

RECEIVED DECEMBER 19, 2008

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**FLUOR**<sup>®</sup>

M4W41-SLF-08-1304

December 18, 2008

Mr. M. A. Neely, Manager  
 Analytical Services  
 CH2M HILL Plateau Remediation Contract  
 PO Box 1600 MSIN B6-06  
 Richland, WA 99352

Dear Mike:

FINAL RESULTS FOR SAMPLE DELIVERY GROUP WSCF20082210<sup>✓</sup> – SAF NUMBER F08-165

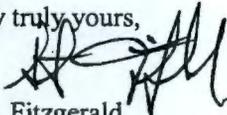
Reference: (1) Memorandum of Agreement #MOA-FH-CHPRC-2008, Rev. 0, for the  
 Performance & Payment of Services, dated October 1, 2008

(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 WSCF20082210:

- Cover Sheet (Attachment 1)
- Narrative (Attachment 2)
- Issue Resolution Form (Attachment 3)
- Analytical Results (Attachment 4)
- Sample Receipt Information (Attachment 5)

Very truly yours,

  
 S. L. Fitzgerald  
 WSCF Analytical Lab

SLF/grf

Attachments 5

cc: w/Attachments			
T. F. Dale	S3-30	J. E. Trechter	S3-30
A. J. Kopriva	S3-30	S. J. Trent	B6-06
H. K. Meznarich	S3-30	File/LB	
P. D. Mix	S3-30		

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 JAN 27 2009  
**EDMC**

M4W41-SLF-08-1304

ATTACHMENT 1

**COVER SHEET**

Consisting of 2 pages  
Including cover page

## WSCF SAF NUMBER CROSS REFERENCE

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Group#: WSCF20082210  
Data Deliverable Date: 22-dec-2008  
Data Deliverable: Cover Sheet

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SAF#	Sample ID	WSCF#	Matrix
F08-165	B1XFP1	W08GR04042	SOIL
	B1XFP3	W08GR04044	SOIL
	B1XFP5	W08GR04043	SOIL
	B1XFP7	W08GR04045	SOIL

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M4W41-SLF-08-1304

ATTACHMENT 2

**NARRATIVE**

Consisting of 4 pages  
Including cover page

### Introduction

Four (4) S&GRP samples were received at the WSCF Laboratory on November 6, 2008. These samples were analyzed for the analytes indicated on the attached copy of the chain of custody (COC) form in accordance with the *Memorandum of Agreement (MOA-FH-CHPRC-2008, Rev.0)*, 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 copy of Issue Resolution Form #08-220, WSCF20082210, documenting missed regulatory hold time for PCB analysis, is included as Attachment 3. A Data Summary Report (Attachment 4) 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 5

It should be noted that the attached chain of custody was stamped "ICED" by the WSCF Laboratory Sample Custodian during sample receiving. This indicates that there was ice in the containers holding the sample bottles.

### Analytical Methodology for Requested Analyses

Refer to *WSCF Method References Report*, pages 16 through 18, for a complete listing of approved analytical methods.

### Inorganic Comments

**ICP-AES Metals** – The hold time requirement for this analysis was met. A Matrix Spike, Matrix Spike Duplicate, Blank and Laboratory Control Sample were analyzed with this delivery group. See page 23 for QC details.

- Matrix Spike and Matrix Spike Duplicate were analyzed on sample# B1XFN8 (SDG# 20082207, SAF# F08-165).

All QC controls are within the established limits.

**ICP-MS Metals** – The hold time requirement for this analysis was met. A Matrix Spike, Matrix Spike Duplicate, Blank and Laboratory Control Sample were analyzed with this delivery group. See page 24 for QC details. Analytical Note(s):

- Matrix Spike and Matrix Spike Duplicate were analyzed on sample# B1XPT2 (SDG# 20082226, SAF# F09-003) and B1XFN8 (SDG# 20082207, SAF# F08-165).

All QC controls are within the established limits.

**TOTAL SOLIDS** – The hold time requirement for this analysis was met.

All QC controls are within the established limits.

**Organic Comments** – All results are moisture corrected and reported on a dry weight basis.

**PCB** – The hold time requirement (14/40 days) for this analysis was not met. A Matrix Spike, Matrix Spike Duplicate, Blank and Laboratory Control Sample were analyzed with this delivery group. See page 31 for QC details. Analytical Note(s):

- Matrix Spike and Matrix Spike Duplicate were analyzed on sample# B1XFP1 (SDG# 20082210, SAF# F08-165).
- Analytical hold time for this analysis was not met (see attachment 3).

All QC controls are within the established limits.

**Semi-VOA** – The hold time requirement (14/40 days) for this analysis was met. A Matrix Spike, Matrix Spike Duplicate, Blank and Laboratory Control Sample were analyzed with this delivery group. See pages 32 through 36 for QC details. Analytical Note(s):

- Matrix Spike and Matrix Spike Duplicate were analyzed on sample# B1XFP1 (SDG# 20082210, SAF# F08-165).

All QC controls are within the established limits.

**Rad Chem** – There are no hold times associated with WSCF's radiochemical methods. A Duplicate, Matrix Spike (*Matrix Spikes apply only to Neptunium, Technetium & Tritium and Matrix Spike Duplicate applies to Neptunium*), Blank and Laboratory Control Sample were analyzed with this delivery group. See pages 46 through 52 for QC details. Analytical Note(s):

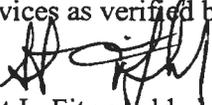
- Rad Chem analyses requested to be performed on this sample included: Americium by AEA, Gamma Energy Analysis, Plutonium Isotopic by AEA, Sr-89/90, and Uranium Isotopic by AEA.
- Americium (AEA): Duplicate was analyzed on sample# B1XMR7, (SDG#20082190, SAF# F09-002). The Am-243 tracer recovery in the duplicate sample was slightly below the laboratory established requirement of 30% at 27.5% recovery. The non-homogenous nature of soil could have attributed to the difference in the duplicate result.
- Americium (AEA): Sample# B1XFP1, B1XFP3, B1XFP5, and B1XFP7, Am-243 tracer recovery was slightly below the laboratory established requirement of 30% at 26.3%, 21.0%, 26.5%, and 18.6% recovery respectively. The non-homogenous nature of soil could have attributed to the low tracer recovery.
- Plutonium Analysis (AEA): Duplicate was analyzed on sample# B1XMR7, (SDG#20082190, SAF# F09-002).
- Plutonium Analysis (AEA): Sample# B1XFP3 and B1XFP7 Pu-242 tracer recovery was slightly below the laboratory established requirement of 30% at 21.1% and 20.6%

recovery respectively. The non-homogenous nature of soil could have attributed to the low tracer recovery.

- Uranium Analysis (AEA): Duplicate was analyzed on sample# B1XMR7, (SDG#20082190, SAF# F09-002).
- Uranium Analysis (AEA): Duplicate RPD value for U-234 and U-235 did not meet the established limit for the laboratory. The samples are low level samples and the RPD value does not apply to low level samples. In addition, we attributed the difference in the duplicate results to the non-homogenous nature of soil.
- Strontium 89/90: Duplicate was analyzed on sample# B1XFN8, (SDG#20082207, SAF# F08-165).
- Gamma Energy Analysis (GEA): Duplicate was analyzed on sample# B1XFN8, (SDG#20082207, SAF# F08-165).

All other QC controls are within the established limits.

I certify that this data package is in compliance with the MOA, 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 Kopriva  
WSCF Client Services

M4W41-SLF-08-1304

ATTACHMENT 3

**ISSUE RESOLUTION FORM**

Consisting of 2 pages  
Including cover page

**ISSUE RESOLUTION FORM**

**CHPRC TRACKING NUMBER:** 08-220

Date : 12-18-2008    SAF No.    F08-165

SDG: WSCF20082210    LOGIN No.:    TEST: PCB

Sample No.(s)    **B1XFP1, B1XFP5, B1XFP3, and B1XFP7**

(W08GR04042, W08GR04043, W08GR04044, and W08GR04045)

Submitted By: M. Stauffer    Submitted To: H Hampt  
Phone No.    372-7189    Phone No.    376-4319  
Fax No.    372-0456    Fax No

<u>ISSUE</u>	<u>PROPOSED RESOLUTION</u>
<p>Missed regulatory holding time for PCB analysis in a soil matrix. Samples were collected in the field on November 6, 2008, and delivered to the WSCF Laboratory on November 6, 2008.</p> <p>The 14 day regulatory hold time for extraction of soil sample for PCBs was not met.</p> <p>The chemist performed the PCB analysis per Ecology's method change which eliminates the 14 day PCB extraction hold time.</p> <p>All QC controls were within established laboratory limits.</p>	<p>Accept results (accept as-is) and document missed hold time for the PCB analysis in the case narrative.</p> <p>Inform laboratory personnel that Ecology's method change does not apply to the existing FH contract.</p>

**GRP COMMENTS**

Accept proposed resolution.

Heidi Hampt 12/18/08  
Signature and Date

M4W41-SLF-08-1304

ATTACHMENT 4

**ANALYTICAL RESULTS**

Consisting of 44 pages  
Including cover page

**WSCF  
ANALYTICAL RESULTS REPORT**

for

**Groundwater Remediation Program**

**Richland, WA 99354**

**Attention: Steve Trent**

Analytical:

*S.F. Fitzgerald 12-18-08*

Client Services:

*A. Kopsch 12-18-08*

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

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Contract#: M0A-FH-CHPRC-2008

Report#: WSCF20082210

Report Date: 16-dec-2008

Report WGPP/ver. 5.2

Groundwater Remediation Program

W13q Worklist/Batch/QC Report for Group# WSCF20082210

WL#	S#	Batch	QC#	Tray Type	Sample#	Test
				SAMPLE	W08GR04042	Percent Solids
				SAMPLE	W08GR04043	Percent Solids
				SAMPLE	W08GR04044	Percent Solids
				SAMPLE	W08GR04045	Percent Solids
38522	1	38935	43439	BLANK		ICP Metals Analysis, Grd H2O P
38522	2	38935	43439	LCS		ICP Metals Analysis, Grd H2O P
38522	4	38935	43439	MS	W08GR04036	ICP Metals Analysis, Grd H2O P
38522	5	38935	43439	MSD	W08GR04036	ICP Metals Analysis, Grd H2O P
38522	5	38935	43439	SPK-RPD	W08GR04036	ICP Metals Analysis, Grd H2O P
38522	7	38935	43439	SAMPLE	W08GR04042	ICP Metals Analysis, Grd H2O P
38522	8	38935	43439	SAMPLE	W08GR04043	ICP Metals Analysis, Grd H2O P
38522	9	38935	43439	SAMPLE	W08GR04044	ICP Metals Analysis, Grd H2O P
38522	10	38935	43439	SAMPLE	W08GR04045	ICP Metals Analysis, Grd H2O P
38571	1	38994	43483	BLANK		ICP-200.8 MS All possible meta
38571	2	38994	43483	LCS		ICP-200.8 MS All possible meta
38571	4	38994	43483	MS	W08GR04036	ICP-200.8 MS All possible meta
38571	5	38994	43483	MSD	W08GR04036	ICP-200.8 MS All possible meta
38571	5	38994	43483	SPK-RPD	W08GR04036	ICP-200.8 MS All possible meta
38571	13	38994	43483	SAMPLE	W08GR04042	ICP-200.8 MS All possible meta
38571	9	38994	43483	SAMPLE	W08GR04043	ICP-200.8 MS All possible meta
38571	14	38994	43483	SAMPLE	W08GR04044	ICP-200.8 MS All possible meta
38571	10	38994	43483	SAMPLE	W08GR04045	ICP-200.8 MS All possible meta
38571	7	38994	43483	MS	W08GR04101	ICP-200.8 MS All possible meta
38571	8	38994	43483	MSD	W08GR04101	ICP-200.8 MS All possible meta
38571	8	38994	43483	SPK-RPD	W08GR04101	ICP-200.8 MS All possible meta

Department: Organic

## W13q Worklist/Batch/QC Report for Group# WSCF20082210

WL#	S#	Batch	QC#	Tray	Type	Sample#	Test
			43482		BLANK		SW-846 8270C Semi-Vols
			43482		LCS		SW-846 8270C Semi-Vols
			43482		MS	W08GR04042	SW-846 8270C Semi-Vols
			43482		MSD	W08GR04042	SW-846 8270C Semi-Vols
			43482		SAMPLE	W08GR04042	SW-846 8270C Semi-Vols
			43482		SPK-RPD	W08GR04042	SW-846 8270C Semi-Vols
			43482		SURR	W08GR04042	SW-846 8270C Semi-Vols
			43482		SAMPLE	W08GR04043	SW-846 8270C Semi-Vols
			43482		SURR	W08GR04043	SW-846 8270C Semi-Vols
			43482		SAMPLE	W08GR04044	SW-846 8270C Semi-Vols
			43482		SURR	W08GR04044	SW-846 8270C Semi-Vols
			43482		SAMPLE	W08GR04045	SW-846 8270C Semi-Vols
			43482		SURR	W08GR04045	SW-846 8270C Semi-Vols
			43566		BLANK		PCBs complete list
			43566		LCS		PCBs complete list
			43566		MS	W08GR04042	PCBs complete list
			43566		MSD	W08GR04042	PCBs complete list
			43566		SAMPLE	W08GR04042	PCBs complete list
			43566		SPK-RPD	W08GR04042	PCBs complete list
			43566		SAMPLE	W08GR04043	PCBs complete list
			43566		SAMPLE	W08GR04044	PCBs complete list
			43566		SAMPLE	W08GR04045	PCBs complete list

## W13q Worklist/Batch/QC Report for Group# WSCF20082210

WL#	S#	Batch	QC#	Tray Type	Sample#	Test
38520	1	38942	43530	BLANK		Gamma Energy Analysis-grd H2O
38520	2	38942	43530	LCS		Gamma Energy Analysis-grd H2O
38520	3	38942	43530	DUP	W08GR04036	Gamma Energy Analysis-grd H2O
38520	6	38942	43530	SAMPLE	W08GR04042	Gamma Energy Analysis-grd H2O
38520	7	38942	43530	SAMPLE	W08GR04043	Gamma Energy Analysis-grd H2O
38520	8	38942	43530	SAMPLE	W08GR04044	Gamma Energy Analysis-grd H2O
38520	9	38942	43530	SAMPLE	W08GR04045	Gamma Energy Analysis-grd H2O
38674	1	39096	43595	BLANK		Uranium Isotopics by AEA
38674	2	39096	43595	LCS		Uranium Isotopics by AEA
38674	3	39096	43595	DUP	W08GR04034	Uranium Isotopics by AEA
38674	10	39096	43595	SAMPLE	W08GR04042	Uranium Isotopics by AEA
38674	11	39096	43595	SURR	W08GR04042	Uranium Isotopics by AEA
38674	12	39096	43595	SAMPLE	W08GR04043	Uranium Isotopics by AEA
38674	13	39096	43595	SURR	W08GR04043	Uranium Isotopics by AEA
38674	14	39096	43595	SAMPLE	W08GR04044	Uranium Isotopics by AEA
38674	15	39096	43595	SURR	W08GR04044	Uranium Isotopics by AEA
38674	17	39096	43595	SAMPLE	W08GR04045	Uranium Isotopics by AEA
38674	16	39096	43595	SURR	W08GR04045	Uranium Isotopics by AEA
38682	1	39100	43684	BLANK		Plutonium Isotopics by AEA
38682	2	39100	43684	LCS		Plutonium Isotopics by AEA
38682	3	39100	43684	DUP	W08GR04034	Plutonium Isotopics by AEA
38682	10	39100	43684	SAMPLE	W08GR04042	Plutonium Isotopics by AEA
38682	11	39100	43684	SURR	W08GR04042	Plutonium Isotopics by AEA
38682	12	39100	43684	SAMPLE	W08GR04043	Plutonium Isotopics by AEA
38682	13	39100	43684	SURR	W08GR04043	Plutonium Isotopics by AEA
38682	14	39100	43684	SAMPLE	W08GR04044	Plutonium Isotopics by AEA
38682	15	39100	43684	SURR	W08GR04044	Plutonium Isotopics by AEA
38682	17	39100	43684	SAMPLE	W08GR04045	Plutonium Isotopics by AEA
38682	16	39100	43684	SURR	W08GR04045	Plutonium Isotopics by AEA
38810	1	39227	43704	BLANK		Americium by AEA
38810	2	39227	43704	LCS		Americium by AEA
38810	3	39227	43704	DUP	W08GR04034	Americium by AEA
38810	10	39227	43704	SAMPLE	W08GR04042	Americium by AEA
38810	11	39227	43704	SURR	W08GR04042	Americium by AEA
38810	12	39227	43704	SAMPLE	W08GR04043	Americium by AEA
38810	13	39227	43704	SURR	W08GR04043	Americium by AEA
38810	14	39227	43704	SAMPLE	W08GR04044	Americium by AEA
38810	15	39227	43704	SURR	W08GR04044	Americium by AEA
38810	16	39227	43704	SAMPLE	W08GR04045	Americium by AEA
38810	17	39227	43704	SURR	W08GR04045	Americium by AEA
38809	1	39226	43724	BLANK		Strontium 89/90
38809	2	39226	43724	LCS		Strontium 89/90
38809	3	39226	43724	DUP	W08GR04036	Strontium 89/90
38809	8	39226	43724	SAMPLE	W08GR04042	Strontium 89/90
38809	9	39226	43724	SURR	W08GR04042	Strontium 89/90
38809	10	39226	43724	SAMPLE	W08GR04043	Strontium 89/90
38809	11	39226	43724	SURR	W08GR04043	Strontium 89/90
38809	12	39226	43724	SAMPLE	W08GR04044	Strontium 89/90

38809	13	39226	43724	SURR	W08GR04044	Strontium 89/90
38809	14	39226	43724	SAMPLE	W08GR04045	Strontium 89/90
38809	15	39226	43724	SURR	W08GR04045	Strontium 89/90

# 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-505-411</b>	<b>LA-505-411: ELEMENTAL ANALYSIS BY INDUCTIVELY COUPLED PLASMA ATOMIC EMISSION SPE</b> <b>HEIS 6010_METALS_ICP</b> Inductively Coupled Plasma-Atomic Emmision Spectrometry
<b>LA-505-412</b>	<b>LA-505-412: DETERMINATION OF TRACE ELEMENTS IN WATERS AND WASTES BY INDUCTIVELY</b> <b>EPA-600/R-94-111 200.8</b> DETERMINATION OF TRACE ELEMENTS IN WATERS AND WASTES BY INDUCTIVELY COUPLED PLAS <b>HEIS 200.8_METALS_ICPMS</b> Inductively Coupled Plasma - Mass Spectrometry <b>HEIS RADISOTOPES_ICPMS</b> Radioisotopes by ICP/MS
<b>LA-519-412</b>	<b>LA-519-412: TOTAL RESIDUE/% SOLIDS DRIED AT 103 - 105 C</b> <b>EPA-600/4-79-020 160.1</b> Resisual, Filterable <b>EPA-600/4-79-020 160.3</b> RESIDUE, TOTAL <b>HEIS 160.1_TDS</b> Residual, Filterable <b>Standard Methods 2540B</b> Total Solids Dried at 103-105 C

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: 16-dec-2008  
Report#: WSCF20082210  
Report WGPPM/5.2

Page 3

# 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-523-427</b>	<b>LA-523-427: POLYCHLORINATED BIPHENYLS (PCBs) BY GAS CHROMATOGRAPHY</b>
EPA SW-846 3510C	SEPARATORY FUNNEL LIQUID-LIQUID EXTRACTION
EPA SW-846 3545	PRESSURIZED FLUID EXTRACTION (PFE)
EPA SW-846 3665A	SULFURIC ACID/PERMANGANATE CLEANUP
EPA SW-846 8000B	DETERMINATIVE CHROMATOGRAPHIC SEPARATIONS
EPA SW-846 8082A	POLYCHLORINATED BIPHENYLS (PCBs) BY GAS CHROMATOGRAPHY
HEIS 8082_PCB_GC	Polychlorinated Biphenyls (PCBs) by Gas Chromatography
<b>LA-523-456</b>	<b>LA-523-456: SEMIVOLATILE SAMPLE ANALYSIS BY SW-846, METHOD 8270C</b>
EPA SW-846 8000B	DETERMINATIVE CHROMATOGRAPHIC SEPARATIONS
EPA SW-846 8270C	SEMIVOLATILE ORGANIC COMPOUNDS BY GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)
HEIS 8270_SVOA_GCMS	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>.

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# 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> GROSS ALPHA GPC <b>HEIS BETA_GPC</b> GROSS BETA GPC <b>HEIS SRTOT_SEP_PRECIP_GPC</b> Protium 89/90
<b>LA-508-471</b>	<b>LA-508-471: ALPHA ENERGY ANALYZER DATA ACQUISITION AND SYSTEM CHECKOUT USING ALP</b> <b>HEIS PUIISO_IE_PRECIP_AEA</b> Plutonium by Alpha Energy Analysis <b>HEIS RAISO_AEA</b> Radium-226
<b>LA-508-481</b>	<b>LA-508-481: GAMMA ENERGY ANALYSIS USING PROCOUNT SOFTWARE</b> <b>HEIS GAMMA_GS</b> Gamma Emmision Spectrometry

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: 16-dec-2008  
Report#: WSCF20082210  
Report WGPPM/5.2

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# WSCF ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent  
**SAF Number:** F08-165  
**Sample #** W08GR04042  
**Client ID:** B1XFP1

**TRENT  
WSCF**

**Matrix:** SOIL

**Group #:** WSCF20082210  
**Department:** Inorganic  
**Sampled:** 11/06/08  
**Received:** 11/06/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
<b>ICP Metals Analysis, Grd H20 P Prep</b>											
<b>ICP Metals Analysis, Grd H20 P</b>											
Barium	7440-39-3	LA-505-411		70.3	mg/kg			1.00e+002	0.40		11/10/08
Lead	7439-92-1	LA-505-411	B	6.57	mg/kg			1.00e+002	4.5		11/10/08
<b>ICP-200.8 MS All possible meta Prep</b>											
<b>ICP-200.8 MS All possible meta</b>											
Chromium	7440-47-3	LA-505-412		5.00	mg/kg			0.99	0.495		11/19/08
Mercury	7439-97-6	LA-505-412	U	< 0.0495	mg/kg			0.99	0.0495		11/19/08
<b>Total solids</b>											
Total solids	TS	LA-519-412		98.0	Percent			1.00	0.0		11/10/08

**MDL=Minimum Detection Limit**

**RQ=Result Qualifier**

**TP Err=Total Propagated Error**

**DF=Dilution Factor**

B - The analyte < the RDL but > = the IDL/MDL (inorg)

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

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

\* - 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:** F08-165  
**Sample #** W08GR04043  
**Client ID:** B1XFP5

**TRENT  
WSCF**

**Matrix:** SOIL

**Group #:** WSCF20082210  
**Department:** Inorganic  
**Sampled:** 11/06/08  
**Received:** 11/06/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
<b>ICP Metals Analysis, Grd H20 P Prep</b>											
<b>ICP Metals Analysis, Grd H20 P</b>											
Barium	7440-39-3	LA-505-411		50.9	mg/kg			1.00e+002	0.40		11/10/08
Lead	7439-92-1	LA-505-411	U	< 4.51	mg/kg			1.00e+002	4.5		11/10/08
<b>ICP-200.8 MS All possible meta Prep</b>											
<b>ICP-200.8 MS All possible meta</b>											
Chromium	7440-47-3	LA-505-412		11.5	mg/kg			0.84	0.421		11/19/08
Mercury	7439-97-8	LA-505-412	U	< 0.0421	mg/kg			0.84	0.0421		11/19/08
<b>Total solids</b>											
Total solids	TS	LA-519-412		76.1	Percent			1.00	0.0		11/10/08

**MDL=Minimum Detection Limit**

**RQ=Result Qualifier**

**TP Err=Total Propagated Error**

**DF=Dilution Factor**

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B - The analyte < the RDL but > = the IDL/MDL (inorg)

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

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

Report WGPP/ver. 5.2

Groundwater Remediation Program

# WSCF ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent  
**SAF Number:** F08-165  
**Sample #** W08GR04044  
**Client ID:** B1XFP3

TRENT  
WSCF

**Matrix:** SOIL

**Group #:** WSCF20082210  
**Department:** Inorganic  
**Sampled:** 11/06/08  
**Received:** 11/06/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
<b>ICP Metals Analysis, Grd H2O P Prep</b>											
<b>ICP Metals Analysis, Grd H2O P</b>											
Barium	7440-39-3	LA-505-411		70.4	mg/kg			99.25	0.40		11/10/08
Lead	7439-92-1	LA-505-411	B	4.49	mg/kg			99.25	4.5		11/10/08
<b>ICP-200.8 MS All possible meta Prep</b>											
<b>ICP-200.8 MS All possible meta</b>											
Chromium	7440-47-3	LA-505-412		13.2	mg/kg			0.89	0.446		11/19/08
Mercury	7439-97-6	LA-505-412	U	< 0.0446	mg/kg			0.89	0.0446		11/19/08
<b>Total solids</b>											
Total solids	TS	LA-519-412		71.7	Percent			1.00	0.0		11/10/08

**MDL=Minimum Detection Limit**

B - The analyte < the RDL but > = the IDL/MDL (Inorg)

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**RQ=Result Qualifier**

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

**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:** F08-165  
**Sample #** W08GR04045  
**Client ID:** B1XFP7

**TRENT  
WSCF**

**Matrix:** SOIL

**Group #:** WSCF20082210  
**Department:** Inorganic  
**Sampled:** 11/06/08  
**Received:** 11/06/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
<b>ICP Metals Analysis, Grd H2O P Prep</b>											
<b>ICP Metals Analysis, Grd H2O P</b>											
Barium	7440-39-3	LA-505-411		74.8	mg/kg			1.00e +002	0.40		11/10/08
Lead	7439-92-1	LA-505-411	B	4.97	mg/kg			1.00e +002	4.5		11/10/08
<b>ICP-200.8 MS All possible meta Prep</b>											
<b>ICP-200.8 MS All possible meta</b>											
Chromium	7440-47-3	LA-505-412		4.50	mg/kg			0.84	0.418		11/19/08
Mercury	7439-97-6	LA-505-412	U	< 0.0418	mg/kg			0.84	0.0418		11/19/08
<b>Total solids</b>											
Total solids	TS	LA-519-412		83.4	Percent			1.00	0.0		11/10/08

**MDL=Minimum Detection Limit**

**RQ=Result Qualifier**

**TP Err=Total Propagated Error**

**DF=Dilution Factor**

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Report WGPP/ver. 5.2

Groundwater Remediation Program

# WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20082210  
 Matrix: SOLID  
 Test: ICP Metals Analysis, Grd H20 P

Sample Date: 11/06/08  
 Receive Date: 11/06/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
<b>Lab ID: W08GR04036</b>											
<b>BATCH QC ASSOCIATED WITH SAMPLE</b>											
MS	Barium	7440-39-3	58.85	118.173	% Recov	75.000	125.000				11/10/08
MS	Lead	7439-92-1	93.315	93.690	% Recov	75.000	125.000				11/10/08
MSD	Barium	7440-39-3	55.35	110.700	% Recov	75.000	125.000				11/10/08
MSD	Lead	7439-92-1	92.965	92.965	% Recov	75.000	125.000				11/10/08
SPK-RPD	Barium	7440-39-3	110.700		RPD			6.530	20.000		11/10/08
SPK-RPD	Lead	7439-92-1	92.965		RPD			0.777	20.000		11/10/08
<b>BATCH QC</b>											
BLANK	Barium	7440-39-3	<4e-3	n/a	ug/mL					U	11/10/08
BLANK	Lead	7439-92-1	<4.5e-2	n/a	ug/mL					U	11/10/08
LCS	Barium	7440-39-3	641.4	104.123	% Recov	80.000	120.000				11/10/08
LCS	Lead	7439-92-1	227.6	90.677	% Recov	77.000	123.000				11/10/08

# WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20082210  
 Matrix: SOLID  
 Test: ICP-200.8 MS All possible meta

Sample Date: 11/06/08  
 Receive Date: 11/06/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
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**Lab ID: W08GR04036**  
**BATCH QC ASSOCIATED WITH SAMPLE**

MS	Chromium	7440-47-3	186.27	93.135	% Recov	70.000	130.000				11/19/08
MS	Mercury	7439-97-6	2.17	108.500	% Recov	70.000	130.000				11/19/08
MSD	Chromium	7440-47-3	166.37	83.185	% Recov	70.000	130.000				11/19/08
MSD	Mercury	7439-97-6	2.34	117.000	% Recov	70.000	130.000				11/19/08
SPK-RPD	Chromium	7440-47-3	83.185		RPD			11.286	20.000		11/19/08
SPK-RPD	Mercury	7439-97-6	117.000		RPD			7.539	20.000		11/19/08

**Lab ID: W08GR04101**  
**BATCH QC ASSOCIATED WITH SAMPLE**

MS	Chromium	7440-47-3	162.92	81.460	% Recov	70.000	130.000				11/19/08
MSD	Chromium	7440-47-3	166.72	83.360	% Recov	70.000	130.000				11/19/08
SPK-RPD	Chromium	7440-47-3	83.360		RPD			2.306	20.000		11/19/08

**BATCH QC**

BLANK	Chromium	7440-47-3	<0.5	n/a	ug/L					U	11/19/08
BLANK	Mercury	7439-97-6	<5e-2	n/a	ug/L					U	11/19/08
LCS	Chromium	7440-47-3	59.12	81.097	% Recov	77.000	125.000				11/19/08
LCS	Mercury	7439-97-6	7.81	94.324	% Recov	71.000	132.000				11/19/08

# WSCF ANALYTICAL COMMENT REPORT

Attention: Steve Trent  
Project Number F08-165

Group #: WSCF20082210  
Department: Inorganic

Sample #	Client ID	Lab Area	Test	Comment
		VALGROUP		ICP-AES: Sample results <5X MDL; "B" flag. Organics: All results are moisture corrected and reported on a dry weight basis. cgc U-234 & U-235 duplicate is flagged for poor RPD but the sample activities are near detection. lmh W08GR04044-45/Pu242 tracer recoveries are low but the data was reviewed and approved by the Scientist. lmh W08GR04042- 4045/Am-243 tracer recovery is low due to the difficult matrix. lmh

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

VALTEST - Test Validation  
LOGTEST - Login for Tests

TESTDATA - Test Data Entry

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# WSCF ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent  
**SAF Number:** F08-165  
**Sample #** W08GR04042  
**Client ID:** BIXFP1

**TRENT  
WSCF**

**Matrix:** SOIL

**Group #:** WSCF20082210  
**Department:** Organic  
**Sampled:** 11/06/08  
**Received:** 11/06/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
<b>PCBs complete list Prep</b>											11/24/08
<b>PCBs complete list</b>											
Aroclor-1016	12674-11-2	LA-523-427	U	< 9.90	ug/kg			1.00	9.9		11/25/08
Aroclor-1221	11104-28-2	LA-523-427	U	< 20.0	ug/kg			1.00	20		11/25/08
Aroclor-1232	11141-16-5	LA-523-427	U	< 9.90	ug/kg			1.00	9.9		11/25/08
Aroclor-1242	53469-21-9	LA-523-427	U	< 9.90	ug/kg			1.00	9.9		11/25/08
Aroclor-1248	12672-29-6	LA-523-427	U	< 9.90	ug/kg			1.00	9.9		11/25/08
Aroclor-1254	11097-69-1	LA-523-427	U	< 9.90	ug/kg			1.00	9.9		11/25/08
Aroclor-1260	11096-82-5	LA-523-427	U	< 9.90	ug/kg			1.00	9.9		11/25/08
Aroclor-1262	37324-23-5	LA-523-427	U	< 9.90	ug/kg			1.00	9.9		11/25/08
Aroclor-1268	11100-14-4	LA-523-427	U	< 9.90	ug/kg			1.00	9.9		11/25/08
<b>SW-846 8270C Semi-Vols Prep</b>											11/17/08
<b>SW-846 8270C Semi-Vols</b>											
4-Nitrophenol	100-02-7	LA-523-456	U	< 340	ug/kg			1.00	3.4e +02		11/18/08
1,4-Dichlorobenzene	106-46-7	LA-523-456	U	< 260	ug/kg			1.00	2.6e +02		11/18/08
Phenol	108-95-2	LA-523-456	U	< 150	ug/kg			1.00	1.5e +02		11/18/08
1,2,4-Trichlorobenzene	120-82-1	LA-523-456	U	< 150	ug/kg			1.00	1.5e +02		11/18/08
2,4-Dinitrotoluene	121-14-2	LA-523-456	U	< 150	ug/kg			1.00	1.5e +02		11/18/08
Pyrene	129-00-0	LA-523-456	U	< 150	ug/kg			1.00	1.5e +02		11/18/08
4-Chloro-3-methylphenol	59-50-7	LA-523-456	U	< 150	ug/kg			1.00	1.5e +02		11/18/08
N-Nitrosodi-n-dipropylamine	621-64-7	LA-523-456	U	< 150	ug/kg			1.00	1.5e +02		11/18/08
Acenaphthene	83-32-9	LA-523-456	U	< 150	ug/kg			1.00	1.5e +02		11/18/08
Pentachlorophenol	87-86-5	LA-523-456	U	< 410	ug/kg			1.00	4.1e +02		11/18/08
2-Chlorophenol	95-57-8	LA-523-456	U	< 150	ug/kg			1.00	1.5e +02		11/18/08
Bis(2-ethylhexyl) phthalate	117-81-7	LA-523-456	U	< 150	ug/kg			1.00	1.5e +02		11/18/08

**MDL = Minimum Detection Limit**

**RQ = Result Qualifier**

**TP Err = Total Propagated Error**

**DF = Dilution Factor**

\* - Indicates results that have NOT been validated;

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Groundwater Remediation Program

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# WSCF ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent  
**SAF Number:** F08-165  
**Sample #** W08GR04043  
**Client ID:** B1XFP5

**TRENT  
WSCF**

**Matrix:** SOIL

**Group #:** WSCF20082210  
**Department:** Organic  
**Sampled:** 11/06/08  
**Received:** 11/06/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
<b>PCBs complete list Prep</b>											
<b>PCBs complete list</b>											
Aroclor-1018	12674-11-2	LA-523-427	U	< 13.0	ug/kg			1.00	13		11/25/08
Aroclor-1221	11104-28-2	LA-523-427	U	< 25.0	ug/kg			1.00	25		11/25/08
Aroclor-1232	11141-16-5	LA-523-427	U	< 13.0	ug/kg			1.00	13		11/25/08
Aroclor-1242	53469-21-9	LA-523-427	U	< 13.0	ug/kg			1.00	13		11/25/08
Aroclor-1248	12672-29-6	LA-523-427	U	< 13.0	ug/kg			1.00	13		11/25/08
Aroclor-1254	11097-69-1	LA-523-427	U	< 13.0	ug/kg			1.00	13		11/25/08
Aroclor-1260	11096-82-5	LA-523-427	U	< 13.0	ug/kg			1.00	13		11/25/08
Aroclor-1262	37324-23-5	LA-523-427	U	< 13.0	ug/kg			1.00	13		11/25/08
Aroclor-1268	11100-14-4	LA-523-427	U	< 13.0	ug/kg			1.00	13		11/25/08
<b>SW-846 8270C Semi-Vols Prep</b>											
<b>SW-846 8270C Semi-Vols</b>											
Bis(2-ethylhexyl) phthalate	117-81-7	LA-523-456	U	< 200	ug/kg			1.00	2.0e+02		11/18/08

**MDL = Minimum Detection Limit**

**RQ = Result Qualifier**

**TP Err = Total Propagated Error**

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Report WGPP/ver. 5.2

Groundwater Remediation Program

# WSCF ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent  
**SAF Number:** F08-165  
**Sample #** W08GR04044  
**Client ID:** B1XFP3

**TRENT  
WSCF**

**Matrix:** SOIL

**Group #:** WSCF20082210  
**Department:** Organic  
**Sampled:** 11/06/08  
**Received:** 11/06/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
<b>PCBs complete list Prep</b>											<b>11/24/08</b>
<b>PCBs complete list</b>											
Aroclor-1016	12674-11-2	LA-523-427	U	< 14.0	ug/kg			1.00	14		11/25/08
Aroclor-1221	11104-28-2	LA-523-427	U	< 28.0	ug/kg			1.00	28		11/25/08
Aroclor-1232	11141-16-5	LA-523-427	U	< 14.0	ug/kg			1.00	14		11/25/08
Aroclor-1242	53489-21-9	LA-523-427	U	< 14.0	ug/kg			1.00	14		11/25/08
Aroclor-1248	12672-29-6	LA-523-427	U	< 14.0	ug/kg			1.00	14		11/25/08
Aroclor-1254	11097-69-1	LA-523-427	U	< 14.0	ug/kg			1.00	14		11/25/08
Aroclor-1260	11096-82-5	LA-523-427	U	< 14.0	ug/kg			1.00	14		11/25/08
Aroclor-1262	37324-23-5	LA-523-427	U	< 14.0	ug/kg			1.00	14		11/25/08
Aroclor-1268	11100-14-4	LA-523-427	U	< 14.0	ug/kg			1.00	14		11/25/08
<b>SW-846 8270C Semi-Vols Prep</b>											<b>11/17/08</b>
<b>SW-846 8270C Semi-Vols</b>											
Bis(2-ethylhexyl) phthalate	117-81-7	LA-523-456	U	< 200	ug/kg			1.00	2.0e +02		11/18/08

**MDL=Minimum Detection Limit**

**RQ=Result Qualifier**

**TP Err=Total Propagated Error**

**DF= Dilution Factor**

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Report WGPP/ver. 5.2

Groundwater Remediation Program

# WSCF ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent  
**SAF Number:** F08-165  
**Sample #** W08GR04045  
**Client ID:** B1XFP7

**TRENT  
WSCF**

**Matrix:** SOIL

**Group #:** WSCF20082210  
**Department:** Organic  
**Sampled:** 11/06/08  
**Received:** 11/06/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
<b>PCBs complete list Prep</b>											
<b>PCBs complete list</b>											
Aroclor-1016	12674-11-2	LA-523-427	U	< 12.0	ug/kg			1.00	12		11/25/08
Aroclor-1221	11104-28-2	LA-523-427	U	< 23.0	ug/kg			1.00	23		11/25/08
Aroclor-1232	11141-16-5	LA-523-427	U	< 12.0	ug/kg			1.00	12		11/25/08
Aroclor-1242	53469-21-9	LA-523-427	U	< 12.0	ug/kg			1.00	12		11/25/08
Aroclor-1248	12672-29-6	LA-523-427	U	< 12.0	ug/kg			1.00	12		11/25/08
Aroclor-1254	11097-69-1	LA-523-427	U	< 12.0	ug/kg			1.00	12		11/25/08
Aroclor-1260	11096-82-5	LA-523-427	U	< 12.0	ug/kg			1.00	12		11/25/08
Aroclor-1262	37324-23-5	LA-523-427	U	< 12.0	ug/kg			1.00	12		11/25/08
Aroclor-1268	11100-14-4	LA-523-427	U	< 12.0	ug/kg			1.00	12		11/25/08
<b>SW-846 8270C Semi-Vols Prep</b>											
<b>SW-846 8270C Semi-Vols</b>											
Bis(2-ethylhexyl) phthalate	117-81-7	LA-523-456	U	< 170	ug/kg			1.00	1.7e+02		11/18/08

**MDL=Minimum Detection Limit**

**RQ=Result Qualifier**

**TP Err=Total Propagated Error**

**DF=Dilution Factor**

\* - Indicates results that have NOT been validated;

B - The analyte < the RDL but > = the IDL/MDL (inorg)

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

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

+ - Indicates more than six qualifier symbols

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Groundwater Remediation Program

# WSCF

## TENTATIVELY IDENTIFIED PEAK REPORT

**Attention:** Steve Trent  
**Project Number:** F08-165 :F08-165

**Group #:** WSCF20082210  
**Department:** Organic

Sample #	Client ID	Test Name	Peak Name	CAS#	RT	RQ	Result	Units
W08GR04042	B1XFP1	TRENT	SW-846 8270C Semi-Vols	SMP 13.745 Di-n-butylphthalate	84-74-2	13.74525	5.1e+02	ug/kg
W08GR04042	B1XFP1	TRENT	SW-846 8270C Semi-Vols	SMP 7.615 Hexanoic acid, 2-ethyl	149-57-5	7.61525	J 1.4e+03	ug/kg
W08GR04043	B1XFP5	TRENT	SW-846 8270C Semi-Vols	SMP 13.745 Di-n-butylphthalate	84-74-2	13.74533	3.1e+02	ug/kg
W08GR04044	B1XFP3	TRENT	SW-846 8270C Semi-Vols	SMP 13.745 Di-n-butylphthalate	84-74-2	13.74528	7.9e+02	ug/kg
W08GR04045	B1XFP7	TRENT	SW-846 8270C Semi-Vols	SMP 13.745 Di-n-butylphthalate	84-74-2	13.74543	7.4e+02	ug/kg

**RQ=Result Qualifier**

J - Analyte < lowest calibration but > = MDL.(org)

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**Groundwater Remediation Program**

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Report Date: 16-dec-2008

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# WSCF ANALYTICAL LABORATORY QC REPORT

Department: Organic

SDG Number: WSCF20082210  
 Matrix: SOLID  
 Test: PCBs complete list

Sample Date: 11/06/08  
 Receive Date: 11/06/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
<b>Lab ID: W08GR04042</b>											
<b>BATCH QC ASSOCIATED WITH SAMPLE</b>											
MS	Aroclor-1260	11096-82-5	199.45	99.300	% Recov	75.000	125.000				11/25/08
MSD	Aroclor-1260	11096-82-5	194.14	96.500	% Recov	75.000	125.000				11/25/08
SPK-RPD	Aroclor-1260	11096-82-5	96.500		RPD			2.860	25.000		11/25/08
<b>BATCH QC</b>											
BLANK	Aroclor-1016	12674-11-2	< 10	n/a	UGKG					U	11/25/08
BLANK	Aroclor-1221	11104-28-2	< 20	n/a	ug/Kg					U	11/25/08
BLANK	Aroclor-1232	11141-16-5	< 10	n/a	ug/Kg					U	11/25/08
BLANK	Aroclor-1242	53469-21-9	< 10	n/a	ug/Kg					U	11/25/08
BLANK	Aroclor-1248	12672-29-6	< 10	n/a	ug/Kg					U	11/25/08
BLANK	Aroclor-1254	11097-69-1	< 10	n/a	ug/Kg					U	11/25/08
BLANK	Aroclor-1260	11096-82-5	< 10	n/a	ug/Kg					U	11/25/08
BLANK	Aroclor-1262	37324-23-5	< 10	n/a	ug/Kg					U	11/25/08
BLANK	Aroclor-1268	11100-14-4	< 10	n/a	ug/Kg					U	11/25/08
BLANK	Decachlorobiphenyl	2051-24-3	193.90	97.000	% Recov	50.000	150.000				11/25/08
BLANK	Tetrachloro-m-xylene	877-09-8	182.65	91.300	% Recov	50.000	150.000				11/25/08
LCS	Aroclor-1260	11096-82-5	194.88	97.400	% Recov	70.000	130.000				11/25/08
LCS	Decachlorobiphenyl	2051-24-3	206.62	103.000	% Recov	50.000	150.000				11/25/08
LCS	Tetrachloro-m-xylene	877-09-8	172.81	86.400	% Recov	50.000	150.000				11/25/08

# WSCF ANALYTICAL LABORATORY QC REPORT

Department: Organic

SDG Number: WSCF20082210  
 Matrix: SOLID  
 Test: SW-846 8270C Semi-Vols

Sample Date: 11/06/08  
 Receive Date: 11/06/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
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Lab ID: W08GR04042  
 BATCH QC ASSOCIATED WITH SAMPLE

MS	1,2,4-Trichlorobenzene	120-82-1	4122.3	102.000	% Recov	75.000	121.000				11/18/08
MS	1,4-Dichlorobenzene	106-46-7	4158.5	103.000	% Recov	68.000	121.000				11/18/08
MS	2,4-Dinitrotoluene	121-14-2	3752.3	93.100	% Recov	66.000	113.000				11/18/08
MS	2-Fluorophenol(Surr)	367-12-4	4192.1	104.000	% Recov	72.000	120.000				11/18/08
MS	Acenaphthene	83-32-9	4071.3	101.000	% Recov	69.000	125.000				11/18/08
MS	4-Chloro-3-methylphenol	59-50-7	6088.9	101.000	% Recov	68.000	116.000				11/18/08
MS	2-Chlorophenol	95-57-8	6250.7	103.000	% Recov	65.000	124.000				11/18/08
MS	N-Nitrosodi-n-dipropylamine	621-64-7	4122.2	102.000	% Recov	69.000	127.000				11/18/08
MS	2-Fluorobiphenyl(Surr)	321-60-8	4060.0	101.000	% Recov	66.000	122.000				11/18/08
MS	Phenol	108-95-2	6240.1	103.000	% Recov	71.000	122.000				11/18/08
MS	Nitrobenzene-d5(Surr)	4165-60-0	4095.4	102.000	% Recov	63.000	125.000				11/18/08
MS	4-Nitrophenol	100-02-7	5650.8	93.400	% Recov	55.000	113.000				11/18/08
MS	Pentachlorophenol	87-86-5	5119.2	84.600	% Recov	50.000	113.000				11/18/08
MS	Phenol-d5(Surr)	4165-62-2	4314.1	107.000	% Recov	66.000	124.000				11/18/08
MS	Pyrene	129-00-0	4093.5	102.000	% Recov	67.000	125.000				11/18/08
MS	2,4,6-Tribromophenol(Surr)	118-79-6	4095.4	102.000	% Recov	49.000	120.000				11/18/08
MS	Terphenyl-d14(Surr)	98904-43-9	4687.7	116.000	% Recov	58.000	128.000				11/18/08
MSD	1,2,4-Trichlorobenzene	120-82-1	3974.2	99.600	% Recov	75.000	121.000				11/18/08
MSD	1,4-Dichlorobenzene	106-46-7	3946.4	98.900	% Recov	68.000	121.000				11/18/08
MSD	2,4-Dinitrotoluene	121-14-2	3570.6	89.500	% Recov	66.000	113.000				11/18/08
MSD	2-Fluorophenol(Surr)	367-12-4	4038.7	101.000	% Recov	72.000	120.000				11/18/08
MSD	Acenaphthene	83-32-9	3966.2	99.400	% Recov	69.000	125.000				11/18/08
MSD	4-Chloro-3-methylphenol	59-50-7	5799.7	96.900	% Recov	68.000	116.000				11/18/08
MSD	2-Chlorophenol	95-57-8	5994.8	100.000	% Recov	65.000	124.000				11/18/08
MSD	N-Nitrosodi-n-dipropylamine	621-64-7	3969.3	99.400	% Recov	69.000	127.000				11/18/08
MSD	2-Fluorobiphenyl(Surr)	321-60-8	4079.9	102.000	% Recov	66.000	122.000				11/18/08

# WSCF ANALYTICAL LABORATORY QC REPORT

Department: Organic

SDG Number: WSCF20082210  
 Matrix: SOLID  
 Test: SW-846 8270C Semi-Vols

Sample Date: 11/06/08  
 Receive Date: 11/06/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
MSD	Phenol	108-95-2	6050.4	101.000	% Recov	71.000	122.000				11/18/08
MSD	Nitrobenzene-d5(Surr)	4165-60-0	4047.0	101.000	% Recov	63.000	125.000				11/18/08
MSD	4-Nitrophenol	100-02-7	5216.6	87.100	% Recov	55.000	113.000				11/18/08
MSD	Pentachlorophenol	87-86-5	4721.6	78.900	% Recov	50.000	113.000				11/18/08
MSD	Phenol-d5(Surr)	4165-62-2	4067.8	102.000	% Recov	66.000	124.000				11/18/08
MSD	Pyrene	129-00-0	4129.4	103.000	% Recov	67.000	125.000				11/18/08
MSD	2,4,6-Tribromophenol(Surr)	118-79-6	3928.2	98.400	% Recov	49.000	120.000				11/18/08
MSD	Terphenyl-d14(Surr)	98904-43-9	4699.0	118.000	% Recov	58.000	128.000				11/18/08
SPK-RPD	1,2,4-Trichlorobenzene	120-82-1	99.600		RPD			2.381	20.000		11/18/08
SPK-RPD	1,4-Dichlorobenzene	106-46-7	98.900		RPD			4.061	20.000		11/18/08
SPK-RPD	2,4-Dinitrotoluene	121-14-2	89.500		RPD			3.943	20.000		11/18/08
SPK-RPD	2-Fluorophenol(Surr)	367-12-4	101.000		RPD			2.927	20.000		11/18/08
SPK-RPD	Acenaphthene	83-32-9	99.400		RPD			1.597	20.000		11/18/08
SPK-RPD	4-Chloro-3-methylphenol	59-50-7	96.900		RPD			4.144	20.000		11/18/08
SPK-RPD	2-Chlorophenol	95-57-8	100.000		RPD			2.956	20.000		11/18/08
SPK-RPD	N-Nitrosodi-n-dipropylamine	621-64-7	99.400		RPD			2.582	20.000		11/18/08
SPK-RPD	2-Fluorobiphenyl(Surr)	321-60-8	102.000		RPD			0.985	20.000		11/18/08
SPK-RPD	Phenol	108-95-2	101.000		RPD			1.961	20.000		11/18/08
SPK-RPD	Nitrobenzene-d5(Surr)	4165-60-0	101.000		RPD			0.985	20.000		11/18/08
SPK-RPD	4-Nitrophenol	100-02-7	87.100		RPD			6.981	20.000		11/18/08
SPK-RPD	Pentachlorophenol	87-86-5	78.900		RPD			6.972	20.000		11/18/08
SPK-RPD	Phenol-d5(Surr)	4165-62-2	102.000		RPD			4.785	20.000		11/18/08
SPK-RPD	Pyrene	129-00-0	103.000		RPD			0.976	20.000		11/18/08
SPK-RPD	2,4,6-Tribromophenol(Surr)	118-79-6	98.400		RPD			3.593	20.000		11/18/08
SPK-RPD	Terphenyl-d14(Surr)	98904-43-9	118.000		RPD			1.709	20.000		11/18/08
SURR	2-Fluorophenol(Surr)	367-12-4	4241.5	104.000	% Recov	72.000	120.000				11/18/08
SURR	2-Fluorobiphenyl(Surr)	321-60-8	4109.5	101.000	% Recov	66.000	122.000				11/18/08
SURR	Nitrobenzene-d5(Surr)	4165-60-0	4137.3	102.000	% Recov	63.000	125.000				11/18/08
SURR	Phenol-d5(Surr)	4165-62-2	4234.6	104.000	% Recov	66.000	124.000				11/18/08
SURR	2,4,6-Tribromophenol(Surr)	118-79-6	3667.2	90.000	% Recov	49.000	120.000				11/18/08

# WSCF ANALYTICAL LABORATORY QC REPORT

Department: Organic

SDG Number: WSCF20082210  
 Matrix: SOLID  
 Test: SW-846 8270C Semi-Vols

Sample Date: 11/06/08  
 Receive Date: 11/06/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
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**Lab ID: W08GR04043**  
**BATCH QC ASSOCIATED WITH SAMPLE**

SURR	Terphenyl-d14(Surr)	98904-43-9	4772.6	117.000	% Recov	58.000	128.000				11/18/08
SURR	2-Fluorophenol(Surr)	367-12-4	4047.5	77.200	% Recov	72.000	120.000				11/18/08
SURR	2-Fluorobiphenyl(Surr)	321-60-8	3646.8	69.600	% Recov	66.000	122.000				11/18/08
SURR	Nitrobenzene-d5(Surr)	4165-60-0	3691.4	70.400	% Recov	63.000	125.000				11/18/08
SURR	Phenol-d5(Surr)	4165-62-2	4109.9	78.400	% Recov	66.000	124.000				11/18/08
SURR	2,4,6-Tribromophenol(Surr)	118-79-6	3440.8	65.600	% Recov	49.000	120.000				11/18/08
SURR	Terphenyl-d14(Surr)	98904-43-9	4492.4	85.700	% Recov	58.000	128.000				11/18/08

**Lab ID: W08GR04044**  
**BATCH QC ASSOCIATED WITH SAMPLE**

SURR	2-Fluorophenol(Surr)	367-12-4	5166.3	95.800	% Recov	72.000	120.000				11/18/08
SURR	2-Fluorobiphenyl(Surr)	321-60-8	4453.8	82.600	% Recov	66.000	122.000				11/18/08
SURR	Nitrobenzene-d5(Surr)	4165-60-0	4768.6	88.400	% Recov	63.000	125.000				11/18/08
SURR	Phenol-d5(Surr)	4165-62-2	5306.4	98.400	% Recov	66.000	124.000				11/18/08
SURR	2,4,6-Tribromophenol(Surr)	118-79-6	4572.2	84.700	% Recov	49.000	120.000				11/18/08
SURR	Terphenyl-d14(Surr)	98904-43-9	5672.6	105.000	% Recov	58.000	128.000				11/18/08

**Lab ID: W08GR04045**  
**BATCH QC ASSOCIATED WITH SAMPLE**

SURR	2-Fluorophenol(Surr)	367-12-4	4426.0	95.200	% Recov	72.000	120.000				11/18/08
SURR	2-Fluorobiphenyl(Surr)	321-60-8	4027.3	86.700	% Recov	66.000	122.000				11/18/08
SURR	Nitrobenzene-d5(Surr)	4165-60-0	4113.5	88.500	% Recov	63.000	125.000				11/18/08
SURR	Phenol-d5(Surr)	4165-62-2	4576.5	98.500	% Recov	66.000	124.000				11/18/08
SURR	2,4,6-Tribromophenol(Surr)	118-79-6	3767.5	81.100	% Recov	49.000	120.000				11/18/08
SURR	Terphenyl-d14(Surr)	98904-43-9	4840.8	104.000	% Recov	58.000	128.000				11/18/08

# WSCF ANALYTICAL LABORATORY QC REPORT

Department: **Organic**

SDG Number: WSCF20082210  
 Matrix: SOLID  
 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
<b>BATCH QC</b>											
BLANK	1,2,4-Trichlorobenzene	120-82-1	< 150	n/a	ug/Kg					U	11/18/08
BLANK	1,4-Dichlorobenzene	106-46-7	< 250	n/a	ug/Kg					U	11/18/08
BLANK	2,4-Dinitrotoluene	121-14-2	< 150	n/a	ug/Kg					U	11/18/08
BLANK	2-Fluorophenol(Surr)	367-12-4	4059.9	101.000	% Recov	72.000	120.000				11/18/08
BLANK	Acenaphthene	83-32-9	< 150	n/a	ug/Kg					U	11/18/08
BLANK	Bis(2-ethylhexyl) phthalate	117-81-7	< 150	n/a	ug/Kg					U	11/18/08
BLANK	4-Chloro-3-methylphenol	59-50-7	< 150	n/a	ug/Kg					U	11/18/08
BLANK	2-Chlorophenol	95-57-8	< 150	n/a	ug/Kg					U	11/18/08
BLANK	N-Nitrosodi-n-dipropylamine	621-64-7	< 150	n/a	ug/Kg					U	11/18/08
BLANK	2-Fluorobiphenyl(Surr)	321-60-8	4103.6	103.000	% Recov	66.000	122.000				11/18/08
BLANK	Phenol	108-95-2	< 150	n/a	ug/Kg					U	11/18/08
BLANK	Nitrobenzene-d5(Surr)	4165-60-0	4071.7	102.000	% Recov	63.000	125.000				11/18/08
BLANK	4-Nitrophenol	100-02-7	< 330	n/a	ug/Kg					U	11/18/08
BLANK	Pentachlorophenol	87-86-5	< 400	n/a	ug/Kg					U	11/18/08
BLANK	Phenol-d5(Surr)	4165-62-2	4186.9	105.000	% Recov	66.000	124.000				11/18/08
BLANK	Pyrene	129-00-0	< 150	n/a	ug/Kg					U	11/18/08
BLANK	2,4,6-Tribromophenol(Surr)	118-79-6	3417.4	85.400	% Recov	49.000	120.000				11/18/08
BLANK	Terphenyl-d14(Surr)	98904-43-9	4809.6	120.000	% Recov	58.000	128.000				11/18/08
LCS	1,2,4-Trichlorobenzene	120-82-1	4230.1	106.000	% Recov	76.000	118.000				11/18/08
LCS	1,4-Dichlorobenzene	106-46-7	4078.5	102.000	% Recov	68.000	121.000				11/18/08
LCS	2,4-Dinitrotoluene	121-14-2	3902.7	97.600	% Recov	68.000	112.000				11/18/08
LCS	2-Fluorophenol(Surr)	367-12-4	4367.4	109.000	% Recov	50.000	110.000				11/18/08
LCS	Acenaphthene	83-32-9	4211.5	105.000	% Recov	75.000	121.000				11/18/08
LCS	4-Chloro-3-methylphenol	59-50-7	6097.6	102.000	% Recov	68.000	117.000				11/18/08
LCS	2-Chlorophenol	95-57-8	6304.6	105.000	% Recov	84.000	114.000				11/18/08
LCS	N-Nitrosodi-n-dipropylamine	621-64-7	4289.2	107.000	% Recov	76.000	119.000				11/18/08
LCS	2-Fluorobiphenyl(Surr)	321-60-8	4256.5	106.000	% Recov	58.000	109.000				11/18/08
LCS	Phenol	108-95-2	6468.8	108.000	% Recov	80.000	113.000				11/18/08

# WSCF ANALYTICAL LABORATORY QC REPORT

Department: Organic

SDG Number: WSCF20082210  
Matrix: SOLID  
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	Nitrobenzene-d5(Surr)	4165-80-0	4178.9	104.000	% Recov	60.000	118.000				11/18/08
LCS	4-Nitrophenol	100-02-7	5715.9	95.300	% Recov	42.000	123.000				11/18/08
LCS	Pentachlorophenol	87-86-5	5557.5	92.600	% Recov	55.000	120.000				11/18/08
LCS	Phenol-d5(Surr)	4165-62-2	4353.7	109.000	% Recov	59.000	116.000				11/18/08
LCS	Pyrene	129-00-0	4151.0	104.000	% Recov	67.000	122.000				11/18/08
LCS	2,4,6-Tribromophenol(Surr)	118-79-6	4095.4	102.000	% Recov	60.000	120.000				11/18/08
LCS	Terphenyl-d14(Surr)	98904-43-9	4729.7	118.000	% Recov	60.000	120.000				11/18/08

# WSCF ANALYTICAL COMMENT REPORT

Attention: Steve Trent  
Project Number F08-165

Group #: WSCF20082210  
Department: Organic

Sample #	Client ID	Lab Area	Test	Comment
		VALGROUP		ICP-AES: Sample results <5X MDL; "B" flag. Organics: All results are moisture corrected and reported on a dry weight basis. cgc U-234 & U-235 duplicate is flagged for poor RPD but the sample activities are near detection. lmh W08GRO4044-45/Pu242 tracer recoveries are low but the data was reviewed and approved by the Scientist. lmh W08GRO4042- 4045/Am-243 tracer recovery is low due to the difficult matrix. lmh

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

VALTEST - Test Validation  
LOGTEST - Login for Tests

TESTDATA - Test Data Entry

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# WSCF ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent  
**SAF Number:** F08-165  
**Sample #** W08GR04042  
**Client ID:** B1XFP1

**TRENT  
WSCF**

**Matrix:** SOIL

**Group #:** WSCF20082210  
**Department:** Radiochemistry  
**Sampled:** 11/06/08  
**Received:** 11/06/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
<b>Americium by AEA</b>											
Americium-241	14596-10-2	LA-508-471	U	0.0810	pCi/g	+0.0788	pCi/g	1.00	0.12		12/10/08
Am-243 tracer by AEA	AM243	LA-508-471		3.90	pCi/g			1.00	0.075		12/10/08
<b>Gamma Energy Analysis-grd H2O</b>											
Cobalt-60	10198-40-0	LA-508-481	U	8.34e-04	pCi/g	+8.21e-03	pCi/g	1.00	0.011		11/07/08
Cesium-137	10045-97-3	LA-508-481		0.274	pCi/g	+0.0467	pCi/g	1.00	9.7e-03		11/07/08
Europium-152	14683-23-9	LA-508-481		0.104	pCi/g	+0.0190	pCi/g	1.00	0.029		11/07/08
Europium-154	15585-10-1	LA-508-481	U	-9.01e-03	pCi/g	+0.0207	pCi/g	1.00	0.035		11/07/08
Europium-155	14391-16-3	LA-508-481	U	0.0252	pCi/g	+0.0272	pCi/g	1.00	0.039		11/07/08
<b>Plutonium Isotopics by AEA</b>											
Plutonium-238	13981-16-3	LA-508-471	U	-0.0340	pCi/g	+0.0354	pCi/g	1.00	0.088		12/01/08
Pu-239/240 by AEA	PU-239/240	LA-508-471	U	0.0110	pCi/g	+0.0108	pCi/g	1.00	0.014		12/01/08
Pu-242	13982-10-0	LA-508-471		6.00	pCi/g			1.00	0.014		12/01/08
<b>Strontium 89/90</b>											
Strontium-89/90	SR-RAD	LA-508-415	U	-0.370	pCi/g	+0.370	pCi/g	1.00	0.37		12/11/08
Sr-85 Tracer by Beta Counting	SR85	LA-508-415		99.2	Percent			1.00	0.0		12/11/08
<b>Uranium Isotopics by AEA</b>											
Uranium-233/234	U-233/234	LA-508-471		0.120	pCi/g	+0.0432	pCi/g	1.00	0.018		12/01/08
Uranium-235	15117-96-1	LA-508-471		0.0210	pCi/g	+0.0132	pCi/g	1.00	4.9e-03		12/01/08
Uranium-238	U-238	LA-508-471		0.150	pCi/g	+0.0495	pCi/g	1.00	4.4e-03		12/01/08
U-232 tracer by AEA	U232	LA-508-471		4.00	pCi/g			1.00	0.027		12/01/08

**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

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Report WGPP/ver. 5.2

Groundwater Remediation Program

# WSCF ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent  
**SAF Number:** F08-165  
**Sample #** W08GR04043  
**Client ID:** B1XFP5

**TRENT  
WSCF**

**Matrix:** SOIL

**Group #:** WSCF20082210  
**Department:** Radiochemistry  
**Sampled:** 11/06/08  
**Received:** 11/06/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
<b>Americium by AEA</b>											
Americium-241	14596-10-2	LA-508-471	U	0.160	pCi/g	+ -0.152	pCi/g	1.00	0.23		12/10/08
Am-243 tracer by AEA	AM243	LA-508-471		4.00	pCi/g			1.00	0.12		12/10/08
<b>Gamma Energy Analysis-grd H2O</b>											
Cobalt-60	10198-40-0	LA-508-481	U	-6.91e-04	pCi/g	+ -3.86e-03	pCi/g	1.00	6.6e-03		11/07/08
Cesium-137	10045-97-3	LA-508-481	U	-4.16e-03	pCi/g	+ -4.26e-03	pCi/g	1.00	6.8e-03		11/07/08
Europium-152	14683-23-9	LA-508-481	U	-1.41e-03	pCi/g	+ -0.0141	pCi/g	1.00	0.021		11/07/08
Europium-154	15585-10-1	LA-508-481	U	1.79e-04	pCi/g	+ -1.79e-03	pCi/g	1.00	0.021		11/07/08
Europium-155	14391-16-3	LA-508-481	U	-4.53e-03	pCi/g	+ -0.0220	pCi/g	1.00	0.036		11/07/08
<b>Plutonium Isotopics by AEA</b>											
Plutonium-238	13981-16-3	LA-508-471	U	0.0500	pCi/g	+ -0.0390	pCi/g	1.00	0.056		12/01/08
Pu-239/240 by AEA	PU-239/240	LA-508-471	U	5.70e-03	pCi/g	+ -0.0101	pCi/g	1.00	0.018		12/01/08
Pu-242	13982-10-0	LA-508-471		6.20	pCi/g			1.00	0.014		12/01/08
<b>Strontium 89/90</b>											
Strontium-89/90	SR-RAD	LA-508-415	U	-0.190	pCi/g	+ -0.332	pCi/g	1.00	0.42		12/11/08
Sr-85 Tracer by Beta Counting	SR85	LA-508-415		89.1	Percent			1.00	0.0		12/11/08
<b>Uranium Isotopics by AEA</b>											
Uranium-233/234	U-233/234	LA-508-471		0.220	pCi/g	+ -0.0704	pCi/g	1.00	0.025		12/01/08
Uranium-235	15117-96-1	LA-508-471		0.0290	pCi/g	+ -0.0168	pCi/g	1.00	5.2e-03		12/01/08
Uranium-238	U-238	LA-508-471		0.230	pCi/g	+ -0.0736	pCi/g	1.00	0.019		12/01/08
U-232 tracer by AEA	U232	LA-508-471		4.10	pCi/g			1.00	0.030		12/01/08

**MDL=Minimum Detection Limit**

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**TP Err = Total Propagated Error**

**DF=Dilution Factor**

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Report WGPP/ver. 5.2

Groundwater Remediation Program

# WSCF ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent  
**SAF Number:** F08-165  
**Sample #** W08GR04044  
**Client ID:** B1XFP3

**TRENT  
WSCF**

**Matrix:** SOIL

**Group #:** WSCF20082210  
**Department:** Radiochemistry  
**Sampled:** 11/06/08  
**Received:** 11/06/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
<b>Americium by AEA</b>											
Americium-241	14596-10-2	LA-508-471	U	6.70e-03	pCi/g	+ -0.0101	pCi/g	1.00	0.14		12/10/08
Am-243 tracer by AEA	AM243	LA-508-471		3.98	pCi/g			1.00	0.039		12/10/08
<b>Gamma Energy Analysis-grd H2O</b>											
Cobalt-60	10198-40-0	LA-508-481	U	-1.82e-03	pCi/g	+ -4.96e-03	pCi/g	1.00	8.2e-03		11/07/08
Cesium-137	10045-97-3	LA-508-481	U	1.22e-03	pCi/g	+ -4.93e-03	pCi/g	1.00	8.3e-03		11/07/08
Europium-152	14683-23-9	LA-508-481	U	-7.36e-03	pCi/g	+ -0.0201	pCi/g	1.00	0.024		11/07/08
Europium-154	15585-10-1	LA-508-481	U	6.73e-05	pCi/g	+ -6.73e-04	pCi/g	1.00	0.026		11/07/08
Europium-155	14391-16-3	LA-508-481	U	0.0572	pCi/g	+ -0.0299	pCi/g	1.00	0.037		11/07/08
<b>Plutonium Isotopics by AEA</b>											
Plutonium-238	13981-16-3	LA-508-471	U	8.20e-03	pCi/g	+ -0.0820	pCi/g	1.00	0.26		12/01/08
Pu-239/240 by AEA	PU-239/240	LA-508-471	U	0.0250	pCi/g	+ -0.0378	pCi/g	1.00	0.061		12/01/08
Pu-242	13982-10-0	LA-508-471		6.20	pCi/g			1.00	0.076		12/01/08
<b>Strontium 89/90</b>											
Strontium-89/90	SR-RAD	LA-508-415	U	-0.540	pCi/g	+ -0.540	pCi/g	1.00	0.44		12/11/08
Sr-85 Tracer by Beta Counting	SR85	LA-508-415		85.4	Percent			1.00	0.0		12/11/08
<b>Uranium Isotopics by AEA</b>											
Uranium-233/234	U-233/234	LA-508-471		0.0940	pCi/g	+ -0.0357	pCi/g	1.00	0.016		12/01/08
Uranium-235	15117-96-1	LA-508-471	U	0.0130	pCi/g	+ -0.0116	pCi/g	1.00	0.014		12/01/08
Uranium-238	U-238	LA-508-471		0.0800	pCi/g	+ -0.0312	pCi/g	1.00	4.7e-03		12/01/08
U-232 tracer by AEA	U232	LA-508-471		4.10	pCi/g			1.00	0.025		12/01/08

**MDL=Minimum Detection Limit**

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Report WGPP/ver. 5.2

Groundwater Remediation Program

# WSCF

## ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent  
**SAF Number:** F08-165  
**Sample #** W08GR04045  
**Client ID:** B1XFP7

**TRENT**  
**WSCF**

**Matrix: SOIL**

**Group #:** WSCF20082210  
**Department:** Radiochemistry  
**Sampled:** 11/06/08  
**Received:** 11/06/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
<b>Americium by AEA</b>											
Americium-241	14596-10-2	LA-508-471	U	-0.0160	pCi/g	+0.0786	pCi/g	1.00	0.16		12/10/08
Am-243 tracer by AEA	AM243	LA-508-471		3.70	pCi/g			1.00	0.12		12/10/08
<b>Gamma Energy Analysis-grd H2O</b>											
Cobalt-60	10198-40-0	LA-508-481	U	-1.76e-03	pCi/g	+3.55e-03	pCi/g	1.00	6.0e-03		11/10/08
Cesium-137	10045-97-3	LA-508-481	U	7.21e-04	pCi/g	+4.28e-03	pCi/g	1.00	6.5e-03		11/10/08
Europium-152	14683-23-9	LA-508-481	U	-0.0133	pCi/g	+0.0125	pCi/g	1.00	0.020		11/10/08
Europium-154	15585-10-1	LA-508-481	U	-4.76e-03	pCi/g	+0.0139	pCi/g	1.00	0.020		11/10/08
Europium-155	14391-16-3	LA-508-481	U	0.0109	pCi/g	+0.0195	pCi/g	1.00	0.032		11/10/08
<b>Plutonium Isotopics by AEA</b>											
Plutonium-238	13981-16-3	LA-508-471	U	-0.0230	pCi/g	+0.129	pCi/g	1.00	0.24		12/01/08
Pu-239/240 by AEA	PU-239/240	LA-508-471	U	0.0230	pCi/g	+0.0409	pCi/g	1.00	0.071		12/01/08
Pu-242	13982-10-0	LA-508-471		5.80	pCi/g			1.00	0.021		12/01/08
<b>Strontium 89/90</b>											
Strontium-89/90	SR-RAD	LA-508-415	U	-0.290	pCi/g	+0.334	pCi/g	1.00	0.41		12/11/08
Sr-85 Tracer by Beta Counting	SR85	LA-508-415		85.0	Percent			1.00	0.0		12/11/08
<b>Uranium Isotopics by AEA</b>											
Uranium-233/234	U-233/234	LA-508-471		0.100	pCi/g	+0.0360	pCi/g	1.00	0.012		12/01/08
Uranium-235	15117-96-1	LA-508-471	U	7.00e-03	pCi/g	+8.75e-03	pCi/g	1.00	0.013		12/01/08
Uranium-238	U-238	LA-508-471		0.110	pCi/g	+0.0396	pCi/g	1.00	0.012		12/01/08
U-232 tracer by AEA	U232	LA-508-471		3.80	pCi/g			1.00	0.026		12/01/08

**MDL=Minimum Detection Limit**

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Report WGPP/ver. 5.2

Groundwater Remediation Program

# WSCF

## TENTATIVELY IDENTIFIED PEAK REPORT

**Attention:** Steve Trent  
**Project Number:** F08-165 :F08-165

**Group #:** WSCF20082210  
**Department:** Radiochemistry

Sample #	Client ID	Test Name	Peak Name	CAS#	RT	RQ	Result	Units
W08GR04042	B1XFP1	TRENT	Gamma Energy Analysis-grd H2O	AC-228			0.45	pCi/g
W08GR04042	B1XFP1	TRENT	Gamma Energy Analysis-grd H2O	AC-228 Count Error			21	%
W08GR04042	B1XFP1	TRENT	Gamma Energy Analysis-grd H2O	BI-212			0.29	pCi/g
W08GR04042	B1XFP1	TRENT	Gamma Energy Analysis-grd H2O	BI-212 Count Error			32	%
W08GR04042	B1XFP1	TRENT	Gamma Energy Analysis-grd H2O	BI-214			0.51	pCi/g
W08GR04042	B1XFP1	TRENT	Gamma Energy Analysis-grd H2O	BI-214 Count Error			13	%
W08GR04042	B1XFP1	TRENT	Gamma Energy Analysis-grd H2O	CS-134			0.020	pCi/g
W08GR04042	B1XFP1	TRENT	Gamma Energy Analysis-grd H2O	CS-134 Count Error			39	%
W08GR04042	B1XFP1	TRENT	Gamma Energy Analysis-grd H2O	K-40			11	pCi/g
W08GR04042	B1XFP1	TRENT	Gamma Energy Analysis-grd H2O	K-40 Count Error			13	%
W08GR04042	B1XFP1	TRENT	Gamma Energy Analysis-grd H2O	PB-212			0.54	pCi/g
W08GR04042	B1XFP1	TRENT	Gamma Energy Analysis-grd H2O	PB-212 Count Error			9.5	%
W08GR04042	B1XFP1	TRENT	Gamma Energy Analysis-grd H2O	PB-214			0.54	pCi/g
W08GR04042	B1XFP1	TRENT	Gamma Energy Analysis-grd H2O	PB-214 Count Error			24	%
W08GR04042	B1XFP1	TRENT	Gamma Energy Analysis-grd H2O	RA-226			0.34	pCi/g
W08GR04042	B1XFP1	TRENT	Gamma Energy Analysis-grd H2O	RA-226 Count Error			17	%
W08GR04042	B1XFP1	TRENT	Gamma Energy Analysis-grd H2O	RA-228			0.51	pCi/g
W08GR04042	B1XFP1	TRENT	Gamma Energy Analysis-grd H2O	RA-228 Count Error			17	%
W08GR04042	B1XFP1	TRENT	Gamma Energy Analysis-grd H2O	SN-126			0.11	pCi/g
W08GR04042	B1XFP1	TRENT	Gamma Energy Analysis-grd H2O	SN-126 Count Error			28	%
W08GR04042	B1XFP1	TRENT	Gamma Energy Analysis-grd H2O	TH-234			0.63	pCi/g
W08GR04042	B1XFP1	TRENT	Gamma Energy Analysis-grd H2O	TH-234 Count Error			31	%
W08GR04042	B1XFP1	TRENT	Gamma Energy Analysis-grd H2O	TL-208			0.17	pCi/g
W08GR04042	B1XFP1	TRENT	Gamma Energy Analysis-grd H2O	TL-208 Count Error			15	%
W08GR04043	B1XFP5	TRENT	Gamma Energy Analysis-grd H2O	AC-228			0.36	pCi/g

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**Groundwater Remediation Program**

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# WSCF

## TENTATIVELY IDENTIFIED PEAK REPORT

Attention: Steve Trent  
 Project Number F08-165 :F08-165

Group #: WSCF20082210  
 Department: Radiochemistry

Sample #	Client ID	Test Name	Peak Name	CAS#	RT	RQ	Result	Units
W08GR04043	B1XFP5	TRENT	Gamma Energy Analysis-grd H2O	AC-228 Count Error			20	%
W08GR04043	B1XFP5	TRENT	Gamma Energy Analysis-grd H2O	BI-212			0.24	pCi/g
W08GR04043	B1XFP5	TRENT	Gamma Energy Analysis-grd H2O	BI-212 Count Error			27	%
W08GR04043	B1XFP5	TRENT	Gamma Energy Analysis-grd H2O	BI-214			0.41	pCi/g
W08GR04043	B1XFP5	TRENT	Gamma Energy Analysis-grd H2O	BI-214 Count Error			12	%
W08GR04043	B1XFP5	TRENT	Gamma Energy Analysis-grd H2O	CS-134			0.020	pCi/g
W08GR04043	B1XFP5	TRENT	Gamma Energy Analysis-grd H2O	CS-134 Count Error			34	%
W08GR04043	B1XFP5	TRENT	Gamma Energy Analysis-grd H2O	K-40			9.2	pCi/g
W08GR04043	B1XFP5	TRENT	Gamma Energy Analysis-grd H2O	K-40 Count Error			14	%
W08GR04043	B1XFP5	TRENT	Gamma Energy Analysis-grd H2O	PB-212			0.41	pCi/g
W08GR04043	B1XFP5	TRENT	Gamma Energy Analysis-grd H2O	PB-212 Count Error			10	%
W08GR04043	B1XFP5	TRENT	Gamma Energy Analysis-grd H2O	PB-214			0.47	pCi/g
W08GR04043	B1XFP5	TRENT	Gamma Energy Analysis-grd H2O	PB-214 Count Error			24	%
W08GR04043	B1XFP5	TRENT	Gamma Energy Analysis-grd H2O	RA-226			0.30	pCi/g
W08GR04043	B1XFP5	TRENT	Gamma Energy Analysis-grd H2O	RA-226 Count Error			17	%
W08GR04043	B1XFP5	TRENT	Gamma Energy Analysis-grd H2O	RA-228			0.36	pCi/g
W08GR04043	B1XFP5	TRENT	Gamma Energy Analysis-grd H2O	RA-228 Count Error			18	%
W08GR04043	B1XFP5	TRENT	Gamma Energy Analysis-grd H2O	TL-208			0.11	pCi/g
W08GR04043	B1XFP5	TRENT	Gamma Energy Analysis-grd H2O	TL-208 Count Error			17	%
W08GR04044	B1XFP3	TRENT	Gamma Energy Analysis-grd H2O	AC-228			0.31	pCi/g
W08GR04044	B1XFP3	TRENT	Gamma Energy Analysis-grd H2O	AC-228 Count Error			21	%
W08GR04044	B1XFP3	TRENT	Gamma Energy Analysis-grd H2O	BI-212			0.29	pCi/g
W08GR04044	B1XFP3	TRENT	Gamma Energy Analysis-grd H2O	BI-212 Count Error			24	%
W08GR04044	B1XFP3	TRENT	Gamma Energy Analysis-grd H2O	BI-214			0.36	pCi/g
W08GR04044	B1XFP3	TRENT	Gamma Energy Analysis-grd H2O	BI-214 Count Error			13	%

RQ=Result Qualifier J - Analyte < lowest calibration but > = MDL.(org)

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Groundwater Remediation Program

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Report Date: 16-dec-2008

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# WSCF

## TENTATIVELY IDENTIFIED PEAK REPORT

Attention: Steve Trent  
 Project Number F08-165 :F08-165

Group #: WSCF20082210  
 Department: Radiochemistry

Sample #	Client ID	Test Name	Peak Name	CAS#	RT	RQ	Result	Units
W08GR04044	B1XFP3	TRENT	Gamma Energy Analysis-grd H2O	CS-134			0.014	pCi/g
W08GR04044	B1XFP3	TRENT	Gamma Energy Analysis-grd H2O	CS-134 Count Error			49	%
W08GR04044	B1XFP3	TRENT	Gamma Energy Analysis-grd H2O	K-40			11	pCi/g
W08GR04044	B1XFP3	TRENT	Gamma Energy Analysis-grd H2O	K-40 Count Error			13	%
W08GR04044	B1XFP3	TRENT	Gamma Energy Analysis-grd H2O	PB-212			0.38	pCi/g
W08GR04044	B1XFP3	TRENT	Gamma Energy Analysis-grd H2O	PB-212 Count Error			10	%
W08GR04044	B1XFP3	TRENT	Gamma Energy Analysis-grd H2O	PB-214			0.59	pCi/g
W08GR04044	B1XFP3	TRENT	Gamma Energy Analysis-grd H2O	PB-214 Count Error			22	%
W08GR04044	B1XFP3	TRENT	Gamma Energy Analysis-grd H2O	RA-226			0.26	pCi/g
W08GR04044	B1XFP3	TRENT	Gamma Energy Analysis-grd H2O	RA-226 Count Error			19	%
W08GR04044	B1XFP3	TRENT	Gamma Energy Analysis-grd H2O	RA-228			0.37	pCi/g
W08GR04044	B1XFP3	TRENT	Gamma Energy Analysis-grd H2O	RA-228 Count Error			18	%
W08GR04044	B1XFP3	TRENT	Gamma Energy Analysis-grd H2O	SN-126			0.090	pCi/g
W08GR04044	B1XFP3	TRENT	Gamma Energy Analysis-grd H2O	SN-126 Count Error			30	%
W08GR04044	B1XFP3	TRENT	Gamma Energy Analysis-grd H2O	TH-234			0.42	pCi/g
W08GR04044	B1XFP3	TRENT	Gamma Energy Analysis-grd H2O	TH-234 Count Error			43	%
W08GR04044	B1XFP3	TRENT	Gamma Energy Analysis-grd H2O	TL-208			0.11	pCi/g
W08GR04044	B1XFP3	TRENT	Gamma Energy Analysis-grd H2O	TL-208 Count Error			17	%
W08GR04045	B1XFP7	TRENT	Gamma Energy Analysis-grd H2O	AC-228			0.35	pCi/g
W08GR04045	B1XFP7	TRENT	Gamma Energy Analysis-grd H2O	AC-228 Count Error			19	%
W08GR04045	B1XFP7	TRENT	Gamma Energy Analysis-grd H2O	BI-212			0.35	pCi/g
W08GR04045	B1XFP7	TRENT	Gamma Energy Analysis-grd H2O	BI-212 Count Error			20	%
W08GR04045	B1XFP7	TRENT	Gamma Energy Analysis-grd H2O	BI-214			0.43	pCi/g
W08GR04045	B1XFP7	TRENT	Gamma Energy Analysis-grd H2O	BI-214 Count Error			11	%
W08GR04045	B1XFP7	TRENT	Gamma Energy Analysis-grd H2O	CS-134			0.018	pCi/g

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**Groundwater Remediation Program**

WGPPE v 5.2 Report#: WSCF20082210 Report Date: 16-dec-2008

# WSCF

## TENTATIVELY IDENTIFIED PEAK REPORT

Attention: Steve Trent  
 Project Number F08-165 :F08-165

Group #: WSCF20082210  
 Department: Radiochemistry

Sample #	Client ID	Test Name	Peak Name	CAS#	RT	RQ	Result	Units
W08GR04045	B1XFP7	TRENT	Gamma Energy Analysis-grd H2O	CS-134			37	%
W08GR04045	B1XFP7	TRENT	Gamma Energy Analysis-grd H2O	K-40			9.9	pCi/g
W08GR04045	B1XFP7	TRENT	Gamma Energy Analysis-grd H2O	K-40	Count Error		13	%
W08GR04045	B1XFP7	TRENT	Gamma Energy Analysis-grd H2O	PB-212			0.47	pCi/g
W08GR04045	B1XFP7	TRENT	Gamma Energy Analysis-grd H2O	PB-212	Count Error		9.1	%
W08GR04045	B1XFP7	TRENT	Gamma Energy Analysis-grd H2O	PB-214			0.63	pCi/g
W08GR04045	B1XFP7	TRENT	Gamma Energy Analysis-grd H2O	PB-214	Count Error		21	%
W08GR04045	B1XFP7	TRENT	Gamma Energy Analysis-grd H2O	RA-226			0.34	pCi/g
W08GR04045	B1XFP7	TRENT	Gamma Energy Analysis-grd H2O	RA-226	Count Error		16	%
W08GR04045	B1XFP7	TRENT	Gamma Energy Analysis-grd H2O	RA-228			0.44	pCi/g
W08GR04045	B1XFP7	TRENT	Gamma Energy Analysis-grd H2O	RA-228	Count Error		17	%
W08GR04045	B1XFP7	TRENT	Gamma Energy Analysis-grd H2O	SN-126			0.094	pCi/g
W08GR04045	B1XFP7	TRENT	Gamma Energy Analysis-grd H2O	SN-126	Count Error		25	%
W08GR04045	B1XFP7	TRENT	Gamma Energy Analysis-grd H2O	TH-234			0.44	pCi/g
W08GR04045	B1XFP7	TRENT	Gamma Energy Analysis-grd H2O	TH-234	Count Error		29	%
W08GR04045	B1XFP7	TRENT	Gamma Energy Analysis-grd H2O	TL-208			0.13	pCi/g
W08GR04045	B1XFP7	TRENT	Gamma Energy Analysis-grd H2O	TL-208	Count Error		14	%

RQ = Result Qualifier

J - Analyte < lowest calibration but > = MDL.(org)

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Groundwater Remediation Program

WGPPE v 5.2 Report#: WSCF20082210

Report Date: 16-dec-2008

Page 5

# WSCF ANALYTICAL LABORATORY QC REPORT

Department: Radiochemistry

SDG Number: WSCF20082210  
 Matrix: SOLID  
 Test: Americium by AEA

Sample Date: 10/30/08  
 Receive Date: 10/30/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
<b>Lab ID: W08GR04034</b>											
<b>BATCH QC ASSOCIATED WITH SAMPLE</b>											
DUP	Americium-241	14596-10-2	U-1.7e-2		RPD			n/a	20.000		12/10/08
DUP	Am-243 tracer by AEA	AM243	3.883	27.530	% Recov	30.000	105.000			*	12/10/08
<b>Lab ID: W08GR04042</b>											
<b>BATCH QC ASSOCIATED WITH SAMPLE</b>											
SURR	Am-243 tracer by AEA	AM243	3.883	28.320	% Recov	30.000	105.000			*	12/10/08
<b>Lab ID: W08GR04043</b>											
<b>BATCH QC ASSOCIATED WITH SAMPLE</b>											
SURR	Am-243 tracer by AEA	AM243	3.983	20.970	% Recov	30.000	105.000			*	12/10/08
<b>Lab ID: W08GR04044</b>											
<b>BATCH QC ASSOCIATED WITH SAMPLE</b>											
SURR	Am-243 tracer by AEA	AM243	3.979	26.527	% Recov	30.000	105.000			*	12/10/08
<b>Lab ID: W08GR04045</b>											
<b>BATCH QC ASSOCIATED WITH SAMPLE</b>											
SURR	Am-243 tracer by AEA	AM243	3.713	18.580	% Recov	30.000	105.000			*	12/10/08
<b>BATCH QC</b>											
BLANK	Americium-241	14596-10-2	U-8.8e-6	n/a	pCi/g	-10.000	1000.000				12/10/08
BLANK	Am-243 tracer by AEA	AM243	4.002	30.860	% Recov	30.000	105.000				12/10/08
LCS	Americium-241	14596-10-2	11.03	93.080	% Recov	80.000	120.000				12/10/08
LCS	Am-243 tracer by AEA	AM243	11.11	70.280	% Recov	30.000	105.000				12/10/08

# WSCF ANALYTICAL LABORATORY QC REPORT

Department: Radiochemistry

SDG Number: WSCF20082210  
 Matrix: SOLID  
 Test: Gamma Energy Analysis-grd H2O

Sample Date: 11/06/08  
 Receive Date: 11/06/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
<b>Lab ID: W08GR04036</b>											
<b>BATCH QC ASSOCIATED WITH SAMPLE</b>											
DUP	Cobalt-60	10198-40-0	U1.885e-3		RPD			n/a	20.000		11/10/08
DUP	Cesium-137	10045-97-3	U-3.432e-3		RPD			n/a	20.000		11/10/08
DUP	Europium-152	14683-23-9	U-4.179e-3		RPD			n/a	20.000		11/10/08
DUP	Europium-154	15585-10-1	U-9.747e-3		RPD			n/a	20.000		11/10/08
DUP	Europium-155	14391-16-3	U1.438e-2		RPD			n/a	20.000		11/10/08
<b>BATCH QC</b>											
BLANK	Cobalt-60	10198-40-0	U-2.193e-3	n/a	pCi/g	-10.000	1000.000				11/17/08
BLANK	Cesium-137	10045-97-3	U-2.197e-3	n/a	pCi/g	-10.000	1000.000				11/17/08
BLANK	Europium-152	14683-23-9	U6.204e-3	n/a	pCi/g	-10.000	1000.000				11/17/08
BLANK	Europium-154	15585-10-1	U2.035e-3	n/a	pCi/g	-10.000	1000.000				11/17/08
BLANK	Europium-155	14391-16-3	U4.736e-3	n/a	pCi/g	-10.000	1000.000				11/17/08
LCS	Cobalt-60	10198-40-0	10440	105.030	% Recov	80.000	120.000				11/23/08
LCS	Cesium-137	10045-97-3	6339	104.950	% Recov	80.000	120.000				11/23/08

# WSCF ANALYTICAL LABORATORY QC REPORT

Department: Radiochemistry

SDG Number: WSCF20082210  
 Matrix: SOLID  
 Test: Plutonium Isotopics by AEA

Sample Date: 10/30/08  
 Receive Date: 10/30/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
Lab ID: W08GR04034 BATCH QC ASSOCIATED WITH SAMPLE											
DUP	Plutonium-238	13981-16-3	U1.8e-2		RPD			n/a	20.000		12/01/08
DUP	Pu-239/240 by AEA	PU-239/240	U6.6e-3		RPD			n/a	20.000		12/01/08
DUP	Pu-242	13982-10-0	6.028	91.650	% Recov	30.000	105.000				12/01/08
Lab ID: W08GR04042 BATCH QC ASSOCIATED WITH SAMPLE											
SURR	Pu-242	13982-10-0	6.028	85.300	% Recov	30.000	105.000				12/01/08
Lab ID: W08GR04043 BATCH QC ASSOCIATED WITH SAMPLE											
SURR	Pu-242	13982-10-0	6.183	84.930	% Recov	30.000	105.000				12/01/08
Lab ID: W08GR04044 BATCH QC ASSOCIATED WITH SAMPLE											
SURR	Pu-242	13982-10-0	6.208	21.100	% Recov	30.000	105.000				12/01/08
Lab ID: W08GR04045 BATCH QC ASSOCIATED WITH SAMPLE											
SURR	Pu-242	13982-10-0	5.793	20.620	% Recov	30.000	105.000				12/01/08
BATCH QC											
BLANK	Plutonium-238	13981-16-3	U1.2e-2	n/a	pCi/g	-10.000	1000.000				12/01/08
BLANK	Pu-239/240 by AEA	PU-239/240	1e-2	0.010	pCi/g	-10.000	1000.000				12/01/08
BLANK	Pu-242	PU242	6.245	83.500	% Recov	30.000	105.000				12/01/08
LCS	Pu-239/240 by AEA	PU-239/240	13.08	101.830	% Recov	80.000	120.000				12/01/08
LCS	Pu-242	PU242	17.33	87.370	% Recov	30.000	105.000				12/01/08

# WSCF ANALYTICAL LABORATORY QC REPORT

Department: Radiochemistry

SDG Number: WSCF20082210  
Matrix: SOLID  
Test: Plutonium Isotopics by AEA

Sample Date:  
Receive Date:

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
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# WSCF ANALYTICAL LABORATORY QC REPORT

Department: Radiochemistry

SDG Number: WSCF20082210  
 Matrix: SOLID  
 Test: Strontium 89/90

Sample Date: 11/06/08  
 Receive Date: 11/06/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
<b>Lab ID: W08GR04036</b>											
<b>BATCH QC ASSOCIATED WITH SAMPLE</b>											
DUP	Sr-85 Tracer by Beta Counting	SR85	94.3	94.300	% Recov	30.000	105.000				12/11/08
DUP	Strontium-89/90	SR-RAD	U9.5E-02		RPD			n/a	20.000		12/11/08
<b>Lab ID: W08GR04042</b>											
<b>BATCH QC ASSOCIATED WITH SAMPLE</b>											
SURR	Sr-85 Tracer by Beta Counting	SR85	99.2	99.200	% Recov	30.000	105.000				12/11/08
<b>Lab ID: W08GR04043</b>											
<b>BATCH QC ASSOCIATED WITH SAMPLE</b>											
SURR	Sr-85 Tracer by Beta Counting	SR85	89.1	89.100	% Recov	30.000	105.000				12/11/08
<b>Lab ID: W08GR04044</b>											
<b>BATCH QC ASSOCIATED WITH SAMPLE</b>											
SURR	Sr-85 Tracer by Beta Counting	SR85	85.4	85.400	% Recov	30.000	105.000				12/11/08
<b>Lab ID: W08GR04045</b>											
<b>BATCH QC ASSOCIATED WITH SAMPLE</b>											
SURR	Sr-85 Tracer by Beta Counting	SR85	85.0	85.000	% Recov	30.000	105.000				12/11/08
<b>BATCH QC</b>											
BLANK	Sr-85 Tracer by Beta Counting	SR85	94.1	94.100	% Recov	30.000	105.000				12/11/08
BLANK	Strontium-89/90	10098-97-2	U-4.2E-01	n/a	pCi/g	-10.000	300.000				12/11/08
LCS	Sr-85 Tracer by Beta Counting	SR85	98.1	98.100	% Recov	30.000	105.000				12/11/08
LCS	Strontium-89/90	10098-97-2	67.9	97.810	% Recov	80.000	120.000				12/11/08

# WSCF ANALYTICAL LABORATORY QC REPORT

Department: Radiochemistry

SDG Number: WSCF20082210  
 Matrix: SOLID  
 Test: Uranium Isotopics by AEA

Sample Date: 10/30/08  
 Receive Date: 10/30/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
<b>Lab ID: W08GR04034</b>											
<b>BATCH QC ASSOCIATED WITH SAMPLE</b>											
DUP	U-232 tracer by AEA	U232	3.97	103.680	% Recov	30.000	105.000				12/01/08
DUP	Uranium-233/234	U-233/234	6.8e-2		RPD			38.095	20.000 •		12/01/08
DUP	Uranium-235	15117-96-1	6.8e-3		RPD			38.095	20.000 •		12/01/08
DUP	Uranium-238	U-238	8.2e-2		RPD			5.000	20.000		12/01/08
<b>Lab ID: W08GR04042</b>											
<b>BATCH QC ASSOCIATED WITH SAMPLE</b>											
SURR	U-232 tracer by AEA	U232	3.97	99.450	% Recov	30.000	105.000				12/01/08
<b>Lab ID: W08GR04043</b>											
<b>BATCH QC ASSOCIATED WITH SAMPLE</b>											
SURR	U-232 tracer by AEA	U232	4.072	99.460	% Recov	30.000	105.000				12/01/08
<b>Lab ID: W08GR04044</b>											
<b>BATCH QC ASSOCIATED WITH SAMPLE</b>											
SURR	U-232 tracer by AEA	U232	4.088	99.880	% Recov	30.000	105.000				12/01/08
<b>Lab ID: W08GR04045</b>											
<b>BATCH QC ASSOCIATED WITH SAMPLE</b>											
SURR	U-232 tracer by AEA	U232	3.815	93.560	% Recov	30.000	105.000				12/01/08
<b>BATCH QC</b>											
BLANK	U-232 tracer by AEA	U232	4.113	84.380	% Recov	30.000	105.000				12/01/08
BLANK	Uranium-233/234	13966-29-5	2.7e-2	0.027	pCi/g	-10.000	1000.000				12/01/08
BLANK	Uranium-235	15117-96-1	U4.2e-3	n/a	pCi/g	-10.000	1000.000				12/01/08
BLANK	Uranium-238	24678-82-8	U1.2e-2	n/a	pCi/g	-10.000	1000.000				12/01/08

# WSCF ANALYTICAL LABORATORY QC REPORT

Department: Radiochemistry

SDG Number: WSCF20082210  
Matrix: SOLID  
Test: Uranium Isotopics by AEA

Sample Date:  
Receive Date:

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
LCS	U-232 tracer by AEA	U232	11.41	93.410	% Recov	30.000	105.000				12/01/08
LCS	Uranium-233/234	13968-29-5	n/a	n/a	% Recov	75.000	125.000				12/01/08
LCS	Uranium-235	15117-96-1	n/a	n/a	% Recov	75.000	125.000				12/01/08
LCS	Uranium-238	24678-82-8	20.25	106.832	% Recov	80.000	120.000				12/01/08

# WSCF ANALYTICAL COMMENT REPORT

Attention: Steve Trent  
Project Number F08-165

Group #: WSCF20082210  
Department: Radiochemistry

Sample #	Client ID	Lab Area	Test	Comment
		VALGROUP		ICP-AES: Sample results < 5X MDL; "B" flag. Organics: All results are moisture corrected and reported on a dry weight basis. cgc U-234 & U-235 duplicate is flagged for poor RPD but the sample activities are near detection. Imh W08GR04044-45/Pu242 tracer recoveries are low but the data was reviewed and approved by the Scientist. Imh W08GR04042- 4045/Am-243 tracer recovery is low due to the difficult matrix. Imh

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-08-1304

ATTACHMENT 5

**SAMPLE RECEIPT INFORMATION**

Consisting of 6 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

12/22/08  
File KOB

ACKNOWLEDGMENT OF SAMPLES RECEIVED

Groundwater Remediation Program

Richland, WA 99354  
Attn: Steve Trent

Customer Code: GPP  
PO#: 123445/ES10  
Group#: 20082210  
Project#: F08-165  
Proj Mgr: Steve Trent E6-35  
Phone: 373-5869

The following samples were received from you on 11/06/08. 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
W08GR04042	B1XFP1	TRENT @2008 @GPP6010	Solid, or handle as if solid	11/06/08
W08GR04043	B1XFP5	TRENT @2008 @GPP6010	Solid, or handle as if solid	11/06/08
W08GR04044	B1XFP3	TRENT @2008 @GPP6010	Solid, or handle as if solid	11/06/08
W08GR04045	B1XFP7	TRENT @2008 @GPP6010	Solid, or handle as if solid	11/06/08

Test Acronym Description

Test Acronym	Description
@2008	✓ ICP-200.8 MS All possible meta
@AEA-30	✓ Plutonium Isotopics by AEA
@AEA-31	✓ Americium by AEA
@AEA-32	✓ Uranium Isotopics by AEA
@GEA-GPP	✓ Gamma Energy Analysis-grd H2O
@GPP6010	✓ ICP Metals Analysis, Grd H2O P
@PCBGPP	PCBs complete list
@SR89_90	✓ Strontium 89/90
@SVOCGPP	SW-846 8270C Semi-Vols
PERSOLID	Percent Solids

<b>COLLECTOR</b> NCO Sampler	<b>COMPANY CONTACT</b> TRENT, SJ	<b>TELEPHONE NO.</b> 373-5869	<b>PROJECT COORDINATOR</b> WIDRIG, DL	<b>PRICE CODE</b>	<b>SN</b>	<b>DATA TURNAROUND</b> 45 Days / 45 Days
<b>SAMPLING LOCATION</b> C6387	<b>PROJECT DESIGNATION</b> Chromium Source Investigation - North Plume - Waste Sampling		<b>SAF NO.</b> F08-165	<b>AIR QUALITY</b>	<input type="checkbox"/>	
<b>ICE CHEST NO.</b>	<b>FIELD LOGBOOK NO.</b> HNF-N 595-S	<b>ACTUAL SAMPLE DEPTH</b> 50'	<b>COA</b> 123445ES10	<b>METHOD OF SHIPMENT</b> GOVERNMENT VEHICLE		
<b>SHIPPED TO</b> Waste Sampling & Characterization	<b>OFFSITE PROPERTY NO.</b>	<b>BILL OF LADING/AIR BILL NO.</b>				

<b>MATRIX*</b> A=Air DL=Drum L=Liquid DS=Drum S=Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other	<b>POSSIBLE SAMPLE HAZARDS/ REMARKS</b> 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)	<b>PRESERVATION</b>	Cool-4C	Cool-4C	None
		<b>TYPE OF CONTAINER</b>	G/P	gG	Square Bottle - Poly
		<b>NO. OF CONTAINER(S)</b>	1	1	1
		<b>VOLUME</b>	120mL	500mL	500mL
<b>SPECIAL HANDLING AND/OR STORAGE</b>	<b>SAMPLE ANALYSIS</b>	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	SEE ITEM (3) IN SPECIAL INSTRUCTIONS	

20082210

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME			
B1XFP1	SOIL	11-6-08	0950	✓	✓	✓
ICED						

CHAIN OF POSSESSION	SIGN/ PRINT NAMES	SPECIAL INSTRUCTIONS
RELINQUISHED BY/REMOVED FROM <i>C. Fulton</i>	DATE/TIME 11-6-08 1015	RECEIVED BY/STORED IN <i>[Signature]</i>
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN

Sample @ 50 feet. Drum number HR3-08-083 / 0056231. Radioactive tie to B1XFP0.  
 (1)ICP Metals - 6010B (TAL) {Barium} ICP Metals - 6010B (Add-On) {Lead} ICP/MS - 200.8 (TAL) {Chromium} 200.8\_HG - ICPMS {Mercury}  
 (2)PCBs - 8082 {Aroclor-1254} Semi-VOA - 8270B (TCL) {Bis(2-ethylhexyl) phthalate}  
 (3)Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155} Americum-241 {Americum-241} Isotopic Plutonium {Plutonium-238, Plutonium-239/240} Isotopic Uranium {Uranium-233/234, Uranium-235, Uranium-238} Strontium-89,90 -- Total Sr {Total beta radiostrontium}

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



<b>COLLECTOR</b> NCO Sampler <i>Fulton, Bailey</i>	<b>COMPANY CONTACT</b> TRENT, SJ	<b>TELEPHONE NO.</b> 373-5869	<b>PROJECT COORDINATOR</b> WIDRIG, DL	<b>PRICE CODE</b> 8N	<b>DATA TURNAROUND</b> 45 Days / 45 Days
<b>SAMPLING LOCATION</b> C6389	<b>PROJECT DESIGNATION</b> Chromium Source Investigation - North Plume - Waste Sampling		<b>SAF NO.</b> F08-165	<b>AIR QUALITY</b> <input type="checkbox"/>	
<b>ICE CHEST NO.</b>	<b>FIELD LOGBOOK NO.</b> <i>HNF-N-585-5</i>	<b>ACTUAL SAMPLE DEPTH</b> <i>89'</i>	<b>COA</b> 123445E510	<b>METHOD OF SHIPMENT</b> GOVERNMENT VEHICLE	
<b>SHIPPED TO</b> Waste Sampling & Characterization			<b>BILL OF LADING/AIR BILL NO.</b>		

MATRIX*	POSSIBLE SAMPLE HAZARDS/ REMARKS	PRESERVATION		
		Cool-4C	Cool-4C	None
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	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)	G/P	aG	Square Bottle - Poly
		1	1	1
		120mL	500mL	500mL
		SEE ITEM (1) IN SPECIAL INSTRUCTIONS	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	SEE ITEM (3) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME			
B1XFP3	SOIL	11-6-07	0850	✓	✓	✓
<i>4044</i>						

**ICED**

*034561 034421 N/A*

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	Sample @ 89 feet. Drum number HR3-08-078 / 0056199. Radioactive tie to B1XFP2. (1) ICP Metals - 6010B (TAL) {Barium} ICP Metals - 6010B (Add-On) {Lead} ICP/MS - 200.8 (TAL) {Chromium} 200.8_HG - ICPMS {Mercury} (2) PCBs - 8082 {Aroclor-1254} Semi-VOA - 8270B (TCL) {Bis(2-ethylhexyl) phthalate} (3) Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155} Americium-241 {Americium-241} Isotopic Plutonium {Plutonium-238, Plutonium-239/240} Isotopic Uranium {Uranium-233/234, Uranium-235, Uranium-238} Strontium-89,90 -- Total Sr {Total beta radiostromium}	
<i>C. Fulton</i>	<i>11-6-07 1015</i>	<i>[Signature]</i>	<i>11/6/08 1015</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		

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OF  
50

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

