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FLUOR

Memorandum

M4W41-SLF-08-1112

To: H. Hampt E6-35 Date: October 1, 2008

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

cc: w/Attachments

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

Subject: FINAL RESULTS FOR SAMPLE DELIVERY GROUP WSCF20081788 – SAF NUMBER F08-093

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

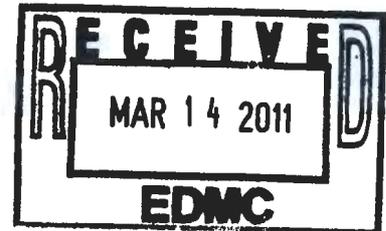
(2) HNF-SD-CD-QAPP-017, Rev. 9, Waste Sampling & Characterization Facility Quality Assurance Plan

This letter contains the following information for sample delivery group WSCF20081788:

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

SLF/grf

Attachments 4



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ATTACHMENT 1

COVER SHEET

Consisting of 2 pages
Including cover page

WSCF SAF NUMBER CROSS REFERENCE

Group#: WSCF20081788
Data Deliverable Date: 02-oct-2008
Data Deliverable: Cover Sheet

SAF#	Sample ID	WSCF#	Matrix
F08-093	B1VHP7	W08GR03416	SOIL
	B1VHP8	W08GR03417	SOIL

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ATTACHMENT 2

CORRECTED NARRATIVE w/P&D

Consisting of 5 pages
Including cover page

Attachment 2
Narrative, Rev.1
WSCF20081788

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

Introduction

Two (2) S&GRP samples were received at the WSCF Laboratory on August 19, 2008. Samples were analyzed for the analytes indicated on the attached copy of the chain of custody (COC) form in accordance with the *Groundwater Remediation Program – Letter of Instruction*, referenced in the cover letter.

The narrative (Attachment 2) will address sample characteristics, analyses requested and general information in performance of the analytical methods. A Data Summary Report (Attachment 3) includes analytical results, a comment report detailing method abnormalities, tentatively identified peaks if applicable, method references, and Laboratory QC information as applicable. Copies of the chain of custody and sample receipt documentation are included as Attachment 4. Additionally, a copy of the completed P&D # WSCF20081788 is included with this case narrative.

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.

Analytical Methodology for Requested Analyses

Refer to *WSCF Method References Report*, pages 12 through 13, for a complete listing of approved analytical methods.

Inorganic Comments

Anions – Hold time requirements for this analysis were met. A Duplicate, Matrix Spike, Matrix Spike Duplicate, Blank and Laboratory Control Sample were analyzed with this delivery group per GRP Letter of Instruction. See pages 18 through 19 for QC details. Analytical Note(s):

- Sample results were D flagged if dilution(s) were required.
- Sample results that were less than the reportable limit, however greater than the method detection limit, were B flagged.
- Duplicate, Matrix Spike and Matrix Spike Duplicate were analyzed on sample# B1VHP7 (SDG# 20081788, SAF# F08-093).
- Sulfate-S – The RPD value for the duplicate of sample B1VHP7 did not meet the laboratory established limit. The analyte concentration in the sample was below the calibration range.

Attachment 2
Narrative, Rev.1
WSCF20081788

- Phosphate-P – Matrix Spike and Matrix Spike Duplicate recoveries in sample B1VHP7 were less than established laboratory limits. Affected sample results in this batch were N flagged.

All other QC controls are within the established limits.

Cyanide – The hold time requirement for this analysis was met. A Matrix Spike, Matrix Spike Duplicate, Blank and Laboratory Control Sample were analyzed with this delivery group per GRP Letter of Instruction. See page 20 for QC details. Analytical Note(s):

- Matrix Spike and Matrix Spike Duplicate were analyzed on sample# B1VHP6 (SDG# 20081766, SAF# F08-093).

All QC controls are within the established limits.

ICP-AES Metals – The hold time requirements for this analysis were met. A Matrix Spike, Matrix Spike Duplicate, Blank and Laboratory Control Sample were analyzed with this delivery group per the GRP Letter of Instruction. See pages 21 through 23 for QC details. Analytical Note(s):

- The Lithium percent recovery does not apply since it is not present in the LCS.
- Sample results were D flagged if dilution(s) were required.
- Sample results that were less than five times the reportable limit, however greater than the method detection limit, were B flagged.
- Matrix Spike and Matrix Spike Duplicate were analyzed on sample# B1VHR2 (SDG# 20081738, SAF# F08-093).
- Aluminum, Calcium, Iron, Magnesium and Titanium – Sample concentrations exceeded spiking levels by a factor of 4. Matrix Spike and Matrix Spike Duplicate recoveries exceeded established laboratory limits. Spike recoveries are not valid.
- Check standard was analyzed to ensure linearity, because the sample results exceeded the calibration standard.
- Sodium – Matrix Spike and Matrix Spike Duplicate recoveries exceeded established laboratory limits. Affected sample results were N flagged.
- Boron – Results were biased high due to interference from Iron. Sample results were E flagged (estimated).

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

Attachment 2
 Narrative, Rev.1
 WSCF20081788

group per the GRP Letter of Instruction. See pages 24 through 28 for QC details. Analytical Note(s):

- Matrix Spikes and Matrix Spike Duplicates were analyzed on samples B1WB33 (SDG# 20081722, SAF# F08-093) B1WB34 (SDG# 20081722, SAF# F08-093), and B1WMD9 (SDG# 20081859, SAF# F08-148).

All QC controls are within the established limits.

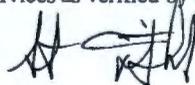
Radiochemistry Comments

Rad Chem – There are no hold times associated with WSCF's radiochemical methods. A Duplicate, Matrix Spike, Blank and Laboratory Control Sample were analyzed with this delivery group. See pages 34 through 38 for QC details. Analytical Note(s):

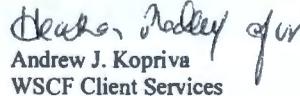
- Americium-241 and 243 (tracer) – Duplicate QC was analyzed on sample# B1VHP7 (SDG# 20081788, SAF# F08-093).
- Americium-241 and 243 (tracer) – The RPD value for the duplicate of sample B1VHP7 did not meet the laboratory established limit, but the sample activity was low. RPD values do not apply to low level samples.
- Uranium Analysis-233/234, 235, 238 and 232 (tracer) – Duplicate QC was analyzed on sample# B1VHP7 (SDG# 20081788, SAF# F08-093).
- Uranium Analysis-233/234, 235, 238 and 232 (tracer) – U-234 was observed in the blank. The origin of the U-234 in the blank was unknown. The blank was recounted to establish that there was not uranium contamination present.

All other QC controls are within the established limits.

I certify that this data package is in compliance with the LOI, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the Laboratory Analytical Manager and Client Services as verified by the following signatures.



Scot L. Fitzgerald
 WSCF Analytical Laboratory Manager



Andrew J. Kopriva
 WSCF Client Services

Attachment 2
Narrative, Rev.1
WSCF20081788

Problem and Discrepancy Report

WSCF

SDG WSCF20081788

1. The data package has the following issues:

- a) Case Narrative, page 5 of 43, **Introduction** – Although the COC was not stamped “ICED” by the WSCF Laboratory Sample Custodian during sample receiving, please include a comment about whether (or not) any anomalies were identified during sample receiving

Resolution: *Revise case narrative.*

Lab Response: Case Narrative has been revised to state, “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.

- b) Case Narrative, Page 6, of 43, **ICP-AES Metals** – please include an explanation for not providing an LCS percent recovery for Lithium.

Resolution: *Revise case narrative.*

Lab Response: The narrative has been revised to include a comment that the Lithium is not in the LCS.

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

M4W41-SLF-08-1112

ATTACHMENT 3

ANALYTICAL RESULTS

Consisting of 32 pages
Including cover page

**WSCF
ANALYTICAL RESULTS REPORT**

for

Groundwater Remediation Program

Richland, WA 99354

Attention: Steve Trent

Analytical: M. Stauffer M. Stauffer 10/1/08

Client Services: A. Kopriva A. Kopriva 9/30/08

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#: WSCF20081788
Report Date: 30-sep-2008
Report WGPP/ver. 5.2
Groundwater Remediation Program

w13qlog v4.2 30-sep-2008 14:07:33

Department: Inorganic

W13q Worklist/Batch/QC Report for Group# WSCF20081788

WL#	S#	Batch	QC#	Tray Type	Sample#	Test
37818	1	38243	42622	BLANK		Cyanide by Midi/Spectrophotom
37818	2	38243	42622	LCS		Cyanide by Midi/Spectrophotom
37818	4	38243	42622	MS	W08GR03388	Cyanide by Midi/Spectrophotom
37818	5	38243	42622	MSD	W08GR03388	Cyanide by Midi/Spectrophotom
37818	5	38243	42622	SPK-RPD	W08GR03388	Cyanide by Midi/Spectrophotom
37818	6	38243	42622	SAMPLE	W08GR03416	Cyanide by Midi/Spectrophotom
37818	7	38243	42622	SAMPLE	W08GR03417	Cyanide by Midi/Spectrophotom
37929	1	38356	42770	BLANK		ICP-200.8 MS All possible meta
37929	2	38356	42770	LCS		ICP-200.8 MS All possible meta
37929	5	38356	42770	MS	W08GR03325	ICP-200.8 MS All possible meta
37929	6	38356	42770	MSD	W08GR03325	ICP-200.8 MS All possible meta
37929	6	38356	42770	SPK-RPD	W08GR03325	ICP-200.8 MS All possible meta
37929	8	38356	42770	MS	W08GR03326	ICP-200.8 MS All possible meta
37929	9	38356	42770	MSD	W08GR03326	ICP-200.8 MS All possible meta
37929	9	38356	42770	SPK-RPD	W08GR03326	ICP-200.8 MS All possible meta
37929	20	38356	42770	SAMPLE	W08GR03416	ICP-200.8 MS All possible meta
37929	21	38356	42770	SAMPLE	W08GR03417	ICP-200.8 MS All possible meta
37929	11	38356	42770	MS	W08GR03514	ICP-200.8 MS All possible meta
37929	12	38356	42770	MSD	W08GR03514	ICP-200.8 MS All possible meta
37929	12	38356	42770	SPK-RPD	W08GR03514	ICP-200.8 MS All possible meta
38040	2	38460	42875	BLANK		Anions by Ion Chromatography
38040	12	38460	42875	BLANK		Anions by Ion Chromatography
38040	3	38460	42875	LCS		Anions by Ion Chromatography
38040	5	38460	42875	DUP	W08GR03416	Anions by Ion Chromatography
38040	6	38460	42875	MS	W08GR03416	Anions by Ion Chromatography
38040	7	38460	42875	MSD	W08GR03416	Anions by Ion Chromatography
38040	4	38460	42875	SAMPLE	W08GR03416	Anions by Ion Chromatography
38040	7	38460	42875	SPK-RPD	W08GR03416	Anions by Ion Chromatography
38040	8	38460	42875	SAMPLE	W08GR03417	Anions by Ion Chromatography
38158	1	38566	43041	BLANK		ICP Metals Analysis, Grd H20 P
38158	2	38566	43041	LCS		ICP Metals Analysis, Grd H20 P
38158	4	38566	43041	MS	W08GR03336	ICP Metals Analysis, Grd H20 P
38158	5	38566	43041	MSD	W08GR03336	ICP Metals Analysis, Grd H20 P
38158	5	38566	43041	SPK-RPD	W08GR03336	ICP Metals Analysis, Grd H20 P
38158	15	38566	43041	SAMPLE	W08GR03416	ICP Metals Analysis, Grd H20 P
38158	16	38566	43041	SAMPLE	W08GR03417	ICP Metals Analysis, Grd H20 P

w13qlog v4.2 30-sep-2008 14:07:33

Department: Radiochemistry

W13q Worklist/Batch/QC Report for Group# WSCF20081788

WL#	S#	Batch	QC#	Tray Type	Sample#	Test
37919	1	38346	42896	BLANK		Strontium 89/90
37919	2	38346	42896	LCS		Strontium 89/90
37919	3	38346	42896	DUP	W08GR03416	Strontium 89/90
37919	4	38346	42896	SAMPLE	W08GR03416	Strontium 89/90
37919	5	38346	42896	SURR	W08GR03416	Strontium 89/90
37919	6	38346	42896	SAMPLE	W08GR03417	Strontium 89/90
37919	7	38346	42896	SURR	W08GR03417	Strontium 89/90
38099	1	38520	42946	BLANK		Plutonium Isotopics by AEA
38099	2	38520	42946	LCS		Plutonium Isotopics by AEA
38099	3	38520	42946	DUP	W08GR03416	Plutonium Isotopics by AEA
38099	4	38520	42946	SAMPLE	W08GR03416	Plutonium Isotopics by AEA
38099	5	38520	42946	SURR	W08GR03416	Plutonium Isotopics by AEA
38099	6	38520	42946	SAMPLE	W08GR03417	Plutonium Isotopics by AEA
38099	7	38520	42946	SURR	W08GR03417	Plutonium Isotopics by AEA
38100	1	38521	42947	BLANK		Americium by AEA
38100	2	38521	42947	LCS		Americium by AEA
38100	3	38521	42947	DUP	W08GR03416	Americium by AEA
38100	4	38521	42947	SAMPLE	W08GR03416	Americium by AEA
38100	5	38521	42947	SURR	W08GR03416	Americium by AEA
38100	6	38521	42947	SAMPLE	W08GR03417	Americium by AEA
38100	7	38521	42947	SURR	W08GR03417	Americium by AEA
38125	1	38546	43018	BLANK		Uranium Isotopics by AEA
38125	2	38546	43018	LCS		Uranium Isotopics by AEA
38125	3	38546	43018	DUP	W08GR03416	Uranium Isotopics by AEA
38125	4	38546	43018	SAMPLE	W08GR03416	Uranium Isotopics by AEA
38125	5	38546	43018	SURR	W08GR03416	Uranium Isotopics by AEA
38125	6	38546	43018	SAMPLE	W08GR03417	Uranium Isotopics by AEA
38125	7	38546	43018	SURR	W08GR03417	Uranium Isotopics by AEA
38234	1	38655	43083	BLANK		Gamma Energy Analysis-grd H2O
38234	2	38655	43083	LCS		Gamma Energy Analysis-grd H2O
38234	3	38655	43083	DUP	W08GR03416	Gamma Energy Analysis-grd H2O
38234	4	38655	43083	SAMPLE	W08GR03416	Gamma Energy Analysis-grd H2O
38234	5	38655	43083	SAMPLE	W08GR03417	Gamma Energy Analysis-grd H2O

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

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

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Report#: WSCF20081788
Report WGPPM/5.2

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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-505-411	LA-505-411: ELEMENTAL ANALYSIS BY INDUCTIVELY COUPLED PLASMA ATOMIC EMISSION SPE HEIS 6010_METALS_ICP Inductively Coupled Plasma-Atomic Emmission 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 HEIS 200.8_METALS_ICPMS Inductively Coupled Plasma - Mass Spectrometry HEIS RADISOTOPES_ICPMS Radioisotopes by ICP/MS
LA-533-410	LA-533-410: ANION ANALYSIS BY ION CHROMATOGRAPHY EPA-600/R-94-111 300.0 DETERMINATION OF INORGANIC ANIONS BY ION CHROMATOGRAPHY HEIS 300.0_ANIONS_IC Determination of Inorganic Anions by Ion Chromatography
LA-695-402	LA-695-402: DETERMINATION OF CYANIDE BY MIDIDISTILLATION AND SPECTROPHOTOMETRIC EPA-600/4-79-020 335.2 Cyanide, Total HEIS 335.2_CYANIDE Cyanide, Total

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

Report Date: 30-sep-2008
Report#: WSCF20081788
Report WGPPM/5.2

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Page 2

RECEIVED SEPTEMBER 26, 2010 REVISION 2

WSCF ANALYTICAL RESULTS REPORT

Attention: Steve Trent
SAF Number: F08-093
Sample # W08GR03416
Client ID: B1VHP7

GPP TRENT
WSCF

Matrix: SOIL

Group #: WSCF20081788
Department: Inorganic
Sampled: 08/19/08
Received: 08/19/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Anions by Ion Chromatography Prep											
Anions by Ion Chromatography											
Fluoride	16984-48-8	LA-533-410	DU	< 0.300	mg/kg			50.00	0.30		09/16/08
Chloride	16887-00-6	LA-533-410	BD	2.58	mg/kg			50.00	1.5		09/16/08
Nitrogen in Nitrite	NO2-N	LA-533-410	DU	< 0.500	mg/kg			50.00	0.50		09/16/08
Nitrogen in Nitrate	NO3-N	LA-533-410	D	5.96	mg/kg			50.00	0.25		09/16/08
Phosphate (P) by IC	PO4-P	LA-533-410	DNU	< 2.00	mg/kg			50.00	2.0		09/16/08
Sulfate	14808-79-8	LA-533-410	BD	10.7	mg/kg			50.00	3.5		09/16/08
Cyanide											
Cyanide	57-12-5	LA-695-402	U	< 0.197	mg/kg			0.99	0.20		08/27/08
ICP Metals Analysis, Grd H2O P Prep											
ICP Metals Analysis, Grd H2O P											
Aluminum	7429-90-5	LA-505-411		8.65e +03	mg/kg			98.66	5.1		09/25/08
Iron	7439-89-6	LA-505-411		1.65e +04	mg/kg			98.66	2.5		09/25/08
Magnesium	7439-95-4	LA-505-411		5.70e +03	mg/kg			98.66	4.9		09/25/08
Potassium	7440-09-7	LA-505-411		1.65e +03	mg/kg			98.66	17		09/25/08
Sodium	7440-23-5	LA-505-411	N	116	mg/kg			98.66	5.0		09/25/08
Barium	7440-39-3	LA-505-411		94.3	mg/kg			98.66	0.39		09/25/08
Calcium	7440-70-2	LA-505-411		1.21e +04	mg/kg			98.66	7.2		09/25/08
Lithium	7439-93-2	LA-505-411		10.7	mg/kg			98.66	0.39		09/25/08
Molybdenum	7439-98-7	LA-505-411	B	0.640	mg/kg			98.66	0.49		09/25/08
Strontium	7440-24-6	LA-505-411		28.7	mg/kg			98.66	0.40		09/25/08
Titanium	7440-32-6	LA-505-411		612	mg/kg			98.66	0.39		09/25/08
Arsenic	7440-38-2	LA-505-411	B	8.17	mg/kg			98.66	7.7		09/25/08
Beryllium	7440-41-7	LA-505-411	B	0.466	mg/kg			98.66	0.39		09/25/08

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

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

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

Report WGPP/ver. 5.2
 Groundwater Remediation Program

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WSCF

ANALYTICAL RESULTS REPORT

Attention: Steve Trent
SAF Number: F08-093
Sample # W08GR03416
Client ID: B1VHP7

GPP TRENT
WSCF

Matrix: SOIL

Group #: WSCF20081788
Department: Inorganic
Sampled: 08/19/08
Received: 08/19/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Boron	7440-42-8	LA-505-411	E	12.6	mg/kg			98.66	2.0		09/25/08
Bismuth	7440-69-9	LA-505-411	U	< 3.45	mg/kg			98.66	3.5		09/25/08
ICP-200.8 MS All possible meta Prep ICP-200.8 MS All possible meta											
Manganese	7439-96-5	LA-505-412		357	mg/kg			0.95	0.0948		09/10/08
Nickel	7440-02-0	LA-505-412		15.0	mg/kg			0.95	0.190		09/10/08
Silver	7440-22-4	LA-505-412	U	< 0.0948	mg/kg			0.95	0.0948		09/10/08
Antimony	7440-36-0	LA-505-412	U	< 0.284	mg/kg			0.95	0.284		09/10/08
Cadmium	7440-43-9	LA-505-412		0.100	mg/kg			0.95	0.0948		09/10/08
Chromium	7440-47-3	LA-505-412		18.4	mg/kg			0.95	0.474		09/10/08
Cobalt	7440-48-4	LA-505-412		7.66	mg/kg			0.95	0.0474		09/10/08
Copper	7440-50-8	LA-505-412		15.2	mg/kg			0.95	0.0948		09/10/08
Vanadium	7440-62-2	LA-505-412		28.4	mg/kg			0.95	0.190		09/10/08
Zinc	7440-66-6	LA-505-412		46.0	mg/kg			0.95	0.759		09/10/08
Lead	7439-92-1	LA-505-412		11.2	mg/kg			0.95	0.0948		09/10/08
Mercury	7439-97-6	LA-505-412	U	< 0.0474	mg/kg			0.95	0.0474		09/10/08
Uranium	7440-61-1	LA-505-412		1.33	mg/kg			0.95	0.0474		09/10/08
Selenium	7782-49-2	LA-505-412	U	< 0.284	mg/kg			0.95	0.284		09/10/08
Thallium	7440-28-0	LA-505-412		0.140	mg/kg			0.95	0.0948		09/10/08

MDL=Minimum Detection Limit

RQ=Result Qualifier

TP Err=Total Propagated Error

DF=Dilution Factor

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

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)

* - Indicates results that have NOT been validated;

+ - Indicates more than six qualifier symbols

Report WGPP/ver. 5.2

Groundwater Remediation Program

WSCF

ANALYTICAL RESULTS REPORT

Attention: Steve Trent
SAF Number: F08-093
Sample # W08GR03417
Client ID: B1VHP8

GPP TRENT
WSCF

Matrix: SOIL

Group #: WSCF20081788
Department: Inorganic
Sampled: 08/19/08
Received: 08/19/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Anions by Ion Chromatography Prep											
Anions by Ion Chromatography											
Fluoride	16984-48-8	LA-533-410	DU	< 0.300	mg/kg			50.00	0.30		09/16/08
Chloride	16887-00-6	LA-533-410	DU	< 1.50	mg/kg			50.00	1.5		09/16/08
Nitrogen in Nitrite	NO2-N	LA-533-410	DU	< 0.500	mg/kg			50.00	0.50		09/16/08
Nitrogen in Nitrate	NO3-N	LA-533-410	BD	0.606	mg/kg			50.00	0.25		09/16/08
Phosphate (P) by IC	PO4-P	LA-533-410	DNU	< 2.00	mg/kg			50.00	2.0		09/16/08
Sulfate	14808-79-8	LA-533-410	BD	4.12	mg/kg			50.00	3.5		09/16/08
Cyanide											
Cyanide	57-12-5	LA-895-402	U	< 0.198	mg/kg			0.99	0.20		08/27/08
ICP Metals Analysis, Grd H20 P Prep											
ICP Metals Analysis, Grd H20 P											
Aluminum	7429-90-5	LA-505-411		8.18e +03	mg/kg			1.00e+002	5.2		09/25/08
Iron	7439-89-6	LA-505-411		1.55e +04	mg/kg			1.00e+002	2.5		09/25/08
Magnesium	7439-95-4	LA-505-411		5.41e +03	mg/kg			1.00e+002	5.0		09/25/08
Potassium	7440-09-7	LA-505-411		1.69e +03	mg/kg			1.00e+002	17		09/25/08
Sodium	7440-23-5	LA-505-411	N	134	mg/kg			1.00e+002	5.1		09/25/08
Barium	7440-39-3	LA-505-411		90.6	mg/kg			1.00e+002	0.40		09/25/08
Calcium	7440-70-2	LA-505-411		8.98e +03	mg/kg			1.00e+002	7.3		09/25/08
Lithium	7439-93-2	LA-505-411		10.3	mg/kg			1.00e+002	0.40		09/25/08
Molybdenum	7439-98-7	LA-505-411	U	< 0.502	mg/kg			1.00e+002	0.50		09/25/08
Strontium	7440-24-6	LA-505-411		32.3	mg/kg			1.00e+002	0.40		09/25/08
Titanium	7440-32-6	LA-505-411		706	mg/kg			1.00e+002	0.40		09/25/08
Arsenic	7440-38-2	LA-505-411	B	8.22	mg/kg			1.00e+002	7.8		09/25/08
Beryllium	7440-41-7	LA-505-411	B	0.415	mg/kg			1.00e+002	0.40		09/25/08

MDL = Minimum Detection Limit

RQ = Result Qualifier

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Report WGPP/ver. 5.2

Groundwater Remediation Program

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RECEIVED SEPTEMBER 26, 2010 REVISION 2

WSCF

ANALYTICAL RESULTS REPORT

Attention: Steve Trent
SAF Number: F08-093
Sample # W08GR03417
Client ID: B1VHP8

GPP TRENT
WSCF

Matrix: SOIL

Group #: WSCF20081788
Department: Inorganic
Sampled: 08/19/08
Received: 08/19/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Boron	7440-42-8	LA-505-411	E	11.8	mg/kg			1.00e+002	2.0		09/25/08
Bismuth	7440-89-9	LA-505-411	U	< 3.51	mg/kg			1.00e+002	3.5		09/25/08
ICP-200.8 MS All possible meta Prep											
ICP-200.8 MS All possible meta											
Manganese	7439-96-5	LA-505-412		263	mg/kg			0.96	0.0965		09/10/08
Nickel	7440-02-0	LA-505-412		18.4	mg/kg			0.96	0.193		09/10/08
Silver	7440-22-4	LA-505-412	U	< 0.0965	mg/kg			0.96	0.0965		09/10/08
Antimony	7440-36-0	LA-505-412	U	< 0.289	mg/kg			0.96	0.289		09/10/08
Cadmium	7440-43-9	LA-505-412		0.130	mg/kg			0.96	0.0965		09/10/08
Chromium	7440-47-3	LA-505-412		19.3	mg/kg			0.96	0.482		09/10/08
Cobalt	7440-48-4	LA-505-412		7.34	mg/kg			0.96	0.0482		09/10/08
Copper	7440-50-8	LA-505-412		14.2	mg/kg			0.96	0.0965		09/10/08
Vanadium	7440-62-2	LA-505-412		32.2	mg/kg			0.96	0.193		09/10/08
Zinc	7440-66-6	LA-505-412		43.5	mg/kg			0.96	0.772		09/10/08
Lead	7439-92-1	LA-505-412		6.02	mg/kg			0.96	0.0965		09/10/08
Mercury	7439-97-6	LA-505-412	U	< 0.0482	mg/kg			0.96	0.0482		09/10/08
Uranium	7440-61-1	LA-505-412		0.610	mg/kg			0.96	0.0482		09/10/08
Selenium	7782-49-2	LA-505-412	U	< 0.289	mg/kg			0.96	0.289		09/10/08
Thallium	7440-28-0	LA-505-412	U	< 0.0965	mg/kg			0.96	0.0965		09/10/08

RECEIVED SEPTEMBER 26, 2010 REVISION 2

MDL = Minimum Detection Limit

RQ = Result Qualifier

TP Err = Total Propagated Error

DF = Dilution Factor

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Report WGPP/ver. 5.2

Groundwater Remediation Program

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WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20081788
 Matrix: SOLID
 Test: Anions by Ion Chromatography

Sample Date: 08/19/08
 Receive Date: 08/19/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
Lab ID: W08GR03416 BATCH QC ASSOCIATED WITH SAMPLE											
DUP	Chloride	16887-00-8	2.1591		RPD			17.786	20.000		09/16/08
DUP	Fluoride	16984-48-8	<0.3		RPD			n/a	20.000	U	09/16/08
DUP	Nitrogen in Nitrite	NO2-N	<0.5		RPD			n/a	20.000	U	09/16/08
DUP	Nitrogen in Nitrate	NO3-N	5.1993		RPD			13.675	20.000		09/16/08
DUP	Phosphate (P) by IC	PO4-P	<2		RPD			n/a	20.000	U	09/16/08
DUP	Sulfate	14808-79-8	7.9865		RPD			28.709	20.000		09/16/08
MS	Chloride	16887-00-8	0.850788	85.079	% Recov	80.000	120.000				09/16/08
MS	Fluoride	16984-48-8	0.413622	83.057	% Recov	80.000	120.000				09/16/08
MS	Nitrogen in Nitrite	NO2-N	0.447388	90.018	% Recov	80.000	120.000				09/16/08
MS	Nitrogen in Nitrate	NO3-N	0.428362	95.192	% Recov	80.000	120.000				09/16/08
MS	Phosphate (P) by IC	PO4-P	0.715418	73.983	% Recov	80.000	120.000				09/16/08
MS	Sulfate	14808-79-8	1.75734	88.755	% Recov	80.000	120.000				09/16/08
MSD	Chloride	16887-00-8	0.87079	87.079	% Recov	80.000	120.000				09/16/08
MSD	Fluoride	16984-48-8	0.416908	83.716	% Recov	80.000	120.000				09/16/08
MSD	Nitrogen in Nitrite	NO2-N	0.456772	91.906	% Recov	80.000	120.000				09/16/08
MSD	Nitrogen in Nitrate	NO3-N	0.448286	99.619	% Recov	80.000	120.000				09/16/08
MSD	Phosphate (P) by IC	PO4-P	0.70125	72.518	% Recov	80.000	120.000				09/16/08
MSD	Sulfate	14808-79-8	1.766078	89.196	% Recov	80.000	120.000				09/16/08
SPK-RPD	Chloride	16887-00-8	87.079		RPD			2.323	20.000		09/16/08
SPK-RPD	Fluoride	16984-48-8	83.716		RPD			0.790	20.000		09/16/08
SPK-RPD	Nitrogen in Nitrite	NO2-N	91.906		RPD			2.076	20.000		09/16/08
SPK-RPD	Nitrogen in Nitrate	NO3-N	99.619		RPD			4.545	20.000		09/16/08
SPK-RPD	Phosphate (P) by IC	PO4-P	72.518		RPD			2.000	20.000		09/16/08
SPK-RPD	Sulfate	14808-79-8	89.196		RPD			0.496	20.000		09/16/08

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WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20081788
 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	<3e-2	n/a	mg/L	0.000	0.030			U	09/16/08
BLANK	Chloride	16887-00-6	<3e-2	n/a	mg/L	0.000	0.030			U	09/16/08
BLANK	Fluoride	16984-48-8	<6e-3	n/a	mg/L	0.000	0.030			U	09/16/08
BLANK	Fluoride	16984-48-8	<6e-3	n/a	mg/L	0.000	0.030			U	09/16/08
BLANK	Nitrogen in Nitrite	NO2-N	<1e-2	n/a	mg/L	0.000	0.020			U	09/16/08
BLANK	Nitrogen in Nitrite	NO2-N	<1e-2	n/a	mg/L	0.000	0.020			U	09/16/08
BLANK	Nitrogen in Nitrate	NO3-N	<5e-3	n/a	mg/L	0.000	0.040			U	09/16/08
BLANK	Nitrogen in Nitrate	NO3-N	<5e-3	n/a	mg/L	0.000	0.040			U	09/16/08
BLANK	Phosphate (P) by IC	PO4-P	<4e-2	n/a	mg/L	0.000	0.200			U	09/16/08
BLANK	Phosphate (P) by IC	PO4-P	<4e-2	n/a	mg/L	0.000	0.200			U	09/16/08
BLANK	Sulfate	14808-79-8	<7e-2	n/a	mg/L	0.000	0.200			U	09/16/08
BLANK	Sulfate	14808-79-8	<7e-2	n/a	mg/L	0.000	0.200			U	09/16/08
LCS	Chloride	16887-00-6	191.0204	95.035	% Recov	80.000	120.000				09/16/08
LCS	Fluoride	16984-48-8	101.1956	101.602	% Recov	80.000	120.000				09/16/08
LCS	Nitrogen in Nitrite	NO2-N	98.8401	99.437	% Recov	80.000	120.000				09/16/08
LCS	Nitrogen in Nitrate	NO3-N	90.0648	99.961	% Recov	80.000	120.000				09/16/08
LCS	Phosphate (P) by IC	PO4-P	189.4077	97.936	% Recov	80.000	120.000				09/16/08
LCS	Sulfate	14808-79-8	382.6369	96.625	% Recov	80.000	120.000				09/16/08

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WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20081788
 Matrix: SOLID
 Test: Cyanide by Midi/Spectrophotom

Sample Date: 08/15/08
 Receive Date: 08/18/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
Lab ID: W08GR03388											
BATCH QC ASSOCIATED WITH SAMPLE											
MS	Cyanide by Midi/Spectrophotom	57-12-5	1.88	95.431	% Recov	75.000	125.000				08/27/08
MSD	Cyanide by Midi/Spectrophotom	57-12-5	1.83	92.893	% Recov	75.000	125.000				08/27/08
SPK-RPD	Cyanide by Midi/Spectrophotom	57-12-5	92.893		RPD			2.695	20.000		08/27/08
BATCH QC											
BLANK	Cyanide by Midi/Spectrophotom	57-12-5	< 4	n/a	ug/L	-4.000	4.000			U	08/27/08
LCS	Cyanide by Midi/Spectrophotom	57-12-5	49.0	98.000	% Recov	85.000	115.000				08/27/08

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WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20081788
 Matrix: SOLID
 Test: ICP Metals Analysis, Grd H2O P

Sample Date: 08/07/08
 Receive Date: 08/14/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
Lab ID: W08GR03336 BATCH QC ASSOCIATED WITH SAMPLE											
MS	Aluminum	7429-90-5	1816	903.483	% Recov	75.000	125.000			.	09/25/08
MS	Arsenic	7440-38-2	198.9	98.955	% Recov	75.000	125.000			.	09/25/08
MS	Boron	7440-42-8	192.31	95.677	% Recov	75.000	125.000			.	09/25/08
MS	Barium	7440-39-3	89.86	89.413	% Recov	75.000	125.000			.	09/25/08
MS	Beryllium	7440-41-7	99.32	99.320	% Recov	75.000	125.000			.	09/25/08
MS	Bismuth	7440-69-9	190.2	94.627	% Recov	75.000	125.000			.	09/25/08
MS	Calcium	7440-70-2	1060	527.363	% Recov	75.000	125.000			.	09/25/08
MS	Iron	7439-89-6	1810	900.498	% Recov	75.000	125.000			.	09/25/08
MS	Potassium	7440-09-7	1602.8	79.741	% Recov	75.000	125.000			.	09/25/08
MS	Lithium	7439-93-2	87.506	87.071	% Recov	70.000	130.000			.	09/25/08
MS	Magnesium	7439-95-4	594	295.522	% Recov	75.000	125.000			.	09/25/08
MS	Molybdenum	7439-98-7	194.0097	96.522	% Recov	75.000	125.000			.	09/25/08
MS	Sodium	7440-23-5	268.7	133.682	% Recov	75.000	125.000			.	09/25/08
MS	Strontium	7440-24-6	98.64	98.640	% Recov	75.000	125.000			.	09/25/08
MS	Titanium	7440-32-6	482	239.801	% Recov	75.000	125.000			.	09/25/08
MSD	Aluminum	7429-90-5	1892	946.000	% Recov	75.000	125.000			.	09/25/08
MSD	Arsenic	7440-38-2	196.3	98.150	% Recov	75.000	125.000			.	09/25/08
MSD	Boron	7440-42-8	190.11	95.055	% Recov	75.000	125.000			.	09/25/08
MSD	Barium	7440-39-3	95.36	95.380	% Recov	75.000	125.000			.	09/25/08
MSD	Beryllium	7440-41-7	98.23	98.230	% Recov	75.000	125.000			.	09/25/08
MSD	Bismuth	7440-69-9	189.1	94.550	% Recov	75.000	125.000			.	09/25/08
MSD	Calcium	7440-70-2	510	255.000	% Recov	75.000	125.000			.	09/25/08
MSD	Iron	7439-89-6	540	270.000	% Recov	75.000	125.000			.	09/25/08
MSD	Potassium	7440-09-7	1638.8	81.940	% Recov	75.000	125.000			.	09/25/08
MSD	Lithium	7439-93-2	89.456	89.456	% Recov	75.000	125.000			.	09/25/08
MSD	Magnesium	7439-95-4	650	325.000	% Recov	75.000	125.000			.	09/25/08

RECEIVED SEPTEMBER 26, 2010 REVISION 2

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20081788
 Matrix: SOLID
 Test: ICP Metals Analysis, Grd H2O P

Sample Date: 08/07/08
 Receive Date: 08/14/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
MSD	Molybdenum	7439-98-7	191.5097	95.755	% Recov	75.000	125.000				09/25/08
MSD	Sodium	7440-23-5	271.8	135.900	% Recov	75.000	125.000				09/25/08
MSD	Strontium	7440-24-6	98.44	98.440	% Recov	75.000	125.000				09/25/08
MSD	Titanium	7440-32-6	295	147.500	% Recov	75.000	125.000				09/25/08
SPK-RPD	Aluminum	7429-90-5	948.000		RPD			4.598	20.000		09/25/08
SPK-RPD	Arsenic	7440-38-2	98.150		RPD			0.817	20.000		09/25/08
SPK-RPD	Boron	7440-42-8	95.055		RPD			0.652	20.000		09/25/08
SPK-RPD	Barium	7440-39-3	95.360		RPD			6.437	20.000		09/25/08
SPK-RPD	Beryllium	7440-41-7	98.230		RPD			1.104	20.000		09/25/08
SPK-RPD	Bismuth	7440-69-9	94.550		RPD			0.081	20.000		09/25/08
SPK-RPD	Calcium	7440-70-2	255.000		RPD			69.626	20.000		09/25/08
SPK-RPD	Iron	7439-89-6	270.000		RPD			107.732	20.000		09/25/08
SPK-RPD	Potassium	7440-09-7	81.940		RPD			2.720	20.000		09/25/08
SPK-RPD	Lithium	7439-93-2	89.456		RPD			2.702	20.000		09/25/08
SPK-RPD	Magnesium	7439-95-4	325.000		RPD			9.501	20.000		09/25/08
SPK-RPD	Molybdenum	7439-98-7	95.755		RPD			0.798	20.000		09/25/08
SPK-RPD	Sodium	7440-23-5	135.900		RPD			1.646	20.000		09/25/08
SPK-RPD	Strontium	7440-24-6	98.440		RPD			0.203	20.000		09/25/08
SPK-RPD	Titanium	7440-32-6	147.500		RPD			47.664	20.000		09/25/08
BATCH QC											
BLANK	Aluminum	7429-90-5	<5.2e-2	n/a	ug/mL					U	09/25/08
BLANK	Arsenic	7440-38-2	<7.8e-2	n/a	ug/mL					U	09/25/08
BLANK	Boron	7440-42-8	<2e-2	n/a	ug/mL					U	09/25/08
BLANK	Barium	7440-39-3	<4e-3	n/e	ug/mL					U	09/25/08
BLANK	Beryllium	7440-41-7	<4e-3	n/a	ug/mL					U	09/25/08
BLANK	Bismuth	7440-69-9	<3.5e-2	n/a	ug/mL					U	09/25/08
BLANK	Calcium	7440-70-2	<7.3e-2	n/a	ug/mL					U	09/25/08
BLANK	Iron	7439-89-6	<2.5e-2	n/a	ug/mL					U	09/25/08
BLANK	Potassium	7440-09-7	<0.17	n/a	ug/mL					U	09/25/08

RECEIVED SEPTEMBER 26, 2010 REVISION 2

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20081788
 Matrix: SOLID
 Test: ICP Metals Analysis, Grd H2O P

Sample Date:
 Receive Date:

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
BLANK	Lithium	7439-93-2	<4e-3	n/a	ug/mL					U	09/25/08
BLANK	Magnesium	7439-95-4	<5e-2	n/a	ug/mL					U	09/25/08
BLANK	Molybdenum	7439-98-7	<5e-3	n/a	ug/mL					U	09/25/08
BLANK	Sodium	7440-23-5	<5.1e-2	n/a	ug/mL					U	09/25/08
BLANK	Strontium	7440-24-6	<4e-3	n/a	ug/mL					U	09/25/08
BLANK	Titanium	7440-32-6	<4e-3	n/a	ug/mL					U	09/25/08
LCS	Aluminum	7429-90-5	9449	73.820	% Recov	44.000	157.000				09/25/08
LCS	Arsenic	7440-38-2	243.5	97.012	% Recov	79.000	121.000				09/25/08
LCS	Boron	7440-42-8	127.4	98.760	% Recov	45.000	156.000				09/25/08
LCS	Barium	7440-39-3	587.8	95.422	% Recov	80.000	120.000				09/25/08
LCS	Beryllium	7440-41-7	171.4	96.292	% Recov	81.000	119.000				09/25/08
LCS	Bismuth	7440-69-9	95.73	95.634	% Recov	80.000	120.000				09/25/08
LCS	Calcium	7440-70-2	10370	102.673	% Recov	76.000	124.000				09/25/08
LCS	Iron	7439-89-6	16360	87.487	% Recov	47.000	152.000				09/25/08
LCS	Potassium	7440-09-7	3389	72.106	% Recov	64.000	136.000				09/25/08
LCS	Lithium	7439-93-2	7.204	0.000	% Recov	80.000	120.000				09/25/08
LCS	Magnesium	7439-95-4	4117	89.695	% Recov	71.000	129.000				09/25/08
LCS	Molybdenum	7439-98-7	116	90.625	% Recov	79.000	121.000				09/25/08
LCS	Sodium	7440-23-5	474.7	88.071	% Recov	51.000	149.000				09/25/08
LCS	Strontium	7440-24-6	115.7	94.065	% Recov	74.000	126.000				09/25/08
LCS	Titanium	7440-32-6	454.3	101.633	% Recov	9.000	191.000				09/25/08

RECEIVED SEPTEMBER 26, 2010 REVISION 2

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20081788
 Matrix: SOLID
 Test: ICP-200.8 MS All possible meta

Sample Date: 08/06/08
 Receive Date: 08/13/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
Lab ID: W08GR03325 BATCH QC ASSOCIATED WITH SAMPLE											
MS	Silver	7440-22-4	175.7	87.850	% Recov	70.000	130.000				09/09/08
MS	Cadmium	7440-43-9	188.29	94.145	% Recov	70.000	130.000				09/09/08
MS	Cobalt	7440-48-4	177.56	88.780	% Recov	70.000	130.000				09/09/08
MS	Chromium	7440-47-3	184.22	92.110	% Recov	70.000	130.000				09/09/08
MS	Copper	7440-50-8	177.6	88.800	% Recov	70.000	130.000				09/09/08
MS	Mercury	7439-97-6	2.11	105.500	% Recov	70.000	130.000				09/09/08
MS	Manganese	7439-96-5	198.5	99.250	% Recov	70.000	130.000				09/09/08
MS	Nickel	7440-02-0	182.33	91.165	% Recov	70.000	130.000				09/09/08
MS	Lead	7439-92-1	189.85	94.925	% Recov	70.000	130.000				09/09/08
MS	Antimony	7440-36-0	166.6	83.300	% Recov	70.000	130.000				09/09/08
MS	Selenium	7782-49-2	205.15	102.575	% Recov	70.000	130.000				09/09/08
MS	Thallium	7440-28-0	180.34	90.170	% Recov	70.000	130.000				09/09/08
MS	Uranium	7440-61-1	193.28	96.640	% Recov	70.000	130.000				09/09/08
MS	Vanadium	7440-82-2	180.92	90.460	% Recov	70.000	130.000				09/09/08
MS	Zinc	7440-66-6	187.97	93.985	% Recov	70.000	130.000				09/09/08
MSD	Silver	7440-22-4	171.5	85.750	% Recov	70.000	130.000				09/09/08
MSD	Cadmium	7440-43-9	182.09	91.045	% Recov	70.000	130.000				09/09/08
MSD	Cobalt	7440-48-4	167.66	83.830	% Recov	70.000	130.000				09/09/08
MSD	Chromium	7440-47-3	171.02	85.510	% Recov	70.000	130.000				09/09/08
MSD	Copper	7440-50-8	165.8	82.900	% Recov	70.000	130.000				09/09/08
MSD	Mercury	7439-97-6	2.03	101.500	% Recov	70.000	130.000				09/09/08
MSD	Manganese	7439-96-5	171.9	85.950	% Recov	70.000	130.000				09/09/08
MSD	Nickel	7440-02-0	169.93	84.965	% Recov	70.000	130.000				09/09/08
MSD	Lead	7439-92-1	183.65	91.825	% Recov	70.000	130.000				09/09/08
MSD	Antimony	7440-36-0	168.4	84.200	% Recov	70.000	130.000				09/09/08
MSD	Selenium	7782-49-2	199.05	99.525	% Recov	70.000	130.000				09/09/08

RECEIVED SEPTEMBER 26, 2010 REVISION 2

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20081788
 Matrix: SOLID
 Test: ICP-200.8 MS All possible meta

Sample Date: 08/06/08
 Receive Date: 08/13/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
MSD	Thallium	7440-28-0	175.74	87.870	% Recov	70.000	130.000				09/09/08
MSD	Uranium	7440-61-1	188.48	94.240	% Recov	70.000	130.000				09/09/08
MSD	Vanadium	7440-62-2	172.22	86.110	% Recov	70.000	130.000				09/09/08
MSD	Zinc	7440-66-6	175.57	87.785	% Recov	70.000	130.000				09/09/08
SPK-RPD	Silver	7440-22-4	85.750		RPD			2.419	20.000		09/10/08
SPK-RPD	Cadmium	7440-43-9	91.045		RPD			3.348	20.000		09/10/08
SPK-RPD	Cobalt	7440-48-4	83.830		RPD			5.735	20.000		09/10/08
SPK-RPD	Chromium	7440-47-3	85.510		RPD			7.432	20.000		09/10/08
SPK-RPD	Copper	7440-50-8	82.900		RPD			6.872	20.000		09/10/08
SPK-RPD	Mercury	7439-97-6	101.500		RPD			3.865	20.000		09/10/08
SPK-RPD	Manganese	7439-96-5	85.950		RPD			14.363	20.000		09/10/08
SPK-RPD	Nickel	7440-02-0	84.965		RPD			7.040	20.000		09/10/08
SPK-RPD	Lead	7439-92-1	91.825		RPD			3.320	20.000		09/10/08
SPK-RPD	Antimony	7440-36-0	84.200		RPD			1.075	20.000		09/10/08
SPK-RPD	Selenium	7782-49-2	99.525		RPD			3.018	20.000		09/10/08
SPK-RPD	Thallium	7440-28-0	87.870		RPD			2.584	20.000		09/10/08
SPK-RPD	Uranium	7440-61-1	94.240		RPD			2.515	20.000		09/10/08
SPK-RPD	Vanadium	7440-62-2	86.110		RPD			4.927	20.000		09/10/08
SPK-RPD	Zinc	7440-66-6	87.785		RPD			6.822	20.000		09/10/08

Lab ID: W08GR03326
 BATCH QC ASSOCIATED WITH SAMPLE

MS	Silver	7440-22-4	175.2	87.600	% Recov	70.000	130.000				09/09/08
MS	Cadmium	7440-43-9	185.62	92.810	% Recov	70.000	130.000				09/09/08
MS	Cobalt	7440-48-4	172.27	86.135	% Recov	70.000	130.000				09/09/08
MS	Chromium	7440-47-3	176.55	88.275	% Recov	70.000	130.000				09/09/08
MS	Copper	7440-50-8	170.24	85.120	% Recov	70.000	130.000				09/09/08
MS	Mercury	7439-97-6	2.02	101.000	% Recov	70.000	130.000				09/09/08
MS	Manganese	7439-96-5	165.1	82.550	% Recov	70.000	130.000				09/09/08
MS	Nickel	7440-02-0	174.92	87.460	% Recov	70.000	130.000				09/09/08

RECEIVED SEPTEMBER 26, 2010 REVISION 2

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20081788
 Matrix: SOLID
 Test: ICP-200.8 MS All possible meta

Sample Date: 08/06/08
 Receive Date: 08/13/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
MS	Lead	7439-92-1	186.42	93.210	% Recov	70.000	130.000				09/09/08
MS	Antimony	7440-36-0	160.56	80.280	% Recov	70.000	130.000				09/09/08
MS	Selenium	7782-49-2	199.47	99.735	% Recov	70.000	130.000				09/09/08
MS	Thallium	7440-28-0	178.82	89.410	% Recov	70.000	130.000				09/09/08
MS	Uranium	7440-61-1	191.85	95.925	% Recov	70.000	130.000				09/09/08
MS	Vanadium	7440-62-2	177.22	88.610	% Recov	70.000	130.000				09/09/08
MS	Zinc	7440-66-6	180.8	90.400	% Recov	70.000	130.000				09/09/08
MSD	Silver	7440-22-4	167.8	83.900	% Recov	70.000	130.000				09/09/08
MSD	Cadmium	7440-43-9	182.42	91.210	% Recov	70.000	130.000				09/09/08
MSD	Cobalt	7440-48-4	167.87	83.935	% Recov	70.000	130.000				09/09/08
MSD	Chromium	7440-47-3	174.35	87.175	% Recov	70.000	130.000				09/09/08
MSD	Copper	7440-50-8	167.04	83.520	% Recov	70.000	130.000				09/09/08
MSD	Mercury	7439-97-6	1.99	99.500	% Recov	70.000	130.000				09/09/08
MSD	Manganese	7439-96-5	163.3	81.650	% Recov	70.000	130.000				09/09/08
MSD	Nickel	7440-02-0	172.22	86.110	% Recov	70.000	130.000				09/09/08
MSD	Lead	7439-92-1	184.52	92.260	% Recov	70.000	130.000				09/09/08
MSD	Antimony	7440-36-0	156.46	78.230	% Recov	70.000	130.000				09/09/08
MSD	Selenium	7782-49-2	198.27	99.135	% Recov	70.000	130.000				09/09/08
MSD	Thallium	7440-28-0	175.92	87.980	% Recov	70.000	130.000				09/09/08
MSD	Uranium	7440-61-1	189.75	94.875	% Recov	70.000	130.000				09/09/08
MSD	Vanadium	7440-62-2	173.12	86.560	% Recov	70.000	130.000				09/09/08
MSD	Zinc	7440-66-6	178.8	89.400	% Recov	70.000	130.000				09/09/08
SPK-RPD	Silver	7440-22-4	83.900		RPD			4.315	20.000		09/10/08
SPK-RPD	Cadmium	7440-43-9	91.210		RPD			1.739	20.000		09/10/08
SPK-RPD	Cobalt	7440-48-4	83.935		RPD			2.587	20.000		09/10/08
SPK-RPD	Chromium	7440-47-3	87.175		RPD			1.254	20.000		09/10/08
SPK-RPD	Copper	7440-50-8	83.520		RPD			1.898	20.000		09/10/08
SPK-RPD	Mercury	7439-97-6	99.500		RPD			1.496	20.000		09/10/08
SPK-RPD	Manganese	7439-96-5	81.650		RPD			1.096	20.000		09/10/08
SPK-RPD	Nickel	7440-02-0	86.110		RPD			1.556	20.000		09/10/08

RECEIVED SEPTEMBER 26, 2010 REVISION 2

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20081788
 Matrix: SOLID
 Test: ICP-200.8 MS All possible meta

Sample Date: 08/06/08
 Receive Date: 08/13/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
SPK-RPD	Lead	7439-92-1	92.260		RPD			1.024	20.000		09/10/08
SPK-RPD	Antimony	7440-36-0	78.230		RPD			2.587	20.000		09/10/08
SPK-RPD	Selenium	7782-49-2	99.135		RPD			0.803	20.000		09/10/08
SPK-RPD	Thallium	7440-28-0	87.980		RPD			1.635	20.000		09/10/08
SPK-RPD	Uranium	7440-61-1	94.875		RPD			1.101	20.000		09/10/08
SPK-RPD	Vanadium	7440-62-2	86.560		RPD			2.341	20.000		09/10/08
SPK-RPD	Zinc	7440-66-6	89.400		RPD			1.112	20.000		09/10/08

Lab ID: W08GR03514
BATCH QC ASSOCIATED WITH SAMPLE

MS	Chromium	7440-47-3	185.19	92.595	% Recov	70.000	130.000				09/10/08
MS	Manganese	7439-96-5	171.5	85.750	% Recov	70.000	130.000				09/10/08
MSD	Chromium	7440-47-3	188.49	94.245	% Recov	70.000	130.000				09/10/08
MSD	Manganese	7439-96-5	169	84.500	% Recov	70.000	130.000				09/10/08
SPK-RPD	Chromium	7440-47-3	94.245		RPD			1.766	20.000		09/10/08
SPK-RPD	Manganese	7439-96-5	84.500		RPD			1.488	20.000		09/10/08

BATCH QC

BLANK	Silver	7440-22-4	<0.1	n/a	ug/L					U	09/09/08
BLANK	Cadmium	7440-43-9	<0.1	n/a	ug/L					U	09/09/08
BLANK	Cobalt	7440-48-4	<5e-2	n/a	ug/L					U	09/09/08
BLANK	Chromium	7440-47-3	<0.5	n/a	ug/L					U	09/09/08
BLANK	Copper	7440-50-8	<0.1	n/a	ug/L					U	09/09/08
BLANK	Mercury	7439-97-6	<5e-2	n/a	ug/L					U	09/09/08
BLANK	Manganese	7439-96-5	<0.1	n/a	ug/L					U	09/09/08
BLANK	Nickel	7440-02-0	<0.2	n/a	ug/L					U	09/09/08
BLANK	Lead	7439-92-1	<0.1	n/a	ug/L					U	09/09/08
BLANK	Antimony	7440-36-0	<0.3	n/a	ug/L					U	09/09/08
BLANK	Selenium	7782-49-2	<0.3	n/a	ug/L					U	09/09/08
BLANK	Thallium	7440-28-0	<0.1	n/a	ug/L					U	09/09/08

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20081788
 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	Uranium	7440-61-1	<5e-2	n/a	ug/L					U	09/09/08
BLANK	Vanadium	7440-62-2	<0.2	n/a	ug/L					U	09/09/08
BLANK	Zinc	7440-66-6	<0.8	n/a	ug/L					U	09/09/08
LCS	Silver	7440-22-4	110.6	109.505	% Recov	98.000	134.000				09/09/08
LCS	Cadmium	7440-43-9	75.9	114.135	% Recov	95.000	124.000				09/09/08
LCS	Cobalt	7440-48-4	72	98.495	% Recov	88.000	119.000				09/09/08
LCS	Chromium	7440-47-3	69.9	95.885	% Recov	77.000	125.000				09/09/08
LCS	Copper	7440-50-8	63.1	92.117	% Recov	84.000	122.000				09/09/08
LCS	Mercury	7439-97-8	8.3	100.242	% Recov	71.000	132.000				09/09/08
LCS	Manganese	7439-96-5	441	97.351	% Recov	83.000	118.000				09/09/08
LCS	Nickel	7440-02-0	53.9	96.942	% Recov	90.000	121.000				09/09/08
LCS	Lead	7439-92-1	146.7	112.846	% Recov	92.000	123.000				09/09/08
LCS	Antimony	7440-36-0	146.8	162.749	% Recov	114.000	280.000				09/09/08
LCS	Selenium	7782-49-2	183.3	113.851	% Recov	52.000	157.000				09/09/08
LCS	Thallium	7440-28-0	137	103.008	% Recov	92.000	123.000				09/09/08
LCS	Uranium	7440-61-1	390.6	97.650	% Recov	81.000	125.000				09/09/08
LCS	Vanadium	7440-62-2	79.4	95.663	% Recov	81.000	122.000				09/09/08
LCS	Zinc	7440-66-6	191.1	107.966	% Recov	85.000	130.000				09/09/08

RECEIVED SEPTEMBER 26, 2010 REVISION 2

WSCF ANALYTICAL COMMENT REPORT

Attention: Steve Trent
Project Number F08-093

Group #: WSCF20081788
Department: Inorganic

Sample #	Client ID	Lab Area	Test	Comment
		VALGROUP		<p>Am241 duplicate is flagged for poor RPD but the sample activity is low level. RPD does not apply to low level samples. lmh</p> <p>U234 peak in blank is of unknown origin. Blank was recounted to establish that the blank is not contaminated with uranium.</p> <p>IC Anion - Sample dup RPD out of limits for sulfate in sample W08GR03416; Analyte concentration in sample below calibration range. DTS</p> <p>IC Anion - MS/MSD recoveries out of limits for phosphate in sample W08GR03416; Data N-flagged for samples W08GR03416, 3417, 3432, 3491, 3493. DTS</p> <p>ICP-AES: [Samples W08GR3416-3417] No lithium and zirconium present in the LCS standard. Elements having results <5X MDL; "B" flag. Aluminum, calcium, iron, magnesium, and titanium sample results exceed spiking level by a factor of 4 so spike recoveries are not valid. Check and high standards used to ensure aluminum, calcium, iron, and magnesium linearity because sample results are greater than the calibration standard. High sodium spike recoveries; "N" flag. Iron interference causes high bias on boron results; "E"</p>

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

VALTEST - Test Validation
LOGTEST - Login for Tests

TESTDATA - Test Data Entry

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WSCF ANALYTICAL RESULTS REPORT

Attention: Steve Trent
SAF Number: F08-093
Sample # W08GR03416
Client ID: B1VHP7

GPP TRENT
WSCF

Matrix: SOIL

Group #: WSCF20081788
Department: Radiochemistry
Sampled: 08/19/08
Received: 08/19/08

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		0.0390	pCi/g	+ -0.0179	pCi/g	1.00	0.013		09/22/08
Am-243 tracer by AEA	AM243	LA-508-471		3.80	pCi/g			1.00	0.010		09/22/08
Gamma Energy Analysis-grd H2O											
Cesium-137	10045-97-3	LA-508-481	U	8.07e-03	pCi/g	+ -0.0179	pCi/g	1.00	0.031		09/30/08
Europium-152	14683-23-9	LA-508-481	U	0.0228	pCi/g	+ -0.0616	pCi/g	1.00	0.076		09/30/08
Europium-154	15585-10-1	LA-508-481	U	-0.0331	pCi/g	+ -0.0632	pCi/g	1.00	0.10		09/30/08
Plutonium Isotopics by AEA											
Plutonium-238	13981-16-3	LA-508-471	U	3.80e-03	pCi/g	+ -0.0201	pCi/g	1.00	0.037		09/22/08
Pu-239/240 by AEA	PU-239/240	LA-508-471	U	3.80e-03	pCi/g	+ -7.68e-03	pCi/g	1.00	0.014		09/22/08
Pu-242 tracer by AEA	PU242	LA-508-471		5.90	pCi/g			1.00	0.020		09/22/08
Strontium 89/90											
Strontium-89/90	SR-RAD	LA-508-415	U	-1.00	pCi/g	+ -1.00	pCi/g	1.00	0.35		09/10/08
Sr-85 Tracer by Beta Counting	SR85	LA-508-415		96.9	Percent			1.00	0.0		09/10/08
Uranium Isotopics by AEA											
Uranium-233/234	U-233/234	LA-508-471		0.390	pCi/g	+ -0.113	pCi/g	1.00	0.017		09/23/08
Uranium-235	15117-96-1	LA-508-471		0.0230	pCi/g	+ -0.0154	pCi/g	1.00	0.014		09/23/08
Uranium-238	U-238	LA-508-471		0.450	pCi/g	+ -0.130	pCi/g	1.00	4.8e-03		09/23/08
U-232 tracer by AEA	U232	LA-508-471		3.90	pCi/g			1.00	0.027		09/23/08

MDL = Minimum Detection Limit

RQ = Result Qualifier

TP Err = Total Propagated Error

DF = Dilution Factor

8 - 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)

* - Indicates results that have NOT been validated;

+ - Indicates more than six qualifier symbols

Report WGPP/ver. 5.2

Groundwater Remediation Program

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RECEIVED SEPTEMBER 26, 2010 REVISION 2

WSCF ANALYTICAL RESULTS REPORT

Attention: Steve Trent
SAF Number: F08-093
Sample # W08GR03417
Client ID: B1VHP8

GPP TRENT
WSCF

Matrix: SOIL

Group #: WSCF20081788
Department: Radiochemistry
Sampled: 08/19/08
Received: 08/19/08

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		0.0250	pCi/g	+ -0.0162	pCi/g	1.00	0.018		09/22/08
Am-243 tracer by AEA	AM243	LA-508-471		3.90	pCi/g			1.00	0.012		09/22/08
Gamma Energy Analysis-grd H2O											
Cesium-137	10045-97-3	LA-508-481	U	-5.74e-03	pCi/g	+ -0.0168	pCi/g	1.00	0.028		09/30/08
Europium-152	14683-23-9	LA-508-481	U	-0.0137	pCi/g	+ -0.0422	pCi/g	1.00	0.066		09/30/08
Europium-154	15585-10-1	LA-508-481	U	3.42e-03	pCi/g	+ -0.0342	pCi/g	1.00	0.10		09/30/08
Plutonium Isotopics by AEA											
Plutonium-238	13981-16-3	LA-508-471	U	9.80e-03	pCi/g	+ -0.0226	pCi/g	1.00	0.040		09/22/08
Pu-239/240 by AEA	PU-239/240	LA-508-471		9.80e-03	pCi/g	+ -9.02e-03	pCi/g	1.00	5.3e-03		09/22/08
Pu-242 tracer by AEA	PU242	LA-508-471		6.20	pCi/g			1.00	0.014		09/22/08
Strontium 89/90											
Strontium-89/90	SR-RAD	LA-508-415	U	-1.50	pCi/g	+ -1.50	pCi/g	1.00	0.34		09/10/08
Sr-85 Tracer by Beta Counting	SR85	LA-508-415		103	Percent			1.00	0.0		09/10/08
Uranium Isotopics by AEA											
Uranium-233/234	U-233/234	LA-508-471		0.210	pCi/g	+ -0.0672	pCi/g	1.00	0.014		09/23/08
Uranium-235	15117-98-1	LA-508-471		0.0160	pCi/g	+ -0.0120	pCi/g	1.00	5.5e-03		09/23/08
Uranium-238	U-238	LA-508-471		0.190	pCi/g	+ -0.0627	pCi/g	1.00	0.014		09/23/08
U-232 tracer by AEA	U232	LA-508-471		4.00	pCi/g			1.00	0.022		09/23/08

MDL = Minimum Detection Limit

RQ = Result Qualifier

TP Err = Total Propagated Error

DF = Dilution Factor

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

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)

* - Indicates results that have NOT been validated;

+ - Indicates more than six qualifier symbols

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RECEIVED SEPTEMBER 26, 2010 REVISION 2

WSCF

TENTATIVELY IDENTIFIED PEAK REPORT

Attention: Steve Trent
 Project Number F08-093 : F08-093

Group #: WSCF20081788
 Department: Radiochemistry

Sample #	Client ID	Test Name	Peak Name	CAS#	RT	RQ	Result	Units
W08GR03416	B1VHP7	GPP TRENT	Gamma Energy Analysis-grd H2O	AC-228			0.95	pCi/g
W08GR03416	B1VHP7	GPP TRENT	Gamma Energy Analysis-grd H2O	AC-228 Count Error			23	%
W08GR03416	B1VHP7	GPP TRENT	Gamma Energy Analysis-grd H2O	BI-212			0.69	pCi/g
W08GR03416	B1VHP7	GPP TRENT	Gamma Energy Analysis-grd H2O	BI-212 Count Error			41	%
W08GR03416	B1VHP7	GPP TRENT	Gamma Energy Analysis-grd H2O	BI-214			1.2	pCi/g
W08GR03416	B1VHP7	GPP TRENT	Gamma Energy Analysis-grd H2O	BI-214 Count Error			17	%
W08GR03416	B1VHP7	GPP TRENT	Gamma Energy Analysis-grd H2O	K-40			21	pCi/g
W08GR03416	B1VHP7	GPP TRENT	Gamma Energy Analysis-grd H2O	K-40 Count Error			14	%
W08GR03416	B1VHP7	GPP TRENT	Gamma Energy Analysis-grd H2O	PB-212			1.1	pCi/g
W08GR03416	B1VHP7	GPP TRENT	Gamma Energy Analysis-grd H2O	PB-212 Count Error			11	%
W08GR03416	B1VHP7	GPP TRENT	Gamma Energy Analysis-grd H2O	PB-214			1.2	pCi/g
W08GR03416	B1VHP7	GPP TRENT	Gamma Energy Analysis-grd H2O	PB-214 Count Error			29	%
W08GR03416	B1VHP7	GPP TRENT	Gamma Energy Analysis-grd H2O	RA-226			0.79	pCi/g
W08GR03416	B1VHP7	GPP TRENT	Gamma Energy Analysis-grd H2O	RA-226 Count Error			19	%
W08GR03416	B1VHP7	GPP TRENT	Gamma Energy Analysis-grd H2O	RA-228			1.3	pCi/g
W08GR03416	B1VHP7	GPP TRENT	Gamma Energy Analysis-grd H2O	RA-228 Count Error			20	%
W08GR03416	B1VHP7	GPP TRENT	Gamma Energy Analysis-grd H2O	SN-126			0.22	pCi/g
W08GR03416	B1VHP7	GPP TRENT	Gamma Energy Analysis-grd H2O	SN-126 Count Error			27	%
W08GR03416	B1VHP7	GPP TRENT	Gamma Energy Analysis-grd H2O	TH-234			1.4	pCi/g
W08GR03416	B1VHP7	GPP TRENT	Gamma Energy Analysis-grd H2O	TH-234 Count Error			34	%
W08GR03416	B1VHP7	GPP TRENT	Gamma Energy Analysis-grd H2O	TL-208			0.32	pCi/g
W08GR03416	B1VHP7	GPP TRENT	Gamma Energy Analysis-grd H2O	TL-208 Count Error			18	%
W08GR03417	B1VHP8	GPP TRENT	Gamma Energy Analysis-grd H2O	AC-228			0.65	pCi/g
W08GR03417	B1VHP8	GPP TRENT	Gamma Energy Analysis-grd H2O	AC-228 Count Error			30	%
W08GR03417	B1VHP8	GPP TRENT	Gamma Energy Analysis-grd H2O	BI-212			0.55	pCi/g

RQ=Result Qualifier

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Report Date: 30-sep-2008

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WSCF

TENTATIVELY IDENTIFIED PEAK REPORT

Attention: Steve Trent
 Project Number F08-093 :F08-093

Group #: WSCF20081788
 Department: Radiochemistry

Sample #	Client ID	Test Name	Peak Name	CAS#	RT	RQ	Result	Units
W08GR03417	B1VHP8	GPP TRENT	Gamma Energy Analysis-grd H2O	BI-212 Count Error			49	%
W08GR03417	B1VHP8	GPP TRENT	Gamma Energy Analysis-grd H2O	BI-214			0.69	pCi/g
W08GR03417	B1VHP8	GPP TRENT	Gamma Energy Analysis-grd H2O	BI-214 Count Error			29	%
W08GR03417	B1VHP8	GPP TRENT	Gamma Energy Analysis-grd H2O	K-40			17	pCi/g
W08GR03417	B1VHP8	GPP TRENT	Gamma Energy Analysis-grd H2O	K-40 Count Error			14	%
W08GR03417	B1VHP8	GPP TRENT	Gamma Energy Analysis-grd H2O	PB-212			0.84	pCi/g
W08GR03417	B1VHP8	GPP TRENT	Gamma Energy Analysis-grd H2O	PB-212 Count Error			12	%
W08GR03417	B1VHP8	GPP TRENT	Gamma Energy Analysis-grd H2O	PB-214			1.1	pCi/g
W08GR03417	B1VHP8	GPP TRENT	Gamma Energy Analysis-grd H2O	PB-214 Count Error			32	%
W08GR03417	B1VHP8	GPP TRENT	Gamma Energy Analysis-grd H2O	RA-226			0.65	pCi/g
W08GR03417	B1VHP8	GPP TRENT	Gamma Energy Analysis-grd H2O	RA-226 Count Error			21	%
W08GR03417	B1VHP8	GPP TRENT	Gamma Energy Analysis-grd H2O	RA-228			0.71	pCi/g
W08GR03417	B1VHP8	GPP TRENT	Gamma Energy Analysis-grd H2O	RA-228 Count Error			25	%
W08GR03417	B1VHP8	GPP TRENT	Gamma Energy Analysis-grd H2O	SN-126			0.23	pCi/g
W08GR03417	B1VHP8	GPP TRENT	Gamma Energy Analysis-grd H2O	SN-126 Count Error			28	%
W08GR03417	B1VHP8	GPP TRENT	Gamma Energy Analysis-grd H2O	TH-234			1.2	pCi/g
W08GR03417	B1VHP8	GPP TRENT	Gamma Energy Analysis-grd H2O	TH-234 Count Error			33	%
W08GR03417	B1VHP8	GPP TRENT	Gamma Energy Analysis-grd H2O	TL-208			0.24	pCi/g
W08GR03417	B1VHP8	GPP TRENT	Gamma Energy Analysis-grd H2O	TL-208 Count Error			21	%

RECEIVED SEPTEMBER 26, 2010 REVISION 2

RQ=Result Qualifier

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WGPE v 5.2 Report#: WSCF20081788

Report Date: 30-sep-2008

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WSCF ANALYTICAL LABORATORY QC REPORT

Department: Radiochemistry

SDG Number: WSCF20081788
 Matrix: SOLID
 Test: Americium by AEA

Sample Date: 08/19/08
 Receive Date: 08/19/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
Lab ID: W08GR03416											
BATCH QC ASSOCIATED WITH SAMPLE											
DUP	Americium-241	14596-10-2	3e-2		RPD			26.087	20.000		09/22/08
DUP	Am-243 tracer by AEA	AM243	3.79	91.070	% Recov	30.000	105.000				09/22/08
SURR	Am-243 tracer by AEA	AM243	3.79	92.750	% Recov	30.000	105.000				09/22/08
Lab ID: W08GR03417											
BATCH QC ASSOCIATED WITH SAMPLE											
SURR	Am-243 tracer by AEA	AM243	3.947	77.290	% Recov	30.000	105.000				09/22/08
BATCH QC											
BLANK	Americium-241	14596-10-2	2.3e-2	0.023	pCi/g	-10.000	1000.000				09/22/08
BLANK	Am-243 tracer by AEA	AM243	3.79	65.930	% Recov	30.000	105.000				09/22/08
LCS	Americium-241	14596-10-2	12.5	105.485	% Recov	80.000	120.000				09/22/08
LCS	Am-243 tracer by AEA	AM243	11.11	72.840	% Recov	30.000	105.000				09/22/08

RECEIVED SEPTEMBER 26, 2010 REVISION 2

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Radiochemistry

SDG Number: WSCF20081788
 Matrix: SOLID
 Test: Gamma Energy Analysis-grd H2O

Sample Date: 08/19/08
 Receive Date: 08/19/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
Lab ID: W08GR03416											
BATCH QC ASSOCIATED WITH SAMPLE											
DUP	Cesium-137	10045-97-3	U-9.409e-3		RPD			n/a	20.000		09/30/08
DUP	Europium-152	14883-23-9	U-6.959e-3		RPD			n/a	20.000		09/30/08
DUP	Europium-154	15585-10-1	0.122		RPD			n/a	20.000		09/30/08
BATCH QC											
BLANK	Cesium-137	10045-97-3	U-4.811e-3	n/a	pCi/g	-10.000	1000.000				09/30/08
BLANK	Europium-152	14883-23-9	U-1.598e-2	n/a	pCi/g	-10.000	1000.000				09/30/08
BLANK	Europium-154	15585-10-1	U-2.434e-2	n/a	pCi/g	-10.000	1000.000				09/30/08
LCS	Cesium-137	10045-97-3	6258	103.809	% Recov	80.000	120.000				09/30/08

RECEIVED SEPTEMBER 26, 2010 REVISION 2

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Radiochemistry

SDG Number: WSCF20081788
 Matrix: SOLID
 Test: Plutonium Isotopics by AEA

Sample Date: 08/19/08
 Receive Date: 08/19/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
Lab ID: W08GR03416											
BATCH QC ASSOCIATED WITH SAMPLE											
DUP	Plutonium-238	13981-16-3	2.6e-2		RPD			n/a	20.000		09/22/08
DUP	Pu-239/240 by AEA	PU-239/240	U9.3e-3		RPD			n/a	20.000		09/22/08
DUP	Pu-242 tracer by AEA	PU242	5.905	71.000	% Recov	30.000	105.000				09/22/08
SURR	Pu-242 tracer by AEA	PU242	5.905	83.110	% Recov	30.000	105.000				09/22/08
Lab ID: W08GR03417											
BATCH QC ASSOCIATED WITH SAMPLE											
SURR	Pu-242 tracer by AEA	PU242	6.15	72.440	% Recov	30.000	105.000				09/22/08
BATCH QC											
BLANK	Plutonium-238	13981-16-3	U1.1e-2	n/a	pCi/g	-10.000	1000.000				09/22/08
BLANK	Pu-239/240 by AEA	PU-239/240	U9e-3	n/a	pCi/g	-10.000	1000.000				09/22/08
BLANK	Pu-242 tracer by AEA	PU242	5.905	87.610	% Recov	30.000	105.000				09/22/08
LCS	Pu-239/240 by AEA	PU-239/240	12.08	94.081	% Recov	80.000	120.000				09/22/08
LCS	Pu-242 tracer by AEA	PU242	17.3	78.970	% Recov	30.000	105.000				09/22/08

RECEIVED SEPTEMBER 26, 2010 REVISION 2

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Radiochemistry

SDG Number: WSCF20081788
 Matrix: SOLID
 Test: Strontium 89/90

Sample Date: 08/19/08
 Receive Date: 08/19/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
Lab ID: W08GR03416											
BATCH QC ASSOCIATED WITH SAMPLE											
DUP	Sr-85 Tracer by Beta Counting	SR85	101.2	101.200	% Recov	30.000	105.000				09/10/08
DUP	Strontium-89/90	SR-RAD	U-1.4		RPD			n/a	20.000		09/10/08
SURR	Sr-85 Tracer by Beta Counting	SR85	96.9	96.900	% Recov	30.000	105.000				09/10/08
Lab ID: W08GR03417											
BATCH QC ASSOCIATED WITH SAMPLE											
SURR	Sr-85 Tracer by Beta Counting	SR85	102.7	102.700	% Recov	30.000	105.000				09/10/08
BATCH QC											
BLANK	Sr-85 Tracer by Beta Counting	SR85	92.7	92.700	% Recov	30.000	105.000				09/10/08
BLANK	Strontium-89/90	10098-97-2	U-7.8E-01	n/a	pCi/g	-10.000	300.000				09/10/08
LCS	Sr-85 Tracer by Beta Counting	SR85	98.5	98.500	% Recov	30.000	105.000				09/10/08
LCS	Strontium-89/90	10098-97-2	63.9	92.075	% Recov	80.000	120.000				09/10/08

RECEIVED SEPTEMBER 26, 2010 REVISION 2

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Radiochemistry

SDG Number: WSCF20081788
 Matrix: SOLID
 Test: Uranium Isotopics by AEA

Sample Date: 08/19/08
 Receive Date: 08/19/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
Lab ID: W08GR03416											
BATCH QC ASSOCIATED WITH SAMPLE											
DUP	U-232 tracer by AEA	U232	3.872	81.050	% Recov	30.000	105.000				09/23/08
DUP	Uranium-233/234	U-233/234	0.42		RPD			7.407	20.000		09/23/08
DUP	Uranium-235	15117-98-1	2.5e-2		RPD			8.333	20.000		09/23/08
DUP	Uranium-238	U-238	0.42		RPD			6.897	20.000		09/23/08
SURR	U-232 tracer by AEA	U232	3.872	86.750	% Recov	30.000	105.000				09/23/08
Lab ID: W08GR03417											
BATCH QC ASSOCIATED WITH SAMPLE											
SURR	U-232 tracer by AEA	U232	4.032	93.170	% Recov	30.000	105.000				09/23/08
BATCH QC											
BLANK	U-232 tracer by AEA	U232	4.089	87.420	% Recov	30.000	105.000				09/24/08
BLANK	Uranium-233/234	13966-29-5	0.13	0.130	pCi/g	-10.000	1000.000				09/24/08
BLANK	Uranium-235	15117-98-1	2.7e-2	0.027	pCi/g	-10.000	1000.000				09/24/08
BLANK	Uranium-238	24678-82-8	U9.4e-3	n/a	pCi/g	-10.000	1000.000				09/24/08
LCS	U-232 tracer by AEA	U232	11.35	80.310	% Recov	30.000	105.000				09/23/08
LCS	Uranium-233/234	13966-29-5	N/A	n/a	% Recov	75.000	125.000				09/23/08
LCS	Uranium-235	15117-98-1	N/A	n/a	% Recov	75.000	125.000				09/23/08
LCS	Uranium-238	24678-82-8	20.19	106.515	% Recov	80.000	120.000				09/23/08

RECEIVED SEPTEMBER 26, 2010 REVISION 2

WSCF ANALYTICAL COMMENT REPORT

Attention: Steve Trent
Project Number: F08-093

Group #: WSCF20081788
Department: Radiochemistry

Sample #	Client ID	Lab Area	Test	Comment
		VALGROUP		<p>Am241 duplicate is flagged for poor RPD but the sample activity is low level. RPD does not apply to low level samples. lmh</p> <p>U234 peak in blank is of unknown origin. Blank was recounted to establish that the blank is not contaminated with uranium.</p> <p>IC Anion - Sample dup RPD out of limits for sulfate in sample W08GR03416; Analyte concentration in sample below calibration range. DTS</p> <p>IC Anion - MS/MSD recoveries out of limits for phosphate in sample W08GR03416; Data N-flagged for samples W08GR03416, 3417, 3432, 3491, 3493. DTS</p> <p>ICP-AES: [Samples W08GR3416-3417] No lithium and zirconium present in the LCS standard. Elements having results <5X MDL; "B" flag. Aluminum, calcium, iron, magnesium, and titanium sample results exceed spiking level by a factor of 4 so spike recoveries are not valid. Check and high standards used to ensure aluminum, calcium, iron, and magnesium linearity because sample results are greater than the calibration standard. High sodium spike recoveries; "N" flag. Iron interference causes high bias on boron results; "E"</p>

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

VALTEST - Test Validation
LOGTEST - Login for Tests

TESTDATA - Test Data Entry

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M4W41-SLF-08-1112

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

ACKNOWLEDGMENT OF SAMPLES RECEIVED

Groundwater Remediation Program

Richland, WA 99354
 Attn: Steve Trent

Customer Code: GPP
 PO#: 123123ES10
 Group#: 20081788
 Project#: F08-093
 Proj Mgr: Steve Trent
 Phone: 373-5869

The following samples were received from you on 08/19/08. They have been scheduled for the tests listed beside each sample. If this information is incorrect, please contact your service representative. Thank you for using Waste Sampling and Characterization Facility.

Sample#	Sample Id	Tests Scheduled	Matrix	Sample Date
W08GR03416	B1VHP7	GPP @2008 @GPP6010	TRENT Solid, or handle as if solid @AEA-30 @AEA-31 @AEA-32 @GEA-GPP @IC-30 @SR89_90 CN-02	08/19/08
W08GR03417	B1VHP8	GPP @2008 @GPP6010	TRENT Solid, or handle as if solid @AEA-30 @AEA-31 @AEA-32 @GEA-GPP @IC-30 @SR89_90 CN-02	08/19/08

Test Acronym Description

Test Acronym	Description
@2008	ICP-200.8 MS All possible meta
@AEA-30	Plutonium Isotopics by AEA
@AEA-31	Americium by AEA
@AEA-32	Uranium Isotopics by AEA
@GEA-GPP	Gamma Energy Analysis-grd H2O
@GPP6010	ICP Metals Analysis, Grd H2O P
@IC-30	Anions by Ion Chromatography
@SR89_90	Strontium 89/90
CN-02	Cyanide by Midi/Spectrophotom

COLLECTOR Kavel, McIntyre	COMPANY CONTACT TRENT, SJ	TELEPHONE NO. 373-5869	PROJECT COORDINATOR WIDRIG, DL	PRICE CODE	SN	DATA TURNAROUND 45 Days / 45 Days
SAMPLING LOCATION C5777 I-002	PROJECT DESIGNATION 200-CW-1 Model Group 5 Sampling - Large Ponds and Waste Sites		SAF NO. F08-093	AIR QUALITY	<input type="checkbox"/>	
ICE CHEST NO.	FIELD LOGBOOK NO. ANF-N-585-1	ACTUAL SAMPLE DEPTH 70'-72'	COA 123117ES10	METHOD OF SHIPMENT FEDERAL EXPRESS		
SHIPPED TO Waste Sampling & Characterization	OFFSITE PROPERTY NO. PTR	BILL OF LADING/AIR BILL NO. PTR				

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)	PRESERVATION	Cool--4C	None
		TYPE OF CONTAINER	G/P	G/P
		NO. OF CONTAINER(S)	1	1
		VOLUME	120ml	120ml
		SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	SEE ITEM (2) IN SPECIAL INSTRUCTIONS
SPECIAL HANDLING AND/OR STORAGE Radioactive Tie To: B1VHR0 20081788		Lot # 024975 024975		

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME		
B1VHP7	4086R0346 SOIL	08-19-08	0855	✓	✓

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	** The 200 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF. (1) ICP Metals - 6010B (Add-On) {Arsenic, Beryllium, Bismuth, Boron, Lithium, Molybdenum, Strontium, Titanium} ICP Metals - 6010B (TAL) {Aluminum, Barium, Calcium, Iron, Magnesium, Potassium, Sodium} ICP/MS - 200.8 (Add-on) {Lead, Selenium, Thallium, Uranium} ICP/MS - 200.8 (TAL) {Antimony, Cadmium, Chromium, Cobalt, Copper, Manganese, Nickel, Silver, Vanadium, Zinc} 200.8_HG - ICPMS {Mercury} IC Anions - 300.0 {Chloride, Fluoride, Nitrogen in Nitrate, Nitrogen in Nitrite, Phosphorus in phosphate, Sulfate} Cyanide (Total) - 335.2 {Cyanide} (2) Gamma Spectroscopy {Cesium-137, Europium-154} Americium-241 {Americium-241} Isotopic Plutonium {Plutonium-239/240} Isotopic Uranium {Uranium-238} Strontium-89,90 -- Total Sr {Total beta radiostrontium}	
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		

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

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COLLECTOR Kaiser, McIntyre	COMPANY CONTACT TRENT, SJ	TELEPHONE NO. 373-5869	PROJECT COORDINATOR WIDRIG, DL	PRICE CODE 8N	DATA TURNAROUND 45 Days / 45 Days
SAMPLING LOCATION CS777 I-003	PROJECT DESIGNATION 200-CW-1 Model Group 5 Sampling - Large Ponds and Waste Sites		SAF NO. F08-093	AIR QUALITY <input type="checkbox"/>	
ICE CHEST NO.	FIELD LOGBOOK NO. HNF-N-585-1	ACTUAL SAMPLE DEPTH 97' to 99'	COA 123117ES10	METHOD OF SHIPMENT FEDERAL EXPRESS	
SHIPPED TO Waste Sampling & Characterization	OFFSITE PROPERTY NO. PTR	BILL OF LADING/AIR BILL NO. PTR			

MATRIX* A=Air DL=Drum L=Liquids DS=Drum S=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)	PRESERVATION	Cool-4C	None
		TYPE OF CONTAINER	G/P	G/P
		NO. OF CONTAINER(S)	1	1
		VOLUME	120ml 125ml	120ml 125ml
SPECIAL HANDLING AND/OR STORAGE Radioactive Tie To: B1VHR1		SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	SEE ITEM (2) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME		
B1VHP8	W08620417 SOIL	08 19 08	1350	✓	✓

CHAIN OF POSSESSION	SIGN/ PRINT NAMES	SPECIAL INSTRUCTIONS
RELINQUISHED BY/REMOVED FROM Ed Kaiser 08-19-08 1450	RECEIVED BY/STORED IN V. J. [Signature] 8/19/08 1450	** The 200 Area S&GRP Characterization and Monitoring Sampling and Analysis GKL applies to this SAF. (1) ICP Metals - 6010B (Add-On) {Arsenic, Beryllium, Bismuth, Boron, Lithium, Molybdenum, Strontium, Titanium} ICP Metals - 6010B (TAL) {Aluminum, Barium, Calcium, Iron, Magnesium, Potassium, Sodium} ICP/MS - 200.8 (Add-on) {Lead, Selenium, Thallium, Uranium} ICP/MS - 200.8 (TAL) {Antimony, Cadmium, Chromium, Cobalt, Copper, Manganese, Nickel, Silver, Vanadium, Zinc} 200.8_HG - ICPMS {Mercury} IC Anions - 300.0 {Chloride, Fluoride, Nitrogen in Nitrate, Nitrogen in Nitrite, Phosphorus in phosphate, Sulfate} Cyanide (Total) - 335.2 {Cyanide} (2) Gamma Spectroscopy {Cesium-137, Europium-154} Americium-241 {Americium-241} Isotopic Plutonium {Plutonium-239/240} Isotopic Uranium {Uranium-238} Strontium-89,90 -- Total Sr {Total beta radiostrontium}
RELINQUISHED BY/REMOVED FROM	RECEIVED BY/STORED IN	
RELINQUISHED BY/REMOVED FROM	RECEIVED BY/STORED IN	
RELINQUISHED BY/REMOVED FROM	RECEIVED BY/STORED IN	
RELINQUISHED BY/REMOVED FROM	RECEIVED BY/STORED IN	
RELINQUISHED BY/REMOVED FROM	RECEIVED BY/STORED IN	

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

RECEIVED SEPTEMBER 26 2010 REVISION 2

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