAMPLING DATA

	Color Visual	pH Std. Units	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/l	ORP mV	Other
Date: 6/4/03 Time: 1150								
Method: Peristaltic	CLEAR	4.96	0.085	23.51	4.7	0.11	190.3	

LOW FLOW PURGE DATA

Date: 6/4/03	Time	pH	S.C.	Temp (°C)	Turbidity	DO	ORP	Other
Method: Peristaltic								
Monitor Reading (ppm): 0								
Well Casing Diameter: 2"								
Well Casing Material: PVC								
Total Well Depth (TD): 13 ft.	SEE ATTACHED LOW FLOW PURGE DATA SHEET							
Static Water Level (WL): 0.75								
One Casing Volume(gal/L): 6.2								
Start Purge (hrs): 1050								
End Purge (hrs): 1140								
Total Purge Time (min): 50								
Total Vol. Purged (gal/L): 20.0								

SAMPLE COLLECTION INFORMATION

Analysis		Preservative	Container Requirements	Collected
*See below**	SW846, 8260B	*HCl*	*3-40ml vials*	✓
PAH	SW846, 8310	*~~*	*2-1L Amber*	✓
Lead	SW846, 6010B	*HNO3*	*1-500ml HDPE*	✓
TRPH	FL-PRO	*H_2SO_4*	*2-1L Amber*	✓
EDB	EPA 504.1	*~~ or HCl*	*3-40ml vials*	X

OBSERVATIONS / NOTES

Lab: Accutest
POC: Sue Bell

*** BTEX, 1,2-dichloroethane, MTBE, and VOHs**

Circle if Applicable:

MS/MSD	Duplicate ID No.:	Signature(s):
✓	CEF-9RT-GW-3S-01	[signature]

ATTACHMENT D

SURVEY DATA AND CALCULATIONS

Attachment D
Relative Survey Conversion Table

Site Assessment Report Addendum
9RT Lens
Naval Air Station Cecil Field
Jacksonville, Florida

Monitoring Well Identification or Benchmark	HI	+	-	Calculated Elevation (msl)	Assumed Elevation at Benchmark (msl)
Benchmark ("S" in cement near sewer manhole)	NM	NM	NM	NM	75.00
Benchmark ("S" in cement near sewer manhole)	78.97	3.97	NM	75.00	NM
CEF-9RT-01S (btoc)	78.97		5.01	73.96	NM
CEF-9RT-02S (btoc)	78.97		4.80	74.17	NM
CEF-9RT-03S (btoc)	78.97		5.47	73.50	NM

Notes:
HI = height of instrument
NM = not measured

ATTACHMENT E

LABORATORY REPORTS

Southeast ACCUTEST Laboratories

06/18/03

Technical Report for

Tetra Tech, NUS

NAS Cecil Field-CTO-121

CTO121 N0486 N3996 WR347

Accutest Job Number: F18059

Report to:

Tetra Tech, NUS

gleatonc@ttnus.com

ATTN: Chris Gleaton

Total number of pages in report: 9

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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Sample Summary

Tetra Tech, NUS

Job No: F18059

NAS Cecil Field-CTO-121
Project No: CTO121 N0486 N3996 WR347

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
F18059-1	06/03/03	14:30	MWD	06/05/03	AQ	Ground Water	CEF-9RT-GW-3S-01
F18059-2	06/04/03	11:50	MWD	06/05/03	AQ	Ground Water	CEF-9RT-GW-3S-01

Report of Analysis

Client Sample ID:	CEF-9RT-GW-3S-01		
Lab Sample ID:	F18059-1	Date Sampled:	06/03/03
Matrix:	AQ - Ground Water	Date Received:	06/05/03
Method:	EPA 504.1 EPA 504	Percent Solids:	n/a
Project:	NAS Cecil Field-CTO-121		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	ST19991.D	1	06/06/03	MRE	06/06/03	OP7708	GST711
Run #2							

	Initial Volume	Final Volume
Run #1	39.5 ml	2.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
106-93-4	1,2-Dibromoethane	ND	0.018	0.0089	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	73%		60-140%

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

Report of Analysis

Client Sample ID:	CEF-9RT-GW-3S-01		
Lab Sample ID:	F18059-2	Date Sampled:	06/04/03
Matrix:	AQ - Ground Water	Date Received:	06/05/03
Method:	SW846 8260B	Percent Solids:	n/a
Project:	NAS Cecil Field-CTO-121		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	C0016491.D	1	06/11/03	KW	n/a	n/a	VC729
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.50	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.50	ug/l	
75-25-2	Bromoform	ND	1.0	0.50	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.50	ug/l	
75-00-3	Chloroethane	ND	1.0	1.0	ug/l	
67-66-3	Chloroform	ND	1.0	0.50	ug/l	
110-75-8	2-Chloroethyl vinyl ether	ND	5.0	2.5	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.50	ug/l	
75-34-3	1,1-Dichlorocthanc	ND	1.0	0.50	ug/l	
75-35-4	1,1-Dichloroethylene	ND	1.0	0.50	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.50	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	0.50	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.40	ug/l	
156-59-2	cis-1,2-Dichloroethylene	ND	1.0	0.50	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	0.30	ug/l	
541-73-1	m-Dichlorobenzene	ND	1.0	0.50	ug/l	
95-50-1	o-Dichlorobenzene	ND	1.0	0.50	ug/l	
106-46-7	p-Dichlorobenzene	ND	1.0	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethylene	ND	1.0	0.50	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	0.30	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.50	ug/l	
74-83-9	Methyl bromide	ND	1.0	1.0	ug/l	
74-87-3	Methyl chloride	ND	1.0	1.0	ug/l	
75-09-2	Methylene chloride	ND	1.0	1.0	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.50	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.50	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.30	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.50	ug/l	
127-18-4	Tetrachloroethylene	ND	1.0	0.50	ug/l	
108-88-3	Toluene	ND	1.0	0.50	ug/l	
79-01-6	Trichloroethylene	ND	1.0	0.50	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.50	ug/l	

ND = Not detected MDL - Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-9RT-GW-3S-01		
Lab Sample ID:	F18059-2	Date Sampled:	06/04/03
Matrix:	AQ - Ground Water	Date Received:	06/05/03
Method:	SW846 8260B	Percent Solids:	n/a
Project:	NAS Cecil Field-CTO-121		

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
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	98%		86-115%
17060-07-0	1,2-Dichloroethane-D4	105%		78-125%
2037-26-5	Toluene-D8	102%		87-113%
460-00-4	4-Bromofluorobenzene	104%		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

Report of Analysis

Client Sample ID:	CEF-9RT-GW-3S-01		
Lab Sample ID:	F18059-2	Date Sampled:	06/04/03
Matrix:	AQ - Ground Water	Date Received:	06/05/03
Method:	SW846 8270C BY SIM SW846 3510C	Percent Solids:	n/a
Project:	NAS Cecil Field-CTO-121		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	W015803.D	1	06/10/03	SKW	06/09/03	OP7715	SW827
Run #2							

	Initial Volume	Final Volume
Run #1	940 ml	1.0 ml
Run #2		

BN PAH List

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	1.1	0.53	ug/l	
208-96-8	Acenaphthylene	ND	1.1	0.53	ug/l	
120-12-7	Anthracene	ND	1.1	0.27	ug/l	
56-55-3	Benzo(a)anthracene	ND	0.21	0.11	ug/l	
50-32-8	Benzo(a)pyrene	ND	0.21	0.11	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	0.21	0.11	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	0.21	0.11	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	0.21	0.11	ug/l	
218-01-9	Chrysene	ND	0.21	0.11	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	0.21	0.11	ug/l	
206-44-0	Fluoranthene	ND	1.1	0.27	ug/l	
86-73-7	Fluorene	ND	1.1	0.27	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.21	0.11	ug/l	
90-12-0	1-Methylnaphthalene	0.35	1.1	0.27	ug/l	J
91-57-6	2-Methylnaphthalene	ND	1.1	0.27	ug/l	
91-20-3	Naphthalene	ND	1.1	0.27	ug/l	
85-01-8	Phenanthrene	ND	1.1	0.27	ug/l	
129-00-0	Pyrene	ND	1.1	0.27	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	67%		49-119%
321-60-8	2-Fluorobiphenyl	73%		45-118%
1718-51-0	Terphenyl-d14	101%		46-135%

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

Report of Analysis

Client Sample ID:	CEF-9RT-GW-3S-01		
Lab Sample ID:	F18059-2	Date Sampled:	06/04/03
Matrix:	AQ - Ground Water	Date Received:	06/05/03
Method:	EPA 504.1 EPA 504	Percent Solids:	n/a
Project:	NAS Cecil Field-CTO-121		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	ST19992.D	1	06/06/03	MRE	06/06/03	OP7708	GST711
Run #2							

	Initial Volume	Final Volume
Run #1	40.2 ml	2.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
106-93-4	1,2-Dibromoethane	ND	0.017	0.0087	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	69%		60-140%

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

Report of Analysis

Client Sample ID:	CEF-9RT-GW-3S-01		
Lab Sample ID:	F18059-2	Date Sampled:	06/04/03
Matrix:	AQ - Ground Water	Date Received:	06/05/03
Method:	FLORIDA-PRO SW846 3510C	Percent Solids:	n/a
Project:	NAS Cecil Field-CTO-121		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP29807.D	1	06/09/03	SM	06/06/03	OP7710	GOP1004
Run #2							

	Initial Volume	Final Volume
Run #1	950 ml	1.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH (C8-C40)	ND	0.26	0.18	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	78%		51-125%

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

Report of Analysis

Client Sample ID:	CEF-9RT-GW-3S-01		
Lab Sample ID:	F18059-2	Date Sampled:	06/04/03
Matrix:	AQ - Ground Water	Date Received:	06/05/03
		Percent Solids:	n/a
Project:	NAS Cecil Field-CTO-121		

Metals Analysis

Analyte	Result	RL	IDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Lead	1.2 U	5.0	1.2	ug/l	1	06/13/03	06/16/03 DM	SW846 6010B	SW846 3010A

RL = Reporting Limit
IDL = Instrument Detection Limit

U = Indicates a result < IDL
B = Indicates a result > = IDL but < RL

TETRA TECH NUS, INC. | **CHAIN OF CUSTODY** | **NUMBER** 2316 | **PAGE** 1 **OF** 1

PROJECT NO: N0486, CTO 121	**FACILITY:** 9RT LENS, NASCF	**PROJECT MANAGER** PAUL CALLIGAN	**PHONE NUMBER** 813 806 0202	**LABORATORY NAME AND CONTACT:** ACCUTEST SUE BELL
SAMPLERS (SIGNATURE) M. W. Dale		**FIELD OPERATIONS LEADER** MERY DALE	**PHONE NUMBER** 904 636 6125	**ADDRESS** 4405 Vineland Rd. C-15
		CARRIER/WAYBILL NUMBER Fedex 8371 1005 5477/88/99		**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	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 *	SW 8260B	PAHs SW 8270C SIM	EDB SW 8260B	TOTAL LEAD SW 6010B	504.1	TRPH FL-PRO			COMMENTS
CONTAINER TYPE PLASTIC (P) or GLASS (G)									G	G	G	P	G					
PRESERVATIVE USED									HCL	None	HCL	HNO_3	H_2SO_4					
6/3	1430	CEF-9RT-GW-35'-01	—	—	—	GW	G	6			6							Cool to 4°C
6/4	1150	CEF-9RT-GW-35'-01	—	—	—	GW	G	26	9	6	3	2	6					
																		N3996-WR 347
																		* see work release for list of analytes.

1. RELINQUISHED BY M. W. Dale	DATE 6/4/03	TIME 1600	1. RECEIVED BY Fedex	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

Southeast ACCUTEST Laboratories

06/18/03

Technical Report for

Tetra Tech, NUS

NAS Cecil Field-CTO-121

N0486 N3996-WR347

Accutest Job Number: F18092

Report to:

Total number of pages in report: 93

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: F18092

NAS Cecil Field-CTO-121
Project No: N0486 N3996-WR347

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
F18092-1	06/05/03	10:30	MWD	06/06/03	AQ	Ground Water	CEF-9RT-GW-1S-01
F18092-2	06/05/03	13:30	MWD	06/06/03	AQ	Ground Water	CEF-9RT-GW-2S-01
F18092-3	06/05/03	00:00	MWD	06/06/03	AQ	Ground Water	CEF-9RT-GW-DU02

Accutest Laboratories

Report of Analysis

Client Sample ID:	CEF-9RT-GW-1S-01		
Lab Sample ID:	F18092-1	Date Sampled:	06/05/03
Matrix:	AQ - Ground Water	Date Received:	06/06/03
Method:	SW846 8260B	Percent Solids:	n/a
Project:	NAS Cecil Field-CTO-121		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	C0016526.D	1	06/12/03	KW	n/a	n/a	VC730
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.50	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.50	ug/l	
75-25-2	Bromoform	ND	1.0	0.50	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.50	ug/l	
75-00-3	Chloroethane	ND	1.0	1.0	ug/l	
67-66-3	Chloroform	ND	1.0	0.50	ug/l	
110-75-8	2-Chloroethyl vinyl ether	ND	5.0	2.5	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.50	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.50	ug/l	
75-35-4	1,1-Dichloroethylene	ND	1.0	0.50	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.50	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	0.50	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.40	ug/l	
156-59-2	cis-1,2-Dichloroethylene	ND	1.0	0.50	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	0.30	ug/l	
541-73-1	m-Dichlorobenzene	ND	1.0	0.50	ug/l	
95-50-1	o-Dichlorobenzene	ND	1.0	0.50	ug/l	
106-46-7	p-Dichlorobenzene	ND	1.0	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethylene	ND	1.0	0.50	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	0.30	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.50	ug/l	
74-83-9	Methyl bromide	ND	1.0	1.0	ug/l	
74-87-3	Methyl chloride	ND	1.0	1.0	ug/l	
75-09-2	Methylene chloride	ND	1.0	1.0	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.50	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.50	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.30	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.50	ug/l	
127-18-4	Tetrachloroethylene	ND	1.0	0.50	ug/l	
108-88-3	Toluene	ND	1.0	0.50	ug/l	
79-01-6	Trichloroethylene	ND	1.0	0.50	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.50	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

Report of Analysis

Client Sample ID:	CEF-9RT-GW-1S-01		
Lab Sample ID:	F18092-1	Date Sampled:	06/05/03
Matrix:	AQ - Ground Water	Date Received:	06/06/03
Method:	SW846 8260B	Percent Solids:	n/a
Project:	NAS Cecil Field-CTO-121		

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
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	104%		78-125%
2037-26-5	Toluene-D8	102%		87-113%
460-00-4	4-Bromofluorobenzene	97%		84-117%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
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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-9RT-GW-1S-01		
Lab Sample ID:	F18092-1	Date Sampled:	06/05/03
Matrix:	AQ - Ground Water	Date Received:	06/06/03
Method:	SW846 8270C BY SIM SW846 3510C	Percent Solids:	n/a
Project:	NAS Cecil Field-CTO-121		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	W015867.D	1	06/13/03	SKW	06/12/03	OP7740	SW831
Run #2							

	Initial Volume	Final Volume
Run #1	940 ml	1.0 ml
Run #2		

BN PAH List

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	1.1	0.53	ug/l	
208-96-8	Acenaphthylene	ND	1.1	0.53	ug/l	
120-12-7	Anthracene	ND	1.1	0.27	ug/l	
56-55-3	Benzo(a)anthracene	ND	0.21	0.11	ug/l	
50-32-8	Benzo(a)pyrene	ND	0.21	0.11	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	0.21	0.11	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	0.21	0.11	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	0.21	0.11	ug/l	
218-01-9	Chrysene	ND	0.21	0.11	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	0.21	0.11	ug/l	
206-44-0	Fluoranthene	ND	1.1	0.27	ug/l	
86-73-7	Fluorene	0.28	1.1	0.27	ug/l	J
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.21	0.11	ug/l	
90-12-0	1-Methylnaphthalene	1.3	1.1	0.27	ug/l	
91-57-6	2-Methylnaphthalene	0.34	1.1	0.27	ug/l	J
91-20-3	Naphthalene	0.31	1.1	0.27	ug/l	J
85-01-8	Phenanthrene	ND	1.1	0.27	ug/l	
129-00-0	Pyrene	ND	1.1	0.27	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	72%		49-119%
321-60-8	2-Fluorobiphenyl	83%		45-118%
1718-51-0	Terphenyl-d14	93%		46-135%

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-9RT-GW-1S-01		
Lab Sample ID:	F18092-1	Date Sampled:	06/05/03
Matrix:	AQ - Ground Water	Date Received:	06/06/03
Method:	EPA 504.1 EPA 504	Percent Solids:	n/a
Project:	NAS Cecil Field-CTO-121		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	ST20013.D	1	06/09/03	MRE	06/09/03	OP7720	GST712
Run #2							

	Initial Volume	Final Volume
Run #1	38.6 ml	2.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
106-93-4	1,2-Dibromoethane	ND	0.018	0.0091	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	79%		60-140%

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-9RT-GW-1S-01		
Lab Sample ID:	F18092-1	Date Sampled:	06/05/03
Matrix:	AQ - Ground Water	Date Received:	06/06/03
Method:	FLORIDA-PRO SW846 3510C	Percent Solids:	n/a
Project:	NAS Cecil Field-CTO-121		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP29872.D	1	06/11/03	SM	06/09/03	OP7717	GOP1005
Run #2							

	Initial Volume	Final Volume
Run #1	950 ml	1.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH (C8-C40)	0.354	0.26	0.18	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	99%		51-125%

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-9RT-GW-1S-01		
Lab Sample ID:	F18092-1	Date Sampled:	06/05/03
Matrix:	AQ - Ground Water	Date Received:	06/06/03
		Percent Solids:	n/a
Project:	NAS Cecil Field-CTO-121		

Metals Analysis

Analyte	Result	RL	IDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	1.2 U	5.0	1.2	ug/l	1	06/13/03	06/16/03	DM	SW846 6010B	SW846 3010A

RL = Reporting Limit
IDL = Instrument Detection Limit

U = Indicates a result < IDL
B = Indicates a result > = IDL but < RL

Accutest Laboratories

Report of Analysis

Client Sample ID:	CEF-9RT-GW-2S-01		
Lab Sample ID:	F18092-2	Date Sampled:	06/05/03
Matrix:	AQ - Ground Water	Date Received:	06/06/03
Method:	SW846 8260B	Percent Solids:	n/a
Project:	NAS Cecil Field-CTO-121		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	C0016527.D	1	06/12/03	KW	n/a	n/a	VC730
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.50	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.50	ug/l	
75-25-2	Bromoform	ND	1.0	0.50	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.50	ug/l	
75-00-3	Chloroethane	ND	1.0	1.0	ug/l	
67-66-3	Chloroform	ND	1.0	0.50	ug/l	
110-75-8	2-Chloroethyl vinyl ether	ND	5.0	2.5	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.50	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.50	ug/l	
75-35-4	1,1-Dichloroethylene	ND	1.0	0.50	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.50	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	0.50	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.40	ug/l	
156-59-2	cis-1,2-Dichloroethylene	ND	1.0	0.50	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	0.30	ug/l	
541-73-1	m-Dichlorobenzene	ND	1.0	0.50	ug/l	
95-50-1	o-Dichlorobenzene	ND	1.0	0.50	ug/l	
106-46-7	p-Dichlorobenzene	ND	1.0	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethylene	ND	1.0	0.50	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	0.30	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.50	ug/l	
74-83-9	Methyl bromide	ND	1.0	1.0	ug/l	
74-87-3	Methyl chloride	ND	1.0	1.0	ug/l	
75-09-2	Methylene chloride	ND	1.0	1.0	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.50	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.50	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.30	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.50	ug/l	
127-18-4	Tetrachloroethylene	ND	1.0	0.50	ug/l	
108-88-3	Toluene	ND	1.0	0.50	ug/l	
79-01-6	Trichloroethylene	ND	1.0	0.50	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.50	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

Report of Analysis

Client Sample ID:	CEF-9RT-GW-2S-01		
Lab Sample ID:	F18092-2	Date Sampled:	06/05/03
Matrix:	AQ - Ground Water	Date Received:	06/06/03
Method:	SW846 8260B	Percent Solids:	n/a
Project:	NAS Cecil Field-CTO-121		

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
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	104%		78-125%
2037-26-5	Toluene-D8	102%		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-9RT-GW-2S-01		
Lab Sample ID:	F18092-2	Date Sampled:	06/05/03
Matrix:	AQ - Ground Water	Date Received:	06/06/03
Method:	SW846 8270C BY SIM SW846 3510C	Percent Solids:	n/a
Project:	NAS Cecil Field-CTO-121		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	W015868.D	1	06/13/03	SKW	06/12/03	OP7740	SW831
Run #2							

	Initial Volume	Final Volume
Run #1	940 ml	1.0 ml
Run #2		

BN PAH List

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	1.1	0.53	ug/l	
208-96-8	Acenaphthylene	ND	1.1	0.53	ug/l	
120-12-7	Anthracene	ND	1.1	0.27	ug/l	
56-55-3	Benzo(a)anthracene	ND	0.21	0.11	ug/l	
50-32-8	Benzo(a)pyrene	ND	0.21	0.11	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	0.21	0.11	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	0.21	0.11	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	0.21	0.11	ug/l	
218-01-9	Chrysene	ND	0.21	0.11	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	0.21	0.11	ug/l	
206-44-0	Fluoranthene	ND	1.1	0.27	ug/l	
86-73-7	Fluorene	ND	1.1	0.27	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.21	0.11	ug/l	
90-12-0	1-Methylnaphthalene	ND	1.1	0.27	ug/l	
91-57-6	2-Methylnaphthalene	ND	1.1	0.27	ug/l	
91-20-3	Naphthalene	ND	1.1	0.27	ug/l	
85-01-8	Phenanthrene	ND	1.1	0.27	ug/l	
129-00-0	Pyrene	ND	1.1	0.27	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	80%		49-119%
321-60-8	2-Fluorobiphenyl	88%		45-118%
1718-51-0	Terphenyl-d14	104%		46-135%

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-9RT-GW-2S-01		
Lab Sample ID:	F18092-2	Date Sampled:	06/05/03
Matrix:	AQ - Ground Water	Date Received:	06/06/03
Method:	EPA 504.1 EPA 504	Percent Solids:	n/a
Project:	NAS Cecil Field-CTO-121		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	ST20014.D	1	06/09/03	MRE	06/09/03	OP7720	GST712
Run #2							

	Initial Volume	Final Volume
Run #1	39.5 ml	2.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
106-93-4	1,2-Dibromoethane	ND	0.018	0.0089	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	65%		60-140%

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-9RT-GW-2S-01		
Lab Sample ID:	F18092-2	Date Sampled:	06/05/03
Matrix:	AQ - Ground Water	Date Received:	06/06/03
Method:	FLORIDA-PRO SW846 3510C	Percent Solids:	n/a
Project:	NAS Cecil Field-CTO-121		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP29873.D	1	06/11/03	SM	06/09/03	OP7717	GOP1005
Run #2							

	Initial Volume	Final Volume
Run #1	950 ml	1.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH (C8-C40)	ND	0.26	0.18	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	83%		51-125%

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-9RT-GW-2S-01		
Lab Sample ID:	F18092-2	Date Sampled:	06/05/03
Matrix:	AQ - Ground Water	Date Received:	06/06/03
		Percent Solids:	n/a
Project:	NAS Cecil Field-CTO-121		

Metals Analysis

Analyte	Result	RL	IDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	4.9 B	5.0	1.2	ug/l	1	06/13/03	06/16/03	DM	SW846 6010B	SW846 3010A

RL = Reporting Limit
IDL = Instrument Detection Limit

U = Indicates a result < IDL
B = Indicates a result > = IDL but < RL

Accutest Laboratories

Report of Analysis

Client Sample ID:	CEF-9RT-GW-DU02		
Lab Sample ID:	F18092-3	Date Sampled:	06/05/03
Matrix:	AQ - Ground Water	Date Received:	06/06/03
Method:	SW846 8260B	Percent Solids:	n/a
Project:	NAS Cecil Field-CTO-121		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	C0016528.D	1	06/12/03	KW	n/a	n/a	VC730
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.50	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.50	ug/l	
75-25-2	Bromoform	ND	1.0	0.50	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.50	ug/l	
75-00-3	Chloroethane	ND	1.0	1.0	ug/l	
67-66-3	Chloroform	ND	1.0	0.50	ug/l	
110-75-8	2-Chloroethyl vinyl ether	ND	5.0	2.5	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.50	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.50	ug/l	
75-35-4	1,1-Dichloroethylene	ND	1.0	0.50	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.50	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	0.50	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.40	ug/l	
156-59-2	cis-1,2-Dichloroethylene	ND	1.0	0.50	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	0.30	ug/l	
541-73-1	m-Dichlorobenzene	ND	1.0	0.50	ug/l	
95-50-1	o-Dichlorobenzene	ND	1.0	0.50	ug/l	
106-46-7	p-Dichlorobenzene	ND	1.0	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethylene	ND	1.0	0.50	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	0.30	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.50	ug/l	
74-83-9	Methyl bromide	ND	1.0	1.0	ug/l	
74-87-3	Methyl chloride	ND	1.0	1.0	ug/l	
75-09-2	Methylene chloride	ND	1.0	1.0	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.50	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.50	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.30	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.50	ug/l	
127-18-4	Tetrachloroethylene	ND	1.0	0.50	ug/l	
108-88-3	Toluene	ND	1.0	0.50	ug/l	
79-01-6	Trichloroethylene	ND	1.0	0.50	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.50	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

Report of Analysis

Client Sample ID:	CEF-9RT-GW-DU02		
Lab Sample ID:	F18092-3	Date Sampled:	06/05/03
Matrix:	AQ - Ground Water	Date Received:	06/06/03
Method:	SW846 8260B	Percent Solids:	n/a
Project:	NAS Cecil Field-CTO-121		

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
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	104%		78-125%
2037-26-5	Toluene-D8	102%		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-9RT-GW-DU02		
Lab Sample ID:	F18092-3	Date Sampled:	06/05/03
Matrix:	AQ - Ground Water	Date Received:	06/06/03
Method:	SW846 8270C BY SIM SW846 3510C	Percent Solids:	n/a
Project:	NAS Cecil Field-CTO-121		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	W015871.D	1	06/13/03	SKW	06/12/03	OP7740	SW831
Run #2							

	Initial Volume	Final Volume
Run #1	950 ml	1.0 ml
Run #2		

BN PAH List

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	1.1	0.53	ug/l	
208-96-8	Acenaphthylene	ND	1.1	0.53	ug/l	
120-12-7	Anthracene	ND	1.1	0.26	ug/l	
56-55-3	Benzo(a)anthracene	ND	0.21	0.11	ug/l	
50-32-8	Benzo(a)pyrene	ND	0.21	0.11	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	0.21	0.11	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	0.21	0.11	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	0.21	0.11	ug/l	
218-01-9	Chrysene	ND	0.21	0.11	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	0.21	0.11	ug/l	
206-44-0	Fluoranthene	ND	1.1	0.26	ug/l	
86-73-7	Fluorene	ND	1.1	0.26	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.21	0.11	ug/l	
90-12-0	1-Methylnaphthalene	1.2	1.1	0.26	ug/l	
91-57-6	2-Methylnaphthalene	0.31	1.1	0.26	ug/l	J
91-20-3	Naphthalene	0.35	1.1	0.26	ug/l	J
85-01-8	Phenanthrene	ND	1.1	0.26	ug/l	
129-00-0	Pyrene	ND	1.1	0.26	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	72%		49-119%
321-60-8	2-Fluorobiphenyl	80%		45-118%
1718-51-0	Terphenyl-d14	96%		46-135%

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-9RT-GW-DU02		
Lab Sample ID:	F18092-3	Date Sampled:	06/05/03
Matrix:	AQ - Ground Water	Date Received:	06/06/03
Method:	EPA 504.1 EPA 504	Percent Solids:	n/a
Project:	NAS Cecil Field-CTO-121		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	ST20015.D	1	06/09/03	MRE	06/09/03	OP7720	GST712
Run #2							

	Initial Volume	Final Volume
Run #1	39.4 ml	2.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
106-93-4	1,2-Dibromoethane	ND	0.018	0.0089	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	71%		60-140%

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

Report of Analysis

Client Sample ID:	CEF-9RT-GW-DU02		
Lab Sample ID:	F18092-3	Date Sampled:	06/05/03
Matrix:	AQ - Ground Water	Date Received:	06/06/03
Method:	FLORIDA-PRO SW846 3510C	Percent Solids:	n/a
Project:	NAS Cecil Field-CTO-121		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP29874.D	1	06/11/03	SM	06/09/03	OP7717	GOP1005
Run #2							

	Initial Volume	Final Volume
Run #1	960 ml	1.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH (C8-C40)	0.371	0.26	0.18	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	96%		51-125%

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-9RT-GW-DU02		
Lab Sample ID:	F18092-3	Date Sampled:	06/05/03
Matrix:	AQ - Ground Water	Date Received:	06/06/03
		Percent Solids:	n/a
Project:	NAS Cecil Field-CTO-121		

Metals Analysis

Analyte	Result	RL	IDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	1.2 U	5.0	1.2	ug/l	1	06/13/03	06/16/03	DM	SW846 6010B	SW846 3010A

RL = Reporting Limit
IDL = Instrument Detection Limit

U = Indicates a result < IDL
B = Indicates a result > = IDL but < RL

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: F18092
Account: TETRPAPT Tetra Tech, NUS
Project: NAS Cecil Field-CTO-121

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VC730-BS	C0016513.D	1	06/12/03	KW	n/a	n/a	VC730

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

F18092-1, F18092-2, F18092-3

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
71-43-2	Benzene	25	27.2	109	76-123
75-27-4	Bromodichloromethane	25	25.2	101	72-122
75-25-2	Bromoform	25	23.6	94	59-124
108-90-7	Chlorobenzene	25	23.8	95	78-115
75-00-3	Chloroethane	25	34.5	138	65-141
67-66-3	Chloroform	25	25.9	104	74-123
110-75-8	2-Chloroethyl vinyl ether	125	58.9	47	24-148
56-23-5	Carbon tetrachloride	25	26.9	108	68-137
75-34-3	1,1-Dichloroethane	25	27.2	109	73-125
75-35-4	1,1-Dichloroethylene	25	29.2	117	64-136
107-06-2	1,2-Dichloroethane	25	25.8	103	66-118
78-87-5	1,2-Dichloropropane	25	27.2	109	75-129
124-48-1	Dibromochloromethane	25	23.6	94	72-117
156-59-2	cis-1,2-Dichloroethylene	25	26.5	106	79-127
10061-01-5	cis-1,3-Dichloropropene	25	25.0	100	71-117
541-73-1	m-Dichlorobenzene	25	24.0	96	74-117
95-50-1	o-Dichlorobenzene	25	23.4	94	73-115
106-46-7	p-Dichlorobenzene	25	23.8	95	74-117
156-60-5	trans-1,2-Dichloroethylene	25	28.1	112	67-125
10061-02-6	trans-1,3-Dichloropropene	25	24.1	96	65-113
100-41-4	Ethylbenzene	25	25.6	102	76-117
74-83-9	Methyl bromide	25	35.6	142*	45-137
74-87-3	Methyl chloride	25	31.6	126	47-149
75-09-2	Methylene chloride	25	26.3	105	63-126
1634-04-4	Methyl Tert Butyl Ether	25	23.7	95	68-125
71-55-6	1,1,1-Trichloroethane	25	26.9	108	73-131
79-34-5	1,1,2,2-Tetrachloroethane	25	23.2	93	69-114
79-00-5	1,1,2-Trichloroethane	25	24.0	96	74-115
127-18-4	Tetrachloroethylene	25	25.2	101	75-124
108-88-3	Toluene	25	25.4	102	76-118
79-01-6	Trichloroethylene	25	24.4	98	75-122
75-01-4	Vinyl chloride	25	33.5	134	62-142
1330-20-7	Xylene (total)	75	79.1	105	78-120

Blank Spike Summary

Job Number: F18092
Account: TETRPAPT Tetra Tech, NUS
Project: NAS Cecil Field-CTO-121

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VC730-BS	C0016513.D	1	06/12/03	KW	n/a	n/a	VC730

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

F18092-1, F18092-2, F18092-3

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	99%	86-115%
17060-07-0	1,2-Dichloroethane-D4	108%	78-125%
2037-26-5	Toluene-D8	102%	87-113%
460-00-4	4-Bromofluorobenzene	99%	84-117%

Method Blank Summary

Job Number: F18092
Account: TETRPAPT Tetra Tech, NUS
Project: NAS Cecil Field-CTO-121

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VC730-MB	C0016514.D	1	06/12/03	KW	n/a	n/a	VC730

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

F18092-1, F18092-2, F18092-3

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.50	ug/l	
75-27-4	Bromodichloromethane	ND	2.0	0.50	ug/l	
75-25-2	Bromoform	ND	2.0	0.50	ug/l	
108-90-7	Chlorobenzene	ND	2.0	0.50	ug/l	
75-00-3	Chloroethane	ND	2.0	1.0	ug/l	
67-66-3	Chloroform	ND	2.0	0.50	ug/l	
110-75-8	2-Chloroethyl vinyl ether	ND	5.0	2.5	ug/l	
56-23-5	Carbon tetrachloride	ND	2.0	0.50	ug/l	
75-34-3	1,1-Dichloroethane	ND	2.0	0.50	ug/l	
75-35-4	1,1-Dichloroethylene	ND	2.0	0.50	ug/l	
107-06-2	1,2-Dichloroethane	ND	2.0	0.50	ug/l	
78-87-5	1,2-Dichloropropane	ND	2.0	0.50	ug/l	
124-48-1	Dibromochloromethane	ND	2.0	0.40	ug/l	
156-59-2	cis-1,2-Dichloroethylene	ND	2.0	0.50	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	2.0	0.30	ug/l	
541-73-1	m-Dichlorobenzene	ND	2.0	0.50	ug/l	
95-50-1	o-Dichlorobenzene	ND	2.0	0.50	ug/l	
106-46-7	p-Dichlorobenzene	ND	2.0	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethylene	ND	2.0	0.50	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	2.0	0.30	ug/l	
100-41-4	Ethylbenzene	ND	2.0	0.50	ug/l	
74-83-9	Methyl bromide	ND	2.0	1.0	ug/l	
74-87-3	Methyl chloride	ND	2.0	1.0	ug/l	
75-09-2	Methylene chloride	ND	5.0	1.0	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	2.0	0.50	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	2.0	0.50	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	2.0	0.30	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	2.0	0.50	ug/l	
127-18-4	Tetrachloroethylene	ND	2.0	0.50	ug/l	
108-88-3	Toluene	ND	2.0	0.50	ug/l	
79-01-6	Trichloroethylene	ND	2.0	0.50	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.50	ug/l	
1330-20-7	Xylene (total)	ND	6.0	1.0	ug/l	

Method Blank Summary

Job Number: F18092
Account: TETRPAPT Tetra Tech, NUS
Project: NAS Cecil Field-CTO-121

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VC730-MB	C0016514.D	1	06/12/03	KW	n/a	n/a	VC730

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

F18092-1, F18092-2, F18092-3

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

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: F18092
Account: TETRPAPT Tetra Tech, NUS
Project: NAS Cecil Field-CTO-121

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
F18119-1MS	C0016520.D	1	06/12/03	KW	n/a	n/a	VC730
F18119-1MSD	C0016521.D	1	06/12/03	KW	n/a	n/a	VC730
F18119-1 [a]	C0016518.D	1	06/12/03	KW	n/a	n/a	VC730

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

F18092-1, F18092-2, F18092-3

CAS No.	Compound	F18119-1 ug/l	Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	ND		25	27.4	110	26.2	105	4	71-127/8
75-27-4	Bromodichloromethane	ND		25	24.9	100	24.2	97	3	70-121/10
75-25-2	Bromoform	ND		25	24.2	97	24.0	96	1	50-124/18
108-90-7	Chlorobenzene	ND		25	24.0	96	23.1	92	4	77-113/6
75-00-3	Chloroethane	ND		25	35.3	141	33.7	135	5	57-155/19
67-66-3	Chloroform	0.63	J	25	26.0	101	25.3	99	3	72-125/11
110-75-8	2-Chloroethyl vinyl ether	ND		125	ND	0*	ND	0*	nc	10-158/37
56-23-5	Carbon tetrachloride	ND		25	26.1	104	24.7	99	6	61-140/13
75-34-3	1,1-Dichloroethane	ND		25	27.5	110	26.3	105	4	71-129/11
75-35-4	1,1-Dichloroethylene	ND		25	28.9	116	27.5	110	5	60-141/14
107-06-2	1,2-Dichloroethane	ND		25	25.7	103	25.8	103	0	64-121/9
78-87-5	1,2-Dichloropropane	ND		25	27.4	110	26.5	106	3	73-131/8
124-48-1	Dibromochloromethane	ND		25	23.4	94	22.9	92	2	65-118/12
156-59-2	cis-1,2-Dichloroethylene	ND		25	26.2	105	25.6	102	2	75-131/12
10061-01-5	cis-1,3-Dichloropropene	ND		25	23.8	95	23.0	92	3	62-115/13
541-73-1	m-Dichlorobenzene	ND		25	23.9	96	23.1	92	3	72-115/7
95-50-1	o-Dichlorobenzene	ND		25	23.6	94	22.9	92	3	72-113/8
106-46-7	p-Dichlorobenzene	ND		25	23.4	94	22.8	91	3	72-116/7
156-60-5	trans-1,2-Dichloroethylene	ND		25	28.6	114	27.3	109	5	65-127/12
10061-02-6	trans-1,3-Dichloropropene	ND		25	23.2	93	23.2	93	0	51-115/13
100-41-4	Ethylbenzene	ND		25	25.9	104	24.8	99	4	72-119/7
74-83-9	Methyl bromide	ND		25	36.7	147*	34.6	138	6	44-140/19
74-87-3	Methyl chloride	ND		25	32.6	130	32.1	128	2	43-148/23
75-09-2	Methylene chloride	ND		25	26.5	106	25.9	104	2	61-131/11
1634-04-4	Methyl Tert Butyl Ether	ND		25	22.9	92	23.4	94	2	65-125/12
71-55-6	1,1,1-Trichloroethane	ND		25	26.1	104	25.2	101	4	69-135/13
79-34-5	1,1,2,2-Tetrachloroethane	ND		25	23.2	93	23.6	94	2	62-120/10
79-00-5	1,1,2-Trichloroethane	ND		25	24.7	99	23.9	96	3	71-117/10
127-18-4	Tetrachloroethylene	33.7		25	61.7	112	58.0	97	6	74-123/11
108-88-3	Toluene	ND		25	25.2	101	24.1	96	4	73-119/10
79-01-6	Trichloroethylene	ND		25	23.7	95	22.8	91	4	71-124/9
75-01-4	Vinyl chloride	ND		25	33.3	133	33.1	132	1	53-149/22
1330-20-7	Xylene (total)	2.3	J	75	81.7	106	79.2	103	3	73-123/8

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: F18092
Account: TETRPAPT Tetra Tech, NUS
Project: NAS Cecil Field-CTO-121

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
F18119-1MS	C0016520.D	1	06/12/03	KW	n/a	n/a	VC730
F18119-1MSD	C0016521.D	1	06/12/03	KW	n/a	n/a	VC730
F18119-1 [a]	C0016518.D	1	06/12/03	KW	n/a	n/a	VC730

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

F18092-1, F18092-2, F18092-3

CAS No.	Surrogate Recoveries	MS	MSD	F18119-1	Limits
1868-53-7	Dibromofluoromethane	100%	99%	99%	86-115%
17060-07-0	1,2-Dichloroethane-D4	108%	108%	104%	78-125%
2037-26-5	Toluene-D8	100%	101%	102%	87-113%
460-00-4	4-Bromofluorobenzene	95%	96%	99%	84-117%

(a) Sample contains residual chlorine.

Instrument Performance Check (BFB)

Job Number: F18092
Account: TETRPAPT Tetra Tech, NUS
Project: NAS Cecil Field-CTO-121

Sample:	VC730-BFB	Injection Date:	06/12/03
Lab File ID:	C0016511.D	Injection Time:	08:53
Instrument ID:	GCMSC		

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
50	15.0 - 40.0% of mass 95	14011	22.4		Pass
75	30.0 - 60.0% of mass 95	26672	42.6		Pass
95	Base peak, 100% relative abundance	62616	100.0		Pass
96	5.0 - 9.0% of mass 95	4765	7.6		Pass
173	Less than 2.0% of mass 174	144	0.23	(0.24) [a]	Pass
174	50.0 - 100.0% of mass 95	59944	95.7		Pass
175	5.0 - 9.0% of mass 174	4236	6.8	(7.1) [a]	Pass
176	95.0 - 101.0% of mass 174	57752	92.2	(96.3) [a]	Pass
177	5.0 - 9.0% of mass 176	3907	6.2	(6.8) [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
VC730-CC702	C0016512.D	06/12/03	09:10	00:17	Continuing cal 40
VC730-BS	C0016513.D	06/12/03	09:38	00:45	Blank Spike
VC730-MB	C0016514.D	06/12/03	10:06	01:13	Method Blank
ZZZZZZ	C0016515.D	06/12/03	10:34	01:41	(unrelated sample)
ZZZZZZ	C0016516.D	06/12/03	11:02	02:09	(unrelated sample)
ZZZZZZ	C0016517.D	06/12/03	11:32	02:39	(unrelated sample)
F18119-1	C0016518.D	06/12/03	12:00	03:07	(used for QC only; not part of job F18092)
ZZZZZZ	C0016519.D	06/12/03	12:28	03:35	(unrelated sample)
F18119-1MS	C0016520.D	06/12/03	12:55	04:02	Matrix Spike
F18119-1MSD	C0016521.D	06/12/03	13:23	04:30	Matrix Spike Duplicate
ZZZZZZ	C0016522.D	06/12/03	13:51	04:58	(unrelated sample)
ZZZZZZ	C0016523.D	06/12/03	14:19	05:26	(unrelated sample)
ZZZZZZ	C0016524.D	06/12/03	14:49	05:56	(unrelated sample)
ZZZZZZ	C0016525.D	06/12/03	15:17	06:24	(unrelated sample)
F18092-1	C0016526.D	06/12/03	15:45	06:52	CEF-9RT-GW-1S-01
F18092-2	C0016527.D	06/12/03	16:12	07:19	CEF-9RT-GW-2S-01
F18092-3	C0016528.D	06/12/03	16:40	07:47	CEF-9RT-GW-DU02
ZZZZZZ	C0016529.D	06/12/03	17:08	08:15	(unrelated sample)
ZZZZZZ	C0016530.D	06/12/03	17:36	08:43	(unrelated sample)
ZZZZZZ	C0016531.D	06/12/03	18:03	09:10	(unrelated sample)
ZZZZZZ	C0016532.D	06/12/03	18:31	09:38	(unrelated sample)
ZZZZZZ	C0016533.D	06/12/03	19:01	10:08	(unrelated sample)
ZZZZZZ	C0016534.D	06/12/03	19:31	10:38	(unrelated sample)
VC731-BS	C0016537.D	06/12/03	21:00	12:07	Blank Spike

Instrument Performance Check (BFB)

Job Number: F18092
Account: TETRPAPT Tetra Tech, NUS
Project: NAS Cecil Field-CTO-121

Sample:	VC730-BFB	Injection Date:	06/12/03
Lab File ID:	C0016511.D	Injection Time:	08:53
Instrument ID:	GCMSC		

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
VC731-MB	C0016538.D	06/12/03	21:27	12:34	Method Blank
ZZZZZZ	C0016539.D	06/12/03	21:55	13:02	(unrelated sample)
ZZZZZZ	C0016540.D	06/12/03	22:23	13:30	(unrelated sample)
T4478-4	C0016541.D	06/12/03	22:50	13:57	(used for QC only; not part of job F18092)
T4478-4MS	C0016542.D	06/12/03	23:18	14:25	Matrix Spike
T4478-4MSD	C0016543.D	06/12/03	23:46	14:53	Matrix Spike Duplicate

Volatile Internal Standard Area Summary

Job Number: F18092
Account: TETRPAPT Tetra Tech, NUS
Project: NAS Cecil Field-CTO-121

Check Std:	VC730-CC702	Injection Date:	06/12/03
Lab File ID:	C0016512.D	Injection Time:	09:10
Instrument ID:	GCMSC	Method:	SW846 8260B

	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT
Check Std	1257399	10.27	1034063	13.50	629097	16.05	89602	7.49
Upper Limit [a]	2514798	10.77	2068126	14.00	1258194	16.55	179204	7.99
Lower Limit [b]	628700	9.77	517032	13.00	314549	15.55	44801	6.99

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT
VC730-BS	1241816	10.27	1033862	13.50	611248	16.05	93728	7.49
VC730-MB	1229245	10.27	975610	13.50	520629	16.05	91909	7.50
ZZZZZZ	1145131	10.27	921068	13.50	505684	16.05	81037	7.50
ZZZZZZ	1130569	10.27	908616	13.50	498486	16.05	86999	7.50
ZZZZZZ	1115693	10.27	898458	13.50	495176	16.05	80314	7.50
F18119-1	1083395	10.27	872256	13.50	473625	16.05	76080	7.50
ZZZZZZ	1061492	10.27	852446	13.50	455758	16.05	78490	7.51
F18119-1MS	1054847	10.27	874997	13.50	538873	16.05	80193	7.50
F18119-1MSD	1101175	10.27	914668	13.50	553341	16.05	85396	7.50
ZZZZZZ	1089550	10.27	870683	13.50	467806	16.05	77789	7.50
ZZZZZZ	1037427	10.27	846984	13.50	449697	16.05	72780	7.50
ZZZZZZ	1002805	10.27	805441	13.50	426512	16.05	66322	7.51
ZZZZZZ	981222	10.27	792946	13.50	418022	16.05	69113	7.51
F18092-1	950565	10.27	759961	13.50	421643	16.05	68307	7.51
F18092-2	951585	10.27	761732	13.50	409538	16.05	67905	7.51
F18092-3	928983	10.27	742764	13.50	405256	16.05	64969	7.51
ZZZZZZ	920371	10.27	750266	13.50	397510	16.05	65881	7.50
ZZZZZZ	898612	10.27	726092	13.50	386296	16.05	63550	7.51
ZZZZZZ	887434	10.27	711495	13.50	378265	16.05	60218	7.50
ZZZZZZ	866243	10.27	698672	13.50	369972	16.05	57850	7.51
ZZZZZZ	858142	10.27	697253	13.50	364498	16.05	56283	7.49
ZZZZZZ	844483	10.26	679009	13.50	360528	16.05	53943	7.50
VC731-BS	850480	10.27	727338	13.50	462309	16.05	57048	7.50
VC731-MB	855362	10.27	698235	13.50	368688	16.05	61236	7.51
ZZZZZZ	821846	10.27	657751	13.50	357320	16.05	56889	7.51
ZZZZZZ	804717	10.27	650430	13.50	345811	16.05	52828	7.50
T4478-4	797453	10.27	637479	13.50	337753	16.05	56377	7.51
T4478-4MS	840037	10.27	721329	13.50	454053	16.05	60500	7.49
T4478-4MSD	892178	10.27	763514	13.50	471627	16.05	66315	7.50

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

Volatile Internal Standard Area Summary

Job Number: F18092
Account: TETRPAPT Tetra Tech, NUS
Project: NAS Cecil Field-CTO-121

Check Std:	VC730-CC702	Injection Date:	06/12/03
Lab File ID:	C0016512.D	Injection Time:	09:10
Instrument ID:	GCMSC	Method:	SW846 8260B

Lab	IS 1		IS 2		IS 3		IS 4	
Sample ID	AREA	RT	AREA	RT	AREA	RT	AREA	RT

(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: F18092
Account: TETRPAPT Tetra Tech, NUS
Project: NAS Cecil Field-CTO-121

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
F18092-1	C0016526.D	99.0	104.0	102.0	97.0
F18092-2	C0016527.D	100.0	104.0	102.0	99.0
F18092-3	C0016528.D	100.0	104.0	102.0	97.0
F18119-1MS	C0016520.D	100.0	108.0	100.0	95.0
F18119-1MSD	C0016521.D	99.0	108.0	101.0	96.0
VC730-BS	C0016513.D	99.0	108.0	102.0	99.0
VC730-MB	C0016514.D	98.0	103.0	103.0	103.0

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: F18092
Account: TETRPAPT Tetra Tech, NUS
Project: NAS Cecil Field-CTO-121

Sample: VC702-ICC702
Lab FileID: C0015941.D

Response Factor Report MSVOA5

Method : C:\MSDCHEM\2\METHODS\82600514.M (RTE Integrator)
Title : EPA 624 & SWA 5030B/8260B
Last Update : Wed May 14 14:02:18 2003
Response via : Initial Calibration

Calibration Files
1 =C0015938.D 2 =C0015939.D 3 =C0015940.D
4 =C0015941.D 5 =C0015942.D 6 =C0015943.D

		Compound	1	2	3	4	5	6	Avg	%RSD
1)	I	Fluorobenzene	----------	----------	----------	ISTD	----------	----------	----------	
2)		Dichlorodifluoromet		0.263	0.249	0.242	0.230	0.231	0.243	5.57
3)	P	Chloromethane	0.533	0.484	0.456	0.457	0.440	0.434	0.467	7.84
4)	C	Vinyl Chloride	0.339	0.369	0.359	0.354	0.337	0.332	0.348	4.14
5)		Bromomethane	0.176	0.174	0.167	0.159	0.144	0.133	0.159	10.81
6)		Chloroethane	0.163	0.168	0.159	0.158	0.146	0.138	0.155	7.26
7)		Trichlorofluorometh	0.195	0.238	0.241	0.242	0.247	0.255	0.236	9.03
8)		Ethyl ether	0.261	0.260	0.257	0.265	0.259	0.257	0.260	1.07
9)		Acrolein	0.022	0.033	0.028	0.029	0.028	0.028	0.028	12.40
10)		Freon 113	0.269	0.259	0.247	0.248	0.242	0.239	0.251	4.58
11)		Acetone		0.117	0.103	0.106	0.104	0.104	0.107	5.40
12)	C	1,1-Dichloroethene	0.406	0.424	0.416	0.431	0.425	0.427	0.422	2.12
13)		Iodomethane	0.412	0.413	0.410	0.428	0.426	0.437	0.421	2.59
14)		Methyl Acetate	0.268	0.256	0.249	0.258	0.260	0.265	0.259	2.52
15)		Carbon Disulfide	0.798	0.795	0.793	0.813	0.792	0.791	0.797	1.05
16)		Methylene Chloride		0.593	0.500	0.478	0.465	0.463	0.500	10.84
17)		Acrylonitrile	0.090	0.115	0.107	0.110	0.108	0.107	0.106	7.98
18)		Methyl Tert Butyl E		0.591	0.602	0.629	0.632	0.640	0.619	3.37
19)		trans-1,2-Dichloroe	0.363	0.409	0.396	0.405	0.396	0.399	0.395	4.15
20)		Hexane	0.363	0.389	0.394	0.414	0.403	0.399	0.394	4.42
21)		Vinyl acetate	0.595	0.743	0.665	0.667	0.651	0.613	0.656	7.86
22)		Di-isopropyl ether	1.013	1.150	1.120	1.143	1.106	1.092	1.104	4.49
23)	P	1,1-Dichloroethane	0.488	0.488	0.479	0.490	0.479	0.471	0.482	1.53
24)		ETBE	0.613	0.729	0.768	0.824	0.835	0.843	0.769	11.48
25)		2-Butanone	0.146	0.157	0.151	0.157	0.159	0.161	0.155	3.58
26)		cis-1,2-Dichloroeth	0.236	0.274	0.261	0.265	0.262	0.259	0.260	4.87
27)		2,2-Dichloropropane	0.194	0.216	0.210	0.210	0.204	0.197	0.205	4.07
28)		Bromochloromethane	0.121	0.137	0.127	0.134	0.133	0.132	0.130	4.45
29)	C	Chloroform	0.393	0.426	0.410	0.419	0.411	0.414	0.412	2.69
30)		Tetrahydrofuran	0.086	0.087	0.090	0.098	0.099	0.105	0.094	7.87
31)	S	Dibromofluoromethan	0.253	0.254	0.256	0.255	0.254	0.255	0.254	0.43
32)		1,1,1-Trichloroetha	0.313	0.330	0.321	0.333	0.332	0.331	0.327	2.39
33)		Cyclohexane	0.447	0.493	0.526	0.554	0.553	0.550	0.521	8.27
34)		1,1-Dichloropropene	0.256	0.292	0.293	0.307	0.301	0.300	0.292	6.24
35)		Carbon Tetrachlorid	0.274	0.301	0.300	0.311	0.310	0.313	0.301	4.75
36)	S	1,2-Dichloroethane-	0.285	0.289	0.299	0.290	0.287	0.285	0.289	1.85
37)		1,2-Dichloroethane	0.372	0.361	0.359	0.371	0.372	0.373	0.368	1.70
38)		Benzene	1.000	0.970	0.952	0.968	0.935	0.902	0.955	3.51
39)		TAME		0.576	0.593	0.623	0.629	0.630	0.610	4.01
40)		Trichloroethene	0.256	0.245	0.244	0.258	0.258	0.262	0.254	2.95
41)	C	1,2-Dichloropropane	0.288	0.300	0.291	0.299	0.293	0.286	0.293	1.93
42)		Methylcyclohexane		0.366	0.384	0.402	0.398	0.390	0.388	3.66
43)		Dibromomethane	0.153	0.158	0.158	0.162	0.160	0.162	0.159	2.17
44)		Bromodichloromethan	0.294	0.313	0.314	0.325	0.327	0.331	0.317	4.31
45)		2-Nitropropane	0.068	0.081	0.078	0.081	0.082	0.083	0.079	7.08
46)		2-Chloroethyl vinyl		0.108	0.112	0.117	0.118	0.116	0.114	3.67

Initial Calibration Summary

Job Number: F18092
Account: TETRPAPT Tetra Tech, NUS
Project: NAS Cecil Field-CTO-121

Sample: VC702-ICC702
Lab FileID: C0015941.D

47)		cis-1,3-Dichloropro	0.323	0.372	0.385	0.407	0.409	0.413	0.385	8.91
48)		4-Methyl-2-pentanon	0.270	0.339	0.331	0.344	0.343	0.344	0.329	8.87
49)	I	Chlorobenzene-d5	----------ISTD----------							
50)	S	Toluene-d8	1.177	1.188	1.180	1.179	1.179	1.181	1.181	0.35
51)	C	Toluene	1.336	1.288	1.235	1.276	1.273	1.271	1.280	2.54
52)		trans-1,3-Dichlorop	0.379	0.415	0.423	0.449	0.454	0.460	0.430	7.17
53)		1,1,2-Trichloroetha	0.241	0.245	0.237	0.236	0.239	0.241	0.240	1.39
54)		2-hexanone		0.280	0.282	0.290	0.293	0.294	0.288	2.27
55)		1,3-Dichloropropane	0.470	0.502	0.476	0.478	0.473	0.472	0.479	2.53
56)		Tetrachloroethene	0.363	0.353	0.337	0.343	0.340	0.343	0.347	2.81
57)		Dibromochloromethan	0.286	0.292	0.296	0.312	0.321	0.328	0.306	5.58
58)		1,2-Dibromoethane	0.260	0.290	0.281	0.295	0.302	0.307	0.289	5.83
59)		1-Chlorohexane		0.356	0.396	0.422	0.426	0.429	0.406	7.62
60)	P	Chlorobenzene	0.922	0.910	0.870	0.883	0.889	0.896	0.895	2.07
61)		1,1,1,2-Tetrachloro	0.323	0.321	0.319	0.319	0.321	0.316	0.320	0.73
62)	C	Ethylbenzene	1.305	1.419	1.408	1.458	1.439	1.406	1.406	3.79
63)		m,p-Xylene	0.985	1.093	1.096	1.126	1.111	1.094	1.084	4.64
64)		o-Xylene	0.918	1.108	1.138	1.172	1.142	1.110	1.098	8.31
65)		Styrene		0.847	0.911	0.959	0.943	0.910	0.914	4.70
66)	P	Bromoform	0.208	0.217	0.232	0.249	0.263	0.272	0.240	10.57
67)	I	1,4-Dichlorobenzene-d	----------ISTD----------							
68)		Isopropylbenzene	1.737	2.116	2.221	2.335	2.345	2.365	2.186	10.96
69)		Cyclohexanone		0.028	0.021	0.022	0.024	0.024	0.024	11.11
70)	S	4-Bromofluorobenzen	0.907	0.901	0.896	0.880	0.884	0.891	0.893	1.12
71)	P	1,1,2,2-Tetrachloro	0.723	0.734	0.669	0.659	0.654	0.655	0.682	5.32
72)		trans-1,4-Dichloro-		0.175	0.196	0.213	0.232	0.243	0.212	12.97
73)		1,2,3-Trichloroprop	0.193	0.209	0.184	0.188	0.192	0.193	0.193	4.43
74)		Bromobenzene	0.719	0.759	0.732	0.737	0.733	0.705	0.731	2.51
75)		n-Propylbenzene	2.636	2.948	2.968	3.060	3.031	2.935	2.930	5.18
76)		1,3,5-Trimethylbenz	1.605	1.915	1.975	2.034	2.005	1.942	1.913	8.19
77)		2-Chlorotoluene	1.939	2.025	2.001	2.035	1.994	1.922	1.986	2.30
78)		4-Chlorotoluene	1.739	1.814	1.815	1.869	1.875	1.882	1.833	2.98
79)		tert-Butylbenzene	1.135	1.277	1.328	1.363	1.374	1.368	1.307	7.01
80)		1,2,4-Trimethylbenz	1.702	2.050	2.074	2.119	2.132	2.144	2.037	8.25
81)		sec-Butylbenzene	2.029	2.357	2.474	2.548	2.574	2.595	2.430	8.83
82)		4-Isopropyltoluene	1.588	1.874	1.999	2.089	2.122	2.137	1.968	10.69
83)		1,3-Dichlorobenzene	1.337	1.279	1.247	1.283	1.294	1.303	1.291	2.28
84)		1,4-Dichlorobenzene	1.337	1.356	1.291	1.306	1.324	1.325	1.323	1.73
85)		Benzyl chloride	1.110	1.140	1.213	1.268	1.303	1.307	1.224	6.86
86)		n-Butylbenzene	1.729	1.821	1.964	2.049	2.067	2.063	1.949	7.32
87)		1,2-Dichlorobenzene	1.263	1.211	1.216	1.243	1.259	1.267	1.243	1.96
88)		1,2-Dibromo-3-Chlor	0.136	0.103	0.104	0.112	0.115	0.117	0.115	10.37
89)		1,2,4-Trichlorobenz	1.010	0.761	0.784	0.856	0.891	0.909	0.868	10.42
90)		Hexachlorobutadiene		0.382	0.371	0.383	0.387	0.383	0.381	1.60
91)		Naphthalene	2.219	1.546	1.633	1.805	1.886	1.974	1.844	13.16
92)		1,2,3-Trichlorobenz		0.698	0.707	0.751	0.787	0.806	0.750	6.33
93)	I	Tert Butyl alcohol-d1	----------ISTD----------							
94)		Tert-Butyl alcohol	1.970	1.879	1.759	1.836	1.854	1.888	1.864	3.72
95)		1,4-Dioxane	0.177	0.156	0.159	0.176	0.182	0.187	0.173	7.30

(#) = Out of Range

82600514.M Thu May 15 08:39:37 2003 RPT1

Continuing Calibration Summary

Job Number: F18092
Account: TETRPAPT Tetra Tech, NUS
Project: NAS Cecil Field-CTO-121

Sample: VC730-CC702
Lab FileID: C0016512.D

Evaluate Continuing Calibration Report

Data File : C:\MSDCHEM\2\DATA\061203\C0016512.D Vial: 1
Acq On : 12 Jun 2003 9:10 am Operator: KarenW
Sample : CC702-40 Inst : MSVOA5
Misc : ms2323,vc730,,,,, Multiplr: 1.00
MS Integration Params: Rteint.p

Method : C:\MSDCHEM\2\METHODS\82600514.M (RTE Integrator)
Title : EPA 624 & SWA 5030B/8260B
Last Update : Wed May 14 14:02:18 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	82	0.00
2		Dichlorodifluoromethane	0.243	0.242	0.4	82	0.00
3	P	Chloromethane	0.467	0.515	-10.3	92	0.01
4	C	Vinyl Chloride	0.348	0.396	-13.8	91	0.01
5		Bromomethane	0.159	0.190	-19.5	98	0.00
6		Chloroethane	0.155	0.188	-21.3#	98	0.00
7		Trichlorofluoromethane	0.236	0.346	-46.6#	117	0.01
8		Ethyl ether	0.260	0.257	1.2	79	0.00
9		Acrolein	0.028	0.030	-7.1	83	0.00
10		Freon 113	0.251	0.240	4.4	79	0.00
11		Acetone	0.107	0.095	11.2	73	0.00
12	C	1,1-Dichloroethene	0.422	0.482	-14.2	91	0.00
13		Iodomethane	0.421	0.389	7.6	74	0.00
14		Methyl Acetate	0.259	0.232	10.4	74	0.00
15		Carbon Disulfide	0.797	0.806	-1.1	81	0.00
16		Methylene Chloride	0.500	0.529	-5.8	90	0.00
17		Acrylonitrile	0.106	0.120	-13.2	89	0.00
18		Methyl Tert Butyl Ether	0.619	0.593	4.2	77	0.00
19		trans-1,2-Dichloroethene	0.395	0.441	-11.6	89	0.00
20		Hexane	0.394	0.431	-9.4	85	0.00
21		Vinyl acetate	0.656	0.887	-35.2#	109	0.00
22		Di-isopropyl ether	1.104	1.247	-13.0	89	0.00
23	P	1,1-Dichloroethane	0.482	0.533	-10.6	89	0.00
24		ETBE	0.769	0.706	8.2	70	0.00
25		2-Butanone	0.155	0.147	5.2	77	0.00
26		cis-1,2-Dichloroethene	0.260	0.270	-3.8	83	0.00
27		2,2-Dichloropropane	0.205	0.200	2.4	78	0.00
28		Bromochloromethane	0.130	0.125	3.8	76	0.00
29	C	Chloroform	0.412	0.424	-2.9	83	0.00
30		Tetrahydrofuran	0.094	0.094	0.0	78	0.00
31	S	Dibromofluoromethane	0.254	0.253	0.4	81	0.00
32		1,1,1-Trichloroethane	0.327	0.329	-0.6	81	0.00
33		Cyclohexane	0.521	0.563	-8.1	83	0.00
34		1,1-Dichloropropene	0.292	0.321	-9.9	86	0.00
35		Carbon Tetrachloride	0.301	0.315	-4.7	83	0.00
36	S	1,2-Dichloroethane-d4	0.289	0.296	-2.4	83	0.00
37		1,2-Dichloroethane	0.368	0.383	-4.1	84	0.00
38		Benzene	0.955	1.023	-7.1	86	0.00
39		TAME	0.610	0.494	19.0	65	0.00
40		Trichloroethene	0.254	0.244	3.9	77	0.00
41	C	1,2-Dichloropropane	0.293	0.316	-7.8	86	0.00
42		Methylcyclohexane	0.388	0.402	-3.6	82	0.00

Continuing Calibration Summary

Job Number: F18092
Account: TETRPAPT Tetra Tech, NUS
Project: NAS Cecil Field-CTO-121

Sample: VC730-CC702
Lab FileID: C0016512.D

43		Dibromomethane	0.159	0.158	0.6	80	0.00
44		Bromodichloromethane	0.317	0.328	-3.5	82	0.00
45		2-Nitropropane	0.079	0.079	0.0	79	0.00
46		2-Chloroethyl vinyl ether	0.114	0.061	46.5#	42#	0.00
47		cis-1,3-Dichloropropene	0.385	0.412	-7.0	83	0.00
48		4-Methyl-2-pentanone	0.329	0.332	-0.9	79	0.00
49	I	Chlorobenzene-d5	1.000	1.000	0.0	81	0.00
50	S	Toluene-d8	1.181	1.188	-0.6	81	0.00
51	C	Toluene	1.280	1.311	-2.4	83	0.00
52		trans-1,3-Dichloropropene	0.430	0.445	-3.5	80	0.00
53		1,1,2-Trichloroethane	0.240	0.233	2.9	80	0.00
54		2-hexanone	0.288	0.274	4.9	76	0.00
55		1,3-Dichloropropane	0.479	0.486	-1.5	82	0.00
56		Tetrachloroethene	0.347	0.340	2.0	80	0.00
57		Dibromochloromethane	0.306	0.299	2.3	78	0.00
58		1,2-Dibromoethane	0.289	0.283	2.1	77	0.00
59		1-Chlorohexane	0.406	0.410	-1.0	79	0.00
60	P	Chlorobenzene	0.895	0.864	3.5	79	0.00
61		1,1,1,2-Tetrachloroethane	0.320	0.319	0.3	81	0.00
62	C	Ethylbenzene	1.406	1.477	-5.0	82	0.00
63		m,p-Xylene	1.084	1.150	-6.1	82	0.00
64		o-Xylene	1.098	1.193	-8.7	82	0.00
65		Styrene	0.914	0.959	-4.9	81	0.00
66	P	Bromoform	0.240	0.242	-0.8	79	0.00
67	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	85	0.00
68		Isopropylbenzene	2.186	2.197	-0.5	80	0.00
69		Cyclohexanone	0.024	0.018	25.0#	69	0.00
70	S	4-Bromofluorobenzene	0.893	0.862	3.5	84	0.00
71	P	1,1,2,2-Tetrachloroethane	0.682	0.626	8.2	81	0.00
72		trans-1,4-Dichloro-2-butene	0.212	0.196	7.5	78	0.00
73		1,2,3-Trichloropropane	0.193	0.167	13.5	76	0.00
74		Bromobenzene	0.731	0.686	6.2	80	0.00
75		n-Propylbenzene	2.930	2.975	-1.5	83	0.00
76		1,3,5-Trimethylbenzene	1.913	1.967	-2.8	83	0.00
77		2-Chlorotoluene	1.986	1.980	0.3	83	0.00
78		4-Chlorotoluene	1.833	1.779	2.9	81	0.00
79		tert-Butylbenzene	1.307	1.324	-1.3	83	0.00
80		1,2,4-Trimethylbenzene	2.037	2.048	-0.5	83	0.00
81		sec-Butylbenzene	2.430	2.483	-2.2	83	0.00
82		4-Isopropyltoluene	1.968	2.019	-2.6	83	0.00
83		1,3-Dichlorobenzene	1.291	1.236	4.3	82	0.00
84		1,4-Dichlorobenzene	1.323	1.246	5.8	82	0.00
85		Benzyl chloride	1.224	1.130	7.7	76	0.00
86		n-Butylbenzene	1.949	1.997	-2.5	83	0.00
87		1,2-Dichlorobenzene	1.243	1.174	5.6	81	0.00
88		1,2-Dibromo-3-Chloropropane	0.115	0.090	21.7#	69	0.00
89		1,2,4-Trichlorobenzene	0.868	0.764	12.0	76	0.00
90		Hexachlorobutadiene	0.381	0.359	5.8	80	0.00
91		Naphthalene	1.844	1.484	19.5	70	0.00
92		1,2,3-Trichlorobenzene	0.750	0.666	11.2	76	0.00
93	I	Tert Butyl alcohol-d10	1.000	1.000	0.0	76	0.00
94		Tert-Butyl alcohol	1.864	1.748	6.2	73	0.00
95		1,4-Dioxane	0.173	0.172	0.6	74	0.00

Average % D = 7.3

Continuing Calibration Summary

Job Number: F18092
Account: TETRPAPT Tetra Tech, NUS
Project: NAS Cecil Field-CTO-121

Sample: VC730-CC702
Lab FileID: C0016512.D

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(#) = Out of Range                SPCC's out = 0  CCC's out = 0
 C0015941.D 82600514.M       Fri Jun 13 09:29:51 2003   RPT1
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GC/MS Semi-volatiles

QC Data Summaries

Includes the following where applicable:

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

Blank Spike Summary

Job Number: F18092
Account: TETRPAPT Tetra Tech, NUS
Project: NAS Cecil Field-CTO-121

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP7740-BS	W015865.D	1	06/13/03	SKW	06/12/03	OP7740	SW831

The QC reported here applies to the following samples: Method: SW846 8270C BY SIM

F18092-1, F18092-2, F18092-3

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
83-32-9	Acenaphthene	25	21.4	86	55-114
208-96-8	Acenaphthylene	25	21.6	86	55-122
120-12-7	Anthracene	25	22.9	92	68-113
56-55-3	Benzo(a)anthracene	2.5	2.3	92	70-124
50-32-8	Benzo(a)pyrene	2.5	2.5	100	66-128
205-99-2	Benzo(b)fluoranthene	2.5	2.5	100	63-124
191-24-2	Benzo(g,h,i)perylene	2.5	2.2	88	55-125
207-08-9	Benzo(k)fluoranthene	2.5	2.6	104	62-128
218-01-9	Chrysene	2.5	2.5	100	70-116
53-70-3	Dibenzo(a,h)anthracene	2.5	2.2	88	51-126
206-44-0	Fluoranthene	25	23.9	96	65-114
86-73-7	Fluorene	25	22.0	88	60-113
193-39-5	Indeno(1,2,3-cd)pyrene	2.5	2.2	88	49-130
90-12-0	1-Methylnaphthalene	25	20.8	83	55-117
91-57-6	2-Methylnaphthalene	25	21.1	84	51-110
91-20-3	Naphthalene	25	20.6	82	53-113
85-01-8	Phenanthrene	25	22.1	88	66-114
129-00-0	Pyrene	25	26.3	105	64-114

CAS No.	Surrogate Recoveries	BSP	Limits
4165-60-0	Nitrobenzene-d5	87%	49-119%
321-60-8	2-Fluorobiphenyl	91%	45-118%
1718-51-0	Terphenyl-d14	104%	46-135%

Method Blank Summary

Job Number: F18092
Account: TETRPAPT Tetra Tech, NUS
Project: NAS Cecil Field-CTO-121

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP7740-MB	W015866.D	1	06/13/03	SKW	06/12/03	OP7740	SW831

The QC reported here applies to the following samples: Method: SW846 8270C BY SIM

F18092-1, F18092-2, F18092-3

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	1.0	0.50	ug/l	
208-96-8	Acenaphthylene	ND	1.0	0.50	ug/l	
120-12-7	Anthracene	ND	1.0	0.25	ug/l	
56-55-3	Benzo(a)anthracene	ND	0.20	0.10	ug/l	
50 32 8	Benzo(a)pyrene	ND	0.20	0.10	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	0.20	0.10	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	0.20	0.10	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	0.20	0.10	ug/l	
218-01-9	Chrysene	ND	0.20	0.10	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	0.20	0.10	ug/l	
206-44-0	Fluoranthene	ND	1.0	0.25	ug/l	
86-73-7	Fluorene	ND	1.0	0.25	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.20	0.10	ug/l	
90-12-0	1-Methylnaphthalene	ND	1.0	0.25	ug/l	
91-57-6	2-Methylnaphthalene	ND	1.0	0.25	ug/l	
91-20-3	Naphthalene	ND	1.0	0.25	ug/l	
85-01-8	Phenanthrene	ND	1.0	0.25	ug/l	
129-00-0	Pyrene	ND	1.0	0.25	ug/l	

CAS No.	Surrogate Recoveries		Limits
4165-60-0	Nitrobenzene-d5	86%	49-119%
321-60-8	2-Fluorobiphenyl	92%	45-118%
1718-51-0	Terphenyl-d14	96%	46-135%

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: F18092
Account: TETRPAPT Tetra Tech, NUS
Project: NAS Cecil Field-CTO-121

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP7740-MS	W015869.D	1	06/13/03	SKW	06/12/03	OP7740	SW831
OP7740-MSD	W015870.D	1	06/13/03	SKW	06/12/03	OP7740	SW831
F18092-2	W015868.D	1	06/13/03	SKW	06/12/03	OP7740	SW831

The QC reported here applies to the following samples: Method: SW846 8270C BY SIM

F18092-1, F18092-2, F18092-3

CAS No.	Compound	F18092-2 ug/l	Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
83-32-9	Acenaphthene	ND		55.6	47.0	85	47.0	85	0	52-116/26
208-96-8	Acenaphthylene	ND		55.6	47.7	86	47.4	85	1	53-123/26
120-12-7	Anthracene	ND		55.6	50.4	91	48.9	88	3	63-117/20
56-55-3	Benzo(a)anthracene	ND		5.56	5.2	94	4.9	88	6	65-128/17
50-32-8	Benzo(a)pyrene	ND		5.56	5.6	101	5.2	94	7	52-128/17
205-99-2	Benzo(b)fluoranthene	ND		5.56	5.7	103	5.3	95	7	50-122/18
191-24-2	Benzo(g,h,i)perylene	ND		5.56	5.2	94	4.8	86	8	22-121/31
207-08-9	Benzo(k)fluoranthene	ND		5.56	5.9	106	5.5	99	7	49-123/19
218-01-9	Chrysene	ND		5.56	5.6	101	5.3	95	6	64-116/15
53-70-3	Dibenzo(a,h)anthracene	ND		5.56	5.3	95	4.8	86	10	15-121/33
206-44-0	Fluoranthene	ND		55.6	53.1	96	52.2	94	2	62-118/21
86-73-7	Fluorene	ND		55.6	48.4	87	48.2	87	0	58 114/24
193-39-5	Indeno(1,2,3-cd)pyrene	ND		5.56	5.0	90	4.7	85	6	22-126/29
90-12-0	1-Methylnaphthalene	ND		55.6	44.7	80	44.2	80	1	42-126/27
91-57-6	2-Methylnaphthalene	ND		55.6	46.2	83	45.4	82	2	34-123/27
91-20-3	Naphthalene	ND		55.6	43.4	78	45.6	82	5	35-128/27
85-01-8	Phenanthrene	ND		55.6	47.7	86	47.2	85	1	63-116/30
129-00-0	Pyrene	ND		55.6	60.2	108	55.3	100	8	59-122/20

CAS No.	Surrogate Recoveries	MS	MSD	F18092-2	Limits
4165-60-0	Nitrobenzene-d5	77%	80%	80%	49-119%
321-60-8	2-Fluorobiphenyl	90%	90%	88%	45-118%
1718-51-0	Terphenyl-d14	101%	94%	104%	46-135%

Instrument Performance Check (DFTPP)

Job Number: F18092
Account: TETRPAPT Tetra Tech, NUS
Project: NAS Cecil Field-CTO-121

Sample:	SW831-DFTPP	Injection Date:	06/13/03
Lab File ID:	W015863.D	Injection Time:	09:13
Instrument ID:	GCMSW		

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
51	30.0 - 80.0% of mass 198	50371	47.8		Pass
68	Less than 2.0% of mass 69	84	0.08	(0.23) [a]	Pass
69	Mass 69 relative abundance	36310	34.4		Pass
70	Less than 2.0% of mass 69	212	0.2	(0.58) [a]	Pass
127	25.0 - 75.0% of mass 198	41101	39.0		Pass
197	Less than 1.0% of mass 198	0	0.0		Pass
198	Base peak, 100% relative abundance	105467	100.0		Pass
199	5.0 - 9.0% of mass 198	7226	6.9		Pass
275	10.0 - 30.0% of mass 198	23794	22.6		Pass
365	0.75 - 100.0% of mass 198	2407	2.3		Pass
441	Present, but less than mass 443	11113	10.5	(85.0) [b]	Pass
442	40.0 - 100.0% of mass 198	69877	66.3		Pass
443	15.0 - 24.0% of mass 442	13079	12.4	(18.7) [c]	Pass

(a) Value is % of mass 69
(b) Value is % of mass 443
(c) Value is % of mass 442

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
SW831-CC804	W015864.D	06/13/03	09:33	00:20	Continuing cal 5
OP7740-BS	W015865.D	06/13/03	10:03	00:50	Blank Spike
OP7740-MB	W015866.D	06/13/03	10:33	01:20	Method Blank
F18092-1	W015867.D	06/13/03	11:02	01:49	CEF-9RT-GW-1S-01
F18092-2	W015868.D	06/13/03	11:32	02:19	CEF-9RT-GW-2S-01
OP7740-MS	W015869.D	06/13/03	12:02	02:49	Matrix Spike
OP7740-MSD	W015870.D	06/13/03	12:32	03:19	Matrix Spike Duplicate
F18092-3	W015871.D	06/13/03	13:02	03:49	CEF-9RT-GW-DU02

Instrument Performance Check (DFTPP)

Job Number: F18092
Account: TETRPAPT Tetra Tech, NUS
Project: NAS Cecil Field-CTO-121

Sample: SW804-DFTPP
Lab File ID: W015378.D
Instrument ID: GCMSW

Injection Date: 05/07/03
Injection Time: 10:20

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
51	30.0 - 80.0% of mass 198	69909	44.7		Pass
68	Less than 2.0% of mass 69	0	0.0	(0.0) [a]	Pass
69	Mass 69 relative abundance	51685	33.1		Pass
70	Less than 2.0% of mass 69	101	0.06	(0.2) [a]	Pass
127	25.0 - 75.0% of mass 198	64236	41.1		Pass
197	Less than 1.0% of mass 198	0	0.0		Pass
198	Base peak, 100% relative abundance	156235	100.0		Pass
199	5.0 - 9.0% of mass 198	10187	6.5		Pass
275	10.0 - 30.0% of mass 198	36656	23.5		Pass
365	0.75 - 100.0% of mass 198	3781	2.4		Pass
441	Present, but less than mass 443	17088	10.9	(79.2) [b]	Pass
442	40.0 - 100.0% of mass 198	112928	72.3		Pass
443	15.0 - 24.0% of mass 442	21565	13.8	(19.1) [c]	Pass

(a) Value is % of mass 69
(b) Value is % of mass 443
(c) Value is % of mass 442

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
SW804-IC804	W015379.D	05/07/03	10:40	00:20	Initial cal 1
SW804-IC804	W015380.D	05/07/03	11:10	00:50	Initial cal 2
SW804-IC804	W015381.D	05/07/03	11:39	01:19	Initial cal 3
SW804-ICC804	W015382.D	05/07/03	12:09	01:49	Initial cal 4
SW804-IC804	W015383.D	05/07/03	12:39	02:19	Initial cal 5
SW804-IC804	W015384.D	05/07/03	13:09	02:49	Initial cal 6
SW804-IC804	W015385.D	05/07/03	13:39	03:19	Initial cal 7
OP7517-BS	W015387.D	05/07/03	14:40	04:20	Blank Spike
OP7517-MB	W015388.D	05/07/03	15:10	04:50	Method Blank
ZZZZZZ	W015389.D	05/07/03	15:40	05:20	(unrelated sample)
ZZZZZZ	W015390.D	05/07/03	16:11	05:51	(unrelated sample)
ZZZZZZ	W015391.D	05/07/03	16:42	06:22	(unrelated sample)
ZZZZZZ	W015392.D	05/07/03	17:12	06:52	(unrelated sample)
F17650-5	W015393.D	05/07/03	17:43	07:23	(used for QC only; not part of job F18092)
OP7517-MS	W015394.D	05/07/03	18:13	07:53	Matrix Spike
OP7517-MSD	W015395.D	05/07/03	18:43	08:23	Matrix Spike Duplicate
ZZZZZZ	W015396.D	05/07/03	19:13	08:53	(unrelated sample)
ZZZZZZ	W015397.D	05/07/03	19:43	09:23	(unrelated sample)
ZZZZZZ	W015398.D	05/07/03	20:13	09:53	(unrelated sample)

Instrument Performance Check (DFTPP)

Job Number: F18092
Account: TETRPAPT Tetra Tech, NUS
Project: NAS Cecil Field-CTO-121

Sample:	SW804-DFTPP	Injection Date:	05/07/03
Lab File ID:	W015378.D	Injection Time:	10:20
Instrument ID:	GCMSW		

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
ZZZZZZ	W015399.D	05/07/03	20:43	10:23	(unrelated sample)
ZZZZZZ	W015400.D	05/07/03	21:12	10:52	(unrelated sample)
ZZZZZZ	W015401.D	05/07/03	21:42	11:22	(unrelated sample)
ZZZZZZ	W015402.D	05/07/03	22:11	11:51	(unrelated sample)

Semivolatile Internal Standard Area Summary

Job Number: F18092
Account: TETRPAPT Tetra Tech, NUS
Project: NAS Cecil Field-CTO-121

Check Std:	SW831-CC804	Injection Date:	06/13/03
Lab File ID:	W015864.D	Injection Time:	09:33
Instrument ID:	GCMSW	Method:	SW846 8270C BY SIM

	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
Check Std	170749	6.04	88154	8.32	136987	10.82	86717	15.73	50259	18.23
Upper Limit [a]	341498	6.54	176308	8.82	273974	11.32	173434	16.23	100518	18.73
Lower Limit [b]	85375	5.54	44077	7.82	68494	10.32	43359	15.23	25130	17.73

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
OP7740-BS	187907	6.04	98343	8.32	150437	10.81	96292	15.73	54351	18.23
OP7740-MB	217427	6.04	111848	8.32	172708	10.82	109413	15.73	64370	18.23
F18092-1	205778	6.04	104412	8.32	166099	10.81	98862	15.73	56341	18.23
F18092-2	192254	6.04	95894	8.32	150492	10.81	93580	15.73	53832	18.23
OP7740-MS	162518	6.04	85065	8.32	132749	10.81	83085	15.73	47744	18.23
OP7740-MSD	169402	6.04	89334	8.32	138967	10.82	92012	15.73	52606	18.23
F18092-3	170803	6.04	87307	8.32	131574	10.81	83153	15.73	47761	18.23

IS 1 = Naphthalene-d8
IS 2 = Acenaphthene-D10
IS 3 = Phenanthrene-d10
IS 4 = Chrysene-d12
IS 5 = Perylene-d12

(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.

Semivolatile Surrogate Recovery Summary

Job Number: F18092
Account: TETRPAPT Tetra Tech, NUS
Project: NAS Cecil Field-CTO-121

Method: SW846 8270C BY SIM Matrix: AQ

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1	S2	S3
F18092-1	W015867.D	72.0	83.0	93.0
F18092-2	W015868.D	80.0	88.0	104.0
F18092-3	W015871.D	72.0	80.0	96.0
OP7740-BS	W015865.D	87.0	91.0	104.0
OP7740-MB	W015866.D	86.0	92.0	96.0
OP7740-MS	W015869.D	77.0	90.0	101.0
OP7740-MSD	W015870.D	80.0	90.0	94.0

Surrogate Compounds	Recovery Limits
S1 = Nitrobenzene-d5	49-119%
S2 = 2-Fluorobiphenyl	45-118%
S3 = Terphenyl-d14	46-135%

Initial Calibration Summary

Job Number: F18092
Account: TETRPAPT Tetra Tech, NUS
Project: NAS Cecil Field-CTO-121

Sample: SW804-ICC804
Lab FileID: W015382.D

Response Factor Report MSBNA01

Method : C:\HPCHEM\1\METHODS\SIM_PAH.M (RTE Integrator)
Title : PAH's by 8270 SIM
Last Update : Wed May 07 14:02:19 2003
Response via : Initial Calibration

Calibration Files
L1 =W015379.D L2 =W015380.D L3 =W015381.D
L4 =W015382.D L5 =W015383.D L6 =W015384.D L7 =W015385.D

Compound	L1	L2	L3	L4	L5	L6	L7	Avg	%RSD
1) I Naphthalene-d8		----------ISTD----------							
2)S Nitrobenzene-d5	0.287	0.346	0.338	0.344	0.391	0.350	0.340	0.342	8.86
3)P N-nitroso-di-n-pr		0.237	0.224	0.225	0.246	0.217	0.215	0.227	5.26
4) Naphthalene	0.961	1.124	1.064	1.071	1.170	1.060	1.051	1.071	6.05
5) 2-Methylnaphthale	0.635	0.743	0.700	0.691	0.793	0.723	0.700	0.712	6.86
6) 1-Methylnaphthale	0.574	0.680	0.635	0.640	0.720	0.648	0.631	0.647	6.98
7) I Acenaphthene-d10		----------ISTD----------							
8)P Hexachlorocyclope		0.287	0.321	0.360	0.439	0.419	0.405	0.372	15.98
9)S 2-Fluorobiphenyl	1.309	1.513	1.525	1.499	1.673	1.555	1.547	1.517	7.13
10) Acenaphthylene	1.706	2.003	1.973	2.013	2.246	2.072	2.011	2.003	7.97
11)C Acenaphthene	1.073	1.234	1.174	1.211	1.334	1.205	1.179	1.201	6.51
12)P 2,4-Dinitrophenol		0.144	0.171	0.205	0.246	0.244	0.236	0.208	20.32
13)P 4-Nitrophenol		0.244	0.249	0.263	0.291	0.264	0.262	0.262	6.29
14) Fluorene	1.203	1.384	1.348	1.356	1.531	1.395	1.358	1.368	7.02
15) I Phenanthrene-d10		----------ISTD----------							
16) Phenanthrene	1.130	1.302	1.268	1.293	1.449	1.310	1.277	1.290	7.22
17) Anthracene	1.111	1.327	1.289	1.313	1.477	1.338	1.319	1.310	8.20
18)C Fluoranthene	1.109	1.297	1.240	1.292	1.477	1.331	1.311	1.294	8.48
19) I Chrysene-d12		----------ISTD----------							
20) Pyrene	1.670	1.937	1.947	1.904	2.133	1.917	1.898	1.915	7.05
21)S Terphenyl-d14	0.807	0.955	0.942	0.934	1.063	0.973	0.960	0.948	7.98
22) Benzo[a]anthracen	1.530	1.632	1.521	1.496	1.692	1.555	1.557	1.569	4.40
23) Chrysene	1.325	1.619	1.504	1.520	1.729	1.546	1.549	1.542	7.96
24) I Perylene-d12		----------ISTD----------							
25) Benzo[b]fluoranth	1.845	2.041	2.036	2.074	2.435	2.289	2.285	2.144	9.37
26) Benzo[k]fluoranth	1.916	2.319	2.278	2.294	2.642	2.434	2.411	2.328	9.44
27)C Benzo[a]pyrene	1.755	1.979	1.927	1.960	2.284	2.123	2.086	2.016	8.31
28) Indeno[1,2,3-cd]p	1.340	1.440	1.512	1.560	1.804	1.731	1.676	1.580	10.47
29) Dibenz[a,h]anthra	1.372	1.434	1.499	1.568	1.813	1.694	1.658	1.577	9.83
30) Benzo[g,h,i]peryl	1.530	1.761	1.778	1.776	2.064	1.932	1.878	1.817	9.18

(#) = Out of Range

SIM_PAH.M Thu May 08 09:28:35 2003 MSBNA01

Continuing Calibration Summary

Job Number: F18092
Account: TETRPAPT Tetra Tech, NUS
Project: NAS Cecil Field-CTO-121

Sample: SW831-CC804
Lab FileID: W015864.D

Evaluate Continuing Calibration Report

Data File : C:\HPCHEM\1\DATA\061303\W015864.D
Acq On : 13 Jun 2003 9:33 am
Sample : CC804-5
Misc : op7740,sw831,1000,,,1,1,water
MS Integration Params: RTEINT.P

Vial: 2
Operator: stephw
Inst : MSBNA01
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\SIM_PAH.M (RTE Integrator)
Title : PAH's by 8270 SIM
Last Update : Tue Jun 10 14:54:51 2003
Response via : Multiple Level Calibration

Min. RRF : 0.050 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)	R.T.
1	I	Naphthalene-d8	1.000	1.000	0.0	76	-0.02	6.04
2	S	Nitrobenzene-d5	0.342	0.359	-5.0	69	-0.07	5.35
3	P	N-nitroso-di-n-propylamin	0.227	0.246	-8.4	76	-0.07	5.21
4		Naphthalene	1.071	1.037	3.2	67	-0.08	6.06
5		2-Methylnaphthalene	0.712	0.684	3.9	65	-0.08	6.86
6		1-Methylnaphthalene	0.647	0.628	2.9	66	-0.08	6.98
7	I	Acenaphthene-d10	1.000	1.000	0.0	73	-0.03	8.32
8	P	Hexachlorocyclopentadiene	0.372	0.413	-11.0	69	-0.04	7.06
9	S	2-Fluorobiphenyl	1.517	1.589	-4.7	69	-0.03	7.36
10		Acenaphthylene	2.003	1.992	0.5	65	-0.03	8.11
11	C	Acenaphthene	1.201	1.214	-1.1	66	-0.03	8.38
12	P	2,4-Dinitrophenol	0.208	0.204	1.9	60	-0.03	8.48
13	P	4-Nitrophenol	0.262	0.232	11.5	58	-0.02	8.62
14		Fluorene	1.368	1.365	0.2	65	-0.02	9.22
15	I	Phenanthrene-d10	1.000	1.000	0.0	76	-0.03	10.82
16		Phenanthrene	1.290	1.200	7.0	63	-0.04	10.85
17		Anthracene	1.310	1.224	6.6	63	-0.03	10.95
18	C	Fluoranthene	1.294	1.263	2.4	65	-0.01	13.03
19	I	Chrysene-d12	1.000	1.000	0.0	68	-0.03	15.73
20		Pyrene	1.915	2.068	-8.0	66	-0.05	13.43
21	S	Terphenyl-d14	0.948	0.978	-3.2	63	-0.05	13.84
22		Benzo[a]anthracene	1.569	1.481	5.6	59	-0.03	15.71
23		Chrysene	1.542	1.568	-1.7	62	-0.03	15.78
24	I	Perylene-d12	1.000	1.000	0.0	63	-0.04	18.23
25		Benzo[b]fluoranthene	2.144	2.158	-0.7	56	-0.04	17.62
26		Benzo[k]fluoranthene	2.328	2.439	-4.8	59	-0.04	17.67
27	C	Benzo[a]pyrene	2.016	1.985	1.5	55	-0.04	18.14
28		Indeno[1,2,3-cd]pyrene	1.580	1.441	8.8	51	-0.03	19.81
29		Dibenz[a,h]anthracene	1.577	1.470	6.8	51	-0.03	19.86
30		Benzo[g,h,i]perylene	1.817	1.714	5.7	53	-0.03	20.15

(0.0 %) 0 of 25 compounds'%D > 20

(#) = Out of Range SPCC's out = 0 CCC's out = 0
W015383.D SIM_PAH.M Fri Jun 13 14:50:44 2003 MSBNA01

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: F18092
Account: TETRPAPT Tetra Tech, NUS
Project: NAS Cecil Field-CTO-121

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP7720-BS	ST20006.D	1	06/09/03	MRE	06/09/03	OP7720	GST712

The QC reported here applies to the following samples: Method: EPA 504.1

F18092-1, F18092-2, F18092-3

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
106-93-4	1,2-Dibromoethane	0.25	0.21	84	80-120

CAS No.	Surrogate Recoveries	BSP	Limits
460-00-4	4-Bromofluorobenzene	86%	60-140%

Blank Spike Summary

Job Number: F18092
Account: TETRPAPT Tetra Tech, NUS
Project: NAS Cecil Field-CTO-121

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP7720-BS2	ST20007.D	1	06/09/03	MRE	06/09/03	OP7720	GST712

The QC reported here applies to the following samples: Method: EPA 504.1

F18092-1, F18092-2, F18092-3

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
106-93-4	1,2-Dibromoethane	0.25	0.21	84	80-120

CAS No.	Surrogate Recoveries	BSP	Limits
460-00-4	4-Bromofluorobenzene	88%	60-140%

Method Blank Summary

Job Number: F18092
Account: TETRPAPT Tetra Tech, NUS
Project: NAS Cecil Field-CTO-121

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP7720-MB	ST20005.D	1	06/09/03	MRE	06/09/03	OP7720	GST712

The QC reported here applies to the following samples: Method: EPA 504.1

F18092-1, F18092-2, F18092-3

CAS No.	Compound	Result	RL	MDL	Units	Q
106-93-4	1,2-Dibromoethane	ND	0.020	0.010	ug/l	

CAS No.	Surrogate Recoveries		Limits
460-00-4	4-Bromofluorobenzene	88%	60-140%

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: F18092
Account: TETRPAPT Tetra Tech, NUS
Project: NAS Cecil Field-CTO-121

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP7720-MS	ST20011.D	1	06/09/03	MRE	06/09/03	OP7720	GST712
OP7720-MSD	ST20012.D	1	06/09/03	MRE	06/09/03	OP7720	GST712
F18093-2	ST20010.D	1	06/09/03	MRE	06/09/03	OP7720	GST712

The QC reported here applies to the following samples: Method: EPA 504.1

F18092-1, F18092-2, F18092-3

CAS No.	Compound	F18093-2 ug/l	Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
106-93-4	1,2-Dibromoethane	ND		0.234	0.17	73*	0.18	77	6	74-120/22

CAS No.	Surrogate Recoveries	MS	MSD	F18093-2	Limits
460-00-4	4-Bromofluorobenzene	80%	79%	70%	60-140%

Volatile Surrogate Recovery Summary

Job Number: F18092
Account: TETRPAPT Tetra Tech, NUS
Project: NAS Cecil Field-CTO-121

Method: EPA 504.1 Matrix: AQ

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1 [a]
F18092-1	ST20013.D	79.0
F18092-2	ST20014.D	65.0
F18092-3	ST20015.D	71.0
OP7720-BS	ST20006.D	86.0
OP7720-BS2	ST20007.D	88.0
OP7720-MB	ST20005.D	88.0
OP7720-MS	ST20011.D	80.0
OP7720-MSD	ST20012.D	79.0

Surrogate Compounds	Recovery Limits
S1 = 4-Bromofluorobenzene	60-140%

(a) Recovery from GC signal #2

GC Surrogate Retention Time Summary

Job Number: F18092
Account: TETRPAPT Tetra Tech, NUS
Project: NAS Cecil Field-CTO-121

Check Std:	GST712-CC712	Injection Date:	06/09/03
Lab File ID:	ST20009.D	Injection Time:	19:05
Instrument ID:	GCST	Method:	EPA 504.1

	S1 [a] RT	S1 [b] RT
Check Std	7.12	6.90

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	S1 [a] RT	S1 [b] RT
F18093-2	ST20010.D	06/09/03	19:25		6.91
OP7720-MS	ST20011.D	06/09/03	19:45		6.91
OP7720-MSD	ST20012.D	06/09/03	20:05		6.91
F18092-1	ST20013.D	06/09/03	20:25		6.91
F18092-2	ST20014.D	06/09/03	20:45		6.91
F18092-3	ST20015.D	06/09/03	21:05		6.91
GST712-ECC712	ST20016.D	06/09/03	21:25	7.13	6.91

Surrogate Compounds

S1 = 4-Bromofluorobenzene

(a) Retention time from GC signal #1
(b) Retention time from GC signal #2

GC Surrogate Retention Time Summary

Job Number: F18092
Account: TETRPAPT Tetra Tech, NUS
Project: NAS Cecil Field-CTO-121

Check Std:	GST712-ICC712	Injection Date:	06/09/03
Lab File ID:	ST19996.D	Injection Time:	14:46
Instrument ID:	GCST	Method:	EPA 504.1

	S1 [a] RT
Check Std	6.90

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	S1 [a] RT
OP7708-MB	ST20003.D	06/09/03	17:06	6.91
ZZZZZZ	ST20004.D	06/09/03	17:26	6.91
OP7720-MB	ST20005.D	06/09/03	17:46	6.91
OP7720-BS	ST20006.D	06/09/03	18:05	6.90
OP7720-BS2	ST20007.D	06/09/03	18:25	6.91
ZZZZZZ	ST20008.D	06/09/03	18:45	6.91

Surrogate Compounds

S1 = 4-Bromofluorobenzene

(a) Retention time from GC signal #2

Initial Calibration Summary

Job Number: F18092
Account: TETRPAPT Tetra Tech, NUS
Project: NAS Cecil Field-CTO-121

Sample: GST712-ICC712
Lab FileID: ST19996.D

Response Factor Report ECD 3

Method : C:\HPCHEM\1\METHODS\504_1.M (Chemstation Integrator)
Title : EDB/DBCP by EPA 504.1 or SW846 8011
Last Update : Tue Jun 10 14:53:58 2003
Response via : Initial Calibration

Calibration Files
.125 =ST20000.D .250 =ST19996.D .500 =ST19997.D
0.75 =ST19998.D 1.0 =ST19999.D

	Compound	.125	.250	.500	0.75	1.0	Avg	%RSD
1)	1,2-Dibromoethane	2.761	2.493	2.288	2.251	2.605	2.480 E5	8.65
2) S	4-Bromofluorobenzene	2.471	2.213	2.072	1.956	2.029	2.148 E4	9.46
3)	1,2-Dibromo-3-chlorop	6.027	5.608	5.652	5.489	5.743	5.704 E5	3.55

Signal #2

1)	1,2-Dibromoethane	9.165	7.844	7.217	7.074	7.949	7.850 E4	10.55
2) S	4-Bromofluorobenzene	9.970	8.487	7.766	7.258	7.506	8.197 E3	13.33
3)	1,2-Dibromo-3-chlorop	2.128	2.040	1.957	1.936	2.029	2.018 E5	3.78

(#) = Out of Range

504_1.M Tue Jun 10 14:54:31 2003 GCECD2

Continuing Calibration Summary

Job Number: F18092
Account: TETRPAPT Tetra Tech, NUS
Project: NAS Cecil Field-CTO-121

Sample: GST712-CC712
Lab FileID: ST20009.D

Evaluate Continuing Calibration Report

```
Signal #1 : C:\HPCHEM\1\DATA\0609EDB\ST20009.D\ECD1A.CH  Vial: 16
Signal #2 : C:\HPCHEM\1\DATA\0609EDB\ST20009.D\ECD2B.CH
Acq On    : 09 Jun 2003   7:05 pm                    Operator: mikee
Sample    : CC712-0.50                               Inst    : ECD 3
Misc      : op7720,gst712,35,,,2,,water              Multiplr: 1.00
IntFile Signal #1: EVENTS.E     IntFile Signal #2: EVENTS2.E

Method       : C:\HPCHEM\1\METHODS\504_1.M (Chemstation Integrator)
Title        : EDB/DBCP by EPA 504.1 or SW846 8011
Last Update  : Mon Jun 09 16:42:16 2003
Response via : Multiple Level Calibration

Min. RRF     :   0.000  Min. Rel. Area :  50%  Max. R.T. Dev  0.10min
Max. RRF Dev :  20%     Max. Rel. Area : 150%
```

	Compound	Amount	Calc.	%Dev	Area%	Dev(Min)
1	1,2-Dibromoethane	0.500	0.482	3.6	104	0.00
2 S	4-Bromofluorobenzene	4.000	3.862	3.4	100	0.00
3	1,2-Dibromo-3-chloropropane	0.500	0.496	0.8	100	0.00

Signal #2

1	1,2-Dibromoethane	0.500	0.484	3.2	105	0.00
2 S	4-Bromofluorobenzene	4.000	3.849	3.8	102	0.00
3	1,2-Dibromo-3-chloropropa	0.500	0.497	0.6	102	0.00

Evaluate Continuing Calibration Report - Not Founds

```
Signal #1 : C:\HPCHEM\1\DATA\0609EDB\ST20009.D\ECD1A.CH  Vial: 16
Signal #2 : C:\HPCHEM\1\DATA\0609EDB\ST20009.D\ECD2B.CH
Acq On    : 09 Jun 2003   7:05 pm                    Operator: mikee
Sample    : CC712-0.50                               Inst    : ECD 3
Misc      : op7720,gst712,35,,,2,,water              Multiplr: 1.00
IntFile Signal #1: EVENTS.E     IntFile Signal #2: EVENTS2.E

Method       : C:\HPCHEM\1\METHODS\504_1.M (Chemstation Integrator)
Title        : EDB/DBCP by EPA 504.1 or SW846 8011
Last Update  : Mon Jun 09 16:42:16 2003
Response via : Multiple Level Calibration

Min. RRF     :   0.000  Min. Rel. Area :  50%  Max. R.T. Dev  0.10min
Max. RRF Dev :  20%     Max. Rel. Area : 150%
```

Compound	Amount	Calc.	%Dev	Area%	Dev(Min)

Signal #2

(#) = Out of Range SPCC's out = 0 CCC's out = 0
ST19997.D 504_1.M Tue Jun 10 13:48:49 2003 GCECD2

Continuing Calibration Summary

Job Number: F18092
Account: TETRPAPT Tetra Tech, NUS
Project: NAS Cecil Field-CTO-121

Sample: GST712-ECC712
Lab FileID: ST20016.D

Evaluate Continuing Calibration Report

```
Signal #1 : C:\HPCHEM\1\DATA\0609EDB\ST20016.D\ECD1A.CH  Vial: 23
Signal #2 : C:\HPCHEM\1\DATA\0609EDB\ST20016.D\ECD2B.CH
Acq On    : 09 Jun 2003   9:25 pm                    Operator: mikee
Sample    : ECC712-0.25                              Inst    : ECD 3
Misc      : op7720,gst712,35,,,2,,water              Multiplr: 1.00
IntFile Signal #1: EVENTS.E     IntFile Signal #2: EVENTS2.E

Method       : C:\HPCHEM\1\METHODS\504_1.M (Chemstation Integrator)
Title        : EDB/DBCP by EPA 504.1 or SW846 8011
Last Update  : Mon Jun 09 16:42:16 2003
Response via : Multiple Level Calibration

Min. RRF     :   0.000  Min. Rel. Area :  50%  Max. R.T. Dev  0.10min
Max. RRF Dev :  20%     Max. Rel. Area : 150%
```

	Compound	Amount	Calc.	%Dev	Area%	Dev(Min)
1	1,2-Dibromoethane	0.250	0.260	-4.0	104	0.00
2 S	4-Bromofluorobenzene	2.000	2.051	-2.6	100	0.00
3	1,2-Dibromo-3-chloropropane	0.250	0.247	1.2	101	0.00

Signal #2

1	1,2-Dibromoethane	0.250	0.263	-5.2	105	0.00
2 S	4-Bromofluorobenzene	2.000	2.100	-5.0	101	0.00
3	1,2-Dibromo-3-chloropropa	0.250	0.248	0.8	98	0.00

Evaluate Continuing Calibration Report - Not Founds

```
Signal #1 : C:\HPCHEM\1\DATA\0609EDB\ST20016.D\ECD1A.CH  Vial: 23
Signal #2 : C:\HPCHEM\1\DATA\0609EDB\ST20016.D\ECD2B.CH
Acq On    : 09 Jun 2003   9:25 pm                    Operator: mikee
Sample    : ECC712-0.25                              Inst    : ECD 3
Misc      : op7720,gst712,35,,,2,,water              Multiplr: 1.00
IntFile Signal #1: EVENTS.E     IntFile Signal #2: EVENTS2.E

Method       : C:\HPCHEM\1\METHODS\504_1.M (Chemstation Integrator)
Title        : EDB/DBCP by EPA 504.1 or SW846 8011
Last Update  : Mon Jun 09 16:42:16 2003
Response via : Multiple Level Calibration

Min. RRF     :   0.000  Min. Rel. Area :  50%  Max. R.T. Dev  0.10min
Max. RRF Dev :  20%     Max. Rel. Area : 150%
```

Compound	Amount	Calc.	%Dev	Area%	Dev(Min)

Signal #2

(#) = Out of Range SPCC's out = 0 CCC's out = 0
ST19996.D 504_1.M Tue Jun 10 13:48:25 2003 GCECD2

GC Semi-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: F18092
Account: TETRPAPT Tetra Tech, NUS
Project: NAS Cecil Field-CTO-121

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP7717-BS	OP29864.D	1	06/11/03	SM	06/09/03	OP7717	GOP1005

The QC reported here applies to the following samples: Method: FLORIDA-PRO

F18092-1, F18092-2, F18092-3

CAS No.	Compound	Spike mg/l	BSP mg/l	BSP %	Limits
	TPH (C8-C40)	0.85	0.812	96	59-109

CAS No.	Surrogate Recoveries	BSP	Limits
84-15-1	o-Terphenyl	97%	51-125%

Method Blank Summary

Job Number: F18092
Account: TETRPAPT Tetra Tech, NUS
Project: NAS Cecil Field-CTO-121

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP7717-MB	OP29865.D	1	06/11/03	SM	06/09/03	OP7717	GOP1005

The QC reported here applies to the following samples: Method: FLORIDA-PRO

F18092-1, F18092-2, F18092-3

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH (C8-C40)	ND	0.25	0.17	mg/l	

CAS No.	Surrogate Recoveries		Limits
84-15-1	o-Terphenyl	91%	51-125%

Method Blank Summary

Job Number: F18092
Account: TETRPAPT Tetra Tech, NUS
Project: NAS Cecil Field-CTO-121

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP7717-MB	OP29894.D	1	06/12/03	SM	06/09/03	OP7717	GOP1006

The QC reported here applies to the following samples: Method: FLORIDA-PRO

F18092-1, F18092-2, F18092-3

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH (C8-C40)	ND	0.25	0.17	mg/l	

CAS No.	Surrogate Recoveries		Limits
84-15-1	o-Terphenyl	96%	51-125%

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: F18092
Account: TETRPAPT Tetra Tech, NUS
Project: NAS Cecil Field-CTO-121

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP7717-MS	OP29876.D	1	06/11/03	SM	06/09/03	OP7717	GOP1005
OP7717-MSD	OP29877.D	1	06/11/03	SM	06/09/03	OP7717	GOP1005
F18093-1	OP29875.D	1	06/11/03	SM	06/09/03	OP7717	GOP1005

The QC reported here applies to the following samples: Method: FLORIDA-PRO

F18092-1, F18092-2, F18092-3

CAS No.	Compound	F18093-1 mg/l	Q	Spike mg/l	MS mg/l	MS %	MSD mg/l	MSD %	RPD	Limits Rec/RPD
	TPH (C8-C40)	0.280		1.73	1.90	93	2.00	99	5	38-133/23

CAS No.	Surrogate Recoveries	MS	MSD	F18093-1	Limits
84-15-1	o-Terphenyl	89%	93%	79%	51-125%

Semivolatile Surrogate Recovery Summary

Job Number: F18092
Account: TETRPAPT Tetra Tech, NUS
Project: NAS Cecil Field-CTO-121

Method: FLORIDA-PRO Matrix: AQ

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1 [a]
F18092-1	OP29872.D	99.0
F18092-2	OP29873.D	83.0
F18092-3	OP29874.D	96.0
OP7717-BS	OP29864.D	97.0
OP7717-MB	OP29865.D	91.0
OP7717-MB	OP29894.D	96.0
OP7717-MS	OP29876.D	89.0
OP7717-MSD	OP29877.D	93.0

Surrogate Compounds	Recovery Limits
S1 = o-Terphenyl	51-125%

(a) Recovery from GC signal #1

GC Surrogate Retention Time Summary

Job Number: F18092
Account: TETRPAPT Tetra Tech, NUS
Project: NAS Cecil Field-CTO-121

Check Std:	GOP1005-CC1002	Injection Date:	06/11/03
Lab File ID:	OP29870.D	Injection Time:	04:50
Instrument ID:	GCOP	Method:	FLORIDA-PRO

	S1 [a] RT
Check Std	5.15

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	S1 [a] RT
ZZZZZZ	OP29871.D	06/11/03	05:13	5.15
F18092-1	OP29872.D	06/11/03	05:35	5.15
F18092-2	OP29873.D	06/11/03	05:58	5.15
F18092-3	OP29874.D	06/11/03	06:20	5.15
F18093-1	OP29875.D	06/11/03	06:43	5.15
OP7717-MS	OP29876.D	06/11/03	07:06	5.15
OP7717-MSD	OP29877.D	06/11/03	07:28	5.15
ZZZZZZ	OP29878.D	06/11/03	07:51	5.15
ZZZZZZ	OP29880.D	06/11/03	08:36	5.15

Surrogate Compounds

S1 = o-Terphenyl

(a) Retention time from GC signal #1

GC Surrogate Retention Time Summary

Job Number: F18092
Account: TETRPAPT Tetra Tech, NUS
Project: NAS Cecil Field-CTO-121

Check Std:	GOP1005-CC1002	Injection Date:	06/11/03
Lab File ID:	OP29859.D	Injection Time:	00:42
Instrument ID:	GCOP	Method:	FLORIDA-PRO

	S1 [a] RT
Check Std	5.15

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	S1 [a] RT
F18044-10	OP29860.D	06/11/03	01:05	5.15
OP7709-MS	OP29861.D	06/11/03	01:27	5.15
OP7709-MSD	OP29862.D	06/11/03	01:50	5.15
ZZZZZZ	OP29863.D	06/11/03	02:13	5.15
OP7717-BS	OP29864.D	06/11/03	02:35	5.15
OP7717-MB	OP29865.D	06/11/03	02:58	5.15
ZZZZZZ	OP29866.D	06/11/03	03:20	5.15
ZZZZZZ	OP29867.D	06/11/03	03:43	5.15
ZZZZZZ	OP29868.D	06/11/03	04:05	5.15
ZZZZZZ	OP29869.D	06/11/03	04:28	5.15

Surrogate Compounds

S1 = o-Terphenyl

(a) Retention time from GC signal #1

GC Surrogate Retention Time Summary

Job Number: F18092
Account: TETRPAPT Tetra Tech, NUS
Project: NAS Cecil Field-CTO-121

Check Std:	GOP1006-CC1002	Injection Date:	06/12/03
Lab File ID:	OP29891.D	Injection Time:	09:18
Instrument ID:	GCOP	Method:	FLORIDA-PRO

	S1 [a] RT
Check Std	5.15

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	S1 [a] RT
OP7717-MB	OP29894.D	06/12/03	10:25	5.14
ZZZZZZ	OP29897.D	06/12/03	11:32	5.15
OP7737-BS	OP29899.D	06/12/03	12:17	5.15
OP7737-MB	OP29900.D	06/12/03	12:40	5.15
ZZZZZZ	OP29901.D	06/12/03	13:03	5.15
ZZZZZZ	OP29902.D	06/12/03	13:26	5.15
ZZZZZZ	OP29903.D	06/12/03	13:49	5.15

Surrogate Compounds

S1 = o-Terphenyl

(a) Retention time from GC signal #1

Initial Calibration Summary

Job Number: F18092
Account: TETRPAPT Tetra Tech, NUS
Project: NAS Cecil Field-CTO-121

Sample: GOP1002-ICC1002
Lab FileID: OP29683.D

Response Factor Report FID 2

Method : C:\HPCHEM\2\METHODS\FL_PRO_F.M (Chemstation Integrator)
Title : TPH by FL_PRO
Last Update : Thu Jun 05 08:04:06 2003
Response via : Initial Calibration

Calibration Files
1 =OP29681.D 2 =OP29682.D 3 =OP29683.D
4 =OP29684.D 5 =OP29685.D 6 =OP29686.D 7 =OP29687.D

Compound	1	2	3	4	5	6	7	Avg	%RSD
1)S O-TERPHENYL	2.640	2.531	2.582	2.515	2.757			2.605 E4	3.77
2)H TPH (C8-C40)	2.515	2.312	2.351	2.288	2.492	2.264	2.077	2.328 E4	6.35

Average % RSD = 5.1

(#) = Out of Range

FL_PRO_F.M Fri Jun 06 15:02:05 2003

Continuing Calibration Summary

Job Number: F18092
Account: TETRPAPT Tetra Tech, NUS
Project: NAS Cecil Field-CTO-121

Sample: GOP1005-CC1002
Lab FileID: OP29870.D

Evaluate Continuing Calibration Report

```
Data File : C:\HPCHEM\2\DATA\0610PRO\OP29870.D          Vial: 1
Acq On    : 11 Jun 2003   4:50 am                    Operator: sarahm
Sample    : cc1002-1020                              Inst    : FID 2
Misc      : op7717,gop1005,990,,,1,1,water           Multiplr: 1.00
IntFile   : events.e

Method       : C:\HPCHEM\2\METHODS\FL_PRO_F.M (Chemstation Integrator)
Title        : TPH by FL_PRO
Last Update  : Tue Jun 10 14:10:27 2003
Response via : Multiple Level Calibration

Min. RRF     :   0.000  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  25%     Max. Rel. Area : 150%
```

	Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1 S	O-TERPHENYL	60.000	59.884	0.2	101	0.00
2 H	TPH (C8-C40)	1020.000	1056.258	-3.6	103	0.00

Average % D = 1.9

(#) = Out of Range SPCC's out = 0 CCC's out = 0
OP29683.D FL_PRO_F.M Wed Jun 11 13:39:53 2003

Continuing Calibration Summary

Job Number: F18092
Account: TETRPAPT Tetra Tech, NUS
Project: NAS Cecil Field-CTO-121

Sample: GOP1005-CC1002
Lab FileID: OP29881.D

Evaluate Continuing Calibration Report

```
Data File : C:\HPCHEM\2\DATA\0610PRO\OP29881.D          Vial: 1
Acq On    : 11 Jun 2003   8:59 am                    Operator: sarahm
Sample    : cc1002-1020                              Inst    : FID 2
Misc      : op7717,gop1005,980,,,1,1,water           Multiplr: 1.00
IntFile   : events.e

Method       : C:\HPCHEM\2\METHODS\FL_PRO_F.M (Chemstation Integrator)
Title        : TPH by FL_PRO
Last Update  : Tue Jun 10 14:10:27 2003
Response via : Multiple Level Calibration

Min. RRF     :   0.000  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  25%     Max. Rel. Area : 150%
```

	Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1 S	O-TERPHENYL	60.000	60.137	-0.2	101	0.00
2 H	TPH (C8-C40)	1020.000	1070.428	-4.9	104	0.00

Average % D = 2.6

(#) = Out of Range SPCC's out = 0 CCC's out = 0
OP29683.D FL_PRO_F.M Wed Jun 11 13:39:53 2003

Continuing Calibration Summary

Job Number: F18092
Account: TETRPAPT Tetra Tech, NUS
Project: NAS Cecil Field-CTO-121

Sample: GOP1005-CC1002
Lab FileID: OP29859.D

Evaluate Continuing Calibration Report

Data File : C:\HPCHEM\2\DATA\0610PRO\OP29859.D
Acq On : 11 Jun 2003 12:42 am
Sample : cc1002-1020
Misc : op7709,gop1005,900,,,1,1,water
IntFile : events.e

Vial: 1
Operator: sarahm
Inst : FID 2
Multiplr: 1.00

Method : C:\HPCHEM\2\METHODS\FL_PRO_F.M (Chemstation Integrator)
Title : TPH by FL_PRO
Last Update : Tue Jun 10 14:10:27 2003
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

	Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1 S	O-TERPHENYL	60.000	59.585	0.7	100	0.00
2 H	TPH (C8-C40)	1020.000	1095.362	-7.4	106	0.00

Average % D = 4.0

(#) = Out of Range SPCC's out = 0 CCC's out = 0
OP29683.D FL_PRO_F.M Wed Jun 11 13:39:52 2003

Continuing Calibration Summary

Job Number: F18092
Account: TETRPAPT Tetra Tech, NUS
Project: NAS Cecil Field-CTO-121

Sample: GOP1006-CC1002
Lab FileID: OP29891.D

Evaluate Continuing Calibration Report

```
Data File : C:\HPCHEM\2\DATA\0612PRO\OP29891.D          Vial: 1
Acq On    : 12 Jun 2003   9:18 am                     Operator: sarahm
Sample    : CC1002-1020                               Inst    : FID 2
Misc      : op7717,gop1006,1000,,,1,1,water           Multiplr: 1.00
IntFile   : events.e

Method       : C:\HPCHEM\2\METHODS\FL_PRO_F.M (Chemstation Integrator)
Title        : TPH by FL_PRO
Last Update  : Tue Jun 10 14:10:27 2003
Response via : Multiple Level Calibration

Min. RRF     :   0.000  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  25%     Max. Rel. Area : 150%
```

	Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1 S	O-TERPHENYL	60.000	62.563	-4.3	105	0.00
2 H	TPH (C8-C40)	1020.000	1106.206	-8.5	107	0.00

Average % D = 6.4

(#) = Out of Range SPCC's out = 0 CCC's out = 0
OP29683.D FL_PRO_F.M Fri Jun 13 09:01:31 2003

Continuing Calibration Summary

Job Number: F18092
Account: TETRPAPT Tetra Tech, NUS
Project: NAS Cecil Field-CTO-121

Sample: GOP1006-CC1002
Lab FileID: OP29904.D

Evaluate Continuing Calibration Report

```
Data File : C:\HPCHEM\2\DATA\0612PRO\OP29904.D          Vial: 1
Acq On    : 12 Jun 2003   2:11 pm                     Operator: sarahm
Sample    : CC1002-1020                               Inst    : FID 2
Misc      : op7737,gop1006,1040,,,1,1,water           Multiplr: 1.00
IntFile   : events.e

Method       : C:\HPCHEM\2\METHODS\FL_PRO_F.M (Chemstation Integrator)
Title        : TPH by FL_PRO
Last Update  : Tue Jun 10 14:10:27 2003
Response via : Multiple Level Calibration

Min. RRF     :   0.000  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  25%     Max. Rel. Area : 150%
```

	Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1 S	O-TERPHENYL	60.000	59.329	1.1	100	0.00
2 H	TPH (C8-C40)	1020.000	1030.492	-1.0	100	0.00

Average % D = 1.1

(#) = Out of Range SPCC's out = 0 CCC's out = 0
OP29683.D FL_PRO_F.M Fri Jun 13 09:01:31 2003

Metals Analysis

QC Data Summaries

Includes the following where applicable:

- Instrument Runlogs
- Initial and Continuing Calibration Blanks
- Initial and Continuing Calibration Checks
- High and Low Check Standards
- Interfering Element Check Standards
- Method Blank Summaries
- Matrix Spike and Duplicate Summaries
- Blank Spike and Lab Control Sample Summaries
- Serial Dilution Summaries
- IDL and Linear Range Summaries

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: F18092
Account: TETRPAPT - Tetra Tech, NUS
Project: NAS Cecil Field-CTO-121

File ID: IR061603.ASC Date Analyzed: 06/16/03 Methods: SW846 6010B
Analyst: DM Run ID: MA3349
Parameters: Pb

Time	Sample Description	Dilution Factor	PS Recov	Comments
10:56	MA3349-ICV1	1		
10:59	MA3349-ICB1	1		
11:02	MA3349-CRI1	1		
11:04	MA3349-ICSA1	1		
11:07	MA3349-ICSAB1	1		
11:13	MA3349-CCV1	1		
11:16	MA3349-CCB1	1		
11:19	MP5551-MB1	1		
11:23	MP5551-B1	1		
11:26	F18122-1	1		(sample used for QC only; not part of login F18092)
11:29	MP5551-D1	1		
11:32	MP5551-SD1	5		
11:36	MP5551-S1	1		
11:39	MP5551-S2	1		
11:42	ZZZZZZ	1		
11:46	ZZZZZZ	1		
11:49	ZZZZZZ	1		
11:52	MA3349-CCV2	1		
11:56	MA3349-CCB2	1		
11:59	ZZZZZZ	1		
12:02	ZZZZZZ	1		
12:05	ZZZZZZ	1		
12:08	ZZZZZZ	1		
12:11	ZZZZZZ	1		
12:14	ZZZZZZ	1		
12:17	ZZZZZZ	1		
12:20	ZZZZZZ	1		
12:23	ZZZZZZ	1		
12:26	F18092-1	1		
12:29	MA3349-CCV3	1		
12:33	MA3349-CCB3	1		
12:36	F18092-2	1		
12:39	F18092-3	1		

----------> Last reportable sample/prep for job F18092

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: F18092
Account: TETRPAPT - Tetra Tech, NUS
Project: NAS Cecil Field-CTO-121

File ID: IR061603.ASC Date Analyzed: 06/16/03 Methods: SW846 6010B
Analyst: DM Run ID: MA3349
Parameters: Pb

Time	Sample Description	Dilution Factor	PS Recov	Comments
12:42	ZZZZZZ	1		
12:45	ZZZZZZ	1		
12:48	MA3349-CCV4	1		
12:52	MA3349-CCB4	1		

----------> Last reportable CCB for job F18092
Refer to raw data for calibration curve and standards.

INTERNAL STANDARD SUMMARY

Login Number: F18092
Account: TETRPAPT - Tetra Tech, NUS
Project: NAS Cecil Field-CTO-121

File ID: IR061603.ASC
Analyst: DM
Parameters: Pb

Date Analyzed: 06/16/03
Run ID: MA3349

Methods: SW846 6010B

Time	Sample Description	Istd#1
10:56	MA3349-ICV1	4669
10:59	MA3349-ICB1	4782 R
11:02	MA3349-CRI1	4786
11:04	MA3349-ICSA1	4268
11:07	MA3349-ICSAB1	4277
11:13	MA3349-CCV1	4653
11:16	MA3349-CCB1	4749
11:19	MP5551-MB1	4677
11:23	MP5551-B1	4664
11:26	F18122-1	4712
11:29	MP5551-D1	4694
11:32	MP5551-SD1	4763
11:36	MP5551-S1	4650
11:39	MP5551-S2	4651
11:42	ZZZZZZ	4657
11:46	ZZZZZZ	4734
11:49	ZZZZZZ	4715
11:52	MA3349-CCV2	4680
11:56	MA3349-CCB2	4785
11:59	ZZZZZZ	4727
12:02	ZZZZZZ	4785
12:05	ZZZZZZ	4752
12:08	ZZZZZZ	4715
12:11	ZZZZZZ	4745
12:14	ZZZZZZ	4795
12:17	ZZZZZZ	4828
12:20	ZZZZZZ	4800
12:23	ZZZZZZ	4780
12:26	F18092-1	4794
12:29	MA3349-CCV3	4705
12:33	MA3349-CCB3	4729
12:36	F18092-2	4717
12:39	F18092-3	4750
12:42	ZZZZZZ	4715

INTERNAL STANDARD SUMMARY

Login Number: F18092
Account: TETRPAPT - Tetra Tech, NUS
Project: NAS Cecil Field-CTO-121

File ID: IR061603.ASC
Analyst: DM
Parameters: Pb

Date Analyzed: 06/16/03
Run ID: MA3349

Methods: SW846 6010B

Time	Sample Description	Istd#1
12:45	ZZZZZZ	4660
12:48	MA3349-CCV4	4726
12:52	MA3349-CCB4	4794

R = Reference for ISTD limits. ! = Outside limits.

LEGEND:

Istd#	Parameter	Limits
Istd#1	Yttrium	60-125 %

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: F18092
Account: TETRPAPT - Tetra Tech, NUS
Project: NAS Cecil Field-CTO-121

File ID: IR061603.ASC
QC Limits: result < RL

Date Analyzed: 06/16/03
Run ID: MA3349

Methods: SW846 6010B
Units: ug/l

Metal	RL	IDL	ICB raw	final	CCB raw	final	CCB raw	final	CCB raw	final
Aluminum	200	6.6								
Arsenic	10	2.8	anr							
Barium	200	.49								
Beryllium	5.0	.26	anr							
Cadmium	5.0	.26	anr							
Calcium	1000	3.8	anr							
Chromium	10	.43	anr							
Cobalt	50	.5								
Copper	25	.44	anr							
Iron	300	7.1								
Lead	5.0	1.2	0.82	<5.0	0.74	<5.0	1.1	<5.0	2.4	<5.0
Magnesium	5000	9.9	anr							
Manganese	15	.16	anr							
Molybdenum	50	.75								
Nickel	40	1.1								
Selenium	10	2								
Silver	10	.55	anr							
Sodium	5000	150	anr							
Tin	50	2.2								
Vanadium	50	.47								
Zinc	20	.59								

(*) Outside of QC limits
(anr) Analyte not requested

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: F18092
Account: TETRPAPT - Tetra Tech, NUS
Project: NAS Cecil Field-CTO-121

File ID: IR061603.ASC Date Analyzed: 06/16/03 Methods: SW846 6010B
QC Limits: result < RL Run ID: MA3349 Units: ug/l

Metal	RL	IDL	CCB raw	final
Aluminum	200	6.6		
Arsenic	10	2.8	anr	
Barium	200	.49		
Beryllium	5.0	.26	anr	
Cadmium	5.0	.26	anr	
Calcium	1000	3.8	anr	
Chromium	10	.43	anr	
Cobalt	50	.5		
Copper	25	.44	anr	
Iron	300	7.1		
Lead	5.0	1.2	1.9	<5.0
Magnesium	5000	9.9	anr	
Manganese	15	.16	anr	
Molybdenum	50	.75		
Nickel	40	1.1		
Selenium	10	2		
Silver	10	.55	anr	
Sodium	5000	150	anr	
Tin	50	2.2		
Vanadium	50	.47		
Zinc	20	.59		

(*) Outside of QC limits
(anr) Analyte not requested

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: F18092
Account: TETRPAPT - Tetra Tech, NUS
Project: NAS Cecil Field-CTO-121

File ID: IR061603.ASC
QC Limits: 90 to 110 % Recovery

Date Analyzed: 06/16/03
Run ID: MA3349

Methods: SW846 6010B
Units: ug/l

Metal	ICV True	ICV Results	% Rec	CCV True	CCV Results	% Rec	CCV True	CCV Results	% Rec
Aluminum									
Arsenic	anr								
Barium									
Beryllium	anr								
Cadmium	anr								
Calcium	anr								
Chromium	anr								
Cobalt									
Copper	anr								
Iron									
Lead	2000	1960	98.0	2000	1950	97.5	2000	1960	98.0
Magnesium	anr								
Manganese	anr								
Molybdenum									
Nickel									
Selenium									
Silver	anr								
Sodium	anr								
Tin									
Vanadium									
Zinc									

(*) Outside of QC limits
(anr) Analyte not requested

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: F18092
Account: TETRPAPT - Tetra Tech, NUS
Project: NAS Cecil Field-CTO-121

File ID: IR061603.ASC
QC Limits: 90 to 110 % Recovery

Date Analyzed: 06/16/03
Run ID: MA3349

Methods: SW846 6010B
Units: ug/l

Metal	CCV True	CCV Results	% Rec	CCV True	CCV Results	% Rec
Aluminum						
Arsenic	anr					
Barium						
Beryllium	anr					
Cadmium	anr					
Calcium	anr					
Chromium	anr					
Cobalt						
Copper	anr					
Iron						
Lead	2000	1960	98.0	2000	1960	98.0
Magnesium	anr					
Manganese	anr					
Molybdenum						
Nickel						
Selenium						
Silver	anr					
Sodium	anr					
Tin						
Vanadium						
Zinc						

(*) Outside of QC limits
(anr) Analyte not requested

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: F18092
Account: TETRPAPT - Tetra Tech, NUS
Project: NAS Cecil Field-CTO-121

File ID: IR061603.ASC
QC Limits: 70 to 130 % Recovery

Date Analyzed: 06/16/03
Run ID: MA3349

Methods: SW846 6010B
Units: ug/l

Metal	CRI True	CRIA True	CRI Results	% Rec
Aluminum	400			
Arsenic	20		anr	
Barium	400			
Beryllium	10		anr	
Cadmium	10		anr	
Calcium	2000		anr	
Chromium	20		anr	
Cobalt	100			
Copper	50		anr	
Iron	600			
Lead	10		9.7	97.0
Magnesium	10000		anr	
Manganese	30		anr	
Molybdenum	100			
Nickel	80			
Selenium	10			
Silver	20		anr	
Sodium	10000		anr	
Tin	100			
Vanadium	100			
Zinc	40			

(*) Outside of QC limits
(anr) Analyte not requested

INTERFERING ELEMENT CHECK STANDARDS SUMMARY
Part 1 - ICSA and ICSAB Standards

Login Number: F18092
Account: TETRPAPT - Tetra Tech, NUS
Project: NAS Cecil Field-CTO-121

File ID: IR061603.ASC Date Analyzed: 06/16/03 Methods: SW846 6010B
QC Limits: 80 to 120 % Recovery Run ID: MA3349 Units: ug/l

Metal	ICSA True	ICSAB True	ICSA Results	% Rec	ICSAB Results	% Rec
Aluminum	500000	500000	502000	100.4	512000	102.4
Arsenic		1000	1.9		976	97.6
Barium		500	0.74		519	103.8
Beryllium		500	-2.2		495	99.0
Cadmium		1000	2.0		978	97.8
Calcium	500000	500000	462000	92.4	468000	93.6
Chromium		500	0.39		467	93.4
Cobalt		500	-0.73		469	93.8
Copper		500	-6.0		506	101.2
Iron	200000	200000	199000	99.5	196000	98.0
Lead		1000	-0.45		957	95.7
Magnesium	500000	500000	519000	103.8	523000	104.6
Manganese		500	-1.7		496	99.2
Molybdenum		1000	-8.2		927	92.7
Nickel		1000	2.5		958	95.8
Selenium		1000	1.9		966	96.6
Silver		1000	0.34		1080	108.0
Sodium			110		150	
Tin		1000	-4.8		945	94.5
Vanadium		500	8.5		507	101.4
Zinc		1000	-6.8		941	94.1

(*) Outside of QC limits
(anr) Analyte not requested

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: F18092
Account: TETRPAPT - Tetra Tech, NUS
Project: NAS Cecil Field-CTO-121

QC Batch ID: MP5551
Matrix Type: AQUEOUS

Methods: SW846 6010B
Units: ug/l

Prep Date: 06/13/03

Metal	RL	IDL	MB raw	final
Aluminum	200	6.6		
Arsenic	10	2.8	anr	
Barium	200	.49		
Beryllium	5.0	.26	anr	
Cadmium	5.0	.26	anr	
Calcium	1000	3.8	anr	
Chromium	10	.43	anr	
Cobalt	50	.5		
Copper	25	.44	anr	
Iron	300	7.1		
Lead	5.0	1.2	0.94	<5.0
Magnesium	5000	9.9	anr	
Manganese	15	.16	anr	
Molybdenum	50	.75		
Nickel	40	1.1		
Selenium	10	2		
Silver	10	.55	anr	
Sodium	5000	150	anr	
Tin	50	2.2		
Vanadium	50	.47		
Zinc	20	.59		

Associated samples MP5551: F18092-1, F18092-2, F18092-3

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: F18092
Account: TETRPAPT - Tetra Tech, NUS
Project: NAS Cecil Field-CTO-121

QC Batch ID: MP5551
Matrix Type: AQUEOUS

Methods: SW846 6010B
Units: ug/l

Prep Date:			06/13/03					06/13/03	
Metal	F18122-1 Original	DUP	RPD	QC Limits	F18122-1 Original	MS	Spikelot MPFLICP	% Rec	QC Limits
Aluminum									
Arsenic	anr								
Barium									
Beryllium	anr								
Cadmium	anr								
Calcium	anr								
Chromium	anr								
Cobalt									
Copper	anr								
Iron									
Lead	0.0	1.7	200.0(a)	0-10	0.0	993	1000	99.3	84-118
Magnesium	anr								
Manganese	anr								
Molybdenum									
Nickel									
Selenium									
Silver	anr								
Sodium	anr								
Tin									
Vanadium									
Zinc									

Associated samples MP5551: F18092-1, F18092-2, F18092-3

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested
(a) RPD acceptable due to low duplicate and sample concentrations.

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: F18092
Account: TETRPAPT - Tetra Tech, NUS
Project: NAS Cecil Field-CTO-121

QC Batch ID: MP5551
Matrix Type: AQUEOUS

Methods: SW846 6010B
Units: ug/l

Prep Date: 06/13/03

Metal	F18122-1 Original	MSD	Spikelot MPFLICP	% Rec	MSD RPD	QC Limit
Aluminum						
Arsenic	anr					
Barium						
Beryllium	anr					
Cadmium	anr					
Calcium	anr					
Chromium	anr					
Cobalt						
Copper	anr					
Iron						
Lead	0.0	1030	1000	103.0	3.7	
Magnesium	anr					
Manganese	anr					
Molybdenum						
Nickel						
Selenium						
Silver	anr					
Sodium	anr					
Tin						
Vanadium						
Zinc						

Associated samples MP5551: F18092-1, F18092-2, F18092-3

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: F18092
Account: TETRPAPT - Tetra Tech, NUS
Project: NAS Cecil Field-CTO-121

QC Batch ID: MP5551
Matrix Type: AQUEOUS

Methods: SW846 6010B
Units: ug/l

Prep Date: 06/13/03

Metal	BSP Result	Spikelot MPFLICP	% Rec	QC Limits
Aluminum				
Arsenic	anr			
Barium				
Beryllium	anr			
Cadmium	anr			
Calcium	anr			
Chromium	anr			
Cobalt				
Copper	anr			
Iron				
Lead	1030	1000	103.0	80-120
Magnesium	anr			
Manganese	anr			
Molybdenum				
Nickel				
Selenium				
Silver	anr			
Sodium	anr			
Tin				
Vanadium				
Zinc				

Associated samples MP5551: F18092-1, F18092-2, F18092-3

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

SERIAL DILUTION RESULTS SUMMARY

Login Number: F18092
Account: TETRPAPT - Tetra Tech, NUS
Project: NAS Cecil Field-CTO-121

QC Batch ID: MP5551
Matrix Type: AQUEOUS

Methods: SW846 6010B
Units: ug/l

Prep Date: 06/13/03

Metal	F18122-1 Original	SDL 1:5	RPD	QC Limits
Aluminum				
Arsenic	anr			
Barium				
Beryllium	anr			
Cadmium	anr			
Calcium	anr			
Chromium	anr			
Cobalt				
Copper	anr			
Iron				
Lead	0.00	0.00	NC	0-10
Magnesium	anr			
Manganese	anr			
Molybdenum				
Nickel				
Selenium				
Silver	anr			
Sodium	anr			
Tin				
Vanadium				
Zinc				

Associated samples MP5551: F18092-1, F18092-2, F18092-3

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

Instrument Detection Limits

Job Number: F18092
Account: TETRPAPT Tetra Tech, NUS
Project: NAS Cecil Field-CTO-121

Instrument ID: TJATRACE1 Effective Date: 04/14/02

Analyte	IDL ug/l
Aluminum	6.56
Antimony	1.52
Arsenic	2.83
Barium	.49
Beryllium	.26
Cadmium	.26
Calcium	3.82
Chromium	.43
Cobalt	.5
Copper	.44
Iron	7.11
Lead	1.22
Magnesium	9.88
Manganese	.16
Molybdenum	.75
Nickel	1.08
Potassium	13.85
Selenium	1.98
Silver	.55
Sodium	145.01
Thallium	1.49
Tin	2.18
Vanadium	.47
Zinc	.59

The above applies to the following instrument runs:
MA3349

Instrument Linear Ranges

Job Number: F18092
Account: TETRPAPT Tetra Tech, NUS
Project: NAS Cecil Field-CTO-121

Instrument ID: TJATRACE1 Effective Date: 10/10/02

Analyte	Linear Range ug/l
Aluminum	1000000
Antimony	100000
Arsenic	20000
Barium	20000
Beryllium	20000
Cadmium	20000
Calcium	500000
Chromium	100000
Cobalt	100000
Copper	100000
Iron	1000000
Lead	100000
Magnesium	1000000
Manganese	20000
Molybdenum	50000
Nickel	100000
Potassium	250000
Selenium	50000
Silver	1000
Sodium	250000
Thallium	100000
Tin	100000
Vanadium	100000
Zinc	50000

The above applies to the following instrument runs:
MA3349

TETRA TECH NUS, INC. | **CHAIN OF CUSTODY** | **NUMBER** 2320 | **PAGE** 1 **OF** 1

PROJECT NO: N0486 GTO 121	**FACILITY:** 9RT CECIL FIELD	**PROJECT MANAGER** PAUL CALLIGAN	**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 STE C-15
		CARRIER/WAYBILL NUMBER Fedex 8371 1005 5422 / 5433 2 coolers		**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	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 SW846 8260B *	EDB 504.1	PAHs SW846 8270C * SIM	TRPH FL-PRO	TOTAL LEAD SW846 6010B				COMMENTS
								CONTAINER TYPE PLASTIC (P) or GLASS (G)	G	G	G	G	P				
								PRESERVATIVE USED	HCl	HCl	None	~~HCl~~	HNO3				
6/5	1030	CEF-9RT-GW-1S-01	—	—	—	GW	G	11	3	3	2	2	1				Cool to 4°C
6/5	1330	CEF-9RT-GW-2S-01	—	—	—	GW	G	11	3	3	2	2	1				
6/5	0000	CEF-9RT-GW-DU02	—	—	—	GW	G	11	3	3	2	2	1				*See work release N3996-WR 347 for a list of analytes

1. RELINQUISHED BY Merv D. Dale	DATE 6/5/03	TIME 1600	1. RECEIVED BY Fedex	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