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Rev. 1

Wayne 8/9/05

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# FLUOR

## Memorandum

To: S. J. Trent A0-21 Date: M8141-SLF-05-195  
April 26, 2005

From: S. L. Fitzgerald, Manager  
WSCF Analytical Chemistry

cc: w/Attachments w/o Attachments

T. F. Dale	S3-28	D. J. Hart	S3-30
H. K. Mezmarich	S3-30	M. A. Neely	S3-30
P. D. Mix	S3-30	H. S. Rich	S3-28
J. E. Trechter	S3-30	L. C. Swanson	E6-35
		File/LB	

Subject: CORRECTED NARRATIVES FOR SAMPLE DELIVERY GROUPS (SDGs) 20050506, 20050508 AND 20050520, 200-LW-1/LW-2 CHARACTERIZATION - SAF NUMBER F03-025

Reference: (1) Memos, SL Fitzgerald to SJ Trent, transmitting Sample Delivery Groups WSCF20050506, WSCF20050508 and WSCF20050520 dated April 7, 2005 (M8141-SLF-05-169, 170 and 171)

Narratives transmitted to you on April 7 (Reference 1) contained an erroneous comment about the pH. As a result, we are asking you to replace the original pages with the corrected attachments. If you have any questions, don't hesitate to call Pauline Mix (telephone 372-1458) for assistance. Sorry for the inconvenience.

SLF/grf

Attachments 3

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Wayne  
5/2/05

M8141-SLF-05-170

ATTACHMENT 1

**NARRATIVE**

Consisting of 9 pages  
Including cover page

<b>Sample Delivery Group</b>	<b>WSCF20050508</b>
<b>Sample Matrix</b>	<b>Soil</b>
<b>Sample Visual</b>	<b>N/A</b>
<b>SAF Number</b>	<b>F03-025</b>
<b>Data Deliverable</b>	<b>Summary Report</b>

### **Introduction**

One (1) 200-LW-1/LW-2 Characterization (Soil), 216-Z-7, 95' – 97.5', sample (B19408) was received at the WSCF Laboratory on March 3, 2005. The sample was analyzed for the analytes indicated on the three attached copy of the chains of custody (COC) form in accordance with the *Groundwater Remediation Program – Letter of Instruction*, referenced in the cover letter.

The narrative (Attachment 1) will address sample characteristics, analyses requested and general information in performance of the analytical methods. A Data Summary Report (Attachment 2) includes analytical results, a comment report detailing method abnormalities, tentatively identified peaks if applicable, method references, and Laboratory QC information. Copies of the chain of custody and sample receipt are included as Attachment 3.

### **Analytical Methodology for Requested Analyses**

#### **Inorganic**

- Ammonia by EPA Method 300.7. Analytical work was performed with no deviations to the approved method.
- Anions by EPA Method 300. Analytical work was performed with no deviations to the approved method.
- Cyanide by EPA Method 335.2. Analytical work was performed with no deviations to the approved method.
- ICP-AES Metals by EPA Method 6010B. Analytical work was performed with no deviations to the approved method.
- ICP-MS Metals by EPA Method 200.8. Analytical work was performed with no deviations to the approved method.
- Percent Solids by EPA Method 160.3. Analytical work was performed with no deviations to the approved method.
- pH by EPA Method 150.1. Analytical work was performed with no deviations to the approved method.

## **Organic**

- Alcohols/Glycols by EPA Method 8015. Analytical work was performed with no deviations to the approved method.
- PCBs by EPA Method 8082B. Analytical work was performed with no deviations to the approved method.
- Semi-VOA by EPA Method 8270C. Analytical work was performed with no deviations to the approved method.
- TPH Diesel Range by WDOE Method NWTPH-Dx. Analytical work was performed with no deviations to the approved method.
- TPH Gas Range by WDOE Method NWTPH-Gx. Analytical work was performed with no deviations to the approved method.
- VOA by EPA Method 8260B. Analytical work was performed with no deviations to the approved method.

## **Radiochemistry**

- All RadChem analyses (AEA (Americium, Neptunium, Plutonium and Uranium) and GEA) were run by internal WSCF procedures. Analytical work was performed with no deviations to the approved method.

## **Inorganic Comments**

**Ammonia** - The hold time for this analysis was met. A Blank, Duplicate, Laboratory Control Sample, Matrix Spike and Matrix Spike Duplicate were analyzed with each delivery group per GRP Letter of Instruction. See page 14 for QC details. Analytical Note:

- Duplicate, Matrix Spike and Matrix Spike Duplicate QC samples were analyzed on sample# B19402 (SDG# 20050329, SAF# F03-025).

All QC controls are within the established limits.

**Anions** - The hold times for Nitrite and Nitrate analysis were not met. A Blank, Duplicate, Laboratory Control Sample, Matrix Spike and Matrix Spiked Duplicate were analyzed with each delivery group per GRP Letter of Instruction. See pages 16 through 17 for QC details.

Analytical Notes:

- Preparation Date: 07-mar-2005.
- Duplicate, Matrix Spike and Matrix Spike Duplicate QC samples were analyzed on sample# B19402 (SDG# 20050329, SAF# F03-025).

- Chloride and Nitrate - Sample results were B-flagged; the analytes were less than the reportable detection limits, but greater than or equal to the method detection limits.
- Nitrate – The Duplicate Relative Percent Difference exceeded established laboratory limits. The RPD criterion does not apply to low level samples.

All other QC controls are within the established limits.

**Cyanide** - The hold time for this analysis was met. A Blank, Preparation Blank, Laboratory Control Sample, Matrix Spike and Matrix Spiked Duplicate were analyzed with each delivery group per GRP Letter of Instruction. See page 15 for QC details. Analytical Notes:

- Matrix Spike and Matrix Spike Duplicate QC samples were analyzed on sample# B1CDB6 (SDG# 20050445, SAF# F02-008).
- The Matrix Spike and Matrix Spike Duplicate QC recoveries were below established laboratory limits. The sample result was less than the detection limit and U-flagged.

All other QC controls are within the established limits.

**ICP-AES Metals (Bismuth only)** – The hold time for this analysis was met. A Blank, Laboratory Control Sample, Matrix Spike and Matrix Spiked Duplicate were analyzed with each delivery group per GRP Letter of Instruction. See page 18 for QC details. Analytical Notes:

- Preparation Date: 08-mar-2005.
- Matrix Spike and Matrix Spike Duplicate QC samples were analyzed on sample# B19409 (SDG# 20050506, SAF# F03-025).
- Boron: Although not included in the Data Summary Report (not requested per chain of custody), the sample result was less than the minimum detection limit (MDL = 2.2 ppm).

All QC controls are within the established limits.

**ICP-MS Metals** – The hold time for this analysis was met. A Laboratory Control Sample, Matrix Spike and Matrix Spiked Duplicate were analyzed with each delivery group per the GRP Letter of Instruction. See pages 19 through 21 for QC details. Analytical Notes:

- Preparation Date: 07-mar-2005.
- Silver - Matrix spike and Matrix Spike Duplicate recoveries were biased low; sample result was EU-flagged.
- Antimony – The Laboratory Control Sample recovery exceeded established laboratory limits, but was within manufacturer's specifications.
- Barium, Mercury and Uranium - The analytes detected in the associated preparation Blank samples were evaluated and there was no significant effect on the sample results.

All other QC controls are within the established limits.

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

**pH** - The hold time for this analysis was met. All laboratory QC controls are within the established limits. See page 22 for QC details. Analytical Note:

- Duplicate QC sample was analyzed on sample# B19409 (SDG# 20050506, SAF# F03-025).

#### Organic Comments

- Sample results are moisture corrected and reported on dry weight basis.

**Alcohol/Glycols** - The hold time for this analysis were met. A Blank, Duplicate, Laboratory Control Sample, Matrix Spike and Matrix Spiked Duplicate were analyzed with each delivery group per GRP Letter of Instruction. See page 26 for QC details. Analytical Note:

- Preparation Date: 07-mar-2005.
- Duplicate, Matrix Spike and Matrix Spike Duplicate QC samples were analyzed on sample# B19409 (SDG# 20050506, SAF# F03-025).

All QC controls are within the established limits.

**PCBs** – The hold time for this analysis was met. A Blank, Laboratory Control Sample, Matrix Spike and Matrix Spiked Duplicate were analyzed with each delivery group per the GRP Letter of Instruction. See pages 27 through 28 for QC details. Analytical Notes:

- Preparation Date: 07-mar-2005.
- Matrix Spike and Matrix Spike Duplicate QC samples were analyzed on sample# B19410 (SDG# 200500520, SAF# F03-025).

All QC controls are within the established limits.

**Semi-VOA** – The hold time for this analysis was met. A Blank, Laboratory Control Sample, Matrix Spike and Matrix Spiked Duplicate were analyzed with each delivery group per the GRP Letter of Instruction. See pages 29 through 32 for QC details. Analytical Notes:

- Preparation Date: 07-mar-2005.
- Matrix Spike and Matrix Spike Duplicate QC samples were analyzed on sample# B19410 (SDG# 200500520, SAF# F03-025).

All QC controls are within the established limits.

**TPHD-WA** - The hold time for this analysis was met. A Blank, Laboratory Control Sample, Matrix Spike and Matrix Spiked Duplicate were analyzed with each delivery group per GRP Letter of Instruction. See page 33 for QC details. Analytical Notes:

- Preparation Date: 07-mar-2005.
- Matrix Spike and Matrix Spike Duplicate QC samples were analyzed on sample# B19410 (SDG# 200500520, SAF# F03-025).

All QC controls are within the established limits.

**TPHG-WA** - The hold time for this analysis was met. A Blank, Laboratory Control Sample, Duplicate, Matrix Spike and Matrix Spiked Duplicate were analyzed with each delivery group per GRP Letter of Instruction. See page 34 for QC details. Analytical Note:

- Preparation Date: 07-mar-2005.

All QC controls are within the established limits.

**VOA** – The hold time for this analysis was met. A Blank, Laboratory Control Sample, Matrix Spike and Matrix Spiked Duplicate were analyzed with each delivery group per the GRP Letter of Instruction. See pages 35 through 37 for QC details. Analytical Note:

All QC controls are within the established limits.

### **Radiochemistry Comments**

**RadChem** – There are no hold times associated with WSCF's radiochemical methods. A Blank, Laboratory Control Sample and Duplicate were analyzed with each delivery group per the GRP Letter of Instruction. See pages 39 through 43 for QC details. Analytical Notes:

- Duplicate QC samples were analyzed on sample# B19409 (SDG# 20050506, SAF# F03-025).
- Eu-155 (GEA) - Duplicate Relative Percent Difference was above established limits. The RPD criterion does not apply to low level sample activity.
- Neptunium-237 –Laboratory control sample (LCS) recovery was below established limits and may be attributed to a slight excess of ascorbic acid which occurs due to low iron levels in the matrix and causes retention of the Neptunium during separation. The solid matrix sample spike recoveries however, were within established laboratory limits. Sample result is considered to be an estimate. Radiochemical Matrix Spike Recovery Data are summarized below.

<b>Radiochemical Matrix Spike Recovery</b>			
Sample Number	Lab Sample ID	Isotope	Matrix Spike Recovery (Percent)
<b><u>Neptunium-237</u></b>			
LCS DUPLICATE		Np-237	40.8
B19408	W050000835	Np-237	98.0
B19409	W050000833	Np-237	84.0
DUPLICATE	W050000833	Np-237	88.9

- Uranium-234, Uranium-235 and Plutonium-238 - Additional Batch QC Data are summarized below:

<b>Additional Batch QC Data (Results)</b>				
Sample Number	Lab Sample ID	Isotope	QC	
			Results (pCi/gram)	RPD %
<b><u>Uranium-234/ Uranium-235</u></b>				
BLANK		U-234	3.443E-02	
BLANK		U-235	4.176E-03	
B19409	W050000833	U-234	1.542E-01	
DUPLICATE	W050000833	U-234	1.786E-01	14.7
B19409	W050000833	U-235	2.131E-02	
DUPLICATE	W050000833	U-235	9.848E-03	73.6
<b><u>Plutonium-238</u></b>				
BLANK		Pu-238	2.508E-02	
B19409	W050000833	Pu-238	4.319E-01	

<b>Additional Batch QC Data (Results)</b>				
Sample Number	Lab Sample ID	Isotope	QC	
			Results (pCi/gram)	RPD %
DUPLICATE	W050000833	Pu-238	4.150E-01	4.0

- Plutonium-242, Americium-243 and Uranium-232 – Radiochemical Tracer Recovery Data are summarized below:

<b>Radiochemical Tracer Recovery</b>			
Sample Number	Lab Sample ID	Isotope	Tracer Recovery (Percent)
<b><u>Plutonium-242</u></b>			
BLANK		Pu-242	75.1
LCS		Pu-242	81.2
B19408	W050000835	Pu-242	86.3
B19409	W050000833	Pu-242	52.5
DUPLICATE	W050000833	Pu-242	86.5
<b><u>Americium-243</u></b>			
BLANK		Am-243	68.5
LCS		Am-243	82.2
B19408	W050000835	Am-243	73.4
B19409	W050000833	Am-243	93.1
DUPLICATE	W050000833	Am-243	80.2
<b><u>Uranium-232</u></b>			
BLANK		U-232	93.1

Radiochemical Tracer Recovery			
Sample Number	Lab Sample ID	Isotope	Tracer Recovery (Percent)
LCS		U-232	78.2
B19408	W050000835	U-232	75.6
B19409	W050000833	U-232	79.2
DUPLICATE	W050000833	U-232	92.9

This Summary Report is in compliance with the SOW, both technically and for completeness. Release of the data contained in this hard copy report has been authorized by the WSCF Laboratory Analytical Manager and Client Services, as verified by the following signature.



Pauline D. Mix  
WSCF Client Services

Abbreviations

Hg - mercury  
 IC - ion chromatography  
 ICP - inductively coupled plasma  
 ICP/AES - ICP/atomic emission spectroscopy  
 ICP/MS - ICP/mass spectrometry  
 Total U - total uranium  
 AT/TB - total alpha/total beta  
 AEA - Alpha Energy Analysis  
 WTPH-G - Total Hydrocarbons-Gasoline

Am - americium  
 Cm - curium  
 Pu - plutonium  
 Np - neptunium  
 GEA - gamma energy analysis  
 H3 - Tritium  
 Sr - Strontium 89, 90  
 WTPH-D - Total Hydrocarbons-Diesel  
 TSS - Total Suspended Solids

M8141-SLF-05-170

ATTACHMENT 2

**ANALYTICAL RESULTS**

Consisting of 41 pages  
Including cover page

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

for  
Groundwater Remediation Program

Richland, WA 99354

Attention: Steve Trent

Analytical:  APPROX 4.7.05  
Client Services:  PO Box 4151005

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

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Contract#: FH-EIS-2003-MEM-001  
Report#: WSCF20050508  
Report Date: 5-apr-2005  
Report WGPP/ver. 1.1  
Groundwater Remediation Program

# WSCF ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent  
**Project:** F03-025: F03-025

**Group #:** WSCF20050508

Sample #	Client ID	CAS #	Test Performed	Matrix	WSCF Method	RQ	Result	Unit	DF	MDL	Analyze Sample	Receive
W050000835	B19408	57-12-5	Cyanide	SOIL	LA-695-402	U	< 0.200	mg/kg	1.00	0.20	03/07/05	02/22/05 03/03/05
W050000835	B19408	NH4-N	Nitrogen in ammonium	SOIL	LA-503-401		0.231	mg/kg	50.00	0.20	03/04/05	02/22/05 03/03/05
W050000835	B19408	TS	Total solids	SOIL	LA-519-412		96.5	%	1.00	0.0	03/08/05	02/22/05 03/03/05
W050000835	B19408	PH	pH Measurement	SOIL	LA-212-411		9.00	pH	1.00	0.010	03/07/05	02/22/05 03/03/05
W050000835	B19408	16984-48-8	Fluoride	SOIL	LA-533-410	U	< 1.13	mg/kg	49.00	1.1	03/07/05	02/22/05 03/03/05
W050000835	B19408	16887-00-6	Chloride	SOIL	LA-533-410	B	3.62	mg/kg	49.00	2.5	03/07/05	02/22/05 03/03/05
W050000835	B19408	NO2-N	Nitrogen in Nitrite	SOIL	LA-533-410	U	< 0.931	mg/kg	49.00	0.93	03/07/05	02/22/05 03/03/05
W050000835	B19408	NO3-N	Nitrogen in Nitrate	SOIL	LA-533-410	B	3.12	mg/kg	49.00	0.64	03/07/05	02/22/05 03/03/05
W050000835	B19408	PO4-P	Phosphate (P) by IC	SOIL	LA-533-410	U	< 2.65	mg/kg	49.00	2.6	03/07/05	02/22/05 03/03/05
W050000835	B19408	14808-79-8	Sulfate	SOIL	LA-533-410	U	< 4.90	mg/kg	49.00	4.9	03/07/05	02/22/05 03/03/05
W050000835	B19408	7440-69-9	Bismuth	SOIL	LA-505-411	U	< 2.16	mg/kg	98.33	2.2	03/08/05	02/22/05 03/03/05
W050000835	B19408	7440-02-0	Nickel	SOIL	LA-505-412		7.68	mg/kg	9.83	4.9	03/08/05	02/22/05 03/03/05
W050000835	B19408	7440-22-4	Silver	SOIL	LA-505-412	EU	< 1.97	mg/kg	9.83	2.0	03/08/05	02/22/05 03/03/05
W050000835	B19408	7440-38-0	Antimony	SOIL	LA-505-412	U	< 4.92	mg/kg	9.83	4.9	03/08/05	02/22/05 03/03/05
W050000835	B19408	7440-39-3	Barium	SOIL	LA-505-412		38.8	mg/kg	9.83	2.0	03/08/05	02/22/05 03/03/05
W050000835	B19408	7440-41-7	Beryllium	SOIL	LA-505-412	U	< 2.95	mg/kg	9.83	3.0	03/08/05	02/22/05 03/03/05
W050000835	B19408	7440-43-9	Cadmium	SOIL	LA-505-412	U	< 0.983	mg/kg	9.83	0.98	03/08/05	02/22/05 03/03/05
W050000835	B19408	7440-47-3	Chromium	SOIL	LA-505-412		7.60	mg/kg	9.83	3.0	03/08/05	02/22/05 03/03/05
W050000835	B19408	7440-50-8	Copper	SOIL	LA-505-412		9.60	mg/kg	9.83	4.9	03/08/05	02/22/05 03/03/05
W050000835	B19408	7439-92-1	Lead	SOIL	LA-505-412	U	< 11.8	mg/kg	9.83	12	03/08/05	02/22/05 03/03/05
W050000835	B19408	7439-97-6	Mercury	SOIL	LA-505-412	U	< 0.983	mg/kg	9.83	0.98	03/08/05	02/22/05 03/03/05
W050000835	B19408	7440-61-1	Uranium	SOIL	LA-505-412	U	< 0.983	mg/kg	9.83	0.98	03/08/05	02/22/05 03/03/05
W050000835	B19408	7440-38-2	Arsenic	SOIL	LA-505-412	U	< 2.95	mg/kg	9.83	3.0	03/08/05	02/22/05 03/03/05
W050000835	B19408	7782-49-2	Selenium	SOIL	LA-505-412	U	< 2.95	mg/kg	9.83	3.0	03/08/05	02/22/05 03/03/05

**MDL = Minimum Detection Limit**    B - The analyte < the RDL but > = the IDL/MDL (inorganic)  
**RQ = Result Qualifier**                    U - Analyzed for but not detected above limiting criteria.

E - Analyte is an estimate, has potentially larger errors

**DF = Dilution Factor**

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

Report WGPP/ver. 1.1

Groundwater Remediation Program

# WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20050508  
 Matrix: SOLID  
 Test: Ammonia (N) by IC

SAF Number: F03-025  
 Sample Date: 02/08/05  
 Receive Date: 02/08/05

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
<b>Lab ID: W050000473</b>									
<b>BATCH QC ASSOCIATED WITH SAMPLE</b>									
DUP	Ammonia (N) by IC	7664-41-7	2.40e-01	1.681	RPD	03/04/05	0.000	20.000	
MS	Ammonia (N) by IC	7664-41-7	3.60e-01	87.379	% Recov	03/04/05	75.000	125.000	
MSD	Ammonia (N) by IC	7664-41-7	3.42e-01	83.010	% Recov	03/04/05	75.000	125.000	
<b>BATCH QC</b>									
BLANK	Ammonia (N) by IC	7664-41-7	<4.00e-3	n/a	mg/L	03/04/05	0.000	30.000	U
BLANK	Ammonia (N) by IC	7664-41-7	<4.00e-3	n/a	mg/L	03/04/05	0.000	30.000	U
LCS	Ammonia (N) by IC	7664-41-7	7.88e+01	95.631	% Recov	03/04/05	80.000	120.000	

# WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20050508  
 Matrix: SOLID  
 Test: Cyanide by Midi/Spectrophotom

SAF Number: F03-025  
 Sample Date: 02/24/05  
 Receive Date: 02/24/05

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
<b>Lab ID: W050000710</b>									
<b>BATCH QC ASSOCIATED WITH SAMPLE</b>									
MS	Cyanide by Midi/Spectrophotom	57-12-5	41.7	41.700	% Recov	03/07/05	75.000	125.000	*
MSD	Cyanide by Midi/Spectrophotom	57-12-5	73.0	73.000	% Recov	03/07/05	75.000	125.000	*
SPK-RPD	Cyanide by Midi/Spectrophotom	57-12-5	73.000	54.577	RPD	03/07/05	0.000	20.000	*
<b>BATCH QC</b>									
BLANK	Cyanide by Midi/Spectrophotom	57-12-5	<4	n/a	ug/L	03/07/05	-4.000	4.000	U
BLNK-PREP	Cyanide by Midi/Spectrophotom	57-12-5	<0.2	n/a	ug/L	03/07/05	-4.000	4.000	U
LCS	Cyanide by Midi/Spectrophotom	57-12-5	96.1	96.100	% Recov	03/07/05	85.000	115.000	

# WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20050508  
 Matrix: SOLID  
 Test: Anions by Ion Chromatography

SAF Number: F03-025  
 Sample Date: 02/08/05  
 Receive Date: 02/08/05

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
<b>Lab ID: W050000473</b>									
<b>BATCH QC ASSOCIATED WITH SAMPLE</b>									
DUP	Chloride	16887-00-6	<2.60e0	n/a	RPD	03/07/05	0.000	20.000	U
DUP	Fluoride	16984-48-8	2.11e+00	n/a	RPD	03/07/05	0.000	20.000	
DUP	Nitrogen in Nitrite	NO2-N	<9.50e-1	n/a	RPD	03/07/05	0.000	20.000	U
DUP	Nitrogen in Nitrate	NO3-N	3.38e+00	31.904	RPD	03/07/05	0.000	20.000	
DUP	Phosphate (P) by IC	PO4-P	<2.70e0	n/a	RPD	03/07/05	0.000	20.000	U
DUP	Sulfate	14808-79-8	<5.00e0	n/a	RPD	03/07/05	0.000	20.000	U
MS	Chloride	16887-00-6	9.90e-01	99.000	% Recov	03/07/05	75.000	125.000	
MS	Fluoride	16984-48-8	4.49e-01	90.891	% Recov	03/07/05	75.000	125.000	
MS	Nitrogen in Nitrite	NO2-N	4.60e-01	92.000	% Recov	03/07/05	75.000	125.000	
MS	Nitrogen in Nitrate	NO3-N	4.28e-01	94.900	% Recov	03/07/05	75.000	125.000	
MS	Phosphate (P) by IC	PO4-P	7.63e-01	78.741	% Recov	03/07/05	75.000	125.000	
MS	Sulfate	14808-79-8	1.97e+00	98.500	% Recov	03/07/05	75.000	125.000	
MSD	Chloride	16887-00-6	9.89e-01	98.900	% Recov	03/07/05	75.000	125.000	
MSD	Fluoride	16984-48-8	4.43e-01	89.676	% Recov	03/07/05	75.000	125.000	
MSD	Nitrogen in Nitrite	NO2-N	4.93e-01	98.600	% Recov	03/07/05	75.000	125.000	
MSD	Nitrogen in Nitrate	NO3-N	4.55e-01	100.887	% Recov	03/07/05	75.000	125.000	
MSD	Phosphate (P) by IC	PO4-P	8.34e-01	119.828	% Recov	03/07/05	75.000	125.000	
MSD	Sulfate	14808-79-8	1.97e+00	98.500	% Recov	03/07/05	75.000	125.000	
<b>BATCH QC</b>									
BLANK	Chloride	16887-00-6	<5.20e-2	n/a	mg/L	03/07/05	0.000	300.000	U
BLANK	Chloride	16887-00-6	<5.20e-2	n/a	mg/L	03/07/05	0.000	300.000	U
BLANK	Fluoride	16984-48-8	<2.30e-2	n/a	mg/L	03/07/05	0.000	300.000	U
BLANK	Fluoride	16984-48-8	<2.30e-2	n/a	mg/L	03/07/05	0.000	300.000	U
BLANK	Nitrogen in Nitrite	NO2-N	<1.90e-2	n/a	mg/L	03/07/05	0.000	300.000	U
BLANK	Nitrogen in Nitrite	NO2-N	<1.90e-2	n/a	mg/L	03/07/05	0.000	300.000	U

# WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20050508  
 Matrix: SOLID  
 Test: Anions by Ion Chromatography

SAF Number: F03-025  
 Sample Date:  
 Receive Date:

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
BLANK	Nitrogen in Nitrate	NO3-N	<1.30e-2	n/a	mg/L	03/07/05	0.000	300.000	U
BLANK	Nitrogen in Nitrate	NO3-N	<1.30e-2	n/a	mg/L	03/07/05	0.000	300.000	U
BLANK	Phosphate (P) by IC	PO4-P	<5.40e-2	n/a	mg/L	03/07/05	0.000	300.000	U
BLANK	Phosphate (P) by IC	PO4-P	<5.40e-2	n/a	mg/L	03/07/05	0.000	300.000	U
BLANK	Sulfate	14808-79-8	<1.00e-1	n/a	mg/L	03/07/05	0.000	300.000	U
BLANK	Sulfate	14808-79-8	<1.00e-1	n/a	mg/L	03/07/05	0.000	300.000	U
LCS	Chloride	18887-00-6	2.02e+02	101.000	% Recov	03/07/05	80.000	120.000	
LCS	Fluoride	18984-48-8	1.00e+02	101.317	% Recov	03/07/05	80.000	120.000	
LCS	Nitrogen in Nitrite	NO2-N	9.81e+01	98.100	% Recov	03/07/05	80.000	120.000	
LCS	Nitrogen in Nitrate	NO3-N	8.24e+01	91.454	% Recov	03/07/05	80.000	120.000	
LCS	Phosphate (P) by IC	PO4-P	1.79e+02	92.363	% Recov	03/07/05	80.000	120.000	
LCS	Sulfate	14808-79-8	3.71e+02	92.982	% Recov	03/07/05	80.000	120.000	

# WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20050508  
 Matrix: SOLID  
 Test: ICP Metals Analysis, Grd H20 P

SAF Number: F03-025  
 Sample Date: 03/03/05  
 Receive Date: 03/03/05

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
<b>Lab ID: W050000833</b>									
<b>BATCH QC ASSOCIATED WITH SAMPLE</b>									
MS	Bismuth	7440-69-9	172	86.432	% Recov	03/08/05	75.000	125.000	
MSD	Bismuth	7440-69-9	172	88.660	% Recov	03/08/05	75.000	125.000	
SPK-RPD	Bismuth	7440-69-9	88.660	2.545	RPD	03/08/05	0.000	20.000	
<b>BATCH QC</b>									
BLANK	Bismuth	7440-69-9	<2.2e-2	n/a	ug/L	03/08/05			U
LCS	Bismuth	7440-69-9	189	94.975	% Recov	03/08/05	80.000	120.000	

# WSCF ANALYTICAL LABORATORY QC REPORT

SAF Number: F03-025  
 Sample Date: 02/22/05  
 Receive Date: 03/03/05

SDG Number: WSCF20050508  
 Matrix: SOLID  
 Test: ICP-2008 MS All possible metal

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
MS	Silver	7440-22-4	304.7	76.175	% Recov	03/08/05	70.000	130.000	
MS	Arsenic	7440-38-2	402.1	100.525	% Recov	03/08/05	70.000	130.000	
MS	Barium	7440-39-3	383.45	96.882	% Recov	03/08/05	70.000	130.000	
MS	Beryllium	7440-41-7	380.3	97.575	% Recov	03/08/05	70.000	130.000	
MS	Cadmium	7440-43-9	402.9	100.725	% Recov	03/08/05	70.000	130.000	
MS	Chromium	7440-47-3	391.3	97.825	% Recov	03/08/05	70.000	130.000	
MS	Copper	7440-50-8	379.4	94.850	% Recov	03/08/05	70.000	130.000	
MS	Mercury	7439-97-6	21.94	109.700	% Recov	03/08/05	70.000	130.000	
MS	Nickel	7440-02-0	377.02	94.255	% Recov	03/08/05	70.000	130.000	
MS	Lead	7439-92-1	389.4	97.350	% Recov	03/08/05	70.000	130.000	
MS	Antimony	7440-36-0	430.6	107.650	% Recov	03/08/05	70.000	130.000	
MS	Selenium	7782-49-2	426	106.500	% Recov	03/08/05	70.000	130.000	
MS	Uranium	7440-61-1	407.3	101.825	% Recov	03/08/05	70.000	130.000	
MSD	Silver	7440-22-4	287.1	66.775	% Recov	03/08/05	70.000	130.000	
MSD	Arsenic	7440-38-2	385.1	96.275	% Recov	03/08/05	70.000	130.000	
MSD	Barium	7440-39-3	356.15	89.037	% Recov	03/08/05	70.000	130.000	
MSD	Beryllium	7440-41-7	372.6	93.150	% Recov	03/08/05	70.000	130.000	
MSD	Cadmium	7440-43-9	389.8	97.450	% Recov	03/08/05	70.000	130.000	
MSD	Chromium	7440-47-3	380.7	95.175	% Recov	03/08/05	70.000	130.000	
MSD	Copper	7440-50-8	374.9	93.725	% Recov	03/08/05	70.000	130.000	
MSD	Mercury	7439-97-6	21.21	108.050	% Recov	03/08/05	70.000	130.000	
MSD	Nickel	7440-02-0	358.62	89.655	% Recov	03/08/05	70.000	130.000	
MSD	Lead	7439-92-1	371.2	92.800	% Recov	03/08/05	70.000	130.000	
MSD	Antimony	7440-36-0	416.5	104.125	% Recov	03/08/05	70.000	130.000	
MSD	Selenium	7782-49-2	407.2	101.800	% Recov	03/08/05	70.000	130.000	
MSD	Uranium	7440-61-1	383.2	95.800	% Recov	03/08/05	70.000	130.000	

Lab ID: W050000835  
 BATCH QC ASSOCIATED WITH SAMPLE

# WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20050508  
 Matrix: SOLID  
 Test: ICP-2008 MS All possible metal

SAF Number: F03-025  
 Sample Date: 02/22/05  
 Receive Date: 03/03/05

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
SPK-RPD	Silver	7440-22-4	66.775	13.151	RPD	03/08/05	0.000	20.000	
SPK-RPD	Arsenic	7440-38-2	96.275	4.319	RPD	03/08/05	0.000	20.000	
SPK-RPD	Barium	7440-39-3	89.037	7.382	RPD	03/08/05	0.000	20.000	
SPK-RPD	Beryllium	7440-41-7	93.150	4.640	RPD	03/08/05	0.000	20.000	
SPK-RPD	Cadmium	7440-43-9	97.450	3.305	RPD	03/08/05	0.000	20.000	
SPK-RPD	Chromium	7440-47-3	95.175	2.746	RPD	03/08/05	0.000	20.000	
SPK-RPD	Copper	7440-50-8	93.725	1.193	RPD	03/08/05	0.000	20.000	
SPK-RPD	Mercury	7439-97-6	106.050	3.384	RPD	03/08/05	0.000	20.000	
SPK-RPD	Nickel	7440-02-0	89.655	5.002	RPD	03/08/05	0.000	20.000	
SPK-RPD	Lead	7439-92-1	92.800	4.786	RPD	03/08/05	0.000	20.000	
SPK-RPD	Antimony	7440-36-0	104.125	3.329	RPD	03/08/05	0.000	20.000	
SPK-RPD	Selenium	7782-49-2	101.800	4.513	RPD	03/08/05	0.000	20.000	
SPK-RPD	Uranium	7440-61-1	95.800	6.097	RPD	03/08/05	0.000	20.000	

## BATCH QC

BLANK	Silver	7440-22-4	0.2	0.200	ug/L	03/08/05			U
BLANK	Arsenic	7440-38-2	<0.3	n/a	ug/L	03/08/05			U
BLANK	Barium	7440-39-3	0.31	0.310	ug/L	03/08/05			U
BLANK	Beryllium	7440-41-7	<0.3	n/a	ug/L	03/08/05			U
BLANK	Cadmium	7440-43-9	<0.1	n/a	ug/L	03/08/05			U
BLANK	Chromium	7440-47-3	<0.3	n/a	ug/L	03/08/05			U
BLANK	Copper	7440-50-8	<0.5	n/a	ug/L	03/08/05			U
BLANK	Mercury	7439-97-6	0.12	0.120	ug/L	03/08/05			U
BLANK	Nickel	7440-02-0	<0.5	n/a	ug/L	03/08/05			U
BLANK	Lead	7439-92-1	<1.2	n/a	ug/L	03/08/05			U
BLANK	Antimony	7440-36-0	<0.5	n/a	ug/L	03/08/05			U
BLANK	Selenium	7782-49-2	<0.3	n/a	ug/L	03/08/05			U
BLANK	Uranium	7440-61-1	0.11	0.110	ug/L	03/08/05			U
LCS	Silver	7440-22-4	148.9	114.538	% Recov	03/08/05	110.000	170.000	
LCS	Arsenic	7440-38-2	179	111.180	% Recov	03/08/05	82.000	142.000	

# WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20050508  
 Matrix: SOLID  
 Test: ICP-2008 MS All possible metal

SAF Number: F03-025  
 Sample Date:  
 Receive Date:

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
LCS	Barium	7440-39-3	289.5	106.944	% Recov	03/08/05	79.000	123.000	
LCS	Beryllium	7440-41-7	104.4	110.593	% Recov	03/08/05	82.000	128.000	
LCS	Cadmium	7440-43-9	145.8	113.906	% Recov	03/08/05	88.000	127.000	
LCS	Chromium	7440-47-3	71.79	103.295	% Recov	03/08/05	50.000	126.000	
LCS	Copper	7440-50-8	180.3	108.311	% Recov	03/08/05	61.000	134.000	
LCS	Mercury	7439-97-6	17.96	106.272	% Recov	03/08/05	75.000	114.000	
LCS	Nickel	7440-02-0	155.9	106.054	% Recov	03/08/05	84.000	125.000	
LCS	Lead	7439-92-1	156.8	110.423	% Recov	03/08/05	87.000	120.000	
LCS	Antimony	7440-38-0	131.1	215.271	% Recov	03/08/05	61.000	135.000	
LCS	Selenium	7782-49-2	78.26	121.900	% Recov	03/08/05	83.000	145.000	
LCS	Uranium	7440-61-1	377.9	94.475	% Recov	03/08/05	89.000	107.000	

# WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20050508  
 Matrix: SOLID  
 Test: pH Soil and Waste Measurement

SAF Number: F03-025  
 Sample Date: 03/03/05  
 Receive Date: 03/03/05

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
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Lab ID: W050000833  
 BATCH QC ASSOCIATED WITH SAMPLE

DUP	pH Soil and Waste Measurement	PH	8.664	0.800	RPD	03/07/05	0.000	3.000	
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# WSCF ANALYTICAL RESULTS REPORT

Attention: Steve Trent  
Project: F03-025: F03-025

Group #: WSCF20050508

Sample #	Client ID	CAS #	Test Performed	Matrix	WSCF Method	RQ	Result	Unit	DF	MDL	Analyze Sample	Receive
W050000835	B19408	107-21-1	Ethylene glycol	SOIL	Organics	U	< 5.00e+03	ug/kg	1.00	5.0e+03	03/07/05	03/03/05
W050000835	B19408	TPHGASOLINE	Total Pet. Hydrocarbons Gas	SOIL	LA-523-443	U	< 250	ug/kg	1.00	2.5e+02	03/07/05	03/03/05
W050000835	B19408	12674-11-2	Aroclor-1016	SOIL	LA-523-427	U	< 51.0	ug/kg	1.00	51	03/15/05	03/03/05
W050000835	B19408	11104-28-2	Aroclor-1221	SOIL	LA-523-427	U	< 100	ug/kg	1.00	1.0e+02	03/15/05	03/03/05
W050000835	B19408	11141-16-5	Aroclor-1232	SOIL	LA-523-427	U	< 51.0	ug/kg	1.00	51	03/15/05	03/03/05
W050000835	B19408	53469-21-9	Aroclor-1242	SOIL	LA-523-427	U	< 51.0	ug/kg	1.00	51	03/15/05	03/03/05
W050000835	B19408	12672-29-6	Aroclor-1248	SOIL	LA-523-427	U	< 51.0	ug/kg	1.00	51	03/15/05	03/03/05
W050000835	B19408	11097-69-1	Aroclor-1254	SOIL	LA-523-427	U	< 51.0	ug/kg	1.00	51	03/15/05	03/03/05
W050000835	B19408	11096-82-5	Aroclor-1260	SOIL	LA-523-427	U	< 51.0	ug/kg	1.00	51	03/15/05	03/03/05
W050000835	B19408	37324-23-5	Aroclor-1262	SOIL	LA-523-427	U	< 51.0	ug/kg	1.00	51	03/15/05	03/03/05
W050000835	B19408	11100-14-4	Aroclor-1268	SOIL	LA-523-427	U	< 51.0	ug/kg	1.00	51	03/15/05	03/03/05
W050000835	B19408	100-02-7	4-Nitrophenol	SOIL	LA-523-456	U	< 89.0	ug/kg	1.00	89	03/14/05	03/03/05
W050000835	B19408	106-46-7	1,4-Dichlorobenzene	SOIL	LA-523-456	U	< 140	ug/kg	1.00	1.4e+02	03/14/05	03/03/05
W050000835	B19408	108-95-2	Phenol	SOIL	LA-523-456	U	< 71.0	ug/kg	1.00	71	03/14/05	03/03/05
W050000835	B19408	120-82-1	1,2,4-Trichlorobenzene	SOIL	LA-523-456	U	< 94.0	ug/kg	1.00	94	03/14/05	03/03/05
W050000835	B19408	121-14-2	2,4-Dinitrotoluene	SOIL	LA-523-456	U	< 56.0	ug/kg	1.00	56	03/14/05	03/03/05
W050000835	B19408	129-00-0	Pyrene	SOIL	LA-523-456	U	< 81.0	ug/kg	1.00	81	03/14/05	03/03/05
W050000835	B19408	59-50-7	4-Chloro-3-methylphenol	SOIL	LA-523-456	U	< 48.0	ug/kg	1.00	48	03/14/05	03/03/05
W050000835	B19408	621-64-7	N-Nitrosodi-n-dipropylamine	SOIL	LA-523-456	U	< 77.0	ug/kg	1.00	77	03/14/05	03/03/05
W050000835	B19408	83-32-9	Acenaphthene	SOIL	LA-523-456	U	< 71.0	ug/kg	1.00	71	03/14/05	03/03/05
W050000835	B19408	87-86-5	Pentachlorophenol	SOIL	LA-523-456	U	< 75.0	ug/kg	1.00	75	03/14/05	03/03/05
W050000835	B19408	95-57-8	2-Chlorophenol	SOIL	LA-523-456	U	< 79.0	ug/kg	1.00	79	03/14/05	03/03/05
W050000835	B19408	95-48-7	2-Methylphenol (cresol, o-)	SOIL	LA-523-456	U	< 84.0	ug/kg	1.00	84	03/14/05	03/03/05
W050000835	B19408	65794-96-9	3 & 4 Methylphenol Total	SOIL	LA-523-456	U	< 110	ug/kg	1.00	1.1e+02	03/14/05	03/03/05
W050000835	B19408	126-73-8	Tributyl phosphate	SOIL	LA-523-456	U	< 73.0	ug/kg	1.00	73	03/14/05	03/03/05
W050000835	B19408	75-35-4	1,1-Dichloroethene	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	03/07/05	03/03/05

E - Analyte is an estimate, has potentially larger errors

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

U - Analyzed for but not detected above limiting criteria.

MDL = Minimum Detection Limit

RQ = Result Qualifier

DF = Dilution Factor

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

Report WGPP/ver. 1.1

Groundwater Remediation Program

# WSCF ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent  
**Project:** F03-025: F03-025

**Group #:** WSCF20050508

Sample #	Client ID	CAS #	Test Performed	Matrix	WSCF Method	RQ	Result	Unit	DF	MDL	Analyze Sample	Receive
W050000835	B19408	79-01-6	Trichloroethane	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	03/07/05	02/22/05 03/03/05
W050000835	B19408	71-43-2	Benzene	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	03/07/05	02/22/05 03/03/05
W050000835	B19408	108-88-3	Toluene	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	03/07/05	02/22/05 03/03/05
W050000835	B19408	108-90-7	Chlorobenzene	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	03/07/05	02/22/05 03/03/05
W050000835	B19408	75-34-3	1,1-Dichloroethane	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	03/07/05	02/22/05 03/03/05
W050000835	B19408	100-41-4	Ethylbenzene	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	03/07/05	02/22/05 03/03/05
W050000835	B19408	100-42-5	Styrene	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	03/07/05	02/22/05 03/03/05
W050000835	B19408	10061-01-5	cis-1,3-Dichloropropene	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	03/07/05	02/22/05 03/03/05
W050000835	B19408	10061-02-6	trans-1,3-Dichloropropene	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	03/07/05	02/22/05 03/03/05
W050000835	B19408	107-06-2	1,2-Dichloroethane	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	03/07/05	02/22/05 03/03/05
W050000835	B19408	108-10-1	4-Methyl-2-Pentanone	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	03/07/05	02/22/05 03/03/05
W050000835	B19408	124-48-1	Dibromochloromethane	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	03/07/05	02/22/05 03/03/05
W050000835	B19408	127-18-4	Tetrachloroethane	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	03/07/05	02/22/05 03/03/05
W050000835	B19408	1330-20-7	Xylenes (total)	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	03/07/05	02/22/05 03/03/05
W050000835	B19408	540-59-0	1,2-Dichloroethene(Total)	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	03/07/05	02/22/05 03/03/05
W050000835	B19408	56-23-5	Carbon tetrachloride	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	03/07/05	02/22/05 03/03/05
W050000835	B19408	591-78-6	2-Hexanone	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	03/07/05	02/22/05 03/03/05
W050000835	B19408	67-64-1	Acetone	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	03/07/05	02/22/05 03/03/05
W050000835	B19408	67-66-3	Chloroform	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	03/07/05	02/22/05 03/03/05
W050000835	B19408	71-55-6	1,1,1-Trichloroethane	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	03/07/05	02/22/05 03/03/05
W050000835	B19408	74-83-8	Bromomethane	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	03/07/05	02/22/05 03/03/05
W050000835	B19408	74-87-3	Chloromethane	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	03/07/05	02/22/05 03/03/05
W050000835	B19408	75-00-3	Chloroethane	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	03/07/05	02/22/05 03/03/05
W050000835	B19408	75-01-4	Vinyl chloride	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	03/07/05	02/22/05 03/03/05
W050000835	B19408	75-09-2	Methylenechloride	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	03/07/05	02/22/05 03/03/05
W050000835	B19408	75-15-0	Carbon disulfide	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	03/07/05	02/22/05 03/03/05
W050000835	B19408	75-25-2	Bromoform	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	03/07/05	02/22/05 03/03/05

**MDL = Minimum Detection Limit**    B - The analyte < the RDL but > = the IDL/MDL (inorganic)  
**RQ = Result Qualifier**                U - Analyzed for but not detected above limiting criteria.  
E - Analyte is an estimate, has potentially larger errors

**DF = Dilution Factor**

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

Report WGPP/ver. 1.1

Groundwater Remediation Program

# WSCF ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent      **Group #:** WSCF20050508  
**Project:** F03-025: F03-025

Sample #	Client ID	CAS #	Test Performed	Matrix	WSCF Method	RQ	Result	Unit	DF	MDL	Analyze	Sample Receive
W050000835	B19408	75-27-4	Bromodichloromethane	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	03/07/05	03/03/05
W050000835	B19408	78-87-5	1,2-Dichloropropane	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	03/07/05	03/03/05
W050000835	B19408	78-93-3	2-Butanone	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	03/07/05	03/03/05
W050000835	B19408	79-00-5	1,1,2-Trichloroethane	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	03/07/05	03/03/05
W050000835	B19408	79-34-5	1,1,2,2-Tetrachloroethane	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	03/07/05	03/03/05
W050000835	B19408	71-36-3	1-Butanol	SOIL	LA-523-455	U	< 41.0	ug/kg	1.00	41	03/07/05	03/03/05
W050000835	B19408	104-51-8	n-Butylbenzene	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	03/07/05	03/03/05
W050000835	B19408	TPHDIESEL	Total Pet. Hydrocarbons Diesel	SOIL	NWTPH	U	< 3.90e+03	ug/kg	1.00	3.9e+03	03/16/05	03/03/05
W050000835	B19408	TPHKEROSENE	Kerosene	SOIL	NWTPH	U	< 3.90e+03	ug/kg	1.00	3.9e+03	03/16/05	03/03/05

**MDL = Minimum Detection Limit**      B - The analyte < the RDL but > = the IDL/MDL (inorganic)  
**RQ = Result Qualifier**                    U - Analyzed for but not detected above limiting criteria.

**DF = Dilution Factor**  
 \* - Indicates results that have NOT been validated;      + - Indicates more than six qualifier symbols  
**Report WGPP/ver. 1.1**  
**Groundwater Remediation Program**

# WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20050508  
 Matrix: SOLID  
 Test: Alcohols, Glycols - 8015

SAF Number: F03-025  
 Sample Date: 03/03/05  
 Receive Date: 03/03/05

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
<b>Lab ID: W050000833</b>									
<b>BATCH QC ASSOCIATED WITH SAMPLE</b>									
DUP	2-Bromoethanol	540-51-2	12200	20.588	ppd	03/07/05	0.000	25.000	
DUP	Ethylene glycol	107-21-1	<5000	n/a	RPD	03/07/05	0.000	25.000	U
M/S	2-Bromoethanol	540-51-2	12000	80.000	% Recov	03/07/05	70.000	125.000	
M/S	Ethylene glycol	107-21-1	12000	80.000	% Recov	03/07/05	75.000	125.000	
MSD	2-Bromoethanol	540-51-2	12000	80.000	% Recov	03/07/05	70.000	125.000	
MSD	Ethylene glycol	107-21-1	12000	80.000	% Recov	03/07/05	75.000	125.000	
SPK-RPD	2-Bromoethanol	540-51-2	80.000	0.000	RPD	03/07/05	0.000	20.000	
SPK-RPD	Ethylene glycol	107-21-1	80.000	0.000	RPD	03/07/05	0.000	20.000	
<b>BATCH QC</b>									
BLANK	2-Bromoethanol	540-51-2	13400	1.072	ug/Kg	03/07/05	0.000	10.000	
BLANK	Ethylene glycol	107-21-1	<5000	n/a	ug/Kg	03/07/05	0.000	5.000	U
LCS	2-Bromoethanol	540-51-2	14000	112.000	% Recov	03/07/05	70.000	130.000	
LCS	Ethylene glycol	107-21-1	12800	100.800	% Recov	03/07/05	70.000	130.000	

# WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20050508  
 Matrix: SOLID  
 Test: PCBs complete list

SAF Number: F03-025  
 Sample Date: 02/22/05  
 Receive Date: 03/03/05

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
<b>Lab ID: W050000835</b>									
<b>BATCH QC ASSOCIATED WITH SAMPLE</b>									
SURR	Decachlorobiphenyl	2051-24-3	1062.8	104.000	% Recov	03/15/05	50.000	150.000	
SURR	Tetrachloro-m-xylene	877-09-8	1034.6	101.000	% Recov	03/15/05	50.000	150.000	
<b>Lab ID: W050000860</b>									
<b>BATCH QC ASSOCIATED WITH SAMPLE</b>									
MS	Aroclor-1260	11096-82-5	1080.7	102.000	% Recov	03/15/05	75.000	125.000	
MS	Decachlorobiphenyl	2051-24-3	1153.9	109.000	% Recov	03/15/05	50.000	150.000	
MS	Tetrachloro-m-xylene	877-09-8	1074.1	102.000	% Recov	03/15/05	50.000	150.000	
MSD	Aroclor-1260	11096-82-5	1061.4	100.000	% Recov	03/15/05	75.000	125.000	
MSD	Decachlorobiphenyl	2051-24-3	1151.1	109.000	% Recov	03/15/05	50.000	150.000	
MSD	Tetrachloro-m-xylene	877-09-8	1058.0	100.000	% Recov	03/15/05	50.000	150.000	
SPK-RPD	Aroclor-1260	11096-82-5	100.000	1.980	RPD	03/15/05	0.000	25.000	
SPK-RPD	Decachlorobiphenyl	2051-24-3	109.000	0.000	RPD	03/15/05	0.000	20.000	
SPK-RPD	Tetrachloro-m-xylene	877-09-8	100.000	1.980	RPD	03/15/05	0.000	20.000	
<b>BATCH QC</b>									
BLANK	Aroclor-1016	12674-11-2	< 54	n/a	UGKG	03/15/05			U
BLANK	Aroclor-1221	11104-28-2	< 110	n/a	ug/Kg	03/15/05			U
BLANK	Aroclor-1232	11141-16-5	< 54	n/a	ug/Kg	03/15/05			U
BLANK	Aroclor-1242	53469-21-9	< 54	n/a	ug/Kg	03/15/05			U
BLANK	Aroclor-1248	12672-29-6	< 54	n/a	ug/Kg	03/15/05			U
BLANK	Aroclor-1254	11097-69-1	< 54	n/a	ug/Kg	03/15/05			U
BLANK	Aroclor-1260	11096-82-5	< 54	n/a	ug/Kg	03/15/05			U
BLANK	Aroclor-1262	37324-23-5	< 54	n/a	ug/Kg	03/15/05			U
BLANK	Aroclor-1268	11100-14-4	< 54	n/a	ug/Kg	03/15/05			U
BLANK	Decachlorobiphenyl	2051-24-3	1087.2	98.700	% Recov	03/15/05	50.000	150.000	

# WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20050508  
 Matrix: SOLID  
 Test: PCBs complete list

SAF Number: F03-025  
 Sample Date:  
 Receive Date:

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
BLANK	Tetrachloro-m-xylene	877-09-8	1075.8	99.500	% Recov	03/15/05	50.000	150.000	
LCS	Aroclor-1260	11096-82-5	983.69	98.400	% Recov	03/15/05	70.000	130.000	
LCS	Decachlorobiphenyl	2051-24-3	1046.1	105.000	% Recov	03/15/05	50.000	150.000	
LCS	Tetrachloro-m-xylene	877-09-8	984.11	98.400	% Recov	03/15/05	50.000	150.000	

# WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20050508  
 Matrix: SOLID  
 Test: SW-846 8270B Semi-Vols

SAF Number: F03-025  
 Sample Date: 02/22/05  
 Receive Date: 03/03/05

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
<b>Lab ID: W050000835</b>									
<b>BATCH QC ASSOCIATED WITH SAMPLE</b>									
SURR	2-Fluorophenol	367-12-4	1181.4	85.800	% Recov	03/14/05	42.000	105.000	
SURR	2-Fluorobiphenyl	321-60-8	1013.2	73.600	% Recov	03/14/05	56.000	122.000	
SURR	Nitrobenzene-d6	4165-60-0	1036.6	75.200	% Recov	03/14/05	64.000	111.000	
SURR	Phenol-d5	4165-62-2	1077.4	78.200	% Recov	03/14/05	54.000	120.000	
SURR	2,4,6-Tribromophenol	118-79-6	934.72	67.900	% Recov	03/14/05	24.000	122.000	
SURR	Terphenyl-d14 (7CI)	98904-43-9	988.09	71.700	% Recov	03/14/05	35.000	150.000	
<b>Lab ID: W050000860</b>									
<b>BATCH QC ASSOCIATED WITH SAMPLE</b>									
MS	1,2,4-Trichlorobenzene	120-82-1	1089.9	75.800	% Recov	03/14/05	46.000	107.000	
MS	1,4-Dichlorobenzene	106-46-7	1060.6	73.800	% Recov	03/14/05	30.000	96.000	
MS	2,4-Dinitrotoluene	121-14-2	944.11	65.700	% Recov	03/14/05	59.000	106.000	
MS	2-Fluorophenol	367-12-4	1192.5	82.900	% Recov	03/14/05	42.000	105.000	
MS	Acenaphthene	83-32-9	1051.6	73.100	% Recov	03/14/05	61.000	116.000	
MS	4-Chloro-3-methylphenol	59-50-7	1658.4	76.900	% Recov	03/14/05	61.000	106.000	
MS	2-Chlorophenol	95-57-8	1613.8	74.800	% Recov	03/14/05	66.000	106.000	
MS	N-Nitrosodi-n-dipropylamine	621-64-7	1095.9	76.200	% Recov	03/14/05	71.000	114.000	
MS	2-Fluorobiphenyl	321-60-8	1008.8	70.200	% Recov	03/14/05	56.000	122.000	
MS	Phenol	106-95-2	1714.1	79.500	% Recov	03/14/05	42.000	111.000	
MS	Nitrobenzene-d5	4165-60-0	1004.1	69.800	% Recov	03/14/05	64.000	111.000	
MS	4-Nitrophenol	100-02-7	1522.6	70.600	% Recov	03/14/05	32.000	118.000	
MS	Pentachlorophenol	87-86-5	1492.7	69.200	% Recov	03/14/05	62.000	114.000	
MS	Phenol-d5	4165-62-2	1094.8	76.100	% Recov	03/14/05	54.000	120.000	
MS	Pyrene	129-00-0	1004.7	69.900	% Recov	03/14/05	66.000	118.000	
MS	2,4,6-Tribromophenol	118-79-6	1022.1	71.100	% Recov	03/14/05	24.000	122.000	
MS	Terphenyl-d14 (7CI)	98904-43-9	1000.9	69.600	% Recov	03/14/05	35.000	150.000	

# WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20050508  
 Matrix: SOLID  
 Test: SW-846 8270B Semi-Vols

SAF Number: F03-025  
 Sample Date: 03/04/05  
 Receive Date: 03/04/05

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
MSD	1,2,4-Trichlorobenzene	120-82-1	1120.5	78.200	% Recov	03/14/05	46.000	107.000	
MSD	1,4-Dichlorobenzene	106-46-7	1083.6	75.600	% Recov	03/14/05	30.000	96.000	
MSD	2,4-Dinitrotoluene	121-14-2	964.16	67.300	% Recov	03/14/05	59.000	106.000	
MSD	2-Fluorophenol	367-12-4	1204.6	84.100	% Recov	03/14/05	42.000	105.000	
MSD	Acenaphthene	83-32-9	1083.2	75.600	% Recov	03/14/05	61.000	116.000	
MSD	4-Chloro-3-methylphenol	59-50-7	1720.0	80.000	% Recov	03/14/05	61.000	106.000	
MSD	2-Chlorophenol	95-57-8	1683.7	77.400	% Recov	03/14/05	68.000	106.000	
MSD	N-Nitrosodi-n-propylamine	621-64-7	1133.4	79.100	% Recov	03/14/05	71.000	114.000	
MSD	2-Fluorobiphenyl	321-60-8	1021.2	71.300	% Recov	03/14/05	56.000	122.000	
MSD	Phenol	108-95-2	1748.4	81.300	% Recov	03/14/05	42.000	111.000	
MSD	Nitrobenzene-d5	4165-60-0	1027.6	71.700	% Recov	03/14/05	64.000	111.000	
MSD	4-Nitrophenol	100-02-7	1571.2	73.100	% Recov	03/14/05	32.000	118.000	
MSD	Pentachlorophenol	87-86-5	1524.1	70.900	% Recov	03/14/05	62.000	114.000	
MSD	Phenol-d5	4165-62-2	1094.1	76.300	% Recov	03/14/05	54.000	120.000	
MSD	Pyrene	129-00-0	1052.2	73.400	% Recov	03/14/05	68.000	118.000	
MSD	2,4,6-Tribromophenol	118-79-6	1025.4	71.600	% Recov	03/14/05	24.000	122.000	
MSD	Terphenyl-d14 (7CI)	98904-43-9	1029.3	71.800	% Recov	03/14/05	35.000	150.000	
SPK-RPD	1,2,4-Trichlorobenzene	120-82-1	78.200	3.117	RPD	03/14/05	0.000	20.000	
SPK-RPD	1,4-Dichlorobenzene	106-46-7	75.600	2.410	RPD	03/14/05	0.000	20.000	
SPK-RPD	2,4-Dinitrotoluene	121-14-2	67.300	2.406	RPD	03/14/05	0.000	20.000	
SPK-RPD	2-Fluorophenol	367-12-4	84.100	1.437	RPD	03/14/05	0.000	20.000	
SPK-RPD	Acenaphthene	83-32-9	75.600	3.362	RPD	03/14/05	0.000	20.000	
SPK-RPD	4-Chloro-3-methylphenol	59-50-7	80.000	3.952	RPD	03/14/05	0.000	20.000	
SPK-RPD	2-Chlorophenol	95-57-8	77.400	3.417	RPD	03/14/05	0.000	20.000	
SPK-RPD	N-Nitrosodi-n-propylamine	621-64-7	79.100	3.735	RPD	03/14/05	0.000	20.000	
SPK-RPD	2-Fluorobiphenyl	321-60-8	71.300	1.555	RPD	03/14/05	0.000	20.000	
SPK-RPD	Phenol	108-95-2	81.300	2.239	RPD	03/14/05	0.000	20.000	
SPK-RPD	Nitrobenzene-d5	4165-60-0	71.700	2.686	RPD	03/14/05	0.000	20.000	
SPK-RPD	4-Nitrophenol	100-02-7	73.100	3.479	RPD	03/14/05	0.000	20.000	
SPK-RPD	Pentachlorophenol	87-86-5	70.900	2.427	RPD	03/14/05	0.000	20.000	

# WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20050508  
 Matrix: SOLID  
 Test: SW-846 8270B Semi-Vols

SAF Number: F03-025  
 Sample Date: 03/04/05  
 Receive Date: 03/04/05

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
SPK-RPD	Phenol-d5	4165-82-2	76.300	0.262	RPD	03/14/05	0.000	20.000	
SPK-RPD	Pyrene	129-00-0	73.400	4.885	RPD	03/14/05	0.000	20.000	
SPK-RPD	2,4,6-Tribromophenol	118-79-6	71.600	0.701	RPD	03/14/05	0.000	20.000	
SPK-RPD	Terphenyl-d14 (7CI)	98904-43-9	71.800	3.112	RPD	03/14/05	0.000	20.000	
<b>BATCH QC</b>									
BLANK	1,2,4-Trichlorobenzene	120-82-1	< 91	n/a	ug/Kg	03/14/05			U
BLANK	1,4-Dichlorobenzene	106-46-7	< 130	n/a	ug/Kg	03/14/05			U
BLANK	2,4-Dinitrotoluene	121-14-2	< 84	n/a	ug/Kg	03/14/05			U
BLANK	2-Fluorophenol	367-12-4	1036.5	77.700	% Recov	03/14/05	42.000	105.000	U
BLANK	2-Methylphenol (cresol, o-)	95-48-7	< 81	n/a	ug/Kg	03/14/05			U
BLANK	3 & 4 Methylphenol Total	65794-98-9	< 100	n/a	ug/Kg	03/14/05			U
BLANK	Acenaphthene	83-32-9	< 69	n/a	ug/Kg	03/14/05			U
BLANK	4-Chloro-3-methylphenol	59-50-7	< 47	n/a	ug/Kg	03/14/05			U
BLANK	2-Chlorophenol	95-57-8	< 76	n/a	ug/Kg	03/14/05			U
BLANK	N-Nitrosodi-n-dipropylamine	621-84-7	< 75	n/a	ug/Kg	03/14/05			U
BLANK	2-Fluorobiphenyl	321-60-8	944.84	70.900	% Recov	03/14/05	56.000	122.000	U
BLANK	Phenol	108-95-2	< 69	n/a	ug/Kg	03/14/05			U
BLANK	Nitrobenzene-d5	4165-60-0	966.78	72.500	% Recov	03/14/05	64.000	111.000	U
BLANK	4-Nitrophenol	100-02-7	< 86	n/a	ug/Kg	03/14/05			U
BLANK	Pentachlorophenol	87-88-5	< 73	n/a	ug/Kg	03/14/05			U
BLANK	Phenol-d5	4165-62-2	989.79	74.200	% Recov	03/14/05	54.000	120.000	U
BLANK	Pyrene	129-00-0	< 78	n/a	ug/Kg	03/14/05			U
BLANK	Tributyl phosphate	126-73-8	< 71	n/a	ug/Kg	03/14/05			U
BLANK	2,4,6-Tribromophenol	118-79-6	827.84	62.100	% Recov	03/14/05	24.000	122.000	U
BLANK	Terphenyl-d14 (7CI)	98904-43-9	904.05	67.800	% Recov	03/14/05	35.000	150.000	U
LCS	1,2,4-Trichlorobenzene	120-82-1	995.98	75.000	% Recov	03/14/05	46.000	107.000	U
LCS	1,4-Dichlorobenzene	106-46-7	981.35	73.600	% Recov	03/14/05	42.000	111.000	U
LCS	2,4-Dinitrotoluene	121-14-2	908.93	65.200	% Recov	03/14/05	59.000	106.000	U
LCS	2-Fluorophenol	367-12-4	1110.0	83.300	% Recov	03/14/05	50.000	110.000	U

# WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20050508  
 Matrix: SOLID  
 Test: SW-846 8270B Semi-Vols

SAF Number: F03-025  
 Sample Date:  
 Receive Date:

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
LCS	Acenaphthene	83-32-9	964.09	72.300	% Recov	03/14/05	61.000	116.000	
LCS	4-Chloro-3-methylphenol	59-50-7	1486.0	73.300	% Recov	03/14/05	61.000	106.000	
LCS	2-Chlorophenol	95-57-8	1465.3	73.300	% Recov	03/14/05	66.000	106.000	
LCS	N-Nitrosodi-n-propylamine	621-64-7	1006.4	75.500	% Recov	03/14/05	71.000	114.000	
LCS	2-Fluorobiphenyl	321-60-8	953.67	71.500	% Recov	03/14/05	58.000	109.000	
LCS	Phenol	108-95-2	1542.9	77.100	% Recov	03/14/05	67.000	105.000	
LCS	Nitrobenzene-d5	4165-60-0	952.83	71.500	% Recov	03/14/05	60.000	118.000	
LCS	4-Nitrophenol	100-02-7	1230.7	61.500	% Recov	03/14/05	32.000	118.000	
LCS	Pentachlorophenol	87-86-5	1319.0	66.000	% Recov	03/14/05	62.000	114.000	
LCS	Phenol d5	4165-62-2	1005.5	75.400	% Recov	03/14/05	59.000	116.000	
LCS	Pyrene	129-00-0	930.24	69.800	% Recov	03/14/05	66.000	118.000	
LCS	2,4,6-Tribromophenol	118-79-6	890.95	66.800	% Recov	03/14/05	60.000	120.000	
LCS	Terphenyl-d14 (7Cl)	98904-43-9	929.02	69.700	% Recov	03/14/05	60.000	120.000	

# WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20050508  
 Matrix: SOLID  
 Test: WTPH-D TPH Diesel Range (Wa)

SAF Number: F03-025  
 Sample Date: 02/22/05  
 Receive Date: 03/03/05

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
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**Lab ID: W050000835**  
**BATCH QC ASSOCIATED WITH SAMPLE**

SURR	ortho-Terphenyl	Surr	84-15-1	25087	97.000	% Recov	03/16/05	70.000	130.000
MS	ortho-Terphenyl	Surr	84-15-1	26944	100.000	% Recov	03/16/05	70.000	130.000
MS	Total Pet. Hydrocarbons Diesel		TPHDIESEL	139800	104.000	% Recov	03/16/05	75.000	125.000
MSD	ortho-Terphenyl	Surr	84-15-1	27090	101.000	% Recov	03/16/05	70.000	130.000
MSD	Total Pet. Hydrocarbons Diesel		TPHDIESEL	142280	106.000	% Recov	03/16/05	75.000	125.000
SPK-RPD	ortho-Terphenyl	Surr	84-15-1	101.000	0.995	RPD	03/16/05	0.000	20.000
SPK-RPD	Total Pet. Hydrocarbons Diesel		TPHDIESEL	106.000	1.905	RPD	03/16/05	0.000	20.000

**BATCH QC**

BLANK	Kerosene		TPHKEROSENE	< 3800	n/a	ug/Kg	03/16/05		U
BLANK	ortho-Terphenyl	Surr	84-15-1	24120	96.500	% Recov	03/16/05	70.000	130.000
BLANK	Total Pet. Hydrocarbons Diesel		TPHDIESEL	< 3800	n/a	ug/Kg	03/16/05		U
LCS	Kerosene		TPHKEROSENE	114580	91.700	% Recov	03/16/05	70.000	130.000
LCS	ortho-Terphenyl	Surr	84-15-1	24960	99.800	% Recov	03/16/05	70.000	130.000

# WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20050508  
 Matrix: SOLID  
 Test: NWTPH-GX TPH Gasoline Range

SAF Number: F03-025  
 Sample Date: 02/22/05  
 Receive Date: 03/03/05

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
<b>Lab ID: W050000835</b>									
<b>BATCH QC ASSOCIATED WITH SAMPLE</b>									
DUP	Total Pet. Hydrocarbons Gas	TPHGASOLINE	<250	n/a	RPD	03/07/05	0.000	20.000	U
MS	Total Pet. Hydrocarbons Gas	TPHGASOLINE	4000	111.111	% Recov	03/07/05	50.000	150.000	
MSD	Total Pet. Hydrocarbons Gas	TPHGASOLINE	3600	100.000	% Recov	03/07/05	50.000	150.000	
SPK-RPD	Total Pet. Hydrocarbons Gas	TPHGASOLINE	100.000	10.526	RPD	03/07/05	0.000	20.000	
<b>BATCH QC</b>									
BLANK	Total Pet. Hydrocarbons Gas	TPHGASOLINE	<250	n/a	mg/L	03/07/05	0.000	300.000	U
LCS	Total Pet. Hydrocarbons Gas	TPHGASOLINE	3800	110.145	% Recov	03/07/05	85.000	115.000	

# WSCF ANALYTICAL LABORATORY QC REPORT

SAF Number: F03-025  
 Sample Date: 02/22/05  
 Receive Date: 03/03/05

SDG Number: WSCF20050508  
 Matrix: SOLID  
 Test: VOA Ground Water Protection

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
MS	1,1-Dichloroethene	75-35-4	52.120	101.000	% Recov	03/07/05	63.000	117.000	
MS	Benzene	71-43-2	51.540	99.500	% Recov	03/07/05	75.000	129.000	
MS	4-Bromofluorobenzene	460-00-4	102.80	99.200	% Recov	03/07/05	84.000	116.000	
MS	Chlorobenzene	108-90-7	53.220	103.000	% Recov	03/07/05	79.000	119.000	
MS	1,2-Dichloroethane-d4	17060-07-0	107.50	104.000	% Recov	03/07/05	82.000	136.000	
MS	Toluene-d8	2037-28-5	106.30	103.000	% Recov	03/07/05	89.000	119.000	
MS	Toluene	108-88-3	53.910	104.000	% Recov	03/07/05	78.000	120.000	
MS	Trichloroethene	79-01-6	51.360	99.100	% Recov	03/07/05	73.000	123.000	
MSD	1,1-Dichloroethane	75-35-4	54.600	105.000	% Recov	03/07/05	63.000	117.000	
MSD	Benzene	71-43-2	54.010	104.000	% Recov	03/07/05	75.000	129.000	
MSD	4-Bromofluorobenzene	460-00-4	102.00	98.400	% Recov	03/07/05	84.000	116.000	
MSD	Chlorobenzene	108-90-7	54.480	105.000	% Recov	03/07/05	79.000	119.000	
MSD	1,2-Dichloroethane-d4	17060-07-0	109.70	106.000	% Recov	03/07/05	82.000	136.000	
MSD	Toluene-d8	2037-28-5	107.00	103.000	% Recov	03/07/05	89.000	118.000	
MSD	Toluene	108-88-3	54.540	105.000	% Recov	03/07/05	78.000	120.000	
MSD	Trichloroethene	79-01-6	52.060	100.000	% Recov	03/07/05	73.000	123.000	
SPK-RPD	1,1-Dichloroethene	75-35-4	105.000	3.883	RPD	03/07/05	0.000	25.000	
SPK-RPD	Benzene	71-43-2	104.000	4.423	RPD	03/07/05	0.000	25.000	
SPK-RPD	4-Bromofluorobenzene	460-00-4	98.400	0.810	RPD	03/07/05	0.000	25.000	
SPK-RPD	Chlorobenzene	108-90-7	105.000	1.923	RPD	03/07/05	0.000	25.000	
SPK-RPD	1,2-Dichloroethane-d4	17060-07-0	106.000	1.905	RPD	03/07/05	0.000	25.000	
SPK-RPD	Toluene-d8	2037-28-5	103.000	0.000	RPD	03/07/05	0.000	25.000	
SPK-RPD	Toluene	108-88-3	105.000	0.957	RPD	03/07/05	0.000	25.000	
SPK-RPD	Trichloroethene	79-01-6	100.000	0.904	RPD	03/07/05	0.000	25.000	
SURR	4-Bromofluorobenzene	460-00-4	102.50	98.900	% Recov	03/07/05	71.000	125.000	
SURR	1,2-Dichloroethane-d4	17060-07-0	107.30	104.000	% Recov	03/07/05	80.000	134.000	

Lab ID: W050000835  
 BATCH QC ASSOCIATED WITH SAMPLE

# WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20050508  
 Matrix: SOLID  
 Test: VOA Ground Water Protection

SAF Number: F03-025  
 Sample Date: 02/22/05  
 Receive Date: 03/03/05

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
SURR	Toluene-d8	2037-26-5	108.20	104.000	% Recov	03/07/05	80.000	126.000	
<b>BATCH QC</b>									
BLANK	1,1-Dichloroethane	75-34-3	< 2.0	n/a	ug/Kg	03/07/05			U
BLANK	1,1,1-Trichloroethane	71-55-6	< 2.0	n/a	ug/Kg	03/07/05			U
BLANK	1,1,2-Trichloroethane	79-00-5	< 2.0	n/a	ug/Kg	03/07/05			U
BLANK	1,1,2,2-Tetrachloroethane	79-34-5	< 2.0	n/a	ug/Kg	03/07/05			U
BLANK	1,1-Dichloroethene	75-35-4	< 2.0	n/a	ug/Kg	03/07/05			U
BLANK	1,2-Dichloroethane	107-06-2	< 2.0	n/a	ug/Kg	03/07/05			U
BLANK	1,2-Dichloroethene(Total)	540-59-0	< 2.0	n/a	ug/Kg	03/07/05			U
BLANK	1-Butanol	71-36-3	< 40	n/a	ug/Kg	03/07/05			U
BLANK	2-Hexanone	591-78-6	< 2.0	n/a	ug/Kg	03/07/05			U
BLANK	4-Methyl-2-Pentanone	108-10-1	< 2.0	n/a	ug/Kg	03/07/05			U
BLANK	Acetone	67-64-1	< 2.0	n/a	ug/Kg	03/07/05			U
BLANK	Bromodichloromethane	75-27-4	< 2.0	n/a	ug/Kg	03/07/05			U
BLANK	Benzene	71-43-2	< 2.0	n/a	ug/Kg	03/07/05			U
BLANK	4-Bromofluorobenzene	460-00-4	100.60	101.000	% Recov	03/07/05	71.000	125.000	U
BLANK	Bromoform	75-25-2	< 2.0	n/a	ug/Kg	03/07/05			U
BLANK	n-Butylbenzene	104-51-8	< 2.0	n/a	ug/Kg	03/07/05			U
BLANK	Carbon disulfide	75-15-0	< 2.0	n/a	ug/Kg	03/07/05			U
BLANK	Carbon tetrachloride	56-23-5	< 2.0	n/a	ug/Kg	03/07/05			U
BLANK	Dibromochloromethane	124-48-1	< 2.0	n/a	ug/Kg	03/07/05			U
BLANK	Chloroform	67-68-3	< 2.0	n/a	ug/Kg	03/07/05			U
BLANK	Chlorobenzene	108-90-7	< 2.0	n/a	ug/Kg	03/07/05			U
BLANK	cis-1,3-Dichloropropene	10061-01-5	< 2.0	n/a	ug/Kg	03/07/05			U
BLANK	Chloroethane	75-00-3	< 2.0	n/a	ug/Kg	03/07/05			U
BLANK	1,2-Dichloroethane-d4	17060-07-0	97.580	97.600	% Recov	03/07/05	80.000	134.000	U
BLANK	1,2-Dichloropropane	78-87-5	< 2.0	n/a	ug/Kg	03/07/05			U
BLANK	Ethylbenzene	100-41-4	< 2.0	n/a	ug/Kg	03/07/05			U
BLANK	Bromomethane	74-83-9	< 2.0	n/a	ug/Kg	03/07/05			U

# WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20050508  
 Matrix: SOLID  
 Test: VOA Ground Water Protection

SAF Number: F03-025  
 Sample Date:  
 Receive Date:

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
BLANK	Chloromethane	74-87-3	< 2.0	n/a	ug/Kg	03/07/05			U
BLANK	2-Butanone	78-93-3	< 2.0	n/a	ug/Kg	03/07/05			U
BLANK	Methylenechloride	75-09-2	< 2.0	n/a	ug/Kg	03/07/05			U
BLANK	Tetrachloroethene	127-18-4	< 2.0	n/a	ug/Kg	03/07/05			U
BLANK	Styrene	100-42-5	< 2.0	n/a	ug/Kg	03/07/05			U
BLANK	Xylenes (total)	1330-20-7	< 2.0	n/a	ug/Kg	03/07/05			U
BLANK	Toluene-d8	2037-28-5	102.30	102.000	% Recov	03/07/05	80.000	128.000	U
BLANK	Toluene	108-88-3	< 2.0	n/a	ug/Kg	03/07/05			U
BLANK	trans-1,3-Dichloropropene	10061-02-6	< 2.0	n/a	ug/Kg	03/07/05			U
BLANK	Trichloroethene	79-01-6	< 2.0	n/a	ug/Kg	03/07/05			U
BLANK	Vinyl chloride	75-01-4	< 2.0	n/a	ug/Kg	03/07/05			U
LCS	1,1-Dichloroethene	75-35-4	49.380	98.800	% Recov	03/07/05	70.000	130.000	U
LCS	Benzene	71-43-2	51.620	103.000	% Recov	03/07/05	70.000	130.000	U
LCS	4-Bromofluorobenzene	460-00-4	99.600	99.600	% Recov	03/07/05	71.000	125.000	U
LCS	Chlorobenzene	108-90-7	51.710	103.000	% Recov	03/07/05	70.000	130.000	U
LCS	1,2-Dichloroethane-d4	17060-07-0	107.40	107.000	% Recov	03/07/05	80.000	134.000	U
LCS	Toluene-d8	2037-28-5	105.80	106.000	% Recov	03/07/05	80.000	126.000	U
LCS	Toluene	108-88-3	53.550	107.000	% Recov	03/07/05	70.000	130.000	U
LCS	Trichloroethene	79-01-6	50.020	100.000	% Recov	03/07/05	70.000	130.000	U

# WSCF ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent  
**Project:** F03-025; F03-025

**Group #:** WSCF20050508

Sample #	Client ID	CAS #	Test Performed	Matrix	Method	RQ	Result	Unit	DF	MDL	Analyze	Sample Receive
Radiochemistry												
W050000835	B19408	TRENT	14596-10-2	SOIL	LA-508-471		0.120	pCi/g	1.00	0.020	03/17/05	02/22/05 03/03/05
W050000835	B19408	TRENT	Americium-241	SOIL	LA-508-471		0.041	pCi/g	1.00	0.0	03/17/05	02/22/05 03/03/05
W050000835	B19408	TRENT	Am-241 by AEA Total Cntg Error	SOIL	LA-508-481	U	2.25e-03	pCi/g	1.00	0.011	03/03/05	02/22/05 03/03/05
W050000835	B19408	TRENT	Cobalt-60	SOIL	LA-508-481		6.1e-03	pCi/g	1.00	0.0	03/03/05	02/22/05 03/03/05
W050000835	B19408	TRENT	Co-60 Rel. Count Error (GEA)	SOIL	LA-508-481	U	1.42e-04	pCi/g	1.00	0.011	03/03/05	02/22/05 03/03/05
W050000835	B19408	TRENT	Cesium-137	SOIL	LA-508-481		1.4e-03	pCi/g	1.00	0.0	03/03/05	02/22/05 03/03/05
W050000835	B19408	TRENT	Cs-137 Rel. Count Error (GEA)	SOIL	LA-508-481	U	4.96e-03	pCi/g	1.00	0.031	03/03/05	02/22/05 03/03/05
W050000835	B19408	TRENT	Europium-152	SOIL	LA-508-481		0.020	pCi/g	1.00	0.0	03/03/05	02/22/05 03/03/05
W050000835	B19408	TRENT	Eu-152 Rel. Count Error (GEA)	SOIL	LA-508-481		0.0461	pCi/g	1.00	0.033	03/03/05	02/22/05 03/03/05
W050000835	B19408	TRENT	Europium-154	SOIL	LA-508-481		0.029	pCi/g	1.00	0.0	03/03/05	02/22/05 03/03/05
W050000835	B19408	TRENT	Eu-154 Rel. Count Error (GEA)	SOIL	LA-508-481		0.0829	pCi/g	1.00	0.044	03/03/05	02/22/05 03/03/05
W050000835	B19408	TRENT	Europium-155	SOIL	LA-508-481		0.043	pCi/g	1.00	0.0	03/03/05	02/22/05 03/03/05
W050000835	B19408	TRENT	Eu-155 Rel. Count Error (GEA)	SOIL	LA-508-471	U	2.30e-03	pCi/g	1.00	2.1e-03	03/18/05	02/22/05 03/03/05
W050000835	B19408	TRENT	Neptunium-237	SOIL	LA-508-471		2.3e-03	pCi/g	1.00	0.0	03/18/05	02/22/05 03/03/05
W050000835	B19408	TRENT	Np-237 by AEA Total Cntg Error	SOIL	LA-508-471	U	0.0230	pCi/g	1.00	0.053	03/17/05	02/22/05 03/03/05
W050000835	B19408	TRENT	Plutonium-238	SOIL	LA-508-471		0.032	pCi/g	1.00	0.0	03/17/05	02/22/05 03/03/05
W050000835	B19408	TRENT	Pu-238 by AEA Total Cntg Error	SOIL	LA-508-471		4.20e-03	pCi/g	1.00	0.019	03/17/05	02/22/05 03/03/05
W050000835	B19408	TRENT	Pu-239/240 by AEA	SOIL	LA-508-471	U	0.010	pCi/g	1.00	0.0	03/17/05	02/22/05 03/03/05
W050000835	B19408	TRENT	Pu-239/240 AEA Total Cntg Err	SOIL	LA-508-471		0.140	pCi/g	1.00	0.014	03/17/05	02/22/05 03/03/05
W050000835	B19408	TRENT	Uranium-233/234	SOIL	LA-508-471		0.049	pCi/g	1.00	0.0	03/17/05	02/22/05 03/03/05
W050000835	B19408	TRENT	U-233/234 AEA Total Cntg Error	SOIL	LA-508-471		8.50e-03	pCi/g	1.00	5.7e-03	03/17/05	02/22/05 03/03/05
W050000835	B19408	TRENT	Uranium-235	SOIL	LA-508-471		8.5e-03	pCi/g	1.00	0.0	03/17/05	02/22/05 03/03/05
W050000835	B19408	TRENT	U-235 by AEA Total Cntg Error	SOIL	LA-508-471		0.110	pCi/g	1.00	5.2e-03	03/17/05	02/22/05 03/03/05
W050000835	B19408	TRENT	Uranium-238	SOIL	LA-508-471		0.040	pCi/g	1.00	0.10	03/17/05	02/22/05 03/03/05
W050000835	B19408	TRENT	U-238 by AEA Total Cntg Error	SOIL	LA-508-471			pCi/g	1.00		03/17/05	02/22/05 03/03/05

**MDL = Minimum Detection Limit** B - The analyte < the RDL but > = the IDL/MDL (inorganic)  
**RQ = Result Qualifier** U - Analyzed for but not detected above limiting criteria. E - Analyte is an estimate, has potentially larger errors

**DF = Dilution Factor**

\* - Indicates results that have NOT been validated; + - Indicates more than six qualifier symbols  
 Report WGPP/ver. 1.1

Groundwater Remediation Program

# WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20050508  
 Matrix: SOLID  
 Test: Gamma Energy Analysis-grd H2O

SAF Number: F03-025  
 Sample Date: 03/03/05  
 Receive Date: 03/03/05

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
<b>Lab ID: W050000833</b>									
<b>BATCH QC ASSOCIATED WITH SAMPLE</b>									
DUP	Cobalt-60	10198-40-0	1.11e-01	3.670	RPD	03/04/05	0.000	20.000	
DUP	Cesium-137	10045-97-3	U-4.7e-3	n/a	RPD	03/04/05	0.000	20.000	
DUP	Europium-152	14683-23-9	U-1.2e-2	n/a	RPD	03/04/05	0.000	20.000	
DUP	Europium-154	15585-10-1	4.35e-02	2.326	RPD	03/04/05	0.000	20.000	
DUP	Europium-155	14391-16-3	7.91e-02	35.768	RPD	03/04/05	0.000	20.000	*
<b>BATCH QC</b>									
BLANK	Cobalt-60	10198-40-0	U-2.0e-3	n/a	pCi/g	03/07/05	-10.000	1000.000	
BLANK	Cesium-137	10045-97-3	U-6.7e-4	n/a	pCi/g	03/07/05	-10.000	1000.000	
BLANK	Europium-152	14683-23-9	U-4.0e-3	n/a	pCi/g	03/07/05	-10.000	1000.000	
BLANK	Europium-154	15585-10-1	U-4.8e-3	n/a	pCi/g	03/07/05	-10.000	1000.000	
BLANK	Europium-155	14391-16-3	U-3.1e-3	n/a	pCi/g	03/07/05	-10.000	1000.000	
LCS	Cobalt-60	10198-40-0	4.21e+03	100.477	% Recov	03/04/05	80.000	120.000	
LCS	Cesium-137	10045-97-3	3.90e+03	108.939	% Recov	03/04/05	80.000	120.000	

# WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20050508  
 Matrix: SOLID  
 Test: Americium by AEA

SAF Number: F03-025  
 Sample Date: 03/03/05  
 Receive Date: 03/03/05

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
<b>Lab ID: W050000833</b>									
<b>BATCH QC ASSOCIATED WITH SAMPLE</b>									
DUP	Americium-241	14596-10-2	2.7e+00	7.692	RPD	03/17/05	0.000	20.000	
<b>BATCH QC</b>									
BLANK	Americium-241	14596-10-2	U4.5e-03	n/a	pCi/g	03/17/05	-10.000	1000.000	
LCS	Americium-241	14596-10-2	4.5e+01	93.555	% Recov	03/18/05	75.000	125.000	

# WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20050508  
 Matrix: SOLID  
 Test: Neptunium by AEA

SAF Number: F03-025  
 Sample Date: 03/03/05  
 Receive Date: 03/03/05

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
<b>Lab ID: W050000833</b>									
<b>BATCH QC ASSOCIATED WITH SAMPLE</b>									
DJP	Neptunium-237	13994-20-2	U9.3E-04	n/a	RPD	03/18/05	0.000	25.000	
<b>BATCH QC</b>									
BLANK	Neptunium-237	13994-20-2	4.1e-03	0.004	pCi/g	03/18/05	-10.000	1000.000	
LCS	Neptunium-237	13994-20-2	40.8	40.800	% Recov	03/18/05	75.000	125.000	*

# WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20050508  
 Matrix: SOLID  
 Test: Plutonium Isotopics by AEA

SAF Number: F03-025  
 Sample Date: 03/03/05  
 Receive Date: 03/03/05

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
<b>Lab ID: W050000833</b>									
<b>BATCH QC ASSOCIATED WITH SAMPLE</b>									
DUP	Pu-239/240 by AEA	PU-239/240	8.2e+00	3.727	RPD	03/17/05	0.000	20.000	
<b>BATCH QC</b>									
BLANK	Pu-239/240 by AEA	PU-239/240	U1.2e-02	n/a	pCi/g	03/17/05	-10.000	1000.000	
LCS	Pu-239/240 by AEA	PU-239/240	4.7e+01	95.528	% Recov	03/17/05	75.000	125.000	

# WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20050508  
 Matrix: SOLID  
 Test: Uranium Isotopics by AEA

SAF Number: F03-025  
 Sample Date: 03/03/05  
 Receive Date: 03/03/05

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
<b>Lab ID: W050000833</b>									
<b>BATCH QC ASSOCIATED WITH SAMPLE</b>									
DUP	Uranium-238	U-238	1.8e-01	0.000	RPD	03/17/05	0.000	20.000	
<b>BATCH QC</b>									
BLANK	Uranium-238	24678-82-8	1.9e-02	0.019	pCi/g	03/17/05	-10.000	1000.000	
LCS	Uranium-238	24678-82-8	8.8e+01	116.064	% Recov	03/17/05	75.000	125.000	

# WSCF ANALYTICAL COMMENT REPORT

**Attention:** Steve Trent      **Group #:** WSCF20050508  
**Project Number** F03-025

**Sample #**    **Client ID**      **Lab Area**      **Test**      **Comment**

VALGROUP

Eu155 from the GEA report is flagged for the batch duplicate but the sample activity is low level so the RPD does not apply. lnh  
 Am-241 by GEA detected in W050000833 at 2.5 pCi/g.  
 Am-241 by GEA detected in W050000835 at 5 E-02 pCi/g.

ORGANICS: Sample concentrations are corrected for moisture and reported dry weight basis. gar

ICP-MS: All preparation blank results are in ug/L (ppb) and sample results are in ug/g (ppm). Sb LCS recovery is within mfg. specifications. Low Ag MSD and MS flow, but acceptable); "E" flag.

Cyanide: Batch QC on other sample shows DUP RPD does not meet acceptance criteria and matrix spikes biased low

Np237 lcs recovery is low so the sample result is an estimated value. lnh

**Lab Areas:** VALGROUP - Group Validation      TESTDATA - Test Data Entry  
 LOGSAMP - Login for Sample      VALTEST - Test Validation  
 LOGTEST - Login for Tests

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wgppc/1    Report#: WSCF20050508    Report Date: 5-apr-2005

# WSCF

## TENTATIVELY IDENTIFIED PEAK REPORT

Attention: Steve Trent  
Project Number F03-025

Group #: WSCF20050508

Sample #	Client ID	Test Name	Peak Name	CAS#	RT	RQ	Result	Units
W050000835	B19408	Gamma Energy Analysis-grd H20	PB-212 Count Error		13		13	%
W050000835	B19408	Gamma Energy Analysis-grd H20	K-40 Count Error		13		13	%
W050000835	B19408	Gamma Energy Analysis-grd H20	PB-214 Count Error		14		14	%
W050000835	B19408	Gamma Energy Analysis-grd H20	TL-208 Count Error		16		16	%
W050000835	B19408	Gamma Energy Analysis-grd H20	BI-214 Count Error		16		16	%
W050000835	B19408	Gamma Energy Analysis-grd H20	RA-228 Count Error		16		16	%
W050000835	B19408	Gamma Energy Analysis-grd H20	AC-228 Count Error		17		17	%
W050000835	B19408	Gamma Energy Analysis-grd H20	RA-228 Count Error		17		17	%
W050000835	B19408	Gamma Energy Analysis-grd H20	SN-126 Count Error		23		23	%
W050000835	B19408	Gamma Energy Analysis-grd H20	BI-212 Count Error		24		24	%
W050000835	B19408	Gamma Energy Analysis-grd H20	U-235 Count Error		29		29	%
W050000835	B19408	Gamma Energy Analysis-grd H20	CS-134 Count Error		32		32	%
W050000835	B19408	Gamma Energy Analysis-grd H20	U-235				0.071	pCi/g
W050000835	B19408	Gamma Energy Analysis-grd H20	SN-126				0.18	pCi/g
W050000835	B19408	Gamma Energy Analysis-grd H20	TL-208				0.21	pCi/g
W050000835	B19408	Gamma Energy Analysis-grd H20	BI-212				0.40	pCi/g
W050000835	B19408	Gamma Energy Analysis-grd H20	BI-214				0.50	pCi/g
W050000835	B19408	Gamma Energy Analysis-grd H20	RA-226				0.50	pCi/g
W050000835	B19408	Gamma Energy Analysis-grd H20	PB-214				0.54	pCi/g
W050000835	B19408	Gamma Energy Analysis-grd H20	AC-228				0.63	pCi/g
W050000835	B19408	Gamma Energy Analysis-grd H20	RA-228				0.63	pCi/g
W050000835	B19408	Gamma Energy Analysis-grd H20	PB-212				0.69	pCi/g
W050000835	B19408	Gamma Energy Analysis-grd H20	K-40				16	pCi/g
W050000835	B19408	SW-846 82708 Semi-Vols	SMP 12.737 Diethylphthalate	84-66-2	12.73715		1.8e+02	ug/kg

RQ = Result Qualifier

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Groundwater Remediation Program

WGPR v 1.1 Report#: 20050508

Report Date: 5-apr-2005

# WSCF METHOD REFERENCES REPORT

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-212-411	Determination of Soil pH Measurement EPA SW-846 9045C	SOIL AND WASTE pH
LA-503-401	LA-503-401: ANALYSIS OF CATIONS BY ION CHROMATOGRAPHY EPA-600/4-86-024 300.7	Dissolved Sodium, Ammonium, Potassium, and Calcium in Wet Deposition by Chemical
LA-505-411	LA-505-411: ELEMENTAL ANALYSIS BY INDUCTIVELY COUPLED PLASMA ATOMIC EMISSION SPE EPA SW-846 6010B	INDUCTIVELY COUPLED PLASMA-ATOMIC EMISSION SPECTROMETRY
LA-505-412	LA-505-412: DETERMINATION OF TRACE ELEMENTS IN WATERS AND WASTES BY INDUCTIVELY EPA-600/R-94-111 200.8	DETERMINATION OF TRACE ELEMENTS IN WATERS AND WASTES BY INDUCTIVELY COUPLED PLAS
LA-508-471	LA-508-471: ALPHA ENERGY ANALYZER DATA ACQUISITION AND SYSTEM CHECKOUT USING ALP None	No reference to any industry method.
LA-508-481	LA-508-481: GAMMA ENERGY ANALYSIS USING PROCOUNT SOFTWARE None	No reference to any industry method.
LA-519-412	LA-519-412: TOTAL RESIDUE/% SOLIDS DRIED AT 103 - 105 C EPA-600/4-79-020 160.3 Standard Methods 2540B	Total Solids Dried at 103-105 C
LA-523-427	LA-523-427: POLYCHLORINATED BIPHENYLS (PCBs) BY GAS CHROMATOGRAPHY EPA SW-846 3510C EPA SW-846 3545	SEPARATORY FUNNEL LIQUID-LIQUID EXTRACTION PRESSURIZED FLUID EXTRACTION (PFE)

Note: A complete list of WSCF analytical procedures and referenced regulatory or industry methods is available online at [\\lap006.aspdocs\WSCF\Sample Mgmt\ProcedureMethodCrossReference.pdf](http://lap006.aspdocs\WSCF\Sample Mgmt\ProcedureMethodCrossReference.pdf). This document includes on-line links to full-text versions of the procedures and methods, where available.

Report Date: 5-apr-2005  
Report#: WSCF20050508  
Report WGPPM/O

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EPA SW-846 3665A	SULFURIC ACID/PERMANGANATE CLEANUP
EPA SW-846 8000B	DETERMINATIVE CHROMATOGRAPHIC SEPARATIONS
EPA SW-846 8082	POLYCHLORINATED BIPHENYLS (PCBs) BY GAS CHROMATOGRAPHY
LA-523-443	GAS CHROMATOGRAPH ANALYSIS OF GASOLINE RANGE TOTAL PETROLEUM HYDROCA WDOE TPH NWTPH-G Volatile Petroleum Products Method for Soil and Water
LA-523-455	VOLATILE SAMPLE ANALYSIS BY SW-846 DETERMINATIVE CHROMATOGRAPHIC SEPARATIONS VOLATILE ORGANIC COMPOUNDS BY GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)
LA-523-456	SEMIVOLATILE SAMPLE ANALYSIS BY SW-846, METHOD 8270C DETERMINATIVE CHROMATOGRAPHIC SEPARATIONS SEMIVOLATILE ORGANIC COMPOUNDS BY GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)
LA-533-410	ANION ANALYSIS BY ION CHROMATOGRAPHY DETERMINATION OF INORGANIC ANIONS BY ION CHROMATOGRAPHY
LA-695-402	DETERMINATION OF CYANIDE BY MIDDISTILLATION AND SPECTROPHOTOMETRIC Cyanide, Total
NWTPH	NWTPH-Diesel and/or Gasoline WDOE NWTPH-Dx/Gx Total Petroleum Hydrocarbons - Diesel/Gasoline
Organics	Organics - Alcohols, Glycols

Note: A complete list of WSCF analytical procedures and referenced regulatory or industry methods is available online at  
<\\ap006\aspdocs\WSCF\Sample Mgmt\ProcedureMethod\CrossReference.pdf>. This document includes on-line  
 links to full-text versions of the procedures and methods, where available.

Report Date: 5-apr-2005  
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 Report WGPPM/O

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EPA SW-846 8015B                      Nonhalogenated Organics Using GC/FID

Note: A complete list of WSCF analytical procedures and referenced regulatory or industry methods is available online at  
\\ap006\aspdocs\WSCF\Sample Mgmt\ProcedureMethod\CrossReference.pdf. This document includes on-line  
links to full-text versions of the procedures and methods, where available.

Report Date: 5-apr-2005  
Report#: WSCF20050508  
Report WGPPM/O

## W13q Worklist/Batch/QC Report for Group# WSCF20050508

WL#	S#	Batch	QC#	Tray Type	Sample#	Test
				SAMPLE	W050000835	Percent Solids
			29035	DUP	W050000833	pH Soil and Waste Measurement
			29035	SAMPLE	W050000835	pH Soil and Waste Measurement
25260	1	25626	29037	BLANK		Gamma Energy Analysis-grd H2O
25260	2	25626	29037	LCS		Gamma Energy Analysis-grd H2O
25260	3	25626	29037	DUP	W050000833	Gamma Energy Analysis-grd H2O
25260	5	25626	29037	SAMPLE	W050000835	Gamma Energy Analysis-grd H2O
			29050	BLANK		VOA Ground Water Protection
			29050	LCS		VOA Ground Water Protection
			29050	MS	W050000835	VOA Ground Water Protection
			29050	MSD	W050000835	VOA Ground Water Protection
			29050	SAMPLE	W050000835	VOA Ground Water Protection
			29050	SPK-RPD	W050000835	VOA Ground Water Protection
			29050	SURR	W050000835	VOA Ground Water Protection
25300	2	25668	29051	BLANK		Ammonia (N) by IC
25300	11	25668	29051	BLANK		Ammonia (N) by IC
25300	3	25668	29051	LCS		Ammonia (N) by IC
25300	5	25668	29051	DUP	W050000473	Ammonia (N) by IC
25300	6	25668	29051	MS	W050000473	Ammonia (N) by IC
25300	7	25668	29051	MSD	W050000473	Ammonia (N) by IC
25300	10	25668	29051	SAMPLE	W050000835	Ammonia (N) by IC
25288	13	25657	29052	BLANK		ICP-2008 MS All possible metal
25288	14	25657	29052	LCS		ICP-2008 MS All possible metal
25288	16	25657	29052	MS	W050000835	ICP-2008 MS All possible metal
25288	17	25657	29052	MSD	W050000835	ICP-2008 MS All possible metal
25288	15	25657	29052	SAMPLE	W050000835	ICP-2008 MS All possible metal
25288	0	25657	29052	SPK-RPD	W050000835	ICP-2008 MS All possible metal
25295	1	25664	29055	BLANK		ICP Metals Analysis, Grd H2O P
25295	2	25664	29055	LCS		ICP Metals Analysis, Grd H2O P
25295	13	25664	29055	MS	W050000833	ICP Metals Analysis, Grd H2O P
25295	14	25664	29055	MSD	W050000833	ICP Metals Analysis, Grd H2O P
25295	0	25664	29055	SPK-RPD	W050000833	ICP Metals Analysis, Grd H2O P
25295	15	25664	29055	SAMPLE	W050000835	ICP Metals Analysis, Grd H2O P
25306	2	25673	29060	BLANK		Anions by Ion Chromatography
25306	12	25673	29060	BLANK		Anions by Ion Chromatography
25306	3	25673	29060	LCS		Anions by Ion Chromatography
25306	5	25673	29060	DUP	W050000473	Anions by Ion Chromatography
25306	6	25673	29060	MS	W050000473	Anions by Ion Chromatography
25306	7	25673	29060	MSD	W050000473	Anions by Ion Chromatography
25306	10	25673	29060	SAMPLE	W050000835	Anions by Ion Chromatography
			29097	BLANK		Cyanide by Midi/Spectrophotom
			29097	BLNK-PREP		Cyanide by Midi/Spectrophotom
			29097	LCS		Cyanide by Midi/Spectrophotom
			29097	MS	W050000710	Cyanide by Midi/Spectrophotom
			29097	MSD	W050000710	Cyanide by Midi/Spectrophotom
			29097	SPK-RPD	W050000710	Cyanide by Midi/Spectrophotom

			29097	SAMPLE	W050000835	Cyanide by Midi/Spectrophotom
			29121	BLANK		PCBs complete list
			29121	LCS		PCBs complete list
			29121	SAMPLE	W050000835	PCBs complete list
			29121	SURR	W050000835	PCBs complete list
			29121	MS	W050000860	PCBs complete list
			29121	MSD	W050000860	PCBs complete list
			29121	SPK-RPD	W050000860	PCBs complete list
			29125	BLANK		SW-846 8270B Semi-Vols
			29125	LCS		SW-846 8270B Semi-Vols
			29125	SAMPLE	W050000835	SW-846 8270B Semi-Vols
			29125	SURR	W050000835	SW-846 8270B Semi-Vols
			29125	MS	W050000860	SW-846 8270B Semi-Vols
			29125	MSD	W050000860	SW-846 8270B Semi-Vols
			29125	SPK-RPD	W050000860	SW-846 8270B Semi-Vols
			29145	BLANK		WTPH-D TPH Diesel Range (Wa)
			29145	LCS		WTPH-D TPH Diesel Range (Wa)
			29145	SAMPLE	W050000835	WTPH-D TPH Diesel Range (Wa)
			29145	SURR	W050000835	WTPH-D TPH Diesel Range (Wa)
			29145	MS	W050000860	WTPH-D TPH Diesel Range (Wa)
			29145	MSD	W050000860	WTPH-D TPH Diesel Range (Wa)
			29145	SPK-RPD	W050000860	WTPH-D TPH Diesel Range (Wa)
25372	1	25736	29171	BLANK		Neptunium by AEA
25372	2	25736	29171	LCS		Neptunium by AEA
25372	3	25736	29171	DUP	W050000833	Neptunium by AEA
25372	5	25736	29171	SAMPLE	W050000835	Neptunium by AEA
25386	1	25754	29179	BLANK		Uranium Isotopics by AEA
25386	2	25754	29179	LCS		Uranium Isotopics by AEA
25386	3	25754	29179	DUP	W050000833	Uranium Isotopics by AEA
25386	5	25754	29179	SAMPLE	W050000835	Uranium Isotopics by AEA
25387	1	25753	29208	BLANK		Plutonium Isotopics by AEA
25387	2	25753	29208	LCS		Plutonium Isotopics by AEA
25387	3	25753	29208	DUP	W050000833	Plutonium Isotopics by AEA
25387	5	25753	29208	SAMPLE	W050000835	Plutonium Isotopics by AEA
25388	1	25752	29209	BLANK		Americium by AEA
25388	2	25752	29209	LCS		Americium by AEA
25388	3	25752	29209	DUP	W050000833	Americium by AEA
25388	5	25752	29209	SAMPLE	W050000835	Americium by AEA
25584	1	25951	29383	BLANK		NWTPH-GX TPH Gasoline Range
25584	2	25951	29383	LCS		NWTPH-GX TPH Gasoline Range
25584	4	25951	29383	DUP	W050000835	NWTPH-GX TPH Gasoline Range
25584	5	25951	29383	MS	W050000835	NWTPH-GX TPH Gasoline Range
25584	6	25951	29383	MSD	W050000835	NWTPH-GX TPH Gasoline Range
25584	8	25951	29383	SAMPLE	W050000835	NWTPH-GX TPH Gasoline Range
25584	6	25951	29383	SPK-RPD	W050000835	NWTPH-GX TPH Gasoline Range
25587	1	25954	29384	BLANK		Alcohols, Glycols - 8015
25587	2	25954	29384	LCS		Alcohols, Glycols - 8015
25587	4	25954	29384	DUP	W050000833	Alcohols, Glycols - 8015
25587	5	25954	29384	MS	W050000833	Alcohols, Glycols - 8015
25587	6	25954	29384	MSD	W050000833	Alcohols, Glycols - 8015
25587	6	25954	29384	SPK-RPD	W050000833	Alcohols, Glycols - 8015

25587 7 25954 29384 SAMPLE W050000835 Alcohols, Glycols - 8015

M8141-SLF-05-170

ATTACHMENT 3

**SAMPLE RECEIPT INFORMATION**

Consisting of 4 pages  
Including cover page

**Waste Sampling and Characterization Facility**  
P.O. BOX 1970 S3-30, Richland, WA 99352  
PHONE: (509) 373-7004/FAX: (509) 373-7134

4/04/05  
File CB

ACKNOWLEDGMENT OF SAMPLES RECEIVED

Groundwater Remediation Program

Richland, WA 99354  
Attn: Steve Trent

Customer Code: GPP  
PO#: 119143/ES10  
Group#: 20050508  
Project#: F03-025  
Proj Mgr: Steve Trent A0-21  
Phone: 373-5869

The following samples were received from you on 03/03/05. 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
W050000835	B19408	TRENT	Solid, or handle as if solid	02/22/05
		@2008 @8015GPP @AEA-30 @AEA-31 @AEA-32		
		@AEA-33 @GEA-GPP @GPP6010 @IC-30 @PCBGPP @SVOC		
		@TPHD-WA @TPHG-WA @VOA-GPP CN-02 NH4-IC PERSO		
		PH-30		

Test Acronym Description

Test Acronym	Description
@2008	ICP-2008 MS All possible metal
@8015GPP	Alcohols, Glycols - 8015
@AEA-30	Plutonium Isotopics by AEA
@AEA-31	Americium by AEA
@AEA-32	Uranium Isotopics by AEA
@AEA-33	Neptunium by AEA
@GEA-GPP	Gamma Energy Analysis-grd H2O
@GPP6010	ICP Metals Analysis, Grd H2O P
@IC-30	Anions by Ion Chromatography
@PCBGPP	PCBs complete list
@SVOCGPP	SW-846 8270B Semi-Vols <i>Add 2-methylphenol and 3,4-methylphenol P.D.Mix</i>
@TPHD-WA	WTPH-D TPH Diesel Range (Wa)
@TPHG-WA	NWTPH-GX TPH Gasoline Range
@VOA-GPP	VOA Ground Water Protection - <i>Add n-butylbenzene (Add on) P.D.Mix 3/2/05</i>
CN-02	Cyanide by Midi/Spectrophotom
NH4-IC	Ammonia (N) by IC
PERSOLID	Percent Solids
PH-30	pH Soil and Waste Measurement



FLUOR Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		F03-025-131	PAGE 2 OF 2
COLLECTOR	Pope/Plister/Tyra/Wilberg	COMPANY CONTACT	TRENT, STEVE	TELEPHONE NO.	373-5689
SAMPLING LOCATION	216-Z-7; 95ft-97.5ft	PROJECT DESIGNATION	200-LW-1/LW-2 Characterization - Soil		
ICE CHEST NO.		FIELD LOGBOOK NO.	HNF-N-356 1	COA	119143ES10
SHIPPED TO	Waste Sampling & Characterization	OFFSITE PROPERTY NO.	NA		

**SPECIAL INSTRUCTIONS**  
 The lab is to analyze pH within 24 hours of sample receipt. The lab is to report kerosene range organics from the WTPH-D analysis. FH acknowledges that the analytical holding time for Nitrate, Nitrite and Phosphate by EPA Method 300.0 will not be met.

(1)VOA - 8260A (TCL); VOA - 8260A (Add-On) (1-Butanol) n-butylbenzene (for slates)  
 (2)Semi-VOA - 8270A (TCL) (Phenol) Semi-VOA - 8270A (Add-On) (Tributyl phosphate) TH-Diesel Range - WTPH-D (Total petroleum hydrocarbons - diesel range, Total petroleum hydrocarbons - kerosene range) TPH-Gasoline Range - WTPH-G;  
 (3)Alcohols, Glycols, & Ketones - 8015 (Ethylene glycol)  
 (4)Gamma Spectroscopy (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155) Gamma Spec - Add-on (Antimony, Barium, Cadmium, Chromium, Copper, Nickel, Silver) ICP/MS - 200.8 (Acid-on) (Arsenic, Beryllium, Lead, Mercury, Selenium, Uranium) ICP Metals - 6010A (Add-on) (Bismuth)  
 (5)ICP/MS - 200.8 (TAL) (Antimony, Barium, Cadmium, Chromium, Copper, Nickel, Silver) ICP/MS - 200.8 (Acid-on) (Arsenic, Beryllium, Lead, Mercury, Selenium, Uranium) ICP Metals - 6010A (Add-on) (Bismuth)  
 (6)IC Anions - 300.0 (Chloride, Fluoride, Nitrogen in Nitrate, Nitrogen in Nitrite, Phosphate, Sulfate) Cations (IC) - 300.7 (Nitrogen in ammonium) Cyanide (Total) - 335.2; pH (Soil) - 9045;