

RECEIVED MARCH 26, 2009

Fluor Hanford
WSCF Analytical Lab
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Telephone 373-7495
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FLUOR®

M4W41-SLF-09-127

March 26, 2009

Mr. M. A. Neely, Manager
Analytical Services
CH2M HILL Plateau Remediation Contract
PO Box 1600 MSIN R3-60
Richland, WA 99352

Dear Mike:

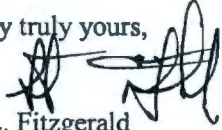
FINAL RESULTS FOR SAMPLE DELIVERY GROUP WSCF20090178 – SAF NUMBER F08-010

- Reference:
- (1) Statement of Work (SOW), Modification No. 2 to Agreement 36587, Release 3, 'FH WSCF ANALYTICAL SERVICES FOR GROUNDWATER'
 - (2) HNF-SD-CD-QAPP-017, Rev. 9, Waste Sampling & Characterization Facility Quality Assurance Plan

This letter contains the following attachments for sample delivery group WSCF20090178:

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

Very truly yours,


S. L. Fitzgerald
WSCF Analytical Lab

SLF/grf

Attachments 4

cc:	w/Attachments			
	T. F. Dale	S3-30	J. E. Trechter	S3-30
	A. J. Kopriva	S3-30	S. J. Trent	R3-50
	H. K. Meznarich	S3-30	File/LB	
	P. D. Mix	S3-30		

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ATTACHMENT 1

COVER SHEET

Consisting of 2 pages
Including cover page

WSCF SAF NUMBER CROSS REFERENCE

Group#: WSCF20090178
Data Deliverable Date: 10-apr-2009
Data Deliverable: Cover Sheet

SAF#	Sample ID	WSCF#	Matrix
F08-010	B1YPF5	W09GR00151	GASEOUS
	B1YPF6	W09GR00150	GASEOUS

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ATTACHMENT 2

NARRATIVE

**Consisting of 2 pages
Including cover page**

Introduction

Two S&GRP samples were received at the WSCF Laboratory on February 25, 2009. Samples were analyzed for the analytes indicated on the attached copy of the chain of custody (COC) form in accordance with the *Statement of Work (SOW), Modification No. 2 to Agreement 36587, Release 3, "FH WSCF ANALYTICAL SERVICES FOR GROUNDWATER."*

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.

The following generic data qualifiers (i.e., B, D, and J) may be applicable to this report, as appropriate

- **B** – Sample results with a concentration greater than the MDL but less than the PQL are B flagged (applies to inorganic and wetchem analyses), as appropriate.
- **D** – Sample results are D flagged if dilution(s) were required, as appropriate.
- **J** – Sample results with a concentration greater than the MDL but less than the PQL are J flagged (applies to organic analyses), as appropriate.

Analytical Methodology for Requested Analyses

Refer to *WSCF Method References Report*, page 7, for a complete listing of approved analytical methods.

Organic Comments

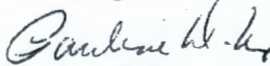
VOC (Vapor) – A Blank, Laboratory Control Sample (LCS), LCS Duplicate (LCSD) and Limit of Quantitation Standard (LOQ) were analyzed with this delivery group. See pages 12 through 13 for QC details. Analytical Note(s):

- Acetone and 2-Butanone – LCSD recoveries were slightly less than established laboratory limits. No flags issued.

All other QC controls are within the established limits.

We certify that this data package is in compliance with the SOW, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this data package has been authorized by the Analytical Laboratory Manager (or designee) and the Client Services representative as verified by the following signatures.


Scot L. Fitzgerald
WSCF Analytical Laboratory Manager


Pauline D. Mix
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:

S. Fitzgerald 3/26/09

Client Services:

P.D. Miller 3/26/2009

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

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Contract#: MOA-FH-CHPRC-2008

Report#: WSCF20090178

Report Date: 25-mar-2009

Report WGPP/ver. 5.2

Groundwater Remediation Program

Page 1

W13q Worklist/Batch/QC Report for Group# WSCF20090178

WL#	S#	Batch	QC#	Tray Type	Sample#	Test
39319	1	39741	44318	BLANK		Headspace Analysis
39319	2	39741	44318	LCS		Headspace Analysis
39319	6	39741	44318	LCS-DUP		Headspace Analysis
39319	6	39741	44318	LCS-RPD		Headspace Analysis
39319	3	39741	44318	LOQ		Headspace Analysis
39319	4	39741	44318	SAMPLE	W09GR00150	Headspace Analysis
39319	5	39741	44318	SAMPLE	W09GR00151	Headspace Analysis

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-523-449	LA-523-449: DETERMINATION OF VOLATILE ORGANIC COMPOUNDS FOR INDUSTRIAL HYGIENE
EPA TO Methods TO-15 mod.	Determination Of Volatile Organic Compounds (VOCs) In Ambient Air -Modified-
HEIS TO-15_VOA_GAS	VOA TO-15

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-mar-2009
Report#: WSCF20090178
Report WGPPM/5.2

Page 1

WSCF ANALYTICAL RESULTS REPORT

Attention: Steve Trent
SAF Number: F08-010
Sample # W09GR00150
Client ID: B1YPF6

**TRENT
WSCF**

Matrix: GASEOUS

Group #: WSCF20090178
Department: Organic
Sampled: 02/25/09
Received: 02/25/09

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Headspace Analysis											
Acetone	67-64-1	LA-523-449	U	< 10	PPB(V/V)			2.00	25		03/17/09
Methylenechloride	75-09-2	LA-523-449	U	< 10	PPB(V/V)			2.00	10		03/17/09
2-Butanone	78-93-3	LA-523-449	U	< 10	PPB(V/V)			2.00	10		03/17/09
Chloroform	67-66-3	LA-523-449	U	< 10	PPB(V/V)			2.00	10		03/17/09
Carbon tetrachloride	56-23-5	LA-523-449	U	< 10	PPB(V/V)			2.00	10		03/17/09
Trichloroethene	79-01-6	LA-523-449	U	< 10	PPB(V/V)			2.00	10		03/17/09
Tetrachloroethene	127-18-4	LA-523-449	U	< 10	PPB(V/V)			2.00	10		03/17/09

MDL=Minimum Detection Limit

RQ=Result Qualifier

TP Err=Total Propagated Error

DF=Dilution Factor

D - Analyte was identified at a secondary dilution factor

U - Analyzed for but not detected above limiting criteria.

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

Report WGPP/ver. 5.2

Groundwater Remediation Program

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WSCF

ANALYTICAL RESULTS REPORT

Attention: Steve Trent
SAF Number: F08-010
Sample # W09GR00151
Client ID: B1YPF5

TRENT
 WSCF

Matrix: GASEOUS

Group #: WSCF20090178
Department: Organic
Sampled: 02/25/09
Received: 02/25/09

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Headspace Analysis											
Acetone	67-64-1	LA-523-449	U	< 1.5e+03	PPB(V/V)			1.20e+002	1.5e+03		03/17/09
Methylenechloride	75 09-2	LA-523-449	U	< 6.0e+02	PPB(V/V)			1.20e+002	6.0e+02		03/17/09
2-Butanone	78-93-3	LA-523-449	U	< 6.0e+02	PPB(V/V)			1.20e+002	6.0e+02		03/17/09
Chloroform	67-66-3	LA-523-449	U	< 6.0e+02	PPB(V/V)			1.20e+002	6.0e+02		03/17/09
Carbon tetrachloride	56-23-5	LA-523-449	D	7.6e+03	PPB(V/V)			1.20e+002	6.0e+02		03/17/09
Trichloroethene	79-01-6	LA-523-449	U	< 6.0e+02	PPB(V/V)			1.20e+002	6.0e+02		03/17/09
Tetrachloroethene	127-18-4	LA-523-449	U	< 6.0e+02	PPB(V/V)			1.20e+002	6.0e+02		03/17/09

MDL=Minimum Detection Limit

RQ=Result Qualifier

TP Err=Total Propagated Error

DF=Dilution Factor

D - Analyte was identified at a secondary dilution factor

U - Analyzed for but not detected above limiting criteria.

* - Indicates results that have NOT been validated;

+ - Indicates more than six qualifier symbols

Report WGPP/ver. 5.2

Groundwater Remediation Program

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WSCF ANALYTICAL LABORATORY QC REPORT

Department: **Organic**

SDG Number: WSCF20090178
 Matrix: VAPOR
 Test: Headspace Analysis

Sample Date:
 Receive Date:

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
BATCH QC											
BLANK	Acetone	67-64-1	< 20	n/a	% Recov	70.000	130.000			U	03/17/09
BLANK	Carbon tetrachloride	56-23-5	< 5	n/a	% Recov	70.000	130.000			U	03/17/09
BLANK	Chloroform	67-66-3	< 5	n/a	% Recov	70.000	130.000			U	03/17/09
BLANK	Methylenechloride	75-09-2	< 5	n/a	% Recov	70.000	130.000			U	03/17/09
BLANK	2-Butanone	78-93-3	< 5	n/a	% Recov	70.000	130.000			U	03/17/09
BLANK	Tetrachloroethene	127-18-4	< 5	n/a	% Recov	70.000	130.000			U	03/17/09
BLANK	Trichloroethene	79-01-6	< 5	n/a	% Recov	70.000	130.000			U	03/17/09
LCS	Acetone	67-64-1	88	88.000	% Recov	70.000	130.000				03/17/09
LCS	Carbon tetrachloride	56-23-5	37	90.244	% Recov	70.000	130.000				03/17/09
LCS	Chloroform	67-66-3	35	87.500	% Recov	70.000	130.000				03/17/09
LCS	Methylenechloride	75-09-2	36	85.714	% Recov	70.000	130.000				03/17/09
LCS	2-Butanone	78-93-3	38	90.476	% Recov	70.000	130.000				03/17/09
LCS	Tetrachloroethene	127-18-4	42	100.000	% Recov	70.000	130.000				03/17/09
LCS	Trichloroethene	79-01-6	38	90.476	% Recov	70.000	130.000				03/17/09
LCS-DUP	Acetone	67-64-1	69	69.000	% Recov	70.000	130.000				03/17/09
LCS-DUP	Carbon tetrachloride	56-23-5	37	90.244	% Recov	70.000	130.000				03/17/09
LCS-DUP	Chloroform	67-66-3	33	82.500	% Recov	70.000	130.000				03/17/09
LCS-DUP	Methylenechloride	75-09-2	36	85.714	% Recov	70.000	130.000				03/17/09
LCS-DUP	2-Butanone	78-93-3	28	66.667	% Recov	70.000	130.000				03/17/09
LCS-DUP	Tetrachloroethene	127-18-4	39	92.857	% Recov	70.000	130.000				03/17/09
LCS-DUP	Trichloroethene	79-01-6	36	85.714	% Recov	70.000	130.000				03/17/09
LCS-RPD	Acetone	67-64-1	69.000		RPD			24.204	25.000		03/17/09
LCS-RPD	Carbon tetrachloride	56-23-5	90.244		RPD			0.000	25.000		03/17/09
LCS-RPD	Chloroform	67-66-3	82.500		RPD			5.882	25.000		03/17/09
LCS-RPD	Methylenechloride	75-09-2	85.714		RPD			0.000	25.000		03/17/09
LCS-RPD	2-Butanone	78-93-3	66.667		RPD			30.302	25.000		03/17/09
LCS-RPD	Tetrachloroethene	127-18-4	92.857		RPD			7.408	25.000		03/17/09

WSCF ANALYTICAL LABORATORY QC REPORT

Department: **Organic**

SDG Number: WSCF20090178
 Matrix: VAPOR
 Test: Headspace Analysis

Sample Date:
 Receive Date:

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
LCS-RPD	Trichloroethene	79-01-6	85.714		RPD			5.406	25.000		03/17/09
LOQ	Acetone	67-64-1	12	92.308	% Recov	50.000	150.000				03/17/09
LOQ	Carbon tetrachloride	56-23-5	4.7	90.385	% Recov	50.000	150.000				03/17/09
LOQ	Chloroform	67-66-3	4.6	90.196	% Recov	50.000	150.000				03/17/09
LOQ	Methylenechloride	75-09-2	4.7	88.679	% Recov	50.000	150.000				03/17/09
LOQ	2-Butanone	78-93-3	3.3	62.264	% Recov	50.000	150.000				03/17/09
LOQ	Tetrachloroethene	127-18-4	4.4	84.615	% Recov	50.000	150.000				03/17/09
LOQ	Trichloroethene	79-01-6	3.8	73.077	% Recov	50.000	150.000				03/17/09

WSCF ANALYTICAL COMMENT REPORT

Attention: Steve Trent
Project Number F08-010

Group #: WSCF20090178
Department: Organic

Sample #	Client ID	Lab Area	Test	Comment
		VALGROUP		<p>All QC was met with the following exception: The LCSD for acetone (89 %R) and 2-butanone (87 %R) were low which also made the LCS/LCSD for 2-butanone (30 % RPD) high. These analytes were not detected in the samples.</p> <p>MS 3/19/2009</p>

Lab Areas: VALGROUP - Group Validation
LOGSAMP - Login for Sample

VALTEST - Test Validation
LOGTEST - Login for Tests

TESTDATA - Test Data Entry

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M4W41-SLF-09-127

ATTACHMENT 4

SAMPLE RECEIPT INFORMATION

Consisting of 4 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

File
4/10/09
Wak

ACKNOWLEDGMENT OF SAMPLES RECEIVED

Groundwater Remediation Program

Richland, WA 99354
Attn: Steve Trent

Customer Code: GPP
PO#: 300209/ES10
Group#: 20090178
Project#: F08-010
Proj Mgr: Steve Trent E6-35
Phone: 373-5869

The following samples were received from you on 02/25/09. 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
W09GR00150	B1YPF6	TRENT @IHVAP3	Drum Head Space Vapor	02/25/09
W09GR00151	B1YPF5	TRENT @IHVAP3	Drum Head Space Vapor	02/25/09

Test Acronym Description

Test Acronym	Description
@IHVAP3	Headspace Analysis

COLLECTOR
Rosave, Rust, Mantyee
SAMPLING LOCATION
 ZP-1 Pump and Treat Monthly, I-V02 *AS-3*
ICE CHEST NO.
SHIPPED TO
 Waste Sampling & Characterization

COMPANY CONTACT
 BYRNES, ME
TELEPHONE NO.
 373-3996
PROJECT COORDINATOR
 WIDRIG, DL
PROJECT DESIGNATION
 200-ZP-1 Pump and Treat Operational Monitoring - Gaseous
FIELD LOGBOOK NO.
 HNF-N-575-585-9 *D95*
ACTUAL SAMPLE DEPTH
N/A
OFFSITE PROPERTY NO.
 N/A

PRICE CODE 9N
AIR QUALITY
DATA TURNAROUND
 45 Days / 45 Days
METHOD OF SHIPMENT
 GOVERNMENT VEHICLE
BILL OF LADING/AIR BILL NO.
 N/A

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

POSSIBLE SAMPLE HAZARDS/ REMARKS
 Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1999)
CP 2/25/09

SPECIAL HANDLING AND/OR STORAGE
 20090178

PRESERVATION	None
TYPE OF CONTAINER	Summa Canister
NO. OF CONTAINER(S)	1
VOLUME	6L
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME
B1YPF6 <i>W09GR00150</i>	GASEOUS	2-25-09	1015 ✓

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
<i>L. J. Rosave, Larry Rosave</i>	<i>2-25-09/1035</i>	<i>[Signature]</i>	<i>2/25/09 1035</i>
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME

SPECIAL INSTRUCTIONS
 ** The 200 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF.
 (1)VOA - TD-15 {2-Butanone, Acetone, Carbon tetrachloride, Chloroform, Methylene chloride, Tetrachloroethene, Trichloroethene}

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

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COLLECTOR RUSANG, RUST, MCINTYRE	COMPANY CONTACT BYRNES, ME	TELEPHONE NO. 373-3996	PROJECT COORDINATOR WIDRIG, DL	PRICE CODE 9N	DATA TURNAROUND 45 Days / 45 Days
SAMPLING LOCATION ZP-1 Pump and Treat Monthly, I-V01 AS-2	PROJECT DESIGNATION 200-ZP-1 Pump and Treat Operational Monitoring - Gaseous		SAF NO. F08-010	AIR QUALITY <input type="checkbox"/>	
ICE CHEST NO.	FIELD LOGBOOK NO. HNF-N-526-585-9 MS	ACTUAL SAMPLE DEPTH N/A	COA 300209ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	
SHIPPED TO Waste Sampling & Characterization	OFFSITE PROPERTY NO. N/A	BILL OF LADING/AIR BILL NO. N/A			

MATRIX* A=Air DL=Drum Liquids DS=Drum Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other	POSSIBLE SAMPLE HAZARDS/ REMARKS Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1993) LP 2/25/09	PRESERVATION None	TYPE OF CONTAINER Summa Canister	NO. OF CONTAINER(S) 1	VOLUME 16L	SAMPLE ANALYSIS SEE ITEM (1) IN SPECIAL INSTRUCTIONS
SPECIAL HANDLING AND/OR STORAGE						

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME				
B1YPF5	151 GASEOUS	2-25-09	1020				

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS	
RELINQUISHED BY/REMOVED FROM L.J. Rosano	DATE/TIME 2-25-09/1035	RECEIVED BY/STORED IN <i>[Signature]</i>	DATE/TIME 2/25/09 1035	** The 200 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF. (1)VOA - T0-15 {2-Butanone, Acetone, Carbon tetrachloride, Chloroform, Methylene chloride, Tetrachloroethene, Trichloroethene}	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

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