

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

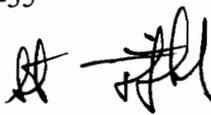
# FLUOR

---

## Memorandum

---

To: H. Hampt E6-35 Date: M4W41-SLF-08-567  
May 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 WSCF20080818 – SAF NUMBER F08-067

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 WSCF20080818:

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

SLF/grf

Attachments 4

M4W41-SLF-08-567

ATTACHMENT 1

**COVER SHEET**

Consisting of 2 pages  
Including cover page

# WSCF SAF NUMBER CROSS REFERENCE

---

Group#: WSCF20080818  
Data Deliverable Date: 29-may-2008  
Data Deliverable: Cover Sheet

---

SAF#	Sample ID	WSCF#	Matrix
F08-067	B1TTM2	W08GR01062	WATER

---

M4W41-SLF-08-567

ATTACHMENT 2

**NARRATIVE**

Consisting of 3 pages  
Including cover page

## **Introduction**

One S&GRP sample was received at the WSCF Laboratory on April 17, 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” 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*, pages 12 through 14, for a complete listing of approved analytical methods.

## **Inorganic Comments**

**Anions** – The holding time requirement for this analysis was met. A Duplicate, Matrix Spike, Matrix Spike Duplicate, Blank and Laboratory Control Sample were analyzed with this delivery group per GRP Letter of Instruction. See pages 16 through 17 for QC details.

All QC controls are within the established limits.

**ICP-MS Metals** – 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 18 through 19 for QC details. Analytical Note(s):

- Matrix Spike and Matrix Spike Duplicate were analyzed on sample# B1TVK4 (SDG# 20080841, SAF# F08-052)

All QC controls are within the established limits.

## **Organic Comments**

**Semi-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 23 through 26 for QC details.

All QC controls are within the established limits.

**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 27 through 29 for QC details. Analytical Note(s):

- Matrix Spike and Matrix Spike Duplicate were analyzed on sample# B1TPJ9 (SDG# 20080763, SAF# F08-085)

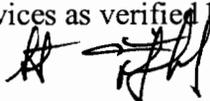
All QC controls are within the established limits.

### **Radiochemistry Comments**

**Gross Alpha & Beta** – There are no hold times associated with WSCF’s radiochemical methods. A Duplicate, Blank and Laboratory Control Sample were analyzed with this delivery group. See page 31 for QC details.

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



Andrew J. Kopriva  
WSCF Client Services

M4W41-SLF-08-567

ATTACHMENT 3

**ANALYTICAL RESULTS**

Consisting of 25 pages  
Including cover page

**WSCF**  
**ANALYTICAL RESULTS REPORT**

for  
**Groundwater Remediation Program**

**Richland, WA 99354**

**Attention: Steve Trent**

Analytical:  S. Fitzgerald 5/29/08  
Client Services: Andrew Kopriva  5-27-08

*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#: WSCF20080818  
Report Date: 20-may-2008  
Report WGPP/ver. 5.2  
*Groundwater Remediation Program*

Department: Inorganic

## W13q Worklist/Batch/QC Report for Group# WSCF20080818

WL#	S#	Batch	QC#	Tray Type	Sample#	Test
36068	2	36483	40788	BLANK		Anions by Ion Chromatography
36068	10	36483	40788	BLANK		Anions by Ion Chromatography
36068	3	36483	40788	LCS		Anions by Ion Chromatography
36068	7	36483	40788	DUP	W08GR01062	Anions by Ion Chromatography
36068	8	36483	40788	MS	W08GR01062	Anions by Ion Chromatography
36068	9	36483	40788	MSD	W08GR01062	Anions by Ion Chromatography
36068	6	36483	40788	SAMPLE	W08GR01062	Anions by Ion Chromatography
36068	9	36483	40788	SPK-RPD	W08GR01062	Anions by Ion Chromatography
36229	1	36645	40980	BLANK		ICP-200.8 MS All possible meta
36229	2	36645	40980	LCS		ICP-200.8 MS All possible meta
36229	7	36645	40980	SAMPLE	W08GR01062	ICP-200.8 MS All possible meta
36229	4	36645	40980	MS	W08GR01072	ICP-200.8 MS All possible meta
36229	5	36645	40980	MSD	W08GR01072	ICP-200.8 MS All possible meta
36229	5	36645	40980	SPK-RPD	W08GR01072	ICP-200.8 MS All possible meta

Department: Organic

## W13q Worklist/Batch/QC Report for Group# WSCF20080818

WL#	S#	Batch	QC#	Tray	Type	Sample#	Test
			40831	BLANK			SW-846 8270C Semi-Vols
			40831	LCS			SW-846 8270C Semi-Vols
			40831	MS		W08GR01062	SW-846 8270C Semi-Vols
			40831	MSD		W08GR01062	SW-846 8270C Semi-Vols
			40831	SAMPLE		W08GR01062	SW-846 8270C Semi-Vols
			40831	SPK-RPD		W08GR01062	SW-846 8270C Semi-Vols
			40831	SURR		W08GR01062	SW-846 8270C Semi-Vols
			40990	BLANK			VOA Ground Water Protection
			40990	LCS			VOA Ground Water Protection
			40990	MS		W08GR00976	VOA Ground Water Protection
			40990	MSD		W08GR00976	VOA Ground Water Protection
			40990	SPK-RPD		W08GR00976	VOA Ground Water Protection
			40990	SAMPLE		W08GR01062	VOA Ground Water Protection
			40990	SURR		W08GR01062	VOA Ground Water Protection

W13q Worklist/Batch/QC Report for Group# WSCF20080818

WL#	S#	Batch	QC#	Tray Type	Sample#	Test
36087	1	36503	40849	BLANK		Gross Alpha/Gross Beta (AB32)
36087	2	36503	40849	LCS		Gross Alpha/Gross Beta (AB32)
36087	3	36503	40849	DUP	W08GR01062	Gross Alpha/Gross Beta (AB32)
36087	4	36503	40849	SAMPLE	W08GR01062	Gross Alpha/Gross Beta (AB32)

# WSCF METHOD REFERENCES REPORT

Department: Inorganic

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.

<b>LA-505-412</b>	<b>LA-505-412: DETERMINATION OF TRACE ELEMENTS IN WATERS AND WASTES BY INDUCTIVELY EPA-600/R-94-111 200.8 DETERMINATION OF TRACE ELEMENTS IN WATERS AND WASTES BY INDUCTIVELY COUPLED PLAS HEIS 200.8 METALS_ICPMS Inductively Coupled Plasma - Mass Spectrometry HEIS RADISOTOPES_ICPMS Radioisotopes by ICP/MS</b>
<b>LA-533-410</b>	<b>LA-533-410: ANION ANALYSIS BY ION CHROMATOGRAPHY EPA-600/R-94-111 300.0 DETERMINATION OF INORGANIC ANIONS BY ION CHROMATOGRAPHY HEIS 300.0 ANIONS_IC Determination of Inorganic Anions by Ion Chromatography</b>

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

Report Date: 20-may-2008  
Report#: WSCF20080818  
Report WGPPM/5.2

# 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.

<b>LA-523-455</b>	<b>LA-523-455: VOLATILE SAMPLE ANALYSIS BY SW-846</b> <b>EPA SW-846 8000B</b> DETERMINATIVE CHROMATOGRAPHIC SEPARATIONS <b>EPA SW-846 8260B</b> VOLATILE ORGANIC COMPOUNDS BY GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS) <b>HEIS 8260_VOA_GCMS</b> Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)
<b>LA-523-456</b>	<b>LA-523-456: SEMIVOLATILE SAMPLE ANALYSIS BY SW-846, METHOD 8270C</b> <b>EPA SW-846 8000B</b> DETERMINATIVE CHROMATOGRAPHIC SEPARATIONS <b>EPA SW-846 8270C</b> SEMIVOLATILE ORGANIC COMPOUNDS BY GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS) <b>HEIS 8270_SVOA_GCMS</b> Semivolatile 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: 20-may-2008  
Report#: WSCF20080818  
Report WGPPM/5.2

# WSCF METHOD REFERENCES REPORT

Department: Radiochemistry

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.

<b>LA-508-415</b>	<b>LA-508-415: OPERATION OF THE PROTEAN 2-INCH ALPHA/BETA COUNTING SYSTEM FOR GROSS</b>
<b>HEIS ALPHA GPC</b>	<b>GROSS ALPHA GPC</b>
<b>HEIS BETA GPC</b>	<b>GROSS BETA GPC</b>
<b>HEIS SRTOT_SEP_PRECIP_GPC</b>	<b>Trontium 89/90</b>

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: 20-may-2008  
Report#: WSCF20080818  
Report WGPPM/5.2

# WSCF ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent  
**SAF Number:** F08-067  
**Sample #** W08GR01062  
**Client ID:** BITTM2

**TRENT**  
**WSCF**  
**Matrix:** WATER

**Group #:** WSCF20080818  
**Department:** Inorganic  
**Sampled:** 04/17/08  
**Received:** 04/17/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
<b>Anions by Ion Chromatography</b>											
Fluoride	16984-48-8	LA-533-410	U	< 6.00e-03	mg/L			1.00	6.0e-03		04/17/08
Nitrogen in Nitrite	NO2-N	LA-533-410	U	< 0.0100	mg/L			1.00	0.010		04/17/08
Nitrogen in Nitrate	NO3-N	LA-533-410	U	< 5.00e-03	mg/L			1.00	5.0e-03		04/17/08
Sulfate	14808-79-8	LA-533-410	U	< 0.0700	mg/L			1.00	0.070		04/17/08
<b>ICP-200.8 MS All possible meta Prep</b>											
<b>ICP-200.8 MS All possible meta</b>											
Nickel	7440-02-0	LA-505-412	U	< 0.200	ug/L			1.00	0.200		05/07/08
Silver	7440-22-4	LA-505-412	U	< 0.100	ug/L			1.00	0.100		05/07/08
Barium	7440-39-3	LA-505-412	U	0.360	ug/L			1.00	0.200		05/07/08
Beryllium	7440-41-7	LA-505-412	U	< 0.0500	ug/L			1.00	0.0500		05/07/08
Cadmium	7440-43-9	LA-505-412	U	< 0.100	ug/L			1.00	0.100		05/07/08
Chromium	7440-47-3	LA-505-412	U	< 0.500	ug/L			1.00	0.500		05/07/08
Copper	7440-50-8	LA-505-412	U	1.46	ug/L			1.00	0.100		05/07/08
Zinc	7440-66-6	LA-505-412	U	0.960	ug/L			1.00	0.800		05/07/08
Lead	7439-92-1	LA-505-412	U	< 0.100	ug/L			1.00	0.100		05/07/08
Arsenic	7440-38-2	LA-505-412	U	< 0.400	ug/L			1.00	0.400		05/07/08
Selenium	7782-49-2	LA-505-412	U	< 0.300	ug/L			1.00	0.300		05/07/08

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 LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20080818

Matrix: WATER

Test: Anions by Ion Chromatography

Sample Date: 04/17/08

Receive Date: 04/17/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
<b>Lab ID: W08GR01062</b>											
<b>BATCH QC ASSOCIATED WITH SAMPLE</b>											
DUP	Fluoride	16984-48-8	< 6e-3		RPD			n/a	20.000	U	04/17/08
DUP	Nitrogen in Nitrite	NO2-N	< 1e-2		RPD			n/a	20.000	U	04/17/08
DUP	Nitrogen in Nitrate	NO3-N	< 5e-3		RPD			n/a	20.000	U	04/17/08
DUP	Sulfate	14808-79-8	< 7e-2		RPD			n/a	20.000	U	04/17/08
MS	Fluoride	16984-48-8	0.4699	95.314	% Recov	75.000	125.000				04/17/08
MS	Nitrogen in Nitrite	NO2-N	0.4783	97.215	% Recov	75.000	125.000				04/17/08
MS	Nitrogen in Nitrate	NO3-N	0.461	103.363	% Recov	75.000	125.000				04/17/08
MS	Sulfate	14808-79-8	1.8449	94.128	% Recov	75.000	125.000				04/17/08
MSD	Fluoride	16984-48-8	0.4701	95.355	% Recov	75.000	125.000				04/17/08
MSD	Nitrogen in Nitrite	NO2-N	0.4847	98.516	% Recov	75.000	125.000				04/17/08
MSD	Nitrogen in Nitrate	NO3-N	0.4541	101.816	% Recov	75.000	125.000				04/17/08
MSD	Sulfate	14808-79-8	1.8197	92.842	% Recov	75.000	125.000				04/17/08
SPK-RPD	Fluoride	16984-48-8	95.355		RPD			0.043	20.000		04/17/08
SPK-RPD	Nitrogen in Nitrite	NO2-N	98.516		RPD			1.329	20.000		04/17/08
SPK-RPD	Nitrogen in Nitrate	NO3-N	101.816		RPD			1.508	20.000		04/17/08
SPK-RPD	Sulfate	14808-79-8	92.842		RPD			1.376	20.000		04/17/08
<b>BATCH QC</b>											
BLANK	Fluoride	16984-48-8	< 6e-3	n/a	mg/L	0.000	0.030			U	04/17/08
BLANK	Fluoride	16984-48-8	< 6e-3	n/a	mg/L	0.000	0.030			U	04/17/08
BLANK	Nitrogen in Nitrite	NO2-N	< 1e-2	n/a	mg/L	0.000	0.020			U	04/17/08
BLANK	Nitrogen in Nitrite	NO2-N	< 1e-2	n/a	mg/L	0.000	0.020			U	04/17/08
BLANK	Nitrogen in Nitrate	NO3-N	< 5e-3	n/a	mg/L	0.000	0.040			U	04/17/08
BLANK	Nitrogen in Nitrate	NO3-N	< 5e-3	n/a	mg/L	0.000	0.040			U	04/17/08
BLANK	Sulfate	14808-79-8	< 7e-2	n/a	mg/L	0.000	0.200			U	04/17/08
BLANK	Sulfate	14808-79-8	< 7e-2	n/a	mg/L	0.000	0.200			U	04/17/08

# WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20080818

Matrix: WATER

Test: Anions by Ion Chromatography

Sample Date:  
Receive Date:

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
LCS	Fluoride	16984-48-8	108.7655	109.202	% Recov	80.000	120.000				04/17/08
LCS	Nitrogen in Nitrite	NO2-N	102.0597	102.676	% Recov	80.000	120.000				04/17/08
LCS	Nitrogen in Nitrate	NO3-N	94.4187	104.793	% Recov	80.000	120.000				04/17/08
LCS	Sulfate	14808-79-8	395.6906	99.922	% Recov	80.000	120.000				04/17/08

# WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20080818  
 Matrix: WATER  
 Test: ICP-200.8 MS All possible meta

Sample Date: 04/22/08  
 Receive Date: 04/28/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
<b>Lab ID: W08GR01072</b>											
<b>BATCH QC ASSOCIATED WITH SAMPLE</b>											
MS	Silver	7440-22-4	41.18	102.950	% Recov	70.000	130.000				05/07/08
MS	Arsenic	7440-38-2	35.8	89.500	% Recov	70.000	130.000				05/07/08
MS	Barium	7440-39-3	38.81	97.025	% Recov	70.000	130.000				05/07/08
MS	Cadmium	7440-43-9	37.59	93.975	% Recov	70.000	130.000				05/07/08
MS	Chromium	7440-47-3	39.62	99.050	% Recov	70.000	130.000				05/07/08
MS	Copper	7440-50-8	40.22	100.550	% Recov	70.000	130.000				05/07/08
MS	Nickel	7440-02-0	40.11	100.275	% Recov	70.000	130.000				05/07/08
MS	Lead	7439-92-1	39.43	98.575	% Recov	70.000	130.000				05/07/08
MS	Selenium	7782-49-2	34.74	86.850	% Recov	70.000	130.000				05/07/08
MS	Zinc	7440-66-6	38.08	95.200	% Recov	70.000	130.000				05/07/08
MSD	Silver	7440-22-4	40.99	102.475	% Recov	70.000	130.000				05/07/08
MSD	Arsenic	7440-38-2	35.78	89.450	% Recov	70.000	130.000				05/07/08
MSD	Barium	7440-39-3	38.58	96.450	% Recov	70.000	130.000				05/07/08
MSD	Cadmium	7440-43-9	37.32	93.300	% Recov	70.000	130.000				05/07/08
MSD	Chromium	7440-47-3	38.75	96.875	% Recov	70.000	130.000				05/07/08
MSD	Copper	7440-50-8	39.25	98.125	% Recov	70.000	130.000				05/07/08
MSD	Nickel	7440-02-0	39.3	98.250	% Recov	70.000	130.000				05/07/08
MSD	Lead	7439-92-1	39.28	98.200	% Recov	70.000	130.000				05/07/08
MSD	Selenium	7782-49-2	34.93	87.325	% Recov	70.000	130.000				05/07/08
MSD	Zinc	7440-66-6	36.91	92.275	% Recov	70.000	130.000				05/07/08
SPK-RPD	Silver	7440-22-4	102.475		RPD			0.462	20.000		05/07/08
SPK-RPD	Arsenic	7440-38-2	89.450		RPD			0.056	20.000		05/07/08
SPK-RPD	Barium	7440-39-3	96.450		RPD			0.594	20.000		05/07/08
SPK-RPD	Cadmium	7440-43-9	93.300		RPD			0.721	20.000		05/07/08
SPK-RPD	Chromium	7440-47-3	96.875		RPD			2.220	20.000		05/07/08
SPK-RPD	Copper	7440-50-8	98.125		RPD			2.441	20.000		05/07/08

# WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20080818

Matrix: WATER

Test: ICP-200.8 MS All possible meta

Sample Date: 04/22/08  
Receive Date: 04/28/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
SPK-RPD	Nickel	7440-02-0	98.250		RPD			2.040	20.000		05/07/08
SPK-RPD	Lead	7439-92-1	98.200		RPD			0.381	20.000		05/07/08
SPK-RPD	Selenium	7782-49-2	87.325		RPD			0.545	20.000		05/07/08
SPK-RPD	Zinc	7440-66-6	92.275		RPD			3.120	20.000		05/07/08
<b>BATCH QC</b>											
BLANK	Silver	7440-22-4	<0.1	n/a	ug/L					U	05/07/08
BLANK	Arsenic	7440-38-2	<0.4	n/a	ug/L					U	05/07/08
BLANK	Barium	7440-39-3	<0.2	n/a	ug/L					U	05/07/08
BLANK	Beryllium	7440-41-7	<5e-2	n/a	ug/L					U	05/07/08
BLANK	Cadmium	7440-43-9	<0.1	n/a	ug/L					U	05/07/08
BLANK	Chromium	7440-47-3	<0.5	n/a	ug/L					U	05/07/08
BLANK	Copper	7440-50-8	<0.1	n/a	ug/L					U	05/07/08
BLANK	Nickel	7440-02-0	<0.2	n/a	ug/L					U	05/07/08
BLANK	Lead	7439-92-1	<0.1	n/a	ug/L					U	05/07/08
BLANK	Selenium	7782-49-2	<0.3	n/a	ug/L					U	05/07/08
BLANK	Zinc	7440-66-6	<0.8	n/a	ug/L					U	05/07/08
LCS	Silver	7440-22-4	42.48	106.200	% Recov	85.000	115.000				05/07/08
LCS	Arsenic	7440-38-2	37.48	93.700	% Recov	85.000	115.000				05/07/08
LCS	Barium	7440-39-3	39.14	97.850	% Recov	85.000	115.000				05/07/08
LCS	Beryllium	7440-41-7	37.42	93.550	% Recov	85.000	115.000				05/07/08
LCS	Cadmium	7440-43-9	37.83	94.575	% Recov	85.000	115.000				05/07/08
LCS	Chromium	7440-47-3	38.69	96.725	% Recov	85.000	115.000				05/07/08
LCS	Copper	7440-50-8	38.93	97.325	% Recov	85.000	115.000				05/07/08
LCS	Nickel	7440-02-0	38.89	97.225	% Recov	85.000	115.000				05/07/08
LCS	Lead	7439-92-1	39.87	99.675	% Recov	85.000	115.000				05/07/08
LCS	Selenium	7782-49-2	36.2	90.500	% Recov	85.000	115.000				05/07/08
LCS	Zinc	7440-66-6	37.24	93.100	% Recov	85.000	115.000				05/07/08

# WSCF ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent  
**SAF Number:** F08-067  
**Sample #:** W08GR01062  
**Client ID:** BITTM2

**Group #:** WSCF20080818  
**Department:** Organic  
**Sampled:** 04/17/08  
**Received:** 04/17/08

**TRENT**  
**WSCF**  
**Matrix:** WATER

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
<b>SW-846 8270C Semi-Vols Prep</b>											
<b>SW-846 8270C Semi-Vols</b>											
4-Nitrophenol	100-02-7	LA-523-456	U	< 1.00	ug/L			1.00	1.0		04/25/08
1,4-Dichlorobenzene	106-46-7	LA-523-456	U	< 1.40	ug/L			1.00	1.4		04/25/08
Phenol	108-95-2	LA-523-456	U	< 0.500	ug/L			1.00	0.50		04/25/08
1,2,4-Trichlorobenzene	120-82-1	LA-523-456	U	< 2.20	ug/L			1.00	2.2		04/25/08
2,4-Dinitrotoluene	121-14-2	LA-523-456	U	< 0.500	ug/L			1.00	0.50		04/25/08
Pyrene	129-00-0	LA-523-456	U	< 0.500	ug/L			1.00	0.50		04/25/08
4-Chloro-3-methylphenol	59-50-7	LA-523-456	U	< 0.500	ug/L			1.00	0.50		04/25/08
N-Nitrosodi-n-dipropylamine	621-64-7	LA-523-456	U	< 0.600	ug/L			1.00	0.60		04/25/08
Acenaphthene	83-32-9	LA-523-456	U	< 2.60	ug/L			1.00	2.6		04/25/08
Pentachlorophenol	87-86-5	LA-523-456	U	< 1.50	ug/L			1.00	1.5		04/25/08
2-Chlorophenol	95-57-8	LA-523-456	U	< 0.500	ug/L			1.00	0.50		04/25/08
Tributyl phosphate	126-73-8	LA-523-456	U	< 0.500	ug/L			1.00	0.50		04/25/08
1,2,4-Trimethylbenzene	95-63-6	LA-523-456	U	< 0.500	ug/L			1.00	0.50		04/25/08
<b>VOA Ground Water Protection</b>											
1,1-Dichloroethene	75-35-4	LA-523-455	U	< 1.00	ug/L			1.00	1.0		04/29/08
Trichloroethene	79-01-6	LA-523-455	U	< 1.00	ug/L			1.00	1.0		04/29/08
Benzene	71-43-2	LA-523-455	U	< 1.00	ug/L			1.00	1.0		04/29/08
Toluene	108-88-3	LA-523-455	U	< 1.00	ug/L			1.00	1.0		04/29/08
Chlorobenzene	108-90-7	LA-523-455	U	< 1.00	ug/L			1.00	1.0		04/29/08
1,1-Dichloroethane	75-34-3	LA-523-455	U	< 1.00	ug/L			1.00	1.0		04/29/08
Ethylbenzene	100-41-4	LA-523-455	U	< 1.00	ug/L			1.00	1.0		04/29/08
Styrene	100-42-5	LA-523-455	U	< 1.00	ug/L			1.00	1.0		04/29/08
cis-1,3-Dichloropropene	10061-01-5	LA-523-455	U	< 1.00	ug/L			1.00	1.0		04/29/08

U - Analyzed for but not detected above limiting criteria.(inorg)

U - Analyzed for but not detected above limiting criteria(inorg)

**MDL = Minimum Detection Limit**  
**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:** F08-067  
**Sample #** W08GR01062  
**Client ID:** BITTM2

**Group #:** WSCF20080818  
**Department:** Organic  
**Sampled:** 04/17/08  
**Received:** 04/17/08

**Matrix:** WATER

**TRENT  
WSCF**

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
trans-1,3-Dichloropropene	10061-02-6	LA-523-455	U	< 1.00	ug/L			1.00	1.0		04/29/08
1,2-Dichloroethane	107-06-2	LA-523-455	U	< 1.00	ug/L			1.00	1.0		04/29/08
4-Methyl-2-Pentanone	108-10-1	LA-523-455	U	< 1.00	ug/L			1.00	1.0		04/29/08
Dibromochloromethane	124-48-1	LA-523-455	U	< 1.00	ug/L			1.00	1.0		04/29/08
Tetrachloroethene	127-18-4	LA-523-455	U	< 1.00	ug/L			1.00	1.0		04/29/08
Xylenes (total)	1330-20-7	LA-523-455	U	< 1.00	ug/L			1.00	1.0		04/29/08
1,2-Dichloroethene(Total)	540-59-0	LA-523-455	U	< 1.00	ug/L			1.00	1.0		04/29/08
Carbon tetrachloride	56-23-5	LA-523-455	U	< 1.00	ug/L			1.00	1.0		04/29/08
2-Hexanone	591-78-6	LA-523-455	U	< 1.00	ug/L			1.00	1.0		04/29/08
Acetone	67-64-1	LA-523-455	U	< 1.00	ug/L			1.00	1.0		04/29/08
Chloroform	67-66-3	LA-523-455	U	< 1.00	ug/L			1.00	1.0		04/29/08
1,1,1-Trichloroethane	71-55-6	LA-523-455	U	< 1.00	ug/L			1.00	1.0		04/29/08
Bromomethane	74-83-9	LA-523-455	U	< 1.00	ug/L			1.00	1.0		04/29/08
1,1,2,2-Tetrachloroethane	79-34-5	LA-523-455	U	< 1.00	ug/L			1.00	1.0		04/29/08
Chloromethane	74-87-3	LA-523-455	U	< 1.00	ug/L			1.00	1.0		04/29/08
Chloroethane	75-00-3	LA-523-455	U	< 1.00	ug/L			1.00	1.0		04/29/08
Vinyl chloride	75-01-4	LA-523-455	U	< 1.00	ug/L			1.00	1.0		04/29/08
Methylenechloride	75-09-2	LA-523-455	U	< 1.00	ug/L			1.00	1.0		04/29/08
Carbon disulfide	75-15-0	LA-523-455	U	< 1.00	ug/L			1.00	1.0		04/29/08
Bromoform	75-25-2	LA-523-455	U	< 1.00	ug/L			1.00	1.0		04/29/08
Bromodichloromethane	75-27-4	LA-523-455	U	< 1.00	ug/L			1.00	1.0		04/29/08
1,2-Dichloropropane	78-87-5	LA-523-455	U	< 1.00	ug/L			1.00	1.0		04/29/08
2-Butanone	78-93-3	LA-523-455	U	< 1.00	ug/L			1.00	1.0		04/29/08
1,1,2-Trichloroethane	79-00-5	LA-523-455	U	< 1.00	ug/L			1.00	1.0		04/29/08
Hexane	110-54-3	LA-523-455	U	< 1.00	ug/L			1.00	1.0		04/29/08

U - Analyzed for but not detected above limiting criteria.(org)

U - Analyzed for but not detected above limiting criteria(inorg)

**MDL = Minimum Detection Limit**  
**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:** F08-067  
**Sample #** W08GR01062  
**Client ID:** B1TTM2

**TRENT**  
**WSCF**

**Matrix:** WATER

**Group #:** WSCF20080818  
**Department:** Organic  
**Sampled:** 04/17/08  
**Received:** 04/17/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Tetrahydrofuran	109-99-9	LA-523-455	U	< 2.00	ug/L			1.00	2.0		04/29/08
Acetonitrile	75-05-8	LA-523-455	U	< 2.00	ug/L			1.00	2.0		04/29/08

MDL = Minimum Detection Limit      U - Analyzed for but not detected above limiting criteria (inorg)      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 LABORATORY QC REPORT

Department: Organic

SDG Number: WSCF20080818  
 Matrix: WATER  
 Test: SW-846 8270C Semi-Vols

Sample Date: 04/17/08  
 Receive Date: 04/17/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
<b>Lab ID: W08GR01062</b>											
<b>BATCH QC ASSOCIATED WITH SAMPLE</b>											
MS	1,2,4-Trichlorobenzene	120-82-1	18.508	92.500	% Recov	50.000	120.000				04/25/08
MS	1,4-Dichlorobenzene	106-46-7	18.025	90.100	% Recov	41.000	113.000				04/25/08
MS	2,4-Dinitrotoluene	121-14-2	16.614	83.100	% Recov	65.000	109.000				04/25/08
MS	2-Fluorophenol(Surr)	367-12-4	17.256	86.300	% Recov	50.000	110.000				04/25/08
MS	Acenaphthene	83-32-9	18.133	90.700	% Recov	62.000	112.000				04/25/08
MS	4-Chloro-3-methylphenol	59-50-7	28.024	93.400	% Recov	59.000	115.000				04/25/08
MS	2-Chlorophenol	95-57-8	27.321	91.100	% Recov	69.000	111.000				04/25/08
MS	N-Nitrosodi-n-dipropylamine	621-64-7	19.123	95.600	% Recov	69.000	115.000				04/25/08
MS	2-Fluorobiphenyl(Surr)	321-60-8	18.547	92.700	% Recov	58.000	109.000				04/25/08
MS	Phenol	108-95-2	27.649	92.200	% Recov	59.000	115.000				04/25/08
MS	Nitrobenzene-d5(Surr)	4165-60-0	18.024	90.100	% Recov	60.000	118.000				04/25/08
MS	4-Nitrophenol	100-02-7	22.442	74.800	% Recov	32.000	130.000				04/25/08
MS	Pentachlorophenol	87-86-5	26.810	89.400	% Recov	51.000	121.000				04/25/08
MS	Phenol-d5(Surr)	4165-62-2	17.741	88.700	% Recov	59.000	116.000				04/25/08
MS	Pyrene	129-00-0	18.363	91.800	% Recov	58.000	116.000				04/25/08
MS	2,4,6-Tribromophenol(Surr)	118-79-6	17.234	86.200	% Recov	60.000	120.000				04/25/08
MS	Terphenyl-d14(Surr)	98904-43-9	18.581	92.900	% Recov	60.000	120.000				04/25/08
MSD	1,2,4-Trichlorobenzene	120-82-1	17.480	90.900	% Recov	50.000	120.000				04/25/08
MSD	1,4-Dichlorobenzene	106-46-7	17.530	91.200	% Recov	41.000	113.000				04/25/08
MSD	2,4-Dinitrotoluene	121-14-2	16.568	86.200	% Recov	65.000	109.000				04/25/08
MSD	2-Fluorophenol(Surr)	367-12-4	16.690	86.800	% Recov	50.000	110.000				04/25/08
MSD	Acenaphthene	83-32-9	16.937	88.100	% Recov	62.000	112.000				04/25/08
MSD	4-Chloro-3-methylphenol	59-50-7	26.837	93.000	% Recov	59.000	115.000				04/25/08
MSD	2-Chlorophenol	95-57-8	25.518	88.500	% Recov	69.000	111.000				04/25/08
MSD	N-Nitrosodi-n-dipropylamine	621-64-7	18.110	94.200	% Recov	69.000	115.000				04/25/08
MSD	2-Fluorobiphenyl(Surr)	321-60-8	17.206	89.500	% Recov	58.000	109.000				04/25/08

# WSCF ANALYTICAL LABORATORY QC REPORT

Department: **Organic**

SDG Number: WSCF20080818  
 Matrix: WATER  
 Test: SW-846 8270C Semi-Vols

Sample Date: 04/17/08  
 Receive Date: 04/17/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD (%)	RPD Limit	RQ	Analysis Date
MSD	Phenol	108-95-2	26.540	92.000	% Recov	59.000	115.000				04/25/08
MSD	Nitrobenzene-d5(Surr)	4165-60-0	17.300	90.000	% Recov	60.000	118.000				04/25/08
MSD	4-Nitrophenol	100-02-7	23.235	80.500	% Recov	32.000	130.000				04/25/08
MSD	Pentachlorophenol	87-86-5	26.510	91.900	% Recov	51.000	121.000				04/25/08
MSD	Phenol-d5(Surr)	4165-62-2	16.629	86.500	% Recov	59.000	116.000				04/25/08
MSD	Pyrene	129-00-0	18.263	95.000	% Recov	58.000	116.000				04/25/08
MSD	2,4,6-Tribromophenol(Surr)	118-79-6	15.647	81.400	% Recov	60.000	120.000				04/25/08
MSD	Terphenyl-d14(Surr)	98904-43-9	18.116	94.200	% Recov	60.000	120.000				04/25/08
SPK-RPD	1,2,4-Trichlorobenzene	120-82-1	90.900		RPD			1.745	25.000		04/25/08
SPK-RPD	1,4-Dichlorobenzene	106-46-7	91.200		RPD			1.213	25.000		04/25/08
SPK-RPD	2,4-Dinitrotoluene	121-14-2	86.200		RPD			3.662	25.000		04/25/08
SPK-RPD	2-Fluorophenol(Surr)	367-12-4	86.800		RPD			0.578	25.000		04/25/08
SPK-RPD	Acenaphthene	83-32-9	88.100		RPD			2.908	25.000		04/25/08
SPK-RPD	4-Chloro-3-methylphenol	59-50-7	93.000		RPD			0.429	25.000		04/25/08
SPK-RPD	2-Chlorophenol	95-57-8	88.500		RPD			2.895	25.000		04/25/08
SPK-RPD	N-Nitrosodi-n-dipropylamine	621-64-7	94.200		RPD			1.475	25.000		04/25/08
SPK-RPD	2-Fluorobiphenyl(Surr)	321-60-8	89.500		RPD			3.513	25.000		04/25/08
SPK-RPD	Phenol	108-95-2	92.000		RPD			0.217	16.000		04/25/08
SPK-RPD	Nitrobenzene-d5(Surr)	4165-60-0	90.000		RPD			0.111	25.000		04/25/08
SPK-RPD	4-Nitrophenol	100-02-7	80.500		RPD			7.341	25.000		04/25/08
SPK-RPD	Pentachlorophenol	87-86-5	91.900		RPD			2.758	25.000		04/25/08
SPK-RPD	Phenol-d5(Surr)	4165-62-2	86.500		RPD			2.511	25.000		04/25/08
SPK-RPD	Pyrene	129-00-0	95.000		RPD			3.426	25.000		04/25/08
SPK-RPD	2,4,6-Tribromophenol(Surr)	118-79-6	81.400		RPD			5.728	25.000		04/25/08
SPK-RPD	Terphenyl-d14(Surr)	98904-43-9	94.200		RPD			1.390	25.000		04/25/08
SURR	2-Fluorophenol(Surr)	367-12-4	14.828	74.100	% Recov	50.000	110.000				04/25/08
SURR	2-Fluorobiphenyl(Surr)	321-60-8	16.840	84.200	% Recov	58.000	109.000				04/25/08
SURR	Nitrobenzene-d5(Surr)	4165-60-0	16.934	84.700	% Recov	60.000	118.000				04/25/08
SURR	Phenol-d5(Surr)	4165-62-2	16.765	83.800	% Recov	59.000	116.000				04/25/08
SURR	2,4,6-Tribromophenol(Surr)	118-79-6	15.810	79.000	% Recov	60.000	120.000				04/25/08

# WSCF ANALYTICAL LABORATORY QC REPORT

Department: **Organic**

SDG Number: **WSCF20080818**  
 Matrix: **WATER**  
 Test: **SW-846 8270C Semi-Vols**

Sample Date: **04/17/08**  
 Receive Date: **04/17/08**

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
SURR	Terphenyl-d14(Surr)	98904-43-9	16.880	84.400	% Recov	60.000	120.000				04/25/08
<b>BATCH QC</b>											
BLANK	1,2,4-Trimethylbenzene	95-63-6	< 0.50	n/a	ug/L					U	04/25/08
BLANK	1,2,4-Trichlorobenzene	120-82-1	< 2.2	n/a	ug/L					U	04/25/08
BLANK	1,4-Dichlorobenzene	106-46-7	< 1.4	n/a	ug/L					U	04/25/08
BLANK	2,4-Dinitrotoluene	121-14-2	< 0.50	n/a	ug/L					U	04/25/08
BLANK	2-Fluorophenol(Surr)	367-12-4	18.192	91.000	% Recov	50.000	110.000				04/25/08
BLANK	Acenaphthene	83-32-9	< 2.6	n/a	ug/L					U	04/25/08
BLANK	4-Chloro-3-methylphenol	59-50-7	< 0.50	n/a	ug/L					U	04/25/08
BLANK	2-Chlorophenol	95-57-8	< 0.50	n/a	ug/L					U	04/25/08
BLANK	N-Nitrosodi-n-dipropylamine	621-64-7	< 0.60	n/a	ug/L					U	04/25/08
BLANK	2-Fluorobiphenyl(Surr)	321-60-8	18.997	95.000	% Recov	58.000	109.000				04/25/08
BLANK	Phenol	108-95-2	< 0.50	n/a	ug/L					U	04/25/08
BLANK	Nitrobenzene-d5(Surr)	4165-60-0	18.452	92.300	% Recov	60.000	118.000				04/25/08
BLANK	4-Nitrophenol	100-02-7	< 1.0	n/a	ug/L					U	04/25/08
BLANK	Pentachlorophenol	87-86-5	< 1.5	n/a	ug/L					U	04/25/08
BLANK	Phenol-d5(Surr)	4165-62-2	18.961	94.800	% Recov	59.000	116.000				04/25/08
BLANK	Pyrene	129-00-0	< 0.50	n/a	ug/L					U	04/25/08
BLANK	Tributyl phosphate	126-73-8	< 0.50	n/a	ug/L					U	04/25/08
BLANK	2,4,6-Tribromophenol(Surr)	118-79-6	16.887	84.400	% Recov	60.000	120.000				04/25/08
BLANK	Terphenyl-d14(Surr)	98904-43-9	20.325	102.000	% Recov	60.000	120.000				04/25/08
LCS	1,2,4-Trichlorobenzene	120-82-1	20.438	102.000	% Recov	46.000	107.000				04/25/08
LCS	1,4-Dichlorobenzene	106-46-7	20.258	101.000	% Recov	42.000	111.000				04/25/08
LCS	2,4-Dinitrotoluene	121-14-2	19.094	95.500	% Recov	59.000	106.000				04/25/08
LCS	2-Fluorophenol(Surr)	367-12-4	17.061	85.300	% Recov	50.000	110.000				04/25/08
LCS	Acenaphthene	83-32-9	20.134	101.000	% Recov	61.000	116.000				04/25/08
LCS	4-Chloro-3-methylphenol	59-50-7	30.592	102.000	% Recov	61.000	106.000				04/25/08
LCS	2-Chlorophenol	95-57-8	30.778	103.000	% Recov	66.000	106.000				04/25/08
LCS	N-Nitrosodi-n-dipropylamine	621-64-7	20.784	104.000	% Recov	71.000	114.000				04/25/08

# WSCF ANALYTICAL LABORATORY QC REPORT

Department: **Organic**

SDG Number: WSCF20080818  
 Matrix: WATER  
 Test: SW-846 8270C Semi-Vols

Sample Date:  
 Receive Date:

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
LCS	2-Fluorobiphenyl(Surr)	321-60-8	18.396	92.000	% Recov	58.000	109.000				04/25/08
LCS	Phenol	108-95-2	30.327	101.000	% Recov	67.000	105.000				04/25/08
LCS	Nitrobenzene-d5(Surr)	4165-60-0	17.355	86.800	% Recov	60.000	118.000				04/25/08
LCS	4-Nitrophenol	100-02-7	25.847	86.200	% Recov	32.000	118.000				04/25/08
LCS	Pentachlorophenol	87-86-5	29.775	99.200	% Recov	62.000	114.000				04/25/08
LCS	Phenol-d5(Surr)	4165-62-2	17.056	85.300	% Recov	59.000	116.000				04/25/08
LCS	Pyrene	129-00-0	20.966	105.000	% Recov	66.000	118.000				04/25/08
LCS	2,4,6-Tribromophenol(Surr)	118-79-6	17.349	86.700	% Recov	60.000	120.000				04/25/08
LCS	Terphenyl-d14(Surr)	98904-43-9	19.255	96.300	% Recov	60.000	120.000				04/25/08

# WSCF ANALYTICAL LABORATORY QC REPORT

Department: Organic

SDG Number: WSCF20080818  
 Matrix: WATER  
 Test: VOA Ground Water Protection

Sample Date: 04/09/08  
 Receive Date: 04/09/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
<b>Lab ID: W08GR00976</b>											
<b>BATCH QC ASSOCIATED WITH SAMPLE</b>											
MS	1,1-Dichloroethene	75-35-4	25.380	102.000	% Recov	63.000	117.000				04/29/08
MS	Benzene	71-43-2	24.650	98.600	% Recov	75.000	129.000				04/29/08
MS	4-Bromofluorobenzene(Surr)	460-00-4	52.820	106.000	% Recov	75.000	125.000				04/29/08
MS	Chlorobenzene	108-90-7	25.920	104.000	% Recov	79.000	119.000				04/29/08
MS	1,2-Dichloroethane-d4(Surr)	17060-07-0	51.860	104.000	% Recov	75.000	125.000				04/29/08
MS	Toluene-d8(Surr)	2037-26-5	48.810	97.600	% Recov	75.000	125.000				04/29/08
MS	Toluene	108-88-3	25.180	101.000	% Recov	76.000	120.000				04/29/08
MS	Trichloroethene	79-01-6	23.080	92.300	% Recov	73.000	123.000				04/29/08
MSD	1,1-Dichloroethene	75-35-4	24.690	98.800	% Recov	63.000	117.000				04/29/08
MSD	Benzene	71-43-2	24.470	97.900	% Recov	75.000	129.000				04/29/08
MSD	4-Bromofluorobenzene(Surr)	460-00-4	52.210	104.000	% Recov	75.000	125.000				04/29/08
MSD	Chlorobenzene	108-90-7	25.860	103.000	% Recov	79.000	119.000				04/29/08
MSD	1,2-Dichloroethane-d4(Surr)	17060-07-0	50.940	102.000	% Recov	75.000	125.000				04/29/08
MSD	Toluene-d8(Surr)	2037-26-5	49.180	98.400	% Recov	75.000	125.000				04/29/08
MSD	Toluene	108-88-3	25.170	101.000	% Recov	76.000	120.000				04/29/08
MSD	Trichloroethene	79-01-6	22.790	91.200	% Recov	73.000	123.000				04/29/08
SPK-RPD	1,1-Dichloroethene	75-35-4	98.800		RPD			3.187	20.000		04/29/08
SPK-RPD	Benzene	71-43-2	97.900		RPD			0.712	20.000		04/29/08
SPK-RPD	Chlorobenzene	108-90-7	103.000		RPD			0.966	20.000		04/29/08
SPK-RPD	1,2-Dichloroethane-d4(Surr)	17060-07-0	102.000		RPD			1.942	20.000		04/29/08
SPK-RPD	Toluene-d8(Surr)	2037-26-5	98.400		RPD			0.816	20.000		04/29/08
SPK-RPD	Toluene	108-88-3	101.000		RPD			0.000	20.000		04/29/08
SPK-RPD	Trichloroethene	79-01-6	91.200		RPD			1.199	20.000		04/29/08

**Lab ID: W08GR01062**  
**BATCH QC ASSOCIATED WITH SAMPLE**

# WSCF ANALYTICAL LABORATORY QC REPORT

Department: **Organic**

SDG Number: **WSCF20080818**  
 Matrix: **WATER**  
 Test: **VOA Ground Water Protection**

Sample Date: **04/17/08**  
 Receive Date: **04/17/08**

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
SURR	4-Bromofluorobenzene(Surr)	460-00-4	51.760	104.000	% Recov	75.000	125.000				04/29/08
SURR	1,2-Dichloroethane-d4(Surr)	17060-07-0	51.870	104.000	% Recov	75.000	125.000				04/29/08
SURR	Toluene-d8(Surr)	2037-26-5	50.220	100.000	% Recov	75.000	125.000				04/29/08
<b>BATCH QC</b>											
BLANK	1,1-Dichloroethane	75-34-3	< 1.0	n/a	ug/L					U	04/29/08
BLANK	1,1,1-Trichloroethane	71-55-6	< 1.0	n/a	ug/L					U	04/29/08
BLANK	1,1,2-Trichloroethane	79-00-5	< 1.0	n/a	ug/L					U	04/29/08
BLANK	1,1,2,2-Tetrachloroethane	79-34-5	< 1.0	n/a	ug/L	0.000	5.000			U	04/29/08
BLANK	1,1-Dichloroethene	75-35-4	< 1.0	n/a	ug/L					U	04/29/08
BLANK	1,2-Dichloroethane	107-06-2	< 1.0	n/a	ug/L					U	04/29/08
BLANK	1,2-Dichloroethene(Total)	540-59-0	< 1.0	n/a	ug/L					U	04/29/08
BLANK	2-Hexanone	591-78-6	< 1.0	n/a	ug/L					U	04/29/08
BLANK	4-Methyl-2-Pentanone	108-10-1	< 1.0	n/a	ug/L					U	04/29/08
BLANK	Acetone	67-64-1	< 1.0	n/a	ug/L					U	04/29/08
BLANK	Bromodichloromethane	75-27-4	< 1.0	n/a	ug/L					U	04/29/08
BLANK	Benzene	71-43-2	< 1.0	n/a	ug/L					U	04/29/08
BLANK	4-Bromofluorobenzene(Surr)	460-00-4	53.010	106.000	% Recov	75.000	125.000			U	04/29/08
BLANK	Bromoform	75-25-2	< 1.0	n/a	ug/L					U	04/29/08
BLANK	Carbon disulfide	75-15-0	< 1.0	n/a	ug/L					U	04/29/08
BLANK	Carbon tetrachloride	56-23-5	< 1.0	n/a	ug/L					U	04/29/08
BLANK	Dibromochloromethane	124-48-1	< 1.0	n/a	ug/L					U	04/29/08
BLANK	Chloroform	67-66-3	< 1.0	n/a	ug/L					U	04/29/08
BLANK	Chlorobenzene	108-90-7	< 1.0	n/a	ug/L					U	04/29/08
BLANK	cis-1,3-Dichloropropene	10061-01-5	< 1.0	n/a	ug/L					U	04/29/08
BLANK	Chloroethane	75-00-3	< 1.0	n/a	ug/L					U	04/29/08
BLANK	1,2-Dichloroethane-d4(Surr)	17060-07-0	50.480	101.000	% Recov	75.000	125.000			U	04/29/08
BLANK	1,2-Dichloropropane	78-87-5	< 1.0	n/a	ug/L					U	04/29/08
BLANK	Ethylbenzene	100-41-4	< 1.0	n/a	ug/L					U	04/29/08
BLANK	Hexane	110-54-3	< 1.0	n/a	ug/L					U	04/29/08

# WSCF ANALYTICAL LABORATORY QC REPORT

Department: **Organic**

SDG Number: **WSCF20080818**  
 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	Bromomethane	74-83-9	< 1.0	n/a	ug/L					U	04/29/08
BLANK	Chloromethane	74-87-3	< 1.0	n/a	ug/L					U	04/29/08
BLANK	2-Butanone	78-93-3	< 1.0	n/a	ug/L					U	04/29/08
BLANK	Methylenechloride	75-09-2	< 1.0	n/a	ug/L					U	04/29/08
BLANK	Tetrachloroethene	127-18-4	< 1.0	n/a	ug/L					U	04/29/08
BLANK	Styrene	100-42-5	< 1.0	n/a	ug/L	0.000	5.000			U	04/29/08
BLANK	Xylenes (total)	1330-20-7	< 1.0	n/a	ug/L					U	04/29/08
BLANK	Tetrahydrofuran	109-99-9	< 2.0	n/a	ug/L					U	04/29/08
BLANK	Toluene-d8(Surr)	2037-26-5	48.660	97.300	% Recov	75.000	125.000			U	04/29/08
BLANK	Toluene	108-88-3	< 1.0	n/a	ug/L					U	04/29/08
BLANK	trans-1,3-Dichloropropene	10061-02-6	< 1.0	n/a	ug/L					U	04/29/08
BLANK	Trichloroethene	79-01-6	< 1.0	n/a	ug/L					U	04/29/08
BLANK	Vinyl chloride	75-01-4	< 1.0	n/a	ug/L					U	04/29/08
LCS	1,1-Dichloroethene	75-35-4	23.820	95.300	% Recov	75.000	125.000			U	04/29/08
LCS	Benzene	71-43-2	24.790	99.200	% Recov	75.000	125.000			U	04/29/08
LCS	4-Bromofluorobenzene(Surr)	460-00-4	51.230	102.000	% Recov	75.000	125.000			U	04/29/08
LCS	Chlorobenzene	108-90-7	25.920	104.000	% Recov	75.000	125.000			U	04/29/08
LCS	1,2-Dichloroethane-d4(Surr)	17060-07-0	51.470	103.000	% Recov	75.000	125.000			U	04/29/08
LCS	Toluene-d8(Surr)	2037-26-5	50.130	100.000	% Recov	75.000	125.000			U	04/29/08
LCS	Toluene	108-88-3	25.290	101.000	% Recov	75.000	125.000			U	04/29/08
LCS	Trichloroethene	79-01-6	21.850	87.400	% Recov	75.000	125.000			U	04/29/08

# WSCF ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent  
**SAF Number:** F08-067  
**Sample #:** W08GR01062  
**Client ID:** BITTM2  
**Group #:** WSCF20080818  
**Department:** Radiochemistry  
**Sampled:** 04/17/08  
**Received:** 04/17/08

**TRENT**  
**WSCF**

**Matrix:** WATER

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Gross alpha	12587-46-1	LA-508-415	U	-0.220	pCi/L	+ -0.528	pCi/L	1.00	1.0		04/28/08
Gross beta	12587-47-2	LA-508-415	U	-0.360	pCi/L	+ -1.01	pCi/L	1.00	1.7		04/28/08

**Gross Alpha/Gross Beta (AB32)**

**MDL = Minimum Detection Limit**    U - Analyzed for but not detected above limiting criteria(inorg)    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 LABORATORY QC REPORT

Department: Radiochemistry

SDG Number: WSCF20080818  
 Matrix: WATER  
 Test: Gross Alpha/Gross Beta (AB32)

Sample Date: 04/17/08  
 Receive Date: 04/17/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
<b>Lab ID: W08GR01062</b>											
<b>BATCH QC ASSOCIATED WITH SAMPLE</b>											
DUP	Gross alpha	12587-46-1	U9.0E-02		RPD			n/a	20.000		04/28/08
DUP	Gross beta	12587-47-2	U-3.1E-01		RPD			n/a	20.000		04/28/08
<b>BATCH QC</b>											
BLANK	Gross alpha	12587-46-1	U9.0E-02	n/a	pCi/L	-10.000	10.000				04/28/08
BLANK	Gross beta	12587-47-2	U-4.8E-01	n/a	pCi/L	-10.000	10.000				04/28/08
LCS	Gross alpha	12587-46-1	43.1	111.283	% Recov	80.000	120.000				04/28/08
LCS	Gross beta	12587-47-2	127.0	113.191	% Recov	80.000	120.000				04/28/08

M4W41-SLF-08-567

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

5/29/08

ALB RB

ACKNOWLEDGMENT OF SAMPLES RECEIVED

Groundwater Remediation Program

Richland, WA 99354  
Attn: Steve Trent

Customer Code: GPP  
PO#: 123055/ES20  
Group#: 20080818  
Project#: F08-067  
Proj Mgr: Steve Trent E6-35  
Phone: 373-5869

The following samples were received from you on 04/17/08. 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
W08GR01062	B1TTM2	TRENT @2008 @AB-32	Water @IC-30 @SVOCGPP @VOA-GPP	04/17/08

Test Acronym Description

Test Acronym	Description
@2008	ICP-200.8 MS All possible meta
@AB-32	Gross Alpha/Gross Beta (AB32)
@IC-30	Anions by Ion Chromatography
@SVOCGPP	SW-846 8270C Semi-Vols
@VOA-GPP	VOA Ground Water Protection

COLLECTOR  
NCO Sampler KAUSA, ROSANNE

COMPANY CONTACT  
TRENT, SJ

TELEPHONE NO.  
373-5869

PROJECT COORDINATOR  
WIDRIG, DL

PRICE CODE  
7N

DATA  
TURNAROUND  
45 Days / 45 Days

SAMPLING LOCATION  
C6174, 1-005-EB

PROJECT DESIGNATION  
216-S-6 Crib Sampling - QC Sampling

SAF NO.  
F08-067

AIR QUALITY

METHOD OF SHIPMENT  
GOVERNMENT VEHICLE

FIELD LOGBOOK NO.  
123055ES20

ICED

BILL OF LADING/AIR BILL NO.  
N/A

OFFSITE PROPERTY NO.  
N/A

ACTUAL SAMPLE DEPTH

NO. OF CONTAINER(S)

DATE/TIME

SHIPPED TO  
Waste Sampling & Characterization

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

TYPE OF CONTAINER  
G/P

VOLUME  
400ml

SAMPLE ANALYSIS  
SEE ITEM (1) IN Gross Alpha (Gross alpha) Gross Beta (Gross beta) INSTRUCTIONS

SAMPLE DATE  
4-17-08

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  
20080818

MATRIX\*  
WATER

DATE/TIME  
4-17-08

RECEIVED BY / STORED IN  
[Signature]

DATE/TIME  
4/17/08

RELINQUISHED BY / REMOVED FROM  
Ed Kaur / [Signature]

RECEIVED BY / STORED IN  
[Signature]

DATE/TIME  
4-17-08

RECEIVED BY / STORED IN  
[Signature]

DATE/TIME  
4-17-08

DATE/TIME  
4-17-08

RELINQUISHED BY / REMOVED FROM

RECEIVED BY / STORED IN

DATE/TIME

RECEIVED BY / STORED IN

DATE/TIME

DATE/TIME

RELINQUISHED BY / REMOVED FROM

RECEIVED BY / STORED IN

DATE/TIME

RECEIVED BY / STORED IN

DATE/TIME

DATE/TIME

RELINQUISHED BY / REMOVED FROM

RECEIVED BY / STORED IN

DATE/TIME

RECEIVED BY / STORED IN

DATE/TIME

DATE/TIME

RELINQUISHED BY / REMOVED FROM

RECEIVED BY / STORED IN

DATE/TIME

RECEIVED BY / STORED IN

DATE/TIME

DATE/TIME

LABORATORY SECTION

RECEIVED BY

TITLE

DISPOSED BY

DATE/TIME

DATE/TIME

FINAL SAMPLE DISPOSITION

DISPOSAL METHOD

DATE/TIME

DATE/TIME

DATE/TIME

DATE/TIME

CHAIN OF POSSESSION

RECEIVED BY / STORED IN

DATE/TIME

RECEIVED BY / STORED IN

DATE/TIME

DATE/TIME

RELINQUISHED BY / REMOVED FROM

RECEIVED BY / STORED IN

DATE/TIME

RECEIVED BY / STORED IN

DATE/TIME

DATE/TIME

RELINQUISHED BY / REMOVED FROM

RECEIVED BY / STORED IN

DATE/TIME

RECEIVED BY / STORED IN

DATE/TIME

DATE/TIME

RELINQUISHED BY / REMOVED FROM

RECEIVED BY / STORED IN

DATE/TIME

RECEIVED BY / STORED IN

DATE/TIME

DATE/TIME

RELINQUISHED BY / REMOVED FROM

RECEIVED BY / STORED IN

DATE/TIME

RECEIVED BY / STORED IN

DATE/TIME

DATE/TIME

RELINQUISHED BY / REMOVED FROM

RECEIVED BY / STORED IN

DATE/TIME

RECEIVED BY / STORED IN

DATE/TIME

DATE/TIME

RELINQUISHED BY / REMOVED FROM

RECEIVED BY / STORED IN

DATE/TIME

RECEIVED BY / STORED IN

DATE/TIME

DATE/TIME

RELINQUISHED BY / REMOVED FROM

RECEIVED BY / STORED IN

DATE/TIME

RECEIVED BY / STORED IN

DATE/TIME

DATE/TIME

RELINQUISHED BY / REMOVED FROM

RECEIVED BY / STORED IN

DATE/TIME

RECEIVED BY / STORED IN

DATE/TIME

DATE/TIME

RELINQUISHED BY / REMOVED FROM

RECEIVED BY / STORED IN

DATE/TIME

RECEIVED BY / STORED IN

DATE/TIME

DATE/TIME

RELINQUISHED BY / REMOVED FROM

RECEIVED BY / STORED IN

DATE/TIME

RECEIVED BY / STORED IN

DATE/TIME

DATE/TIME

RELINQUISHED BY / REMOVED FROM

RECEIVED BY / STORED IN

DATE/TIME

RECEIVED BY / STORED IN

DATE/TIME

DATE/TIME

RELINQUISHED BY / REMOVED FROM

RECEIVED BY / STORED IN

DATE/TIME

RECEIVED BY / STORED IN

DATE/TIME

DATE/TIME

RELINQUISHED BY / REMOVED FROM

RECEIVED BY / STORED IN

DATE/TIME

RECEIVED BY / STORED IN

DATE/TIME

DATE/TIME

RELINQUISHED BY / REMOVED FROM

RECEIVED BY / STORED IN

DATE/TIME

RECEIVED BY / STORED IN

DATE/TIME

DATE/TIME

RELINQUISHED BY / REMOVED FROM

RECEIVED BY / STORED IN

DATE/TIME

RECEIVED BY / STORED IN

DATE/TIME

DATE/TIME

RELINQUISHED BY / REMOVED FROM

RECEIVED BY / STORED IN

DATE/TIME

RECEIVED BY / STORED IN

DATE/TIME

DATE/TIME

RELINQUISHED BY / REMOVED FROM

RECEIVED BY / STORED IN

DATE/TIME

RECEIVED BY / STORED IN

DATE/TIME

DATE/TIME

RELINQUISHED BY / REMOVED FROM

RECEIVED BY / STORED IN

DATE/TIME

RECEIVED BY / STORED IN

DATE/TIME

DATE/TIME

RELINQUISHED BY / REMOVED FROM

RECEIVED BY / STORED IN

DATE/TIME

RECEIVED BY / STORED IN

DATE/TIME

DATE/TIME

RELINQUISHED BY / REMOVED FROM

RECEIVED BY / STORED IN

DATE/TIME

RECEIVED BY / STORED IN

DATE/TIME

DATE/TIME

RELINQUISHED BY / REMOVED FROM

RECEIVED BY / STORED IN

DATE/TIME

RECEIVED BY / STORED IN

DATE/TIME

DATE/TIME

RELINQUISHED BY / REMOVED FROM

RECEIVED BY / STORED IN

DATE/TIME

RECEIVED BY / STORED IN

DATE/TIME

DATE/TIME

RELINQUISHED BY / REMOVED FROM

RECEIVED BY / STORED IN

DATE/TIME

RECEIVED BY / STORED IN

DATE/TIME

DATE/TIME

RELINQUISHED BY / REMOVED FROM

RECEIVED BY / STORED IN

DATE/TIME

RECEIVED BY / STORED IN

DATE/TIME

DATE/TIME

RELINQUISHED BY / REMOVED FROM

RECEIVED BY / STORED IN

DATE/TIME

RECEIVED BY / STORED IN

DATE/TIME

DATE/TIME

RELINQUISHED BY / REMOVED FROM

RECEIVED BY / STORED IN

DATE/TIME

RECEIVED BY / STORED IN

DATE/TIME

DATE/TIME

RELINQUISHED BY / REMOVED FROM

RECEIVED BY / STORED IN

DATE/TIME

RECEIVED BY / STORED IN

DATE/TIME

DATE/TIME

RELINQUISHED BY / REMOVED FROM

RECEIVED BY / STORED IN

DATE/TIME

RECEIVED BY / STORED IN

DATE/TIME

DATE/TIME

RELINQUISHED BY / REMOVED FROM

RECEIVED BY / STORED IN

DATE/TIME

RECEIVED BY / STORED IN

DATE/TIME

DATE/TIME

RELINQUISHED BY / REMOVED FROM

RECEIVED BY / STORED IN

DATE/TIME

RECEIVED BY / STORED IN

DATE/TIME

DATE/TIME

RELINQUISHED BY / REMOVED FROM

RECEIVED BY / STORED IN

DATE/TIME

RECEIVED BY / STORED IN

DATE/TIME

DATE/TIME

RELINQUISHED BY / REMOVED FROM

RECEIVED BY / STORED IN

DATE/TIME

RECEIVED BY / STORED IN

DATE/TIME

DATE/TIME

RELINQUISHED BY / REMOVED FROM

RECEIVED BY / STORED IN

DATE/TIME

RECEIVED BY / STORED IN

DATE/TIME

DATE/TIME

RELINQUISHED BY / REMOVED FROM

RECEIVED BY / STORED IN

DATE/TIME

RECEIVED BY / STORED IN

DATE/TIME

DATE/TIME

RELINQUISHED BY / REMOVED FROM

RECEIVED BY / STORED IN

DATE/TIME

RECEIVED BY / STORED IN

DATE/TIME

DATE/TIME

RELINQUISHED BY / REMOVED FROM

RECEIVED BY / STORED IN

DATE/TIME

RECEIVED BY / STORED IN

DATE/TIME

DATE/TIME

RELINQUISHED BY / REMOVED FROM

RECEIVED BY / STORED IN

DATE/TIME

RECEIVED BY / STORED IN

DATE/TIME

DATE/TIME

RELINQUISHED BY / REMOVED FROM

RECEIVED BY / STORED IN

DATE/TIME

RECEIVED BY / STORED IN

DATE/TIME

DATE/TIME