

RECEIVED JUNE 17, 2008



## ANALYTICAL REPORT

F08-033

Lot #: F8E160310

SDG #: W05400

Steve Trent

Fluor Hanford Inc  
PO Box 1000 T6-03  
Richland, WA 99352

TESTAMERICA LABORATORIES, INC.

A handwritten signature in black ink, appearing to read "Michael C. Franks".

Michael C. Franks  
Project Manager

June 16, 2008



THE LEADER IN ENVIRONMENTAL TESTING

## CASE NARRATIVE

Fluor Hanford, Inc.  
 P.O. Box 1000  
 MSIN E6-35  
 Richland, Washington 99352  
 June 16, 2008  
 Attention: Steve Trent

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SDG	: W05400
Number of Samples	: two samples
Sample Matrix	: water
Data Deliverable	: Summary
Date SDG Closed	: May 16, 2008

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## II. Introduction

On May 16, 2008, two water samples were received by TestAmerica - St. Louis for chemical analysis. The samples were received within temperature criteria. See the COC and CUR forms for documentation of any variations on receipt conditions and temperature. Upon receipt, the samples were given laboratory Ids to correspond with specific client Ids. Please refer to the Sample Summary sheets attached to this case narrative. This report is incomplete without the narrative.

## III. Analytical Results/ Methodology

The analytical results for this report are presented by analytical test. Each set of data includes sample identification information, analytical results and the appropriate detection limits. All results are based upon samples as they were received, i.e. wet weight, unless otherwise noted on the data sheets. See the attached Methods Summary Form for the methods used in this SDG.

Deviation from Request: None

## IV. Definitions

QCBLK-	Quality Control Blank, Method Blank
QCLCS-	Quality Control Laboratory Control Sample, Blank Spike
DUP-	Laboratory Duplicate
MS-	Matrix Spike
MSD-	Matrix Spike Duplicate

## V. Comments

**General**

The following SAFs are associated with this SDG: F08-033

The term "Detection Limit" used in the analytical data report refers to either the lab's standard reporting limits or contractually required reporting limits, whichever is applicable.

MS/MSD/Dup analysis was done per the client requirements. Analytical batches that did not contain matrix QC were analyzed with a LCS/LCS duplicate.

Volatiles

# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

**Fluor Hanford Inc.**

June 16, 2008

SDG: W05400

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Batch 8141308:

The CCV recovery for Bromomethane is outside the upper QC limit (greater than 20% RSD) indicating a potential high bias for this analyte in the samples associated with this CCV. This analyte was not detected above the reporting limit in the associated samples.

**Affected Samples:**

F8E160310 (1): B1VDV8

F8E160310 (2): B1VDW0

The LCS recovery for Bromomethane is outside the upper QC limit, indicating a potential positive bias for that analyte. This analyte was not observed above the reporting limit in the associated samples; therefore the sample data was not adversely affected by this excursion.

**Affected Samples:**

F8E160310 (1): B1VDV8

F8E160310 (2): B1VDW0

The MS/MSD recoveries for Bromomethane and Carbon tetrachloride are outside the upper QC limit, indicating a potential positive bias for the analytes. The analytes were not observed above the reporting limit in the associated samples; therefore the sample data was not adversely affected by this excursion.

**Affected Samples:**

F8E160310 (1): B1VDV8

F8E160310 (2): B1VDW0

The MS/MSD RPD for Methylene chloride and Carbon disulfide is not within method acceptance criteria. MS/MSD recoveries are within QC limits demonstrating good extraction performance in the sample matrix.

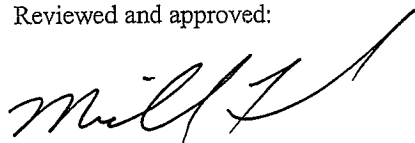
**Affected Samples:**

F8E160310 (1): B1VDV8

F8E160310 (2): B1VDW0

I certify that this Summary Package is in compliance with the SOW, both technically and for completeness, for other than the conditions detailed above. The Laboratory Manager or a designee, as verified by the following signature has authorized release of the data contained in this hard copy data package.

Reviewed and approved:



Michael Franks  
St. Louis Project Manager

**METHODS SUMMARY**

F8E160310

<u>PARAMETER</u>	<u>ANALYTICAL METHOD</u>	<u>PREPARATION METHOD</u>
Volatile Organics by GC/MS	SW846 8260B	SW846 5030B/826

**References:**

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

**SAMPLE SUMMARY**

F8E160310

<u>WO #</u>	<u>SAMPLE#</u>	<u>CLIENT SAMPLE ID</u>	<u>SAMPLED DATE</u>	<u>SAMP TIME</u>
KNEF6	001	B1VDV8	05/12/08	13:10
KNEF7	002	B1VDW0	05/13/08	10:00

**NOTE (S) :**

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

**Fluor Hanford Inc.** **CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST** **4/1/03** **PAGE 1 OF 1**

**COLLECTOR** *Ed Kause* **COMPANY CONTACT** *TRENT, SJ* **TELEPHONE NO.** *373-5869*

**SAMPLING LOCATION** *SAWS-609* **PROJECT DESIGNATION** *216-B-55 Supplemental Characterization - QC Sampling*

**ICE CHEST NO.** *SAWS-609* **FIELD LOGBOOK NO.** *PS-1* **ACTUAL SAMPLE DEPTH** *17.3' to 19.8'*

**SHIPPED TO** *TestAmerica St. Louis* **OFFSITE PROPERTY NO.** *SEE PTR*

**MATRIX\*** *B* **PRESERVATION** *HCl or H2SO4 to pH <2/ Cool to 4C*

**POSSIBLE SAMPLE HAZARDS/REMARKS** *Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR but are not releasable per DOE Order 5400.5 (1990/1993)*

**SPECIAL HANDLING AND/OR STORAGE**

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	RECEIVED BY/STORED IN	DATE/TIME
B1VDV8	WATER	05-12-03	1310	B-55 site	5-12-03 1355
				Ed Kause/Ed Kause	5-14-03 1100
				Ed Kause/Ed Kause	5-14-03 1230
				Ed Kause/Ed Kause	5-15-03 1100
				Ed Kause/Ed Kause	5-15-03 1300

**CHAIN OF POSSESSION**

RELINQUISHED BY/REMOVED FROM: *Ed Kause* DATE/TIME: *5-12-03 1355*

RELINQUISHED BY/REMOVED FROM: *B-55 site* DATE/TIME: *5-14-03 1100*

RELINQUISHED BY/REMOVED FROM: *Ed Kause* DATE/TIME: *5-14-03 1230*

RELINQUISHED BY/REMOVED FROM: *Ed Kause* DATE/TIME: *5-15-03 1100*

RELINQUISHED BY/REMOVED FROM: *Ed Kause* DATE/TIME: *5-15-03 1300*

RELINQUISHED BY/REMOVED FROM: *Ed Kause* DATE/TIME: *5-16-03 1000*

**CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST**

**COMPANY CONTACT** *TRENT, SJ* **TELEPHONE NO.** *373-5869*

**PROJECT COORDINATOR** *WIDRIG, DL*

**SAF NO.** *F08-033*

**COA** *123055278*

**BILL OF LADING/AIR BILL NO.** *7984 4247 7(11)*

**PRICE CODE** *7N* **AIR QUALITY**

**METHOD OF SHIPMENT** *FEDERAL EXPRESS*

**SPECIAL INSTRUCTIONS**

\*\* The 200 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF.

(1)VOA - 8260B (TCL); VOA - 8260B (Add-On) (Acetonitrile, Hexane, Tetrahydrofuran)

\* 1 bottle freeze and break not shipped

**LABORATORY SECTION** *0* **RECEIVED BY** *Ed Kause* **DATE/TIME** *5/16/03 1000*

**FINAL SAMPLE DISPOSITION** *0* **DISPOSAL METHOD** *0* **DISPOSED BY** *Ed Kause* **DATE/TIME** *5/16/03 1000*

A-6003-618(01/06)

**Fluor Hanford Inc.**

COLLECTOR: *Kaver, Roscoe, McIntyre*

PROJECT COORDINATOR: WDRIG, DL

PRICE CODE: 7N

PAGE 1 OF 1

SAF NO.: F08-033

AIR QUALITY:

DATA TURNAROUND: 45 Days / 45 Days

FIELD LOGBOOK NO.: *HNF-N-583-1*

ACTUAL SAMPLE DEPTH: *47.8' - 50.3'*

METHOD OF SHIPMENT: FEDERAL EXPRESS

OFFSITE PROPERTY NO.: *7984 4247 711*

SEE PTR

BILL OF LADING/AIR BILL NO.:

**SHIPPED TO**

TestAmerica St. Louis

**MATRIX\***

A=Air  
DL=Drum  
L=Liquid  
O=Oil  
S=Soil  
SE=Sediment  
T=Tissue  
V=Vegetation  
W=Water  
WI=Wipe  
X=Other

**PRESERVATION**

HCl or H2SO4 to pH <2/ Cool to 4C

**TYPE OF CONTAINER**

3GS\*

**NO. OF CONTAINER(S)**

4

**VOLUME**

40ml

**SPECIAL HANDLING AND/OR STORAGE**

SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME
B1VDW0	WATER	5-13-08	1200 ✓

**CHAIN OF CUSTODY / SAMPLE ANALYSIS REQUEST**

**COMPANY CONTACT**: TRENT, SJ

**TELEPHONE NO.**: 373-5869

**PROJECT DESIGNATION**: 216-B-55 Supplemental Characterization - QC Sampling

**FIELD LOGBOOK NO.**: *HNF-N-583-1*

**ACTUAL SAMPLE DEPTH**: *47.8' - 50.3'*

**OFFSITE PROPERTY NO.**: *7984 4247 711*

**SEE PTR**

**SPECIAL INSTRUCTIONS**

\*\* The 200 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF.  
(1)VOA - 8260B (TCL); VOA - 8260B (Add-On) (Acetonitrile, Hexane, Tetrahydrofuran)

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
<i>ARM/Integrator/Ally/Ref</i>	5-13-08 1045	<i>B-55 Site Ref</i>	5-13-08 1045
<i>B-55 Site Ref</i>	5-14-08 1100	<i>ARM/Integrator/Ally/Ref</i>	5-14-08 1100
<i>ARM/Integrator/Ally/Ref</i>	5-14-08 1230	<i>MO745 Ref</i>	5-14-08 1230
<i>MO745 Ref</i>	5-15-08 1100	<i>Dunnally Oly</i>	5-15-08 1100
<i>Dunnally Oly</i>	5-15-08 1300	<i>Fed Ex</i>	5-16-08 1000
<i>Fed Ex</i>		<i>B-55</i>	

**LABORATORY SECTION**: *1*

**RECEIVED BY**: *B-55*

**DATE/TIME**: *5/16/08 1000*

**FINAL SAMPLE DISPOSITION**: *1*

**DISPOSAL METHOD**: *1*

**DISPOSED BY**: *B-55*

**DATE/TIME**: *5/16/08 1000*

Track Shipments/FedEx Kinko's Orders  
Detailed Results

**Tracking number** 798442477111  
**Signed for by** B.DANIELS  
**Ship date** May 15, 2008  
**Delivery date** May 16, 2008 9:54 AM

**Reference** M8200 123055 J278  
**Destination** EARTH CITY, MO  
**Delivered to** Shipping/Receiving  
**Service type** Priority Overnight  
**Weight** 41.0 lbs.

**Status** Delivered

**Signature image available** [Yes](#)

Date/Time	Activity	Location
May 16, 2008	9:54 AM <b>Delivered</b>	EARTH CITY, MO
	8:13 AM On FedEx vehicle for delivery	EARTH CITY, MO
	6:47 AM At local FedEx facility	EARTH CITY, MO
	5:58 AM At dest sort facility	BERKELEY, MO
	4:29 AM Departed FedEx location	MEMPHIS, TN
May 15, 2008	12:53 AM Arrived at FedEx location	MEMPHIS, TN
	5:43 PM Left origin	PASCO, WA
	3:22 PM Picked up	PASCO, WA
	1:46 PM Package data transmitted to FedEx	

[Signature proof](#) [E-mail results](#) [Track more shipments/o](#)

Subscribe to tracking updates (optional)

Your name:

Your e-mail address:

E-mail address	Language	Exception updates
	English	<input type="checkbox"/>
	English	<input type="checkbox"/>
	English	<input type="checkbox"/>
	English	<input type="checkbox"/>

Select format:  HTML  Text  Wireless

Add personal message:

Not available for Wireless or non-English characters.

By selecting this check box and the Submit button, I agree to these [Terms and Conditions](#)





THE LEADER IN ENVIRONMENTAL TESTING

Lot #(s): FBE160202  
- 3388 - 310

Client: Hanford COC/RFA No: See below Date: 5/16/08  
Quote No: 79140, 79517 Initiated By: SM Time: 1000

Condition Upon Receipt Form

Shipper Name: FE Multiple Packages  Y  N  
Shipping # (s):\* Sample Temperature (s):\*\*  
1. 7919 0221 0501 6. \_\_\_\_\_ 1. 4 6. \_\_\_\_\_  
2. 7984 4247 7111 7. \_\_\_\_\_ 2. 3 7. \_\_\_\_\_  
3. \_\_\_\_\_ 8. \_\_\_\_\_ 3. \_\_\_\_\_ 8. \_\_\_\_\_  
4. \_\_\_\_\_ 9. \_\_\_\_\_ 4. \_\_\_\_\_ 9. \_\_\_\_\_  
5. \_\_\_\_\_ 10. \_\_\_\_\_ 5. \_\_\_\_\_ 10. \_\_\_\_\_

\*Numbered shipping lines correspond to Numbered Sample Temp lines \*\*Sample must be received at 4°C ± 2°C- If not, note contents below. Temperature variance does NOT affect the following: Metals-Liquid or Rad tests- Liquid or Solids

Condition (Circle "Y" for yes, "N" for no and "N/A" for not applicable):

1. <input checked="" type="radio"/> Y <input type="radio"/> N	Are there custody seals present on the cooler?	8. <input checked="" type="radio"/> Y <input type="radio"/> N	Are there custody seals present on bottles?
2. <input type="radio"/> Y <input checked="" type="radio"/> N <input type="radio"/> N/A	Do custody seals on cooler appear to be tampered with?	9. <input type="radio"/> Y <input checked="" type="radio"/> N <input type="radio"/> N/A	Do custody seals on bottles appear to be tampered with?
3. <input checked="" type="radio"/> Y <input type="radio"/> N	Were contents of cooler frisked after opening, but before unpacking?	10. <input type="radio"/> Y <input type="radio"/> N <input checked="" type="radio"/> N/A	Was sample received with proper pH? (If not, make note below)
4. <input checked="" type="radio"/> Y <input type="radio"/> N	Sample received with Chain of Custody?	11. <input type="radio"/> Y <input type="radio"/> N	If N/A- Was pH taken by original TestAmerica lab?
5. <input checked="" type="radio"/> Y <input type="radio"/> N <input type="radio"/> N/A	Does the Chain of Custody match sample ID's on the container(s)?	12. <input checked="" type="radio"/> Y <input type="radio"/> N	Sample received in proper containers?
6. <input type="radio"/> Y <input checked="" type="radio"/> N	Was sample received broken?	13. <input type="radio"/> Y <input checked="" type="radio"/> N <input type="radio"/> N/A	Headspace in VOA or TOX liquid samples? (If Yes, note sample ID's below)
7. <input checked="" type="radio"/> Y <input type="radio"/> N	Is sample volume sufficient for analysis?	14. <input type="radio"/> Y <input type="radio"/> N	Was Internal COC/Workshare received?

<sup>1</sup> For DOE-AL (Pantex, LANL, Sandia) sites, pH of ALL containers received must be verified, EXCEPT VOA, TOX and soils.

Notes: F08-031-146, 147, 152, 153, 157, 158, 163, 164, 169, 170, 177  
178, 165, 185, 159, 171, 179, 154, 148  
F08-033-021, 023

Corrective Action:  
 Client Contact Name: \_\_\_\_\_ Informed by: \_\_\_\_\_  
 Sample(s) processed "as is"  
 Sample(s) on hold until: \_\_\_\_\_ If released, notify: \_\_\_\_\_  
Project Management Review: mill Date: 05-18-08

**GC/MS**  
**VOLATILES**

## Fluor Hanford Inc

Client Sample ID: B1VDV8

## GC/MS Volatiles

Lot-Sample #...: F8E160310-001    Work Order #...: KNEF61AA    Matrix.....: WATER  
 Date Sampled...: 05/12/08    Date Received...: 05/16/08  
 Prep Date.....: 05/20/08    Analysis Date...: 05/20/08  
 Prep Batch #...: 8141308  
 Dilution Factor: 1    Method.....: SW846 8260B

PARAMETER	RESULT	REPORTING		
		LIMIT	UNITS	MDL
2-Butanone	ND	20	ug/L	0.87
Carbon disulfide	ND	5.0	ug/L	0.12
Carbon tetrachloride	ND T	5.0	ug/L	0.20
Chlorobenzene	ND	5.0	ug/L	0.11
Acetone	ND	20	ug/L	1.7
Benzene	ND	5.0	ug/L	0.087
Bromodichloromethane	ND	5.0	ug/L	0.21
Bromoform	ND	5.0	ug/L	0.059
Bromomethane	ND T	10	ug/L	0.13
1-Butanol	ND	100	ug/L	9.0
n-Butylbenzene	ND	5.0	ug/L	0.18
Dibromochloromethane	ND	5.0	ug/L	0.12
Chloroethane	ND	10	ug/L	0.46
<b>Chloromethane</b>	<b>0.37 J,B</b>	<b>10</b>	<b>ug/L</b>	<b>0.27</b>
Cyclohexanone	ND	100	ug/L	3.2
1,1-Dichloroethane	ND	5.0	ug/L	0.070
1,2-Dichloroethane	ND	5.0	ug/L	0.066
1,1-Dichloroethene	ND	5.0	ug/L	0.12
cis-1,2-Dichloroethene	ND	5.0	ug/L	0.054
trans-1,2-Dichloroethene	ND	5.0	ug/L	0.090
1,2-Dichloroethene (total)	ND	10	ug/L	0.11
1,2-Dichloropropane	ND	5.0	ug/L	0.11
cis-1,3-Dichloropropene	ND	5.0	ug/L	0.10
trans-1,3-Dichloropropene	ND	5.0	ug/L	0.10
Ethylbenzene	ND	5.0	ug/L	0.058
2-Hexanone	ND	20	ug/L	0.24
<b>Methylene chloride</b>	<b>2.9 J</b>	<b>5.0</b>	<b>ug/L</b>	<b>0.69</b>
4-Methyl-2-pentanone	ND	20	ug/L	0.29
Styrene	ND	5.0	ug/L	0.17
1,1,2,2-Tetrachloroethane	ND	5.0	ug/L	0.078
Tetrachloroethene	ND	5.0	ug/L	0.087
Toluene	ND	5.0	ug/L	0.32
1,1,1-Trichloroethane	ND	5.0	ug/L	0.10
1,1,2-Trichloroethane	ND	5.0	ug/L	0.067
<b>Trichloroethene</b>	<b>3.9 J</b>	<b>5.0</b>	<b>ug/L</b>	<b>0.10</b>
Vinyl chloride	ND	5.0	ug/L	0.11
Xylenes (total)	ND	10	ug/L	0.23
Acetonitrile	ND	50	ug/L	5.4

(Continued on next page)

## Fluor Hanford Inc

Client Sample ID: B1VDV8

## GC/MS Volatiles

Lot-Sample #....: F8E160310-001    Work Order #....: KNEF61AA    Matrix.....: WATER

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING LIMIT</u>	<u>UNITS</u>	<u>MDL</u>
n-Hexane	ND	10	ug/L	0.90
Tetrahydrofuran	ND	25	ug/L	1.8
<u>SURROGATE</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>		
Toluene-d8	98	(80 - 122)		
Dibromofluoromethane	103	(82 - 118)		
1,2-Dichloroethane-d4	106	(70 - 131)		
4-Bromofluorobenzene	102	(78 - 115)		

**NOTE (S) :**

T Spike sample recovery is outside control limits.

J Estimated result. Result is less than RL.

B Method blank contamination. The associated method blank contains the target analyte at a reportable level.

Fluor Hanford Inc

B1VDV8

GC/MS Volatiles

Lot-Sample #: F8E160310-001

Work Order #: KNEF61AA

Matrix: WATER

MASS SPECTROMETER/DATA SYSTEM (MSDS) TENTATIVELY IDENTIFIED COMPOUNDS

<u>PARAMETER</u>	<u>CAS #</u>	<u>ESTIMATED RESULT</u>	<u>RETENTION TIME</u>	<u>UNITS</u>
None				ug/L

## Fluor Hanford Inc

Client Sample ID: B1VDW0

## GC/MS Volatiles

Lot-Sample #...: F8E160310-002    Work Order #...: KNEF71AA    Matrix.....: WATER  
 Date Sampled...: 05/13/08    Date Received...: 05/16/08  
 Prep Date.....: 05/20/08    Analysis Date...: 05/20/08  
 Prep Batch #...: 8141308  
 Dilution Factor: 1    Method.....: SW846 8260B

PARAMETER	RESULT	REPORTING		
		LIMIT	UNITS	MDL
2-Butanone	ND	20	ug/L	0.87
Carbon disulfide	ND	5.0	ug/L	0.12
Carbon tetrachloride	ND T	5.0	ug/L	0.20
Chlorobenzene	ND	5.0	ug/L	0.11
Acetone	ND	20	ug/L	1.7
Benzene	ND	5.0	ug/L	0.087
Bromodichloromethane	ND	5.0	ug/L	0.21
Bromoform	ND	5.0	ug/L	0.059
Bromomethane	ND T	10	ug/L	0.13
1-Butanol	ND	100	ug/L	9.0
n-Butylbenzene	ND	5.0	ug/L	0.18
Dibromochloromethane	ND	5.0	ug/L	0.12
Chloroethane	ND	10	ug/L	0.46
<b>Chloromethane</b>	<b>0.48 J,B</b>	<b>10</b>	<b>ug/L</b>	<b>0.27</b>
Cyclohexanone	ND	100	ug/L	3.2
1,1-Dichloroethane	ND	5.0	ug/L	0.070
1,2-Dichloroethane	ND	5.0	ug/L	0.066
1,1-Dichloroethene	ND	5.0	ug/L	0.12
cis-1,2-Dichloroethene	ND	5.0	ug/L	0.054
trans-1,2-Dichloroethene	ND	5.0	ug/L	0.090
1,2-Dichloroethene (total)	ND	10	ug/L	0.11
1,2-Dichloropropane	ND	5.0	ug/L	0.11
cis-1,3-Dichloropropene	ND	5.0	ug/L	0.10
trans-1,3-Dichloropropene	ND	5.0	ug/L	0.10
Ethylbenzene	ND	5.0	ug/L	0.058
2-Hexanone	ND	20	ug/L	0.24
<b>Methylene chloride</b>	<b>3.3 J</b>	<b>5.0</b>	<b>ug/L</b>	<b>0.69</b>
4-Methyl-2-pentanone	ND	20	ug/L	0.29
Styrene	ND	5.0	ug/L	0.17
1,1,2,2-Tetrachloroethane	ND	5.0	ug/L	0.078
Tetrachloroethene	ND	5.0	ug/L	0.087
Toluene	ND	5.0	ug/L	0.32
1,1,1-Trichloroethane	ND	5.0	ug/L	0.10
1,1,2-Trichloroethane	ND	5.0	ug/L	0.067
Trichloroethene	ND	5.0	ug/L	0.10
Vinyl chloride	ND	5.0	ug/L	0.11
Xylenes (total)	ND	10	ug/L	0.23
Acetonitrile	ND	50	ug/L	5.4

(Continued on next page)

Fluor Hanford Inc

Client Sample ID: B1VDW0

GC/MS Volatiles

Lot-Sample #....: F8E160310-002    Work Order #....: KNEF71AA    Matrix.....: WATER

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING LIMIT</u>	<u>UNITS</u>	<u>MDL</u>
n-Hexane	ND	10	ug/L	0.90
Tetrahydrofuran	ND	25	ug/L	1.8

<u>SURROGATE</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>
Toluene-d8	95	(80 - 122)
Dibromofluoromethane	101	(82 - 118)
1,2-Dichloroethane-d4	105	(70 - 131)
4-Bromofluorobenzene	108	(78 - 115)

**NOTE (S) :**

- T Spike sample recovery is outside control limits.
- J Estimated result. Result is less than RL.
- B Method blank contamination. The associated method blank contains the target analyte at a reportable level.

Fluor Hanford Inc

B1VDW0

GC/MS Volatiles

Lot-Sample #: F8E160310-002

Work Order #: KNEF71AA

Matrix: WATER

MASS SPECTROMETER/DATA SYSTEM (MSDS) TENTATIVELY IDENTIFIED COMPOUNDS

<u>PARAMETER</u>	<u>CAS #</u>	<u>ESTIMATED RESULT</u>	<u>RETENTION TIME</u>	<u>UNITS</u>
None				ug/L



## METHOD BLANK REPORT

## GC/MS Volatiles

Client Lot #...: F8E160310  
 MB Lot-Sample #: F8E200000-308

Work Order #...: KNHXC1AA

Matrix.....: WATER

Prep Date.....: 05/20/08

Analysis Date...: 05/20/08

Prep Batch #...: 8141308

Dilution Factor: 1

PARAMETER	RESULT	REPORTING		
		LIMIT	UNITS	METHOD
Acetone	ND	20	ug/L	SW846 8260B
Benzene	ND	5.0	ug/L	SW846 8260B
Bromodichloromethane	ND	5.0	ug/L	SW846 8260B
Bromoform	ND	5.0	ug/L	SW846 8260B
<b>Bromomethane</b>	<b>2.1 J</b>	<b>10</b>	<b>ug/L</b>	<b>SW846 8260B</b>
2-Butanone	ND	20	ug/L	SW846 8260B
Carbon disulfide	ND	5.0	ug/L	SW846 8260B
Carbon tetrachloride	ND	5.0	ug/L	SW846 8260B
Chlorobenzene	ND	5.0	ug/L	SW846 8260B
Dibromochloromethane	ND	5.0	ug/L	SW846 8260B
Chloroethane	ND	10	ug/L	SW846 8260B
<b>Chloromethane</b>	<b>0.32 J</b>	<b>10</b>	<b>ug/L</b>	<b>SW846 8260B</b>
1,1-Dichloroethane	ND	5.0	ug/L	SW846 8260B
1,2-Dichloroethane	ND	5.0	ug/L	SW846 8260B
1,1-Dichloroethene	ND	5.0	ug/L	SW846 8260B
1,2-Dichloroethene (total)	ND	10	ug/L	SW846 8260B
1,2-Dichloropropane	ND	5.0	ug/L	SW846 8260B
cis-1,3-Dichloropropene	ND	5.0	ug/L	SW846 8260B
trans-1,3-Dichloropropene	ND	5.0	ug/L	SW846 8260B
Ethylbenzene	ND	5.0	ug/L	SW846 8260B
2-Hexanone	ND	20	ug/L	SW846 8260B
Methylene chloride	ND	5.0	ug/L	SW846 8260B
4-Methyl-2-pentanone	ND	20	ug/L	SW846 8260B
Styrene	ND	5.0	ug/L	SW846 8260B
1,1,2,2-Tetrachloroethane	ND	5.0	ug/L	SW846 8260B
Tetrachloroethene	ND	5.0	ug/L	SW846 8260B
<b>Toluene</b>	<b>0.54 J</b>	<b>5.0</b>	<b>ug/L</b>	<b>SW846 8260B</b>
1,1,1-Trichloroethane	ND	5.0	ug/L	SW846 8260B
1,1,2-Trichloroethane	ND	5.0	ug/L	SW846 8260B
Trichloroethene	ND	5.0	ug/L	SW846 8260B
Vinyl chloride	ND	5.0	ug/L	SW846 8260B
Xylenes (total)	ND	10	ug/L	SW846 8260B
cis-1,2-Dichloroethene	ND	5.0	ug/L	SW846 8260B
trans-1,2-Dichloroethene	ND	5.0	ug/L	SW846 8260B
<b>n-Butylbenzene</b>	<b>0.36 J</b>	<b>5.0</b>	<b>ug/L</b>	<b>SW846 8260B</b>
Acetonitrile	ND	50	ug/L	SW846 8260B
1-Butanol	ND	100	ug/L	SW846 8260B
Cyclohexanone	ND	100	ug/L	SW846 8260B
n-Hexane	ND	10	ug/L	SW846 8260B
Tetrahydrofuran	ND	25	ug/L	SW846 8260B

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## METHOD BLANK REPORT

## GC/MS Volatiles

Client Lot #...: F8E160310

Work Order #...: KNHXC1AA

Matrix.....: WATER

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING</u> <u>LIMIT</u>	<u>UNITS</u>	<u>METHOD</u>
<u>SURROGATE</u>	<u>PERCENT</u>	<u>RECOVERY</u>		
	<u>RECOVERY</u>	<u>LIMITS</u>		
Toluene-d8	112	(80 - 122)		
Dibromofluoromethane	99	(82 - 118)		
1,2-Dichloroethane-d4	96	(70 - 131)		
4-Bromofluorobenzene	109	(78 - 115)		

**NOTE (S) :**

Calculations are performed before rounding to avoid round-off errors in calculated results.

J Estimated result. Result is less than RL.

Fluor Hanford Inc

Method Blank Report

GC/MS Volatiles

Lot-Sample #: F8E200000-308 B Work Order #: KNHXC1AA Matrix: WATER

MASS SPECTROMETER/DATA SYSTEM (MSDS) TENTATIVELY IDENTIFIED COMPOUNDS

<u>PARAMETER</u>	<u>CAS #</u>	<u>ESTIMATED RESULT</u>	<u>RETENTION TIME</u>	<u>UNITS</u>
None				ug/L

## LABORATORY CONTROL SAMPLE DATA REPORT

## GC/MS Volatiles

Client Lot #...: F8E160310      Work Order #...: KNHXC1AC      Matrix.....: WATER  
 LCS Lot-Sample#: F8E200000-308  
 Prep Date.....: 05/20/08      Analysis Date...: 05/20/08  
 Prep Batch #...: 8141308  
 Dilution Factor: 1

<u>PARAMETER</u>	<u>SPIKE AMOUNT</u>	<u>MEASURED AMOUNT</u>	<u>UNITS</u>	<u>PERCENT RECOVERY</u>	<u>METHOD</u>
Tetrahydrofuran	250	258	ug/L	103	SW846 8260B
1-Butanol	500	394	ug/L	79	SW846 8260B
Acetonitrile	250	231	ug/L	93	SW846 8260B
cis-1,3-Dichloropropene	50.0	57.4	ug/L	115	SW846 8260B
Dibromochloromethane	50.0	57.9	ug/L	116	SW846 8260B
Chloromethane	50.0	56.4	ug/L	113	SW846 8260B
Vinyl chloride	50.0	54.5	ug/L	109	SW846 8260B
Bromomethane	50.0	77.3 a	ug/L	155	SW846 8260B
Chloroethane	50.0	59.9	ug/L	120	SW846 8260B
Acetone	50.0	50.2	ug/L	100	SW846 8260B
1,1-Dichloroethene	50.0	43.3	ug/L	87	SW846 8260B
Methylene chloride	50.0	48.7	ug/L	97	SW846 8260B
Carbon disulfide	50.0	42.7	ug/L	85	SW846 8260B
1,1-Dichloroethane	50.0	50.0	ug/L	100	SW846 8260B
2-Butanone	50.0	49.4	ug/L	99	SW846 8260B
1,2-Dichloroethene (total)	100	97.8	ug/L	98	SW846 8260B
1,1,1-Trichloroethane	50.0	53.6	ug/L	107	SW846 8260B
Carbon tetrachloride	50.0	61.6	ug/L	123	SW846 8260B
1,2-Dichloroethane	50.0	53.0	ug/L	106	SW846 8260B
Benzene	50.0	49.0	ug/L	98	SW846 8260B
Trichloroethene	50.0	50.2	ug/L	100	SW846 8260B
1,2-Dichloropropane	50.0	48.0	ug/L	96	SW846 8260B
Bromodichloromethane	50.0	57.5	ug/L	115	SW846 8260B
1,1,2-Trichloroethane	50.0	50.4	ug/L	101	SW846 8260B
trans-1,3-Dichloropropene	50.0	54.4	ug/L	109	SW846 8260B
Toluene	50.0	55.2	ug/L	110	SW846 8260B
2-Hexanone	50.0	46.1	ug/L	92	SW846 8260B
4-Methyl-2-pentanone	50.0	51.6	ug/L	103	SW846 8260B
Chlorobenzene	50.0	52.1	ug/L	104	SW846 8260B
Bromoform	50.0	57.7	ug/L	115	SW846 8260B
Ethylbenzene	50.0	55.2	ug/L	110	SW846 8260B
Styrene	50.0	51.5	ug/L	103	SW846 8260B
1,1,2,2-Tetrachloroethane	50.0	41.6	ug/L	83	SW846 8260B

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## LABORATORY CONTROL SAMPLE DATA REPORT

## GC/MS Volatiles

Client Lot #...: F8E160310  
 LCS Lot-Sample#: F8E200000-308

Work Order #...: KNHXC1AC

Matrix.....: WATER

<u>PARAMETER</u>	<u>SPIKE AMOUNT</u>	<u>MEASURED AMOUNT</u>	<u>UNITS</u>	<u>PERCENT RECOVERY</u>	<u>METHOD</u>
Tetrachloroethene	50.0	59.2	ug/L	118	SW846 8260B
n-Butylbenzene	50.0	51.9	ug/L	104	SW846 8260B
Cyclohexanone	500	474	ug/L	95	SW846 8260B
cis-1,2-Dichloroethene	50.0	50.3	ug/L	101	SW846 8260B
trans-1,2-Dichloroethene	50.0	47.5	ug/L	95	SW846 8260B
n-Hexane	50.0	53.5	ug/L	107	SW846 8260B

<u>SURROGATE</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>
Toluene-d8	109	(85 - 124)
Dibromofluoromethane	100	(81 - 118)
1,2-Dichloroethane-d4	96	(76 - 121)
4-Bromofluorobenzene	100	(78 - 121)

**NOTE (S) :**

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits.

## MATRIX SPIKE SAMPLE DATA REPORT

## GC/MS Volatiles

Client Lot #...: F8E160310      Work Order #...: KNEF71AC-MS      Matrix.....: WATER  
 MS Lot-Sample #: F8E160310-002      KNEF71AD-MSD  
 Date Sampled...: 05/13/08      Date Received...: 05/16/08  
 Prep Date.....: 05/20/08      Analysis Date...: 05/20/08  
 Prep Batch #...: 8141308  
 Dilution Factor: 1

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD
cis-1,3-Dichloropropene	ND	50.0	54.4	ug/L	109		SW846 8260B
	ND	50.0	49.3	ug/L	99	10	SW846 8260B
Chloromethane	0.48	50.0	49.6	ug/L	98		SW846 8260B
	0.48	50.0	51.4	ug/L	102	3.4	SW846 8260B
Vinyl chloride	ND	50.0	51.0	ug/L	102		SW846 8260B
	ND	50.0	45.4	ug/L	91	12	SW846 8260B
Bromomethane	ND	50.0	78.6	ug/L	157		SW846 8260B
	ND	50.0	78.8	ug/L	158	0.14	SW846 8260B
Chloroethane	ND	50.0	52.2	ug/L	104		SW846 8260B
	ND	50.0	49.0	ug/L	98	6.3	SW846 8260B
Acetone	ND	50.0	62.3	ug/L	125		SW846 8260B
	ND	50.0	58.3	ug/L	117	6.6	SW846 8260B
1,1-Dichloroethene	ND	50.0	49.9	ug/L	100		SW846 8260B
	ND	50.0	42.6	ug/L	85	16	SW846 8260B
Methylene chloride	3.3	50.0	57.2	ug/L	108		SW846 8260B
	3.3	50.0	46.4	ug/L	86 p	21	SW846 8260B
Carbon disulfide	ND	50.0	53.5	ug/L	107		SW846 8260B
	ND	50.0	43.1	ug/L	86 p	21	SW846 8260B
1,1-Dichloroethane	ND	50.0	55.7	ug/L	111		SW846 8260B
	ND	50.0	50.9	ug/L	102	9.0	SW846 8260B
1,2-Dichloroethene (total)	ND	100	100	ug/L	100		SW846 8260B
	ND	100	92.2	ug/L	92	8.1	SW846 8260B
1,1,1-Trichloroethane	ND	50.0	58.1	ug/L	116		SW846 8260B
	ND	50.0	55.0	ug/L	110	5.4	SW846 8260B
Carbon tetrachloride	ND	50.0	67.5	ug/L	135		SW846 8260B
	ND	50.0	64.4	ug/L	129	4.6	SW846 8260B
1,2-Dichloroethane	ND	50.0	59.2	ug/L	118		SW846 8260B
	ND	50.0	55.3	ug/L	111	6.9	SW846 8260B
Benzene	ND	50.0	51.0	ug/L	102		SW846 8260B
	ND	50.0	47.1	ug/L	94	7.9	SW846 8260B
Trichloroethene	ND	50.0	52.0	ug/L	104		SW846 8260B
	ND	50.0	48.6	ug/L	97	6.7	SW846 8260B
1,2-Dichloropropane	ND	50.0	50.2	ug/L	100		SW846 8260B
	ND	50.0	46.2	ug/L	92	8.2	SW846 8260B

(Continued on next page)

## MATRIX SPIKE SAMPLE DATA REPORT

## GC/MS Volatiles

Client Lot #...: F8E160310      Work Order #...: KNEF71AC-MS      Matrix.....: WATER  
 MS Lot-Sample #: F8E160310-002      KNEF71AD-MSD

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD
Bromodichloromethane	ND	50.0	62.8	ug/L	126		SW846 8260B
	ND	50.0	56.6	ug/L	113	10	SW846 8260B
1,1,2-Trichloroethane	ND	50.0	50.9	ug/L	102		SW846 8260B
	ND	50.0	49.8	ug/L	100	2.2	SW846 8260B
trans-1,3-Dichloropropene	ND	50.0	59.5	ug/L	119		SW846 8260B
	ND	50.0	56.9	ug/L	114	4.6	SW846 8260B
Toluene	ND	50.0	54.0	ug/L	108		SW846 8260B
	ND	50.0	53.7	ug/L	107	0.52	SW846 8260B
2-Hexanone	ND	50.0	49.0	ug/L	98		SW846 8260B
	ND	50.0	50.0	ug/L	100	1.8	SW846 8260B
4-Methyl-2-pentanone	ND	50.0	57.9	ug/L	116		SW846 8260B
	ND	50.0	55.0	ug/L	110	5.2	SW846 8260B
Chlorobenzene	ND	50.0	51.6	ug/L	103		SW846 8260B
	ND	50.0	50.3	ug/L	101	2.6	SW846 8260B
Bromoform	ND	50.0	62.4	ug/L	125		SW846 8260B
	ND	50.0	60.5	ug/L	121	3.2	SW846 8260B
Ethylbenzene	ND	50.0	55.6	ug/L	111		SW846 8260B
	ND	50.0	53.6	ug/L	107	3.6	SW846 8260B
Styrene	ND	50.0	49.1	ug/L	98		SW846 8260B
	ND	50.0	43.2	ug/L	86	13	SW846 8260B
1,1,2,2-Tetrachloroethane	ND	50.0	43.8	ug/L	88		SW846 8260B
	ND	50.0	44.4	ug/L	89	1.6	SW846 8260B
Tetrachloroethene	ND	50.0	43.0	ug/L	86		SW846 8260B
	ND	50.0	41.6	ug/L	83	3.3	SW846 8260B
2-Butanone	ND	50.0	51.0	ug/L	102		SW846 8260B
	ND	50.0	49.7	ug/L	99	2.5	SW846 8260B
Dibromochloromethane	ND	50.0	59.1	ug/L	118		SW846 8260B
	ND	50.0	58.1	ug/L	116	1.8	SW846 8260B
n-Butylbenzene	ND	50.0	49.0	ug/L	98		SW846 8260B
	ND	50.0	49.2	ug/L	98	0.28	SW846 8260B
Cyclohexanone	ND	500	410	ug/L	82		SW846 8260B
	ND	500	416	ug/L	83	1.5	SW846 8260B
cis-1,2-Dichloroethene	ND	50.0	46.8	ug/L	94		SW846 8260B
	ND	50.0	45.6	ug/L	91	2.6	SW846 8260B
trans-1,2-Dichloroethene	ND	50.0	53.2	ug/L	106		SW846 8260B
	ND	50.0	46.6	ug/L	93	13	SW846 8260B
n-Hexane	ND	50.0	57.4	ug/L	115		SW846 8260B
	ND	50.0	52.6	ug/L	105	8.6	SW846 8260B
Tetrahydrofuran	ND	250	269	ug/L	108		SW846 8260B
	ND	250	266	ug/L	106	1.2	SW846 8260B
1-Butanol	ND	500	380	ug/L	76		SW846 8260B
	ND	500	350	ug/L	70	8.4	SW846 8260B

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MATRIX SPIKE SAMPLE DATA REPORT

GC/MS Volatiles

Client Lot #...: F8E160310      Work Order #...: KNEF71AC-MS      Matrix.....: WATER  
 MS Lot-Sample #: F8E160310-002      KNEF71AD-MSD

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD
Acetonitrile	ND	250	283	ug/L	113		SW846 8260B
	ND	250	256	ug/L	102	10	SW846 8260B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Toluene-d8	107	(80 - 122)
	113	(80 - 122)
Dibromofluoromethane	105	(82 - 118)
	100	(82 - 118)
1,2-Dichloroethane-d4	107	(70 - 131)
	101	(70 - 131)
4-Bromofluorobenzene	102	(78 - 115)
	91	(78 - 115)

NOTE (S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

- a Spiked analyte recovery is outside stated control limits.
- T Spike sample recovery is outside control limits.
- p Relative percent difference (RPD) is outside stated control limits.