

May 20, 2014

WSCF Laboratory

PO Box 650 S3-30
Richland, WA 99352



May 20, 2014

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

Dear Scot Fitzgerald,

FINAL RESULT FOR SAMPLE DELIVERY GROUP WSCF140726

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 WSCF140726

- * 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 "Joseph Hale", is positioned above the typed name.

Electronically signed by Joseph Hale

For Lab Manager, Dan T. Smith

WSCF Analytical Lab

(509) 373-4804

Attachments 4

CC: w/Attachments

File/LB

ATTACHMENT 1

COVER SHEET

Consisting of 2 pages
Including cover page

WSCF SAF Number Cross Reference

Group # WSCF140726
 Data Deliverable Date 05/22/14

SAF #	Sample ID	Sample #	Matrix	Sampled	Received
S14-004	B2W942	140726001	WATER	04/21/14	04/21/14
S14-004	B2W941	140726002	WATER	04/21/14	04/21/14
S14-004	B2W945	140726003	WATER	04/21/14	04/21/14
S14-004	B2W8K1	140726004	WATER	04/21/14	04/21/14
S14-004	B2W8K4	140726005	WATER	04/21/14	04/21/14
S14-004	B2W8K7	140726006	WATER	04/21/14	04/21/14

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)*, to Contract 39818, Revision 4, "WSCF ANALYTICAL SERVICES FOR GROUNDWATER."

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

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

The following generic data qualifiers (i.e., B, 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.
- **o** – LCS recovery outside established laboratory acceptance limits.

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 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.

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

- Calcium – 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.

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

- All applicable QC controls are within the established limits.

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

- All applicable QC controls are within the established limits.

Total Organic Halides – The hold time requirement for this analysis was met. A Matrix Spike, Matrix Spike Duplicate, Blank and Laboratory Control Sample were analyzed with this delivery group. 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:

- All applicable QC controls are within the established limits.

Isotopic Plutonium analysis:

- All 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:

- The Matrix Spike recovery exceeded laboratory acceptance limits due to insufficient spike activity compared to the sample activity.
- All other 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.

May 20, 2014

ATTACHMENT 3

ANALYTICAL RESULTS

Consisting of 51 pages
Including cover page

May 20, 2014

WSCF ANALYTICAL RESULTS REPORT

For

CH2M Hill Plateau Remediation

PO Box 1600
Richland, WA 99352

Attention: Scot Fitzgerald

Contract # MOA-FH-CHPRC-2008
Group # WSCF140726
Report Date May 20, 2014

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 # WSCF140726

QC Batch	Analytical Batch	S#	Type	Sample #	Client Sample#	Original	Test
232151	232151	2	BLANK	109256	BLANK		Anions by Ion Chromatography (Water)
232151	232151	3	LCS	109257	LCS		Anions by Ion Chromatography (Water)
232151	232151	4	MS	109258	B2W6L5(140719007MS)	140719007	Anions by Ion Chromatography (Water)
232151	232151	5	MSD	109259	B2W6L5(140719007MSD)	140719007	Anions by Ion Chromatography (Water)
232151	232151	13	SAMPLE	140726001	B2W942		Anions by Ion Chromatography (Water)
232151	232151	14	SAMPLE	140726002	B2W941		Anions by Ion Chromatography (Water)
232151	232151	15	SAMPLE	140726003	B2W945		Anions by Ion Chromatography (Water)
232163	232784	5	BLANK	109326	BLANK		ICP-6010 - All possible metals
232163	232784	7	LCS	109328	LCS		ICP-6010 - All possible metals
232163	232784	9	MS	109329	B2V2Y7(140723001MS)	140723001	ICP-6010 - All possible metals
232163	232784	10	MSD	109330	B2V2Y7(140723001MSD)	140723001	ICP-6010 - All possible metals
232163	232784	18	SAMPLE	140726004	B2W8K1		ICP-6010 - All possible metals
232163	232784	19	SAMPLE	140726005	B2W8K4		ICP-6010 - All possible metals
232163	232784	22	SAMPLE	140726006	B2W8K7		ICP-6010 - All possible metals
232751	232752	1	BLANK	109748	BLANK		Total Organic Halides
232751	232752	2	LCS	109749	LCS		Total Organic Halides
232751	232752	4	MS	109750	B2W5D4(140692014MS)	140692014	Total Organic Halides
232751	232752	5	MSD	109751	B2W5D4(140692014MSD)	140692014	Total Organic Halides
232751	232752	7	SAMPLE	140726004	B2W8K1		Total Organic Halides
232751	232752	8	SAMPLE	140726005	B2W8K4		Total Organic Halides
232751	232752	9	SAMPLE	140726006	B2W8K7		Total Organic Halides
233468	233469	4	BLANK	110063	BLANK		3E-2008 ICP-MS 3 Elements
233468	233469	5	LCS	110064	LCS		3E-2008 ICP-MS 3 Elements

Batch QC List

Attention Scot Fitzgerald
Department Inorganic

Group # WSCF140726

QC Batch	Analytical Batch	S#	Type	Sample #	Client Sample#	Original	Test
233468	233469	7	MS	110065	B2W6M0(140718005MS)	140718005	3E-2008 ICP-MS 3 Elements
233468	233469	8	MSD	110066	B2W6M0(140718005MSD)	140718005	3E-2008 ICP-MS 3 Elements
233468	233469	24	SAMPLE	140726004	B2W8K1		3E-2008 ICP-MS 3 Elements
233468	233469	25	SAMPLE	140726005	B2W8K4		3E-2008 ICP-MS 3 Elements
233468	233469	26	SAMPLE	140726006	B2W8K7		3E-2008 ICP-MS 3 Elements

Batch QC List

Attention Scot Fitzgerald
 Department Radiochemistry

Group # WSCF140726

QC Batch	Analytical Batch	S#	Type	Sample #	Client Sample#	Original	Test
231934	232442	1	BLANK	108985	BLANK		TC99 by Liquid Scintillation
231934	232442	2	LCS	108986	LCS		TC99 by Liquid Scintillation
231934	232442	4	DUP	108987	B2VYL3(140691003DUP)	140691003	TC99 by Liquid Scintillation
231934	232442	5	MS	108988	B2VYL3(140691003MS)	140691003	TC99 by Liquid Scintillation
231934	232442	14	SAMPLE	140726004	B2W8K1		TC99 by Liquid Scintillation
231934	232442	15	SAMPLE	140726005	B2W8K4		TC99 by Liquid Scintillation
231934	232442	16	SAMPLE	140726006	B2W8K7		TC99 by Liquid Scintillation
232143	232883	1	BLANK	109242	BLANK		Plutonium (AEA)
232143	232883	2	LCS	109243	LCS		Plutonium (AEA)
232143	232883	3	SAMPLE	140726004	B2W8K1		Plutonium (AEA)
232143	232883	4	DUP	109244	B2W8K1(140726004DUP)	140726004	Plutonium (AEA)
232143	232883	5	SAMPLE	140726005	B2W8K4		Plutonium (AEA)
232143	232883	6	SAMPLE	140726006	B2W8K7		Plutonium (AEA)
232149	232375	1	BLANK	109248	BLANK		GAB Discrete analysis Alpha only
232149	232375	2	LCS	109249	LCS		GAB Discrete analysis Alpha only
232149	232375	4	DUP	109250	B2W839(140706006DUP)	140706006	GAB Discrete analysis Alpha only
232149	232375	7	SAMPLE	140726004	B2W8K1		GAB Discrete analysis Alpha only
232149	232375	8	SAMPLE	140726005	B2W8K4		GAB Discrete analysis Alpha only
232149	232375	9	SAMPLE	140726006	B2W8K7		GAB Discrete analysis Alpha only
232149	232376	1	BLANK	109248	BLANK		GAB Discrete analysis Beta only
232149	232376	2	LCS	109249	LCS		GAB Discrete analysis Beta only
232149	232376	4	DUP	109250	B2W839(140706006DUP)	140706006	GAB Discrete analysis Beta only
232149	232376	7	SAMPLE	140726004	B2W8K1		GAB Discrete analysis Beta only

Batch QC List

Attention Scot Fitzgerald
 Department Radiochemistry

Group # WSCF140726

QC Batch	Analytical Batch	S#	Type	Sample #	Client Sample#	Original	Test
232149	232376	8	SAMPLE	140726005	B2W8K4		GAB Discrete analysis Beta only
232149	232376	9	SAMPLE	140726006	B2W8K7		GAB Discrete analysis Beta only
232159	232175	1	IBLANK	109300	IBLANK		Gamma Energy Analysis-general
232159	232175	2	LCS	109301	LCS		Gamma Energy Analysis-general
232159	232175	3	DUP	109302	B2W8K1(140726004DUP	140726004	Gamma Energy Analysis-general
232159	232175	4	SAMPLE	140726004	B2W8K1		Gamma Energy Analysis-general
232159	232175	5	SAMPLE	140726005	B2W8K4		Gamma Energy Analysis-general
232159	232175	6	SAMPLE	140726006	B2W8K7		Gamma Energy Analysis-general
232167	232254	1	BLANK	109342	BLANK		Tritium by LSC
232167	232254	2	LCS	109343	LCS		Tritium by LSC
232167	232254	4	DUP	109344	B2W6L3(140718001DUP)	140718001	Tritium by LSC
232167	232254	5	MSPK	109345	B2W6L3(140718001MSP		Tritium by LSC
232167	232254	12	SAMPLE	140726004	B2W8K1		Tritium by LSC
232167	232254	13	SAMPLE	140726005	B2W8K4		Tritium by LSC
232167	232254	14	SAMPLE	140726006	B2W8K7		Tritium by LSC
232172	232466	1	BLANK	109356	BLANK		Strontium 89/90 (GPC/GEA)
232172	232466	2	LCS	109357	LCS		Strontium 89/90 (GPC/GEA)
232172	232466	3	DUP	109358	B2W6J6(140721001DUP)	140721001	Strontium 89/90 (GPC/GEA)
232172	232466	5	SAMPLE	140726004	B2W8K1		Strontium 89/90 (GPC/GEA)
232172	232466	6	SAMPLE	140726005	B2W8K4		Strontium 89/90 (GPC/GEA)
232172	232466	7	SAMPLE	140726006	B2W8K7		Strontium 89/90 (GPC/GEA)

Batch QC List

Attention Scot Fitzgerald
 Department Wet Chemistry

Group # WSCF140726

QC Batch	Analytical Batch	S#	Type	Sample #	Client Sample#	Original	Test
232160	232160	1	LCS	109303	LCS		Total Alkalinity as mg/L CaCO3 (Water)
232160	232160	2	DUP	109304	B2W6L3(140718001DUP)	140718001	Total Alkalinity as mg/L CaCO3 (Water)
232160	232160	9	SAMPLE	140726004	B2W8K1		Total Alkalinity as mg/L CaCO3 (Water)
232160	232160	10	SAMPLE	140726005	B2W8K4		Total Alkalinity as mg/L CaCO3 (Water)
232160	232160	11	SAMPLE	140726006	B2W8K7		Total Alkalinity as mg/L CaCO3 (Water)
232160	232160	12	LCS	109305	LCS		Total Alkalinity as mg/L CaCO3 (Water)
232756	232757	1	BLANK	109764	BLANK		Cyanide (W) by Midi/Spectrophotometer
232756	232757	3	LCS	109766	LCS		Cyanide (W) by Midi/Spectrophotometer
232756	232757	4	MS	109767	B2W8H2(140692007MS)	140692007	Cyanide (W) by Midi/Spectrophotometer
232756	232757	5	MSD	109768	B2W8H2(140692007MSD)	140692007	Cyanide (W) by Midi/Spectrophotometer
232756	232757	8	SAMPLE	140726004	B2W8K1		Cyanide (W) by Midi/Spectrophotometer
232756	232757	9	SAMPLE	140726005	B2W8K4		Cyanide (W) by Midi/Spectrophotometer
232756	232757	10	SAMPLE	140726006	B2W8K7		Cyanide (W) by Midi/Spectrophotometer
233273	233273	2	BLANK	110042	BLANK		Total Organic Carbon
233273	233273	3	LCS	110043	LCS		Total Organic Carbon
233273	233273	4	MS	110044	B2W6D1(140725002MS)	140725002	Total Organic Carbon
233273	233273	5	MSD	110045	B2W6D1(140725002MSD)	140725002	Total Organic Carbon
233273	233273	7	SAMPLE	140726004	B2W8K1		Total Organic Carbon
233273	233273	8	SAMPLE	140726005	B2W8K4		Total Organic Carbon
233273	233273	9	SAMPLE	140726006	B2W8K7		Total Organic Carbon

Method Reference

Attention Scot Fitzgerald
 Department Inorganic

Group # WSCF140726

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-505-411	Elemental Analysis by ICP Atomic Emission Spectroscopy (ICP AES)		
	EPA SW-846	6010C	Inductively Coupled Plasma-Atomic Emission Spectrometry
	HEIS	6010_METALS_ICP	Inductively Coupled Plasma-Atomic Emission 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-523-444	Total Organic Halides Based on SW-846 Method 9020B		
	EPA SW-846	9020B	Total Organic Halides (TOX)
	HEIS	9020_TOX	Total Organic Halides (TOX)
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>

Method Reference

Attention Scot Fitzgerald
 Department Radiochemistry

Group # WSCF140726

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-218-413	Tritium By Ion Removal Using Eichrom Resin Columns (Prep)	
	N/A	PREP 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-508-471	Thorium, Neptunium, Plutonium, Americium, and Uranium In Soil and Water Using Eichrom Column Separation (Prep)	
	HEIS	PUIISO_IE_PRECIP_AEA Isotopic Plutonium, Alpha Spec
LA-508-481	Gamma Energy Analysis using the Canberra Genie Ssystem	
	HEIS	GAMMA_GS Gamma Energy Analysis
LA-438-402	Determination of Technetium-99 by RAD Disk Filtration & Liquid Scintillation Counting	
	N/A	PREP METHOD
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-548-401	Alpha and Beta in Liquid and Solid Samples - WSCF	
	N/A	PREP METHOD
LA-548-421(LSC)	Preparation of Sample Mounts For Gamma Energy Analysis	
	N/A	PREP METHOD
LA-904-400	Nitric Acid-Hydrochloric Acid Leach of Soil and Vegetation at WSCF	
	N/A	PREP METHOD
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

Method Reference

Attention Scot Fitzgerald
Department Radiochemistry

Group # WSCF140726

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.

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>

Method Reference

Attention Scot Fitzgerald
 Department Wet Chemistry

Group # WSCF140726

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-531-411	Alkalinity		
	SM	2320	Alkalinity
	HEIS	2320_ALKALINITY	Alkalinity
LA-344-406	Total Organic Carbon (TOC) Based on SW-846		
	EPA SW-846	9060	Total Organic Carbon
	HEIS	9060_TOC	Total Organic Carbon
LA-695-402	Determination of Cyanide by Mididistillation and		
	EPA	SW-846 Method 9014/9010	Determination of Cyanide by
			Midi-Distillation and Spectrophotometric Analysis
	SM	4500 CNE	Cyanide, Total
	HEIS	4500E_CN	Cyanide, Total

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 # WSCF140726

Sample # 140726001
 SAF# S14-004
 Sample ID B2W942

Matrix WATER
 Sampled 04/21/14
 Received 04/21/14

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
04/21/14										
Anions by Ion Chromatography (Water)										
Fluoride	16984-48-8	LA-533-410	BD	0.328		ug/mL	2	0.050	1.0	04/21/14
Chloride	16887-00-6	LA-533-410	D	8.53		ug/mL	2	0.12	0.80	04/21/14
Nitrite-N	NO2-N	LA-533-410	UD	<0.040		ug/mL	2	0.040	0.20	04/21/14
Nitrate-N	NO3-N	LA-533-410	D	1.65		ug/mL	2	0.040	0.20	04/21/14
Sulfate	14808-79-8	LA-533-410	D	34.7		ug/mL	2	0.22	1.1	04/21/14

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.

Attention Scot Fitzgerald
 Department Inorganic

Group # WSCF140726

Sample # 140726002
 SAF# S14-004
 Sample ID B2W941

Matrix WATER
 Sampled 04/21/14
 Received 04/21/14

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
04/21/14										
Anions by Ion Chromatography (Water)										
Fluoride	16984-48-8	LA-533-410	BD	0.625		ug/mL	2	0.050	1.0	04/21/14
Chloride	16887-00-6	LA-533-410	D	9.11		ug/mL	2	0.12	0.80	04/21/14
Nitrite-N	NO2-N	LA-533-410	UD	<0.040		ug/mL	2	0.040	0.20	04/21/14
Nitrate-N	NO3-N	LA-533-410	D	4.56		ug/mL	2	0.040	0.20	04/21/14
Sulfate	14808-79-8	LA-533-410	D	44.3		ug/mL	2	0.22	1.1	04/21/14

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.

Attention Scot Fitzgerald
 Department Inorganic

Group # WSCF140726

Sample # 140726003
 SAF# S14-004
 Sample ID B2W945

Matrix WATER
 Sampled 04/21/14
 Received 04/21/14

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
04/21/14										
Anions by Ion Chromatography (Water)										
Fluoride	16984-48-8	LA-533-410	BD	0.509		ug/mL	2	0.050	1.0	04/21/14
Chloride	16887-00-6	LA-533-410	D	7.79		ug/mL	2	0.12	0.80	04/21/14
Nitrite-N	NO2-N	LA-533-410	UD	<0.040		ug/mL	2	0.040	0.20	04/21/14
Nitrate-N	NO3-N	LA-533-410	D	2.98		ug/mL	2	0.040	0.20	04/21/14
Sulfate	14808-79-8	LA-533-410	D	38.8		ug/mL	2	0.22	1.1	04/21/14

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.

Attention Scot Fitzgerald
 Department Inorganic

Group # WSCF140726

Sample # 140726004
 SAF# S14-004
 Sample ID B2W8K1

Matrix WATER
 Sampled 04/21/14
 Received 04/21/14

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
ICPAES Prep (W)										05/05/14
ICP-6010 - All possible metals										
Iron	7439-89-6	LA-505-411		1140		ug/L	1	40	50	05/05/14
Magnesium	7439-95-4	LA-505-411		10900		ug/L	1	60	750	05/05/14
Manganese	7439-96-5	LA-505-411		41.6		ug/L	1	4.0	5.0	05/05/14
Nickel	7440-02-0	LA-505-411	U	<10		ug/L	1	10	40	05/05/14
Potassium	7440-09-7	LA-505-411		7460		ug/L	1	250	4000	05/05/14
Silver	7440-22-4	LA-505-411	U	<5.0		ug/L	1	5.0	10	05/05/14
Sodium	7440-23-5	LA-505-411		30400		ug/L	1	100	500	05/05/14
Antimony	7440-36-0	LA-505-411	U	<20		ug/L	1	20	60	05/05/14
Barium	7440-39-3	LA-505-411		28.5		ug/L	1	4.0	20	05/05/14
Cadmium	7440-43-9	LA-505-411	U	<4.0		ug/L	1	4.0	5.0	05/05/14
Chromium	7440-47-3	LA-505-411	B	7.46		ug/L	1	5.0	10	05/05/14
Cobalt	7440-48-4	LA-505-411	U	<4.0		ug/L	1	4.0	20	05/05/14
Copper	7440-50-8	LA-505-411	U	<4.0		ug/L	1	4.0	8.0	05/05/14
Vanadium	7440-62-2	LA-505-411	B	7.36		ug/L	1	5.0	25	05/05/14
Zinc	7440-66-6	LA-505-411		12.6		ug/L	1	5.0	10	05/05/14
Calcium	7440-70-2	LA-505-411		30800		ug/L	1	50	1000	05/05/14
Strontium	7440-24-6	LA-505-411		217		ug/L	1	8.0	10	05/05/14

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.

Attention Scot Fitzgerald
 Department Inorganic

Group # WSCF140726

Sample # 140726004
 SAF# S14-004
 Sample ID B2W8K1

Matrix WATER
 Sampled 04/21/14
 Received 04/21/14

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
Arsenic	7440-38-2	LA-505-411	U	<25		ug/L	1	25	30	05/05/14
Beryllium	7440-41-7	LA-505-411	U	<2.0		ug/L	1	2.0	4.0	05/05/14
ICPMS Prep 3-Elements (W)										05/14/14
3E-2008 ICP-MS 3 Elements										
Uranium	7440-61-1	LA-505-412	D	3.75		ug/L	2	0.10	0.50	05/14/14
Preparation for TOX (W)										04/28/14
Total Organic Halides										
Total Organic Halides	59473-04-0	LA-523-444	B	7.75		ug/L	1	5.0	15	04/28/14

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.

Attention Scot Fitzgerald
 Department Inorganic

Group # WSCF140726

Sample # 140726005
 SAF# S14-004
 Sample ID B2W8K4

Matrix WATER
 Sampled 04/21/14
 Received 04/21/14

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
ICPAES Prep (W)										
ICP-6010 - All possible metals										
Iron	7439-89-6	LA-505-411		242		ug/L	1	40	50	05/05/14
Magnesium	7439-95-4	LA-505-411		9850		ug/L	1	60	750	05/05/14
Manganese	7439-96-5	LA-505-411		6.08		ug/L	1	4.0	5.0	05/05/14
Nickel	7440-02-0	LA-505-411	U	<10		ug/L	1	10	40	05/05/14
Potassium	7440-09-7	LA-505-411		6400		ug/L	1	250	4000	05/05/14
Silver	7440-22-4	LA-505-411	U	<5.0		ug/L	1	5.0	10	05/05/14
Sodium	7440-23-5	LA-505-411		27300		ug/L	1	100	500	05/05/14
Antimony	7440-36-0	LA-505-411	U	<20		ug/L	1	20	60	05/05/14
Barium	7440-39-3	LA-505-411		44.5		ug/L	1	4.0	20	05/05/14
Cadmium	7440-43-9	LA-505-411	U	<4.0		ug/L	1	4.0	5.0	05/05/14
Chromium	7440-47-3	LA-505-411	U	<5.0		ug/L	1	5.0	10	05/05/14
Cobalt	7440-48-4	LA-505-411	U	<4.0		ug/L	1	4.0	20	05/05/14
Copper	7440-50-8	LA-505-411	U	<4.0		ug/L	1	4.0	8.0	05/05/14
Vanadium	7440-62-2	LA-505-411	B	11.8		ug/L	1	5.0	25	05/05/14
Zinc	7440-66-6	LA-505-411	U	<5.0		ug/L	1	5.0	10	05/05/14
Calcium	7440-70-2	LA-505-411		33900		ug/L	1	50	1000	05/05/14
Strontium	7440-24-6	LA-505-411		178		ug/L	1	8.0	10	05/05/14

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.

Attention Scot Fitzgerald
 Department Inorganic

Group # WSCF140726

Sample # 140726005
 SAF# S14-004
 Sample ID B2W8K4

Matrix WATER
 Sampled 04/21/14
 Received 04/21/14

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
Arsenic	7440-38-2	LA-505-411	U	<25		ug/L	1	25	30	05/05/14
Beryllium	7440-41-7	LA-505-411	U	<2.0		ug/L	1	2.0	4.0	05/05/14
ICPMS Prep 3-Elements (W)										05/14/14
3E-2008 ICP-MS 3 Elements										
Uranium	7440-61-1	LA-505-412	D	2.39		ug/L	2	0.10	0.50	05/14/14
Preparation for TOX (W)										04/28/14
Total Organic Halides										
Total Organic Halides	59473-04-0	LA-523-444	B	8.81		ug/L	1	5.0	15	04/28/14

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.

Attention Scot Fitzgerald
 Department Inorganic

Group # WSCF140726

Sample # 140726006
 SAF# S14-004
 Sample ID B2W8K7

Matrix WATER
 Sampled 04/21/14
 Received 04/21/14

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
ICPAES Prep (W)										
ICP-6010 - All possible metals										
Iron	7439-89-6	LA-505-411	U	<40		ug/L	1	40	50	05/05/14
Magnesium	7439-95-4	LA-505-411		9930		ug/L	1	60	750	05/05/14
Manganese	7439-96-5	LA-505-411	U	<4.0		ug/L	1	4.0	5.0	05/05/14
Nickel	7440-02-0	LA-505-411	U	<10		ug/L	1	10	40	05/05/14
Potassium	7440-09-7	LA-505-411		6530		ug/L	1	250	4000	05/05/14
Silver	7440-22-4	LA-505-411	U	<5.0		ug/L	1	5.0	10	05/05/14
Sodium	7440-23-5	LA-505-411		28400		ug/L	1	100	500	05/05/14
Antimony	7440-36-0	LA-505-411	U	<20		ug/L	1	20	60	05/05/14
Barium	7440-39-3	LA-505-411		24.2		ug/L	1	4.0	20	05/05/14
Cadmium	7440-43-9	LA-505-411	U	<4.0		ug/L	1	4.0	5.0	05/05/14
Chromium	7440-47-3	LA-505-411	U	<5.0		ug/L	1	5.0	10	05/05/14
Cobalt	7440-48-4	LA-505-411	U	<4.0		ug/L	1	4.0	20	05/05/14
Copper	7440-50-8	LA-505-411	U	<4.0		ug/L	1	4.0	8.0	05/05/14
Vanadium	7440-62-2	LA-505-411	B	22.2		ug/L	1	5.0	25	05/05/14
Zinc	7440-66-6	LA-505-411		118		ug/L	1	5.0	10	05/05/14
Calcium	7440-70-2	LA-505-411		33900		ug/L	1	50	1000	05/05/14
Strontium	7440-24-6	LA-505-411		191		ug/L	1	8.0	10	05/05/14

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.

Attention Scot Fitzgerald
 Department Inorganic

Group # WSCF140726

Sample # 140726006
 SAF# S14-004
 Sample ID B2W8K7

Matrix WATER
 Sampled 04/21/14
 Received 04/21/14

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
Arsenic	7440-38-2	LA-505-411	U	<25		ug/L	1	25	30	05/05/14
Beryllium	7440-41-7	LA-505-411	U	<2.0		ug/L	1	2.0	4.0	05/05/14
ICPMS Prep 3-Elements (W)										05/14/14
3E-2008 ICP-MS 3 Elements										
Uranium	7440-61-1	LA-505-412	D	2.71		ug/L	2	0.10	0.50	05/14/14
Preparation for TOX (W)										04/28/14
Total Organic Halides										
Total Organic Halides	59473-04-0	LA-523-444	B	8.46		ug/L	1	5.0	15	04/28/14

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.

Attention Scot Fitzgerald
 Department Radiochemistry

Group # WSCF140726

Sample # 140726004
 SAF# S14-004
 Sample ID B2W8K1

Matrix WATER
 Sampled 04/21/14
 Received 04/21/14

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
Am/Cm/Pu/U/Np Prep (AEA) W										05/06/14
Plutonium (AEA)										
Plutonium-238	13981-16-3	LA-508-471	U	-0.021	.028	pCi/L	1	0.076		05/06/14
Plutonium-239_240	PU-239/240	LA-508-471	U	0.0070	.02	pCi/L	1	0.042		05/06/14
GAB Prep for Discrete Analysis (W)										04/24/14
GAB Discrete analysis Alpha only										
Gross Alpha	12587-46-1	LA-508-415		4.7	2.8	pCi/L	1	2.6		05/07/14
GAB Discrete analysis Beta only										
Gross Beta	12587-47-2	LA-508-415		58	12	pCi/L	1	3.8		05/06/14
Preparation for GEA (W)										04/22/14
Gamma Energy Analysis-general										
Cesium-137	10045-97-3	LA-508-481	U	3.5	8.3	pCi/L	1	15		04/30/14
Cobalt-60	10198-40-0	LA-508-481	U	-0.46	8	pCi/L	1	14		04/30/14
Europium-152	14683-23-9	LA-508-481	U	-1.2	22	pCi/L	1	39		04/30/14
Europium-154	15585-10-1	LA-508-481	U	-7.2	24	pCi/L	1	41		04/30/14
Europium-155	14391-16-3	LA-508-481	U	23	27	pCi/L	1	48		04/30/14
Strontium 89/90 WATER/LIQUID PREP										04/29/14
Strontium 89/90 (GPC/GEA)										
Strontium-89_90	SR-RAD	LA-220-406	U	-0.13	.63	pCi/L	1	1.1		05/02/14

MDL = Minimum Detection Limit
 RQ = Result Qualifier
 TP Err = Total Propagated Error
 DF = Dilution Factor
 + - Indicates more than nine qualifier

B - The associated QC sample Blank has a result > or = the MDA
 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 # WSCF140726

Sample # 140726004
 SAF# S14-004
 Sample ID B2W8K1

Matrix WATER
 Sampled 04/21/14
 Received 04/21/14

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
TC99 by Liquid Scin. WATER/LIQUID PREP										04/22/14
TC99 by Liquid Scintillation										
Technetium-99	14133-76-7	LA-508-421		67	14	pCi/L	1	6.8		04/24/14
Tritium by LSC EICHROM WA/LIQ PREP										04/23/14
Tritium by LSC										
Tritium	10028-17-8	LA-508-421		1.1E4	2300	pCi/L	1	320		04/28/14

MDL = Minimum Detection Limit
 RQ = Result Qualifier
 TP Err = Total Propagated Error
 DF = Dilution Factor
 + - Indicates more than nine qualifier

B - The associated QC sample Blank has a result > or = the MDA
 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 # WSCF140726

Sample # 140726005
 SAF# S14-004
 Sample ID B2W8K4

Matrix WATER
 Sampled 04/21/14
 Received 04/21/14

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
Am/Cm/Pu/U/Np Prep (AEA) W										05/06/14
Plutonium (AEA)										
Plutonium-238	13981-16-3	LA-508-471	U	-7.5E-3	.045	pCi/L	1	0.098		05/06/14
Plutonium-239_240	PU-239/240	LA-508-471	U	0.037	.037	pCi/L	1	0.045		05/06/14
GAB Prep for Discrete Analysis (W)										04/24/14
GAB Discrete analysis Alpha only										
Gross Alpha	12587-46-1	LA-508-415	U	1.4	1.7	pCi/L	1	2.6		05/07/14
GAB Discrete analysis Beta only										
Gross Beta	12587-47-2	LA-508-415		9.9	3.4	pCi/L	1	3.8		05/06/14
Preparation for GEA (W)										04/22/14
Gamma Energy Analysis-general										
Cesium-137	10045-97-3	LA-508-481	U	0.88	7.5	pCi/L	1	14		04/23/14
Cobalt-60	10198-40-0	LA-508-481	U	2.3	6.5	pCi/L	1	12		04/23/14
Europium-152	14683-23-9	LA-508-481	U	-4.5	20	pCi/L	1	35		04/23/14
Europium-154	15585-10-1	LA-508-481	U	-2.4	20	pCi/L	1	35		04/23/14
Europium-155	14391-16-3	LA-508-481	U	-13	20	pCi/L	1	34		04/23/14
Strontium 89/90 WATER/LIQUID PREP										04/29/14
Strontium 89/90 (GPC/GEA)										
Strontium-89_90	SR-RAD	LA-220-406	U	0.060	.61	pCi/L	1	1.0		05/02/14

MDL = Minimum Detection Limit
 RQ = Result Qualifier
 TP Err = Total Propagated Error
 DF = Dilution Factor
 + - Indicates more than nine qualifier

B - The associated QC sample Blank has a result > or = the MDA
 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 # WSCF140726

Sample # 140726005
 SAF# S14-004
 Sample ID B2W8K4

Matrix WATER
 Sampled 04/21/14
 Received 04/21/14

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
TC99 by Liquid Scin. WATER/LIQUID PREP										04/22/14
TC99 by Liquid Scintillation										
Technetium-99	14133-76-7	LA-508-421	U	-0.15	4.1	pCi/L	1	6.8		04/24/14
Tritium by LSC EICHROM WA/LIQ PREP										04/23/14
Tritium by LSC										
Tritium	10028-17-8	LA-508-421		390	220	pCi/L	1	320		04/28/14

MDL = Minimum Detection Limit
 RQ = Result Qualifier
 TP Err = Total Propagated Error
 DF = Dilution Factor
 + - Indicates more than nine qualifier

B - The associated QC sample Blank has a result > or = the MDA
 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 # WSCF140726

Sample # 140726006
 SAF# S14-004
 Sample ID B2W8K7

Matrix WATER
 Sampled 04/21/14
 Received 04/21/14

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
Am/Cm/Pu/U/Np Prep (AEA) W										05/06/14
Plutonium (AEA)										
Plutonium-238	13981-16-3	LA-508-471	U	-7.6E-3	.026	pCi/L	1	0.071		05/06/14
Plutonium-239_240	PU-239/240	LA-508-471	U	0.029	.031	pCi/L	1	0.046		05/06/14
GAB Prep for Discrete Analysis (W)										04/24/14
GAB Discrete analysis Alpha only										
Gross Alpha	12587-46-1	LA-508-415	U	0.60	2	pCi/L	1	3.6		05/07/14
GAB Discrete analysis Beta only										
Gross Beta	12587-47-2	LA-508-415		32	8	pCi/L	1	5.6		05/06/14
Preparation for GEA (W)										04/22/14
Gamma Energy Analysis-general										
Cesium-137	10045-97-3	LA-508-481	U	1.3	6.4	pCi/L	1	11		04/23/14
Cobalt-60	10198-40-0	LA-508-481	U	2.1	5.9	pCi/L	1	12		04/23/14
Europium-152	14683-23-9	LA-508-481	U	-2.3	21	pCi/L	1	35		04/23/14
Europium-154	15585-10-1	LA-508-481	U	8.1	16	pCi/L	1	33		04/23/14
Europium-155	14391-16-3	LA-508-481	U	17	24	pCi/L	1	45		04/23/14
Strontium 89/90 WATER/LIQUID PREP										04/29/14
Strontium 89/90 (GPC/GEA)										
Strontium-89_90	SR-RAD	LA-220-406	U	0.62	.65	pCi/L	1	1.0		05/02/14

MDL = Minimum Detection Limit
 RQ = Result Qualifier
 TP Err = Total Propagated Error
 DF = Dilution Factor
 + - Indicates more than nine qualifier

B - The associated QC sample Blank has a result > or = the MDA
 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 # WSCF140726

Sample # 140726006
 SAF# S14-004
 Sample ID B2W8K7

Matrix WATER
 Sampled 04/21/14
 Received 04/21/14

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
TC99 by Liquid Scin. WATER/LIQUID PREP										04/22/14
TC99 by Liquid Scintillation										
Technetium-99	14133-76-7	LA-508-421		45	10	pCi/L	1	6.8		04/24/14
Tritium by LSC EICHROM WA/LIQ PREP										04/23/14
Tritium by LSC										
Tritium	10028-17-8	LA-508-421		4800	1000	pCi/L	1	320		04/28/14

MDL = Minimum Detection Limit
 RQ = Result Qualifier
 TP Err = Total Propagated Error
 DF = Dilution Factor
 + - Indicates more than nine qualifier

B - The associated QC sample Blank has a result > or = the MDA
 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 Wet Chemistry

Group # WSCF140726

Sample # 140726004
 SAF# S14-004
 Sample ID B2W8K1

Matrix WATER
 Sampled 04/21/14
 Received 04/21/14

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
Preparation for Cyanide (W)										
Cyanide (W) by Midi/Spectrophotometer										
Cyanide	57-12-5	LA-695-402	U	<4.0		ug/L	1	4.0	20	04/29/14
Total Alkalinity as mg/L CaCO3 (Water)										
Total Alkalinity as CaCO3	ALKALINITY	LA-531-411		110		mg/L	1	1	10	04/22/14
Carbonate	CO3ALKALINI	LA-531-411		8.9		mg/L	1	1		04/22/14
Bicarbonate	71-52-3	LA-531-411		100		mg/L	1	1		04/22/14
Hydroxyl ion	84625-61-6	LA-531-411	U	<1		mg/L	1	1		04/22/14
Total Organic Carbon										
Total Organic Carbon	TOC	LA-344-406		0.546		mg/L	1	0.10	0.30	05/12/14

MDL = Minimum Detection Limit
 RQ = Result Qualifier
 TP Err = Total Propagated Error
 DF = Dilution Factor
 + - Indicates more than nine qualifier

B - Analyte < the RDL but >= the IDL/MDL.
 C - Analyte was found in the Associated Blank. (Inorganic)
 D - Analyte was reported at a secondary dilution factor.
 N - MS and/or MSD sample recovery outside control limits.
 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.
 Ignitability: <20C listed in the result field indicates sample ignited at room temperature. Maximum temperature tested for ignitability is at 100C

Attention Scot Fitzgerald
 Department Wet Chemistry

Group # WSCF140726

Sample # 140726005
 SAF# S14-004
 Sample ID B2W8K4

Matrix WATER
 Sampled 04/21/14
 Received 04/21/14

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
Preparation for Cyanide (W)										04/28/14
Cyanide (W) by Midi/Spectrophotometer										
Cyanide	57-12-5	LA-695-402	U	<4.0		ug/L	1	4.0	20	04/29/14
Total Alkalinity as mg/L CaCO3 (Water)										04/22/14
Total Alkalinity as CaCO3	ALKALINITY	LA-531-411		130		mg/L	1	1	10	04/22/14
Carbonate	CO3ALKALINI	LA-531-411	U	<1		mg/L	1	1		04/22/14
Bicarbonate	71-52-3	LA-531-411		130		mg/L	1	1		04/22/14
Hydroxyl ion	84625-61-6	LA-531-411	U	<1		mg/L	1	1		04/22/14
Total Organic Carbon										05/12/14
Total Organic Carbon	TOC	LA-344-406	B	0.135		mg/L	1	0.10	0.30	05/12/14

MDL = Minimum Detection Limit
 RQ = Result Qualifier
 TP Err = Total Propagated Error
 DF = Dilution Factor
 + - Indicates more than nine qualifier

B - Analyte < the RDL but >= the IDL/MDL.
 C - Analyte was found in the Associated Blank. (Inorganic)
 D - Analyte was reported at a secondary dilution factor.
 N - MS and/or MSD sample recovery outside control limits.
 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.
 Ignitability: <20C listed in the result field indicates sample ignited at room temperature. Maximum temperature tested for ignitability is at 100C

Attention Scot Fitzgerald
 Department Wet Chemistry

Group # WSCF140726

Sample # 140726006
 SAF# S14-004
 Sample ID B2W8K7

Matrix WATER
 Sampled 04/21/14
 Received 04/21/14

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
Preparation for Cyanide (W)										04/28/14
Cyanide (W) by Midi/Spectrophotometer										
Cyanide	57-12-5	LA-695-402	U	<4.0		ug/L	1	4.0	20	04/29/14
Total Alkalinity as mg/L CaCO3 (Water)										04/22/14
Total Alkalinity as CaCO3	ALKALINITY	LA-531-411		120		mg/L	1	1	10	04/22/14
Carbonate	CO3ALKALINI	LA-531-411	U	<1		mg/L	1	1		04/22/14
Bicarbonate	71-52-3	LA-531-411		120		mg/L	1	1		04/22/14
Hydroxyl ion	84625-61-6	LA-531-411	U	<1		mg/L	1	1		04/22/14
Total Organic Carbon										05/12/14
Total Organic Carbon	TOC	LA-344-406	B	0.135		mg/L	1	0.10	0.30	05/12/14

MDL = Minimum Detection Limit
 RQ = Result Qualifier
 TP Err = Total Propagated Error
 DF = Dilution Factor
 + - Indicates more than nine qualifier

B - Analyte < the RDL but >= the IDL/MDL.
 C - Analyte was found in the Associated Blank. (Inorganic)
 D - Analyte was reported at a secondary dilution factor.
 N - MS and/or MSD sample recovery outside control limits.
 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.
 Ignitability: <20C listed in the result field indicates sample ignited at room temperature. Maximum temperature tested for ignitability is at 100C

Quality Control Report

Attention Scot Fitzgerald
 Department Inorganic

Group # WSCF140726

Analytical Batch 232151 (QC Batch: 232151) Test Anions by Ion Chromatography (Water)
 Associated Samples 140726001, 140726002, 140726003

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
BLANK		QC Sample #109256								
Fluoride	16984-48-8	<0.025		ug/mL					U	04/21/14
Chloride	16887-00-6	<0.060		ug/mL					U	04/21/14
Nitrite-N	NO2-N	<0.020		ug/mL					U	04/21/14
Nitrate-N	NO3-N	<0.020		ug/mL					U	04/21/14
Sulfate	14808-79-8	<0.11		ug/mL					U	04/21/14
LCS		QC Sample #109257								
Fluoride	16984-48-8	0.931		ug/mL	94.1	90 - 110				04/21/14
Chloride	16887-00-6	1.92		ug/mL	97.1	90 - 110				04/21/14
Nitrite-N	NO2-N	1.04		ug/mL	106.4	90 - 110				04/21/14
Nitrate-N	NO3-N	0.871		ug/mL	98.4	90 - 110				04/21/14
Sulfate	14808-79-8	3.97		ug/mL	101.3	90 - 110				04/21/14
MS		QC Sample #109258								
		Original 140719007								
Fluoride	16984-48-8	0.898		ug/mL	89.8	80 - 120			D	04/21/14
Chloride	16887-00-6	1.88		ug/mL	93.8	80 - 120			D	04/21/14
Nitrite-N	NO2-N	0.982		ug/mL	99.4	80 - 120			D	04/21/14
Nitrate-N	NO3-N	0.880		ug/mL	98.4	80 - 120			D	04/21/14

* - QC result out of range

n/a - Not Applicable

Quality Control Report

May 20, 2014

Attention Scot Fitzgerald
 Department Inorganic

Group # WSCF140726

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
Sulfate	14808-79-8		3.93	ug/mL	99.2	80 - 120			D	04/21/14
MSD			QC Sample #109259							
			Original	140719007				Paired	109258	
Fluoride	16984-48-8		0.894	ug/mL	89.4	80 - 120	0.40	20	D	04/21/14
Chloride	16887-00-6		1.94	ug/mL	97	80 - 120	1.10	20	D	04/21/14
Nitrite-N	NO2-N		1.01	ug/mL	102.7	80 - 120	3.30	20	D	04/21/14
Nitrate-N	NO3-N		0.872	ug/mL	97.6	80 - 120	0.60	20	D	04/21/14
Sulfate	14808-79-8		4.18	ug/mL	105.7	80 - 120	0.80	20	D	04/21/14

* - QC result out of range

n/a - Not Applicable

Quality Control Report

Attention Scot Fitzgerald
 Department Wet Chemistry

Group # WSCF140726

Analytical Batch 232160 (QC Batch: 232160) Test Total Alkalinity as mg/L CaCO3 (Water)
 Associated Samples 140726004, 140726005, 140726006

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
LCS		QC Sample #109303								
Total Alkalinity as CaCO3	ALKALINITY		95	mg/L	95.3	80 - 120				04/22/14
DUP		QC Sample #109304								
		Original 140718001								
Total Alkalinity as CaCO3	ALKALINITY		98	mg/L			1.00	20		04/22/14
LCS		QC Sample #109305								
Total Alkalinity as CaCO3	ALKALINITY		97	mg/L	97.5	80 - 120				04/22/14

* - QC result out of range

n/a - Not Applicable

Quality Control Report

Attention Scot Fitzgerald
 Department Radiochemistry

Group # WSCF140726

Analytical Batch 232175 (QC Batch: 232159) Test Gamma Energy Analysis-general
 Associated Samples 140726004, 140726005, 140726006

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
IBLANK		QC Sample #109300								
Cesium-137	10045-97-3		-2.1	pCi/L					U	04/23/14
Cobalt-60	10198-40-0		5.2	pCi/L					U	04/23/14
Europium-152	14683-23-9		-8.1	pCi/L					U	04/23/14
Europium-154	15585-10-1		-4.1	pCi/L					U	04/23/14
Europium-155	14391-16-3		5.1	pCi/L					U	04/23/14
LCS		QC Sample #109301								
Cesium-137	10045-97-3		6500	pCi/sample	107.6	80 - 120				04/23/14
Cobalt-60	10198-40-0		10000	pCi/sample	102.8	80 - 120				04/23/14
DUP		QC Sample #109302								
		Original 140726004								
Cesium-137	10045-97-3	3.5	-1.2	pCi/L			399.20	20	* U	04/23/14
Cobalt-60	10198-40-0	-0.46	0.33	pCi/L			-1264.40	20	* U	04/23/14
Europium-152	14683-23-9	-1.2	4.4	pCi/L			347.30	20	* U	04/23/14
Europium-154	15585-10-1	-7.2	-18	pCi/L			-83.50	20	* U	04/23/14
Europium-155	14391-16-3	23	-6.7	pCi/L			368.50	20	* U	04/23/14

* - QC result out of range

n/a - Not Applicable

Quality Control Report

Attention Scot Fitzgerald
 Department Radiochemistry

Group # WSCF140726

Analytical Batch 232254 (QC Batch: 232167) Test Tritium by LSC
 Associated Samples 140726004, 140726005, 140726006

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
BLANK										
			QC Sample #109342							
Tritium	10028-17-8		-160	pCi/L					U	04/28/14
LCS										
			QC Sample #109343							
Tritium	10028-17-8		3500	pCi/L	91.7	80 - 120				04/28/14
DUP										
			QC Sample #109344							
			Original 140718001							
Tritium	10028-17-8		1200	pCi/L			6.10	20		04/28/14
MSPK										
			QC Sample #109345							
Tritium	10028-17-8		20000	pCi/L	95.2	75 - 125				04/28/14

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

Quality Control Report

Attention Scot Fitzgerald
 Department Radiochemistry

Group # WSCF140726

Analytical Batch 232375 (QC Batch: 232149)
 Associated Samples 140726004, 140726005, 140726006

Test GAB Discrete analysis Alpha only

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
BLANK		QC Sample #109248								
Gross Alpha	12587-46-1		-0.22	pCi/L					U	05/07/14
LCS		QC Sample #109249								
Gross Alpha	12587-46-1		77	pCi/L	97.1	80 - 120				05/07/14
DUP		QC Sample #109250								
		Original 140706006								
Gross Alpha	12587-46-1		0.95	pCi/L			22.50	20	* U	05/07/14

* - QC result out of range

n/a - Not Applicable

Quality Control Report

Attention Scot Fitzgerald
 Department Radiochemistry

Group # WSCF140726

Analytical Batch 232376 (QC Batch: 232149) Test GAB Discrete analysis Beta only
 Associated Samples 140726004, 140726005, 140726006

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
BLANK		QC Sample #109248								
Gross Beta	12587-47-2		-1.6	pCi/L					U	05/06/14
LCS		QC Sample #109249								
Gross Beta	12587-47-2		330	pCi/L	100	80 - 120				05/06/14
DUP		QC Sample #109250								
		Original 140706006								
Gross Beta	12587-47-2		73	pCi/L			4.40	20		05/06/14

* - QC result out of range

n/a - Not Applicable

Quality Control Report

Attention Scot Fitzgerald
 Department Radiochemistry

Group # WSCF140726

Analytical Batch 232442 (QC Batch: 231934) Test TC99 by Liquid Scintillation
 Associated Samples 140726004, 140726005, 140726006

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
BLANK										
Technetium-99	14133-76-7		-2.5	pCi/L					U	04/24/14
LCS										
Technetium-99	14133-76-7		260	pCi/L	101.2	80 - 120				04/24/14
DUP										
Technetium-99	14133-76-7		2.1E4	pCi/L			5.50	20		04/24/14
MS										
Technetium-99	14133-76-7		-1200	pCi/L	-116.7	75 - 125			X	04/24/14

* - QC result out of range

n/a - Not Applicable

Quality Control Report

Attention Scot Fitzgerald
 Department Radiochemistry

Group # WSCF140726

Analytical Batch 232466 (QC Batch: 232172) Test Strontium 89/90 (GPC/GEA)
 Associated Samples 140726004, 140726005, 140726006

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
BLANK		QC Sample #109356								
Strontium-89_90	SR-RAD		0.020	pCi/L					U	05/02/14
LCS		QC Sample #109357								
Strontium-89_90	SR-RAD		36	pCi/L	99.1	80 - 120				05/02/14
DUP		QC Sample #109358								
		Original 140721001								
Strontium-89_90	SR-RAD		0.044	pCi/L			-259.40	20	* U	05/02/14

* - QC result out of range

n/a - Not Applicable

Quality Control Report

Attention Scot Fitzgerald
 Department Inorganic

Group # WSCF140726

Analytical Batch 232752 (QC Batch: 232751) Test Total Organic Halides
 Associated Samples 140726004, 140726005, 140726006

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
BLANK										
			QC Sample #109748							
Total Organic Halides	59473-04-0		<5.0	ug/L					U	04/28/14
LCS										
			QC Sample #109749							
Total Organic Halides	59473-04-0		399	mg/L	99.7	80 - 120				04/28/14
MS										
			QC Sample #109750							
			Original 140692014							
Total Organic Halides	59473-04-0		41.2	ug/L	103	75 - 125				04/28/14
MSD										
			QC Sample #109751							
			Original 140692014							
Total Organic Halides	59473-04-0		41.8	ug/L	104.4	75 - 125	1.10	20	Paired 109750	04/28/14

* - QC result out of range

n/a - Not Applicable

Quality Control Report

Attention Scot Fitzgerald
 Department Wet Chemistry

Group # WSCF140726

Analytical Batch 232757 (QC Batch: 232756) Test Cyanide (W) by Midi/Spectrophotometer
 Associated Samples 140726004, 140726005, 140726006

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
BLANK										
			QC Sample #109764							
Cyanide	57-12-5		<4.0	ug/L					U	04/29/14
LCS										
			QC Sample #109766							
Cyanide	57-12-5		49.9	ug/L	99.8	85 - 115				04/29/14
MS										
			QC Sample #109767							
			Original 140692007							
Cyanide	57-12-5		36.2	ug/L	90.6	75 - 125				04/29/14
MSD										
			QC Sample #109768							
			Original 140692007							
			Paired 109767							
Cyanide	57-12-5		37.1	ug/L	92.7	75 - 125	0.90	20		04/29/14

* - QC result out of range

n/a - Not Applicable

Quality Control Report

Attention Scot Fitzgerald
 Department Inorganic

Group # WSCF140726

Analytical Batch 232784 (QC Batch: 232163) Test ICP-6010 - All possible metals
 Associated Samples 140726004, 140726005, 140726006

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
BLANK		QC Sample #109326								
Iron	7439-89-6	<40		ug/L					U	05/05/14
Magnesium	7439-95-4	<60		ug/L					U	05/05/14
Manganese	7439-96-5	<4.0		ug/L					U	05/05/14
Nickel	7440-02-0	<10		ug/L					U	05/05/14
Potassium	7440-09-7	<250		ug/L					U	05/05/14
Silver	7440-22-4	<5.0		ug/L					U	05/05/14
Sodium	7440-23-5	<100		ug/L					U	05/05/14
Antimony	7440-36-0	<20		ug/L					U	05/05/14
Barium	7440-39-3	<4.0		ug/L					U	05/05/14
Cadmium	7440-43-9	<4.0		ug/L					U	05/05/14
Chromium	7440-47-3	<5.0		ug/L					U	05/05/14
Cobalt	7440-48-4	<4.0		ug/L					U	05/05/14
Copper	7440-50-8	<4.0		ug/L					U	05/05/14
Vanadium	7440-62-2	<5.0		ug/L					U	05/05/14
Zinc	7440-66-6	<5.0		ug/L					U	05/05/14
Calcium	7440-70-2	<50		ug/L					U	05/05/14
Strontium	7440-24-6	<8.0		ug/L					U	05/05/14

* - QC result out of range

n/a - Not Applicable

Quality Control Report

Attention Scot Fitzgerald
 Department Inorganic

Group # WSCF140726

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
Arsenic	7440-38-2		<25	ug/L					U	05/05/14
Beryllium	7440-41-7		<2.0	ug/L					U	05/05/14
LCS			QC Sample #109328							
Iron	7439-89-6		1100	ug/L	110.5	80 - 120				05/05/14
Magnesium	7439-95-4		9830	ug/L	98.3	80 - 120				05/05/14
Manganese	7439-96-5		1000	ug/L	100.4	80 - 120				05/05/14
Nickel	7440-02-0		1000	ug/L	100.2	80 - 120				05/05/14
Potassium	7440-09-7		10100	ug/L	100.6	80 - 120				05/05/14
Silver	7440-22-4		999	ug/L	99.9	80 - 120				05/05/14
Sodium	7440-23-5		9760	ug/L	97.6	80 - 120				05/05/14
Antimony	7440-36-0		1000	ug/L	100.1	80 - 120				05/05/14
Barium	7440-39-3		993	ug/L	99.3	80 - 120				05/05/14
Cadmium	7440-43-9		994	ug/L	99.4	80 - 120				05/05/14
Chromium	7440-47-3		1000	ug/L	100.3	80 - 120				05/05/14
Cobalt	7440-48-4		1010	ug/L	101.2	80 - 120				05/05/14
Copper	7440-50-8		1000	ug/L	100.4	80 - 120				05/05/14
Vanadium	7440-62-2		998	ug/L	99.8	80 - 120				05/05/14
Zinc	7440-66-6		986	ug/L	98.6	80 - 120				05/05/14
Calcium	7440-70-2		19700	ug/L	98.7	80 - 120				05/05/14
Strontium	7440-24-6		1020	ug/L	101.6	80 - 120				05/05/14
Arsenic	7440-38-2		1000	ug/L	100.3	80 - 120				05/05/14
Beryllium	7440-41-7		976	ug/L	97.6	80 - 120				05/05/14

* - QC result out of range

n/a - Not Applicable

Quality Control Report

Attention Scot Fitzgerald
 Department Inorganic

Group # WSCF140726

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
MS		QC Sample #109329								
		Original 140723001								
Iron	7439-89-6	997		ug/L	99.7	75 - 125				05/05/14
Magnesium	7439-95-4	9850		ug/L	98.5	75 - 125				05/05/14
Manganese	7439-96-5	999		ug/L	99.9	75 - 125				05/05/14
Nickel	7440-02-0	976		ug/L	97.6	75 - 125				05/05/14
Potassium	7440-09-7	8770		ug/L	87.7	75 - 125				05/05/14
Silver	7440-22-4	1040		ug/L	103.9	75 - 125				05/05/14
Sodium	7440-23-5	9410		ug/L	94.1	75 - 125				05/05/14
Antimony	7440-36-0	1030		ug/L	102.9	75 - 125				05/05/14
Barium	7440-39-3	981		ug/L	98.1	75 - 125				05/05/14
Cadmium	7440-43-9	1010		ug/L	101	75 - 125				05/05/14
Chromium	7440-47-3	1000		ug/L	100.4	75 - 125				05/05/14
Cobalt	7440-48-4	1000		ug/L	100	75 - 125				05/05/14
Copper	7440-50-8	1030		ug/L	103.4	75 - 125				05/05/14
Vanadium	7440-62-2	1010		ug/L	101.5	75 - 125				05/05/14
Zinc	7440-66-6	969		ug/L	96.9	75 - 125				05/05/14
Calcium	7440-70-2	17300		ug/L	86.3	75 - 125			X	05/05/14
Strontium	7440-24-6	1020		ug/L	102.3	75 - 125				05/05/14
Arsenic	7440-38-2	1040		ug/L	103.9	75 - 125				05/05/14
Beryllium	7440-41-7	999		ug/L	99.9	75 - 125				05/05/14
MSD		QC Sample #109330								
		Original 140723001								
		Paired 109329								
Iron	7439-89-6	992		ug/L	99.2	75 - 125	0.50	20		05/05/14

* - QC result out of range

n/a - Not Applicable

Quality Control Report

Attention Scot Fitzgerald
 Department Inorganic

Group # WSCF140726

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
Magnesium	7439-95-4		8560	ug/L	85.6	75 - 125	2.90	20		05/05/14
Manganese	7439-96-5		996	ug/L	99.6	75 - 125	0.20	20		05/05/14
Nickel	7440-02-0		955	ug/L	95.5	75 - 125	2.10	20		05/05/14
Potassium	7440-09-7		8420	ug/L	84.2	75 - 125	1.80	20		05/05/14
Silver	7440-22-4		1010	ug/L	101.2	75 - 125	2.70	20		05/05/14
Sodium	7440-23-5		8520	ug/L	85.2	75 - 125	2.20	20		05/05/14
Antimony	7440-36-0		1010	ug/L	100.8	75 - 125	2.10	20		05/05/14
Barium	7440-39-3		981	ug/L	98.1	75 - 125	0.00	20		05/05/14
Cadmium	7440-43-9		993	ug/L	99.3	75 - 125	1.70	20		05/05/14
Chromium	7440-47-3		983	ug/L	98.3	75 - 125	2.10	20		05/05/14
Cobalt	7440-48-4		958	ug/L	95.8	75 - 125	4.30	20		05/05/14
Copper	7440-50-8		1010	ug/L	100.9	75 - 125	2.40	20		05/05/14
Vanadium	7440-62-2		999	ug/L	99.9	75 - 125	1.50	20		05/05/14
Zinc	7440-66-6		947	ug/L	94.7	75 - 125	2.30	20		05/05/14
Calcium	7440-70-2		14700	ug/L	73.6	75 - 125	1.80	20	X	05/05/14
Strontium	7440-24-6		1000	ug/L	100	75 - 125	1.40	20		05/05/14
Arsenic	7440-38-2		1020	ug/L	102.1	75 - 125	1.80	20		05/05/14
Beryllium	7440-41-7		1000	ug/L	100.4	75 - 125	0.60	20		05/05/14

* - QC result out of range

n/a - Not Applicable

Quality Control Report

Attention Scot Fitzgerald
 Department Radiochemistry

Group # WSCF140726

Analytical Batch 232883 (QC Batch: 232143)
 Associated Samples 140726004, 140726005, 140726006

Test Plutonium (AEA)

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
BLANK		QC Sample #109242								
Plutonium-238	13981-16-3		0.0070	pCi/L					U	05/06/14
Plutonium-239_240	PU-239/240		0.0070	pCi/L					U	05/06/14
LCS		QC Sample #109243								
Plutonium-239_240	PU-239/240		5.4	pCi/sample	95.1	80 - 120				05/06/14
DUP		QC Sample #109244								
		Original 140726004								
Plutonium-238	13981-16-3	-0.021	7.5E-3	pCi/L			-419.20	20	* U	05/06/14
Plutonium-239_240	PU-239/240	0.0070	-7.5E-3	pCi/L			-6184.60	20	* U	05/06/14

* - QC result out of range

n/a - Not Applicable

Quality Control Report

Attention Scot Fitzgerald
 Department Wet Chemistry

Group # WSCF140726

Analytical Batch 233273 (QC Batch: 233273) Test Total Organic Carbon
 Associated Samples 140726004, 140726005, 140726006

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
BLANK		QC Sample #110042								
Total Organic Carbon	TOC		<0.045	mg/L					U	05/12/14
LCS		QC Sample #110043								
Total Organic Carbon	TOC		2.16	mg/L	107.8	80 - 120				05/12/14
MS		QC Sample #110044								
		Original 140725002								
Total Organic Carbon	TOC		2.13	mg/L	106.7	75 - 125				05/12/14
MSD		QC Sample #110045								
		Original 140725002								
Total Organic Carbon	TOC		2.14	mg/L	107	75 - 125	0.30	20	Paired 110044	05/12/14

* - QC result out of range

n/a - Not Applicable

Quality Control Report

Attention Scot Fitzgerald
 Department Inorganic

Group # WSCF140726

Analytical Batch 233469 (QC Batch: 233468) Test 3E-2008 ICP-MS 3 Elements
 Associated Samples 140726004, 140726005, 140726006

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
BLANK		QC Sample #110063								
Uranium	7440-61-1		<0.050	ug/L					U	05/14/14
LCS		QC Sample #110064								
Uranium	7440-61-1		38.4	ug/L	96	85 - 115				05/14/14
MS		QC Sample #110065								
		Original 140718005								
Uranium	7440-61-1		39.8	ug/L	99.5	70 - 130				05/14/14
MSD		QC Sample #110066								
		Original 140718005								
Uranium	7440-61-1		40.2	ug/L	100.6	70 - 130	1.10	20	Paired 110065	05/14/14

* - QC result out of range

n/a - Not Applicable

Quality Control Report

Attention Scot Fitzgerald
 Department Radiochemistry

Group # WSCF140726

Analytical Batch 232466 (QC Batch: 232172) Test Strontium 89/90 (GPC/GEA)
 Associated Samples 140726004, 140726005, 140726006

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
BLANK										
Strontium Nitrate	10042-76-9			mg	76	25 - 105				05/02/14
LCS										
Strontium Nitrate	10042-76-9			mg	78.5	25 - 105				05/02/14
DUP										
Strontium Nitrate	10042-76-9			mg	71.1	25 - 105	n/a			05/02/14
SAMPLE										
Strontium Nitrate	10042-76-9			mg	75.2	25 - 105				05/02/14
SAMPLE										
Strontium Nitrate	10042-76-9			mg	79.3	25 - 105				05/02/14
SAMPLE										
Strontium Nitrate	10042-76-9			mg	79.3	25 - 105				05/02/14

* - QC result out of range

n/a - Not Applicable

Quality Control Report

Attention Scot Fitzgerald
 Department Radiochemistry

Group # WSCF140726

Analytical Batch 232883 (QC Batch: 232143)
 Associated Samples 140726004, 140726005, 140726006

Test Plutonium (AEA)

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
BLANK										
										QC Sample #109242
Plutonium-242 Tracer	13982-10-0				93	25 - 105				05/06/14
LCS										QC Sample #109243
Plutonium-242 Tracer	13982-10-0				98.5	25 - 105				05/06/14
DUP										QC Sample #109244
										Original 140726004
Plutonium-242 Tracer	13982-10-0				91.7	25 - 105	n/a			05/06/14
SAMPLE										Sample #140726004
Plutonium-242 Tracer	13982-10-0				85.5	25 - 105				05/06/14
SAMPLE										Sample #140726005
Plutonium-242 Tracer	13982-10-0				86.6	25 - 105				05/06/14
SAMPLE										Sample #140726006
Plutonium-242 Tracer	13982-10-0				87.2	25 - 105				05/06/14

* - QC result out of range

n/a - Not Applicable

Attention: Scot Fitzgerald

Group #

WSCF140726

Quality Control Comments

Department Inorganic

109329 B2V2Y7(140723001MS)

Analyte Calcium - ICP-6010 - All possible metals

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

109330 B2V2Y7(140723001MSD)

Analyte Calcium - 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 #

WSCF140726

Quality Control Comments

Department Radiochemistry

108988

B2VYL3(140691003MS)

Analyte Technetium-99 - TC99 by Liquid Scintillation

[1] Matrix spike control limits do not apply when the added spike is <25% of the activity of the sample.

ATTACHMENT4

SAMPLE RECEIPT

Consisting of 9 pages
Including cover page

Waste Sampling and Characterization Facility
P.O. Box 650 S3-30, Richland WA 99352
Phone: (509) 373-7005/FAX: (509) 372-0456

ACKNOWLEDGEMENT OF SAMPLES RECEIVED

WSCF Laboratory

PO Box 650 S3-30
 Richland, WA 99352

Customer Code: CHPRC
CA CN: 401647
Work Order #: 140726
Customer Work ID: S14-004-381
Due Date: 05/22/2014 **(R031)**

ATTN: Scot Fitzgerald

The following samples were received from you on 4/21/2014 2:50:00 PM. They have been scheduled for the tests listed below each sample. If this information is incorrect, please contact WSCF Client Services. Thank you for using Waste Sampling and Characterization Facility.

Sample #	Sample ID	Matrix	Collected	Received
140726001	B2W942	WATER	4/21/2014 10:27	4/21/2014 14:50
Procedure		Compound List		
Anions by Ion Chromatography (Water)		F,Cl,NO2,NO3,SO4		
Sample #	Sample ID	Matrix	Collected	Received
140726002	B2W941	WATER	4/21/2014 13:58	4/21/2014 14:50
Procedure		Compound List		
Anions by Ion Chromatography (Water)		F,Cl,NO2,NO3,SO4		
Sample #	Sample ID	Matrix	Collected	Received
140726003	B2W945	WATER	4/21/2014 11:16	4/21/2014 14:50
Procedure		Compound List		
Anions by Ion Chromatography (Water)		F,Cl,NO2,NO3,SO4		
Sample #	Sample ID	Matrix	Collected	Received
140726004	B2W8K1	WATER	4/21/2014 13:58	4/21/2014 14:50
Procedure		Compound List		
3E-2008 ICP-MS 3 Elements		U		
Cyanide (W) by Midi/Spectrophotometer		CN		
GAB Discrete analysis Alpha only		Alpha		
GAB Discrete analysis Beta only		Beta		
Gamma Energy Analysis-general		GE A GS Common		
ICP-6010 - All possible metals		6010 ICP Common + GW03		
Plutonium (AEA)		Pu-238,Pu-239/240		
Strontium 89/90 (GPC/GEA)		SR89/90		
TC99 by Liquid Scintillation		Tc-99		
Total Alkalinity as mg/L CaCO3 (Water)		Alkalinity,Carbonate,Bicarbonate,Hydroxyl Ion		
Total Organic Carbon		TOC		
Total Organic Halides		TOX		
Tritium by LSC		H3		
Sample #	Sample ID	Matrix	Collected	Received
140726005	B2W8K4	WATER	4/21/2014 10:27	4/21/2014 14:50
Procedure		Compound List		
3E-2008 ICP-MS 3 Elements		U		
Cyanide (W) by Midi/Spectrophotometer		CN		
GAB Discrete analysis Alpha only		Alpha		
GAB Discrete analysis Beta only		Beta		

Waste Sampling and Characterization Facility
P.O. Box 650 S3-30, Richland WA 99352
Phone: (509) 373-7005/FAX: (509) 372-0456

Gamma Energy Analysis-general	GE A GS Common
ICP-6010 - All possible metals	6010 ICP Common + GW03
Plutonium (AEA)	Pu-238,Pu-239/240
Strontium 89/90 (GPC/GE A)	SR89/90
TC99 by Liquid Scintillation	Tc-99
Total Alkalinity as mg/L CaCO3 (Water)	Alkalinity,Carbonate,Bicarbonate,Hydroxyl Ion
Total Organic Carbon	TOC
Total Organic Halides	TOX
Tritium by LSC	H3

Sample #	Sample ID	Matrix	Collected	Received
140726006	B2W8K7	WATER	4/21/2014 11:16	4/21/2014 14:50

Procedure	Compound List
3E-2008 ICP-MS 3 Elements	U
Cyanide (W) by Midi/Spectrophotometer	C N
GAB Discrete analysis Alpha only	Alpha
GAB Discrete analysis Beta only	Beta
Gamma Energy Analysis-general	GE A GS Common
ICP-6010 - All possible metals	6010 ICP Common + GW03
Plutonium (AEA)	Pu-238,Pu-239/240
Strontium 89/90 (GPC/GE A)	SR89/90
TC99 by Liquid Scintillation	Tc-99
Total Alkalinity as mg/L CaCO3 (Water)	Alkalinity,Carbonate,Bicarbonate,Hydroxyl Ion
Total Organic Carbon	TOC
Total Organic Halides	TOX
Tritium by LSC	H3

CH2M Hill Plateau Remediation Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. #

S14-004-382

Page 1 of 1

Collector	DAVE FLOYD	Contact/Requester	Karen Walters-Husted	Telephone No.	509-376-4650
SAF No.	S14-004	Sampling Origin	Hanford Site	Purchase Order/Charge Code	300071ES20
Project Title	SURV, APRIL 2014	Logbook No.	HNF-N-506 <u>6810</u>	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	SURV	Priority	31 Days	Onsite Property No.	N/A

POSSIBLE SAMPLE HAZARDS/REMARKS
 *** Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR/ATA Dangerous Goods Regulations but are not releasable per DOE Order 435.1.

SPECIAL INSTRUCTIONS Hold Time
 Site Wide Generator Knowledge Information Form applies.
 The CACS is analyzed work at WSCF 15401547.

Total Activity Exemption: Yes No

Sample No.	Filter	*	Date	Time	No./Type Container	Sample Analysis	Holding Time	Preservative
B2W045	N	W	APR 21 2014	1116	1X20-ML P	3000 ANIONS_IC:COMMON	48 hours	Cool-4C

Chain of Custody

Relinquished By	DAVE FLOYD	Print	Sign	Date/Time	APR 21 2014	Received By	Cynthia R Johnson	Print	Sign	Date/Time	APR 21 2014
Relinquished By		Date/Time	Received By			Relinquished By		Date/Time		Received By	
Relinquished By		Date/Time	Received By			Relinquished By		Date/Time		Received By	
Relinquished By		Date/Time	Received By			Relinquished By		Date/Time		Received By	
FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process)										

Matrix -

S	=	Soil	DS	=	Drum Solids
SE	=	Sediment	DL	=	Drum Liquids
SD	=	Solid	T	=	Tissue
SL	=	Sluage	WT	=	Wipe
W	=	Water	L	=	Liquid
O	=	Oil	V	=	Vegetation
A	=	Air	X	=	Other

PRINTED O 3/18/2014

A 6004-812 (REV 2)

CH2MHILL Plateau Remediation Company
CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST
 C.O.C.# S14-004-320
 Page 1 of 1

Collector: DAVE FLOYD
 S&P No.: S14 004
 Project Title: SURV, APRIL 2014
 Shipped To (Lab): Waste Sampling & Characterization
 Protocol: SURV
 Contract/Requester: Karen Waters-Husted
 Sampling Origin: Hanford Site
 Logbook No.: HNF-N-506 1810
 Method of Shipment: GOVERNMENT VEHICLE
 Priority: 31 Days PRIORITY
 Telephone No.: 509-376-4650
 Purchase Order/Charge Code: 300071ES20
 Ice Chest No.: N/A
 Bill of Lading/Air Bill No.: N/A
 Onsite Property No.: N/A
 Total Activity Exemption: Yes No

POSSIBLE SAMPLE HAZARDS/REMARKS
 *** Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR/MTA
 Temperature Records Regulations but are not releasable per DOE Order 435.1.
 SPECIAL INSTRUCTIONS: Hold Time
 Site Wide Generator Knowledge Information Form applies.
 The CACN for analytical work at WSCF is 401547.

Sample No.	Filter	Date	Time	No. Type Container	Sample Analysis	Hold Time	Preservative
B2W8K1 A	N	APR 21 2014	1358	1x250-mL P	4500E_CYANIDE: COMMON ✓	14 Days	NaOH to pH >=12
B2W8K1	N			1x250-mL G/P	2320_ALKALINITY: GW 01 ✓	14 Days	Cool-4C
B2W8K1	N			1x500-mL G/P	200.8_METALS_ICPMS: Uranium (1) ✓ 6010_METALS_ICP: COMMON ✓ 6010_METALS_ICP: GW 03 ✓	6 Months	HNO3 to pH <2
B2W8K1	N			1x1-L AGS*	9020_TOX: COMMON ✓	28 Days	H2SO4 to pH <-2/Cool-4C
B2W8K1	N			1x250-mL AG	9060_TTC: COMMON ✓	28 Days	HCl or H2SO4 to pH <-2/Cool-4C
B2W8K1	N			1x500-mL G/P	ALPHA_SPC_DISCRETE: COMMON ✓ BETA_SPC: COMMON ✓	6 Months	HNO3 to pH <2
B2W8K1	N			1x500-mL G/P	GAMMA_GS: COMMON ✓	6 Months	HNO3 to pH <2
B2W8K1	N			1x1-L P	PUEO_IE_PRECIP_AEA: COMMON ✓	180 Days	HNO3 to pH <2
B2W8K1	N			1x1-L G/P	SRTOT_SEP_PRECIP_GFC: COMMON ✓	6 Months	HNO3 to pH <2
B2W8K1	N			1x1-L G/P	TC99_3MDSK_LSC: COMMON ✓	6 Months	HCl to pH <2
B2W8K1	N	APR 21 2014	1358	1x250-mL G	TRITIUM_EE_LSC: COMMON ✓	6 Months	None

Relinquished By	Date/Time	Received By	Date/Time	Matrix *
Relinquished By: DAVE FLOYD	APR 21 2014	Received By: Cynthia R Johnson	APR 21 2014	S = Soil SE = Sediment SO = Solid SL = Sludge W = Water O = Oil A = Air
Relinquished By:	Date/Time	Received By:	Date/Time	DS = Drum Solids DL = Drum Liquids T = Tissue WT = Waste L = Liquid V = Vegetation K = Other
Relinquished By:	Date/Time	Received By:	Date/Time	
Relinquished By:	Date/Time	Received By:	Date/Time	

FINAL SAMPLE DISPOSITION: Disposal Method (e.g., Return to customer, per lab procedure, used in process)
 PRINTED ON 3/18/2014 A 6004-942 (REV 2)

CH2M Hill Plateau Remediation Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. # **S14-004-321**
Page 1 of 1

Collector	DAVE FLOYD	Contact/Requester	Karen Waters-Husted	Telephone No.	509-376-4650
SAL No	S14-004	Sampling Origin	Hanford Site	Purchase Order/Charge Code	300071ES20
Project Title	SURV, APRIL 2014	Labbook No.	HNF-N-506 <u>58/10</u>	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	SURV	Priority:	31 Days	Offsite Property No.	N/A
POSSIBLE SAMPLE HAZARDS/REMARKS *** Certain Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR/DATA Dangerous Goods Regulations but are not releasable per DOE Order 438.1.			SPECIAL INSTRUCTIONS Hold Time Site Walk Generator Knowledge Information Form applies. The CACN for analytical work at WSCF is 401647.		
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
B2W8K4	N	W APR 21 2014	10:27	1X250-mL P	4500E_CYANIDE: COMMON	14 Days	NH ₄ OH to pH >=12
B2W8K4	N	W		1X250 mL G/P	2320_ALKALINITY: GW 01	14 Days	Co ²⁺ -4C
B2W8K4	N	W		1X500-mL G/P	200 & METALS ICPMS: Uranium (1); 6010_METALS_ICP: COMMON; 6010_METALS_ICP: GW 03	6 Months	HNO ₃ to pH <2
B2W8K4	N	W		1X-L AGS*	9020_TOX: COMMON	28 Days	H2SO4 to pH <-2/Co ²⁺ -4C
B2W8K4	N	W		1X250-mL AG	9060_TOC: COMMON	28 Days	HCl or H2SO4 to pH <-2/Co ²⁺ -4C
B2W8K4	N	W		1X500-mL G/P	ALPHA_GFC DISCRETE: COMMON; BETA_GFC: COMMON	6 Months	I NO ₃ to pH <2
B2W8K4	N	W		1X500-mL G/P	GAMMA_GS: COMMON	6 Months	HNO ₃ to pH <2
B2W8K4	N	W		1X1-L P	PUI50_IE_PRECIP_AEA: COMMON	180 Days	HNO ₃ to pH <2
B2W8K4	N	W		1X1-L G/P	SRTOT_SEP_PRECIP_GFC: COMMON	6 Months	HNO ₃ to pH <2
B2W8K4	N	W		1X1-L G/P	TC99_3MDSK_LSC: COMMON	6 Months	-HCl to pH <2
B2W8K4	N	W APR 21 2014	10:27	1X250-mL G	TRITIUM_EE_LSC: COMMON	6 Months	None

Chain of Custody

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
DAVE FLOYD			APR 21 2014	Cynthia R Johnson			APR 21 2014
Relinquished By	Date/Time	Received By	Date/Time	Relinquished By	Date/Time	Received By	Date/Time
Relinquished By	Date/Time	Received By	Date/Time	Relinquished By	Date/Time	Received By	Date/Time
Relinquished By	Date/Time	Received By	Date/Time	Relinquished By	Date/Time	Received By	Date/Time

Matrix *	DS	DL	T	W1	L	Y	X
S = Soil							
SE = Sediment							
SO = Solid							
SL = Sludge							
W = Water							
O = Oil							
A = Air							
D = Dues Solids							
DL = Dirt/Liquids							
T = Tissue							
W1 = Wipe							
L = Liquid							
Y = Vegetation							
X = Other							

PRINTED 0 3/18/2014

A-0004-042 (REV 2)

CH2MHill Plateau Remediation Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. # **S14-004-322**
Page 1 of 1

Collector	DAVE FLOYD	Contract/Requester	Karen Waters-Husted	Telephone No.	509-376-4650
SAB No.	S14-004	Sampling Origin	Hanford Site	Purchase Order/Charge Code	300071FS20
Project Title	SURV, APRIL 2014	Logbook No.	HNF-N-506 <u>68/10</u>	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	SURV	Priority:	31 Days PRIORITY	Offsite Property No.	N/A

POSSIBLE SAMPLE HAZARDS/REMARKS
 *** Contains Radioactive Material of unknown origin that may or may not be regulated for transportation per 49 CFR/MTA Dangerous Goods Regulations but are not releasable per DOE Order 438.1

SPECIAL INSTRUCTIONS Hold Time
 Site Wide Generator Know/edge Information Form applies.
 The CACN for analytical work at WSCF B-40/047

Total Activity Exemption: Yes No

Sample No.	Filter	Date	Time	Nc/Type Container	Sample Analysis	Holding Time	Preservative
B2W8K7	N	APR 21 2014	11:16	1X250-ML P	4500E_CYANIDE: COMMON	14 Days	NaOH to pH >=12
D2W8K7	N			1X250 mL G/P	2320_ALKALINITY: GW 01	14 Days	Cool-4C
B2W8K7	N			1X500-ML G/P	2008_METALS_ICPMS: Uranium (1); 6010_METALS_ICP: COMMON; 6010_METALS_ICP: GW 03	6 Months	HNC3 to pH <2
B2W8K7	N			1X1-L BG5*	9020_TOX: COMMON	28 Days	H2SO4 to pH <2/Cool-4C
B2W8K7	N			1X250-ML a/G	9060_TOX: COMMON	28 Days	HCl or H2SO4 to pH <2/Cool-4C
B2W8K7	N			1X500-ML G/P	ALPHA_GPC: DISCRETE: COMMON; BETA_GPC: COMMON	6 Months	HNC3 to pH <2
B2W8K7	N			1X500-ML G/P	GAMMA_GS: COMMON	6 Months	HNC3 to pH <2
B2W8K7	N			*X1-L P	PUIRO_IE: PRECIP: AEA: COMMON	180 Days	HNC3 to pH <2
B2W8K7	N			1X1-L G/P	SRTOT_SEP: PRECIP: GPC: COMMON	6 Months	HNC3 to pH <2
B2W8K7	N			1X1-L G/P	TC99_3MDSK_LSC: COMMON	6 Months	HCl to pH <2
B2W8K7	N	APR 21 2014		1X250-ML G	TRITIUM_IE: LSC: COMMON	6 Months	None

Relinquished By	Print EVAE FLOYD	Sign	Date APR 21 2014	Received By	Print Cynthia R Johnson	Sign	Date APR 21 2014
Relinquished By				Received By			
Relinquished By				Received By			
Relinquished By				Received By			

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

Disposed By

Date/Time

Matrix *

S	Soil	DS	Dunn Solids
SE	Sediment	DL	Dunn Liquids
SO	Solid	T	Tissue
SL	Silage	WL	Wipe
W	Water	L	Liquid
O	Oil	Y	Vegetation
A	Air	X	Other

Chain of Custody

PRINTED 0 3/18/2014

A-004-642 (REV. 2)