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RECEIVED FEBRUARY 12, 2010

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

M4W41-SLF-10-053

February 12, 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 WSCF20100016 – SAF NUMBER F10-011

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 WSCF20100016:

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

Very truly yours,

for William S. Baird
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	

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M4W41-SLF-10-053

ATTACHMENT 1

COVER SHEET

Consisting of 2 pages
Including cover page

WSCF SAF NUMBER CROSS REFERENCE

Group#: WSCF20100016
Data Deliverable Date: 18-feb-2010
Data Deliverable: Cover Sheet

SAF#	Sample ID	WSCF#	Matrix
F10-011	B22RW6	W10GR00052	SOIL

M4W41-SLF-10-053

ATTACHMENT 2

NARRATIVE

Consisting of 5 pages
Including cover page

Introduction

One (1) S&GRP sample was received at the WSCF Laboratory on January 5, 2010. The sample was 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.

It should be noted that the attached chain of custody was not stamped "ICED" by the WSCF Laboratory Sample Custodian during sample receiving. However, based on procedure LO-090-403 form "NOTICE OF IMPROPER SAMPLE SUBMITTAL" was not submitted and was not stamped "NOT ICED". No anomaly was noted during sample receipt.

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.
- **U** – Analyzed for but not detected above limiting criteria. Relative Percent Difference (RPD) values associated with an analyte qualified with a "U" are not applicable.

Analytical Methodology for Requested Analyses

Refer to *WSCF Method References Report,* pages 15 through 17, 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 20 for QC details. Analytical Note(s):

- Matrix Spike and Matrix Spike Duplicate recoveries out of limits due to possible matrix interferences in sample. Sample results were "N" flagged.

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 21 through 22 for QC details. Analytical Note(s):

- Matrix Spike and Matrix Spike Duplicate recoveries out of limits for Phosphate and Sulfate due to possible matrix interferences in sample. Sample results were "N" flagged.

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 23 for QC details. Analytical Note(s):

- Batch QC analyzed on sample# W10GR00030 (B23343 in work order 20100010)

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 24 for QC details. Analytical Note(s):

- Batch QC analyzed on sample# W09GR01295 (B22FF0 in work order 20091353)

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 pages 25 through 26 for QC details. Analytical Note(s):

- Estimated Boron results due to Iron interference. Sample results were "E" flagged.
- Iron – exceeded spiking levels by a factor of 4. Spike recoveries are not valid.
    - Note: Final report shows MS/MSD for two samples not in the Sample Delivery Group. Please ignore these data as they can't be removed from this report. Future software for reporting data will address this issue.

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 27 through 30 for QC details. Analytical Note(s):

- Batch QC analyzed on sample# W10GR00008 (B23C44 in work order 20100005)
    - Aluminum – exceeded spiking levels by a factor of 4. Spike recoveries are not valid. Aluminum spike not reported – sample spiked did not request Aluminum. Affected sample results were "X" flagged.
    - Vanadium and Copper prep blanks above the MDL. No samples results were affected.

All other QC controls are within the established limits.

- Batch QC analyzed on sample# W10GR00123 (B23706 in work order 20100044)

All 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 pages 34 for QC details. Analytical Note(s):

- Batch QC analyzed on sample# W09GR01250 (B22RT5 in work order 20091344)

All QC controls are within the established limits.

PCB – 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 35 through 36 for QC details. Analytical Note(s):

- Batch QC analyzed on sample# W10GR00008 (B23C44 in work order 20100005)

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 41 through 48 for QC details. Analytical Note(s):

- Rad Chem requested to be performed included: Americium-241 by AEA, Gamma Energy Analysis, Gross Alpha and Beta analysis, Plutonium Isotopic and Uranium Isotopic by AEA, Strontium-89/90, and Technetium-99 by LCS.
- Americium-241: Batch QC analyzed on sample# B22RW6

- Gamma energy analysis: Batch QC analyzed on sample# W10GR00030 (B23343 in work order 20100010)
- Gross Alpha / Gross Beta: Batch QC analyzed on sample# B22RW6
- Isotopic plutonium analysis: Batch QC analyzed on sample# B22RW6
- Isotopic uranium analysis: Batch QC analyzed on sample# B22RW6
    - Uranium-235 is flagged for poor RPD due to the low count rate of the sample. RPD does not apply.
- Strontium-89/90: Batch QC analyzed on sample# B22RW6
- Technetium-99: Batch QC analyzed on sample# W10GR00030 (B23343 in work order 20100010)

All other 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.

for Scot L. Fitzgerald
WSCF Analytical Laboratory Manager

Richard Barker 2-12-10
Richard Barker
WSCF Client Services

M4W41-SLF-10-053

ATTACHMENT 3

ANALYTICAL RESULTS

Consisting of 43 pages
Including cover page

WSCF
ANALYTICAL RESULTS REPORT

for

Groundwater Remediation Program

Richland, WA 99354

Attention: Steve Trent

Analytical: _____

Client Services: Richard Barker 2-12-10 Richard Barker

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

This information is intended for the use of the addressee only. If the reader of this report is not the intended recipient or is not authorized by the recipient to receive the report, you are hereby notified that any dissemination, distribution or copying of this report is strictly prohibited. If you have received this report in error, please notify WSCF Laboratory immediately by telephone at (509) 373-7020 or (509) 531-8004. Information designation of this report is the responsibility of the customer.

Contract#: MOA-FH-CHPRC-2008
Report#: WSCF20100016
Report Date: 11-feb-2010
Report WGPP/ver. 5.2
Groundwater Remediation Program

w13qlog v4.2 11-feb-2010 14:27:52

Department: Inorganic

W13q Worklist/Batch/QC Report for Group# WSCF20100016

WL#	S#	Batch	QC#	Tray Type	Sample#	Test
				SAMPLE	W10GR00052	Percent Solids
40463	1	40904	45495	BLANK		ICP-200.8 MS All possible meta
40463	2	40904	45495	LCS		ICP-200.8 MS All possible meta
40463	4	40904	45495	MS	W10GR00008	ICP-200.8 MS All possible meta
40463	5	40904	45495	MSD	W10GR00008	ICP-200.8 MS All possible meta
40463	5	40904	45495	SPK-RPD	W10GR00008	ICP-200.8 MS All possible meta
40463	18	40904	45495	SAMPLE	W10GR00052	ICP-200.8 MS All possible meta
40488	1	40930	45504	BLANK		Ammonia (N) by IC
40488	8	40930	45504	BLANK		Ammonia (N) by IC
40488	3	40930	45504	LCS		Ammonia (N) by IC
40488	5	40930	45504	DUP	W10GR00052	Ammonia (N) by IC
40488	6	40930	45504	MS	W10GR00052	Ammonia (N) by IC
40488	7	40930	45504	MSD	W10GR00052	Ammonia (N) by IC
40488	4	40930	45504	SAMPLE	W10GR00052	Ammonia (N) by IC
40488	7	40930	45504	SPK-RPD	W10GR00052	Ammonia (N) by IC
40487	2	40929	45514	BLANK		Anions by Ion Chromatography
40487	17	40929	45514	BLANK		Anions by Ion Chromatography
40487	3	40929	45514	LCS		Anions by Ion Chromatography
40487	5	40929	45514	DUP	W10GR00052	Anions by Ion Chromatography
40487	6	40929	45514	MS	W10GR00052	Anions by Ion Chromatography
40487	7	40929	45514	MSD	W10GR00052	Anions by Ion Chromatography
40487	4	40929	45514	SAMPLE	W10GR00052	Anions by Ion Chromatography
40487	7	40929	45514	SPK-RPD	W10GR00052	Anions by Ion Chromatography
40502	1	40913	45527	BLANK		ICP Metals Analysis, Grd H20 P
40502	2	40913	45527	LCS		ICP Metals Analysis, Grd H20 P
40502	15	40913	45527	MS	W10GR00022	ICP Metals Analysis, Grd H20 P
40502	16	40913	45527	MSD	W10GR00022	ICP Metals Analysis, Grd H20 P
40502	16	40913	45527	SPK-RPD	W10GR00022	ICP Metals Analysis, Grd H20 P
40502	4	40913	45527	MS	W10GR00052	ICP Metals Analysis, Grd H20 P
40502	5	40913	45527	MSD	W10GR00052	ICP Metals Analysis, Grd H20 P
40502	3	40913	45527	SAMPLE	W10GR00052	ICP Metals Analysis, Grd H20 P
40502	5	40913	45527	SPK-RPD	W10GR00052	ICP Metals Analysis, Grd H20 P
40502	8	40913	45527	MS	W10GR00055	ICP Metals Analysis, Grd H20 P
40502	9	40913	45527	MSD	W10GR00055	ICP Metals Analysis, Grd H20 P
40502	9	40913	45527	SPK-RPD	W10GR00055	ICP Metals Analysis, Grd H20 P
40528	6	40969	45561	BLANK		ICP-200.8 MS All possible meta
40528	7	40969	45561	LCS		ICP-200.8 MS All possible meta
40463	18	40969	45561	SAMPLE	W10GR00052	ICP-200.8 MS All possible meta
40528	9	40969	45561	MS	W10GR00123	ICP-200.8 MS All possible meta
40528	10	40969	45561	MSD	W10GR00123	ICP-200.8 MS All possible meta
40528	10	40969	45561	SPK-RPD	W10GR00123	ICP-200.8 MS All possible meta
40565	30	41009	45563	BLNK-PREP		Hexavalent chromium
40565	31	41009	45563	LCS		Hexavalent chromium
40565	33	41009	45563	DUP	W09GR01295	Hexavalent chromium
40565	34	41009	45563	MS	W09GR01295	Hexavalent chromium
40565	35	41009	45563	MSD	W09GR01295	Hexavalent chromium

40565	37	41009	45563	SPK-POST	W09GR01295	Hexavalent chromium
40565	35	41009	45563	SPK-RPD	W09GR01295	Hexavalent chromium
40565	45	41009	45563	SAMPLE	W10GR00052	Hexavalent chromium
40543	1	40987	45651	BLANK		Cyanide by Midi/Spectrophotom
40543	2	40987	45651	LCS		Cyanide by Midi/Spectrophotom
40543	4	40987	45651	MS	W10GR00030	Cyanide by Midi/Spectrophotom
40543	5	40987	45651	MSD	W10GR00030	Cyanide by Midi/Spectrophotom
40543	5	40987	45651	SPK-RPD	W10GR00030	Cyanide by Midi/Spectrophotom
40543	7	40987	45651	SAMPLE	W10GR00052	Cyanide by Midi/Spectrophotom

w13qlog v4.2 11-feb-2010 14:27:52

Department: Organic

W13q Worklist/Batch/QC Report for Group# WSCF20100016

WL#	S#	Batch	QC#	Tray Type	Sample#	Test
			45484	BLANK		PCBs complete list
			45484	LCS		PCBs complete list
			45484	MS	W10GR00008	PCBs complete list
			45484	MSD	W10GR00008	PCBs complete list
			45484	SPK-RPD	W10GR00008	PCBs complete list
			45484	SAMPLE	W10GR00052	PCBs complete list
			45484	SURR	W10GR00052	PCBs complete list
40636	1	41085	45657	BLANK		Alcohols, Glycols - 8015
40636	2	41085	45657	LCS		Alcohols, Glycols - 8015
40636	4	41085	45657	DUP	W09GR01250	Alcohols, Glycols - 8015
40636	5	41085	45657	MS	W09GR01250	Alcohols, Glycols - 8015
40636	6	41085	45657	MSD	W09GR01250	Alcohols, Glycols - 8015
40636	6	41085	45657	SPK-RPD	W09GR01250	Alcohols, Glycols - 8015
40636	8	41085	45657	SAMPLE	W10GR00052	Alcohols, Glycols - 8015

w13qlog v4.2 11-feb-2010 14:27:52

Department: Radiochemistry

W13q Worklist/Batch/QC Report for Group# WSCF20100016

WL#	S#	Batch	QC#	Tray Type	Sample#	Test
40449	1	40889	45476	BLANK		Gamma Energy Analysis-grd H2O
40449	2	40889	45476	LCS		Gamma Energy Analysis-grd H2O
40449	3	40889	45476	DUP	W10GR00030	Gamma Energy Analysis-grd H2O
40449	6	40889	45476	SAMPLE	W10GR00052	Gamma Energy Analysis-grd H2O
40472	1	40914	45491	BLANK		Uranium Isotopics by AEA
40472	2	40914	45491	LCS		Uranium Isotopics by AEA
40472	3	40914	45491	DUP	W10GR00052	Uranium Isotopics by AEA
40472	4	40914	45491	SAMPLE	W10GR00052	Uranium Isotopics by AEA
40472	5	40914	45491	SURR	W10GR00052	Uranium Isotopics by AEA
40473	1	40915	45493	BLANK		Plutonium Isotopics by AEA
40473	2	40915	45493	LCS		Plutonium Isotopics by AEA
40473	3	40915	45493	DUP	W10GR00052	Plutonium Isotopics by AEA
40473	4	40915	45493	SAMPLE	W10GR00052	Plutonium Isotopics by AEA
40473	5	40915	45493	SURR	W10GR00052	Plutonium Isotopics by AEA
40475	1	40916	45494	BLANK		Americium by AEA
40475	2	40916	45494	LCS		Americium by AEA
40475	3	40916	45494	DUP	W10GR00052	Americium by AEA
40475	4	40916	45494	SAMPLE	W10GR00052	Americium by AEA
40475	5	40916	45494	SURR	W10GR00052	Americium by AEA
40468	1	40910	45497	BLANK		Strontium 89/90
40468	2	40910	45497	LCS		Strontium 89/90
40468	3	40910	45497	DUP	W10GR00052	Strontium 89/90
40468	4	40910	45497	SAMPLE	W10GR00052	Strontium 89/90
40468	5	40910	45497	SURR	W10GR00052	Strontium 89/90
40454	1	40894	45499	BLANK		Gross Alpha on Alpha Plateau
40454	2	40894	45499	LCS		Gross Alpha on Alpha Plateau
40454	3	40894	45499	DUP	W10GR00052	Gross Alpha on Alpha Plateau
40454	4	40894	45499	SAMPLE	W10GR00052	Gross Alpha on Alpha Plateau
40455	1	40895	45500	BLANK		Gross Alpha/Gross Beta (AB32)
40455	2	40895	45500	LCS		Gross Alpha/Gross Beta (AB32)
40455	3	40895	45500	DUP	W10GR00052	Gross Alpha/Gross Beta (AB32)
40455	4	40895	45500	SAMPLE	W10GR00052	Gross Alpha/Gross Beta (AB32)
40503	1	40944	45515	BLANK		TC99 by Liquid Scin.
40503	2	40944	45515	LCS		TC99 by Liquid Scin.
40503	3	40944	45515	DUP	W10GR00030	TC99 by Liquid Scin.
40503	4	40944	45515	MS	W10GR00030	TC99 by Liquid Scin.
40503	8	40944	45515	SAMPLE	W10GR00052	TC99 by Liquid Scin.

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-dol.

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.

LA-523-427	LA-523-427: POLYCHLORINATED BIPHENYLS (PCBs) BY GAS CHROMATOGRAPHY	
	EPA SW-846 8082A	POLYCHLORINATED BIPHENYLS (PCBs) BY GAS CHROMATOGRAPHY
Organics	Organics - Alcohols, Glycols	
	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 http://www2.rl.gov/phmc/as-dol.

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.

LA-508-415 LA-508-415: OPERATION OF THE PROTEAN 2-INCH ALPHA/BETA COUNTING SYSTEM FOR GROSS

None	No reference to any industry method.

LA-508-421 LA-508-421: OPERATION OF THE TRI-CARB MODEL 2500TR LIQUID SCINTILLATION ANALYZER

HEIS ALPHA_LSC	A/B Liquid Scintilillation
HEIS BETA_LSC	A/B Liquid Scintilallation

LA-508-471 LA-508-471: ALPHA ENERGY ANALYZER DATA ACQUISITION AND SYSTEM CHECKOUT USING ALP

HEIS RAISO_AEA	Radium-226

LA-508-481 LA-508-481: GAMMA ENERGY ANALYSIS USING PROCOUNT SOFTWARE

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.

WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent
SAF Number: F10-011
Sample # W10GR00052
Client ID: B22RW6 GPP WSCF

Matrix: SOIL

Group #: WSCF20100016
Department: Inorganic
Sampled: 01/05/10
Received: 01/05/10

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Anions by Ion Chromatography Prep											**01/12/10**
Anions by Ion Chromatography											
Fluoride	16984-48-8	LA-533-410	DU	< 1.50	mg/kg			50.00	1.5		01/13/10
Chloride	16887-00-6	LA-533-410	BD	3.18	mg/kg			50.00	2.2		01/13/10
Nitrogen in Nitrite	NO2-N	LA-533-410	DU	< 0.900	mg/kg			50.00	0.90		01/13/10
Nitrogen in Nitrate	NO3-N	LA-533-410	DU	< 1.55	mg/kg			50.00	1.6		01/13/10
Phosphate (P) by IC	PO4-P	LA-533-410	DNU	< 3.50	mg/kg			50.00	3.5		01/13/10
Sulfate	14808-79-8	LA-533-410	DN	67.4	mg/kg			50.00	3.3		01/13/10
Cyanide											
Cyanide	57-12-5	LA-695-402	U	< 0.200	mg/kg			1.00	0.20		01/15/10
Hexavalent Chromium Prep											**01/19/10**
Hexavalent Chromium											
Hexavalent Chromium	18540-29-9	LA-265-403	U	< 0.100	mg/kg			1.00	0.10		01/19/10
ICP Metals Analysis, Grd H20 P Prep											**01/07/10**
ICP Metals Analysis, Grd H20 P											
Iron	7439-89-6	LA-505-411		1.71e+04	mg/kg			99.74	1.8		01/14/10
Lithium	7439-93-2	LA-505-411		7.67	mg/kg			99.74	0.40		01/14/10
Boron	7440-42-8	LA-505-411	BE	6.14	mg/kg			99.74	1.9		01/14/10
Bismuth	7440-69-9	LA-505-411	U	< 2.29	mg/kg			99.74	2.3		01/14/10
ICP-200.8 MS All possible meta Prep											**01/07/10**
ICP-200.8 MS All possible meta											
Aluminum	7429-90-5	LA-505-412	X	3.75e+03	mg/kg			0.74	3.68		01/11/10
Manganese	7439-96-5	LA-505-412		178	mg/kg			0.74	0.0735		01/11/10
Nickel	7440-02-0	LA-505-412		16.0	mg/kg			0.74	0.147		01/11/10
Silver	7440-22-4	LA-505-412	U	< 0.0735	mg/kg			0.74	0.0735		01/11/10

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

WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent
SAF Number: F10-011
Sample # W10GR00052
Client ID: B22RW6 GPP WSCF

Matrix: SOIL

Group #: WSCF20100016
Department: Inorganic
Sampled: 01/05/10
Received: 01/05/10

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Antimony	7440-36-0	LA-505-412	U	< 0.221	mg/kg			0.74	0.221		01/11/10
Barium	7440-39-3	LA-505-412		64.2	mg/kg			0.74	0.147		01/11/10
Beryllium	7440-41-7	LA-505-412		0.120	mg/kg			0.74	0.0368		01/11/10
Cadmium	7440-43-9	LA-505-412	U	< 0.0735	mg/kg			0.74	0.0735		01/11/10
Chromium	7440-47-3	LA-505-412		27.2	mg/kg			0.74	0.368		01/11/10
Cobalt	7440-48-4	LA-505-412		3.26	mg/kg			0.74	0.0368		01/11/10
Copper	7440-50-8	LA-505-412		8.65	mg/kg			0.74	0.0735		01/11/10
Vanadium	7440-62-2	LA-505-412		19.2	mg/kg			0.74	0.147		01/11/10
Zinc	7440-66-6	LA-505-412		18.8	mg/kg			0.74	0.588		01/11/10
Lead	7439-92-1	LA-505-412		2.09	mg/kg			0.74	0.0735		01/11/10
Mercury	7439-97-6	LA-505-412	U	< 0.0368	mg/kg			0.74	0.0368		01/11/10
Thorium	7440-29-1	LA-505-412		1.59	mg/kg			0.74	0.0735		01/11/10
Uranium	7440-61-1	LA-505-412		0.250	mg/kg			0.74	0.0368		01/11/10
Arsenic	7440-38-2	LA-505-412		0.920	mg/kg			0.74	0.294		01/11/10
Selenium	7782-49-2	LA-505-412		0.830	mg/kg			0.99	0.298		01/18/10
Thallium	7440-28-0	LA-505-412	U	< 0.0735	mg/kg			0.74	0.0735		01/11/10
Strontium	7440-24-6	LA-505-412		13.1	mg/kg			0.74	0.0735		01/11/10
Nitrogen in ammonium Prep											**01/12/10**
Nitrogen in ammonium											
Nitrogen in ammonium	NH4-N	LA-503-401	DNU	< 8.60	mg/kg			50.00	8.60		01/12/10
Total solids											
Total solids	TS	LA-519-412		95.3	Percent			1.00	0.0		01/06/10

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

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20100016
Matrix: SOLID
Test: Ammonia (N) by IC

Sample Date: 01/05/10
Receive Date:01/05/10

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
Lab ID: W10GR00052											
BATCH QC ASSOCIATED WITH SAMPLE											
DUP	Ammonia (N) by IC	7664-41-7	<8.428		RPD			n/a	20.000	U	01/12/10
MS	Ammonia (N) by IC	7664-41-7	0.327773	65.555	% Recov	80.000	120.000		*		01/12/10
MSD	Ammonia (N) by IC	7664-41-7	0.318392	63.678	% Recov	80.000	120.000		*		01/12/10
SPK-RPD	Ammonia (N) by IC	7664-41-7	63.678		RPD			2.905	20.000		01/12/10
BATCH QC											
BLANK	Ammonia (N) by IC	7664-41-7	<0.172	n/a	mg/L	0.000	0.002			U	01/12/10
BLANK	Ammonia (N) by IC	7664-41-7	<0.172	n/a	mg/L	0.000	0.002			U	01/12/10
LCS	Ammonia (N) by IC	7664-41-7	104.1725	104.172	% Recov	80.000	120.000				01/12/10

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20100016
Matrix: SOLID
Test: Anions by Ion Chromatography

Sample Date: 01/05/10
Receive Date:01/05/10

Lab ID: W10GR00052
BATCH QC ASSOCIATED WITH SAMPLE

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
DUP	Chloride	16887-00-6	3.1647		RPD			0.536	20.000		01/13/10
DUP	Fluoride	16984-48-8	<1.5		RPD			n/a	20.000	U	01/13/10
DUP	Nitrogen in Nitrite	NO2-N	<0.9		RPD			n/a	20.000	U	01/13/10
DUP	Nitrogen in Nitrate	NO3-N	<1.55		RPD			n/a	20.000	U	01/13/10
DUP	Phosphate (P) by IC	PO4-P	<3.5		RPD			n/a	20.000	U	01/13/10
DUP	Sulfate	14808-79-8	63.2582		RPD			6.282	20.000		01/13/10
MS	Chloride	16887-00-6	0.912712	91.730	% Recov	80.000	120.000				01/13/10
MS	Fluoride	16984-48-8	0.463502	90.883	% Recov	80.000	120.000				01/13/10
MS	Nitrogen in Nitrite	NO2-N	0.48179	96.940	% Recov	80.000	120.000				01/13/10
MS	Nitrogen in Nitrate	NO3-N	0.455116	101.137	% Recov	80.000	120.000				01/13/10
MS	Phosphate (P) by IC	PO4-P	0.761268	78.725	% Recov	80.000	120.000		*		01/13/10
MS	Sulfate	14808-79-8	1.597568	79.878	% Recov	80.000	120.000		*		01/13/10
MSD	Chloride	16887-00-6	0.90586	91.041	% Recov	80.000	120.000				01/13/10
MSD	Fluoride	16984-48-8	0.455846	89.382	% Recov	80.000	120.000				01/13/10
MSD	Nitrogen in Nitrite	NO2-N	0.473238	95.219	% Recov	80.000	120.000				01/13/10
MSD	Nitrogen in Nitrate	NO3-N	0.44927	99.838	% Recov	80.000	120.000				01/13/10
MSD	Phosphate (P) by IC	PO4-P	0.750746	77.637	% Recov	80.000	120.000		*		01/13/10
MSD	Sulfate	14808-79-8	1.579638	78.982	% Recov	80.000	120.000		*		01/13/10
SPK-RPD	Chloride	16887-00-6	91.041		RPD			0.754	20.000		01/13/10
SPK-RPD	Fluoride	16984-48-8	89.382		RPD			1.665	20.000		01/13/10
SPK-RPD	Nitrogen in Nitrite	NO2-N	95.219		RPD			1.791	20.000		01/13/10
SPK-RPD	Nitrogen in Nitrate	NO3-N	99.838		RPD			1.293	20.000		01/13/10
SPK-RPD	Phosphate (P) by IC	PO4-P	77.637		RPD			1.392	20.000		01/13/10
SPK-RPD	Sulfate	14808-79-6	78.982		RPD			1.128	20.000		01/13/10

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20100016
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
BATCH QC											
BLANK	Chloride	16887-00-6	<4.3e-2	n/a	mg/L	0.000	0.030			U	01/13/10
BLANK	Chloride	16887-00-6	<4.3e-2	n/a	mg/L	0.000	0.030			U	01/13/10
BLANK	Fluoride	16984-48-8	<3e-2	n/a	mg/L	0.000	0.030			U	01/13/10
BLANK	Fluoride	16984-48-8	<3e-2	n/a	mg/L	0.000	0.030			U	01/13/10
BLANK	Nitrogen in Nitrite	NO2-N	<1.8e-2	n/a	mg/L	0.000	0.020			U	01/13/10
BLANK	Nitrogen in Nitrite	NO2-N	<1.8e-2	n/a	mg/L	0.000	0.020			U	01/13/10
BLANK	Nitrogen in Nitrate	NO3-N	<3.1e-2	n/a	mg/L	0.000	0.040			U	01/13/10
BLANK	Nitrogen in Nitrate	NO3-N	<3.1e-2	n/a	mg/L	0.000	0.040			U	01/13/10
BLANK	Phosphate (P) by IC	PO4-P	<7e-2	n/a	mg/L	0.000	0.200			U	01/13/10
BLANK	Phosphate (P) by IC	PO4-P	<7e-2	n/a	mg/L	0.000	0.200			U	01/13/10
BLANK	Sulfate	14808-79-8	<6.6e-2	n/a	mg/L	0.000	0.200			U	01/13/10
BLANK	Sulfate	14808-79-8	<6.6e-2	n/a	mg/L	0.000	0.200			U	01/13/10
LCS	Chloride	16887-00-6	191.3413	96.151	% Recov	80.000	120.000				01/13/10
LCS	Fluoride	16984-48-8	99.6583	97.704	% Recov	80.000	120.000				01/13/10
LCS	Nitrogen in Nitrite	NO2-N	98.0797	98.672	% Recov	80.000	120.000				01/13/10
LCS	Nitrogen in Nitrate	NO3-N	88.9445	98.937	% Recov	80.000	120.000				01/13/10
LCS	Phosphate (P) by IC	PO4-P	184.0166	95.148	% Recov	80.000	120.000				01/13/10
LCS	Sulfate	14808-79-8	378.4928	94.623	% Recov	80.000	120.000				01/13/10

WSCF ANALYTICAL LABORATORY QC REPORT

Department: **Inorganic**

SDG Number: WSCF20100016
Matrix: SOLID
Test: Cyanide by Midi/Spectrophotom

Sample Date: 01/05/10
Receive Date:01/05/10

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
Lab ID: W10GR00030											
BATCH QC ASSOCIATED WITH SAMPLE											
MS	Cyanide by Midi/Spectrophotom	57-12-5	2.01	100.500	% Recov	75.000	125.000				01/15/10
MSD	Cyanide by Midi/Spectrophotom	57-12-5	2.08	104.000	% Recov	75.000	125.000				01/15/10
SPK-RPD	Cyanide by Midi/Spectrophotom	57-12-5	104.000		RPD			3.423	20.000		01/15/10
BATCH QC											
BLANK	Cyanide by Midi/Spectrophotom	57-12-5	1.9	1.900	ug/L	-4.000	4.000				01/15/10
LCS	Cyanide by Midi/Spectrophotom	57-12-5	61.81	112.998	% Recov	85.000	115.000				01/15/10

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20100016
Matrix: SOLID
Test: Hexavalent chromium

Sample Date: 12/29/09
Receive Date:12/30/09

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
Lab ID: W09GR01295											
BATCH QC ASSOCIATED WITH SAMPLE											
DUP	Hexavalent chromium	18540-29-9	< 0.10		RPD			n/a	15.000	U	01/19/10
MS	Hexavalent chromium	18540-29-9	302	76.650	% Recov	75.000	125.000				01/19/10
MS	Hexavalent chromium	18540-29-9	14.8	75.510	% Recov	75.000	125.000				01/19/10
MSD	Hexavalent chromium	18540-29-9	14.3	75.661	% Recov	75.000	125.000				01/19/10
SPK-POST	Hexavalent chromium	18540-29-9	0.0498	93.609	% Recov	75.000	125.000				01/19/10
SPK-RPD	Hexavalent chromium	18540-29-9	75.661		RPD			0.200	20.000		01/19/10
BATCH QC											
BLNK-PREP	Hexavalent chromium	18540-29-9	< 0.10	n/a	ug/g	0.000	2.000			U	01/19/10
LCS	Hexavalent chromium	18540-29-9	17.9	91.795	% Recov	80.000	120.000				01/19/10

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20100016
Matrix: SOLID
Test: ICP Metals Analysis, Grd H20 P

Sample Date: 12/31/09
Receive Date:01/04/10

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
Lab ID: W10GR00022											
BATCH QC ASSOCIATED WITH SAMPLE											
MS	Boron	7440-42-8	189.316	94.422	% Recov	75.000	125.000				01/14/10
MS	Lithium	7439-93-2	97.019	96.825	% Recov	70.000	130.000				01/14/10
MSD	Boron	7440-42-8	184.216	93.085	% Recov	75.000	125.000				01/14/10
MSD	Lithium	7439-93-2	97.519	98.554	% Recov	75.000	125.000				01/14/10
SPK-RPD	Boron	7440-42-8	93.085		RPD			1.426	20.000		01/14/10
SPK-RPD	Lithium	7439-93-2	98.554		RPD			1.770	20.000		01/14/10
Lab ID: W10GR00052											
BATCH QC ASSOCIATED WITH SAMPLE											
MS	Boron	7440-42-8	198.756	99.229	% Recov	75.000	125.000				01/14/10
MS	Bismuth	7440-69-9	210	104.843	% Recov	75.000	125.000				01/14/10
MS	Iron	7439-89-6	-750	-374.438	% Recov	75.000	125.000			*	01/14/10
MS	Lithium	7439-93-2	102.127	101.923	% Recov	70.000	130.000				01/14/10
MSD	Boron	7440-42-8	202.856	101.835	% Recov	75.000	125.000				01/14/10
MSD	Bismuth	7440-69-9	210.7	105.773	% Recov	75.000	125.000				01/14/10
MSD	Iron	7439-89-6	910	456.827	% Recov	75.000	125.000			*	01/14/10
MSD	Lithium	7439-93-2	104.227	104.646	% Recov	75.000	125.000				01/14/10
SPK-RPD	Boron	7440-42-8	101.835		RPD			2.592	20.000		01/14/10
SPK-RPD	Bismuth	7440-69-9	105.773		RPD			0.883	20.000		01/14/10
SPK-RPD	Iron	7439-89-6	456.827		RPD			2017.903	20.000	*	01/14/10
SPK-RPD	Lithium	7439-93-2	104.646		RPD			2.636	20.000		01/14/10
Lab ID: W10GR00055											
BATCH QC ASSOCIATED WITH SAMPLE											
MS	Iron	7439-89-6	-3510	-1777.215	% Recov	75.000	125.000			*	01/14/10
MSD	Iron	7439-89-6	-890	-440.594	% Recov	75.000	125.000			*	01/14/10

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20100016
Matrix: SOLID
Test: ICP Metals Analysis, Grd H20 P

Sample Date: 01/05/10
Receive Date:01/05/10

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
SPK-RPD	Iron	7439-89-6	-440.594		RPD			-120.535	20.000 *		01/14/10
BATCH QC											
BLANK	Boron	7440-42-8	<1.9e-2	n/a	ug/mL					U	01/14/10
BLANK	Bismuth	7440-69-9	<2.3e-2	n/a	ug/mL					U	01/14/10
BLANK	Iron	7439-89-6	<1.8e-2	n/a	ug/mL					U	01/14/10
BLANK	Lithium	7439-93-2	<4e-3	n/a	ug/mL					U	01/14/10
LCS	Boron	7440-42-8	132.9	115.565	% Recov	45.000	156.000				01/14/10
LCS	Bismuth	7440-69-9	96.54	97.564	% Recov	80.000	120.000				01/14/10
LCS	Iron	7439-89-6	15070	112.463	% Recov	47.000	152.000				01/14/10
LCS	Lithium	7439-93-2	107.6	108.742	% Recov	80.000	120.000				01/14/10

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20100016
Matrix: SOLID
Test: ICP-200.8 MS All possible meta

Sample Date: 12/31/09
Receive Date:01/04/10

Lab ID: W10GR00008
BATCH QC ASSOCIATED WITH SAMPLE

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
MS	Silver	7440-22-4	84.35	84.350	% Recov	70.000	130.000				01/11/10
MS	Arsenic	7440-38-2	85.51	85.510	% Recov	70.000	130.000				01/11/10
MS	Barium	7440-39-3	87.17	87.170	% Recov	70.000	130.000				01/11/10
MS	Cadmium	7440-43-9	85.86	85.860	% Recov	70.000	130.000				01/11/10
MS	Cobalt	7440-48-4	85.56	85.560	% Recov	70.000	130.000				01/11/10
MS	Chromium	7440-47-3	75.49	75.490	% Recov	70.000	130.000				01/11/10
MS	Copper	7440-50-8	81.13	81.130	% Recov	70.000	130.000				01/11/10
MS	Mercury	7439-97-6	4.04	101.000	% Recov	70.000	130.000				01/11/10
MS	Manganese	7439-96-5	83.7	83.700	% Recov	70.000	130.000				01/11/10
MS	Nickel	7440-02-0	80	80.000	% Recov	70.000	130.000				01/11/10
MS	Lead	7439-92-1	87.73	87.730	% Recov	70.000	130.000				01/11/10
MS	Antimony	7440-36-0	112.2	112.200	% Recov	70.000	130.000				01/11/10
MS	Strontium	7440-24-6	87.01	87.010	% Recov	70.000	130.000				01/11/10
MS	Thallium	7440-28-0	88.79	88.790	% Recov	70.000	130.000				01/11/10
MS	Uranium	7440-61-1	87.87	87.870	% Recov	70.000	130.000				01/11/10
MS	Vanadium	7440-62-2	84.39	84.390	% Recov	70.000	130.000				01/11/10
MS	Zinc	7440-66-6	82.73	82.730	% Recov	70.000	130.000				01/11/10
MSD	Silver	7440-22-4	78.73	78.730	% Recov	70.000	130.000				01/11/10
MSD	Arsenic	7440-38-2	81.33	81.330	% Recov	70.000	130.000				01/11/10
MSD	Barium	7440-39-3	82.37	82.370	% Recov	70.000	130.000				01/11/10
MSD	Cadmium	7440-43-9	82.19	82.190	% Recov	70.000	130.000				01/11/10
MSD	Cobalt	7440-48-4	80.25	80.250	% Recov	70.000	130.000				01/11/10
MSD	Chromium	7440-47-3	72.52	72.520	% Recov	70.000	130.000				01/11/10
MSD	Copper	7440-50-8	77.05	77.050	% Recov	70.000	130.000				01/11/10
MSD	Mercury	7439-97-6	4.32	108.000	% Recov	70.000	130.000				01/11/10
MSD	Manganese	7439-96-5	71.2	71.200	% Recov	70.000	130.000				01/11/10

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20100016
Matrix: SOLID
Test: ICP-200.8 MS All possible meta

Sample Date: 12/31/09
Receive Date:01/04/10

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
MSD	Nickel	7440-02-0	75.1	75.100	% Recov	70.000	130.000				01/11/10
MSD	Lead	7439-92-1	82.8	82.800	% Recov	70.000	130.000				01/11/10
MSD	Antimony	7440-36-0	112.4	112.400	% Recov	70.000	130.000				01/11/10
MSD	Strontium	7440-24-6	80.51	80.510	% Recov	70.000	130.000				01/11/10
MSD	Thallium	7440-28-0	83.96	83.960	% Recov	70.000	130.000				01/11/10
MSD	Uranium	7440-61-1	83.28	83.280	% Recov	70.000	130.000				01/11/10
MSD	Vanadium	7440-62-2	78.49	78.490	% Recov	70.000	130.000				01/11/10
MSD	Zinc	7440-66-6	77.93	77.930	% Recov	70.000	130.000				01/11/10
SPK-RPD	Silver	7440-22-4	78.730		RPD			6.892	20.000		01/11/10
SPK-RPD	Arsenic	7440-38-2	81.330		RPD			5.011	20.000		01/11/10
SPK-RPD	Barium	7440-39-3	82.370		RPD			5.662	20.000		01/11/10
SPK-RPD	Cadmium	7440-43-9	82.190		RPD			4.368	20.000		01/11/10
SPK-RPD	Cobalt	7440-48-4	80.250		RPD			6.405	20.000		01/11/10
SPK-RPD	Chromium	7440-47-3	72.520		RPD			4.013	20.000		01/11/10
SPK-RPD	Copper	7440-50-8	77.050		RPD			5.159	20.000		01/11/10
SPK-RPD	Mercury	7439-97-6	108.000		RPD			6.699	20.000		01/11/10
SPK-RPD	Manganese	7439-96-5	71.200		RPD			16.139	20.000		01/11/10
SPK-RPD	Nickel	7440-02-0	75.100		RPD			6.319	20.000		01/11/10
SPK-RPD	Lead	7439-92-1	82.800		RPD			5.782	20.000		01/11/10
SPK-RPD	Antimony	7440-36-0	112.400		RPD			0.178	20.000		01/11/10
SPK-RPD	Strontium	7440-24-6	80.510		RPD			7.760	20.000		01/11/10
SPK-RPD	Thallium	7440-28-0	83.960		RPD			5.592	20.000		01/11/10
SPK-RPD	Uranium	7440-61-1	83.280		RPD			5.364	20.000		01/11/10
SPK-RPD	Vanadium	7440-62-2	78.490		RPD			7.245	20.000		01/11/10
SPK-RPD	Zinc	7440-66-8	77.930		RPD			5.975	20.000		01/11/10

BATCH QC

BLANK	Silver	7440-22-4	<0.1	n/a	ug/L					U	01/11/10
BLANK	Aluminum	7429-90-5	<5	n/a	ug/L					U	01/11/10
BLANK	Arsenic	7440-38-2	<0.4	n/a	ug/L					U	01/11/10

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20100016
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
BLANK	Barium	7440-39-3	<0.2	n/a	ug/L					U	01/11/10
BLANK	Beryllium	7440-41-7	<5e-2	n/a	ug/L					U	01/11/10
BLANK	Cadmium	7440-43-9	<0.1	n/a	ug/L					U	01/11/10
BLANK	Cobalt	7440-48-4	<5e-2	n/a	ug/L					U	01/11/10
BLANK	Chromium	7440-47-3	<0.5	n/a	ug/L					U	01/11/10
BLANK	Copper	7440-50-8	0.18	0.180	ug/L						01/11/10
BLANK	Mercury	7439-97-6	<5e-2	n/a	ug/L					U	01/11/10
BLANK	Manganese	7439-96-5	<0.1	n/a	ug/L					U	01/11/10
BLANK	Nickel	7440-02-0	<0.2	n/a	ug/L					U	01/11/10
BLANK	Lead	7439-92-1	<0.1	n/a	ug/L					U	01/11/10
BLANK	Antimony	7440-36-0	<0.3	n/a	ug/L					U	01/11/10
BLANK	Strontium	7440-24-6	<0.1	n/a	ug/L					U	01/11/10
BLANK	Thorium	7440-29-1	<0.1	n/a	ug/L					U	01/11/10
BLANK	Thallium	7440-28-0	<0.1	n/a	ug/L					U	01/11/10
BLANK	Uranium	7440-61-1	<5e-2	n/a	ug/L					U	01/11/10
BLANK	Vanadium	7440-62-2	0.29	0.290	ug/L						01/11/10
BLANK	Zinc	7440-66-6	<0.8	n/a	ug/L					U	01/11/10
LCS	Silver	7440-22-4	89.35	88.465	% Recov	81.000	128.000				01/11/10
LCS	Aluminum	7429-90-5	5955	72.094	% Recov	47.000	122.000				01/11/10
LCS	Arsenic	7440-38-2	117.5	89.015	% Recov	78.000	124.000				01/11/10
LCS	Barium	7440-39-3	271.7	85.172	% Recov	77.000	119.000				01/11/10
LCS	Beryllium	7440-41-7	79.42	88.737	% Recov	78.000	118.000				01/11/10
LCS	Cadmium	7440-43-9	58.74	88.331	% Recov	75.000	127.000				01/11/10
LCS	Cobalt	7440-48-4	64.48	88.208	% Recov	75.000	124.000				01/11/10
LCS	Chromium	7440-47-3	61.37	84.184	% Recov	67.000	119.000				01/11/10
LCS	Copper	7440-50-8	58.41	85.270	% Recov	68.000	122.000				01/11/10
LCS	Mercury	7439-97-6	6.21	75.000	% Recov	72.000	117.000				01/11/10
LCS	Manganese	7439-96-5	393.4	86.843	% Recov	72.000	123.000				01/11/10
LCS	Nickel	7440-02-0	48.37	86.996	% Recov	73.000	123.000				01/11/10
LCS	Lead	7439-92-1	114.9	88.385	% Recov	77.000	125.000				01/11/10

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20100016
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	Antimony	7440-36-0	101.3	112.306	% Recov	65.000	203.000				01/11/10
LCS	Strontium	7440-24-6	47.43	87.188	% Recov	77.000	118.000				01/11/10
LCS	Thorium	7440-29-1	353.9	88.475	% Recov	79.000	108.000				01/11/10
LCS	Thallium	7440-28-0	82.83	62.278	% Recov	55.000	130.000				01/11/10
LCS	Uranium	7440-61-1	362.4	90.600	% Recov	84.000	110.000				01/11/10
LCS	Vanadium	7440-62-2	69.03	83.169	% Recov	65.000	122.000				01/11/10
LCS	Zinc	7440-66-6	176.1	99.492	% Recov	75.000	130.000				01/11/10
Lab ID: W10GR00123											
BATCH QC ASSOCIATED WITH SAMPLE											
MS	Selenium	7782-49-2	98.57	98.570	% Recov	70.000	130.000				01/18/10
MSD	Selenium	7782-49-2	96.42	96.420	% Recov	70.000	130.000				01/18/10
SPK-RPD	Selenium	7782-49-2	96.420		RPD			2.205	20.000		01/18/10
BATCH QC											
BLANK	Selenium	7782-49-2	<0.3	n/a	ug/L					U	01/18/10
LCS	Selenium	7782-49-2	162.8	101.118	% Recov	82.000	129.000				01/18/10

WSCF
ANALYTICAL COMMENT REPORT

Attention: Steve Trent
Project Number F10-011

Group #: WSCF20100016
Department: Inorganic

Sample #	Client ID	Lab Area	Test	Comment
		VALGROUP		Organics: All data moisture corrected and results reported dry weight basis. DTS W10GR00052/U235 is flagged for poor RPD due to the low countrate of the sample. RPD does not apply. ICP-MS: Aluminum sample result more than 4X the spike amount. Spike information not valid. Aluminum spike not reported -- sample spiked did not request Aluminum. "X" flag ICP-MS: Vanadium and copper prep blanks above the MDL No samples affected. No flags IC Cation - MS/MSD recoveries out of limits for ammonia due to possible matrix interference in sample. Data N-flagged. DTS IC Anion - MS/MSD recoveries out of limits for phosphate and sulfate due to possible matrix interference in sample. Data N-flagged. DTS ICP-AES: Estimated boron result due to iron interference; "E" flag. Sample result less than 5 times the MDL; "B" flag. Iron result exceeds spiking level by a factor of 4 so spike

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 COMMENT REPORT

Attention: Steve Trent
Project Number F10-011

Group #: WSCF20100016
Department: Inorganic

Sample #	Client ID	Lab Area	Test	Comment
				recoveries are not valid. Note: Final report shows MS/MSD data for two samples not in this Sample Delivery Group. Please ignore these data as they can not be removed from this report. Future software for reporting data will address this issue.

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: F10-011
Sample # W10GR00052
Client ID: B22RW6 GPP WSCF

Matrix: SOIL

Group #: WSCF20100016
Department: Organic
Sampled: 01/05/10
Received: 01/05/10

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Alcohols, Glycols - 8015 Prep											**01/06/10**
Alcohols, Glycols - 8015											
Diethyl ether	60-29-7	Organics	U	< 5.00e+03	ug/kg			1.00	5.0e+03		01/06/10
Ethylene glycol	107-21-1	Organics	U	< 5.00e+03	ug/kg			1.00	5.0e+03		01/06/10
PCBs complete list Prep											**01/06/10**
PCBs complete list											
Aroclor-1016	12674-11-2	LA-523-427	U	< 10.0	ug/kg			1.00	10		01/07/10
Aroclor-1221	11104-28-2	LA-523-427	U	< 21.0	ug/kg			1.00	21		01/07/10
Aroclor-1232	11141-16-5	LA-523-427	U	< 10.0	ug/kg			1.00	10		01/07/10
Aroclor-1242	53469-21-9	LA-523-427	U	< 10.0	ug/kg			1.00	10		01/07/10
Aroclor-1248	12672-29-6	LA-523-427	U	< 10.0	ug/kg			1.00	10		01/07/10
Aroclor-1254	11097-69-1	LA-523-427	U	< 10.0	ug/kg			1.00	10		01/07/10
Aroclor-1260	11096-82-5	LA-523-427	U	< 10.0	ug/kg			1.00	10		01/07/10
Aroclor-1262	37324-23-5	LA-523-427	U	< 10.0	ug/kg			1.00	10		01/07/10
Aroclor-1268	11100-14-4	LA-523-427	U	< 10.0	ug/kg			1.00	10		01/07/10

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

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Organic

SDG Number: WSCF20100016
Matrix: SOLID
Test: Alcohols, Glycols - 8015

Sample Date: 12/28/09
Receive Date:12/28/09

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
Lab ID: W09GR01250											
BATCH QC ASSOCIATED WITH SAMPLE											
DUP	2-Bromoethanol	540-51-2	16200		RPD			8.284	25.000		01/06/10
DUP	Diethyl ether	60-29-7	<5000		RPD			n/a	25.000	U	01/06/10
DUP	Ethylene glycol	107-21-1	<5000		RPD			n/a	25.000	U	01/06/10
MS	2-Bromoethanol	540-51-2	15500	88.068	% Recov	70.000	125.000				01/06/10
MS	Diethyl ether	60-29-7	7600	107.042	% Recov	75.000	125.000				01/06/10
MS	Ethylene glycol	107-21-1	8400	75.676	% Recov	75.000	125.000				01/06/10
MSD	2-Bromoethanol	540-51-2	15600	88.636	% Recov	70.000	125.000				01/06/10
MSD	Diethyl ether	60-29-7	7000	98.592	% Recov	75.000	125.000				01/06/10
MSD	Ethylene glycol	107-21-1	8890	80.090	% Recov	75.000	125.000				01/06/10
SPK-RPD	2-Bromoethanol	540-51-2	88.636		RPD			0.643	20.000		01/06/10
SPK-RPD	Diethyl ether	60-29-7	98.592		RPD			8.218	20.000		01/06/10
SPK-RPD	Ethylene glycol	107-21-1	80.090		RPD			5.667	20.000		01/06/10
BATCH QC											
BLANK	2-Bromoethanol	540-51-2	17000	96.591	% Recov	75.000	125.000				01/06/10
BLANK	Diethyl ether	60-29-7	<5000	n/a	ug/Kg	0.000	10.000			U	01/06/10
BLANK	Ethylene glycol	107-21-1	<5000	n/a	ug/Kg	0.000	5.000			U	01/06/10
LCS	2-Bromoethanol	540-51-2	17600	100.000	% Recov	70.000	130.000				01/06/10
LCS	Diethyl ether	60-29-7	7200	101.408	% Recov	70.000	130.000				01/06/10
LCS	Ethylene glycol	107-21-1	9900	89.189	% Recov	70.000	130.000				01/06/10

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Organic

SDG Number: WSCF20100016
Matrix: SOLID
Test: PCBs complete list

Sample Date: 12/31/09
Receive Date:01/04/10

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
Lab ID: W10GR00008											
BATCH QC ASSOCIATED WITH SAMPLE											
MS	Aroclor-1254	11097-69-1	237.68	111.000	% Recov	75.000	125.000				01/07/10
MS	Decachlorobiphenyl	2051-24-3	195.75	91.500	% Recov	50.000	150.000				01/07/10
MS	Tetrachloro-m-xylene	877-09-8	180.71	84.400	% Recov	50.000	150.000				01/07/10
MSD	Aroclor-1254	11097-69-1	205.58	98.300	% Recov	75.000	125.000				01/07/10
MSD	Decachlorobiphenyl	2051-24-3	172.94	82.700	% Recov	50.000	150.000				01/07/10
MSD	Tetrachloro-m-xylene	877-09-8	161.13	77.000	% Recov	50.000	150.000				01/07/10
SPK-RPD	Aroclor-1254	11097-69-1	98.300		RPD			12.136	25.000		01/07/10
SPK-RPD	Decachlorobiphenyl	2051-24-3	82.700		RPD			10.103	20.000		01/07/10
SPK-RPD	Tetrachloro-m-xylene	877-09-8	77.000		RPD			9.170	20.000		01/07/10
Lab ID: W10GR00052											
BATCH QC ASSOCIATED WITH SAMPLE											
SURR	Decachlorobiphenyl	2051-24-3	189.99	91.600	% Recov	50.000	150.000				01/07/10
SURR	Tetrachloro-m-xylene	877-09-8	168.43	81.200	% Recov	50.000	150.000				01/07/10
BATCH QC											
BLANK	Aroclor-1016	12674-11-2	< 10	n/a	UGKG					U	01/07/10
BLANK	Aroclor-1221	11104-28-2	< 20	n/a	ug/Kg					U	01/07/10
BLANK	Aroclor-1232	11141-16-5	< 10	n/a	ug/Kg					U	01/07/10
BLANK	Aroclor-1242	53469-21-9	< 10	n/a	ug/Kg					U	01/07/10
BLANK	Aroclor-1248	12672-29-6	< 10	n/a	ug/Kg					U	01/07/10
BLANK	Aroclor-1254	11097-69-1	< 10	n/a	ug/Kg					U	01/07/10
BLANK	Aroclor-1260	11096-82-5	< 10	n/a	ug/Kg					U	01/07/10
BLANK	Aroclor-1262	37324-23-5	< 10	n/a	ug/Kg					U	01/07/10
BLANK	Aroclor-1268	11100-14-4	< 10	n/a	ug/Kg					U	01/07/10
BLANK	Decachlorobiphenyl	2051-24-3	191.14	95.600	% Recov	50.000	150.000				01/07/10

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Organic

SDG Number: WSCF20100016
Matrix: SOLID
Test: PCBs complete list

Sample Date:
Receive Date:

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
BLANK	Tetrachloro-m-xylene	877-09-8	159.63	79.800	% Recov	50.000	150.000				01/07/10
LCS	Aroclor-1254	11097-69-1	176.52	88.300	% Recov	70.000	130.000				01/07/10
LCS	Decachlorobiphenyl	2051-24-3	180.73	90.400	% Recov	50.000	150.000				01/07/10
LCS	Tetrachloro-m-xylene	877-09-8	156.06	78.000	% Recov	50.000	150.000				01/07/10

WSCF
ANALYTICAL COMMENT REPORT

Attention: Steve Trent
Project Number F10-011

Group #: WSCF20100016
Department: Organic

Sample #	Client ID	Lab Area	Test	Comment
		VALGROUP		Organics: All data moisture corrected and results reported dry weight basis. DTS W10GR00052/U235 is flagged for poor RPD due to the low countrate of the sample. RPD does not apply. ICP-MS: Aluminum sample result more than 4X the spike amount. Spike information not valid. Aluminum spike not reported -- sample spiked did not request Aluminum. "X" flag ICP-MS: Vanadium and copper prep blanks above the MDL No samples affected. No flags IC Cation - MS/MSD recoveries out of limits for ammonia due to possible matrix interference in sample. Data N-flagged. DTS IC Anion - MS/MSD recoveries out of limits for phosphate and sulfate due to possible matrix interference in sample. Data N-flagged. DTS ICP-AES: Estimated boron result due to iron interference; "E" flag. Sample result less than 5 times the MDL; "B" flag. Iron result exceeds spiking level by a factor of 4 so spike

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 COMMENT REPORT

Attention: Steve Trent
Project Number F10-011

Group #: WSCF20100016
Department: Organic

Sample #	Client ID	Lab Area	Test	Comment
				recoveries are not valid. Note: Final report shows MS/MSD data for two samples not in this Sample Delivery Group. Please ignore these data as they can not be removed from this report. Future software for reporting data will address this issue.

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: F10-011
Sample # W10GR00052
Client ID: B22RW6 GPP WSCF

Matrix: SOIL

Group #: WSCF20100016
Department: Radiochemistry
Sampled: 01/05/10
Received: 01/05/10

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Americium by AEA											
Americium-241	14596-10-2	LA-508-471	U	3.80e-03	pCi/g	+-0.0263	pCi/g	1.00	0.047		01/11/10
Am-243 tracer by AEA	AM243	LA-508-471		4.10	pCi/g			1.00	0.030		01/11/10
Gamma Energy Analysis-grd H2O											
Antimony-125	14234-35-6	LA-508-481	U	-0.0183	pCi/g	+-0.0397	pCi/g	1.00	0.068		01/06/10
Cobalt-60	10198-40-0	LA-508-481	U	-7.64e-03	pCi/g	+-0.0138	pCi/g	1.00	0.020		01/06/10
Cesium-137	10045-97-3	LA-508-481	U	2.55e-03	pCi/g	+-0.0151	pCi/g	1.00	0.027		01/06/10
Europium-152	14683-23-9	LA-508-481	U	9.80e-03	pCi/g	+-0.0529	pCi/g	1.00	0.082		01/06/10
Europium-154	15585-10-1	LA-508-481	U	-0.0131	pCi/g	+-0.0484	pCi/g	1.00	0.084		01/06/10
Europium-155	14391-16-3	LA-508-481	U	0.0242	pCi/g	+-0.0820	pCi/g	1.00	0.14		01/06/10
Gross Alpha on Alpha Plateau											
Gross alpha on alpha plateau	12587-46-1	LA-508-415		1.20	pCi/g	+-0.324	pCi/g	1.00	0.26		01/06/10
Gross Alpha/Gross Beta (AB32)											
Gross beta	12587-47-2	LA-508-415		1.50	pCi/g	+-0.375	pCi/g	1.00	0.46		01/06/10
Plutonium Isotopics by AEA											
Plutonium-238	13981-16-3	LA-508-471	U	1.80e-03	pCi/g	+-1.80e-03	pCi/g	1.00	0.055		01/11/10
Pu-239/240 by AEA	PU-239/240	LA-508-471	U	7.20e-03	pCi/g	+-0.0104	pCi/g	1.00	0.017		01/11/10
Pu-242	13982-10-0	LA-508-471		6.10	pCi/g			1.00	0.017		01/11/10
Strontium 89/90											
Strontium-89/90	SR-RAD	LA-508-415	U	0.0100	pCi/g	+-0.100	pCi/g	1.00	0.61		01/11/10
Sr-85 Tracer by Beta Counting	SR85	LA-508-415		58.7	Percent			1.00	0.0		01/11/10
TC99 by Liquid Scin.											
Tc-99 by Liquid Scin.	14133-76-7	LA-508-421	U	-0.150	pCi/g	+-0.180	pCi/g	1.00	0.30		01/06/10
Uranium Isotopics by AEA											
Uranium-233/234	U-233/234	LA-508-471		0.130	pCi/g	+-0.0468	pCi/g	1.00	0.014		01/11/10

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

WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent
SAF Number: F10-011
Sample # W10GR00052
Client ID: B22RW6 GPP WSCF

Matrix: SOIL

Group #: WSCF20100016
Department: Radiochemistry
Sampled: 01/05/10
Received: 01/05/10

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Uranium-235	15117-96-1	LA-508-471		0.0400	pCi/g	+-0.0212	pCi/g	1.00	0.015		01/11/10
Uranium-238	U-238	LA-508-471		0.100	pCi/g	+-0.0380	pCi/g	1.00	0.014		01/11/10
U-232 tracer by AEA	U232	LA-508-471		4.00	pCi/g			1.00	0.037		01/11/10

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

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Radiochemistry

SDG Number: WSCF20100016
Matrix: SOLID
Test: Americium by AEA

Sample Date: 01/05/10
Receive Date:01/05/10

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
Lab ID: W10GR00052											
BATCH QC ASSOCIATED WITH SAMPLE											
DUP	Americium-241	14596-10-2	U2.2e-2		RPD			n/a	20.000		01/11/10
DUP	Am-243 tracer by AEA	AM243	4.0544	97.850	% Recov	30.000	105.000				01/11/10
SURR	Am-243 tracer by AEA	AM243	4.109	84.840	% Recov	30.000	105.000				01/11/10
BATCH QC											
BLANK	Americium-241	14596-10-2	U8e-3	n/a	pCi/g	-10.000	1000.000				01/11/10
BLANK	Am-243 tracer by AEA	AM243	4.216	87.240	% Recov	30.000	105.000				01/11/10
LCS	Americium-241	14596-10-2	11.72	98.903	% Recov	80.000	120.000				01/11/10
LCS	Am-243 tracer by AEA	AM243	11.70	84.370	% Recov	30.000	105.000				01/11/10

WSCF ANALYTICAL LABORATORY QC REPORT

Department: **Radiochemistry**

SDG Number: WSCF20100016
Matrix: SOLID
Test: Gamma Energy Analysis-grd H2O

Sample Date: 01/05/10
Receive Date:01/05/10

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
Lab ID: W10GR00030											
BATCH QC ASSOCIATED WITH SAMPLE											
DUP	Cobalt-60	10198-40-0	U2.536e-3		RPD			n/a	20.000		01/06/10
DUP	Cesium-137	10045-97-3	U8.015e-3		RPD			n/a	20.000		01/06/10
BATCH QC											
BLANK	Cobalt-60	10198-40-0	U1.177e-3	n/a	pCi/g	-10.000	1000.000				01/07/10
BLANK	Cesium-137	10045-97-3	U-1.206e-3	n/a	pCi/g	-10.000	1000.000				01/07/10
BLANK	Europium-152	14683-23-9	U-5.321e-3	n/a	pCi/g	-10.000	1000.000				01/07/10
BLANK	Europium-154	15585-10-1	U-2.452e-3	n/a	pCi/g	-10.000	1000.000				01/07/10
BLANK	Europium-155	14391-16-3	U-5.813e-3	n/a	pCi/g	-10.000	1000.000				01/07/10
BLANK	Antimony-125	14234-35-6	U-2.313e-3	n/a	pCi/g	-10.000	1000.000				01/07/10
LCS	Cobalt-60	10198-40-0	10380	104.427	% Recov	80.000	120.000				01/07/10
LCS	Cesium-137	10045-97-3	6486	107.384	% Recov	80.000	120.000				01/07/10

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Radiochemistry

SDG Number: WSCF20100016
Matrix: SOLID
Test: Gross Alpha on Alpha Plateau

Sample Date: 01/05/10
Receive Date:01/05/10

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
Lab ID: W10GR00052											
BATCH QC ASSOCIATED WITH SAMPLE											
DUP	Gross alpha on alpha plateau	12587-46-1	1.4		RPD			15.385	20.000		01/06/10
BATCH QC											
BLANK	Gross alpha on alpha plateau	12587-46-1-ap	U-1.1e-02	n/a	pCi/g	-2.000	2.000				01/06/10
LCS	Gross alpha on alpha plateau	12587-46-1-ap	5.64	86.636	% Recov	80.000	120.000				01/06/10

WSCF ANALYTICAL LABORATORY QC REPORT

Department: **Radiochemistry**

SDG Number: WSCF20100016
Matrix: SOLID
Test: Gross Alpha/Gross Beta (AB32)

Sample Date: 01/05/10
Receive Date:01/05/10

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
Lab ID: W10GR00052											
BATCH QC ASSOCIATED WITH SAMPLE											
DUP	Gross beta	12587-47-2	1.6		RPD			6.452	20.000		01/06/10
BATCH QC											
BLANK	Gross beta	12587-47-2	U-8.3e-02	n/a	pCi/g	-10.000	10.000				01/06/10
LCS	Gross beta	12587-47-2	23.0	103.139	% Recov	80.000	120.000				01/06/10

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Radiochemistry

SDG Number: WSCF20100016
Matrix: SOLID
Test: Plutonium Isotopics by AEA

Sample Date: 01/05/10
Receive Date:01/05/10

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
Lab ID: W10GR00052											
BATCH QC ASSOCIATED WITH SAMPLE											
DUP	Plutonium-238	13981-16-3	U1.1e-2		RPD			n/a	20.000		01/11/10
DUP	Pu-239/240 by AEA	PU-239/240	U9.2e-3		RPD			n/a	20.000		01/11/10
DUP	Pu-242	13982-10-0	6	86.236	% Recov	30.000	105.000				01/11/10
SURR	Pu-242	13982-10-0	6.076	91.250	% Recov	30.000	105.000				01/11/10
BATCH QC											
BLANK	Plutonium-238	13981-16-3	U-3.7e-2	n/a	pCi/g	-10.000	1000.000				01/11/10
BLANK	Pu-239/240 by AEA	PU-239/240	U-1.2e-2	n/a	pCi/g	-10.000	1000.000				01/11/10
BLANK	Pu-242	PU242	6.234	88.010	% Recov	30.000	105.000				01/11/10
LCS	Pu-239/240 by AEA	PU-239/240	12.74	99.183	% Recov	80.000	120.000				01/11/10
LCS	Pu-242	PU242	17.3	84.700	% Recov	30.000	105.000				01/11/10

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Radiochemistry

SDG Number: WSCF20100016
Matrix: SOLID
Test: Strontium 89/90

Sample Date: 01/05/10
Receive Date:01/05/10

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
Lab ID: W10GR00052											
BATCH QC ASSOCIATED WITH SAMPLE											
DUP	Sr-85 Tracer by Beta Counting	SR85	69	69.000	% Recov	30.000	105.000				01/11/10
DUP	Strontium-89/90	SR-RAD	U-3.1E-01		RPD			n/a	20.000		01/11/10
SURR	Sr-85 Tracer by Beta Counting	SR85	58.7	58.700	% Recov	30.000	105.000				01/11/10
BATCH QC											
BLANK	Sr-85 Tracer by Beta Counting	SR85	74.4	74.400	% Recov	30.000	105.000				01/11/10
BLANK	Strontium-89/90	10098-97-2	U-1.4	n/a	pCi/g	-10.000	300.000				01/11/10
LCS	Sr-85 Tracer by Beta Counting	SR85	67	67.000	% Recov	30.000	105.000				01/11/10
LCS	Strontium-89/90	10098-97-2	96.9	96.900	% Recov	80.000	120.000				01/11/10

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Radiochemistry

SDG Number: WSCF20100016
Matrix: SOLID
Test: TC99 by Liquid Scin.

Sample Date: 01/05/10
Receive Date:01/05/10

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
Lab ID: W10GR00030											
BATCH QC ASSOCIATED WITH SAMPLE											
DUP	Tc-99 by Liquid Scin.	14133-76-7	U-8.3E-02		RPD			n/a	20.000		01/06/10
MS	Tc-99 by Liquid Scin.	14133-76-7	107.4	107.400	% Recov	75.000	125.000				01/06/10
BATCH QC											
BLANK	Tc-99 by Liquid Scin.	14133-76-7	U-8.3E-03	n/a	pCi/g	-10.000	1000.000				01/06/10
LCS	Tc-99 by Liquid Scin.	14133-76-7	9.7	110.227	% Recov	80.000	120.000				01/06/10

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Radiochemistry

SDG Number: WSCF20100016
Matrix: SOLID
Test: Uranium Isotopics by AEA

Sample Date: 01/05/10
Receive Date:01/05/10

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
Lab ID: W10GR00052											
BATCH QC ASSOCIATED WITH SAMPLE											
DUP	U-232 tracer by AEA	U232	3.901	83.890	% Recov	30.000	105.000				01/11/10
DUP	Uranium-233/234	U-233/234	0.12		RPD			8.000	20.000		01/11/10
DUP	Uranium-235	15117-96-1	1.6e-2		RPD			85.714	20.000		01/11/10
DUP	Uranium-238	U-238	9.1e-2		RPD			9.424	20.000		01/11/10
SURR	U-232 tracer by AEA	U232	3.954	83.930	% Recov	30.000	105.000				01/11/10
BATCH QC											
BLANK	U-232 tracer by AEA	U232	4.057	91.270	% Recov	30.000	105.000				01/11/10
BLANK	Uranium-233/234	13966-29-5	2.4e-2	0.024	pCi/g	-10.000	1000.000				01/11/10
BLANK	Uranium-235	15117-96-1	U2e-3	n/a	pCi/g	-10.000	1000.000				01/11/10
BLANK	Uranium-238	24678-82-8	U7.4e-3	n/a	pCi/g	-10.000	1000.000				01/11/10
LCS	U-232 tracer by AEA	U232	11.26	79.510	% Recov	30.000	105.000				01/11/10
LCS	Uranium-238	24678-82-8	18.03	95.120	% Recov	80.000	120.000				01/11/10

WSCF
ANALYTICAL COMMENT REPORT

Attention: Steve Trent
Project Number F10-011

Group #: WSCF20100016
Department: Radiochemistry

Sample #	Client ID	Lab Area	Test	Comment
		VALGROUP		Organics: All data moisture corrected and results reported dry weight basis. DTS W10GR00052/U235 is flagged for poor RPD due to the low countrate of the sample. RPD does not apply. ICP-MS: Aluminum sample result more than 4X the spike amount. Spike information not valid. Aluminum spike not reported -- sample spiked did not request Aluminum. "X" flag ICP-MS: Vanadium and copper prep blanks above the MDL No samples affected. No flags IC Cation - MS/MSD recoveries out of limits for ammonia due to possible matrix interference in sample. Data N-flagged. DTS IC Anion - MS/MSD recoveries out of limits for phosphate and sulfate due to possible matrix interference in sample. Data N-flagged. DTS ICP-AES: Estimated boron result due to iron interference; "E" flag. Sample result less than 5 times the MDL; "B" flag. Iron result exceeds spiking level by a factor of 4 so spike

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 COMMENT REPORT

Attention: Steve Trent
Project Number F10-011

Group #: WSCF20100016
Department: Radiochemistry

Sample #	Client ID	Lab Area	Test	Comment
				recoveries are not valid. Note: Final report shows MS/MSD data for two samples not in this Sample Delivery Group. Please ignore these data as they can not be removed from this report. Future software for reporting data will address this issue.

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 F10-011 :F10-011

Group #: WSCF20100016
Department: Radiochemistry

Sample #	Client ID		Test Name	Peak Name	CAS#	RT	RQ	Result	Units
W10GR00052	B22RW6	GPP	Gamma Energy Analysis-grd H2O	AC-228				0.55	pCi/g
W10GR00052	B22RW6	GPP	Gamma Energy Analysis-grd H2O	AC-228 Count Error				36	%
W10GR00052	B22RW6	GPP	Gamma Energy Analysis-grd H2O	BI-212				0.87	pCi/g
W10GR00052	B22RW6	GPP	Gamma Energy Analysis-grd H2O	BI-212 Count Error				41	%
W10GR00052	B22RW6	GPP	Gamma Energy Analysis-grd H2O	BI-214				0.47	pCi/g
W10GR00052	B22RW6	GPP	Gamma Energy Analysis-grd H2O	BI-214 Count Error				25	%
W10GR00052	B22RW6	GPP	Gamma Energy Analysis-grd H2O	K-40				13	pCi/g
W10GR00052	B22RW6	GPP	Gamma Energy Analysis-grd H2O	K-40 Count Error				13	%
W10GR00052	B22RW6	GPP	Gamma Energy Analysis-grd H2O	PB-212				0.53	pCi/g
W10GR00052	B22RW6	GPP	Gamma Energy Analysis-grd H2O	PB-212 Count Error				15	%
W10GR00052	B22RW6	GPP	Gamma Energy Analysis-grd H2O	PB-214				0.86	pCi/g
W10GR00052	B22RW6	GPP	Gamma Energy Analysis-grd H2O	PB-214 Count Error				48	%
W10GR00052	B22RW6	GPP	Gamma Energy Analysis-grd H2O	RA-226				0.42	pCi/g
W10GR00052	B22RW6	GPP	Gamma Energy Analysis-grd H2O	RA-226 Count Error				20	%
W10GR00052	B22RW6	GPP	Gamma Energy Analysis-grd H2O	RA-228				0.55	pCi/g
W10GR00052	B22RW6	GPP	Gamma Energy Analysis-grd H2O	RA-228 Count Error				23	%
W10GR00052	B22RW6	GPP	Gamma Energy Analysis-grd H2O	TL-208				0.17	pCi/g
W10GR00052	B22RW6	GPP	Gamma Energy Analysis-grd H2O	TL-208 Count Error				21	%

RQ=Result Qualifier

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M4W41-SLF-10-053

ATTACHMENT 4

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

File

ACKNOWLEDGMENT OF SAMPLES RECEIVED

01/07/10

Changed to 45 days 2/18/10

Groundwater Remediation Program

Richland, WA 99354
Attn: Steve Trent

Customer Code: GPP
PO#: 30214ES10
Group#: 20100016
Project#: F10-011
Proj Mgr: Steve Trent
Phone: 373-5869

The following samples were received from you on 01/05/10. 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
W10GR00052	B22RW6	GPP @2008 @8015GPP @AB-32 @AEA-30 @AEA-31 @AEA-32 @ALPHA @GEA-GPP @GPP6010 @IC-30 @PCBG @SR89_90 @TC99-30 CN-02 CR+6 NH4-IC PERSO	Solid, or handle as if solid	01/05/10

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 H20 P
@IC-30	Anions by Ion Chromatography
@PCBGPP	PCBs complete list
@SR89_90	Strontium 89/90
@TC99-30	TC99 by Liquid Scin.
CN-02	Cyanide by Midi/Spectrophotom
CR+6	Hexavalent chromium
NH4-IC	Ammonia (N) by IC
PERSOLID	Percent Solids

CH2MHill Plateau Remediation Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

F10-011-171

COLLECTOR
Rosane, Rust ~~Farris~~ Chamberlain 01/07/10

COMPANY CONTACT
DYEKMAN, DL

TELEPHONE NO.
373-2530

PROJECT COORDINATOR
DYEKMAN, DL

PRICE CODE 2A

DATA TURNAROUND
24 Hours / 15 Days

SAMPLING LOCATION
C5860 (299-E29-54); I-126

PROJECT DESIGNATION
ARRA 200-LW-2 OU Characterization Vadose Zone - Soil ("K" Well)

SAF NO.
F10-011

AIR QUALITY ☐

ICE CHEST NO.

FIELD LOGBOOK NO.
HNF-N-576-3 ~~102~~ 102 CBL 1-5-10

ACTUAL SAMPLE DEPTH
302.1' - 305.3'

COA
302143ES10

METHOD OF SHIPMENT
GOVERNMENT VEHICLE

SHIPPED TO
Waste Sampling & Characterization 20100016

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

PRESERVATION	Cool~4C	Cool~4C	None	Cool~4C	Cool~4C	Cool~4C	Cool~4C	None	None
TYPE OF CONTAINER	aG/S	aG	G/P	G/P	G/P	G	aG	Square Bottle - Poly	G/P
NO. OF CONTAINER(S)	3	1	1	1	1	1	1	1	1
VOLUME	40mL	250mL	120mL	120mL	120mL	60mL	250mL	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	SEE ITEM (7) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME									
B22RW6	SOIL	1/5/10 ~~12-30-09~~	~~102~~ 102 CBL 1-5-10	✓	N/A	✓	✓	✓	✓	✓	✓	✓
W106R0052												

CHAIN OF POSSESSION

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Larry Rosane Larry Rosane FOR 1-5-10	1430	[illegible]	1/5/10 1430
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
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME

SIGN/ PRINT NAMES

SPECIAL INSTRUCTIONS
SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS

No Sample taken lack of soil per FTR 31R

☐ ORIGINAL

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

A-6003-618(01/06)

CH2MHill Plateau Remediation Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

F10-011-171

COLLECTOR Rosanne Rust Chamberlain	**COMPANY CONTACT** DYEKMAN, DL	**TELEPHONE NO.** 373-2530	**PROJECT COORDINATOR** DYEKMAN, DL	**PRICE CODE** 2A	**DATA TURNAROUND**
SAMPLING LOCATION C5860 (299-E29-54); I-126	**PROJECT DESIGNATION** ARRA 200-LW-2 OU Characterization Vadose Zone - Soil ("K" Well)		**SAF NO.** F10-011	**AIR QUALITY** ☐	**24 Hours / 15 Days**
ICE CHEST NO.	**FIELD LOGBOOK NO.** HNF-N-576-3 pg 102	**ACTUAL SAMPLE DEPTH** 302.1 - 305.3'	**COA** 302143ES10	**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, Bismuth, 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)PCBs - 8082 {Aroclor-1262, Aroclor-1260, Aroclor-1254, Aroclor-1242, Aroclor-1232, Aroclor-1268, Aroclor-1221, Aroclor-1016, Aroclor-1248}
(6)Gamma Spectroscopy {Europium-155, Cesium-137, Europium-154, Europium-152, Cobalt-60} Gamma Spec - Add-on {Antimony-125}
(7)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

A-6003-618(01/06)