RECEIVED APRIL 15, 2010

0088954

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

42100-SLF-10-129

April 14, 2010

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

Dear Mike,

FINAL RESULTS FOR SAMPLE DELIVERY GROUP WSCF20100504 – SAF NUMBER F10-060

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 WSCF20100504:

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

Very truly yours,

S. L. Fitzgerald
WSCF Analytical Lab

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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	

42100-SLF-10-129

ATTACHMENT 1

COVER SHEET

Consisting of 2 pages
Including cover page

WSCF SAF NUMBER CROSS REFERENCE

Group#: WSCF20100504
Data Deliverable Date: 15-apr-2010
Data Deliverable: Cover Sheet

SAF#	Sample ID	WSCF#	Matrix
F10-060	B243R7	W10GR00907	SOIL
	B243R8	W10GR00908	SOIL
	B243R9	W10GR00909	SOIL

42100-SLF-10-129

ATTACHMENT 2

NARRATIVE

Consisting of 4 pages
Including cover page

Introduction

Three (3) S&GRP samples were received at the WSCF Laboratory on April 1, 2010. The samples were analyzed for the analytes indicated on the attached copy of the chain of custody (COC) form in accordance with the *Statement of Work (SOW), Modification No. 2 to Agreement 36587, Release 3, "FH WSCF ANALYTICAL SERVICES FOR GROUNDWATER."*

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

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

- Batch QC analyzed on sample# W10GR00907 (B243R7 in work order 20100504)
    - Fluoride – Matrix Spike and Matrix Spike Duplicate exceeded laboratory acceptance criteria. Failure is possibly due to matrix interference in the sample. Sample results are "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. See page 22 for QC details. Analytical Note(s):

- Batch QC analyzed on sample# W10GR00902 (B247Y4 in work order 20100488)

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 23 through 24 for QC details. Analytical Note(s):

- Batch QC analyzed on sample# W10GR00907 (B243R7 in work order 20100504)
    - Sodium – Matrix Spike and Matrix Spike Duplicate recoveries exceeded laboratory spike levels. Affected sample results in this batch were "N" flagged.
    - Estimated Boron results due to iron interference. Sample results and "E" flagged.
    - Iron contamination was detected in the Blank and was evaluated. No sample results in this batch were affected. No flags issued.
    - Calcium, Iron, Magnesium and Titanium – exceeded spiking levels by a factor of 4. Spike recoveries are not valid.
- Batch QC analyzed on sample# W10GR00924 is not associated with this sample group however, due to the limitations of the software it cannot be revoked from this report. Please disregard.

All other QC controls are within the established limits.

ICP-MS Metals – The hold time requirements for this analysis were met. A Matrix Spike, Matrix Spike Duplicate, Blank and Laboratory Control Sample were analyzed with this delivery group. See pages 25 through 32 for QC details. Analytical Note(s):

- Batch QC analyzed on sample# W10GR00943 (B243T7 in work order 20100518)
    - Aluminum – exceeded spiking levels by a factor of 4. Spike recoveries are not valid.

- o Manganese – Matrix Spike recovery exceeded laboratory spike levels. Affected sample results in this batch were "N" flagged.

All other QC controls are within the established limits.

- Batch QC analyzed on sample# W10GR00907 (B243R7 in work order 20100504)

All QC controls are within the established limits.

Radiochemistry Comments

Rad Chem – The hold time requirement for this analysis was met. A Duplicate, Blank and Laboratory Control Sample were analyzed with this delivery group. See page 37 for QC details. Analytical Note(s):

- Rad Chem requested to be performed included: Gamma Energy Analysis.
- Gamma Energy Analysis: Batch QC analyzed on sample# W10GR00912 (B243T3 in work order 20100511)

All QC controls are within the established limits.

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

Scot L. Fitzgerald
WSCF Analytical Laboratory Manager

Richard Barker 4-14-10
Richard Barker
WSCF Client Services

42100-SLF-10-129

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: S. Fitzgerald 4-14-10

Client Services: Richard Barker 4-14-10 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#: WSCF20100504
Report Date: 14-apr-2010
Report WGPP/ver. 5.2
Groundwater Remediation Program

w13qlog v4.2 14-apr-2010 12:25:31

Department: Inorganic

W13q Worklist/Batch/QC Report for Group# WSCF20100504

WL#	S#	Batch	QC#	Tray Type	Sample#	Test
40888	2	41353	45936	BLANK		Anions by Ion Chromatography
40888	15	41353	45936	BLANK		Anions by Ion Chromatography
40888	3	41353	45936	LCS		Anions by Ion Chromatography
40888	5	41353	45936	DUP	W10GR00907	Anions by Ion Chromatography
40888	6	41353	45936	MS	W10GR00907	Anions by Ion Chromatography
40888	7	41353	45936	MSD	W10GR00907	Anions by Ion Chromatography
40888	4	41353	45936	SAMPLE	W10GR00907	Anions by Ion Chromatography
40888	7	41353	45936	SPK-RPD	W10GR00907	Anions by Ion Chromatography
40888	11	41353	45936	SAMPLE	W10GR00908	Anions by Ion Chromatography
40888	12	41353	45936	SAMPLE	W10GR00909	Anions by Ion Chromatography
40890	1	41355	45949	BLANK		ICP Metals Analysis, Grd H20 P
40890	2	41355	45949	LCS		ICP Metals Analysis, Grd H20 P
40890	4	41355	45949	MS	W10GR00907	ICP Metals Analysis, Grd H20 P
40890	5	41355	45949	MSD	W10GR00907	ICP Metals Analysis, Grd H20 P
40890	3	41355	45949	SAMPLE	W10GR00907	ICP Metals Analysis, Grd H20 P
40890	5	41355	45949	SPK-RPD	W10GR00907	ICP Metals Analysis, Grd H20 P
40890	6	41355	45949	SAMPLE	W10GR00908	ICP Metals Analysis, Grd H20 P
40890	7	41355	45949	SAMPLE	W10GR00909	ICP Metals Analysis, Grd H20 P
40890	11	41355	45949	MS	W10GR00924	ICP Metals Analysis, Grd H20 P
40890	12	41355	45949	MSD	W10GR00924	ICP Metals Analysis, Grd H20 P
40890	12	41355	45949	SPK-RPD	W10GR00924	ICP Metals Analysis, Grd H20 P
40940	1	41405	45958	BLANK		ICP-200.8 MS All possible meta
40940	2	41405	45958	LCS		ICP-200.8 MS All possible meta
40940	6	41405	45958	SAMPLE	W10GR00909	ICP-200.8 MS All possible meta
40940	4	41405	45958	MS	W10GR00943	ICP-200.8 MS All possible meta
40940	5	41405	45958	MSD	W10GR00943	ICP-200.8 MS All possible meta
40940	5	41405	45958	SPK-RPD	W10GR00943	ICP-200.8 MS All possible meta
40954	1	41419	45982	BLANK		Cyanide by Midi/Spectrophotom
40954	2	41419	45982	LCS		Cyanide by Midi/Spectrophotom
40954	4	41419	45982	MS	W10GR00902	Cyanide by Midi/Spectrophotom
40954	5	41419	45982	MSD	W10GR00902	Cyanide by Midi/Spectrophotom
40954	5	41419	45982	SPK-RPD	W10GR00902	Cyanide by Midi/Spectrophotom
40954	6	41419	45982	SAMPLE	W10GR00907	Cyanide by Midi/Spectrophotom
40954	7	41419	45982	SAMPLE	W10GR00908	Cyanide by Midi/Spectrophotom
40954	8	41419	45982	SAMPLE	W10GR00909	Cyanide by Midi/Spectrophotom
40958	1	41423	45989	BLANK		ICP-200.8 MS All possible meta
40958	2	41423	45989	LCS		ICP-200.8 MS All possible meta
40958	4	41423	45989	MS	W10GR00907	ICP-200.8 MS All possible meta
40958	5	41423	45989	MSD	W10GR00907	ICP-200.8 MS All possible meta
40958	3	41423	45989	SAMPLE	W10GR00907	ICP-200.8 MS All possible meta
40958	5	41423	45989	SPK-RPD	W10GR00907	ICP-200.8 MS All possible meta
40958	6	41423	45989	SAMPLE	W10GR00908	ICP-200.8 MS All possible meta

w13qlog v4.2 14-apr-2010 12:25:31

Department: Radiochemistry

W13q Worklist/Batch/QC Report for Group# WSCF20100504

WL#	S#	Batch	QC#	Tray Type	Sample#	Test
40895	1	41359	45988	BLANK		Gamma Energy Analysis-grd H2O
40895	2	41359	45988	LCS		Gamma Energy Analysis-grd H2O
40895	3	41359	45988	SAMPLE	W10GR00907	Gamma Energy Analysis-grd H2O
40895	4	41359	45988	SAMPLE	W10GR00908	Gamma Energy Analysis-grd H2O
40895	5	41359	45988	SAMPLE	W10GR00909	Gamma Energy Analysis-grd H2O
40895	6	41359	45988	DUP	W10GR00912	Gamma Energy Analysis-grd H2O

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
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-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: 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-508-481 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: F10-060
Sample # W10GR00907
Client ID: B243R7 GPP TRENT WSCF
Matrix: SOIL

Group #: WSCF20100504
Department: Inorganic
Sampled: 03/31/10
Received: 04/01/10

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Anions by Ion Chromatography Prep											**04/05/10**
Anions by Ion Chromatography											
Fluoride	16984-48-8	LA-533-410	DNU	< 1.50	mg/kg			50.00	1.5		04/05/10
Chloride	16887-00-6	LA-533-410	BD	4.45	mg/kg			50.00	2.2		04/05/10
Nitrogen in Nitrite	NO2-N	LA-533-410	DU	< 0.900	mg/kg			50.00	0.90		04/05/10
Nitrogen in Nitrate	NO3-N	LA-533-410	D	20.8	mg/kg			50.00	1.6		04/05/10
Phosphate (P) by IC	PO4-P	LA-533-410	DU	< 3.50	mg/kg			50.00	3.5		04/05/10
Sulfate	14808-79-8	LA-533-410	BD	10.5	mg/kg			50.00	3.3		04/05/10
Cyanide											
Cyanide	57-12-5	LA-695-402	U	< 0.200	mg/kg			1.00	0.20		04/12/10
ICP Metals Analysis, Grd H20 P Prep											**04/06/10**
ICP Metals Analysis, Grd H20 P											
Iron	7439-89-6	LA-505-411		2.10e+04	mg/kg			99.60	1.8		04/07/10
Magnesium	7439-95-4	LA-505-411		4.63e+03	mg/kg			99.60	1.6		04/07/10
Potassium	7440-09-7	LA-505-411		1.52e+03	mg/kg			99.60	5.5		04/07/10
Sodium	7440-23-5	LA-505-411	N	206	mg/kg			99.60	1.7		04/07/10
Calcium	7440-70-2	LA-505-411		4.76e+03	mg/kg			99.60	3.9		04/07/10
Lithium	7439-93-2	LA-505-411		8.11	mg/kg			99.60	0.40		04/07/10
Titanium	7440-32-6	LA-505-411		1.66e+03	mg/kg			99.60	0.40		04/07/10
Boron	7440-42-8	LA-505-411	E	14.8	mg/kg			99.60	1.9		04/07/10
Bismuth	7440-69-9	LA-505-411		26.5	mg/kg			99.60	2.3		04/07/10
ICP-200.8 MS All possible meta Prep											**04/06/10**
ICP-200.8 MS All possible meta											
Aluminum	7429-90-5	LA-505-412		6.65e+03	mg/kg			0.99	4.95		04/09/10
Manganese	7439-96-5	LA-505-412		259	mg/kg			0.99	0.0991		04/09/10

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)
E - Analyte is an estimate, has potentially larger errors(inorg)
U - Analyzed for but not detected above limiting criteria(inorg)
D - Analyte was identified at a secondary dilution factor(inorg)
N - Spike sample recovery is outside control limits.(inorg)
X - Other flags/notes described in the comments/narrative(inorg)

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

WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent
SAF Number: F10-060
Sample # W10GR00907
Client ID: B243R7 GPP TRENT WSCF

Matrix: SOIL

Group #: WSCF20100504
Department: Inorganic
Sampled: 03/31/10
Received: 04/01/10

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Nickel	7440-02-0	LA-505-412		10.1	mg/kg			0.99	0.198		04/09/10
Silver	7440-22-4	LA-505-412	U	< 0.0990	mg/kg			0.99	0.0991		04/09/10
Antimony	7440-36-0	LA-505-412	U	< 0.297	mg/kg			0.99	0.297		04/09/10
Barium	7440-39-3	LA-505-412		73.6	mg/kg			0.99	0.198		04/09/10
Beryllium	7440-41-7	LA-505-412		0.230	mg/kg			0.99	0.0495		04/09/10
Cadmium	7440-43-9	LA-505-412		0.310	mg/kg			0.99	0.0991		04/09/10
Chromium	7440-47-3	LA-505-412		16.9	mg/kg			0.99	0.495		04/09/10
Cobalt	7440-48-4	LA-505-412		6.41	mg/kg			0.99	0.0495		04/09/10
Copper	7440-50-8	LA-505-412		12.9	mg/kg			0.99	0.0991		04/09/10
Vanadium	7440-62-2	LA-505-412		42.2	mg/kg			0.99	0.198		04/09/10
Zinc	7440-66-6	LA-505-412		52.0	mg/kg			0.99	0.792		04/09/10
Lead	7439-92-1	LA-505-412		6.23	mg/kg			0.99	0.0991		04/09/10
Mercury	7439-97-6	LA-505-412		0.0600	mg/kg			0.99	0.0495		04/09/10
Molybdenum	7439-98-7	LA-505-412		0.440	mg/kg			0.99	0.0495		04/09/10
Uranium	7440-61-1	LA-505-412		0.730	mg/kg			0.99	0.0495		04/09/10
Arsenic	7440-38-2	LA-505-412		2.86	mg/kg			0.99	0.396		04/09/10
Selenium	7782-49-2	LA-505-412		1.09	mg/kg			0.99	0.297		04/09/10
Thallium	7440-28-0	LA-505-412	U	< 0.0990	mg/kg			0.99	0.0991		04/09/10
Strontium	7440-24-6	LA-505-412		25.2	mg/kg			0.99	0.0991		04/09/10

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

D - Analyte was identified at a secondary dilution factor(inorg)
N - Spike sample recovery is outside control limits.(inorg)
X - Other flags/notes described in the comments/narrative(inorg)

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

WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent
SAF Number: F10-060
Sample # W10GR00908
Client ID: B243R8 GPP TRENT WSCF
Matrix: SOIL

Group #: WSCF20100504
Department: Inorganic
Sampled: 03/31/10
Received: 04/01/10

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Anions by Ion Chromatography Prep											**04/05/10**
Anions by Ion Chromatography											
Fluoride	16984-48-8	LA-533-410	DNU	< 1.50	mg/kg			50.00	1.5		04/05/10
Chloride	16887-00-6	LA-533-410	BD	3.51	mg/kg			50.00	2.2		04/05/10
Nitrogen in Nitrite	NO2-N	LA-533-410	DU	< 0.900	mg/kg			50.00	0.90		04/05/10
Nitrogen in Nitrate	NO3-N	LA-533-410	D	15.7	mg/kg			50.00	1.6		04/05/10
Phosphate (P) by IC	PO4-P	LA-533-410	DU	< 3.50	mg/kg			50.00	3.5		04/05/10
Sulfate	14808-79-8	LA-533-410	BD	15.8	mg/kg			50.00	3.3		04/05/10
Cyanide											
Cyanide	57-12-5	LA-695-402	U	< 0.200	mg/kg			1.00	0.20		04/12/10
ICP Metals Analysis, Grd H20 P Prep											**04/06/10**
ICP Metals Analysis, Grd H20 P											
Iron	7439-89-6	LA-505-411		2.18e+04	mg/kg			99.52	1.8		04/07/10
Magnesium	7439-95-4	LA-505-411		4.63e+03	mg/kg			99.52	1.6		04/07/10
Potassium	7440-09-7	LA-505-411		1.53e+03	mg/kg			99.52	5.5		04/07/10
Sodium	7440-23-5	LA-505-411	N	202	mg/kg			99.52	1.7		04/07/10
Calcium	7440-70-2	LA-505-411		4.22e+03	mg/kg			99.52	3.9		04/07/10
Lithium	7439-93-2	LA-505-411		7.64	mg/kg			99.52	0.40		04/07/10
Titanium	7440-32-6	LA-505-411		1.84e+03	mg/kg			99.52	0.40		04/07/10
Boron	7440-42-8	LA-505-411	E	14.0	mg/kg			99.52	1.9		04/07/10
Bismuth	7440-69-9	LA-505-411		17.9	mg/kg			99.52	2.3		04/07/10
ICP-200.8 MS All possible meta Prep											**04/06/10**
ICP-200.8 MS All possible meta											
Aluminum	7429-90-5	LA-505-412		6.32e+03	mg/kg			0.97	4.86		04/09/10
Manganese	7439-96-5	LA-505-412		289	mg/kg			0.97	0.0971		04/09/10

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)
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WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent
SAF Number: F10-060
Sample # W10GR00908
Client ID: B243R8 GPP WSCF TRENT

Matrix: SOIL

Group #: WSCF20100504
Department: Inorganic
Sampled: 03/31/10
Received: 04/01/10

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Nickel	7440-02-0	LA-505-412		9.14	mg/kg			0.97	0.194		04/09/10
Silver	7440-22-4	LA-505-412	U	< 0.0971	mg/kg			0.97	0.0971		04/09/10
Antimony	7440-36-0	LA-505-412	U	< 0.291	mg/kg			0.97	0.291		04/09/10
Barium	7440-39-3	LA-505-412		78.8	mg/kg			0.97	0.194		04/09/10
Beryllium	7440-41-7	LA-505-412		0.190	mg/kg			0.97	0.0486		04/09/10
Cadmium	7440-43-9	LA-505-412		0.240	mg/kg			0.97	0.0971		04/09/10
Chromium	7440-47-3	LA-505-412		14.1	mg/kg			0.97	0.486		04/09/10
Cobalt	7440-48-4	LA-505-412		6.69	mg/kg			0.97	0.0486		04/09/10
Copper	7440-50-8	LA-505-412		10.3	mg/kg			0.97	0.0971		04/09/10
Vanadium	7440-62-2	LA-505-412		46.7	mg/kg			0.97	0.194		04/09/10
Zinc	7440-66-6	LA-505-412		45.3	mg/kg			0.97	0.777		04/09/10
Lead	7439-92-1	LA-505-412		5.71	mg/kg			0.97	0.0971		04/09/10
Mercury	7439-97-6	LA-505-412	U	< 0.0486	mg/kg			0.97	0.0486		04/09/10
Molybdenum	7439-98-7	LA-505-412		0.490	mg/kg			0.97	0.0486		04/09/10
Uranium	7440-61-1	LA-505-412		0.910	mg/kg			0.97	0.0486		04/09/10
Arsenic	7440-38-2	LA-505-412		3.01	mg/kg			0.97	0.388		04/09/10
Selenium	7782-49-2	LA-505-412		1.14	mg/kg			0.97	0.291		04/09/10
Thallium	7440-28-0	LA-505-412	U	< 0.0971	mg/kg			0.97	0.0971		04/09/10
Strontium	7440-24-6	LA-505-412		24.2	mg/kg			0.97	0.0971		04/09/10

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

D - Analyte was identified at a secondary dilution factor(inorg)
N - Spike sample recovery is outside control limits.(inorg)
X - Other flags/notes described in the comments/narrative(inorg)

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

WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent
SAF Number: F10-060
Sample # W10GR00909
Client ID: B243R9 GPP TRENT WSCF
Matrix: SOIL

Group #: WSCF20100504
Department: Inorganic
Sampled: 03/31/10
Received: 04/01/10

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Anions by Ion Chromatography Prep											**04/05/10**
Anions by Ion Chromatography											
Fluoride	16984-48-8	LA-533-410	DNU	< 1.50	mg/kg			50.00	1.5		04/05/10
Chloride	16887-00-6	LA-533-410	BD	3.67	mg/kg			50.00	2.2		04/05/10
Nitrogen in Nitrite	NO2-N	LA-533-410	DU	< 0.900	mg/kg			50.00	0.90		04/05/10
Nitrogen in Nitrate	NO3-N	LA-533-410	D	9.80	mg/kg			50.00	1.6		04/05/10
Phosphate (P) by IC	PO4-P	LA-533-410	DU	< 3.50	mg/kg			50.00	3.5		04/05/10
Sulfate	14808-79-8	LA-533-410	D	831	mg/kg			50.00	3.3		04/05/10
Cyanide											
Cyanide	57-12-5	LA-695-402	U	< 0.200	mg/kg			1.00	0.20		04/12/10
ICP Metals Analysis, Grd H20 P Prep											**04/06/10**
ICP Metals Analysis, Grd H20 P											
Iron	7439-89-6	LA-505-411		2.03e+04	mg/kg			99.96	1.8		04/07/10
Magnesium	7439-95-4	LA-505-411		4.72e+03	mg/kg			99.96	1.6		04/07/10
Potassium	7440-09-7	LA-505-411		1.30e+03	mg/kg			99.96	5.5		04/07/10
Sodium	7440-23-5	LA-505-411	N	284	mg/kg			99.96	1.7		04/07/10
Calcium	7440-70-2	LA-505-411		4.94e+03	mg/kg			99.96	3.9		04/07/10
Lithium	7439-93-2	LA-505-411		7.85	mg/kg			99.96	0.40		04/07/10
Titanium	7440-32-6	LA-505-411		1.70e+03	mg/kg			99.96	0.40		04/07/10
Boron	7440-42-8	LA-505-411	E	12.7	mg/kg			99.96	1.9		04/07/10
Bismuth	7440-69-9	LA-505-411	U	< 2.30	mg/kg			99.96	2.3		04/07/10
ICP-200.8 MS All possible meta Prep											**04/06/10**
ICP-200.8 MS All possible meta											
Aluminum	7429-90-5	LA-505-412	X	5.81e+03	mg/kg			0.99	4.95		04/09/10
Manganese	7439-96-5	LA-505-412	N	223	mg/kg			0.99	0.0990		04/09/10

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WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent
SAF Number: F10-060
Sample # W10GR00909
Client ID: B243R9 GPP TRENT WSCF

Matrix: SOIL

Group #: WSCF20100504
Department: Inorganic
Sampled: 03/31/10
Received: 04/01/10

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Nickel	7440-02-0	LA-505-412		7.74	mg/kg			0.99	0.198		04/09/10
Silver	7440-22-4	LA-505-412	U	< 0.0990	mg/kg			0.99	0.0990		04/09/10
Antimony	7440-36-0	LA-505-412	U	< 0.297	mg/kg			0.99	0.297		04/09/10
Barium	7440-39-3	LA-505-412		80.2	mg/kg			0.99	0.198		04/09/10
Beryllium	7440-41-7	LA-505-412		0.240	mg/kg			0.99	0.0495		04/09/10
Cadmium	7440-43-9	LA-505-412	U	< 0.0990	mg/kg			0.99	0.0990		04/09/10
Chromium	7440-47-3	LA-505-412		8.56	mg/kg			0.99	0.495		04/09/10
Cobalt	7440-48-4	LA-505-412		6.40	mg/kg			0.99	0.0495		04/09/10
Copper	7440-50-8	LA-505-412		9.76	mg/kg			0.99	0.0990		04/09/10
Vanadium	7440-62-2	LA-505-412		45.5	mg/kg			0.99	0.198		04/09/10
Zinc	7440-66-6	LA-505-412		32.5	mg/kg			0.99	0.792		04/09/10
Lead	7439-92-1	LA-505-412		4.25	mg/kg			0.99	0.0990		04/09/10
Mercury	7439-97-6	LA-505-412	U	< 0.0495	mg/kg			0.99	0.0495		04/09/10
Molybdenum	7439-98-7	LA-505-412		0.590	mg/kg			0.99	0.0495		04/09/10
Uranium	7440-61-1	LA-505-412		2.81	mg/kg			0.99	0.0495		04/09/10
Arsenic	7440-38-2	LA-505-412		2.65	mg/kg			0.99	0.396		04/09/10
Selenium	7782-49-2	LA-505-412		0.970	mg/kg			0.99	0.297		04/09/10
Thallium	7440-28-0	LA-505-412	U	< 0.0990	mg/kg			0.99	0.0990		04/09/10
Strontium	7440-24-6	LA-505-412		25.6	mg/kg			0.99	0.0990		04/09/10

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

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WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20100504
Matrix: SOLID
Test: Anions by Ion Chromatography

Sample Date: 03/31/10
Receive Date:04/01/10

Lab ID: W10GR00907
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	4.4015		RPD			1.082	20.000		04/05/10
DUP	Fluoride	16984-48-8	<1.5		RPD			n/a	20.000	U	04/05/10
DUP	Nitrogen in Nitrite	NO2-N	<0.9		RPD			n/a	20.000	U	04/05/10
DUP	Nitrogen in Nitrate	NO3-N	20.9271		RPD			0.472	20.000		04/05/10
DUP	Phosphate (P) by IC	PO4-P	<3.5		RPD			n/a	20.000	U	04/05/10
DUP	Sulfate	14808-79-8	10.5743		RPD			0.631	20.000		04/05/10
MS	Chloride	16887-00-6	0.84724	85.150	% Recov	80.000	120.000				04/05/10
MS	Fluoride	16984-48-8	0.404802	79.373	% Recov	80.000	120.000				04/05/10
MS	Nitrogen in Nitrite	NO2-N	0.461538	92.865	% Recov	80.000	120.000				04/05/10
MS	Nitrogen in Nitrate	NO3-N	0.460834	102.408	% Recov	80.000	120.000				04/05/10
MS	Phosphate (P) by IC	PO4-P	0.862728	89.217	% Recov	80.000	120.000				04/05/10
MS	Sulfate	14808-79-8	1.809108	90.455	% Recov	80.000	120.000				04/05/10
MSD	Chloride	16887-00-6	0.843728	84.797	% Recov	80.000	120.000				04/05/10
MSD	Fluoride	16984-48-8	0.40579	79.567	% Recov	80.000	120.000				04/05/10
MSD	Nitrogen in Nitrite	NO2-N	0.462536	93.066	% Recov	80.000	120.000				04/05/10
MSD	Nitrogen in Nitrate	NO3-N	0.449162	99.814	% Recov	80.000	120.000				04/05/10
MSD	Phosphate (P) by IC	PO4-P	0.860788	89.016	% Recov	80.000	120.000				04/05/10
MSD	Sulfate	14808-79-8	1.77602	88.801	% Recov	80.000	120.000				04/05/10
SPK-RPD	Chloride	16887-00-6	84.797		RPD			0.415	20.000		04/06/10
SPK-RPD	Fluoride	16984-48-8	79.567		RPD			0.244	20.000		04/06/10
SPK-RPD	Nitrogen in Nitrite	NO2-N	93.066		RPD			0.216	20.000		04/06/10
SPK-RPD	Nitrogen in Nitrate	NO3-N	99.814		RPD			2.565	20.000		04/06/10
SPK-RPD	Phosphate (P) by IC	PO4-P	89.016		RPD			0.226	20.000		04/06/10
SPK-RPD	Sulfate	14808-79-8	88.801		RPD			1.845	20.000		04/06/10

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20100504
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	04/05/10
BLANK	Chloride	16887-00-6	<4.3e-2	n/a	mg/L	0.000	0.030			U	04/06/10
BLANK	Fluoride	16984-48-8	<3e-2	n/a	mg/L	0.000	0.030			U	04/05/10
BLANK	Fluoride	16984-48-8	<3e-2	n/a	mg/L	0.000	0.030			U	04/06/10
BLANK	Nitrogen in Nitrite	NO2-N	<1.8e-2	n/a	mg/L	0.000	0.020			U	04/06/10
BLANK	Nitrogen in Nitrite	NO2-N	<1.8e-2	n/a	mg/L	0.000	0.020			U	04/05/10
BLANK	Nitrogen in Nitrate	NO3-N	<3.1e-2	n/a	mg/L	0.000	0.040			U	04/05/10
BLANK	Nitrogen in Nitrate	NO3-N	<3.1e-2	n/a	mg/L	0.000	0.040			U	04/06/10
BLANK	Phosphate (P) by IC	PO4-P	<7e-2	n/a	mg/L	0.000	0.200			U	04/06/10
BLANK	Phosphate (P) by IC	PO4-P	<7e-2	n/a	mg/L	0.000	0.200			U	04/05/10
BLANK	Sulfate	14808-79-8	<6.6e-2	n/a	mg/L	0.000	0.200			U	04/05/10
BLANK	Sulfate	14808-79-8	<6.6e-2	n/a	mg/L	0.000	0.200			U	04/06/10
LCS	Chloride	16887-00-6	187.4845	94.213	% Recov	80.000	120.000				04/05/10
LCS	Fluoride	16984-48-8	95.0569	93.193	% Recov	80.000	120.000				04/05/10
LCS	Nitrogen in Nitrite	NO2-N	96.8173	97.402	% Recov	80.000	120.000				04/05/10
LCS	Nitrogen in Nitrate	NO3-N	90.8289	101.033	% Recov	80.000	120.000				04/05/10
LCS	Phosphate (P) by IC	PO4-P	188.3951	97.412	% Recov	80.000	120.000				04/05/10
LCS	Sulfate	14808-79-8	382.8332	95.708	% Recov	80.000	120.000				04/05/10

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20100504
Matrix: SOLID
Test: Cyanide by Midi/Spectrophotom

Sample Date: 03/30/10
Receive Date:03/30/10

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
Lab ID: W10GR00902											
BATCH QC ASSOCIATED WITH SAMPLE											
MS	Cyanide by Midi/Spectrophotom	57-12-5	1.89	94.975	% Recov	75.000	125.000				04/12/10
MSD	Cyanide by Midi/Spectrophotom	57-12-5	1.89	94.500	% Recov	75.000	125.000				04/12/10
SPK-RPD	Cyanide by Midi/Spectrophotom	57-12-5	94.500		RPD			0.501	20.000		04/12/10
BATCH QC											
BLANK	Cyanide by Midi/Spectrophotom	57-12-5	< 4	n/a	ug/L	-4.000	4.000			U	04/12/10
LCS	Cyanide by Midi/Spectrophotom	57-12-5	57.7	90.866	% Recov	85.000	115.000				04/12/10

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20100504
Matrix: SOLID
Test: ICP Metals Analysis, Grd H20 P

Sample Date: 03/31/10
Receive Date:04/01/10

Lab ID: W10GR00907
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	Boron	7440-42-8	200.61	100.809	% Recov	75.000	125.000				04/07/10
MS	Bismuth	7440-69-9	205.01	103.020	% Recov	75.000	125.000				04/07/10
MS	Calcium	7440-70-2	1212	609.045	% Recov	75.000	125.000			*	04/07/10
MS	Iron	7439-89-6	290	145.729	% Recov	75.000	125.000			*	04/07/10
MS	Potassium	7440-09-7	1992	100.101	% Recov	75.000	125.000				04/07/10
MS	Lithium	7439-93-2	102.893	103.410	% Recov	70.000	130.000				04/07/10
MS	Magnesium	7439-95-4	366	183.920	% Recov	75.000	125.000			*	04/07/10
MS	Sodium	7440-23-5	362.8	182.312	% Recov	75.000	125.000			*	04/07/10
MS	Titanium	7440-32-6	235	118.090	% Recov	75.000	125.000				04/07/10
MSD	Boron	7440-42-8	203.51	102.266	% Recov	75.000	125.000				04/07/10
MSD	Bismuth	7440-69-9	201.81	101.412	% Recov	75.000	125.000				04/07/10
MSD	Calcium	7440-70-2	817	410.553	% Recov	75.000	125.000			*	04/07/10
MSD	Iron	7439-89-6	-460	-231.156	% Recov	75.000	125.000			*	04/07/10
MSD	Potassium	7440-09-7	2128	107.042	% Recov	75.000	125.000				04/07/10
MSD	Lithium	7439-93-2	110.993	111.551	% Recov	75.000	125.000				04/07/10
MSD	Magnesium	7439-95-4	381	191.457	% Recov	75.000	125.000			*	04/07/10
MSD	Sodium	7440-23-5	398.5	200.251	% Recov	75.000	125.000			*	04/07/10
MSD	Titanium	7440-32-6	212	106.533	% Recov	75.000	125.000				04/07/10
SPK-RPD	Boron	7440-42-8	102.266		RPD			1.435	20.000		04/07/10
SPK-RPD	Bismuth	7440-69-9	101.412		RPD			1.573	20.000		04/07/10
SPK-RPD	Calcium	7440-70-2	410.553		RPD			38.935	20.000	*	04/07/10
SPK-RPD	Iron	7439-89-6	-231.156		RPD			-882.356	20.000	*	04/07/10
SPK-RPD	Potassium	7440-09-7	107.042		RPD			6.702	20.000		04/07/10
SPK-RPD	Lithium	7439-93-2	111.551		RPD			7.574	20.000		04/07/10
SPK-RPD	Magnesium	7439-95-4	191.457		RPD			4.016	20.000		04/07/10
SPK-RPD	Sodium	7440-23-5	200.251		RPD			9.378	20.000		04/07/10

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20100504
Matrix: SOLID
Test: ICP Metals Analysis, Grd H20 P

Sample Date: 03/31/10
Receive Date:04/01/10

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
SPK-RPD	Titanium	7440-32-6	106.533		RPD			10.290	20.000		04/07/10
Lab ID: W10GR00924											
BATCH QC ASSOCIATED WITH SAMPLE											
MS	Boron	7440-42-8	209.64	105.347	% Recov	75.000	125.000				04/07/10
MS	Lithium	7439-93-2	109.561	110.112	% Recov	70.000	130.000				04/07/10
MSD	Boron	7440-42-8	195.84	97.920	% Recov	75.000	125.000				04/07/10
MSD	Lithium	7439-93-2	98.661	98.661	% Recov	75.000	125.000				04/07/10
SPK-RPD	Boron	7440-42-8	97.920		RPD			7.308	20.000		04/07/10
SPK-RPD	Lithium	7439-93-2	98.661		RPD			10.970	20.000		04/07/10
BATCH QC											
BLANK	Boron	7440-42-8	<1.9e-2	n/a	ug/mL					U	04/07/10
BLANK	Bismuth	7440-69-9	<2.3e-2	n/a	ug/mL					U	04/07/10
BLANK	Calcium	7440-70-2	<3.9e-2	n/a	ug/mL					U	04/07/10
BLANK	Iron	7439-89-6	0.27	0.270	ug/mL						04/07/10
BLANK	Potassium	7440-09-7	<5.5e-2	n/a	ug/mL					U	04/07/10
BLANK	Lithium	7439-93-2	<4e-3	n/a	ug/mL					U	04/07/10
BLANK	Magnesium	7439-95-4	<1.6e-2	n/a	ug/mL					U	04/07/10
BLANK	Sodium	7440-23-5	<1.7e-2	n/a	ug/mL					U	04/07/10
BLANK	Titanium	7440-32-6	<4e-3	n/a	ug/mL					U	04/07/10
LCS	Boron	7440-42-8	140.3	122.000	% Recov	45.000	156.000				04/07/10
LCS	Bismuth	7440-69-9	106.9	107.114	% Recov	80.000	120.000				04/07/10
LCS	Calcium	7440-70-2	4035	102.934	% Recov	76.000	124.000				04/07/10
LCS	Iron	7439-89-6	13810	103.060	% Recov	47.000	152.000				04/07/10
LCS	Potassium	7440-09-7	3623	104.711	% Recov	64.000	136.000				04/07/10
LCS	Lithium	7439-93-2	7.847	92.974	% Recov	80.000	120.000				04/07/10
LCS	Magnesium	7439-95-4	2846	109.042	% Recov	71.000	129.000				04/07/10
LCS	Sodium	7440-23-5	624.5	106.207	% Recov	51.000	149.000				04/07/10
LCS	Titanium	7440-32-6	322.3	121.165	% Recov	9.000	191.000				04/07/10

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20100504
Matrix: SOLID
Test: ICP-200.8 MS All possible meta

Sample Date: 04/02/10
Receive Date:04/02/10

Lab ID: W10GR00943
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	90.86	90.860	% Recov	70.000	130.000				04/09/10
MS	Aluminum	7429-90-5	1290	129.000	% Recov	70.000	130.000				04/09/10
MS	Arsenic	7440-38-2	94.62	94.620	% Recov	70.000	130.000				04/09/10
MS	Barium	7440-39-3	92.44	92.440	% Recov	70.000	130.000				04/09/10
MS	Beryllium	7440-41-7	83.28	83.280	% Recov	70.000	130.000				04/09/10
MS	Cadmium	7440-43-9	93.17	93.170	% Recov	70.000	130.000				04/09/10
MS	Cobalt	7440-48-4	83.84	83.840	% Recov	70.000	130.000				04/09/10
MS	Chromium	7440-47-3	84.87	84.870	% Recov	70.000	130.000				04/09/10
MS	Copper	7440-50-8	84.49	84.490	% Recov	70.000	130.000				04/09/10
MS	Mercury	7439-97-6	2.01	100.500	% Recov	70.000	130.000				04/09/10
MS	Manganese	7439-96-5	56.4	56.400	% Recov	70.000	130.000				04/09/10
MS	Molybdenum	7439-98-7	92.71	92.710	% Recov	70.000	130.000				04/09/10
MS	Nickel	7440-02-0	73.75	73.750	% Recov	70.000	130.000				04/09/10
MS	Lead	7439-92-1	96.48	96.480	% Recov	70.000	130.000				04/09/10
MS	Antimony	7440-36-0	86.39	86.390	% Recov	70.000	130.000				04/09/10
MS	Selenium	7782-49-2	95.58	95.580	% Recov	70.000	130.000				04/09/10
MS	Strontium	7440-24-6	94.92	94.920	% Recov	70.000	130.000				04/09/10
MS	Thallium	7440-28-0	93.44	93.440	% Recov	70.000	130.000				04/09/10
MS	Uranium	7440-61-1	92.66	92.660	% Recov	70.000	130.000				04/09/10
MS	Vanadium	7440-62-2	82.17	82.170	% Recov	70.000	130.000				04/09/10
MS	Zinc	7440-66-6	93.7	93.700	% Recov	70.000	130.000				04/09/10
MSD	Silver	7440-22-4	97.82	97.820	% Recov	70.000	130.000				04/09/10
MSD	Aluminum	7429-90-5	1977	197.700	% Recov	70.000	130.000				04/09/10
MSD	Arsenic	7440-38-2	102.41	102.410	% Recov	70.000	130.000				04/09/10
MSD	Barium	7440-39-3	106.14	106.140	% Recov	70.000	130.000				04/09/10
MSD	Beryllium	7440-41-7	89.74	89.740	% Recov	70.000	130.000				04/09/10

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QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
MSD	Cadmium	7440-43-9	100.5	100.500	% Recov	70.000	130.000				04/09/10
MSD	Cobalt	7440-48-4	91.27	91.270	% Recov	70.000	130.000				04/09/10
MSD	Chromium	7440-47-3	91.86	91.860	% Recov	70.000	130.000				04/09/10
MSD	Copper	7440-50-8	86.69	86.690	% Recov	70.000	130.000				04/09/10
MSD	Mercury	7439-97-6	2.19	109.500	% Recov	70.000	130.000				04/09/10
MSD	Manganese	7439-96-5	102.3	102.300	% Recov	70.000	130.000				04/09/10
MSD	Molybdenum	7439-98-7	100.24	100.240	% Recov	70.000	130.000				04/09/10
MSD	Nickel	7440-02-0	78.65	78.650	% Recov	70.000	130.000				04/09/10
MSD	Lead	7439-92-1	102.68	102.680	% Recov	70.000	130.000				04/09/10
MSD	Antimony	7440-36-0	93.17	93.170	% Recov	70.000	130.000				04/09/10
MSD	Selenium	7782-49-2	101.63	101.630	% Recov	70.000	130.000				04/09/10
MSD	Strontium	7440-24-6	106.22	106.220	% Recov	70.000	130.000				04/09/10
MSD	Thallium	7440-28-0	101.93	101.930	% Recov	70.000	130.000				04/09/10
MSD	Uranium	7440-61-1	100.93	100.930	% Recov	70.000	130.000				04/09/10
MSD	Vanadium	7440-62-2	94.47	94.470	% Recov	70.000	130.000				04/09/10
MSD	Zinc	7440-66-6	86.3	86.300	% Recov	70.000	130.000				04/09/10
SPK-RPD	Silver	7440-22-4	97.820		RPD			7.378	20.000		04/09/10
SPK-RPD	Aluminum	7429-90-5	197.700		RPD			42.057	20.000 *		04/09/10
SPK-RPD	Arsenic	7440-38-2	102.410		RPD			7.907	20.000		04/09/10
SPK-RPD	Barium	7440-39-3	106.140		RPD			13.798	20.000		04/09/10
SPK-RPD	Beryllium	7440-41-7	89.740		RPD			7.467	20.000		04/09/10
SPK-RPD	Cadmium	7440-43-9	100.500		RPD			7.570	20.000		04/09/10
SPK-RPD	Cobalt	7440-48-4	91.270		RPD			8.486	20.000		04/09/10
SPK-RPD	Chromium	7440-47-3	91.860		RPD			7.910	20.000		04/09/10
SPK-RPD	Copper	7440-50-8	86.690		RPD			2.570	20.000		04/09/10
SPK-RPD	Mercury	7439-97-6	109.500		RPD			8.571	20.000		04/09/10
SPK-RPD	Manganese	7439-96-5	102.300		RPD			57.845	20.000 *		04/09/10
SPK-RPD	Molybdenum	7439-98-7	100.240		RPD			7.805	20.000		04/09/10
SPK-RPD	Nickel	7440-02-0	78.650		RPD			6.430	20.000		04/09/10
SPK-RPD	Lead	7439-92-1	102.680		RPD			6.226	20.000		04/09/10

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20100504
Matrix: SOLID
Test: ICP-200.8 MS All possible meta

Sample Date: 04/02/10
Receive Date:04/02/10

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
SPK-RPD	Antimony	7440-36-0	93.170		RPD			7.552	20.000		04/09/10
SPK-RPD	Selenium	7782-49-2	101.630		RPD			6.136	20.000		04/09/10
SPK-RPD	Strontium	7440-24-6	106.220		RPD			11.236	20.000		04/09/10
SPK-RPD	Thallium	7440-28-0	101.930		RPD			8.691	20.000		04/09/10
SPK-RPD	Uranium	7440-61-1	100.930		RPD			8.544	20.000		04/09/10
SPK-RPD	Vanadium	7440-62-2	94.470		RPD			13.927	20.000		04/09/10
SPK-RPD	Zinc	7440-66-6	86.300		RPD			8.222	20.000		04/09/10

BATCH QC

BLANK	Silver	7440-22-4	<0.1	n/a	ug/L					U	04/09/10
BLANK	Aluminum	7429-90-5	<5	n/a	ug/L					U	04/09/10
BLANK	Arsenic	7440-38-2	<0.4	n/a	ug/L					U	04/09/10
BLANK	Barium	7440-39-3	<0.2	n/a	ug/L					U	04/09/10
BLANK	Beryllium	7440-41-7	<5e-2	n/a	ug/L					U	04/09/10
BLANK	Cadmium	7440-43-9	<0.1	n/a	ug/L					U	04/09/10
BLANK	Cobalt	7440-48-4	<5e-2	n/a	ug/L					U	04/09/10
BLANK	Chromium	7440-47-3	<0.5	n/a	ug/L					U	04/09/10
BLANK	Copper	7440-50-8	<0.1	n/a	ug/L					U	04/09/10
BLANK	Mercury	7439-97-6	<5e-2	n/a	ug/L					U	04/09/10
BLANK	Manganese	7439-96-5	<0.1	n/a	ug/L					U	04/09/10
BLANK	Molybdenum	7439-98-7	<5e-2	n/a	ug/L					U	04/09/10
BLANK	Nickel	7440-02-0	<0.2	n/a	ug/L					U	04/09/10
BLANK	.Lead	7439-92-1	<0.1	n/a	ug/L					U	04/09/10
BLANK	Antimony	7440-36-0	<0.3	n/a	ug/L					U	04/09/10
BLANK	Selenium	7782-49-2	<0.3	n/a	ug/L					U	04/09/10
BLANK	Strontium	7440-24-6	<0.1	n/a	ug/L					U	04/09/10
BLANK	Thallium	7440-28-0	<0.1	n/a	ug/L					U	04/09/10
BLANK	Uranium	7440-61-1	<5e-2	n/a	ug/L					U	04/09/10
BLANK	Vanadium	7440-62-2	<0.2	n/a	ug/L					U	04/09/10
BLANK	Zinc	7440-66-6	<0.8	n/a	ug/L					U	04/09/10

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20100504
Matrix: SOLID
Test: ICP-200.8 MS All possible meta

Sample Date:
Receive Date:

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
LCS	Silver	7440-22-4	97.48	96.515	% Recov	81.000	128.000				04/09/10
LCS	Aluminum	7429-90-5	7098	85.932	% Recov	47.000	122.000				04/09/10
LCS	Arsenic	7440-38-2	131.1	99.318	% Recov	78.000	124.000				04/09/10
LCS	Barium	7440-39-3	298.7	93.636	% Recov	77.000	119.000				04/09/10
LCS	Beryllium	7440-41-7	86.11	96.212	% Recov	78.000	118.000				04/09/10
LCS	Cadmium	7440-43-9	66.05	99.323	% Recov	75.000	127.000				04/09/10
LCS	Cobalt	7440-48-4	68.5	93.707	% Recov	75.000	124.000				04/09/10
LCS	Chromium	7440-47-3	64.2	88.066	% Recov	67.000	119.000				04/09/10
LCS	Copper	7440-50-8	59.62	87.036	% Recov	68.000	122.000				04/09/10
LCS	Mercury	7439-97-6	7.36	88.889	% Recov	72.000	117.000				04/09/10
LCS	Manganese	7439-96-5	424	93.598	% Recov	72.000	123.000				04/09/10
LCS	Molybdenum	7439-98-7	48.14	98.850	% Recov	80.000	125.000				04/09/10
LCS	Nickel	7440-02-0	51.21	92.104	% Recov	73.000	123.000				04/09/10
LCS	Lead	7439-92-1	122.6	94.308	% Recov	77.000	125.000				04/09/10
LCS	Antimony	7440-36-0	123.6	137.029	% Recov	65.000	203.000				04/09/10
LCS	Selenium	7782-49-2	171.3	106.398	% Recov	82.000	129.000				04/09/10
LCS	Strontium	7440-24-6	51.06	93.860	% Recov	77.000	118.000				04/09/10
LCS	Thallium	7440-28-0	124.8	93.835	% Recov	55.000	130.000				04/09/10
LCS	Uranium	7440-61-1	386.7	96.675	% Recov	84.000	110.000				04/09/10
LCS	Vanadium	7440-62-2	75.99	91.554	% Recov	65.000	122.000				04/09/10
LCS	Zinc	7440-66-6	173.3	97.910	% Recov	75.000	130.000				04/09/10

Lab ID: W10GR00907
BATCH QC ASSOCIATED WITH SAMPLE

MS	Silver	7440-22-4	92.62	92.620	% Recov	70.000	130.000				04/09/10
MS	Aluminum	7429-90-5	1088	108.800	% Recov	70.000	130.000				04/09/10
MS	Arsenic	7440-38-2	97.12	97.120	% Recov	70.000	130.000				04/09/10
MS	Barium	7440-39-3	101.42	101.420	% Recov	70.000	130.000				04/09/10
MS	Beryllium	7440-41-7	84.62	84.620	% Recov	70.000	130.000				04/09/10
MS	Cadmium	7440-43-9	95.37	95.370	% Recov	70.000	130.000				04/09/10

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20100504
Matrix: SOLID
Test: ICP-200.8 MS All possible meta

Sample Date: 03/31/10
Receive Date:04/01/10

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
MS	Cobalt	7440-48-4	84.94	84.940	% Recov	70.000	130.000				04/09/10
MS	Chromium	7440-47-3	84.4	84.400	% Recov	70.000	130.000				04/09/10
MS	Copper	7440-50-8	81.77	81.770	% Recov	70.000	130.000				04/09/10
MS	Mercury	7439-97-6	1.91	95.500	% Recov	70.000	130.000				04/09/10
MS	Manganese	7439-96-5	85.6	85.600	% Recov	70.000	130.000				04/09/10
MS	Molybdenum	7439-98-7	94.73	94.730	% Recov	70.000	130.000				04/09/10
MS	Nickel	7440-02-0	83.51	83.510	% Recov	70.000	130.000				04/09/10
MS	Lead	7439-92-1	92.77	92.770	% Recov	70.000	130.000				04/09/10
MS	Antimony	7440-36-0	84.6	84.600	% Recov	70.000	130.000				04/09/10
MS	Selenium	7782-49-2	98.05	98.050	% Recov	70.000	130.000				04/09/10
MS	Strontium	7440-24-6	99.42	99.420	% Recov	70.000	130.000				04/09/10
MS	Thallium	7440-28-0	94.24	94.240	% Recov	70.000	130.000				04/09/10
MS	Uranium	7440-61-1	93.11	93.110	% Recov	70.000	130.000				04/09/10
MS	Vanadium	7440-62-2	84.57	84.570	% Recov	70.000	130.000				04/09/10
MS	Zinc	7440-66-6	81.68	81.680	% Recov	70.000	130.000				04/09/10
MSD	Silver	7440-22-4	90.34	90.340	% Recov	70.000	130.000				04/09/10
MSD	Aluminum	7429-90-5	1238	123.800	% Recov	70.000	130.000				04/09/10
MSD	Arsenic	7440-38-2	95.47	95.470	% Recov	70.000	130.000				04/09/10
MSD	Barium	7440-39-3	100.12	100.120	% Recov	70.000	130.000				04/09/10
MSD	Beryllium	7440-41-7	82.14	82.140	% Recov	70.000	130.000				04/09/10
MSD	Cadmium	7440-43-9	93.43	93.430	% Recov	70.000	130.000				04/09/10
MSD	Cobalt	7440-48-4	83.74	83.740	% Recov	70.000	130.000				04/09/10
MSD	Chromium	7440-47-3	84.7	84.700	% Recov	70.000	130.000				04/09/10
MSD	Copper	7440-50-8	81.05	81.050	% Recov	70.000	130.000				04/09/10
MSD	Mercury	7439-97-6	1.89	94.500	% Recov	70.000	130.000				04/09/10
MSD	Manganese	7439-96-5	84.2	84.200	% Recov	70.000	130.000				04/09/10
MSD	Molybdenum	7439-98-7	92.46	92.460	% Recov	70.000	130.000				04/09/10
MSD	Nickel	7440-02-0	82.07	82.070	% Recov	70.000	130.000				04/09/10
MSD	Lead	7439-92-1	91.85	91.850	% Recov	70.000	130.000				04/09/10
MSD	Antimony	7440-36-0	83.99	83.990	% Recov	70.000	130.000				04/09/10

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Department: Inorganic

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Matrix: SOLID
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Sample Date: 03/31/10
Receive Date:04/01/10

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
MSD	Selenium	7782-49-2	92.02	92.020	% Recov	70.000	130.000				04/09/10
MSD	Strontium	7440-24-6	99.22	99.220	% Recov	70.000	130.000				04/09/10
MSD	Thallium	7440-28-0	91.73	91.730	% Recov	70.000	130.000				04/09/10
MSD	Uranium	7440-61-1	92.65	92.650	% Recov	70.000	130.000				04/09/10
MSD	Vanadium	7440-62-2	84.27	84.270	% Recov	70.000	130.000				04/09/10
MSD	Zinc	7440-66-6	82.58	82.580	% Recov	70.000	130.000				04/09/10
SPK-RPD	Silver	7440-22-4	90.340		RPD			2.492	20.000		04/09/10
SPK-RPD	Aluminum	7429-90-5	123.800		RPD			12.898	20.000		04/09/10
SPK-RPD	Arsenic	7440-38-2	95.470		RPD			1.713	20.000		04/09/10
SPK-RPD	Barium	7440-39-3	100.120		RPD			1.290	20.000		04/09/10
SPK-RPD	Beryllium	7440-41-7	82.140		RPD			2.974	20.000		04/09/10
SPK-RPD	Cadmium	7440-43-9	93.430		RPD			2.055	20.000		04/09/10
SPK-RPD	Cobalt	7440-48-4	83.740		RPD			1.423	20.000		04/09/10
SPK-RPD	Chromium	7440-47-3	64.700		RPD			0.355	20.000		04/09/10
SPK-RPD	Copper	7440-50-8	81.050		RPD			0.884	20.000		04/09/10
SPK-RPD	Mercury	7439-97-6	94.500		RPD			1.053	20.000		04/09/10
SPK-RPD	Manganese	7439-96-5	84.200		RPD			1.649	20.000		04/09/10
SPK-RPD	Molybdenum	7439-98-7	92.460		RPD			2.425	20.000		04/09/10
SPK-RPD	Nickel	7440-02-0	82.070		RPD			1.739	20.000		04/09/10
SPK-RPD	Lead	7439-92-1	91.850		RPD			0.997	20.000		04/09/10
SPK-RPD	Antimony	7440-36-0	83.990		RPD			0.724	20.000		04/09/10
SPK-RPD	Selenium	7782-49-2	92.020		RPD			6.345	20.000		04/09/10
SPK-RPD	Strontium	7440-24-6	99.220		RPD			0.201	20.000		04/09/10
SPK-RPD	Thallium	7440-28-0	91.730		RPD			2.699	20.000		04/09/10
SPK-RPD	Uranium	7440-61-1	92.650		RPD			0.495	20.000		04/09/10
SPK-RPD	Vanadium	7440-62-2	84.270		RPD			0.355	20.000		04/09/10
SPK-RPD	Zinc	7440-66-6	82.580		RPD			1.096	20.000		04/09/10

BATCH QC

BLANK	Silver	7440-22-4	<0.1	n/a	ug/L					U	04/09/10

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20100504
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	Aluminum	7429-90-5	<5	n/a	ug/L					U	04/09/10
BLANK	Arsenic	7440-38-2	<0.4	n/a	ug/L					U	04/09/10
BLANK	Barium	7440-39-3	<0.2	n/a	ug/L					U	04/09/10
BLANK	Beryllium	7440-41-7	<5e-2	n/a	ug/L					U	04/09/10
BLANK	Cadmium	7440-43-9	<0.1	n/a	ug/L					U	04/09/10
BLANK	Cobalt	7440-48-4	<5e-2	n/a	ug/L					U	04/09/10
BLANK	Chromium	7440-47-3	<0.5	n/a	ug/L					U	04/09/10
BLANK	Copper	7440-50-8	<0.1	n/a	ug/L					U	04/09/10
BLANK	Mercury	7439-97-6	<5e-2	n/a	ug/L					U	04/09/10
BLANK	Manganese	7439-96-5	<0.1	n/a	ug/L					U	04/09/10
BLANK	Molybdenum	7439-98-7	<5e-2	n/a	ug/L					U	04/09/10
BLANK	Nickel	7440-02-0	<0.2	n/a	ug/L					U	04/09/10
BLANK	Lead	7439-92-1	<0.1	n/a	ug/L					U	04/09/10
BLANK	Antimony	7440-36-0	<0.3	n/a	ug/L					U	04/09/10
BLANK	Selenium	7782-49-2	<0.3	n/a	ug/L					U	04/09/10
BLANK	Strontium	7440-24-6	<0.1	n/a	ug/L					U	04/09/10
BLANK	Thallium	7440-28-0	<0.1	n/a	ug/L					U	04/09/10
BLANK	Uranium	7440-61-1	<5e-2	n/a	ug/L					U	04/09/10
BLANK	Vanadium	7440-62-2	<0.2	n/a	ug/L					U	04/09/10
BLANK	Zinc	7440-66-6	<0.8	n/a	ug/L					U	04/09/10
LCS	Silver	7440-22-4	93.68	92.752	% Recov	81.000	128.000				04/09/10
LCS	Aluminum	7429-90-5	6895	83.475	% Recov	47.000	122.000				04/09/10
LCS	Arsenic	7440-38-2	125.2	94.848	% Recov	78.000	124.000				04/09/10
LCS	Barium	7440-39-3	296.2	92.853	% Recov	77.000	119.000				04/09/10
LCS	Beryllium	7440-41-7	81.95	91.564	% Recov	78.000	118.000				04/09/10
LCS	Cadmium	7440-43-9	60.13	90.421	% Recov	75.000	127.000				04/09/10
LCS	Cobalt	7440-48-4	65.14	89.111	% Recov	75.000	124.000				04/09/10
LCS	Chromium	7440-47-3	62.77	86.104	% Recov	67.000	119.000				04/09/10
LCS	Copper	7440-50-8	58.18	84.934	% Recov	68.000	122.000				04/09/10
LCS	Mercury	7439-97-6	7.05	85.145	% Recov	72.000	117.000				04/09/10

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20100504
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	Manganese	7439-96-5	412.5	91.060	% Recov	72.000	123.000				04/09/10
LCS	Molybdenum	7439-98-7	46.9	96.304	% Recov	80.000	125.000				04/09/10
LCS	Nickel	7440-02-0	49.07	88.255	% Recov	73.000	123.000				04/09/10
LCS	Lead	7439-92-1	116.3	89.462	% Recov	77.000	125.000				04/09/10
LCS	Antimony	7440-36-0	114.8	127.273	% Recov	65.000	203.000				04/09/10
LCS	Selenium	7782-49-2	177.5	110.248	% Recov	82.000	129.000				04/09/10
LCS	Strontium	7440-24-6	50.49	92.813	% Recov	77.000	118.000				04/09/10
LCS	Thallium	7440-28-0	117.2	88.120	% Recov	55.000	130.000				04/09/10
LCS	Uranium	7440-61-1	361.3	90.325	% Recov	84.000	110.000				04/09/10
LCS	Vanadium	7440-62-2	73.55	88.614	% Recov	65.000	122.000				04/09/10
LCS	Zinc	7440-66-6	163.6	92.429	% Recov	75.000	130.000				04/09/10

WSCF
ANALYTICAL COMMENT REPORT

Attention: Steve Trent
Project Number F10-060

Group #: WSCF20100504
Department: Inorganic

Sample #	Client ID	Lab Area	Test	Comment
		VALGROUP		ICP-AES: High iron preparation blank result; no flag because sample result is large.
				Iron, magnesium, calcium, and titanium sample results exceed spiking level by a factor of 4 so spike recoveries are not valid.
				High sodium spike recoveries; "N" flag.
				Estimated boron result due to iron interference; "E" flag.
				IC Anion - MS/MSD recovery out of limits for fluoride.
				Possibly due to matrix interference in sample.
				Data N-flagged. DTS
				ICP-MS: Aluminum sample result more than 4X the spike amount
				Spike information not valid. "X" flag
				Mangenese MS recovery outside acceptance limits. "N" flag

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: F10-060
Sample # W10GR00907
Client ID: B243R7 GPP TRENT WSCF
Matrix: SOIL

Group #: WSCF20100504
Department: Radiochemistry
Sampled: 03/31/10
Received: 04/01/10

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Gamma Energy Analysis-grd H2O											
Cesium-137	10045-97-3	LA-508-481		14.8	pCi/g	+-2.83	pCi/g	1.00	0.19		04/11/10
Europium-154	15585-10-1	LA-508-481	U	0.0374	pCi/g	+-0.326	pCi/g	1.00	0.62		04/11/10

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

D - Analyte was identified at a secondary dilution factor(inorg)
N - Spike sample recovery is outside control limits.(inorg)
X - Other flags/notes described in the comments/narrative(inorg)

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

WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent
SAF Number: F10-060
Sample # W10GR00908
Client ID: B243R8 GPP TRENT WSCF
Matrix: SOIL

Group #: WSCF20100504
Department: Radiochemistry
Sampled: 03/31/10
Received: 04/01/10

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Gamma Energy Analysis-grd H2O											
Cesium-137	10045-97-3	LA-508-481		12.5	pCi/g	+-2.30	pCi/g	1.00	0.16		04/11/10
Europium-154	15585-10-1	LA-508-481	U	1.54e-03	pCi/g	+-0.0154	pCi/g	1.00	0.51		04/11/10

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

D - Analyte was identified at a secondary dilution factor(inorg)
N - Spike sample recovery is outside control limits.(inorg)
X - Other flags/notes described in the comments/narrative(inorg)

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

WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent
SAF Number: F10-060
Sample # W10GR00909
Client ID: B243R9 GPP WSCF TRENT **Matrix:** SOIL

Group #: WSCF20100504
Department: Radiochemistry
Sampled: 03/31/10
Received: 04/01/10

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Gamma Energy Analysis-grd H2O											
Cesium-137	10045-97-3	LA-508-481		22.0	pCi/g	+-3.97	pCi/g	1.00	0.24		04/11/10
Europium-154	15585-10-1	LA-508-481	U	0.0326	pCi/g	+-0.326	pCi/g	1.00	0.62		04/11/10

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)
E - Analyte is an estimate, has potentially larger errors(inorg)
U - Analyzed for but not detected above limiting criteria(inorg)
D - Analyte was identified at a secondary dilution factor(inorg)
N - Spike sample recovery is outside control limits.(inorg)
X - Other flags/notes described in the comments/narrative(inorg)

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

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Radiochemistry

SDG Number: WSCF20100504
Matrix: SOLID
Test: Gamma Energy Analysis-grd H2O

Sample Date: 04/01/10
Receive Date:04/01/10

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
Lab ID: W10GR00912											
BATCH QC ASSOCIATED WITH SAMPLE											
DUP	Cesium-137	10045-97-3	80.52		RPD			0.211	20.000		04/11/10
DUP	Europium-154	15585-10-1	U-6.504e-2		RPD			n/a	20.000		04/11/10
BATCH QC											
BLANK	Cesium-137	10045-97-3	U1.177e-2	n/a	pCi/g	-10.000	1000.000				04/09/10
BLANK	Europium-154	15585-10-1	U1.16e-3	n/a	pCi/g	-10.000	1000.000				04/09/10
LCS	Cesium-137	10045-97-3	6385	105.712	% Recov	80.000	120.000				04/09/10

WSCF
ANALYTICAL COMMENT REPORT

Attention: Steve Trent
Project Number F10-060

Group #: WSCF20100504
Department: Radiochemistry

Sample #	Client ID	Lab Area	Test	Comment
		VALGROUP		ICP-AES: High iron preparation blank result; no flag because sample result is large.
				Iron, magnesium, calcium, and titanium sample results exceed spiking level by a factor of 4 so spike recoveries are not valid.
				High sodium spike recoveries; "N" flag.
				Estimated boron result due to iron interference; "E" flag.
				IC Anion - MS/MSD recovery out of limits for fluoride.
				Possibly due to matrix interference in sample.
				Data N-flagged. DTS
				ICP-MS: Aluminum sample result more than 4X the spike amount
				Spike information not valid. "X" flag
				Manganese MS recovery outside acceptance limits. "N" flag

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

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WSCF
TENTATIVELY IDENTIFIED PEAK REPORT

Attention: Steve Trent
Project Number F10-060 :F10-060

Group #: WSCF20100504
Department: Radiochemistry

Sample #	Client ID			Test Name	Peak Name	CAS#	RT	RQ	Result	Units
W10GR00907	B243R7	GPP	TRENT	Gamma Energy Analysis-grd H2O	K-40				16	pCi/g
W10GR00907	B243R7	GPP	TRENT	Gamma Energy Analysis-grd H2O	K-40 Count Error				23	%
W10GR00907	B243R7	GPP	TRENT	Gamma Energy Analysis-grd H2O	PB-212				0.73	pCi/g
W10GR00907	B243R7	GPP	TRENT	Gamma Energy Analysis-grd H2O	PB-212 Count Error				34	%
W10GR00907	B243R7	GPP	TRENT	Gamma Energy Analysis-grd H2O	TL-208				0.38	pCi/g
W10GR00907	B243R7	GPP	TRENT	Gamma Energy Analysis-grd H2O	TL-208 Count Error				43	%
W10GR00908	B243R8	GPP	TRENT	Gamma Energy Analysis-grd H2O	K-40				16	pCi/g
W10GR00908	B243R8	GPP	TRENT	Gamma Energy Analysis-grd H2O	K-40 Count Error				21	%
W10GR00908	B243R8	GPP	TRENT	Gamma Energy Analysis-grd H2O	PB-212				0.77	pCi/g
W10GR00908	B243R8	GPP	TRENT	Gamma Energy Analysis-grd H2O	PB-212 Count Error				33	%
W10GR00908	B243R8	GPP	TRENT	Gamma Energy Analysis-grd H2O	PB-214				0.83	pCi/g
W10GR00908	B243R8	GPP	TRENT	Gamma Energy Analysis-grd H2O	PB-214 Count Error				45	%
W10GR00908	B243R8	GPP	TRENT	Gamma Energy Analysis-grd H2O	RA-226				1.1	pCi/g
W10GR00908	B243R8	GPP	TRENT	Gamma Energy Analysis-grd H2O	RA-226 Count Error				38	%
W10GR00909	B243R9	GPP	TRENT	Gamma Energy Analysis-grd H2O	BI-214				2.3	pCi/g
W10GR00909	B243R9	GPP	TRENT	Gamma Energy Analysis-grd H2O	BI-214 Count Error				46	%
W10GR00909	B243R9	GPP	TRENT	Gamma Energy Analysis-grd H2O	K-40				18	pCi/g
W10GR00909	B243R9	GPP	TRENT	Gamma Energy Analysis-grd H2O	K-40 Count Error				24	%
W10GR00909	B243R9	GPP	TRENT	Gamma Energy Analysis-grd H2O	PB-212				0.94	pCi/g
W10GR00909	B243R9	GPP	TRENT	Gamma Energy Analysis-grd H2O	PB-212 Count Error				35	%
W10GR00909	B243R9	GPP	TRENT	Gamma Energy Analysis-grd H2O	TL-208				0.30	pCi/g
W10GR00909	B243R9	GPP	TRENT	Gamma Energy Analysis-grd H2O	TL-208 Count Error				49	%

RQ=Result Qualifier

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42100-SLF-10-129

ATTACHMENT 4

SAMPLE RECEIPT INFORMATION

Consisting of 5 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
4/15/10

ACKNOWLEDGMENT OF SAMPLES RECEIVED

Groundwater Remediation Program

Richland, WA 99354
Attn: Steve Trent

Customer Code: GPP
PO#: 302427/ES10
Group#: 20100504
Project#: F10-060
Proj Mgr: Steve Trent
Phone: 373-5869

The following samples were received from you on 04/01/10. 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
W10GR00907	B243R7	GPP @2008	TRENT Solid, or handle as if solid @GEA-GPP @GPP6010 @IC-30 CN-02	03/31/10
W10GR00908	B243R8	GPP @2008	TRENT Solid, or handle as if solid @GEA-GPP @GPP6010 @IC-30 CN-02	03/31/10
W10GR00909	B243R9	GPP @2008	TRENT Solid, or handle as if solid @GEA-GPP @GPP6010 @IC-30 CN-02	03/31/10

Test Acronym Description

Test Acronym	Description
@2008	ICP-200.8 MS All possible meta
@GEA-GPP	Gamma Energy Analysis-grd H2O
@GPP6010	ICP Metals Analysis, Grd H20 P
@IC-30	Anions by Ion Chromatography
CN-02	Cyanide by Midi/Spectrophotom

CH2MHill Plateau Remediation Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

F10-060-022

COLLECTOR: Scales	COMPANY CONTACT: BAMBERGER, MA	TELEPHONE NO.: 373-0880	PROJECT COORDINATOR: WIDRIG, DL
PRICE CODE: 8C	DATA TURNAROUND: 15 Days / 15 Days		
SAMPLING LOCATION: 216-T-4B pond; C6969	PROJECT DESIGNATION: 200-CW-1 Model Group 5 Sampling - Large Area Ponds - Soil Sampling	SAF NO.: F10-060	AIR QUALITY: ☐
ICE CHEST NO.: N/A	FIELD LOGBOOK NO.: HNF-N-507-5	ACTUAL SAMPLE DEPTH: 1-2.5ft	COA: 302427ES10
METHOD OF SHIPMENT: GOVERNMENT VEHICLE			
SHIPPED TO: Waste Sampling & Characterization	OFFSITE PROPERTY NO.: N/A	BILL OF LADING/AIR BILL NO.: N/A	

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

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

70100504

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	Cool-4C	None	None
TYPE OF CONTAINER	G	G/P	G/P
NO. OF CONTAINER(S)	1	1	1
VOLUME	60mL	125mL	60mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	Gamma Spectroscopy (Cesium-137, Europium-154)	SEE ITEM (2) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME			
B243R7	SOIL	3/31/10	0940	X	X	X
W10GR00907						

4-1-10

3/31/10

CHAIN OF POSSESSION / SIGN/ PRINT NAMES

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
J Scales	3/31/10 1220	SSU-1	3/31/10 1220
SSU-1	4/1/10 0930	L.D. WALL	4/1/10 0930
L.D. WALL	4/1/10 1020	[illegible]	4/1/10 1020

SPECIAL INSTRUCTIONS

** The CACN for WSCF Analytical is currently being determined. Once the CACN is established it will be distributed for use by the laboratory.☐☐** The 200 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF.

(1)ICP Metals - 6010B (TAL) {Sodium, Iron, Potassium, Calcium, Magnesium} ICP Metals - 6010B (Add-On) {Boron, Bismuth, Titanium, Lithium} 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, Molybdenum, Strontium, Thallium, Beryllium, Uranium, Selenium} 200.8_HG - ICPMS {Mercury} IC Anions - 300.0 {Phosphorus in phosphate, Chloride, Nitrogen in Nitrite, Fluoride, Nitrogen in Nitrate, Sulfate} Total Cyanide - 9014;
(2)Americium-241; Isotopic Plutonium {Plutonium-239/240} Isotopic Uranium {Uranium-238} Strontium-89,90 -- Total Sr; Technetium-99 {Technetium-99}

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

F10-060-025

COLLECTOR: Scales	COMPANY CONTACT: BAMBERGER, MA	TELEPHONE NO.: 373-0880	PROJECT COORDINATOR: WIDRIG, DL
SAMPLING LOCATION: 216-T-4B pond; C6970	PROJECT DESIGNATION: 200-CW-1 Model Group 5 Sampling - Large Area Ponds - Soil Sampling		SAF NO.: F10-060
ICE CHEST NO.: N/A	FIELD LOGBOOK NO.: HNF-W-507-5	ACTUAL SAMPLE DEPTH: 3-4 Sec	COA: 302427ES10
SHIPPED TO: Waste Sampling & Characterization	OFFSITE PROPERTY NO.: N/A		BILL OF LADING/AIR BILL NO.: N/A

PRICE CODE: 8C

AIR QUALITY: ☐

DATA TURNAROUND: 15 Days / 15 Days

METHOD OF SHIPMENT: GOVERNMENT VEHICLE

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	None	None
TYPE OF CONTAINER	G	G/P	G/P
NO. OF CONTAINER(S)	1	1	1
VOLUME	~~10mL~~ 60mL (AW 4/1/10)	125mL	60mL (AW 4/1/10)
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	Gamma Spectroscopy (Cesium-137, Europium-154)	SEE ITEM (2) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME			
B243R8 W106R00908	SOIL	3/31/10	1150	X	X	X

VS 3/31/10

CHAIN OF POSSESSION / SIGN/ PRINT NAMES

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
J Scales	3/31/10 1220	SSU- 1	3/31/10 1220
SSU- 1	4/1/10 0930	L.D. WALL	4/1/10 0930
L.D. WALL	4/1/10 1020	[illegible]	4/1/10 1020

SPECIAL INSTRUCTIONS

** The CACN for WSCF Analytical is currently being determined. Once the CACN is established it will be distributed for use by the laboratory.☐☐** The 200 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF.

(1)ICP Metals - 6010B (TAL) {Sodium, Iron, Potassium, Calcium, Magnesium} ICP Metals - 6010B (Add-On) {Boron, Bismuth, Titanium, Lithium} 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, Molybdenum, Strontium, Thallium, Beryllium, Uranium, Selenium} 200.8_HG - ICPMS {Mercury} IC Anions - 300.0 {Phosphorus in phosphate, Nitrogen in Nitrite, Chloride, Fluoride, Nitrogen in Nitrate, Sulfate} Total Cyanide - 9014;

(2)Americium-241; Isotopic Plutonium {Plutonium-239/240} Isotopic Uranium {Uranium-238} Strontium-89,90 -- Total Sr; Technetium-99 {Technetium-99}

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

F10-060-054

COLLECTOR: Scales	COMPANY CONTACT: BAMBERGER, MA	TELEPHONE NO.: 373-0880	PROJECT COORDINATOR: WIDRIG, DL
PRICE CODE: 8C	DATA TURNAROUND: 15 Days / 15 Days		
SAMPLING LOCATION: 216-U-10 Pond; C6968	PROJECT DESIGNATION: 200-CW-1 Model Group 5 Sampling - Large Area Ponds - Soil Sampling		SAF NO.: F10-060
AIR QUALITY: ☐			
ICE CHEST NO.: N/A	FIELD LOGBOOK NO.: HNF-N-507-3	ACTUAL SAMPLE DEPTH: 4.5 - 8.5 ft	COA: 302427ES10
METHOD OF SHIPMENT: GOVERNMENT VEHICLE			
SHIPPED TO: Waste Sampling & Characterization	OFFSITE PROPERTY NO.: N/A		BILL OF LADING/AIR BILL NO.: N/A

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

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

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	Cool~4C	None	None
TYPE OF CONTAINER	G	G/P	G/P
NO. OF CONTAINER(S)	1	1	1
VOLUME	60mL	125mL	60mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	Gamma Spectroscopy (Cesium-137, Europium-154)	SEE ITEM (2) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME			
B243R9	SOIL	3/31/10	1420	X	X	X
W10GK00909						

JS 3/31/10

RW 4/1/10

CHAIN OF POSSESSION / SIGN/ PRINT NAMES

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
J Scales	3/31/10 1510	SSU-1	3/31/10 1510
SSU-1	4/1/10 0930	L.D. WALL	4/1/10 0930
L.D. WALL	4/1/10 1020		4/1/10 1020

SPECIAL INSTRUCTIONS

** The CACN for WSCF Analytical is currently being determined. Once the CACN is established it will be distributed for use by the laboratory.☐☐** The 200 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF.

(1)ICP Metals - 6010B (TAL) {Sodium, Potassium, Iron, Calcium, Magnesium} ICP Metals - 6010B (Add-On) {Boron, Bismuth, Titanium, Lithium} 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, Molybdenum, Strontium, Thallium, Beryllium, Uranium, Selenium} 200.8_HG - ICPMS {Mercury} IC Anions - 300.0 {Phosphorus in phosphate, Chloride, Nitrogen in Nitrite, Fluoride, Nitrogen in Nitrate, Sulfate} Total Cyanide - 9014;

(2)Americium-241; Isotopic Plutonium {Plutonium-239/240} Isotopic Uranium {Uranium-238} Strontium-89,90 - Total Sr; Technetium-99 {Technetium-99}

ORIGINAL

LABORATORY SECTION — RECEIVED BY — TITLE — DATE/TIME

FINAL SAMPLE DISPOSITION — DISPOSAL METHOD — DISPOSED BY — DATE/TIME

A-6003-618(01/06)