

NOVEMBER 20, 2013

REVISION 1

WSCF Laboratory

PO Box 650 S3-30
Richland, WA 99352



November 20, 2013

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

Dear Scot Fitzgerald,

REVISED131015 - 802226 [Report ID: 131015]

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 WSCF131015

- * 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

REVISED131015 -

ATTACHMENT 1

COVER SHEET

Consisting of 2 pages
Including cover page

WSCF SAF Number Cross Reference

Group # WSCF131015

Data Deliverable Date 10/18/13

SAF #	Sample ID	Sample #	Matrix	Sampled	Received
A13-009	B2PYP0	131015001	WATER	09/17/13	09/17/13
A13-009	B2PYP2	131015002	WATER	09/17/13	09/17/13
W13-009	B2PYH0	131015003	WATER	09/17/13	09/17/13
W13-009	B2PYH1	131015004	WATER	09/17/13	09/17/13
W13-009	B2PY55	131015005	WATER	09/17/13	09/17/13
W13-009	B2PYF9	131015006	WATER	09/17/13	09/17/13
W13-009	B2PYF6	131015007	WATER	09/17/13	09/17/13
W13-009	B2PYF7	131015008	WATER	09/17/13	09/17/13
W13-009	B2PYF8	131015009	WATER	09/17/13	09/17/13
W13-009	B2PY53	131015010	WATER	09/17/13	09/17/13

ATTACHMENT 2

NARRATIVE

Consisting of 3 pages
Including cover page

Attachment 2
Narrative Rev1
WSCF131015

Revision 1: This revision replaces the prior case narrative in its entirety. This revision is adding "C" flag to the TOC result for samples B2PYH0, B2PYH1, B2PY55, B2PYF9, B2PYF6, B2PYF7, B2PYF8, and B2PY53.

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 4, "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.
- **o** – LCS recovery outside established laboratory acceptance limits.

Attachment 2
Narrative Rev1
WSCF131015

Analytical Methodology for Requested Analyses

Refer to *WSCF Method References Report* for a complete listing of approved analytical methods.

Inorganic Comments

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 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):

- Total Organic Carbon was detected in the Blank and evaluated.
- All other 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):

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.

ATTACHMENT 3

ANALYTICAL RESULTS

Consisting of 34 pages
Including cover page

WSCF ANALYTICAL RESULTS REPORT

For

CH2M Hill Plateau Remediation

PO Box 1600
Richland, WA 99352

Attention: Scot Fitzgerald

Contract # MOA-FH-CHPRC-2008
Group # WSCF131015
Report Date November 20, 2013

Analytical: Electronically signed by Joseph Hale

Client Services: Electronically signed by Heather Medley

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.

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Batch QC List

Attention Scot Fitzgerald
Department Inorganic

Group # WSCF131015

QC Batch	Analytical Batch	S#	Type	Sample #	Client Sample#	Original	Test
221767	221790	4	BLANK	98490	BLANK		ICP-2008 MS All possible metal
221767	221790	5	LCS	98491	LCS		ICP-2008 MS All possible metal
221767	221790	7	MS	98492	B2PRT4(131013005MS)	131013005	ICP-2008 MS All possible metal
221767	221790	8	MSD	98493	B2PRT4(131013005MSD)	131013005	ICP-2008 MS All possible metal
221767	221790	12	SAMPLE	131015001	B2PYP0		ICP-2008 MS All possible metal
221767	221790	13	SAMPLE	131015002	B2PYP2		ICP-2008 MS All possible metal
221891	221892	1	BLANK	98943	BLANK		Total Organic Halides
221891	221892	2	LCS	98944	LCS		Total Organic Halides
221891	221892	4	MS	98945	B2PYH0(131015003MS)	131015003	Total Organic Halides
221891	221892	5	MSD	98946	B2PYH0(131015003MSD)	131015003	Total Organic Halides
221891	221892	6	SAMPLE	131015003	B2PYH0		Total Organic Halides
221891	221892	7	SAMPLE	131015004	B2PYH1		Total Organic Halides
221891	221892	8	SAMPLE	131015005	B2PY55		Total Organic Halides
221891	221892	9	SAMPLE	131015006	B2PYF9		Total Organic Halides
221894	221895	1	BLANK	98950	BLANK		Total Organic Halides
221894	221895	2	LCS	98951	LCS		Total Organic Halides
221894	221895	4	MS	98952	B2PYF6(131015007MS)	131015007	Total Organic Halides
221894	221895	5	MSD	98953	B2PYF6(131015007MSD)	131015007	Total Organic Halides
221894	221895	6	SAMPLE	131015007	B2PYF6		Total Organic Halides
221894	221895	7	SAMPLE	131015008	B2PYF7		Total Organic Halides
221894	221895	8	SAMPLE	131015009	B2PYF8		Total Organic Halides
221894	221895	9	SAMPLE	131015010	B2PY53		Total Organic Halides

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Batch QC List

Attention Scot Fitzgerald
 Department Radiochemistry

Group # WSCF131015

QC Batch	Analytical Batch	S#	Type	Sample #	Client Sample#	Original	Test
221492	221587	1	BLANK	98014	BLANK		Tritium by LSC
221492	221587	2	LCS	98015	LCS		Tritium by LSC
221492	221587	4	DUP	98016	B2R1R4(131025001DUP)	131025001	Tritium by LSC
221492	221587	5	MSPK	98017	B2R1R4(131025001MSP)		Tritium by LSC
221492	221587	11	SAMPLE	131015001	B2PYP0		Tritium by LSC
221492	221587	12	SAMPLE	131015002	B2PYP2		Tritium by LSC
221501	221523	1	BLANK	98019	BLANK		TC99 by Liquid Scintillation
221501	221523	2	LCS	98020	LCS		TC99 by Liquid Scintillation
221501	221523	4	DUP	98021	B2R1R4(131025001DUP)	131025001	TC99 by Liquid Scintillation
221501	221523	5	MS	98022	B2R1R4(131025001MS)	131025001	TC99 by Liquid Scintillation
221501	221523	12	SAMPLE	131015001	B2PYP0		TC99 by Liquid Scintillation
221501	221523	13	SAMPLE	131015002	B2PYP2		TC99 by Liquid Scintillation

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Batch QC List

Attention Scot Fitzgerald
 Department Wet Chemistry

Group # WSCF131015

QC Batch	Analytical Batch	S#	Type	Sample #	Client Sample#	Original	Test
221509	221509	2	BLANK	98063	BLANK		Total Organic Carbon
221509	221509	3	LCS	98064	LCS		Total Organic Carbon
221509	221509	4	MS	98065	B2PRW1(131003007MS)	131003007	Total Organic Carbon
221509	221509	5	MSD	98066	B2PRW1(131003007MSD)	131003007	Total Organic Carbon
221509	221509	9	SAMPLE	131015003	B2PYH0		Total Organic Carbon
221509	221509	10	SAMPLE	131015004	B2PYH1		Total Organic Carbon
221509	221509	11	SAMPLE	131015005	B2PY55		Total Organic Carbon
221509	221509	12	SAMPLE	131015006	B2PYF9		Total Organic Carbon
221509	221509	13	SAMPLE	131015007	B2PYF6		Total Organic Carbon
221509	221509	14	SAMPLE	131015008	B2PYF7		Total Organic Carbon
221509	221509	15	SAMPLE	131015009	B2PYF8		Total Organic Carbon
221509	221509	17	MS	98068	B2PY53(131015010MS)	131015010	Total Organic Carbon
221509	221509	18	MSD	98069	B2PY53(131015010MSD)	131015010	Total Organic Carbon
221509	221509	19	SAMPLE	131015010	B2PY53		Total Organic Carbon

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Method Reference

Attention Scot Fitzgerald
 Department Inorganic

Group # WSCF131015

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-505-412	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
LA-523-444	HEIS	200.8_METALS_ICPMS	Determination of Trace Elements in Waters and Waste by Inductively Coupled Plasma, Mass Spec.
	Total Organic Halides Based on SW-846 Method 9020B		
	EPA SW-846	9020B	Total Organic Halides (TOX)
	HEIS	9020_TOX	Total Organic Halides (TOX)

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 # WSCF131015

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-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

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 # WSCF131015

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-344-406	Total Organic Carbon (TOC) Based on SW-846		
	EPA SW-846	9060	Total Organic Carbon
	HEIS	9060_TOC	Total Organic Carbon

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 # WSCF131015

Sample # 131015001
 SAF# A13-009
 Sample ID B2PYP0

Matrix WATER
 Sampled 09/17/13
 Received 09/17/13

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
ICPMS Prep (W)										09/30/13
ICP-2008 MS All possible metal										
Uranium	7440-61-1	LA-505-412	D	0.778		ug/L	2	0.10	0.50	10/01/13

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.

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Attention Scot Fitzgerald
 Department Inorganic

Group # WSCF131015

Sample # 131015002
 SAF# A13-009
 Sample ID B2PYP2

Matrix WATER
 Sampled 09/17/13
 Received 09/17/13

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
ICPMS Prep (W)										09/30/13
ICP-2008 MS All possible metal										
Uranium	7440-61-1	LA-505-412	D	1.01		ug/L	2	0.10	0.50	10/01/13

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.

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Attention Scot Fitzgerald
 Department Inorganic

Group # WSCF131015

Sample # 131015003
 SAF# W13-009
 Sample ID B2PYH0

Matrix WATER
 Sampled 09/17/13
 Received 09/17/13

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
Preparation for TOX (W)										09/23/13
Total Organic Halides										
Total Organic Halides	59473-04-0	LA-523-444		26.4		ug/L	1	5.0	15	09/23/13

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.

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Attention Scot Fitzgerald
 Department Inorganic

Group # WSCF131015

Sample # 131015004
 SAF# W13-009
 Sample ID B2PYH1

Matrix WATER
 Sampled 09/17/13
 Received 09/17/13

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
Preparation for TOX (W)										09/23/13
Total Organic Halides										
Total Organic Halides	59473-04-0	LA-523-444		15.8		ug/L	1	5.0	15	09/23/13

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.

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Attention Scot Fitzgerald
 Department Inorganic

Group # WSCF131015

Sample # 131015005
 SAF# W13-009
 Sample ID B2PY55

Matrix WATER
 Sampled 09/17/13
 Received 09/17/13

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
Preparation for TOX (W)										09/23/13
Total Organic Halides										
Total Organic Halides	59473-04-0	LA-523-444		21.0		ug/L	1	5.0	15	09/23/13

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.

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Attention Scot Fitzgerald
 Department Inorganic

Group # WSCF131015

Sample # 131015006
 SAF# W13-009
 Sample ID B2PYF9

Matrix WATER
 Sampled 09/17/13
 Received 09/17/13

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
Preparation for TOX (W)										09/23/13
Total Organic Halides										
Total Organic Halides	59473-04-0	LA-523-444		17.2		ug/L	1	5.0	15	09/23/13

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.

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Attention Scot Fitzgerald
 Department Inorganic

Group # WSCF131015

Sample # 131015007
 SAF# W13-009
 Sample ID B2PYF6

Matrix WATER
 Sampled 09/17/13
 Received 09/17/13

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
Preparation for TOX (W)										09/23/13
Total Organic Halides										
Total Organic Halides	59473-04-0	LA-523-444	U	<5.0		ug/L	1	5.0	15	09/23/13

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.

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Attention Scot Fitzgerald
 Department Inorganic

Group # WSCF131015

Sample # 131015008
 SAF# W13-009
 Sample ID B2PYF7

Matrix WATER
 Sampled 09/17/13
 Received 09/17/13

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
Preparation for TOX (W)										09/23/13
Total Organic Halides										
Total Organic Halides	59473-04-0	LA-523-444	B	6.24		ug/L	1	5.0	15	09/23/13

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.

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Attention Scot Fitzgerald
 Department Inorganic

Group # WSCF131015

Sample # 131015009
 SAF# W13-009
 Sample ID B2PYF8

Matrix WATER
 Sampled 09/17/13
 Received 09/17/13

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
Preparation for TOX (W)										09/23/13
Total Organic Halides										
Total Organic Halides	59473-04-0	LA-523-444	B	7.54		ug/L	1	5.0	15	09/23/13

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.

REVISED131015 -

Attention Scot Fitzgerald
 Department Inorganic

Group # WSCF131015

Sample # 131015010
 SAF# W13-009
 Sample ID B2PY53

Matrix WATER
 Sampled 09/17/13
 Received 09/17/13

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
Preparation for TOX (W)										09/23/13
Total Organic Halides										
Total Organic Halides	59473-04-0	LA-523-444	U	<5.0		ug/L	1	5.0	15	09/23/13

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.

REVISED131015 -

Attention Scot Fitzgerald
 Department Radiochemistry

Group # WSCF131015

Sample # 131015001
 SAF# A13-009
 Sample ID B2PYP0

Matrix WATER
 Sampled 09/17/13
 Received 09/17/13

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
TC99 by Liquid Scin. WATER/LIQUID PREP										09/19/13
TC99 by Liquid Scintillation										
Technetium-99	14133-76-7	LA-508-421	U	3.4	4.3	pCi/L	1	7.1		09/20/13
Tritium by LSC EICHROM WA/LIQ PREP										09/19/13
Tritium by LSC										
Tritium	10028-17-8	LA-508-421	U	-20	160	pCi/L	1	270		09/26/13

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.

REVISED131015 -

Attention Scot Fitzgerald
 Department Radiochemistry

Group # WSCF131015

Sample # 131015002
 SAF# A13-009
 Sample ID B2PYP2

Matrix WATER
 Sampled 09/17/13
 Received 09/17/13

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
TC99 by Liquid Scin. WATER/LIQUID PREP										09/19/13
TC99 by Liquid Scintillation										
Technetium-99	14133-76-7	LA-508-421	U	1.1	4.2	pCi/L	1	7.1		09/20/13
Tritium by LSC EICHROM WA/LIQ PREP										09/19/13
Tritium by LSC										
Tritium	10028-17-8	LA-508-421	U	31	140	pCi/L	1	270		09/26/13

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.

REVISED131015 -

Attention Scot Fitzgerald
 Department Wet Chemistry

Group # WSCF131015

Sample # 131015003
 SAF# W13-009
 Sample ID B2PYH0

Matrix WATER
 Sampled 09/17/13
 Received 09/17/13

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
09/18/13										
Total Organic Carbon										
Total Organic Carbon	TOC	LA-344-406	C	0.802		mg/L	1	0.10	0.30	09/18/13

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

REVISED131015 -

Attention Scot Fitzgerald
 Department Wet Chemistry

Group # WSCF131015

Sample # 131015004
 SAF# W13-009
 Sample ID B2PYH1

Matrix WATER
 Sampled 09/17/13
 Received 09/17/13

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
										09/18/13
Total Organic Carbon										
Total Organic Carbon	TOC	LA-344-406	C	0.788		mg/L	1	0.10	0.30	09/18/13

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

REVISED131015 -

Attention Scot Fitzgerald
 Department Wet Chemistry

Group # WSCF131015

Sample # 131015005
 SAF# W13-009
 Sample ID B2PY55

Matrix WATER
 Sampled 09/17/13
 Received 09/17/13

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
										09/18/13
Total Organic Carbon										
Total Organic Carbon	TOC	LA-344-406	C	0.804		mg/L	1	0.10	0.30	09/18/13

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

REVISED131015 -

Attention Scot Fitzgerald
 Department Wet Chemistry

Group # WSCF131015

Sample # 131015006
 SAF# W13-009
 Sample ID B2PYF9

Matrix WATER
 Sampled 09/17/13
 Received 09/17/13

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
										09/18/13
Total Organic Carbon										
Total Organic Carbon	TOC	LA-344-406	C	0.820		mg/L	1	0.10	0.30	09/18/13

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

REVISED131015 -

Attention Scot Fitzgerald
 Department Wet Chemistry

Group # WSCF131015

Sample # 131015007
 SAF# W13-009
 Sample ID B2PYF6

Matrix WATER
 Sampled 09/17/13
 Received 09/17/13

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
										09/18/13
Total Organic Carbon										
Total Organic Carbon	TOC	LA-344-406	C	0.633		mg/L	1	0.10	0.30	09/18/13

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

REVISED131015 -

Attention Scot Fitzgerald
 Department Wet Chemistry

Group # WSCF131015

Sample # 131015008
 SAF# W13-009
 Sample ID B2PYF7

Matrix WATER
 Sampled 09/17/13
 Received 09/17/13

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
										09/18/13
Total Organic Carbon										
Total Organic Carbon	TOC	LA-344-406	C	0.627		mg/L	1	0.10	0.30	09/18/13

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

REVISED131015 -

Attention Scot Fitzgerald
 Department Wet Chemistry

Group # WSCF131015

Sample # 131015009
 SAF# W13-009
 Sample ID B2PYF8

Matrix WATER
 Sampled 09/17/13
 Received 09/17/13

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
										09/18/13
Total Organic Carbon										
Total Organic Carbon	TOC	LA-344-406	C	0.613		mg/L	1	0.10	0.30	09/18/13

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

REVISED131015 -

Attention Scot Fitzgerald
 Department Wet Chemistry

Group # WSCF131015

Sample # 131015010
 SAF# W13-009
 Sample ID B2PY53

Matrix WATER
 Sampled 09/17/13
 Received 09/17/13

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
										09/18/13
Total Organic Carbon										
Total Organic Carbon	TOC	LA-344-406	C	0.626		mg/L	1	0.10	0.30	09/18/13

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

REVISED131015 -

Quality Control Report

Attention Scot Fitzgerald
 Department Wet Chemistry

Group # WSCF131015

Analytical Batch 221509 (QC Batch: 221509) Test Total Organic Carbon
 Associated Samples 131015003, 131015004, 131015005, 131015006, 131015007, 131015008, 131015009, 131015010

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
BLANK		QC Sample #98063								
Total Organic Carbon	TOC		0.0646	mg/L						09/18/13
LCS		QC Sample #98064								
Total Organic Carbon	TOC		2.06	mg/L	103.2	80 - 120				09/18/13
MS		QC Sample #98065								
		Original 131003007								
Total Organic Carbon	TOC		1.86	mg/L	92.8	75 - 125				09/18/13
MSD		QC Sample #98066								
		Original 131003007								
Total Organic Carbon	TOC		1.84	mg/L	91.8	75 - 125	0.50	20	Paired 98065	09/18/13
MS		QC Sample #98068								
		Original 131015010								
Total Organic Carbon	TOC	0.626	1.91	mg/L	95.4	75 - 125				09/18/13
MSD		QC Sample #98069								
		Original 131015010								
Total Organic Carbon	TOC	0.626	1.88	mg/L	93.9	75 - 125	1.20	20	Paired 98068	09/18/13

* - QC result out of range

n/a - Not Applicable

Quality Control Report

Attention Scot Fitzgerald
 Department Radiochemistry

Group # WSCF131015

Analytical Batch 221523 (QC Batch: 221501) Test TC99 by Liquid Scintillation
 Associated Samples 131015001, 131015002

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
BLANK										
			QC Sample #98019							
Technetium-99	14133-76-7		-1.2	pCi/L					U	09/20/13
LCS										
			QC Sample #98020							
Technetium-99	14133-76-7		250	pCi/L	99.7	80 - 120				09/20/13
DUP										
			QC Sample #98021							
			Original 131025001							
Technetium-99	14133-76-7		-2.9	pCi/L			-23.40	20	* U	09/20/13
MS										
			QC Sample #98022							
			Original 131025001							
Technetium-99	14133-76-7		1000	pCi/L	104.1	75 - 125				09/20/13

* - QC result out of range

n/a - Not Applicable

Quality Control Report

Attention Scot Fitzgerald
 Department Radiochemistry

Group # WSCF131015

Analytical Batch 221587 (QC Batch: 221492) Test Tritium by LSC
 Associated Samples 131015001, 131015002

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
BLANK										
				QC Sample #98014						
Tritium	10028-17-8		47	pCi/L					U	09/26/13
LCS				QC Sample #98015						
Tritium	10028-17-8		3000	pCi/L	98	80 - 120				09/26/13
DUP				QC Sample #98016						
				Original 131025001						
Tritium	10028-17-8		27	pCi/L			100.80	20	* U	09/26/13
MSPK				QC Sample #98017						
Tritium	10028-17-8		20000	pCi/L	98.2	75 - 125				09/26/13

* - QC result out of range

n/a - Not Applicable

Quality Control Report

Attention Scot Fitzgerald
 Department Inorganic

Group # WSCF131015

Analytical Batch 221790 (QC Batch: 221767) Test ICP-2008 MS All possible metal
 Associated Samples 131015001, 131015002

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
BLANK										
			QC Sample #98490							
Uranium	7440-61-1		<0.050	ug/L					U	10/01/13
LCS										
			QC Sample #98491							
Uranium	7440-61-1		40.7	ug/L	101.7	85 - 115				10/01/13
MS										
			QC Sample #98492							
			Original 131013005							
Uranium	7440-61-1		43.8	ug/L	109.5	70 - 130				10/01/13
MSD										
			QC Sample #98493							
			Original 131013005							
			Paired 98492							
Uranium	7440-61-1		51.6	ug/L	128.9	70 - 130	2.70	20		10/01/13

* - QC result out of range

n/a - Not Applicable

Quality Control Report

Attention Scot Fitzgerald
 Department Inorganic

Group # WSCF131015

Analytical Batch 221892 (QC Batch: 221891) Test Total Organic Halides
 Associated Samples 131015003, 131015004, 131015005, 131015006

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
BLANK		QC Sample #98943								
Total Organic Halides	59473-04-0		<5.0	ug/L					U	09/23/13
LCS		QC Sample #98944								
Total Organic Halides	59473-04-0		390	mg/L	97.4	80 - 120				09/23/13
MS		QC Sample #98945								
		Original 131015003								
Total Organic Halides	59473-04-0	26.4	34.8	ug/L	87	75 - 125				09/23/13
MSD		QC Sample #98946								
		Original 131015003								
		Paired 98945								
Total Organic Halides	59473-04-0	26.4	33.8	ug/L	84.5	75 - 125	1.70	20		09/23/13

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

Quality Control Report

Attention Scot Fitzgerald
 Department Inorganic

Group # WSCF131015

Analytical Batch 221895 (QC Batch: 221894) Test Total Organic Halides
 Associated Samples 131015007, 131015008, 131015009, 131015010

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
BLANK										
			QC Sample #98950							
Total Organic Halides	59473-04-0	<5.0		ug/L					U	09/23/13
LCS			QC Sample #98951							
Total Organic Halides	59473-04-0	417		mg/L	104.3	80 - 120				09/23/13
MS			QC Sample #98952							
			Original 131015007							
Total Organic Halides	59473-04-0	<5.0	42.5	ug/L	106.3	75 - 125				09/23/13
MSD			QC Sample #98953							
			Original 131015007							
Total Organic Halides	59473-04-0	<5.0	43.5	ug/L	108.7	75 - 125	2.20	20	Paired 98952	09/23/13

* - QC result out of range

n/a - Not Applicable

ATTACHMENT4

SAMPLE RECEIPT

Consisting of 7 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

ATTN: Scot Fitzgerald

Customer Code: CHPRC
 CACN: 401647
 Work Order #: 131015
 Customer Work ID: A13-009-004
 Due Date: 10/18/2013

The following samples were received from you on 9/17/2013 1:40:00 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
131015001	B2PYP0	WATER	9/17/2013 12:58	9/17/2013 13:40
Procedure		Compound List		
ICP-2008 MS All possible metal		U		
TC99 by Liquid Scintillation		Tc-99		
Tritium by LSC		H3		
Sample #	Sample ID	Matrix	Collected	Received
131015002	B2PYP2	WATER	9/17/2013 12:13	9/17/2013 13:40
Procedure		Compound List		
ICP-2008 MS All possible metal		U		
TC99 by Liquid Scintillation		Tc-99		
Tritium by LSC		H3		
Sample #	Sample ID	Matrix	Collected	Received
131015003	B2PYH0 (W13-009)	WATER	9/17/2013 12:13	9/17/2013 13:40
Procedure		Compound List		
Total Organic Carbon		TOC		
Total Organic Halides		TOX		
Sample #	Sample ID	Matrix	Collected	Received
131015004	B2PYH1 (W13-009)	WATER	9/17/2013 12:13	9/17/2013 13:40
Procedure		Compound List		
Total Organic Carbon		TOC		
Total Organic Halides		TOX		
Sample #	Sample ID	Matrix	Collected	Received
131015005	B2PY55 (W13-009)	WATER	9/17/2013 12:13	9/17/2013 13:40
Procedure		Compound List		
Total Organic Carbon		TOC		
Total Organic Halides		TOX		
Sample #	Sample ID	Matrix	Collected	Received
131015006	B2PYF9 (W13-009)	WATER	9/17/2013 12:13	9/17/2013 13:40
Procedure		Compound List		
Total Organic Carbon		TOC		
Total Organic Halides		TOX		

REVISED131015 -

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

Sample #	Sample ID	Matrix	Collected	Received
131015007	B2PYF6 (W13-009)	WATER	9/17/2013 12:58	9/17/2013 13:40
Procedure		Compound List		
Total Organic Carbon		TOC		
Total Organic Halides		TOX		
Sample #	Sample ID	Matrix	Collected	Received
131015008	B2PYF7 (W13-009)	WATER	9/17/2013 12:58	9/17/2013 13:40
Procedure		Compound List		
Total Organic Carbon		TOC		
Total Organic Halides		TOX		
Sample #	Sample ID	Matrix	Collected	Received
131015009	B2PYF8 (W13-009)	WATER	9/17/2013 12:58	9/17/2013 13:40
Procedure		Compound List		
Total Organic Carbon		TOC		
Total Organic Halides		TOX		
Sample #	Sample ID	Matrix	Collected	Received
131015010	B2PY53 (W13-009)	WATER	9/17/2013 12:58	9/17/2013 13:40
Procedure		Compound List		
Total Organic Carbon		TOC		
Total Organic Halides		TOX		

Chain of Custody

C.O.C. # A13-009-004		Page 1 of 1	
CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			
Collector Frank Hall	Contact/Requester Karen Waters-Husted	Telephone No. 509-376-4650	
SAF No. A13-009	Sampling Origin Hanford Site	Purchase Order/Charge Code 300071ES20	
Project Title LLWMA(3)-PA, SEPTEMBER 2013	Logbook No. HNF-N-506 51/90	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 Other	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 (1998/1992)			
131015			
Sample No.	Filter	Date	Time
B2PYPO 1	N	9/17/13	1258
B2PYPO	N	↓	↓
B2PYPO	N	↓	↓
No/Type Container	Sample Analysis	Hold Time	Preservative
1x500-mL G/P	200.8_METALS_ICPMS: Uranium (1)	6 Months	HNO3 to pH <2
1x1-L G/P	TC99_3MDSK_LSC: COMMON	6 Months	HCl to pH <2
1x250-mL G	TRITIUM_EIE_LSC: COMMON	6 Months	None

SPECIAL INSTRUCTIONS Hold Time
 Site Wide Generator Knowledge Information Form applies.
 The CACN for all analytical work at WSCF is 401647.

Total Activity Exemption: Yes No

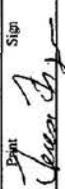
Relinquished By Frank Hall	Print 	Sign	Date/Time SEP 17 2013 1340	Received By TA Fina 2424	Print 	Sign	Date/Time SEP 17 2013 1340
Relinquished By				Received By			
Relinquished By				Received By			
Relinquished By				Received By			
Disposal Method (e.g., Return to customer, per lab procedure, used in process)							
Disposed By							
Date/Time							
Date/Time							
Date/Time							
Date/Time							

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

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Chain of Custody

CH2MHill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		C.O.C. # A13-009-005
Collector Frank Hall		Contact/Requester Karen Waters-Husted	Telephone No. 509-376-4650	Page 1 of 1
SAF No. A13-009	Sampling Origin Hanford Site	Purchase Order/Charge Code 30007IES20	Ice Chest No. N/A	
Project Title LLWMA(3)-PA, SEPTEMBER 2013	Logbook No. HNF-N-506 51/89	Method of Shipment GOVERNMENT VEHICLE	Bill of Lading/Air Bill No. N/A	
Shipped To (Lab) Waste Sampling & Characterization	Priority: 31 Days	Offsite Property No. N/A	Total Activity Exemption: Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Protocol Other	SPECIAL INSTRUCTIONS PRIORITY	Site Wide Generator Knowledge Information Form applies The CACN for all analytical work at WSCF is 401647.		
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)				
Filter * N	Date 9/17/13	No./Type Container 1x500-mL G/P	Sample Analysis 200.8_METALS_ICPMS: Uranium (1)	Holding Time 6 Months
Filter * N	Date ↓	No./Type Container 1x1-L G/P	Sample Analysis TC99_3MDSK_LSC: COMMON	Holding Time 6 Months
Filter * N	Date ↓	No./Type Container 1x250-mL G	Sample Analysis TRITIUM_EIE_LSC: COMMON	Holding Time 6 Months

Relinquished By Frank Hall	Date/Time SEP 17 2013 1340	Received By TA FRAZIER	Date/Time SEP 17 2013 1340	Sign 	Matrix * S = Soil DS = Drum Solids SE = Sediment DL = Drum Liquids SO = Solid T = Tissue SL = Sludge WI = Wipe W = Water L = Liquid O = Oil V = Vegetation A = Air X = Other
Relinquished By (Blank)	Date/Time (Blank)	Received By (Blank)	Date/Time (Blank)	Sign (Blank)	Matrix * (Blank)
Relinquished By (Blank)	Date/Time (Blank)	Received By (Blank)	Date/Time (Blank)	Sign (Blank)	Matrix * (Blank)
Relinquished By (Blank)	Date/Time (Blank)	Received By (Blank)	Date/Time (Blank)	Sign (Blank)	Matrix * (Blank)
Disposal Method (e.g., Return to customer, per Lab procedure, used in process)					Date/Time (Blank)
Disposed By (Blank)					Date/Time (Blank)
Disposal Method (e.g., Return to customer, per Lab procedure, used in process)					Date/Time (Blank)

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Chain of Custody

CH2MHHI Plateau Remediation Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. # **W13-009-100** Page 1 of 1

Collector **Frank Hall** Contact/Requester **Karen Waters-Husted** Telephone No. **509-376-4650**

SAF No. **W13-009** Sampling Origin **Hanford Site** Purchase Order/Charge Code **300071ES20**

Project Title **RCRA, SEPTEMBER 2013** Logbook No. **HNF-N-506 5189** 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 **RCRA** Priority: **31 Days** **PRIORITY** 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 (1999/1993)

SPECIAL INSTRUCTIONS **Hold Time** Total Activity Exemption: Yes No

Site Wide Generator Knowledge Information Form applies. The CACN for all analytical work at WSCF is 401647.

Sample No.	Filter	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B2PYH0 3	N	9/17/13	1213	1x1-L aGs*	9020_TOX: COMMON	28 Days	H2SO4 to pH <2/Cool-4C
B2PYH0 ↓	N			1x250-mL aG	9060_TOX: COMMON	28 Days	HCl or H2SO4 to pH <2/Cool-4C
B2PYH1 4	N			1x1-L aGs*	9020_TOX: COMMON	28 Days	H2SO4 to pH <2/Cool-4C
B2PYH1 ↓	N			1x250-mL aG	9060_TOX: COMMON	28 Days	HCl or H2SO4 to pH <2/Cool-4C
B2PY55 5	N			1x1-L aGs*	9020_TOX: COMMON	28 Days	H2SO4 to pH <2/Cool-4C
B2PY55 ↓	N			1x250-mL aG	9060_TOX: COMMON	28 Days	HCl or H2SO4 to pH <2/Cool-4C
B2PYF9 6	N			1x1-L aGs*	9020_TOX: COMMON	28 Days	H2SO4 to pH <2/Cool-4C
B2PYF9 ↓	N			1x250-mL aG	9060_TOX: COMMON	28 Days	HCl or H2SO4 to pH <2/Cool-4C

Relinquished By **Frank Hall** Sign **SEP 17 2013 1340** Received By **TA FINEZ** Sign **SEP 17 2013 1340** Matrix * **S**

Relinquished By **Frank Hall** Sign **SEP 17 2013 1340** Received By **TA FINEZ** Sign **SEP 17 2013 1340** Date/Time **1340**

Relinquished By **Frank Hall** Sign **SEP 17 2013 1340** Received By **TA FINEZ** Sign **SEP 17 2013 1340** Date/Time **1340**

Relinquished By **Frank Hall** Sign **SEP 17 2013 1340** Received By **TA FINEZ** Sign **SEP 17 2013 1340** Date/Time **1340**

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

Disposed By **TA FINEZ** Sign **SEP 17 2013 1340** Date/Time **1340**

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Chain of Custody

CH2MHill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		C.O.C. # W13-009-099	
Collector Frank Hill		Contact/Requester Karen Waters-Husted	Telephone No. 509-376-4650	Page 1 of 1	
SAF No. W13-009	Sampling Origin Hanford Site	Logbook No. HNF-N-506 51 / 90	Purchase Order/Charge Code 30007IES20	Ice Chest No. N/A	
Project Title RCRA, SEPTEMBER 2013	Method of Shipment GOVERNMENT VEHICLE	Priority: 31 Days	Offsite Property No. N/A	Bill of Lading/Air Bill No. N/A	
Shipped To (Lab) Waste Sampling & Characterization	Protocol RCRA	POSSIBLE SAMPLE HAZARDS/REMARKS		Total Activity Exemption: Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
** ** 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)					
Filter	No./Type Container	No./Type Container	Sample Analysis	Hold Time	Preservative
7 N W	1x1-L aGs*	9020_TOX: COMMON	COMMON	28 Days	H2SO4 to pH <2/Cool-4C
↓ N W	1x250-mL aG	9060_TOX: COMMON	COMMON	28 Days	HCl or H2SO4 to pH <2/Cool-4C
9 N W	1x1-L aGs*	9020_TOX: COMMON	COMMON	28 Days	H2SO4 to pH <2/Cool-4C
↓ N W	1x250-mL aG	9060_TOX: COMMON	COMMON	28 Days	HCl or H2SO4 to pH <2/Cool-4C
10 N W	1x1-L aGs*	9020_TOX: COMMON	COMMON	28 Days	H2SO4 to pH <2/Cool-4C
↓ N W	1x250-mL aG	9060_TOX: COMMON	COMMON	28 Days	HCl or H2SO4 to pH <2/Cool-4C
8 N W	1x1-L aGs*	9020_TOX: COMMON	COMMON	28 Days	H2SO4 to pH <2/Cool-4C
↓ N W	1x250-mL aG	9060_TOX: COMMON	COMMON	28 Days	HCl or H2SO4 to pH <2/Cool-4C

Relinquished By Frank Hill	Print [Signature]	Sign	Date/Time SEP 17 2013 1340	Received By TA Frazier	Print [Signature]	Sign	Date/Time SEP 17 2013 1340
Relinquished By			Date/Time	Received By			Date/Time
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 7/29/2013				A-6004-842 (REV 2)			