

Fluor Hanford
WSCF Analytical Lab
P.O. Box 1000
Richland, WA 99352
Telephone 373-7495
Telefax 372-0456

FLUOR

Memorandum

M4W41-SLF-08-452

To: H. Hampt E6-35 Date: April 28, 2008

From: S. L. Fitzgerald, Manager 
WSCF Analytical Lab

cc: w/Attachments
T. F. Dale S3-30 J. E. Trechter S3-30
H. K. Meznarich S3-30 S. J. Trent E6-35
P. D. Mix S3-30 File/LB

Subject: FINAL RESULTS FOR SAMPLE DELIVERY GROUP WSCF20080685 – SAF NUMBER F08-073

Reference: (1) Groundwater Protection Program-Letter of Instruction, FH-EIS-2003-MEM-001, October 31, 2002
(2) HNF-SD-CD-QAPP-017, Rev. 8, Waste Sampling & Characterization Facility Quality Assurance Plan

This letter contains the following information for sample delivery group WSCF20080685:

- Cover Sheet (Attachment 1)
- Narrative (Attachment 2)
- Analytical Results (Attachment 3)
- Sample Receipt Information (Attachment 4)

SLF/grf

Attachments 4

M4W41-SLF-08-452

ATTACHMENT 1

COVER SHEET

Consisting of 2 pages
Including cover page

WSCF SAF NUMBER CROSS REFERENCE

Group#: WSCF20080685
Data Deliverable Date: 15-may-2008
Data Deliverable: Cover Sheet

SAF#	Sample ID	WSCF#	Matrix
F08-073	BITNR4	W08GR00838	WATER

M4W41-SLF-08-452

ATTACHMENT 2

NARRATIVE

Consisting of 2 pages
Including cover page

Introduction

One S&GRP sample was received at the WSCF Laboratory on April 1, 2008. Sample was analyzed for the analytes indicated on the attached copy of the chain of custody (COC) form in accordance with the *Groundwater Remediation Program – Letter of Instruction*, referenced in the cover letter.

The narrative (Attachment 2) will address sample characteristics, analyses requested and general information in performance of the analytical methods. A Data Summary Report (Attachment 3) includes analytical results, a comment report detailing method abnormalities, tentatively identified peaks if applicable, method references, and Laboratory QC information as applicable. Copies of the chain of custody and sample receipt documentation are included as Attachment 4.

It should be noted that the attached chain of custody was stamped “ICED” and initialed by the WSCF Laboratory Sample Custodian during sample receiving, indicating the presence of ice in the sample container.

Analytical Methodology for Requested Analyses

Refer to *WSCF Method References Report*, page 9, for a complete listing of approved analytical methods.

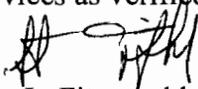
Organic Comments

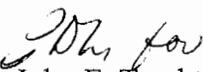
VOA – The holding time requirement for this analysis was met. A Matrix Spike, Matrix Spike Duplicate, Blank and Laboratory Control Sample, were analyzed with this delivery group per the GRP Letter of Instruction. See pages 12 through 14 for QC details. Analytical Note(s):

- Matrix Spike and Matrix Spike Duplicate were analyzed on sample B1P147 (SDG 20080688, SAF F07-052)

All QC controls are within the established limits.

I certify that this data package is in compliance with the LOI, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the Laboratory Analytical Manager and Client Services as verified by the following signatures.


Scot L. Fitzgerald
WSCF Analytical Laboratory Manager


John E. Trechter
WSCF Client Services

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ATTACHMENT 3

ANALYTICAL RESULTS

Consisting of 9 pages
Including cover page

WSCF
ANALYTICAL RESULTS REPORT

for
Groundwater Remediation Program

Richland, WA 99354

Attention: Steve Trent

Analytical:

At 5. F. Fitzgerald 4/28/08

Client Services:

Edy P. D. Mix 4/25/2008

All results are reported on an "as received" basis unless otherwise noted in the comment section.

This information is intended for the use of the addressee only. If the reader of this report is not the intended recipient or is not authorized by the recipient to receive the report, you are hereby notified that any dissemination, distribution or copying of this report is strictly prohibited. If you have received this report in error, please notify WSCF Laboratory immediately by telephone at (509) 373-7020 or (509) 531-8004. Information designation of this report is the responsibility of the customer.

Contract#: FH-EIS-2003-MEM-001

Report#: WSCF20080685

Report Date: 25-apr-2008

Report WGPP/ver. 5.2

Groundwater Remediation Program

W13q Worklist/Batch/QC Report for Group# WSCF20080685

WL#	S#	Batch	QC#	Tray Type	Sample#	Test
			40672	BLANK		VOA Ground Water Protection
			40672	LCS		VOA Ground Water Protection
			40672	SAMPLE	W08GR00838	VOA Ground Water Protection
			40672	SURR	W08GR00838	VOA Ground Water Protection
			40672	MS	W08GR00843	VOA Ground Water Protection
			40672	MSD	W08GR00843	VOA Ground Water Protection
			40672	SPK-RPD	W08GR00843	VOA Ground Water Protection

WSCF METHOD REFERENCES REPORT

Department: Organic

The results provided in this report were generated using the following WSCF Laboratory procedures. For your convenience, this table provides a listing of the regulatory or industry methods that are referenced by each of these WSCF procedures. Please note that the most recent version of the regulatory or industry method is listed here even though the WSCF procedure may reference an older version of the method. Also, a reference to a regulatory or industry method here does not necessarily indicate a verbatim implementation of that method.

LA-523-455	LA-523-455: VOLATILE SAMPLE ANALYSIS BY SW-846
EPA SW-846 8000B	DETERMINATIVE CHROMATOGRAPHIC SEPARATIONS
EPA SW-846 8260B	VOLATILE ORGANIC COMPOUNDS BY GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)
HEIS 8260_VOA_GCMS	Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)

Note: A complete list of WSCF analytical procedures and referenced regulatory or industry methods is available online at <http://www2.rl.gov/phmc/as-dol>.

Report Date: 25-apr-2008

Report#: WSCF20080685

Report WGFPM/5.2

WSCF ANALYTICAL RESULTS REPORT

Attention: Steve Trent
SAF Number: F08-073
Sample # W08GR00838
Client ID: BITNR4

TRENT
WSCF

Matrix: WATER

Group #: WSCF20080685
Department: Organic
Sampled: 04/01/08
Received: 04/01/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
VOA Ground Water Protection											
1,1-Dichloroethene	75-35-4	LA-523-455	U	< 1.00	ug/L			1.00	1.0		04/04/08
Trichloroethene	79-01-6	LA-523-455	U	< 1.00	ug/L			1.00	1.0		04/04/08
Benzene	71-43-2	LA-523-455	U	< 1.00	ug/L			1.00	1.0		04/04/08
Toluene	108-88-3	LA-523-455	U	< 1.00	ug/L			1.00	1.0		04/04/08
Chlorobenzene	108-90-7	LA-523-455	U	< 1.00	ug/L			1.00	1.0		04/04/08
1,1-Dichloroethane	75-34-3	LA-523-455	U	< 1.00	ug/L			1.00	1.0		04/04/08
Ethylbenzene	100-41-4	LA-523-455	U	< 1.00	ug/L			1.00	1.0		04/04/08
Styrene	100-42-5	LA-523-455	U	< 1.00	ug/L			1.00	1.0		04/04/08
cis-1,3-Dichloropropene	10061-01-5	LA-523-455	U	< 1.00	ug/L			1.00	1.0		04/04/08
trans-1,3-Dichloropropene	10061-02-6	LA-523-455	U	< 1.00	ug/L			1.00	1.0		04/04/08
1,2-Dichloroethane	107-06-2	LA-523-455	U	< 1.00	ug/L			1.00	1.0		04/04/08
4-Methyl-2-Pentanone	108-10-1	LA-523-455	U	< 1.00	ug/L			1.00	1.0		04/04/08
Dibromochloromethane	124-48-1	LA-523-455	U	< 1.00	ug/L			1.00	1.0		04/04/08
Tetrachloroethene	127-18-4	LA-523-455	U	< 1.00	ug/L			1.00	1.0		04/04/08
Xylenes (total)	1330-20-7	LA-523-455	U	< 1.00	ug/L			1.00	1.0		04/04/08
1,2-Dichloroethene(Total)	540-59-0	LA-523-455	U	< 1.00	ug/L			1.00	1.0		04/04/08
Carbon tetrachloride	56-23-5	LA-523-455	U	< 1.00	ug/L			1.00	1.0		04/04/08
2-Hexanone	591-78-6	LA-523-455	U	< 1.00	ug/L			1.00	1.0		04/04/08
Acetone	67-64-1	LA-523-455	U	< 1.00	ug/L			1.00	1.0		04/04/08
Chloroform	67-66-3	LA-523-455	U	< 1.00	ug/L			1.00	1.0		04/04/08
1,1,1-Trichloroethane	71-55-6	LA-523-455	U	< 1.00	ug/L			1.00	1.0		04/04/08
Bromomethane	74-83-9	LA-523-455	U	< 1.00	ug/L			1.00	1.0		04/04/08
1,1,2,2-Tetrachloroethane	79-34-5	LA-523-455	U	< 1.00	ug/L			1.00	1.0		04/04/08
Chloromethane	74-87-3	LA-523-455	U	< 1.00	ug/L			1.00	1.0		04/04/08

MDL = Minimum Detection Limit U - Analyzed for but not detected above limiting criteria. (org)

RQ = Result Qualifier

TP Err = Total Propagated Error

DF = Dilution Factor

* - Indicates results that have NOT been validated; + - Indicates more than six qualifier symbols
 Report WGPP/ver. 5.2

Groundwater Remediation Program

WSCF ANALYTICAL RESULTS REPORT

Attention: Steve Trent
SAF Number: F08-073
Sample # W08GR00838
Client ID: BITNR4

TRENT
WSCF

Matrix: WATER

Group #: WSCF20080685
Department: Organic
Sampled: 04/01/08
Received: 04/01/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Chloroethane	75-00-3	LA-523-455	U	< 1.00	ug/L			1.00	1.0		04/04/08
Vinyl chloride	75-01-4	LA-523-455	U	< 1.00	ug/L			1.00	1.0		04/04/08
Methylenechloride	75-09-2	LA-523-455	U	< 1.00	ug/L			1.00	1.0		04/04/08
Carbon disulfide	75-15-0	LA-523-455	U	< 1.00	ug/L			1.00	1.0		04/04/08
Bromoform	75-29-2	LA-523-455	U	< 1.00	ug/L			1.00	1.0		04/04/08
Bromodichloromethane	75-27-4	LA-523-455	U	< 1.00	ug/L			1.00	1.0		04/04/08
1,2-Dichloropropane	78-87-5	LA-523-455	U	< 1.00	ug/L			1.00	1.0		04/04/08
2-Butanone	78-93-3	LA-523-455	U	< 1.00	ug/L			1.00	1.0		04/04/08
1,1,2-Trichloroethane	79-00-5	LA-523-455	U	< 1.00	ug/L			1.00	1.0		04/04/08
1-Butanol	71-36-3	LA-523-455	U	< 100	ug/L			1.00	1.0e+02		04/04/08
Trichloromonofluoromethane	75-69-4	LA-523-455	U	< 1.00	ug/L			1.00	1.0		04/04/08
n-Butylbenzene	104-51-8	LA-523-455	U	< 1.00	ug/L			1.00	1.0		04/04/08
trans-1,2-Dichloroethylene	156-60-5	LA-523-455	U	< 1.00	ug/L			1.00	1.0		04/04/08
cis-1,2-Dichloroethylene	156-59-2	LA-523-455	U	< 1.00	ug/L			1.00	1.0		04/04/08

MDL = Minimum Detection Limit U - Analyzed for but not detected above limiting criteria. (org)

RQ = Result Qualifier

TP Err = Total Propagated Error

DF = Dilution Factor

U - Indicates results that have NOT been validated; + - Indicates more than six qualifier symbols

Report WGPP/ver. 5.2

Groundwater Remediation Program

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Organic

SDG Number: WSCF20080685
 Matrix: WATER
 Test: VOA Ground Water Protection

Sample Date: 04/01/08
 Receive Date: 04/01/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date	
Lab ID: W08GR00838												
BATCH QC ASSOCIATED WITH SAMPLE												
SURR	4-Bromofluorobenzene(Surr)	460-00-4	47.200	94.400	% Recov	75.000	125.000				04/04/08	
SURR	1,2-Dichloroethane-d4(Surr)	17060-07-0	53.860	108.000	% Recov	75.000	125.000				04/04/08	
SURR	Toluene-d8(Surr)	2037-26-5	52.030	104.000	% Recov	75.000	125.000				04/04/08	
Lab ID: W08GR00843												
BATCH QC ASSOCIATED WITH SAMPLE												
MS	1,1-Dichloroethene	75-35-4	21.190	84.800	% Recov	63.000	117.000				04/03/08	
MS	Benzene	71-43-2	23.140	92.600	% Recov	75.000	129.000				04/03/08	
MS	4-Bromofluorobenzene(Surr)	460-00-4	49.240	98.500	% Recov	75.000	125.000				04/03/08	
MS	Chlorobenzene	108-90-7	23.750	95.000	% Recov	79.000	119.000				04/03/08	
MS	1,2-Dichloroethane-d4(Surr)	17060-07-0	53.480	107.000	% Recov	75.000	125.000				04/03/08	
MS	Toluene-d8(Surr)	2037-26-5	51.270	103.000	% Recov	75.000	125.000				04/03/08	
MS	Toluene	108-88-3	24.750	99.000	% Recov	76.000	120.000				04/03/08	
MS	Trichloroethene	79-01-6	19.500	78.000	% Recov	73.000	123.000				04/03/08	
MSD	1,1-Dichloroethene	75-35-4	22.850	91.400	% Recov	63.000	117.000				04/03/08	
MSD	Benzene	71-43-2	23.310	93.200	% Recov	75.000	129.000				04/03/08	
MSD	4-Bromofluorobenzene(Surr)	460-00-4	48.100	96.200	% Recov	75.000	125.000				04/03/08	
MSD	Chlorobenzene	108-90-7	23.910	95.600	% Recov	79.000	119.000				04/03/08	
MSD	1,2-Dichloroethane-d4(Surr)	17060-07-0	52.160	104.000	% Recov	75.000	125.000				04/03/08	
MSD	Toluene-d8(Surr)	2037-26-5	50.870	102.000	% Recov	75.000	125.000				04/03/08	
MSD	Toluene	108-88-3	24.580	98.300	% Recov	76.000	120.000				04/03/08	
MSD	Trichloroethene	79-01-6	19.470	77.900	% Recov	73.000	123.000				04/03/08	
SPK-RPD	1,1-Dichloroethene	75-35-4	91.400		RPD			7.491	20.000		04/03/08	
SPK-RPD	Benzene	71-43-2	93.200		RPD			0.646	20.000		04/03/08	
SPK-RPD	Chlorobenzene	108-90-7	95.600		RPD			0.630	20.000		04/03/08	
SPK-RPD	1,2-Dichloroethane-d4(Surr)	17060-07-0	104.000		RPD			2.844	20.000		04/03/08	

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Organic

SDG Number: WSCF20080685
 Matrix: WATER
 Test: VOA Ground Water Protection

Sample Date: 04/01/08
 Receive Date: 04/01/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
SPK-RPD	Toluene-d8(Surr)	2037-26-5	102.000		RPD			0.976	20.000		04/03/08
SPK-RPD	Toluene	108-88-3	98.300		RPD			0.710	20.000		04/03/08
SPK-RPD	Trichloroethene	79-01-6	77.900		RPD			0.128	20.000		04/03/08
BATCH QC											
BLANK	1,1-Dichloroethane	75-34-3	< 1.0	n/a	ug/L					U	04/03/08
BLANK	1,1,1-Trichloroethane	71-55-6	< 1.0	n/a	ug/L					U	04/03/08
BLANK	1,1,2-Trichloroethane	79-00-5	< 1.0	n/a	ug/L					U	04/03/08
BLANK	1,1,2,2-Tetrachloroethane	79-34-5	< 1.0	n/a	ug/L	0.000	5.000			U	04/03/08
BLANK	1,1-Dichloroethene	75-35-4	< 1.0	n/a	ug/L					U	04/03/08
BLANK	1,2-Dichloroethane	107-06-2	< 1.0	n/a	ug/L					U	04/03/08
BLANK	1,2-Dichloroethene(Total)	540-59-0	< 1.0	n/a	ug/L					U	04/03/08
BLANK	1-Butanol	71-36-3	< 100	n/a	ug/L					U	04/03/08
BLANK	2-Hexanone	591-78-6	< 1.0	n/a	ug/L					U	04/03/08
BLANK	4-Methyl-2-Pentanone	108-10-1	< 1.0	n/a	ug/L					U	04/03/08
BLANK	Acetone	67-64-1	< 1.0	n/a	ug/L					U	04/03/08
BLANK	Bromodichloromethane	75-27-4	< 1.0	n/a	ug/L					U	04/03/08
BLANK	Benzene	71-43-2	< 1.0	n/a	ug/L					U	04/03/08
BLANK	4-Bromofluorobenzene(Surr)	460-00-4	50.670	101.000	% Recov	75.000	125.000			U	04/03/08
BLANK	Bromoform	75-25-2	< 1.0	n/a	ug/L					U	04/03/08
BLANK	n-Butylbenzene	104-51-8	< 1.0	n/a	ug/L					U	04/03/08
BLANK	Carbon disulfide	75-15-0	< 1.0	n/a	ug/L					U	04/03/08
BLANK	Carbon tetrachloride	56-23-5	< 1.0	n/a	ug/L					U	04/03/08
BLANK	Dibromochloromethane	124-48-1	< 1.0	n/a	ug/L					U	04/03/08
BLANK	Chloroform	67-66-3	< 1.0	n/a	ug/L					U	04/03/08
BLANK	Chlorobenzene	108-90-7	< 1.0	n/a	ug/L					U	04/03/08
BLANK	cis-1,2-Dichloroethylene	156-59-2	< 1.0	n/a	ug/L					U	04/03/08
BLANK	cis-1,3-Dichloropropene	10061-01-5	< 1.0	n/a	ug/L					U	04/03/08
BLANK	Chloroethane	75-00-3	< 1.0	n/a	ug/L					U	04/03/08
BLANK	1,2-Dichloroethane-d4(Surr)	17060-07-0	54.280	109.000	% Recov	75.000	125.000			U	04/03/08

WSCF ANALYTICAL LABORATORY QC REPORT

Department: **Organic**

SDG Number: WSCF20080685
 Matrix: WATER
 Test: VOA Ground Water Protection

Sample Date:
 Receive Date:

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
BLANK	trans-1,2-Dichloroethylene	156-60-5	< 1.0	n/a	ug/L					U	04/03/08
BLANK	1,2-Dichloropropane	78-87-5	< 1.0	n/a	ug/L					U	04/03/08
BLANK	Ethylbenzene	100-41-4	< 1.0	n/a	ug/L					U	04/03/08
BLANK	Bromomethane	74-83-9	< 1.0	n/a	ug/L					U	04/03/08
BLANK	Chloromethane	74-87-3	< 1.0	n/a	ug/L					U	04/03/08
BLANK	2-Butanone	78-93-3	< 1.0	n/a	ug/L					U	04/03/08
BLANK	Methylenechloride	75-09-2	< 1.0	n/a	ug/L					U	04/03/08
BLANK	Tetrachloroethene	127-18-4	< 1.0	n/a	ug/L					U	04/03/08
BLANK	Styrene	100-42-5	< 1.0	n/a	ug/L					U	04/03/08
BLANK	Xylenes (total)	1330-20-7	< 1.0	n/a	ug/L	0.000	5.000			U	04/03/08
BLANK	Toluene-d8(Surr)	2037-26-5	50.950	102.000	% Recov	75.000	125.000			U	04/03/08
BLANK	Toluene	108-88-3	< 1.0	n/a	ug/L					U	04/03/08
BLANK	trans-1,3-Dichloropropene	10061-02-6	< 1.0	n/a	ug/L					U	04/03/08
BLANK	Trichloromonofluoromethane	75-69-4	< 1.0	n/a	ug/L					U	04/03/08
BLANK	Trichloroethene	79-01-6	< 1.0	n/a	ug/L					U	04/03/08
BLANK	Vinyl chloride	75-01-4	< 1.0	n/a	ug/L					U	04/03/08
LCS	1,1-Dichloroethene	75-35-4	23.380	93.500	% Recov	75.000	125.000			U	04/04/08
LCS	Benzene	71-43-2	24.500	98.000	% Recov	75.000	125.000			U	04/04/08
LCS	4-Bromofluorobenzene(Surr)	460-00-4	48.130	96.300	% Recov	75.000	125.000			U	04/04/08
LCS	Chlorobenzene	108-90-7	24.870	99.500	% Recov	75.000	125.000			U	04/04/08
LCS	1,2-Dichloroethane-d4(Surr)	17060-07-0	54.120	108.000	% Recov	75.000	125.000			U	04/04/08
LCS	Toluene-d8(Surr)	2037-26-5	51.900	104.000	% Recov	75.000	125.000			U	04/04/08
LCS	Toluene	108-88-3	25.220	101.000	% Recov	75.000	125.000			U	04/04/08
LCS	Trichloroethene	79-01-6	20.120	80.500	% Recov	75.000	125.000			U	04/04/08

M4W41-SLF-08-452

ATTACHMENT 4

SAMPLE RECEIPT INFORMATION

Consisting of 3 pages
Including cover page

Waste Sampling and Characterization Facility

P.O. BOX 1970 S3-30, Richland, WA 99352
PHONE: (509) 373-7004/FAX: (509) 373-7134

5/15/08

R/T/K

ACKNOWLEDGMENT OF SAMPLES RECEIVED

Groundwater Remediation Program

Richland, WA 99354
Attn: Steve Trent

Customer Code: GPP
PO#: 123163/ES20
Group#: 20080685
Project#: F08-073
Proj Mgr: Steve Trent E6-35
Phone: 373-5869

The following samples were received from you on 04/01/08. They have been scheduled for the tests listed beside each sample. If this information is incorrect, please contact your service representative. Thank you for using Waste Sampling and Characterization Facility.

Sample#	Sample Id	Tests Scheduled	Matrix	Sample Date
W08GR00838	B1TNR4	TRENT @VOA-GPP	Water	04/01/08

Test Acronym Description

Test Acronym	Description
@VOA-GPP	VOA Ground Water Protection

