

RECEIVED SEPTEMBER 23, 2008

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**FLUOR****Memorandum**

M4W41-SLF-08-1037

To: H. Hampt E6-35 Date: September 22, 2008

From: S. L. Fitzgerald, Manager *Mark Draugh for SLF*  
 WSCF Analytical Lab

cc: w/Attachments

T. F. Dale	S3-30	J. E. Trechter	S3-30
A. J. Kopriva	S3-30	S. J. Trent	E6-35
H. K. Meznarich	S3-30	File/LB	
P. D. Mix	S3-30		

Subject: FINAL RESULTS FOR SAMPLE DELIVERY GROUP WSCF20081399 – SAF NUMBER F08-101

Reference: (1) Groundwater Protection Program-Letter of Instruction, FH-EIS-2003-MEM-001, October 31, 2002

(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 WSCF20081399:

- Cover Sheet (Attachment 1)
- Narrative (Attachment 2)
- Issue Resolution Form (Attachment 3)
- Analytical Results (Attachment 4)
- Sample Receipt Information (Attachment 5)
- Sample Record Sheet (Attachment 6)

SLF/grf

Attachments 6

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**EDMC**

M4W41-SLF-08-1037

ATTACHMENT 1

**COVER SHEET**

Consisting of 2 pages  
Including cover page

## WSCF SAF NUMBER CROSS REFERENCE

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Group#: WSCF20081399  
Data Deliverable Date: 21-aug-2008  
Data Deliverable: Cover Sheet

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SAF#	Sample ID	WSCF#	Matrix
F08-101	B1VDX1	W08GR02383	SOIL
	B1VDX3	W08GR02382	SOIL
	B1VDX4	W08GR02386	SOIL
	B1VDX6	W08GR02385	SOIL

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ATTACHMENT 2

**NARRATIVE**

Consisting of 5 pages  
Including cover page

## Introduction

Six S&GRP samples were received at the WSCF Laboratory on July 10, 2008. Four of the samples were 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. Analyses of the high concentration VOA samples and the associated Methanol Blanks (B1VDX2 and B1VDX5) were not required.

The narrative (Attachment 2) will address sample characteristics, analyses requested and general information in performance of the analytical methods. A copy of proposed Issue Resolution Form, documenting WSCF Laboratory error (missing Batch QC on one GEA sample) 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. Additionally, a copy of a sample record sheet is included as Attachment 6.

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 16 through 18, for a complete listing of approved analytical methods.

## Inorganic Comments

**Anions** – Hold time requirements for this analysis were 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 23 through 24 for QC details. Analytical Note(s):

- Duplicate, Matrix Spike and Matrix Spike Duplicate were analyzed on sample# B1VHM0 (SDG# 20081276, SAF# F08-093).
- Sample results were D flagged if dilution(s) were required.
- Sample results that were less than the reportable limit, however greater than the method detection limit were B flagged.
- Sulfate and Nitrate - Duplicate Relative Percent Differences (RPD) slightly exceeded established laboratory limits. No flags issued.

All other QC controls are within the established limits.

**Cyanide** – 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 per GRP Letter of Instruction. See page 25 for QC details.

All QC controls are within the established limits.

**ICP-AES Metals** – The hold time requirements for this analysis were 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 26 through 27 for QC details. Analytical Note(s):

- Matrix Spike and Matrix Spike Duplicate were analyzed on sample# B1WB31 (SDG# 20081501, SAF# F08-093).
- Lithium – Laboratory Control Sample (LCS) used for soil samples does not contain Lithium. Lithium has no certified value.
- Boron – Sample results were biased high due to Iron interference. Sample results were E flagged.
- Aluminum and Iron – Sample concentrations exceeded spiking levels by a factor of 4. Matrix Spike and Matrix Spike Duplicate recoveries exceeded established laboratory limits. Spike recoveries are not valid. Sample results were not flagged. Check standard was analyzed to ensure linearity, because the sample results exceeded the calibration standard.
- Sodium – Matrix Spike and Matrix Spike Duplicate recoveries exceeded established laboratory limits. Sample results were N flagged.

All other QC controls are within the established limits.

**ICP-MS Metals** – The hold time requirements for this analysis were 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 28 through 31 for QC details. Analytical Note(s):

- Matrix Spike and Matrix Spike Duplicate were analyzed on sample# B1V528 (SDG# 20081326, SAF# F08-101).
- Beryllium – Matrix Spike and Matrix Spike Duplicate recoveries were less than established laboratory limits. Sample results were N flagged.
- Zinc contamination detected in the Blank was evaluated and there was no affect on sample results.

All other QC controls are within the established limits.

**Percent Solids** – analyzed for organic moisture correction.

#### **Organic Comments**

*Note: Sample concentrations are corrected for moisture and reported as dry weight basis*

**Alcohol/Glycols** – The hold 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 page 40 for QC details.

All QC controls are within the established limits.

**TPHD-WA** – The hold time requirements for this analysis were met. A Matrix Spike, Matrix Spike Duplicate, Blank and Laboratory Control Sample were analyzed with this delivery group. See page 41 for QC details.

All QC controls are within the established limits.

**VOA** – 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 per the GRP Letter of Instruction. See pages 42 through 45 for QC details. Analytical Note(s):

- Analyses of the high concentration VOA samples and the associated Methanol Blanks (B1V DX2 and B1V DX5) were not required.
- Matrix Spike and Matrix Spike Duplicate were analyzed on sample# B1W180 (SDG# 20081396, SAF# F08-132).

All QC controls are within the established limits.

### **Radiochemistry Comments**

**Rad Chem** – 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 pages 50 through 54 for QC details. Analytical Note(s):

- GEA – Duplicate QC for sample# B1V DX3 was inadvertently missed. A copy of proposed Issue Resolution Form \_\_\_\_\_, documenting Laboratory error, is included as Attachment 3.
- Americium-241, Curium-242 and Curium-244 – Duplicate QC was analyzed on sample# B1V528 (SDG# 20081326, SAF# F08-101). Duplicate Relative Percent Difference (RPD) for Americium-241 exceeded established laboratory limits. No flags issued.
- Plutonium-238, 239/240 and 242 (tracer) – Duplicate QC was analyzed on sample# B1V528 (SDG# 20081326, SAF# F08-101).
- Strontium-89/90 and 85 (tracer) – Duplicate QC was analyzed on sample# B1W182 (SDG# 20081396, SAF# F08-132).
- Uranium-233/234, 235, 238 and 232 (tracer) – Duplicate QC was analyzed on sample# B1V528 (SDG# 20081326, SAF# F08-101). Duplicate RPD for Uranium-235 exceeded established laboratory limits. No flags issued.

All other 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



Pauline D. Mix  
WSCF Client Services

M4W41-SLF-08-1037

ATTACHMENT 3

**ISSUE RESOLUTION FORM**

Consisting of 2 pages  
Including cover page

**ISSUE RESOLUTION FORM**

**DRAFT**

**FH TRACKING NUMBER:** 08-XXX

Date : **9-22-2008**      SAF No. **F08-101**

SDG: **WSCF20081399**      LOGIN No.:      TEST: **@GEA-GPP**

Sample No.(s)      **B1VDX3**

**W08GR02382**

Submitted By: **A.D. Rice**      Submitted To: **H Hampt**  
Phone No.      **373-7178**      Phone No.      **376-4319**  
Fax No.      **372-0456**      Fax No

**ISSUE**

Due to a laboratory error, QC data was inadvertently missed.

**PROPOSED RESOLUTION**

- Proposed resolution(s)
- Document laboratory error in the case narrative and issue report less the missing GEA Batch QC data.
  - Retrieve GEA sample from the WSCF Laboratory archive and expedite duplicate count on sample (including Blank and LCS).
  - Issue missing GEA data to client.

**GRP COMMENTS**

\_\_\_\_\_  
Signature and Date

M4W41-SLF-08-1037

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: M. Stauffer M. Stauffer 9/22/08

Client Services: P.D. Mir P.D. Mir 9/22/2008

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

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Contract#: FH-EIS-2003-MEM-001  
Report#: WSCF20081399  
Report Date: 21-sep-2008  
Report WGPP/ver. 5.2  
Groundwater Remediation Program

Page 1

Department: Inorganic

## W13q Worklist/Batch/QC Report for Group# WSCF20081399

WL#	S#	Batch	QC#	Tray Type	Sample#	Test
				SAMPLE	W08GR02382	Percent Solids
				SAMPLE	W08GR02385	Percent Solids
37124	1	37550	41892	BLANK		Cyanide by Midi/Spectrophotom
37124	2	37550	41892	LCS		Cyanide by Midi/Spectrophotom
37124	4	37550	41892	MS	W08GR02382	Cyanide by Midi/Spectrophotom
37124	5	37550	41892	MSD	W08GR02382	Cyanide by Midi/Spectrophotom
37124	3	37550	41892	SAMPLE	W08GR02382	Cyanide by Midi/Spectrophotom
37124	5	37550	41892	SPK-RPD	W08GR02382	Cyanide by Midi/Spectrophotom
37124	6	37550	41892	SAMPLE	W08GR02385	Cyanide by Midi/Spectrophotom
37238	1	37670	41986	BLANK		ICP-200.8 MS All possible meta
37238	2	37670	41986	LCS		ICP-200.8 MS All possible meta
37238	4	37670	41986	MS	W08GR02040	ICP-200.8 MS All possible meta
37238	5	37670	41986	MSD	W08GR02040	ICP-200.8 MS All possible meta
37238	5	37670	41986	SPK-RPD	W08GR02040	ICP-200.8 MS All possible meta
37238	10	37670	41986	SAMPLE	W08GR02382	ICP-200.8 MS All possible meta
37238	11	37670	41986	SAMPLE	W08GR02385	ICP-200.8 MS All possible meta
37430	2	37861	42175	BLANK		Anions by Ion Chromatography
37430	17	37861	42175	BLANK		Anions by Ion Chromatography
37430	3	37861	42175	LCS		Anions by Ion Chromatography
37430	5	37861	42175	DUP	W08GR01844	Anions by Ion Chromatography
37430	6	37861	42175	MS	W08GR01844	Anions by Ion Chromatography
37430	7	37861	42175	MSD	W08GR01844	Anions by Ion Chromatography
37430	7	37861	42175	SPK-RPD	W08GR01844	Anions by Ion Chromatography
37430	12	37861	42175	SAMPLE	W08GR02382	Anions by Ion Chromatography
37430	13	37861	42175	SAMPLE	W08GR02385	Anions by Ion Chromatography
37959	1	38382	42909	BLANK		ICP Metals Analysis, Grd H20 P
37959	2	38382	42909	LCS		ICP Metals Analysis, Grd H20 P
37959	7	38382	42909	SAMPLE	W08GR02382	ICP Metals Analysis, Grd H20 P
37959	8	38382	42909	SAMPLE	W08GR02385	ICP Metals Analysis, Grd H20 P
37959	4	38382	42909	MS	W08GR02733	ICP Metals Analysis, Grd H20 P
37959	5	38382	42909	MSD	W08GR02733	ICP Metals Analysis, Grd H20 P
37959	5	38382	42909	SPK-RPD	W08GR02733	ICP Metals Analysis, Grd H20 P

Department: Organic

## W13q Worklist/Batch/QC Report for Group# WSCF20081399

WL#	S#	Batch	QC#	Tray Type	Sample#	Test
			41939	BLANK		NWTPH-D TPH Diesel Range (Wa)
			41939	LCS		NWTPH-D TPH Diesel Range (Wa)
			41939	MS	W08GR02382	NWTPH-D TPH Diesel Range (Wa)
			41939	MSD	W08GR02382	NWTPH-D TPH Diesel Range (Wa)
			41939	SAMPLE	W08GR02382	NWTPH-D TPH Diesel Range (Wa)
			41939	SPK-RPD	W08GR02382	NWTPH-D TPH Diesel Range (Wa)
			41939	SURR	W08GR02382	NWTPH-D TPH Diesel Range (Wa)
			41939	SAMPLE	W08GR02385	NWTPH-D TPH Diesel Range (Wa)
			41939	SURR	W08GR02385	NWTPH-D TPH Diesel Range (Wa)
37691	1	38124	42482	BLANK		Alcohols, Glycols - 8015
37691	2	38124	42482	LCS		Alcohols, Glycols - 8015
37691	4	38124	42482	DUP	W08GR02382	Alcohols, Glycols - 8015
37691	5	38124	42482	MS	W08GR02382	Alcohols, Glycols - 8015
37691	6	38124	42482	MSD	W08GR02382	Alcohols, Glycols - 8015
37691	3	38124	42482	SAMPLE	W08GR02382	Alcohols, Glycols - 8015
37691	6	38124	42482	SPK-RPD	W08GR02382	Alcohols, Glycols - 8015
37691	7	38124	42482	SAMPLE	W08GR02385	Alcohols, Glycols - 8015
			42498	BLANK		VOA Ground Water Protection
			42498	LCS		VOA Ground Water Protection
			42498	MS	W08GR02380	VOA Ground Water Protection
			42498	MSD	W08GR02380	VOA Ground Water Protection
			42498	SPK-RPD	W08GR02380	VOA Ground Water Protection
			42498	SAMPLE	W08GR02383	VOA Ground Water Protection
			42498	SURR	W08GR02383	VOA Ground Water Protection
			42498	SAMPLE	W08GR02386	VOA Ground Water Protection
			42498	SURR	W08GR02386	VOA Ground Water Protection

Department: Radiochemistry

## W13q Worklist/Batch/QC Report for Group# WSCF20081399

WL#	S#	Batch	QC#	Tray Type	Sample#	Test
37432	1	37863	42224	BLANK		Gamma Energy Analysis-grd H2O
37432	2	37863	42224	LCS		Gamma Energy Analysis-grd H2O
37432	3	37863	42224	DUP	W08GR02385	Gamma Energy Analysis-grd H2O
37432	4	37863	42224	SAMPLE	W08GR02385	Gamma Energy Analysis-grd H2O
37160	1	37586	42252	BLANK		Strontium 89/90
37160	2	37586	42252	LCS		Strontium 89/90
37160	3	37586	42252	DUP	W08GR02378	Strontium 89/90
37160	6	37586	42252	SAMPLE	W08GR02382	Strontium 89/90
37160	7	37586	42252	SURR	W08GR02382	Strontium 89/90
37160	8	37586	42252	SAMPLE	W08GR02385	Strontium 89/90
37160	9	37586	42252	SURR	W08GR02385	Strontium 89/90
37551	2	37991	42349	SAMPLE	W08GR02382	Gamma Energy Analysis-grd H2O
37571	1	38010	42364	BLANK		Plutonium Isotopics by AEA
37571	2	38010	42364	LCS		Plutonium Isotopics by AEA
37571	3	38010	42364	DUP	W08GR02040	Plutonium Isotopics by AEA
37571	6	38010	42364	SAMPLE	W08GR02382	Plutonium Isotopics by AEA
37571	7	38010	42364	SURR	W08GR02382	Plutonium Isotopics by AEA
37571	8	38010	42364	SAMPLE	W08GR02385	Plutonium Isotopics by AEA
37571	9	38010	42364	SURR	W08GR02385	Plutonium Isotopics by AEA
37576	1	38015	42384	BLANK		Am/Cm by Isotopics AEA
37576	2	38015	42384	LCS		Am/Cm by Isotopics AEA
37576	3	38015	42384	DUP	W08GR02040	Am/Cm by Isotopics AEA
37576	6	38015	42384	SAMPLE	W08GR02382	Am/Cm by Isotopics AEA
37576	7	38015	42384	SAMPLE	W08GR02385	Am/Cm by Isotopics AEA
37581	1	38021	42388	BLANK		Uranium Isotopics by AEA
37581	2	38021	42388	LCS		Uranium Isotopics by AEA
37581	3	38021	42388	DUP	W08GR02040	Uranium Isotopics by AEA
37581	6	38021	42388	SAMPLE	W08GR02382	Uranium Isotopics by AEA
37581	7	38021	42388	SURR	W08GR02382	Uranium Isotopics by AEA
37581	8	38021	42388	SAMPLE	W08GR02385	Uranium Isotopics by AEA
37581	9	38021	42388	SURR	W08GR02385	Uranium Isotopics by AEA

# 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
<b>LA-533-410</b>	<b>LA-533-410: ANION ANALYSIS BY ION CHROMATOGRAPHY</b> <b>EPA-600/R-94-111 300.0</b> DETERMINATION OF INORGANIC ANIONS BY ION CHROMATOGRAPHY <b>HEIS 300.0_ANIONS_IC</b> Determination of Inorganic Anions by Ion Chromatography
<b>LA-695-402</b>	<b>LA-695-402: DETERMINATION OF CYANIDE BY MIDIDISTILLATION AND SPECTROPHOTOMETRIC</b> <b>EPA-600/4-79-020 335.2</b> Cyanide, Total <b>HEIS 335.2_CYANIDE</b> Cyanide, Total

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: 21-sep-2008

Report#: WSCF20081399

Report WGPPM/5.2

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# 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-523-493</b>	<b>NWTPH-Diesel and/or Gasoline</b>
	<b>HEIS WTPH DIESEL (HEIS)</b> Total Petroleum Hydrocarbons in Diesel
	<b>WDOE TPHD</b> Total Petroleum Hydrocarbons in Diesel
<b>Organics</b>	<b>Organics - Alcohols, Glycols</b>
	<b>EPA SW-846 8015B</b> Nonhalogenated Organics Using GC/FID

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: 21-sep-2008

Report#: WSCF20081399

Report WGPPM/5.2

Page 1



# WSCF ANALYTICAL RESULTS REPORT

Attention: Steve Trent  
 SAF Number: F08-101  
 Sample # W08GR02382  
 Client ID: B1VDX3

GPP TRENT  
 WSCF

Matrix: SOIL

Group #: WSCF20081399  
 Department: Inorganic  
 Sampled: 07/09/08  
 Received: 07/10/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
<b>Anions by Ion Chromatography Prep</b>											08/04/08
<b>Anions by Ion Chromatography</b>											
Fluoride	16984-48-8	LA-533-410	DU	< 0.300	mg/kg			50.00	0.30		08/04/08
Chloride	16887-00-6	LA-533-410	BD	3.34	mg/kg			50.00	1.5		08/04/08
Nitrogen in Nitrite	NO2-N	LA-533-410	DU	< 0.500	mg/kg			50.00	0.50		08/04/08
Nitrogen in Nitrate	NO3-N	LA-533-410	BD	1.38	mg/kg			50.00	0.25		08/04/08
Sulfate	14808-79-8	LA-533-410	BD	22.4	mg/kg			50.00	3.5		08/04/08
<b>Cyanide</b>											
Cyanide	57-12-5	LA-695-402	U	< 0.179	mg/kg			0.90	0.18		07/15/08
<b>ICP Metals Analysis, Grd H20 P Prep</b>											09/11/08
<b>ICP Metals Analysis, Grd H20 P</b>											
Aluminum	7429-90-5	LA-505-411		7.52e+03	mg/kg			1.00e+002	5.2		09/17/08
Iron	7439-89-6	LA-505-411		1.63e+04	mg/kg			1.00e+002	2.5		09/17/08
Sodium	7440-23-5	LA-505-411	N	577	mg/kg			1.00e+002	5.1		09/17/08
Lithium	7439-93-2	LA-505-411		6.76	mg/kg			1.00e+002	0.40		09/17/08
Boron	7440-42-8	LA-505-411	E	12.1	mg/kg			1.00e+002	2.0		09/17/08
Bismuth	7440-69-9	LA-505-411	U	< 3.50	mg/kg			1.00e+002	3.5		09/17/08
<b>ICP-200.8 MS All possible meta Prep</b>											07/23/08
<b>ICP-200.8 MS All possible meta</b>											
Manganese	7439-96-5	LA-505-412		248	mg/kg			0.96	0.0956		07/23/08
Nickel	7440-02-0	LA-505-412		13.6	mg/kg			0.96	0.191		07/23/08
Silver	7440-22-4	LA-505-412	U	< 0.0956	mg/kg			0.96	0.0956		07/23/08
Antimony	7440-36-0	LA-505-412	U	< 0.287	mg/kg			0.96	0.287		07/23/08
Barium	7440-39-3	LA-505-412		76.3	mg/kg			0.96	0.191		07/23/08
Beryllium	7440-41-7	LA-505-412	N	0.170	mg/kg			0.96	0.0478		07/23/08

**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)

E - Analyte is an estimate, has potentially larger errors(inorg)

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

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

D - Analyte was identified at a secondary dilution factor(inorg)

N - Spike sample recovery is outside control limits.(inorg)

U - Analyzed for but not detected above limiting criteria.

\* - 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:** F08-101  
**Sample #** W08GR02382  
**Client ID:** B1V DX3

**GPP** TRENT  
**WSCF**

**Matrix:** SOIL

**Group #:** WSCF20081399  
**Department:** Inorganic  
**Sampled:** 07/09/08  
**Received:** 07/10/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Cadmium	7440-43-9	LA-505-412	U	< 0.0956	mg/kg			0.96	0.0956		07/23/08
Chromium	7440-47-3	LA-505-412		19.4	mg/kg			0.96	0.478		07/23/08
Cobalt	7440-48-4	LA-505-412		5.57	mg/kg			0.96	0.0478		07/23/08
Copper	7440-50-8	LA-505-412		13.3	mg/kg			0.96	0.0956		07/23/08
Vanadium	7440-62-2	LA-505-412		42.3	mg/kg			0.96	0.191		07/23/08
Zinc	7440-66-6	LA-505-412		31.1	mg/kg			0.96	0.765		07/23/08
Lead	7439-92-1	LA-505-412		2.25	mg/kg			0.96	0.0956		07/23/08
Mercury	7439-97-6	LA-505-412	U	< 0.0478	mg/kg			0.96	0.0478		07/23/08
Uranium	7440-61-1	LA-505-412		0.370	mg/kg			0.96	0.0478		07/23/08
Arsenic	7440-38-2	LA-505-412		1.56	mg/kg			0.96	0.382		07/23/08
Selenium	7782-49-2	LA-505-412		0.430	mg/kg			0.96	0.287		07/23/08
Thallium	7440-28-0	LA-505-412	U	< 0.0956	mg/kg			0.96	0.0956		07/23/08
Strontium	7440-24-6	LA-505-412		29.0	mg/kg			0.96	0.0956		07/23/08
<b>Total solids</b>											
Total solids	TS	LA-519-412		97.8	Percent			1.00	0.0		07/16/08

**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)  
 E - Analyte is an estimate, has potentially larger errors.(inorg)  
 U - Analyzed for but not detected above limiting criteria.(inorg)  
 U - Analyzed for but not detected above limiting criteria.(org)

D - Analyte was identified at a secondary dilution factor.(inorg)  
 N - Spike sample recovery is outside control limits.(inorg)  
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\* - 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: F08-101  
Sample # W08GR02385  
Client ID: B1VDX6

GPP TRENT  
WSCF

Matrix: SOIL

Group #: WSCF20081399  
Department: Inorganic  
Sampled: 07/09/08  
Received: 07/10/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
<b>Anions by Ion Chromatography Prep</b>											08/04/08
<b>Anions by Ion Chromatography</b>											
Fluoride	16984-48-8	LA-533-410	DU	< 0.300	mg/kg			50.00	0.30		08/04/08
Chloride	16887-00-6	LA-533-410	BD	3.68	mg/kg			50.00	1.5		08/04/08
Nitrogen in Nitrite	NO2-N	LA-533-410	DU	< 0.500	mg/kg			50.00	0.50		08/04/08
Nitrogen in Nitrate	NO3-N	LA-533-410	BD	1.81	mg/kg			50.00	0.25		08/04/08
Sulfate	14808-79-8	LA-533-410	BD	19.5	mg/kg			50.00	3.5		08/04/08
<b>Cyanide</b>											
Cyanide	57-12-5	LA-895-402	U	< 0.186	mg/kg			0.93	0.19		07/15/08
<b>ICP Metals Analysis, Grd H2O P Prep</b>											09/11/08
<b>ICP Metals Analysis, Grd H2O P</b>											
Aluminum	7429-90-5	LA-505-411		6.24e+03	mg/kg			99.13	5.2		09/17/08
Iron	7439-89-6	LA-505-411		1.59e+04	mg/kg			99.13	2.5		09/17/08
Sodium	7440-23-5	LA-505-411	N	525	mg/kg			99.13	5.1		09/17/08
Lithium	7439-93-2	LA-505-411		5.68	mg/kg			99.13	0.40		09/17/08
Boron	7440-42-8	LA-505-411	E	11.8	mg/kg			99.13	2.0		09/17/08
Bismuth	7440-69-9	LA-505-411	U	< 3.47	mg/kg			99.13	3.5		09/17/08
<b>ICP-200.8 MS All possible meta Prep</b>											07/23/08
<b>ICP-200.8 MS All possible meta</b>											
Manganese	7439-96-5	LA-505-412		260	mg/kg			0.90	0.0901		07/23/08
Nickel	7440-02-0	LA-505-412		20.6	mg/kg			0.90	0.180		07/23/08
Silver	7440-22-4	LA-505-412	U	< 0.0901	mg/kg			0.90	0.0901		07/23/08
Antimony	7440-36-0	LA-505-412	U	< 0.270	mg/kg			0.90	0.270		07/23/08
Barium	7440-39-3	LA-505-412		75.0	mg/kg			0.90	0.180		07/23/08
Beryllium	7440-41-7	LA-505-412	N	0.180	mg/kg			0.90	0.0450		07/23/08

**MDL = Minimum Detection Limit**  
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**TP Err = Total Propagated Error**  
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U - Analyzed for but not detected above limiting criteria. (org)

D - Analyte was identified at a secondary dilution factor (inorg)  
N - Spike sample recovery is outside control limits. (inorg)  
U - Analyzed for but not detected above limiting criteria.

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

# WSCF ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent  
**SAF Number:** F08-101  
**Sample #** W08GR02385  
**Client ID:** B1VDX6

**Group #:** WSCF20081399  
**Department:** Inorganic  
**Sampled:** 07/09/08  
**Received:** 07/10/08

**GPP TRENT**  
**WSCF**  
**Matrix: SOIL**

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Cadmium	7440-43-9	LA-505-412	U	< 0.0901	mg/kg			0.90	0.0901		07/23/08
Chromium	7440-47-3	LA-505-412		32.7	mg/kg			0.90	0.450		07/23/08
Cobalt	7440-48-4	LA-505-412		5.59	mg/kg			0.90	0.0450		07/23/08
Copper	7440-50-8	LA-505-412		11.5	mg/kg			0.90	0.0901		07/23/08
Vanadium	7440-82-2	LA-505-412		42.2	mg/kg			0.90	0.180		07/23/08
Zinc	7440-66-6	LA-505-412		31.8	mg/kg			0.90	0.721		07/23/08
Lead	7439-92-1	LA-505-412		2.68	mg/kg			0.90	0.0901		07/23/08
Mercury	7439-97-8	LA-505-412	U	< 0.0450	mg/kg			0.90	0.0450		07/23/08
Uranium	7440-61-1	LA-505-412		0.390	mg/kg			0.90	0.0450		07/23/08
Arsenic	7440-38-2	LA-505-412		1.85	mg/kg			0.90	0.360		07/23/08
Selenium	7782-49-2	LA-505-412		0.410	mg/kg			0.90	0.270		07/23/08
Thallium	7440-28-0	LA-505-412	U	< 0.0901	mg/kg			0.90	0.0901		07/23/08
Strontium	7440-24-6	LA-505-412		30.5	mg/kg			0.90	0.0901		07/23/08
<b>Total solids</b>											
Total solids	TS	LA-519-412		97.9	Percent			1.00	0.0		07/16/08

**MDL=Minimum Detection Limit**

**RQ=Result Qualifier**

**TP Err=Total Propagated Error**

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Groundwater Remediation Program

# WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20081399  
 Matrix: SOLID  
 Test: Anions by Ion Chromatography

Sample Date: 06/23/08  
 Receive Date: 06/26/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
<b>Lab ID: W08GR01844</b>											
<b>BATCH QC ASSOCIATED WITH SAMPLE</b>											
DUP	Chloride	16887-00-6	<1.5		RPD			n/a	20.000	U	08/04/08
DUP	Fluoride	16984-48-8	<0.3		RPD			n/a	20.000	U	08/04/08
DUP	Nitrogen in Nitrite	NO2-N	<0.5		RPD			n/a	20.000	U	08/04/08
DUP	Nitrogen in Nitrate	NO3-N	0.7245		RPD			27.068	20.000 *		08/04/08
DUP	Sulfate	14808-79-8	4.6301		RPD			20.283	20.000 *		08/04/08
MS	Chloride	16887-00-6	1.00111	100.111	% Recov	80.000	120.000				08/04/08
MS	Fluoride	16984-48-8	0.439406	88.234	% Recov	80.000	120.000				08/04/08
MS	Nitrogen in Nitrite	NO2-N	0.47114	94.797	% Recov	80.000	120.000				08/04/08
MS	Nitrogen in Nitrate	NO3-N	0.435858	96.857	% Recov	80.000	120.000				08/04/08
MS	Sulfate	14808-79-8	1.761728	88.976	% Recov	80.000	120.000				08/04/08
MSD	Chloride	16887-00-6	0.896248	89.625	% Recov	80.000	120.000				08/04/08
MSD	Fluoride	16984-48-8	0.421842	84.707	% Recov	80.000	120.000				08/04/08
MSD	Nitrogen in Nitrite	NO2-N	0.441128	88.758	% Recov	80.000	120.000				08/04/08
MSD	Nitrogen in Nitrate	NO3-N	0.41529	92.287	% Recov	80.000	120.000				08/04/08
MSD	Sulfate	14808-79-8	1.718028	86.668	% Recov	80.000	120.000				08/04/08
SPK-RPD	Chloride	16887-00-6	89.625		RPD			11.053	20.000		08/04/08
SPK-RPD	Fluoride	16984-48-8	84.707		RPD			4.079	20.000		08/04/08
SPK-RPD	Nitrogen in Nitrite	NO2-N	88.758		RPD			6.580	20.000		08/04/08
SPK-RPD	Nitrogen in Nitrate	NO3-N	92.287		RPD			4.832	20.000		08/04/08
SPK-RPD	Sulfate	14808-79-8	86.668		RPD			2.628	20.000		08/04/08
<b>BATCH QC</b>											
BLANK	Chloride	16887-00-6	<3e-2	n/a	mg/L	0.000	0.030			U	08/04/08
BLANK	Chloride	16887-00-6	<3e-2	n/a	mg/L	0.000	0.030			U	08/04/08
BLANK	Fluoride	16984-48-8	<6e-3	n/a	mg/L	0.000	0.030			U	08/04/08
BLANK	Fluoride	16984-48-8	<6e-3	n/a	mg/L	0.000	0.030			U	08/04/08

# WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20081399  
 Matrix: SOLID  
 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
BLANK	Nitrogen in Nitrite	NO2-N	< 1e-2	n/a	mg/L	0.000	0.020			U	08/04/08
BLANK	Nitrogen in Nitrite	NO2-N	< 1e-2	n/a	mg/L	0.000	0.020			U	08/04/08
BLANK	Nitrogen in Nitrate	NO3-N	< 5e-3	n/a	mg/L	0.000	0.040			U	08/04/08
BLANK	Nitrogen in Nitrate	NO3-N	< 5e-3	n/a	mg/L	0.000	0.040			U	08/04/08
BLANK	Sulfate	14808-79-8	< 7e-2	n/a	mg/L	0.000	0.200			U	08/04/08
BLANK	Sulfate	14808-79-8	< 7e-2	n/a	mg/L	0.000	0.200			U	08/04/08
LCS	Chloride	16887-00-6	199.4403	99.224	% Recov	80.000	120.000				08/04/08
LCS	Fluoride	16984-48-8	107.0049	107.435	% Recov	80.000	120.000				08/04/08
LCS	Nitrogen in Nitrite	NO2-N	103.2504	103.874	% Recov	80.000	120.000				08/04/08
LCS	Nitrogen in Nitrate	NO3-N	94.8425	105.264	% Recov	80.000	120.000				08/04/08
LCS	Sulfate	14808-79-8	391.7178	98.919	% Recov	80.000	120.000				08/04/08

# WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20081399  
 Matrix: SOLID  
 Test: Cyanide by Midi/Spectrophotom

Sample Date: 07/09/08  
 Receive Date: 07/10/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
<b>Lab ID: W08GR02382</b>											
<b>BATCH QC ASSOCIATED WITH SAMPLE</b>											
MS	Cyanide by Midi/Spectrophotom	57-12-5	1.76	93.617	% Recov	75.000	125.000				07/15/08
MSD	Cyanide by Midi/Spectrophotom	57-12-5	1.73	98.857	% Recov	75.000	125.000				07/15/08
SPK-RPD	Cyanide by Midi/Spectrophotom	57-12-5	98.857		RPD			5.445	20.000		07/15/08
<b>BATCH QC</b>											
BLANK	Cyanide by Midi/Spectrophotom	57-12-5	< 4	n/a	ug/L	-4.000	4.000			U	07/15/08
LCS	Cyanide by Midi/Spectrophotom	57-12-5	48	96.000	% Recov	85.000	115.000				07/15/08

# WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20081399  
 Matrix: SOLID  
 Test: ICP Metals Analysis, Grd H20 P

Sample Date: 07/17/08  
 Receive Date: 07/21/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
<b>Lab ID: W08GR02733</b>											
<b>BATCH QC ASSOCIATED WITH SAMPLE</b>											
MS	Aluminum	7429-90-5	3350	3350.000	% Recov	75.000	125.000			•	09/17/08
MS	Boron	7440-42-8	97.73	97.730	% Recov	75.000	125.000				09/17/08
MS	Bismuth	7440-69-9	95.78	95.780	% Recov	75.000	125.000				09/17/08
MS	Iron	7439-89-6	-1570	-1570.000	% Recov	75.000	125.000			•	09/17/08
MS	Lithium	7439-93-2	48.75	97.500	% Recov	70.000	130.000				09/17/08
MS	Sodium	7440-23-5	129.5	129.500	% Recov	75.000	125.000			•	09/17/08
MSD	Aluminum	7429-90-5	3130	3133.133	% Recov	75.000	125.000			•	09/17/08
MSD	Boron	7440-42-8	95.73	95.826	% Recov	75.000	125.000				09/17/08
MSD	Bismuth	7440-69-9	93.47	93.564	% Recov	75.000	125.000				09/17/08
MSD	Iron	7439-89-6	-1880	-1881.882	% Recov	75.000	125.000			•	09/17/08
MSD	Lithium	7439-93-2	47.43	94.860	% Recov	75.000	125.000				09/17/08
MSD	Sodium	7440-23-5	125.4	125.526	% Recov	75.000	125.000			•	09/17/08
SPK-RPD	Aluminum	7429-90-5	3133.133		RPD			6.690	20.000		09/17/08
SPK-RPD	Boron	7440-42-8	95.826		RPD			1.967	20.000		09/17/08
SPK-RPD	Bismuth	7440-69-9	93.564		RPD			2.341	20.000		09/17/08
SPK-RPD	Iron	7439-89-6	-1881.882		RPD			-18.070	20.000	•	09/17/08
SPK-RPD	Lithium	7439-93-2	94.860		RPD			2.745	20.000		09/17/08
SPK-RPD	Sodium	7440-23-5	125.526		RPD			3.117	20.000		09/17/08
<b>BATCH QC</b>											
BLANK	Aluminum	7429-90-5	< 5.2e-2	n/a	ug/mL					U	09/17/08
BLANK	Boron	7440-42-8	< 2e-2	n/a	ug/mL					U	09/17/08
BLANK	Bismuth	7440-69-9	< 3.5e-2	n/a	ug/mL					U	09/17/08
BLANK	Iron	7439-89-6	< 2.5e-2	n/a	ug/mL					U	09/17/08
BLANK	Lithium	7439-93-2	< 4e-3	n/a	ug/mL					U	09/17/08
BLANK	Sodium	7440-23-5	< 5.1e-2	n/a	ug/mL					U	09/17/08

# WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20081399  
 Matrix: SOLID  
 Test: ICP Metals Analysis, Grd H2O P

Sample Date:  
 Receive Date:

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
LCS	Aluminum	7429-90-5	7287	88.220	% Recov	44.000	157.000				09/17/08
LCS	Boron	7440-42-8	129.2	112.348	% Recov	45.000	156.000				09/17/08
LCS	Bismuth	7440-69-9	95.54	94.594	% Recov	80.000	120.000				09/17/08
LCS	Iron	7439-89-6	12510	93.358	% Recov	47.000	152.000				09/17/08
LCS	Lithium	7439-93-2	<0.40264	n/a	% Recov	80.000	120.000			U	09/17/08
LCS	Sodium	7440-23-5	515.6	87.687	% Recov	51.000	149.000				09/17/08

# WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20081399  
 Matrix: SOLID  
 Test: ICP-200.8 MS All possible meta

Sample Date: 06/30/08  
 Receive Date: 07/02/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
<b>Lab ID: W08GR02040</b>											
<b>BATCH QC ASSOCIATED WITH SAMPLE</b>											
MS	Silver	7440-22-4	179.2	89.600	% Recov	70.000	130.000				07/23/08
MS	Arsenic	7440-38-2	188.9	94.450	% Recov	70.000	130.000				07/23/08
MS	Barium	7440-39-3	190.23	95.115	% Recov	70.000	130.000				07/23/08
MS	Beryllium	7440-41-7	63.97	31.985	% Recov	70.000	130.000				07/23/08
MS	Cadmium	7440-43-9	190.9	95.450	% Recov	70.000	130.000				07/23/08
MS	Cobalt	7440-48-4	172.35	86.175	% Recov	70.000	130.000				07/23/08
MS	Chromium	7440-47-3	186.99	93.495	% Recov	70.000	130.000				07/23/08
MS	Copper	7440-50-8	170.77	85.385	% Recov	70.000	130.000				07/23/08
MS	Mercury	7439-97-6	1.85	92.500	% Recov	70.000	130.000				07/23/08
MS	Manganese	7439-96-5	177.3	88.650	% Recov	70.000	130.000				07/23/08
MS	Nickel	7440-02-0	174.89	87.445	% Recov	70.000	130.000				07/23/08
MS	Lead	7439-92-1	192.92	96.460	% Recov	70.000	130.000				07/23/08
MS	Antimony	7440-36-0	175.8	87.900	% Recov	70.000	130.000				07/23/08
MS	Selenium	7782-49-2	189.4	94.700	% Recov	70.000	130.000				07/23/08
MS	Strontium	7440-24-6	190.05	95.025	% Recov	70.000	130.000				07/23/08
MS	Thallium	7440-28-0	183.2	91.600	% Recov	70.000	130.000				07/23/08
MS	Uranium	7440-61-1	197.97	98.985	% Recov	70.000	130.000				07/23/08
MS	Vanadium	7440-62-2	189.84	94.920	% Recov	70.000	130.000				07/23/08
MS	Zinc	7440-66-6	179.9	89.950	% Recov	70.000	130.000				07/23/08
MSD	Silver	7440-22-4	175.3	87.650	% Recov	70.000	130.000				07/23/08
MSD	Arsenic	7440-38-2	183.2	91.600	% Recov	70.000	130.000				07/23/08
MSD	Barium	7440-39-3	189.43	94.715	% Recov	70.000	130.000				07/23/08
MSD	Beryllium	7440-41-7	60.98	30.490	% Recov	70.000	130.000				07/23/08
MSD	Cadmium	7440-43-9	185.6	92.800	% Recov	70.000	130.000				07/23/08
MSD	Cobalt	7440-48-4	167.75	83.875	% Recov	70.000	130.000				07/23/08
MSD	Chromium	7440-47-3	180.19	90.095	% Recov	70.000	130.000				07/23/08

# WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20081399  
 Matrix: SOLID  
 Test: ICP-200.8 MS All possible meta

Sample Date: 06/30/08  
 Receive Date: 07/02/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
MSD	Copper	7440-50-8	164.27	82.135	% Recov	70.000	130.000				07/23/08
MSD	Mercury	7439-97-6	1.86	93.000	% Recov	70.000	130.000				07/23/08
MSD	Manganese	7439-96-5	180.8	90.400	% Recov	70.000	130.000				07/23/08
MSD	Nickel	7440-02-0	168.79	84.395	% Recov	70.000	130.000				07/23/08
MSD	Lead	7439-92-1	183.62	91.810	% Recov	70.000	130.000				07/23/08
MSD	Antimony	7440-36-0	168.9	84.450	% Recov	70.000	130.000				07/23/08
MSD	Selenium	7782-49-2	181.8	90.900	% Recov	70.000	130.000				07/23/08
MSD	Strontium	7440-24-6	185.95	92.975	% Recov	70.000	130.000				07/23/08
MSD	Thallium	7440-28-0	175.6	87.800	% Recov	70.000	130.000				07/23/08
MSD	Uranium	7440-61-1	189.67	94.835	% Recov	70.000	130.000				07/23/08
MSD	Vanadium	7440-62-2	183.24	91.620	% Recov	70.000	130.000				07/23/08
MSD	Zinc	7440-66-6	172.1	86.050	% Recov	70.000	130.000				07/23/08
SPK-RPD	Silver	7440-22-4	87.650		RPD			2.200	20.000		07/23/08
SPK-RPD	Arsenic	7440-38-2	91.600		RPD			3.064	20.000		07/23/08
SPK-RPD	Barium	7440-39-3	94.715		RPD			0.421	20.000		07/23/08
SPK-RPD	Beryllium	7440-41-7	30.490		RPD			4.786	20.000		07/23/08
SPK-RPD	Cadmium	7440-43-9	92.800		RPD			2.815	20.000		07/23/08
SPK-RPD	Cobalt	7440-48-4	83.875		RPD			2.705	20.000		07/23/08
SPK-RPD	Chromium	7440-47-3	90.095		RPD			3.704	20.000		07/23/08
SPK-RPD	Copper	7440-50-8	82.135		RPD			3.880	20.000		07/23/08
SPK-RPD	Mercury	7439-97-6	93.000		RPD			0.539	20.000		07/23/08
SPK-RPD	Manganese	7439-96-5	90.400		RPD			1.955	20.000		07/23/08
SPK-RPD	Nickel	7440-02-0	84.395		RPD			3.550	20.000		07/23/08
SPK-RPD	Lead	7439-92-1	91.810		RPD			4.940	20.000		07/23/08
SPK-RPD	Antimony	7440-36-0	84.450		RPD			4.003	20.000		07/23/08
SPK-RPD	Selenium	7782-49-2	90.900		RPD			4.095	20.000		07/23/08
SPK-RPD	Strontium	7440-24-6	92.975		RPD			2.181	20.000		07/23/08
SPK-RPD	Thallium	7440-28-0	87.800		RPD			4.236	20.000		07/23/08
SPK-RPD	Uranium	7440-61-1	94.835		RPD			4.282	20.000		07/23/08
SPK-RPD	Vanadium	7440-62-2	91.620		RPD			3.538	20.000		07/23/08

# WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20081399  
 Matrix: SOLID  
 Test: ICP-200.8 MS All possible meta

Sample Date: 06/30/08  
 Receive Date: 07/02/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
SPK-RPD	Zinc	7440-66-6	86.050		RPD			4.432	20.000		07/23/08
<b>BATCH QC</b>											
BLANK	Silver	7440-22-4	<0.1	n/a	ug/L					U	07/23/08
BLANK	Arsenic	7440-38-2	<0.4	n/a	ug/L					U	07/23/08
BLANK	Barium	7440-39-3	<0.2	n/a	ug/L					U	07/23/08
BLANK	Beryllium	7440-41-7	<5e-2	n/a	ug/L					U	07/23/08
BLANK	Cadmium	7440-43-9	<0.1	n/a	ug/L					U	07/23/08
BLANK	Cobalt	7440-48-4	<5e-2	n/a	ug/L					U	07/23/08
BLANK	Chromium	7440-47-3	<0.5	n/a	ug/L					U	07/23/08
BLANK	Copper	7440-50-8	<0.1	n/a	ug/L					U	07/23/08
BLANK	Mercury	7439-97-6	<5e-2	n/a	ug/L					U	07/23/08
BLANK	Manganese	7439-96-5	<0.1	n/a	ug/L					U	07/23/08
BLANK	Nickel	7440-02-0	<0.2	n/a	ug/L					U	07/23/08
BLANK	Lead	7439-92-1	<0.1	n/a	ug/L					U	07/23/08
BLANK	Antimony	7440-36-0	<0.3	n/a	ug/L					U	07/23/08
BLANK	Selenium	7782-49-2	<0.3	n/a	ug/L					U	07/23/08
BLANK	Strontium	7440-24-6	<0.1	n/a	ug/L					U	07/23/08
BLANK	Thallium	7440-28-0	<0.1	n/a	ug/L					U	07/23/08
BLANK	Uranium	7440-61-1	<5e-2	n/a	ug/L					U	07/23/08
BLANK	Vanadium	7440-62-2	<0.2	n/a	ug/L					U	07/23/08
BLANK	Zinc	7440-66-6	0.83	0.830	ug/L						07/23/08
LCS	Silver	7440-22-4	104.4	103.366	% Recov	98.000	134.000				07/23/08
LCS	Arsenic	7440-38-2	133.9	101.439	% Recov	75.000	134.000				07/23/08
LCS	Barium	7440-39-3	304.3	95.392	% Recov	87.000	121.000				07/23/08
LCS	Beryllium	7440-41-7	91.47	102.201	% Recov	70.000	153.000				07/23/08
LCS	Cadmium	7440-43-9	68.8	103.459	% Recov	95.000	124.000				07/23/08
LCS	Cobalt	7440-48-4	70.02	95.787	% Recov	88.000	119.000				07/23/08
LCS	Chromium	7440-47-3	69.96	95.967	% Recov	77.000	125.000				07/23/08
LCS	Copper	7440-50-8	64.67	94.409	% Recov	84.000	122.000				07/23/08

# WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20081399  
 Matrix: SOLID  
 Test: ICP-200.8 MS All possible meta

Sample Date:  
 Receive Date:

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
LCS	Mercury	7439-97-6	8.04	97.101	% Recov	71.000	132.000				07/23/08
LCS	Manganese	7439-96-5	440.1	97.152	% Recov	83.000	118.000				07/23/08
LCS	Nickel	7440-02-0	54.64	98.273	% Recov	90.000	121.000				07/23/08
LCS	Lead	7439-92-1	132	101.538	% Recov	92.000	123.000				07/23/08
LCS	Antimony	7440-36-0	145.5	161.308	% Recov	114.000	260.000				07/23/08
LCS	Selenium	7782-49-2	171.8	108.708	% Recov	52.000	157.000				07/23/08
LCS	Strontium	7440-24-6	51.68	95.000	% Recov	68.000	123.000				07/23/08
LCS	Thallium	7440-28-0	130.6	98.195	% Recov	92.000	123.000				07/23/08
LCS	Uranium	7440-61-1	399.9	99.975	% Recov	81.000	125.000				07/23/08
LCS	Vanadium	7440-62-2	77.82	93.759	% Recov	81.000	122.000				07/23/08
LCS	Zinc	7440-66-6	187.5	105.932	% Recov	85.000	130.000				07/23/08

# WSCF ANALYTICAL COMMENT REPORT

Attention: Steve Trent  
Project Number F08-101

Group #: WSCF20081399  
Department: Inorganic

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Sample #	Client ID	Lab Area	Test	Comment
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VALGROUP

Organics: All results are moisture corrected and reported on a dry weight basis. cgc

ICP-MS:Berylium MS/MS spike recoveries about 30%. "N" flag  
Zinc prep blank above the MDL but < 5% of sample results.  
No flag

ICP-AES: No lithium present in LCS standard.  
Iron and aluminum sample results exceed spiking level by a factor of 4 so spike recoveries are not valid.  
Check and high standards used to ensure iron and aluminum linearity because sample results are greater than the calibration standard.  
High sodium spike recoveries; "N" flag.  
Boron results biased high due to iron interference; "E" flag

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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:** F08-101  
**Sample #** W08GR02382  
**Client ID:** B1VDX3

**GPP** TRENT  
**WSCF**

**Matrix:** SOIL

**Group #:** WSCF20081399  
**Department:** Organic  
**Sampled:** 07/09/08  
**Received:** 07/10/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
<b>Alcohols, Glycols - 8015 Prep</b>											
<b>Alcohols, Glycols - 8015</b>											
Diethyl ether	60-29-7	Organics	U	< 5.00e +03	ug/kg			1.00	5.0e +03		07/21/08
Ethylene glycol	107-21-1	Organics	U	< 5.00e +03	ug/kg			1.00	5.0e +03		07/21/08
<b>NWTPH-D TPH Diesel Range (Wa) Prep</b>											
<b>NWTPH-D TPH Diesel Range (Wa)</b>											
Total Pet. Hydrocarbons Diesel	TPHDIESEL	LA-523-493	U	< 3.00e +03	ug/kg			1.00	3.0e +03		07/21/08
Kerosene	TPHKEROSENE	LA-523-493	U	< 3.00e +03	ug/kg			1.00	3.0e +03		07/21/08

**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)  
 E - Analyte is an estimate, has potentially larger errors.(inorg)  
 U - Analyzed for but not detected above limiting criteria.(inorg)  
 U - Analyzed for but not detected above limiting criteria.(org)

D - Analyte was identified at a secondary dilution factor.(inorg)  
 N - Spike sample recovery is outside control limits.(inorg)  
 U - Analyzed for but not detected above limiting criteria.

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

# WSCF ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent  
**SAF Number:** F08-101  
**Sample #** W08GR02383  
**Client ID:** B1VDX1

**GPP** TRENT  
**WSCF**

**Matrix:** SOIL

**Group #:** WSCF20081399  
**Department:** Organic  
**Sampled:** 07/09/08  
**Received:** 07/10/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
<b>VOA Ground Water Protection</b>											
1,1-Dichloroethene	75-35-4	LA-523-455	U	< 1.20	ug/kg			1.00	1.2		07/18/08
Trichloroethene	79-01-6	LA-523-455	U	< 1.20	ug/kg			1.00	1.2		07/18/08
Benzene	71-43-2	LA-523-455	U	< 1.20	ug/kg			1.00	1.2		07/18/08
Toluene	108-88-3	LA-523-455	U	< 1.20	ug/kg			1.00	1.2		07/18/08
Chlorobenzene	108-90-7	LA-523-455	U	< 1.20	ug/kg			1.00	1.2		07/18/08
1,1-Dichloroethane	75-34-3	LA-523-455	U	< 1.20	ug/kg			1.00	1.2		07/18/08
Ethylbenzene	100-41-4	LA-523-455	U	< 1.20	ug/kg			1.00	1.2		07/18/08
Styrene	100-42-5	LA-523-455	U	< 1.20	ug/kg			1.00	1.2		07/18/08
cis-1,3-Dichloropropene	10061-01-5	LA-523-455	U	< 1.20	ug/kg			1.00	1.2		07/18/08
trans-1,3-Dichloropropene	10061-02-6	LA-523-455	U	< 1.20	ug/kg			1.00	1.2		07/18/08
1,2-Dichloroethane	107-06-2	LA-523-455	U	< 1.20	ug/kg			1.00	1.2		07/18/08
4-Methyl-2-Pentanone	108-10-1	LA-523-455	U	< 1.20	ug/kg			1.00	1.2		07/18/08
Dibromochloromethane	124-48-1	LA-523-455	U	< 1.20	ug/kg			1.00	1.2		07/18/08
Tetrachloroethene	127-18-4	LA-523-455	U	< 1.20	ug/kg			1.00	1.2		07/18/08
Xylenes (total)	1330-20-7	LA-523-455	U	< 1.20	ug/kg			1.00	1.2		07/18/08
1,2-Dichloroethene(Total)	540-59-0	LA-523-455	U	< 1.20	ug/kg			1.00	1.2		07/18/08
Carbon tetrachloride	56-23-5	LA-523-455	U	< 1.20	ug/kg			1.00	1.2		07/18/08
2-Hexanone	591-78-6	LA-523-455	U	< 1.20	ug/kg			1.00	1.2		07/18/08
Acetone	67-64-1	LA-523-455	U	< 1.20	ug/kg			1.00	1.2		07/18/08
Chloroform	67-66-3	LA-523-455	U	< 1.20	ug/kg			1.00	1.2		07/18/08
1,1,1-Trichloroethane	71-55-6	LA-523-455	U	< 1.20	ug/kg			1.00	1.2		07/18/08
Bromomethane	74-83-9	LA-523-455	U	< 1.20	ug/kg			1.00	1.2		07/18/08
Chloromethane	74-87-3	LA-523-455	U	< 1.20	ug/kg			1.00	1.2		07/18/08
Chloroethane	75-00-3	LA-523-455	U	< 1.20	ug/kg			1.00	1.2		07/18/08

**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)

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U - Analyzed for but not detected above limiting criteria.

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

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Groundwater Remediation Program

# WSCF

## ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent  
**SAF Number:** F08-101  
**Sample #** W08GR02383  
**Client ID:** B1VDX1

**Group #:** WSCF20081399  
**Department:** Organic  
**Sampled:** 07/09/08  
**Received:** 07/10/08

**GPP TRENT**  
**WSCF**  
**Matrix: SOIL**

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Vinyl chloride	75-01-4	LA-523-455	U	< 1.20	ug/kg			1.00	1.2		07/18/08
Methylenechloride	75-09-2	LA-523-455	U	< 1.20	ug/kg			1.00	1.2		07/18/08
Carbon disulfide	75-15-0	LA-523-455	U	< 1.20	ug/kg			1.00	1.2		07/18/08
Bromoform	75-25-2	LA-523-455	U	< 1.20	ug/kg			1.00	1.2		07/18/08
Bromodichloromethane	75-27-4	LA-523-455	U	< 1.20	ug/kg			1.00	1.2		07/18/08
1,2-Dichloropropane	78-87-5	LA-523-455	U	< 1.20	ug/kg			1.00	1.2		07/18/08
2-Butanone	78-93-3	LA-523-455	U	< 1.20	ug/kg			1.00	1.2		07/18/08
1,1,2-Trichloroethane	79-00-5	LA-523-455	U	< 1.20	ug/kg			1.00	1.2		07/18/08
1,1,2,2-Tetrachloroethane	79-34-5	LA-523-455	U	< 1.20	ug/kg			1.00	1.2		07/18/08
1-Butanol	71-36-3	LA-523-455	U	< 1.20	ug/kg			1.00	1.2e+02		07/18/08
Trichloromonofluoromethane	75-69-4	LA-523-455	U	< 1.20	ug/kg			1.00	1.2		07/18/08
trans-1,2-Dichloroethylene	156-80-5	LA-523-455	U	< 1.20	ug/kg			1.00	1.2		07/18/08
cis-1,2-Dichloroethylene	156-59-2	LA-523-455	U	< 1.20	ug/kg			1.00	1.2		07/18/08

**MDL=Minimum Detection Limit**  
**RQ=Result Qualifier**  
**TP Err=Total Propagated Error**  
**DF=Dilution Factor**

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 N - Spike sample recovery is outside control limits.(inorg)  
 U - Analyzed for but not detected above limiting criteria.

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

# WSCF

## ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent  
**SAF Number:** F08-101  
**Sample #** W08GR02385  
**Client ID:** B1VDX6

**GPP** TRENT  
**WSCF**

**Matrix:** SOIL

**Group #:** WSCF20081399  
**Department:** Organic  
**Sampled:** 07/09/08  
**Received:** 07/10/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
<b>Alcohols, Glycols - 8015 Prep</b>											
<b>Alcohols, Glycols - 8015</b>											
Diethyl ether	60-29-7	Organics	U	< 5.00e +03	ug/kg			1.00	5.0e +03		07/22/08
Ethylene glycol	107-21-1	Organics	U	< 5.00e +03	ug/kg			1.00	5.0e +03		07/22/08
<b>NWTPH-D TPH Diesel Range (Wa) Prep</b>											
<b>NWTPH-D TPH Diesel Range (Wa)</b>											
Total Pet. Hydrocarbons Diesel	TPHDIESEL	LA-523-493	U	< 3.10e +03	ug/kg			1.00	3.1e +03		07/21/08
Kerosene	TPHKEROSENE	LA-523-493	U	< 3.10e +03	ug/kg			1.00	3.1e +03		07/21/08

**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)  
 E - Analyte is an estimate, has potentially larger errors(inorg)  
 U - Analyzed for but not detected above limiting criteria(inorg)  
 U - Analyzed for but not detected above limiting criteria.(org)

D - Analyte was identified at a secondary dilution factor(inorg)  
 N - Spike sample recovery is outside control limits.(inorg)  
 U - Analyzed for but not detected above limiting criteria.

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

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 Groundwater Remediation Program

# WSCF ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent  
**SAF Number:** F08-101  
**Sample #** W08GR02386  
**Client ID:** B1VDX4

**Group #:** WSCF20081399  
**Department:** Organic  
**Sampled:** 07/09/08  
**Received:** 07/10/08

**GPP** TRENT  
**WSCF**  
**Matrix:** SOIL

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
<b>VOA Ground Water Protection</b>											
1,1-Dichloroethene	75-35-4	LA-523-455	U	< 0.880	ug/kg			1.00	0.88		07/18/08
Trichloroethene	79-01-6	LA-523-455	U	< 0.880	ug/kg			1.00	0.88		07/18/08
Benzene	71-43-2	LA-523-455	U	< 0.880	ug/kg			1.00	0.88		07/18/08
Toluene	108-88-3	LA-523-455	U	< 0.880	ug/kg			1.00	0.88		07/18/08
Chlorobenzene	108-90-7	LA-523-455	U	< 0.880	ug/kg			1.00	0.88		07/18/08
1,1-Dichloroethane	75-34-3	LA-523-455	U	< 0.880	ug/kg			1.00	0.88		07/18/08
Ethylbenzene	100-41-4	LA-523-455	U	< 0.880	ug/kg			1.00	0.88		07/18/08
Styrene	100-42-5	LA-523-455	U	< 0.880	ug/kg			1.00	0.88		07/18/08
cis-1,3-Dichloropropene	10061-01-5	LA-523-455	U	< 0.880	ug/kg			1.00	0.88		07/18/08
trans-1,3-Dichloropropene	10061-02-6	LA-523-455	U	< 0.880	ug/kg			1.00	0.88		07/18/08
1,2-Dichloroethane	107-06-2	LA-523-455	U	< 0.880	ug/kg			1.00	0.88		07/18/08
4-Methyl-2-Pentanone	108-10-1	LA-523-455	U	< 0.880	ug/kg			1.00	0.88		07/18/08
Dibromochloromethane	124-48-1	LA-523-455	U	< 0.880	ug/kg			1.00	0.88		07/18/08
Tetrachloroethene	127-18-4	LA-523-455	U	< 0.880	ug/kg			1.00	0.88		07/18/08
Xylenes (total)	1330-20-7	LA-523-455	U	< 0.880	ug/kg			1.00	0.88		07/18/08
1,2-Dichloroethene(Total)	540-59-0	LA-523-455	U	< 0.880	ug/kg			1.00	0.88		07/18/08
Carbon tetrachloride	56-23-5	LA-523-455	U	< 0.880	ug/kg			1.00	0.88		07/18/08
2-Hexanone	591-78-6	LA-523-455	U	< 0.880	ug/kg			1.00	0.88		07/18/08
Acetone	67-64-1	LA-523-455	U	< 0.880	ug/kg			1.00	0.88		07/18/08
Chloroform	67-66-3	LA-523-455	U	< 0.880	ug/kg			1.00	0.88		07/18/08
1,1,1-Trichloroethane	71-55-6	LA-523-455	U	< 0.880	ug/kg			1.00	0.88		07/18/08
Bromomethane	74-83-9	LA-523-455	U	< 0.880	ug/kg			1.00	0.88		07/18/08
Chloromethane	74-87-3	LA-523-455	U	< 0.880	ug/kg			1.00	0.88		07/18/08
Chloroethane	75-00-3	LA-523-455	U	< 0.880	ug/kg			1.00	0.88		07/18/08

**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)

E - Analyte is an estimate, has potentially larger errors(inorg)

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

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

D - Analyte was identified at a secondary dilution factor(inorg)

N - Spike sample recovery is outside control limits.(inorg)

U - Analyzed for but not detected above limiting criteria.

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

Report WGPP/ver. 5.2

Groundwater Remediation Program

# WSCF

## ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent  
**SAF Number:** F08-101  
**Sample #** W08GR02386  
**Client ID:** B1VDX4

**Group #:** WSCF20081399  
**Department:** Organic  
**Sampled:** 07/09/08  
**Received:** 07/10/08

**GPP TRENT**  
**WSCF**  
**Matrix: SOIL**

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Vinyl chloride	75-01-4	LA-523-455	U	< 0.880	ug/kg			1.00	0.88		07/18/08
Methylenechloride	75-09-2	LA-523-455	U	< 0.880	ug/kg			1.00	0.88		07/18/08
Carbon disulfide	75-15-0	LA-523-455	U	< 0.880	ug/kg			1.00	0.88		07/18/08
Bromoform	75-25-2	LA-523-455	U	< 0.880	ug/kg			1.00	0.88		07/18/08
Bromodichloromethane	75-27-4	LA-523-455	U	< 0.880	ug/kg			1.00	0.88		07/18/08
1,2-Dichloropropane	78-87-5	LA-523-455	U	< 0.880	ug/kg			1.00	0.88		07/18/08
2-Butanone	78-93-3	LA-523-455	U	< 0.880	ug/kg			1.00	0.88		07/18/08
1,1,2-Trichloroethane	79-00-5	LA-523-455	U	< 0.880	ug/kg			1.00	0.88		07/18/08
1,1,2,2-Tetrachloroethane	79-34-5	LA-523-455	U	< 0.880	ug/kg			1.00	0.88		07/18/08
1-Butanol	71-36-3	LA-523-455	U	< 88.0	ug/kg			1.00	88		07/18/08
Trichloromonofluoromethane	75-69-4	LA-523-455	U	< 0.880	ug/kg			1.00	0.88		07/18/08
trans-1,2-Dichloroethylene	156-60-5	LA-523-455	U	< 0.880	ug/kg			1.00	0.88		07/18/08
cis-1,2-Dichloroethylene	156-59-2	LA-523-455	U	< 0.880	ug/kg			1.00	0.88		07/18/08

**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)  
 E - Analyte is an estimate, has potentially larger errors(inorg)  
 U - Analyzed for but not detected above limiting criteria(inorg)  
 U - Analyzed for but not detected above limiting criteria.(org)

D - Analyte was identified at a secondary dilution factor(inorg)  
 N - Spike sample recovery is outside control limits.(inorg)  
 U - Analyzed for but not detected above limiting criteria.

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

# WSCF

## TENTATIVELY IDENTIFIED PEAK REPORT

Attention: Steve Trent  
 Project Number F08-101 :F08-101

Group #: WSCF20081399  
 Department: Organic

Sample #	Client ID		Test Name	Peak Name	CAS#	RT	RQ	Result	Units
W08GR02383	B1VDX1	GPP	TRENT	VOA Ground Water Protection	SMP 28.129 Unknown	28.1299	J	18	ug/kg
W08GR02383	B1VDX1	GPP	TRENT	VOA Ground Water Protection	SMP 30.370 Unknown	30.37096	J	11	ug/kg
W08GR02386	B1VDX4	GPP	TRENT	VOA Ground Water Protection	SMP 28.129 Unknown	28.12988	J	11	ug/kg
W08GR02386	B1VDX4	GPP	TRENT	VOA Ground Water Protection	SMP 30.370 Unknown	30.37095	J	12	ug/kg

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

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*Groundwater Remediation Program*

WGPE v 5.2 Report#: WSCF20081399

Report Date: 21-sep-2008

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# WSCF ANALYTICAL LABORATORY QC REPORT

Department: **Organic**

SDG Number: WSCF20081399  
 Matrix: SOLID  
 Test: Alcohols, Glycols - 8015

Sample Date: 07/09/08  
 Receive Date: 07/10/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
<b>Lab ID: W08GR02382</b>											
<b>BATCH QC ASSOCIATED WITH SAMPLE</b>											
DUP	2-Bromoethanol	540-51-2	15900		RPD			10.149	25.000		07/21/08
DUP	Diethyl ether	60-29-7	< 5000		RPD			n/a	25.000	U	07/21/08
DUP	Ethylene glycol	107-21-1	< 5000		RPD			n/a	25.000	U	07/21/08
MS	2-Bromoethanol	540-51-2	15900	90.341	% Recov	70.000	125.000				07/21/08
MS	Diethyl ether	60-29-7	7600	107.042	% Recov	75.000	125.000				07/21/08
MS	Ethylene glycol	107-21-1	10000	90.909	% Recov	75.000	125.000				07/21/08
MSD	2-Bromoethanol	540-51-2	15700	89.205	% Recov	70.000	125.000				07/21/08
MSD	Diethyl ether	60-29-7	7100	100.000	% Recov	75.000	125.000				07/21/08
MSD	Ethylene glycol	107-21-1	10000	90.909	% Recov	75.000	125.000				07/21/08
SPK-RPD	2-Bromoethanol	540-51-2	89.205		RPD			1.265	20.000		07/21/08
SPK-RPD	Diethyl ether	60-29-7	100.000		RPD			6.802	20.000		07/21/08
SPK-RPD	Ethylene glycol	107-21-1	90.909		RPD			0.000	20.000		07/21/08
<b>BATCH QC</b>											
BLANK	2-Bromoethanol	540-51-2	18100	102.841	% Recov	75.000	125.000				07/21/08
BLANK	Diethyl ether	60-29-7	< 5000	n/a	ug/Kg	0.000	10.000			U	07/21/08
BLANK	Ethylene glycol	107-21-1	na	n/a	ug/Kg	0.000	5.000				07/21/08
LCS	2-Bromoethanol	540-51-2	16900	96.023	% Recov	70.000	130.000				07/21/08
LCS	Diethyl ether	60-29-7	7500	105.634	% Recov	70.000	130.000				07/21/08
LCS	Ethylene glycol	107-21-1	8900	80.909	% Recov	70.000	130.000				07/21/08

# WSCF ANALYTICAL LABORATORY QC REPORT

Department: **Organic**

SDG Number: WSCF20081399  
 Matrix: SOLID  
 Test: NWTPH-D TPH Diesel Range (Wa)

Sample Date: 07/09/08  
 Receive Date: 07/10/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
<b>Lab ID: W08GR02382</b>											
<b>BATCH QC ASSOCIATED WITH SAMPLE</b>											
MS	ortho-Terphenyl	Surr	84-15-1	18475	93.100	% Recov	70.000	130.000			07/21/08
MS	Total Pet. Hydrocarbons Diesel		TPHDIESEL	101050	102.000	% Recov	75.000	125.000			07/21/08
MSD	ortho-Terphenyl	Surr	84-15-1	18913	85.300	% Recov	70.000	130.000			07/21/08
MSD	Total Pet. Hydrocarbons Diesel		TPHDIESEL	91404	92.200	% Recov	75.000	125.000			07/21/08
SPK-RPD	ortho-Terphenyl	Surr	84-15-1	85.300		RPD			8.744	20.000	07/21/08
SPK-RPD	Total Pet. Hydrocarbons Diesel		TPHDIESEL	92.200		RPD			10.093	20.000	07/21/08
SURR	ortho-Terphenyl	Surr	84-15-1	17011	85.600	% Recov	70.000	130.000			07/21/08
<b>Lab ID: W08GR02385</b>											
<b>BATCH QC ASSOCIATED WITH SAMPLE</b>											
SURR	ortho-Terphenyl	Surr	84-15-1	18893	92.900	% Recov	70.000	130.000			07/21/08
<b>BATCH QC</b>											
BLANK	Kerosene		TPHKEROSENE	< 3000	n/a	ug/Kg				U	07/21/08
BLANK	ortho-Terphenyl	Surr	84-15-1	17924	89.600	% Recov	70.000	130.000			07/21/08
BLANK	Total Pet. Hydrocarbons Diesel		TPHDIESEL	< 3000	n/a	ug/Kg				U	07/21/08
LCS	ortho-Terphenyl	Surr	84-15-1	18733	93.700	% Recov	70.000	130.000			07/21/08
LCS	Total Pet. Hydrocarbons Diesel		TPHDIESEL	103450	103.000	% Recov	80.000	120.000			07/21/08

# WSCF ANALYTICAL LABORATORY QC REPORT

Department: Organic

SDG Number: WSCF20081399  
 Matrix: SOLID  
 Test: VOA Ground Water Protection

Sample Date: 07/09/08  
 Receive Date: 07/10/08

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: W08GR02380  
 BATCH QC ASSOCIATED WITH SAMPLE

MS	1,1-Dichloroethene	75-35-4	47.220	115.000	% Recov	63.000	117.000				07/18/08
MS	Benzene	71-43-2	44.310	108.000	% Recov	75.000	129.000				07/18/08
MS	4-Bromofluorobenzene(Surr)	460-00-4	84.620	103.000	% Recov	75.000	125.000				07/18/08
MS	Chlorobenzene	108-90-7	43.530	106.000	% Recov	79.000	119.000				07/18/08
MS	1,2-Dichloroethane-d4(Surr)	17060-07-0	92.850	113.000	% Recov	75.000	125.000				07/18/08
MS	Toluene-d8(Surr)	2037-26-5	81.220	99.000	% Recov	75.000	125.000				07/18/08
MS	Toluene	108-88-3	45.130	110.000	% Recov	76.000	120.000				07/18/08
MS	Trichloroethene	79-01-6	39.000	95.000	% Recov	73.000	123.000				07/18/08
MSD	1,1-Dichloroethene	75-35-4	33.240	112.000	% Recov	63.000	117.000				07/18/08
MSD	Benzene	71-43-2	32.230	109.000	% Recov	75.000	129.000				07/18/08
MSD	4-Bromofluorobenzene(Surr)	460-00-4	59.810	101.000	% Recov	75.000	125.000				07/18/08
MSD	Chlorobenzene	108-90-7	31.740	107.000	% Recov	79.000	119.000				07/18/08
MSD	1,2-Dichloroethane-d4(Surr)	17060-07-0	67.200	113.000	% Recov	75.000	125.000				07/18/08
MSD	Toluene-d8(Surr)	2037-26-5	59.460	100.000	% Recov	75.000	125.000				07/18/08
MSD	Toluene	108-88-3	33.280	112.000	% Recov	76.000	120.000				07/18/08
MSD	Trichloroethene	79-01-6	28.260	95.300	% Recov	73.000	123.000				07/18/08
SPK-RPD	1,1-Dichloroethene	75-35-4	112.000		RPD			2.643	20.000		07/18/08
SPK-RPD	Benzene	71-43-2	109.000		RPD			0.922	20.000		07/18/08
SPK-RPD	4-Bromofluorobenzene(Surr)	460-00-4	101.000		RPD			1.961	20.000		07/18/08
SPK-RPD	Chlorobenzene	108-90-7	107.000		RPD			0.939	20.000		07/18/08
SPK-RPD	1,2-Dichloroethane-d4(Surr)	17060-07-0	113.000		RPD			0.000	20.000		07/18/08
SPK-RPD	Toluene-d8(Surr)	2037-26-5	100.000		RPD			1.005	20.000		07/18/08
SPK-RPD	Toluene	108-88-3	112.000		RPD			1.802	20.000		07/18/08
SPK-RPD	Trichloroethene	79-01-6	95.300		RPD			0.315	20.000		07/18/08

# WSCF ANALYTICAL LABORATORY QC REPORT

Department: **Organic**

SDG Number: WSCF20081399  
 Matrix: SOLID  
 Test: VOA Ground Water Protection

Sample Date: 07/09/08  
 Receive Date: 07/10/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
<b>Lab ID: W08GR02383</b>											
<b>BATCH QC ASSOCIATED WITH SAMPLE</b>											
SURR	4-Bromofluorobenzene(Surr)	460-00-4	65.860	108.000	% Recov	75.000	125.000				07/18/08
SURR	1,2-Dichloroethane-d4(Surr)	17060-07-0	71.460	117.000	% Recov	75.000	125.000				07/18/08
SURR	Toluene-d8(Surr)	2037-26-5	63.440	104.000	% Recov	80.000	126.000				07/18/08
<b>Lab ID: W08GR02386</b>											
<b>BATCH QC ASSOCIATED WITH SAMPLE</b>											
SURR	4-Bromofluorobenzene(Surr)	460-00-4	46.830	106.000	% Recov	75.000	125.000				07/18/08
SURR	1,2-Dichloroethane-d4(Surr)	17080-07-0	50.300	114.000	% Recov	75.000	125.000				07/18/08
SURR	Toluene-d8(Surr)	2037-26-5	44.080	100.000	% Recov	80.000	126.000				07/18/08
<b>BATCH QC</b>											
BLANK	1,1-Dichloroethane	75-34-3	< 1.0	n/a	ug/Kg					U	07/18/08
BLANK	1,1,1-Trichloroethane	71-55-6	< 1.0	n/a	ug/Kg					U	07/18/08
BLANK	1,1,2-Trichloroethane	79-00-5	< 1.0	n/a	ug/Kg					U	07/18/08
BLANK	1,1,2,2-Tetrachloroethane	79-34-5	< 1.0	n/a	ug/Kg					U	07/18/08
BLANK	1,1-Dichloroethene	75-35-4	< 1.0	n/a	ug/Kg					U	07/18/08
BLANK	1,2-Dichloroethane	107-06-2	< 1.0	n/a	ug/Kg					U	07/18/08
BLANK	1,2-Dichloroethane(Total)	540-59-0	< 1.0	n/a	ug/Kg					U	07/18/08
BLANK	1-Butanol	71-36-3	< 100	n/a	ug/Kg					U	07/18/08
BLANK	2-Hexanone	591-78-6	< 1.0	n/a	ug/Kg					U	07/18/08
BLANK	4-Methyl-2-Pentanone	108-10-1	< 1.0	n/a	ug/Kg					U	07/18/08
BLANK	Acetone	67-64-1	< 1.0	n/a	ug/Kg					U	07/18/08
BLANK	Bromodichloromethane	75-27-4	< 1.0	n/a	ug/Kg					U	07/18/08
BLANK	Benzene	71-43-2	< 1.0	n/a	ug/Kg					U	07/18/08
BLANK	4-Bromofluorobenzene(Surr)	460-00-4	51.790	104.000	% Recov	75.000	125.000				07/18/08
BLANK	Bromoform	75-25-2	< 1.0	n/a	ug/Kg					U	07/18/08
BLANK	Carbon disulfide	75-15-0	< 1.0	n/a	ug/Kg					U	07/18/08

# WSCF ANALYTICAL LABORATORY QC REPORT

Department: Organic

SDG Number: WSCF20081399  
 Matrix: SOLID  
 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	Carbon tetrachloride	56-23-5	< 1.0	n/a	ug/Kg					U	07/18/08
BLANK	Dibromochloromethane	124-48-1	< 1.0	n/a	ug/Kg					U	07/18/08
BLANK	Chloroform	67-66-3	< 1.0	n/a	ug/Kg					U	07/18/08
BLANK	Chlorobenzene	108-90-7	< 1.0	n/a	ug/Kg					U	07/18/08
BLANK	cis-1,2-Dichloroethylene	156-59-2	< 1.0	n/a	ug/Kg					U	07/18/08
BLANK	cis-1,3-Dichloropropene	10081-01-5	< 1.0	n/a	ug/Kg					U	07/18/08
BLANK	Chloroethane	75-00-3	< 1.0	n/a	ug/Kg					U	07/18/08
BLANK	1,2-Dichloroethane-d4(Surr)	17060-07-0	56.440	113.000	% Recov	75.000	125.000				07/18/08
BLANK	trans-1,2-Dichloroethylene	156-60-5	< 1.0	n/a	ug/Kg					U	07/18/08
BLANK	1,2-Dichloropropane	78-87-5	< 1.0	n/a	ug/Kg					U	07/18/08
BLANK	Ethylbenzene	100-41-4	< 1.0	n/a	ug/Kg					U	07/18/08
BLANK	Bromomethane	74-83-9	< 1.0	n/a	ug/Kg					U	07/18/08
BLANK	Chloromethane	74-87-3	< 1.0	n/a	ug/Kg					U	07/18/08
BLANK	2-Butanone	78-93-3	< 1.0	n/a	ug/Kg					U	07/18/08
BLANK	Methylenechloride	75-09-2	< 1.0	n/a	ug/Kg					U	07/18/08
BLANK	Tetrachloroethene	127-18-4	< 1.0	n/a	ug/Kg					U	07/18/08
BLANK	Styrene	100-42-5	< 1.0	n/a	ug/Kg					U	07/18/08
BLANK	Xylenes (total)	1330-20-7	< 1.0	n/a	ug/Kg					U	07/18/08
BLANK	Toluene-d8(Surr)	2037-26-5	49.770	99.500	% Recov	80.000	126.000				07/18/08
BLANK	Toluene	108-88-3	< 1.0	n/a	ug/Kg					U	07/18/08
BLANK	trans-1,3-Dichloropropene	10061-02-6	< 1.0	n/a	ug/Kg					U	07/18/08
BLANK	Trichloromonofluoromethane	75-69-4	< 1.0	n/a	ug/Kg	0.000	5.000			U	07/18/08
BLANK	Trichloroethene	79-01-6	< 1.0	n/a	ug/Kg					U	07/18/08
BLANK	Vinyl chloride	75-01-4	< 1.0	n/a	ug/Kg					U	07/18/08
LCS	1,1-Dichloroethene	75-35-4	27.500	110.000	% Recov	75.000	125.000				07/18/08
LCS	Benzene	71-43-2	25.700	103.000	% Recov	75.000	125.000				07/18/08
LCS	4-Bromofluorobenzene(Surr)	460-00-4	51.720	103.000	% Recov	75.000	125.000				07/18/08
LCS	Chlorobenzene	108-90-7	26.130	105.000	% Recov	75.000	125.000				07/18/08
LCS	1,2-Dichloroethane-d4(Surr)	17060-07-0	54.460	109.000	% Recov	75.000	125.000				07/18/08
LCS	Toluene-d8(Surr)	2037-26-5	50.430	101.000	% Recov	80.000	126.000				07/18/08

# WSCF ANALYTICAL LABORATORY QC REPORT

Department: Organic

SDG Number: WSCF20081399  
Matrix: SOLID  
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
LCS	Toluene	108-88-3	25.890	104.000	% Recov	75.000	125.000				07/18/08
LCS	Trichloroethene	79-01-6	21.850	87.400	% Recov	75.000	125.000				07/18/08

# WSCF ANALYTICAL RESULTS REPORT

Attention: Steve Trent  
SAF Number: F08-101  
Sample # W08GR02382  
Client ID: B1VDX3

GPP TRENT  
WSCF

Matrix: SOIL

Group #: WSCF20081399  
Department: Radiochemistry  
Sampled: 07/09/08  
Received: 07/10/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
<b>Am/Cm by Isotopics AEA</b>											
Americium-241	14596-10-2	LA-508-471	U	0.0110	pCi/g	+ -0.0284	pCi/g	1.00	0.048		08/13/08
Curium-244	13981-15-2	LA-508-471	U	-0.0157	pCi/g	+ -0.0157	pCi/g	1.00	0.045		08/13/08
Curium-242	15510-73-3	LA-508-471	U	2.00e-03	pCi/g	+ -0.0100	pCi/g	1.00	0.024		08/13/08
Am-243 tracer by AEA	AM243	LA-508-471		104	pCi/g			1.00	0.0		08/13/08
<b>Gamma Energy Analysis-grd H2O</b>											
Antimony-125	14234-35-6	LA-508-481	U	0.0868	pCi/g	+ -0.0749	pCi/g	1.00	0.11		08/12/08
Cobalt-60	10198-40-0	LA-508-481	U	5.70e-03	pCi/g	+ -0.0292	pCi/g	1.00	0.052		08/12/08
Cesium-134	13967-70-9	LA-508-481	U	0.0189	pCi/g	+ -0.0298	pCi/g	1.00	0.054		08/12/08
Cesium-137	10045-97-3	LA-508-481	U	0.0110	pCi/g	+ -0.0267	pCi/g	1.00	0.048		08/12/08
Europium-152	14683-23-9	LA-508-481	U	3.38e-03	pCi/g	+ -0.0338	pCi/g	1.00	0.12		08/12/08
Europium-154	15585-10-1	LA-508-481	U	-0.0712	pCi/g	+ -0.0855	pCi/g	1.00	0.14		08/12/08
Europium-155	14391-16-3	LA-508-481	U	9.67e-03	pCi/g	+ -0.0809	pCi/g	1.00	0.14		08/12/08
<b>Plutonium Isotopics by AEA</b>											
Plutonium-238	13981-16-3	LA-508-471	U	4.10e-03	pCi/g	+ -9.88e-03	pCi/g	1.00	0.018		08/13/08
Pu-239/240 by AEA	PU-239/240	LA-508-471		5.50e-03	pCi/g	+ -5.61e-03	pCi/g	1.00	3.7e-03		08/13/08
Pu-242 tracer by AEA	PU242	LA-508-471		6.20	pCi/g			1.00	0.010		08/13/08
<b>Strontium 89/90</b>											
Strontium-89/90	SR-RAD	LA-508-415	U	-0.180	pCi/g	+ -0.758	pCi/g	1.00	0.32		07/21/08
Sr-85 Tracer by Beta Counting	SR85	LA-508-415		102	Percent			1.00	0.0		07/21/08
<b>Uranium Isotopics by AEA</b>											
Uranium-233/234	U-233/234	LA-508-471		0.147	pCi/g	+ -0.0499	pCi/g	1.00	0.017		08/14/08
Uranium-235	15117-96-1	LA-508-471		5.90e-03	pCi/g	+ -6.96e-03	pCi/g	1.00	5.4e-03		08/14/08
Uranium-238	U-238	LA-508-471		0.154	pCi/g	+ -0.0508	pCi/g	1.00	0.013		08/14/08
U-232 tracer by AEA	U232	LA-508-471		91.3	pCi/g			1.00	0.0		08/14/08

**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)

E - Analyte is an estimate, has potentially larger errors (inorg)

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

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

D - Analyte was identified at a secondary dilution factor (inorg)

N - Spike sample recovery is outside control limits. (inorg)

U - Analyzed for but not detected above limiting criteria.

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

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Groundwater Remediation Program

# WSCF ANALYTICAL RESULTS REPORT

Attention: Steve Trent  
SAF Number: F08-101  
Sample #: W08GR02385  
Client ID: B1VDX6

GPP TRENT  
WSCF

Matrix: SOIL

Group #: WSCF20081399  
Department: Radiochemistry  
Sampled: 07/09/08  
Received: 07/10/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
<b>Am/Cm by Isotopics AEA</b>											
Americium-241	14596-10-2	LA-508-471	U	7.00e-03	pCi/g	+0.0254	pCi/g	1.00	0.045		08/13/08
Curium-244	13981-15-2	LA-508-471	U	-5.30e-03	pCi/g	+5.30e-03	pCi/g	1.00	0.047		08/13/08
Curium-242	15510-73-3	LA-508-471	U	5.30e-03	pCi/g	+0.0118	pCi/g	1.00	0.021		08/13/08
Am-243 tracer by AEA	AM243	LA-508-471		88.2	pCi/g			1.00	0.0		08/13/08
<b>Gamma Energy Analysis-grd H2O</b>											
Antimony-125	14234-35-6	LA-508-481	U	-2.36e-03	pCi/g	+0.0181	pCi/g	1.00	0.030		08/05/08
Cobalt-60	10198-40-0	LA-508-481	U	-3.00e-03	pCi/g	+7.09e-03	pCi/g	1.00	0.012		08/05/08
Cesium-134	13967-70-9	LA-508-481	U	0.0303	pCi/g	+0.0108	pCi/g	1.00	0.016		08/05/08
Cesium-137	10045-97-3	LA-508-481	U	-5.02e-03	pCi/g	+8.03e-03	pCi/g	1.00	0.011		08/05/08
Europium-152	14683-23-9	LA-508-481	U	-2.86e-03	pCi/g	+0.0230	pCi/g	1.00	0.032		08/05/08
Europium-154	15585-10-1	LA-508-481	U	-2.37e-03	pCi/g	+0.0237	pCi/g	1.00	0.039		08/05/08
Europium-155	14391-16-3	LA-508-481	U	0.0451	pCi/g	+0.0376	pCi/g	1.00	0.047		08/05/08
<b>Plutonium Isotopics by AEA</b>											
Plutonium-238	13981-16-3	LA-508-471	U	1.50e-03	pCi/g	+0.0150	pCi/g	1.00	0.011		08/13/08
Pu-239/240 by AEA	PU-239/240	LA-508-471		0.0100	pCi/g	+7.90e-03	pCi/g	1.00	4.0e-03		08/13/08
Pu-242 tracer by AEA	PU242	LA-508-471		6.20	pCi/g			1.00	4.0e-03		08/13/08
<b>Strontium 89/90</b>											
Strontium-89/90	SR-RAD	LA-508-415	U	-0.290	pCi/g	+0.798	pCi/g	1.00	0.34		07/21/08
Sr-85 Tracer by Beta Counting	SR85	LA-508-415		95.5	Percent			1.00	0.0		07/21/08
<b>Uranium Isotopics by AEA</b>											
Uranium-233/234	U-233/234	LA-508-471		0.141	pCi/g	+0.0478	pCi/g	1.00	0.016		08/14/08
Uranium-235	15117-98-1	LA-508-471	U	9.10e-03	pCi/g	+0.0114	pCi/g	1.00	0.017		08/14/08
Uranium-238	U-238	LA-508-471		0.151	pCi/g	+0.0498	pCi/g	1.00	0.012		08/14/08
U-232 tracer by AEA	U232	LA-508-471		99.7	pCi/g			1.00	0.0		08/14/08

**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)

E - Analyte is an estimate, has potentially larger errors(inorg)

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

D - Analyte was identified at a secondary dilution factor(inorg)

N - Spike sample recovery is outside control limits.(inorg)

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# WSCF

## TENTATIVELY IDENTIFIED PEAK REPORT

**Attention:** Steve Trent  
**Project Number:** F08-101 :F08-101

**Group #:** WSCF20081399  
**Department:** Radiochemistry

Sample #	Client ID	Test Name	Peak Name	CAS#	RT	RQ	Result	Units
W08GR02382	B1VDX3	GPP TRENT	Gamma Energy Analysis-grd H2O	BI-214			0.71	pCi/g
W08GR02382	B1VDX3	GPP TRENT	Gamma Energy Analysis-grd H2O	BI-214 Count Error			38	%
W08GR02382	B1VDX3	GPP TRENT	Gamma Energy Analysis-grd H2O	K-40			15	pCi/g
W08GR02382	B1VDX3	GPP TRENT	Gamma Energy Analysis-grd H2O	K-40 Count Error			13	%
W08GR02382	B1VDX3	GPP TRENT	Gamma Energy Analysis-grd H2O	PB-212			0.55	pCi/g
W08GR02382	B1VDX3	GPP TRENT	Gamma Energy Analysis-grd H2O	PB-212 Count Error			15	%
W08GR02382	B1VDX3	GPP TRENT	Gamma Energy Analysis-grd H2O	PB-214			1.0	pCi/g
W08GR02382	B1VDX3	GPP TRENT	Gamma Energy Analysis-grd H2O	PB-214 Count Error			41	%
W08GR02382	B1VDX3	GPP TRENT	Gamma Energy Analysis-grd H2O	RA-226			0.50	pCi/g
W08GR02382	B1VDX3	GPP TRENT	Gamma Energy Analysis-grd H2O	RA-226 Count Error			28	%
W08GR02382	B1VDX3	GPP TRENT	Gamma Energy Analysis-grd H2O	RA-228			0.47	pCi/g
W08GR02382	B1VDX3	GPP TRENT	Gamma Energy Analysis-grd H2O	RA-228 Count Error			37	%
W08GR02382	B1VDX3	GPP TRENT	Gamma Energy Analysis-grd H2O	TL-208			0.12	pCi/g
W08GR02382	B1VDX3	GPP TRENT	Gamma Energy Analysis-grd H2O	TL-208 Count Error			41	%
W08GR02385	B1VDX6	GPP TRENT	Gamma Energy Analysis-grd H2O	AC-228			0.61	pCi/g
W08GR02385	B1VDX6	GPP TRENT	Gamma Energy Analysis-grd H2O	AC-228 Count Error			22	%
W08GR02385	B1VDX6	GPP TRENT	Gamma Energy Analysis-grd H2O	BI-212			0.36	pCi/g
W08GR02385	B1VDX6	GPP TRENT	Gamma Energy Analysis-grd H2O	BI-212 Count Error			35	%
W08GR02385	B1VDX6	GPP TRENT	Gamma Energy Analysis-grd H2O	BI-214			0.57	pCi/g
W08GR02385	B1VDX6	GPP TRENT	Gamma Energy Analysis-grd H2O	BI-214 Count Error			14	%
W08GR02385	B1VDX6	GPP TRENT	Gamma Energy Analysis-grd H2O	K-40			16	pCi/g
W08GR02385	B1VDX6	GPP TRENT	Gamma Energy Analysis-grd H2O	K-40 Count Error			13	%
W08GR02385	B1VDX6	GPP TRENT	Gamma Energy Analysis-grd H2O	PB-212			0.57	pCi/g
W08GR02385	B1VDX6	GPP TRENT	Gamma Energy Analysis-grd H2O	PB-212 Count Error			11	%
W08GR02385	B1VDX6	GPP TRENT	Gamma Energy Analysis-grd H2O	PB-214			0.79	pCi/g

**RQ=Result Qualifier**

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

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**Groundwater Remediation Program**

WGPE v 5.2 Report#: WSCF20081399

Report Date: 21-sep-2008

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# WSCF

## TENTATIVELY IDENTIFIED PEAK REPORT

**Attention:** Steve Trent  
**Project Number:** F08-101 :F08-101

**Group #:** WSCF20081399  
**Department:** Radiochemistry

Sample #	Client ID	Test Name	Peak Name	CAS#	RT	RQ	Result	Units
W08GR02385	B1VDX6	GPP TRENT	Gamma Energy Analysis-grd H2O	PB-214 Count Error			22	%
W08GR02385	B1VDX6	GPP TRENT	Gamma Energy Analysis-grd H2O	RA-226			0.47	pCi/g
W08GR02385	B1VDX6	GPP TRENT	Gamma Energy Analysis-grd H2O	RA-226 Count Error			17	%
W08GR02385	B1VDX6	GPP TRENT	Gamma Energy Analysis-grd H2O	RA-228			0.56	pCi/g
W08GR02385	B1VDX6	GPP TRENT	Gamma Energy Analysis-grd H2O	RA-228 Count Error			18	%
W08GR02385	B1VDX6	GPP TRENT	Gamma Energy Analysis-grd H2O	SN-126			0.089	pCi/g
W08GR02385	B1VDX6	GPP TRENT	Gamma Energy Analysis-grd H2O	SN-126 Count Error			31	%
W08GR02385	B1VDX6	GPP TRENT	Gamma Energy Analysis-grd H2O	TH-234			0.78	pCi/g
W08GR02385	B1VDX6	GPP TRENT	Gamma Energy Analysis-grd H2O	TH-234 Count Error			33	%
W08GR02385	B1VDX6	GPP TRENT	Gamma Energy Analysis-grd H2O	TL-208			0.18	pCi/g
W08GR02385	B1VDX6	GPP TRENT	Gamma Energy Analysis-grd H2O	TL-208 Count Error			15	%

**RQ=Result Qualifier**

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

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**Groundwater Remediation Program**

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Report Date: 21-sep-2008

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# WSCF ANALYTICAL LABORATORY QC REPORT

Department: Radiochemistry

SDG Number: WSCF20081399  
 Matrix: SOLID  
 Test: Gamma Energy Analysis-grd H2O

Sample Date: 07/09/08  
 Receive Date: 07/10/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
<b>Lab ID: W08GR02385</b>											
<b>BATCH QC ASSOCIATED WITH SAMPLE</b>											
DUP	Cobalt-60	10198-40-0	U-4.022e-3		RPD			n/a	20.000		08/05/08
DUP	Cesium-134	13967-70-9	U2.88e-2		RPD			n/a	20.000		08/05/08
DUP	Cesium-137	10045-97-3	U1.833e-3		RPD			n/a	20.000		08/05/08
DUP	Europium-152	14683-23-9	U-1.412e-2		RPD			n/a	20.000		08/05/08
DUP	Europium-154	15585-10-1	U-3.019e-3		RPD			n/a	20.000		08/05/08
DUP	Europium-155	14391-16-3	U2.345e-2		RPD			n/a	20.000		08/05/08
DUP	Antimony-125	14234-35-6	U-6.96e-3		RPD			n/a	20.000		08/05/08
<b>BATCH QC</b>											
BLANK	Cobalt-60	10198-40-0	U-1.61e-3	n/a	pCi/g	-10.000	1000.000				08/05/08
BLANK	Cesium-134	13967-70-9	U5.442e-4	n/a	pCi/g	-10.000	1000.000				08/05/08
BLANK	Cesium-137	10045-97-3	U-4.933e-4	n/a	pCi/g	-10.000	1000.000				08/05/08
BLANK	Europium-152	14683-23-9	U4.17e-3	n/a	pCi/g	-10.000	1000.000				08/05/08
BLANK	Europium-154	15585-10-1	U-1.219e-3	n/a	pCi/g	-10.000	1000.000				08/05/08
BLANK	Europium-155	14391-16-3	U-1.285e-3	n/a	pCi/g	-10.000	1000.000				08/05/08
BLANK	Antimony-125	14234-35-6	U4.525e-3	n/a	pCi/g	-10.000	1000.000				08/05/08
LCS	Cobalt-60	10198-40-0	10340	104.024	% Recov	80.000	120.000				08/05/08
LCS	Cesium-137	10045-97-3	6185	102.401	% Recov	80.000	120.000				08/05/08

# WSCF ANALYTICAL LABORATORY QC REPORT

Department: Radiochemistry

SDG Number: WSCF20081399  
 Matrix: SOLID  
 Test: Am/Cm by Isotopics AEA

Sample Date: 06/30/08  
 Receive Date: 07/02/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
<b>Lab ID: W08GR02040</b>											
<b>BATCH QC ASSOCIATED WITH SAMPLE</b>											
DUP	Americium-241	14596-10-2	2.4e-02		RPD			25.455	20.000		08/13/08
DUP	Curium-242	15510-73-3	U-1.6e-3		RPD			n/a	20.000		08/13/08
DUP	Curium-244	13981-15-2	U-1.6e-03		RPD			n/a	20.000		08/13/08
<b>BATCH QC</b>											
BLANK	Americium-241	14596-10-2	U-.011	n/a	pCi/g	-10.000	1000.000				08/13/08
BLANK	Curium-242	15510-73-3	U-.0089	n/a	pCi/g	-10.000	1000.000				08/13/08
BLANK	Curium-244	13981-15-2	U.026	n/a	pCi/g	-10.000	1000.000				08/13/08
LCS	Americium-241	14596-10-2	13.35	112.658	% Recov	80.000	120.000				08/13/08
LCS	Curium-242	15510-73-3	n/a	n/a	% Recov	80.000	120.000				08/13/08
LCS	Curium-244	13981-15-2	n/a	n/a	% Recov	80.000	120.000				08/13/08

# WSCF ANALYTICAL LABORATORY QC REPORT

Department: Radiochemistry

SDG Number: WSCF20081399  
 Matrix: SOLID  
 Test: Plutonium Isotopics by AEA

Sample Date: 06/30/08  
 Receive Date: 07/02/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
<b>Lab ID: W08GR02040</b>											
<b>BATCH QC ASSOCIATED WITH SAMPLE</b>											
DUP	Plutonium-238	13981-16-3	U-1.5e-3		RPD			n/a	20.000		08/13/08
DUP	Pu-239/240 by AEA	PU-239/240	U1.5e-3		RPD			n/a	20.000		08/13/08
DUP	Pu-242 tracer by AEA	PU242	6.031	87.830	% Recov	30.000	105.000				08/13/08
<b>Lab ID: W08GR02382</b>											
<b>BATCH QC ASSOCIATED WITH SAMPLE</b>											
SURR	Pu-242 tracer by AEA	PU242	6.15	100.890	% Recov	30.000	105.000				08/13/08
<b>Lab ID: W08GR02385</b>											
<b>BATCH QC ASSOCIATED WITH SAMPLE</b>											
SURR	Pu-242 tracer by AEA	PU242	6.162	85.230	% Recov	30.000	105.000				08/13/08
<b>BATCH QC</b>											
BLANK	Plutonium-238	13981-16-3	U3.3e-3	n/a	pCi/g	-10.000	1000.000				08/13/08
BLANK	Pu-239/240 by AEA	PU-239/240	1.1e-2	0.011	pCi/g	-10.000	1000.000				08/13/08
BLANK	Pu-242 tracer by AEA	PU242	6.236	81.440	% Recov	30.000	105.000				08/13/08
LCS	Pu-239/240 by AEA	PU-239/240	12.9	100.428	% Recov	80.000	120.000				08/13/08
LCS	Pu-242 tracer by AEA	PU242	17.3	90.640	% Recov	30.000	105.000				08/13/08

# WSCF ANALYTICAL LABORATORY QC REPORT

Department: Radiochemistry

SDG Number: WSCF20081399  
 Matrix: SOLID  
 Test: Strontium 89/90

Sample Date: 07/09/08  
 Receive Date: 07/10/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
<b>Lab ID: W08GR02378</b>											
<b>BATCH QC ASSOCIATED WITH SAMPLE</b>											
DUP	Sr-85 Tracer by Beta Counting	SR85	97.6	97.600	% Recov	30.000	105.000				07/21/08
DUP	Strontium-89/90	SR-RAD	U-5.2E-01		RPD			n/a	20.000		07/21/08
<b>Lab ID: W08GR02382</b>											
<b>BATCH QC ASSOCIATED WITH SAMPLE</b>											
SURR	Sr-85 Tracer by Beta Counting	SR85	101.6	101.600	% Recov	30.000	105.000				07/21/08
<b>Lab ID: W08GR02385</b>											
<b>BATCH QC ASSOCIATED WITH SAMPLE</b>											
SURR	Sr-85 Tracer by Beta Counting	SR85	95.5	95.500	% Recov	30.000	105.000				07/21/08
<b>BATCH QC</b>											
BLANK	Sr-85 Tracer by Beta Counting	SR85	97.1	97.100	% Recov	30.000	105.000				07/21/08
BLANK	Strontium-89/90	10098-97-2	U-1.2	n/a	pCi/g	-10.000	300.000				07/21/08
LCS	Sr-85 Tracer by Beta Counting	SR85	84	84.000	% Recov	30.000	105.000				07/21/08
LCS	Strontium-89/90	10098-97-2	76.5	110.199	% Recov	80.000	120.000				07/21/08

# WSCF ANALYTICAL LABORATORY QC REPORT

Department: Radiochemistry

SDG Number: WSCF20081399  
 Matrix: SOLID  
 Test: Uranium Isotopics by AEA

Sample Date: 06/30/08  
 Receive Date: 07/02/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
<b>Lab ID: W08GR02040</b>											
<b>BATCH QC ASSOCIATED WITH SAMPLE</b>											
DUP	U-232 tracer by AEA	U232	93.23	93.230	% Recov	30.000	105.000				08/14/08
DUP	Uranium-233/234	U-233/234	.229		RPD			8.768	20.000		08/14/08
DUP	Uranium-235	15117-96-1	7.5e-3		RPD			107.692	20.000		08/14/08
DUP	Uranium-238	U-238	.26		RPD			16.667	20.000		08/14/08
<b>Lab ID: W08GR02382</b>											
<b>BATCH QC ASSOCIATED WITH SAMPLE</b>											
SURR	U-232 tracer by AEA	U232	91.30	91.300	% Recov	30.000	105.000				08/14/08
<b>Lab ID: W08GR02385</b>											
<b>BATCH QC ASSOCIATED WITH SAMPLE</b>											
SURR	U-232 tracer by AEA	U232	99.66	99.660	% Recov	30.000	105.000				08/14/08
<b>BATCH QC</b>											
BLANK	U-232 tracer by AEA	U232	100.09	100.090	% Recov	30.000	105.000				08/14/08
BLANK	Uranium-233/234	13966-29-5	.0146	0.015	pCi/g	-10.000	1000.000				08/14/08
BLANK	Uranium-235	15117-96-1	U.0088	n/a	pCi/g	-10.000	1000.000				08/14/08
BLANK	Uranium-238	24678-82-8	.0097	0.010	pCi/g	-10.000	1000.000				08/14/08
LCS	U-232 tracer by AEA	U232	88.52	88.520	% Recov	30.000	105.000				08/14/08
LCS	Uranium-233/234	13966-29-5	100	100.000	% Recov	75.000	125.000				08/14/08
LCS	Uranium-235	15117-96-1	100	100.000	% Recov	75.000	125.000				08/14/08
LCS	Uranium-238	24678-82-8	20.6	108.421	% Recov	80.000	120.000				08/14/08

M4W41-SLF-08-1037

ATTACHMENT 5

**SAMPLE RECEIPT INFORMATION**

Consisting of 12 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

ACKNOWLEDGMENT OF SAMPLES RECEIVED

Groundwater Remediation Program

Richland, WA 99354  
Attn: Steve Trent

Customer Code: GPP  
PO#: 123513ES10  
Group#: 20081399  
Project#: F08-101  
Proj Mgr: Steve Trent E6-35  
Phone: 373-5869

The following samples were received from you on 07/10/08. 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
W08GR02382	B1VDX3	GPP @2008 @GEA-GPP PERSOLID	TRENT Solid, or handle as if solid @8015GPP @AEA-30 @AEA-32 @AEA-AC @GPP6010 @IC-30 @SR89_90 @TPHD-WA	07/09/08 CN-02
W08GR02383	B1VDX1	GPP @VOA-GPP	TRENT Solid, or handle as if solid	07/09/08
W08GR02384	B1VDX2	GPP	TRENT Solid, or handle as if solid	07/09/08
W08GR02385	B1VDX6	GPP @2008 @GEA-GPP PERSOLID	TRENT Solid, or handle as if solid @8015GPP @AEA-30 @AEA-32 @AEA-AC @GPP6010 @IC-30 @SR89_90 @TPHD-WA	07/09/08 CN-02
W08GR02386	B1VDX4	GPP @VOA-GPP	TRENT Solid, or handle as if solid	07/09/08
W08GR02387	B1VDX5	GPP	TRENT Solid, or handle as if solid	07/09/08

Test Acronym Description

Test Acronym	Description
@2008	ICP-200.8 MS All possible meta
@8015GPP	Alcohols, Glycols - 8015
@AEA-30	Plutonium Isotopics by AEA
@AEA-32	Uranium Isotopics by AEA
@AEA-AC	Am/Cm by Isotopics AEA
@GEA-GPP	Gamma Energy Analysis-grd H2O
@GPP6010	ICP Metals Analysis, Grd H2O P
@IC-30	Anions by Ion Chromatography
@SR89_90	Strontium 89/90
@TPHD-WA	NWTPH-D TPH Diesel Range (Wa)
@VOA-GPP	VOA Ground Water Protection
CN-02	Cyanide by Midi/Spectrophotom
PERSOLID	Percent Solids

<b>COLLECTOR</b> NCO SAMPLER	Kevin Patterson Fluor Hanford	<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> C5989, I-132	<b>PROJECT DESIGNATION</b> 200-BP-5 OU Characterization for "C" Well - Soil			<b>SAF NO.</b> F08-101	<b>AIR QUALITY</b>	
<b>ICE CHEST NO.</b>	<b>FIELD LOGBOOK NO.</b> HANFA 5856	<b>ACTUAL SAMPLE DEPTH</b> 254.5' - 257'		<b>COA</b> 123513ES10	<b>METHOD OF SHIPMENT</b> GOVERNMENT VEHICLE	
<b>SHIPPED TO</b> Waste Sampling & Characterization	<b>OFFSITE PROPERTY NO.</b> N/A	<b>BILL OF LADING/AIR BILL NO.</b> N/A				

<b>MATRIX*</b>	<b>POSSIBLE SAMPLE HAZARDS/ REMARKS</b>	<b>PRESERVATION</b>	Cool~4C	Cool~4C	None	None	None
A=Air DL=Drum Liquids DS=Drum Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WL=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)	<b>TYPE OF CONTAINER</b>	aGs*	aG	G/P	Square Bottle - Poly	G/P
		<b>NO. OF CONTAINER(S)</b>	3	1	1	1	1
		<b>VOLUME</b>	40mL	120mL	250mL	500mL	60mL
	<b>SPECIAL HANDLING AND/OR STORAGE</b> Radioactive Tie To: B1V513	<b>SAMPLE ANALYSIS</b>	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	SEE ITEM (3) IN SPECIAL INSTRUCTIONS	SEE ITEM (4) IN SPECIAL INSTRUCTIONS	SEE ITEM (5) IN SPECIAL INSTRUCTIONS

20081399

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME					
B1VDX3	W0806202302 SOIL	7/9/08	1145	✓	✓	✓	✓	-

ICED

<b>CHAIN OF POSSESSION</b>	<b>SIGN/ PRINT NAMES</b>	<b>SPECIAL INSTRUCTIONS</b>
RELINQUISHED BY/REMOVED FROM Kevin Patterson Fluor Hanford	DATE/TIME 7-10-8 0900	RECEIVED BY/STORED IN D. Connolly DATE/TIME 7-10-8 10:00
RELINQUISHED BY/REMOVED FROM D. Connolly	DATE/TIME 7-10-8 10:00	RECEIVED BY/STORED IN Victor Sims DATE/TIME 7-10-8 10:00
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

W15060-024875 013269 583712 026604

SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS

<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>

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<b>COLLECTOR</b> NCO SAMPLER	Kevin Patterson Fluor Hanford	<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> C5989, I-132	<b>PROJECT DESIGNATION</b> 200-BP-5 OU Characterization for "C" Well - Soil		<b>SAF NO.</b> F08-101	<b>AIR QUALITY</b>		
<b>ICE CHEST NO.</b>	<b>FIELD LOGBOOK NO.</b>	<b>ACTUAL SAMPLE DEPTH</b>	<b>COA</b> 123513E510	<b>METHOD OF SHIPMENT</b> GOVERNMENT VEHICLE		
<b>SHIPPED TO</b> Waste Sampling & Characterization	<b>OFFSITE PROPERTY NO.</b> N/A	<b>BILL OF LADING/AIR BILL NO.</b> N/A				

**SPECIAL INSTRUCTIONS**

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

\*\* Analytical batch QC must be run on a sample associated with this SAF.

(1) Alcohols, Glycols, & Ketones - 8015 (Diethyl ether, Ethylene glycol)

(2) TPH-Diesel/Kerosene Range - WTPH-D (Total petroleum hydrocarbons - diesel range, Total petroleum hydrocarbons - kerosene range)

(3) ICP/MS - 200.8 (TAL) (Antimony, Barium, Cadmium, Chromium, Cobalt, Copper, Manganese, Nickel, Silver, Vanadium, Zinc) ICP/MS - 200.8 (Add-on) (Arsenic, Beryllium, Lead, Selenium, Strontium, Thallium, Uranium) ICP Metals -

6010B (TAL) (Aluminum, Iron, Sodium) ICP Metals - 6010B (Add-On) (Bismuth, Boron, Lithium) 200.8\_HG - ICPMS; Cyanide (Total) - 335.2; IC Anions - 300.0 (Chloride, Fluoride, Nitrogen in Nitrate, Nitrogen in Nitrite, Sulfate)

(4) Gamma Spectroscopy (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155) Gamma Spec - Add-on (Antimony-125, Cesium-134) Strontium-89,90 -- Total Sr; Isotopic Plutonium; Isotopic Uranium;

(5) Americium-241/Curium-244 (Americium-241, Curium-244)

<b>COLLECTOR</b> NCO SAMPLER	Kevin Patterson Fluor Hanford	<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> C5989, I-132	<b>PROJECT DESIGNATION</b> 200-BP-5 OU Characterization for "C" Well - Soil	<b>SAF NO.</b> F08-101	<b>AIR QUALITY</b>	<b>METHOD OF SHIPMENT</b> GOVERNMENT VEHICLE		
<b>ICE CHEST NO.</b>	<b>FIELD LOGBOOK NO.</b> HNF.N.585.6	<b>ACTUAL SAMPLE DEPTH</b> 254.5-257'	<b>COA</b> 123513ES10	<b>BILL OF LADING/AIR BILL NO.</b> N/A		
<b>SHIPPED TO</b> Waste Sampling & Characterization	<b>OFFSITE PROPERTY NO.</b> N/A					

<b>MATRIX*</b> 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	<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> MEOH/Cool ~4 C Cool <-7C and >-20C	<b>TYPE OF CONTAINER</b>	<b>NO. OF CONTAINER(S)</b>	<b>VOLUME</b>	<b>SPECIAL HANDLING AND/OR STORAGE</b> Radioactive Tie To: B1V513	<b>SAMPLE ANALYSIS</b>	<b>SEE ITEM (1) IN SPECIAL INSTRUCTIONS</b>	<b>SEE ITEM (2) IN SPECIAL INSTRUCTIONS</b>
				3	40mL				
				5	40mL				

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME		
B1VDX1	W08 (70238) SOIL	7/9/08	1145	✓	✓

**ICED**

7312110 7312110

CHAIN OF POSSESSION	SIGN/ PRINT NAMES	SPECIAL INSTRUCTIONS
RELINQUISHED BY/REMOVED FROM Kevin Patterson	DATE/TIME 7-10-8 0900	RECEIVED BY/STORED IN D. Connor
RELINQUISHED BY/REMOVED FROM Fluor Hanford	DATE/TIME 7-10-8 10:05	RECEIVED BY/STORED IN Victor Sims
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

SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS

<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>

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Fluor Hanford Inc.

## CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

F08-101-021

PAGE 2 OF 2

<b>COLLECTOR</b> NCO SAMPLER	Kevin Patterson Fluor Hanford	<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> C5989, I-132	<b>PROJECT DESIGNATION</b> 200-BP-5 OU Characterization for "C" Well - Soil		<b>SAF NO.</b> F08-101	<b>AIR QUALITY</b>		
<b>ICE CHEST NO.</b>	<b>FIELD LOGBOOK NO.</b>	<b>ACTUAL SAMPLE DEPTH</b>	<b>COA</b> 123513ES10	<b>METHOD OF SHIPMENT</b> GOVERNMENT VEHICLE		
<b>SHIPPED TO</b> Waste Sampling & Characterization	<b>OFFSITE PROPERTY NO.</b> N/A	<b>BILL OF LADING/AIR BILL NO.</b> N/A				

**SPECIAL INSTRUCTIONS**

- \*\* The 200 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF.
  - \*\* Analytical batch QC must be run on a sample associated with this SAF.
  - \*\* All VOA samples will be collected using EPA Method 5035A.
  - \*\* VOA sample bottle sets will include 3 bottles for high level analysis, 5 bottles for low level analysis, and 1 methanol process control sample.
  - \*\* The laboratory is to use one of the low level VOA bottles for moisture content determination.
  - \*\* VOA bottles will be labeled with an appended suffix of K, L, M, N, or P for low level and W, X, or Y for high level. These suffixes are for the purpose of providing bottle weights to the laboratories. These suffixes should not be include as part of the sample ID reported in the final data packages.
- (1)VOA - 5035/8260 (HIGH LEVEL); VOA - 5035/8260 (HIGH LEVEL) - (Add-On) {1-Butanol, Trichloromonofluoromethane, cis-1,2-Dichloroethylene, trans-1,2-Dichloroethylene}
- (2)VOA - 5035/8260 (LOW LEVEL); VOA - 5035/8260 (LOW LEVEL) - (Add-On) {1-Butanol, Trichloromonofluoromethane, cis-1,2-Dichloroethylene, trans-1,2-Dichloroethylene}

<b>COLLECTOR</b> NCO SAMPLER	Kevin Patterson Fluor Hanford	<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> C5989, I-132	<b>PROJECT DESIGNATION</b> 200-BP-5 OU Characterization for "C" Well - Soil			<b>SAF NO.</b> F08-101	<b>AIR QUALITY</b>	
<b>ICE CHEST NO.</b>	<b>FIELD LOGBOOK NO.</b> HNF-N-585-4	<b>ACTUAL SAMPLE DEPTH</b> 254-5-257'		<b>COA</b> 123513ES10	<b>METHOD OF SHIPMENT</b> GOVERNMENT VEHICLE	
<b>SHIPPED TO</b> Waste Sampling & Characterization	<b>OFFSITE PROPERTY NO.</b> N/A	<b>BILL OF LADING/AIR BILL NO.</b> N/A				

<b>MATRIX*</b> 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	<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	<b>TYPE OF CONTAINER</b> aGs*	<b>NO. OF CONTAINER(S)</b> 1	<b>VOLUME</b> 40mL	<b>SPECIAL HANDLING AND/OR STORAGE</b> Radioactive Tie To: B1V513	<b>SAMPLE ANALYSIS</b> SEE ITEM (1) IN SPECIAL INSTRUCTIONS
---	--	--------------------------------	----------------------------------	---------------------------------	-----------------------	--	--

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B1VDX2 W086202384 SOIL		7/9/08	1145	✓

**ICED**

7312110

CHAIN OF POSSESSION	DATE/TIME	SIGN/ PRINT NAMES	DATE/TIME	SPECIAL INSTRUCTIONS
RELINQUISHED BY/REMOVED FROM Kevin Patterson Fluor Hanford	7-10-08 0900	RECEIVED BY/STORED IN D Connolly	7-10-08 2700	** The 200 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF. ** Analytical batch QC must be run on a sample associated with this SAF. ** All VOA samples will be collected using EPA Method 5035A. (1)VOA - 5035/8260 (TCL); VOA - 5035/8260 - (Add-On) {1-Butanol, Trichloromonofluoromethane, cis-1,2-Dichloroethylene, trans-1,2-Dichloroethylene}
RELINQUISHED BY/REMOVED FROM DC Connolly	7-10-08 10:00	RECEIVED BY/STORED IN Victor Bins	7-10-08 10:00	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	

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

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Fluor Hanford Inc.

## CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

F08-101-028

PAGE 2 OF 2

<b>COLLECTOR</b> NCO SAMPLER	Kevin Patterson Fluor Hanford	<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> CS989, I-132-D	<b>PROJECT DESIGNATION</b> 200-BP-5 OU Characterization for "C" Well - Soil		<b>SAF NO.</b> F08-101	<b>AIR QUALITY</b> <input type="checkbox"/>		
<b>ICE CHEST NO.</b>	<b>FIELD LOGBOOK NO.</b>	<b>ACTUAL SAMPLE DEPTH</b>	<b>COA</b> 123513ES10	<b>METHOD OF SHIPMENT</b> GOVERNMENT VEHICLE		
<b>SHIPPED TO</b> Waste Sampling & Characterization	<b>OFFSITE PROPERTY NO.</b> N/A	<b>BILL OF LADING/AIR BILL NO.</b> N/A				

**SPECIAL INSTRUCTIONS**

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

\*\* Analytical batch QC must be run on a sample associated with this SAF.

(1) Alcohols, Glycols, & Ketones - 8015 (Diethyl ether, Ethylene glycol)

(2) TPH-Diesel/Kerosene Range - WTPH-D (Total petroleum hydrocarbons - diesel range, Total petroleum hydrocarbons - kerosene range)

(3) ICP/MS - 200.8 (TAL) (Antimony, Barium, Cadmium, Chromium, Cobalt, Copper, Manganese, Nickel, Silver, Vanadium, Zinc) ICP/MS - 200.8 (Add-on) (Arsenic, Beryllium, Lead, Selenium, Strontium, Thallium, Uranium) ICP Metals - 6010B (TAL) (Aluminum, Iron, Sodium) ICP Metals - 6010B (Add-On) (Bismuth, Boron, Lithium) 200.8\_HG - ICPMS; Cyanide (Total) - 335.2; IC Anions - 300.0 (Chloride, Fluoride, Nitrogen in Nitrate, Nitrogen in Nitrite, Sulfate)

(4) Gamma Spectroscopy (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155) Gamma Spec - Add-on (Antimony-125, Cesium-134) Strontium-89,90 - Total Sr; Isotopic Plutonium; Isotopic Uranium;

(5) Americium-241/Curium-244 (Americium-241, Curium-244)

Fluor Hanford Inc.

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

F08-101-026

PAGE 1 OF 2

<b>COLLECTOR</b> NCO SAMPLER Kevin Patterson Fluor Hanford	<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> CS989, I-132-D	<b>PROJECT DESIGNATION</b> 200-BP-5 OU Characterization for "C" Well - Soil		<b>SAF NO.</b> F08-101	<b>AIR QUALITY</b> <input type="checkbox"/>	
<b>ICE CHEST NO.</b>	<b>FIELD LOGBOOK NO.</b> HNF-N-585-L	<b>ACTUAL SAMPLE DEPTH</b> 254.5' - 257'	<b>COA</b> 123513ES10	<b>METHOD OF SHIPMENT</b> GOVERNMENT VEHICLE	
<b>SHIPPED TO</b> Waste Sampling & Characterization	<b>OFFSITE PROPERTY NO.</b> N/A		<b>BILL OF LADING/AIR BILL NO.</b> N/A		

<b>MATRIX*</b> 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	<b>POSSIBLE SAMPLE HAZARDS/ REMARKS</b> 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)	<b>PRESERVATION</b>	MEOH/Cool ~4 C	Cool <-7C and >-20C
		<b>TYPE OF CONTAINER</b>	aGs*	aGs*
		<b>NO. OF CONTAINER(S)</b>	3	5
		<b>VOLUME</b>	40mL	40mL
	<b>SPECIAL HANDLING AND/OR STORAGE</b> Radioactive Tie To: 81V513	<b>SAMPLE ANALYSIS</b>	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	SEE ITEM (2) IN SPECIAL INSTRUCTIONS

ICED

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME		
B1VDX4 W086202354	SOIL	7/9/08	1145	✓	✓
				731210	731240 731240

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS
RELINQUISHED BY/REMOVED FROM Kevin Patterson Fluor Hanford	DATE/TIME 7-10-08 0900	RECEIVED BY/STORED IN D Connolly	DATE/TIME 7-10-08 0900	SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS
RELINQUISHED BY/REMOVED FROM D Connolly	DATE/TIME 7-10-08 10:00	RECEIVED BY/STORED IN V. [Signature]	DATE/TIME 7-10-08 10:00	
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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	<b>FINAL SAMPLE DISPOSITION</b>	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

Fluor Hanford Inc.

## CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

F08-101-026

PAGE 2 OF 2

<b>COLLECTOR</b> NCO SAMPLER	Kevin Patterson Hanford	<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> C5989, I-132-D	<b>PROJECT DESIGNATION</b> 200-BP-5 OU Characterization for "C" Well - Soil			<b>SAF NO.</b> F08-101	<b>AIR QUALITY</b> <input type="checkbox"/>	
<b>ICE CHEST NO.</b>	<b>FIELD LOGBOOK NO.</b>	<b>ACTUAL SAMPLE DEPTH</b>		<b>COA</b> 123513ES10	<b>METHOD OF SHIPMENT</b> GOVERNMENT VEHICLE	
<b>SHIPPED TO</b> Waste Sampling & Characterization	<b>OFFSITE PROPERTY NO.</b> N/A			<b>BILL OF LADING/AIR BILL NO.</b> N/A		

**SPECIAL INSTRUCTIONS**

- \*\* The 200 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF.
- \*\* Analytical batch QC must be run on a sample associated with this SAF.
- \*\* All VOA samples will be collected using EPA Method 5035A.
- \*\* VOA sample bottle sets will include 3 bottles for high level analysis, 5 bottles for low level analysis, and 1 methanol process control sample.
- \*\* The laboratory is to use one of the low level VOA bottles for moisture content determination.
- \*\* VOA bottles will be labeled with an appended suffix of K, L, M, N, or P for low level and W, X, or Y for high level. These suffixes are for the purpose of providing bottle weights to the laboratories. These suffixes should not be include as part of the sample ID reported in the final data packages.
- (1)VOA - 5035/8260 (HIGH LEVEL); VOA - 5035/8260 (HIGH LEVEL) - (Add-On) {1-Butanol, Trichloromonofluoromethane, cis-1,2-Dichloroethylene, trans-1,2-Dichloroethylene}
- (2)VOA - 5035/8260 (LOW LEVEL); VOA - 5035/8260 (LOW LEVEL) - (Add-On) {1-Butanol, Trichloromonofluoromethane, cis-1,2-Dichloroethylene, trans-1,2-Dichloroethylene}



M4W41-SLF-08-1037

ATTACHMENT 6

**SAMPLE RECORD SHEET**

Consisting of 3 pages  
Including cover page

I-132

## SAMPLE RECORD SHEET 7/9/08

Sample Number	Sample Suffix <sup>1</sup>	Empty Weight <sup>2</sup> (g)	Weight with Sample <sup>3</sup> (g)	Weight of Sample <sup>4</sup> (g)	Methanol Added (g)	Methanol Added (mL)	Weight of Methanol and Sample
BIVDX1	K	31.7	36.7	5.0	---	---	---
BIVDX1	L	31.8	38.3	6.5	---	---	---
BIVDX1	M	31.0	36.6	5.6	---	---	---
BIVDX1	N	31.6	37.6	6.0	---	---	---
BIVDX1	P	31.3	35.5	4.2	---	---	---
BIVDX2		30.2	30.2	0.0	4.0	5.0	34.2
BIVDX1	W	30.2	35.9	5.7	4.4	5.5	40.3
BIVDX1	X	30.9	37.0	6.1	4.8	6.0	41.8
BIVDX1	Y	30.9	37.0	6.1	4.7	6.0	41.7

<sup>1</sup> Sample suffix of L, K, M, N and P relate to low-level concentration samples and will not have any preservation beyond freezing between -7C and -20C.

Sample suffix of W, X, and Y relate to methanol preservation for high-level samples.

<sup>2</sup> Empty weight is to include all labels, stickers, bags, and anything else that will be associated with the bottle when it is weighed with the sample.

<sup>3</sup> Ensure that everything weighed for the empty bottle and no additional items (besides the sample) is weighed.

<sup>4</sup> Sample weight is the vial with sample minus the vial empty

MEHRER - OVERSITE

I-132 Dup

## SAMPLE RECORD SHEET

7/9/08

Sample Number	Sample Suffix <sup>1</sup>	Empty Weight <sup>2</sup> (g)	Weight with Sample <sup>3</sup> (g)	Weight of Sample <sup>4</sup> (g)	Methanol Added (g)	Methanol Added (mL)	Weight of Methanol and Sample
BIVDX4	K	32.0	37.8	5.8	---	---	---
BIVDX4	L	31.7	37.4	5.7	---	---	---
BIVDX4	M	31.6	36.0	4.4	---	---	---
BIVDX4	N	31.4	35.7	4.3	---	---	---
BIVDX4	P	31.9	37.7	5.8	---	---	---
BIVDX5		30.4	30.4	0.0	3.9	5.0	34.3
BIVDX4	W	30.7	36.3	5.6	4.4	5.5	40.7
BIVDX4	X	30.2	32.6	2.4	1.9	2.5	34.5
BIVDX4	Y	30.1	33.0	2.9	2.4	3.0	35.5

<sup>1</sup>Sample suffix of L, K, M, N and P relate to low-level concentration samples and will not have any preservation beyond freezing between -7C and -20C.

Sample suffix of W, X, and Y relate to methanol preservation for high-level samples.

<sup>2</sup>Empty weight is to include all labels, stickers, bags, and anything else that will be associated with the bottle when it is weighed with the sample.

<sup>3</sup>Ensure that everything weighed for the empty bottle and no additional items (besides the sample) is weighed.

<sup>4</sup>Sample weight is the vial with sample minus the vial empty

MEHRER - OVERSITE