RECEIVED DECEMBER 30, 2008

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WSCF Analytical Lab
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FLUOR®

M4W41-SLF-08-1325

December 30, 2008

Mr. M. A. Neely, Manager
Analytical Services
CH2M HILL Plateau Remediation Contract
PO Box 1600 MSIN B6-06
Richland, WA 99352

Dear Mike:

FINAL RESULTS FOR SAMPLE DELIVERY GROUP WSCF20082253

Reference: (1) Memorandum of Agreement #MOA-FH-CHPRC-2008, Rev. 0, for the Performance & Payment of Services, dated October 1, 2008

(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 WSCF20082253:

- 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

SLF/grf

Attachments 4

cc: w/Attachments

T. F. Dale	S3-30	J. E. Trechter	S3-30
A. J. Kopriva	S3-30	S. J. Trent	B6-06
H. K. Meznarich	S3-30	File/LB	
P. D. Mix	S3-30		

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ATTACHMENT 1

COVER SHEET

Consisting of 2 pages
Including cover page

WSCF SAF NUMBER CROSS REFERENCE

Group#: WSCF20082253
Data Deliverable Date: 31-dec-2008
Data Deliverable: Cover Sheet

SAF#	Sample ID	WSCF#	Matrix
X08-048	B1W540	W08P004870	WATER
	B1W541	W08P004871	WATER

M4W41-SLF-08-1325

ATTACHMENT 2

NARRATIVE

Consisting of 3 pages
Including cover page

Introduction

Two groundwater samples were received at the WSCF Laboratory on November 16, 2008. Samples were analyzed for the analytes indicated on the attached copy of the chain of custody (COC) form in accordance with the *Memorandum of Agreement (MOA-FH-CHPRC-2008, Rev.0)*, 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.

It should be noted that the attached chain of custody was stamped "ICED" by the WSCF Laboratory Sample Custodian during sample receiving, indicating the presence of ice in the transport container.

Analytical Methodology for Requested Analyses

Refer to *WSCF Method References Report*, pages 11 through 12, for a complete listing of approved analytical methods.

Inorganic Comments

Anions – The hour 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 16 through 17 for QC results. 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# B1XM99 (SDG# 20082252).

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 18 through 21 for QC results. Analytical Note(s):

- Sample results that were less than the reportable limit, however greater than the method detection limit, were B flagged.
- Matrix Spike and Matrix Spike Duplicate were analyzed on sample# B1XL39 (SDG# 20082252).

All 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 22 through 24 for QC results. Analytical Note(s):

- Matrix Spikes and Matrix Spike Duplicates were analyzed on samples B1W547 (SDG# 20082248), B1W541 of this SDG; and, B1XKP1 and B1XKP9 (SDG# 20082320).

All QC controls are within the established limits.

Total Alkalinity – The hold time requirement for this analysis was met. A Duplicate and Laboratory Control Sample were analyzed with this delivery group. See page 25 for QC results. Analytical Note(s):

- Duplicate was analyzed on sample# B1XN11 (SDG# 20082239).

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 27 through 31 for QC details. Analytical Note(s):

- Gross Alpha/Gross Beta – Duplicate QC was analyzed on sample# B1XM68 (SDG# 20082252).
- Strontium-89/90 and 85 (tracer) – Duplicate QC was analyzed on sample# B1XMD8 (SDG# 20082236).
- Tritium – Duplicate and Matrix Spike were analyzed on sample# B1XL29 (SDG# 20082252).

All QC controls are within the established limits.

I certify that this data package is in compliance with the MOA, 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

Pauline D. Mix
WSCF Client Services

M4W41-SLF-08-1325

ATTACHMENT 3

ANALYTICAL RESULTS

Consisting of 25 pages
Including cover page

WSCF
ANALYTICAL RESULTS REPORT

for

GPAP
Richland, WA 99352

Attention: Steve Trent E6-35

Analytical: S. Fitzgerald 12/30/08
Client Services: P D. Mix 12/30/2008

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.

Report#: WSCF20082253
Report Date: 29-dec-2008
Report WGPP/ver. 5.2
GPAP

w13qlog v4.2 29-dec-2008 11:17:33

Department: Inorganic

W13q Worklist/Batch/QC Report for Group# WSCF20082253

WL#	S#	Batch	QC#	Tray Type	Sample#	Test
38553	2	38973	43473	BLANK		Anions by Ion Chromatography
38553	11	38973	43473	BLANK		Anions by Ion Chromatography
38553	3	38973	43473	LCS		Anions by Ion Chromatography
38553	5	38973	43473	DUP	W08P004869	Anions by Ion Chromatography
38553	6	38973	43473	MS	W08P004869	Anions by Ion Chromatography
38553	7	38973	43473	MSD	W08P004869	Anions by Ion Chromatography
38553	7	38973	43473	SPK-RPD	W08P004869	Anions by Ion Chromatography
38553	10	38973	43473	SAMPLE	W08P004871	Anions by Ion Chromatography
38651	1	39072	43557	LCS		Total Alkalinity as mg/L CaCO3
38651	13	39072	43557	LCS		Total Alkalinity as mg/L CaCO3
38651	24	39072	43557	LCS		Total Alkalinity as mg/L CaCO3
38651	3	39072	43557	DUP	W08P004761	Total Alkalinity as mg/L CaCO3
38651	18	39072	43557	SAMPLE	W08P004871	Total Alkalinity as mg/L CaCO3
38644	1	39065	43609	BLANK		ICP Metals Analysis, Grd H20 P
38644	2	39065	43609	LCS		ICP Metals Analysis, Grd H20 P
38644	4	39065	43609	MS	W08P004850	ICP Metals Analysis, Grd H20 P
38644	5	39065	43609	MSD	W08P004850	ICP Metals Analysis, Grd H20 P
38644	5	39065	43609	SPK-RPD	W08P004850	ICP Metals Analysis, Grd H20 P
38644	21	39065	43609	SAMPLE	W08P004870	ICP Metals Analysis, Grd H20 P
38644	22	39065	43609	SAMPLE	W08P004871	ICP Metals Analysis, Grd H20 P
38899	1	39314	43829	BLANK		ICP-200.8 MS All possible meta
38899	2	39314	43829	BLANK		ICP-200.8 MS All possible meta
38899	3	39314	43829	BLANK		ICP-200.8 MS All possible meta
38899	4	39314	43829	BLANK		ICP-200.8 MS All possible meta
38899	5	39314	43829	LCS		ICP-200.8 MS All possible meta
38899	6	39314	43829	LCS		ICP-200.8 MS All possible meta
38899	7	39314	43829	LCS		ICP-200.8 MS All possible meta
38899	8	39314	43829	LCS		ICP-200.8 MS All possible meta
38899	10	39314	43829	MS	W08P004827	ICP-200.8 MS All possible meta
38899	11	39314	43829	MSD	W08P004827	ICP-200.8 MS All possible meta
38899	11	39314	43829	SPK-RPD	W08P004827	ICP-200.8 MS All possible meta
38899	21	39314	43829	SAMPLE	W08P004870	ICP-200.8 MS All possible meta
38899	13	39314	43829	MS	W08P004871	ICP-200.8 MS All possible meta
38899	14	39314	43829	MSD	W08P004871	ICP-200.8 MS All possible meta
38899	12	39314	43829	SAMPLE	W08P004871	ICP-200.8 MS All possible meta
38899	14	39314	43829	SPK-RPD	W08P004871	ICP-200.8 MS All possible meta
38899	16	39314	43829	MS	W08P005245	ICP-200.8 MS All possible meta
38899	17	39314	43829	MSD	W08P005245	ICP-200.8 MS All possible meta
38899	17	39314	43829	SPK-RPD	W08P005245	ICP-200.8 MS All possible meta
38899	18	39314	43829	MS	W08P005250	ICP-200.8 MS All possible meta
38899	19	39314	43829	MSD	W08P005250	ICP-200.8 MS All possible meta
38899	19	39314	43829	SPK-RPD	W08P005250	ICP-200.8 MS All possible meta

w13qlog v4.2 29-dec-2008 11:17:33

Department: Radiochemistry

W13q Worklist/Batch/QC Report for Group# WSCF20082253

WL#	S#	Batch	QC#	Tray Type	Sample#	Test
38616	1	39037	43627	BLANK		TC99 by Liquid Scin.
38616	2	39037	43627	LCS		TC99 by Liquid Scin.
38616	4	39037	43627	DUP	W08P004871	TC99 by Liquid Scin.
38616	3	39037	43627	MS	W08P004871	TC99 by Liquid Scin.
38616	5	39037	43627	SAMPLE	W08P004871	TC99 by Liquid Scin.
38620	1	39041	43698	BLANK		Strontium 89/90
38620	2	39041	43698	LCS		Strontium 89/90
38620	3	39041	43698	DUP	W08P004750	Strontium 89/90
38620	16	39041	43698	SAMPLE	W08P004871	Strontium 89/90
38620	17	39041	43698	SURR	W08P004871	Strontium 89/90
38794	1	39211	43747	BLANK		Gross Alpha/Gross Beta (AB32)
38794	2	39211	43747	LCS		Gross Alpha/Gross Beta (AB32)
38794	3	39211	43747	DUP	W08P004867	Gross Alpha/Gross Beta (AB32)
38794	6	39211	43747	SAMPLE	W08P004871	Gross Alpha/Gross Beta (AB32)
38615	1	39036	43770	BLANK		Tritium by Liq Sct column prep
38615	2	39036	43770	LCS		Tritium by Liq Sct column prep
38615	4	39036	43770	DUP	W08P004858	Tritium by Liq Sct column prep
38615	3	39036	43770	MS	W08P004858	Tritium by Liq Sct column prep
38615	12	39036	43770	SAMPLE	W08P004871	Tritium by Liq Sct column prep
38835	1	39244	43784	BLANK		Gross Alpha on Alpha Plateau
38835	2	39244	43784	LCS		Gross Alpha on Alpha Plateau
38835	3	39244	43784	DUP	W08P004867	Gross Alpha on Alpha Plateau
38835	6	39244	43784	SAMPLE	W08P004871	Gross Alpha on Alpha Plateau

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 Emmision 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-531-411	LA-531-411: ALKALINITY (TITRIMETRIC)	
	HEIS 2320B	Alkalinity
	Standard Methods 2320B	Alkalinity
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

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

WSCF
METHOD REFERENCES REPORT

Department: Radiochemistry

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

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

HEIS	**ALPHA_GPC**	GROSS ALPHA GPC
HEIS	**BETA_GPC**	GROSS BETA GPC
HEIS	**SRTOT_SEP_PRECIP_GP**	Strontium 89/90

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

HEIS	**ALPHA_LSC**	A/B Liquid Scintilillation
HEIS	**BETA_LSC**	A/B Liquid Scintilallation
HEIS	**TC99_3MDSK_LSC**	TC99 by Liquid Scintillation
HEIS	**TRITIUM_EIE_LSC**	Tritium Liquid Scintillation

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 E6-35
SAF Number: X08-048
Sample # W08P004870
Client ID: B1W540 PNNL-GPP WSCF

Matrix: WATER

Group #: WSCF20082253
Department: Inorganic
Sampled: 11/16/08
Received: 11/17/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
ICP Metals Analysis, Grd H20 P Prep											**11/20/08**
ICP Metals Analysis, Grd H20 P											
Iron	7439-89-6	LA-505-411		136	ug/L			1.00	25		11/25/08
Magnesium	7439-95-4	LA-505-411		2.08e+03	ug/L			1.00	50		11/25/08
Manganese	7439-96-5	LA-505-411	B	19.6	ug/L			1.00	4.0		11/25/08
Nickel	7440-02-0	LA-505-411	U	< 4.00	ug/L			1.00	4.0		11/25/08
Potassium	7440-09-7	LA-505-411		8.30e+03	ug/L			1.00	1.7e+02		11/25/08
Silver	7440-22-4	LA-505-411	U	< 5.00	ug/L			1.00	5.0		11/25/08
Sodium	7440-23-5	LA-505-411		6.18e+04	ug/L			1.00	51		11/25/08
Antimony	7440-36-0	LA-505-411	U	< 56.0	ug/L			1.00	56		11/25/08
Barium	7440-39-3	LA-505-411		28.0	ug/L			1.00	4.0		11/25/08
Cadmium	7440-43-9	LA-505-411	U	< 4.00	ug/L			1.00	4.0		11/25/08
Chromium	7440-47-3	LA-505-411	U	< 13.0	ug/L			1.00	13		11/25/08
Cobalt	7440-48-4	LA-505-411	U	< 4.00	ug/L			1.00	4.0		11/25/08
Copper	7440-50-8	LA-505-411	U	< 6.00	ug/L			1.00	6.0		11/25/08
Vanadium	7440-62-2	LA-505-411	B	14.5	ug/L			1.00	12		11/25/08
Zinc	7440-66-6	LA-505-411	U	< 9.00	ug/L			1.00	9.0		11/25/08
Calcium	7440-70-2	LA-505-411		1.09e+04	ug/L			1.00	73		11/25/08
Strontium	7440-24-6	LA-505-411		85.8	ug/L			1.00	4.0		11/25/08
Beryllium	7440-41-7	LA-505-411	U	< 4.00	ug/L			1.00	4.0		11/25/08
ICP-200.8 MS All possible meta Prep											**12/22/08**
ICP-200.8 MS All possible meta											
Lead	7439-92-1	LA-505-412		0.130	ug/L			1.00	0.100		12/22/08
Arsenic	7440-38-2	LA-505-412	U	< 0.400	ug/L			1.00	0.400		12/22/08
Thallium	7440-28-0	LA-505-412	U	< 0.100	ug/L			1.00	0.100		12/22/08

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)
U - Analyzed for but not detected above limiting criteria(inorg)
D - Analyte was identified at a secondary dilution factor(inorg)

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

WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35
SAF Number: X08-048
Sample # W08P004871
Client ID: B1W541 PNNL-GPP WSCF

Matrix: WATER

Group #: WSCF20082253
Department: Inorganic
Sampled: 11/16/08
Received: 11/17/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Anions by Ion Chromatography											
Fluoride	16984-48-8	LA-533-410	D	3.11	mg/L			2.00	0.046		11/18/08
Chloride	16887-00-6	LA-533-410	D	8.41	mg/L			2.00	0.094		11/18/08
Nitrogen in Nitrite	NO2-N	LA-533-410	DU	< 0.0256	mg/L			2.00	0.026		11/18/08
Nitrogen in Nitrate	NO3-N	LA-533-410	DU	< 0.0242	mg/L			2.00	0.024		11/18/08
Sulfate	14808-79-8	LA-533-410	BD	0.485	mg/L			2.00	0.26		11/18/08
ICP Metals Analysis, Grd H20 P Prep											**11/20/08**
ICP Metals Analysis, Grd H20 P											
Iron	7439-89-6	LA-505-411	B	116	ug/L			1.00	25		11/25/08
Magnesium	7439-95-4	LA-505-411		2.00e+03	ug/L			1.00	50		11/25/08
Manganese	7439-96-5	LA-505-411	B	18.6	ug/L			1.00	4.0		11/25/08
Nickel	7440-02-0	LA-505-411	U	< 4.00	ug/L			1.00	4.0		11/25/08
Potassium	7440-09-7	LA-505-411		8.02e+03	ug/L			1.00	1.7e+02		11/25/08
Silver	7440-22-4	LA-505-411	U	< 5.00	ug/L			1.00	5.0		11/25/08
Sodium	7440-23-5	LA-505-411		5.99e+04	ug/L			1.00	51		11/25/08
Antimony	7440-36-0	LA-505-411	U	< 56.0	ug/L			1.00	56		11/25/08
Barium	7440-39-3	LA-505-411		28.1	ug/L			1.00	4.0		11/25/08
Cadmium	7440-43-9	LA-505-411	U	< 4.00	ug/L			1.00	4.0		11/25/08
Chromium	7440-47-3	LA-505-411	U	< 13.0	ug/L			1.00	13		11/25/08
Cobalt	7440-48-4	LA-505-411	U	< 4.00	ug/L			1.00	4.0		11/25/08
Copper	7440-50-8	LA-505-411	U	< 6.00	ug/L			1.00	6.0		11/25/08
Vanadium	7440-62-2	LA-505-411	B	15.8	ug/L			1.00	12		11/25/08
Zinc	7440-66-6	LA-505-411	U	< 9.00	ug/L			1.00	9.0		11/25/08
Calcium	7440-70-2	LA-505-411		1.05e+04	ug/L			1.00	73		11/25/08
Strontium	7440-24-6	LA-505-411		83.1	ug/L			1.00	4.0		11/25/08

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

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U - Analyzed for but not detected above limiting criteria(inorg)
D - Analyte was identified at a secondary dilution factor(inorg)

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

WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35
SAF Number: X08-048
Sample # W08P004871
Client ID: B1W541 PNNL-GPP WSCF

Matrix: WATER

Group #: WSCF20082253
Department: Inorganic
Sampled: 11/16/08
Received: 11/17/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Beryllium	7440-41-7	LA-505-411	U	< 4.00	ug/L			1.00	4.0		11/25/08
ICP-200.8 MS All possible meta Prep											**12/22/08**
ICP-200.8 MS All possible meta											
Lead	7439-92-1	LA-505-412		0.170	ug/L			1.00	0.100		12/22/08
Uranium	7440-61-1	LA-505-412		0.448	ug/L			1.00	0.0500		12/22/08
Arsenic	7440-38-2	LA-505-412		0.430	ug/L			1.00	0.400		12/22/08
Thallium	7440-28-0	LA-505-412		0.640	ug/L			1.00	0.100		12/22/08
Total Alkalinity as mg/L CaCO3											
Total Alkalinity as mg/L CaCO3	ALKALINITY	LA-531-411		180	mg/L			1.00	1.0		11/25/08

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)
U - Analyzed for but not detected above limiting criteria(inorg)
D - Analyte was identified at a secondary dilution factor(inorg)

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

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20082253
Matrix: WATER
Test: Anions by Ion Chromatography

Sample Date: 11/16/08
Receive Date:11/17/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
Lab ID: W08P004869											
BATCH QC ASSOCIATED WITH SAMPLE											
DUP	Chloride	16887-00-6	12.9846		RPD			0.027	20.000		11/17/08
DUP	Fluoride	16984-48-8	0.2935		RPD			1.476	20.000		11/17/08
DUP	Nitrogen in Nitrite	NO2-N	<2.56e-2		RPD			n/a	20.000	U	11/17/08
DUP	Nitrogen in Nitrate	NO3-N	4.4632		RPD			0.052	20.000		11/17/08
DUP	Sulfate	14808-79-8	71.4614		RPD			0.096	20.000		11/17/08
MS	Chloride	16887-00-6	0.97205	98.685	% Recov	80.000	120.000				11/18/08
MS	Fluoride	16984-48-8	0.4972	98.455	% Recov	80.000	120.000				11/18/08
MS	Nitrogen in Nitrite	NO2-N	0.4746	96.463	% Recov	80.000	120.000				11/18/08
MS	Nitrogen in Nitrate	NO3-N	0.445	100.000	% Recov	80.000	120.000				11/18/08
MS	Sulfate	14808-79-8	1.75085	88.427	% Recov	80.000	120.000				11/18/08
MSD	Chloride	16887-00-6	0.9566	97.117	% Recov	80.000	120.000				11/18/08
MSD	Fluoride	16984-48-8	0.49355	97.733	% Recov	80.000	120.000				11/18/08
MSD	Nitrogen in Nitrite	NO2-N	0.4735	96.240	% Recov	80.000	120.000				11/18/08
MSD	Nitrogen in Nitrate	NO3-N	0.43935	98.730	% Recov	80.000	120.000				11/18/08
MSD	Sulfate	14808-79-8	1.69275	85.492	% Recov	80.000	120.000				11/18/08
SPK-RPD	Chloride	16887-00-6	97.117		RPD			1.602	20.000		11/18/08
SPK-RPD	Fluoride	16984-48-8	97.733		RPD			0.736	20.000		11/18/08
SPK-RPD	Nitrogen in Nitrite	NO2-N	96.240		RPD			0.231	20.000		11/18/08
SPK-RPD	Nitrogen in Nitrate	NO3-N	98.730		RPD			1.278	20.000		11/18/08
SPK-RPD	Sulfate	14808-79-8	85.492		RPD			3.375	20.000		11/18/08
BATCH QC											
BLANK	Chloride	16887-00-6	<4.69e-2	n/a	mg/L	0.000	0.030			U	11/17/08
BLANK	Chloride	16887-00-6	<4.69e-2	n/a	mg/L	0.000	0.030			U	11/18/08
BLANK	Fluoride	16984-48-8	<2.32e-2	n/a	mg/L	0.000	0.030			U	11/17/08
BLANK	Fluoride	16984-48-8	<2.32e-2	n/a	mg/L	0.000	0.030			U	11/18/08

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20082253
Matrix: WATER
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
BLANK	Nitrogen in Nitrite	NO2-N	<1.28e-2	n/a	mg/L	0.000	0.020			U	11/17/08
BLANK	Nitrogen in Nitrite	NO2-N	<1.28e-2	n/a	mg/L	0.000	0.020			U	11/18/08
BLANK	Nitrogen in Nitrate	NO3-N	<1.21e-2	n/a	mg/L	0.000	0.040			U	11/17/08
BLANK	Nitrogen in Nitrate	NO3-N	<1.21e-2	n/a	mg/L	0.000	0.040			U	11/18/08
BLANK	Sulfate	14808-79-8	<0.132	n/a	mg/L	0.000	0.200			U	11/17/08
BLANK	Sulfate	14808-79-8	<0.132	n/a	mg/L	0.000	0.200			U	11/18/08
LCS	Chloride	16887-00-6	191.4959	96.229	% Recov	80.000	120.000				11/17/08
LCS	Fluoride	16984-48-8	103.7057	101.672	% Recov	80.000	120.000				11/17/08
LCS	Nitrogen in Nitrite	NO2-N	99.656	100.258	% Recov	80.000	120.000				11/17/08
LCS	Nitrogen in Nitrate	NO3-N	92.6429	103.051	% Recov	80.000	120.000				11/17/08
LCS	Sulfate	14808-79-8	381.7584	95.440	% Recov	80.000	120.000				11/17/08

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20082253
Matrix: WATER
Test: ICP Metals Analysis, Grd H20 P

Sample Date: 11/16/08
Receive Date:11/17/08

Lab ID: W08P004850
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	977.1	97.710	% Recov	75.000	125.000				11/25/08
MS	Barium	7440-39-3	476	95.200	% Recov	75.000	125.000				11/25/08
MS	Beryllium	7440-41-7	538.9	107.780	% Recov	75.000	125.000				11/25/08
MS	Calcium	7440-70-2	1121	112.100	% Recov	75.000	125.000				11/25/08
MS	Cadmium	7440-43-9	1021	102.100	% Recov	75.000	125.000				11/25/08
MS	Cobalt	7440-48-4	1030	103.000	% Recov	75.000	125.000				11/25/08
MS	Chromium	7440-47-3	1005	100.500	% Recov	75.000	125.000				11/25/08
MS	Copper	7440-50-8	987	98.700	% Recov	75.000	125.000				11/25/08
MS	Iron	7439-89-6	1004	100.400	% Recov	75.000	125.000				11/25/08
MS	Potassium	7440-09-7	10380	103.800	% Recov	75.000	125.000				11/25/08
MS	Magnesium	7439-95-4	965.2	96.520	% Recov	75.000	125.000				11/25/08
MS	Manganese	7439-96-5	1009	100.900	% Recov	75.000	125.000				11/25/08
MS	Sodium	7440-23-5	995.8	99.580	% Recov	75.000	125.000				11/25/08
MS	Nickel	7440-02-0	1035	103.500	% Recov	75.000	125.000				11/25/08
MS	Antimony	7440-36-0	988.4	98.840	% Recov	75.000	125.000				11/25/08
MS	Strontium	7440-24-6	508.8	101.760	% Recov	75.000	125.000				11/25/08
MS	Vanadium	7440-62-2	1001	100.100	% Recov	75.000	125.000				11/25/08
MS	Zinc	7440-66-6	1026	102.600	% Recov	75.000	125.000				11/25/08
MSD	Silver	7440-22-4	970.5	97.050	% Recov	75.000	125.000				11/25/08
MSD	Barium	7440-39-3	470.9	94.180	% Recov	75.000	125.000				11/25/08
MSD	Beryllium	7440-41-7	535.7	107.140	% Recov	75.000	125.000				11/25/08
MSD	Calcium	7440-70-2	1102	110.200	% Recov	75.000	125.000				11/25/08
MSD	Cadmium	7440-43-9	1016	101.600	% Recov	75.000	125.000				11/25/08
MSD	Cobalt	7440-48-4	1032	103.200	% Recov	75.000	125.000				11/25/08
MSD	Chromium	7440-47-3	1010	101.000	% Recov	75.000	125.000				11/25/08
MSD	Copper	7440-50-8	975	97.500	% Recov	75.000	125.000				11/25/08

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20082253
Matrix: WATER
Test: ICP Metals Analysis, Grd H20 P

Sample Date: 11/16/08
Receive Date:11/17/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
MSD	Iron	7439-89-6	1001	100.100	% Recov	75.000	125.000				11/25/08
MSD	Potassium	7440-09-7	10030	100.300	% Recov	75.000	125.000				11/25/08
MSD	Magnesium	7439-95-4	950.7	95.070	% Recov	75.000	125.000				11/25/08
MSD	Manganese	7439-96-5	1016	101.600	% Recov	75.000	125.000				11/25/08
MSD	Sodium	7440-23-5	965.2	96.520	% Recov	75.000	125.000				11/25/08
MSD	Nickel	7440-02-0	1035	103.500	% Recov	75.000	125.000				11/25/08
MSD	Antimony	7440-36-0	973.4	97.340	% Recov	75.000	125.000				11/25/08
MSD	Strontium	7440-24-6	501.6	100.320	% Recov	75.000	125.000				11/25/08
MSD	Vanadium	7440-62-2	999.4	99.940	% Recov	75.000	125.000				11/25/08
MSD	Zinc	7440-66-6	1027	102.700	% Recov	75.000	125.000				11/25/08
SPK-RPD	Silver	7440-22-4	97.050		RPD			0.678	20.000		11/25/08
SPK-RPD	Barium	7440-39-3	94.180		RPD			1.077	20.000		11/25/08
SPK-RPD	Beryllium	7440-41-7	107.140		RPD			0.596	20.000		11/25/08
SPK-RPD	Calcium	7440-70-2	110.200		RPD			1.709	20.000		11/25/08
SPK-RPD	Cadmium	7440-43-9	101.600		RPD			0.491	20.000		11/25/08
SPK-RPD	Cobalt	7440-48-4	103.200		RPD			0.194	20.000		11/25/08
SPK-RPD	Chromium	7440-47-3	101.000		RPD			0.496	20.000		11/25/08
SPK-RPD	Copper	7440-50-8	97.500		RPD			1.223	20.000		11/25/08
SPK-RPD	Iron	7439-89-6	100.100		RPD			0.299	20.000		11/25/08
SPK-RPD	Potassium	7440-09-7	100.300		RPD			3.430	20.000		11/25/08
SPK-RPD	Magnesium	7439-95-4	95.070		RPD			1.514	20.000		11/25/08
SPK-RPD	Manganese	7439-96-5	101.600		RPD			0.691	20.000		11/25/08
SPK-RPD	Sodium	7440-23-5	96.520		RPD			3.121	20.000		11/25/08
SPK-RPD	Nickel	7440-02-0	103.500		RPD			0.000	20.000		11/25/08
SPK-RPD	Antimony	7440-36-0	97.340		RPD			1.529	20.000		11/25/08
SPK-RPD	Strontium	7440-24-6	100.320		RPD			1.425	20.000		11/25/08
SPK-RPD	Vanadium	7440-62-2	99.940		RPD			0.160	20.000		11/25/08
SPK-RPD	Zinc	7440-66-6	102.700		RPD			0.097	20.000		11/25/08

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20082253
Matrix: WATER
Test: ICP Metals Analysis, Grd H20 P

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	Silver	7440-22-4	<5	n/a	ug/L					U	11/25/08
BLANK	Barium	7440-39-3	<4	n/a	ug/L					U	11/25/08
BLANK	Beryllium	7440-41-7	<4	n/a	ug/L					U	11/25/08
BLANK	Calcium	7440-70-2	<73	n/a	ug/L					U	11/25/08
BLANK	Cadmium	7440-43-9	<4	n/a	ug/L					U	11/25/08
BLANK	Cobalt	7440-48-4	<4	n/a	ug/L					U	11/25/08
BLANK	Chromium	7440-47-3	<13	n/a	ug/L					U	11/25/08
BLANK	Copper	7440-50-8	<6	n/a	ug/L					U	11/25/08
BLANK	Iron	7439-89-6	<25	n/a	ug/L					U	11/25/08
BLANK	Potassium	7440-09-7	<170	n/a	ug/L					U	11/25/08
BLANK	Magnesium	7439-95-4	<50	n/a	ug/L					U	11/25/08
BLANK	Manganese	7439-96-5	<4	n/a	ug/L					U	11/25/08
BLANK	Sodium	7440-23-5	<51	n/a	ug/L					U	11/25/08
BLANK	Nickel	7440-02-0	<4	n/a	ug/L					U	11/25/08
BLANK	Antimony	7440-36-0	<56	n/a	ug/L					U	11/25/08
BLANK	Strontium	7440-24-6	<4	n/a	ug/L					U	11/25/08
BLANK	Vanadium	7440-62-2	<12	n/a	ug/L					U	11/25/08
BLANK	Zinc	7440-66-6	<9	n/a	ug/L					U	11/25/08
LCS	Silver	7440-22-4	968.9	96.890	% Recov	80.000	120.000				11/25/08
LCS	Barium	7440-39-3	472.8	94.560	% Recov	80.000	120.000				11/25/08
LCS	Beryllium	7440-41-7	532.3	106.460	% Recov	80.000	120.000				11/25/08
LCS	Calcium	7440-70-2	1085	108.500	% Recov	80.000	120.000				11/25/08
LCS	Cadmium	7440-43-9	1013	101.300	% Recov	80.000	120.000				11/25/08
LCS	Cobalt	7440-48-4	1014	101.400	% Recov	80.000	120.000				11/25/08
LCS	Chromium	7440-47-3	985.8	98.580	% Recov	80.000	120.000				11/25/08
LCS	Copper	7440-50-8	986.7	98.670	% Recov	80.000	120.000				11/25/08
LCS	Iron	7439-89-6	986.4	98.640	% Recov	80.000	120.000				11/25/08
LCS	Potassium	7440-09-7	10450	104.500	% Recov	80.000	120.000				11/25/08

WSCF ANALYTICAL LABORATORY QC REPORT

Department: **Inorganic**

SDG Number: WSCF20082253
Matrix: WATER
Test: ICP Metals Analysis, Grd H20 P

Sample Date:
Receive Date:

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
LCS	Magnesium	7439-95-4	964.3	96.430	% Recov	80.000	120.000				11/25/08
LCS	Manganese	7439-96-5	995.5	99.550	% Recov	80.000	120.000				11/25/08
LCS	Sodium	7440-23-5	994.9	99.490	% Recov	80.000	120.000				11/25/08
LCS	Nickel	7440-02-0	1023	102.300	% Recov	80.000	120.000				11/25/08
LCS	Antimony	7440-36-0	975.1	97.510	% Recov	80.000	120.000				11/25/08
LCS	Strontium	7440-24-6	502.5	100.500	% Recov	80.000	120.000				11/25/08
LCS	Vanadium	7440-62-2	994.5	99.450	% Recov	80.000	120.000				11/25/08
LCS	Zinc	7440-66-6	1014	101.400	% Recov	80.000	120.000				11/25/08

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20082253
Matrix: WATER
Test: ICP-200.8 MS All possible meta

Sample Date: 11/14/08
Receive Date:11/14/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
Lab ID: W08P004827											
BATCH QC ASSOCIATED WITH SAMPLE											
MS	Arsenic	7440-38-2	38.8	97.000	% Recov	70.000	130.000				12/22/08
MS	Lead	7439-92-1	40.76	101.900	% Recov	70.000	130.000				12/22/08
MS	Thallium	7440-28-0	36.39	90.975	% Recov	70.000	130.000				12/22/08
MS	Uranium	7440-61-1	42.3598	105.899	% Recov	70.000	130.000				12/22/08
MSD	Arsenic	7440-38-2	40.45	101.125	% Recov	70.000	130.000				12/22/08
MSD	Lead	7439-92-1	41.69	104.225	% Recov	70.000	130.000				12/22/08
MSD	Thallium	7440-28-0	37.06	92.650	% Recov	70.000	130.000				12/22/08
MSD	Uranium	7440-61-1	43.5398	108.850	% Recov	70.000	130.000				12/22/08
SPK-RPD	Arsenic	7440-38-2	101.125		RPD			4.164	20.000		12/23/08
SPK-RPD	Lead	7439-92-1	104.225		RPD			2.256	20.000		12/23/08
SPK-RPD	Thallium	7440-28-0	92.650		RPD			1.824	20.000		12/23/08
SPK-RPD	Uranium	7440-61-1	108.850		RPD			2.748	20.000		12/23/08
Lab ID: W08P004871											
BATCH QC ASSOCIATED WITH SAMPLE											
MS	Arsenic	7440-38-2	39.97	99.925	% Recov	70.000	130.000				12/22/08
MS	Lead	7439-92-1	41.3	103.250	% Recov	70.000	130.000				12/22/08
MS	Thallium	7440-28-0	38.65	96.625	% Recov	70.000	130.000				12/22/08
MS	Uranium	7440-61-1	43.7115	109.279	% Recov	70.000	130.000				12/22/08
MSD	Arsenic	7440-38-2	40.1	100.250	% Recov	70.000	130.000				12/22/08
MSD	Lead	7439-92-1	41.55	103.875	% Recov	70.000	130.000				12/22/08
MSD	Thallium	7440-28-0	39.22	98.050	% Recov	70.000	130.000				12/22/08
MSD	Uranium	7440-61-1	44.0915	110.229	% Recov	70.000	130.000				12/22/08
SPK-RPD	Arsenic	7440-38-2	100.250		RPD			0.325	20.000		12/23/08
SPK-RPD	Lead	7439-92-1	103.875		RPD			0.604	20.000		12/23/08
SPK-RPD	Thallium	7440-28-0	98.050		RPD			1.464	20.000		12/23/08

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20082253
Matrix: WATER
Test: ICP-200.8 MS All possible meta

Sample Date: 11/16/08
Receive Date:11/17/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
SPK-RPD	Uranium	7440-61-1	110.229		RPD			0.866	20.000		12/23/08
Lab ID: W08P005245											
BATCH QC ASSOCIATED WITH SAMPLE											
MS	Arsenic	7440-38-2	39.6	99.000	% Recov	70.000	130.000				12/22/08
MS	Lead	7439-92-1	41.07	102.675	% Recov	70.000	130.000				12/22/08
MS	Uranium	7440-61-1	40.54	101.350	% Recov	70.000	130.000				12/22/08
MSD	Arsenic	7440-38-2	39.31	98.275	% Recov	70.000	130.000				12/22/08
MSD	Lead	7439-92-1	41.15	102.875	% Recov	70.000	130.000				12/22/08
MSD	Uranium	7440-61-1	40.63	101.575	% Recov	70.000	130.000				12/22/08
SPK-RPD	Arsenic	7440-38-2	98.275		RPD			0.735	20.000		12/23/08
SPK-RPD	Lead	7439-92-1	102.875		RPD			0.195	20.000		12/23/08
SPK-RPD	Uranium	7440-61-1	101.575		RPD			0.222	20.000		12/23/08
Lab ID: W08P005250											
BATCH QC ASSOCIATED WITH SAMPLE											
MS	Arsenic	7440-38-2	38.21	95.525	% Recov	70.000	130.000				12/22/08
MS	Lead	7439-92-1	40.58	101.450	% Recov	70.000	130.000				12/22/08
MS	Uranium	7440-61-1	40.882	102.205	% Recov	70.000	130.000				12/22/08
MSD	Arsenic	7440-38-2	38.81	97.025	% Recov	70.000	130.000				12/22/08
MSD	Lead	7439-92-1	40.67	101.675	% Recov	70.000	130.000				12/22/08
MSD	Uranium	7440-61-1	40.832	102.080	% Recov	70.000	130.000				12/22/08
SPK-RPD	Arsenic	7440-38-2	97.025		RPD			1.558	20.000		12/23/08
SPK-RPD	Lead	7439-92-1	101.675		RPD			0.222	20.000		12/23/08
SPK-RPD	Uranium	7440-61-1	102.080		RPD			0.122	20.000		12/23/08
BATCH QC											
BLANK	Arsenic	7440-38-2	<0.4	n/a	ug/L					U	12/22/08
BLANK	Arsenic	7440-38-2	<0.4	n/a	ug/L					U	12/22/08
BLANK	Arsenic	7440-38-2	<0.4	n/a	ug/L					U	12/22/08

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20082253
Matrix: WATER
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	Arsenic	7440-38-2	<0.4	n/a	ug/L					U	12/22/08
BLANK	Lead	7439-92-1	<0.1	n/a	ug/L					U	12/22/08
BLANK	Lead	7439-92-1	<0.1	n/a	ug/L					U	12/22/08
BLANK	Lead	7439-92-1	<0.1	n/a	ug/L					U	12/22/08
BLANK	Lead	7439-92-1	<0.1	n/a	ug/L					U	12/22/08
BLANK	Thallium	7440-28-0	<0.1	n/a	ug/L					U	12/22/08
BLANK	Thallium	7440-28-0	<0.1	n/a	ug/L					U	12/22/08
BLANK	Thallium	7440-28-0	<0.1	n/a	ug/L					U	12/22/08
BLANK	Thallium	7440-28-0	<0.1	n/a	ug/L					U	12/22/08
BLANK	Uranium	7440-61-1	<5e-2	n/a	ug/L					U	12/22/08
BLANK	Uranium	7440-61-1	<5e-2	n/a	ug/L					U	12/22/08
BLANK	Uranium	7440-61-1	<5e-2	n/a	ug/L					U	12/22/08
BLANK	Uranium	7440-61-1	<5e-2	n/a	ug/L					U	12/22/08
LCS	Arsenic	7440-38-2	39.48	98.700	% Recov	85.000	115.000				12/22/08
LCS	Arsenic	7440-38-2	38.36	95.900	% Recov	85.000	115.000				12/22/08
LCS	Arsenic	7440-38-2	38.98	97.450	% Recov	85.000	115.000				12/22/08
LCS	Arsenic	7440-38-2	39.22	98.050	% Recov	85.000	115.000				12/22/08
LCS	Lead	7439-92-1	40.89	102.225	% Recov	85.000	115.000				12/22/08
LCS	Lead	7439-92-1	40.86	102.150	% Recov	85.000	115.000				12/22/08
LCS	Lead	7439-92-1	41.32	103.300	% Recov	85.000	115.000				12/22/08
LCS	Lead	7439-92-1	40.26	100.650	% Recov	85.000	115.000				12/22/08
LCS	Thallium	7440-28-0	39.42	98.550	% Recov	85.000	115.000				12/22/08
LCS	Thallium	7440-28-0	39.22	98.050	% Recov	85.000	115.000				12/22/08
LCS	Thallium	7440-28-0	39.18	97.950	% Recov	85.000	115.000				12/22/08
LCS	Thallium	7440-28-0	38.84	97.100	% Recov	85.000	115.000				12/22/08
LCS	Uranium	7440-61-1	40.88	102.200	% Recov	85.000	115.000				12/22/08
LCS	Uranium	7440-61-1	41.31	103.275	% Recov	85.000	115.000				12/22/08
LCS	Uranium	7440-61-1	40.18	100.450	% Recov	85.000	115.000				12/22/08
LCS	Uranium	7440-61-1	40.67	101.675	% Recov	85.000	115.000				12/22/08

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20082253
Matrix: WATER
Test: Total Alkalinity as mg/L CaCO3

Sample Date: 11/13/08
Receive Date:11/13/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
Lab ID: W08P004761											
BATCH QC ASSOCIATED WITH SAMPLE											
DUP	Total Alkalinity as mg/L CaCO3	ALKALINITY	<1		RPD			n/a	20.000	U	11/25/08
BATCH QC											
LCS	Total Alkalinity as mg/L CaCO3	ALKALINITY	31.890	107.013	%Recove	80.000	120.000				11/25/08
LCS	Total Alkalinity as mg/L CaCO3	ALKALINITY	32.185	108.003	%Recove	80.000	120.000				11/25/08
LCS	Total Alkalinity as mg/L CaCO3	ALKALINITY	32.449	108.889	%Recove	80.000	120.000				11/25/08

WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35
SAF Number: X08-048
Sample # W08P004871
Client ID: B1W541 PNNL-GPP WSCF

Matrix: WATER

Group #: WSCF20082253
Department: Radiochemistry
Sampled: 11/16/08
Received: 11/17/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Gross Alpha on Alpha Plateau											
Gross alpha on alpha plateau	12587-46-1	LA-508-415	U	-0.980	pCi/L	+-1.18	pCi/L	1.00	2.4		12/14/08
Gross Alpha/Gross Beta (AB32)											
Gross beta	12587-47-2	LA-508-415		5.60	pCi/L	+-1.90	pCi/L	1.00	2.7		12/16/08
Strontium 89/90											
Strontium-89/90	SR-RAD	LA-508-415	U	-1.40	pCi/L	+-1.40	pCi/L	1.00	1.4		12/05/08
Sr-85 Tracer by Beta Counting	SR85	LA-508-415		65.9	Percent			1.00	0.0		12/05/08
TC99 by Liquid Scin.											
Tc-99 by Liquid Scin.	14133-76-7	LA-508-421	U	0.300	pCi/L	+-3.69	pCi/L	1.00	5.9		12/01/08
Tritium by Liq Sct column prep											
Tritium	10028-17-8	LA-508-421	U	91.0	pCi/L	+-133	pCi/L	1.00	2.2e+02		12/01/08

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)
U - Analyzed for but not detected above limiting criteria(inorg)
D - Analyte was identified at a secondary dilution factor(inorg)

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

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Radiochemistry

SDG Number: WSCF20082253
Matrix: WATER
Test: Gross Alpha on Alpha Plateau

Sample Date: 11/16/08
Receive Date:11/17/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
Lab ID: W08P004867											
BATCH QC ASSOCIATED WITH SAMPLE											
DUP	Gross alpha on alpha plateau	12587-46-1	U9.4		RPD			n/a	20.000		12/14/08
BATCH QC											
BLANK	Gross alpha on alpha plateau	12587-46-1-ap	U-6.8E-01	n/a	pCi/L	-100.000	100.000				12/14/08
LCS	Gross alpha on alpha plateau	12587-46-1-ap	38.2	98.606	% Recov	80.000	120.000				12/14/08

WSCF ANALYTICAL LABORATORY QC REPORT

Department: **Radiochemistry**

SDG Number: WSCF20082253
Matrix: WATER
Test: Gross Alpha/Gross Beta (AB32)

Sample Date: 11/16/08
Receive Date:11/17/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
Lab ID: W08P004867											
BATCH QC ASSOCIATED WITH SAMPLE											
DUP	Gross beta	12587-47-2	1.7E+04		RPD			19.355	20.000		12/16/08
BATCH QC											
BLANK	Gross beta	12587-47-2	U-1.1	n/a	pCi/L	-10.000	10.000				12/16/08
LCS	Gross beta	12587-47-2	122	108.734	% Recov	80.000	120.000				12/16/08

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Radiochemistry

SDG Number: WSCF20082253
Matrix: WATER
Test: Strontium 89/90

Sample Date: 11/13/08
Receive Date:11/13/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
Lab ID: W08P004750											
BATCH QC ASSOCIATED WITH SAMPLE											
DUP	Sr-85 Tracer by Beta Counting	SR85	90.1	90.100	% Recov	30.000	105.000				12/05/08
DUP	Strontium-89/90	SR-RAD	U-2.9E-01		RPD			n/a	20.000		12/05/08
Lab ID: W08P004871											
BATCH QC ASSOCIATED WITH SAMPLE											
SURR	Sr-85 Tracer by Beta Counting	SR85	65.9	65.900	% Recov	30.000	105.000				12/05/08
BATCH QC											
BLANK	Sr-85 Tracer by Beta Counting	SR85	96.6	96.600	% Recov	30.000	105.000				12/05/08
BLANK	Strontium-89/90	10098-97-2	U-6.0E-01	n/a	pCi/L	-10.000	100.000				12/05/08
LCS	Sr-85 Tracer by Beta Counting	SR85	89.5	89.500	% Recov	30.000	105.000				12/05/08
LCS	Strontium-89/90	10098-97-2	160.0	115.108	% Recov	80.000	120.000				12/05/08

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Radiochemistry

SDG Number: WSCF20082253
Matrix: WATER
Test: TC99 by Liquid Scin.

Sample Date: 11/16/08
Receive Date:11/17/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
Lab ID: W08P004871											
BATCH QC ASSOCIATED WITH SAMPLE											
DUP	Tc-99 by Liquid Scin.	14133-76-7	U-2.0		RPD			n/a	20.000		12/01/08
MS	Tc-99 by Liquid Scin.	14133-76-7	637	100.951	% Recov	75.000	125.000				12/01/08
BATCH QC											
BLANK	Tc-99 by Liquid Scin.	14133-76-7	U-0.9	n/a	pCi/L	-10.000	10.000				12/01/08
LCS	Tc-99 by Liquid Scin.	14133-76-7	159.3	100.063	% Recov	80.000	120.000				12/01/08

WSCF ANALYTICAL LABORATORY QC REPORT

Department: **Radiochemistry**

SDG Number: WSCF20082253
Matrix: WATER
Test: Tritium by Liq Sct column prep

Sample Date: 11/16/08
Receive Date:11/17/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
Lab ID: W08P004858											
BATCH QC ASSOCIATED WITH SAMPLE											
DUP	Tritium	10028-17-8	U1.9E+02		RPD			n/a	20.000		12/01/08
MS	Tritium	10028-17-8	19584.0	88.072	% Recov	75.000	125.000				12/01/08
BATCH QC											
BLANK	Tritium	10028-17-8	U-2.8E+01	n/a	pCi/L	-10.000	1000.000				12/01/08
LCS	Tritium	10028-17-8	2520.0	87.768	% Recov	80.000	120.000				12/01/08

M4W41-SLF-08-1325

ATTACHMENT 4

SAMPLE RECEIPT INFORMATION

Consisting of 3 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
12/31/08

ACKNOWLEDGMENT OF SAMPLES RECEIVED

GPAP

Richland, WA 99352
Attn: Steve Trent E6-35

Customer Code: PNNL-GPP
PO#: 122543
Group#: 20082253

The following samples were received from you on 11/17/08. 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
W08P004870	B1W540	PNNL-GPP	Water				11/16/08
		@2008	@GPP6010				
W08P004871	B1W541	PNNL-GPP	Water				11/16/08
		@2008	@AB-32	@ALPHA	@GPP6010	@H3-33	
		@IC-30	@SR89_90	@TC99-30	ALKALI		

Test Acronym Description

Test Acronym	Description
@2008	ICP-200.8 MS All possible meta
@AB-32	Gross Alpha/Gross Beta (AB32)
@ALPHA	Gross Alpha on Alpha Plateau
@GPP6010	ICP Metals Analysis, Grd H20 P
@H3-33	Tritium by Liq Sct column prep
@IC-30	Anions by Ion Chromatography
@SR89_90	Strontium 89/90
@TC99-30	TC99 by Liquid Scin.
ALKALI	Total Alkalinity as mg/L CaCO3

FLUOR HANFORD

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

12/31/08 2008225 3

C.O.C. # **X08-048-105**

Page 1 of 1

Collector: R. Ellingsworth	Contact/Requester: Steve Trent	Telephone No.: 509-373-5869 MSIN FAX
SAF No.: X08-048	Sampling Origin: Hanford Site	Purchase Order/Charge Code
Project Title: 2P01 CHARACTERIZATION	HNF-N-506-20/18	Ice Chest No. Temp.
Shipped To (Lab): Waste Sampling & Characterization	Method of Shipment: Govt. Vehicle	Bill of Lading/Air Bill No.
Protocol: SURV	Priority: 45 Days	Offsite Property No.

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

SPECIAL INSTRUCTIONS Hold Time Total Activity Exemption: Yes ☑ No ☐
Do not combine X SAF samples with other sets. Need SDG to be stand alone.
Site-Wide Generator Knowledge Information Form applies.

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B1W540 (F)	WCR roc 4870	W	11/16/08	1001	1x500-mL G/P	200.8_METALS_ICPMS: Arsenic (1); 200.8_METALS_ICPMS: Lead (1); 200.8_METALS_ICPMS: Thallium (1)	HNO3 to pH <2
B1W540 (F)	↓	W			1x500-mL G/P	6010_METALS_ICP: List-3 (18)	HNO3 to pH <2
B1W541	4871	W			1x500-mL G/P	200.8_METALS_ICPMS: Arsenic (1); 200.8_METALS_ICPMS: Lead (1); 200.8_METALS_ICPMS: Thallium (1)	HNO3 to pH <2
B1W541		W			1x500-mL G/P	200.8_METALS_ICPMS: Uranium (1)	HNO3 to pH <2
B1W541		W			1x500-mL G/P	6010_METALS_ICP: List-3 (18)	HNO3 to pH <2
B1W541		W			1x250-mL G/P	2320_ALKALINITY: Alkalinity (1)	Cool~4C
B1W541		W			1x500-mL P	300.0_ANIONS_IC: List-1 (5)	Cool~4C
B1W541		W			1x500-mL G/P	ALPHABETA_GPC: Alpha discrete + Beta (2); ALPHABETA_GPC: Alpha discrete + Beta (2)	HNO3 to pH <2
B1W541		W			1x1-L G/P	Strontium-89,90 -- Total Sr	HNO3 to pH <2
B1W541		W			1x1000-mL G/P	TC99_3MDSK_LSC: Tc-99 (1)	HCl to pH <2
B1W541	↓	W	↓	↓	1x250-mL G	TRITIUM_EIE_LSC: Tritium (1)	None

ICED

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
R. Ellingsworth			0935 11-17-08		F M Hall		0935 11-17-08
F M Hall			0935 11-17-08	TA Frazier			0935 11-17-08

Matrix *

S = Soil		DS = Drum Solid	
SE = Sediment		DL = Drum Liquid	
SO = Solid		T = Tissue	
SL = Sludge		WI = Wine	
W = Water		L = Liquid	
O = Oil		V = Vegetation	
A = Air		X = Other	

FINAL SAMPLE DISPOSITION Disposal Method (e.g., Return to customer, per lab procedure, used in process) Disposed By Date/Time