

RECEIVED OCTOBER 1, 2010

REVISION 1

Mission Support Alliance  
P.O. Box 650  
Richland, Washington 99352



M4W41-SLF-10-026

January 18, 2010

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

Dear Mike,

FINAL RESULTS FOR SAMPLE DELIVERY GROUP WSCF20091216 – SAF NUMBER F10-025

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

This letter contains the following attachments for sample delivery group WSCF20091216:

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

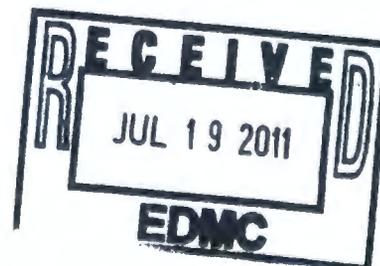
Very truly yours,

*for S. L. Fitzgerald*  
S. L. Fitzgerald  
WSCF Analytical Lab

SLF/grf

Attachments 4

cc: w/Attachments  
R. L. Barker S3-30  
H. K. Meznarich S3-30  
J. E. Trechter S3-30  
S. J. Trent R3-50  
File/LB



M4W41-SLF-10-026

ATTACHMENT 1

**COVER SHEET**

Consisting of 2 pages  
Including cover page

**WSCF SAF NUMBER CROSS REFERENCE**

Group#: WSCF20091216  
 Data Deliverable Date: 07-jan-2010  
 Data Deliverable: Cover Sheet

SAF#	Sample ID	WSCF#	Matrix
F10-025	B22V41	W09GR01045	SOIL
	B22V43	W09GR01037	SOIL

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ATTACHMENT 2

**CORRECTED NARRATIVE w/P&D**

Consisting of 6 pages  
Including cover page

**P&D Correction – Case Narrative Replaces The Prior Submittal in its Entirety****Introduction**

Three (3) S&GRP samples were received at the WSCF Laboratory on November 23, 2009. The samples were analyzed for the analytes indicated on the attached copy of the chain of custody (COC) form in accordance with the *Statement of Work (SOW), Modification No. 2 to Agreement 36587, Release 3, "FH WSCF ANALYTICAL SERVICES FOR GROUNDWATER."*

The narrative (Attachment 2) will address sample characteristics, analyses requested and general information in performance of the analytical methods. A Data Summary Report (Attachment 3) includes analytical results, a comment report detailing method abnormalities, tentatively identified peaks if applicable, method references, and Laboratory QC information as applicable. Copies of the chain of custody and sample receipt documentation are included as Attachment 4. Additionally, a copy of the completed P&D # WSCF20091216 is included with this case narrative.

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 transport container.

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

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

**Analytical Methodology for Requested Analyses**

Refer to *WSCF Method References Report*, pages 14 through 16, for a complete listing of approved analytical methods.

**Inorganic Comments**

**Ammonia** – 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. See page 19 for QC details. Analytical Note(s):

- Batch QC analyzed on sample# W09GR01037 (B22V43 on work order 20091216).

- Matrix Spike and Matrix Spike Duplicate recoveries were below acceptance limits, possible matrix interference, resulting in application of "N" flag.

All other QC controls are within the established limits.

**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. See pages 20 through 21 for QC details. Analytical Note(s):

- Batch QC analyzed on sample# W09GR01037 (B22V43 on work order 20091216).

Sulfate – Duplicate RPD is out of laboratory control limits however, the RPD criterion does not apply to results near or below the minimum detectable concentration.

All 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. See page 22 for QC details. Analytical Note(s):

- Batch QC analyzed on sample# W09GR00956 (B22VR4 on work order 20091137).

All QC controls are within the established limits.

**Hexavalent Chromium** – 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. See page 23 for QC details. Analytical Note(s):

- Batch QC analyzed on sample# W09GR01036 (B22X26 on work order 20091214).

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. See page 24 for QC details. Analytical Note(s):

- Batch QC analyzed on sample# W0901072 (B22RJ9 from work group # 20091234)
  - Iron – exceeded spiking levels by a factor of 4. Spike recoveries are not valid.
  - Estimated Boron results due to iron interference. Sample results were "E" 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. See pages 25 through 28 for QC details. Analytical Note(s):

- Batch QC analyzed on sample# W09GR01037 (B22V43 on work order 20091216).
- Aluminum – Sample concentration more than 4X spike amount. Spike information not valid. Sample results were “X” flagged.
- Manganese – Matrix Spike and Matrix Spike Duplicate recoveries above 130%. Sample results were “N” flagged.

All other QC controls are within the established limits.

### Organic Comments

Sample concentrations are corrected for moisture content and reported on a 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. See page 35 for QC details. Analytical Note(s):

- Batch QC analyzed on sample# W09GR01033 (B22V40 on work order 20091211).

All QC controls are within the established limits.

**Semi-VOA** – 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 pages 37 through 42 for QC details. Analytical Note(s):

- Batch QC analyzed on sample# W09GR01033 (B22V40 on work order 20091211).

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 36 for QC details. Analytical Note(s):

- Batch QC analyzed on sample# W09GR01037 (B22V43 on work order 20091216).

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. See pages 43 through 45 for QC details. Analytical Note(s):

- Batch QC analyzed on sample# W09GR01035 (B22V38 on work order 20091211).
- B22V42 – Analysis of this Methanol Blank sample and its associated high concentration VOA sample was not required.

All QC controls are within the established limits.

**Radiochemistry Comments**

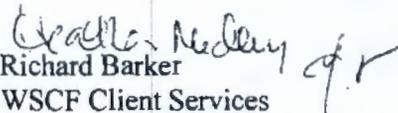
**Rad Chem** – The hold time requirement for this analysis was met. A Duplicate, Matrix Spike (Matrix Spikes apply only to Technetium), Blank and Laboratory Control Sample were analyzed with this delivery group. See pages 49 through 56 for QC details. Analytical Note(s):

- Batch QC analyzed FOR Gross Alpha on Alpha Plateau, Tc-99, Sr-89/90, GEA, AEA, Gross Alpha/Beta on sample# W09GR01033 (B22V40 on work order 20091211).
- The Technetium-99 and Americium-241 blank is slightly above the detection limit. This small amount of activity is believed to be due to naturally occurring radioactive material and not Am-241 or Tc-99. No sample impact.
- Technetium-99 – Duplicate is flagged due to the heterogeneity of the sample.

All QC controls are within the established limits.

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

  
Scot L. Fitzgerald  
WSCF Analytical Laboratory Manager

  
Richard Barker  
WSCF Client Services

**Problem and Discrepancy Report**

**WSCF**

**SDG WSCF20091216**

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**1. The data package has the following issues:**

- a) Case narrative, provide HEIS # and Work Order # for batch QC that was analyzed on a sample from another SDG.

**Resolution:** *Provide correction.*

**Lab Response:** **The narrative has been revised to include specific identifications.**

- b) Case narrative, rad chem., Technetium-99 – Please identify if there was any impact on the sample result due to blank contamination.

**Resolution:** *Provide discussion.*

**Lab Response:** **The narrative has been revised to include discussion of any sample impact.**

Please correct the issues and resubmit the hard copy and electronic data package.

M4W41-SLF-10-026

ATTACHMENT 3

**ANALYTICAL RESULTS**

Consisting of 50 pages  
Including cover page

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

for

**Groundwater Remediation Program**

**Richland, WA 99354**

**Attention: Steve Trent**

Analytical:

*Shelton J Baird WW Baird 1/18/10*

Client Services:

*Richard Barker 1/18/10 Richard Barker*

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

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Contract#: MOA-FH-CHPRC-2008  
Report#: WSCF20091216  
Report Date: 18-jan-2010  
Report WGPP/ver. 5.2  
Groundwater Remediation Program

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REVISION 1

w13qlog v4.2 12-jan-2010 12:56:12

Department: Inorganic

W13q Worklist/Batch/QC Report for Group# WSCF20091216

WL#	S#	Batch	QC#	Tray Type	Sample#	Test
				SAMPLE	W09GR01037	Percent Solids
40273	2	40701	45268	BLANK		Anions by Ion Chromatography
40273	14	40701	45268	BLANK		Anions by Ion Chromatography
40273	3	40701	45268	LCS		Anions by Ion Chromatography
40273	5	40701	45268	DUP	W09GR01037	Anions by Ion Chromatography
40273	6	40701	45268	MS	W09GR01037	Anions by Ion Chromatography
40273	7	40701	45268	MSD	W09GR01037	Anions by Ion Chromatography
40273	4	40701	45268	SAMPLE	W09GR01037	Anions by Ion Chromatography
40273	7	40701	45268	SPK-RPD	W09GR01037	Anions by Ion Chromatography
40275	1	40703	45269	BLANK		Ammonia (N) by IC
40275	11	40703	45269	BLANK		Ammonia (N) by IC
40275	3	40703	45269	LCS		Ammonia (N) by IC
40275	5	40703	45269	DUP	W09GR01037	Ammonia (N) by IC
40275	6	40703	45269	MS	W09GR01037	Ammonia (N) by IC
40275	7	40703	45269	MSD	W09GR01037	Ammonia (N) by IC
40275	4	40703	45269	SAMPLE	W09GR01037	Ammonia (N) by IC
40275	7	40703	45269	SPK-RPD	W09GR01037	Ammonia (N) by IC
40269	2	40698	45270	BLNK-PREP		Hexavalent chromium
40269	3	40698	45270	LCS		Hexavalent chromium
40269	5	40698	45270	DUP	W09GR01036	Hexavalent chromium
40269	6	40698	45270	MS	W09GR01036	Hexavalent chromium
40269	7	40698	45270	MSD	W09GR01036	Hexavalent chromium
40269	9	40698	45270	SPK-POST	W09GR01036	Hexavalent chromium
40269	7	40698	45270	SPK-RPD	W09GR01036	Hexavalent chromium
40269	13	40698	45270	SAMPLE	W09GR01037	Hexavalent chromium
40293	18	40726	45282	BLANK		ICP-200.8 MS All possible meta
40293	19	40726	45282	LCS		ICP-200.8 MS All possible meta
40293	21	40726	45282	MS	W09GR01037	ICP-200.8 MS All possible meta
40293	22	40726	45282	MSD	W09GR01037	ICP-200.8 MS All possible meta
40293	20	40726	45282	SAMPLE	W09GR01037	ICP-200.8 MS All possible meta
40293	22	40726	45282	SPK-RPD	W09GR01037	ICP-200.8 MS All possible meta
40295	1	40728	45296	BLANK		ICP Metals Analysis, Grd H20 P
40295	2	40728	45296	LCS		ICP Metals Analysis, Grd H20 P
40295	12	40728	45296	SAMPLE	W09GR01037	ICP Metals Analysis, Grd H20 P
40295	4	40728	45296	MS	W09GR01072	ICP Metals Analysis, Grd H20 P
40295	5	40728	45296	MSD	W09GR01072	ICP Metals Analysis, Grd H20 P
40295	5	40728	45296	SPK-RPD	W09GR01072	ICP Metals Analysis, Grd H20 P
40377	1	40810	45370	BLANK		Cyanide by Midi/Spectrophotom
40377	2	40810	45370	LCS		Cyanide by Midi/Spectrophotom
40377	4	40810	45370	MS	W09GR00956	Cyanide by Midi/Spectrophotom
40377	5	40810	45370	MSD	W09GR00956	Cyanide by Midi/Spectrophotom
40377	5	40810	45370	SPK-RPD	W09GR00956	Cyanide by Midi/Spectrophotom
40377	12	40810	45370	SAMPLE	W09GR01037	Cyanide by Midi/Spectrophotom

w13qlog v4.2 12-jan-2010 12:56:12

Department: Organic

W13q Worklist/Batch/QC Report for Group# WSCF20091216

WL#	S#	Batch	QC#	Tray Type	Sample#	Test
			45271	BLANK		SW-846 8270C Semi-Vols
			45271	LCS		SW-846 8270C Semi-Vols
			45271	MS	W09GR01033	SW-846 8270C Semi-Vols
			45271	MSD	W09GR01033	SW-846 8270C Semi-Vols
			45271	SPK-RPD	W09GR01033	SW-846 8270C Semi-Vols
			45271	SAMPLE	W09GR01037	SW-846 8270C Semi-Vols
			45271	SURR	W09GR01037	SW-846 8270C Semi-Vols
			45404	BLANK		VOA Ground Water Protection
			45404	LCS		VOA Ground Water Protection
			45404	MS	W09GR01035	VOA Ground Water Protection
			45404	MSD	W09GR01035	VOA Ground Water Protection
			45404	SPK-RPD	W09GR01035	VOA Ground Water Protection
			45404	SAMPLE	W09GR01045	VOA Ground Water Protection
			45404	SURR	W09GR01045	VOA Ground Water Protection
40401	1	40837	45405	BLANK		Alcohols, Glycols - 8015
40401	2	40837	45405	LCS		Alcohols, Glycols - 8015
40401	4	40837	45405	DUP	W09GR01033	Alcohols, Glycols - 8015
40401	5	40837	45405	MS	W09GR01033	Alcohols, Glycols - 8015
40401	6	40837	45405	MSD	W09GR01033	Alcohols, Glycols - 8015
40401	6	40837	45405	SPK-RPD	W09GR01033	Alcohols, Glycols - 8015
40401	7	40837	45405	SAMPLE	W09GR01037	Alcohols, Glycols - 8015
			45409	BLANK		NWTPH-D TPH Diesel Range (Wa)
			45409	LCS		NWTPH-D TPH Diesel Range (Wa)
			45409	MS	W09GR01037	NWTPH-D TPH Diesel Range (Wa)
			45409	MSD	W09GR01037	NWTPH-D TPH Diesel Range (Wa)
			45409	SAMPLE	W09GR01037	NWTPH-D TPH Diesel Range (Wa)
			45409	SPK-RPD	W09GR01037	NWTPH-D TPH Diesel Range (Wa)
			45409	SURR	W09GR01037	NWTPH-D TPH Diesel Range (Wa)

w13qlog v4.2 12-jan-2010 12:56:12

Department: Radiochemistry

W13q Worklist/Batch/QC Report for Group# WSCF20091216

WL#	S#	Batch	QC#	Tray Type	Sample#	Test
40280	1	40713	45280	BLANK		Gross Alpha on Alpha Plateau
40280	2	40713	45280	LCS		Gross Alpha on Alpha Plateau
40280	3	40713	45280	DUP	W09GR01033	Gross Alpha on Alpha Plateau
40280	5	40713	45280	SAMPLE	W09GR01037	Gross Alpha on Alpha Plateau
40277	1	40706	45321	BLANK		TC99 by Liquid Scin.
40277	2	40706	45321	LCS		TC99 by Liquid Scin.
40277	4	40706	45321	DUP	W09GR01033	TC99 by Liquid Scin.
40277	3	40706	45321	MS	W09GR01033	TC99 by Liquid Scin.
40277	6	40706	45321	SAMPLE	W09GR01037	TC99 by Liquid Scin.
40253	1	40682	45379	BLANK		Gamma Energy Analysis-grd H2O
40253	2	40682	45379	LCS		Gamma Energy Analysis-grd H2O
40253	3	40682	45379	DUP	W09GR01033	Gamma Energy Analysis-grd H2O
40253	5	40682	45379	SAMPLE	W09GR01037	Gamma Energy Analysis-grd H2O
40394	1	40830	45423	BLANK		Strontium 89/90
40394	2	40830	45423	LCS		Strontium 89/90
40394	3	40830	45423	DUP	W09GR01033	Strontium 89/90
40394	6	40830	45423	SAMPLE	W09GR01037	Strontium 89/90
40394	7	40830	45423	SURR	W09GR01037	Strontium 89/90
40440	1	40714	45452	BLANK		Gross Alpha/Gross Beta (AB32)
40440	2	40714	45452	LCS		Gross Alpha/Gross Beta (AB32)
40440	3	40714	45452	DUP	W09GR01033	Gross Alpha/Gross Beta (AB32)
40440	5	40714	45452	SAMPLE	W09GR01037	Gross Alpha/Gross Beta (AB32)
40445	1	40885	45458	BLANK		Uranium Isotopics by AEA
40445	2	40885	45458	LCS		Uranium Isotopics by AEA
40445	3	40885	45458	DUP	W09GR01033	Uranium Isotopics by AEA
40445	6	40885	45458	SAMPLE	W09GR01037	Uranium Isotopics by AEA
40445	7	40885	45458	SURR	W09GR01037	Uranium Isotopics by AEA
40437	1	40876	45465	BLANK		Americium by AEA
40437	2	40876	45465	LCS		Americium by AEA
40437	3	40876	45465	DUP	W09GR01033	Americium by AEA
40437	6	40876	45465	SAMPLE	W09GR01037	Americium by AEA
40437	7	40876	45465	SURR	W09GR01037	Americium by AEA
40436	1	40875	45472	BLANK		Plutonium Isotopics by AEA
40436	2	40875	45472	LCS		Plutonium Isotopics by AEA
40436	3	40875	45472	DUP	W09GR01033	Plutonium Isotopics by AEA
40436	6	40875	45472	SAMPLE	W09GR01037	Plutonium Isotopics by AEA
40436	7	40875	45472	SURR	W09GR01037	Plutonium 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.

LA-265-403	LA-265-403: Hexavalent Chromium analysis by Spectrophotometer None No reference to any industry method.
LA-503-401	LA-503-401: ANALYSIS OF CATIONS BY ION CHROMATOGRAPHY None No reference to any industry method.
LA-505-411	LA-505-411: ELEMENTAL ANALYSIS BY INDUCTIVELY COUPLED PLASMA ATOMIC EMISSION SPE None No reference to any industry method.
LA-505-412	LA-505-412: DETERMINATION OF TRACE ELEMENTS IN WATERS AND WASTES BY INDUCTIVELY None No reference to any industry method.
LA-519-412	LA-519-412: TOTAL RESIDUE/% SOLIDS DRIED AT 103 - 105 C None No reference to any industry method.
LA-533-410	LA-533-410: ANION ANALYSIS BY ION CHROMATOGRAPHY None No reference to any industry method.
LA-695-402	LA-695-402: DETERMINATION OF CYANIDE BY MIDIDISTILLATION AND SPECTROPHOTOMETRIC None No reference to any industry method.

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

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REVISION 1

# 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> None No reference to any industry method.
<b>LA-523-456</b>	<b>LA-523-456: SEMIVOLATILE SAMPLE ANALYSIS BY SW-846, METHOD 8270C</b> None No reference to any industry method.
<b>LA-523-493</b>	<b>NWTPH-Diesel and/or Gasoline</b> None No reference to any industry method.
<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>.

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REVISION 1

# WSCF

## METHOD REFERENCES REPORT

Department: Radiochemistry

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

<b>LA-508-415</b>	<b>LA-508-415: OPERATION OF THE PROTEAN 2-INCH ALPHA/BETA COUNTING SYSTEM FOR GROSS</b> None No reference to any industry method.
<b>LA-508-421</b>	<b>LA-508-421: OPERATION OF THE TRI-CARB MODEL 2500TR LIQUID SCINTILLATION ANALYZER</b> HEIS ALPHA_LSC            A/B Liquid Scintillation HEIS BETA_LSC            A/B Liquid Scintillation
<b>LA-508-471</b>	<b>LA-508-471: ALPHA ENERGY ANALYZER DATA ACQUISITION AND SYSTEM CHECKOUT USING ALP</b> HEIS RAISO_AEA            Radium-226
<b>LA-508-481</b>	<b>LA-508-481: GAMMA ENERGY ANALYSIS USING PROCOUNT SOFTWARE</b> None No reference to any industry method.

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

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Report WGPPM/5.2

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REVISION 1

# WSCF ANALYTICAL RESULTS REPORT

Attention: Steve Trent  
SAF Number: F10-025  
Sample #: W09GR01037  
Client ID: B22V43

TRENT  
WSCF

Matrix: SOIL

Group #: WSCF20091216  
Department: Inorganic  
Sampled: 11/23/09  
Received: 11/23/09

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
<b>Anions by Ion Chromatography Prep</b>											
<b>Anions by Ion Chromatography</b>											
Fluoride	16984-48-8	LA-533-410	DU	< 1.49	mg/kg			49.70	1.5		12/01/09
Chloride	18887-00-6	LA-533-410	DU	< 2.14	mg/kg			49.70	2.1		12/01/09
Nitrogen in Nitrite	NO2-N	LA-533-410	DU	< 0.895	mg/kg			49.70	0.89		12/01/09
Nitrogen in Nitrate	NO3-N	LA-533-410	BD	4.03	mg/kg			49.70	1.5		12/01/09
Phosphate (P) by IC	PO4-P	LA-533-410	DU	< 3.48	mg/kg			49.70	3.5		12/01/09
Sulfate	14808-79-8	LA-533-410	BD	5.94	mg/kg			49.70	3.3		12/01/09
<b>Cyanide</b>											
Cyanide	57-12-5	LA-695-402	U	< 0.200	mg/kg			1.00	0.20		12/01/09
<b>Hexavalent Chromium Prep</b>											
<b>Hexavalent Chromium</b>											
Hexavalent Chromium	18540-29-9	LA-265-403	U	< 0.100	mg/kg			1.00	0.10		12/02/09
<b>ICP Metals Analysis, Grd H2O P Prep</b>											
<b>ICP Metals Analysis, Grd H2O P</b>											
Iron	7439-89-6	LA-505-411		1.61e+04	mg/kg			98.56	1.8		12/06/09
Lithium	7439-93-2	LA-505-411		9.59	mg/kg			98.56	0.39		12/06/09
Boron	7440-42-8	LA-505-411	BE	8.96	mg/kg			98.56	1.9		12/06/09
<b>ICP-200.8 MS All possible meta Prep</b>											
<b>ICP-200.8 MS All possible meta</b>											
Aluminum	7429-90-5	LA-505-412	X	5.61e+03	mg/kg			1.00	4.98		12/03/09
Manganese	7439-96-5	LA-505-412	N	236	mg/kg			1.00	0.0997		12/03/09
Nickel	7440-02-0	LA-505-412		8.11	mg/kg			1.00	0.199		12/03/09
Silver	7440-22-4	LA-505-412	U	< 0.0997	mg/kg			1.00	0.0997		12/03/09
Antimony	7440-36-0	LA-505-412	U	< 0.299	mg/kg			1.00	0.299		12/03/09

**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)

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.

D - Analyte was identified at a secondary dilution factor

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)

\* - Indicates results that have NOT been validated;

+ - Indicates more than six qualifier symbols

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REVISION 1

# WSCF ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent  
**SAF Number:** F10-025  
**Sample #** W09GR01037  
**Client ID:** B22V43

**TRENT  
WSCF**

**Matrix: SOIL**

**Group #:** WSCF20091216  
**Department:** Inorganic  
**Sampled:** 11/23/09  
**Received:** 11/23/09

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Barium	7440-39-3	LA-505-412		56.4	mg/kg			1.00	0.199		12/03/09
Beryllium	7440-41-7	LA-505-412		0.180	mg/kg			1.00	0.0498		12/03/09
Cadmium	7440-43-9	LA-505-412	U	< 0.0997	mg/kg			1.00	0.0997		12/03/09
Chromium	7440-47-3	LA-505-412		9.59	mg/kg			1.00	0.498		12/03/09
Cobalt	7440-48-4	LA-505-412		5.62	mg/kg			1.00	0.0498		12/03/09
Copper	7440-50-8	LA-505-412		10.6	mg/kg			1.00	0.0997		12/03/09
Vanadium	7440-62-2	LA-505-412		36.5	mg/kg			1.00	0.199		12/03/09
Zinc	7440-66-6	LA-505-412		29.2	mg/kg			1.00	0.797		12/03/09
Lead	7439-92-1	LA-505-412		2.47	mg/kg			1.00	0.0997		12/03/09
Mercury	7439-97-6	LA-505-412	U	< 0.0498	mg/kg			1.00	0.0498		12/03/09
Thorium	7440-29-1	LA-505-412		2.20	mg/kg			1.00	0.0997		12/03/09
Uranium	7440-61-1	LA-505-412		0.420	mg/kg			1.00	0.0498		12/03/09
Arsenic	7440-38-2	LA-505-412		2.48	mg/kg			1.00	0.399		12/03/09
Selenium	7782-49-2	LA-505-412		0.750	mg/kg			1.00	0.299		12/03/09
Thallium	7440-28-0	LA-505-412	U	< 0.0997	mg/kg			1.00	0.0997		12/03/09
Strontium	7440-24-6	LA-505-412		24.6	mg/kg			1.00	0.0997		12/03/09
<b>Nitrogen in ammonium Prep</b>											<b>12/01/09</b>
<b>Nitrogen in ammonium</b>											
Nitrogen in ammonium	NH4-N	LA-503-401	DNU	< 8.58	mg/kg			49.90	8.58		12/01/09
<b>Total solids</b>											
Total solids	TS	LA-519-412		97.0	Percent			1.00	0.0		12/02/09

**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)  
 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.

D - Analyte was identified at a secondary dilution factor  
 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)

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

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# WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20091216  
 Matrix: SOLID  
 Test: Ammonia (N) by IC

Sample Date: 11/23/09  
 Receive Date: 11/23/09

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
<b>Lab ID: W09GR01037</b>											
<b>BATCH QC ASSOCIATED WITH SAMPLE</b>											
DUP	Ammonia (N) by IC	7664-41-7	<8.588837		RPD			n/a	20.000	U	12/02/09
MS	Ammonia (N) by IC	7664-41-7	0.311586	62.317	% Recov	80.000	120.000				12/02/09
MSD	Ammonia (N) by IC	7664-41-7	0.313114	62.623	% Recov	80.000	120.000				12/02/09
SPK-RPD	Ammonia (N) by IC	7664-41-7	62.623		RPD			0.490	20.000		12/02/09
<b>BATCH QC</b>											
BLANK	Ammonia (N) by IC	7664-41-7	<0.172	n/a	mg/L	0.000	0.002			U	12/02/09
BLANK	Ammonia (N) by IC	7664-41-7	<0.172	n/a	mg/L	0.000	0.002			U	12/01/09
LCS	Ammonia (N) by IC	7664-41-7	105.116	105.116	% Recov	80.000	120.000				12/01/09

# WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20091216  
 Matrix: SOLID  
 Test: Anions by Ion Chromatography

Sample Date: 11/23/09  
 Receive Date: 11/23/09

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
<b>Lab ID: W09GR01037</b>											
<b>BATCH QC ASSOCIATED WITH SAMPLE</b>											
DUP	Chloride	16887-00-6	<2.147205		RPD			n/a	20.000	U	12/01/09
DUP	Fluoride	16984-48-8	<1.49805		RPD			n/a	20.000	U	12/01/09
DUP	Nitrogen in Nitrite	NO2-N	<0.89883		RPD			n/a	20.000	U	12/01/09
DUP	Nitrogen in Nitrate	NO3-N	4.064		RPD			0.815	20.000		12/01/09
DUP	Phosphate (P) by IC	PO4-P	<3.49545		RPD			n/a	20.000	U	12/01/09
DUP	Sulfate	14808-79-8	7.349		RPD			21.222	20.000		12/01/09
MS	Chloride	16887-00-6	0.983714	98.866	% Recov	80.000	120.000				12/01/09
MS	Fluoride	16984-48-8	0.470196	92.195	% Recov	80.000	120.000				12/01/09
MS	Nitrogen in Nitrite	NO2-N	0.482299	97.042	% Recov	80.000	120.000				12/01/09
MS	Nitrogen in Nitrate	NO3-N	0.467199	103.822	% Recov	80.000	120.000				12/01/09
MS	Phosphate (P) by IC	PO4-P	0.839947	86.861	% Recov	80.000	120.000				12/01/09
MS	Sulfate	14808-79-8	1.917348	95.867	% Recov	80.000	120.000				12/01/09
MSD	Chloride	16887-00-6	0.989461	99.443	% Recov	80.000	120.000				12/01/09
MSD	Fluoride	16984-48-8	0.456105	89.432	% Recov	80.000	120.000				12/01/09
MSD	Nitrogen in Nitrite	NO2-N	0.495295	99.657	% Recov	80.000	120.000				12/01/09
MSD	Nitrogen in Nitrate	NO3-N	0.470758	104.613	% Recov	80.000	120.000				12/01/09
MSD	Phosphate (P) by IC	PO4-P	0.840445	86.913	% Recov	80.000	120.000				12/01/09
MSD	Sulfate	14808-79-8	1.898545	94.927	% Recov	80.000	120.000				12/01/09
SPK-RPD	Chloride	16887-00-6	99.443		RPD			0.582	20.000		12/01/09
SPK-RPD	Fluoride	16984-48-8	89.432		RPD			3.042	20.000		12/01/09
SPK-RPD	Nitrogen in Nitrite	NO2-N	99.657		RPD			2.659	20.000		12/01/09
SPK-RPD	Nitrogen in Nitrate	NO3-N	104.613		RPD			0.759	20.000		12/01/09
SPK-RPD	Phosphate (P) by IC	PO4-P	86.913		RPD			0.060	20.000		12/01/09
SPK-RPD	Sulfate	14808-79-8	94.927		RPD			0.985	20.000		12/01/09

# WSCF ANALYTICAL LABORATORY QC REPORT

Department: **Inorganic**

SDG Number: WSCF20091216  
 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
<b>BATCH QC</b>											
BLANK	Chloride	16887-00-6	<4.3e-2	n/a	mg/L	0.000	0.030			U	12/01/09
BLANK	Chloride	16887-00-6	<4.3e-2	n/a	mg/L	0.000	0.030			U	12/01/09
BLANK	Fluoride	16984-48-8	<3e-2	n/a	mg/L	0.000	0.030			U	12/01/09
BLANK	Fluoride	16984-48-8	<3e-2	n/a	mg/L	0.000	0.030			U	12/01/09
BLANK	Nitrogen in Nitrite	NO2-N	<1.8e-2	n/a	mg/L	0.000	0.020			U	12/01/09
BLANK	Nitrogen in Nitrite	NO2-N	<1.8e-2	n/a	mg/L	0.000	0.020			U	12/01/09
BLANK	Nitrogen in Nitrate	NO3-N	<3.1e-2	n/a	mg/L	0.000	0.040			U	12/01/09
BLANK	Nitrogen in Nitrate	NO3-N	<3.1e-2	n/a	mg/L	0.000	0.040			U	12/01/09
BLANK	Phosphate (P) by IC	PO4-P	<7e-2	n/a	mg/L	0.000	0.200			U	12/01/09
BLANK	Phosphate (P) by IC	PO4-P	<7e-2	n/a	mg/L	0.000	0.200			U	12/01/09
BLANK	Sulfate	14808-79-8	<6.6e-2	n/a	mg/L	0.000	0.200			U	12/01/09
BLANK	Sulfate	14808-79-8	<6.6e-2	n/a	mg/L	0.000	0.200			U	12/01/09
LCS	Chloride	16887-00-6	190.433	95.695	% Recov	80.000	120.000				12/01/09
LCS	Fluoride	16984-48-8	97.918	95.998	% Recov	80.000	120.000				12/01/09
LCS	Nitrogen in Nitrite	NO2-N	98.609	99.204	% Recov	80.000	120.000				12/01/09
LCS	Nitrogen in Nitrate	NO3-N	89.39	99.433	% Recov	80.000	120.000				12/01/09
LCS	Phosphate (P) by IC	PO4-P	185.161	95.740	% Recov	80.000	120.000				12/01/09
LCS	Sulfate	14808-79-8	376.596	94.149	% Recov	80.000	120.000				12/01/09

# WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20091216  
 Matrix: SOLID  
 Test: Cyanide by Midi/Spectrophotom

Sample Date: 11/09/09  
 Receive Date: 11/09/09

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: W09GR00956**  
**BATCH QC ASSOCIATED WITH SAMPLE**

MS	Cyanide by Midi/Spectrophotom	57-12-5	1.8	90.000	% Recov	75.000	125.000				12/01/09
MSD	Cyanide by Midi/Spectrophotom	57-12-5	1.82	91.000	% Recov	75.000	125.000				12/01/09
SPK-RPD	Cyanide by Midi/Spectrophotom	57-12-5	91.000		RPD			1.105	20.000		12/01/09

**BATCH QC**

BLANK	Cyanide by Midi/Spectrophotom	57-12-5	< 0.2	n/a	ug/L	-4.000	4.000			U	12/01/09
LCS	Cyanide by Midi/Spectrophotom	57-12-5	53.2	97.258	% Recov	85.000	115.000				12/01/09

# WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20091216  
 Matrix: SOLID  
 Test: Hexavalent chromium

Sample Date: 11/23/09  
 Receive Date: 11/23/09

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
<b>Lab ID: W09GR01036</b>											
<b>BATCH QC ASSOCIATED WITH SAMPLE</b>											
DUP	Hexavalent chromium	18540-29-9	< 0.10		RPD			n/a	15.000	U	12/02/09
MS	Hexavalent chromium	18540-29-9	16.6	90.710	% Recov	75.000	125.000				12/02/09
MS	Hexavalent chromium	18540-29-9	384	75.294	% Recov	75.000	125.000				12/02/09
MSD	Hexavalent chromium	18540-29-9	17.2	91.489	% Recov	75.000	125.000				12/02/09
SPK-POST	Hexavalent chromium	18540-29-9	0.0544	101.873	% Recov	75.000	125.000				12/02/09
SPK-RPD	Hexavalent chromium	18540-29-9	91.489		RPD			0.855	20.000		12/02/09
<b>BATCH QC</b>											
BLNK-PREP	Hexavalent chromium	18540-29-9	< 0.10	n/a	ug/g	0.000	2.000			U	12/02/09
LCS	Hexavalent chromium	18540-29-9	16.9	91.848	% Recov	80.000	120.000				12/02/09

# WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20091216  
 Matrix: SOLID  
 Test: ICP Metals Analysis, Grd H2O P

Sample Date: 11/30/09  
 Receive Date: 11/30/09

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
<b>Lab ID: W09GR01072</b>											
<b>BATCH QC ASSOCIATED WITH SAMPLE</b>											
MS	Boron	7440-42-8	94.18	95.131	% Recov	75.000	125.000				12/06/09
MS	Iron	7439-89-6	-790	-797.980	% Recov	75.000	125.000				12/06/09
MS	Lithium	7439-93-2	52.71	105.420	% Recov	70.000	130.000				12/06/09
MSD	Boron	7440-42-8	93.68	94.626	% Recov	75.000	125.000				12/06/09
MSD	Iron	7439-89-6	-730	-737.374	% Recov	75.000	125.000				12/06/09
MSD	Lithium	7439-93-2	50.39	100.780	% Recov	75.000	125.000				12/06/09
SPK-RPD	Boron	7440-42-8	94.626		RPD			0.532	20.000		12/06/09
SPK-RPD	Iron	7439-89-6	-737.374		RPD			-7.895	20.000		12/06/09
SPK-RPD	Lithium	7439-93-2	100.780		RPD			4.500	20.000		12/06/09
<b>BATCH QC</b>											
BLANK	Boron	7440-42-8	<1.9e-2	n/a	ug/mL					U	12/06/09
BLANK	Iron	7439-89-6	<1.8e-2	n/a	ug/mL					U	12/06/09
BLANK	Lithium	7439-93-2	<4e-3	n/a	ug/mL					U	12/06/09
LCS	Boron	7440-42-8	128.5	111.739	% Recov	45.000	156.000				12/06/09
LCS	Iron	7439-89-6	18570	138.582	% Recov	47.000	152.000				12/06/09
LCS	Lithium	7439-93-2	115.3	115.531	% Recov	80.000	120.000				12/06/09

# WSCF ANALYTICAL LABORATORY QC REPORT

Department: **Inorganic**

SDG Number: WSCF20091216  
 Matrix: SOLID  
 Test: ICP-200.8 MS All possible meta

Sample Date: 11/23/09  
 Receive Date: 11/23/09

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
<b>Lab ID: W09GR01037</b>											
<b>BATCH QC ASSOCIATED WITH SAMPLE</b>											
MS	Silver	7440-22-4	100.6	100.600	% Recov	70.000	130.000				12/03/09
MS	Aluminum	7429-90-5	1878	187.800	% Recov	70.000	130.000				12/03/09
MS	Arsenic	7440-38-2	103.02	103.020	% Recov	70.000	130.000				12/03/09
MS	Barium	7440-39-3	105.25	105.250	% Recov	70.000	130.000				12/03/09
MS	Beryllium	7440-41-7	100.92	100.920	% Recov	70.000	130.000				12/03/09
MS	Cadmium	7440-43-9	100.7	100.700	% Recov	70.000	130.000				12/03/09
MS	Cobalt	7440-48-4	94.88	94.880	% Recov	70.000	130.000				12/03/09
MS	Chromium	7440-47-3	95.81	95.810	% Recov	70.000	130.000				12/03/09
MS	Copper	7440-50-8	101.42	101.420	% Recov	70.000	130.000				12/03/09
MS	Mercury	7439-97-6	2.08	104.000	% Recov	70.000	130.000				12/03/09
MS	Manganese	7439-96-5	141.1	141.100	% Recov	70.000	130.000				12/03/09
MS	Nickel	7440-02-0	94.69	94.690	% Recov	70.000	130.000				12/03/09
MS	Lead	7439-92-1	100.03	100.030	% Recov	70.000	130.000				12/03/09
MS	Antimony	7440-36-0	93.06	93.060	% Recov	70.000	130.000				12/03/09
MS	Selenium	7782-49-2	101.05	101.050	% Recov	70.000	130.000				12/03/09
MS	Strontium	7440-24-6	111.75	111.750	% Recov	70.000	130.000				12/03/09
MS	Thorium	7440-29-1	100.9	100.900	% Recov	70.000	130.000				12/03/09
MS	Thallium	7440-28-0	100.9	100.900	% Recov	70.000	130.000				12/03/09
MS	Uranium	7440-61-1	100.58	100.580	% Recov	70.000	130.000				12/03/09
MS	Vanadium	7440-62-2	100.87	100.870	% Recov	70.000	130.000				12/03/09
MS	Zinc	7440-66-6	98.31	98.310	% Recov	70.000	130.000				12/03/09
MSD	Silver	7440-22-4	102.5	102.500	% Recov	70.000	130.000				12/03/09
MSD	Aluminum	7429-90-5	2736	273.800	% Recov	70.000	130.000				12/03/09
MSD	Arsenic	7440-38-2	107.22	107.220	% Recov	70.000	130.000				12/03/09
MSD	Barium	7440-39-3	113.85	113.850	% Recov	70.000	130.000				12/03/09
MSD	Beryllium	7440-41-7	106.92	106.920	% Recov	70.000	130.000				12/03/09

# WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20091216  
 Matrix: SOLID  
 Test: ICP-200.8 MS All possible meta

Sample Date: 11/23/09  
 Receive Date: 11/23/09

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
MSD	Cadmium	7440-43-9	103.7	103.700	% Recov	70.000	130.000				12/03/09
MSD	Cobalt	7440-48-4	96.88	96.880	% Recov	70.000	130.000				12/03/09
MSD	Chromium	7440-47-3	98.51	98.510	% Recov	70.000	130.000				12/03/09
MSD	Copper	7440-50-8	95.72	95.720	% Recov	70.000	130.000				12/03/09
MSD	Mercury	7439-97-6	2.21	110.500	% Recov	70.000	130.000				12/03/09
MSD	Manganese	7439-96-5	157.5	157.500	% Recov	70.000	130.000				12/03/09
MSD	Nickel	7440-02-0	100.39	100.390	% Recov	70.000	130.000				12/03/09
MSD	Lead	7439-92-1	103.83	103.830	% Recov	70.000	130.000				12/03/09
MSD	Antimony	7440-36-0	96.15	96.150	% Recov	70.000	130.000				12/03/09
MSD	Selenium	7782-49-2	105.95	105.950	% Recov	70.000	130.000				12/03/09
MSD	Strontium	7440-24-6	118.25	118.250	% Recov	70.000	130.000				12/03/09
MSD	Thorium	7440-29-1	105.3	105.300	% Recov	70.000	130.000				12/03/09
MSD	Thallium	7440-28-0	104	104.000	% Recov	70.000	130.000				12/03/09
MSD	Uranium	7440-61-1	103.08	103.080	% Recov	70.000	130.000				12/03/09
MSD	Vanadium	7440-62-2	101.07	101.070	% Recov	70.000	130.000				12/03/09
MSD	Zinc	7440-66-6	102.51	102.510	% Recov	70.000	130.000				12/03/09
SPK-RPD	Silver	7440-22-4	102.500		RPD			1.871	20.000		12/03/09
SPK-RPD	Aluminum	7429-90-5	273.600		RPD			37.191	20.000		12/03/09
SPK-RPD	Arsenic	7440-38-2	107.220		RPD			3.995	20.000		12/03/09
SPK-RPD	Barium	7440-39-3	113.850		RPD			7.850	20.000		12/03/09
SPK-RPD	Beryllium	7440-41-7	106.920		RPD			5.774	20.000		12/03/09
SPK-RPD	Cadmium	7440-43-9	103.700		RPD			2.935	20.000		12/03/09
SPK-RPD	Cobalt	7440-48-4	96.880		RPD			2.086	20.000		12/03/09
SPK-RPD	Chromium	7440-47-3	98.510		RPD			2.779	20.000		12/03/09
SPK-RPD	Copper	7440-50-8	95.720		RPD			5.783	20.000		12/03/09
SPK-RPD	Mercury	7439-97-6	110.500		RPD			6.061	20.000		12/03/09
SPK-RPD	Manganese	7439-96-5	157.500		RPD			10.985	20.000		12/03/09
SPK-RPD	Nickel	7440-02-0	100.390		RPD			5.844	20.000		12/03/09
SPK-RPD	Lead	7439-92-1	103.830		RPD			3.728	20.000		12/03/09
SPK-RPD	Antimony	7440-36-0	96.150		RPD			3.266	20.000		12/03/09

# WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20091216  
 Matrix: SOLID  
 Test: ICP-200.8 MS All possible meta

Sample Date: 11/23/09  
 Receive Date: 11/23/09

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
SPK-RPD	Selenium	7782-49-2	105.950		RPD			4.734	20.000		12/03/09
SPK-RPD	Strontium	7440-24-6	118.250		RPD			5.652	20.000		12/03/09
SPK-RPD	Thorium	7440-29-1	105.300		RPD			4.268	20.000		12/03/09
SPK-RPD	Thallium	7440-28-0	104.000		RPD			3.026	20.000		12/03/09
SPK-RPD	Uranium	7440-61-1	103.080		RPD			2.455	20.000		12/03/09
SPK-RPD	Vanadium	7440-62-2	101.070		RPD			0.198	20.000		12/03/09
SPK-RPD	Zinc	7440-66-6	102.510		RPD			4.183	20.000		12/03/09

## BATCH QC

BLANK	Silver	7440-22-4	<0.1	n/a	ug/L					U	12/03/09
BLANK	Aluminum	7429-90-5	<5	n/a	ug/L					U	12/03/09
BLANK	Arsenic	7440-38-2	<0.4	n/a	ug/L					U	12/03/09
BLANK	Barium	7440-39-3	<0.2	n/a	ug/L					U	12/03/09
BLANK	Beryllium	7440-41-7	<5e-2	n/a	ug/L					U	12/03/09
BLANK	Cadmium	7440-43-9	<0.1	n/a	ug/L					U	12/03/09
BLANK	Cobalt	7440-48-4	<5e-2	n/a	ug/L					U	12/03/09
BLANK	Chromium	7440-47-3	<0.5	n/a	ug/L					U	12/03/09
BLANK	Copper	7440-50-8	<0.1	n/a	ug/L					U	12/03/09
BLANK	Mercury	7439-97-6	<5e-2	n/a	ug/L					U	12/03/09
BLANK	Manganese	7439-96-5	<0.1	n/a	ug/L					U	12/03/09
BLANK	Nickel	7440-02-0	<0.2	n/a	ug/L					U	12/03/09
BLANK	Lead	7439-92-1	<0.1	n/a	ug/L					U	12/03/09
BLANK	Antimony	7440-36-0	<0.3	n/a	ug/L					U	12/03/09
BLANK	Selenium	7782-49-2	<0.3	n/a	ug/L					U	12/03/09
BLANK	Strontium	7440-24-6	<0.1	n/a	ug/L					U	12/03/09
BLANK	Thorium	7440-29-1	<0.1	n/a	ug/L					U	12/03/09
BLANK	Thallium	7440-28-0	<0.1	n/a	ug/L					U	12/03/09
BLANK	Uranium	7440-61-1	<5e-2	n/a	ug/L					U	12/03/09
BLANK	Vanadium	7440-62-2	<0.2	n/a	ug/L					U	12/03/09
BLANK	Zinc	7440-66-6	<0.8	n/a	ug/L					U	12/03/09

# WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20091216  
 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	Silver	7440-22-4	110.7	109.604	% Recov	81.000	128.000				12/03/09
LCS	Aluminum	7429-90-5	9086	110.000	% Recov	47.000	122.000				12/03/09
LCS	Arsenic	7440-38-2	143	108.333	% Recov	78.000	124.000				12/03/09
LCS	Barium	7440-39-3	326.1	102.226	% Recov	77.000	119.000				12/03/09
LCS	Beryllium	7440-41-7	98.55	110.112	% Recov	78.000	118.000				12/03/09
LCS	Cadmium	7440-43-9	71.15	106.992	% Recov	75.000	127.000				12/03/09
LCS	Cobalt	7440-48-4	75	102.599	% Recov	75.000	124.000				12/03/09
LCS	Chromium	7440-47-3	75.45	103.498	% Recov	67.000	119.000				12/03/09
LCS	Copper	7440-50-8	69.6	101.606	% Recov	68.000	122.000				12/03/09
LCS	Mercury	7439-97-6	8.3	100.242	% Recov	72.000	117.000				12/03/09
LCS	Manganese	7439-96-5	471.4	104.062	% Recov	72.000	123.000				12/03/09
LCS	Nickel	7440-02-0	58.71	105.594	% Recov	73.000	123.000				12/03/09
LCS	Lead	7439-92-1	139.4	107.231	% Recov	77.000	125.000				12/03/09
LCS	Antimony	7440-36-0	121.3	134.479	% Recov	65.000	203.000				12/03/09
LCS	Selenium	7782-49-2	187.5	116.460	% Recov	82.000	129.000				12/03/09
LCS	Strontium	7440-24-6	57.61	105.901	% Recov	77.000	118.000				12/03/09
LCS	Thorium	7440-29-1	398.9	99.725	% Recov	79.000	108.000				12/03/09
LCS	Thallium	7440-28-0	136.7	102.782	% Recov	55.000	130.000				12/03/09
LCS	Uranium	7440-61-1	406.9	101.725	% Recov	84.000	110.000				12/03/09
LCS	Vanadium	7440-62-2	87.64	105.590	% Recov	65.000	122.000				12/03/09
LCS	Zinc	7440-66-6	187.1	105.706	% Recov	75.000	130.000				12/03/09

# WSCF ANALYTICAL COMMENT REPORT

**Attention:** Steve Trent  
**Project Number:** F10-025

**Group #:** WSCF20091216  
**Department:** Inorganic

Sample #	Client ID	Lab Area	Test	Comment
		VALGROUP		<p>Organics: Results are moisture corrected and reported on a dry weight basis. cgc</p> <p>IC Cation - MS/MSD recoveries out of limits for ammonia; Possible matrix interference in sample; Data N-flagged. DTS</p> <p>IC Anion - Sample dup RPD out of control limits for sulfate. However, analyte concentration in sample below calibration range. No flag required. DTS</p> <p>ICP-MS: Aluminum sample concentration more than 4X spike amount. Spike information not valid. "X" flag</p> <p>Manganese spike recoveries above 130% "N" flag</p> <p>ICP-AES: Sample W09GR1037 Estimated boron result due to iron interference; "E" flag. Iron sample result exceeds spiking level by a factor of 4 so spike recoveries are not valid. Sample result less than 5 times the MDL; "B" flag.</p> <p>W09GR01037/Tc-99 batch dup is flagged due to the inhomogeneity of the sample.lmh</p> <p>TPHD: Results are corrected for moisture and reported on a dry weight basis. cgc</p>

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

VALTEST - Test Validation  
LOGTEST - Login for Tests

TESTDATA - Test Data Entry

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# WSCF

## ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent  
**SAF Number:** F10-025  
**Sample #** W09GR01037  
**Client ID:** B22V43

**TRENT**  
**WSCF**

**Matrix: SOIL**

**Group #:** WSCF20091216  
**Department:** Organic  
**Sampled:** 11/23/09  
**Received:** 11/23/09

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		12/03/09
Ethylene glycol	107-21-1	Organics	U	< 5.00e+03	ug/kg			1.00	5.0e+03		12/03/09
<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	< 5.20	mg/kg			1.00	5.2		12/02/09
Kerosene	TPHKEROSENE	LA-523-493	U	< 5.20	mg/kg			1.00	5.2		12/02/09
<b>SW-846 8270C Semi-Vols Prep</b>											
<b>SW-846 8270C Semi-Vols</b>											
4-Nitrophenol	100-02-7	LA-523-456	U	< 340	ug/kg			1.00	3.4e+02		12/01/09
1,4-Dichlorobenzene	106-46-7	LA-523-456	U	< 260	ug/kg			1.00	2.6e+02		12/01/09
Phenol	108-95-2	LA-523-456	U	< 160	ug/kg			1.00	1.6e+02		12/01/09
1,2,4-Trichlorobenzene	120-82-1	LA-523-456	U	< 160	ug/kg			1.00	1.6e+02		12/01/09
2,4-Dinitrotoluene	121-14-2	LA-523-456	U	< 160	ug/kg			1.00	1.6e+02		12/01/09
Pyrene	129-00-0	LA-523-456	U	< 160	ug/kg			1.00	1.6e+02		12/01/09
4-Chloro-3-methylphenol	59-50-7	LA-523-456	U	< 160	ug/kg			1.00	1.6e+02		12/01/09
N-Nitrosodi-n-dipropylamine	621-64-7	LA-523-456	U	< 160	ug/kg			1.00	1.6e+02		12/01/09
Acenaphthene	83-32-9	LA-523-456	U	< 160	ug/kg			1.00	1.6e+02		12/01/09
Pentachlorophenol	87-86-5	LA-523-456	U	< 410	ug/kg			1.00	4.1e+02		12/01/09
2-Chlorophenol	95-57-8	LA-523-456	U	< 160	ug/kg			1.00	1.6e+02		12/01/09
4-Nitroaniline	100-01-6	LA-523-456	U	< 290	ug/kg			1.00	2.9e+02		12/01/09
4-Bromophenylphenyl ether	101-55-3	LA-523-456	U	< 160	ug/kg			1.00	1.6e+02		12/01/09
2,4-Dimethylphenol	105-67-9	LA-523-456	U	< 230	ug/kg			1.00	2.3e+02		12/01/09
4-Chloroaniline	106-47-8	LA-523-456	U	< 290	ug/kg			1.00	2.9e+02		12/01/09

**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)

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.

D - Analyte was identified at a secondary dilution factor

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)

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

Report WGPP/ver. 5.2

Groundwater Remediation Program

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REVISION 1

# WSCF

## ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent  
**SAF Number:** F10-025  
**Sample #** W09GR01037  
**Client ID:** B22V43

TRENT  
WSCF

Matrix: SOIL

**Group #:** WSCF20091216  
**Department:** Organic  
**Sampled:** 11/23/09  
**Received:** 11/23/09

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Bis(2-chloro-1-methylethyl)eth	108-60-1	LA-523-456	U	< 160	ug/kg			1.00	1.6e+02		12/01/09
Bis(2-chloroethyl) ether	111-44-4	LA-523-456	U	< 160	ug/kg			1.00	1.6e+02		12/01/09
Bis(2-Chloroethoxy)methane	111-91-1	LA-523-456	U	< 160	ug/kg			1.00	1.6e+02		12/01/09
Bis(2-ethylhexyl) phthalate	117-81-7	LA-523-456	U	< 410	ug/kg			1.00	4.1e+02		12/01/09
Di-n-octylphthalate	117-84-0	LA-523-456	U	< 160	ug/kg			1.00	1.6e+02		12/01/09
Hexachlorobenzene	118-74-1	LA-523-456	U	< 160	ug/kg			1.00	1.6e+02		12/01/09
Anthracene	120-12-7	LA-523-456	U	< 160	ug/kg			1.00	1.6e+02		12/01/09
2,4-Dichlorophenol	120-83-2	LA-523-456	U	< 180	ug/kg			1.00	1.8e+02		12/01/09
Dimethyl phthalate	131-11-3	LA-523-456	U	< 160	ug/kg			1.00	1.6e+02		12/01/09
Dibenzofuran	132-64-9	LA-523-456	U	< 160	ug/kg			1.00	1.6e+02		12/01/09
Benzo(ghi)perylene	191-24-2	LA-523-456	U	< 330	ug/kg			1.00	3.3e+02		12/01/09
Indeno(1,2,3-cd)pyrene	193-39-5	LA-523-456	U	< 340	ug/kg			1.00	3.4e+02		12/01/09
Benzo(b)fluoranthene	205-99-2	LA-523-456	U	< 210	ug/kg			1.00	2.1e+02		12/01/09
Fluoranthene	206-44-0	LA-523-456	U	< 160	ug/kg			1.00	1.6e+02		12/01/09
Benzo(k)fluoranthene	207-08-9	LA-523-456	U	< 210	ug/kg			1.00	2.1e+02		12/01/09
Acenaphthylene	208-96-8	LA-523-456	U	< 160	ug/kg			1.00	1.6e+02		12/01/09
Chrysene	218-01-9	LA-523-456	U	< 160	ug/kg			1.00	1.6e+02		12/01/09
Benzo(a)pyrene	50-32-8	LA-523-456	U	< 230	ug/kg			1.00	2.3e+02		12/01/09
2,4-Dinitrophenol	51-28-5	LA-523-456	U	< 640	ug/kg			1.00	6.4e+02		12/01/09
Dibenz[a,h]anthracene	53-70-3	LA-523-456	U	< 340	ug/kg			1.00	3.4e+02		12/01/09
4,6-Dinitro-2-methylphenol	534-52-1	LA-523-456	U	< 340	ug/kg			1.00	3.4e+02		12/01/09
1,3-Dichlorobenzene	541-73-1	LA-523-456	U	< 280	ug/kg			1.00	2.8e+02		12/01/09
Benzo(a)anthracene	56-55-3	LA-523-456	U	< 160	ug/kg			1.00	1.6e+02		12/01/09
2,6-Dinitrotoluene	606-20-2	LA-523-456	U	< 160	ug/kg			1.00	1.6e+02		12/01/09
4-Chlorophenylphenyl ether	7005-72-3	LA-523-456	U	< 160	ug/kg			1.00	1.6e+02		12/01/09

**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)  
 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.

D - Analyte was identified at a secondary dilution factor  
 E - Analyte is an estimate, has potentially larger errors(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

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REVISION 1

# WSCF

## ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent  
**SAF Number:** F10-025  
**Sample #** W09GR01037  
**Client ID:** B22V43

**TRENT**  
**WSCF**

**Matrix: SOIL**

**Group #:** WSCF20091216  
**Department:** Organic  
**Sampled:** 11/23/09  
**Received:** 11/23/09

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Hexachlorocyclopentadiene	77-47-4	LA-523-456	U	< 180	ug/kg			1.00	1.6e+02		12/01/09
Isophorone	78-59-1	LA-523-456	U	< 160	ug/kg			1.00	1.6e+02		12/01/09
Diethylphthalate	84-66-2	LA-523-456	U	< 220	ug/kg			1.00	2.2e+02		12/01/09
Di-n-butylphthalate	84-74-2	LA-523-456		430	ug/kg			1.00	1.6e+02		12/01/09
Phenanthrene	85-01-8	LA-523-456	U	< 160	ug/kg			1.00	1.6e+02		12/01/09
Butylbenzylphthalate	85-68-7	LA-523-456	U	< 160	ug/kg			1.00	1.6e+02		12/01/09
N-Nitrosodiphenylamine	86-30-6	LA-523-456	U	< 170	ug/kg			1.00	1.7e+02		12/01/09
Fluorene	86-73-7	LA-523-456	U	< 180	ug/kg			1.00	1.6e+02		12/01/09
Carbazole	86-74-8	LA-523-456	U	< 160	ug/kg			1.00	1.6e+02		12/01/09
Hexachlorobutadiene	87-68-3	LA-523-456	U	< 160	ug/kg			1.00	1.6e+02		12/01/09
2-Nitroaniline	88-74-4	LA-523-456	U	< 160	ug/kg			1.00	1.6e+02		12/01/09
2-Nitrophenol	88-75-5	LA-523-456	U	< 180	ug/kg			1.00	1.8e+02		12/01/09
Naphthalene	91-20-3	LA-523-456	U	< 160	ug/kg			1.00	1.6e+02		12/01/09
2-Methylnaphthalene	91-57-6	LA-523-456	U	< 160	ug/kg			1.00	1.6e+02		12/01/09
2-Chloronaphthalene	91-58-7	LA-523-456	U	< 160	ug/kg			1.00	1.8e+02		12/01/09
3,3'-Dichlorobenzidine	91-94-1	LA-523-456	U	< 340	ug/kg			1.00	3.4e+02		12/01/09
2-Methylphenol (cresol, o-)	95-48-7	LA-523-456	U	< 160	ug/kg			1.00	1.6e+02		12/01/09
1,2-Dichlorobenzene	95-50-1	LA-523-456	U	< 230	ug/kg			1.00	2.3e+02		12/01/09
2,4,5-Trichlorophenol	95-95-4	LA-523-456	U	< 160	ug/kg			1.00	1.6e+02		12/01/09
Nitrobenzene	98-95-3	LA-523-456	U	< 160	ug/kg			1.00	1.6e+02		12/01/09
3-Nitroaniline	99-09-2	LA-523-456	U	< 190	ug/kg			1.00	1.9e+02		12/01/09
3 & 4 Methylphenol Total	65794-96-9	LA-523-456	U	< 160	ug/kg			1.00	1.6e+02		12/01/09
Hexachloroethane	87-72-1	LA-523-456	U	< 260	ug/kg			1.00	2.6e+02		12/01/09
2,4,6-Trichlorophenol	88-06-2	LA-523-456	U	< 160	ug/kg			1.00	1.6e+02		12/01/09
Tributyl phosphate	126-73-8	LA-523-456	U	< 180	ug/kg			1.00	1.6e+02		12/01/09

**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)  
 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.

D - Analyte was identified at a secondary dilution factor  
 E - Analyte is an estimate, has potentially larger errors(inorg)  
 U - Analyzed for but not detected above limiting criteria(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:** F10-025  
**Sample #** W09GR01045  
**Client ID:** B22V41

**TRENT  
WSCF**

**Matrix: SOIL**

**Group #:** WSCF20091216  
**Department:** Organic  
**Sampled:** 11/23/09  
**Received:** 11/23/09

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	< 1.00	ug/kg			1.00	1.0		12/01/09
Trichloroethene	79-01-6	LA-523-455	U	< 0.210	ug/kg			1.00	0.21		12/01/09
Benzene	71-43-2	LA-523-455	U	< 1.00	ug/kg			1.00	1.0		12/01/09
Toluene	108-88-3	LA-523-455	U	< 1.00	ug/kg			1.00	1.0		12/01/09
Chlorobenzene	108-90-7	LA-523-455	U	< 1.00	ug/kg			1.00	1.0		12/01/09
1,1-Dichloroethane	75-34-3	LA-523-455	U	< 1.00	ug/kg			1.00	1.0		12/01/09
Ethylbenzene	100-41-4	LA-523-455	U	< 1.00	ug/kg			1.00	1.0		12/01/09
Styrene	100-42-5	LA-523-455	U	< 1.00	ug/kg			1.00	1.0		12/01/09
cis-1,3-Dichloropropene	10061-01-5	LA-523-455	U	< 1.00	ug/kg			1.00	1.0		12/01/09
trans-1,3-Dichloropropene	10061-02-6	LA-523-455	U	< 1.00	ug/kg			1.00	1.0		12/01/09
1,2-Dichloroethane	107-06-2	LA-523-455	U	< 1.00	ug/kg			1.00	1.0		12/01/09
4-Methyl-2-Pentanone	108-10-1	LA-523-455	U	< 1.00	ug/kg			1.00	1.0		12/01/09
Dibromochloromethane	124-48-1	LA-523-455	U	< 1.00	ug/kg			1.00	1.0		12/01/09
Tetrachloroethene	127-18-4	LA-523-455	U	< 1.00	ug/kg			1.00	1.0		12/01/09
Xylenes (total)	1330-20-7	LA-523-455	U	< 1.00	ug/kg			1.00	1.0		12/01/09
1,2-Dichloroethene(Total)	540-59-0	LA-523-455	U	< 1.00	ug/kg			1.00	1.0		12/01/09
Carbon tetrachloride	56-23-5	LA-523-455	U	< 1.00	ug/kg			1.00	1.0		12/01/09
2-Hexanone	591-78-6	LA-523-455	U	< 1.00	ug/kg			1.00	1.0		12/01/09
Acetone	67-64-1	LA-523-455	U	< 1.00	ug/kg			1.00	1.0		12/01/09
Chloroform	67-66-3	LA-523-455	U	< 1.00	ug/kg			1.00	1.0		12/01/09
1,1,1-Trichloroethane	71-55-6	LA-523-455	U	< 1.00	ug/kg			1.00	1.0		12/01/09
Bromomethane	74-83-9	LA-523-455	U	< 1.00	ug/kg			1.00	1.0		12/01/09
Chloromethane	74-87-3	LA-523-455	U	< 1.00	ug/kg			1.00	1.0		12/01/09
Chloroethane	75-00-3	LA-523-455	U	< 1.00	ug/kg			1.00	1.0		12/01/09

**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)  
 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.

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Report WGPP/ver. 5.2

Groundwater Remediation Program

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REVISION 1

# WSCF

## ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent  
**SAF Number:** F10-025  
**Sample #** W09GR01045  
**Client ID:** B22V41

**TRENT**  
**WSCF**

**Matrix: SOIL**

**Group #:** WSCF20091216  
**Department:** Organic  
**Sampled:** 11/23/09  
**Received:** 11/23/09

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Vinyl chloride	75-01-4	LA-523-455	U	< 1.00	ug/kg			1.00	1.0		12/01/09
Methylenechloride	75-09-2	LA-523-455	U	< 1.00	ug/kg			1.00	1.0		12/01/09
Carbon disulfide	75-15-0	LA-523-455	U	< 1.00	ug/kg			1.00	1.0		12/01/09
Bromoform	75-25-2	LA-523-455	U	< 1.00	ug/kg			1.00	1.0		12/01/09
Bromodichloromethane	75-27-4	LA-523-455	U	< 1.00	ug/kg			1.00	1.0		12/01/09
1,2-Dichloropropane	78-87-5	LA-523-455	U	< 1.00	ug/kg			1.00	1.0		12/01/09
2-Butanone	78-93-3	LA-523-455	U	< 1.00	ug/kg			1.00	1.0		12/01/09
1,1,2-Trichloroethane	79-00-5	LA-523-455	U	< 1.00	ug/kg			1.00	1.0		12/01/09
1,1,2,2-Tetrachloroethane	79-34-5	LA-523-455	U	< 1.00	ug/kg			1.00	1.0		12/01/09
Trichloromonofluoromethane	75-69-4	LA-523-455	U	< 1.00	ug/kg			1.00	1.0		12/01/09
trans-1,2-Dichloroethylene	156-60-5	LA-523-455	U	< 1.00	ug/kg			1.00	1.0		12/01/09
cis-1,2-Dichloroethylene	156-59-2	LA-523-455	U	< 1.00	ug/kg			1.00	1.0		12/01/09

**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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Report WGPP/ver. 5.2  
 Groundwater Remediation Program

# WSCF ANALYTICAL LABORATORY QC REPORT

Department: **Organic**

SDG Number: WSCF20091216  
 Matrix: SOLID  
 Test: Alcohols, Glycols - 8015

Sample Date: 11/20/09  
 Receive Date: 11/20/09

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
<b>Lab ID: W09GR01033</b>											
<b>BATCH QC ASSOCIATED WITH SAMPLE</b>											
DUP	2-Bromoethanol	540-51-2	17000		RPD			3.468	25.000		12/03/09
DUP	Diethyl ether	60-29-7	<5000		RPD			n/a	25.000	U	12/03/09
DUP	Ethylene glycol	107-21-1	<5000		RPD			n/a	25.000	U	12/03/09
MS	2-Bromoethanol	540-51-2	16600	94.318	% Recov	70.000	125.000				12/03/09
MS	Diethyl ether	60-29-7	5900	83.099	% Recov	75.000	125.000				12/03/09
MS	Ethylene glycol	107-21-1	11800	107.273	% Recov	75.000	125.000				12/03/09
MSD	2-Bromoethanol	540-51-2	16300	92.614	% Recov	70.000	125.000				12/03/09
MSD	Diethyl ether	60-29-7	5800	81.690	% Recov	75.000	125.000				12/03/09
MSD	Ethylene glycol	107-21-1	12000	109.091	% Recov	75.000	125.000				12/03/09
SPK-RPD	2-Bromoethanol	540-51-2	92.614		RPD			1.823	20.000		12/03/09
SPK-RPD	Diethyl ether	60-29-7	81.690		RPD			1.710	20.000		12/03/09
SPK-RPD	Ethylene glycol	107-21-1	109.091		RPD			1.681	20.000		12/03/09
<b>BATCH QC</b>											
BLANK	2-Bromoethanol	540-51-2	18000	102.273	% Recov	75.000	125.000				12/03/09
BLANK	Diethyl ether	60-29-7	<5000	n/a	ug/Kg	0.000	10.000			U	12/03/09
BLANK	Ethylene glycol	107-21-1	<5000	n/a	ug/Kg	0.000	5.000			U	12/03/09
LCS	2-Bromoethanol	540-51-2	17600	100.000	% Recov	70.000	130.000				12/03/09
LCS	Diethyl ether	60-29-7	6400	90.141	% Recov	70.000	130.000				12/03/09
LCS	Ethylene glycol	107-21-1	9100	82.727	% Recov	70.000	130.000				12/03/09

# WSCF ANALYTICAL LABORATORY QC REPORT

Department: **Organic**

SDG Number: WSCF20091216  
 Matrix: SOLID  
 Test: NWTPH-D TPH Diesel Range (Wa)

Sample Date: 11/23/09  
 Receive Date: 11/23/09

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
<b>Lab ID: W09GR01037</b>											
<b>BATCH QC ASSOCIATED WITH SAMPLE</b>											
MS	ortho-Terphenyl	Surr	84-15-1	19.694	95.200	% Recov	70.000	130.000			12/02/09
MS	Total Pet. Hydrocarbons	Diesel	TPHDIESEL	99.827	96.500	% Recov	75.000	125.000			12/02/09
MSD	ortho-Terphenyl	Surr	84-15-1	20.706	101.000	% Recov	70.000	130.000			12/02/09
MSD	Total Pet. Hydrocarbons	Diesel	TPHDIESEL	98.249	95.400	% Recov	75.000	125.000			12/02/09
SPK-RPD	ortho-Terphenyl	Surr	84-15-1	101.000		RPD			5.912	20.000	12/02/09
SPK-RPD	Total Pet. Hydrocarbons	Diesel	TPHDIESEL	95.400		RPD			1.146	20.000	12/02/09
SURR	ortho-Terphenyl	Surr	84-15-1	21.742	106.000	% Recov	70.000	130.000			12/02/09
<b>BATCH QC</b>											
BLANK	Kerosene		TPHKEROSENE	< 5.0	n/a	ug/Kg				U	12/02/09
BLANK	ortho-Terphenyl	Surr	84-15-1	20.406	102.000	% Recov	70.000	130.000			12/02/09
BLANK	Total Pet. Hydrocarbons	Diesel	TPHDIESEL	< 5.0	n/a	ug/Kg				U	12/02/09
LCS	ortho-Terphenyl	Surr	84-15-1	19.937	99.700	% Recov	70.000	130.000			12/02/09
LCS	Total Pet. Hydrocarbons	Diesel	TPHDIESEL	88.050	88.000	% Recov	80.000	120.000			12/02/09

# WSCF ANALYTICAL LABORATORY QC REPORT

Department: **Organic**

SDG Number: WSCF20091216  
 Matrix: SOLID  
 Test: SW-846 8270C Semi-Vols

Sample Date: 11/20/09  
 Receive Date: 11/20/09

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
<b>Lab ID: W09GR01033</b> <b>BATCH QC ASSOCIATED WITH SAMPLE</b>											
MS	1,2,4-Trichlorobenzene	120-82-1	6670.8	98.800	% Recov	75.000	121.000				12/01/09
MS	1,4-Dichlorobenzene	106-46-7	6477.6	95.900	% Recov	68.000	121.000				12/01/09
MS	2,4-Dinitrotoluene	121-14-2	6742.5	99.800	% Recov	66.000	113.000				12/01/09
MS	2-Fluorophenol(Surr)	367-12-4	4401.5	108.000	% Recov	72.000	120.000				12/01/09
MS	Acenaphthene	83-32-9	6666.8	98.700	% Recov	69.000	125.000				12/01/09
MS	4-Chloro-3-methylphenol	59-50-7	6896.9	102.000	% Recov	68.000	116.000				12/01/09
MS	2-Chlorophenol	95-57-8	6569.4	97.300	% Recov	65.000	124.000				12/01/09
MS	N-Nitrosodi-n-dipropylamine	621-64-7	6738.8	99.800	% Recov	69.000	127.000				12/01/09
MS	2-Fluorobiphenyl(Surr)	321-80-8	4339.6	106.000	% Recov	66.000	122.000				12/01/09
MS	Phenol	108-95-2	6845.2	101.000	% Recov	71.000	122.000				12/01/09
MS	Nitrobenzene-d5(Surr)	4165-60-0	4271.6	104.000	% Recov	63.000	125.000				12/01/09
MS	4-Nitrophenol	100-02-7	6077.7	90.000	% Recov	55.000	113.000				12/01/09
MS	Pentachlorophenol	87-86-5	5392.4	79.800	% Recov	50.000	113.000				12/01/09
MS	Phenol-d5(Surr)	4165-62-2	4326.5	106.000	% Recov	66.000	124.000				12/01/09
MS	Pyrene	129-00-0	7058.5	104.000	% Recov	67.000	125.000				12/01/09
MS	2,4,6-Tribromophenol(Surr)	118-79-6	4152.8	101.000	% Recov	49.000	120.000				12/01/09
MS	Terphenyl-d14(Surr)	98904-43-9	4639.8	113.000	% Recov	58.000	128.000				12/01/09
MSD	1,2,4-Trichlorobenzene	120-82-1	5910.5	87.700	% Recov	75.000	121.000				12/01/09
MSD	1,4-Dichlorobenzene	106-46-7	6211.1	92.100	% Recov	68.000	121.000				12/01/09
MSD	2,4-Dinitrotoluene	121-14-2	6703.7	99.400	% Recov	66.000	113.000				12/01/09
MSD	2-Fluorophenol(Surr)	367-12-4	4537.6	111.000	% Recov	72.000	120.000				12/01/09
MSD	Acenaphthene	83-32-9	6880.1	102.000	% Recov	69.000	125.000				12/01/09
MSD	4-Chloro-3-methylphenol	59-50-7	7074.6	105.000	% Recov	68.000	116.000				12/01/09
MSD	2-Chlorophenol	95-57-8	6889.1	102.000	% Recov	65.000	124.000				12/01/09
MSD	N-Nitrosodi-n-dipropylamine	621-64-7	6995.7	104.000	% Recov	69.000	127.000				12/01/09
MSD	2-Fluorobiphenyl(Surr)	321-80-8	4435.2	109.000	% Recov	66.000	122.000				12/01/09

# WSCF ANALYTICAL LABORATORY QC REPORT

Department: **Organic**

SDG Number: WSCF20091216  
 Matrix: SOLID  
 Test: SW-846 8270C Semi-Vols

Sample Date: 11/20/09  
 Receive Date: 11/20/09

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
MSD	Phenol	108-95-2	7004.6	104.000	% Recov	71.000	122.000				12/01/09
MSD	Nitrobenzene-d5(Surr)	4165-60-0	4408.9	108.000	% Recov	63.000	125.000				12/01/09
MSD	4-Nitrophenol	100-02-7	6372.4	94.500	% Recov	55.000	113.000				12/01/09
MSD	Pentachlorophenol	87-86-5	5971.4	88.600	% Recov	50.000	113.000				12/01/09
MSD	Phenol-d5(Surr)	4165-62-2	4472.7	109.000	% Recov	66.000	124.000				12/01/09
MSD	Pyrene	129-00-0	7630.5	113.000	% Recov	67.000	125.000				12/01/09
MSD	2,4,6-Tribromophenol(Surr)	118-79-6	4553.6	111.000	% Recov	49.000	120.000				12/01/09
MSD	Terphenyl-d14(Surr)	98904-43-9	4992.4	122.000	% Recov	58.000	128.000				12/01/09
SPK-RPD	1,2,4-Trichlorobenzene	120-82-1	87.700		RPD			11.903	20.000		12/01/09
SPK-RPD	1,4-Dichlorobenzene	106-46-7	92.100		RPD			4.043	20.000		12/01/09
SPK-RPD	2,4-Dinitrotoluene	121-14-2	99.400		RPD			0.402	20.000		12/01/09
SPK-RPD	2-Fluorophenol(Surr)	367-12-4	111.000		RPD			2.740	20.000		12/01/09
SPK-RPD	Acenaphthene	83-32-9	102.000		RPD			3.288	20.000		12/01/09
SPK-RPD	4-Chloro-3-methylphenol	59-50-7	105.000		RPD			2.899	20.000		12/01/09
SPK-RPD	2-Chlorophenol	95-57-8	102.000		RPD			4.717	20.000		12/01/09
SPK-RPD	N-Nitrosodi-n-dipropylamine	621-64-7	104.000		RPD			4.122	20.000		12/01/09
SPK-RPD	2-Fluorobiphenyl(Surr)	321-60-8	109.000		RPD			2.791	20.000		12/01/09
SPK-RPD	Phenol	108-95-2	104.000		RPD			2.927	20.000		12/01/09
SPK-RPD	Nitrobenzene-d5(Surr)	4165-60-0	108.000		RPD			3.774	20.000		12/01/09
SPK-RPD	4-Nitrophenol	100-02-7	94.500		RPD			4.878	20.000		12/01/09
SPK-RPD	Pentachlorophenol	87-86-5	88.600		RPD			10.451	20.000		12/01/09
SPK-RPD	Phenol-d5(Surr)	4165-62-2	109.000		RPD			2.791	20.000		12/01/09
SPK-RPD	Pyrene	129-00-0	113.000		RPD			8.295	20.000		12/01/09
SPK-RPD	2,4,6-Tribromophenol(Surr)	118-79-6	111.000		RPD			9.434	20.000		12/01/09
SPK-RPD	Terphenyl-d14(Surr)	98904-43-9	122.000		RPD			7.660	20.000		12/01/09
<p>Lab ID: W09GR01037                  BATCH QC ASSOCIATED WITH SAMPLE</p>											
SURR	2-Fluorophenol(Surr)	367-12-4	8225.6	99.500	% Recov	72.000	120.000				12/01/09
SURR	2-Fluorobiphenyl(Surr)	321-60-8	7951.0	96.200	% Recov	66.000	122.000				12/01/09

# WSCF ANALYTICAL LABORATORY QC REPORT

Department: **Organic**

SDG Number: WSCF20091216  
 Matrix: SOLID  
 Test: SW-846 8270C Semi-Vols

Sample Date: 11/23/09  
 Receive Date: 11/23/09

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
SURR	Nitrobenzene-d5(Surr)	4165-60-0	8046.7	97.300	% Recov	63.000	125.000				12/01/09
SURR	Phenol-d5(Surr)	4165-62-2	8000.5	96.800	% Recov	66.000	124.000				12/01/09
SURR	2,4,6-Tribromophenol(Surr)	118-79-6	7481.9	90.500	% Recov	49.000	120.000				12/01/09
SURR	Terphenyl-d14(Surr)	98904-43-9	8741.2	106.000	% Recov	58.000	128.000				12/01/09

## BATCH QC

BLANK	1,2-Dichlorobenzene	95-50-1	< 220	n/a	ug/Kg					U	12/01/09
BLANK	1,2,4-Trichlorobenzene	120-82-1	< 150	n/a	ug/Kg					U	12/01/09
BLANK	1,3-Dichlorobenzene	541-73-1	< 270	n/a	ug/Kg					U	12/01/09
BLANK	1,4-Dichlorobenzene	106-46-7	< 250	n/a	ug/Kg					U	12/01/09
BLANK	2,4-Dichlorophenol	120-83-2	< 170	n/a	ug/Kg					U	12/01/09
BLANK	2,4-Dinitrotoluene	121-14-2	< 150	n/a	ug/Kg					U	12/01/09
BLANK	2,4,5-Trichlorophenol	95-95-4	< 150	n/a	ug/Kg					U	12/01/09
BLANK	2,4,6-Trichlorophenol	88-06-2	< 150	n/a	ug/Kg					U	12/01/09
BLANK	2,4-Dimethylphenol	105-67-9	< 230	n/a	ug/Kg					U	12/01/09
BLANK	2,6-Dinitrotoluene	606-20-2	< 150	n/a	ug/Kg					U	12/01/09
BLANK	2-Chloronaphthalene	91-58-7	< 150	n/a	ug/Kg					U	12/01/09
BLANK	2-Fluorophenol(Surr)	367-12-4	3912.8	97.800	% Recov	72.000	120.000				12/01/09
BLANK	2-Methylnaphthalene	91-57-6	< 150	n/a	ug/Kg					U	12/01/09
BLANK	2-Methylphenol (cresol, o-)	95-48-7	< 150	n/a	ug/Kg					U	12/01/09
BLANK	2-Nitroaniline	88-74-4	< 150	n/a	ug/Kg					U	12/01/09
BLANK	2-Nitrophenol	88-75-5	< 170	n/a	ug/Kg					U	12/01/09
BLANK	3 & 4 Methylphenol Total	65794-96-9	< 150	n/a	ug/Kg					U	12/01/09
BLANK	3-Nitroaniline	99-09-2	< 190	n/a	ug/Kg					U	12/01/09
BLANK	4,6-Dinitro-2-methylphenol	534-52-1	< 330	n/a	ug/Kg					U	12/01/09
BLANK	4-Bromophenylphenyl ether	101-55-3	< 150	n/a	ug/Kg					U	12/01/09
BLANK	4-Chlorophenylphenyl ether	7005-72-3	< 150	n/a	ug/Kg					U	12/01/09
BLANK	Acenaphthene	83-32-9	< 150	n/a	ug/Kg					U	12/01/09
BLANK	Acenaphthylene	208-96-8	< 150	n/a	ug/Kg					U	12/01/09
BLANK	Anthracene	120-12-7	< 150	n/a	ug/Kg					U	12/01/09

# WSCF ANALYTICAL LABORATORY QC REPORT

Department: **Organic**

SDG Number: WSCF20091216  
 Matrix: SOLID  
 Test: SW-846 8270C Semi-Vols

Sample Date:  
 Receive Date:

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
BLANK	Bis(2-chloroethyl) ether	111-44-4	< 150	n/a	ug/Kg					U	12/01/09
BLANK	Benzo(a)anthracene	56-55-3	< 150	n/a	ug/Kg					U	12/01/09
BLANK	Benzo(b)fluoranthene	205-99-2	< 200	n/a	ug/Kg					U	12/01/09
BLANK	Benzo(ghi)perylene	191-24-2	< 320	n/a	ug/Kg					U	12/01/09
BLANK	Benzo(a)pyrene	50-32-8	< 230	n/a	ug/Kg					U	12/01/09
BLANK	Bis(2-Chloroethoxy)methane	111-91-1	< 150	n/a	ug/Kg					U	12/01/09
BLANK	Bis(2-ethylhexyl) phthalate	117-81-7	< 400	n/a	ug/Kg					U	12/01/09
BLANK	Bis(2-chloro-1-methylethyl)eth	108-60-1	< 150	n/a	ug/Kg					U	12/01/09
BLANK	Benzo(k)fluoranthene	207-08-9	< 200	n/a	ug/Kg					U	12/01/09
BLANK	Butylbenzylphthalate	85-68-7	< 150	n/a	ug/Kg					U	12/01/09
BLANK	Carbazole	86-74-8	< 150	n/a	ug/Kg					U	12/01/09
BLANK	4-Chloroaniline	106-47-8	< 280	n/a	ug/Kg					U	12/01/09
BLANK	4-Chloro-3-methylphenol	59-50-7	< 150	n/a	ug/Kg					U	12/01/09
BLANK	2-Chlorophenol	95-57-8	< 150	n/a	ug/Kg					U	12/01/09
BLANK	Chrysene	218-01-9	< 150	n/a	ug/Kg					U	12/01/09
BLANK	3,3'-Dichlorobenzidine	91-94-1	< 330	n/a	ug/Kg					U	12/01/09
BLANK	Dibenz[a,h]anthracene	53-70-3	< 330	n/a	ug/Kg					U	12/01/09
BLANK	Dibenzofuran	132-64-9	< 150	n/a	ug/Kg					U	12/01/09
BLANK	Di-n-butylphthalate	84-74-2	< 150	n/a	ug/Kg					U	12/01/09
BLANK	Diethylphthalate	84-66-2	< 210	n/a	ug/Kg					U	12/01/09
BLANK	Dimethyl phthalate	131-11-3	< 150	n/a	ug/Kg					U	12/01/09
BLANK	2,4-Dinitrophenol	51-28-5	< 620	n/a	ug/Kg					U	12/01/09
BLANK	Di-n-octylphthalate	117-84-0	< 150	n/a	ug/Kg					U	12/01/09
BLANK	N-Nitrosodi-n-dipropylamine	621-64-7	< 150	n/a	ug/Kg					U	12/01/09
BLANK	2-Fluorobiphenyl(Surr)	321-60-8	3785.6	94.600	% Recov	66.000	122.000				12/01/09
BLANK	Fluorene	86-73-7	< 150	n/a	ug/Kg					U	12/01/09
BLANK	Fluoranthene	206-44-0	< 150	n/a	ug/Kg					U	12/01/09
BLANK	Hexachlorobenzene	118-74-1	< 150	n/a	ug/Kg					U	12/01/09
BLANK	Hexachlorobutadiene	87-68-3	< 150	n/a	ug/Kg					U	12/01/09
BLANK	Hexachlorocyclopentadiene	77-47-4	< 150	n/a	ug/Kg					U	12/01/09

# WSCF ANALYTICAL LABORATORY QC REPORT

Department: Organic

SDG Number: WSCF20091216  
 Matrix: SOLID  
 Test: SW-846 8270C Semi-Vols

Sample Date:  
 Receive Date:

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
BLANK	Hexachloroethane	67-72-1	< 250	n/a	ug/Kg					U	12/01/09
BLANK	Indeno(1,2,3-cd)pyrene	193-39-5	< 330	n/a	ug/Kg					U	12/01/09
BLANK	Isophorone	78-59-1	< 150	n/a	ug/Kg					U	12/01/09
BLANK	Phenol	108-95-2	< 150	n/a	ug/Kg					U	12/01/09
BLANK	Naphthalene	91-20-3	< 150	n/a	ug/Kg					U	12/01/09
BLANK	Nitrobenzene-d5(Surr)	4165-60-0	3718.6	93.000	% Recov	63.000	125.000				12/01/09
BLANK	Nitrobenzene	98-95-3	< 150	n/a	ug/Kg					U	12/01/09
BLANK	4-Nitrophenol	100-02-7	< 330	n/a	ug/Kg					U	12/01/09
BLANK	4-Nitroaniline	100-01-6	< 280	n/a	ug/Kg					U	12/01/09
BLANK	N-Nitrosodiphenylamine	86-30-6	< 170	n/a	ug/Kg					U	12/01/09
BLANK	Pentachlorophenol	87-86-5	< 400	n/a	ug/Kg					U	12/01/09
BLANK	Phenanthrene	85-01-8	< 150	n/a	ug/Kg					U	12/01/09
BLANK	Phenol-d5(Surr)	4165-62-2	3777.5	94.400	% Recov	66.000	124.000				12/01/09
BLANK	Pyrene	129-00-0	< 150	n/a	ug/Kg					U	12/01/09
BLANK	Tributyl phosphate	126-73-8	< 150	n/a	ug/Kg					U	12/01/09
BLANK	2,4,6-Tribromophenol(Surr)	118-79-6	3347.1	83.700	% Recov	49.000	120.000				12/01/09
BLANK	Terphenyl-d 14(Surr)	98904-43-9	4139.2	103.000	% Recov	58.000	128.000				12/01/09
LCS	1,2,4-Trichlorobenzene	120-82-1	5979.7	94.000	% Recov	76.000	118.000				12/01/09
LCS	1,4-Dichlorobenzene	106-46-7	6072.6	95.500	% Recov	68.000	121.000				12/01/09
LCS	2,4-Dinitrotoluene	121-14-2	6006.1	94.400	% Recov	68.000	112.000				12/01/09
LCS	2-Fluorophenol(Surr)	367-12-4	4235.6	106.000	% Recov	50.000	110.000				12/01/09
LCS	Acenaphthene	83-32-9	6061.9	95.300	% Recov	75.000	121.000				12/01/09
LCS	4-Chloro-3-methylphenol	59-50-7	6392.8	101.000	% Recov	68.000	117.000				12/01/09
LCS	2-Chlorophenol	95-57-8	6212.8	97.700	% Recov	84.000	114.000				12/01/09
LCS	N-Nitrosodi-n-dipropylamine	621-64-7	6400.6	101.000	% Recov	76.000	119.000				12/01/09
LCS	2-Fluorobiphenyl(Surr)	321-60-8	4035.8	101.000	% Recov	58.000	109.000				12/01/09
LCS	Phenol	108-95-2	6418.4	101.000	% Recov	80.000	113.000				12/01/09
LCS	Nitrobenzene-d5(Surr)	4165-60-0	4051.2	101.000	% Recov	60.000	118.000				12/01/09
LCS	4-Nitrophenol	100-02-7	5970.3	93.900	% Recov	42.000	123.000				12/01/09
LCS	Pentachlorophenol	87-86-5	5701.1	89.600	% Recov	55.000	120.000				12/01/09

# WSCF ANALYTICAL LABORATORY QC REPORT

Department: Organic

SDG Number: WSCF20091216  
Matrix: SOLID  
Test: SW-846 8270C Semi-Vols

Sample Date:  
Receive Date:

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
LCS	Phenol-d5(Surr)	4165-62-2	4119.3	103.000	% Recov	59.000	116.000				12/01/09
LCS	Pyrene	129-00-0	6616.9	104.000	% Recov	67.000	122.000				12/01/09
LCS	2,4,6-Tribromophenol(Surr)	118-79-6	3872.7	96.800	% Recov	60.000	120.000				12/01/09
LCS	Terphenyl-d14(Surr)	98904-43-9	4415.4	110.000	% Recov	60.000	120.000				12/01/09

# WSCF ANALYTICAL LABORATORY QC REPORT

Department: Organic

SDG Number: WSCF20091216  
 Matrix: SOLID  
 Test: VOA Ground Water Protection

Sample Date: 11/20/09  
 Receive Date: 11/20/09

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
<b>Lab ID: W09GR01035</b>											
<b>BATCH QC ASSOCIATED WITH SAMPLE</b>											
MS	1,1-Dichloroethene	75-35-4	26.150	102.000	% Recov	63.000	117.000				12/01/09
MS	Benzene	71-43-2	25.060	97.900	% Recov	75.000	129.000				12/01/09
MS	4-Bromofluorobenzene(Surr)	460-00-4	55.760	109.000	% Recov	75.000	125.000				12/01/09
MS	Chlorobenzene	108-90-7	27.130	106.000	% Recov	79.000	119.000				12/01/09
MS	1,2-Dichloroethane-d4(Surr)	17060-07-0	60.620	118.000	% Recov	75.000	125.000				12/01/09
MS	Toluene-d8(Surr)	2037-26-5	52.710	103.000	% Recov	75.000	125.000				12/01/09
MS	Toluene	108-88-3	28.310	111.000	% Recov	76.000	120.000				12/01/09
MS	Trichloroethene	79-01-6	24.750	96.700	% Recov	73.000	123.000				12/01/09
MSD	1,1-Dichloroethene	75-35-4	22.420	94.600	% Recov	63.000	117.000				12/01/09
MSD	Benzene	71-43-2	21.490	90.700	% Recov	75.000	129.000				12/01/09
MSD	4-Bromofluorobenzene(Surr)	460-00-4	51.140	108.000	% Recov	75.000	125.000				12/01/09
MSD	Chlorobenzene	108-90-7	22.950	96.900	% Recov	79.000	119.000				12/01/09
MSD	1,2-Dichloroethane-d4(Surr)	17060-07-0	55.400	117.000	% Recov	75.000	125.000				12/01/09
MSD	Toluene-d8(Surr)	2037-26-5	48.780	103.000	% Recov	75.000	125.000				12/01/09
MSD	Toluene	108-88-3	24.300	103.000	% Recov	76.000	120.000				12/01/09
MSD	Trichloroethene	79-01-6	21.360	90.200	% Recov	73.000	123.000				12/01/09
SPK-RPD	1,1-Dichloroethene	75-35-4	94.600		RPD			7.528	20.000		12/01/09
SPK-RPD	Benzene	71-43-2	90.700		RPD			7.635	20.000		12/01/09
SPK-RPD	4-Bromofluorobenzene(Surr)	460-00-4	108.000		RPD			0.922	20.000		12/01/09
SPK-RPD	Chlorobenzene	108-90-7	96.900		RPD			8.970	20.000		12/01/09
SPK-RPD	1,2-Dichloroethane-d4(Surr)	17060-07-0	117.000		RPD			0.851	20.000		12/01/09
SPK-RPD	Toluene-d8(Surr)	2037-26-5	103.000		RPD			0.000	20.000		12/01/09
SPK-RPD	Toluene	108-88-3	103.000		RPD			7.477	20.000		12/01/09
SPK-RPD	Trichloroethene	79-01-6	90.200		RPD			6.956	20.000		12/01/09

# WSCF ANALYTICAL LABORATORY QC REPORT

Department: **Organic**

SDG Number: WSCF20091216  
 Matrix: SOLID  
 Test: VOA Ground Water Protection

Sample Date: 11/23/09  
 Receive Date: 11/23/09

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
<b>Lab ID: W09GR01045</b>											
<b>BATCH QC ASSOCIATED WITH SAMPLE</b>											
SURR	4-Bromofluorobenzene(Surr)	460-00-4	56.170	109.000	% Recov	75.000	125.000				12/01/09
SURR	1,2-Dichloroethane-d4(Surr)	17060-07-0	58.480	113.000	% Recov	75.000	125.000				12/01/09
SURR	Toluene-d8(Surr)	2037-26-5	53.820	104.000	% Recov	80.000	126.000				12/01/09
<b>BATCH QC</b>											
BLANK	1,1-Dichloroethane	75-34-3	< 1.0	n/a	ug/Kg					U	12/01/09
BLANK	1,1,1-Trichloroethane	71-55-6	< 1.0	n/a	ug/Kg					U	12/01/09
BLANK	1,1,2-Trichloroethane	79-00-5	< 1.0	n/a	ug/Kg					U	12/01/09
BLANK	1,1,2,2-Tetrachloroethane	79-34-5	< 1.0	n/a	ug/Kg					U	12/01/09
BLANK	1,1-Dichloroethene	75-35-4	< 1.0	n/a	ug/Kg					U	12/01/09
BLANK	1,2-Dichloroethane	107-06-2	< 1.0	n/a	ug/Kg					U	12/01/09
BLANK	1,2-Dichloroethene(Total)	540-59-0	< 1.0	n/a	ug/Kg					U	12/01/09
BLANK	2-Hexanone	591-78-6	< 1.0	n/a	ug/Kg					U	12/01/09
BLANK	4-Methyl-2-Pentanone	108-10-1	< 1.0	n/a	ug/Kg					U	12/01/09
BLANK	Acetone	67-64-1	< 1.0	n/a	ug/Kg					U	12/01/09
BLANK	Bromodichloromethane	75-27-4	< 1.0	n/a	ug/Kg					U	12/01/09
BLANK	Benzene	71-43-2	< 1.0	n/a	ug/Kg					U	12/01/09
BLANK	4-Bromofluorobenzene(Surr)	460-00-4	53.560	107.000	% Recov	75.000	125.000				12/01/09
BLANK	Bromoform	75-25-2	< 1.0	n/a	ug/Kg					U	12/01/09
BLANK	Carbon disulfide	75-15-0	< 1.0	n/a	ug/Kg					U	12/01/09
BLANK	Carbon tetrachloride	56-23-5	< 1.0	n/a	ug/Kg					U	12/01/09
BLANK	Dibromochloromethane	124-48-1	< 1.0	n/a	ug/Kg					U	12/01/09
BLANK	Chloroform	67-66-3	< 1.0	n/a	ug/Kg					U	12/01/09
BLANK	Chlorobenzene	108-90-7	< 1.0	n/a	ug/Kg					U	12/01/09
BLANK	cis-1,2-Dichloroethylene	156-59-2	< 1.0	n/a	ug/Kg					U	12/01/09
BLANK	cis-1,3-Dichloropropene	10061-01-5	< 1.0	n/a	ug/Kg					U	12/01/09
BLANK	Chloroethane	75-00-3	< 1.0	n/a	ug/Kg					U	12/01/09

# WSCF ANALYTICAL LABORATORY QC REPORT

Department: **Organic**

SDG Number: WSCF20091216  
 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	1,2-Dichloroethane-d4(Surr)	17060-07-0	59.570	119.000	% Recov	75.000	125.000				12/01/09
BLANK	trans-1,2-Dichloroethylene	156-60-5	< 1.0	n/a	ug/Kg					U	12/01/09
BLANK	1,2-Dichloropropane	78-87-5	< 1.0	n/a	ug/Kg					U	12/01/09
BLANK	Ethylbenzene	100-41-4	< 1.0	n/a	ug/Kg					U	12/01/09
BLANK	Bromomethane	74-83-9	< 1.0	n/a	ug/Kg					U	12/01/09
BLANK	Chloromethane	74-87-3	< 1.0	n/a	ug/Kg					U	12/01/09
BLANK	2-Butenone	78-93-3	< 1.0	n/a	ug/Kg					U	12/01/09
BLANK	Methylenechloride	75-09-2	< 1.0	n/a	ug/Kg					U	12/01/09
BLANK	Tetrachloroethene	127-18-4	< 1.0	n/a	ug/Kg					U	12/01/09
BLANK	Styrene	100-42-5	< 1.0	n/a	ug/Kg					U	12/01/09
BLANK	Xylenes (total)	1330-20-7	< 1.0	n/a	ug/Kg					U	12/01/09
BLANK	Toluene-d8(Surr)	2037-26-5	51.320	103.000	% Recov	80.000	126.000				12/01/09
BLANK	Toluene	108-88-3	< 1.0	n/a	ug/Kg					U	12/01/09
BLANK	trans-1,3-Dichloropropene	10061-02-6	< 1.0	n/a	ug/Kg					U	12/01/09
BLANK	Trichloromonofluoromethane	75-69-4	< 1.0	n/a	ug/Kg	0.000	5.000			U	12/01/09
BLANK	Trichloroethene	79-01-6	< 0.20	n/a	ug/Kg					U	12/01/09
BLANK	Vinyl chloride	75-01-4	< 1.0	n/a	ug/Kg					U	12/01/09
LCS	1,1-Dichloroethene	75-35-4	26.270	105.000	% Recov	75.000	125.000				12/01/09
LCS	Benzene	71-43-2	22.430	89.700	% Recov	75.000	125.000				12/01/09
LCS	4-Bromofluorobenzene(Surr)	460-00-4	53.760	108.000	% Recov	75.000	125.000				12/01/09
LCS	Chlorobenzene	108-90-7	25.640	103.000	% Recov	75.000	125.000				12/01/09
LCS	1,2-Dichloroethane-d4(Surr)	17060-07-0	59.920	120.000	% Recov	75.000	125.000				12/01/09
LCS	Toluene-d8(Surr)	2037-26-5	51.530	103.000	% Recov	80.000	126.000				12/01/09
LCS	Toluene	108-88-3	25.780	103.000	% Recov	75.000	125.000				12/01/09
LCS	Trichloroethene	79-01-6	23.100	92.400	% Recov	75.000	125.000				12/01/09

REVISION 1

# WSCF ANALYTICAL COMMENT REPORT

**Attention:** Steve Trent  
**Project Number:** F10-025

**Group #:** WSCF20091216  
**Department:** Organic

Sample #	Client ID	Lab Area	Test	Comment
		VALGROUP		<p>Organics: Results are moisture corrected and reported on a dry weight basis. cgc</p> <p>IC Cation - MS/MSD recoveries out of limits for ammonia; Possible matrix interference in sample; Data N-flagged. DTS</p> <p>IC Anion - Sample dup RPD out of control limits for sulfate. However, analyte concentration in sample below calibration range. No flag required. DTS</p> <p>ICP-MS:Aluminum sample concentration more than 4X spike amount. Spike information not valid. "X" flag</p> <p>Manganese spike recoveries above 130% "N" flag</p> <p>ICP-AES: Sample W09GR1037</p> <p>Estimated boron result due to iron interference; "E" flag.</p> <p>Iron sample result exceeds spiking level by a factor of 4 so spike recoveries are not valid.</p> <p>Sample result less than 5 times the MDL; "B" flag.</p> <p>W09GR01037/Tc-99 batch dup is flagged due to the inhomogeneity of the sample.lmh</p> <p>TPHD: Results are corrected for moisture and reported on a dry weight basis. cgc</p>

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

VALTEST - Test Validation  
LOGTEST - Login for Tests

TESTDATA - Test Data Entry

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REVISION 1

# WSCF ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent  
**SAF Number:** F10-025  
**Sample #** W09GR01037  
**Client ID:** B22V43

TRENT  
WSCF

**Matrix:** SOIL

**Group #:** WSCF20091216  
**Department:** Radiochemistry  
**Sampled:** 11/23/09  
**Received:** 11/23/09

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
<b>Americium by AEA</b>											
Americium-241	14596-10-2	LA-508-471		0.0410	pCi/g	+ -0.0258	pCi/g	1.00	0.023		01/05/10
Am-243 tracer by AEA	AM243	LA-508-471		4.00	pCi/g			1.00	0.023		01/05/10
<b>Gamma Energy Analysis-grd H2O</b>											
Antimony-125	14234-35-6	LA-508-481	U	-0.0302	pCi/g	+ -0.0534	pCi/g	1.00	0.077		12/03/09
Cobalt-60	10198-40-0	LA-508-481	U	-0.0108	pCi/g	+ -0.0172	pCi/g	1.00	0.028		12/03/09
Cesium-137	10045-97-3	LA-508-481	U	-5.34e-03	pCi/g	+ -0.0174	pCi/g	1.00	0.030		12/03/09
Europium-152	14683-23-9	LA-508-481	U	-0.0168	pCi/g	+ -0.0912	pCi/g	1.00	0.086		12/03/09
Europium-154	15585-10-1	LA-508-481	U	-0.0748	pCi/g	+ -0.0748	pCi/g	1.00	0.096		12/03/09
Europium-155	14391-16-3	LA-508-481	U	0.0153	pCi/g	+ -0.0823	pCi/g	1.00	0.14		12/03/09
<b>Gross Alpha on Alpha Plateau</b>											
Gross alpha on alpha plateau	12587-46-1	LA-508-415		1.00	pCi/g	+ -0.420	pCi/g	1.00	0.50		12/01/09
<b>Gross Alpha/Gross Beta (AB32)</b>											
Gross beta	12587-47-2	LA-508-415		1.80	pCi/g	+ -0.468	pCi/g	1.00	0.60		12/01/09
<b>Plutonium Isotopics by AEA</b>											
Plutonium-238	13981-16-3	LA-508-471	U	-0.0430	pCi/g	+ -0.0494	pCi/g	1.00	0.092		01/06/10
Pu-239/240 by AEA	PU-239/240	LA-508-471	U	0.0130	pCi/g	+ -0.0142	pCi/g	1.00	0.018		01/06/10
Pu-242	13982-10-0	LA-508-471		5.90	pCi/g			1.00	0.027		01/06/10
<b>Strontium 89/90</b>											
Strontium-89/90	SR-RAD	LA-508-415	U	-0.830	pCi/g	+ -0.830	pCi/g	1.00	0.32		12/28/09
Sr-85 Tracer by Beta Counting	SR85	LA-508-415		86.2	Percent			1.00	0.0		12/28/09
<b>TC99 by Liquid Scin.</b>											
Tc-99 by Liquid Scin.	14133-76-7	LA-508-421		0.500	pCi/g	+ -0.210	pCi/g	1.00	0.30		12/04/09
<b>Uranium Isotopics by AEA</b>											
Uranium-233/234	U-233/234	LA-508-471		0.110	pCi/g	+ -0.0396	pCi/g	1.00	0.013		01/05/10

**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)  
 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.

D - Analyte was identified at a secondary dilution factor  
 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)

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

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 Groundwater Remediation Program

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# WSCF

## ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent  
**SAF Number:** F10-025  
**Sample #** W09GR01037  
**Client ID:** B22V43

TRENT  
WSCF

**Matrix:** SOIL

**Group #:** WSCF20091216  
**Department:** Radiochemistry  
**Sampled:** 11/23/09  
**Received:** 11/23/09

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Uranium-235	15117-96-1	LA-508-471	U	0.0140	pCi/g	+ -0.0137	pCi/g	1.00	0.018		01/05/10
Uranium-238	U-238	LA-508-471		0.120	pCi/g	+ -0.0432	pCi/g	1.00	0.017		01/05/10
U-232 tracer by AEA	U232	LA-508-471		3.80	pCi/g			1.00	0.030		01/05/10

**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)

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.

D - Analyte was identified at a secondary dilution factor

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)

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

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# WSCF ANALYTICAL LABORATORY QC REPORT

Department: Radiochemistry

SDG Number: WSCF20091216  
 Matrix: SOLID  
 Test: Americium by AEA

Sample Date: 11/20/09  
 Receive Date: 11/20/09

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
<b>Lab ID: W09GR01033</b>											
<b>BATCH QC ASSOCIATED WITH SAMPLE</b>											
DUP	Americium-241	14596-10-2	U1.4e-2		RPD			n/a	20.000		01/05/10
DUP	Am-243 tracer by AEA	AM243	4.117	90.680	% Recov	30.000	105.000				01/05/10
<b>Lab ID: W09GR01037</b>											
<b>BATCH QC ASSOCIATED WITH SAMPLE</b>											
SURR	Am-243 tracer by AEA	AM243	3.985	40.040	% Recov	30.000	105.000				01/05/10
<b>BATCH QC</b>											
BLANK	Americium-241	14596-10-2	2.9e-2	0.029	pCi/g	-10.000	1000.000				01/05/10
BLANK	Am-243 tracer by AEA	AM243	4.216	83.870	% Recov	30.000	105.000				01/05/10
LCS	Americium-241	14596-10-2	11.76	99.241	% Recov	80.000	120.000				01/05/10
LCS	Am-243 tracer by AEA	AM243	11.7	96.820	% Recov	30.000	105.000				01/05/10

# WSCF ANALYTICAL LABORATORY QC REPORT

Department: Radiochemistry

SDG Number: WSCF20091216  
 Matrix: SOLID  
 Test: Gamma Energy Analysis-grd H2O

Sample Date: 11/20/09  
 Receive Date: 11/20/09

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
<b>Lab ID: W09GR01033</b>											
<b>BATCH QC ASSOCIATED WITH SAMPLE</b>											
DUP	Cobalt-60	10198-40-0	U-1.066e-2		RPD			n/a	20.000		12/15/09
DUP	Cesium-137	10045-97-3	U-1.22e-2		RPD			n/a	20.000		12/15/09
DUP	Europium-152	14683-23-9	U-2.391e-2		RPD			n/a	20.000		12/15/09
DUP	Europium-154	15585-10-1	U-2.942e-2		RPD			n/a	20.000		12/15/09
DUP	Europium-155	14391-16-3	U8.124e-2		RPD			n/a	20.000		12/15/09
DUP	Antimony-125	14234-35-6	U1.256e-2		RPD			n/a	20.000		12/15/09
<b>BATCH QC</b>											
BLANK	Cobalt-60	10198-40-0	U-7.817e-3	n/a	pCi/g	-10.000	1000.000				12/15/09
BLANK	Cesium-137	10045-97-3	U6.473e-5	n/a	pCi/g	-10.000	1000.000				12/15/09
BLANK	Europium-152	14683-23-9	U-4.374e-3	n/a	pCi/g	-10.000	1000.000				12/15/09
BLANK	Europium-154	15585-10-1	U-6.415e-3	n/a	pCi/g	-10.000	1000.000				12/15/09
BLANK	Europium-155	14391-16-3	U2.221e-3	n/a	pCi/g	-10.000	1000.000				12/15/09
BLANK	Antimony-125	14234-35-6	U2.706e-3	n/a	pCi/g	-10.000	1000.000				12/15/09
LCS	Cobalt-60	10198-40-0	10410	104.728	% Recov	80.000	120.000				12/03/09
LCS	Cesium-137	10045-97-3	6422	106.325	% Recov	80.000	120.000				12/03/09

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# WSCF ANALYTICAL LABORATORY QC REPORT

Department: Radiochemistry

SDG Number: WSCF20091216  
 Matrix: SOLID  
 Test: Gross Alpha on Alpha Plateau

Sample Date: 11/20/09  
 Receive Date: 11/20/09

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
<b>Lab ID: W09GR01033</b>											
<b>BATCH QC ASSOCIATED WITH SAMPLE</b>											
DUP	Gross alpha on alpha plateau	12587-46-1	U0.5		RPD			n/a	20.000		12/01/09
<b>BATCH QC</b>											
BLANK	Gross alpha on alpha plateau	12587-46-1-ap	U1.2E-1	n/a	pCi/g	-2.000	2.000				12/01/09
LCS	Gross alpha on alpha plateau	12587-46-1-ap	5.47	84.154	% Recov	80.000	120.000				12/01/09

# WSCF ANALYTICAL LABORATORY QC REPORT

Department: Radiochemistry

SDG Number: WSCF20091216  
 Matrix: SOLID  
 Test: Gross Alpha/Gross Beta (AB32)

Sample Date: 11/20/09  
 Receive Date: 11/20/09

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
<b>Lab ID: W09GR01033</b>											
<b>BATCH QC ASSOCIATED WITH SAMPLE</b>											
DUP	Gross beta	12587-47-2	1.8		RPD			5.405	20.000		12/01/09
<b>BATCH QC</b>											
BLANK	Gross beta	12587-47-2	U-1.1E-02	n/a	pCi/g	-10.000	10.000				12/01/09
LCS	Gross beta	12587-47-2	23.7	105.993	% Recov	80.000	120.000				12/01/09

# WSCF ANALYTICAL LABORATORY QC REPORT

Department: Radiochemistry

SDG Number: WSCF20091216  
 Matrix: SOLID  
 Test: Plutonium Isotopics by AEA

Sample Date: 11/20/09  
 Receive Date: 11/20/09

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
<b>Lab ID: W09GR01033</b>											
<b>BATCH QC ASSOCIATED WITH SAMPLE</b>											
DUP	Plutonium-238	13981-16-3	U2.9e-2		RPD			n/a	20.000		01/06/10
DUP	Pu-239/240 by AEA	PU-239/240	U9.2e-3		RPD			n/a	20.000		01/06/10
DUP	Pu-242	13982-10-0	6.088	88.080	% Recov	30.000	105.000				01/06/10
<b>Lab ID: W09GR01037</b>											
<b>BATCH QC ASSOCIATED WITH SAMPLE</b>											
SURR	Pu-242	13982-10-0	5.892	66.540	% Recov	30.000	105.000				01/06/10
<b>BATCH QC</b>											
BLANK	Plutonium-238	13981-16-3	U-3.6e-2	n/a	pCi/g	-10.000	1000.000				01/06/10
BLANK	Pu-239/240 by AEA	PU-239/240	U5.6e-3	n/a	pCi/g	-10.000	1000.000				01/06/10
BLANK	Pu-242	PU242	6.234	86.700	% Recov	30.000	105.000				01/06/10
LCS	Pu-239/240 by AEA	PU-239/240	12.98	101.051	% Recov	80.000	120.000				01/06/10
LCS	Pu-242	PU242	17.3	83.310	% Recov	30.000	105.000				01/06/10

# WSCF ANALYTICAL LABORATORY QC REPORT

Department: Radiochemistry

SDG Number: WSCF20091216  
 Matrix: SOLID  
 Test: Strontium 89/90

Sample Date: 11/20/09  
 Receive Date: 11/20/09

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
<b>Lab ID: W09GR01033</b>											
<b>BATCH QC ASSOCIATED WITH SAMPLE</b>											
DUP	Sr-85 Tracer by Beta Counting	SR85	82.8	82.800	% Recov	30.000	105.000				12/28/09
DUP	Strontium-89/90	SR-RAD	U-3.0E-01		RPD			n/a	20.000		12/28/09
<b>Lab ID: W09GR01037</b>											
<b>BATCH QC ASSOCIATED WITH SAMPLE</b>											
SURR	Sr-85 Tracer by Beta Counting	SR85	86.2	86.200	% Recov	30.000	105.000				12/28/09
<b>BATCH QC</b>											
BLANK	Sr-85 Tracer by Beta Counting	SR85	90.3	90.300	% Recov	30.000	105.000				12/28/09
BLANK	Strontium-89/90	10098-97-2	U-8.4E-01	n/a	pCi/g	-10.000	300.000				12/28/09
LCS	Sr-85 Tracer by Beta Counting	SR85	71.1	71.100	% Recov	30.000	105.000				12/28/09
LCS	Strontium-89/90	10098-97-2	66.2	95.252	% Recov	80.000	120.000				12/28/09

# WSCF ANALYTICAL LABORATORY QC REPORT

Department: Radiochemistry

SDG Number: WSCF20091216  
 Matrix: SOLID  
 Test: TC99 by Liquid Scin.

Sample Date: 11/20/09  
 Receive Date: 11/20/09

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
<b>Lab ID: W09GR01033</b>											
<b>BATCH QC ASSOCIATED WITH SAMPLE</b>											
DUP	Tc-99 by Liquid Scin.	14133-76-7	0.5		RPD			33.333	20.000 *		12/04/09
MS	Tc-99 by Liquid Scin.	14133-76-7	388.5	81.276	% Recov	75.000	125.000				12/04/09
<b>BATCH QC</b>											
BLANK	Tc-99 by Liquid Scin.	14133-76-7	0.5	0.500	pCi/g	-10.000	1000.000				12/04/09
LCS	Tc-99 by Liquid Scin.	14133-76-7	10.5	102.941	% Recov	80.000	120.000				12/04/09

# WSCF ANALYTICAL LABORATORY QC REPORT

Department: Radiochemistry

SDG Number: WSCF20091216  
 Matrix: SOLID  
 Test: Uranium Isotopics by AEA

Sample Date: 11/20/09  
 Receive Date: 11/20/09

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
<b>Lab ID: W09GR01033</b>											
<b>BATCH QC ASSOCIATED WITH SAMPLE</b>											
DUP	U-232 tracer by AEA	U232	3.963	83.710	% Recov	30.000	105.000				01/05/10
DUP	Uranium-233/234	U-233/234	0.13		RPD			8.000	20.000		01/05/10
DUP	Uranium-235	15117-96-1	1.9e-2		RPD			n/a	20.000		01/05/10
DUP	Uranium-238	U-238	0.14		RPD			0.000	20.000		01/05/10
<b>Lab ID: W09GR01037</b>											
<b>BATCH QC ASSOCIATED WITH SAMPLE</b>											
SURR	U-232 tracer by AEA	U232	3.836	93.640	% Recov	30.000	105.000				01/05/10
<b>BATCH QC</b>											
BLANK	U-232 tracer by AEA	U232	4.058	61.493	% Recov	30.000	105.000				01/05/10
BLANK	Uranium-233/234	13966-29-5	U3e-03	n/a	pCi/g	-10.000	1000.000				01/05/10
BLANK	Uranium-235	15117-96-1	U-3.17e-3	n/a	pCi/g	-10.000	1000.000				01/05/10
BLANK	Uranium-238	24678-82-8	U5.8e-3	n/a	pCi/g	-10.000	1000.000				01/05/10
LCS	U-232 tracer by AEA	U232	11.26	85.990	% Recov	30.000	105.000				01/05/10
LCS	Uranium-238	24678-82-8	18.43	115.274	% Recov	80.000	120.000				01/05/10

# WSCF ANALYTICAL COMMENT REPORT

**Attention:** Steve Trent  
**Project Number:** F10-025

**Group #:** WSCF20091216  
**Department:** Radiochemistry

Sample #	Client ID	Lab Area	Test	Comment
		VALGROUP		<p>Organics: Results are moisture corrected and reported on a dry weight basis. cgc</p> <p>IC Cation - MS/MSD recoveries out of limits for ammonia; Possible matrix interference in sample; Data N-flagged. DTS</p> <p>IC Anion - Sample dup RPD out of control limits for sulfate. However, analyte concentration in sample below calibration range. No flag required. DTS</p> <p>ICP-MS: Aluminum sample concentration more than 4X spike amount. Spike information not valid. "X" flag</p> <p>Manganese spike recoveries above 130% "N" flag</p> <p>ICP-AES: Sample W09GR1037 Estimated boron result due to iron interference; "E" flag. Iron sample result exceeds spiking level by a factor of 4 so spike recoveries are not valid. Sample result less than 5 times the MDL; "B" flag.</p> <p>W09GR01037/Tc-99 batch dup is flagged due to the inhomogeneity of the sample.lmh</p> <p>TPHD: Results are corrected for moisture and reported on a dry weight basis. cgc</p>

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

VALTEST - Test Validation  
LOGTEST - Login for Tests

TESTDATA - Test Data Entry

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# WSCF

## TENTATIVELY IDENTIFIED PEAK REPORT

**Attention:** Steve Trent  
**Project Number:** F10-025 :F10-025

**Group #:** WSCF20091216  
**Department:** Radiochemistry

Sample #	Client ID	Test Name	Peak Name	CAS#	RT	RQ	Result	Units
W09GR01037	B22V43	TRENT	Gamma Energy Analysis-grd H2O	AC-228			0.64	pCi/g
W09GR01037	B22V43	TRENT	Gamma Energy Analysis-grd H2O	AC-228 Count Error			38	%
W09GR01037	B22V43	TRENT	Gamma Energy Analysis-grd H2O	BI-214			0.53	pCi/g
W09GR01037	B22V43	TRENT	Gamma Energy Analysis-grd H2O	BI-214 Count Error			25	%
W09GR01037	B22V43	TRENT	Gamma Energy Analysis-grd H2O	CS-134			0.060	pCi/g
W09GR01037	B22V43	TRENT	Gamma Energy Analysis-grd H2O	CS-134 Count Error			46	%
W09GR01037	B22V43	TRENT	Gamma Energy Analysis-grd H2O	K-40			15	pCi/g
W09GR01037	B22V43	TRENT	Gamma Energy Analysis-grd H2O	K-40 Count Error			13	%
W09GR01037	B22V43	TRENT	Gamma Energy Analysis-grd H2O	PB-212			0.61	pCi/g
W09GR01037	B22V43	TRENT	Gamma Energy Analysis-grd H2O	PB-212 Count Error			13	%
W09GR01037	B22V43	TRENT	Gamma Energy Analysis-grd H2O	PB-214			0.97	pCi/g
W09GR01037	B22V43	TRENT	Gamma Energy Analysis-grd H2O	PB-214 Count Error			36	%
W09GR01037	B22V43	TRENT	Gamma Energy Analysis-grd H2O	RA-226			0.42	pCi/g
W09GR01037	B22V43	TRENT	Gamma Energy Analysis-grd H2O	RA-226 Count Error			20	%
W09GR01037	B22V43	TRENT	Gamma Energy Analysis-grd H2O	RA-228			0.62	pCi/g
W09GR01037	B22V43	TRENT	Gamma Energy Analysis-grd H2O	RA-228 Count Error			28	%
W09GR01037	B22V43	TRENT	Gamma Energy Analysis-grd H2O	SN-126			0.15	pCi/g
W09GR01037	B22V43	TRENT	Gamma Energy Analysis-grd H2O	SN-126 Count Error			44	%
W09GR01037	B22V43	TRENT	Gamma Energy Analysis-grd H2O	TL-208			0.16	pCi/g
W09GR01037	B22V43	TRENT	Gamma Energy Analysis-grd H2O	TL-208 Count Error			28	%

RQ=Result Qualifier

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*Groundwater Remediation Program*

WGPPE v 5.2 Report#: WSCF20091216 Report Date: 12-jan-2010

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REVISION 1

M4W41-SLF-10-026

ATTACHMENT 4

**SAMPLE RECEIPT INFORMATION w/SAMPLE RECORD SHEETS**

Consisting of 8 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

7/10  
 FILE KB

ACKNOWLEDGMENT OF SAMPLES RECEIVED

Groundwater Remediation Program

Richland, WA 99354  
 Attn: Steve Trent

Customer Code: GPP  
 PO#: 302117/ES10  
 Group#: 20091216  
 Project#: F10-025  
 Proj Mgr: Steve Trent  
 Phone: 373-5886

The following samples were received from you on 11/23/09. They have been scheduled for the tests listed beside each sample. If this information is incorrect, please contact your service representative. Thank you for using Waste Sampling and Characterization Facility.

Sample#	Sample Id	Tests Scheduled	Matrix	Sample Date
W09GR01037	B22V43	TRENT @2008 @8015GPP @AB-32 @AEA-30 @AEA-31 @AEA-32 @ALPHA @GEA-GPP @GPP6010 @IC-30 @SR89 @SVOCGPP @TC99-30 @TPHD-WA CN-02 CR+6 NH4-I PERSOLID	Solid, or handle as if solid	11/23/09
W09GR01045	B22V41	TRENT @VOA-GPP	Solid, or handle as if solid	11/23/09
W09GR01046	B22V42	TRENT @VOA-GPP	Solid, or handle as if solid	11/23/09

Test Acronym Description

Test Acronym	Description
@2008	ICP-200.8 MS All possible meta
@8015GPP	Alcohols, Glycols - 8015
@AB-32	Gross Alpha/Gross Beta (AB32)
@AEA-30	Plutonium Isotopics by AEA
@AEA-31	Americium by AEA
@AEA-32	Uranium Isotopics by AEA
@ALPHA	Gross Alpha on Alpha Plateau
@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
@SVOCGPP	SW-846 8270C Semi-Vols
@TC99-30	TC99 by Liquid Scin.
@TPHD-WA	NWTPH-D TPH Diesel Range (Wa)
@VOA-GPP	VOA Ground Water Protection
CN-02	Cyanide by Midi/Spectrophotom
CR+6	Hexavalent chromium
NH4-IC	Ammonia (N) by IC
PERSOLID	Percent Solids

COLLECTOR *Kava* *1/7/10*

COMPANY CONTACT TELEPHONE NO. PROJECT COORDINATOR

PRICE CODE BN DATA TURNAROUND

SAMPLING LOCATION

PROJECT DESIGNATION

AIR QUALITY  45 Days / 45 Days

C7514 (299-E24-25); 1-130

200-PW-2 OU Characterization Vadose Zone - Soil ("L" Well)

SAF NO. F10-025

ICE CHEST NO.

FIELD LOGBOOK NO. ACTUAL SAMPLE DEPTH

COA METHOD OF SHIPMENT

HNF-N-491-5 *P923* *252.74* *255.2*

302117ES10 GOVERNMENT VEHICLE

SHIPPED TO

OFFSITE PROPERTY NO.

BILL OF LADING/AIR BILL NO.

Waste Sampling & Characterization

N/A

N/A

MATRIX\* POSSIBLE SAMPLE HAZARDS/ REMARKS  
 A=Air  
 DL=Drum  
 Liquids  
 DS=Drum  
 Solids  
 L=Liquid  
 O=Oil  
 S=Soil  
 SE=Sediment  
 T=Tissue  
 V=Vegetation  
 W=Water  
 WI=Wipe  
 X=Other  
 Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1993)  
 SPECIAL HANDLING AND/OR STORAGE  
 RADIOACTIVE TIE TO: B22V57

PRESERVATION	Cool~4C	Cool~4C	None	Cool~4C	Cool~4C	Cool~4C	None	None
TYPE OF CONTAINER	aG/S	aG	G/P	G/P	G/P	G	Square Bottle - Poly	G/P
NO. OF CONTAINER(S)	3	1	1	1	1	1	1	1
VOLUME	40mL	250mL	120mL	120mL	120mL	60mL	500mL	120mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	SEE ITEM (3) IN SPECIAL INSTRUCTIONS	Chromium Hex 7196;	SEE ITEM (4) IN SPECIAL INSTRUCTIONS	Total Cyanide 9014;	SEE ITEM (5) IN SPECIAL INSTRUCTIONS	SEE ITEM (6) IN SPECIAL INSTRUCTIONS

SAMPLE NO. MATRIX\*  
 B22V43 SOIL

20091216

SAMPLE DATE	SAMPLE TIME	✓	✓	✓	✓	✓	✓	✓
11-23-09	1205							

CHAIN OF POSSESSION	DATE/TIME	SIGN/ PRINT NAMES	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
<i>Ed Kava</i>	11-23-09 1505	<i>MOKessor</i>	11-23-09 1505
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME

SPECIAL INSTRUCTIONS  
 SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS

LABORATORY SECTION RECEIVED BY  
 FINAL SAMPLE DISPOSITION DISPOSAL METHOD

TITLE DATE/TIME  
 DISPOSED BY DATE/TIME

ORIGINAL ICED

61 of 66

REVISION 1

COLLECTOR

*KAVUK*

COMPANY CONTACT

DYEKMAN, DL

TELEPHONE NO.

373-2530

PROJECT COORDINATOR

DYEKMAN, DL

PRICE CODE

8N

DATA TURNAROUND

45 Days / 45 Days

SAMPLING LOCATION

C7514 (299-E24-25); I-130

PROJECT DESIGNATION

200-PW-2 OU Characterization Vadose Zone - Soil ("L" Well)

SAF NO.

F10-025

AIR QUALITY

ICE CHEST NO.

FIELD LOGBOOK NO.

*HNF-N-491-5 P323*

ACTUAL SAMPLE DEPTH

*252.7 to 255.2*

COA

302117ES10

METHOD OF SHIPMENT

GOVERNMENT VEHICLE

SHIPPED TO

Waste Sampling & Characterization

OFFSITE PROPERTY NO.

N/A

BILL OF LADING/AIR BILL NO.

N/A

SPECIAL INSTRUCTIONS

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

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

(2) Semi-VOA - 8270B (TCL); Semi-VOA - 8270B (Add-On) (Tributyl phosphate, 3+4 Methylphenol (cresol, m+p)) TPH-DieselKerosene Range - WTPH-D (Total petroleum hydrocarbons - diesel range, Total petroleum hydrocarbons - kerosene range)

(3) ICP/MS - 200.8 (TAL) (Aluminum, Antimony, Barium, Chromium, Cobalt, Cadmium, Copper, Zinc, Manganese, Nickel, Vanadium, Silver) ICP/MS - 200.8 (Add-on) (Arsenic, Lead, Strontium, Thallium, Beryllium, Thorium, Uranium, Selenium) ICP Metals - 6010B (TAL) (Iron) ICP Metals - 6010B (Add-On) (Boron, Lithium) 200.8\_HG - ICPMS (Mercury)

(4) IC Anions - 300.0 (Phosphorus in phosphate, Chloride, Nitrogen in Nitrite, Fluoride, Nitrogen in Nitrate, Sulfate) Cations (IC) - 300.7 (Nitrogen in ammonium)

(5) Gamma Spectroscopy (Europium-155, Cesium-137, Europium-154, Europium-152, Cobalt-60) Gamma Spec - Add-on (Antimony-125)

(6) Gross Alpha (Gross alpha) Gross Beta (Gross beta) Americium-241; Technetium-99 (Technetium-99) Isotopic Uranium (Uranium-233/234, Uranium-235, Uranium-238) Isotopic Plutonium; Strontium-89,90 -- Total Sr;

 ORIGINAL

REVISION 1

COLLECTOR *KAVU*

COMPANY CONTACT  
DYEKMAN, DL

TELEPHONE NO.  
373-2530

PROJECT COORDINATOR  
DYEKMAN, DL

PRICE CODE 8N

DATA  
TURNAROUND  
45 Days / 45  
Days

SAMPLING LOCATION  
C7514 (299-E24-25); I-130

PROJECT DESIGNATION  
200-PW-2 OU Characterization Vadose Zone - Soil ("L" Well)

SAF NO.  
F10-025

AIR QUALITY

ICE CHEST NO.

FIELD LOGBOOK NO.  
HNF-N-491-5 Pg 23

ACTUAL SAMPLE DEPTH  
252.7 to 253.2

COA  
302117ES10

METHOD OF SHIPMENT  
GOVERNMENT VEHICLE

SHIPPED TO  
Waste Sampling & Characterization

OFFSITE PROPERTY NO.  
N/A

BILL OF LADING/AIR BILL NO.  
N/A

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

**POSSIBLE SAMPLE HAZARDS/ REMARKS**  
Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1993)

**SPECIAL HANDLING AND/OR STORAGE**  
RADIOACTIVE TIE TO: B22V57

PRESERVATION	Cool <-7C and >-20C	
	MEOH/Cool=4	C
TYPE OF CONTAINER	aGs*	aGs*
NO. OF CONTAINER(S)	5	3
VOLUME	40mL	40mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	SEE ITEM (2) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME
B22V41	SOIL	11-23-09	1205

RECEIVED BY	DATE/TIME	RECEIVED BY	DATE/TIME
<i>[Signature]</i>	11-23-09 1505	<i>[Signature]</i>	11-23-09 1505

**ICED**

CHAIN OF POSSESSION	SIGN/ PRINT NAMES	SPECIAL INSTRUCTIONS
RELINQUISHED BY/REMOVED FROM <i>[Signature]</i>	RECEIVED BY/STORED IN <i>[Signature]</i>	SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS
RELINQUISHED BY/REMOVED FROM	RECEIVED BY/STORED IN	
RELINQUISHED BY/REMOVED FROM	RECEIVED BY/STORED IN	
RELINQUISHED BY/REMOVED FROM	RECEIVED BY/STORED IN	
RELINQUISHED BY/REMOVED FROM	RECEIVED BY/STORED IN	
RELINQUISHED BY/REMOVED FROM	RECEIVED BY/STORED IN	

**ORIGINAL**

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

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REVISION 1

COLLECTOR

*Kause*

COMPANY CONTACT

DYEKMAN, DL

TELEPHONE NO.

373-2530

PROJECT COORDINATOR

DYEKMAN, DL

PRICE CODE

8N

DATA  
TURNAROUND

45 Days / 45  
Days

SAMPLING LOCATION

C7514 (299-E24-25); I-130

PROJECT DESIGNATION

200-PW-2 OU Characterization Vadose Zone - Soil ("L" Well)

SAF NO.

F10-025

AIR QUALITY

ICE CHEST NO.

FIELD LOGBOOK NO.

HNF-N-491-5 Pg 23

ACTUAL SAMPLE DEPTH

252.7 to 255.2

COA

302117ES10

METHOD OF SHIPMENT

GOVERNMENT VEHICLE

SHIPPED TO

Waste Sampling & Characterization

OFFSITE PROPERTY NO.

N/A

BILL OF LADING/AIR BILL NO.

N/A

SPECIAL INSTRUCTIONS

- \*\* The 200 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to 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 (LOW LEVEL); VOA - 5035/8260 (LOW LEVEL) - (Add-On) {Trichloromonofluoromethane, cis-1,2-Dichloroethylene, trans-1,2-Dichloroethylene}
- (2)VOA - 5035/8260 (HIGH LEVEL); VOA - 5035/8260 (HIGH LEVEL) - (Add-On) {Trichloromonofluoromethane, cis-1,2-Dichloroethylene, trans-1,2-Dichloroethylene}



ORIGINAL

REVISION 1

COLLECTOR



ORIGINAL

COMPANY CONTACT

DYEMAN, DL

TELEPHONE NO.

373-2530

PROJECT COORDINATOR

DYEMAN, DL

SAMPLING LOCATION

C7514 (299-E24-25); I-130

PROJECT DESIGNATION

200-PW-2 OU Characterization Vadose Zone - Soil ("L" Well)

SAF NO.

F10-025

PRICE CODE

8N

DATA TURNAROUND

45 Days / 45 Days

AIR QUALITY

ICE CHEST NO.

FIELD LOGBOOK NO.

HNF-N-491-5 Pg 27 252.7 to 255.7

ACTUAL SAMPLE DEPTH

COA

302117ES10

METHOD OF SHIPMENT

GOVERNMENT VEHICLE

SHIPPED TO

Waste Sampling & Characterization

OFFSITE PROPERTY NO.

N/A

BILL OF LADING/AIR BILL NO.

N/A

MATRIX\*

POSSIBLE SAMPLE HAZARDS/ REMARKS

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

Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1993)

SPECIAL HANDLING AND/OR STORAGE  
RADIOACTIVE TIE TO: B22V57

PRESERVATION

Cool~4C

TYPE OF CONTAINER

2Gs\*

NO. OF CONTAINER(S)

1

VOLUME

40mL

SAMPLE ANALYSIS

SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.

MATRIX\*

SAMPLE DATE

SAMPLE TIME

B22V42

SOIL

11-23-09

1205



ICED

CHAIN OF POSSESSION

SIGN/ PRINT NAMES

SPECIAL INSTRUCTIONS

RELINQUISHED BY/REMOVED FROM

DATE/TIME

RECEIVED BY/STORED IN

DATE/TIME

*Ed Kevin ...* 11-23-09

1505

*MDKessler* 11-23-09 1505

1505

RELINQUISHED BY/REMOVED FROM

DATE/TIME

RECEIVED BY/STORED IN

DATE/TIME

\*\* The 200 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to 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 (TCL); VOA - 5035/8260 - (Add-On)  
 (Trichloromonofluoromethane, cis-1,2-Dichloroethylene, trans-1,2-Dichloroethylene)

LABORATORY SECTION

RECEIVED BY

TITLE

DATE/TIME

FINAL SAMPLE DISPOSITION

DISPOSAL METHOD

DISPOSED BY

DATE/TIME

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REVISION 1

S&GRP Operating Procedure	GRP-FS-04-G-030
VOC Soil and Sediment Sampling	Rev. 0, Chg. F
	Page 11 of 11

Attachment 1 - Sample Record Sheet

**SAMPLE RECORD SHEET**

Location: C7514 200-PW-2 CU							
Sampler Initials and Date: Ed Kauer 11-27-09							
Sample Number	Sample Suffix <sup>1</sup>	Tare Weight provided (grams)	Tare Weight prior to sample <sup>2</sup> (grams)	Initial Weight <sup>3</sup> (grams)	Total Weight <sup>4</sup> (grams)	Soil Weight <sup>5</sup> (grams)	Methanol in sample bottle (ml)
B22V41	K	No Methanol	No Methanol	33.2	38.2	5	No Methanol
B22V41	L			32.3	37.5	5.2	
B22V41	M			32.6	37.4	4.8	
B22V41	N			32.4	37.3	4.9	
B22V41	P			32.1	37.6	5.5	
B22V41	W	37.7	37.7	38.1	42.9	4.8	10ml
B22V41	X	37.4	37.4	37.9	43.0	5.1	10ml
B22V41	Y	32.9	37.9	38.4	43.6	5.2	10ml
B22V42	*	38.2	38.2	38.6	38.6	0	10ml
<p><sup>1</sup>Sample suffix of K, L, M, N, and P relate to low-level concentration samples and will not have any preservation beyond freezing between -7°C and -20°C.  Sample suffix of W, X, and Y relate to methanol preservation for high-level samples.  Sample suffix of "*" relates to methanol blank. Cool these samples to 4°C ± 2°C.</p> <p><sup>2</sup>Tare weight prior to sample must be within +/- 0.2 grams of Vendors tare weight or bottle cannot be used. Weigh only the bottle, no labels, stickers or bags.</p> <p><sup>3</sup>Initial weight is to include all labels, stickers, bags, methanol (for vendor filled methanol samples with suffix W,X,Y and *) spin bars (for samples with suffix K,L,M,N and P) and anything else that will be associated with the bottle when it is weighed with the sample.</p> <p><sup>4</sup>Ensure that everything weighed for the empty bottle and no additional items (besides the sample) is weighed.</p> <p><sup>5</sup>Soil weight is the vial with sample minus Initial Weight.</p>							