

JANUARY 7, 2014

WSCF Laboratory

PO Box 650 S3-30
Richland, WA 99352



January 7, 2014

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

Dear Scot Fitzgerald,

FINAL RESULT FOR SAMPLE DELIVERY GROUP WSCF131583

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 WSCF131583

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

Very truly yours,

Electronically signed by Joseph Hale

For Lab Manager, Dan T. Smith

WSCF Analytical Lab

(509) 373-4804

Attachments 4

CC: w/Attachments

File/LB

JANUARY 7, 2014

ATTACHMENT 1

COVER SHEET

Consisting of 2 pages
Including cover page

WSCF SAF Number Cross Reference

Group # WSCF131583
Data Deliverable Date 01/07/14

| SAF # | Sample ID | Sample # | Matrix | Sampled | Received |
|--------------|------------------|-----------------|---------------|----------------|-----------------|
| F13-051 | B2RYN3 | 131583001 | WATER | 12/23/13 | 12/23/13 |
| F13-051 | B2RYN4 | 131583002 | WATER | 12/23/13 | 12/23/13 |

JANUARY 7, 2014

ATTACHMENT 2

NARRATIVE

Consisting of 3 pages
Including cover page

Introduction

Samples were received at the WSCF laboratory as referenced on the WSCF SAF Number Cross Reference table included in the final report. The samples were analyzed for the analytes indicated on the attached copy of the chain of custody (COC) form in accordance with the *Statement of Work (SOW)*, to Contract 39818, Revision 4, "WSCF ANALYTICAL SERVICES FOR GROUNDWATER."

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

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

The following generic data qualifiers (i.e., B, C, D, J and U) may be applicable to this report, as appropriate.

- **B** – Sample results with a concentration greater than the MDL but less than the PQL are B flagged (applies to inorganic and wet chemical analyses), as appropriate.
- **C** – Analyte was detected in the blank and was evaluated. Affected sample results in the batch were C flagged (applies to inorganic and wet chemical analyses).
- **D** – Sample results are D flagged if dilution(s) were required, as appropriate.
- **J** – Sample results with a concentration greater than the MDL but less than the PQL are J flagged (applies to organic analyses), as appropriate.
- **B (organic analyses)** – Analyte was detected in the blank and was evaluated. Affected sample results in the batch were B flagged.
- **U** – Analyzed for but not detected above limiting criteria. Relative Percent Difference (RPD) values associated with an analyte qualified with a "U" are not applicable.
- **o** – LCS recovery outside established laboratory acceptance limits.

Analytical Methodology for Requested Analyses

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

Inorganic Comments

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):

- Potassium and Sodium were detected in the Blank and evaluated.
- 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 Client Services representative as verified by electronic signatures shown on the WSCF ANALYTICAL RESULTS REPORT.

JANUARY 7, 2014

ATTACHMENT 3

ANALYTICAL RESULTS

Consisting of 13 pages
Including cover page

JANUARY 7, 2014

WSCF ANALYTICAL RESULTS REPORT

For

CH2M Hill Plateau Remediation

PO Box 1600
Richland, WA 99352

Attention: Scot Fitzgerald

Contract # MOA-FH-CHPRC-2008
Group # WSCF131583
Report Date January 7, 2014

Analytical: Electronically signed by Joseph Hale

Client Services: Electronically signed by Heather Medley

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

This information is intended for the use of the addressee only. If the reader of this report is not the intended recipient or is not authorized by the recipient to receive the report, you are hereby notified that any dissemination, distribution or copying of this report is strictly prohibited. If you have received this report in error, please notify WSCF Laboratory immediately by telephone at (509) 373-7005. Information designation of this report is the responsibility of the customer.

Batch QC List

Attention Scot Fitzgerald
 Department Inorganic

Group # WSCF131583

| QC Batch | Analytical Batch | S# | Type | Sample # | Client Sample# | Original | Test |
|----------|------------------|----|--------|-----------|----------------------|-----------|--------------------------------|
| 225428 | 225521 | 5 | BLANK | 103093 | BLANK | | ICP-6010 - All possible metals |
| 225428 | 225521 | 7 | LCS | 103095 | LCS | | ICP-6010 - All possible metals |
| 225428 | 225521 | 9 | MS | 103096 | B2TH14(131504002MS) | 131504002 | ICP-6010 - All possible metals |
| 225428 | 225521 | 10 | MSD | 103097 | B2TH14(131504002MSD) | 131504002 | ICP-6010 - All possible metals |
| 225428 | 225521 | 29 | SAMPLE | 131583001 | B2RYN3 | | ICP-6010 - All possible metals |

Batch QC List

Attention Scot Fitzgerald
Department Radiochemistry

Group # WSCF131583

| QC Batch | Analytical Batch | S# | Type | Sample # | Client Sample# | Original | Test |
|----------|------------------|----|--------|-----------|----------------------|-----------|---------------------------|
| 225427 | 225502 | 1 | BLANK | 103090 | BLANK | | Strontium 89/90 (GPC/GEA) |
| 225427 | 225502 | 2 | LCS | 103091 | LCS | | Strontium 89/90 (GPC/GEA) |
| 225427 | 225502 | 3 | DUP | 103092 | B2RYN4(131583002DUP) | 131583002 | Strontium 89/90 (GPC/GEA) |
| 225427 | 225502 | 4 | SAMPLE | 131583002 | B2RYN4 | | Strontium 89/90 (GPC/GEA) |
| 225433 | 225599 | 1 | BLANK | 103101 | BLANK | | Tritium by LSC |
| 225433 | 225599 | 2 | LCS | 103102 | LCS | | Tritium by LSC |
| 225433 | 225599 | 4 | DUP | 103103 | B2RW93(131576002DUP) | 131576002 | Tritium by LSC |
| 225433 | 225599 | 5 | MSPK | 103104 | B2RW93(131576002MSP) | | Tritium by LSC |
| 225433 | 225599 | 6 | SAMPLE | 131583002 | B2RYN4 | | Tritium by LSC |

Method Reference

Attention Scot Fitzgerald
Department Inorganic

Group # WSCF131583

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

| | | | |
|-------------------|--|-----------------|--|
| LA-505-411 | Elemental Analysis by ICP Atomic Emission Spectroscopy (ICP AES) | | |
| | EPA SW-846 | 6010C | Inductively Coupled Plasma-Atomic Emmission Spectrometry |
| | HEIS | 6010_METALS_ICP | Inductively Coupled Plasma-Atomic Emmission Spectrometry |

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 # WSCF131583

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

| | | | |
|-------------------|--|----------------------|--|
| LA-218-413 | Tritium By Ion Removal Using Eichrom Resin Columns (Prep) | | |
| | N/A | PREP METHOD | |
| LA-220-406 | Strontium-89 and 90 in Aqueous Samples by SR-SPEC Separation | | |
| | HEIS | SRTOT_SEP_PRECIP_GPC | Strontium 89/90, by Sr-Spec Sep. |
| LA-508-421 | Operation of the Tri-Carb Model 2500TR Liquid Scintillation Analyzer | | |
| | HEIS | ALPHA_LSC | A/B Liquid Scintillation |
| | HEIS | BETA_LSC | A/B Liquid Scintillation |
| | HEIS | TC99_3MDSK_LSC | TC99 by Liquid Scintillation |
| | HEIS | TRITIUM_EIE_LSC | Tritium, by Eichrome ion exchange, LSC |

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

Attention Scot Fitzgerald
 Department Inorganic

Group # WSCF131583

Sample # 131583001
 SAF# F13-051
 Sample ID B2RYN3

Matrix WATER
 Sampled 12/23/13
 Received 12/23/13

| Test Performed | CAS # | Method | RQ | Result | TP Err | Units | DF | MDL | PQL | Analyzed |
|---------------------------------------|-----------|------------|----|--------|--------|-------|----|-----|------|-----------------|
| ICPAES Prep (W) | | | | | | | | | | 12/31/13 |
| ICP-6010 - All possible metals | | | | | | | | | | |
| Iron | 7439-89-6 | LA-505-411 | U | <40 | | ug/L | 1 | 40 | 50 | 01/07/14 |
| Magnesium | 7439-95-4 | LA-505-411 | | 8590 | | ug/L | 1 | 60 | 750 | 01/07/14 |
| Manganese | 7439-96-5 | LA-505-411 | | 37.7 | | ug/L | 1 | 4.0 | 5.0 | 01/07/14 |
| Potassium | 7440-09-7 | LA-505-411 | C | 5760 | | ug/L | 1 | 250 | 4000 | 01/07/14 |
| Sodium | 7440-23-5 | LA-505-411 | | 13200 | | ug/L | 1 | 100 | 500 | 01/07/14 |
| Chromium | 7440-47-3 | LA-505-411 | B | 9.80 | | ug/L | 1 | 5.0 | 10 | 01/07/14 |
| Cobalt | 7440-48-4 | LA-505-411 | U | <4.0 | | ug/L | 1 | 4.0 | 20 | 01/07/14 |
| Calcium | 7440-70-2 | LA-505-411 | | 40000 | | ug/L | 1 | 50 | 1000 | 01/07/14 |

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

B - Analyte < the PQL(or EQL)but >= the IDL/MDL(Inorganic)
 C - Analyte was found in the Associated Blank. (Inorganic)
 D - Analyte was reported at a secondary dilution factor.
 E - Analyte is an estimate, see comment section.
 N - MS and/or MSD recovery outside control limits.

U - Analyzed for but not detected above limiting criteria.
 X,Y or Z - See comment detail and/or narrative.
 PQL is equivalent to Estimated Quantitation Limit (EQL)
 o - LCS recovery outside established laboratory acceptance limits.
 o - LCS recovery outside established laboratory acceptance limits.

Attention Scot Fitzgerald
 Department Radiochemistry

Group # WSCF131583

Sample # 131583002
 SAF# F13-051
 Sample ID B2RYN4

Matrix WATER
 Sampled 12/23/13
 Received 12/23/13

| Test Performed | CAS # | Method | RQ | Result | TP Err | Units | DF | MDL | PQL | Analyzed |
|---|------------|------------|----|--------|--------|-------|----|-----|-----|-----------------|
| Strontium 89/90 WATER/LIQUID PREP | | | | | | | | | | 12/30/13 |
| Strontium 89/90 (GPC/GEA) | | | | | | | | | | |
| Strontium-89_90 | SR-RAD | LA-220-406 | U | 1.1 | .89 | pCi/L | 1 | 1.4 | | 01/03/14 |
| Tritium by LSC EICHROM WA/LIQ PREP | | | | | | | | | | 12/31/13 |
| Tritium by LSC | | | | | | | | | | |
| Tritium | 10028-17-8 | LA-508-421 | | 3200 | 690 | pCi/L | 1 | 270 | | 01/01/14 |

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 Radiochemistry

Group # WSCF131583

Analytical Batch 225502 (QC Batch: 225427)
Associated Samples 131583002

Test Strontium 89/90 (GPC/GEA)

| Analyte | CAS # | Original Found | QC Found | Units | % Recov | Limits | RPD | RPD Limit | RQ | Analyzed |
|-----------------|--------|---------------------------|----------|-------|---------|----------|-------|-----------|----|----------|
| BLANK | | QC Sample #103090 | | | | | | | | |
| Strontium-89_90 | SR-RAD | | -0.18 | pCi/L | | | | | U | 01/03/14 |
| LCS | | QC Sample #103091 | | | | | | | | |
| Strontium-89_90 | SR-RAD | | 86 | pCi/L | 93.2 | 80 - 120 | | | | 01/03/14 |
| DUP | | QC Sample #103092 | | | | | | | | |
| | | Original 131583002 | | | | | | | | |
| Strontium-89_90 | SR-RAD | 1.1 | 1.0 | pCi/L | | | 10.30 | 20 | U | 01/03/14 |

* - QC result out of range

n/a - Not Applicable

Quality Control Report

Attention Scot Fitzgerald
Department Inorganic

Group # WSCF131583

Analytical Batch 225521 (QC Batch: 225428)
Associated Samples 131583001

Test ICP-6010 - All possible metals

| Analyte | CAS # | Original Found | QC Found | Units | % Recov | Limits | RPD | RPD Limit | RQ | Analyzed |
|--------------|-----------|--------------------------|----------|-------|---------|----------|-----|-----------|----|----------|
| BLANK | | QC Sample #103093 | | | | | | | | |
| Iron | 7439-89-6 | <40 | | ug/L | | | | | U | 01/07/14 |
| Magnesium | 7439-95-4 | <60 | | ug/L | | | | | U | 01/07/14 |
| Manganese | 7439-96-5 | <4.0 | | ug/L | | | | | U | 01/07/14 |
| Potassium | 7440-09-7 | 497 | | ug/L | | | | | B | 01/07/14 |
| Sodium | 7440-23-5 | 194 | | ug/L | | | | | B | 01/07/14 |
| Chromium | 7440-47-3 | <5.0 | | ug/L | | | | | U | 01/07/14 |
| Cobalt | 7440-48-4 | <4.0 | | ug/L | | | | | U | 01/07/14 |
| Calcium | 7440-70-2 | <50 | | ug/L | | | | | U | 01/07/14 |
| LCS | | QC Sample #103095 | | | | | | | | |
| Iron | 7439-89-6 | 995 | | ug/L | 99.5 | 80 - 120 | | | | 01/07/14 |
| Magnesium | 7439-95-4 | 9970 | | ug/L | 99.7 | 80 - 120 | | | | 01/07/14 |
| Manganese | 7439-96-5 | 1010 | | ug/L | 100.7 | 80 - 120 | | | | 01/07/14 |
| Potassium | 7440-09-7 | 10600 | | ug/L | 106 | 80 - 120 | | | | 01/07/14 |
| Sodium | 7440-23-5 | 10300 | | ug/L | 102.8 | 80 - 120 | | | | 01/07/14 |
| Chromium | 7440-47-3 | 991 | | ug/L | 99.1 | 80 - 120 | | | | 01/07/14 |
| Cobalt | 7440-48-4 | 966 | | ug/L | 96.6 | 80 - 120 | | | | 01/07/14 |

* - QC result out of range

n/a - Not Applicable

Quality Control Report

Attention Scot Fitzgerald
Department Inorganic

Group # WSCF131583

| Analyte | CAS # | Original Found | QC Found | Units | % Recov | Limits | RPD | RPD Limit | RQ | Analyzed |
|------------|-----------|----------------|---------------------------|-------|---------|----------|------|-----------|----------------------|----------|
| Calcium | 7440-70-2 | | 20300 | ug/L | 101.6 | 80 - 120 | | | | 01/07/14 |
| MS | | | QC Sample #103096 | | | | | | | |
| | | | Original 131504002 | | | | | | | |
| Iron | 7439-89-6 | | 1000 | ug/L | 100.5 | 75 - 125 | | | | 01/07/14 |
| Magnesium | 7439-95-4 | | 10300 | ug/L | 103.4 | 75 - 125 | | | | 01/07/14 |
| Manganese | 7439-96-5 | | 1020 | ug/L | 102.2 | 75 - 125 | | | | 01/07/14 |
| Potassium | 7440-09-7 | | 10300 | ug/L | 103.4 | 75 - 125 | | | | 01/07/14 |
| Sodium | 7440-23-5 | | 10400 | ug/L | 104.2 | 75 - 125 | | | | 01/07/14 |
| Chromium | 7440-47-3 | | 1010 | ug/L | 101.3 | 75 - 125 | | | | 01/07/14 |
| Cobalt | 7440-48-4 | | 999 | ug/L | 99.9 | 75 - 125 | | | | 01/07/14 |
| Calcium | 7440-70-2 | | 21200 | ug/L | 106 | 75 - 125 | | | | 01/07/14 |
| MSD | | | QC Sample #103097 | | | | | | | |
| | | | Original 131504002 | | | | | | Paired 103096 | |
| Iron | 7439-89-6 | | 995 | ug/L | 99.5 | 75 - 125 | 1.00 | 20 | | 01/07/14 |
| Magnesium | 7439-95-4 | | 10200 | ug/L | 102.3 | 75 - 125 | 0.70 | 20 | | 01/07/14 |
| Manganese | 7439-96-5 | | 1010 | ug/L | 100.7 | 75 - 125 | 1.50 | 20 | | 01/07/14 |
| Potassium | 7440-09-7 | | 10300 | ug/L | 102.6 | 75 - 125 | 0.40 | 20 | | 01/07/14 |
| Sodium | 7440-23-5 | | 10300 | ug/L | 103 | 75 - 125 | 0.80 | 20 | | 01/07/14 |
| Chromium | 7440-47-3 | | 995 | ug/L | 99.5 | 75 - 125 | 1.80 | 20 | | 01/07/14 |
| Cobalt | 7440-48-4 | | 978 | ug/L | 97.8 | 75 - 125 | 2.10 | 20 | | 01/07/14 |
| Calcium | 7440-70-2 | | 20800 | ug/L | 103.8 | 75 - 125 | 1.10 | 20 | | 01/07/14 |

* - QC result out of range

n/a - Not Applicable

Quality Control Report

Attention Scot Fitzgerald
Department Radiochemistry

Group # WSCF131583

Analytical Batch 225599 (QC Batch: 225433)
Associated Samples 131583002

Test Tritium by LSC

| Analyte | CAS # | Original Found | QC Found | Units | % Recov | Limits | RPD | RPD Limit | RQ | Analyzed |
|------------------------|------------|----------------|---------------------------|-------|---------|----------|------|-----------|----|----------|
| BLANK | | | | | | | | | | |
| | | | QC Sample #103101 | | | | | | | |
| Tritium LCS | 10028-17-8 | | 47 | pCi/L | | | | | U | 01/01/14 |
| | | | QC Sample #103102 | | | | | | | |
| Tritium DUP | 10028-17-8 | | 3300 | pCi/L | 100.2 | 80 - 120 | | | | 01/01/14 |
| | | | QC Sample #103103 | | | | | | | |
| | | | Original 131576002 | | | | | | | |
| Tritium MSPK | 10028-17-8 | | 2400 | pCi/L | | | 8.10 | 20 | | 01/01/14 |
| | | | QC Sample #103104 | | | | | | | |
| Tritium | 10028-17-8 | | 22000 | pCi/L | 94.2 | 75 - 125 | | | | 01/01/14 |

* - QC result out of range

n/a - Not Applicable

Quality Control Report

Attention Scot Fitzgerald
Department Radiochemistry

Group # WSCF131583

Analytical Batch 225502 (QC Batch: 225427)
Associated Samples 131583002

Test Strontium 89/90 (GPC/GEA)

| Analyte | CAS # | Original Found | QC Found | Units | % Recov | Limits | RPD | RPD Limit | RQ | Analyzed |
|-------------------|------------|----------------|---------------------------|-------|---------|----------|-----|-----------|----|----------|
| BLANK | | | | | | | | | | |
| | | | QC Sample #103090 | | | | | | | |
| Strontium Nitrate | 10042-76-9 | | | mg | 57.9 | 25 - 105 | | | | 01/03/14 |
| LCS | | | QC Sample #103091 | | | | | | | |
| Strontium Nitrate | 10042-76-9 | | | mg | 73.6 | 25 - 105 | | | | 01/03/14 |
| DUP | | | QC Sample #103092 | | | | | | | |
| | | | Original 131583002 | | | | | | | |
| Strontium Nitrate | 10042-76-9 | 8.4 | | mg | 71.1 | 25 - 105 | n/a | | | 01/03/14 |
| SAMPLE | | | Sample #131583002 | | | | | | | |
| Strontium Nitrate | 10042-76-9 | | | mg | 69.4 | 25 - 105 | | | | 01/03/14 |

* - QC result out of range

n/a - Not Applicable

ATTACHMENT4

SAMPLE RECEIPT

Consisting of 4 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
CA CN: 404401
Work Order #: 131583
Customer Work ID: F13-051-300
Due Date: 01/07/2014

The following samples were received from you on 12/23/2013 9:35:00 AM. 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 |
|--------------------------------|-----------|-------------------------------|------------------|------------------|
| 131583001 | B2RYN3 | WATER | 12/23/2013 08:34 | 12/23/2013 09:35 |
| Procedure | | Compound List | | |
| ICP-6010 - All possible metals | | Fe, Mg, Mn, K, Na, Cr, Co, Ca | | |
| Sample # | Sample ID | Matrix | Collected | Received |
| 131583002 | B2RYN4 | WATER | 12/23/2013 08:34 | 12/23/2013 09:35 |
| Procedure | | Compound List | | |
| Strontium 89/90 (GPC/GEA) | | SR89/90 | | |
| Tritium by LSC | | H3 | | |

Chain of Custody

| | | | |
|--|--|--|--|
| CH2MHill Plateau Remediation Company | | CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST | |
| COLLECTOR <i>Ryu & Crew</i> | COMPANY CONTACT TODAK, D | TELEPHONE NO. 376-6427 | PROJECT COORDINATOR TODAK, D |
| SAMPLING LOCATION C8376, T-001 | PROJECT DESIGNATION Sampling and Analysis of New Wells in 100-BC Area - Wdler | FIELD LOGBOOK NO. HNF-491-9/48 | SAP NO. FI3-051 |
| ICE CHEST NO. | ACTUAL SAMPLE DEPTH 106.3 | COA 30320ES10 | METHOD OF SHIPMENT GOVERNMENT VEHICLE |
| SHIPPED TO Waste Sampling & Characterization | OFFSITE PROPERTY NO. N/A | BILL OF LADING/AIR BILL NO. N/A | PRICE CODE 7C |
| MATRIX* A=Air DL=Drum Leakage OS=Other S=Soil L=Leak S=Sl SE=Seepage T=Tissue V=Vendition W=Water WI=Wipe X=Other | POSSIBLE SAMPLE HAZARDS/REMARKS **Certain Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR/ATA Dangerous Goods Regulations are not releasable per DLE Under 158.1.** | PRESERVATION H403 to pH <2 | AIR QUALITY <input type="checkbox"/> |
| SAMPLE NO. 131583 | MATRIX* | HOLDING TIME 6 hours | TURNAROUND 15 Days / 15 Days |
| B2RYN3 | WATER | TYPE OF CONTAINER GIP | DATA |
| | | NO. OF CONTAINER(S) 1 | ORIGINAL |
| | | VOLUME 500 mL | |
| | | SAMPLE ANALYSIS | |
| | | SAMPLE DATE 12-23-13 | |
| | | SAMPLE TIME 0834 | |
| | | | |

FILTER

| | | | |
|---|----------------------------|---|----------------------------|
| CHAIN OF POSSESSION | | SIGN/PRINT NAMES | |
| RELINQUISHED BY/REMOVED FROM <i>Ryu & Crew</i> | DATE/TIME 12-23-13 0935 | RECEIVED BY/STORED IN <i>[Signature]</i> | DATE/TIME 12-23-13 0935 |
| RELINQUISHED BY/REMOVED FROM | DATE/TIME | RECEIVED BY/STORED IN | DATE/TIME |
| RELINQUISHED BY/REMOVED FROM | DATE/TIME | RECEIVED BY/STORED IN | DATE/TIME |
| RELINQUISHED BY/REMOVED FROM | DATE/TIME | RECEIVED BY/STORED IN | DATE/TIME |
| RELINQUISHED BY/REMOVED FROM | DATE/TIME | RECEIVED BY/STORED IN | DATE/TIME |
| RELINQUISHED BY/REMOVED FROM | DATE/TIME | RECEIVED BY/STORED IN | DATE/TIME |
| LABORATORY SECTION | RECEIVED BY | TITLE | DATE/TIME |
| FINAL SAMPLE DISPOSITION | DISPOSAL METHOD | | DATE/TIME |

PRINTED ON 9/24/2013

FILTER

TRVL-13-109

SPECIAL INSTRUCTIONS
 ** The CACN for WSCF Analytical is 404401.□** The 100 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF. TRVL-13-109
 (1) 6010_METALS_ICP: COMMON {Calcium, Chromium, Cobalt, Iron, Magnesium, Manganese, Potassium, Sodium};

Chain of Custody

| | | | | | | | |
|---|--|---|---------------------------------|---|--|-------------|--|
| CH2MHill Pateau Remediation Company | | CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST | | P13-051-301 | | PAGE 1 OF 1 | |
| COLLECTOR <i>Mike Bell</i> | COMPANY CONTACT TDDAK, D | TEL PHONE NO. 376-6427 | PROJECT COORDINATOR TDDAK, D | PRICE CODE 7C | DATA TURNAROUND 15 Days / 15 Days | | |
| SAMPLING LOCATION C8776, I-001 | PROJECT DESIGNATION Sampling and Analysis of New Wells in 100-DC Area - Water | FIELD LOGBOOK NO. HNF-N-451-3/48 | ACTUAL SAMPLE DEPTH 106.3 | AIR QUALITY <input type="checkbox"/> | METHOD OF SHIPMENT GOVERNMENT VEHICLE | ORIGINAL | |
| ICE CHEST NO. | OFFSITE PROPERTY NO. N/A | BILL OF LADING/AIR BILL NO. N/A | | | | | |
| Waste Sampling & Characterization | | PRESERVATION | | HOLDING TIME | | | |
| MATRIX* A=Air DL=Drum L=Leak DS=Drum S=Soils L=Leak O=Oil SE=Solid T=Trucks V=Vehicles W=Water WI=Wipe X=Other | | POSSIBLE SAMPLE HAZARDOUS/REMARKS **Containing Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR/ATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1.** | | HOLDING TIME 6 Months | | 6 Months | |
| SPECIAL HANDLING AND/OR STORAGE | | TYPE OF CONTAINER | | NO. OF CONTAINER(S) | | VOLUME | |
| | | G/P | | 1 | | 1L | |
| | | SAMPLE ANALYSIS | | G/P | | 250mL | |
| SAMPLE NO. B2RYN4 | MATRIX* | SAMPLE DATE 12-23-13 | SAMPLE TIME 0834 | | | | |

| | | | | | |
|---|-----------------------|---|-----------------------|---|--|
| CHAIN OF POSSESSION | | SIGN/ PRINT NAMES | | SPECIAL INSTRUCTIONS | |
| RELINQUISHED BY/REMOVED FROM <i>58380D</i> | DATE/TIME 12-23-13 | RECEIVED BY/STORER IN <i>Chapman</i> | DATE/TIME 12-23-13 | ** The CACN for WSCF Analytical is 404401. □ ** The 100 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF. TRVI - 1.3 - 09 | |
| RELINQUISHED BY/REMOVED FROM | DATE/TIME | RECEIVED BY/STORER IN | DATE/TIME | | |
| RELINQUISHED BY/REMOVED FROM | DATE/TIME | RECEIVED BY/STORER IN | DATE/TIME | | |
| RELINQUISHED BY/REMOVED FROM | DATE/TIME | RECEIVED BY/STORER IN | DATE/TIME | | |
| RELINQUISHED BY/REMOVED FROM | DATE/TIME | RECEIVED BY/STORER IN | DATE/TIME | | |
| RELINQUISHED BY/REMOVED FROM | DATE/TIME | RECEIVED BY/STORER IN | DATE/TIME | | |
| LABORATORY SECTION | RECEIVED BY | TITLE | | DATE/TIME | |
| FINAL SAMPLE DISPOSITION | DISPOSAL METHOD | DISPOSED BY | | DATE/TIME | |

TRVI-13-109