

OCTOBER 7, 2013

**WSCF Laboratory**

PO Box 650 S3-30  
Richland, WA 99352



October 7, 2013

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

Dear Scot Fitzgerald,

**FINAL RESULT FOR SAMPLE DELIVERY GROUP WSCF130967**

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 WSCF130967

- \* 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

OCTOBER 7, 2013

ATTACHMENT 1

**COVER SHEET**

Consisting of 2 pages  
Including cover page

**WSCF SAF Number Cross Reference**

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Group # WSCF130967

Data Deliverable Date 10/10/13

SAF #	Sample ID	Sample #	Matrix	Sampled	Received
X14-001	B2RC20	130967001	WATER	09/09/13	09/09/13
X14-001	B2RC23	130967002	WATER	09/09/13	09/09/13
X14-001	B2RC27	130967003	WATER	09/09/13	09/09/13
X14-001	B2RCL2	130967004	WATER	09/09/13	09/09/13
X14-001	B2RCL5	130967005	WATER	09/09/13	09/09/13
X14-001	B2RCY6	130967006	WATER	09/09/13	09/09/13
X14-001	B2RCY9	130967007	WATER	09/09/13	09/09/13
X14-001	B2RD03	130967008	WATER	09/09/13	09/09/13
X14-005	B2RJ94	130967009	WATER	09/09/13	09/09/13
X14-001	B2RC19	130967010	WATER	09/09/13	09/09/13
X14-001	B2RC26	130967011	WATER	09/09/13	09/09/13
X14-001	B2RC18	130967012	WATER	09/09/13	09/09/13
X14-001	B2RC22	130967013	WATER	09/09/13	09/09/13
X14-001	B2RCL1	130967014	WATER	09/09/13	09/09/13
X14-001	B2RCL4	130967015	WATER	09/09/13	09/09/13
X14-001	B2RCY7	130967016	WATER	09/09/13	09/09/13
X14-001	B2RD00	130967017	WATER	09/09/13	09/09/13
X14-001	B2RD04	130967018	WATER	09/09/13	09/09/13
X14-001	B2RD02	130967019	WATER	09/09/13	09/09/13
X14-001	B2RC25	130967020	WATER	09/09/13	09/09/13
X14-001	B2RC28	130967021	WATER	09/09/13	09/09/13
X14-001	B2RC29	130967022	WATER	09/09/13	09/09/13

ATTACHMENT 2

**NARRATIVE**

Consisting of 5 pages  
Including cover page

### Introduction

Samples were received at the WSCF laboratory as referenced on the WSCF SAF Number Cross Reference table included in the final report. The samples were analyzed for the analytes indicated on the attached copy of the chain of custody (COC) form in accordance with the *Statement of Work (SOW), Master Contract 39818, Revision 3, "Laboratory Analytical Services to CHPRC Soil and Groundwater Remediation Project."*

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

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

- Sample Issue Resolution Form SDR13-245 regarding charge codes is attached to this report.

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 Duplicate, Matrix Spike, Matrix Spike Duplicate, Blank and Laboratory Control Sample were analyzed with this delivery group. Analytical Note(s):

- Batch QC 221329
  - Sulfate – 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.

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

- All applicable QC controls are within the established limits.

**ICP-AES Metals** – The hold time requirements for this analysis were met. A Matrix Spike, Matrix Spike Duplicate, Blank and Laboratory Control Sample were analyzed with this delivery group. Analytical Note(s):

- Sodium – Exceeded spiking levels by a factor of 4. Spike recoveries and associated RPDs are not valid.
- All other applicable QC controls are within the established limits.

**Radiochemistry Comments**

**Rad Chem** – The hold time requirement for this analysis was met. A Duplicate, Matrix Spike (Matrix Spikes apply only to 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.

**Strontium-89/90:**

- All applicable QC controls are within the established limits.

**Tritium:**

- 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

Attachment 2  
**Narrative**  
WSCF130967

Client Services representative as verified by electronic signatures shown on the WSCF ANALYTICAL RESULTS REPORT.

**SAMPLE ISSUE RESOLUTION**

<b>SIR NUM</b>	SDR13-245
<b>REV NUM</b>	0
<b>DATE INITIATED</b>	9/11/2013

**SAMPLE EVENT INFORMATION**

<b>SAF NUM(S)</b>	X14-005, X14-001
<b>OPERABLE UNIT(S)</b>	NONE
<b>PROJECT(S)</b>	SURV14
<b>SAMPLE EVENT TITLE(S)</b>	SURV14
<b>LABORATORY</b>	Waste Sampling & Characterization

**SAMPLING INFORMATION**

<b>NUMBER OF SAMPLES</b>	74
<b>SAMPLE NUMBERS</b>	B2RC18, B2RC19, B2RC20, B2RC22, B2RC23, B2RC25, B2RC26, B2RC27, B2RC28, B2RC29, B2RC31, B2RC32, B2RC34, B2RC35, B2RC36, B2RC37, B2RC38, B2RC40, B2RC41, B2RC43, B2RC44, B2RC46, B2RC47, B2RC48, B2RC49, B2RC50, B2RC52, B2RC53, B2RCL1, B2RCL2, B2RCL4, B2RCL5, B2RCL7, B2RCL8, B2RCL9, B2RCM0, B2RCM1, B2RCM3, B2RCM4, B2RCM6, B2RCM7, B2RCY6, B2RCY7, B2RCY9, B2RD00, B2RD02, B2RD03, B2RD04, B2RF25, B2RF26, B2RF28, B2RF29, B2RF31, B2RF32, B2RF33, B2RF35, B2RF36, B2RF38, B2RF39, B2RF41, B2RF42, B2RF43, B2RF81, B2RF83, B2RF84, B2RF85, B2RF86, B2RF87, B2RFM4, B2RFM5, B2RFM6, B2RFM7, B2RJ94, B2RJ95

<b>SAMPLE MATRIX</b>	WATER
<b>COLLECTION DATE</b>	9/9/2013 - 9/9/2013
<b>SDG NUM</b>	WSCF130967, WSCF130968

**ISSUE BACKGROUND**

<b>CLASS</b>	Sample Management Issues
<b>TYPE</b>	Other SDM issue (specify)

<b>DESCRIPTION</b>	SAF's X14-001 and X14-005 are new and the CACN or CACN's for WSCF analysis need clarification. All Chains list 303309 as the CACN. Some chains list 403899 as the WSCF charge code. CACN 404437 was given to WSCF as the charge code for Aquifer Tubes.
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**DISPOSITION**

<b>DESCRIPTION</b>	Proposed Disposition: Provide correct charge code to WSCF for each SAF, remove 403899 from future COC's if applicable, and clarify whether X14-001 and X14-005 SAF's may be combined into one Work Order.
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**JUSTIFICATION**

Accepted Disposition: First, clarify the CACN for the samples. This SAF has 2 approved CACNs and both are correct depending on the location of the well. The chain of custody CACN should be correct, the comment in the special instructions probably is not. The WSCF crosswalk for the BC CACN (303309) did not come through our system until yesterday and thus we were not able to put it on the special instructions for these chains. All the samples in this SIR are, in fact, BC5-area and need to use the 303308 (CHPRC) CACN. The crosswalk for that is 404437. The correct CACNs should be on all paperwork not yet in the field.

The second issue was if X14-001 and X14-005 can be batched together. Yes, they can.

SUBMITTED BY: Joseph S. Hale/WSCF Date: 9/11/13  
ACCEPTED BY: Karen Waters-Husted/CHPRC Date: 9/11/13

OCTOBER 7, 2013

ATTACHMENT 3

**ANALYTICAL RESULTS**

Consisting of 40 pages  
Including cover page

OCTOBER 7, 2013

**WSCF ANALYTICAL RESULTS REPORT**

For

CH2M Hill Plateau Remediation

PO Box 1600  
Richland, WA 99352

Attention: Scot Fitzgerald

**Contract #** MOA-FH-CHPRC-2008  
**Group #** WSCF130967  
**Report Date** October 7, 2013

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.*

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## Batch QC List

Attention Scot Fitzgerald  
Department Inorganic

Group # WSCF130967

QC Batch	Analytical Batch	S#	Type	Sample #	Client Sample#	Original	Test
221102	221102	1	BLANK	97557	BLANK		Hexavalent chromium Discrete Analyzer
221102	221102	3	LCS	97559	LCS		Hexavalent chromium Discrete Analyzer
221102	221102	4	DUP	97560	B2PW30(130969001DUP)	130969001	Hexavalent chromium Discrete Analyzer
221102	221102	5	MS	97561	B2PW30(130969001MS)	130969001	Hexavalent chromium Discrete Analyzer
221102	221102	7	SAMPLE	130967001	B2RC20		Hexavalent chromium Discrete Analyzer
221102	221102	8	SAMPLE	130967002	B2RC23		Hexavalent chromium Discrete Analyzer
221102	221102	9	SAMPLE	130967003	B2RC27		Hexavalent chromium Discrete Analyzer
221102	221102	10	SAMPLE	130967004	B2RCL2		Hexavalent chromium Discrete Analyzer
221102	221102	11	SAMPLE	130967005	B2RCL5		Hexavalent chromium Discrete Analyzer
221102	221102	12	SAMPLE	130967006	B2RCY6		Hexavalent chromium Discrete Analyzer
221102	221102	13	SAMPLE	130967007	B2RCY9		Hexavalent chromium Discrete Analyzer
221102	221102	14	SAMPLE	130967008	B2RD03		Hexavalent chromium Discrete Analyzer
221102	221102	15	SAMPLE	130967009	B2RJ94		Hexavalent chromium Discrete Analyzer
221300	221357	5	BLANK	97611	BLANK		ICP-6010 - All possible metals
221300	221357	7	LCS	97613	LCS		ICP-6010 - All possible metals
221300	221357	9	MS	97614	B2PXB3(130959004MS)	130959004	ICP-6010 - All possible metals
221300	221357	10	MSD	97615	B2PXB3(130959004MSD)	130959004	ICP-6010 - All possible metals
221300	221357	27	SAMPLE	130967021	B2RC28		ICP-6010 - All possible metals
221300	221357	28	SAMPLE	130967022	B2RC29		ICP-6010 - All possible metals
221329	221329	2	BLANK	97714	BLANK		Anions by Ion Chromatography (Water)
221329	221329	3	LCS	97715	LCS		Anions by Ion Chromatography (Water)
221329	221329	4	DUP	97716	B2RC19(130967010DUP)	130967010	Anions by Ion Chromatography (Water)
221329	221329	5	MS	97717	B2RC19(130967010MS)	130967010	Anions by Ion Chromatography (Water)

Batch QC List

Attention Scot Fitzgerald  
 Department Inorganic

Group # WSCF130967

QC Batch	Analytical Batch	S#	Type	Sample #	Client Sample#	Original	Test
221329	221329	6	MSD	97718	B2RC19(130967010MSD)	130967010	Anions by Ion Chromatography (Water)
221329	221329	7	SAMPLE	130967010	B2RC19		Anions by Ion Chromatography (Water)
221329	221329	8	SAMPLE	130967011	B2RC26		Anions by Ion Chromatography (Water)

## Batch QC List

Attention Scot Fitzgerald  
 Department Radiochemistry

Group # WSCF130967

QC Batch	Analytical Batch	S#	Type	Sample #	Client Sample#	Original	Test
221101	221365	1	BLANK	97553	BLANK		Tritium by LSC
221101	221365	2	LCS	97554	LCS		Tritium by LSC
221101	221365	4	DUP	97555	B2PW31(130969002DUP	130969002	Tritium by LSC
221101	221365	5	MSPK	97556	B2PW31(130969002MSP		Tritium by LSC
221101	221365	6	SAMPLE	130967012	B2RC18		Tritium by LSC
221101	221365	7	SAMPLE	130967013	B2RC22		Tritium by LSC
221101	221365	8	SAMPLE	130967014	B2RCL1		Tritium by LSC
221101	221365	9	SAMPLE	130967015	B2RCL4		Tritium by LSC
221101	221365	10	SAMPLE	130967019	B2RD02		Tritium by LSC
221101	221365	11	SAMPLE	130967020	B2RC25		Tritium by LSC
221533	221773	1	BLANK	98099	BLANK		Strontium 89/90 (GPC/GEA)
221533	221773	2	LCS	98100	LCS		Strontium 89/90 (GPC/GEA)
221533	221773	3	DUP	98101	B2PXD4(130963003DUP)	130963003	Strontium 89/90 (GPC/GEA)
221533	221773	8	SAMPLE	130967016	B2RCY7		Strontium 89/90 (GPC/GEA)
221533	221773	9	SAMPLE	130967017	B2RD00		Strontium 89/90 (GPC/GEA)
221533	221773	10	SAMPLE	130967018	B2RD04		Strontium 89/90 (GPC/GEA)

Method Reference

Attention Scot Fitzgerald  
 Department Inorganic

Group # WSCF130967

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.

<b>LA-265-403</b>	Hexavalent Chromium Analysis		
	EPA SW-846	7196A	Hexavalent Chromium
	HEIS	7196_CR6	Hexavalent Chromium
<b>LA-505-411</b>	Elemental Analysis by ICP Atomic Emission Spectroscopy (ICP AES)		
	EPA SW-846	6010C	Inductively Coupled Plasma-Atomic Emmission Spectrometry
	HEIS	6010_METALS_ICP	Inductively Coupled Plasma-Atomic Emmission Spectrometry
<b>LA-533-410</b>	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 #** WSCF130967

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.

<b>LA-218-413</b>	Tritium By Ion Removal Using Eichrom Resin Columns (Prep)		
	N/A	PREP METHOD	
<b>LA-220-406</b>	Strontium-89 and 90 in Aqueous Samples by SR-SPEC Separation		
	HEIS	SRTOT_SEP_PRECIP_GPC	Strontium 89/90, by Sr-Spec Sep.
<b>LA-508-421</b>	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>

Attention Scot Fitzgerald  
 Department Inorganic

Group # WSCF130967

Sample # 130967001  
 SAF# X14-001  
 Sample ID B2RC20

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

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
										09/09/13
<b>Hexavalent chromium Discrete Analyzer</b>										
Hexavalent chromium	18540-29-9	LA-265-403	U	<0.0020		mg/L	1	0.0020	0.0050	09/09/13

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.

Attention Scot Fitzgerald  
 Department Inorganic

Group # WSCF130967

Sample # 130967002  
 SAF# X14-001  
 Sample ID B2RC23

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

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
										09/09/13
<b>Hexavalent chromium Discrete Analyzer</b>										
Hexavalent chromium	18540-29-9	LA-265-403	U	<0.0020		mg/L	1	0.0020	0.0050	09/09/13

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.

Attention Scot Fitzgerald  
 Department Inorganic

Group # WSCF130967

Sample # 130967003  
 SAF# X14-001  
 Sample ID B2RC27

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

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
										09/09/13
<b>Hexavalent chromium Discrete Analyzer</b>										
Hexavalent chromium	18540-29-9	LA-265-403		0.00530		mg/L	1	0.0020	0.0050	09/09/13

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.

Attention Scot Fitzgerald  
 Department Inorganic

Group # WSCF130967

Sample # 130967004  
 SAF# X14-001  
 Sample ID B2RCL2

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

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
										09/09/13
<b>Hexavalent chromium Discrete Analyzer</b>										
Hexavalent chromium	18540-29-9	LA-265-403		0.00580		mg/L	1	0.0020	0.0050	09/09/13

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.

Attention Scot Fitzgerald  
 Department Inorganic

Group # WSCF130967

Sample # 130967005  
 SAF# X14-001  
 Sample ID B2RCL5

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

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
										09/09/13
<b>Hexavalent chromium Discrete Analyzer</b>										
Hexavalent chromium	18540-29-9	LA-265-403		0.00550		mg/L	1	0.0020	0.0050	09/09/13

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.  
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U - Analyzed for but not detected above limiting criteria.  
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 PQL is equivalent to Estimated Quantitation Limit (EQL)  
 o - LCS recovery outside established laboratory acceptance limits.  
 o - LCS recovery outside established laboratory acceptance limits.

Attention Scot Fitzgerald  
 Department Inorganic

Group # WSCF130967

Sample # 130967006  
 SAF# X14-001  
 Sample ID B2RCY6

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

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
										09/09/13
<b>Hexavalent chromium Discrete Analyzer</b>										
Hexavalent chromium	18540-29-9	LA-265-403		0.00640		mg/L	1	0.0020	0.0050	09/09/13

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.

Attention Scot Fitzgerald  
 Department Inorganic

Group # WSCF130967

Sample # 130967007  
 SAF# X14-001  
 Sample ID B2RCY9

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

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
										09/09/13
<b>Hexavalent chromium Discrete Analyzer</b>										
Hexavalent chromium	18540-29-9	LA-265-403		0.00690		mg/L	1	0.0020	0.0050	09/09/13

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.

Attention Scot Fitzgerald  
 Department Inorganic

Group # WSCF130967

Sample # 130967008  
 SAF# X14-001  
 Sample ID B2RD03

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

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
										09/09/13
<b>Hexavalent chromium Discrete Analyzer</b>										
Hexavalent chromium	18540-29-9	LA-265-403		0.00660		mg/L	1	0.0020	0.0050	09/09/13

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.

Attention Scot Fitzgerald  
 Department Inorganic

Group # WSCF130967

Sample # 130967009  
 SAF# X14-005  
 Sample ID B2RJ94

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

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
										09/09/13
<b>Hexavalent chromium Discrete Analyzer</b>										
Hexavalent chromium	18540-29-9	LA-265-403	B	0.00470		mg/L	1	0.0020	0.0050	09/09/13

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.

Attention Scot Fitzgerald  
 Department Inorganic

Group # WSCF130967

Sample # 130967010  
 SAF# X14-001  
 Sample ID B2RC19

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

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
<b>09/09/13</b>										
<b>Anions by Ion Chromatography (Water)</b>										
Fluoride	16984-48-8	LA-533-410	BD	0.0997		ug/mL	2	0.050	1.0	09/09/13
Chloride	16887-00-6	LA-533-410	D	2.57		ug/mL	2	0.12	0.80	09/09/13
Nitrite-N	NO2-N	LA-533-410	UD	<0.040		ug/mL	2	0.040	0.20	09/09/13
Nitrate-N	NO3-N	LA-533-410	D	0.968		ug/mL	2	0.040	0.20	09/09/13
Sulfate	14808-79-8	LA-533-410	D	17.7		ug/mL	2	0.22	1.1	09/09/13

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.

Attention Scot Fitzgerald  
 Department Inorganic

Group # WSCF130967

Sample # 130967011  
 SAF# X14-001  
 Sample ID B2RC26

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

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
<b>09/09/13</b>										
<b>Anions by Ion Chromatography (Water)</b>										
Fluoride	16984-48-8	LA-533-410	BD	0.0966		ug/mL	2	0.050	1.0	09/09/13
Chloride	16887-00-6	LA-533-410	D	2.51		ug/mL	2	0.12	0.80	09/09/13
Nitrite-N	NO2-N	LA-533-410	UD	<0.040		ug/mL	2	0.040	0.20	09/09/13
Nitrate-N	NO3-N	LA-533-410	D	0.924		ug/mL	2	0.040	0.20	09/09/13
Sulfate	14808-79-8	LA-533-410	D	17.1		ug/mL	2	0.22	1.1	09/09/13

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.

Attention Scot Fitzgerald  
 Department Inorganic

Group # WSCF130967

Sample # 130967021  
 SAF# X14-001  
 Sample ID B2RC28

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

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
<b>ICPAES Prep (W)</b>										<b>09/16/13</b>
<b>ICP-6010 - All possible metals</b>										
Iron	7439-89-6	LA-505-411		122		ug/L	1	20	100	09/17/13
Magnesium	7439-95-4	LA-505-411		8950		ug/L	1	6.0	30	09/17/13
Manganese	7439-96-5	LA-505-411		25.6		ug/L	1	4.0	20	09/17/13
Nickel	7440-02-0	LA-505-411	U	<5.0		ug/L	1	5.0	25	09/17/13
Potassium	7440-09-7	LA-505-411		4050		ug/L	1	90	450	09/17/13
Silver	7440-22-4	LA-505-411	U	<4.0		ug/L	1	4.0	20	09/17/13
Sodium	7440-23-5	LA-505-411		10200		ug/L	1	15	75	09/17/13
Antimony	7440-36-0	LA-505-411	U	<20		ug/L	1	20	100	09/17/13
Barium	7440-39-3	LA-505-411		51.2		ug/L	1	4.0	20	09/17/13
Cadmium	7440-43-9	LA-505-411	U	<4.0		ug/L	1	4.0	20	09/17/13
Chromium	7440-47-3	LA-505-411	B	7.10		ug/L	1	5.0	25	09/17/13
Cobalt	7440-48-4	LA-505-411	U	<4.0		ug/L	1	4.0	20	09/17/13
Copper	7440-50-8	LA-505-411	U	<4.0		ug/L	1	4.0	20	09/17/13
Vanadium	7440-62-2	LA-505-411	U	<10		ug/L	1	10	50	09/17/13
Zinc	7440-66-6	LA-505-411	U	<5.0		ug/L	1	5.0	25	09/17/13
Calcium	7440-70-2	LA-505-411		39300		ug/L	1	30	150	09/17/13
Arsenic	7440-38-2	LA-505-411	U	<30		ug/L	1	30	150	09/17/13

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.

Attention Scot Fitzgerald  
 Department Inorganic

Group # WSCF130967

Sample # 130967022  
 SAF# X14-001  
 Sample ID B2RC29

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

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
<b>ICPAES Prep (W)</b>										
<b>ICP-6010 - All possible metals</b>										
Iron	7439-89-6	LA-505-411	U	<20		ug/L	1	20	100	09/17/13
Magnesium	7439-95-4	LA-505-411		8760		ug/L	1	6.0	30	09/17/13
Manganese	7439-96-5	LA-505-411	U	<4.0		ug/L	1	4.0	20	09/17/13
Nickel	7440-02-0	LA-505-411	U	<5.0		ug/L	1	5.0	25	09/17/13
Potassium	7440-09-7	LA-505-411		4010		ug/L	1	90	450	09/17/13
Silver	7440-22-4	LA-505-411	U	<4.0		ug/L	1	4.0	20	09/17/13
Sodium	7440-23-5	LA-505-411		10000		ug/L	1	15	75	09/17/13
Antimony	7440-36-0	LA-505-411	U	<20		ug/L	1	20	100	09/17/13
Barium	7440-39-3	LA-505-411		45.0		ug/L	1	4.0	20	09/17/13
Cadmium	7440-43-9	LA-505-411	U	<4.0		ug/L	1	4.0	20	09/17/13
Chromium	7440-47-3	LA-505-411	B	7.20		ug/L	1	5.0	25	09/17/13
Cobalt	7440-48-4	LA-505-411	U	<4.0		ug/L	1	4.0	20	09/17/13
Copper	7440-50-8	LA-505-411	U	<4.0		ug/L	1	4.0	20	09/17/13
Vanadium	7440-62-2	LA-505-411	U	<10		ug/L	1	10	50	09/17/13
Zinc	7440-66-6	LA-505-411	U	<5.0		ug/L	1	5.0	25	09/17/13
Calcium	7440-70-2	LA-505-411		38500		ug/L	1	30	150	09/17/13
Arsenic	7440-38-2	LA-505-411	U	<30		ug/L	1	30	150	09/17/13

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.

Attention Scot Fitzgerald  
 Department Radiochemistry

Group # WSCF130967

Sample # 130967012  
 SAF# X14-001  
 Sample ID B2RC18

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

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
<b>Tritium by LSC EICHROM WA/LIQ PREP</b>										<b>09/16/13</b>
<b>Tritium by LSC</b>										
Tritium	10028-17-8	LA-508-421	U	250	200	pCi/L	1	300		09/21/13

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.

Attention Scot Fitzgerald  
 Department Radiochemistry

Group # WSCF130967

Sample # 130967013  
 SAF# X14-001  
 Sample ID B2RC22

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

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
<b>Tritium by LSC EICHROM WA/LIQ PREP</b>										<b>09/16/13</b>
<b>Tritium by LSC</b>										
Tritium	10028-17-8	LA-508-421		570	230	pCi/L	1	300		09/21/13

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.

Attention Scot Fitzgerald  
 Department Radiochemistry

Group # WSCF130967

Sample # 130967014  
 SAF# X14-001  
 Sample ID B2RCL1

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

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
<b>Tritium by LSC EICHROM WA/LIQ PREP</b>										<b>09/16/13</b>
<b>Tritium by LSC</b>										
Tritium	10028-17-8	LA-508-421		810	270	pCi/L	1	300		09/21/13

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.

Attention Scot Fitzgerald  
 Department Radiochemistry

Group # WSCF130967

Sample # 130967015  
 SAF# X14-001  
 Sample ID B2RCL4

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

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
<b>Tritium by LSC EICHROM WA/LIQ PREP</b>										<b>09/16/13</b>
<b>Tritium by LSC</b>										
Tritium	10028-17-8	LA-508-421		710	250	pCi/L	1	300		09/21/13

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.

Attention Scot Fitzgerald  
 Department Radiochemistry

Group # WSCF130967

Sample # 130967016  
 SAF# X14-001  
 Sample ID B2RCY7

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

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
<b>Strontium 89/90 WATER/LIQUID PREP</b>										<b>09/30/13</b>
<b>Strontium 89/90 (GPC/GEA)</b>										
Strontium-89_90	SR-RAD	LA-220-406	U	0.39	.59	pCi/L	1	0.97		10/02/13

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.

Attention Scot Fitzgerald  
 Department Radiochemistry

Group # WSCF130967

Sample # 130967017  
 SAF# X14-001  
 Sample ID B2RD00

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

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
<b>Strontium 89/90 WATER/LIQUID PREP</b>										<b>09/30/13</b>
<b>Strontium 89/90 (GPC/GEA)</b>										
Strontium-89_90	SR-RAD	LA-220-406	U	0.59	.64	pCi/L	1	1.0		10/02/13

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.

Attention Scot Fitzgerald  
 Department Radiochemistry

Group # WSCF130967

Sample # 130967018  
 SAF# X14-001  
 Sample ID B2RD04

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

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
<b>Strontium 89/90 WATER/LIQUID PREP</b>										<b>09/30/13</b>
<b>Strontium 89/90 (GPC/GEA)</b>										
Strontium-89_90	SR-RAD	LA-220-406	U	0.30	.58	pCi/L	1	0.96		10/02/13

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.

Attention Scot Fitzgerald  
 Department Radiochemistry

Group # WSCF130967

Sample # 130967019  
 SAF# X14-001  
 Sample ID B2RD02

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

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
<b>Tritium by LSC EICHROM WA/LIQ PREP</b>										<b>09/16/13</b>
<b>Tritium by LSC</b>										
Tritium	10028-17-8	LA-508-421		1100	310	pCi/L	1	300		09/21/13

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.

Attention Scot Fitzgerald  
 Department Radiochemistry

Group # WSCF130967

Sample # 130967020  
 SAF# X14-001  
 Sample ID B2RC25

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

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
<b>Tritium by LSC EICHROM WA/LIQ PREP</b>										<b>09/16/13</b>
<b>Tritium by LSC</b>										
Tritium	10028-17-8	LA-508-421		1000	310	pCi/L	1	300		09/21/13

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.

Quality Control Report

Attention Scot Fitzgerald  
 Department Inorganic

Group # WSCF130967

Analytical Batch 221102 (QC Batch: 221102) Test Hexavalent chromium Discrete Analyzer  
 Associated Samples 130967001, 130967002, 130967003, 130967004, 130967005, 130967006, 130967007, 130967008, 130967009

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
<b>BLANK</b>										
			<b>QC Sample #97557</b>							
Hexavalent chromium	18540-29-9		<0.0020	mg/L					U	09/09/13
<b>LCS</b>			<b>QC Sample #97559</b>							
Hexavalent chromium	18540-29-9		0.0505	mg/L	101	90 - 110				09/09/13
<b>DUP</b>			<b>QC Sample #97560</b>							
			<b>Original 130969001</b>							
Hexavalent chromium	18540-29-9		<0.0020	mg/L			33.30	20	* U	09/09/13
<b>MS</b>			<b>QC Sample #97561</b>							
			<b>Original 130969001</b>							
Hexavalent chromium	18540-29-9		0.0424	mg/L	106	85 - 115				09/09/13

\* - QC result out of range

n/a - Not Applicable

Quality Control Report

Attention Scot Fitzgerald  
 Department Inorganic

Group # WSCF130967

Analytical Batch 221329 (QC Batch: 221329) Test Anions by Ion Chromatography (Water)  
 Associated Samples 130967010, 130967011

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
<b>BLANK</b>		<b>QC Sample #97714</b>								
Fluoride	16984-48-8	<0.025		ug/mL					U	09/09/13
Chloride	16887-00-6	<0.060		ug/mL					U	09/09/13
Nitrite-N	NO2-N	<0.020		ug/mL					U	09/09/13
Nitrate-N	NO3-N	<0.020		ug/mL					U	09/09/13
Sulfate	14808-79-8	<0.11		ug/mL					U	09/09/13
<b>LCS</b>		<b>QC Sample #97715</b>								
Fluoride	16984-48-8	1.01		ug/mL	101.5	90 - 110				09/09/13
Chloride	16887-00-6	1.82		ug/mL	91.7	90 - 110				09/09/13
Nitrite-N	NO2-N	1.01		ug/mL	103.1	90 - 110				09/09/13
Nitrate-N	NO3-N	0.866		ug/mL	97.8	90 - 110				09/09/13
Sulfate	14808-79-8	3.79		ug/mL	96.7	90 - 110				09/09/13
<b>DUP</b>		<b>QC Sample #97716</b>								
		<b>Original 130967010</b>								
Fluoride	16984-48-8	0.0997	0.0952	ug/mL			4.60	20	BD	09/09/13
Chloride	16887-00-6	2.57	2.51	ug/mL			2.60	20	D	09/09/13
Nitrite-N	NO2-N	<0.040	<0.040	ug/mL			0.00	20	UD	09/09/13
Nitrate-N	NO3-N	0.968	0.941	ug/mL			2.80	20	D	09/09/13

\* - QC result out of range

n/a - Not Applicable



Quality Control Report

Attention Scot Fitzgerald  
 Department Inorganic

Group # WSCF130967

Analytical Batch 221357 (QC Batch: 221300) Test ICP-6010 - All possible metals  
 Associated Samples 130967021, 130967022

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
<b>BLANK</b>		<b>QC Sample #97611</b>								
Iron	7439-89-6	<20		ug/L					U	09/17/13
Magnesium	7439-95-4	<6.0		ug/L					U	09/17/13
Manganese	7439-96-5	<4.0		ug/L					U	09/17/13
Nickel	7440-02-0	<5.0		ug/L					U	09/17/13
Potassium	7440-09-7	<90		ug/L					U	09/17/13
Silver	7440-22-4	<4.0		ug/L					U	09/17/13
Sodium	7440-23-5	<15		ug/L					U	09/17/13
Antimony	7440-36-0	<20		ug/L					U	09/17/13
Barium	7440-39-3	<4.0		ug/L					U	09/17/13
Cadmium	7440-43-9	<4.0		ug/L					U	09/17/13
Chromium	7440-47-3	<5.0		ug/L					U	09/17/13
Cobalt	7440-48-4	<4.0		ug/L					U	09/17/13
Copper	7440-50-8	<4.0		ug/L					U	09/17/13
Vanadium	7440-62-2	<10		ug/L					U	09/17/13
Zinc	7440-66-6	<5.0		ug/L					U	09/17/13
Calcium	7440-70-2	<30		ug/L					U	09/17/13
Arsenic	7440-38-2	<30		ug/L					U	09/17/13

\* - QC result out of range

n/a - Not Applicable

Quality Control Report

Attention Scot Fitzgerald  
 Department Inorganic

Group # WSCF130967

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
<b>LCS</b>		<b>QC Sample #97613</b>								
Iron	7439-89-6		1000	ug/L	100.4	80 - 120				09/17/13
Magnesium	7439-95-4		10200	ug/L	101.6	80 - 120				09/17/13
Manganese	7439-96-5		1010	ug/L	101.4	80 - 120				09/17/13
Nickel	7440-02-0		985	ug/L	98.5	80 - 120				09/17/13
Potassium	7440-09-7		10400	ug/L	103.9	80 - 120				09/17/13
Silver	7440-22-4		1010	ug/L	100.8	80 - 120				09/17/13
Sodium	7440-23-5		10200	ug/L	102.4	80 - 120				09/17/13
Antimony	7440-36-0		1010	ug/L	100.9	80 - 120				09/17/13
Barium	7440-39-3		1020	ug/L	102.5	80 - 120				09/17/13
Cadmium	7440-43-9		999	ug/L	99.9	80 - 120				09/17/13
Chromium	7440-47-3		1000	ug/L	100	80 - 120				09/17/13
Cobalt	7440-48-4		992	ug/L	99.2	80 - 120				09/17/13
Copper	7440-50-8		1010	ug/L	100.7	80 - 120				09/17/13
Vanadium	7440-62-2		1000	ug/L	100.4	80 - 120				09/17/13
Zinc	7440-66-6		1010	ug/L	101.2	80 - 120				09/17/13
Calcium	7440-70-2		20400	ug/L	101.8	80 - 120				09/17/13
Arsenic	7440-38-2		1020	ug/L	101.5	80 - 120				09/17/13
<b>MS</b>		<b>QC Sample #97614</b>								
		<b>Original 130959004</b>								
Iron	7439-89-6		1010	ug/L	101.2	75 - 125				09/17/13
Magnesium	7439-95-4		11900	ug/L	100.5	75 - 125				09/17/13
Manganese	7439-96-5		1140	ug/L	100.2	75 - 125				09/17/13

\* - QC result out of range

n/a - Not Applicable

Quality Control Report

Attention Scot Fitzgerald  
 Department Inorganic

Group # WSCF130967

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
Nickel	7440-02-0		963	ug/L	96.3	75 - 125				09/17/13
Potassium	7440-09-7		11600	ug/L	100.5	75 - 125				09/17/13
Silver	7440-22-4		999	ug/L	99.9	75 - 125				09/17/13
Sodium	7440-23-5		1.46E5	ug/L	56	75 - 125			X	09/17/13
Antimony	7440-36-0		1010	ug/L	101	75 - 125				09/17/13
Barium	7440-39-3		1020	ug/L	101	75 - 125				09/17/13
Cadmium	7440-43-9		997	ug/L	99.7	75 - 125				09/17/13
Chromium	7440-47-3		988	ug/L	98.8	75 - 125				09/17/13
Cobalt	7440-48-4		997	ug/L	99.7	75 - 125				09/17/13
Copper	7440-50-8		979	ug/L	97.9	75 - 125				09/17/13
Vanadium	7440-62-2		1040	ug/L	101	75 - 125				09/17/13
Zinc	7440-66-6		1030	ug/L	102.9	75 - 125				09/17/13
Calcium	7440-70-2		26200	ug/L	101.7	75 - 125				09/17/13
Arsenic	7440-38-2		1040	ug/L	100.8	75 - 125				09/17/13
<b>MSD</b>		<b>QC Sample #97615</b>								
		<b>Original 130959004</b>					<b>Paired 97614</b>			
Iron	7439-89-6		1000	ug/L	100	75 - 125	1.20	20		09/17/13
Magnesium	7439-95-4		11600	ug/L	97.7	75 - 125	2.40	20		09/17/13
Manganese	7439-96-5		1120	ug/L	97.4	75 - 125	2.60	20		09/17/13
Nickel	7440-02-0		940	ug/L	94	75 - 125	2.50	20		09/17/13
Potassium	7440-09-7		11400	ug/L	98.9	75 - 125	1.40	20		09/17/13
Silver	7440-22-4		988	ug/L	98.8	75 - 125	1.20	20		09/17/13
Sodium	7440-23-5		1.43E5	ug/L	24	75 - 125	2.20	20	X	09/17/13

\* - QC result out of range

n/a - Not Applicable

Quality Control Report

Attention Scot Fitzgerald  
 Department Inorganic

Group # WSCF130967

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
Antimony	7440-36-0		990	ug/L	99	75 - 125	2.00	20		09/17/13
Barium	7440-39-3		1000	ug/L	99.4	75 - 125	1.60	20		09/17/13
Cadmium	7440-43-9		972	ug/L	97.2	75 - 125	2.50	20		09/17/13
Chromium	7440-47-3		960	ug/L	96	75 - 125	2.80	20		09/17/13
Cobalt	7440-48-4		978	ug/L	97.8	75 - 125	1.90	20		09/17/13
Copper	7440-50-8		960	ug/L	96	75 - 125	1.90	20		09/17/13
Vanadium	7440-62-2		1020	ug/L	98.9	75 - 125	2.00	20		09/17/13
Zinc	7440-66-6		1010	ug/L	101.2	75 - 125	1.70	20		09/17/13
Calcium	7440-70-2		25500	ug/L	98	75 - 125	2.80	20		09/17/13
Arsenic	7440-38-2		1010	ug/L	98.3	75 - 125	2.40	20		09/17/13

\* - QC result out of range

n/a - Not Applicable

Quality Control Report

Attention Scot Fitzgerald  
 Department Radiochemistry

Group # WSCF130967

Analytical Batch 221365 (QC Batch: 221101) Test Tritium by LSC  
 Associated Samples 130967012, 130967013, 130967014, 130967015, 130967019, 130967020

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
<b>BLANK</b>										
			<b>QC Sample #97553</b>							
Tritium	10028-17-8		21	pCi/L					U	09/21/13
<b>LCS</b>			<b>QC Sample #97554</b>							
Tritium	10028-17-8		3300	pCi/L	107.8	80 - 120				09/21/13
<b>DUP</b>			<b>QC Sample #97555</b>							
			<b>Original 130969002</b>							
Tritium	10028-17-8		140	pCi/L			55.70	20	* U	09/21/13
<b>MSPK</b>			<b>QC Sample #97556</b>							
Tritium	10028-17-8		2.1E4	pCi/L	100	75 - 125				09/21/13

\* - QC result out of range

n/a - Not Applicable

Quality Control Report

Attention Scot Fitzgerald  
 Department Radiochemistry

Group # WSCF130967

Analytical Batch 221773 (QC Batch: 221533) Test Strontium 89/90 (GPC/GEA)  
 Associated Samples 130967016, 130967017, 130967018

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
<b>BLANK</b>										
Strontium-89_90	SR-RAD		-0.17	pCi/L					U	10/02/13
<b>LCS</b>										
Strontium-89_90	SR-RAD		91	pCi/L	97.4	80 - 120				10/02/13
<b>DUP</b>										
Strontium-89_90	SR-RAD		0.25	pCi/L			33.20	20	* U	10/02/13
<b>SAMPLE</b>										
Strontium Nitrate	10042-76-9			mg	78.5	25 - 105				10/02/13
<b>SAMPLE</b>										
Strontium Nitrate	10042-76-9			mg	74.4	25 - 105				10/02/13
<b>SAMPLE</b>										
Strontium Nitrate	10042-76-9			mg	78.5	25 - 105				10/02/13
<b>BLANK</b>										
Strontium Nitrate	10042-76-9			mg	77.7	25 - 105				10/02/13

\* - QC result out of range

n/a - Not Applicable

Quality Control Report

Attention Scot Fitzgerald  
 Department Radiochemistry

Group # WSCF130967

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
<b>LCS</b>		<b>QC Sample #98100</b>								
Strontium Nitrate	10042-76-9			mg	81	25 - 105				10/02/13
<b>DUP</b>		<b>QC Sample #98101</b>								
		<b>Original 130963003</b>								
Strontium Nitrate	10042-76-9			mg	81.8	25 - 105	n/a			10/02/13

\* - QC result out of range

n/a - Not Applicable

Attention: Scot Fitzgerald

Group #

WSCF130967

**Quality Control Comments**

Department Inorganic

97614 B2PXB3(130959004MS)

**Analyte** Sodium - ICP-6010 - All possible metals

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

97615 B2PXB3(130959004MSD)

**Analyte** Sodium - ICP-6010 - All possible metals

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

97717 B2RC19(130967010MS)

**Analyte** Sulfate - Anions by Ion Chromatography (Water)

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

97718 B2RC19(130967010MSD)

**Analyte** Sulfate - Anions by Ion Chromatography (Water)

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

ATTACHMENT4

**SAMPLE RECEIPT**

Consisting of 23 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:**  
**Work Order #:** 130967  
**Customer Work ID:** X14-001-196  
**Due Date:** 10/10/2013

The following samples were received from you on 9/9/2013 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
130967001	B2RC20	WATER	9/9/2013 09:45	9/9/2013 13:40
<b>Procedure</b>		<b>Compound List</b>		
Hexavalent chromium Discrete Analyzer		Cr6		
Sample #	Sample ID	Matrix	Collected	Received
130967002	B2RC23	WATER	9/9/2013 10:12	9/9/2013 13:40
<b>Procedure</b>		<b>Compound List</b>		
Hexavalent chromium Discrete Analyzer		Cr6		
Sample #	Sample ID	Matrix	Collected	Received
130967003	B2RC27	WATER	9/9/2013 12:18	9/9/2013 13:40
<b>Procedure</b>		<b>Compound List</b>		
Hexavalent chromium Discrete Analyzer		Cr6		
Sample #	Sample ID	Matrix	Collected	Received
130967004	B2RCL2	WATER	9/9/2013 10:31	9/9/2013 13:40
<b>Procedure</b>		<b>Compound List</b>		
Hexavalent chromium Discrete Analyzer		Cr6		
Sample #	Sample ID	Matrix	Collected	Received
130967005	B2RCL5	WATER	9/9/2013 10:55	9/9/2013 13:40
<b>Procedure</b>		<b>Compound List</b>		
Hexavalent chromium Discrete Analyzer		Cr6		
Sample #	Sample ID	Matrix	Collected	Received
130967006	B2RCY6	WATER	9/9/2013 11:33	9/9/2013 13:40
<b>Procedure</b>		<b>Compound List</b>		
Hexavalent chromium Discrete Analyzer		Cr6		
Sample #	Sample ID	Matrix	Collected	Received
130967007	B2RCY9	WATER	9/9/2013 11:43	9/9/2013 13:40
<b>Procedure</b>		<b>Compound List</b>		
Hexavalent chromium Discrete Analyzer		Cr6		
Sample #	Sample ID	Matrix	Collected	Received
130967008	B2RD03	WATER	9/9/2013 11:51	9/9/2013 13:40
<b>Procedure</b>		<b>Compound List</b>		
Hexavalent chromium Discrete Analyzer		Cr6		

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

<b>Sample #</b>	<b>Sample ID</b>	<b>Matrix</b>	<b>Collected</b>	<b>Received</b>
130967009	B2RJ94 (X14-005)	WATER	9/9/2013 11:10	9/9/2013 13:40
<b>Procedure</b>		<b>Compound List</b>		
Hexavalent chromium Discrete Analyzer		Cr6		
<b>Sample #</b>	<b>Sample ID</b>	<b>Matrix</b>	<b>Collected</b>	<b>Received</b>
130967010	B2RC19	WATER	9/9/2013 09:45	9/9/2013 13:40
<b>Procedure</b>		<b>Compound List</b>		
Anions by Ion Chromatography (Water)		F,Cl,NO2,NO3,SO4		
<b>Sample #</b>	<b>Sample ID</b>	<b>Matrix</b>	<b>Collected</b>	<b>Received</b>
130967011	B2RC26	WATER	9/9/2013 12:18	9/9/2013 13:40
<b>Procedure</b>		<b>Compound List</b>		
Anions by Ion Chromatography (Water)		F,Cl,NO2,NO3,SO4		
<b>Sample #</b>	<b>Sample ID</b>	<b>Matrix</b>	<b>Collected</b>	<b>Received</b>
130967012	B2RC18	WATER	9/9/2013 09:45	9/9/2013 13:40
<b>Procedure</b>		<b>Compound List</b>		
Tritium by LSC		H3		
<b>Sample #</b>	<b>Sample ID</b>	<b>Matrix</b>	<b>Collected</b>	<b>Received</b>
130967013	B2RC22	WATER	9/9/2013 10:12	9/9/2013 13:40
<b>Procedure</b>		<b>Compound List</b>		
Tritium by LSC		H3		
<b>Sample #</b>	<b>Sample ID</b>	<b>Matrix</b>	<b>Collected</b>	<b>Received</b>
130967014	B2RCL1	WATER	9/9/2013 10:31	9/9/2013 13:40
<b>Procedure</b>		<b>Compound List</b>		
Tritium by LSC		H3		
<b>Sample #</b>	<b>Sample ID</b>	<b>Matrix</b>	<b>Collected</b>	<b>Received</b>
130967015	B2RCL4	WATER	9/9/2013 10:55	9/9/2013 13:40
<b>Procedure</b>		<b>Compound List</b>		
Tritium by LSC		H3		
<b>Sample #</b>	<b>Sample ID</b>	<b>Matrix</b>	<b>Collected</b>	<b>Received</b>
130967016	B2RCY7	WATER	9/9/2013 11:33	9/9/2013 13:40
<b>Procedure</b>		<b>Compound List</b>		
Strontium 89/90 (GPC/GEA)		SR89/90		
<b>Sample #</b>	<b>Sample ID</b>	<b>Matrix</b>	<b>Collected</b>	<b>Received</b>
130967017	B2RD00	WATER	9/9/2013 11:43	9/9/2013 13:40
<b>Procedure</b>		<b>Compound List</b>		
Strontium 89/90 (GPC/GEA)		SR89/90		
<b>Sample #</b>	<b>Sample ID</b>	<b>Matrix</b>	<b>Collected</b>	<b>Received</b>
130967018	B2RD04	WATER	9/9/2013 11:51	9/9/2013 13:40
<b>Procedure</b>		<b>Compound List</b>		
Strontium 89/90 (GPC/GEA)		SR89/90		
<b>Sample #</b>	<b>Sample ID</b>	<b>Matrix</b>	<b>Collected</b>	<b>Received</b>
130967019	B2RD02	WATER	9/9/2013 11:51	9/9/2013 13:40
<b>Procedure</b>		<b>Compound List</b>		
Tritium by LSC		H3		

**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
130967020	B2RC25	WATER	9/9/2013 12:18	9/9/2013 13:40
<b>Procedure</b>		<b>Compound List</b>		
Tritium by LSC		H3		
Sample #	Sample ID	Matrix	Collected	Received
130967021	B2RC28	WATER	9/9/2013 12:18	9/9/2013 13:40
<b>Procedure</b>		<b>Compound List</b>		
ICP-6010 - All possible metals		6010 ICP Common		
Sample #	Sample ID	Matrix	Collected	Received
130967022	B2RC29	WATER	9/9/2013 12:18	9/9/2013 13:40
<b>Procedure</b>		<b>Compound List</b>		
ICP-6010 - All possible metals		6010 ICP Common		

Chain of Custody

CH2MHill Plateau Remediation Company  
**CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST**  
 C.O.C. # **X14-001-196**  
 Page 1 of 1

Collector	<b>Anna Aguilera</b>	Contact/Requester	Karen Waters-Husted	Telephone No.	509-376-4650
SAF No.	X14-001	Sampling Origin	Hanford Site	Purchase Order/Charge Code	303309ES20
Project Title	AQUIFER TUBES, OCTOBER 2013	Logbook No.	HNF-N-506 52 / 82	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 <b>PRIORITY</b>	OnSite Property No.	N/A
POSSIBLE SAMPLE HAZARDS/REMARKS *** Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR but are not releasable per DOE Order 5400.5 (1990/1993)		SPECIAL INSTRUCTIONS Site Wide Generator Knowledge Information Form applies. The GCN for analytical work is 303309. The WSCF number will be sent once it is awarded. FY13 and FY14 samples cannot be in the same SIK.		Hold Time Total Activity Exemption: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Sample No.	B2RC20 001	Filter	N	Date	9-9-13
		Time	0945	No./Type Container	1x500 mL AG
					7196_CRF: COMMON
				Sample Analysis	24 Hours
				Preservative	Code-4C

Relinquished By	<i>Anna Aguilera</i>	Print	Sign	SEP 09 2013	Date/Time	1340	Received By	<i>N. Chris Sims</i>	Print	Sign	SEP 09 2013	Date/Time	1340
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

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A-6004-842 (REV 2)

Chain of Custody

CH2MHill Plateau Remediation Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. #

X14-001-198

Page 1 of 1

Collector	<i>Juan Aguilar</i>	Contact/Requester	Karen Waters-Husted	Telephone No.	509-376-4650
SAF No.	X14-001	Sampling Origin	Hanford Site	Purchase Order/Charge Code	303309ESS20
Project Title	AQUIFER TUBES, OCTOBER 2013	Logbook No.	INF-N-506 52 / 82	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 at concentrations that are not regulated for transportation per 49 CFR but are not releasable per DOE Order 5100.5 (1/90/1993)

**SPECIAL INSTRUCTIONS** Hold Time: Total Activity Exemption: Yes  No   
 Site Wide Generator Knowledge Information Form applies  
 The CACON for analytical work is 303309  
 The WSCR number will be sent once it is awarded.  
 FY13 and FY14 samples cannot be in the same SDG.

Sample No.	Filter	*	Date	Time	No./Type Container	Sample Analysis	Holding Time	Preservative
B2RC23	N		9-9-13	1012	1x500 mL AG	7196_CRB: COMMON	24 Hours	Cool-4C

Relinquished By	<i>Juan Aguilar</i>	Print	Sign	Date/Time	Received By	<i>Vicki Collins</i>	Print	Sign	Date/Time	Matrix *
Relinquished By				SEP 09 2013 1340	Received By				SEP 09 2013 1340	S = Soil SE = Sediment SD = Solid SL = Sludge W = Water O = Oil A = Air
Relinquished By					Received By					D3 = Drum Solids DL = Drums Liquids T = Tissue WT = Wipe L = Liquid V = Vegetation X = Other
Relinquished By					Received By					

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

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A-5004-842 (REV 2)

Chain of Custody

CH2MHill Plateau Remediation  
Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. #  
**X14-001-201**  
Page 1 of 1

Collector	<u>Juan Aguilar</u>	Contact/Requester	Karen Waters-Husted	Telephone No.	509-376-4650
SAT No.	X14-001	Sampling Origin	Hanford Site	Purchase Order/Charge Code	303309ESS20
Project Title	AQUIFER TUBES, OCTOBER 2013	Logbook No.	INF-N-506_52/82	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 at concentrations that are not regulated for transportation per 49 CFR but are not releasable per DOE Order 5400.5 (1960/1995)			SPECIAL INSTRUCTIONS Hold Time Site Wide Generator Knowledge Information Form applies The CACN for analytical work is 503309. The WSCP number will be sent once it is awarded. FY13 and FY14 samples cannot be in the same SDG.		
Sample No.	Filter	Date	Time	No/Type Container	Sample Analysis
B2RC27	N	9-9-13	1218	1x500-mL AG	7196_CRe: COMMON
					24 Hours
					Preservative
					Cool-4C

Relinquished By	<u>Juan Aguilar</u>	Sign	<u>[Signature]</u>	Date/Time	SEP 09 2013 1340	Received By	<u>[Signature]</u>	Date/Time	1340
Relinquished By						Received By			
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
SE	= Sediment
SO	= Solid
SL	= Sludge
W	= Water
O	= Oil
A	= Air
DS	= Drums Solids
DL	= Drums Liquids
T	= Tissue
W1	= Wipe
L	= Liquid
V	= Vegetation
X	= Other

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A-6004-842 (REV2)

Chain of Custody

CH2MHill Plateau Remediation Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C.#

X14-001-283

Page 1 of 1

Collector	John Aguilera	Contact/Requester	Karen Waters-Husted	Telephone No.	509-376-4650
SAF No.	X14-001	Sampling Origin	Hanford Site	Purchase Order/Charge Code	303309ES20
Project Title	AQUIFER TUBES, OCTOBER 2013	Logbook No.	HNF-N-506 52/ 82	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
<p>POSSIBLE SAMPLE HAZARDS/REMARKS</p> <p>*** Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR but are not releasable per DOE Order 5400.5 (1990/1995)</p>		<p>SPECIAL INSTRUCTIONS</p> <p>Site Wide Generator Knowledge Information Form applies. The CACN for analytical work is 303309. The WSCP number will be sent once it is awarded. FY13 and FY14 samples cannot be in the same SDG.</p>		<p>Hold Time</p> <p>Total Activity Exemption: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p>	
Sample No.	Filter	Date	Time	No./Type Container	Sample Analysis
BZRC12 004	N	9-9-13	1031	1x500-mL AG	7196_CRB: COMMON
					24 Hours
					Preservative
					Cool-4C

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time	Matrix *
John Aguilera			9/9/13 1340	V. Waters-Husted			9/9/13 1340	S = Soil SE = Sediment SO = Solid SL = Sludge W = Water O = Oil A = Air DS = Drum Solids DL = Drums Liquids T = Tissue WI = Wipe L = Liquid V = Vegetation X = Other
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)			Disposed By		Date/Time		

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A-6004-842 (REV 2)

Chain of Custody

CH2MHill Plateau Remediation Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. #

X14-001-285

Page 1 of 1

Collector	<i>Ann Aguilera</i>	Contact/Requester	Karen Waters-Husted	Telephone No.	509-376-4650
SAF No.	X14-001	Sampling Origin	Hanford Site	Purchase Order/Charge Code	30330PES20
Project Title	AQUIFER TUBES, OCTOBER 2013	Logbook No.	HNF-N-506 <u>52 / 82</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 <b>PRIORITY</b>	Offsite Property No.	N/A
<b>POSSIBLE SAMPLE HAZARDS/REMARKS</b>			<b>SPECIAL INSTRUCTIONS</b>		
<p>*** Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR but are not releasable per DOE Order 5400.5 (1990/1995)</p>			<p>Site Wide Generator Knowledge Information Form applies. The CACN for analytical work is 503309. The WSCF number will be sent once it is awarded. FY13 and FY14 samples cannot be in the same SDG.</p>		
Sample No.	Filter	Date	Time	No./Type Container	Hold Time
B2PCL5	005	N	W 9-9-13	1055	1x500 mL AG
					7196_CR6: COMMON
					Sample Analysis
					24 Hours
					Preservative
					Cool-4C

Relinquished By	<i>[Signature]</i>	Print	Sign	Date/Time	Received By	<i>[Signature]</i>	Print	Sign	Date/Time	Matrix *
Relinquished By				SEP 09 2013 1340	Received By				SEP 09 2013 1340	S - Soil
Relinquished By					Received By					SE - Sediment
Relinquished By					Received By					SO - Solid
Relinquished By					Received By					SL - Sludge
Relinquished By					Received By					W - Water
Relinquished By					Received By					O - Oil
Relinquished By					Received By					A - Air
Relinquished By					Received By					DS - Drum Solids
Relinquished By					Received By					DL - Drum Liquid
Relinquished By					Received By					T - Tissue
Relinquished By					Received By					WI - Wipe
Relinquished By					Received By					L - Liquid
Relinquished By					Received By					V - Vegetation
Relinquished By					Received By					X - Other
FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process)				Disposed By		Date/Time			

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A-6004-842 (REV 2)

Chain of Custody

CH2MHill Plateau Remediation Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. #

X14-001-338

Page 1 of 1

Collector	Juan Aguilar	Contact/Requester	Karen Waters-Husted	Telephone No.	509-376-4650
S&P No.	X14-001	Sampling Origin	Hanford Site	Purchase Order/Charge Code	303309ES20
Project Title	AQUIFER TUBES, OCTOBER 2013	Logbook No.	HNF-N-506 52 / 82	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 at concentrations that are not regulated for transportation per 49 CFR but are not releasable per DOE Order 5400.5 (1/90/1993)

**SPECIAL INSTRUCTIONS** Hold Time Total Activity Exemption: Yes  No   
 Site Waste Generator Knowledge Information Form applies.  
 The CACN for analytical work is 503.509.  
 The WSGF number will be sent once it is awarded.  
 FY13 and FY14 samples cannot be in the same SDG.

Sample No.	Filter	Date	Time	No./Type Container	Sample Analysis	Holding Time	Preservative
BPRCV6 006	N	9-9-13	1133	1x500-mL AG	7196_CR6: COMMON	24 Hours	Cool-4C

Relinquished By	Juan Aguilar	Received By	Vicki Brunsy	Matrix *
Relinquished By	[Signature]	Received By	[Signature]	S = Soil DS = Drum Solids
Relinquished By	[Signature]	Received By	[Signature]	SE = Sediment DL = Down Liquids
Relinquished By	[Signature]	Received By	[Signature]	SO = Solid T = Triax
Relinquished By	[Signature]	Received By	[Signature]	SL = Sludge WT = Wipe
Relinquished By	[Signature]	Received By	[Signature]	W = Water L = Liquid
Relinquished By	[Signature]	Received By	[Signature]	O = Oil V = Vegetation
Relinquished By	[Signature]	Received By	[Signature]	A = Air X = Other

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

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Chain of Custody

CH2MHill Plateau Remediation Company  
**CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST**  
 C.O.C. # **X14-001-340**  
 Page 1 of 1

Collector	<b>Jean Aguilar</b>	Contact/Requester	Karen Waters-Husted	Telephone No.	509-376-4650
SAF No.	X14-001	Sampling Origin	Hanford Site	Purchase Order/Charge Code	303309ESS20
Project Title	AQUIFER TUBES, OCTOBER 2013	Logbook No.	HNI-N-506 <u>52 / 32</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:	<b>PRIORITY</b>	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 releasible per DOE Order 5400.5 (1990/1993)

**SPECIAL INSTRUCTIONS** Hold Time  
 Site Wide Generator Knowledge Information from applies. The CACN for analytical work is 303309. The WSCP number will be sent once it is awarded. FY13 and FY14 samples cannot be in the same SDG.

Total Activity Exemption: Yes  No

Sample No.	Filter	Date	Time	No./Type Container	Sample Analysis	Holding Time	Preservative
B2RCV9 007	N	9-9-13	1143	1X500-mL AG	7196_CR6: COMMON	24 Hours	Cool-4C

Relinquished By	<i>Jean Aguilar</i>	Print	Sign	SEP 09 2013 1340	Date/Time	Received By	<i>V. J. Smith</i>	Print	Sign	SEP 09 2013 1340	Date/Time	Matrix *
Relinquished By						Received By						S = Soil
Relinquished By						Received By						SE = Sediment
Relinquished By						Received By						SO = Solid
Relinquished By						Received By						SL = Sludge
Relinquished By						Received By						W = Water
Relinquished By						Received By						O = Oil
Relinquished By						Received By						A = Air
Relinquished By						Received By						DS = Drum Solids
Relinquished By						Received By						DL = Drum Liquids
Relinquished By						Received By						T = Tissue
Relinquished By						Received By						WI = Wipe
Relinquished By						Received By						L = Liquid
Relinquished By						Received By						V = Vegetation
Relinquished By						Received By						X = Other

Final Sample Disposition: Disposal Method (e.g., Return to customer, per lab procedure, used in process)

Disposed By: \_\_\_\_\_ Date/Time: \_\_\_\_\_

Chain of Custody

CH2MHill Plateau Remediation Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. #

X14-001-342

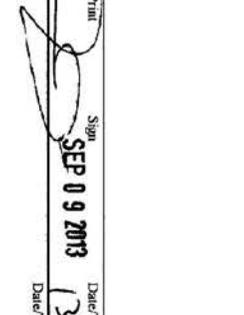
Page 1 of 1

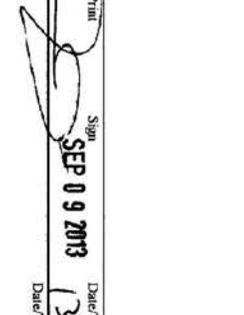
Collector	Juan Aguilar	Contact/Requester	Karen Waters-Husted	Telephone No.	509-376-4650
SAF No.	X14-001	Sampling Origin	Hanford Site	Purchase Order/Charge Code	30330PES20
Project Title	AQUIFER TUBES, OCTOBER 2013	Logbook No.	HNF-N-506 521/82	Ice Chest No.	N/A
Shipped To (Lab)	Waste Sampling & Characterization	Method of Shipment	GOVERNMENT VEHICLE	Bill of Lading/Air Bill No.	N/A
Protocol	SURV	Priority:	31 Days PRIORITY	Offsite Property No.	N/A

\*\*\* 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)

POSSIBLE SAMPLE HAZARDS/REMARKS

SPECIAL INSTRUCTIONS Hold Time Total Activity Exemption: Yes  No   
 Site Wide Generator Knowledge Information Form applies  
 The CACN for analytical work is 503509.  
 The WSCF number will be sent once it is awarded  
 FY13 and FY14 samples cannot be in the same SDG.

Sample No.	Filter	*	Date	Time	No./Type Container	Received By	7196_CR6: COMMON	Sample Analysis	Holding Time	Preservative
BPRD03 008	N		9-9-13	1151	1x500-mL AG				24 Hours	Cool-4G

Relinquished By	Print Juan Aguilar	Sign SEP 09 2013	Date/Time 1340	Received By	Print 	Date/Time SEP 09 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)

Disposed By

Date/Time

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A-6004-842 (REV 2)

Chain of Custody

CH2MHill Plateau Remediation Company  
**CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST**  
 C.O.C.# X14-005-017  
 Page 1 of 1

Collector	Juan Aguilar	Contact/Requester	WATERS-HUSTED, K	Telephone No.	376-4650
SAF No.	X14-005	Sampling Origin	HANFORD SITE	Purchase Order/Charge Code	303309ES20
Project Title	SEEPS/SPRINGS, OCTOBER 2013	Logbook No.	HNF-N-506 52/ 82	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	SLRV	Priority:	31 Days PRIORITY	Offsite Property No.	N/A
<b>POSSIBLE SAMPLE HAZARDS/REMARKS</b>					
**Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR/AIA Dangerous Goods Regulations but are not releasable per DOE Order 438.1.**					
Sample No.	Filter	Date	Time	No/Type Container	Sample Analysis
BZRJ94 009	N	9-9-13	110	1x500-mL aG	7196_CR6:COMMON
					Holding Time
					24 Hours
					Preservative
					Cool-4C
SPECIAL INSTRUCTIONS: Hold Time 100 Area Generator Knowledge Information Form applies. The CACN for analytical work is 303509. The WSCF number will be sent once it is awarded.					
Total Activity Exemption: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>					

Reinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time	Matrix *
Juan Aguilar		SEP 09 2013	1340	Vicki Sims		SEP 09 2013	1340	S - Soil DS - Drum Solids SE - Sediment DL - Drum Liquids SO - Solid T - Tissue SL - Sludge W - Waste W - Water L - Liquid O - Oil V - Vegetation A - Air X - Other
Reinquished By				Received By				
Reinquished By				Received By				
Reinquished By				Received By				
FINAL SAMPLE DISPOSITION								Matrix *
Disposal Method (e.g. Return to customer, per lab procedure, used in process)								DS - Drum Solids
Disposed By								DL - Drum Liquids
Date/Time								T - Tissue
Date/Time								W - Waste
Date/Time								L - Liquid
Date/Time								V - Vegetation
Date/Time								X - Other

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A-6004-942 (REV 2)

Chain of Custody

CH2M Hill Plateau Remediation Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. #

X14-001-195

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Collector	<b>John Aguilera</b>	Contact/Requester	Karen Waters-Husted	Telephone No.	509-376-4650
SAF No.	X14-001	Sampling Origin	Hanford Site	Purchase Order/Charge Code	303309ESS20
Project Title	AQUIFER TUBES, OCTOBER 2013	Logbook No.	HNF-N-506 52 / 82	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**  
 \*\*\* Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR but are not releasable per DOE Order 5400.5 (1990/1993)

**SPECIAL INSTRUCTIONS** Hold Time: Total Activity Exemption: Yes  No   
 Site Wide Generator Knowledge Information Form applies.  
 The CAC/N for analytical work is 503509.  
 The WSCF number will be sent once it is awarded.  
 FY13 and FY14 samples cannot be in the same SDG.

Sample No.	Filter	Date	Time	No./Type Container	Sample Analysis	Holding Time	Preservative	
B2RC19	oid	N	W	9-9-13 0945	1x500-mL P	300.0_ANIONS_IC: COMMON	48 Hours	Cool-4C

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time	Matrix *
Relinquished By			SEP 09 2013 1348	Received By			SEP 09 2013 1340	S - Soil SE - Sediment SO - Solid SL - Sludge W - Water O - Oil A - Air
Relinquished By				Received By				DS - Damm Solids DL - Damm Liquids T - Tissue WI - Wine L - Liquid V - Vegetation X - Other
Relinquished By				Received By				

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

Disposed By: \_\_\_\_\_ Date/Time: \_\_\_\_\_

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A-8004-842 (REV 2)

Chain of Custody

CH2MHill Plateau Remediation Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. #  
**X14-001-200**  
Page 1 of 1

Collector	<u>Jean Aguilar</u>	Contact/Requester	Karen Waters-Husted	Telephone No.	509-376-4650
SAF No.	X14-001	Sampling Origin	Hanford Site	Purchase Order/Charge Code	303309ESS20
Project Title	AQUIFER TUBES, OCTOBER 2013	Logbook No.	JINF-N-506 <u>52 / 82</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:	<b>PRIORITY</b>	Offsite Property No.	N/A

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

**SPECIAL INSTRUCTIONS**  
 Site Wide Generator Knowledge Information Form applies.  
 The CACN for analytical work is 303309.  
 The WSCF number will be sent once it is awarded.  
 FY13 and FY14 samples cannot be in the same SDG.

Sample No.	Filter	Date	Time	No./Type Container	Sample Analysis	Holding Time	Preservative		
B3RC26	611	N	W	9-9-13	12/18	1x500-mL P	300.0 ANIONS, IC: COMMON	48 Hours	Cool-4C

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time	Matrix #
Relinquished By			SEP 09 2013 1340	Received By			SEP 09 2013 1340	S = Soil SE = Sediment SO = Solid SL = Sludge W = Water O = Oil A = Air
Relinquished By				Received By				DS = Drum Solids DL = Drum Liquids T = Tissue W/L = Wipe L = Liquid V = Vegetation X = Other

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A-6004-842 (REV 2)

Chain of Custody

<b>CH2M Hill Plateau Remediation Company</b>		<b>CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST</b>				C.O.C. # <b>X14-001-194</b>	
						Page 1 of 1	
Collector	<del>_____</del>	Contact/Requester	Karen Waters-Husted		Telephone No.	509-376-4650	
SAF No.	X14-001	Sampling Origin	Hanford Site		Purchase Order/Charge Code	303309ESS20	
Project Title	AQUIFER TUBES, OCTOBER 2013	Logbook No.	HNF-N-506 <u>52 / 82</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:	<b>PRIORITY</b>		Offsite Property No.	N/A	
<b>POSSIBLE SAMPLE HAZARDS/REMARKS</b>				<b>SPECIAL INSTRUCTIONS</b>			
** ** Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR but are not releasable per DOE Order 5600.3 (1996/1995)				Site Wide Generator Knowledge Information from applies The CACN for analytical work is 303309. The WSCF number will be sent once it is awarded. FY13 and FY14 samples cannot be in the same SDG.			
Sample No.	Filter	Date	Time	No./Type Container	Sample Analysis	Hold Time	Preservative
B2RC18	012 N	9-9-13	0945	1x250-mL G	TRITIUM_EIE_LSC: COMMON	6 Months	None
				Total Activity Exemption: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>			

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time	Matrix *
Relinquished By			SEP 09 2013 1340	Received By			SEP 09 2013 1340	S = Soil SE = Sediment SO = Solid SL = Sludge W = Water O = Oil A = Air DS = Drum Solids DL = Drum Liquids T = Tissue WT = Wipe L = Liquid V = Vegetation X = Other
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: _____

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A-5004-942 (REV 2)

Chain of Custody

CH2M Hill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				C.O.C. # <b>X14-001-197</b>	
Collector	<b>Sam Angler</b>	Contact/Requester	Karon Waters-Husted Hanford Site		Telephone No.	509-376-4650	
SAF No.	X14-001	Sampling Origin	Hanford Site		Purchase Order/Charge Code	303309ES20	
Project Title	AQUIFER TUBES, OCTOBER 2013	Logbook No.	HNF-N-506-52/82		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	
<b>POSSIBLE SAMPLE HAZARDS/REMARKS</b> *** Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR but are not releasable per DOE Order 5400.5 (1996/1993)							
Sample No.	Filter	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
BZRC22	N	9-9-13	1012	1x250-mL G	TRITIUM_EIE_LSC: COMMON	6 Months	None
<b>SPECIAL INSTRUCTIONS</b> Site Waste Generator Knowledge Information Form applies. The CACN for analytical work is 3033409. The WSCF number will be sent once it is awarded. FY13 and FY14 samples cannot be in the same SDG.							
Total Activity Exemption: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>							

Relinquished By	Page	Sign	Date/Time	Received By	Print	Sign	Date/Time	Matrix *
<i>Sam Angler</i>		<i>[Signature]</i>	SEP 09 2013 1340	<i>[Signature]</i>		<i>[Signature]</i>	SEP 09 2013 1340	S = Soil SE = Sediment SL = Solid SL = Sludge W = Water O = Oil A = Air
Relinquished By				Received By				DS = Drum Solids DL = Drum Liquids T = Tissue WT = Wipe L = Liquid V = Vegetation X = Other
Relinquished By				Received By				
<b>FINAL SAMPLE DISPOSITION</b> Disposal Method (e.g., Return to customer, per lab procedure, used in process)								
Disposed By: _____ Date/Time: _____								

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A-6004-942 (REV 2)

Chain of Custody

CH2MHILL Plateau Remediation Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C.#  
X14-001-282  
Page 1 of 1

Collector	<b>Sam Agalar</b>	Contact/Requester	Karen Waters-Husted	Telephone No.	509-376-4650
SAF No.	X14-001	Sampling Origin	Hanford Site	Purchase Order/Charge Code	303309ES20
Project Title	AQUIFER TUBES, OCTOBER 2013	Logbook No.	HNF-N-506 <u>52/82</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 <b>PRIORITY</b>	Offsite Property No.	N/A
<b>POSSIBLE SAMPLE HAZARDS/REMARKS</b>			<b>SPECIAL INSTRUCTIONS</b>		
*** Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR but are not releasable per DOE Order 5400.5 (1990/1995)			Site Wide Generator Knowledge Information Form applies. The CACN for analytical work is 303509. The WSCP number will be sent once it is awarded. FY13 and FY14 samples cannot be in the same SDG.		
Sample No.	Filter	Date	Time	No./Type Container	Sample Analysis
B2RCL1	N	9-9-13	1031	1x250 mL G	TRITIUM_EIE_LSC: COMMON
					Holding Time
					6 Months
					Preservative
					None

Relinquished By	<i>Sam Agalar</i>	Sign	Date/Time	Received By	<i>Nora Davis</i>	Print	Sign	Date/Time	Matrix *
Relinquished By			9/8/13 1340	Received By				9/8/13 1340	S - Soil SE - Sediment SO - Solid SL - Sludge W - Water O - Oil A - Air
Relinquished By				Received By					DS - Drum Solids DL - Drum Liquids T - Tissue WT - Wipe L - Liquid V - Vegetation X - Other
Relinquished By				Received By					
<b>FINAL SAMPLE DISPOSITION</b>		Disposal Method (e.g., Return to customer, per lab procedure, used in process)			Disposed By		Date/Time		

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A-6004-842 (REV 2)

Chain of Custody

CH2MHill Plateau Remediation Company  
**CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST**  
 C.O.C. # X14-001-284  
 Page 1 of 1

Collector	<b>Joan Aguilar</b>	Contact/Requester	Karen Waters-Husted	Telephone No.	509-376-4650
SAP No.	X14-001	Sampling Origin	Hanford Site	Purchase Order/Charge Code	303309ESS20
Project Title	AQUIFER TUBES, OCTOBER 2013	Logbook No.	HNI-N-506 52 / 82	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	STRV	Priority:	31 Days <b>PRIORITY</b>	Offsite Property No.	N/A

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

**SPECIAL INSTRUCTIONS**  
 Site Wide Generator Knowledge Information Form applies  
 The CACN for analytical work is 503309  
 The WSCR number will be sent once it is awarded  
 FY13 and FY14 samples cannot be in the same SDG.

Sample No.	Filter	Date	Time	No./Type Container	Sample Analysis	Holding Time	Preservative
BRRC14 025	N	9-9-13	1055	1x250-mL G	TRITIUM_EIE_LSC: COMMON	6 Months	None

Total Activity Exemption: Yes  No

Relinquished By	Sign	Date/Time	Received By	Sign	Date/Time	Matrix *
Joan Aguilar		SEP 09 2013 1340	Vicente B. ...		SEP 09 2013 1340	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 -- Wipe L -- Liquid V -- Vegetation X -- Other
Relinquished By		Date/Time	Received By		Date/Time	

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

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Chain of Custody

CH2M Hill Plateau Remediation Company  
**CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST**  
 C.O.C. # **X14-001-337**  
 Page 1 of 1

Collector	<b>John Aguilera</b>	Contact/Requester	Karon Walters-Husted	Telephone No.	509-376-4650
SAF No.	X14-001	Sampling Origin	Hanford Site	Purchase Order/Charge Code	303309ES20
Project Title	AQUIFER TUBES, OCTOBER 2013	Logbook No.	HNF-N-506 <u>52 / 82</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	SLRV	Priority:	31 Days	Offsite Property No.	N/A
<b>POSSIBLE SAMPLE HAZARDS/REMARKS</b>					
*** Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR but are not releasable per DOE Order 5600.5 (1996/1997)					
SPECIAL INSTRUCTIONS			Hold Time	Total Activity Exemption: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Site Wide Generator Knowledge Information Form applies					
The CACN for analytical work is 303309.					
The WSCF number will be sent once it is awarded.					
FY13 and FY14 samples cannot be in the same SDG.					
Sample No.	Filter	Date	No./Type Container	Sample Analysis	Preservative
BZRCV7 <b>616</b>	N	9-9-13	1X1-L-GP	SRTOT_SEP_PREGIP_GFC: COMMON	HNO3 to pH <2
		Time		Holding Time	
		1133		6 Months	

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time	Matrix *
Relinquished By			SEP 09 2013 1340	Received By			SEP 10 2013 1340	S = Soil SE = Sediment SL = Solid SL = Sludge W = Water O = Oil A = Air D5 = Duan Soils DL = Duan Liquids T = Tissue WT = Wipe L = Liquid V = Vegetation X = Other
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

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Chain of Custody

CH2M Hill Plateau Remediation Company  
**CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST**  
 C.O.C. # **X14-001-339**  
 Page 1 of 1

Collector	<i>Juan Aguilar</i>	Contact/Requester	Karen Walters-Husted	Telephone No.	509-376-4650
SAF No.	X14-001	Sampling Origin	Hanford Site	Purchase Order/Charge Code	303309ESS20
Project Title	AQUIFER TUBES, OCTOBER 2013	Logbook No.	HNF-N-506 52 / 82	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 at concentrations that are not regulated for transportation per 49 CFR but are not releasable per DOE Order 5400.5 (1996/1993)

**SPECIAL INSTRUCTIONS**  
 Site Wide Generator Knowledge Information Form applies.  
 The CACN for analytical work is 303309.  
 The WSCF number will be sent once it is awarded.  
 FY13 and FY14 samples cannot be in the same SDG.

Sample No.	Filter	Date	Time	No/Type Container	Sample Analysis	Hold Time	Total Activity Exemption: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
D3RD00	617	N	W 9-9-13	1143	1X1-L-GP	SRTOT_SEP_PRECIP_GPC: COMMON	6 Months HNO3 to pH <2

Relinquished By	<i>Juan Aguilar</i>	Sign	SEP 09 2013	Date/Time	1340	Received By	<i>Walter Husted</i>	Sign	SEP 09 2013	Date/Time	1340
Relinquished By						Received By					
Relinquished By						Received By					
Relinquished By						Received By					

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

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

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Chain of Custody

CH2M Hill Plateau Remediation Company  
**CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST**  
 C.O.C.#  
**X14-001-341**  
 Page 1 of 1

Collector	John Aquilar	Contact/Requester	Karen Waters-Husted	Telephone No.	509-376-4650
SAF No.	X14-001	Sampling Origin	Hanford Site	Purchase Order/Charge Code	303309ES20
Project Title	AQUIFER TUBES, OCTOBER 2013	Logbook No.	HNF-N-506 52/ 82	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	STRV	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 (1990/1993)  
 SPECIAL INSTRUCTIONS Hold Time  
 Site Wide Generator Knowledge Information Form applies.  
 The CACN for analytical work is 303309.  
 The WSCF number will be sent once it is awarded.  
 FY13 and FY14 samples cannot be in the same SDG.

Sample No.	Filter	Date	Time	No./Type Container	Sample Analysis	Hold Time	Preservative
BZRD02 619	N	9-9-13	1151	1x250-mL G	TRITIUM_EIE_LSC: COMMON	6 Months	None
BZRD04 618	N	9-9-13	1151	1x1-L GIP	SRTOT_SEP_PREGIP_GFC: COMMON	6 Months	HNO3 to pH <2

Requisitioned By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time	Matrix *
John Aquilar		- SEP 09 2013	13Y0	Michelle Sims		SEP 09 2013	13Y0	S = Soil DS = Drum Solids SS = Sediment DL = Drum Liquids SO = Solid T = Tissue SL = Sludge W = Wipe W = Water L = Liquid O = Oil V = Vegetation A = Air X = Other
Requisitioned By			Date/Time	Received By			Date/Time	
Requisitioned By			Date/Time	Received By			Date/Time	

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

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Chain of Custody

CH2MHill Plateau Remediation Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. #

X14-001-199

Page 1 of 1

Collector	Juan Aguilar	Contact/Requester	Karen Waters-Husted	Telephone No.	509-376-4650
SAF No.	X14-001	Sampling Origin	Ilandford Site	Purchase Order/Charge Code	303309ES20
Project Title	AQUIFER TUBES, OCTOBER 2013	Logbook No.	INF-N-506 52 / 82	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 at concentrations that are not regulated for transportation per 49 CFR but are not releasable per DOE Order 5600.2 (1990/1995)

SPECIAL INSTRUCTIONS  
 Site Wide Generator Knowledge Information Form applies.  
 The CACH for analytical work is 503309.  
 The WSCR number will be sent once it is awarded.  
 FT13 and FT14 samples cannot be in the same SDG.

Total Activity Exemption: Yes  No

Sample No.	Filter	Date	Time	No./Type Container	Sample Analysis	Holding Time	Preservative
B2RC29 032	Y	9-9-13	12/8	1x500-ml G/P	6010_METALS_ICP- COMMON	6 Months	HNO3 to pH <2
B2RC25 620	N	9-9-13	12/8	1x250-ml G	TRITIUM_EIE_LSC: COMMON	6 Months	None
B2RC28 021	N	9-9-13	12/8	1x500-ml G/P	6010_METALS_ICP- COMMON	6 Months	HNO3 to pH <2

Relinquished By	Juan Aguilar	Sign	SEP 09 2013	Date/Time	1340	Received By	Vicente Brim	Sign	SEP 09 2013	Date/Time	1340	Matrix *
Relinquished By						Received By						S - Soil
Relinquished By						Received By						SE - Sediment
Relinquished By						Received By						SO - Solid
Relinquished By						Received By						SL - Sludge
Relinquished By						Received By						W - Water
Relinquished By						Received By						O - Oil
Relinquished By						Received By						A - Air
Relinquished By						Received By						DS - Drum Solids
Relinquished By						Received By						DL - Drum Liquids
Relinquished By						Received By						T - Tissue
Relinquished By						Received By						W1 - Wipe
Relinquished By						Received By						L - Liquid
Relinquished By						Received By						V - Vegetation
Relinquished By						Received By						X - Other

FINAL SAMPLE DISPOSITION

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

Disposed By

Date/Time

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A-5004-942 (REV 2)