

DECEMBER 10, 2012

WSCF Laboratory

PO Box 650 S3-30
Richland, WA 99352



December 10, 2012

Scot Fitzgerald
CH2M-HILL PRC
PO Box 1600
Richland, WA 99352

Dear Scot Fitzgerald,

FINAL RESULT FOR SAMPLE DELIVERY GROUP WSCF121423

Reference: (1) SOW, Mod 2, #36587, Release 3
(2) MSC-SD-CD-QAPP-017, current version, Waste Sampling & Characterization Facility Quality Assurance Program Plan

This letter contains the following information for sample delivery group WSCF121423

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

Very truly yours,

A handwritten signature in black ink, appearing to read "Dan T. Smith".

Electronically signed by Joseph Hale
For Lab Manager, Dan T. Smith
WSCF Analytical Lab
(509) 373-4804

Attachments 4

CC: w/Attachments

File/LB

DECEMBER 10, 2012

ATTACHMENT 1

COVER SHEET

Consisting of 2 pages
Including cover page

WSCF SAF Number Cross Reference

Group # WSCF121423
Data Deliverable Date 12/10/12

SAF #	Sample ID	Sample #	Matrix	Sampled	Received
I13-006	B2MXJ5	121423001	WATER	11/06/12	11/06/12
I13-002	B2MR85	121423002	WATER	11/06/12	11/06/12
I13-006	B2MXJ4	121423003	WATER	11/06/12	11/06/12
I13-002	B2MR84	121423004	WATER	11/06/12	11/06/12
I13-002	B2MR83	121423005	WATER	11/06/12	11/06/12
I13-002	B2MR86	121423006	WATER	11/06/12	11/06/12
I13-006	B2MXJ6	121423007	WATER	11/06/12	11/06/12
I13-006	B2MXJ3	121423008	WATER	11/06/12	11/06/12

DECEMBER 10, 2012

ATTACHMENT 2

NARRATIVE

Consisting of 4 pages
Including cover page

Introduction

Samples were received at the WSCF laboratory as referenced on the WSCF SAF Number Cross Reference table included in the final report. 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), Master Contract 39818, Revision 3, "Laboratory Analytical Services to CHPRC Soil and Groundwater Remediation Project."*

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, C, D, J and U) 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.
- **C** – Analyte was detected in the blank and was evaluated. Affected sample results in the batch were C flagged (applies to inorganic and wet chemical analyses).
- **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.
- **B (organic analyses)** – Analyte was detected in the blank and was evaluated. Affected sample results in the batch were B flagged.
- **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* 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. Analytical Note(s):

- All applicable QC controls are within the established limits.

Hexavalent Chromium – The hold time requirement for this analysis was met. A Duplicate, Matrix Spike, Blank and Laboratory Control Sample were analyzed with this delivery group. Analytical Note(s):

- All applicable 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. Analytical Note(s):

- Copper and Zinc were detected in the Blank and evaluated.
- Sodium – Exceeded spiking levels by a factor of 4. Spike recoveries and associated RPDs are not valid.
- All other applicable 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. Analytical Note(s):

- All applicable QC controls are within the established limits.

Radiochemistry Comments

Rad Chem – The hold time requirement for this analysis was met. A Duplicate, Matrix Spike (Matrix Spikes apply only to Technetium & Tritium), Blank and Laboratory Control Sample were analyzed with this delivery group. Analytical Note(s):

Tracers are used to determine chemical yield. RPD is monitored in sample duplicate and is not required for tracer recovery per SOW.

Gamma Energy Analysis:

- All applicable QC controls are within the established limits.

Gross Alpha / Gross Beta:

- Batch QC 210217

Attachment 2
Narrative
WSCF121423

- Gross Beta – Duplicate Relative Percent Difference(s) (RPD) did not meet the established laboratory limits. Duplicate Relative Percent Difference (RPD) does not apply to results below 5X the minimum detectable activity. No flags issued.
- All other applicable QC controls are within the established limits.

Strontium-89/90:

- All applicable QC controls are within the established limits.

Tritium:

- All applicable QC controls are within the established limits.

Technetium-99:

- All applicable 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 electronic signatures shown on the WSCF ANALYTICAL RESULTS REPORT.

DECEMBER 10, 2012

ATTACHMENT 3

ANALYTICAL RESULTS

Consisting of 50 pages
Including cover page

DECEMBER 10, 2012

WSCF ANALYTICAL RESULTS REPORT

For

CH2M Hill Plateau Remediation

PO Box 1600
Richland, WA 99352

Attention: Scot Fitzgerald

Contract # MOA-FH-CHPRC-2008
Group # WSCF121423
Report Date December 10, 2012

Analytical: Electronically signed by Joseph Hale

Client Services: Electronically signed by Marisol Avila

Solid samples results that have a 'Percent Solid' test are reported on a "dry weight basis", except results of TCLP, Percent Solid, and Total Activity. If no 'Percent Solid' test is reported then the results are reported on an "as received" basis.

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) 373-7005. Information designation of this report is the responsibility of the customer.

Batch QC List

Attention Scot Fitzgerald
 Department Inorganic

Group # WSCF121423

QC Batch	Analytical Batch	S#	Type	Sample #	Client Sample#	Original	Test
209872	209872	1	BLANK	84628	BLANK		Hexavalent chromium Discrete Analyzer
209872	209872	3	LCS	84630	LCS		Hexavalent chromium Discrete Analyzer
209872	209872	4	DUP	84631	B2MND8(121420001DUP	121420001	Hexavalent chromium Discrete Analyzer
209872	209872	5	MS	84632	B2MND8(121420001MS)	121420001	Hexavalent chromium Discrete Analyzer
209872	209872	11	SAMPLE	121423001	B2MXJ5		Hexavalent chromium Discrete Analyzer
209872	209872	12	SAMPLE	121423002	B2MR85		Hexavalent chromium Discrete Analyzer
209929	209929	2	BLANK	84713	BLANK		Anions by Ion Chromatography (Water)
209929	209929	3	LCS	84714	LCS		Anions by Ion Chromatography (Water)
209929	209929	4	DUP	84715	B2MRJ7(121410021DUP)	121410021	Anions by Ion Chromatography (Water)
209929	209929	5	MS	84716	B2MRJ7(121410021MS)	121410021	Anions by Ion Chromatography (Water)
209929	209929	6	MSD	84717	B2MRJ7(121410021MSD)	121410021	Anions by Ion Chromatography (Water)
209929	209929	18	SAMPLE	121423003	B2MXJ4		Anions by Ion Chromatography (Water)
209929	209929	19	SAMPLE	121423004	B2MR84		Anions by Ion Chromatography (Water)
210638	210817	5	BLANK	85340	BLANK		ICP-6010 - All possible metals
210638	210817	7	LCS	85342	LCS		ICP-6010 - All possible metals
210638	210817	8	SAMPLE	121423005	B2MR83		ICP-6010 - All possible metals
210638	210817	9	MS	85343	B2MR83(121423005MS)	121423005	ICP-6010 - All possible metals
210638	210817	10	MSD	85344	B2MR83(121423005MSD)	121423005	ICP-6010 - All possible metals
210638	210817	11	SAMPLE	121423006	B2MR86		ICP-6010 - All possible metals
210638	210817	12	SAMPLE	121423007	B2MXJ6		ICP-6010 - All possible metals
210638	210817	13	SAMPLE	121423008	B2MXJ3		ICP-6010 - All possible metals
210826	210924	4	BLANK	85610	BLANK		ICP-2008 MS All possible metal
210826	210924	5	LCS	85611	LCS		ICP-2008 MS All possible metal

DECEMBER 10, 2012

Batch QC List

Attention Scot Fitzgerald
Department Inorganic

Group # WSCF121423

QC Batch	Analytical Batch	S#	Type	Sample #	Client Sample#	Original	Test
210826	210924	7	MS	85612	B2MMJ7(121411010MS)	121411010	ICP-2008 MS All possible metal
210826	210924	8	MSD	85613	B2MMJ7(121411010MSD)	121411010	ICP-2008 MS All possible metal
210826	210924	16	SAMPLE	121423007	B2MXJ6		ICP-2008 MS All possible metal
210826	210924	17	SAMPLE	121423008	B2MXJ3		ICP-2008 MS All possible metal

Batch QC List

Attention Scot Fitzgerald
 Department Radiochemistry

Group # WSCF121423

QC Batch	Analytical Batch	S#	Type	Sample #	Client Sample#	Original	Test
209864	209945	1	BLANK	84577	BLANK		Tritium by LSC
209864	209945	2	LCS	84578	LCS		Tritium by LSC
209864	209945	4	DUP	84579	B2LF07(121414001DUP)	121414001	Tritium by LSC
209864	209945	5	MS	84580	B2LF07(121414001MS)	121414001	Tritium by LSC
209864	209945	10	SAMPLE	121423005	B2MR83		Tritium by LSC
209864	209945	12	SAMPLE	121423008	B2MXJ3		Tritium by LSC
209915	209939	1	BLANK	84679	BLANK		TC99 by Liquid Scintillation
209915	209939	2	LCS	84680	LCS		TC99 by Liquid Scintillation
209915	209939	4	DUP	84681	B2MNX8(121411014DUP)	121411014	TC99 by Liquid Scintillation
209915	209939	5	MS	84682	B2MNX8(121411014MS)	121411014	TC99 by Liquid Scintillation
209915	209939	10	SAMPLE	121423005	B2MR83		TC99 by Liquid Scintillation
209935	210032	1	IBLANK	84747	IBLANK		Gamma Energy Analysis-general
209935	210032	2	LCS	84748	LCS		Gamma Energy Analysis-general
209935	210032	3	DUP	84749	B2MR83(121423005DUP)	121423005	Gamma Energy Analysis-general
209935	210032	4	SAMPLE	121423005	B2MR83		Gamma Energy Analysis-general
209935	210032	7	SAMPLE	121423008	B2MXJ3		Gamma Energy Analysis-general
210115	210330	1	BLANK	84810	BLANK		TC99 by Liquid Scintillation
210115	210330	2	LCS	84811	LCS		TC99 by Liquid Scintillation
210115	210330	4	DUP	84812	B2MXL9(121439002DUP)	121439002	TC99 by Liquid Scintillation
210115	210330	5	MS	84813	B2MXL9(121439002MS)	121439002	TC99 by Liquid Scintillation
210115	210330	15	SAMPLE	121423008	B2MXJ3		TC99 by Liquid Scintillation
210217	210373	1	BLANK	84845	BLANK		GAB Discrete analysis Alpha only
210217	210373	2	LCS	84846	LCS		GAB Discrete analysis Alpha only

DECEMBER 10, 2012

Batch QC List

Attention Scot Fitzgerald
Department Radiochemistry

Group # WSCF121423

QC Batch	Analytical Batch	S#	Type	Sample #	Client Sample#	Original	Test
210217	210373	3	SAMPLE	121423005	B2MR83		GAB Discrete analysis Alpha only
210217	210373	4	DUP	84847	B2MR83(121423005DUP) 121423005		GAB Discrete analysis Alpha only
210217	210378	1	BLANK	84845	BLANK		GAB Discrete analysis Beta only
210217	210378	2	LCS	84846	LCS		GAB Discrete analysis Beta only
210217	210378	3	SAMPLE	121423005	B2MR83		GAB Discrete analysis Beta only
210217	210378	4	DUP	84847	B2MR83(121423005DUP) 121423005		GAB Discrete analysis Beta only
210218	210645	1	BLANK	84848	BLANK		GAB Discrete analysis Alpha only
210218	210645	2	LCS	84849	LCS		GAB Discrete analysis Alpha only
210218	210645	4	DUP	84850	B2MK80(121444006DUP) 121444006		GAB Discrete analysis Alpha only
210218	210645	11	SAMPLE	121423008	B2MXJ3		GAB Discrete analysis Alpha only
210218	210646	1	BLANK	84848	BLANK		GAB Discrete analysis Beta only
210218	210646	2	LCS	84849	LCS		GAB Discrete analysis Beta only
210218	210646	4	DUP	84850	B2MK80(121444006DUP) 121444006		GAB Discrete analysis Beta only
210218	210646	11	SAMPLE	121423008	B2MXJ3		GAB Discrete analysis Beta only
210239	210915	1	BLANK	84908	BLANK		Strontium 89/90 (GPC/GEA)
210239	210915	2	LCS	84909	LCS		Strontium 89/90 (GPC/GEA)
210239	210915	3	DUP	84910	B2MPD0(121411001DUP) 121411001		Strontium 89/90 (GPC/GEA)
210239	210915	9	SAMPLE	121423005	B2MR83		Strontium 89/90 (GPC/GEA)
210634	211034	1	BLANK	85324	BLANK		Strontium 89/90 (GPC/GEA)
210634	211034	2	LCS	85325	LCS		Strontium 89/90 (GPC/GEA)
210634	211034	3	DUP	85326	B2MXJ3(121423008DUP) 121423008		Strontium 89/90 (GPC/GEA)
210634	211034	4	SAMPLE	121423008	B2MXJ3		Strontium 89/90 (GPC/GEA)

Attention Scot Fitzgerald
Department Inorganic

Group # WSCF121423

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, industry methods or HEIS 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 WSCF procedure may reference an older version of the method. Also, a reference to a regulatory or industry method here does not necessarily indicate a verbatim implementation of that method.

LA-265-403	Hexavalent Chromium Analysis		
	EPA SW-846	7196A	Hexavalent Chromium
	HEIS	7196_CR6	Hexavalent Chromium
LA-505-411	Elemental Analysis by ICP Atomic Emission Spectroscopy (ICP AES)		
	EPA SW-846	6010C	Inductively Coupled Plasma-Atomic Emmision Spectrometry
	HEIS	6010_METALS_ICP	Inductively Coupled Plasma-Atomic Emmision Spectrometry
LA-505-412	Determination of Trace Elements in Waters & Wastes by ICP Mass Spectrometry		
	EPA-600/R-94-111	200.8	Determination of Trace Elements in Waters and Waste by Inductively Coupled Plasma
	HEIS	200.8_METALS_ICPMS	Determination of Trace Elements in Waters and Waste by Inductively Coupled Plasma, Mass Spec.
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 reference regulatory or industry methods is available online at <http://www7.rl.gov/rapidweb/AS-DOL/index.cfm>

Attention	Scot Fitzgerald	Group #	WSCF121423
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, industry methods or HEIS 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 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-220-406	Strontium-89 and 90 in Aqueous Samples by SR-SPEC Separation		
	HEIS	SRTOT_SEP_PRECIP_GPC	Strontium 89/90, by Sr-Spec Sep.
LA-508-481	Gamma Energy Analysis using the Canberra Genie Ssystem		
	HEIS	GAMMA_GS	Gamma Energy Analysis
LA-508-421	Operation of the Tri-Carb Model 2500TR Liquid Scintillation Analyzer		
	HEIS	ALPHA_LSC	A/B Liquid Scintillation
	HEIS	BETA_LSC	A/B Liquid Scintillation
	HEIS	TC99_3MDSK_LSC	TC99 by Liquid Scintillation
	HEIS	TRITIUM_EIE_LSC	Tritium, by Eichrome ion exchange, LSC
LA-508-415	Operation Of The Protean 2-Inch Alpha/Beta Counting System For Gross Alpha/ Beta Samples		
	HEIS	ALPHA_GPC	Gross Alpha by GPC
	HEIS	BETA_GPC	Gross Beta by GPC
	HEIS	SRTOT_SEP_PRECIP_GPC	Strontium beta isotopic, GPC

Note: A complete list of WSCF analytical procedures and reference regulatory or industry methods is available online at <http://www7.rl.gov/rapidweb/AS-DOL/index.cfm>

Attention Scot Fitzgerald
Department Inorganic

Group # WSCF121423

Sample # 121423001
SAF# I13-006
Sample ID B2MXJ5

Matrix WATER
Sampled 11/06/12
Received 11/06/12

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
11/06/12										
Hexavalent chromium Discrete Analyzer										
Hexavalent chromium 18540-29-9 LA-265-403 U <0.0020 mg/L 1 0.0020 0.0050 11/06/12										

MDL = Minimum Detection Limit

RQ = Result Qualifier

TP Err = Total Propagated Error

DF = Dilution Factor

+ - Indicates more than nine qualifier

B - Analyte < the PQL(or EQL)but >= the IDL/MDL(Inorganic)

C - Analyte was found in the Associated Blank. (Inorganic)

D - Analyte was reported at a secondary dilution factor.

E - Analyte is an estimate, see comment section.

N - MS and/or MSD recovery outside control limits.

U - Analyzed for but not detected above limiting criteria.

X,Y or Z - See comment detail and/or narrative.

PQL is equivalent to Estimated Quantitation Limit (EQL)

o - LCS recovery outside established laboratory acceptance limits.

o - LCS recovery outside established laboratory acceptance limits.

Attention Scot Fitzgerald
Department Inorganic

Group # WSCF121423

Sample # 121423002
SAF# I13-002
Sample ID B2MR85

Matrix WATER
Sampled 11/06/12
Received 11/06/12

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
11/06/12										
Hexavalent chromium Discrete Analyzer										
Hexavalent chromium	18540-29-9	LA-265-403		0.00530		mg/L	1	0.0020	0.0050	11/06/12

MDL = Minimum Detection Limit

RQ = Result Qualifier

TP Err = Total Propagated Error

DF = Dilution Factor

+ - Indicates more than nine qualifier

B - Analyte < the PQL(or EQL)but >= the IDL/MDL(Inorganic)

C - Analyte was found in the Associated Blank. (Inorganic)

D - Analyte was reported at a secondary dilution factor.

E - Analyte is an estimate, see comment section.

N - MS and/or MSD recovery outside control limits.

U - Analyzed for but not detected above limiting criteria.

X,Y or Z - See comment detail and/or narrative.

PQL is equivalent to Estimated Quantitation Limit (EQL)

o - LCS recovery outside established laboratory acceptance limits.

o - LCS recovery outside established laboratory acceptance limits.

Attention Scot Fitzgerald
Department Inorganic

Group # WSCF121423

Sample # 121423003
SAF# I13-006
Sample ID B2MXJ4

Matrix WATER
Sampled 11/06/12
Received 11/06/12

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
11/06/12										
Anions by Ion Chromatography (Water)										
Fluoride	16984-48-8	LA-533-410	UD	<0.046		ug/mL	2	0.046	0.14	11/06/12
Chloride	16887-00-6	LA-533-410	D	62.1		ug/mL	2	0.12	0.81	11/06/12
Nitrite-N	NO2-N	LA-533-410	BD	0.0891		ug/mL	2	0.038	0.20	11/06/12
Nitrate-N	NO3-N	LA-533-410	D	5.37		ug/mL	2	0.038	0.20	11/06/12
Sulfate	14808-79-8	LA-533-410	D	156		ug/mL	2	0.22	2.1	11/06/12

MDL = Minimum Detection Limit

RQ = Result Qualifier

TP Err = Total Propagated Error

DF = Dilution Factor

+ - Indicates more than nine qualifier

B - Analyte < the PQL(or EQL)but >= the IDL/MDL(Inorganic)

C - Analyte was found in the Associated Blank. (Inorganic)

D - Analyte was reported at a secondary dilution factor.

E - Analyte is an estimate, see comment section.

N - MS and/or MSD recovery outside control limits.

U - Analyzed for but not detected above limiting criteria.

X,Y or Z - See comment detail and/or narrative.

PQL is equivalent to Estimated Quantitation Limit (EQL)

o - LCS recovery outside established laboratory acceptance limits.

o - LCS recovery outside established laboratory acceptance limits.

Attention Scot Fitzgerald
Department Inorganic

Group # WSCF121423

Sample # 121423004
SAF# I13-002
Sample ID B2MR84

Matrix WATER
Sampled 11/06/12
Received 11/06/12

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
11/06/12										
Anions by Ion Chromatography (Water)										
Fluoride	16984-48-8	LA-533-410	D	0.282		ug/mL	2	0.046	0.14	11/06/12
Chloride	16887-00-6	LA-533-410	D	19.5		ug/mL	2	0.12	0.81	11/06/12
Nitrite-N	NO2-N	LA-533-410	UD	<0.038		ug/mL	2	0.038	0.20	11/06/12
Nitrate-N	NO3-N	LA-533-410	D	3.64		ug/mL	2	0.038	0.20	11/06/12
Sulfate	14808-79-8	LA-533-410	D	65.9		ug/mL	2	0.22	2.1	11/06/12

MDL = Minimum Detection Limit

RQ = Result Qualifier

TP Err = Total Propagated Error

DF = Dilution Factor

+ - Indicates more than nine qualifier

B - Analyte < the PQL(or EQL)but >= the IDL/MDL(Inorganic)

C - Analyte was found in the Associated Blank. (Inorganic)

D - Analyte was reported at a secondary dilution factor.

E - Analyte is an estimate, see comment section.

N - MS and/or MSD recovery outside control limits.

U - Analyzed for but not detected above limiting criteria.

X,Y or Z - See comment detail and/or narrative.

PQL is equivalent to Estimated Quantitation Limit (EQL)

o - LCS recovery outside established laboratory acceptance limits.

o - LCS recovery outside established laboratory acceptance limits.

Attention Scot Fitzgerald
Department Inorganic

Group # WSCF121423

Sample # 121423005
SAF# I13-002
Sample ID B2MR83

Matrix WATER
Sampled 11/06/12
Received 11/06/12

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
ICPAES Prep (W)										11/26/12
ICP-6010 - All possible metals										
Iron	7439-89-6	LA-505-411	U	<19		ug/L	1	19	95	11/28/12
Magnesium	7439-95-4	LA-505-411		9760		ug/L	1	4.0	20	11/28/12
Manganese	7439-96-5	LA-505-411	U	<4.0		ug/L	1	4.0	20	11/28/12
Nickel	7440-02-0	LA-505-411	B	4.40		ug/L	1	4.0	20	11/28/12
Potassium	7440-09-7	LA-505-411		4920		ug/L	1	76	380	11/28/12
Silver	7440-22-4	LA-505-411	U	<4.0		ug/L	1	4.0	20	11/28/12
Sodium	7440-23-5	LA-505-411		43100		ug/L	1	10	50	11/28/12
Antimony	7440-36-0	LA-505-411	U	<36		ug/L	1	36	180	11/28/12
Barium	7440-39-3	LA-505-411		29.9		ug/L	1	4.0	20	11/28/12
Cadmium	7440-43-9	LA-505-411	U	<4.0		ug/L	1	4.0	20	11/28/12
Chromium	7440-47-3	LA-505-411	B	9.20		ug/L	1	5.0	25	11/28/12
Cobalt	7440-48-4	LA-505-411	U	<4.0		ug/L	1	4.0	20	11/28/12
Copper	7440-50-8	LA-505-411	U	<4.0		ug/L	1	4.0	20	11/28/12
Vanadium	7440-62-2	LA-505-411	B	21.2		ug/L	1	5.0	25	11/28/12
Zinc	7440-66-6	LA-505-411	U	<5.0		ug/L	1	5.0	25	11/28/12
Calcium	7440-70-2	LA-505-411		35000		ug/L	1	49	240	11/28/12
Strontium	7440-24-6	LA-505-411		221		ug/L	1	9.0	45	11/28/12

MDL = Minimum Detection Limit

B - Analyte < the PQL(or EQL)but >= the IDL/MDL(Inorganic)

U - Analyzed for but not detected above limiting criteria.

RQ = Result Qualifier

C - Analyte was found in the Associated Blank. (Inorganic)

X,Y or Z - See comment detail and/or narrative.

TP Err = Total Propagated Error

D - Analyte was reported at a secondary dilution factor.

PQL is equivalent to Estimated Quantitation Limit (EQL)

DF = Dilution Factor

E - Analyte is an estimate, see comment section.

o - LCS recovery outside established laboratory acceptance limits.

+ - Indicates more than nine qualifier

N - MS and/or MSD recovery outside control limits.

o - LCS recovery outside established laboratory acceptance limits.

Attention Scot Fitzgerald
Department Inorganic

Group # WSCF121423

Sample # 121423005
SAF# I13-002
Sample ID B2MR83

Matrix WATER
Sampled 11/06/12
Received 11/06/12

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
Beryllium	7440-41-7	LA-505-411	U	<4.0		ug/L	1	4.0	20	11/28/12

MDL = Minimum Detection Limit

RQ = Result Qualifier

TP Err = Total Propagated Error

DF = Dilution Factor

+ - Indicates more than nine qualifier

B - Analyte < the PQL(or EQL)but >= the IDL/MDL(Inorganic)

C - Analyte was found in the Associated Blank. (Inorganic)

D - Analyte was reported at a secondary dilution factor.

E - Analyte is an estimate, see comment section.

N - MS and/or MSD recovery outside control limits.

U - Analyzed for but not detected above limiting criteria.

X,Y or Z - See comment detail and/or narrative.

PQL is equivalent to Estimated Quantitation Limit (EQL)

o - LCS recovery outside established laboratory acceptance limits.

o - LCS recovery outside established laboratory acceptance limits.

Attention Scot Fitzgerald
Department Inorganic

Group # WSCF121423

Sample #	121423006	Matrix	WATER
SAF#	I13-002	Sampled	11/06/12
Sample ID	B2MR86	Received	11/06/12

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
ICPAES Prep (W)										11/26/12
ICP-6010 - All possible metals										
Iron	7439-89-6	LA-505-411	U	<19		ug/L	1	19	95	11/28/12
Magnesium	7439-95-4	LA-505-411		9030		ug/L	1	4.0	20	11/28/12
Manganese	7439-96-5	LA-505-411	U	<4.0		ug/L	1	4.0	20	11/28/12
Nickel	7440-02-0	LA-505-411	U	<4.0		ug/L	1	4.0	20	11/28/12
Potassium	7440-09-7	LA-505-411		4790		ug/L	1	76	380	11/28/12
Silver	7440-22-4	LA-505-411	U	<4.0		ug/L	1	4.0	20	11/28/12
Sodium	7440-23-5	LA-505-411		42700		ug/L	1	10	50	11/28/12
Antimony	7440-36-0	LA-505-411	U	<36		ug/L	1	36	180	11/28/12
Barium	7440-39-3	LA-505-411		27.6		ug/L	1	4.0	20	11/28/12
Cadmium	7440-43-9	LA-505-411	U	<4.0		ug/L	1	4.0	20	11/28/12
Chromium	7440-47-3	LA-505-411	B	7.30		ug/L	1	5.0	25	11/28/12
Cobalt	7440-48-4	LA-505-411	U	<4.0		ug/L	1	4.0	20	11/28/12
Copper	7440-50-8	LA-505-411	U	<4.0		ug/L	1	4.0	20	11/28/12
Vanadium	7440-62-2	LA-505-411	B	19.5		ug/L	1	5.0	25	11/28/12
Zinc	7440-66-6	LA-505-411	U	<5.0		ug/L	1	5.0	25	11/28/12
Calcium	7440-70-2	LA-505-411		32000		ug/L	1	49	240	11/28/12
Strontium	7440-24-6	LA-505-411		209		ug/L	1	9.0	45	11/28/12

MDL = Minimum Detection Limit

B - Analyte < the PQL(or EQL)but >= the IDL/MDL(Inorganic)

U - Analyzed for but not detected above limiting criteria.

RQ = Result Qualifier

C - Analyte was found in the Associated Blank. (Inorganic)

X,Y or Z - See comment detail and/or narrative.

TP Err = Total Propagated Error

D - Analyte was reported at a secondary dilution factor.

PQL is equivalent to Estimated Quantitation Limit (EQL)

DF = Dilution Factor

E - Analyte is an estimate, see comment section.

o - LCS recovery outside established laboratory acceptance limits.

+ - Indicates more than nine qualifier

N - MS and/or MSD recovery outside control limits.

o - LCS recovery outside established laboratory acceptance limits.

Attention Scot Fitzgerald
Department Inorganic

Group # WSCF121423

Sample # 121423006
SAF# I13-002
Sample ID B2MR86

Matrix WATER
Sampled 11/06/12
Received 11/06/12

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
Beryllium	7440-41-7	LA-505-411	U	<4.0		ug/L	1	4.0	20	11/28/12

MDL = Minimum Detection Limit

RQ = Result Qualifier

TP Err = Total Propagated Error

DF = Dilution Factor

+ - Indicates more than nine qualifier

B - Analyte < the PQL(or EQL)but >= the IDL/MDL(Inorganic)

C - Analyte was found in the Associated Blank. (Inorganic)

D - Analyte was reported at a secondary dilution factor.

E - Analyte is an estimate, see comment section.

N - MS and/or MSD recovery outside control limits.

U - Analyzed for but not detected above limiting criteria.

X,Y or Z - See comment detail and/or narrative.

PQL is equivalent to Estimated Quantitation Limit (EQL)

o - LCS recovery outside established laboratory acceptance limits.

o - LCS recovery outside established laboratory acceptance limits.

Attention Scot Fitzgerald
Department Inorganic

Group #

WSCF121423

Sample # 121423007
SAF# I13-006
Sample ID B2MXJ6

Matrix WATER
Sampled 11/06/12
Received 11/06/12

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
ICPAES Prep (W)										11/26/12
ICP-6010 - All possible metals										
Iron	7439-89-6	LA-505-411	B	27.7		ug/L	1	19	95	11/28/12
Magnesium	7439-95-4	LA-505-411		23400		ug/L	1	4.0	20	11/28/12
Manganese	7439-96-5	LA-505-411		225		ug/L	1	4.0	20	11/28/12
Nickel	7440-02-0	LA-505-411		46.3		ug/L	1	4.0	20	11/28/12
Potassium	7440-09-7	LA-505-411		9210		ug/L	1	76	380	11/28/12
Silver	7440-22-4	LA-505-411	U	<4.0		ug/L	1	4.0	20	11/28/12
Sodium	7440-23-5	LA-505-411		87400		ug/L	1	10	50	11/28/12
Antimony	7440-36-0	LA-505-411	U	<36		ug/L	1	36	180	11/28/12
Barium	7440-39-3	LA-505-411		23.6		ug/L	1	4.0	20	11/28/12
Cadmium	7440-43-9	LA-505-411		23.7		ug/L	1	4.0	20	11/28/12
Chromium	7440-47-3	LA-505-411	U	<5.0		ug/L	1	5.0	25	11/28/12
Cobalt	7440-48-4	LA-505-411	U	<4.0		ug/L	1	4.0	20	11/28/12
Copper	7440-50-8	LA-505-411	U	<4.0		ug/L	1	4.0	20	11/28/12
Vanadium	7440-62-2	LA-505-411	U	<5.0		ug/L	1	5.0	25	11/28/12
Zinc	7440-66-6	LA-505-411	C	41.3		ug/L	1	5.0	25	11/28/12
Calcium	7440-70-2	LA-505-411		68400		ug/L	1	49	240	11/28/12
Strontium	7440-24-6	LA-505-411		336		ug/L	1	9.0	45	11/28/12

MDL = Minimum Detection Limit

B - Analyte < the PQL(or EQL)but >= the IDL/MDL(Inorganic)

U - Analyzed for but not detected above limiting criteria.

RQ = Result Qualifier

C - Analyte was found in the Associated Blank. (Inorganic)

X,Y or Z - See comment detail and/or narrative.

TP Err = Total Propagated Error

D - Analyte was reported at a secondary dilution factor.

PQL is equivalent to Estimated Quantitation Limit (EQL)

DF = Dilution Factor

E - Analyte is an estimate, see comment section.

o - LCS recovery outside established laboratory acceptance limits.

+ - Indicates more than nine qualifier

N - MS and/or MSD recovery outside control limits.

o - LCS recovery outside established laboratory acceptance limits.

Attention Scot Fitzgerald
Department Inorganic

Group # WSCF121423

Sample # 121423007
SAF# I13-006
Sample ID B2MXJ6

Matrix WATER
Sampled 11/06/12
Received 11/06/12

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
Beryllium	7440-41-7	LA-505-411	U	<4.0		ug/L	1	4.0	20	11/28/12
ICPMS Prep (W)										11/28/12
ICP-2008 MS All possible metal										
Aluminum	7429-90-5	LA-505-412	UD	<10		ug/L	2	10	100	11/29/12
Silver	7440-22-4	LA-505-412	UD	<0.10		ug/L	2	0.10	1.0	11/29/12
Antimony	7440-36-0	LA-505-412	UD	<0.60		ug/L	2	0.60	6.0	11/29/12
Barium	7440-39-3	LA-505-412	D	85.1		ug/L	2	0.40	4.0	11/29/12
Beryllium	7440-41-7	LA-505-412	UD	<0.20		ug/L	2	0.20	2.0	11/29/12
Cadmium	7440-43-9	LA-505-412	UD	<0.10		ug/L	2	0.10	1.0	11/29/12
Chromium	7440-47-3	LA-505-412	D	47.9		ug/L	2	0.20	2.0	11/29/12
Cobalt	7440-48-4	LA-505-412	BD	0.256		ug/L	2	0.10	0.50	11/29/12
Copper	7440-50-8	LA-505-412	BD	0.542		ug/L	2	0.20	2.0	11/29/12
Lead	7439-92-1	LA-505-412	UD	<0.10		ug/L	2	0.10	1.0	11/29/12
Molybdenum	7439-98-7	LA-505-412	D	3.87		ug/L	2	0.10	1.0	11/29/12
Thallium	7440-28-0	LA-505-412	UD	<0.10		ug/L	2	0.10	1.0	11/29/12
Tin	7440-31-5	LA-505-412	UD	<0.10		ug/L	2	0.10	1.0	11/29/12
Arsenic	7440-38-2	LA-505-412	BD	1.67		ug/L	2	0.40	4.0	11/29/12
Selenium	7782-49-2	LA-505-412	BD	3.42		ug/L	2	2.0	20	11/29/12

MDL = Minimum Detection Limit

RQ = Result Qualifier

TP Err = Total Propagated Error

DF = Dilution Factor

+ - Indicates more than nine qualifier

B - Analyte < the PQL(or EQL)but >= the IDL/MDL(Inorganic)

C - Analyte was found in the Associated Blank. (Inorganic)

D - Analyte was reported at a secondary dilution factor.

E - Analyte is an estimate, see comment section.

N - MS and/or MSD recovery outside control limits.

U - Analyzed for but not detected above limiting criteria.

X,Y or Z - See comment detail and/or narrative.

PQL is equivalent to Estimated Quantitation Limit (EQL)

o - LCS recovery outside established laboratory acceptance limits.

o - LCS recovery outside established laboratory acceptance limits.

Attention Scot Fitzgerald
Department Inorganic

Group # WSCF121423

Sample #	121423008	Matrix	WATER
SAF#	I13-006	Sampled	11/06/12
Sample ID	B2MXJ3	Received	11/06/12

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
ICPAES Prep (W)										11/26/12
ICP-6010 - All possible metals										
Iron	7439-89-6	LA-505-411		412		ug/L	1	19	95	11/28/12
Magnesium	7439-95-4	LA-505-411		23000		ug/L	1	4.0	20	11/28/12
Manganese	7439-96-5	LA-505-411		227		ug/L	1	4.0	20	11/28/12
Nickel	7440-02-0	LA-505-411		57.5		ug/L	1	4.0	20	11/28/12
Potassium	7440-09-7	LA-505-411		9230		ug/L	1	76	380	11/28/12
Silver	7440-22-4	LA-505-411	U	<4.0		ug/L	1	4.0	20	11/28/12
Sodium	7440-23-5	LA-505-411		86600		ug/L	1	10	50	11/28/12
Antimony	7440-36-0	LA-505-411	U	<36		ug/L	1	36	180	11/28/12
Barium	7440-39-3	LA-505-411		23.7		ug/L	1	4.0	20	11/28/12
Cadmium	7440-43-9	LA-505-411		25.0		ug/L	1	4.0	20	11/28/12
Chromium	7440-47-3	LA-505-411		52.1		ug/L	1	5.0	25	11/28/12
Cobalt	7440-48-4	LA-505-411	U	<4.0		ug/L	1	4.0	20	11/28/12
Copper	7440-50-8	LA-505-411	BC	8.50		ug/L	1	4.0	20	11/28/12
Vanadium	7440-62-2	LA-505-411	U	<5.0		ug/L	1	5.0	25	11/28/12
Zinc	7440-66-6	LA-505-411	C	43.1		ug/L	1	5.0	25	11/28/12
Calcium	7440-70-2	LA-505-411		67500		ug/L	1	49	240	11/28/12
Strontium	7440-24-6	LA-505-411		327		ug/L	1	9.0	45	11/28/12

MDL = Minimum Detection Limit

RQ = Result Qualifier

TP Err = Total Propagated Error

DF = Dilution Factor

+ - Indicates more than nine qualifier

B - Analyte < the PQL(or EQL)but >= the IDL/MDL(Inorganic)

C - Analyte was found in the Associated Blank. (Inorganic)

D - Analyte was reported at a secondary dilution factor.

E - Analyte is an estimate, see comment section.

N - MS and/or MSD recovery outside control limits.

U - Analyzed for but not detected above limiting criteria.

X,Y or Z - See comment detail and/or narrative.

PQL is equivalent to Estimated Quantitation Limit (EQL)

o - LCS recovery outside established laboratory acceptance limits.

o - LCS recovery outside established laboratory acceptance limits.

Attention Scot Fitzgerald
Department Inorganic

Group # WSCF121423

Sample # 121423008
SAF# I13-006
Sample ID B2MXJ3

Matrix WATER
Sampled 11/06/12
Received 11/06/12

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
Beryllium	7440-41-7	LA-505-411	U	<4.0		ug/L	1	4.0	20	11/28/12
ICPMS Prep (W)										
ICP-2008 MS All possible metal										
Aluminum	7429-90-5	LA-505-412	UD	<10		ug/L	2	10	100	11/29/12
Silver	7440-22-4	LA-505-412	UD	<0.10		ug/L	2	0.10	1.0	11/29/12
Antimony	7440-36-0	LA-505-412	UD	<0.60		ug/L	2	0.60	6.0	11/29/12
Barium	7440-39-3	LA-505-412	D	26.3		ug/L	2	0.40	4.0	11/29/12
Beryllium	7440-41-7	LA-505-412	UD	<0.20		ug/L	2	0.20	2.0	11/29/12
Cadmium	7440-43-9	LA-505-412	D	26.7		ug/L	2	0.10	1.0	11/29/12
Chromium	7440-47-3	LA-505-412	D	2.26		ug/L	2	0.20	2.0	11/29/12
Cobalt	7440-48-4	LA-505-412	D	1.27		ug/L	2	0.10	0.50	11/29/12
Copper	7440-50-8	LA-505-412	D	13.1		ug/L	2	0.20	2.0	11/29/12
Lead	7439-92-1	LA-505-412	UD	<0.10		ug/L	2	0.10	1.0	11/29/12
Molybdenum	7439-98-7	LA-505-412	D	1.73		ug/L	2	0.10	1.0	11/29/12
Thallium	7440-28-0	LA-505-412	UD	<0.10		ug/L	2	0.10	1.0	11/29/12
Tin	7440-31-5	LA-505-412	UD	<0.10		ug/L	2	0.10	1.0	11/29/12
Arsenic	7440-38-2	LA-505-412	BD	0.552		ug/L	2	0.40	4.0	11/29/12
Selenium	7782-49-2	LA-505-412	UD	<2.0		ug/L	2	2.0	20	11/29/12

MDL = Minimum Detection Limit

RQ = Result Qualifier

TP Err = Total Propagated Error

DF = Dilution Factor

+ - Indicates more than nine qualifier

B - Analyte < the PQL(or EQL)but >= the IDL/MDL(Inorganic)

C - Analyte was found in the Associated Blank. (Inorganic)

D - Analyte was reported at a secondary dilution factor.

E - Analyte is an estimate, see comment section.

N - MS and/or MSD recovery outside control limits.

U - Analyzed for but not detected above limiting criteria.

X,Y or Z - See comment detail and/or narrative.

PQL is equivalent to Estimated Quantitation Limit (EQL)

o - LCS recovery outside established laboratory acceptance limits.

o - LCS recovery outside established laboratory acceptance limits.

Attention Scot Fitzgerald
Department Radiochemistry

Group # WSCF121423

Sample # 121423005
SAF# I13-002
Sample ID B2MR83

Matrix WATER
Sampled 11/06/12
Received 11/06/12

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
GAB Prep for Discrete Analysis (W)										11/16/12
GAB Discrete analysis Alpha only										
Gross Alpha	12587-46-1	LA-508-415	U	1.6	1.7	pCi/L	1	2.7		11/26/12
GAB Discrete analysis Beta only										
Gross Beta	12587-47-2	LA-508-415		9.0	2.8	pCi/L	1	3.8		11/26/12
Preparation for GEA (W)										11/08/12
Gamma Energy Analysis-general										
Antimony-125	14234-35-6	LA-508-481	U	8.2	13	pCi/L	1	25		11/12/12
Cesium-134	13967-70-9	LA-508-481	U	-15	32	pCi/L	1	55		11/12/12
Cesium-137	10045-97-3	LA-508-481	U	0.84	4.7	pCi/L	1	7.7		11/12/12
Cobalt-60	10198-40-0	LA-508-481	U	0.63	4	pCi/L	1	7.8		11/12/12
Europium-152	14683-23-9	LA-508-481	U	-6.1	16	pCi/L	1	28		11/12/12
Europium-154	15585-10-1	LA-508-481	U	-8.3	14	pCi/L	1	23		11/12/12
Europium-155	14391-16-3	LA-508-481	U	-0.43	17	pCi/L	1	29		11/12/12
Potassium-40	13966-00-2	LA-508-481	U	-43	73	pCi/L	1	160		11/12/12
Ruthenium-106	13967-48-1	LA-508-481	U	5.8	43	pCi/L	1	76		11/12/12
Beryllium-7	13966-02-4	LA-508-481	U	-37	40	pCi/L	1	66		11/12/12
Strontium 89/90 WATER/LIQUID PREP										11/28/12
Strontium 89/90 (GPC/GEA)										

MDL = Minimum Detection Limit

RQ = Result Qualifier

TP Err = Total Propagated Error

DF = Dilution Factor

+ - Indicates more than nine qualifier

B - Analyte was detected in both the BLANK and SAMPLE

U - Analyzed for but not detected above limiting criteria.

N - Spike Recovery is Outside Control Limits.

X,Y or Z - See comment detail and/or narrative.

PQL is equivalent to Estimated Quantitation Limit (EQL)

o - LCS recovery outside established laboratory acceptance limits.

Attention Scot Fitzgerald
Department Radiochemistry

Group # WSCF121423

Sample # 121423005
SAF# I13-002
Sample ID B2MR83

Matrix WATER
Sampled 11/06/12
Received 11/06/12

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
Strontium-89_90	SR-RAD	LA-220-406	U	-0.75	.63	pCi/L	1	1.2		12/04/12
TC99 by Liquid Scin. WATER/LIQUID PREP										
TC99 by Liquid Scintillation										
Technetium-99	14133-76-7	LA-508-421	U	-0.80	4	pCi/L	1	6.7		11/11/12
Tritium by LSC EICHROM WA/LIQ PREP										
Tritium by LSC										
Tritium	10028-17-8	LA-508-421		2000	480	pCi/L	1	300		11/12/12

MDL = Minimum Detection Limit

RQ = Result Qualifier

TP Err = Total Propagated Error

DF = Dilution Factor

+ - Indicates more than nine qualifier

B - Analyte was detected in both the BLANK and SAMPLE

U - Analyzed for but not detected above limiting criteria.

N - Spike Recovery is Outside Control Limits.

X,Y or Z - See comment detail and/or narrative.

PQL is equivalent to Estimated Quantitation Limit (EQL)

o - LCS recovery outside established laboratory acceptance limits.

Attention Scot Fitzgerald
Department Radiochemistry

Group # WSCF121423

Sample # 121423008
SAF# I13-006
Sample ID B2MXJ3

Matrix WATER
Sampled 11/06/12
Received 11/06/12

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
GAB Prep for Discrete Analysis (W)										11/20/12
GAB Discrete analysis Alpha only										
Gross Alpha	12587-46-1	LA-508-415	U	2.7	3.8	pCi/L	1	6.3		12/03/12
GAB Discrete analysis Beta only										
Gross Beta	12587-47-2	LA-508-415		9.9	5.4	pCi/L	1	8.3		12/03/12
Preparation for GEA (W)										11/08/12
Gamma Energy Analysis-general										
Antimony-125	14234-35-6	LA-508-481	U	0.53	15	pCi/L	1	27		11/13/12
Cesium-134	13967-70-9	LA-508-481	U	-52	33	pCi/L	1	50		11/13/12
Cesium-137	10045-97-3	LA-508-481	U	-3.4	5.5	pCi/L	1	9.0		11/13/12
Cobalt-60	10198-40-0	LA-508-481	U	4.3	4.8	pCi/L	1	9.8		11/13/12
Europium-152	14683-23-9	LA-508-481	U	2.0	16	pCi/L	1	29		11/13/12
Europium-154	15585-10-1	LA-508-481	U	-5.7	13	pCi/L	1	23		11/13/12
Europium-155	14391-16-3	LA-508-481	U	-12	18	pCi/L	1	30		11/13/12
Potassium-40	13966-00-2	LA-508-481	U	-34	81	pCi/L	1	170		11/13/12
Ruthenium-106	13967-48-1	LA-508-481	U	7.1	49	pCi/L	1	86		11/13/12
Beryllium-7	13966-02-4	LA-508-481	U	11	47	pCi/L	1	84		11/13/12
Strontium 89/90 WATER/LIQUID PREP										11/29/12
Strontium 89/90 (GPC/GEA)										

MDL = Minimum Detection Limit

B - Analyte was detected in both the BLANK and SAMPLE

RQ = Result Qualifier

U - Analyzed for but not detected above limiting criteria.

TP Err = Total Propagated Error

N - Spike Recovery is Outside Control Limits.

DF = Dilution Factor

X,Y or Z - See comment detail and/or narrative.

+ - Indicates more than nine qualifier

PQL is equivalent to Estimated Quantitation Limit (EQL)

o - LCS recovery outside established laboratory acceptance limits.

Attention Scot Fitzgerald
Department Radiochemistry

Group # WSCF121423

Sample # 121423008
SAF# I13-006
Sample ID B2MXJ3

Matrix WATER
Sampled 11/06/12
Received 11/06/12

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
Strontium-89_90	SR-RAD	LA-220-406	U	0.11	.53	pCi/L	1	0.92		12/04/12
TC99 by Liquid Scin. WATER/LIQUID PREP										11/13/12
TC99 by Liquid Scintillation										
Technetium-99	14133-76-7	LA-508-421	U	-0.70	3.4	pCi/L	1	5.6		11/14/12
Tritium by LSC EICHROM WA/LIQ PREP										11/07/12
Tritium by LSC										
Tritium	10028-17-8	LA-508-421		300	210	pCi/L	1	300		11/12/12

MDL = Minimum Detection Limit

RQ = Result Qualifier

TP Err = Total Propagated Error

DF = Dilution Factor

+ - Indicates more than nine qualifier

B - Analyte was detected in both the BLANK and SAMPLE

U - Analyzed for but not detected above limiting criteria.

N - Spike Recovery is Outside Control Limits.

X,Y or Z - See comment detail and/or narrative.

PQL is equivalent to Estimated Quantitation Limit (EQL)

o - LCS recovery outside established laboratory acceptance limits.

Quality Control Report

DECEMBER 10, 2012

Attention Scot Fitzgerald
Department Inorganic

Group # WSCF121423

Analytical Batch 209872 (QC Batch: 209872) Test Hexavalent chromium Discrete Analyzer
Associated Samples 121423001, 121423002

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed		
BLANK		QC Sample #84628										
Hexavalent chromium	18540-29-9		<0.0020	mg/L					U	11/06/12		
LCS			QC Sample #84630									
Hexavalent chromium	18540-29-9		0.0507	mg/L	101.4	90 - 110				11/06/12		
DUP			QC Sample #84631									
			Original 121420001									
Hexavalent chromium	18540-29-9		0.0640	mg/L			0.90	20		11/06/12		
MS			QC Sample #84632									
			Original 121420001									
Hexavalent chromium	18540-29-9		0.0403	mg/L	100.8	85 - 115				11/06/12		

* - QC result out of range

n/a - Not Applicable

Attention Scot Fitzgerald
Department Inorganic

Group # WSCF121423

Analytical Batch 209929 (QC Batch: 209929) Test Anions by Ion Chromatography (Water)
Associated Samples 121423003, 121423004

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
BLANK										
QC Sample #84713										
Fluoride	16984-48-8	<0.023		ug/mL				U		11/06/12
Chloride	16887-00-6	<0.058		ug/mL				U		11/06/12
Nitrite-N	NO2-N	<0.019		ug/mL				U		11/06/12
Nitrate-N	NO3-N	<0.019		ug/mL				U		11/06/12
Sulfate	14808-79-8	<0.11		ug/mL				U		11/06/12
LCS										
QC Sample #84714										
Fluoride	16984-48-8	1.00		ug/mL	101.1	90 - 110				11/06/12
Chloride	16887-00-6	1.98		ug/mL	100.1	90 - 110				11/06/12
Nitrite-N	NO2-N	1.05		ug/mL	106.9	90 - 110				11/06/12
Nitrate-N	NO3-N	0.929		ug/mL	105	90 - 110				11/06/12
Sulfate	14808-79-8	4.11		ug/mL	104.8	90 - 110				11/06/12
DUP										
QC Sample #84715										
Original 121410021										
Fluoride	16984-48-8	0.232		ug/mL			1.60	20	D	11/06/12
Chloride	16887-00-6	15.7		ug/mL			1.70	20	D	11/06/12
Nitrite-N	NO2-N	<0.038		ug/mL			21.10	20	* UD	11/06/12
Nitrate-N	NO3-N	7.08		ug/mL			1.60	20	D	11/06/12

* - QC result out of range

n/a - Not Applicable

Quality Control Report
DECEMBER 10, 2012
Attention Scot Fitzgerald
Department Inorganic

Group #

WSCF121423

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
Sulfate	14808-79-8	36.4		ug/mL			1.10	20	D	11/06/12
MS										
QC Sample #84716										
Original 121410021										
Fluoride	16984-48-8	1.00		ug/mL	100.5	80 - 120			D	11/06/12
Chloride	16887-00-6	1.91		ug/mL	95.7	80 - 120			D	11/06/12
Nitrite-N	NO2-N	0.959		ug/mL	97	80 - 120			D	11/06/12
Nitrate-N	NO3-N	0.880		ug/mL	98.4	80 - 120			D	11/06/12
Sulfate	14808-79-8	4.14		ug/mL	104.6	80 - 120			D	11/06/12
MSD										
QC Sample #84717										
Original 121410021										
Paired 84716										
Fluoride	16984-48-8	1.02		ug/mL	102.4	80 - 120	1.50	20	D	11/06/12
Chloride	16887-00-6	1.92		ug/mL	95.8	80 - 120	0.00	20	D	11/06/12
Nitrite-N	NO2-N	0.959		ug/mL	97.1	80 - 120	0.00	20	D	11/06/12
Nitrate-N	NO3-N	0.884		ug/mL	98.8	80 - 120	0.00	20	D	11/06/12
Sulfate	14808-79-8	3.97		ug/mL	100.2	80 - 120	0.40	20	D	11/06/12

* - QC result out of range

n/a - Not Applicable

Quality Control Report

DECEMBER 10, 2012

Attention Scot Fitzgerald
 Department Radiochemistry

Group # WSCF121423

Analytical Batch 209939 (QC Batch: 209915) Test TC99 by Liquid Scintillation
 Associated Samples 121423005

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
BLANK										QC Sample #84679
Technetium-99										U 11/11/12
LCS										QC Sample #84680
Technetium-99	14133-76-7	0.70		pCi/L						11/11/12
DUP										QC Sample #84681
Technetium-99										Original 121411014
MS										QC Sample #84682
Technetium-99										Original 121411014
Technetium-99	14133-76-7	950		pCi/L	109.4	75 - 125	5.30	20		11/11/12

* - QC result out of range

n/a - Not Applicable

Quality Control Report**DECEMBER 10, 2012**Attention Scot Fitzgerald
Department Radiochemistry**Group #** WSCF121423**Analytical Batch** 209945 (QC Batch: 209864) **Test** Tritium by LSC
Associated Samples 121423005, 121423008

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
BLANK										QC Sample #84577
Tritium LCS										pCi/L
Tritium DUP	10028-17-8	89								U 11/12/12
Tritium MS										pCi/L 11/12/12
Tritium										102.6 80 - 120
Tritium										Original 121414001
Tritium										QC Sample #84579
Tritium										Original 121414001
Tritium										3083.60 20 *
Tritium										U 11/12/12
Tritium										21000 pCi/L 100.4 75 - 125 11/12/12

* - QC result out of range

n/a - Not Applicable

Quality Control Report

DECEMBER 10, 2012

Attention Scot Fitzgerald
Department Radiochemistry

Group # WSCF121423

Analytical Batch 210032 (QC Batch: 209935) Test Gamma Energy Analysis-general
 Associated Samples 121423005, 121423008

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
IBLANK										
QC Sample #84747										
Antimony-125	14234-35-6	-0.44	pCi/L					U		11/13/12
Cesium-134	13967-70-9	-1.1	pCi/L					U		11/13/12
Cesium-137	10045-97-3	-1.0	pCi/L					U		11/13/12
Cobalt-60	10198-40-0	1.2	pCi/L					U		11/13/12
Europium-152	14683-23-9	15	pCi/L					U		11/13/12
Europium-154	15585-10-1	17	pCi/L					U		11/13/12
Europium-155	14391-16-3	8.4	pCi/L					U		11/13/12
Potassium-40	13966-00-2	-63	pCi/L					U		11/13/12
Ruthenium-106	13967-48-1	-10	pCi/L					U		11/13/12
Beryllium-7	13966-02-4	-12	pCi/L					U		11/13/12
LCS										
QC Sample #84748										
Cesium-137	10045-97-3	6300	pCi/sample	104.2	80 - 120					11/13/12
Cobalt-60	10198-40-0	10000	pCi/sample	102.6	80 - 120					11/13/12
DUP										
QC Sample #84749										
Original 121423005										
Antimony-125	14234-35-6	8.2	-6.5	pCi/L			1768.40	20	*	U
Cesium-134	13967-70-9	-15	0.39	pCi/L			-210.40	20	*	U

* - QC result out of range

n/a - Not Applicable

Quality Control Report**DECEMBER 10, 2012**Attention Scot Fitzgerald
Department Radiochemistry**Group #**

WSCF121423

Analyte	CAS #	Original Found	QC Found	Units	% Recov Limits	RPD	RPD Limit	RQ	Analyzed	
Cesium-137	10045-97-3	0.84	-4.1	pCi/L		-302.40	20	*	U	11/12/12
Cobalt-60	10198-40-0	0.63	-1.7	pCi/L		-435.50	20	*	U	11/12/12
Europium-152	14683-23-9	-6.1	2.2	pCi/L		-430.90	20	*	U	11/12/12
Europium-154	15585-10-1	-8.3	-4.8	pCi/L		-52.80	20	*	U	11/12/12
Europium-155	14391-16-3	-0.43	11	pCi/L		216.60	20	*	U	11/12/12
Potassium-40	13966-00-2	-43	-43	pCi/L		-2.00	20		U	11/12/12
Ruthenium-106	13967-48-1	5.8	-0.31	pCi/L		222.20	20	*	U	11/12/12
Beryllium-7	13966-02-4	-37	-7.8	pCi/L		-130.50	20	*	U	11/12/12

* - QC result out of range

n/a - Not Applicable

Quality Control Report

DECEMBER 10, 2012

Attention Scot Fitzgerald
 Department Radiochemistry

Group # WSCF121423

Analytical Batch 210330 (QC Batch: 210115) Test TC99 by Liquid Scintillation
 Associated Samples 121423008

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
BLANK										QC Sample #84810
Technetium-99										14133-76-7
LCS										1.5 pCi/L
QC Sample #84811										
Technetium-99										14133-76-7
DUP										220 pCi/L
QC Sample #84812										
Original 121439002										
Technetium-99										14133-76-7
MS										34 pCi/L
QC Sample #84813										
Original 121439002										
Technetium-99										14133-76-7
850 pCi/L										98.2 75 - 125
11/14/12										

* - QC result out of range

n/a - Not Applicable

Quality Control Report

DECEMBER 10, 2012

Attention Scot Fitzgerald
Department Radiochemistry

Group # WSCF121423

Analytical Batch 210373 (QC Batch: 210217) Test GAB Discrete analysis Alpha only
Associated Samples 121423005

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
BLANK										QC Sample #84845
Gross Alpha										U 11/26/12
LCS	12587-46-1	0.089	pCi/L							
QC Sample #84846										
Gross Alpha										11/26/12
DUP	12587-46-1	59	pCi/L	99.5	80 - 120					
QC Sample #84847										
Original 121423005										
Gross Alpha	12587-46-1	1.6	1.3	pCi/L			25.60	20	*	U 11/26/12

* - QC result out of range

n/a - Not Applicable

Quality Control Report**DECEMBER 10, 2012****Attention** Scot Fitzgerald
Department Radiochemistry**Group #** WSCF121423**Analytical Batch** 210378 (QC Batch: 210217) **Test** GAB Discrete analysis Beta only
Associated Samples 121423005

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
BLANK										QC Sample #84845
Gross Beta										12587-47-2
			1.1	pCi/L					U	11/26/12
LCS										QC Sample #84846
Gross Beta										12587-47-2
			250	pCi/L	98.4	80 - 120				11/26/12
DUP										QC Sample #84847
				Original	121423005					
Gross Beta	12587-47-2	9.0	5.3	pCi/L			51.70	20	*	X
* - QC result out of range					n/a - Not Applicable					

Quality Control Report**DECEMBER 10, 2012**Attention Scot Fitzgerald
Department Radiochemistry**Group #** WSCF121423**Analytical Batch** 210645 (QC Batch: 210218) **Test** GAB Discrete analysis Alpha only
Associated Samples 121423008

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
BLANK										QC Sample #84848
Gross Alpha										U 12/03/12
LCS	12587-46-1	-1.2		pCi/L						
QC Sample #84849										
Gross Alpha										12/03/12
DUP	12587-46-1	56		pCi/L	94.4	80 - 120				
QC Sample #84850										
Original 121444006										
Gross Alpha	12587-46-1	0.089		pCi/L			180.80	20	*	U 12/03/12

* - QC result out of range

n/a - Not Applicable

Quality Control Report**DECEMBER 10, 2012****Attention** Scot Fitzgerald
Department Radiochemistry**Group #** WSCF121423**Analytical Batch** 210646 (QC Batch: 210218) **Test** GAB Discrete analysis Beta only
Associated Samples 121423008

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
BLANK										QC Sample #84848
Gross Beta										12/03/12
LCS	12587-47-2	0.053	pCi/L						U	
QC Sample #84849										
Gross Beta										12/03/12
DUP	12587-47-2	250	pCi/L	99.1	80 - 120					
QC Sample #84850										
Original 121444006										
Gross Beta	12587-47-2	-0.42	pCi/L				-93.50	20	*	U
* - QC result out of range										12/03/12
n/a - Not Applicable										

Quality Control Report

DECEMBER 10, 2012

Attention Scot Fitzgerald
 Department Inorganic

Group # WSCF121423

Analytical Batch 210817 (QC Batch: 210638) Test ICP-6010 - All possible metals
 Associated Samples 121423005, 121423006, 121423007, 121423008

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
BLANK										QC Sample #85340
Iron	7439-89-6	<19		ug/L				U		11/28/12
Magnesium	7439-95-4	<4.0		ug/L				U		11/28/12
Manganese	7439-96-5	<4.0		ug/L				U		11/28/12
Nickel	7440-02-0	<4.0		ug/L				U		11/28/12
Potassium	7440-09-7	<76		ug/L				U		11/28/12
Silver	7440-22-4	<4.0		ug/L				U		11/28/12
Sodium	7440-23-5	<10		ug/L				U		11/28/12
Antimony	7440-36-0	<36		ug/L				U		11/28/12
Barium	7440-39-3	<4.0		ug/L				U		11/28/12
Cadmium	7440-43-9	<4.0		ug/L				U		11/28/12
Chromium	7440-47-3	<5.0		ug/L				U		11/28/12
Cobalt	7440-48-4	<4.0		ug/L				U		11/28/12
Copper	7440-50-8	5.90		ug/L				B		11/28/12
Vanadium	7440-62-2	<5.0		ug/L				U		11/28/12
Zinc	7440-66-6	7.60		ug/L				B		11/28/12
Calcium	7440-70-2	<49		ug/L				U		11/28/12
Strontium	7440-24-6	<9.0		ug/L				U		11/28/12

* - QC result out of range

n/a - Not Applicable

Quality Control Report

DECEMBER 10, 2012

Attention Scot Fitzgerald
Department Inorganic

Group # WSCF121423

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
Beryllium	7440-41-7	<4.0		ug/L					U	11/28/12
LCS										
Iron	7439-89-6	996		ug/L	99.6	80 - 120				11/28/12
Magnesium	7439-95-4	10200		ug/L	101.5	80 - 120				11/28/12
Manganese	7439-96-5	1010		ug/L	100.7	80 - 120				11/28/12
Nickel	7440-02-0	957		ug/L	95.7	80 - 120				11/28/12
Potassium	7440-09-7	10800		ug/L	108	80 - 120				11/28/12
Silver	7440-22-4	1020		ug/L	102.3	80 - 120				11/28/12
Sodium	7440-23-5	10000		ug/L	100	80 - 120				11/28/12
Antimony	7440-36-0	1020		ug/L	101.5	80 - 120				11/28/12
Barium	7440-39-3	1010		ug/L	101.2	80 - 120				11/28/12
Cadmium	7440-43-9	988		ug/L	98.8	80 - 120				11/28/12
Chromium	7440-47-3	1000		ug/L	100.2	80 - 120				11/28/12
Cobalt	7440-48-4	976		ug/L	97.6	80 - 120				11/28/12
Copper	7440-50-8	1010		ug/L	101.1	80 - 120				11/28/12
Vanadium	7440-62-2	1010		ug/L	101	80 - 120				11/28/12
Zinc	7440-66-6	1020		ug/L	101.5	80 - 120				11/28/12
Calcium	7440-70-2	20500		ug/L	102.4	80 - 120				11/28/12
Strontium	7440-24-6	989		ug/L	98.9	80 - 120				11/28/12
Beryllium	7440-41-7	1000		ug/L	100	80 - 120				11/28/12
MS										
QC Sample #85343										
Original 121423005										
Iron	7439-89-6	<19	1000	ug/L	100.1	75 - 125				11/28/12

* - QC result out of range

n/a - Not Applicable

DECEMBER 10, 2012

Quality Control Report

Attention Scot Fitzgerald
Department Inorganic

Group # WSCF121423

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
Magnesium	7439-95-4	9760	9950	ug/L	99.5	75 - 125				11/28/12
Manganese	7439-96-5	<4.0	1000	ug/L	100.4	75 - 125				11/28/12
Nickel	7440-02-0	4.40	948	ug/L	94.8	75 - 125				11/28/12
Potassium	7440-09-7	4920	10500	ug/L	105.5	75 - 125				11/28/12
Silver	7440-22-4	<4.0	1000	ug/L	100.5	75 - 125				11/28/12
Sodium	7440-23-5	43100	8650	ug/L	86.5	75 - 125		X		11/28/12
Antimony	7440-36-0	<36	1030	ug/L	102.8	75 - 125				11/28/12
Barium	7440-39-3	29.9	1000	ug/L	100	75 - 125				11/28/12
Cadmium	7440-43-9	<4.0	995	ug/L	99.5	75 - 125				11/28/12
Chromium	7440-47-3	9.20	994	ug/L	99.4	75 - 125				11/28/12
Cobalt	7440-48-4	<4.0	974	ug/L	97.4	75 - 125				11/28/12
Copper	7440-50-8	<4.0	986	ug/L	98.6	75 - 125				11/28/12
Vanadium	7440-62-2	21.2	1000	ug/L	100.1	75 - 125				11/28/12
Zinc	7440-66-6	<5.0	1030	ug/L	102.7	75 - 125				11/28/12
Calcium	7440-70-2	35000	20000	ug/L	100.1	75 - 125				11/28/12
Strontium	7440-24-6	221	983	ug/L	98.3	75 - 125				11/28/12
Beryllium	7440-41-7	<4.0	1000	ug/L	100	75 - 125				11/28/12
MSD					QC Sample #85344					
					Original 121423005				Paired 85343	
Iron	7439-89-6	<19	1020	ug/L	102.3	75 - 125	2.20	20		11/28/12
Magnesium	7439-95-4	9760	10200	ug/L	101.9	75 - 125	1.20	20		11/28/12
Manganese	7439-96-5	<4.0	1030	ug/L	102.7	75 - 125	2.30	20		11/28/12
Nickel	7440-02-0	4.40	970	ug/L	97	75 - 125	2.30	20		11/28/12

* - QC result out of range

n/a - Not Applicable

Quality Control Report

DECEMBER 10, 2012

Attention Scot Fitzgerald
Department Inorganic

Group #

WSCF121423

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
Potassium	7440-09-7	4920	10800	ug/L	108.1	75 - 125	1.70	20		11/28/12
Silver	7440-22-4	<4.0	1020	ug/L	101.7	75 - 125	1.20	20		11/28/12
Sodium	7440-23-5	43100	8790	ug/L	87.9	75 - 125	0.30	20	X	11/28/12
Antimony	7440-36-0	<36	1050	ug/L	105.3	75 - 125	2.40	20		11/28/12
Barium	7440-39-3	29.9	1020	ug/L	101.9	75 - 125	1.80	20		11/28/12
Cadmium	7440-43-9	<4.0	1010	ug/L	101.4	75 - 125	1.90	20		11/28/12
Chromium	7440-47-3	9.20	1020	ug/L	102.1	75 - 125	2.70	20		11/28/12
Cobalt	7440-48-4	<4.0	992	ug/L	99.2	75 - 125	1.80	20		11/28/12
Copper	7440-50-8	<4.0	1010	ug/L	100.8	75 - 125	2.20	20		11/28/12
Vanadium	7440-62-2	21.2	1020	ug/L	102.3	75 - 125	2.10	20		11/28/12
Zinc	7440-66-6	<5.0	1040	ug/L	104.5	75 - 125	1.70	20		11/28/12
Calcium	7440-70-2	35000	20600	ug/L	102.9	75 - 125	1.00	20		11/28/12
Strontium	7440-24-6	221	1010	ug/L	101	75 - 125	2.20	20		11/28/12
Beryllium	7440-41-7	<4.0	1020	ug/L	102.4	75 - 125	2.40	20		11/28/12

* - QC result out of range

n/a - Not Applicable

Quality Control Report**DECEMBER 10, 2012**Attention Scot Fitzgerald
Department Radiochemistry**Group #** WSCF121423**Analytical Batch** 210915 (QC Batch: 210239) **Test** Strontium 89/90 (GPC/GEA)
Associated Samples 121423005

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
BLANK										QC Sample #84908
Strontium-89_90										SR-RAD -0.65 pCi/L U 12/04/12
LCS										QC Sample #84909
Strontium-89_90										SR-RAD 92 pCi/L 104 80 - 120 12/04/12
DUP										QC Sample #84910
										Original 121411001
Strontium-89_90	SR-RAD	-1.3	pCi/L				-57.90	20	*	U 12/04/12

* - QC result out of range

n/a - Not Applicable

Quality Control Report

DECEMBER 10, 2012

Attention Scot Fitzgerald
 Department Inorganic

Group # WSCF121423

Analytical Batch 210924 (QC Batch: 210826) Test ICP-2008 MS All possible metal
 Associated Samples 121423007, 121423008

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
BLANK										QC Sample #85610
Aluminum	7429-90-5		<5.0	ug/L				U		11/29/12
Silver	7440-22-4		<0.050	ug/L				U		11/29/12
Antimony	7440-36-0		<0.30	ug/L				U		11/29/12
Barium	7440-39-3		<0.20	ug/L				U		11/29/12
Beryllium	7440-41-7		<0.10	ug/L				U		11/29/12
Cadmium	7440-43-9		<0.050	ug/L				U		11/29/12
Chromium	7440-47-3		<0.10	ug/L				U		11/29/12
Cobalt	7440-48-4		<0.050	ug/L				U		11/29/12
Copper	7440-50-8		<0.10	ug/L				U		11/29/12
Lead	7439-92-1		<0.050	ug/L				U		11/29/12
Molybdenum	7439-98-7		<0.050	ug/L				U		11/29/12
Thallium	7440-28-0		<0.050	ug/L				U		11/29/12
Tin	7440-31-5		<0.050	ug/L				U		11/29/12
Arsenic	7440-38-2		<0.20	ug/L				U		11/29/12
Selenium	7782-49-2		<1.0	ug/L				U		11/29/12
LCS										QC Sample #85611

* - QC result out of range

n/a - Not Applicable

DECEMBER 10, 2012

Quality Control Report

Attention Scot Fitzgerald
Department Inorganic

Group # WSCF121423

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
Aluminum	7429-90-5	401	ug/L	100.2	85 - 115					11/29/12
Silver	7440-22-4	41.3	ug/L	103.2	85 - 115					11/29/12
Antimony	7440-36-0	40.5	ug/L	101.3	85 - 115					11/29/12
Barium	7440-39-3	41.1	ug/L	102.6	85 - 115					11/29/12
Beryllium	7440-41-7	39.2	ug/L	98.1	85 - 115					11/29/12
Cadmium	7440-43-9	40.1	ug/L	100.3	85 - 115					11/29/12
Chromium	7440-47-3	40.0	ug/L	100	85 - 115					11/29/12
Cobalt	7440-48-4	40.2	ug/L	100.4	85 - 115					11/29/12
Copper	7440-50-8	40.0	ug/L	100	85 - 115					11/29/12
Lead	7439-92-1	42.2	ug/L	105.4	85 - 115					11/29/12
Molybdenum	7439-98-7	41.5	ug/L	103.8	85 - 115					11/29/12
Thallium	7440-28-0	41.6	ug/L	104.1	85 - 115					11/29/12
Tin	7440-31-5	41.4	ug/L	103.6	85 - 115					11/29/12
Arsenic	7440-38-2	39.5	ug/L	98.7	85 - 115					11/29/12
Selenium	7782-49-2	36.8	ug/L	92	85 - 115					11/29/12
MS	QC Sample #85612 Original 121411010									
Aluminum	7429-90-5	414	ug/L	103.6	70 - 130					11/29/12
Silver	7440-22-4	41.1	ug/L	102.7	70 - 130					11/29/12
Antimony	7440-36-0	40.1	ug/L	100.2	70 - 130					11/29/12
Barium	7440-39-3	40.8	ug/L	101.9	70 - 130					11/29/12
Beryllium	7440-41-7	41.7	ug/L	104.3	70 - 130					11/29/12
Cadmium	7440-43-9	39.5	ug/L	98.8	70 - 130					11/29/12

* - QC result out of range

n/a - Not Applicable

Quality Control Report

DECEMBER 10, 2012

Attention Scot Fitzgerald
Department Inorganic

Group #

WSCF121423

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
Chromium	7440-47-3	41.0	ug/L	102.6	70 - 130					11/29/12
Cobalt	7440-48-4	41.4	ug/L	103.5	70 - 130					11/29/12
Copper	7440-50-8	41.3	ug/L	103.2	70 - 130					11/29/12
Lead	7439-92-1	42.0	ug/L	105.1	70 - 130					11/29/12
Molybdenum	7439-98-7	40.8	ug/L	102	70 - 130					11/29/12
Thallium	7440-28-0	41.6	ug/L	103.9	70 - 130					11/29/12
Tin	7440-31-5	40.6	ug/L	101.6	70 - 130					11/29/12
Arsenic	7440-38-2	39.3	ug/L	98.4	70 - 130					11/29/12
Selenium	7782-49-2	36.5	ug/L	91.2	70 - 130					11/29/12
MSD		QC Sample #85613								
		Original 121411010						Paired	85612	
Aluminum	7429-90-5	414	ug/L	103.6	70 - 130	0.00	20			11/29/12
Silver	7440-22-4	41.4	ug/L	103.6	70 - 130	0.90	20			11/29/12
Antimony	7440-36-0	40.6	ug/L	101.6	70 - 130	1.30	20			11/29/12
Barium	7440-39-3	41.4	ug/L	103.6	70 - 130	1.60	20			11/29/12
Beryllium	7440-41-7	40.2	ug/L	100.5	70 - 130	3.70	20			11/29/12
Cadmium	7440-43-9	40.1	ug/L	100.2	70 - 130	1.40	20			11/29/12
Chromium	7440-47-3	40.8	ug/L	102	70 - 130	0.50	20			11/29/12
Cobalt	7440-48-4	40.8	ug/L	102	70 - 130	1.50	20			11/29/12
Copper	7440-50-8	40.8	ug/L	102.1	70 - 130	1.10	20			11/29/12
Lead	7439-92-1	42.2	ug/L	105.6	70 - 130	0.50	20			11/29/12
Molybdenum	7439-98-7	41.4	ug/L	103.4	70 - 130	1.40	20			11/29/12
Thallium	7440-28-0	41.9	ug/L	104.7	70 - 130	0.70	20			11/29/12

* - QC result out of range

n/a - Not Applicable

Quality Control Report**DECEMBER 10, 2012**Attention Scot Fitzgerald
Department Inorganic**Group #**

WSCF121423

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
Tin	7440-31-5	41.2	ug/L	103	70 - 130	1.40	20			11/29/12
Arsenic	7440-38-2	39.7	ug/L	99.2	70 - 130	0.90	20			11/29/12
Selenium	7782-49-2	36.0	ug/L	90.1	70 - 130	1.20	20			11/29/12

* - QC result out of range n/a - Not Applicable

Quality Control Report

DECEMBER 10, 2012

Attention Scot Fitzgerald
Department Radiochemistry

Group # WSCF121423

Analytical Batch 211034 (QC Batch: 210634) Test Strontium 89/90 (GPC/GEA)
Associated Samples 121423008

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
BLANK										QC Sample #85324
Strontium-89_90										SR-RAD 0.21 pCi/L U 12/04/12
LCS										QC Sample #85325
Strontium-89_90										SR-RAD 97 pCi/L 109 80 - 120 12/04/12
DUP										QC Sample #85326
										Original 121423008
Strontium-89_90	SR-RAD	0.11	0.44	pCi/L			120.60	20	*	U 12/04/12

* - QC result out of range

n/a - Not Applicable

Quality Control Report

DECEMBER 10, 2012

Attention Scot Fitzgerald
 Department Radiochemistry

Group # WSCF121423

Analytical Batch 210915 (QC Batch: 210239) Test Strontium 89/90 (GPC/GEA)
 Associated Samples 121423005

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed	
SAMPLE		Sample #121423005									
Strontium Nitrate	10042-76-9			mg	75.2	25 - 105				12/04/12	
BLANK		QC Sample #84908									
Strontium Nitrate	10042-76-9			mg	71.1	25 - 105				12/04/12	
LCS		QC Sample #84909									
Strontium Nitrate	10042-76-9			mg	76.9	25 - 105				12/04/12	
DUP		QC Sample #84910									
		Original 121411001									
Strontium Nitrate	10042-76-9			mg	59.5	25 - 105	n/a			12/04/12	

* - QC result out of range

n/a - Not Applicable

Quality Control Report**DECEMBER 10, 2012**Attention Scot Fitzgerald
Department Radiochemistry**Group #** WSCF121423**Analytical Batch** 211034 (QC Batch: 210634) **Test** Strontium 89/90 (GPC/GEA)
Associated Samples 121423008

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed	
SAMPLE		Sample #121423008									
Strontium Nitrate	10042-76-9			mg	76.9	25 - 105				12/04/12	
BLANK		QC Sample #85324									
Strontium Nitrate	10042-76-9			mg	102.5	25 - 105				12/04/12	
LCS		QC Sample #85325									
Strontium Nitrate	10042-76-9			mg	74.4	25 - 105				12/04/12	
DUP		QC Sample #85326									
		Original 121423008									
Strontium Nitrate	10042-76-9	9.3		mg	79.3	25 - 105	n/a			12/04/12	

* - QC result out of range

n/a - Not Applicable

Attention: Scot Fitzgerald

Group #

WSCF121423

Quality Control Comments**Department** Inorganic

85343 B2MR83(121423005MS)

Analyte Sodium - ICP-6010 - All possible metals

[1] X5: Sample concentration exceed spiking level by a factor of 4. Spike recoveries are not valid.

85344 B2MR83(121423005MSD)

Analyte Sodium - ICP-6010 - All possible metals

[1] X5: Sample concentration exceed spiking level by a factor of 4. Spike recoveries are not valid.

Attention: Scot Fitzgerald

Group #

WSCF121423

Quality Control Comments**Department** Radiochemistry

84847 B2MR83(121423005DUP)

Analyte Gross Beta - GAB Discrete analysis Beta only

- [1] The duplicate is outside of default RPD limits. RPD limit does not apply to results less than 5X the Minimum Detectable Concentration.

ATTACHMENT4

SAMPLE RECEIPT

Consisting of 9 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

ACKNOWLEDGEMENT OF SAMPLES RECEIVED

WSCF Laboratory

PO Box 650 S3-30
Richland, WA 99352

ATTN: Scot Fitzgerald

Customer Code: CHPRC

PO #: 401647

Work Order #: 121423

Profile #: I13-006-016

Proj. Mgr.:

Phone:

The following samples were received from you on 11/6/2012 2:28:00 PM. 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	Matrix	Collected	Received
Tests scheduled				
121423001	B2MXJ5	WATER CR6DA-W	11/6/2012 09:34	11/6/2012 14:28
121423002	B2MR85	WATER CR6DA-W	11/6/2012 12:56	11/6/2012 14:28
121423003	B2MXJ4	WATER IC-W	11/6/2012 09:34	11/6/2012 14:28
121423004	B2MR84	WATER IC-W	11/6/2012 12:56	11/6/2012 14:28
121423005	B2MR83	WATER 6010-W; GAB-AO-W; GAB-BO-W; GEA-W; H3-COL-W; SR89/90-W; TC99-W	11/6/2012 12:56	11/6/2012 14:28
121423006	B2MR86	WATER 6010-W	11/6/2012 12:56	11/6/2012 14:28
121423007	B2MXJ6	WATER 2008-W; 6010-W	11/6/2012 09:34	11/6/2012 14:28
121423008	B2MXJ3	WATER 2008-W; 6010-W; GAB-AO-W; GAB-BO-W; GEA-W; H3-COL-W; SR89/90-W; TC99-W	11/6/2012 09:34	11/6/2012 14:28

Test Acronym Description

Test Acronym	Description
2008-W	ICP-MS (W)
6010-W	ICP-AES (W)

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

CR6DA-W	Cr6 (W Discrete analyzer)
GAB-AO-W	Gross Alpha/Beta (A only)(W)
GAB-BO-W	Gross Alpha/Beta (B only)(W)
GEA-W	Gamma Energy Analysis (W)
H3-COL-W	Tritium by EICHROM Column (W)
IC-W	Anions by IC (W)
SR89/90-W	Strontium 89/90 (GPC) (W)
TC99-W	Technetium-99 (W)

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST										C.O.C. # 113-006-016	Page 1 of 1			
Collector SAF No.	JANELLE ZUNKER 113-006	Contact/Requester Sampling Origin	Karen Waters-Husted Hanford Site	Telephone No. Purchase Order/Charge Code	376-4650 300071ES20									
Project Title	100KRA4, DECEMBER 2012	Logbook No.	HNF-N-506 427 / 73	Ice Chest No.	N/A									
Shipped To (Lab)	Waste Sampling & Characterization	Method of Shipment	GOVERNMENT VEHICLE	Bill of Lading/Air Bill No.	N/A									
Protocol	CERCLA	Priority:	PRIORITY 31 Days	Offsite Property No.	N/A									
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 (1990/1991)										SPECIAL INSTRUCTIONS	Hold Time	Total Activity Exemption: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		
										100 Area Generator Knowledgeable Information Form applies. The CACN for all analytical work at WSCF is 40147. FY12 and FY13 samples cannot be in the same SDG.				
Sample No.	Filter	Date	Time	No/Type Container	Sample Analysis	Hold Time	Preservative							
B2MKJ5 1	N	W 12-6-12	O 9:34	1x500-mL Ag	7196_CRG: Hexavalent Chromium (1)	24 Hours	Cool-4C							
121423														

Reinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time	Matrix *	
JANELLE ZUNKER	Janelle Zunker	NOV 06 2012 1440	Date/Time	MALIBU MALIBU	MALIBU	MALIBU	NOV 06 2012 1440	S = Soil	DS = Drum Solids
MALIBU	MALIBU	11-06-12 1428	Date/Time	Cynthia R Johnson	Cynthia R Johnson	Cynthia R Johnson	SE = Sediment	DL = Dian Liquids	
MALIBU	MALIBU	11-06-12 1428	Date/Time	Received By	Received By	Received By	SO = Solid	T = Tissue	
MALIBU	MALIBU	11-06-12 1428	Date/Time	Received By	Received By	Received By	SL = Sludge	W = Water	
MALIBU	MALIBU	11-06-12 1428	Date/Time	Received By	Received By	Received By	W = Oil	L = Liquid	
MALIBU	MALIBU	11-06-12 1428	Date/Time	Received By	Received By	Received By	V = Vegetation	X = Other	
MALIBU	MALIBU	11-06-12 1428	Date/Time	Received By	Received By	Received By			

FINAL SAMPLE DISPOSITION	Disposal Method (e.g. Return to customer, per lab procedure, used in process)	Disposed By	Date/Time
		A-6004-842 (REV2)	
		PRINTED ON 10/29/2012	

Chain of Custody

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST									
I.C.O.C.# 113-002-252									
Page 1 of 1									
CH2MHill Plateau Remediation Company	Collector	JANELLE ZUNKER							
SAF No.	113-002	Contact/Requester	Karen Waters-Husted						
Project Title	100KR4(1) NOVEMBER 2012	Sampling Origin	Hanford Site						
Shipped To (Lab)	Waste Sampling & Characterization	Logbook No.	HNF-N-506 59 / 73						
Protocol	CERCLA	Method of Shipment	GOVERNMENT VEHICLE						
PRIORITY									
SPECIAL INSTRUCTIONS									
Hold Time									
Total Activity Exemption: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>									
100 Area Generation Knowledge Information Form Applies The CACN for all analytical work at WSCF is #01617. FY12 and FY13 samples cannot be in the same SDG.									
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)									
Sample Analysis									
Sample No.	Filter	Date	Time	No./Type Container	Holding Time		Preservative		
B2MR85	N	W 11-6-12	12:56	1x500-mL ag	24 Hours		Cool~4C		
7198_CRF6: Hexavalent Chromium (1)									
Relinquished By Print Sign Date/Time Received By Print Sign Date/Time									
JANELLE ZUNKER <i>Janelle Zunker</i> NOV 06 2012 14:00 NOV 06 2012 /4/0									
Relinquished By Print Sign Date/Time Received By Print Sign Date/Time									
M. WATERS-HUSTED <i>M. Waters-Husted</i> NOV 06 2012 14:00 NOV 06 2012 /4/0									
Relinquished By Print Sign Date/Time Received By Print Sign Date/Time									
Cynthia R Johnson <i>Cynthia R Johnson</i> NOV 06 2012 /4/0 NOV 06 2012 /4/0									
Relinquished By Print Sign Date/Time Received By Print Sign Date/Time									
PRINTED ON (09/2012)									
FINAL SAMPLE DISPOSITION Disposal Method (e.g., Return to customer, permanent procedure, used in process) Disposed By Date/Time									
A-6004-842 (REV 2)									

Sample Receipt

DECEMBER 10, 2012

Chain of Custody

CH2MHill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST									
		C.O.C. # I13-006-015									
		Page 1 of 1									
Collector	JANELLE ZUNKER	Contact/Requester	Karen Waters-Husted		Telephone No.	376-4650		Purchase Order/Charge Code	300071ES20		
SAF No.	113-006	Sampling Origin	Hanford Site		Loc/Chest No.	N/A					
Project Title	100KRA, DECEMBER 2012	Logbook No.	HNF-N-506 <u>29/122</u>		Bill of Lading/Air Bill No.	N/A					
Shipped To (Lab)	Waste Sampling & Characterization	Method of Shipment	GOVERNMENT VEHICLE		Offsite Property No.	N/A					
Protocol	CERCLA	Priority:	31 Days		SPECIAL INSTRUCTIONS	Hold Time		Total Activity Exemption:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		
POSSIBLE HAZARDS/REMARKS ** Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR but are not releasable per DOE Order 5410.5 (1990) (1993)											
160 Area Generator Knowledge Information Form applies. The CACN for all analytical work at WSCF is 401647. FY12 and FY13 samples cannot be in the same SIG.											
Sample No.	Filter	*	Date	Time	No/Type Container	Sample Analysis		Holding Time	Preservative		
B2MX4 <u>3</u>	N	W	11-06-12	0934	1x500-mL P	300.0_ANIONS_IC_List-1 (5)		48 Hours	Cool~4C		

Requisitioned By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time	Matrix *
JANELLE ZUNKER	<u>Janelle Zunker</u>	<u>NOV 06 2012 /4/10</u>	<u>NOV 06 2012 /4/10</u>	<u>Melissa McAllister</u>	<u>C</u>	<u>NOV 06 2012 /4/10</u>	<u>NOV 06 2012 /4/10</u>	<u>S</u>	<u>S</u>	<u>S</u>	<u>S</u>	Drum Solids
Melissa McAllister	<u>Melissa McAllister</u>	<u>11-06-12 1428</u>	<u>11-06-12 1428</u>	<u>Cynthia R Johnson</u>	<u>C</u>	<u>11-06-12 1428</u>	<u>11-06-12 1428</u>	<u>SO</u>	<u>SO</u>	<u>SO</u>	<u>SO</u>	Drum Liquids
								<u>SL</u>	<u>SL</u>	<u>SL</u>	<u>SL</u>	Tissue
								<u>W</u>	<u>W</u>	<u>W</u>	<u>W</u>	Wine
								<u>O</u>	<u>O</u>	<u>O</u>	<u>O</u>	Liquid
								<u>A</u>	<u>A</u>	<u>A</u>	<u>A</u>	Vegetation
												Other

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

Sample Receipt

DECEMBER 10, 2012

Chain of Custody

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST											
C.O.C. # 113-002-251											
Page 1 of 1											
Collector	JANELLE ZUNKER										
SAF No.	113-002			Sampling Origin	Karen Waters-Husted			Telephone No.	376-4650		
Project Title	100KRA(1) NOVEMBER 2012			Logbook No.	HNF-N-506 29 / 23			Purchase Order/Charge Code	30007IES20		
Shipped To (Lab)	Waste Sampling & Characterization			Method of Shipment	GOVERNMENT VEHICLE			Ice Chest No.	N/A		
Protocol	CERCLA			Priority:	PRIORITY			Bill of Lading/Air Bill No.	N/A		
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)											
Sample No.	Filter	Date	Time	Net/Type Container	Sample Analysis			Holding Time	Preservative		
B2MR04 4	N	W	11-06-12	12:57C	300_0_ANIONS_IC_List-1 (5)			48 Hours	Cool~4C		
Reinquished By											
JANELLE ZUNKER	Print <u>Janelle Zunker</u> Sign <u>NOV 06 2012 14:00</u>			Received By	Print <u>Melanie M. Ditt</u> Sign <u>NOV 06 2012 24:00</u>			Date/Time	Matrix		
Reinquished By				Received By				Date/Time			
Melanie M. Ditt				Cynthia R Johnson				Date/Time			
Reinquished By				Received By				Date/Time			
Reinquished By				Received By				Date/Time			
FINAL SAMPLE DISPOSITION	Disposal Method(e.g., Return to customer, jet lab procedure, incld in process)			Disposed By				Date/Time			
PRINTED ON 10/09/2012											
A-6004-842 (REV 2)											

Chain of Custody

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST													
C.O.C. # 113-002-250											Page 1 of 1		
Collector	JANELLE ZUNKER	Contact/Requester	Karen Waters-Husted			Telephone No.	376-4650						
SAF No.	113-002	Sampling Origin	Hanford Site			Purchase Order/Charge Code	300071ES20						
Project Title	100KRA/1(1) NOVEMBER 2012	Logbook No.	HNF-N-506 4/9/12			Ice Chest No.	N/A						
Shipped To (Lab)	Waste Sampling & Characterization	Method of Shipment	GOVERNMENT VEHICLE			Bill of Lading/Air Bill No.	N/A						
Protocol	CERCLA	Priority:	PRIORITY			Offsite Property No.	N/A						
SPECIAL INSTRUCTIONS													
Hold Time Total Activity Exemption: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>													
106 Area Generator Knowledge Information Form applies. The CACN for all analytical work at WSCF is 401647. FY12 and FY13 samples cannot be in the same SDG.													
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)													
Sample No.	Filter *	Date	Time	No/Type Container	Sample Analysis			Preservative					
B2MR83	N	W	11-6-12	12:56	1x500-mL G/P	6010_METALS_ICP_List-3 (18)			HNO3 to pH <2				
B2MR83	N	W			1x500-mL G/P	ALPHABETA_GPC_Alpha discrete + Beta (2) ✓			HNO3 to pH <2				
B2MR83	N	W			1x500-mL G/P	GAMMA_GS_List-1 (10)			HNO3 to pH <2				
B2MR83	N	W			1x1-L G/P	Strontium-89_90 -- Total Sr ✓			HNO3 to pH <2				
B2MR83	N	W			1x1-L G/P	TC89_3MDSK_LSC_Tc-99 (1)			HCl to pH <2				
B2MR83	N	W			1x250-mL G	TRITIUM_EIE_LSC_Tritium (1)			None				
B2MR86	Y	W			1x500-mL G/P	6010_METALS_ICP_List-3 (18)			HNO3 to pH <2				
Relinquished By Print Sign Date/Time Received By Print Sign Date/Time Received By Print Sign Date/Time Received By													
JANELLE ZUNKER Janelle Zunker NOV 06 2012 /4/10 MARY MURDOCK Mary Murchison NOV 06 2012 /4/10													
Relinquished By Print Sign Date/Time Received By Print Sign Date/Time Received By Print Sign Date/Time Received By													
Natalie Winters 11-06-12 MARY MURDOCK Mary Murchison 11-06-12													
Relinquished By Print Sign Date/Time Received By Print Sign Date/Time Received By Print Sign Date/Time Received By													
A. Disposal Method (e.g., Return to customer, per lab procedure, used in process) Disposed By Date/Time													
FINAL SAMPLE DISPOSITION		A-6004-842 (REV 2)											
PRINTED ON 10/9/2012													

Chain of Custody

CH2MHill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST										C.O.C. #
												113-006-014
												Page 1 of 1
Collector	JANELLE ZUNKER	Contact/Requester	Karen Waters-Husted		Telephone No.	376-4650						
SAF No.	113-006	Sampling Origin	Hanford Site		Purchase Order/Charge Code	300071ES20						
Project Title	100KR24, DECEMBER 2012	Logbook No.	HNF-N-506 49 / 23		Ice Chest No.	N/A						
Shipped To (Lab)	Waste Sampling & Characterization	Method of Shipment	GOVERNMENT VEHICL E		Bill of Lading/Air Bill No.	N/A						
Protocol	CERCLA	Priority:	31 Days	PRIORITY	Offsite Property No.	N/A						
POSSIBLE SAMPLE HAZARDS/REMARKS		SPECIAL INSTRUCTIONS 100 Area Generator Knowledge Information Form applies. The ACN for all analytical work at WSCF is 401647. FY12 and FY13 samples cannot be in the same SVG										Total Activity Exemption: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Sample No.	Filter	*	Date	Time	No./Type Container	Sample Analysis		Holding Time	Preservative			
B2MXJ6	Y	W	11-6-12	0934	1x500-mL G/P	200.8 METALS ICPMS: DURA LIST (10); 6010 METALS ICP: List-3 (18)		6 Months	HNO3 to pH <2			
B2MXJ3	N	W			1x500-mL G/P	ALPHABETA GPC: Alpha discrete + Beta (2) X		6 Months	HNO3 to pH <2			
B2MXJ3	N	W			1x500-mL G/P	GAMMA_GS: List-1 (10) Y		6 Months	HNO3 to pH <2			
B2MXJ3	N	W			1x1-L G/P	Strontium-89/90 :: Total Sr X		6 Months	HNO3 to pH <2			
B2MXJ3	N	W			1x1-L G/P	TC99_3MDSK LSC: Tc-99 (1) ✓		6 Months	HCl to pH <2			
B2MXJ3	N	W			1x250-mL G	TRITIUM_EIE_LSC: Tritium (1) X		6 Months	None			
B2MXJ3	N	W			1x500-mL G/P	200.8 METALS ICPMS: DURA LIST (10); 6010 METALS ICP: List-3 (18) X		6 Months	HNO3 to pH <2			

Relinquished By	Print	Sign	Date/Time	Received By	Print	Date/Time	Sign	Date/Time	Sign	Date/Time	Matrix *	
Relinquished By	JANELLE ZUNKER		NOV 06 2012 14:00	MALWIT, Maude		NOV 06 2012 14:00	S	SO	Soil	DS	Drum Solids	
Received By			NOV 06 2012 14:00	Cynthia R Johnson		NOV 06 2012 14:00	SE	SO	Sediment	DS	Drum Liquids	
Relinquished By			NOV 06 2012 14:00	Malwita Maude		NOV 06 2012 14:00	SL	SL	Sediment	DS	Tissue	
Received By			NOV 06 2012 14:00	Malwita Maude		NOV 06 2012 14:00	W	W	Sediment	DS	Water	
Relinquished By			NOV 06 2012 14:00	Malwita Maude		NOV 06 2012 14:00	O	O	Sediment	DS	Liquid	
Received By			NOV 06 2012 14:00	Malwita Maude		NOV 06 2012 14:00	A	A	Sediment	DS	Vegetation	
Relinquished By			NOV 06 2012 14:00	Malwita Maude		NOV 06 2012 14:00	X	X	Sediment	DS	Other	
Final Sample Disposition	Disposed Method (e.g., Return to customer, per lab procedure, used in process)										Date/Time	
PRINTED ON	10/29/2012										PRINTED ON	
												A 6004-842 (REV 2)