CHPRC - REVIEW COMMENT RECORD (RCR)

1. Date	2. Review No.
8/21/2012	RCR-VSR12-022
3. Project No. 100K	Page 1 of 1

5. Document Number(s)/Title(s)	6. Program/Project/Building Number	7. Reviewer	8. Organization/Group	9. Location/Phone
VSR12-022, Stockpile #3 Samples Project 100-K	SGRP	SL Huggins	SGRP QA	MO-2216E/A101 373-3630

17. Comment Submittal Approval	10. Agreement With Indicated Comment Disposition(s)	11. CLOSED
8/21/12 Date; SL Huggins Organization Manager (optional) (print and sign)	Date; Reviewer/Point of Contact (print and sign); Author/Originator (print and sign)	8/21/12 Date; Reviewer/Point of Contact (print and sign); SL Huggins Author/Originator (print and sign)

12. Item	13a. Comments	13b. Basis	13c. Recommendation	14. Reviewer Concurrence Required (Y or N)	15. Disposition (provide justification if **NOT** accepted)	16. Status
1	No issues noted.					

CHPRC - REVIEW COMMENT RECORD (RCR)

1. Date	2. Review No.
08/21/2012	
3. Project No.	Page 1 of 1

5. Document Number(s)/Title(s)	6. Program/Project/Building Number	7. Reviewer	8. Organization/Group	9. Location/Phone
VSR12-022		Scot Fitzgerald	Analytical Support Group	2753/373-7495

17. Comment Submittal Approval	10. Agreement With Indicated Comment Disposition(s)	11. CLOSED
Date / Organization Manager (optional) (print and sign)	Scot Fitzgerald Reviewer/Point of Contact (print and sign) 08/21/2012 Date Author/Originator (print and sign)	Scot Fitzgerald Reviewer/Point of Contact (print and sign) 8/23/2012 Date Author/Originator (print and sign)

12. Item	13a. Comments	13b. Basis	13c. Recommendation	14. Reviewer Concurrence Required (Y or N)	15. Disposition (provide justification if **NOT** accepted)	16. Status
1	Page 4 blank discussion - V flag should be changed from J+ to J. Sample has high blank but also low MS recoveries.		Change J+ to J in narrative, data qualification summary on page 10 and appended data on page 16.	Y	All appropriate information was corrected.	Closed

CHPRC - REVIEW COMMENT RECORD (RCR)

1. Date	2. Review No.
08/21/2012	
3. Project No.	Page 1 of 1

5. Document Number(s)/Title(s)	6. Program/Project/Building Number	7. Reviewer	8. Organization/Group	9. Location/Phone
VSR12-022	100-K Remedial Action	JL Hammons	D&D CHPRC	MO-1106/100-K 509-942-3946

17. Comment Submittal Approval	10. Agreement With Indicated Comment Disposition(s)	11. CLOSED
8/21/12 Date JL Hammons Organization Manager (optional) (print and sign)	Date Reviewer/Point of Contact (print and sign) Author/Originator (print and sign)	8/27/12 Date Reviewer/Point of Contact (print and sign) Jennifer Hammons Author/Originator (print and sign)

12. Item	13a. Comments	13b. Basis	13c. Recommendation	14. Reviewer Concurrence Required (Y or N)	15. Disposition (provide justification if **NOT** accepted)	16. Status
1	No comments.					

ANALYTICAL QUALITY ASSOCIATES, INC.
616 Maxine NE
Albuquerque, NM 87123
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Data Validation Report for CH2M Hill
Plateau Remediation Company

VSR12-022
Stockpile #3 Samples
Project 100-K

Chemical & Radiochemical Validation - Level C

Validation Performed By: Eyda Hergenreder Eyda Hergenreder ***Date: 08-16-12***

Validation reviewed by: ***Date: 08-16-12***
Marcia Hilchey

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Date: 22 August 2012
To: CH2M Hill (technical representative)
From: Analytical Quality Associates, Inc.
Project: 100-K
Subject: Inorganics - Sample Data Group (SDG) WSCF120925

INTRODUCTION

This memorandum presents the results of data validation for SDG WSCF120925 prepared by WSCF Analytical Laboratories. A list of samples validated along with the analytical methods is provided in the following table.

Sample ID	Sample Date	Media	Validation Level	Analytical Methods
B2LWL0	07/18/12	Soil	C	200.8
B2LWL1	07/18/12	Soil	C	200.8
B2LWL2	07/18/12	Soil	C	200.8
B2LWL3	07/18/12	Soil	C	200.8
B2LWL4	07/18/12	Soil	C	200.8
B2LWK1	07/18/12	Soil	C	200.8
B2LWK2	07/18/12	Soil	C	200.8
B2LWK3	07/18/12	Soil	C	200.8
B2LWK4	07/18/12	Soil	C	200.8
B2LWK5	07/18/12	Soil	C	200.8
B2LWK6	07/18/12	Soil	C	200.8
B2LWK7	07/18/12	Soil	C	200.8
B2LWK8	07/18/12	Soil	C	200.8
B2LWK9	07/18/12	Soil	C	200.8

Data validation was conducted in accordance with the CHPRC validation statement of work and the 100 Area Remedial Action Sampling and Analysis Plan, DOE/RL-96-22, Rev. 5 (SAP). Appendices 1 through 6 provide the following information as indicated below:

Appendix 1. Glossary of Data Reporting Qualifiers
Appendix 2. Summary of Data Qualification
Appendix 3. Annotated Laboratory Reports
Appendix 4. Laboratory Narrative and Chain-of-Custody Documentation
Appendix 5. Data Validation Supporting Documentation
Appendix 6. Additional Documentation Requested By Client

DATA QUALITY OBJECTIVES

- **Holding Times and Sample Preservation**

Holding times are calculated from Chain-of-Custody forms to determine the validity of the results. The holding time requirement for ICP metals are analysis within 180 days of sample

collection and the holding time requirement for mercury is analysis within 28 days of sample collection. Sample preservation for all analytes requires chilling to 4 degrees Celsius.

The samples were analyzed within the prescribed holding times and properly preserved.

- **Blanks**

The blank data results are reviewed to assess the extent of contamination introduced through sampling, sample preparation, and analysis.

Laboratory Blanks

All laboratory blank results were acceptable with the following exceptions.

For batch 205241, the laboratory blank results for Mn and V were > the reporting limits (RLs). The Mn and V results for sample B2LWL4 were detect > the RLs but ≤10X the blank values; therefore, the Mn result should be qualified as an estimate and flagged "J+." The V sample result should be qualified as an estimate and would be flagged J+, but was further qualified "J" due to low MS recovery. All other associated Mn and V sample results were detects > the RLs and >10X the blank values and should not be qualified.

Trip Blanks

No trip blanks were submitted for validation.

Field Blanks

No field blanks were submitted for validation.

Equipment Blanks

All equipment blank results were acceptable with the following exceptions. Mn, Ba, Co, Cu, V, Zn, Pb, Sr and U were detected in equipment blank B2LWL4. The Mn result has been flagged “J+” due to laboratory blank contamination and the V result has been flagged "J" due to laboratory blank contamination and low MS recovery.

- **Accuracy**

Accuracy is evaluated by reviewing matrix spike sample results, laboratory control sample and ICP-AES interference check sample results. According to the SAP, the matrix spike sample and the laboratory control sample accuracy limits are 70% to 130%. The limits for reported analytes not listed in the SAP are specified by the DV procedure. The interference check sample limits are ones specified by the DV procedure.

Matrix Spike/Matrix Spike Duplicate (MS/MSD) Samples

All MS/MSD recoveries were acceptable with the following exceptions.

For batch 205241, the MS and MSD recoveries for Ba were < 30%. All associated sample results were detects and should be qualified as estimates and flagged "J-." The MS and/or MSD recoveries for V, Zn and Sr were <70% but ≥30%. The V result for sample B2LWL4 was a detect and should be qualified as an estimate and would flagged J-, but has been flagged "J" due to blank infraction. All other associated sample results were detects and should be qualified as estimates and flagged "J-." See the table in Appendix 2 for a listing of all affected sample results.

Laboratory Control Samples (LCSs)

All LCS recoveries were acceptable.

ICP-AES Interference Check Samples (ICSs)

ICS data was not included in the data package. Sample results should not be qualified based on this.

- **Precision**

Precision is evaluated by reviewing MS/MSD results, field duplicate sample results, field split sample results, and ICP serial dilution results. These QC results provide information on the laboratory reproducibility and whether sampling activities are adequate to acquire consistent sample results. According to the SAP, the relative percent difference (RPD) limits are ±30%. The limits for reported analytes not listed in the SAP are specified by the DV procedure. The serial dilution limits are ones specified by the DV procedure.

MS/MSD Samples

All MS/MSD RPD values were acceptable.

Field Duplicate Samples

All field duplicate results were acceptable.

Field Split Samples

No field splits were submitted for validation.

ICP Serial Dilution Samples

ICS serial dilution data was not included in the data package. Sample results should not be qualified based on this.

- **ICP-MS Internal Standards**

The analysis of ICP-MS internal standards is used to determine the existences and magnitude of instrument drift and physical interferences. The criteria for evaluation of internal standard results apply to all samples (including QC) analyzed during the analytical run, beginning with the calibration.

ICP-MS internal standards data was not included in the data package. Sample results should not be qualified based on this.

- **Detection Limits**

Reported MDLs are compared against the contractually required detection limits (CRDLs) to ensure that laboratory detection limits meet the required criteria.

All reported sample MDLs were below the CRDLs.

- **Completeness**

SDG WSCF120925 was submitted for validation and verified for completeness. Completeness is based on the percentage of data determined to be valid (i.e., not rejected). The completion percentage was 100%.

MAJOR DEFICIENCIES

None found.

MINOR DEFICIENCIES

Minor deficiencies leading to qualification of sample results as estimates were due to laboratory blank infraction and/or low matrix recoveries. See the table in Appendix 2 for a listing of all affected sample results.

REFERENCES

GRP-GD-003, Rev. 0, Change 0, *Data Validation for Chemical Analyses*, August 2010.

DOE/RL-96-22, Rev. 5, *100 Area Remedial Action Sampling and Analysis Plan*, September 2009.

Appendix 1

Glossary of Data Reporting Qualifiers

Qualifiers that may be applied by data validators in compliance with the CHPRC statement of work are as follows:

- **U** — The constituent was analyzed for, but was not detected. The data should be considered usable for decision-making purposes.

- **UJ** — The constituent was analyzed for and was not detected. Due to a quality control deficiency identified during data validation the value reported may not accurately reflect the RL. The data should be considered usable for decision-making purposes.

- **J** — Indicates the constituent was analyzed for and detected. The associated value is estimated due to a quality control deficiency identified during data validation. The data should be considered usable for decision-making purposes.

- **J+** — Indicates the constituent was analyzed for and detected. The associated value is estimated with a suspected positive bias due to a quality control deficiency identified during data validation. The data should be considered usable for decision-making purposes.

- **J-** — Indicates the constituent was analyzed for and detected. The associated value is estimated with a suspected negative bias due to a quality control deficiency identified during data validation. The data should be considered usable for decision-making purposes.

- **N** — The analysis indicates the presence of an analyte that has been tentatively identified.

- **NJ** — The analysis indicates the presence of an analyte that has been tentatively identified and the associated numerical value represents its approximate concentration.

- **NJ+** — The analysis indicates the presence of an analyte that has been tentatively identified. The associated value is estimated with a suspected positive bias due to a quality control deficiency identified during data validation.

- **NJ-** — The analysis indicates the presence of an analyte that has been tentatively identified. The associated value is estimated with a suspected negative bias due to a quality control deficiency identified during data validation.

- **UR** — Indicates the constituent was analyzed for and not detected; however, due to an identified quality control deficiency the data should be considered unusable for decision-making purposes.

- **R** — Indicates the constituent was analyzed for and detected; however, due to an identified quality control deficiency the data should be considered unusable for decision-making purposes.

Appendix 2

Summary of Data Qualification

Inorganic Data Qualification Summary			
SDG: WSCF120925	Reviewer: AQA	Project: 100-K	Page 1 of 1
Analyte(s)	**Qualifier**	**Samples Affected**	**Reason**
Mn	J+	B2LWL4	Laboratory blank contamination
V	J	B2LWL4	Laboratory blank contamination and low matrix spike recoveries
Ba, V, Zn, Sr	J-	B2LWL0, B2LWL1, B2LWL2, B2LWL3, B2LWK1, B2LWK2, B2LWK3, B2LWK4, B2LWK5, B2LWK6,	Low matrix spike recoveries
Ba, Zn, Sr	J-	B2LWL4	Low matrix spike recoveries

Comments: None

Appendix 3

Annotated Laboratory Reports

WSCF Analytical Results Report

Attention Scot Fitzgerald
Department Inorganic

Group # WSCF120925

Sample # 120925001
SAF# F12-030
Sample ID B2LWL0

Matrix SOIL
Sampled 07/18/12
Received 07/18/12

Test Performed	CAS #	Method	RQ		Result	TP Err	Units	DF	MDL	PQL	Analyzed
ICPMS Prep (S)											**07/26/12**
ICP-2008 MS All possible metal											
Manganese	7439-96-5	LA-505-412			293		mg/kg	0.5	0.048	0.48	07/30/12
Nickel	7440-02-0	LA-505-412			9.53		mg/kg	0.5	0.048	0.48	07/30/12
Silver	7440-22-4	LA-505-412	B		0.0353		mg/kg	0.5	0.024	0.24	07/30/12
Antimony	7440-36-0	LA-505-412	U		<0.14		mg/kg	0.5	0.14	1.4	07/30/12
Barium	7440-39-3	LA-505-412	N	J-	64.4		mg/kg	0.5	0.096	0.96	07/30/12
Beryllium	7440-41-7	LA-505-412	B		0.359		mg/kg	0.5	0.048	0.48	07/30/12
Cadmium	7440-43-9	LA-505-412	B		0.0888		mg/kg	0.5	0.024	0.24	07/30/12
Chromium	7440-47-3	LA-505-412			8.40		mg/kg	0.5	0.048	0.48	07/30/12
Cobalt	7440-48-4	LA-505-412			8.45		mg/kg	0.5	0.024	0.12	07/30/12
Copper	7440-50-8	LA-505-412			15.4		mg/kg	0.5	0.048	0.48	07/30/12
Vanadium	7440-62-2	LA-505-412	N	J-	46.4		mg/kg	0.5	0.096	0.96	07/30/12
Zinc	7440-66-6	LA-505-412	N	J-	43.9		mg/kg	0.5	0.48	4.8	07/30/12
Lead	7439-92-1	LA-505-412			6.02		mg/kg	0.5	0.024	0.24	07/30/12
Mercury	7439-97-6	LA-505-412	U		<0.024		mg/kg	0.5	0.024	0.096	07/30/12
Molybdenum	7439-98-7	LA-505-412			0.335		mg/kg	0.5	0.024	0.24	07/30/12
Strontium	7440-24-6	LA-505-412	N	J-	30.7		mg/kg	0.5	0.048	0.48	07/30/12
Tin	7440-31-5	LA-505-412			0.416		mg/kg	0.5	0.024	0.24	07/30/12

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

B - Analyte < the PQL(or EQL)but >= the IDL/MDL(Inorganic)
C - Analyte was found in the Associated Blank. (Inorganic)
D - Analyte was reported at a secondary diltution 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)

WSCF Analytical Results Report

Attention Scot Fitzgerald
Department Inorganic

Group # WSCF120925

Sample # 120925001
SAF# F12-030
Sample ID B2LWL0

Matrix SOIL
Sampled 07/18/12
Received 07/18/12

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
Uranium	7440-61-1	LA-505-412		0.457		mg/kg	0.5	0.024	0.12	07/30/12
Arsenic	7440-38-2	LA-505-412		2.79		mg/kg	0.5	0.096	0.96	07/30/12
Selenium	7782-49-2	LA-505-412	U	<0.24		mg/kg	0.5	0.24	2.4	07/27/12
Preparation for Cr6 (SO)										**07/25/12**
Hexavalent chromium										
~~Hexavalent chromium~~	~~18540-29-9~~	~~LA-265-403~~	~~U~~	~~<0.098~~		~~ug/g~~	~~1~~	~~0.098~~	~~0.49~~	~~07/25/12~~

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

B - Analyte < the PQL(or EQL)but >= the IDL/MDL(Inorganic)
C - Analyte was found in the Associated Blank. (Inorganic)
D - Analyte was reported at a secondary diltution 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)

WSCF Analytical Results Report

Attention Scot Fitzgerald
Department Inorganic

Group # WSCF120925

Sample # 120925002
SAF# F12-030
Sample ID B2LWL1

Matrix SOIL
Sampled 07/18/12
Received 07/18/12

Test Performed	CAS #	Method	RQ		Result	TP Err	Units	DF	MDL	PQL	Analyzed
ICPMS Prep (S)											**07/26/12**
ICP-2008 MS All possible metal											
Manganese	7439-96-5	LA-505-412			303		mg/kg	0.5	0.050	0.50	07/30/12
Nickel	7440-02-0	LA-505-412			11.2		mg/kg	0.5	0.050	0.50	07/30/12
Silver	7440-22-4	LA-505-412	B		0.0349		mg/kg	0.5	0.025	0.25	07/30/12
Antimony	7440-36-0	LA-505-412	U		<0.15		mg/kg	0.5	0.15	1.5	07/30/12
Barium	7440-39-3	LA-505-412	N	J-	66.3		mg/kg	0.5	0.10	1.0	07/30/12
Beryllium	7440-41-7	LA-505-412	B		0.347		mg/kg	0.5	0.050	0.50	07/30/12
Cadmium	7440-43-9	LA-505-412	B		0.0712		mg/kg	0.5	0.025	0.25	07/30/12
Chromium	7440-47-3	LA-505-412			8.35		mg/kg	0.5	0.050	0.50	07/30/12
Cobalt	7440-48-4	LA-505-412			8.84		mg/kg	0.5	0.025	0.12	07/30/12
Copper	7440-50-8	LA-505-412			15.8		mg/kg	0.5	0.050	0.50	07/30/12
Vanadium	7440-62-2	LA-505-412	N	J-	55.5		mg/kg	0.5	0.10	1.0	07/30/12
Zinc	7440-66-6	LA-505-412	N	J-	59.4		mg/kg	0.5	0.50	5.0	07/30/12
Lead	7439-92-1	LA-505-412			5.08		mg/kg	0.5	0.025	0.25	07/30/12
Mercury	7439-97-6	LA-505-412	U		<0.025		mg/kg	0.5	0.025	0.10	07/30/12
Molybdenum	7439-98-7	LA-505-412			0.359		mg/kg	0.5	0.025	0.25	07/30/12
Strontium	7440-24-6	LA-505-412	N	J-	31.7		mg/kg	0.5	0.050	0.50	07/30/12
Tin	7440-31-5	LA-505-412			0.447		mg/kg	0.5	0.025	0.25	07/30/12

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

B - Analyte < the PQL(or EQL)but >= the IDL/MDL(Inorganic)
C - Analyte was found in the Associated Blank. (Inorganic)
D - Analyte was reported at a secondary diltution 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)

WSCF Analytical Results Report

Attention Scot Fitzgerald
Department Inorganic

Group # WSCF120925

Sample # 120925002
SAF# F12-030
Sample ID B2LWL1

Matrix SOIL
Sampled 07/18/12
Received 07/18/12

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
Uranium	7440-61-1	LA-505-412		0.683		mg/kg	0.5	0.025	0.12	07/30/12
Arsenic	7440-38-2	LA-505-412		2.66		mg/kg	0.5	0.10	1.0	07/30/12
Selenium	7782-49-2	LA-505-412	B	0.257		mg/kg	0.5	0.25	2.5	07/27/12
Preparation for Cr6 (SO)										**07/25/12**
Hexavalent chromium										
~~Hexavalent chromium~~	~~18540-29-9~~	~~LA-265-403~~	~~U~~	~~<0.099~~		~~ug/g~~	~~1~~	~~0.099~~	~~0.49~~	~~07/25/12~~

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

B - Analyte < the PQL(or EQL)but >= the IDL/MDL(Inorganic)
C - Analyte was found in the Associated Blank. (Inorganic)
D - Analyte was reported at a secondary diltution 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)

WSCF Analytical Results Report

Attention Scot Fitzgerald
Department Inorganic

Group # WSCF120925

Sample # 120925003
SAF# F12-030
Sample ID B2LWL2

Matrix SOIL
Sampled 07/18/12
Received 07/18/12

Test Performed	CAS #	Method	RQ		Result	TP Err	Units	DF	MDL	PQL	Analyzed
ICPMS Prep (S)											**07/26/12**
ICP-2008 MS All possible metal											
Manganese	7439-96-5	LA-505-412			294		mg/kg	0.5	0.050	0.50	07/30/12
Nickel	7440-02-0	LA-505-412			10.1		mg/kg	0.5	0.050	0.50	07/30/12
Silver	7440-22-4	LA-505-412	B		0.0379		mg/kg	0.5	0.025	0.25	07/30/12
Antimony	7440-36-0	LA-505-412	U		<0.15		mg/kg	0.5	0.15	1.5	07/30/12
Barium	7440-39-3	LA-505-412	N	J-	62.8		mg/kg	0.5	0.10	1.0	07/30/12
Beryllium	7440-41-7	LA-505-412	B		0.276		mg/kg	0.5	0.050	0.50	07/30/12
Cadmium	7440-43-9	LA-505-412	B		0.0759		mg/kg	0.5	0.025	0.25	07/30/12
Chromium	7440-47-3	LA-505-412			7.88		mg/kg	0.5	0.050	0.50	07/30/12
Cobalt	7440-48-4	LA-505-412			8.26		mg/kg	0.5	0.025	0.12	07/30/12
Copper	7440-50-8	LA-505-412			14.9		mg/kg	0.5	0.050	0.50	07/30/12
Vanadium	7440-62-2	LA-505-412	N	J-	49.8		mg/kg	0.5	0.10	1.0	07/30/12
Zinc	7440-66-6	LA-505-412	N	J-	41.7		mg/kg	0.5	0.50	5.0	07/30/12
Lead	7439-92-1	LA-505-412			5.54		mg/kg	0.5	0.025	0.25	07/30/12
Mercury	7439-97-6	LA-505-412	B		0.0304		mg/kg	0.5	0.025	0.10	07/30/12
Molybdenum	7439-98-7	LA-505-412			0.383		mg/kg	0.5	0.025	0.25	07/30/12
Strontium	7440-24-6	LA-505-412	N	J-	29.4		mg/kg	0.5	0.050	0.50	07/30/12
Tin	7440-31-5	LA-505-412			0.407		mg/kg	0.5	0.025	0.25	07/30/12

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

B - Analyte < the PQL(or EQL)but >= the IDL/MDL(Inorganic)
C - Analyte was found in the Associated Blank. (Inorganic)
D - Analyte was reported at a secondary diltution 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)

WSCF Analytical Results Report

Attention Scot Fitzgerald
Department Inorganic

Group # WSCF120925

Sample # 120925003
SAF# F12-030
Sample ID B2LWL2

Matrix SOIL
Sampled 07/18/12
Received 07/18/12

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
Uranium	7440-61-1	LA-505-412		0.586		mg/kg	0.5	0.025	0.12	07/30/12
Arsenic	7440-38-2	LA-505-412		2.67		mg/kg	0.5	0.10	1.0	07/30/12
Selenium	7782-49-2	LA-505-412	U	<0.25		mg/kg	0.5	0.25	2.5	07/27/12
Preparation for Cr6 (SO)										**07/25/12**
Hexavalent chromium										
~~Hexavalent chromium~~	~~18540-29-9~~	~~LA-265-403~~	~~U~~	~~<0.10~~		~~ug/g~~	~~1~~	~~0.10~~	~~0.50~~	~~07/25/12~~

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

B - Analyte < the PQL(or EQL)but >= the IDL/MDL(Inorganic)
C - Analyte was found in the Associated Blank. (Inorganic)
D - Analyte was reported at a secondary diltution 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)

WSCF Analytical Results Report

Attention Scot Fitzgerald
Department Inorganic

Group # WSCF120925

Sample # 120925004
SAF# F12-030
Sample ID B2LWL3

Matrix SOIL
Sampled 07/18/12
Received 07/18/12

Test Performed	CAS #	Method	RQ		Result	TP Err	Units	DF	MDL	PQL	Analyzed
ICPMS Prep (S)											**07/26/12**
ICP-2008 MS All possible metal											
Manganese	7439-96-5	LA-505-412			277		mg/kg	0.5	0.050	0.50	07/30/12
Nickel	7440-02-0	LA-505-412			8.51		mg/kg	0.5	0.050	0.50	07/30/12
Silver	7440-22-4	LA-505-412	B		0.0293		mg/kg	0.5	0.025	0.25	07/30/12
Antimony	7440-36-0	LA-505-412	U		<0.15		mg/kg	0.5	0.15	1.5	07/30/12
Barium	7440-39-3	LA-505-412	N	J-	58.5		mg/kg	0.5	0.099	0.99	07/30/12
Beryllium	7440-41-7	LA-505-412	B		0.285		mg/kg	0.5	0.050	0.50	07/30/12
Cadmium	7440-43-9	LA-505-412	B		0.0582		mg/kg	0.5	0.025	0.25	07/30/12
Chromium	7440-47-3	LA-505-412			6.18		mg/kg	0.5	0.050	0.50	07/30/12
Cobalt	7440-48-4	LA-505-412			8.15		mg/kg	0.5	0.025	0.12	07/30/12
Copper	7440-50-8	LA-505-412			14.0		mg/kg	0.5	0.050	0.50	07/30/12
Vanadium	7440-62-2	LA-505-412	N	J-	51.7		mg/kg	0.5	0.099	0.99	07/30/12
Zinc	7440-66-6	LA-505-412	N	J-	40.8		mg/kg	0.5	0.50	5.0	07/30/12
Lead	7439-92-1	LA-505-412			3.96		mg/kg	0.5	0.025	0.25	07/30/12
Mercury	7439-97-6	LA-505-412	U		<0.025		mg/kg	0.5	0.025	0.099	07/30/12
Molybdenum	7439-98-7	LA-505-412			0.342		mg/kg	0.5	0.025	0.25	07/30/12
Strontium	7440-24-6	LA-505-412	N	J-	27.2		mg/kg	0.5	0.050	0.50	07/30/12
Tin	7440-31-5	LA-505-412			0.398		mg/kg	0.5	0.025	0.25	07/30/12

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

B - Analyte < the PQL(or EQL)but >= the IDL/MDL(Inorganic)
C - Analyte was found in the Associated Blank. (Inorganic)
D - Analyte was reported at a secondary diltution 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)

WSCF Analytical Results Report

Attention Scot Fitzgerald
Department Inorganic

Group # WSCF120925

Sample # 120925004
SAF# F12-030
Sample ID B2LWL3

Matrix SOIL
Sampled 07/18/12
Received 07/18/12

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
Uranium	7440-61-1	LA-505-412		0.459		mg/kg	0.5	0.025	0.12	07/30/12
Arsenic	7440-38-2	LA-505-412		2.20		mg/kg	0.5	0.099	0.99	07/30/12
Selenium	7782-49-2	LA-505-412	U	<0.25		mg/kg	0.5	0.25	2.5	07/27/12
Preparation for Cr6 (SO)										**07/25/12**
Hexavalent chromium										
~~Hexavalent chromium~~	~~18540-29-9~~	~~LA-265-403~~	~~U~~	~~<0.099~~		~~ug/g~~	~~1~~	~~0.099~~	~~0.50~~	~~07/25/12~~

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

B - Analyte < the PQL(or EQL)but >= the IDL/MDL(Inorganic)
C - Analyte was found in the Associated Blank. (Inorganic)
D - Analyte was reported at a secondary diltution 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)

EH
08/16/12

WSCF Analytical Results Report

Attention Scot Fitzgerald
Department Inorganic

Group # WSCF120925

Sample # 120925005
SAF# F12-030
Sample ID B2LWL4

Matrix SOIL
Sampled 07/18/12
Received 07/18/12

Test Performed	CAS #	Method	RQ		Result	TP Err	Units	DF	MDL	PQL	Analyzed
ICPMS Prep (S)											**07/26/12**
ICP-2008 MS All possible metal											
Manganese	7439-96-5	LA-505-412	C	J+	4.50		mg/kg	0.5	0.053	0.53	07/30/12
Nickel	7440-02-0	LA-505-412	U		<0.053		mg/kg	0.5	0.053	0.53	07/30/12
Silver	7440-22-4	LA-505-412	U		<0.027		mg/kg	0.5	0.027	0.27	07/30/12
Antimony	7440-36-0	LA-505-412	U		<0.16		mg/kg	0.5	0.16	1.6	07/30/12
Barium	7440-39-3	LA-505-412	N	J-	2.20		mg/kg	0.5	0.11	1.1	07/30/12
Beryllium	7440-41-7	LA-505-412	U		<0.053		mg/kg	0.5	0.053	0.53	07/30/12
Cadmium	7440-43-9	LA-505-412	U		<0.027		mg/kg	0.5	0.027	0.27	07/30/12
Chromium	7440-47-3	LA-505-412	U		<0.053		mg/kg	0.5	0.053	0.53	07/30/12
Cobalt	7440-48-4	LA-505-412	B		0.0749		mg/kg	0.5	0.027	0.13	07/30/12
Copper	7440-50-8	LA-505-412	B		0.0813		mg/kg	0.5	0.053	0.53	07/30/12
Vanadium	7440-62-2	LA-505-412	BCN	J	0.117		mg/kg	0.5	0.11	1.1	07/30/12
Zinc	7440-66-6	LA-505-412	BN	J-	0.954		mg/kg	0.5	0.53	5.3	07/30/12
Lead	7439-92-1	LA-505-412			0.294		mg/kg	0.5	0.027	0.27	07/30/12
Mercury	7439-97-6	LA-505-412	U		<0.027		mg/kg	0.5	0.027	0.11	07/30/12
Molybdenum	7439-98-7	LA-505-412	U		<0.027		mg/kg	0.5	0.027	0.27	07/30/12
Strontium	7440-24-6	LA-505-412	BN	J-	0.421		mg/kg	0.5	0.053	0.53	07/30/12
Tin	7440-31-5	LA-505-412	U		<0.027		mg/kg	0.5	0.027	0.27	07/30/12

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

B - Analyte < the PQL(or EQL)but >= the IDL/MDL(Inorganic)
C - Analyte was found in the Associated Blank. (Inorganic)
D - Analyte was reported at a secondary diltution 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)

WSCF Analytical Results Report

Attention Scot Fitzgerald
Department Inorganic

Group # WSCF120925

Sample # 120925005
SAF# F12-030
Sample ID B2LWL4

Matrix SOIL
Sampled 07/18/12
Received 07/18/12

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
Uranium	7440-61-1	LA-505-412	B	0.0754		mg/kg	0.5	0.027	0.13	07/30/12
Arsenic	7440-38-2	LA-505-412	U	<0.11		mg/kg	0.5	0.11	1.1	07/30/12
Selenium	7782-49-2	LA-505-412	U	<0.27		mg/kg	0.5	0.27	2.7	07/27/12
Preparation for Cr6 (SO)										**07/25/12**
Hexavalent chromium										
~~Hexavalent chromium~~	~~18540-29-9~~	~~LA-265-403~~	~~U~~	~~<0.097~~		~~ug/g~~	~~1~~	~~0.097~~	~~0.48~~	~~07/25/12~~

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

B - Analyte < the PQL(or EQL)but >= the IDL/MDL(Inorganic)
C - Analyte was found in the Associated Blank. (Inorganic)
D - Analyte was reported at a secondary diltution 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)

WSCF Analytical Results Report

Attention Scot Fitzgerald
Department Inorganic

Group # WSCF120925

Sample # 120925006
SAF# F12-030
Sample ID B2LWK1

Matrix SOIL
Sampled 07/18/12
Received 07/18/12

Test Performed	CAS #	Method	RQ		Result	TP Err	Units	DF	MDL	PQL	Analyzed
ICPMS Prep (S)											**07/26/12**
ICP-2008 MS All possible metal											
Manganese	7439-96-5	LA-505-412			300		mg/kg	0.5	0.050	0.50	07/30/12
Nickel	7440-02-0	LA-505-412			9.19		mg/kg	0.5	0.050	0.50	07/30/12
Silver	7440-22-4	LA-505-412	B		0.0313		mg/kg	0.5	0.025	0.25	07/30/12
Antimony	7440-36-0	LA-505-412	U		<0.15		mg/kg	0.5	0.15	1.5	07/30/12
Barium	7440-39-3	LA-505-412	N	J-	64.2		mg/kg	0.5	0.099	0.99	07/30/12
Beryllium	7440-41-7	LA-505-412	B		0.273		mg/kg	0.5	0.050	0.50	07/30/12
Cadmium	7440-43-9	LA-505-412	B		0.0606		mg/kg	0.5	0.025	0.25	07/30/12
Chromium	7440-47-3	LA-505-412			7.42		mg/kg	0.5	0.050	0.50	07/30/12
Cobalt	7440-48-4	LA-505-412			8.01		mg/kg	0.5	0.025	0.12	07/30/12
Copper	7440-50-8	LA-505-412			16.1		mg/kg	0.5	0.050	0.50	07/30/12
Vanadium	7440-62-2	LA-505-412	N	J-	45.7		mg/kg	0.5	0.099	0.99	07/30/12
Zinc	7440-66-6	LA-505-412	N	J-	40.3		mg/kg	0.5	0.50	5.0	07/30/12
Lead	7439-92-1	LA-505-412			4.57		mg/kg	0.5	0.025	0.25	07/30/12
Mercury	7439-97-6	LA-505-412	U		<0.025		mg/kg	0.5	0.025	0.099	07/30/12
Molybdenum	7439-98-7	LA-505-412			0.334		mg/kg	0.5	0.025	0.25	07/30/12
Strontium	7440-24-6	LA-505-412	N	J-	32.4		mg/kg	0.5	0.050	0.50	07/30/12
Tin	7440-31-5	LA-505-412			0.410		mg/kg	0.5	0.025	0.25	07/30/12

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

B - Analyte < the PQL(or EQL)but >= the IDL/MDL(Inorganic)
C - Analyte was found in the Associated Blank. (Inorganic)
D - Analyte was reported at a secondary diltution 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)

WSCF Analytical Results Report

Attention Scot Fitzgerald
Department Inorganic

Group # WSCF120925

Sample # 120925006
SAF# F12-030
Sample ID B2LWK1

Matrix SOIL
Sampled 07/18/12
Received 07/18/12

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
Uranium	7440-61-1	LA-505-412		0.468		mg/kg	0.5	0.025	0.12	07/30/12
Arsenic	7440-38-2	LA-505-412		2.51		mg/kg	0.5	0.099	0.99	07/30/12
Selenium	7782-49-2	LA-505-412	U	<0.25		mg/kg	0.5	0.25	2.5	07/27/12
Preparation for Cr6 (SO)										**07/25/12**
Hexavalent chromium										
~~Hexavalent chromium~~	~~18540-29-9~~	~~LA-265-403~~	~~U~~	~~<0.098~~		~~ug/g~~	~~1~~	~~0.098~~	~~0.49~~	~~07/25/12~~

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

B - Analyte < the PQL(or EQL)but >= the IDL/MDL(Inorganic)
C - Analyte was found in the Associated Blank. (Inorganic)
D - Analyte was reported at a secondary diltution 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)

WSCF Analytical Results Report

Attention Scot Fitzgerald
Department Inorganic

Group # WSCF120925

Sample # 120925007
SAF# F12-030
Sample ID B2LWK2

Matrix SOIL
Sampled 07/18/12
Received 07/18/12

Test Performed	CAS #	Method	RQ		Result	TP Err	Units	DF	MDL	PQL	Analyzed
ICPMS Prep (S)											**07/26/12**
ICP-2008 MS All possible metal											
Manganese	7439-96-5	LA-505-412			308		mg/kg	0.5	0.050	0.50	07/30/12
Nickel	7440-02-0	LA-505-412			9.25		mg/kg	0.5	0.050	0.50	07/30/12
Silver	7440-22-4	LA-505-412	B		0.0409		mg/kg	0.5	0.025	0.25	07/30/12
Antimony	7440-36-0	LA-505-412	U		<0.15		mg/kg	0.5	0.15	1.5	07/30/12
Barium	7440-39-3	LA-505-412	N	J-	66.0		mg/kg	0.5	0.10	1.0	07/30/12
Beryllium	7440-41-7	LA-505-412	B		0.289		mg/kg	0.5	0.050	0.50	07/30/12
Cadmium	7440-43-9	LA-505-412	B		0.0560		mg/kg	0.5	0.025	0.25	07/30/12
Chromium	7440-47-3	LA-505-412			7.30		mg/kg	0.5	0.050	0.50	07/30/12
Cobalt	7440-48-4	LA-505-412			9.09		mg/kg	0.5	0.025	0.13	07/30/12
Copper	7440-50-8	LA-505-412			17.1		mg/kg	0.5	0.050	0.50	07/30/12
Vanadium	7440-62-2	LA-505-412	N	J-	53.8		mg/kg	0.5	0.10	1.0	07/30/12
Zinc	7440-66-6	LA-505-412	N	J-	44.1		mg/kg	0.5	0.50	5.0	07/30/12
Lead	7439-92-1	LA-505-412			4.80		mg/kg	0.5	0.025	0.25	07/30/12
Mercury	7439-97-6	LA-505-412	U		<0.025		mg/kg	0.5	0.025	0.10	07/30/12
Molybdenum	7439-98-7	LA-505-412			0.361		mg/kg	0.5	0.025	0.25	07/30/12
Strontium	7440-24-6	LA-505-412	N	J-	33.2		mg/kg	0.5	0.050	0.50	07/30/12
Tin	7440-31-5	LA-505-412			0.440		mg/kg	0.5	0.025	0.25	07/30/12

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

B - Analyte < the PQL(or EQL)but >= the IDL/MDL(Inorganic)
C - Analyte was found in the Associated Blank. (Inorganic)
D - Analyte was reported at a secondary diltution 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)

WSCF Analytical Results Report

Attention Scot Fitzgerald
Department Inorganic

Group # WSCF120925

Sample # 120925007
SAF# F12-030
Sample ID B2LWK2

Matrix SOIL
Sampled 07/18/12
Received 07/18/12

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
Uranium	7440-61-1	LA-505-412		0.458		mg/kg	0.5	0.025	0.13	07/30/12
Arsenic	7440-38-2	LA-505-412		2.60		mg/kg	0.5	0.10	1.0	07/30/12
Selenium	7782-49-2	LA-505-412	B	0.262		mg/kg	0.5	0.25	2.5	07/27/12
Preparation for Cr6 (SO)										**07/25/12**
Hexavalent chromium										
~~Hexavalent chromium~~	~~18540-29-9~~	~~LA-265-403~~	~~U~~	~~<0.099~~		~~ug/g~~	~~1~~	~~0.099~~	~~0.50~~	~~07/25/12~~

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

B - Analyte < the PQL(or EQL)but >= the IDL/MDL(Inorganic)
C - Analyte was found in the Associated Blank. (Inorganic)
D - Analyte was reported at a secondary diltution 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)

WSCF Analytical Results Report

Attention Scot Fitzgerald
Department Inorganic

Group # WSCF120925

Sample # 120925008
SAF# F12-030
Sample ID B2LWK3

Matrix SOIL
Sampled 07/18/12
Received 07/18/12

Test Performed	CAS #	Method	RQ		Result	TP Err	Units	DF	MDL	PQL	Analyzed
ICPMS Prep (S)											**07/26/12**
ICP-2008 MS All possible metal											
Manganese	7439-96-5	LA-505-412			307		mg/kg	0.5	0.048	0.48	07/30/12
Nickel	7440-02-0	LA-505-412			10.1		mg/kg	0.5	0.048	0.48	07/30/12
Silver	7440-22-4	LA-505-412	B		0.0328		mg/kg	0.5	0.024	0.24	07/30/12
Antimony	7440-36-0	LA-505-412	U		<0.14		mg/kg	0.5	0.14	1.4	07/30/12
Barium	7440-39-3	LA-505-412	N	J-	71.3		mg/kg	0.5	0.097	0.97	07/30/12
Beryllium	7440-41-7	LA-505-412	B		0.382		mg/kg	0.5	0.048	0.48	07/30/12
Cadmium	7440-43-9	LA-505-412	B		0.0835		mg/kg	0.5	0.024	0.24	07/30/12
Chromium	7440-47-3	LA-505-412			9.48		mg/kg	0.5	0.048	0.48	07/30/12
Cobalt	7440-48-4	LA-505-412			8.47		mg/kg	0.5	0.024	0.12	07/30/12
Copper	7440-50-8	LA-505-412			15.1		mg/kg	0.5	0.048	0.48	07/30/12
Vanadium	7440-62-2	LA-505-412	N	J-	46.6		mg/kg	0.5	0.097	0.97	07/30/12
Zinc	7440-66-6	LA-505-412	N	J-	41.8		mg/kg	0.5	0.48	4.8	07/30/12
Lead	7439-92-1	LA-505-412			5.35		mg/kg	0.5	0.024	0.24	07/30/12
Mercury	7439-97-6	LA-505-412	U		<0.024		mg/kg	0.5	0.024	0.097	07/30/12
Molybdenum	7439-98-7	LA-505-412			0.349		mg/kg	0.5	0.024	0.24	07/30/12
Strontium	7440-24-6	LA-505-412	N	J-	31.6		mg/kg	0.5	0.048	0.48	07/30/12
Tin	7440-31-5	LA-505-412			0.375		mg/kg	0.5	0.024	0.24	07/30/12

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

B - Analyte < the PQL(or EQL)but >= the IDL/MDL(Inorganic)
C - Analyte was found in the Associated Blank. (Inorganic)
D - Analyte was reported at a secondary diltution 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)

WSCF Analytical Results Report

Attention Scot Fitzgerald
Department Inorganic

Group # WSCF120925

Sample # 120925008
SAF# F12-030
Sample ID B2LWK3

Matrix SOIL
Sampled 07/18/12
Received 07/18/12

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
Uranium	7440-61-1	LA-505-412		0.450		mg/kg	0.5	0.024	0.12	07/30/12
Arsenic	7440-38-2	LA-505-412		2.86		mg/kg	0.5	0.097	0.97	07/30/12
Selenium	7782-49-2	LA-505-412	U	<0.24		mg/kg	0.5	0.24	2.4	07/27/12
Preparation for Cr6 (SO)										**07/25/12**
Hexavalent chromium										
~~Hexavalent chromium~~	~~18540-29-9~~	~~LA-265-403~~	~~U~~	~~<0.098~~		~~ug/g~~	~~1~~	~~0.098~~	~~0.49~~	~~07/25/12~~

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

B - Analyte < the PQL(or EQL)but >= the IDL/MDL(Inorganic)
C - Analyte was found in the Associated Blank. (Inorganic)
D - Analyte was reported at a secondary diltution 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)

EH
08/16/12

WSCF Analytical Results Report

Attention Scot Fitzgerald
Department Inorganic

Group # WSCF120925

Sample # 120925009
SAF# F12-030
Sample ID B2LWK4

Matrix SOIL
Sampled 07/18/12
Received 07/18/12

Test Performed	CAS #	Method	RQ		Result	TP Err	Units	DF	MDL	PQL	Analyzed
ICPMS Prep (S)											**07/26/12**
ICP-2008 MS All possible metal											
Manganese	7439-96-5	LA-505-412			309		mg/kg	0.5	0.051	0.51	07/30/12
Nickel	7440-02-0	LA-505-412			8.76		mg/kg	0.5	0.051	0.51	07/30/12
Silver	7440-22-4	LA-505-412	B		0.0315		mg/kg	0.5	0.025	0.25	07/30/12
Antimony	7440-36-0	LA-505-412	U		<0.15		mg/kg	0.5	0.15	1.5	07/30/12
Barium	7440-39-3	LA-505-412	N	J-	66.8		mg/kg	0.5	0.10	1.0	07/30/12
Beryllium	7440-41-7	LA-505-412	B		0.298		mg/kg	0.5	0.051	0.51	07/30/12
Cadmium	7440-43-9	LA-505-412	B		0.0645		mg/kg	0.5	0.025	0.25	07/30/12
Chromium	7440-47-3	LA-505-412			6.85		mg/kg	0.5	0.051	0.51	07/30/12
Cobalt	7440-48-4	LA-505-412			9.01		mg/kg	0.5	0.025	0.13	07/30/12
Copper	7440-50-8	LA-505-412			15.9		mg/kg	0.5	0.051	0.51	07/30/12
Vanadium	7440-62-2	LA-505-412	N	J-	56.0		mg/kg	0.5	0.10	1.0	07/30/12
Zinc	7440-66-6	LA-505-412	N	J-	45.2		mg/kg	0.5	0.51	5.1	07/30/12
Lead	7439-92-1	LA-505-412			4.53		mg/kg	0.5	0.025	0.25	07/30/12
Mercury	7439-97-6	LA-505-412	U		<0.025		mg/kg	0.5	0.025	0.10	07/30/12
Molybdenum	7439-98-7	LA-505-412			0.385		mg/kg	0.5	0.025	0.25	07/30/12
Strontium	7440-24-6	LA-505-412	N	J-	30.9		mg/kg	0.5	0.051	0.51	07/30/12
Tin	7440-31-5	LA-505-412			0.442		mg/kg	0.5	0.025	0.25	07/30/12

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

B - Analyte < the PQL(or EQL)but >= the IDL/MDL(Inorganic)
C - Analyte was found in the Associated Blank. (Inorganic)
D - Analyte was reported at a secondary diltution 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)

WSCF Analytical Results Report

Attention Scot Fitzgerald
Department Inorganic

Group # WSCF120925

Sample # 120925009
SAF# F12-030
Sample ID B2LWK4

Matrix SOIL
Sampled 07/18/12
Received 07/18/12

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
Uranium	7440-61-1	LA-505-412		0.468		mg/kg	0.5	0.025	0.13	07/30/12
Arsenic	7440-38-2	LA-505-412		2.43		mg/kg	0.5	0.10	1.0	07/30/12
Selenium	7782-49-2	LA-505-412	B	0.254		mg/kg	0.5	0.25	2.5	07/27/12
Preparation for Cr6 (SO)										**07/25/12**
Hexavalent chromium										
~~Hexavalent chromium~~	~~18540-29-9~~	~~LA-265-403~~	~~U~~	~~<0.10~~		~~ug/g~~	~~1~~	~~0.10~~	~~0.50~~	~~07/25/12~~

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

B - Analyte < the PQL(or EQL)but >= the IDL/MDL(Inorganic)
C - Analyte was found in the Associated Blank. (Inorganic)
D - Analyte was reported at a secondary diltution 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)

WSCF Analytical Results Report

Attention Scot Fitzgerald
Department Inorganic

Group # WSCF120925

Sample # 120925010
SAF# F12-030
Sample ID B2LWK5

Matrix SOIL
Sampled 07/18/12
Received 07/18/12

Test Performed	CAS #	Method	RQ		Result	TP Err	Units	DF	MDL	PQL	Analyzed
ICPMS Prep (S)											**07/26/12**
ICP-2008 MS All possible metal											
Manganese	7439-96-5	LA-505-412			332		mg/kg	0.5	0.057	0.57	07/30/12
Nickel	7440-02-0	LA-505-412			9.79		mg/kg	0.5	0.057	0.57	07/30/12
Silver	7440-22-4	LA-505-412	B		0.0310		mg/kg	0.5	0.029	0.29	07/30/12
Antimony	7440-36-0	LA-505-412	U		<0.17		mg/kg	0.5	0.17	1.7	07/30/12
Barium	7440-39-3	LA-505-412	N	J-	62.8		mg/kg	0.5	0.11	1.1	07/30/12
Beryllium	7440-41-7	LA-505-412	B		0.337		mg/kg	0.5	0.057	0.57	07/30/12
Cadmium	7440-43-9	LA-505-412	B		0.0551		mg/kg	0.5	0.029	0.29	07/30/12
Chromium	7440-47-3	LA-505-412			7.19		mg/kg	0.5	0.057	0.57	07/30/12
Cobalt	7440-48-4	LA-505-412			9.79		mg/kg	0.5	0.029	0.14	07/30/12
Copper	7440-50-8	LA-505-412			16.1		mg/kg	0.5	0.057	0.57	07/30/12
Vanadium	7440-62-2	LA-505-412	N	J-	57.7		mg/kg	0.5	0.11	1.1	07/30/12
Zinc	7440-66-6	LA-505-412	N	J-	45.4		mg/kg	0.5	0.57	5.7	07/30/12
Lead	7439-92-1	LA-505-412			4.42		mg/kg	0.5	0.029	0.29	07/30/12
Mercury	7439-97-6	LA-505-412	U		<0.029		mg/kg	0.5	0.029	0.11	07/30/12
Molybdenum	7439-98-7	LA-505-412			0.370		mg/kg	0.5	0.029	0.29	07/30/12
Strontium	7440-24-6	LA-505-412	N	J-	31.0		mg/kg	0.5	0.057	0.57	07/30/12
Tin	7440-31-5	LA-505-412			0.449		mg/kg	0.5	0.029	0.29	07/30/12

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

B - Analyte < the PQL(or EQL)but >= the IDL/MDL(Inorganic)
C - Analyte was found in the Associated Blank. (Inorganic)
D - Analyte was reported at a secondary diltution 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)

WSCF Analytical Results Report

Attention Scot Fitzgerald
Department Inorganic

Group # WSCF120925

Sample # 120925010
SAF# F12-030
Sample ID B2LWK5

Matrix SOIL
Sampled 07/18/12
Received 07/18/12

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
Uranium	7440-61-1	LA-505-412		0.459		mg/kg	0.5	0.029	0.14	07/30/12
Arsenic	7440-38-2	LA-505-412		2.70		mg/kg	0.5	0.11	1.1	07/30/12
Selenium	7782-49-2	LA-505-412	U	<0.29		mg/kg	0.5	0.29	2.9	07/27/12
Preparation for Cr6 (SO)										**07/25/12**
Hexavalent chromium										
~~Hexavalent chromium~~	~~18540-29-9~~	~~LA-265-403~~	~~U~~	~~<0.11~~		~~ug/g~~	~~1~~	~~0.11~~	~~0.53~~	~~07/25/12~~

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

B - Analyte < the PQL(or EQL)but >= the IDL/MDL(Inorganic)
C - Analyte was found in the Associated Blank. (Inorganic)
D - Analyte was reported at a secondary diltution 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)

WSCF Analytical Results Report

Attention Scot Fitzgerald
Department Inorganic

Group # WSCF120925

Sample # 120925011
SAF# F12-030
Sample ID B2LWK6

Matrix SOIL
Sampled 07/18/12
Received 07/18/12

Test Performed	CAS #	Method	RQ		Result	TP Err	Units	DF	MDL	PQL	Analyzed
ICPMS Prep (S)											**07/26/12**
ICP-2008 MS All possible metal											
Manganese	7439-96-5	LA-505-412			283		mg/kg	0.5	0.055	0.55	07/30/12
Nickel	7440-02-0	LA-505-412			8.97		mg/kg	0.5	0.055	0.55	07/30/12
Silver	7440-22-4	LA-505-412	B		0.0290		mg/kg	0.5	0.027	0.27	07/30/12
Antimony	7440-36-0	LA-505-412	U		<0.16		mg/kg	0.5	0.16	1.6	07/30/12
Barium	7440-39-3	LA-505-412	N	J-	120		mg/kg	0.5	0.11	1.1	07/30/12
Beryllium	7440-41-7	LA-505-412	B		0.307		mg/kg	0.5	0.055	0.55	07/30/12
Cadmium	7440-43-9	LA-505-412	B		0.0498		mg/kg	0.5	0.027	0.27	07/30/12
Chromium	7440-47-3	LA-505-412			6.81		mg/kg	0.5	0.055	0.55	07/30/12
Cobalt	7440-48-4	LA-505-412			7.87		mg/kg	0.5	0.027	0.14	07/30/12
Copper	7440-50-8	LA-505-412			13.5		mg/kg	0.5	0.055	0.55	07/30/12
Vanadium	7440-62-2	LA-505-412	N	J-	50.2		mg/kg	0.5	0.11	1.1	07/30/12
Zinc	7440-66-6	LA-505-412	N	J-	38.0		mg/kg	0.5	0.55	5.5	07/30/12
Lead	7439-92-1	LA-505-412			4.04		mg/kg	0.5	0.027	0.27	07/30/12
Mercury	7439-97-6	LA-505-412	U		<0.027		mg/kg	0.5	0.027	0.11	07/30/12
Molybdenum	7439-98-7	LA-505-412			0.341		mg/kg	0.5	0.027	0.27	07/30/12
Strontium	7440-24-6	LA-505-412	N	J-	28.0		mg/kg	0.5	0.055	0.55	07/30/12
Tin	7440-31-5	LA-505-412			0.375		mg/kg	0.5	0.027	0.27	07/30/12

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

B - Analyte < the PQL(or EQL)but >= the IDL/MDL(Inorganic)
C - Analyte was found in the Associated Blank. (Inorganic)
D - Analyte was reported at a secondary diltution 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)

WSCF Analytical Results Report

Attention Scot Fitzgerald
Department Inorganic

Group # WSCF120925

Sample # 120925011
SAF# F12-030
Sample ID B2LWK6

Matrix SOIL
Sampled 07/18/12
Received 07/18/12

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
Uranium	7440-61-1	LA-505-412		0.405		mg/kg	0.5	0.027	0.14	07/30/12
Arsenic	7440-38-2	LA-505-412		2.33		mg/kg	0.5	0.11	1.1	07/30/12
Selenium	7782-49-2	LA-505-412	U	<0.27		mg/kg	0.5	0.27	2.7	07/27/12
Preparation for Cr6 (SO)										**07/25/12**
Hexavalent chromium										
~~Hexavalent chromium~~	~~18540-29-9~~	~~LA-265-403~~	~~U~~	~~<0.10~~		~~ug/g~~	~~1~~	~~0.10~~	~~0.50~~	~~07/25/12~~

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

B - Analyte < the PQL(or EQL)but >= the IDL/MDL(Inorganic)
C - Analyte was found in the Associated Blank. (Inorganic)
D - Analyte was reported at a secondary diltution 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)

WSCF Analytical Results Report

Attention Scot Fitzgerald
Department Inorganic

Group # WSCF120925

Sample # 120925012
SAF# F12-030
Sample ID B2LWK7

Matrix SOIL
Sampled 07/18/12
Received 07/18/12

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
ICPMS Prep (S)										**07/26/12**
ICP-2008 MS All possible metal										
Manganese	7439-96-5	LA-505-412		319		mg/kg	0.5	0.050	0.50	07/27/12
Nickel	7440-02-0	LA-505-412		10.0		mg/kg	0.5	0.050	0.50	07/27/12
Silver	7440-22-4	LA-505-412	B	0.0412		mg/kg	0.5	0.025	0.25	07/27/12
Antimony	7440-36-0	LA-505-412	U	<0.15		mg/kg	0.5	0.15	1.5	07/27/12
Barium	7440-39-3	LA-505-412		71.4		mg/kg	0.5	0.10	1.0	07/27/12
Beryllium	7440-41-7	LA-505-412	B	0.369		mg/kg	0.5	0.050	0.50	07/27/12
Cadmium	7440-43-9	LA-505-412	B	0.0797		mg/kg	0.5	0.025	0.25	07/27/12
Chromium	7440-47-3	LA-505-412		8.93		mg/kg	0.5	0.050	0.50	07/27/12
Cobalt	7440-48-4	LA-505-412		8.86		mg/kg	0.5	0.025	0.12	07/27/12
Copper	7440-50-8	LA-505-412		15.6		mg/kg	0.5	0.050	0.50	07/27/12
Vanadium	7440-62-2	LA-505-412		50.6		mg/kg	0.5	0.10	1.0	07/27/12
Zinc	7440-66-6	LA-505-412		44.9		mg/kg	0.5	0.50	5.0	07/27/12
Lead	7439-92-1	LA-505-412		6.17		mg/kg	0.5	0.025	0.25	07/27/12
Mercury	7439-97-6	LA-505-412	U	<0.025		mg/kg	0.5	0.025	0.10	07/27/12
Molybdenum	7439-98-7	LA-505-412		0.354		mg/kg	0.5	0.025	0.25	07/27/12
Strontium	7440-24-6	LA-505-412		33.9		mg/kg	0.5	0.050	0.50	07/27/12
Tin	7440-31-5	LA-505-412		0.477		mg/kg	0.5	0.025	0.25	07/27/12

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

B - Analyte < the PQL(or EQL)but >= the IDL/MDL(Inorganic)
C - Analyte was found in the Associated Blank. (Inorganic)
D - Analyte was reported at a secondary diltution 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)

WSCF Analytical Results Report

Attention Scot Fitzgerald
Department Inorganic

Group # WSCF120925

Sample # 120925012
SAF# F12-030
Sample ID B2LWK7

Matrix SOIL
Sampled 07/18/12
Received 07/18/12

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
Uranium	7440-61-1	LA-505-412		0.876		mg/kg	0.5	0.025	0.12	07/27/12
Arsenic	7440-38-2	LA-505-412		2.91		mg/kg	0.5	0.10	1.0	07/27/12
Selenium	7782-49-2	LA-505-412	B	0.261		mg/kg	0.5	0.25	2.5	07/27/12
Preparation for Cr6 (SO)										**07/25/12**
Hexavalent chromium										
~~Hexavalent chromium~~	~~18540-29-9~~	~~LA-265-403~~	~~U~~	~~<0.099~~		~~ug/g~~	~~1~~	~~0.099~~	~~0.49~~	~~07/25/12~~

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

B - Analyte < the PQL(or EQL)but >= the IDL/MDL(Inorganic)
C - Analyte was found in the Associated Blank. (Inorganic)
D - Analyte was reported at a secondary diltution 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)

WSCF Analytical Results Report

Attention Scot Fitzgerald
Department Inorganic

Group # WSCF120925

Sample # 120925013
SAF# F12-030
Sample ID B2LWK8

Matrix SOIL
Sampled 07/18/12
Received 07/18/12

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
ICPMS Prep (S)										**07/26/12**
ICP-2008 MS All possible metal										
Manganese	7439-96-5	LA-505-412		316		mg/kg	0.5	0.056	0.56	07/27/12
Nickel	7440-02-0	LA-505-412		10.2		mg/kg	0.5	0.056	0.56	07/27/12
Silver	7440-22-4	LA-505-412	B	0.0434		mg/kg	0.5	0.028	0.28	07/27/12
Antimony	7440-36-0	LA-505-412	U	<0.17		mg/kg	0.5	0.17	1.7	07/27/12
Barium	7440-39-3	LA-505-412		69.8		mg/kg	0.5	0.11	1.1	07/27/12
Beryllium	7440-41-7	LA-505-412	B	0.280		mg/kg	0.5	0.056	0.56	07/27/12
Cadmium	7440-43-9	LA-505-412	B	0.0841		mg/kg	0.5	0.028	0.28	07/27/12
Chromium	7440-47-3	LA-505-412		9.14		mg/kg	0.5	0.056	0.56	07/27/12
Cobalt	7440-48-4	LA-505-412		8.85		mg/kg	0.5	0.028	0.14	07/27/12
Copper	7440-50-8	LA-505-412		16.3		mg/kg	0.5	0.056	0.56	07/27/12
Vanadium	7440-62-2	LA-505-412		49.0		mg/kg	0.5	0.11	1.1	07/27/12
Zinc	7440-66-6	LA-505-412		46.6		mg/kg	0.5	0.56	5.6	07/27/12
Lead	7439-92-1	LA-505-412		5.90		mg/kg	0.5	0.028	0.28	07/27/12
Mercury	7439-97-6	LA-505-412	U	<0.028		mg/kg	0.5	0.028	0.11	07/27/12
Molybdenum	7439-98-7	LA-505-412		0.432		mg/kg	0.5	0.028	0.28	07/27/12
Strontium	7440-24-6	LA-505-412		30.7		mg/kg	0.5	0.056	0.56	07/27/12
Tin	7440-31-5	LA-505-412		0.465		mg/kg	0.5	0.028	0.28	07/27/12

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

B - Analyte < the PQL(or EQL)but >= the IDL/MDL(Inorganic)
C - Analyte was found in the Associated Blank. (Inorganic)
D - Analyte was reported at a secondary diltution 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)

WSCF Analytical Results Report

Attention Scot Fitzgerald
Department Inorganic

Group # WSCF120925

Sample # 120925013
SAF# F12-030
Sample ID B2LWK8

Matrix SOIL
Sampled 07/18/12
Received 07/18/12

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
Uranium	7440-61-1	LA-505-412		0.537		mg/kg	0.5	0.028	0.14	07/27/12
Arsenic	7440-38-2	LA-505-412		2.69		mg/kg	0.5	0.11	1.1	07/27/12
Selenium	7782-49-2	LA-505-412	U	<0.28		mg/kg	0.5	0.28	2.8	07/27/12
Preparation for Cr6 (SO)										**07/25/12**
Hexavalent chromium										
~~Hexavalent chromium~~	~~18540-29-9~~	~~LA-265-403~~	~~U~~	~~<0.098~~		~~ug/g~~	~~1~~	~~0.098~~	~~0.49~~	~~07/25/12~~

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

B - Analyte < the PQL(or EQL)but >= the IDL/MDL(Inorganic)
C - Analyte was found in the Associated Blank. (Inorganic)
D - Analyte was reported at a secondary diltution 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)

WSCF Analytical Results Report

Attention Scot Fitzgerald
Department Inorganic

Group # WSCF120925

Sample # 120925014
SAF# F12-030
Sample ID B2LWK9

Matrix SOIL
Sampled 07/18/12
Received 07/18/12

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
ICPMS Prep (S)										**07/26/12**
ICP-2008 MS All possible metal										
Manganese	7439-96-5	LA-505-412		324		mg/kg	0.5	0.053	0.53	07/27/12
Nickel	7440-02-0	LA-505-412		10.3		mg/kg	0.5	0.053	0.53	07/27/12
Silver	7440-22-4	LA-505-412	B	0.0394		mg/kg	0.5	0.027	0.27	07/27/12
Antimony	7440-36-0	LA-505-412	U	<0.16		mg/kg	0.5	0.16	1.6	07/27/12
Barium	7440-39-3	LA-505-412		70.7		mg/kg	0.5	0.11	1.1	07/27/12
Beryllium	7440-41-7	LA-505-412	B	0.415		mg/kg	0.5	0.053	0.53	07/27/12
Cadmium	7440-43-9	LA-505-412	B	0.0841		mg/kg	0.5	0.027	0.27	07/27/12
Chromium	7440-47-3	LA-505-412		7.97		mg/kg	0.5	0.053	0.53	07/27/12
Cobalt	7440-48-4	LA-505-412		9.10		mg/kg	0.5	0.027	0.13	07/27/12
Copper	7440-50-8	LA-505-412		16.2		mg/kg	0.5	0.053	0.53	07/27/12
Vanadium	7440-62-2	LA-505-412		45.9		mg/kg	0.5	0.11	1.1	07/27/12
Zinc	7440-66-6	LA-505-412		45.1		mg/kg	0.5	0.53	5.3	07/27/12
Lead	7439-92-1	LA-505-412		4.98		mg/kg	0.5	0.027	0.27	07/27/12
Mercury	7439-97-6	LA-505-412	U	<0.027		mg/kg	0.5	0.027	0.11	07/27/12
Molybdenum	7439-98-7	LA-505-412		0.312		mg/kg	0.5	0.027	0.27	07/27/12
Strontium	7440-24-6	LA-505-412		31.1		mg/kg	0.5	0.053	0.53	07/27/12
Tin	7440-31-5	LA-505-412		0.398		mg/kg	0.5	0.027	0.27	07/27/12

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

B - Analyte < the PQL(or EQL)but >= the IDL/MDL(Inorganic)
C - Analyte was found in the Associated Blank. (Inorganic)
D - Analyte was reported at a secondary diltution 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)

WSCF Analytical Results Report

Attention Scot Fitzgerald
Department Inorganic

Group # WSCF120925

Sample # 120925014
SAF# F12-030
Sample ID B2LWK9

Matrix SOIL
Sampled 07/18/12
Received 07/18/12

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
Uranium	7440-61-1	LA-505-412		0.495		mg/kg	0.5	0.027	0.13	07/27/12
Arsenic	7440-38-2	LA-505-412		2.70		mg/kg	0.5	0.11	1.1	07/27/12
Selenium	7782-49-2	LA-505-412	U	<0.27		mg/kg	0.5	0.27	2.7	07/27/12
Preparation for Cr6 (SO)										**07/25/12**
Hexavalent chromium										
~~Hexavalent chromium~~	~~18540-29-9~~	~~LA-265-403~~	~~U~~	~~<0.10~~		~~ug/g~~	~~1~~	~~0.10~~	~~0.52~~	~~07/25/12~~

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

B - Analyte < the PQL(or EQL)but >= the IDL/MDL(Inorganic)
C - Analyte was found in the Associated Blank. (Inorganic)
D - Analyte was reported at a secondary diltution 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)

EH
08/16/12

Appendix 4

Laboratory Narrative and Chain-of-Custody Documentation

Attachment 2
Narrative
WSCF120925

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 SDR12-322 regarding Americium-241 LCS failure 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.

Analytical Methodology for Requested Analyses

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

Inorganic Comments

Attachment 2
Narrative
WSCF120925

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

- Batch QC 205241
  - Barium, Vanadium, Zinc and Strontium – Matrix Spike and/or Matrix Spike Duplicate recoveries are outside established laboratory limits. Affected sample results in this batch were "N" flagged.
  - Vanadium and Manganese were detected in the Blank and evaluated.
  - Manganese – 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, Blank and Laboratory Control Sample were analyzed with this delivery group. Analytical Note(s):

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

Gamma Energy Analysis:

- Batch QC 204999
  - Cesium-137 – Duplicate Relative Percent Difference(s) (RPD) did not meet the established laboratory limits. Duplicate Relative Percent Difference (RPD) does not apply to results below 5X the minimum detectable activity. No flags issued.
  - All other applicable QC controls are within the established limits.

Americium-241:

- Batch QC 204950
  - Duplicate Relative Percent Difference(s) (RPD) did not meet the established laboratory limits. Duplicate Relative Percent Difference (RPD) does not apply to results below 5X the minimum detectable activity. No flags issued.

Attachment 2
Narrative
WSCF120925

- The LCS recovery was outside laboratory acceptance limits.
- All other applicable QC controls are within the established limits.

Isotopic Plutonium analysis:

- Batch QC 204950
  - Plutonium 239/240 – The Blank is less than five times the MDC. "B" Flag not required.
  - Plutonium 239/240 – The LCS recovery was outside laboratory acceptance limits, but within the 70 – 130% range allowed in the SOW.
  - All other applicable QC controls are within the established limits.

Isotopic Uranium analysis:

- Batch QC 204950
  - Uranium-234 – The Blank is less than two times the RDL. "B" Flag not required.
  - Uranium-238 – Duplicate Relative Percent Difference(s) (RPD) did not meet the established laboratory limits. Duplicate Relative Percent Difference (RPD) does not apply to results near the minimum detectable activity. No flags issued.
  - All other applicable QC controls are within the established limits.

Strontium-89/90:

- All applicable QC controls are within the established limits.

We certify that this data package is in compliance with the SOW, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this data package has been authorized by the Analytical Laboratory Manager (or designee) and the Client Services representative as verified by electronic signatures shown on the WSCF ANALYTICAL RESULTS REPORT.

Attachment 2
Narrative
WSCF120925

SAMPLE ISSUE RESOLUTION

SIR NUM	SDR12-322
REV NUM	0
DATE INITIATED	7/31/2012

SAMPLE EVENT INFORMATION

SAF NUM(S)	F12-030
OPERABLE UNIT(S)	100-KR-2
PROJECT(S)	100 K RA
SAMPLE EVENT TITLE(S)	100 K Remedial Action
LABORATORY	Waste Sampling & Characterization

SAMPLING INFORMATION

NUMBER OF SAMPLES	7
SAMPLE NUMBERS	B2LWK1, B2LWK2, B2LWL0, B2LWL1, B2LWL2, B2LWL3, B2LWL4
SAMPLE MATRIX	SOIL
COLLECTION DATE	7/18/2012 - 7/18/2012
SDG NUM	WSCF120925

ISSUE BACKGROUND

CLASS	Laboratory Issue
TYPE	Quality Control Failure
DESCRIPTION	Am-241 LCS was high at 131.3% with laboratory control limits of 80-120% and SOW limits of 70-130%. The blank was non-detect. The results were at or below the MDC.

DISPOSITION

DESCRIPTION	PROPOSED DISPOSITION: Report the data as-is and note the QC failures in the case narrative.
JUSTIFICATION	ACCEPTED DISPOSITION: Accept proposed resolution.

SUBMITTED BY: Heather Medley/WSCF DATE: 7/31/12

ACCEPTED BY: Steve Trent/CHPRC DATE: 8/1/12
Jennifer Hammons/CHPRC DATE: 8/1/12

A-6003-640 (03/30)

PAGE 1 of 1

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F12-030-033	PAGE 1 OF 2
COLLECTOR: Dan Sparks	COMPANY CONTACT: TRENT, SJ	TELEPHONE NO.: 373-5869	PROJECT COORDINATOR: TRENT, SJ	PRICE CODE: BC	DATA TURNAROUND: 15 Days / 15 Days
SAMPLING LOCATION: Area AG Stockpile #3 Sample #10	PROJECT DESIGNATION: Area AG Sampling (Waste Area AG) Verification - Soil		SAF NO.: F12-030	AIR QUALITY: ☐	
ICE CHEST NO.: NA	FIELD LOGBOOK NO.: HNF -N-507	ACTUAL SAMPLE DEPTH: Surface	COA: 302677ES10	METHOD OF SHIPMENT: GOVERNMENT VEHICLE	ORIGINAL
SHIPPED TO: Waste Sampling & Characterization	OFFSITE PROPERTY NO.: N/A		BILL OF LADING/AIR BILL NO.: N/A		

MATRIX*: A=Air, DL=Drum Liquids, DS=Drum Solids, L=Liquid, O=Oil, S=Soil, SE=Sediment, T=Tissue, V=Vegetation, W=Water, WI=Wipe, X=Other

POSSIBLE SAMPLE HAZARDS/ REMARKS: Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1993)

120925

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION			Cool~4C	Cool~4C	None	None
HOLDING TIME			28 Days	30 Days	6 Months	6 Months
TYPE OF CONTAINER			G/P	G/P	Square Bottle - Poly	G/P
NO. OF CONTAINER(S)			1	1	1	1
VOLUME			120mL	60mL	500mL	120mL
SAMPLE ANALYSIS			SEE ITEM (1) IN SPECIAL INSTRUCTIONS 2008	Chromium Hex - 7196;	SEE ITEM (2) IN SPECIAL INSTRUCTIONS GEP	SEE ITEM (3) IN SPECIAL INSTRUCTIONS Pu Sr Am U
SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME			
B2LWL0	SOIL	JUL 18 2012	0800	X	X	X	X

TRVL- 12- 062

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS
RELINQUISHED BY/REMOVED FROM: Dan Sparks	DATE/TIME: JUL 18 2012 1220	RECEIVED BY/STORED IN: TA FRAZIER	DATE/TIME: JUL 18 2012 1220	SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS
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	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 7/16/2012

A-6003-618 (REV 2)

Sample Receipt

Chain of Custody

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F12-030-033	PAGE 2 OF 2
COLLECTOR Dan Sparks	COMPANY CONTACT TRENT, SJ	TELEPHONE NO. 373-5869	PROJECT COORDINATOR TRENT, SJ	PRICE CODE 8C	DATA TURNARDUND 15 Days / 15 Days
SAMPLING LOCATION Area AG Stockpile #3 Sample #10	PROJECT DESIGNATION Area AG Sampling (Waste Area AG) Verification - Soil		SAF NO. F12-030	AIR QUALITY ☐	
ICE CHEST NO. NA	FIELD LOGBOOK NO. HNF-N-507-25	ACTUAL SAMPLE DEPTH Surface	COA 302677ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	ORIGINAL
SHIPPED TO Waste Sampling & Characterization	OFFSITE PROPERTY NO. N/A		BILL OF LADING/AIR BILL NO. N/A		

SPECIAL INSTRUCTIONS

** The CACN for WSCF Analytical is 402580ES20.☐** The 100 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF.
(1) 200.8_HG - ICPMS {Mercury}; ICP/MS - 200.8 (TAL) {Antimony, Barium, Cadmium, Chromium, Cobalt, Copper, Manganese, Nickel, Silver, Vanadium, Zinc}; ICP/MS - 200.8 (Add-on) {Arsenic, Beryllium, Lead, Molybdenum, Selenium, Strontium, Tin, Uranium};
(2) Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155};
(3) Isotopic Plutonium {Plutonium-238, Plutonium-239/240}; Isotopic Uranium {Uranium-233/234, Uranium-235, Uranium-238}; Strontium-89,90 -- Total Sr; Americium-241;

TRVL- 12- 062

PRINTED ON 7/16/2012

A-6003-618 (REV 2)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F12-030-034	PAGE 1 OF 2
COLLECTOR: Dan Sparks	COMPANY CONTACT: TRENT, SJ	TELEPHONE NO.: 373-5869	PROJECT COORDINATOR: TRENT, SJ	PRICE CODE: 8C	DATA TURNAROUND: 15 Days / 15 Days
SAMPLING LOCATION: Area AG Stockpile #3 Sample #11	PROJECT DESIGNATION: Area AG Sampling (Waste Area AG) Verification - Soil		SAF NO.: F12-030	AIR QUALITY: [ ]	
ICE CHEST NO.: NA	FIELD LOGBOOK NO.: HNF-N-507-25	ACTUAL SAMPLE DEPTH: Surface	COA: 302677ES10	METHOD OF SHIPMENT: GOVERNMENT VEHICLE	ORIGINAL
SHIPPED TO: Waste Sampling & Characterization	OFFSITE PROPERTY NO.: N/A		BILL OF LADING/AIR BILL NO.: N/A		

MATRIX*: A=Air, DL=Drum Liquids, DS=Drum Solids, L=Liquid, O=Oil, S=Soil, SE=Sediment, T=Tissue, V=Vegetation, W=Water, WI=Wipe, X=Other

POSSIBLE SAMPLE HAZARDS/ REMARKS: Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1993)

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	Cool~4C	Cool~4C	None	None
HOLDING TIME	28 Days	30 Days	6 Months	6 Months
TYPE OF CONTAINER	G/P	G/P	Square Bottle - Poly	G/P
NO. OF CONTAINER(S)	1	1	1	1
VOLUME	120mL	60mL	500mL	120mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	Chromium Hex - 7196;	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	SEE ITEM (3) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME				
B2LWL1	2 SOIL	JUL 18 2012	0805	X	X	X	X

TRVL 12- 062

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS
RELINQUISHED BY/REMOVED FROM: Dan Sparks	DATE/TIME: 1220 JUL 18 2012	RECEIVED BY/STORED IN: A Frazier	DATE/TIME: 1220 JUL 18 2012	SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS
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	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 7/16/2012

A-6003-618 (REV 2)

Sample Receipt

Chain of Custody

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F12-030-034	PAGE 2 OF 2
COLLECTOR Dan Sparks	COMPANY CONTACT TRENT, SJ	TELEPHONE NO. 373-5869	PROJECT COORDINATOR TRENT, SJ	PRICE CODE 8C AIR QUALITY	DATA TURNAROUND 15 Days / 15 Days
SAMPLING LOCATION Area AG Stockpile #3 Sample #11	PROJECT DESIGNATION Area AG Samping (Waste Area AG) Verification - Soil		SAF NO. F12-030		
ICE CHEST NO. NA	FIELD LOGBOOK NO. INF-N-507- 215	ACTUAL SAMPLE DEPTH Surface	COA 302677ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	ORIGINAL
SHIPPED TO Waste Sampling & Characterization	OFFSITE PROPERTY NO. N/A		BILL OF LADING/AIR BILL NO. N/A		

SPECIAL INSTRUCTIONS

** The CACN for WSCF Analytical is 402580ES20.□** The 100 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF.
(1) 200.8_HG - ICPMS {Mercury}; ICP/MS - 200.8 (TAL) {Antimony, Barium, Cadmium, Chromium, Cobalt, Copper, Manganese, Nickel, Silver, Vanadium, Zinc}; ICP/MS - 200.8 (Add-on) {Arsenic, Beryllium, Lead, Molybdenum, Selenium, Strontium, Tin, Uranium};
(2) Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155};
(3) Isotopic Plutonium {Plutonium-238, Plutonium-239/240}; Isotopic Uranium {Uranium-233/234, Uranium-235, Uranium-238}; Strontium-89,90 -- Total Sr; Americium-241;

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A-6003-618 (REV 2)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F12-030-035	PAGE 1 OF 2
COLLECTOR: Dan Sparks	COMPANY CONTACT: TRENT, SJ	TELEPHONE NO.: 373-5869	PROJECT COORDINATOR: TRENT, SJ	PRICE CODE: 8C	DATA TURNAROUND: 15 Days / 15 Days
SAMPLING LOCATION: Area AG Stockpile #3 Sample #12	PROJECT DESIGNATION: Area AG Sampling (Waste Area AG) Verification - Soil		SAF NO.: F12-030	AIR QUALITY: ☐	
ICE CHEST NO.: NA	FIELD LOGBOOK NO.: HNF-N-507-22	ACTUAL SAMPLE DEPTH: Surface	COA: 302677ES10	METHOD OF SHIPMENT: GOVERNMENT VEHICLE	ORIGINAL
SHIPPED TO: Waste Sampling & Characterization	OFFSITE PROPERTY NO.: N/A		BILL OF LADING/AIR BILL NO.: N/A		

MATRIX*: A=Air, DL=Drum Liquids, DS=Drum Solids, L=Liquid, O=Oil, S=Soil, SF=Sediment, T=Tissue, V=Vegetation, W=Water, WI=Wipe, X=Other

POSSIBLE SAMPLE HAZARDS/ REMARKS: Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1993)

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	Cool~4C	Cool~4C	None	None
HOLDING TIME	28 Days	30 Days	6 Months	6 Months
TYPE OF CONTAINER	G/P	G/P	Square Bottle - Poly	G/P
NO. OF CONTAINER(S)	1	1	1	1
VOLUME	120mL	60mL	500mL	120mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	Chromium Hex - 7196;	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	SEE ITEM (3) IN SPECIAL INSTRUCTIONS

SAMPLE NO.		MATRIX*	SAMPLE DATE	SAMPLE TIME				
B2LWL2	3	SOIL	JUL 18 2012	0909	X	X	X	X

TRVL 12- 062

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS
RELINQUISHED BY/REMOVED FROM: Dan Sparks	DATE/TIME: JUL 18 2012 1220	RECEIVED BY/STORED IN: TA Pnazin	DATE/TIME: JUL 18 2012 1220	SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS
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	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 7/16/2012

A-6003-618 (REV 2)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F12-030-035	PAGE 2 OF 2
COLLECTOR Dan Sparks	COMPANY CONTACT TRENT, SJ	TELEPHONE NO. 373-5869	PROJECT COORDINATOR TRENT, SJ	PRICE CODE 8C	DATA TURNAROUND
SAMPLING LOCATION Area AG Stockpile #3 Sample #12	PROJECT DESIGNATION Area AG Sampling (Waste Area AG) Verification - Soil		SAF NO. F12-030	AIR QUALITY	15 Days / 15 Days
ICE CHEST NO. NA	FIELD LOGBOOK NO. HNF-N-507-	ACTUAL SAMPLE DEPTH Surface	COA 302677ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	ORIGINAL
SHIPPED TO Waste Sampling & Characterization	OFFSITE PROPERTY NO. N/A		BILL OF LADING/AIR BILL NO. N/A		

SPECIAL INSTRUCTIONS

** The CACN for WSCF Analytical is 402580ES20.□** The 100 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF.
(1) 200.8_HG - ICPMS {Mercury}; ICP/MS - 200.8 (TAL) {Antimony, Barium, Cadmium, Chromium, Cobalt, Copper, Manganese, Nickel, Silver, Vanadium, Zinc}; ICP/MS - 200.8 (Add-on) {Arsenic, Beryllium, Lead, Molybdenum, Selenium, Strontium, Tin, Uranium};
(2) Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155};
(3) Isotopic Plutonium {Plutonium-238, Plutonium-239/240}; Isotopic Uranium {Uranium-233/234, Uranium-235, Uranium-238}; Strontium-89,90 -- Total Sr; Americium-241;

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A 6003 618 (REV 2)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F12-030-036	PAGE 1 OF 2
COLLECTOR Dan Sparks	COMPANY CONTACT TRENT, SJ	TELEPHONE NO. 373-5869	PROJECT COORDINATOR TRENT, SJ	PRICE CODE 8C AIR QUALITY ☐	DATA TURNAROUND 15 Days / 15 Days
SAMPLING LOCATION Area AG Stockpile #3 Sample #13	PROJECT DESIGNATION Area AG Sampling (Waste Area AG) Verification Soil		SAF NO. F12-030		
ICE CHEST NO. N/A	FIELD LOGBOOK NO. HNF-N-507-25	ACTUAL SAMPLE DEPTH Surface	COA 302677ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	ORIGINAL
SHIPPED TO Waste Sampling & Characterization	OFFSITE PROPERTY NO. N/A		BILL OF LADING/AIR BILL NO. N/A		

MATRIX*: A=Air, DI=Drum Liquids, DS=Drum Solids, L=Liquid, O=Oil, S=Soil, SF=Sediment, T=Tissue, V=Vegetation, W=Water, WI=Wipe, X=Other

POSSIBLE SAMPLE HAZARDS/ REMARKS: Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1993)

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	Cool~4C	Cool~4C	None	None
HOLDING TIME	28 Days	30 Days	6 Months	6 Months
TYPE OF CONTAINER	G/P	G/P	Square Bottle - Poly	G/P
NO. OF CONTAINER(S)	1	1	1	1
VOLUME	120mL	60mL	500mL	120mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	Chromium Hex - 7196	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	SEE ITEM (3) IN SPECIAL INSTRUCTIONS

SAMPLE NO.		MATRIX*	SAMPLE DATE	SAMPLE TIME				
B2LWL3	4	SOIL	JUL 18 2012	0810	✓	✓	✓	✓

TRVL 12- 062

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS
RELINQUISHED BY/REMOVED FROM Dan Sparks	DATE/TIME 1220 JUL 18 2012	RECEIVED BY/STORED IN TA Franzim	DATE/TIME 1220 JUL 18 2012	SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS
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	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 7/16/2012

A-6003-618 (REV 7)

Sample Receipt

Chain of Custody

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F12-030-036	PAGE 2 OF 2
COLLECTOR Dan Sparks	COMPANY CONTACT TRENT, SJ	TELEPHONE NO. 373-5869	PROJECT COORDINATOR TRENT, SJ	PRICE CODE 8C	DATA TURNAROUND
SAMPLING LOCATION Area AG Stockpile #3 Sample #13	PROJECT DESIGNATION Area AG Sampling (Waste Area AG) Verification - Soil		SAF NO. F12-030	AIR QUALITY [ ]	15 Days / 15 Days
ICE CHEST NO. NA	FIELD LOGBOOK NO. HNF-N-507-25	ACTUAL SAMPLE DEPTH Surface	COA 302677ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	ORIGINAL
SHIPPED TO Waste Sampling & Characterization	OFFSITE PROPERTY NO. N/A		BILL OF LADING/AIR BILL NO. N/A		

SPECIAL INSTRUCTIONS

** The CACN for WSCF Analytical is 402580ES20.□** The 100 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF.
(1) 200.8_HG - ICPMS {Mercury}; ICP/MS - 200.8 (TAL) {Antimony, Barium, Cadmium, Chromium, Cobalt, Copper, Manganese, Nickel, Silver, Vanadium, Zinc}; ICP/MS - 200.8 (Add-on) {Arsenic, Beryllium, Lead, Molybdenum, Selenium, Strontium, Tin, Uranium};
(2) Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155};
(3) Isotopic Plutonium {Plutonium-238, Plutonium-239/240}; Isotopic Uranium {Uranium-233/234, Uranium-235, Uranium-238}; Strontium-89,90 -- Total Sr; Americium-241;

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Sample Receipt

Chain of Custody

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F12-030-037	PAGE 1 OF 2
COLLECTOR: DJ Sparks CHPRC	COMPANY CONTACT: TRENT, SJ	TELEPHONE NO.: 373-5869	PROJECT COORDINATOR: TRENT, SJ	PRICE CODE: 8C	DATA TURNAROUND: 15 Days / 15 Days
SAMPLING LOCATION: Area AG Stockpile #3 Sample #14	PROJECT DESIGNATION: Area AG Sampling (Waste Area AG) Verification - Soil		SAF NO.: F12-030	AIR QUALITY: ☐	
ICE CHEST NO.: NA	FIELD LOGBOOK NO.: HNF-N-507-25	ACTUAL SAMPLE DEPTH: NA	COA: 302677ES10	METHOD OF SHIPMENT: GOVERNMENT VEHICLE	ORIGINAL
SHIPPED TO: Waste Sampling & Characterization	OFFSITE PROPERTY NO.: N/A		BILL OF LADING/AIR BILL NO.: N/A		

MATRIX*: A=Air, DI=Drum Liquids, DS=Drum Solids, L=Liquid, O=Oil, S=Soil, SE=Sediment, T=Tissue, V=Vegetation, W=Water, WI=Wipe, X=Other

POSSIBLE SAMPLE HAZARDS/ REMARKS: Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1993)

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	Cool~4C	Cool~4C	None	None
HOLDING TIME	28 Days	30 Days	6 Months	6 Months
TYPE OF CONTAINER	G/P	G/P	Square Bottle - Poly	G/P
NO. OF CONTAINER(S)	1	1	1	1
VOLUME	120mL	60mL	500mL	120mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	Chromium Hex - 7196;	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	SEE ITEM (3) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME				
B2LWL4 5	SOIL	JUL 18 2012	0754	X	X	X	X

TRVL 12- 062

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS
RELINQUISHED BY/REMOVED FROM: DJ Sparks CHPRC	DATE/TIME: JUL 18 2012	RECEIVED BY/STORED IN: C Johnson	DATE/TIME: JUL 18 2012 0820	SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS
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	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 7/16/2012

A-6003-618 (REV 2)

Sample Receipt

Chain of Custody

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F12-030-037	PAGE 2 OF 2
COLLECTOR Dan Sparks	COMPANY CONTACT TRENT, SJ	TELEPHONE NO. 373-5869	PROJECT COORDINATOR TRENT, SJ	PRICE CODE 8C AIR QUALITY	DATA TURNAROUND 15 Days / 15 Days
SAMPLING LOCATION Area AG Stockpile #3 Sample #14	PROJECT DESIGNATION Area AG Sampling (Waste Area AG) Verification - Soil		SAF NO. F12-030		
ICE CHEST NO. NA	FIELD LOGBOOK NO. 25	ACTUAL SAMPLE DEPTH NA	COA 302677ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	ORIGINAL
SHIPPED TO Waste Sampling & Characterization	OFFSITE PROPERTY NO. N/A		BILL OF LADING/AIR BILL NO. N/A		

SPECIAL INSTRUCTIONS

** The CACN for WSCF Analytical is 402580ES20.LJ** The 100 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF.
(1) 200.8_HG - ICPMS {Mercury}; ICP/MS - 200.8 (TAL) {Antimony, Barium, Cadmium, Chromium, Cobalt, Copper, Manganese, Nickel, Silver, Vanadium, Zinc}; ICP/MS - 200.8 (Add-on) {Arsenic, Beryllium, Lead, Molybdenum, Selenium, Strontium, Tin, Uranium};
(2) Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155};
(3) Isotopic Plutonium {Plutonium-238, Plutonium-239/240}; Isotopic Uranium {Uranium-233/234, Uranium-235, Uranium-238}; Strontium-89,90 -- Total Sr; Americium-241;

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PRINTED ON 7/16/2012

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CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F12-030-024	PAGE 1 OF 2
COLLECTOR DJ Sparks	COMPANY CONTACT TRENT, SJ	TELEPHONE NO. 373-5869	PROJECT COORDINATOR TRENT, SJ	PRICE CODE 8C	DATA TURNAROUND
SAMPLING LOCATION Area AG Stockpile #3 Sample #1	PROJECT DESIGNATION Area AG Sampling (Waste Area AG) Verification - Soil		SAF NO. F12-030	AIR QUALITY ☐	15 Days / 15 Days
ICE CHEST NO. N/A	FIELD LOGBOOK NO. HNF-N-507-25	ACTUAL SAMPLE DEPTH Surface	COA 302677ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	ORIGINAL
SHIPPED TO Waste Sampling & Characterization	OFFSITE PROPERTY NO. N/A		BILL OF LADING/AIR BILL NO. N/A		

MATRIX*
A=Air
DL=Drum Liquids
DS=Drum Solids
L=Liquid
O=Oil
S=Soil
SE=Sediment
T=Tissue
V=Vegetation
W=Water
WI=Wipe
X=Other

POSSIBLE SAMPLE HAZARDS/ REMARKS
Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1993)

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	Cool~4C	Cool~4C	None	None
HOLDING TIME	28 Days	30 Days	6 Months	6 Months
TYPE OF CONTAINER	G/P	G/P	Square Bottle - Poly	G/P
NO. OF CONTAINER(S)	1	1	1	1
VOLUME	120mL	60mL	500mL	120mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	Chromium Hex - 7196;	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	SEE ITEM (3) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME				
B2LWK1 6	SOIL	JUL 18 2012	0757	X	X	X	X

TRVL- 12- 062

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS
RELINQUISHED BY/REMOVED FROM DJ Sparks	DATE/TIME JUL 18 2012 1220	RECEIVED BY/STORED IN C. Johnson	DATE/TIME JUL 18 2012 1220	SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS
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	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 7/16/2012

A-6003-618 (REV 2)

Sample Receipt

Chain of Custody

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F12-030-024	PAGE 2 OF 2
COLLECTOR Dan Sparks	COMPANY CONTACT TRENT, SJ	TELEPHONE NO. 373-5869	PROJECT COORDINATOR TRENT, SJ	PRICE CODE 8C AIR QUALITY ☐	DATA TURNAROUND 15 Days / 15 Days
SAMPLING LOCATION Area AG Stockpile #3 Sample #1	PROJECT DESIGNATION Area AG Sampling (Waste Area AG) Verification - Soil		SAF NO. F12-030		
ICE CHEST NO. NA	FIELD LOGBOOK NO. HNF -N-507- 25	ACTUAL SAMPLE DEPTH Surfaces	COA 302677ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	ORIGINAL
SHIPPED TO Waste Sampling & Characterization	OFFSITE PROPERTY NO. N/A		BILL OF LADING/AIR BILL NO. N/A		

SPECIAL INSTRUCTIONS

** The CACN for WSCF Analytical is 402580ES20.☐** The 100 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF.
(1) 200.8_HG - ICPMS {Mercury}; ICP/MS - 200.8 (TAL) {Antimony, Barium, Cadmium, Chromium, Cobalt, Copper, Manganese, Nickel, Silver, Vanadium, Zinc}; ICP/MS - 200.8 (Add-on) {Arsenic, Beryllium, Lead, Molybdenum, Selenium, Strontium, Tin, Uranium};
(2) Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155};
(3) Isotopic Plutonium {Plutonium-238, Plutonium-239/240}; Isotopic Uranium {Uranium-233/234, Uranium-235, Uranium-238}; Strontium-89,90 -- Total Sr; Americium-241;

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PRINTED ON 7/16/2012

A-6003-618 (REV 2)

Sample Receipt

Chain of Custody

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		F12-030-025	PAGE 1 OF 2
COLLECTOR: Dan Sparks	COMPANY CONTACT: TRENT, SJ	TELEPHONE NO.: 373-5869	PROJECT COORDINATOR: TRENT, SJ	PRICE CODE: 8C; AIR QUALITY: ☐	DATA TURNAROUND: 15 Days / 15 Days
SAMPLING LOCATION: Area AG Stockpile #3 Sample #2	PROJECT DESIGNATION: Area AG Sampling (Waste Area AG) Verification - Soil		SAF NO.: F12-030	
ICE CHEST NO.: NA	FIELD LOGBOOK NO.: HNF-N-507-23	ACTUAL SAMPLE DEPTH: Surface	COA: 302677ES10	METHOD OF SHIPMENT: GOVERNMENT VEHICLE	ORIGINAL
SHIPPED TO: Waste Sampling & Characterization	OFFSITE PROPERTY NO.: N/A		BILL OF LADING/AIR BILL NO.: N/A	

MATRIX*: A=Air, DL=Drum Liquids, DS=Drum Solids, L=Liquid, O=Oil, S=Soil, SE=Sediment, T=Tissue, V=Vegetation, W=Water, WI=Wipe, X=Other

POSSIBLE SAMPLE HAZARDS/ REMARKS: Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1993)

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	Cool~4C	Cool~4C	None	None
HOLDING TIME	28 Days	30 Days	6 Months	6 Months
TYPE OF CONTAINER	G/P	G/P	Square Bottle - Poly	G/P
NO. OF CONTAINER(S)	1	1	1	1
VOLUME	120mL	60mL	500mL	120mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	Chromium Hex - 7196;	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	SEE ITEM (3) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME				
B2LWK2 7	SOIL	JUL 18 2012	0800	X	X	X	X

TRL 12- 062

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS
RELINQUISHED BY/REMOVED FROM: Dan Sparks	DATE/TIME: JUL 18 2012 2:20	RECEIVED BY/STORED IN: C Johnson	DATE/TIME: JUL 18 2012 2:20	SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS
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	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 7/16/2012

A-6003-618 (REV 2)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F12-030-025	PAGE 2 OF 2
COLLECTOR Dan Sparks	COMPANY CONTACT TRENT, SJ	TELEPHONE NO. 373-5869	PROJECT COORDINATOR TRENT, SJ	PRICE CODE 8C AIR QUALITY ☐	DATA TURNAROUND 15 Days / 15 Days
SAMPLING LOCATION Area AG Stockpile #3 Sample #2	PROJECT DESIGNATION Area AG Sampling (Waste Area AG) Verification - Soil		SAF NO. F12-030		
ICE CHEST NO.	FIELD LOGBOOK NO. HNF-N-502	ACTUAL SAMPLE DEPTH Surface	COA 302677ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	ORIGINAL
SHIPPED TO Waste Sampling & Characterization	OFFSITE PROPERTY NO. N/A		BILL OF LADING/AIR BILL NO. N/A		

SPECIAL INSTRUCTIONS

** The CACN for WSCF Analytical is 402580ES20.☐** The 100 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF.
(1) 200.8_HG - ICPMS {Mercury}; ICP/MS - 200.8 (TAL) {Antimony, Barium, Cadmium, Chromium, Cobalt, Copper, Manganese, Nickel, Silver, Vanadium, Zinc}; ICP/MS - 200.8 (Add-on) {Arsenic, Beryllium, Lead, Molybdenum, Selenium, Strontium, Tin, Uranium};
(2) Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155};
(3) Isotopic Plutonium {Plutonium-238, Plutonium-239/240}; Isotopic Uranium {Uranium-233/234, Uranium-235, Uranium-238}; Strontium-89,90 -- Total Sr; Americium-241;

TRVL- 12- 062

PRINTED ON 7/16/2012

A-6003-618 (REV 2)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F12-030-026	PAGE 1 OF 2
COLLECTOR: Dan Sparks	COMPANY CONTACT: TRENT, SJ	TELEPHONE NO.: 373-5869	PROJECT COORDINATOR: TRENT, SJ	PRICE CODE: 8C	DATA TURNAROUND: 15 Days / 15 Days
SAMPLING LOCATION: Area AG Stockpile #3 Sample #3	PROJECT DESIGNATION: Area AG Sampling (Waste Area AG) Verification - Soil		SAF NO.: F12-030	AIR QUALITY: ☐	
ICE CHEST NO.: NA	FIELD LOGBOOK NO.: HNF-N-507-25	ACTUAL SAMPLE DEPTH: Surface	COA: 302677ES10	METHOD OF SHIPMENT: GOVERNMENT VEHICLE	ORIGINAL
SHIPPED TO: Waste Sampling & Characterization	OFFSITE PROPERTY NO.: N/A		BILL OF LADING/AIR BILL NO.: N/A		

MATRIX*: A=Air, DL=Drum Liquids, DS=Drum Solids, L=Liquid, O=Oil, S=Soil, SE=Sediment, T=Tissue, V=Vegetation, W=Water, WI=Wipe, X=Other

POSSIBLE SAMPLE HAZARDS/ REMARKS: Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1993)

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	Cool~4C	Cool~4C	None	None
HOLDING TIME	28 Days	30 Days	6 Months	6 Months
TYPE OF CONTAINER	G/P	G/P	Square Bottle - Poly	G/P
NO. OF CONTAINER(S)	1	1	1	1
VOLUME	120mL	60mL	500mL	120mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	Chromium Hex - 7196;	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	SEE ITEM (3) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME				
B2LWK3 8	SOIL	JUL 18 2012	0805	X	X	X	X

TRVL 12- 062

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS
RELINQUISHED BY/REMOVED FROM: Dan Sparks	DATE/TIME: 1220 JUL 18 2012	RECEIVED BY/STORED IN: TA Fazin Jones	DATE/TIME: 1220 JUL 18 2012	SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS
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	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 7/16/2012

A-6003-618 (REV 2)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F12-030-026	PAGE 2 OF 2
COLLECTOR Dan Sparks	COMPANY CONTACT TRENT, SJ	TELEPHONE NO. 373-5869	PROJECT COORDINATOR TRENT, SJ	PRICE CODE 8C AIR QUALITY ☐	DATA TURNAROUND 15 Days / 15 Days
SAMPLING LOCATION Area AG Stockpile #3 Sample #3	PROJECT DESIGNATION Area AG Sampling (Waste Area AG) Verification - Soil		SAF NO. F12-030		
ICE CHEST NO. NA	FIELD LOGBOOK NO. HNF -N-507-25	ACTUAL SAMPLE DEPTH Surface	COA 302677ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	ORIGINAL
SHIPPED TO Waste Sampling & Characterization	OFFSITE PROPERTY NO. N/A		BILL OF LADING/AIR BILL NO. N/A		

SPECIAL INSTRUCTIONS

** The CACN for WSCF Analytical is 402580ES20.☐** The 100 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF.
(1) 200.8_HG - ICPMS {Mercury}; ICP/MS - 200.8 (TAL) {Antimony, Barium, Cadmium, Chromium, Cobalt, Copper, Manganese, Nickel, Silver, Vanadium, Zinc}; ICP/MS - 200.8 (Add-on) {Arsenic, Beryllium, Lead, Molybdenum, Selenium, Strontium, Tin, Uranium};
(2) Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155};
(3) Isotopic Plutonium {Plutonium-238, Plutonium-239/240}; Isotopic Uranium {Uranium-233/234, Uranium-235, Uranium-238}; Strontium-89,90 -- Total Sr; Americium-241;

TRA 12- 062

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A-6003-618 (REV 2)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F12-030-027	PAGE 1 OF 2
COLLECTOR: Dan Sparks	COMPANY CONTACT: TRENT, SJ	TELEPHONE NO.: 373-5869	PROJECT COORDINATOR: TRENT, SJ	PRICE CODE: 8C	DATA TURNAROUND: 15 Days / 15 Days
SAMPLING LOCATION: Area AG Stockpile #3 Sample #4	PROJECT DESIGNATION: Area AG Sampling (Waste Area AG) Verification - Soil		SAF NO.: F12-030	AIR QUALITY:	
ICE CHEST NO.: NA	FIELD LOGBOOK NO.: HNF-N-507-25	ACTUAL SAMPLE DEPTH: Surface	COA: 302677ES10	METHOD OF SHIPMENT: GOVERNMENT VEHICLE	ORIGINAL
SHIPPED TO: Waste Sampling & Characterization	OFFSITE PROPERTY NO.: N/A		BILL OF LADING/AIR BILL NO.: N/A		

MATRIX*: A=Air, DL=Drum Liquids, DS=Drum Solids, L=Liquid, O=Oil, S=Soil, SE=Sediment, T=Tissue, V=Vegetation, W=Water, WI=Wipe, X=Other

POSSIBLE SAMPLE HAZARDS/ REMARKS: Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1993)

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	Cool~4C	Cool~4C	None	None
HOLDING TIME	28 Days	30 Days	6 Months	6 Months
TYPE OF CONTAINER	G/P	G/P	Square Bottle - Poly	G/P
NO. OF CONTAINER(S)	1	1	1	1
VOLUME	120mL	60mL	500mL	120mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	Chromium Hex - 7196;	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	SEE ITEM (3) IN SPECIAL INSTRUCTIONS

SAMPLE NO.		MATRIX*	SAMPLE DATE	SAMPLE TIME				
B2LWK4	9	SOIL	JUL 18 2012	0810				

TRN 12- 062

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS
RELINQUISHED BY/REMOVED FROM: Dan Sparks	DATE/TIME: 1220 JUL 18 2012	RECEIVED BY/STORED IN: TA Brazin Tenco Eng.	DATE/TIME: 1220 JUL 18 2012	SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS
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	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 7/16/2012

A-6003-618 (REV 2)

Sample Receipt

Chain of Custody

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F12-030-027	PAGE 2 OF 2
COLLECTOR Dan Sparks	COMPANY CONTACT TRENT, SJ	TELEPHONE NO. 373-5869	PROJECT COORDINATOR TRENT, SJ	PRICE CODE 8C AIR QUALITY ☐	DATA TURNAROUND 15 Days / 15 Days
SAMPLING LOCATION Area AG Stockpile #3 Sample #4	PROJECT DESIGNATION Area AG Sampling (Waste Area AG) Verification - Soil		SAF NO. F12-030		
ICE CHEST NO.	FIELD LOGBOOK NO. HNF-N-507-25	ACTUAL SAMPLE DEPTH Surface	COA 302677ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	ORIGINAL
SHIPPED TO Waste Sampling & Characterization	OFFSITE PROPERTY NO. N/A		BILL OF LADING/AIR BILL NO. N/A		

SPECIAL INSTRUCTIONS

** The CACN for WSCF Analytical is 402580ES20.☐** The 100 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF.
(1) 200.8_HG - ICPMS {Mercury}; ICP/MS - 200.8 (TAL) {Antimony, Barium, Cadmium, Chromium, Cobalt, Copper, Manganese, Nickel, Silver, Vanadium, Zinc}; ICP/MS - 200.8 (Add-on) {Arsenic, Beryllium, Lead, Molybdenum, Selenium, Strontium, Tin, Uranium};
(2) Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155};
(3) Isotopic Plutonium {Plutonium-238, Plutonium-239/240}; Isotopic Uranium {Uranium-233/234, Uranium-235, Uranium-238}; Strontium-89,90 -- Total Sr; Americium-241;

TRL 12- 062

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A-6003-618 (REV 2)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		F12-030-028	PAGE 1 OF 2
COLLECTOR: Don Sparks	COMPANY CONTACT: TRENT, SJ	TELEPHONE NO.: 373-5869	PROJECT COORDINATOR: TRENT, SJ	PRICE CODE: 8C
SAMPLING LOCATION: Area AG Stockpile #3 Sample #5	PROJECT DESIGNATION: Area AG Sampling (Waste Area AG) Verification - Soil		SAF NO.: F12-030	AIR QUALITY:
ICE CHEST NO.: NA	FIELD LOGBOOK NO.: HNF-N-807-25	ACTUAL SAMPLE DEPTH: Surface	COA: 3026//ES10	METHOD OF SHIPMENT: GOVERNMENT VEHICLE
SHIPPED TO: Waste Sampling & Characterization	OFFSITE PROPERTY NO.: N/A		BILL OF LADING/AIR BILL NO.: N/A	

DATA TURNAROUND: 15 Days / 15 Days

ORIGINAL

MATRIX*: A=Air, DI=Drum Liquids, DS=Drum Solids, L=Liquid, O=Oil, S=Soil, SE=Sediment, T=Tissue, V=Vegetation, W=Water, WI=Wipe, X=Other

POSSIBLE SAMPLE HAZARDS/ REMARKS: Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1993)

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	Cool-4C	Cool-4C	None	None
HOLDING TIME	28 Days	30 Days	6 Months	6 Months
TYPE OF CONTAINER	G/P	G/P	Square Bottle - Poly	G/P
NO. OF CONTAINER(S)	1	1	1	1
VOLUME	120mL	60mL	500mL	120mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	Chromium Hex - 7196;	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	SEE ITEM (2) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME				
B2LWK5 10	SOIL	JUL 18 2012	0821	X	X	X	X

TRVL- 12- 062

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS
RELINQUISHED BY/REMOVED FROM: Don Sparks	DATE/TIME: 7/13/12 1220 JUL 18 2012	RECEIVED BY/STORED IN: TA Erazin	DATE/TIME: 1220 JUL 18 2012	SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS
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	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 7/16/2012

A-6003-618 (REV 2)

Sample Receipt

Chain of Custody

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F12-030-028	PAGE 2 OF 2
COLLECTOR Dan Sparks	COMPANY CONTACT TRENT, SJ	TELEPHONE NO. 373-5869	PROJECT COORDINATOR TRENT, SJ	PRICE CODE 8C AIR QUALITY ☐	DATA TURNAROUND 15 Days / 15 Days
SAMPLING LOCATION Area AG Stockpile #3 Sample #5	PROJECT DESIGNATION Area AG Sampling (Waste Area AG) Verification - Soil		SAF NO. F12-030		
ICE CHEST NO. NA	FIELD LOGBOOK NO. HNF-N-507-95	ACTUAL SAMPLE DEPTH Surface	COA 302677ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	ORIGINAL
SHIPPED TO Waste Sampling & Characterization	OFFSITE PROPERTY NO. N/A		BILL OF LADING/AIR BILL NO. N/A		

SPECIAL INSTRUCTIONS

** The CACN for WSCF Analytical is 402580ES20.LJ** The 100 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF.
(1) 200.8_HG - ICPMS {Mercury}; ICP/MS - 200.8 (TAL) {Antimony, Barium, Cadmium, Chromium, Cobalt, Copper, Manganese, Nickel, Silver, Vanadium, Zinc}; ICP/MS - 200.8 (Add-on) {Arsenic, Beryllium, Lead, Molybdenum, Selenium, Strontium, Tin, Uranium};
(2) Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155};
(3) Isotopic Plutonium {Plutonium-238, Plutonium-239/240}; Isotopic Uranium {Uranium-233/234, Uranium-235, Uranium-238}; Strontium-89,90 -- Total Sr; Americium-241;

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CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F12-030-029	PAGE 1 OF 2
COLLECTOR: Dan Sparks	COMPANY CONTACT: TRENT, SJ	TELEPHONE NO.: 373-5869	PROJECT COORDINATOR: TRENT, SJ	PRICE CODE: 8C	DATA TURNAROUND: 15 Days / 15 Days
SAMPLING LOCATION: Area AG Stockpile #3 Sample #6	PROJECT DESIGNATION: Area AG Sampling (Waste Area AG) Verification - Soil		SAF NO.: F12-030	AIR QUALITY: ☐	
ICE CHEST NO.: N/A	FIELD LOGBOOK NO.: HNF-N-507-25	ACTUAL SAMPLE DEPTH: Surface	COA: 302677ES10	METHOD OF SHIPMENT: GOVERNMENT VEHICLE	ORIGINAL
SHIPPED TO: Waste Sampling & Characterization	OFFSITE PROPERTY NO.: N/A		BILL OF LADING/AIR BILL NO.: N/A		

MATRIX*: A=Air, DL=Drum Liquids, DS=Drum Solids, L=Liquid, O=Oil, S=Soil, SE=Sediment, T=Tissue, V=Vegetation, W=Water, WI=Wipe, X=Other

POSSIBLE SAMPLE HAZARDS/ REMARKS: Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1993)

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	Cool~4C	Cool~4C	None	None
HOLDING TIME	28 Days	30 Days	6 Months	6 Months
TYPE OF CONTAINER	G/P	G/P	Square Bottle - Poly	G/P
NO. OF CONTAINER(S)	1	1	1	1
VOLUME	120mL	60mL	500mL	120mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	Chromium Hex - 7196;	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	SEE ITEM (3) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME				
B2LWK6 11	SOIL	JUL 18 2012	0825	X	X	X	X

TRVL 12- 062

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS
RELINQUISHED BY/REMOVED FROM: Dan Sparks	DATE/TIME: JUL 18 2012 1220	RECEIVED BY/STORED IN: TA Brazin	DATE/TIME: JUL 18 2012 1220	SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS
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	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME	
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME	

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A-6003-618 (REV 2)

Chain of Custody

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F12-030-029	PAGE 2 OF 2
COLLECTOR Dan Sparks	COMPANY CONTACT TRENT, SJ	TELEPHONE NO. 373-5869	PROJECT COORDINATOR TRENT, SJ	PRICE CODE 8C	DATA TURNAROUND 15 Days / 15 Days
SAMPLING LOCATION Area AG Stockpile #3 Sample #6	PROJECT DESIGNATION Area AG Sampling (Waste Area AG) Verification - Soil		SAF NO. F12-030	AIR QUALITY	
ICE CHEST NO. NA	FIELD LOGBOOK NO. HNF-N-507-22	ACTUAL SAMPLE DEPTH Surface	COA 307677ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	ORIGINAL
SHIPPED TO Waste Sampling & Characterization	OFFSITE PROPERTY NO. N/A		BILL OF LADING/AIR BILL NO. N/A		

SPECIAL INSTRUCTIONS

** The CACN for WSCF Analytical is 402580ES20.☐** The 100 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF.
(1) 200.8_HG - ICPMS {Mercury}; ICP/MS - 200.8 (TAL) {Antimony, Barium, Cadmium, Chromium, Cobalt, Copper, Manganese, Nickel, Silver, Vanadium, Zinc}; ICP/MS - 200.8 (Add-on) {Arsenic, Beryllium, Lead, Molybdenum, Selenium, Strontium, Tin, Uranium};
(2) Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155};
(3) Isotopic Plutonium {Plutonium-238, Plutonium-239/240}; Isotopic Uranium {Uranium-233/234, Uranium-235, Uranium-238}; Strontium-89,90 -- Total Sr; Americium-241;

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A-6003-618 (REV 2)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F12-030-030	PAGE 1 OF 2
COLLECTOR: Dan Sparks	COMPANY CONTACT: TRENT, SJ	TELEPHONE NO.: 373-5869	PROJECT COORDINATOR: TRENT, SJ	PRICE CODE: 8C	DATA TURNAROUND: 15 Days / 15 Days
SAMPLING LOCATION: Area AG Stockpile #3 Sample #7	PROJECT DESIGNATION: Area AG Sampling (Waste Area AG) Verification - Soil		SAF NO.: F12-030	AIR QUALITY: ☐	
ICE CHEST NO.: NA	FIELD LOGBOOK NO.: HNF-N-507-25	ACTUAL SAMPLE DEPTH: Surface	COA: 302677ES10	METHOD OF SHIPMENT: GOVERNMENT VEHICLE	ORIGINAL
SHIPPED TO: Waste Sampling & Characterization	OFFSITE PROPERTY NO.: N/A		BILL OF LADING/AIR BILL NO.: N/A		

MATRIX*: A=Air, DL=Drum Liquids, DS=Drum Solids, L=Liquid, O=Oil, S=Soil, SE=Sediment, T=Tissue, V=Vegetation, W=Water, WI=Wipe, X=Other

POSSIBLE SAMPLE HAZARDS/ REMARKS: Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1993)

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	Cool~4C	Cool~4C	None	None	
HOLDING TIME	28 Days	30 Days	6 Months	6 Months	
TYPE OF CONTAINER	G/P	G/P	Square Bottle Poly	G/P	
NO. OF CONTAINER(S)	1	1	1	1	
VOLUME	120mL	60mL	500mL	120mL	
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	Chromium Hex - 7196;	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	SEE ITEM (3) IN SPECIAL INSTRUCTIONS	
SAMPLE NO. / MATRIX* / SAMPLE DATE / SAMPLE TIME					
B2LWK7 12 / SOIL / JUL 18 2012 / 0830	X	X	X	X	

TRVL- 12- 062

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS
RELINQUISHED BY/REMOVED FROM: Dan Sparks	DATE/TIME: JUL 18 2012 1220	RECEIVED BY/STORED IN: TA Frazier	DATE/TIME: JUL 18 2012 1220	SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS
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	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 7/16/2012

A-6003-618 (REV 2)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F12-030-030	PAGE 2 OF 2
COLLECTOR Dan Sparks	COMPANY CONTACT TRENT, SJ	TELEPHONE NO. 373-5869	PROJECT COORDINATOR TRENT, SJ	PRICE CODE BC	DATA TURNAROUND
SAMPLING LOCATION Area AG Stockpile #3 Sample #7	PROJECT DESIGNATION Area AG Sampling (Waste Area AG) Verification - Soil		SAF NO. F12-030	AIR QUALITY ☐	15 Days / 15 Days
ICE CHEST NO. NA	FIELD LOGBOOK NO. HNF-N-507-25	ACTUAL SAMPLE DEPTH Surface	COA 302677ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	ORIGINAL
SHIPPED TO Waste Sampling & Characterization	OFFSITE PROPERTY NO. N/A		BILL OF LADING/AIR BILL NO. N/A		

SPECIAL INSTRUCTIONS

** The CACN for WSCF Analytical is 402580ES20.☐** The 100 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF.
(1) 200.8_HG - ICPMS {Mercury}; ICP/MS - 200.8 (TAL) {Antimony, Barium, Cadmium, Chromium, Cobalt, Copper, Manganese, Nickel, Silver, Vanadium, Zinc}; ICP/MS - 200.8 (Add-on) {Arsenic, Beryllium, Lead, Molybdenum, Selenium, Strontium, Tin, Uranium};
(2) Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155};
(3) Isotopic Plutonium {Plutonium-238, Plutonium-239/240}; Isotopic Uranium {Uranium-233/234, Uranium-235, Uranium-238}; Strontium-89,90 -- Total Sr; Americium-241;

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A-6003-618 (REV 2)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F12-030-031	PAGE 1 OF 2
COLLECTOR: Dan Sparks	COMPANY CONTACT: TRENT, SJ	TELEPHONE NO.: 373-5869	PROJECT COORDINATOR: TRENT, SJ	PRICE CODE: 8C	DATA TURNAROUND: 15 Days / 15 Days
SAMPLING LOCATION: Area AG Stockpile #3 Sample #8	PROJECT DESIGNATION: Area AG Sampling (Waste Area AG) Verification - Soil		SAF NO.: F12-030	AIR QUALITY: ☐	
ICE CHEST NO.: N/A	FIELD LOGBOOK NO.: HNF-N-507-25	ACTUAL SAMPLE DEPTH: Surface	COA: 302677ES10	METHOD OF SHIPMENT: GOVERNMENT VEHICLE	ORIGINAL
SHIPPED TO: Waste Sampling & Characterization	OFFSITE PROPERTY NO.: N/A		BILL OF LADING/AIR BILL NO.: N/A		

MATRIX*: A=Air, DI=Drum Liquids, DS=Drum Solids, L=Liquid, O=Oil, S=Soil, SE=Sediment, T=Tissue, V=Vegetation, W=Water, WI=Wipe, X=Other

POSSIBLE SAMPLE HAZARDS/ REMARKS: Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1993)

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	Cool~4C	Cool~4C	None	None
HOLDING TIME	28 Days	30 Days	5 Months	6 Months
TYPE OF CONTAINER	G/P	G/P	Square Bottle - Poly	G/P
NO. OF CONTAINER(S)	1	1	1	1
VOLUME	120mL	60mL	500mL	120mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	Chromium Hex - 7196,	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	SEE ITEM (3) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME				
B2LWK8 13	SOIL	JUL 18 2012	0845	X	X	X	X

TRL 12- 062

CHAIN OF POSSESSION	DATE/TIME	SIGN/ PRINT NAMES	DATE/TIME
RELINQUISHED BY/REMOVED FROM: Dan Sparks	1220 JUL 18 2012	RECEIVED BY/STORED IN: TA Frazim	1220 JUL 18 2012
RELINQUISHED BY/REMOVED FROM		RECEIVED BY/STORED IN	
RELINQUISHED BY/REMOVED FROM		RECEIVED BY/STORED IN	
RELINQUISHED BY/REMOVED FROM		RECEIVED BY/STORED IN	
RELINQUISHED BY/REMOVED FROM		RECEIVED BY/STORED IN	
RELINQUISHED BY/REMOVED FROM		RECEIVED BY/STORED IN	
RELINQUISHED BY/REMOVED FROM		RECEIVED BY/STORED IN	

SPECIAL INSTRUCTIONS: SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

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Chain of Custody

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F12-030-031	PAGE 2 OF 2
COLLECTOR	COMPANY CONTACT TRENT, SJ	TELEPHONE NO. 373-5869	PROJECT COORDINATOR TRENT, SJ	PRICE CODE 8C	DATA TURNAROUND 15 Days / 15 Days
SAMPLING LOCATION Area AG Stockpile #3 Sample #8	PROJECT DESIGNATION Area AG Sampling (Waste Area AG) Verification - Soil		SAF NO. F12-030	AIR QUALITY	
ICE CHEST NO. NA	FIELD LOGBOOK NO. HNF-N-507-22	ACTUAL SAMPLE DEPTH Surface	COA 302677ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	ORIGINAL
SHIPPED TO Waste Sampling & Characterization	OFFSITE PROPERTY NO. N/A		BILL OF LADING/AIR BILL NO. N/A		

SPECIAL INSTRUCTIONS

** The CACN for WSCF Analytical is 402580ES20.☐** The 100 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF.
(1) 200.8_HG - ICPMS {Mercury}; ICP/MS - 200.8 (TAL) {Antimony, Barium, Cadmium, Chromium, Cobalt, Copper, Manganese, Nickel, Silver, Vanadium, Zinc}; ICP/MS - 200.8 (Add-on) {Arsenic, Beryllium, Lead, Molybdenum, Selenium, Strontium, Tin, Uranium};
(2) Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155};
(3) Isotopic Plutonium {Plutonium-238, Plutonium-239/240}; Isotopic Uranium {Uranium-233/234, Uranium-235, Uranium-238}; Strontium-89,90 -- Total Sr; Americium-241;

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A-6003-618 (REV 2)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F12-030-032	PAGE 1 OF 2
COLLECTOR Dan Sparks	COMPANY CONTACT TRENT, SJ	TELEPHONE NO. 373-5869	PROJECT COORDINATOR TRENT, SJ	PRICE CODE 8C	DATA TURNAROUND 15 Days / 15 Days
SAMPLING LOCATION Area AG Stockpile #3 Sample #9	PROJECT DESIGNATION Area AG Sampling (Waste Area AG) Verification - Soil		SAF NO. F12-030	AIR QUALITY ☐	
ICE CHEST NO. N/A	FIELD LOGBOOK NO. HNF-N-507- 25	ACTUAL SAMPLE DEPTH Surface	COA 302677ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	ORIGINAL
SHIPPED TO Waste Sampling & Characterization	OFFSITE PROPERTY NO. N/A		BILL OF LADING/AIR BILL NO. N/A		

MATRIX*: A=Air, DL=Drum Liquids, DS=Drum Solids, L=Liquid, O=Oil, S=Soil, SE=Sediment, T=Tissue, V=Vegetation, W=Water, WI=Wipe, X=Other

POSSIBLE SAMPLE HAZARDS/ REMARKS: Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1993)

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	Cool~4C	Cool~4C	None	None
HOLDING TIME	28 Days	30 Days	6 Months	6 Months
TYPE OF CONTAINER	G/P	G/P	Square Bottle - Poly	G/P
NO. OF CONTAINER(S)	1	1	1	1
VOLUME	120mL	60mL	500mL	120mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	Chromium Hex - 7196	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	SEE ITEM (3) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME				
B2LWK9 14	SOIL	JUL 18 2012	0850	X	X	X	X

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CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS
RELINQUISHED BY/REMOVED FROM Dan Sparks	DATE/TIME 1220 JUL 18 2012	RECEIVED BY/STORED IN TA Engineering	DATE/TIME 1220 JUL 18 2012	SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS
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	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 7/16/2012

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Sample Receipt

Chain of Custody

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		F12-030-032	PAGE 2 OF 2
COLLECTOR Dan Sparks	COMPANY CONTACT TRENT, SJ	TELEPHONE NO. 373-5869	PROJECT COORDINATOR TRENT, SJ	PRICE CODE 8C	DATA TURNAROUND 15 Days / 15 Days
SAMPLING LOCATION Area AG Stockpile #3 Sample #9	PROJECT DESIGNATION Area AG Sampling (Waste Area AG) Verification - Soil		SAF NO. F12-030	AIR QUALITY	
ICE CHEST NO. NA	FIELD LOGBOOK NO. HNF-N-507-25	ACTUAL SAMPLE DEPTH Surface	COA 302677ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	ORIGINAL
SHIPPED TO Waste Sampling & Characterization	OFFSITE PROPERTY NO. N/A		BILL OF LADING/AIR BILL NO. N/A		

SPECIAL INSTRUCTIONS

** The CACN for WSCF Analytical is 402580ES20.L]** The 100 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF.
(1) 200.8_HG - ICPMS {Mercury}; ICP/MS - 200.8 (TAL) {Antimony, Barium, Cadmium, Chromium, Cobalt, Copper, Manganese, Nickel, Silver, Vanadium, Zinc}; ICP/MS - 200.8 (Add-on) {Arsenic, Beryllium, Lead, Molybdenum, Selenium, Strontium, Tin, Uranium};
(2) Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155};
(3) Isotopic Plutonium {Plutonium-238, Plutonium-239/240}; Isotopic Uranium {Uranium-233/234, Uranium-235, Uranium-238}; Strontium-89,90 -- Total Sr; Americium-241;

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PRINTED ON 7/16/2012

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Appendix 5

Data Validation Supporting Documentation

VALIDATION LEVEL:	A	B	C	D	E
PROJECT: 100-K			DATA PACKAGE: VSR12-022		
VALIDATOR: Eyda Hergenreder		LAB: WSCF		DATE: 08-16-2012	
			SDG: WSCF120925		
ANALYSES PERFORMED					
SW-846/ICP	SW-846/GFAA	SW-846/Hg		EPA 200.8 X	

SAMPLES/MATRIX Soil samples

B2LWL0, B2LWL1, B2LWL2, B2LWL3, B2LWL4, B2LWK1, B2LWK2, B2LWK3, B2LWK4, B2LWK5, B2LWK6, B2LWK7, B2LWK8, B2LWK9

1. DATA PACKAGE COMPLETENESS AND CASE NARRATIVE

Technical verification documentation present?.....(Yes) No N/A

Comments: None

2. INSTRUMENT PERFORMANCE AND CALIBRATIONS (Levels D and E)

Initial calibrations performed on all instruments? ..... Yes No N/A

Initial calibrations acceptable? ..... Yes No N/A

ICP interference checks acceptable? ..... Yes No N/A

ICV and CCV checks performed on all instruments? ..... Yes No N/A

ICV and CCV checks acceptable? ..... Yes No N/A

Standards traceable? ..... Yes No N/A

Standards expired? ..... Yes No N/A

Calculation check acceptable? ..... Yes No N/A

Comments:

3. BLANKS (Levels B, C, D, and E)

ICB and CCB checks performed for all applicable analyses? (Levels D, E) ..... Yes No N/A

ICB and CCB results acceptable? (Levels D, E) ..... Yes No N/A

Laboratory blanks analyzed? ..... Yes No N/A

Laboratory blank results acceptable? ..... Yes No N/A

Field blanks analyzed? (Levels C, D, E) ..... Yes No N/A

Field blank results acceptable? (Levels C, D, E) ..... Yes No N/A

Transcription/calculation errors? (Levels D, E) ..... Yes No N/A

Comments:

MB: (batch 205241): Mn 0.509 ug/L; V 0.679 ug/L

EB sample B2LWL4: Mn 4.5 mg/kg; Ba 2.20 mg/kg; Co 0.0749 mg/kg; Cu 0.0813 mg/kg; V 0.117 mg/kg; Zn 0.954 mg/kg; Pb 0.294 mg/kg; Sr 0.421 mg/kg; U 0.0754 mg/kg

4. ACCURACY (Levels C, D, and E)

MS/MSD samples analyzed? ..... Yes No N/A

MS/MSD results acceptable? ..... Yes No N/A

MS/MSD standards NIST traceable? (Levels D, E) ..... Yes No N/A

MS/MSD standards expired? (Levels D, E) ..... Yes No N/A

LCS/BSS samples analyzed? ..... Yes No N/A

LCS/BSS results acceptable? ..... Yes No N/A

Standards traceable? (Levels D, E) ..... Yes No N/A

Standards expired? (Levels D, E) ..... Yes No N/A

Transcription/calculation errors? (Levels D, E) ..... Yes No N/A

Performance audit sample(s) analyzed? ..... Yes No N/A

Performance audit sample results acceptable? ..... Yes No N/A

Comments:

Batch 205241: Ba MS/MSD%Rs 0.4%/0%; V MSMSD%Rs 45.8%/35.8%; Zn MS/MSD%Rs 57.4%/57.5%; Sr MS/MSD%Rs 51.7%/47.5%

5. PRECISION (Levels C, D, and E)

Duplicate RPD values acceptable?.....Yes No N/A

Duplicate results acceptable?.....Yes No N/A

MS/MSD standards NIST traceable? (Levels D, E)..... Yes No N/A

MS/MSD standards expired? (Levels D, E) ..... Yes No N/A

Field duplicate RPD values acceptable? .....Yes No N/A

Field split RPD values acceptable? ..... Yes No N/A

Transcription/calculation errors? (Levels D, E)..... Yes No N/A

Comments: None

6. ICP QUALITY CONTROL (Levels D and E)

ICP serial dilution samples analyzed? ..... Yes No N/A

ICP serial dilution %D values acceptable? ..... Yes No N/A

ICP post digestion spike required? ..... Yes No N/A

ICP post digestion spike values acceptable? ..... Yes No N/A

Standards traceable? ..... Yes No N/A

Standards expired? ..... Yes No N/A

Transcription/calculation errors? ..... Yes No N/A

Comments:

7. HOLDING TIMES (all levels)

Samples properly preserved? ..... Yes No N/A

Sample holding times acceptable? ..... Yes No N/A

Comments: None

8. RESULT QUANTITATION AND DETECTION LIMITS (all levels)

Results reported for all requested analyses?.....Yes No N/A

Results supported in the raw data? (Levels D, E) ..... Yes No N/A

Samples properly prepared? (Levels D, E)..... Yes No N/A

Detection limits meet RDL?.....Yes No N/A

Transcription/calculation errors? (Levels D, E) ..... Yes No N/A

Comments: None

Comments (attach additional sheets as necessary):

More

Appendix 6

Additional Documentation Requested By Client

Batch QC List

Attention Scot Fitzgerald
Department Inorganic

Group # WSCF120925

QC Batch	Analytical Batch	S#	Type	Sample #	Client Sample#	Original	Test
205241	205258	4	BLANK	78760	BLANK		ICP-2008 MS All possible metal
205241	205258	5	LCS	78761	LCS		ICP-2008 MS All possible metal
205241	205258	7	MS	78762	B2JDL0(120922001MS)	120922001	ICP-2008 MS All possible metal
205241	205258	8	MSD	78763	B2JDL0(120922001MSD)	120922001	ICP-2008 MS All possible metal
205241	205258	17	SAMPLE	120925001	B2LWL0		ICP-2008 MS All possible metal
205241	205258	20	SAMPLE	120925002	B2LWL1		ICP-2008 MS All possible metal
205241	205258	21	SAMPLE	120925003	B2LWL2		ICP-2008 MS All possible metal
205241	205258	22	SAMPLE	120925004	B2LWL3		ICP-2008 MS All possible metal
205241	205258	23	SAMPLE	120925005	B2LWL4		ICP-2008 MS All possible metal
205241	205258	24	SAMPLE	120925006	B2LWK1		ICP-2008 MS All possible metal
205241	205258	25	SAMPLE	120925007	B2LWK2		ICP-2008 MS All possible metal
205241	205258	26	SAMPLE	120925008	B2LWK3		ICP-2008 MS All possible metal
205241	205258	27	SAMPLE	120925009	B2LWK4		ICP-2008 MS All possible metal
205241	205258	28	SAMPLE	120925010	B2LWK5		ICP-2008 MS All possible metal
205241	205258	29	SAMPLE	120925011	B2LWK6		ICP-2008 MS All possible metal
205241	205399	1	LCS	78761	LCS		ICP-2008 MS All possible metal
205241	205399	2	BLANK	78760	BLANK		ICP-2008 MS All possible metal
205241	205399	17	MSD	78763	B2JDL0(120922001MSD)	120922001	ICP-2008 MS All possible metal
205241	205399	19	MS	78762	B2JDL0(120922001MS)	120922001	ICP-2008 MS All possible metal
205241	205399	21	SAMPLE	120925011	B2LWK6		ICP-2008 MS All possible metal
205241	205399	22	SAMPLE	120925010	B2LWK5		ICP-2008 MS All possible metal
205241	205399	23	SAMPLE	120925009	B2LWK4		ICP-2008 MS All possible metal
205241	205399	24	SAMPLE	120925008	B2LWK3		ICP-2008 MS All possible metal

Batch QC List

Attention Scot Fitzgerald
Department Inorganic

Group # WSCF120925

QC Batch	Analytical Batch	S#	Type	Sample #	Client Sample#	Original	Test
205241	205399	25	SAMPLE	120925007	B2LWK2		ICP-2008 MS All possible metal
205241	205399	26	SAMPLE	120925006	B2LWK1		ICP-2008 MS All possible metal
205241	205399	27	SAMPLE	120925005	B2LWL4		ICP-2008 MS All possible metal
205241	205399	28	SAMPLE	120925004	B2LWL3		ICP-2008 MS All possible metal
205241	205399	29	SAMPLE	120925003	B2LWL2		ICP-2008 MS All possible metal
205241	205399	30	SAMPLE	120925001	B2LWL0		ICP-2008 MS All possible metal
205241	205399	31	SAMPLE	120925002	B2LWL1		ICP-2008 MS All possible metal
205242	205259	4	BLANK	78764	BLANK		ICP-2008 MS All possible metal
205242	205259	5	LCS	78765	LCS		ICP-2008 MS All possible metal
205242	205259	6	SAMPLE	120925012	B2LWK7		ICP-2008 MS All possible metal
205242	205259	7	MS	78766	B2LWK7(120925012MS)	120925012	ICP-2008 MS All possible metal
205242	205259	8	MSD	78767	B2LWK7(120925012MSD	120925012	ICP-2008 MS All possible metal
205242	205259	9	SAMPLE	120925013	B2LWK8		ICP-2008 MS All possible metal
205242	205259	10	SAMPLE	120925014	B2LWK9		ICP-2008 MS All possible metal
205242	205322	1	LCS	78765	LCS		ICP-2008 MS All possible metal
205242	205322	2	BLANK	78764	BLANK		ICP-2008 MS All possible metal
205242	205322	10	SAMPLE	120925013	B2LWK8		ICP-2008 MS All possible metal
205242	205322	11	MSD	78767	B2LWK7(120925012MSD	120925012	ICP-2008 MS All possible metal
205242	205322	12	MS	78766	B2LWK7(120925012MS)	120925012	ICP-2008 MS All possible metal
205242	205322	13	SAMPLE	120925014	B2LWK9		ICP-2008 MS All possible metal
205242	205322	14	SAMPLE	120925012	B2LWK7		ICP-2008 MS All possible metal
205246	205248	3	BLANK	78775	BLANK		Hexavalent chromium
205246	205248	4	LCS	78776	LCS		Hexavalent chromium

Quality Control Report

Attention Scot Fitzgerald
Department Inorganic

Group # WSCF120925

Analytical Batch 205258 (QC Batch: 205241) **Test** ICP-2008 MS All possible metal
Associated Samples 120925001, 120925002, 120925003, 120925004, 120925005, 120925006, 120925007, 120925008, 120925009, 120925010, 120925011

Analyte	CAS #	Original Found	QC Found	Units	% Recov Limits	RPD	RPD Limit	RQ	Analyzed
BLANK			**QC Sample #78760**						
Manganese	7439-96-5		0.509	ug/L				B	07/30/12
Nickel	7440-02-0		<0.10	ug/L				U	07/30/12
Silver	7440-22-4		<0.050	ug/L				U	07/30/12
Antimony	7440-36-0		<0.30	ug/L				U	07/30/12
Barium	7440-39-3		<0.20	ug/L				U	07/30/12
Beryllium	7440-41-7		<0.10	ug/L				U	07/30/12
Cadmium	7440-43-9		<0.050	ug/L				U	07/30/12
Chromium	7440-47-3		<0.10	ug/L				U	07/30/12
Cobalt	7440-48-4		<0.050	ug/L				U	07/30/12
Copper	7440-50-8		<0.10	ug/L				U	07/30/12
Vanadium	7440-62-2		0.679	ug/L				B	07/30/12
Zinc	7440-66-6		<1.0	ug/L				U	07/30/12
Lead	7439-92-1		<0.050	ug/L				U	07/30/12
Mercury	7439-97-6		<0.050	ug/L				U	07/30/12
Molybdenum	7439-98-7		<0.050	ug/L				U	07/30/12
Strontium	7440-24-6		<0.10	ug/L				U	07/30/12
Tin	7440-31-5		<0.050	ug/L				U	07/30/12

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

Quality Control Report

Attention Scot Fitzgerald
Department Inorganic

Group # WSCF120925

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
Uranium	7440-61-1		<0.050	ug/L					U	07/30/12
Arsenic	7440-38-2		<0.20	ug/L					U	07/30/12
LCS			**QC Sample #78761**							
Manganese	7439-96-5		260	mg/kg	90.9	75 - 121				07/30/12
Nickel	7440-02-0		54.0	mg/kg	91.4	74 - 122				07/30/12
Silver	7440-22-4		35.0	mg/kg	101.8	83 - 127				07/30/12
Antimony	7440-36-0		102	mg/kg	83.8	62 - 205				07/30/12
Barium	7440-39-3		158	mg/kg	93.5	78 - 118				07/30/12
Beryllium	7440-41-7		63.2	mg/kg	101.3	77 - 120				07/30/12
Cadmium	7440-43-9		60.4	mg/kg	97.8	76 - 129				07/30/12
Chromium	7440-47-3		64.8	mg/kg	90.8	68 - 119				07/30/12
Cobalt	7440-48-4		97.2	mg/kg	94.4	77 - 122				07/30/12
Copper	7440-50-8		71.7	mg/kg	88.3	67 - 120				07/30/12
Vanadium	7440-62-2		54.4	mg/kg	91.9	67 - 122				07/30/12
Zinc	7440-66-6		135	mg/kg	95.5	73 - 131				07/30/12
Lead	7439-92-1		86.9	mg/kg	94	79 - 124				07/30/12
Mercury	7439-97-6		3.64	mg/kg	96.5	69 - 124				07/30/12
Molybdenum	7439-98-7		43.1	mg/kg	101.2	80 - 125				07/30/12
Strontium	7440-24-6		65.8	mg/kg	90.8	78 - 119				07/30/12
Tin	7440-31-5		109	mg/kg	101.6	84 - 130				07/30/12
Uranium	7440-61-1		366	mg/kg	95	86 - 113				07/30/12
Arsenic	7440-38-2		94.1	mg/kg	101.7	79 - 125				07/30/12

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

Quality Control Report

Attention Scot Fitzgerald
Department Inorganic

Group # WSCF120925

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
MS			**QC Sample #78762**							
			Original	**120922001**						
Manganese	7439-96-5		-251	mg/kg	-250.7	70 - 130			X	07/30/12
Nickel	7440-02-0		79.4	mg/kg	79.4	70 - 130				07/30/12
Silver	7440-22-4		96.9	mg/kg	96.9	70 - 130				07/30/12
Antimony	7440-36-0		76.6	mg/kg	76.6	70 - 130				07/30/12
Barium	7440-39-3		0.437	mg/kg	0.4	70 - 130			N	07/30/12
Beryllium	7440-41-7		98.2	mg/kg	98.2	70 - 130				07/30/12
Cadmium	7440-43-9		94.6	mg/kg	94.6	70 - 130				07/30/12
Chromium	7440-47-3		83.8	mg/kg	83.8	70 - 130				07/30/12
Cobalt	7440-48-4		80.3	mg/kg	80.3	70 - 130				07/30/12
Copper	7440-50-8		70.9	mg/kg	70.9	70 - 130				07/30/12
Vanadium	7440-62-2		45.8	mg/kg	45.8	70 - 130			N	07/30/12
Zinc	7440-66-6		57.4	mg/kg	57.4	70 - 130			N	07/30/12
Lead	7439-92-1		86.4	mg/kg	86.4	70 - 130				07/30/12
Mercury	7439-97-6		1.86	mg/kg	93.2	70 - 130				07/30/12
Molybdenum	7439-98-7		101	mg/kg	101.2	70 - 130				07/30/12
Strontium	7440-24-6		51.7	mg/kg	51.8	70 - 130			N	07/30/12
Tin	7440-31-5		97.6	mg/kg	97.6	70 - 130				07/30/12
Uranium	7440-61-1		96.5	mg/kg	96.5	70 - 130				07/30/12
Arsenic	7440-38-2		92.8	mg/kg	92.8	70 - 130				07/30/12
MSD			**QC Sample #78763**							
			Original	**120922001**				**Paired**	**78762**	
Manganese	7439-96-5		-263	mg/kg	-274.6	70 - 130	3.00	30	X	07/30/12

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

Quality Control Report

Attention Scot Fitzgerald
Department Inorganic

Group # WSCF120925

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
Nickel	7440-02-0		78.8	mg/kg	82.3	70 - 130	0.50	30		07/30/12
Silver	7440-22-4		95.7	mg/kg	99.9	70 - 130	1.20	30		07/30/12
Antimony	7440-36-0		83.0	mg/kg	86.7	70 - 130	8.00	30		07/30/12
Barium	7440-39-3		-1.15	mg/kg	-1.2	70 - 130	0.60	30	N	07/30/12
Beryllium	7440-41-7		97.1	mg/kg	101.3	70 - 130	1.20	30		07/30/12
Cadmium	7440-43-9		92.8	mg/kg	96.9	70 - 130	1.90	30		07/30/12
Chromium	7440-47-3		81.4	mg/kg	85	70 - 130	2.40	30		07/30/12
Cobalt	7440-48-4		77.8	mg/kg	81.2	70 - 130	2.60	30		07/30/12
Copper	7440-50-8		69.2	mg/kg	72.2	70 - 130	1.00	30		07/30/12
Vanadium	7440-62-2		35.8	mg/kg	37.3	70 - 130	7.20	30	N	07/30/12
Zinc	7440-66-6		55.1	mg/kg	57.5	70 - 130	1.50	30	N	07/30/12
Lead	7439-92-1		83.4	mg/kg	87	70 - 130	3.10	30		07/30/12
Mercury	7439-97-6		1.86	mg/kg	97.2	70 - 130	0.00	30		07/30/12
Molybdenum	7439-98-7		98.6	mg/kg	102.9	70 - 130	2.60	30		07/30/12
Strontium	7440-24-6		45.5	mg/kg	47.5	70 - 130	4.70	30	N	07/30/12
Tin	7440-31-5		95.5	mg/kg	99.7	70 - 130	2.00	30		07/30/12
Uranium	7440-61-1		94.6	mg/kg	98.7	70 - 130	2.10	30		07/30/12
Arsenic	7440-38-2		93.2	mg/kg	97.3	70 - 130	0.50	30		07/30/12

* - QC result out of range

n/a - Not Applicable

Quality Control Report

Attention Scot Fitzgerald
Department Inorganic

Group # WSCF120925

Analytical Batch 205259 (QC Batch: 205242)
Associated Samples 120925012, 120925013, 120925014

Test ICP-2008 MS All possible metal

Analyte	CAS #	Original Found	QC Found	Units	% Recov Limits	RPD	RPD Limit	RQ	Analyzed
BLANK			**QC Sample #78764**						
Manganese	7439-96-5		<0.10	ug/L				U	07/27/12
Nickel	7440-02-0		<0.10	ug/L				U	07/27/12
Silver	7440-22-4		<0.050	ug/L				U	07/27/12
Antimony	7440-36-0		<0.30	ug/L				U	07/27/12
Barium	7440-39-3		<0.20	ug/L				U	07/27/12
Beryllium	7440-41-7		<0.10	ug/L				U	07/27/12
Cadmium	7440-43-9		<0.050	ug/L				U	07/27/12
Chromium	7440-47-3		<0.10	ug/L				U	07/27/12
Cobalt	7440-48-4		<0.050	ug/L				U	07/27/12
Copper	7440-50-8		<0.10	ug/L				U	07/27/12
Vanadium	7440-62-2		<0.20	ug/L				U	07/27/12
Zinc	7440-66-6		<1.0	ug/L				U	07/27/12
Lead	7439-92-1		<0.050	ug/L				U	07/27/12
Mercury	7439-97-6		<0.050	ug/L				U	07/27/12
Molybdenum	7439-98-7		<0.050	ug/L				U	07/27/12
Strontium	7440-24-6		<0.10	ug/L				U	07/27/12
Tin	7440-31-5		<0.050	ug/L				U	07/27/12

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

Quality Control Report

Attention Scot Fitzgerald
Department Inorganic

Group # WSCF120925

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
Uranium	7440-61-1		<0.050	ug/L					U	07/27/12
Arsenic	7440-38-2		<0.20	ug/L					U	07/27/12
LCS			**QC Sample #78765**							
Manganese	7439-96-5		254	mg/kg	88.8	75 - 121				07/27/12
Nickel	7440-02-0		55.5	mg/kg	93.8	74 - 122				07/27/12
Silver	7440-22-4		34.5	mg/kg	100.4	83 - 127				07/27/12
Antimony	7440-36-0		107	mg/kg	88	62 - 205				07/27/12
Barium	7440-39-3		155	mg/kg	91.7	78 - 118				07/27/12
Beryllium	7440-41-7		63.0	mg/kg	100.9	77 - 120				07/27/12
Cadmium	7440-43-9		60.7	mg/kg	98.2	76 - 129				07/27/12
Chromium	7440-47-3		64.5	mg/kg	90.4	68 - 119				07/27/12
Cobalt	7440-48-4		97.8	mg/kg	95	77 - 122				07/27/12
Copper	7440-50-8		74.7	mg/kg	92	67 - 120				07/27/12
Vanadium	7440-62-2		53.7	mg/kg	90.7	67 - 122				07/27/12
Zinc	7440-66-6		137	mg/kg	97.4	73 - 131				07/27/12
Lead	7439-92-1		88.6	mg/kg	95.8	79 - 124				07/27/12
Mercury	7439-97-6		3.80	mg/kg	100.7	69 - 124				07/27/12
Molybdenum	7439-98-7		42.3	mg/kg	99.2	80 - 125				07/27/12
Strontium	7440-24-6		63.5	mg/kg	87.7	78 - 119				07/27/12
Tin	7440-31-5		107	mg/kg	100.1	84 - 130				07/27/12
Uranium	7440-61-1		401	mg/kg	98.1	86 - 113				07/27/12
Arsenic	7440-38-2		93.5	mg/kg	100.9	79 - 125				07/27/12

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

Quality Control Report

Attention Scot Fitzgerald
Department Inorganic

Group # WSCF120925

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
MS			**QC Sample #78766**							
			Original	**120925012**						
Manganese	7439-96-5	319	90.9	mg/kg	82.6	70 - 130				07/27/12
Nickel	7440-02-0	10.0	98.8	mg/kg	89.7	70 - 130				07/27/12
Silver	7440-22-4	0.0412	107	mg/kg	97.2	70 - 130				07/27/12
Antimony	7440-36-0	<0.15	91.5	mg/kg	83.1	70 - 130				07/27/12
Barium	7440-39-3	71.4	99.3	mg/kg	90.2	70 - 130				07/27/12
Beryllium	7440-41-7	0.369	110	mg/kg	99.9	70 - 130				07/27/12
Cadmium	7440-43-9	0.0797	106	mg/kg	96.2	70 - 130				07/27/12
Chromium	7440-47-3	8.93	99.1	mg/kg	90	70 - 130				07/27/12
Cobalt	7440-48-4	8.86	99.2	mg/kg	90.1	70 - 130				07/27/12
Copper	7440-50-8	15.6	96.3	mg/kg	87.5	70 - 130				07/27/12
Vanadium	7440-62-2	50.6	101	mg/kg	91.4	70 - 130				07/27/12
Zinc	7440-66-6	44.9	103	mg/kg	94	70 - 130				07/27/12
Lead	7439-92-1	6.17	102	mg/kg	92.7	70 - 130				07/27/12
Mercury	7439-97-6	<0.025	2.24	mg/kg	102	70 - 130				07/27/12
Molybdenum	7439-98-7	0.354	113	mg/kg	102.7	70 - 130				07/27/12
Strontium	7440-24-6	33.9	106	mg/kg	96.7	70 - 130				07/27/12
Tin	7440-31-5	0.477	109	mg/kg	99.2	70 - 130				07/27/12
Uranium	7440-61-1	0.876	106	mg/kg	96.4	70 - 130				07/27/12
Arsenic	7440-38-2	2.91	107	mg/kg	97.4	70 - 130				07/27/12
MSD			**QC Sample #78767**							
			Original	**120925012**					**Paired**	**78766**
Manganese	7439-96-5	319	132	mg/kg	123.3	70 - 130	9.60	30		07/27/12

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

Quality Control Report

Attention Scot Fitzgerald
Department Inorganic

Group # WSCF120925

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
Nickel	7440-02-0	10.0	105	mg/kg	97.9	70 - 130	5.40	30		07/27/12
Silver	7440-22-4	0.0412	110	mg/kg	102.6	70 - 130	2.80	30		07/27/12
Antimony	7440-36-0	<0.15	99.1	mg/kg	92.6	70 - 130	8.00	30		07/27/12
Barium	7440-39-3	71.4	116	mg/kg	108.5	70 - 130	9.50	30		07/27/12
Beryllium	7440-41-7	0.369	117	mg/kg	109.2	70 - 130	6.20	30		07/27/12
Cadmium	7440-43-9	0.0797	110	mg/kg	102.3	70 - 130	3.70	30		07/27/12
Chromium	7440-47-3	8.93	106	mg/kg	99.3	70 - 130	6.30	30		07/27/12
Cobalt	7440-48-4	8.86	104	mg/kg	97.1	70 - 130	4.50	30		07/27/12
Copper	7440-50-8	15.6	103	mg/kg	95.9	70 - 130	5.20	30		07/27/12
Vanadium	7440-62-2	50.6	111	mg/kg	103.4	70 - 130	6.50	30		07/27/12
Zinc	7440-66-6	44.9	115	mg/kg	107.5	70 - 130	7.20	30		07/27/12
Lead	7439-92-1	6.17	108	mg/kg	101	70 - 130	5.40	30		07/27/12
Mercury	7439-97-6	<0.025	2.34	mg/kg	109.5	70 - 130	4.40	30		07/27/12
Molybdenum	7439-98-7	0.354	119	mg/kg	110.8	70 - 130	5.20	30		07/27/12
Strontium	7440-24-6	33.9	110	mg/kg	103.1	70 - 130	2.80	30		07/27/12
Tin	7440-31-5	0.477	114	mg/kg	106.9	70 - 130	4.40	30		07/27/12
Uranium	7440-61-1	0.876	112	mg/kg	105	70 - 130	5.50	30		07/27/12
Arsenic	7440-38-2	2.91	112	mg/kg	104.2	70 - 130	3.60	30		07/27/12

* - QC result out of range

n/a - Not Applicable

Quality Control Report

Attention Scot Fitzgerald
Department Inorganic

Group # WSCF120925

Analytical Batch 205322 (QC Batch: 205242)
Associated Samples 120925012, 120925013, 120925014

Test ICP-2008 MS All possible metal

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
BLANK			**QC Sample #78764**							
Selenium	7782-49-2		<1.0	ug/L					U	07/27/12
LCS			**QC Sample #78765**							
Selenium	7782-49-2		92.5	mg/kg	103.4	82 - 133				07/27/12
MS			**QC Sample #78766**							
			Original 120925012							
Selenium	7782-49-2	0.261	109	mg/kg	99.4	70 - 130				07/27/12
MSD			**QC Sample #78767**							
			Original 120925012					**Paired**	**78766**	
Selenium	7782-49-2	0.261	112	mg/kg	104.2	70 - 130	1.80	30		07/27/12

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

Quality Control Report

Attention Scot Fitzgerald
Department Inorganic

Group # WSCF120925

Analytical Batch 205399 (QC Batch: 205241) **Test** ICP-2008 MS All possible metal
Associated Samples 120925001, 120925002, 120925003, 120925004, 120925005, 120925006, 120925007, 120925008, 120925009, 120925010, 120925011

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
BLANK			**QC Sample #78760**							
Selenium	7782-49-2		<1.0	ug/L					U	07/27/12
LCS			**QC Sample #78761**							
Selenium	7782-49-2		97.1	mg/kg	108.5	82 - 133				07/27/12
MS			**QC Sample #78762**							
			Original 120922001							
Selenium	7782-49-2		85.5	mg/kg	85.5	70 - 130				07/27/12
MSD			**QC Sample #78763**							
			Original 120922001					**Paired**	**78762**	
Selenium	7782-49-2		95.3	mg/kg	99.5	70 - 130	10.80	30		07/27/12

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

Date: 16 August 2012
To: CH2M Hill (technical representative)
From: Analytical Quality Associates, Inc.
Project: 100-K
Subject: General Chemistry - Sample Data Group (SDG) WSCF120925

INTRODUCTION

This memorandum presents the results of data validation for SDG WSCF120925 prepared by WSCF Analytical Laboratories. A list of samples validated along with the analytical methods is provided in the following table.

Sample ID	Sample Date	Media	Validation Level	Analytical Methods
B2LWL0	07/18/12	Soil	C	7196A (Cr VI)
B2LWL1	07/18/12	Soil	C	7196A (Cr VI)
B2LWL2	07/18/12	Soil	C	7196A (Cr VI)
B2LWL3	07/18/12	Soil	C	7196A (Cr VI)
B2LWL4	07/18/12	Soil	C	7196A (Cr VI)
B2LWK1	07/18/12	Soil	C	7196A (Cr VI)
B2LWK2	07/18/12	Soil	C	7196A (Cr VI)
B2LWK3	07/18/12	Soil	C	7196A (Cr VI)
B2LWK4	07/18/12	Soil	C	7196A (Cr VI)
B2LWK5	07/18/12	Soil	C	7196A (Cr VI)
B2LWK6	07/18/12	Soil	C	7196A (Cr VI)
B2LWK7	07/18/12	Soil	C	7196A (Cr VI)
B2LWK8	07/18/12	Soil	C	7196A (Cr VI)
B2LWK9	07/18/12	Soil	C	7196A (Cr VI)

Data validation was conducted in accordance with the CHPRC validation statement of work and the 100 Area Remedial Action Sampling and Analysis Plan, DOE/RL-96-22, Rev. 5 (SAP). Appendices 1 through 6 provide the following information as indicated below:

Appendix 1. Glossary of Data Reporting Qualifiers
Appendix 2. Summary of Data Qualification
Appendix 3. Annotated Laboratory Reports
Appendix 4. Laboratory Narrative and Chain-of-Custody Documentation
Appendix 5. Data Validation Supporting Documentation
Appendix 6. Additional Documentation Requested By Client

DATA QUALITY OBJECTIVES

- **Holding Times and Sample Preservation**

Holding times are calculated from Chain-of-Custody forms to determine the validity of the results. The holding time requirements for chromium (VI) are extraction within 30 days of

sample collection and analysis within 4 days of sample extraction. Sample preservation requires chilling to 4 degrees Celsius.

The samples were extracted and analyzed within the prescribed holding times and properly preserved.

- **Blanks**

The blank data results are reviewed to assess the extent of contamination introduced through sampling, sample preparation, and analysis.

Laboratory Blanks

The laboratory blank result was acceptable.

Trip Blanks

No trip blanks were submitted for validation.

Field Blanks

No field blanks were submitted for validation.

Equipment Blanks

The equipment blank result was acceptable.

- **Accuracy**

Accuracy is evaluated by reviewing matrix spike sample results and laboratory control sample results. According to the SAP, the matrix spike sample and laboratory control sample accuracy limits are 70% to 130%.

Matrix Spike (MS) Sample

The MS recovery was acceptable.

Laboratory Control Samples (LCSs)

The LCS recovery was acceptable.

- **Precision**

Precision is evaluated by reviewing laboratory duplicate sample results, field duplicate sample results, and field split sample results. These QC results provide information on the laboratory reproducibility and whether sampling activities are adequate to acquire consistent sample results.

According to the SAP, the relative percent difference (RPD) limit is ±30%. When duplicate RPDs exceed the limits and have associated results <5X the reporting limits with difference <2X the required detection limits no precision infraction occurred

Laboratory Duplicate Samples

The laboratory duplicate result was acceptable.

Field Duplicate Samples

The field duplicate result was acceptable.

Field Split Samples

No field splits were submitted for validation.

- **Detection Limits**

Reported MDLs are compared against the contractually required detection limits (CRDLs) to ensure that laboratory detection limits meet the required criteria.

All reported sample MDLs were below the CRDLs.

- **Completeness**

SDG WSCF120925 was submitted for validation and verified for completeness. Completeness is based on the percentage of data determined to be valid (i.e., not rejected). The completion percentage was 100%.

MAJOR DEFICIENCIES

None found.

MINOR DEFICIENCIES

None found.

REFERENCES

GRP-GD-003, Rev. 0, Change 0, *Data Validation for Chemical Analyses*, August 2010.

DOE/RL-96-22, Rev. 5, *100 Area Remedial Action Sampling and Analysis Plan*, September 2009.

Appendix 1

Glossary of Data Reporting Qualifiers

Qualifiers that may be applied by data validators in compliance with the CHPRC statement of work are as follows:

- **U** — The constituent was analyzed for, but was not detected. The data should be considered usable for decision-making purposes.

- **UJ** — The constituent was analyzed for and was not detected. Due to a quality control deficiency identified during data validation the value reported may not accurately reflect the RL. The data should be considered usable for decision-making purposes.

- **J** — Indicates the constituent was analyzed for and detected. The associated value is estimated due to a quality control deficiency identified during data validation. The data should be considered usable for decision-making purposes.

- **J+** — Indicates the constituent was analyzed for and detected. The associated value is estimated with a suspected positive bias due to a quality control deficiency identified during data validation. The data should be considered usable for decision-making purposes.

- **J-** — Indicates the constituent was analyzed for and detected. The associated value is estimated with a suspected negative bias due to a quality control deficiency identified during data validation. The data should be considered usable for decision-making purposes.

- **N** — The analysis indicates the presence of an analyte that has been tentatively identified.

- **NJ** — The analysis indicates the presence of an analyte that has been tentatively identified and the associated numerical value represents its approximate concentration.

- **NJ+** — The analysis indicates the presence of an analyte that has been tentatively identified. The associated value is estimated with a suspected positive bias due to a quality control deficiency identified during data validation.

- **NJ-** — The analysis indicates the presence of an analyte that has been tentatively identified. The associated value is estimated with a suspected negative bias due to a quality control deficiency identified during data validation.

- **UR** — Indicates the constituent was analyzed for and not detected; however, due to an identified quality control deficiency the data should be considered unusable for decision-making purposes.

- **R** — Indicates the constituent was analyzed for and detected; however, due to an identified quality control deficiency the data should be considered unusable for decision-making purposes.

Appendix 2

Summary of Data Qualification

General Chemistry Data Qualification Summary			
SDG: WSCF120925	Reviewer: AQA	Project: 100-K	Page 1 of 1
Analyte(s)	**Qualifier**	**Samples Affected**	**Reason**
Cr(VI)	None	N/A	N/A

Comments: None

Appendix 3

Annotated Laboratory Reports

WSCF Analytical Results Report

Attention Scot Fitzgerald
Department Inorganic

Group # WSCF120925

Sample # 120925001
SAF# F12-030
Sample ID B2LWL0

Matrix SOIL
Sampled 07/18/12
Received 07/18/12

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
~~Uranium~~	~~7440-61-1~~	~~LA-505-412~~		~~0.457~~		~~mg/kg~~	~~0.5~~	~~0.024~~	~~0.12~~	~~07/30/12~~
Arsenic	7440-38-2	LA-505-412		2.79		mg/kg	0.5	0.096	0.96	07/30/12
~~Selenium~~	~~7782-49-2~~	~~LA-505-412~~	~~U~~	~~<0.24~~		~~mg/kg~~	~~0.5~~	~~0.24~~	~~2.4~~	~~07/27/12~~
Preparation for Cr6 (SO)										**07/25/12**
Hexavalent chromium										
Hexavalent chromium	18540-29-9	LA-265-403	U	<0.098		ug/g	1	0.098	0.49	07/25/12

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

B - Analyte < the PQL(or EQL)but >= the IDL/MDL(Inorganic)
C - Analyte was found in the Associated Blank. (Inorganic)
D - Analyte was reported at a secondary diltution 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)

WSCF Analytical Results Report

Attention Scot Fitzgerald
Department Inorganic

Group # WSCF120925

Sample # 120925002
SAF# F12-030
Sample ID B2LWL1

Matrix SOIL
Sampled 07/18/12
Received 07/18/12

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
~~Uranium~~	~~7440-61-1~~	~~LA-505-412~~		~~0.683~~		~~mg/kg~~	~~0.5~~	~~0.025~~	~~0.12~~	~~07/30/12~~
Arsenic	7440-38-2	LA-505-412		2.66		mg/kg	0.5	0.10	1.0	07/30/12
~~Selenium~~	~~7782-49-2~~	~~LA-505-412~~	~~B~~	~~0.257~~		~~mg/kg~~	~~0.5~~	~~0.25~~	~~2.5~~	~~07/27/12~~
Preparation for Cr6 (SO)										**07/25/12**
Hexavalent chromium										
Hexavalent chromium	18540-29-9	LA-265-403	U	<0.099		ug/g	1	0.099	0.49	07/25/12

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

B - Analyte < the PQL(or EQL)but >= the IDL/MDL(Inorganic)
C - Analyte was found in the Associated Blank. (Inorganic)
D - Analyte was reported at a secondary diltution 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)

WSCF Analytical Results Report

Attention Scot Fitzgerald
Department Inorganic

Group # WSCF120925

Sample # 120925003
SAF# F12-030
Sample ID B2LWL2

Matrix SOIL
Sampled 07/18/12
Received 07/18/12

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
~~Uranium~~	~~7440-61-1~~	~~LA-505-412~~		~~0.586~~		~~mg/kg~~	~~0.5~~	~~0.025~~	~~0.12~~	~~07/30/12~~
Arsenic	7440-38-2	LA-505-412		2.67		mg/kg	0.5	0.10	1.0	07/30/12
~~Selenium~~	~~7782-49-2~~	~~LA-505-412~~	~~U~~	~~<0.25~~		~~mg/kg~~	~~0.5~~	~~0.25~~	~~2.5~~	~~07/27/12~~
Preparation for Cr6 (SO)										**07/25/12**
Hexavalent chromium										
Hexavalent chromium	18540-29-9	LA-265-403	U	<0.10		ug/g	1	0.10	0.50	07/25/12

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

B - Analyte < the PQL(or EQL)but >= the IDL/MDL(Inorganic)
C - Analyte was found in the Associated Blank. (Inorganic)
D - Analyte was reported at a secondary diltution 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)

WSCF Analytical Results Report

Attention Scot Fitzgerald
Department Inorganic

Group # WSCF120925

Sample # 120925004
SAF# F12-030
Sample ID B2LWL3

Matrix SOIL
Sampled 07/18/12
Received 07/18/12

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
Uranium	7440-61-1	LA-505-412		0.459		mg/kg	0.5	0.025	0.12	07/30/12
Arsenic	7440-38-2	LA-505-412		2.20		mg/kg	0.5	0.099	0.99	07/30/12
Selenium	7782-49-2	LA-505-412	U	<0.25		mg/kg	0.5	0.25	2.5	07/27/12
Preparation for Cr6 (SO)										**07/25/12**
Hexavalent chromium										
Hexavalent chromium	18540-29-9	LA-265-403	U	<0.099		ug/g	1	0.099	0.50	07/25/12

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

B - Analyte < the PQL(or EQL)but >= the IDL/MDL(Inorganic)
C - Analyte was found in the Associated Blank. (Inorganic)
D - Analyte was reported at a secondary diltution 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)

EH
08/16/12

WSCF Analytical Results Report

Attention Scot Fitzgerald
Department Inorganic

Group # WSCF120925

Sample # 120925005
SAF# F12-030
Sample ID B2LWL4

Matrix SOIL
Sampled 07/18/12
Received 07/18/12

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
~~Uranium~~	~~7440-61-1~~	~~LA-505-412~~	~~B~~	~~0.0754~~		~~mg/kg~~	~~0.5~~	~~0.027~~	~~0.13~~	~~07/30/12~~
Arsenic	7440-38-2	LA-505-412	U	<0.11		mg/kg	0.5	0.11	1.1	07/30/12
~~Selenium~~	~~7782-49-2~~	~~LA-505-412~~	~~U~~	~~<0.27~~		~~mg/kg~~	~~0.5~~	~~0.27~~	~~2.7~~	~~07/27/12~~
Preparation for Cr6 (SO)										**07/25/12**
Hexavalent chromium										
Hexavalent chromium	18540-29-9	LA-265-403	U	<0.097		ug/g	1	0.097	0.48	07/25/12

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

B - Analyte < the PQL(or EQL)but >= the IDL/MDL(Inorganic)
C - Analyte was found in the Associated Blank. (Inorganic)
D - Analyte was reported at a secondary diltution 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)

EH
08/16/12

WSCF Analytical Results Report

Attention Scot Fitzgerald
Department Inorganic

Group # WSCF120925

Sample # 120925006
SAF# F12-030
Sample ID B2LWK1

Matrix SOIL
Sampled 07/18/12
Received 07/18/12

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
~~Uranium~~	~~7440-61-1~~	~~LA-505-412~~		~~0.468~~		~~mg/kg~~	~~0.5~~	~~0.025~~	~~0.12~~	~~07/30/12~~
Arsenic	7440-38-2	LA-505-412		2.51		mg/kg	0.5	0.099	0.99	07/30/12
~~Selenium~~	~~7782-49-2~~	~~LA-505-412~~	~~U~~	~~<0.25~~		~~mg/kg~~	~~0.5~~	~~0.25~~	~~2.5~~	~~07/27/12~~
Preparation for Cr6 (SO)										**07/25/12**
Hexavalent chromium										
Hexavalent chromium	18540-29-9	LA-265-403	U	<0.098		ug/g	1	0.098	0.49	07/25/12

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

B - Analyte < the PQL(or EQL)but >= the IDL/MDL(Inorganic)
C - Analyte was found in the Associated Blank. (Inorganic)
D - Analyte was reported at a secondary diltution 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)

EH
08/16/12

WSCF Analytical Results Report

Attention Scot Fitzgerald
Department Inorganic

Group # WSCF120925

Sample # 120925007
SAF# F12-030
Sample ID B2LWK2

Matrix SOIL
Sampled 07/18/12
Received 07/18/12

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
~~Uranium~~	~~7440-61-1~~	~~LA-505-412~~		~~0.458~~		~~mg/kg~~	~~0.5~~	~~0.025~~	~~0.13~~	~~07/30/12~~
Arsenic	7440-38-2	LA-505-412		2.60		mg/kg	0.5	0.10	1.0	07/30/12
~~Selenium~~	~~7782-49-2~~	~~LA-505-412~~	~~B~~	~~0.262~~		~~mg/kg~~	~~0.5~~	~~0.25~~	~~2.5~~	~~07/27/12~~
Preparation for Cr6 (SO)										**07/25/12**
Hexavalent chromium										
Hexavalent chromium	18540-29-9	LA-265-403	U	<0.099		ug/g	1	0.099	0.50	07/25/12

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

B - Analyte < the PQL(or EQL)but >= the IDL/MDL(Inorganic)
C - Analyte was found in the Associated Blank. (Inorganic)
D - Analyte was reported at a secondary diltution 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)

WSCF Analytical Results Report

Attention Scot Fitzgerald
Department Inorganic

Group # WSCF120925

Sample # 120925008
SAF# F12-030
Sample ID B2LWK3

Matrix SOIL
Sampled 07/18/12
Received 07/18/12

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
~~Uranium~~	~~7440-61-1~~	~~LA-505-412~~		~~0.450~~		~~mg/kg~~	~~0.5~~	~~0.024~~	~~0.12~~	~~07/30/12~~
Arsenic	7440-38-2	LA-505-412		2.86		mg/kg	0.5	0.097	0.97	07/30/12
~~Selenium~~	~~7782-49-2~~	~~LA-505-412~~	~~U~~	~~<0.24~~		~~mg/kg~~	~~0.5~~	~~0.24~~	~~2.4~~	~~07/27/12~~
Preparation for Cr6 (SO)										**07/25/12**
Hexavalent chromium										
Hexavalent chromium	18540-29-9	LA-265-403	U	<0.098		ug/g	1	0.098	0.49	07/25/12

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

B - Analyte < the PQL(or EQL)but >= the IDL/MDL(Inorganic)
C - Analyte was found in the Associated Blank. (Inorganic)
D - Analyte was reported at a secondary diltution 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)

WSCF Analytical Results Report

Attention Scot Fitzgerald
Department Inorganic

Group # WSCF120925

Sample # 120925009
SAF# F12-030
Sample ID B2LWK4

Matrix SOIL
Sampled 07/18/12
Received 07/18/12

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
Uranium	7440-61-1	LA-505-412		0.468		mg/kg	0.5	0.025	0.13	07/30/12
Arsenic	7440-38-2	LA-505-412		2.43		mg/kg	0.5	0.10	1.0	07/30/12
Selenium	7782-49-2	LA-505-412	B	0.254		mg/kg	0.5	0.25	2.5	07/27/12
Preparation for Cr6 (SO)										**07/25/12**
Hexavalent chromium										
Hexavalent chromium	18540-29-9	LA-265-403	U	<0.10		ug/g	1	0.10	0.50	07/25/12

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

B - Analyte < the PQL(or EQL)but >= the IDL/MDL(Inorganic)
C - Analyte was found in the Associated Blank. (Inorganic)
D - Analyte was reported at a secondary diltution 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)

WSCF Analytical Results Report

Attention Scot Fitzgerald
Department Inorganic

Group # WSCF120925

Sample # 120925010
SAF# F12-030
Sample ID B2LWK5

Matrix SOIL
Sampled 07/18/12
Received 07/18/12

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
~~Uranium~~	~~7440-61-1~~	~~LA-505-412~~		~~0.459~~		~~mg/kg~~	~~0.5~~	~~0.029~~	~~0.14~~	~~07/30/12~~
Arsenic	7440-38-2	LA-505-412		2.70		mg/kg	0.5	0.11	1.1	07/30/12
~~Selenium~~	~~7782-49-2~~	~~LA-505-412~~	~~U~~	~~<0.29~~		~~mg/kg~~	~~0.5~~	~~0.29~~	~~2.9~~	~~07/27/12~~
Preparation for Cr6 (SO)										**07/25/12**
Hexavalent chromium										
Hexavalent chromium	18540-29-9	LA-265-403	U	<0.11		ug/g	1	0.11	0.53	07/25/12

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

B - Analyte < the PQL(or EQL)but >= the IDL/MDL(Inorganic)
C - Analyte was found in the Associated Blank. (Inorganic)
D - Analyte was reported at a secondary diltution 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)

WSCF Analytical Results Report

Attention Scot Fitzgerald
Department Inorganic

Group # WSCF120925

Sample # 120925011
SAF# F12-030
Sample ID B2LWK6

Matrix SOIL
Sampled 07/18/12
Received 07/18/12

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
~~Uranium~~	~~7440-61-1~~	~~LA-505-412~~		~~0.405~~		~~mg/kg~~	~~0.5~~	~~0.027~~	~~0.14~~	~~07/30/12~~
Arsenic	7440-38-2	LA-505-412		2.33		mg/kg	0.5	0.11	1.1	07/30/12
~~Selenium~~	~~7782-49-2~~	~~LA-505-412~~	~~U~~	~~<0.27~~		~~mg/kg~~	~~0.5~~	~~0.27~~	~~2.7~~	~~07/27/12~~
Preparation for Cr6 (SO)										**07/25/12**
Hexavalent chromium										
Hexavalent chromium	18540-29-9	LA-265-403	U	<0.10		ug/g	1	0.10	0.50	07/25/12

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

B - Analyte < the PQL(or EQL)but >= the IDL/MDL(Inorganic)
C - Analyte was found in the Associated Blank. (Inorganic)
D - Analyte was reported at a secondary diltution 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)

WSCF Analytical Results Report

Attention Scot Fitzgerald
Department Inorganic

Group # WSCF120925

Sample # 120925012
SAF# F12-030
Sample ID B2LWK7

Matrix SOIL
Sampled 07/18/12
Received 07/18/12

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
~~Uranium~~	~~7440-61-1~~	~~LA-505-412~~		~~0.876~~		~~mg/kg~~	~~0.5~~	~~0.025~~	~~0.12~~	~~07/27/12~~
Arsenic	7440-38-2	LA-505-412		2.91		mg/kg	0.5	0.10	1.0	07/27/12
~~Selenium~~	~~7782-49-2~~	~~LA-505-412~~	~~B~~	~~0.261~~		~~mg/kg~~	~~0.5~~	~~0.25~~	~~2.5~~	~~07/27/12~~
Preparation for Cr6 (SO)										**07/25/12**
Hexavalent chromium										
Hexavalent chromium	18540-29-9	LA-265-403	U	<0.099		ug/g	1	0.099	0.49	07/25/12

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

B - Analyte < the PQL(or EQL)but >= the IDL/MDL(Inorganic)
C - Analyte was found in the Associated Blank. (Inorganic)
D - Analyte was reported at a secondary diltution 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)

EH
08/16/12

WSCF Analytical Results Report

Attention Scot Fitzgerald
Department Inorganic

Group # WSCF120925

Sample # 120925013
SAF# F12-030
Sample ID B2LWK8

Matrix SOIL
Sampled 07/18/12
Received 07/18/12

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
~~Uranium~~	~~7440-61-1~~	~~LA-505-412~~		~~0.537~~		~~mg/kg~~	~~0.5~~	~~0.028~~	~~0.14~~	~~07/27/12~~
Arsenic	7440-38-2	LA-505-412		2.69		mg/kg	0.5	0.11	1.1	07/27/12
~~Selenium~~	~~7782-49-2~~	~~LA-505-412~~	~~U~~	~~<0.28~~		~~mg/kg~~	~~0.5~~	~~0.28~~	~~2.8~~	~~07/27/12~~
Preparation for Cr6 (SO)										**07/25/12**
Hexavalent chromium										
Hexavalent chromium	18540-29-9	LA-265-403	U	<0.098		ug/g	1	0.098	0.49	07/25/12

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

B - Analyte < the PQL(or EQL)but >= the IDL/MDL(Inorganic)
C - Analyte was found in the Associated Blank. (Inorganic)
D - Analyte was reported at a secondary diltution 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)

WSCF Analytical Results Report

Attention Scot Fitzgerald
Department Inorganic

Group # WSCF120925

Sample # 120925014
SAF# F12-030
Sample ID B2LWK9

Matrix SOIL
Sampled 07/18/12
Received 07/18/12

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
~~Uranium~~	~~7440-61-1~~	~~LA-505-412~~		~~0.495~~		~~mg/kg~~	~~0.5~~	~~0.027~~	~~0.13~~	~~07/27/12~~
Arsenic	7440-38-2	LA-505-412		2.70		mg/kg	0.5	0.11	1.1	07/27/12
~~Selenium~~	~~7782-49-2~~	~~LA-505-412~~	~~U~~	~~<0.27~~		~~mg/kg~~	~~0.5~~	~~0.27~~	~~2.7~~	~~07/27/12~~
Preparation for Cr6 (SO)										**07/25/12**
Hexavalent chromium										
Hexavalent chromium	18540-29-9	LA-265-403	U	<0.10		ug/g	1	0.10	0.52	07/25/12

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

B - Analyte < the PQL(or EQL)but >= the IDL/MDL(Inorganic)
C - Analyte was found in the Associated Blank. (Inorganic)
D - Analyte was reported at a secondary diltution 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)

Appendix 4

Laboratory Narrative and Chain-of-Custody Documentation

Attachment 2
Narrative
WSCF120925

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 SDR12-322 regarding Americium-241 LCS failure 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.

Analytical Methodology for Requested Analyses

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

Inorganic Comments

Attachment 2
Narrative
WSCF120925

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

- Batch QC 205241
  - Barium, Vanadium, Zinc and Strontium – Matrix Spike and/or Matrix Spike Duplicate recoveries are outside established laboratory limits. Affected sample results in this batch were "N" flagged.
  - Vanadium and Manganese were detected in the Blank and evaluated.
  - Manganese – 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, Blank and Laboratory Control Sample were analyzed with this delivery group. Analytical Note(s):

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

Gamma Energy Analysis:

- Batch QC 204999
  - Cesium-137 – Duplicate Relative Percent Difference(s) (RPD) did not meet the established laboratory limits. Duplicate Relative Percent Difference (RPD) does not apply to results below 5X the minimum detectable activity. No flags issued.
  - All other applicable QC controls are within the established limits.

Americium-241:

- Batch QC 204950
  - Duplicate Relative Percent Difference(s) (RPD) did not meet the established laboratory limits. Duplicate Relative Percent Difference (RPD) does not apply to results below 5X the minimum detectable activity. No flags issued.

Attachment 2
Narrative
WSCF120925

- The LCS recovery was outside laboratory acceptance limits.
- All other applicable QC controls are within the established limits.

Isotopic Plutonium analysis:

- Batch QC 204950
  - Plutonium 239/240 – The Blank is less than five times the MDC. "B" Flag not required.
  - Plutonium 239/240 – The LCS recovery was outside laboratory acceptance limits, but within the 70 – 130% range allowed in the SOW.
  - All other applicable QC controls are within the established limits.

Isotopic Uranium analysis:

- Batch QC 204950
  - Uranium-234 – The Blank is less than two times the RDL. "B" Flag not required.
  - Uranium-238 – Duplicate Relative Percent Difference(s) (RPD) did not meet the established laboratory limits. Duplicate Relative Percent Difference (RPD) does not apply to results near the minimum detectable activity. No flags issued.
  - All other applicable QC controls are within the established limits.

Strontium-89/90:

- All applicable QC controls are within the established limits.

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.

Narrative

Attachment 2
Narrative
WSCF120925

SAMPLE ISSUE RESOLUTION

SIR NUM	SDR12-322
REV NUM	0
DATE INITIATED	7/31/2012

SAMPLE EVENT INFORMATION

SAF NUM(S)	F12-030
OPERABLE UNIT(S)	100-KR-2
PROJECT(S)	100 K RA
SAMPLE EVENT TITLE(S)	100 K Remedial Action
LABORATORY	Waste Sampling & Characterization

SAMPLING INFORMATION

NUMBER OF SAMPLES	7
SAMPLE NUMBERS	B2LWK1, B2LWK2, B2LWL0, B2LWL1, B2LWL2, B2LWL3, B2LWL4
SAMPLE MATRIX	SOIL
COLLECTION DATE	7/18/2012 - 7/18/2012
SDG NUM	WSCF120925

ISSUE BACKGROUND

CLASS	Laboratory Issue
TYPE	Quality Control Failure
DESCRIPTION	Am-241 LCS was high at 131.3% with laboratory control limits of 80-120% and SOW limits of 70-130%. The blank was non-detect. The results were at or below the MDC.

DISPOSITION

DESCRIPTION	PROPOSED DISPOSITION: Report the data as-is and note the QC failures in the case narrative.
JUSTIFICATION	ACCEPTED DISPOSITION: Accept proposed resolution.

SUBMITTED BY: Heather Medley/WSCF DATE: 7/31/12

ACCEPTED BY: Steve Trent/CHPRC DATE: 8/1/12
Jennifer Hammons/CHPRC DATE: 8/1/12

A-6003-640 (03/30)

PAGE 1 of 1

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F12-030-033	PAGE 1 OF 2
COLLECTOR: Dan Sparks	COMPANY CONTACT: TRENT, SJ	TELEPHONE NO.: 373-5869	PROJECT COORDINATOR: TRENT, SJ	PRICE CODE: BC	DATA TURNAROUND: 15 Days / 15 Days
SAMPLING LOCATION: Area AG Stockpile #3 Sample #10	PROJECT DESIGNATION: Area AG Sampling (Waste Area AG) Verification - Soil		SAF NO.: F12-030	AIR QUALITY: ☐	
ICE CHEST NO.: NA	FIELD LOGBOOK NO.: HNF -N-507	ACTUAL SAMPLE DEPTH: Surface	COA: 302677ES10	METHOD OF SHIPMENT: GOVERNMENT VEHICLE	ORIGINAL
SHIPPED TO: Waste Sampling & Characterization	OFFSITE PROPERTY NO.: N/A		BILL OF LADING/AIR BILL NO.: N/A		

MATRIX*: A=Air, DL=Drum Liquids, DS=Drum Solids, L=Liquid, O=Oil, S=Soil, SE=Sediment, T=Tissue, V=Vegetation, W=Water, WI=Wipe, X=Other

POSSIBLE SAMPLE HAZARDS/ REMARKS: Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1993)

120925

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	Cool~4C	Cool~4C	None	None
HOLDING TIME	28 Days	30 Days	6 Months	6 Months
TYPE OF CONTAINER	G/P	G/P	Square Bottle - Poly	G/P
NO. OF CONTAINER(S)	1	1	1	1
VOLUME	120mL	60mL	500mL	120mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS 2008	Chromium Hex - 7196;	SEE ITEM (2) IN SPECIAL INSTRUCTIONS GEP	SEE ITEM (3) IN SPECIAL INSTRUCTIONS Pu Sr Am U

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME				
B2LWL0	SOIL	JUL 18 2012	0800	X	X	X	X

TRVL- 12- 062

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS
RELINQUISHED BY/REMOVED FROM: Dan Sparks	DATE/TIME: 1220 JUL 18 2012	RECEIVED BY/STORED IN: TA FRAZIER	DATE/TIME: 1220 JUL 18 2012	SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS
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	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 7/16/2012

A-6003-618 (REV 2)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F12-030-033	PAGE 2 OF 2
COLLECTOR Dan Sparks	COMPANY CONTACT TRENT, SJ	TELEPHONE NO. 373-5869	PROJECT COORDINATOR TRENT, SJ	PRICE CODE 8C	DATA TURNARDUND 15 Days / 15 Days
SAMPLING LOCATION Area AG Stockpile #3 Sample #10	PROJECT DESIGNATION Area AG Sampling (Waste Area AG) Verification - Soil		SAF NO. F12-030	AIR QUALITY ☐	
ICE CHEST NO. NA	FIELD LOGBOOK NO. HNF-N-507-25	ACTUAL SAMPLE DEPTH See below	COA 302677ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	ORIGINAL
SHIPPED TO Waste Sampling & Characterization	OFFSITE PROPERTY NO. N/A		BILL OF LADING/AIR BILL NO. N/A		

SPECIAL INSTRUCTIONS

** The CACN for WSCF Analytical is 402580ES20.☐** The 100 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF.
(1) 200.8_HG - ICPMS {Mercury}; ICP/MS - 200.8 (TAL) {Antimony, Barium, Cadmium, Chromium, Cobalt, Copper, Manganese, Nickel, Silver, Vanadium, Zinc}; ICP/MS - 200.8 (Add-on) {Arsenic, Beryllium, Lead, Molybdenum, Selenium, Strontium, Tin, Uranium};
(2) Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155};
(3) Isotopic Plutonium {Plutonium-238, Plutonium-239/240}; Isotopic Uranium {Uranium-233/234, Uranium-235, Uranium-238}; Strontium-89,90 -- Total Sr; Americium-241;

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CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F12-030-034	PAGE 1 OF 2
COLLECTOR: Dan Sparks	COMPANY CONTACT: TRENT, SJ	TELEPHONE NO.: 373-5869	PROJECT COORDINATOR: TRENT, SJ	PRICE CODE: 8C	DATA TURNAROUND: 15 Days / 15 Days
SAMPLING LOCATION: Area AG Stockpile #3 Sample #11	PROJECT DESIGNATION: Area AG Sampling (Waste Area AG) Verification - Soil		SAF NO.: F12-030	AIR QUALITY: [ ]	
ICE CHEST NO.: NA	FIELD LOGBOOK NO.: HNF-N-507-25	ACTUAL SAMPLE DEPTH: Surface	COA: 302677ES10	METHOD OF SHIPMENT: GOVERNMENT VEHICLE	ORIGINAL
SHIPPED TO: Waste Sampling & Characterization	OFFSITE PROPERTY NO.: N/A		BILL OF LADING/AIR BILL NO.: N/A		

MATRIX*: A=Air, DL=Drum Liquids, DS=Drum Solids, L=Liquid, O=Oil, S=Soil, SE=Sediment, T=Tissue, V=Vegetation, W=Water, WI=Wipe, X=Other

POSSIBLE SAMPLE HAZARDS/ REMARKS: Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1993)

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	Cool~4C	Cool~4C	None	None
HOLDING TIME	28 Days	30 Days	6 Months	6 Months
TYPE OF CONTAINER	G/P	G/P	Square Bottle - Poly	G/P
NO. OF CONTAINER(S)	1	1	1	1
VOLUME	120mL	60mL	500mL	120mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	Chromium Hex - 7196;	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	SEE ITEM (3) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME				
B2LWL1 2	SOIL	JUL 18 2012	0805	X	X	X	X

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CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS
RELINQUISHED BY/REMOVED FROM: Dan Sparks	DATE/TIME: JUL 18 2012 1220	RECEIVED BY/STORED IN: D A Frazier	DATE/TIME: JUL 18 2012 1220	SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS
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	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 7/16/2012

A-6003-618 (REV 2)

Sample Receipt

Chain of Custody

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F12-030-034	PAGE 2 OF 2
COLLECTOR Dan Sparks	COMPANY CONTACT TRENT, SJ	TELEPHONE NO. 373-5869	PROJECT COORDINATOR TRENT, SJ	PRICE CODE 8C AIR QUALITY	DATA TURNAROUND 15 Days / 15 Days
SAMPLING LOCATION Area AG Stockpile #3 Sample #11	PROJECT DESIGNATION Area AG Sampling (Waste Area AG) Verification - Soil		SAF NO. F12-030		
ICE CHEST NO. NA	FIELD LOGBOOK NO. INF-N-507- 215	ACTUAL SAMPLE DEPTH Surface	COA 302677ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	ORIGINAL
SHIPPED TO Waste Sampling & Characterization	OFFSITE PROPERTY NO. N/A		BILL OF LADING/AIR BILL NO. N/A		

SPECIAL INSTRUCTIONS

** The CACN for WSCF Analytical is 402580ES20.□** The 100 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF.
(1) 200.8_HG - ICPMS {Mercury}; ICP/MS - 200.8 (TAL) {Antimony, Barium, Cadmium, Chromium, Cobalt, Copper, Manganese, Nickel, Silver, Vanadium, Zinc}; ICP/MS - 200.8 (Add-on) {Arsenic, Beryllium, Lead, Molybdenum, Selenium, Strontium, Tin, Uranium};
(2) Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155};
(3) Isotopic Plutonium {Plutonium-238, Plutonium-239/240}; Isotopic Uranium {Uranium-233/234, Uranium-235, Uranium-238}; Strontium-89,90 -- Total Sr; Americium-241;

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CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		F12-030-035	PAGE 1 OF 2
COLLECTOR: Dan Sparks	COMPANY CONTACT: TRENT, SJ	TELEPHONE NO.: 373-5869	PROJECT COORDINATOR: TRENT, SJ	PRICE CODE: 8C
SAMPLING LOCATION: Area AG Stockpile #3 Sample #12	PROJECT DESIGNATION: Area AG Sampling (Waste Area AG) Verification - Soil		SAF NO.: F12-030	AIR QUALITY: ☐
ICE CHEST NO.: NA	FIELD LOGBOOK NO.: HNF-N-507	ACTUAL SAMPLE DEPTH: Surface	COA: 302677ES10	METHOD OF SHIPMENT: GOVERNMENT VEHICLE
SHIPPED TO: Waste Sampling & Characterization	OFFSITE PROPERTY NO.: N/A		BILL OF LADING/AIR BILL NO.: N/A	

DATA TURNAROUND: 15 Days / 15 Days

ORIGINAL

MATRIX*: A=Air, DL=Drum Liquids, DS=Drum Solids, L=Liquid, O=Oil, S=Soil, SF=Sediment, T=Tissue, V=Vegetation, W=Water, WI=Wipe, X=Other

POSSIBLE SAMPLE HAZARDS/ REMARKS: Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1993)

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	Cool<4C	Cool<4C	None	None
HOLDING TIME	28 Days	30 Days	6 Months	6 Months
TYPE OF CONTAINER	G/P	G/P	Square Bottle - Poly	G/P
NO. OF CONTAINER(S)	1	1	1	1
VOLUME	120mL	60mL	500mL	120mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	Chromium Hex - 7196;	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	SEE ITEM (3) IN SPECIAL INSTRUCTIONS

SAMPLE NO.		MATRIX*	SAMPLE DATE	SAMPLE TIME				
B2LWL2	3	SOIL	JUL 18 2012	0909	X	X	X	X

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CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS
RELINQUISHED BY/REMOVED FROM: Dan Sparks	DATE/TIME: 1220 JUL 18 2012	RECEIVED BY/STORED IN: TA Pnazin	DATE/TIME: 1220 JUL 18 2012	SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS
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	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

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Chain of Custody

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F12-030-035	PAGE 2 OF 2
COLLECTOR Dan Sparks	COMPANY CONTACT TRENT, SJ	TELEPHONE NO. 373-5869	PROJECT COORDINATOR TRENT, SJ	PRICE CODE 8C	DATA TURNAROUND
SAMPLING LOCATION Area AG Stockpile #3 Sample #12	PROJECT DESIGNATION Area AG Sampling (Waste Area AG) Verification - Soil		SAF NO. F12-030	AIR QUALITY	15 Days / 15 Days
ICE CHEST NO. NA	FIELD LOGBOOK NO. HNF-N-507-	ACTUAL SAMPLE DEPTH Surface	COA 302677ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	ORIGINAL
SHIPPED TO Waste Sampling & Characterization	OFFSITE PROPERTY NO. N/A		BILL OF LADING/AIR BILL NO. N/A		

SPECIAL INSTRUCTIONS

** The CACN for WSCF Analytical is 402580ES20.□** The 100 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF.
(1) 200.8_HG - ICPMS {Mercury}; ICP/MS - 200.8 (TAL) {Antimony, Barium, Cadmium, Chromium, Cobalt, Copper, Manganese, Nickel, Silver, Vanadium, Zinc}; ICP/MS - 200.8 (Add-on) {Arsenic, Beryllium, Lead, Molybdenum, Selenium, Strontium, Tin, Uranium};
(2) Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155};
(3) Isotopic Plutonium {Plutonium-238, Plutonium-239/240}; Isotopic Uranium {Uranium-233/234, Uranium-235, Uranium-238}; Strontium-89,90 -- Total Sr; Americium-241;

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A 6003 618 (REV 2)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		F12-030-036	PAGE 1 OF 2
COLLECTOR: Dan Sparks	COMPANY CONTACT: TRENT, SJ	TELEPHONE NO.: 373-5869	PROJECT COORDINATOR: TRENT, SJ	PRICE CODE: 8C; AIR QUALITY: ☐	DATA TURNAROUND: 15 Days / 15 Days
SAMPLING LOCATION: Area AG Stockpile #3 Sample #13	PROJECT DESIGNATION: Area AG Sampling (Waste Area AG) Verification Soil		SAF NO.: F12-030	
ICE CHEST NO.: N/A	FIELD LOGBOOK NO.: HNF-N-507-25	ACTUAL SAMPLE DEPTH: Surface	COA: 302677ES10	METHOD OF SHIPMENT: GOVERNMENT VEHICLE	ORIGINAL
SHIPPED TO: Waste Sampling & Characterization	OFFSITE PROPERTY NO.: N/A		BILL OF LADING/AIR BILL NO.: N/A	

MATRIX*: A=Air, DI=Drum Liquids, DS=Drum Solids, L=Liquid, O=Oil, S=Soil, SF=Sediment, T=Tissue, V=Vegetation, W=Water, WI=Wipe, X=Other

POSSIBLE SAMPLE HAZARDS/ REMARKS: Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1993)

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	Cool~4C	Cool~4C	None	None
HOLDING TIME	28 Days	30 Days	6 Months	6 Months
TYPE OF CONTAINER	G/P	G/P	Square Bottle - Poly	G/P
NO. OF CONTAINER(S)	1	1	1	1
VOLUME	120mL	60mL	500mL	120mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	Chromium Hex - 7196;	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	SEE ITEM (3) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME				
B2LWL3 4	SOIL	JUL 18 2012	0810	✓	✓	✓	✓

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CHAIN OF POSSESSION / SIGN/ PRINT NAMES

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Dan Sparks	1220 JUL 18 2012	TA Fmazim	1220 JUL 18 2012

SPECIAL INSTRUCTIONS: SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

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CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F12-030-036	PAGE 2 OF 2
COLLECTOR Dan Sparks	COMPANY CONTACT TRENT, SJ	TELEPHONE NO. 373-5869	PROJECT COORDINATOR TRENT, SJ	PRICE CODE 8C AIR QUALITY	DATA TURNAROUND 15 Days / 15 Days
SAMPLING LOCATION Area AG Stockpile #3 Sample #13	PROJECT DESIGNATION Area AG Sampling (Waste Area AG) Verification - Soil		SAF NO. F12-030		
ICE CHEST NO. NA	FIELD LOGBOOK NO. HNF-N-507-25	ACTUAL SAMPLE DEPTH Surface	COA 302677ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	ORIGINAL
SHIPPED TO Waste Sampling & Characterization	OFFSITE PROPERTY NO. N/A		BILL OF LADING/AIR BILL NO. N/A		

SPECIAL INSTRUCTIONS

** The CACN for WSCF Analytical is 402580ES20.□** The 100 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF.
(1) 200.8_HG - ICPMS {Mercury}; ICP/MS - 200.8 (TAL) {Antimony, Barium, Cadmium, Chromium, Cobalt, Copper, Manganese, Nickel, Silver, Vanadium, Zinc}; ICP/MS - 200.8 (Add-on) {Arsenic, Beryllium, Lead, Molybdenum, Selenium, Strontium, Tin, Uranium};
(2) Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155};
(3) Isotopic Plutonium {Plutonium-238, Plutonium-239/240}; Isotopic Uranium {Uranium-233/234, Uranium-235, Uranium-238}; Strontium-89,90 -- Total Sr; Americium-241;

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A-6003-618 (REV 2)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F12-030-037	PAGE 1 OF 2
COLLECTOR: DJ Sparks CHPRC	COMPANY CONTACT: TRENT, SJ	TELEPHONE NO.: 373-5869	PROJECT COORDINATOR: TRENT, SJ	PRICE CODE: 8C	DATA TURNAROUND: 15 Days / 15 Days
SAMPLING LOCATION: Area AG Stockpile #3 Sample #14	PROJECT DESIGNATION: Area AG Sampling (Waste Area AG) Verification - Soil		SAF NO.: F12-030	AIR QUALITY: ☐	
ICE CHEST NO.: NA	FIELD LOGBOOK NO.: HNF-N-507-25	ACTUAL SAMPLE DEPTH: NA	COA: 302677ES10	METHOD OF SHIPMENT: GOVERNMENT VEHICLE	ORIGINAL
SHIPPED TO: Waste Sampling & Characterization	OFFSITE PROPERTY NO.: N/A		BILL OF LADING/AIR BILL NO.: N/A		

MATRIX*: A=Air, DI=Drum Liquids, DS=Drum Solids, L=Liquid, O=Oil, S=Soil, SE=Sediment, T=Tissue, V=Vegetation, W=Water, WI=Wipe, X=Other

POSSIBLE SAMPLE HAZARDS/ REMARKS: Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1993)

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	Cool~4C	Cool~4C	None	None
HOLDING TIME	28 Days	30 Days	6 Months	6 Months
TYPE OF CONTAINER	G/P	G/P	Square Bottle - Poly	G/P
NO. OF CONTAINER(S)	1	1	1	1
VOLUME	120mL	60mL	500mL	120mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	Chromium Hex - 7196;	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	SEE ITEM (3) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME				
B2LWL4 5	SOIL	JUL 18 2012	0754	X	X	X	X

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CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS
RELINQUISHED BY/REMOVED FROM: DJ Sparks CHPRC	DATE/TIME: JUL 18 2012	RECEIVED BY/STORED IN: C Johnson	DATE/TIME: JUL 18 2012	SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS
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	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 7/16/2012

A-6003-618 (REV 2)

Chain of Custody

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F12-030-037	PAGE 2 OF 2
COLLECTOR Dan Sparks	COMPANY CONTACT TRENT, SJ	TELEPHONE NO. 373-5869	PROJECT COORDINATOR TRENT, SJ	PRICE CODE 8C AIR QUALITY	DATA TURNAROUND 15 Days / 15 Days
SAMPLING LOCATION Area AG Stockpile #3 Sample #14	PROJECT DESIGNATION Area AG Sampling (Waste Area AG) Verification - Soil		SAF NO. F12-030		
ICE CHEST NO. NA	FIELD LOGBOOK NO. 25	ACTUAL SAMPLE DEPTH NA	COA 302677ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	ORIGINAL
SHIPPED TO Waste Sampling & Characterization	OFFSITE PROPERTY NO. N/A		BILL OF LADING/AIR BILL NO. N/A		

SPECIAL INSTRUCTIONS

** The CACN for WSCF Analytical is 402580ES20.LJ** The 100 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF.
(1) 200.8_HG - ICPMS {Mercury}; ICP/MS - 200.8 (TAL) {Antimony, Barium, Cadmium, Chromium, Cobalt, Copper, Manganese, Nickel, Silver, Vanadium, Zinc}; ICP/MS - 200.8 (Add-on) {Arsenic, Beryllium, Lead, Molybdenum, Selenium, Strontium, Tin, Uranium};
(2) Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155};
(3) Isotopic Plutonium {Plutonium-238, Plutonium-239/240}; Isotopic Uranium {Uranium-233/234, Uranium-235, Uranium-238}; Strontium-89,90 -- Total Sr; Americium-241;

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A-6003-618 (REV 2)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F12-030-024	PAGE 1 OF 2
COLLECTOR: DJ Sparks CHPRC	COMPANY CONTACT: TRENT, SJ	TELEPHONE NO.: 373-5869	PROJECT COORDINATOR: TRENT, SJ	PRICE CODE: 8C	DATA TURNAROUND
SAMPLING LOCATION: Area AG Stockpile #3 Sample #1	PROJECT DESIGNATION: Area AG Sampling (Waste Area AG) Verification - Soil		SAF NO.: F12-030	AIR QUALITY: ☐	15 Days / 15 Days
ICE CHEST NO.: N/A	FIELD LOGBOOK NO.: HNF-N-507-25	ACTUAL SAMPLE DEPTH: Surface	COA: 302677ES10	METHOD OF SHIPMENT: GOVERNMENT VEHICLE	ORIGINAL
SHIPPED TO: Waste Sampling & Characterization	OFFSITE PROPERTY NO.: N/A		BILL OF LADING/AIR BILL NO.: N/A		

MATRIX*: A=Air, DL=Drum Liquids, DS=Drum Solids, L=Liquid, O=Oil, S=Soil, SE=Sediment, T=Tissue, V=Vegetation, W=Water, WI=Wipe, X=Other

POSSIBLE SAMPLE HAZARDS/ REMARKS: Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1993)

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	Cool~4C	Cool~4C	None	None
HOLDING TIME	28 Days	30 Days	6 Months	6 Months
TYPE OF CONTAINER	G/P	G/P	Square Bottle - Poly	G/P
NO. OF CONTAINER(S)	1	1	1	1
VOLUME	120mL	60mL	500mL	120mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	Chromium Hex - 7196;	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	SEE ITEM (3) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME				
B2LWK1 6	SOIL	JUL 18 2012	0757	X	X	X	X

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CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS
RELINQUISHED BY/REMOVED FROM: DJ Sparks CHPRC	DATE/TIME: JUL 18 2012 1220	RECEIVED BY/STORED IN: C. Johnson	DATE/TIME: JUL 18 2012 1220	SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS
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	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 7/16/2012

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Sample Receipt

Chain of Custody

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F12-030-024	PAGE 2 OF 2
COLLECTOR Dan Sparks	COMPANY CONTACT TRENT, SJ	TELEPHONE NO. 373-5869	PROJECT COORDINATOR TRENT, SJ	PRICE CODE 8C	DATA TURNAROUND 15 Days / 15 Days
SAMPLING LOCATION Area AG Stockpile #3 Sample #1	PROJECT DESIGNATION Area AG Sampling (Waste Area AG) Verification - Soil		SAF NO. F12-030	AIR QUALITY ☐	
ICE CHEST NO. NA	FIELD LOGBOOK NO. HNF -N-507- 25	ACTUAL SAMPLE DEPTH Surfaces	COA 302677ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	ORIGINAL
SHIPPED TO Waste Sampling & Characterization	OFFSITE PROPERTY NO. N/A		BILL OF LADING/AIR BILL NO. N/A		

SPECIAL INSTRUCTIONS

** The CACN for WSCF Analytical is 402580ES20.☐** The 100 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF.
(1) 200.8_HG - ICPMS {Mercury}; ICP/MS - 200.8 (TAL) {Antimony, Barium, Cadmium, Chromium, Cobalt, Copper, Manganese, Nickel, Silver, Vanadium, Zinc}; ICP/MS - 200.8 (Add-on) {Arsenic, Beryllium, Lead, Molybdenum, Selenium, Strontium, Tin, Uranium};
(2) Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155};
(3) Isotopic Plutonium {Plutonium-238, Plutonium-239/240}; Isotopic Uranium {Uranium-233/234, Uranium-235, Uranium-238}; Strontium-89,90 -- Total Sr; Americium-241;

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A-6003-618 (REV 2)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		F12-030-025 PAGE 1 OF 2
COLLECTOR: Dan Sparks	COMPANY CONTACT: TRENT, SJ	TELEPHONE NO.: 373-5869	PROJECT COORDINATOR: TRENT, SJ
PRICE CODE: 8C	DATA TURNAROUND: 15 Days / 15 Days	AIR QUALITY: ☐	
SAMPLING LOCATION: Area AG Stockpile #3 Sample #2	PROJECT DESIGNATION: Area AG Sampling (Waste Area AG) Verification - Soil	SAF NO.: F12-030	
ICE CHEST NO.: NA	FIELD LOGBOOK NO.: HNF-N-507-23	ACTUAL SAMPLE DEPTH: Surface	COA: 302677ES10
METHOD OF SHIPMENT: GOVERNMENT VEHICLE	ORIGINAL		
SHIPPED TO: Waste Sampling & Characterization	OFFSITE PROPERTY NO.: N/A	BILL OF LADING/AIR BILL NO.: N/A	

MATRIX*: A=Air, DL=Drum Liquids, DS=Drum Solids, L=Liquid, O=Oil, S=Soil, SE=Sediment, T=Tissue, V=Vegetation, W=Water, WI=Wipe, X=Other

POSSIBLE SAMPLE HAZARDS/ REMARKS: Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1993)

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	Cool~4C	Cool~4C	None	None
HOLDING TIME	28 Days	30 Days	6 Months	6 Months
TYPE OF CONTAINER	G/P	G/P	Square Bottle - Poly	G/P
NO. OF CONTAINER(S)	1	1	1	1
VOLUME	120mL	60mL	500mL	120mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	Chromium Hex - 7196;	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	SEE ITEM (3) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME				
B2LWK2	SOIL	JUL 18 2012	0800	X	X	X	X

TRL 12- 062

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS
RELINQUISHED BY/REMOVED FROM: Dan Sparks	DATE/TIME: JUL 18 2012	RECEIVED BY/STORED IN: C Johnson	DATE/TIME: JUL 18 2012	SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS
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	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 7/16/2012

A-6003-618 (REV 2)

Sample Receipt

Chain of Custody

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F12-030-025	PAGE 2 OF 2
COLLECTOR Dan Sparks	COMPANY CONTACT TRENT, SJ	TELEPHONE NO. 373-5869	PROJECT COORDINATOR TRENT, SJ	PRICE CODE 8C AIR QUALITY ☐	DATA TURNAROUND 15 Days / 15 Days
SAMPLING LOCATION Area AG Stockpile #3 Sample #2	PROJECT DESIGNATION Area AG Sampling (Waste Area AG) Verification - Soil		SAF NO. F12-030		
ICE CHEST NO.	FIELD LOGBOOK NO. HNF-N-502	ACTUAL SAMPLE DEPTH Surface	COA 302677ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	ORIGINAL
SHIPPED TO Waste Sampling & Characterization	OFFSITE PROPERTY NO. N/A		BILL OF LADING/AIR BILL NO. N/A		

SPECIAL INSTRUCTIONS

** The CACN for WSCF Analytical is 402580ES20.☐** The 100 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF.
(1) 200.8_HG - ICPMS {Mercury}; ICP/MS - 200.8 (TAL) {Antimony, Barium, Cadmium, Chromium, Cobalt, Copper, Manganese, Nickel, Silver, Vanadium, Zinc}; ICP/MS - 200.8 (Add-on) {Arsenic, Beryllium, Lead, Molybdenum, Selenium, Strontium, Tin, Uranium};
(2) Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155};
(3) Isotopic Plutonium {Plutonium-238, Plutonium-239/240}; Isotopic Uranium {Uranium-233/234, Uranium-235, Uranium-238}; Strontium-89,90 -- Total Sr; Americium-241;

TRVL- 12- 062

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CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F12-030-026	PAGE 1 OF 2
COLLECTOR: Dan Sparks	COMPANY CONTACT: TRENT, SJ	TELEPHONE NO.: 373-5869	PROJECT COORDINATOR: TRENT, SJ	PRICE CODE: 8C	DATA TURNAROUND: 15 Days / 15 Days
SAMPLING LOCATION: Area AG Stockpile #3 Sample #3	PROJECT DESIGNATION: Area AG Sampling (Waste Area AG) Verification - Soil		SAF NO.: F12-030	AIR QUALITY: ☐	
ICE CHEST NO.: NA	FIELD LOGBOOK NO.: HNF-N-507-25	ACTUAL SAMPLE DEPTH: Surface	COA: 302677ES10	METHOD OF SHIPMENT: GOVERNMENT VEHICLE	ORIGINAL
SHIPPED TO: Waste Sampling & Characterization	OFFSITE PROPERTY NO.: N/A		BILL OF LADING/AIR BILL NO.: N/A		

MATRIX*: A=Air, DL=Drum Liquids, DS=Drum Solids, L=Liquid, O=Oil, S=Soil, SE=Sediment, T=Tissue, V=Vegetation, W=Water, WI=Wipe, X=Other

POSSIBLE SAMPLE HAZARDS/ REMARKS: Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1993)

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	Cool~4C	Cool~4C	None	None
HOLDING TIME	28 Days	30 Days	6 Months	6 Months
TYPE OF CONTAINER	G/P	G/P	Square Bottle - Poly	G/P
NO. OF CONTAINER(S)	1	1	1	1
VOLUME	120mL	60mL	500mL	120mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	Chromium Hex - 7196;	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	SEE ITEM (3) IN SPECIAL INSTRUCTIONS

SAMPLE NO.		MATRIX*	SAMPLE DATE	SAMPLE TIME				
B2LWK3	8	SOIL	JUL 18 2012	0805	X	X	X	X

TRVL 12- 062

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS
RELINQUISHED BY/REMOVED FROM: Dan Sparks	DATE/TIME: 1220 JUL 18 2012	RECEIVED BY/STORED IN: TA Fazin Jones	DATE/TIME: 1220 JUL 18 2012	SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS
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	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 7/16/2012

A-6003-618 (REV 2)

Chain of Custody

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F12-030-026	PAGE 2 OF 2
COLLECTOR Dan Sparks	COMPANY CONTACT TRENT, SJ	TELEPHONE NO. 373-5869	PROJECT COORDINATOR TRENT, SJ	PRICE CODE 8C AIR QUALITY ☐	DATA TURNAROUND 15 Days / 15 Days
SAMPLING LOCATION Area AG Stockpile #3 Sample #3	PROJECT DESIGNATION Area AG Sampling (Waste Area AG) Verification - Soil		SAF NO. F12-030		
ICE CHEST NO. NA	FIELD LOGBOOK NO. HNF -N-507-25	ACTUAL SAMPLE DEPTH Surface	COA 302677ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	ORIGINAL
SHIPPED TO Waste Sampling & Characterization	OFFSITE PROPERTY NO. N/A		BILL OF LADING/AIR BILL NO. N/A		

SPECIAL INSTRUCTIONS

** The CACN for WSCF Analytical is 402580ES20.☐** The 100 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF.
(1) 200.8_HG - ICPMS {Mercury}; ICP/MS - 200.8 (TAL) {Antimony, Barium, Cadmium, Chromium, Cobalt, Copper, Manganese, Nickel, Silver, Vanadium, Zinc}; ICP/MS - 200.8 (Add-on) {Arsenic, Beryllium, Lead, Molybdenum, Selenium, Strontium, Tin, Uranium};
(2) Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155};
(3) Isotopic Plutonium {Plutonium-238, Plutonium-239/240}; Isotopic Uranium {Uranium-233/234, Uranium-235, Uranium-238}; Strontium-89,90 -- Total Sr; Americium-241;

TRA 12- 062

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CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F12-030-027	PAGE 1 OF 2
COLLECTOR: Dan Sparks	COMPANY CONTACT: TRENT, SJ	TELEPHONE NO.: 373-5869	PROJECT COORDINATOR: TRENT, SJ	PRICE CODE: 8C	DATA TURNAROUND: 15 Days / 15 Days
SAMPLING LOCATION: Area AG Stockpile #3 Sample #4	PROJECT DESIGNATION: Area AG Sampling (Waste Area AG) Verification - Soil		SAF NO.: F12-030	AIR QUALITY:	
ICE CHEST NO.: NA	FIELD LOGBOOK NO.: HNF-N-507-25	ACTUAL SAMPLE DEPTH: Surface	COA: 302677ES10	METHOD OF SHIPMENT: GOVERNMENT VEHICLE	ORIGINAL
SHIPPED TO: Waste Sampling & Characterization	OFFSITE PROPERTY NO.: N/A		BILL OF LADING/AIR BILL NO.: N/A		

MATRIX*: A=Air, DL=Drum Liquids, DS=Drum Solids, L=Liquid, O=Oil, S=Soil, SE=Sediment, T=Tissue, V=Vegetation, W=Water, WI=Wipe, X=Other

POSSIBLE SAMPLE HAZARDS/ REMARKS: Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1993)

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	Cool~4C	Cool~4C	None	None
HOLDING TIME	28 Days	30 Days	6 Months	6 Months
TYPE OF CONTAINER	G/P	G/P	Square Bottle - Poly	G/P
NO. OF CONTAINER(S)	1	1	1	1
VOLUME	120mL	60mL	500mL	120mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	Chromium Hex - 7196;	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	SEE ITEM (3) IN SPECIAL INSTRUCTIONS

SAMPLE NO.		MATRIX*	SAMPLE DATE	SAMPLE TIME				
B2LWK4	9	SOIL	JUL 18 2012	0810				

TRN 12- 062

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS
RELINQUISHED BY/REMOVED FROM: Dan Sparks	DATE/TIME: 1220 JUL 18 2012	RECEIVED BY/STORED IN: TA Brazier	DATE/TIME: 1220 JUL 18 2012	SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS
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	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 7/16/2012

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Sample Receipt

Chain of Custody

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F12-030-027	PAGE 2 OF 2
COLLECTOR Dan Sparks	COMPANY CONTACT TRENT, SJ	TELEPHONE NO. 373-5869	PROJECT COORDINATOR TRENT, SJ	PRICE CODE 8C	DATA TURNAROUND
SAMPLING LOCATION Area AG Stockpile #3 Sample #4	PROJECT DESIGNATION Area AG Sampling (Waste Area AG) Verification - Soil		SAF NO. F12-030	AIR QUALITY ☐	15 Days / 15 Days
ICE CHEST NO.	FIELD LOGBOOK NO. HNF-N-507-25	ACTUAL SAMPLE DEPTH Surface	COA 302677ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	ORIGINAL
SHIPPED TO Waste Sampling & Characterization	OFFSITE PROPERTY NO. N/A		BILL OF LADING/AIR BILL NO. N/A		

SPECIAL INSTRUCTIONS

** The CACN for WSCF Analytical is 402580ES20.☐** The 100 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF.
(1) 200.8_HG - ICPMS {Mercury}; ICP/MS - 200.8 (TAL) {Antimony, Barium, Cadmium, Chromium, Cobalt, Copper, Manganese, Nickel, Silver, Vanadium, Zinc}; ICP/MS - 200.8 (Add-on) {Arsenic, Beryllium, Lead, Molybdenum, Selenium, Strontium, Tin, Uranium};
(2) Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155};
(3) Isotopic Plutonium {Plutonium-238, Plutonium-239/240}; Isotopic Uranium {Uranium-233/234, Uranium-235, Uranium-238}; Strontium-89,90 -- Total Sr; Americium-241;

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CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		F12-030-028	PAGE 1 OF 2
COLLECTOR: Don Sparks	COMPANY CONTACT: TRENT, SJ	TELEPHONE NO.: 373-5869	PROJECT COORDINATOR: TRENT, SJ	PRICE CODE: 8C
SAMPLING LOCATION: Area AG Stockpile #3 Sample #5	PROJECT DESIGNATION: Area AG Sampling (Waste Area AG) Verification - Soil		SAF NO.: F12-030	AIR QUALITY:
ICE CHEST NO.: NA	FIELD LOGBOOK NO.: HNF-N-807-25	ACTUAL SAMPLE DEPTH: Surface	COA: 3026//ES10	METHOD OF SHIPMENT: GOVERNMENT VEHICLE
SHIPPED TO: Waste Sampling & Characterization	OFFSITE PROPERTY NO.: N/A		BILL OF LADING/AIR BILL NO.: N/A	

DATA TURNAROUND: 15 Days / 15 Days

ORIGINAL

MATRIX*: A=Air, DI=Drum Liquids, DS=Drum Solids, L=Liquid, O=Oil, S=Soil, SE=Sediment, T=Tissue, V=Vegetation, W=Water, WI=Wipe, X=Other

POSSIBLE SAMPLE HAZARDS/ REMARKS: Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1993)

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	Cool-4C	Cool-4C	None	None
HOLDING TIME	28 Days	30 Days	6 Months	6 Months
TYPE OF CONTAINER	G/P	G/P	Square Bottle - Poly	G/P
NO. OF CONTAINER(S)	1	1	1	1
VOLUME	120mL	60mL	500mL	120mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	Chromium Hex - 7196;	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	SEE ITEM (2) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME				
B2LWK5 10	SOIL	JUL 18 2012	0821	X	X	X	X

TRVL- 12- 062

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS
RELINQUISHED BY/REMOVED FROM: Don Sparks	DATE/TIME: JUL 18 2012 7/13/12 1220	RECEIVED BY/STORED IN: TA Erazin	DATE/TIME: JUL 18 2012 1220	SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS
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	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 7/16/2012

A-6003-618 (REV 2)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F12-030-028	PAGE 2 OF 2
COLLECTOR Dan Sparks	COMPANY CONTACT TRENT, SJ	TELEPHONE NO. 373-5869	PROJECT COORDINATOR TRENT, SJ	PRICE CODE 8C AIR QUALITY ☐	DATA TURNAROUND 15 Days / 15 Days
SAMPLING LOCATION Area AG Stockpile #3 Sample #5	PROJECT DESIGNATION Area AG Sampling (Waste Area AG) Verification - Soil		SAF NO. F12-030		
ICE CHEST NO. NA	FIELD LOGBOOK NO. HNF-N-507-95	ACTUAL SAMPLE DEPTH Surface	COA 302677ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	ORIGINAL
SHIPPED TO Waste Sampling & Characterization	OFFSITE PROPERTY NO. N/A		BILL OF LADING/AIR BILL NO. N/A		

SPECIAL INSTRUCTIONS

** The CACN for WSCF Analytical is 402580ES20.LJ** The 100 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF.
(1) 200.8_HG - ICPMS {Mercury}; ICP/MS - 200.8 (TAL) {Antimony, Barium, Cadmium, Chromium, Cobalt, Copper, Manganese, Nickel, Silver, Vanadium, Zinc}; ICP/MS - 200.8 (Add-on) {Arsenic, Beryllium, Lead, Molybdenum, Selenium, Strontium, Tin, Uranium};
(2) Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155};
(3) Isotopic Plutonium {Plutonium-238, Plutonium-239/240}; Isotopic Uranium {Uranium-233/234, Uranium-235, Uranium-238}; Strontium-89,90 -- Total Sr; Americium-241;

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A-6003-618 (REV 2)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F12-030-029	PAGE 1 OF 2
COLLECTOR: Dan Sparks	COMPANY CONTACT: TRENT, SJ	TELEPHONE NO.: 373-5869	PROJECT COORDINATOR: TRENT, SJ	PRICE CODE: 8C	DATA TURNAROUND: 15 Days / 15 Days
SAMPLING LOCATION: Area AG Stockpile #3 Sample #6	PROJECT DESIGNATION: Area AG Sampling (Waste Area AG) Verification - Soil		SAF NO.: F12-030	AIR QUALITY: ☐	
ICE CHEST NO.: N/A	FIELD LOGBOOK NO.: HNF-N-507-25	ACTUAL SAMPLE DEPTH: Surface	COA: 302677ES10	METHOD OF SHIPMENT: GOVERNMENT VEHICLE	ORIGINAL
SHIPPED TO: Waste Sampling & Characterization	OFFSITE PROPERTY NO.: N/A		BILL OF LADING/AIR BILL NO.: N/A		

MATRIX*: A=Air, DL=Drum Liquids, DS=Drum Solids, L=Liquid, O=Oil, S=Soil, SE=Sediment, T=Tissue, V=Vegetation, W=Water, WI=Wipe, X=Other

POSSIBLE SAMPLE HAZARDS/ REMARKS: Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1993)

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	Cool~4C	Cool~4C	None	None
HOLDING TIME	28 Days	30 Days	6 Months	6 Months
TYPE OF CONTAINER	G/P	G/P	Square Bottle - Poly	G/P
NO. OF CONTAINER(S)	1	1	1	1
VOLUME	120mL	60mL	500mL	120mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	Chromium Hex - 7196;	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	SEE ITEM (3) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME				
B2LWK6 11	SOIL	JUL 18 2012	0825	X	X	X	X

TRVL 12- 062

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS
RELINQUISHED BY/REMOVED FROM: Dan Sparks	DATE/TIME: JUL 18 2012 1220	RECEIVED BY/STORED IN: TA Brazin	DATE/TIME: JUL 18 2012 1220	SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS
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	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 7/16/2012

A-6003-618 (REV 2)

Sample Receipt

Chain of Custody

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F12-030-029	PAGE 2 OF 2
COLLECTOR Dan Sparks	COMPANY CONTACT TRENT, SJ	TELEPHONE NO. 373-5869	PROJECT COORDINATOR TRENT, SJ	PRICE CODE 8C	DATA TURNAROUND 15 Days / 15 Days
SAMPLING LOCATION Area AG Stockpile #3 Sample #6	PROJECT DESIGNATION Area AG Sampling (Waste Area AG) Verification - Soil		SAF NO. F12-030	AIR QUALITY	
ICE CHEST NO. NA	FIELD LOGBOOK NO. HNF-N-507-22	ACTUAL SAMPLE DEPTH Surface	COA 307677ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	ORIGINAL
SHIPPED TO Waste Sampling & Characterization	OFFSITE PROPERTY NO. N/A		BILL OF LADING/AIR BILL NO. N/A		

SPECIAL INSTRUCTIONS

** The CACN for WSCF Analytical is 402580ES20.☐** The 100 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF.
(1) 200.8_HG - ICPMS {Mercury}; ICP/MS - 200.8 (TAL) {Antimony, Barium, Cadmium, Chromium, Cobalt, Copper, Manganese, Nickel, Silver, Vanadium, Zinc}; ICP/MS - 200.8 (Add-on) {Arsenic, Beryllium, Lead, Molybdenum, Selenium, Strontium, Tin, Uranium};
(2) Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155};
(3) Isotopic Plutonium {Plutonium-238, Plutonium-239/240}; Isotopic Uranium {Uranium-233/234, Uranium-235, Uranium-238}; Strontium-89,90 -- Total Sr; Americium-241;

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PRINTED ON 7/16/2012

A-6003-618 (REV 2)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F12-030-030	PAGE 1 OF 2
COLLECTOR: Dan Sparks	COMPANY CONTACT: TRENT, SJ	TELEPHONE NO.: 373-5869	PROJECT COORDINATOR: TRENT, SJ	PRICE CODE: 8C	DATA TURNAROUND: 15 Days / 15 Days
SAMPLING LOCATION: Area AG Stockpile #3 Sample #7	PROJECT DESIGNATION: Area AG Sampling (Waste Area AG) Verification - Soil		SAF NO.: F12-030	AIR QUALITY: ☐	
ICE CHEST NO.: NA	FIELD LOGBOOK NO.: HNF-N-507-25	ACTUAL SAMPLE DEPTH: [illegible]	COA: 302677ES10	METHOD OF SHIPMENT: GOVERNMENT VEHICLE	ORIGINAL
SHIPPED TO: Waste Sampling & Characterization	OFFSITE PROPERTY NO.: N/A		BILL OF LADING/AIR BILL NO.: N/A		

MATRIX*: A=Air, DL=Drum Liquids, DS=Drum Solids, L=Liquid, O=Oil, S=Soil, SE=Sediment, T=Tissue, V=Vegetation, W=Water, WI=Wipe, X=Other

POSSIBLE SAMPLE HAZARDS/ REMARKS: Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1993)

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	Cool~4C	Cool~4C	None	None
HOLDING TIME	28 Days	30 Days	6 Months	6 Months
TYPE OF CONTAINER	G/P	G/P	Square Bottle Poly	G/P
NO. OF CONTAINER(S)	1	1	1	1
VOLUME	120mL	60mL	500mL	120mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	Chromium Hex - 7196;	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	SEE ITEM (3) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME				
B2LWK7 12	SOIL	JUL 18 2012	0830	X	X	X	X

TRVL- 12- 062

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS
RELINQUISHED BY/REMOVED FROM: Dan Sparks	DATE/TIME: JUL 18 2012 1220	RECEIVED BY/STORED IN: TA Frazier	DATE/TIME: JUL 18 2012 1220	SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS
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	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 7/16/2012

A-6003-618 (REV 2)

Sample Receipt

Chain of Custody

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F12-030-030	PAGE 2 OF 2
COLLECTOR Dan Sparks	COMPANY CONTACT TRENT, SJ	TELEPHONE NO. 373-5869	PROJECT COORDINATOR TRENT, SJ	PRICE CODE BC	DATA TURNAROUND
SAMPLING LOCATION Area AG Stockpile #3 Sample #7	PROJECT DESIGNATION Area AG Sampling (Waste Area AG) Verification - Soil		SAF NO. F12-030	AIR QUALITY ☐	15 Days / 15 Days
ICE CHEST NO. NA	FIELD LOGBOOK NO. HNF-N-507-25	ACTUAL SAMPLE DEPTH Surface	COA 302677ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	ORIGINAL
SHIPPED TO Waste Sampling & Characterization	OFFSITE PROPERTY NO. N/A		BILL OF LADING/AIR BILL NO. N/A		

SPECIAL INSTRUCTIONS

** The CACN for WSCF Analytical is 402580ES20.☐** The 100 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF.
(1) 200.8_HG - ICPMS {Mercury}; ICP/MS - 200.8 (TAL) {Antimony, Barium, Cadmium, Chromium, Cobalt, Copper, Manganese, Nickel, Silver, Vanadium, Zinc}; ICP/MS - 200.8 (Add-on) {Arsenic, Beryllium, Lead, Molybdenum, Selenium, Strontium, Tin, Uranium};
(2) Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155};
(3) Isotopic Plutonium {Plutonium-238, Plutonium-239/240}; Isotopic Uranium {Uranium-233/234, Uranium-235, Uranium-238}; Strontium-89,90 -- Total Sr; Americium-241;

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Sample Receipt

Chain of Custody

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		F12-030-031	PAGE 1 OF 2
COLLECTOR: Dan Sparks	COMPANY CONTACT: TRENT, SJ	TELEPHONE NO.: 373-5869	PROJECT COORDINATOR: TRENT, SJ	PRICE CODE: 8C; DATA TURNAROUND: 15 Days / 15 Days
SAMPLING LOCATION: Area AG Stockpile #3 Sample #8	PROJECT DESIGNATION: Area AG Sampling (Waste Area AG) Verification - Soil		SAF NO.: F12-030	AIR QUALITY: ☐
ICE CHEST NO.: N/A	FIELD LOGBOOK NO.: HNF-N-507-25	ACTUAL SAMPLE DEPTH: Surface	COA: 302677ES10	METHOD OF SHIPMENT: GOVERNMENT VEHICLE; ORIGINAL
SHIPPED TO: Waste Sampling & Characterization	OFFSITE PROPERTY NO.: N/A		BILL OF LADING/AIR BILL NO.: N/A	

MATRIX*: A=Air, DI=Drum Liquids, DS=Drum Solids, L=Liquid, O=Oil, S=Soil, SE=Sediment, T=Tissue, V=Vegetation, W=Water, WI=Wipe, X=Other

POSSIBLE SAMPLE HAZARDS/ REMARKS: Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1993)

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	Cool~4C	Cool~4C	None	None
HOLDING TIME	28 Days	30 Days	5 Months	6 Months
TYPE OF CONTAINER	G/P	G/P	Square Bottle - Poly	G/P
NO. OF CONTAINER(S)	1	1	1	1
VOLUME	120mL	60mL	500mL	120mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	Chromium Hex - 7196,	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	SEE ITEM (3) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME				
B2LWK8 13	SOIL	JUL 18 2012	0845	X	X	X	X

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CHAIN OF POSSESSION	DATE/TIME	SIGN/ PRINT NAMES	DATE/TIME
RELINQUISHED BY/REMOVED FROM: Dan Sparks	1220 JUL 18 2012	RECEIVED BY/STORED IN: TA Frazim	1220 JUL 18 2012
RELINQUISHED BY/REMOVED FROM		RECEIVED BY/STORED IN	
RELINQUISHED BY/REMOVED FROM		RECEIVED BY/STORED IN	
RELINQUISHED BY/REMOVED FROM		RECEIVED BY/STORED IN	
RELINQUISHED BY/REMOVED FROM		RECEIVED BY/STORED IN	
RELINQUISHED BY/REMOVED FROM		RECEIVED BY/STORED IN	
RELINQUISHED BY/REMOVED FROM		RECEIVED BY/STORED IN	

SPECIAL INSTRUCTIONS: SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 7/16/2012

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Sample Receipt

Chain of Custody

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F12-030-031	PAGE 2 OF 2
COLLECTOR	COMPANY CONTACT TRENT, SJ	TELEPHONE NO. 373-5869	PROJECT COORDINATOR TRENT, SJ	PRICE CODE 8C	DATA TURNAROUND 15 Days / 15 Days
SAMPLING LOCATION Area AG Stockpile #3 Sample #8	PROJECT DESIGNATION Area AG Sampling (Waste Area AG) Verification - Soil		SAF NO. F12-030	AIR QUALITY	
ICE CHEST NO. NA	FIELD LOGBOOK NO. HNF-N-507-22	ACTUAL SAMPLE DEPTH Surface	COA 302677ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	ORIGINAL
SHIPPED TO Waste Sampling & Characterization	OFFSITE PROPERTY NO. N/A		BILL OF LADING/AIR BILL NO. N/A		

SPECIAL INSTRUCTIONS

** The CACN for WSCF Analytical is 402580ES20.☐** The 100 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF.
(1) 200.8_HG - ICPMS {Mercury}; ICP/MS - 200.8 (TAL) {Antimony, Barium, Cadmium, Chromium, Cobalt, Copper, Manganese, Nickel, Silver, Vanadium, Zinc}; ICP/MS - 200.8 (Add-on) {Arsenic, Beryllium, Lead, Molybdenum, Selenium, Strontium, Tin, Uranium};
(2) Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155};
(3) Isotopic Plutonium {Plutonium-238, Plutonium-239/240}; Isotopic Uranium {Uranium-233/234, Uranium-235, Uranium-238}; Strontium-89,90 -- Total Sr; Americium-241;

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CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F12-030-032	PAGE 1 OF 2
COLLECTOR Dan Sparks	COMPANY CONTACT TRENT, SJ	TELEPHONE NO. 373-5869	PROJECT COORDINATOR TRENT, SJ	PRICE CODE 8C	DATA TURNAROUND 15 Days / 15 Days
SAMPLING LOCATION Area AG Stockpile #3 Sample #9	PROJECT DESIGNATION Area AG Sampling (Waste Area AG) Verification - Soil		SAF NO. F12-030	AIR QUALITY ☐	
ICE CHEST NO. N/A	FIELD LOGBOOK NO. HNF-N-507-25	ACTUAL SAMPLE DEPTH Surface	COA 302677ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	ORIGINAL
SHIPPED TO Waste Sampling & Characterization	OFFSITE PROPERTY NO. N/A		BILL OF LADING/AIR BILL NO. N/A		

MATRIX*: A=Air, DL=Drum Liquids, DS=Drum Solids, L=Liquid, O=Oil, S=Soil, SE=Sediment, T=Tissue, V=Vegetation, W=Water, WI=Wipe, X=Other

POSSIBLE SAMPLE HAZARDS/ REMARKS: Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1993)

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	Cool~4C	Cool~4C	None	None
HOLDING TIME	28 Days	30 Days	6 Months	6 Months
TYPE OF CONTAINER	G/P	G/P	Square Bottle - Poly	G/P
NO. OF CONTAINER(S)	1	1	1	1
VOLUME	120mL	60mL	500mL	120mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	Chromium Hex - 7196	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	SEE ITEM (3) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME				
B2LWK9 14	SOIL	JUL 18 2012	0850	X	X	X	X

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CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS
RELINQUISHED BY/REMOVED FROM Dan Sparks	DATE/TIME JUL 18 2012 1220	RECEIVED BY/STORED IN TA Engelman	DATE/TIME JUL 18 2012 1220	SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS
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	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 7/16/2012

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Sample Receipt

Chain of Custody

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		F12-030-032	PAGE 2 OF 2
COLLECTOR Dan Sparks	COMPANY CONTACT TRENT, SJ	TELEPHONE NO. 373-5869	PROJECT COORDINATOR TRENT, SJ	PRICE CODE 8C	DATA TURNAROUND 15 Days / 15 Days
SAMPLING LOCATION Area AG Stockpile #3 Sample #9	PROJECT DESIGNATION Area AG Sampling (Waste Area AG) Verification - Soil		SAF NO. F12-030	AIR QUALITY	
ICE CHEST NO. NA	FIELD LOGBOOK NO. HNF-N-507-25	ACTUAL SAMPLE DEPTH Surface	COA 302677ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	ORIGINAL
SHIPPED TO Waste Sampling & Characterization	OFFSITE PROPERTY NO. N/A		BILL OF LADING/AIR BILL NO. N/A		

SPECIAL INSTRUCTIONS

** The CACN for WSCF Analytical is 402580ES20.L]** The 100 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF.
(1) 200.8_HG - ICPMS {Mercury}; ICP/MS - 200.8 (TAL) {Antimony, Barium, Cadmium, Chromium, Cobalt, Copper, Manganese, Nickel, Silver, Vanadium, Zinc}; ICP/MS - 200.8 (Add-on) {Arsenic, Beryllium, Lead, Molybdenum, Selenium, Strontium, Tin, Uranium};
(2) Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155};
(3) Isotopic Plutonium {Plutonium-238, Plutonium-239/240}; Isotopic Uranium {Uranium-233/234, Uranium-235, Uranium-238}; Strontium-89,90 -- Total Sr; Americium-241;

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Appendix 5

Data Validation Supporting Documentation

VALIDATION LEVEL:	A	B	(C)	D	E
PROJECT: 100-K			DATA PACKAGE: VSR12-022		
VALIDATOR: Eyda Hergenreder		LAB: WSCF		DATE: 08-16-2012	
			SDG: WSCF120925		
ANALYSES PERFORMED					
Anions/IC	TOC	TOX	TPH-418.1	Oil and Grease	Alkalinity
Ammonia	BOD/COD	Chloride	Chromium-VI X	pH	NO_3/NO_2
Sulfate	TDS	TKN	Phosphate	Cyanide	

SAMPLES/MATRIX Soil samples

B2LWL0, B2LWL1, B2LWL2, B2LWL3, B2LWL4, B2LWK1, B2LWK2, B2LWK3, B2LWK4, B2LWK5, B2LWK6, B2LWK7, B2LWK8, B2LWK9,

1. DATA PACKAGE COMPLETENESS AND CASE NARRATIVE

Technical verification documentation present?.....(Yes) No N/A

Comments: None

2. INSTRUMENT PERFORMANCE AND CALIBRATIONS (Levels D and E)

Initial calibrations performed on all instruments? ..... Yes No N/A

Initial calibrations acceptable? ..... Yes No N/A

ICV and CCV checks performed on all instruments? ..... Yes No N/A

ICV and CCV checks acceptable? ..... Yes No N/A

Standards traceable? ..... Yes No N/A

Standards expired? ..... Yes No N/A

Calculation check acceptable? ..... Yes No N/A

Comments:

3. BLANKS (Levels B, C, D, and E)

ICB and CCB checks performed for all applicable analyses? (Levels D, E) ..... Yes No N/A

ICB and CCB results acceptable? (Levels D, E) ..... Yes No N/A

Laboratory blanks analyzed? ..... Yes No N/A

Laboratory blank results acceptable? ..... Yes No N/A

Field blanks analyzed? (Levels C, D, E) ..... Yes No N/A

Field blank results acceptable? (Levels C, D, E) ..... Yes No N/A

Transcription/calculation errors? (Levels D, E) ..... Yes No N/A

Comments: None

4. ACCURACY (Levels C, D, and E)

Spike samples analyzed? ..... Yes No N/A

Spike recoveries acceptable? ..... Yes No N/A

Spike standards NIST traceable? (Levels D, E) ..... Yes No N/A

Spike standards expired? (Levels D, E) ..... Yes No N/A

LCS/BSS samples analyzed? ..... Yes No N/A

LCS/BSS results acceptable? ..... Yes No N/A

Standards traceable? (Levels D, E) ..... Yes No N/A

Standards expired? (Levels D, E) ..... Yes No N/A

Transcription/calculation errors? (Levels D, E) ..... Yes No N/A

Performance audit sample(s) analyzed? ..... Yes No N/A

Performance audit sample results acceptable? ..... Yes No N/A

Comments: None

5. PRECISION (Levels C, D, and E)

Duplicate RPD values acceptable?.....Yes No N/A

Duplicate results acceptable?.....Yes No N/A

MS/MSD standards NIST traceable? (Levels D, E)..... Yes No N/A

MS/MSD standards expired? (Levels D, E)..... Yes No N/A

Field duplicate RPD values acceptable?.....Yes No N/A

Field split RPD values acceptable?..... Yes No N/A

Transcription/calculation errors? (Levels D, E)..... Yes No N/A

Comments: None

6. HOLDING TIMES (all levels)

Samples properly preserved?.....Yes No N/A

Sample holding times acceptable?.....Yes No N/A

Comments: None

7. RESULT QUANTITATION AND DETECTION LIMITS (all levels)

Results reported for all requested analyses?.....Yes No N/A

Results supported in the raw data? (Levels D, E) ..... Yes No N/A

Samples properly prepared? (Levels D, E)..... Yes No N/A

Detection limits meet RDL?.....Yes No N/A

Transcription/calculation errors? (Levels D, E) ..... Yes No N/A

Comments: None

Comments (attach additional sheets as necessary):

More

Appendix 6

Additional Documentation Requested By Client

Batch QC List

Attention Scot Fitzgerald
Department Inorganic

Group # WSCF120925

QC Batch	Analytical Batch	S#	Type	Sample #	Client Sample#	Original	Test
205241	205399	25	SAMPLE	120925007	B2LWK2		ICP-2008 MS All possible metal
205241	205399	26	SAMPLE	120925006	B2LWK1		ICP-2008 MS All possible metal
205241	205399	27	SAMPLE	120925005	B2LWL4		ICP-2008 MS All possible metal
205241	205399	28	SAMPLE	120925004	B2LWL3		ICP-2008 MS All possible metal
205241	205399	29	SAMPLE	120925003	B2LWL2		ICP-2008 MS All possible metal
205241	205399	30	SAMPLE	120925001	B2LWL0		ICP-2008 MS All possible metal
205241	205399	31	SAMPLE	120925002	B2LWL1		ICP-2008 MS All possible metal
205242	205259	4	BLANK	78764	BLANK		ICP-2008 MS All possible metal
205242	205259	5	LCS	78765	LCS		ICP-2008 MS All possible metal
205242	205259	6	SAMPLE	120925012	B2LWK7		ICP-2008 MS All possible metal
205242	205259	7	MS	78766	B2LWK7(120925012MS)	120925012	ICP-2008 MS All possible metal
205242	205259	8	MSD	78767	B2LWK7(120925012MSD	120925012	ICP-2008 MS All possible metal
205242	205259	9	SAMPLE	120925013	B2LWK8		ICP-2008 MS All possible metal
205242	205259	10	SAMPLE	120925014	B2LWK9		ICP-2008 MS All possible metal
205242	205322	1	LCS	78765	LCS		ICP-2008 MS All possible metal
205242	205322	2	BLANK	78764	BLANK		ICP-2008 MS All possible metal
205242	205322	10	SAMPLE	120925013	B2LWK8		ICP-2008 MS All possible metal
205242	205322	11	MSD	78767	B2LWK7(120925012MSD	120925012	ICP-2008 MS All possible metal
205242	205322	12	MS	78766	B2LWK7(120925012MS)	120925012	ICP-2008 MS All possible metal
205242	205322	13	SAMPLE	120925014	B2LWK9		ICP-2008 MS All possible metal
205242	205322	14	SAMPLE	120925012	B2LWK7		ICP-2008 MS All possible metal
205246	205248	3	BLANK	78775	BLANK		Hexavalent chromium
205246	205248	4	LCS	78776	LCS		Hexavalent chromium

Batch QC List

Attention Scot Fitzgerald
Department Inorganic

Group # WSCF120925

QC Batch	Analytical Batch	S#	Type	Sample #	Client Sample#	Original	Test
205246	205248	5	DUP	78777	B2JF44(120922007DUP)	120922007	Hexavalent chromium
205246	205248	6	MS	78778	B2JF44(120922007MS)	120922007	Hexavalent chromium
205246	205248	7	PSTSPK	78779	PSTSPK		Hexavalent chromium
205246	205248	8	IMS	78780	B2JF44(120922007IMS)	120922007	Hexavalent chromium
205246	205248	12	SAMPLE	120925001	B2LWL0		Hexavalent chromium
205246	205248	13	SAMPLE	120925002	B2LWL1		Hexavalent chromium
205246	205248	14	SAMPLE	120925003	B2LWL2		Hexavalent chromium
205246	205248	15	SAMPLE	120925004	B2LWL3		Hexavalent chromium
205246	205248	16	SAMPLE	120925005	B2LWL4		Hexavalent chromium
205246	205248	17	SAMPLE	120925006	B2LWK1		Hexavalent chromium
205246	205248	18	SAMPLE	120925007	B2LWK2		Hexavalent chromium
205246	205248	20	SAMPLE	120925008	B2LWK3		Hexavalent chromium
205246	205248	21	SAMPLE	120925009	B2LWK4		Hexavalent chromium
205246	205248	22	SAMPLE	120925010	B2LWK5		Hexavalent chromium
205246	205248	23	SAMPLE	120925011	B2LWK6		Hexavalent chromium
205246	205248	24	SAMPLE	120925012	B2LWK7		Hexavalent chromium
205246	205248	25	SAMPLE	120925013	B2LWK8		Hexavalent chromium
205246	205248	26	SAMPLE	120925014	B2LWK9		Hexavalent chromium

Quality Control Report

Attention Scot Fitzgerald
Department Inorganic

Group # WSCF120925

Analytical Batch 205248 (QC Batch: 205246) **Test** Hexavalent chromium
Associated Samples 120925001, 120925002, 120925003, 120925004, 120925005, 120925006, 120925007, 120925008, 120925009, 120925010, 120925011, 120925012, 120925013, 120925014

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
BLANK			**QC Sample #78775**							
Hexavalent chromium	18540-29-9		<0.098	ug/g					U	07/25/12
LCS			**QC Sample #78776**							
Hexavalent chromium	18540-29-9		3.86	ug/g	98.7	80 - 120				07/25/12
DUP			**QC Sample #78777**							
			Original 120922007							
Hexavalent chromium	18540-29-9		<0.098	ug/g			0.40	30	U	07/25/12
MS			**QC Sample #78778**							
			Original 120922007							
Hexavalent chromium	18540-29-9		3.85	ug/g	99.4	75 - 125				07/25/12
PSTSPK			**QC Sample #78779**							
Hexavalent chromium	18540-29-9		0.0495	ug/g	99	85 - 115				07/25/12
IMS			**QC Sample #78780**							
			Original 120922007							
Hexavalent chromium	18540-29-9		335	ug/g	81.7	75 - 125				07/25/12

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

Date: 16 August 2012
To: CH2M Hill (technical representative)
From: Analytical Quality Associates, Inc.
Project: 100-K
Subject: Radiochemical - Sample Data Group (SDG) WSCF120925

INTRODUCTION

This memorandum presents the results of data validation for SDG WSCF120925 prepared by WSCF. A list of samples validated along with the analytical methods is provided in the following table.

Sample ID	Sample Date	Media	Validation Level	Analytical Methods
B2LWL0	07/18/12	Soil	C	Am-241, Iso-Pu, Iso-U, Gamma & Sr-89/90
B2LWL1	07/18/12	Soil	C	Am-241, Iso-Pu, Iso-U, Gamma & Sr-89/90
B2LWL2	07/18/12	Soil	C	Am-241, Iso-Pu, Iso-U, Gamma & Sr-89/90
B2LWL3	07/18/12	Soil	C	Am-241, Iso-Pu, Iso-U, Gamma & Sr-89/90
B2LWL4	07/18/12	Soil	C	Am-241, Iso-Pu, Iso-U, Gamma & Sr-89/90
B2LWK1	07/18/12	Soil	C	Am-241, Iso-Pu, Iso-U, Gamma & Sr-89/90
B2LWK2	07/18/12	Soil	C	Am-241, Iso-Pu, Iso-U, Gamma & Sr-89/90
B2LWK3	07/18/12	Soil	C	Am-241, Iso-Pu, Iso-U, Gamma & Sr-89/90
B2LWK4	07/18/12	Soil	C	Am-241, Iso-Pu, Iso-U, Gamma & Sr-89/90
B2LWK5	07/18/12	Soil	C	Am-241, Iso-Pu, Iso-U, Gamma & Sr-89/90
B2LWK6	07/18/12	Soil	C	Am-241, Iso-Pu, Iso-U, Gamma & Sr-89/90
B2LWK7	07/18/12	Soil	C	Am-241, Iso-Pu, Iso-U, Gamma & Sr-89/90
B2LWK8	07/18/12	Soil	C	Am-241, Iso-Pu, Iso-U, Gamma & Sr-89/90
B2LWK9	07/18/12	Soil	C	Am-241, Iso-Pu, Iso-U, Gamma & Sr-89/90

Data validation was conducted in accordance with the CHPRC validation statement of work and the 100 Area Remedial Action Sampling and Analysis Plan, DOE/RL-96-22, Rev. 5 (SAP). Appendices 1 through 6 provide the following information as indicated below:

Appendix 1. Glossary of Data Reporting Qualifiers
Appendix 2. Summary of Data Qualification
Appendix 3. Annotated Laboratory Reports
Appendix 4. Laboratory Narrative and Chain-of-Custody Documentation
Appendix 5. Data Validation Supporting Documentation
Appendix 6. Additional Documentation Requested By Client

DATA QUALITY OBJECTIVES

- **Holding Times and Sample Preservation**

Holding times are calculated from Chain-of-Custody forms to determine the validity of the results. The maximum holding time for radiochemical analysis is 180 days. There are no specific preservation requirements for radiochemical soil/solid analysis.

The samples were analyzed within the prescribed holding time.

- **Blanks**

The blank data results are reviewed to assess the extent of contamination introduced through sampling, sample preparation, and analysis.

Laboratory Blanks

All laboratory blank results were acceptable with the following exceptions.

For batch 204950, the Pu-239/240 and U-233/234 laboratory blank results were detects > the minimum detectable concentrations (MDCs). The associated sample results that were detects <5X the blank results should be qualified as estimates and flagged "J." See the table in Appendix 2 for a listing of all affected samples.

Trip Blanks

No trip blanks were submitted for validation.

Field Blanks

No field blanks were submitted for validation.

Equipment Blanks

All equipment blank results were acceptable with the following exception. U-234 and U-238 were detected in equipment blank sample B2LWL4. The U-234 result has been flagged "J" due to laboratory blank contamination.

- **Accuracy**

Accuracy is evaluated by reviewing matrix spike sample results, laboratory control sample results, and chemical recovery factors. Chemical recovery factors are determined through use of a carrier or tracer and provide assessment of the chemical separation process that is affected by the laboratory procedure, sample matrix, and/or interference. Chemical recovery factors are used to correct sample concentration, uncertainty, and MDC results. According to the SAP, the laboratory control sample accuracy limits are 70% to 130%.

Matrix Spike (MS) Samples

MS analyses are not required for the methods performed.

Laboratory Control Samples (LCSs)

All LCS recoveries were acceptable with the following exception.

For batch 204950, the LCS recovery for Am-241was above the acceptance limit. The Am-241 result for sample B2LWK1 was detect > the MDC and should be qualified as estimate and flagged "J." All other Am-241 sample results were < the MDCs and should not be qualified.

Carrier/Tracer Recovery Factors

All carrier/tracer recovery factors were acceptable.

- **Precision**

Precision is evaluated by reviewing laboratory duplicate, field duplicate, and field split sample results. These QC results provide information on the laboratory reproducibility and whether sampling activities are adequate to acquire consistent sample results. According to the SAP, the relative percent difference (RPD) limits are ±30%. When duplicate RPDs exceed the limits and have associated results <5X the MDCs the precision limits are ones specified by the DV procedure.

Laboratory Duplicate Samples

All laboratory duplicate results were acceptable.

Field Duplicate Samples

All field duplicate results were acceptable.

Field Split Samples

No field splits were submitted for validation.

- **Detection Limits**

Reported MDCs are compared against the contractually required detection limits (CRDLs) to ensure that laboratory detection limits meet the required criteria.

All reported sample MDCs were below the CRDLs.

- **Completeness**

SDG WSCF120925 was submitted for validation and verified for completeness. Completeness is based on the percentage of data determined to be valid (i.e., not rejected). The completion percentage was 100%.

MAJOR DEFICIENCIES

None found.

MINOR DEFICIENCIES

Minor deficiencies leading to qualification of sample results as estimates were due to laboratory blank contamination or high LCS recovery. See the table in Appendix 2 for a listing of all affected sample results.

REFERENCES

GRP-GD-002, Rev. 0, Change 0, *Data Validation for Radiochemical Analyses*, August 2010.

DOE/RL-96-22, Rev. 5, *100 Area Remedial Action Sampling and Analysis Plan*, September 2009.

Appendix 1

Glossary of Data Reporting Qualifiers

Qualifiers that may be applied by data validators in compliance with the CHPRC statement of work are as follows:

- **U** — The constituent was analyzed for and was not detected. The data should be considered usable for decision-making purposes.

- **UJ** — The constituent was analyzed for and was not detected. Due to a quality control deficiency identified during data validation the value reported may not accurately reflect the MDC. The data should be considered usable for decision-making purposes.

- **J** — Indicates the constituent was analyzed for and detected. The associated value is estimated due to a quality control deficiency identified during data validation. The data should be considered usable for decision-making purposes.

- **J+** — Indicates the constituent was analyzed for and detected. The associated value is estimated with a suspected positive bias due to a quality control deficiency identified during data validation. The data should be considered usable for decision-making purposes.

- **J-** — Indicates the constituent was analyzed for and detected. The associated value is estimated with a suspected negative bias due to a quality control deficiency identified during data validation. The data should be considered usable for decision-making purposes.

- **UR** — Indicates the constituent was analyzed for and not detected; however, due to an identified quality control deficiency the data should be considered unusable for decision-making purposes.

- **R** — Indicates the constituent was analyzed for and detected; however, due to an identified quality control deficiency the data should be considered unusable for decision-making purposes.

Appendix 2

Summary of Data Qualification

Radiochemical Data Qualification Summary			
SDGs: WSCF120925	Reviewer: AQA	Project: 100-K	Page 1 of 1
Analyte(s)	**Qualifier**	**Samples Affected**	**Reason**
Pu-239/240	J	B2LWL1, B2LWL2, B2LWK1	Laboratory blank contamination
U-233/234	J	B2LWL4, B2LWK1	Laboratory blank contamination
Am-241	J	B2LWK1	High LCS recovery

Comments: None

Appendix 3

Annotated Laboratory Reports

WSCF Analytical Results Report

Attention Scot Fitzgerald
Department Radiochemistry

Group # WSCF120925

Sample # 120925001
SAF# F12-030
Sample ID B2LWL0

Matrix SOIL
Sampled 07/18/12
Received 07/18/12

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
Am/Cm/Pu/U/Np Prep (AEA) S										**07/26/12**
Americium/Curium (AEA)										
Americium-241	14596-10-2	LA-508-471	U	0.013	.016	pCi/g	1	0.025		07/29/12
Plutonium (AEA)										
Plutonium-238	13981-16-3	LA-508-471	U	-0.0020	.013	pCi/g	1	0.028		07/27/12
Plutonium-239_240	PU-239/240	LA-508-471	U	0.012	.014	pCi/g	1	0.021		07/27/12
Uranium (AEA)										
Uranium-234	U-233/234	LA-508-471		0.18	.059	pCi/g	1	5.7E-3		08/01/12
Uranium-235	15117-96-1	LA-508-471	U	-2.3E-3	.01	pCi/g	1	0.025		08/01/12
Uranium-238	U-238	LA-508-471		0.19	.063	pCi/g	1	5.7E-3		08/01/12
Preparation for GEA (S)										**07/23/12**
Gamma Energy Analysis-general										
Cesium-137	10045-97-3	LA-508-481		0.22	.04	pCi/g	1	0.021		07/24/12
Cobalt-60	10198-40-0	LA-508-481	U	0.011	.011	pCi/g	1	0.022		07/24/12
Europium-152	14683-23-9	LA-508-481		0.27	.051	pCi/g	1	0.062		07/24/12
Europium-154	15585-10-1	LA-508-481	U	0.045	.035	pCi/g	1	0.071		07/24/12
Europium-155	14391-16-3	LA-508-481	U	0.060	.052	pCi/g	1	0.093		07/24/12
Strontium 89/90 SOLID/SOIL PREP										**07/23/12**
Strontium 89/90 (GPC/GEA)										

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

B - Analyte was detected in both the BLANK and SAMPLE
U - Analyzed for but not detected above limiting criteria.
N - Spike Recovery is Outside Control Limits.
X,Y or Z - See comment detail and/or narrative.
PQL is equivalent to Estimated Quantitation Limit (EQL)

WSCF Analytical Results Report

Attention Scot Fitzgerald
Department Radiochemistry

Group # WSCF120925

Sample # 120925001
SAF# F12-030
Sample ID B2LWL0

Matrix SOIL
Sampled 07/18/12
Received 07/18/12

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
Strontium-89_90	SR-RAD	LA-220-406	U	-0.074	.24	pCi/g	1	0.50		07/30/12

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

B - Analyte was detected in both the BLANK and SAMPLE
U - Analyzed for but not detected above limiting criteria.
N - Spike Recovery is Outside Control Limits.
X,Y or Z - See comment detail and/or narrative.
PQL is equivalent to Estimated Quantitation Limit (EQL)

WSCF Analytical Results Report

Attention Scot Fitzgerald
Department Radiochemistry

Group # WSCF120925

Sample # 120925002
SAF# F12-030
Sample ID B2LWL1

Matrix SOIL
Sampled 07/18/12
Received 07/18/12

Test Performed	CAS #	Method	RQ		Result	TP Err	Units	DF	MDL	PQL	Analyzed
Am/Cm/Pu/U/Np Prep (AEA) S											**07/26/12**
Americium/Curium (AEA)											
Americium-241	14596-10-2	LA-508-471	U		0.020	.016	pCi/g	1	0.021		07/29/12
Plutonium (AEA)											
Plutonium-238	13981-16-3	LA-508-471	U		1.9E-3	.0098	pCi/g	1	0.020		07/27/12
Plutonium-239_240	PU-239/240	LA-508-471		J	0.019	.014	pCi/g	1	0.014		07/27/12
Uranium (AEA)											
Uranium-234	U-233/234	LA-508-471			0.18	.058	pCi/g	1	0.013		08/01/12
Uranium-235	15117-96-1	LA-508-471			9.5E-3	.0087	pCi/g	1	5.1E-3		08/01/12
Uranium-238	U-238	LA-508-471			0.18	.057	pCi/g	1	0.013		08/01/12
Preparation for GEA (S)											**07/23/12**
Gamma Energy Analysis-general											
Cesium-137	10045-97-3	LA-508-481			0.25	.047	pCi/g	1	0.017		07/24/12
Cobalt-60	10198-40-0	LA-508-481	U		8.1E-4	.012	pCi/g	1	0.022		07/24/12
Europium-152	14683-23-9	LA-508-481			0.14	.043	pCi/g	1	0.062		07/24/12
Europium-154	15585-10-1	LA-508-481	U		7.6E-3	.035	pCi/g	1	0.062		07/24/12
Europium-155	14391-16-3	LA-508-481	U		0.033	.055	pCi/g	1	0.096		07/24/12
Strontium 89/90 SOLID/SOIL PREP											**07/23/12**
Strontium 89/90 (GPC/GEA)											

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

B - Analyte was detected in both the BLANK and SAMPLE
U - Analyzed for but not detected above limiting criteria.
N - Spike Recovery is Outside Control Limits.
X,Y or Z - See comment detail and/or narrative.
PQL is equivalent to Estimated Quantitation Limit (EQL)

WSCF Analytical Results Report

Attention Scot Fitzgerald
Department Radiochemistry

Group # WSCF120925

Sample # 120925002
SAF# F12-030
Sample ID B2LWL1

Matrix SOIL
Sampled 07/18/12
Received 07/18/12

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
Strontium-89_90	SR-RAD	LA-220-406	U	-0.012	.24	pCi/g	1	0.50		07/30/12

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

B - Analyte was detected in both the BLANK and SAMPLE
U - Analyzed for but not detected above limiting criteria.
N - Spike Recovery is Outside Control Limits.
X,Y or Z - See comment detail and/or narrative.
PQL is equivalent to Estimated Quantitation Limit (EQL)

WSCF Analytical Results Report

Attention Scot Fitzgerald
Department Radiochemistry

Group # WSCF120925

Sample # 120925003
SAF# F12-030
Sample ID B2LWL2

Matrix SOIL
Sampled 07/18/12
Received 07/18/12

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
Am/Cm/Pu/U/Np Prep (AEA) S										**07/26/12**
Americium/Curium (AEA)										
Americium-241	14596-10-2	LA-508-471	U	0.0050	.017	pCi/g	1	0.030		07/29/12
Plutonium (AEA)										
Plutonium-238	13981-16-3	LA-508-471	U	-0.010	.018	pCi/g	1	0.039		07/29/12
Plutonium-239_240	PU-239/240	LA-508-471		J 6.3E-3	.0073	pCi/g	1	5.7E-3		07/29/12
Uranium (AEA)										
Uranium-234	U-233/234	LA-508-471		0.12	.042	pCi/g	1	0.013		08/01/12
Uranium-235	15117-96-1	LA-508-471		9.8E-3	.0089	pCi/g	1	5.3E-3		08/01/12
Uranium-238	U-238	LA-508-471		0.15	.051	pCi/g	1	0.017		08/01/12
Preparation for GEA (S)										**07/23/12**
Gamma Energy Analysis-general										
Cesium-137	10045-97-3	LA-508-481		0.070	.022	pCi/g	1	0.021		07/24/12
Cobalt-60	10198-40-0	LA-508-481	U	3.6E-3	.011	pCi/g	1	0.020		07/24/12
Europium-152	14683-23-9	LA-508-481	U	-4.0E-4	.036	pCi/g	1	0.059		07/24/12
Europium-154	15585-10-1	LA-508-481	U	-0.013	.034	pCi/g	1	0.058		07/24/12
Europium-155	14391-16-3	LA-508-481		0.092	.084	pCi/g	1	0.085		07/24/12
Strontium 89/90 SOLID/SOIL PREP										**07/23/12**
Strontium 89/90 (GPC/GEA)										

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

B - Analyte was detected in both the BLANK and SAMPLE
U - Analyzed for but not detected above limiting criteria.
N - Spike Recovery is Outside Control Limits.
X,Y or Z - See comment detail and/or narrative.
PQL is equivalent to Estimated Quantitation Limit (EQL)

WSCF Analytical Results Report

Attention Scot Fitzgerald
Department Radiochemistry

Group # WSCF120925

Sample # 120925003
SAF# F12-030
Sample ID B2LWL2

Matrix SOIL
Sampled 07/18/12
Received 07/18/12

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
Strontium-89_90	SR-RAD	LA-220-406	U	0.25	.31	pCi/g	1	0.62		07/30/12

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

B - Analyte was detected in both the BLANK and SAMPLE
U - Analyzed for but not detected above limiting criteria.
N - Spike Recovery is Outside Control Limits.
X,Y or Z - See comment detail and/or narrative.
PQL is equivalent to Estimated Quantitation Limit (EQL)

WSCF Analytical Results Report

Attention Scot Fitzgerald
Department Radiochemistry

Group # WSCF120925

Sample # 120925004
SAF# F12-030
Sample ID B2LWL3

Matrix SOIL
Sampled 07/18/12
Received 07/18/12

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
Am/Cm/Pu/U/Np Prep (AEA) S										**07/26/12**
Americium/Curium (AEA)										
Americium-241	14596-10-2	LA-508-471	U	8.8E-3	.013	pCi/g	1	0.021		07/29/12
Plutonium (AEA)										
Plutonium-238	13981-16-3	LA-508-471	U	-0.014	.018	pCi/g	1	0.042		07/29/12
Plutonium-239_240	PU-239/240	LA-508-471	U	7.2E-3	.011	pCi/g	1	0.018		07/29/12
Uranium (AEA)										
Uranium-234	U-233/234	LA-508-471		0.12	.042	pCi/g	1	4.8E-3		08/01/12
Uranium-235	15117-96-1	LA-508-471		0.012	.0097	pCi/g	1	5.2E-3		08/01/12
Uranium-238	U-238	LA-508-471		0.16	.053	pCi/g	1	0.013		08/01/12
Preparation for GEA (S)										**07/23/12**
Gamma Energy Analysis-general										
Cesium-137	10045-97-3	LA-508-481		0.085	.024	pCi/g	1	0.021		07/24/12
Cobalt-60	10198-40-0	LA-508-481	U	1.3E-3	.0096	pCi/g	1	0.019		07/24/12
Europium-152	14683-23-9	LA-508-481	U	6.3E-3	.032	pCi/g	1	0.060		07/24/12
Europium-154	15585-10-1	LA-508-481	U	-0.031	.031	pCi/g	1	0.051		07/24/12
Europium-155	14391-16-3	LA-508-481	U	0.051	.052	pCi/g	1	0.093		07/24/12
Strontium 89/90 SOLID/SOIL PREP										**07/23/12**
Strontium 89/90 (GPC/GEA)										

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

B - Analyte was detected in both the BLANK and SAMPLE
U - Analyzed for but not detected above limiting criteria.
N - Spike Recovery is Outside Control Limits.
X,Y or Z - See comment detail and/or narrative.
PQL is equivalent to Estimated Quantitation Limit (EQL)

WSCF Analytical Results Report

Attention Scot Fitzgerald
Department Radiochemistry

Group # WSCF120925

Sample # 120925004
SAF# F12-030
Sample ID B2LWL3

Matrix SOIL
Sampled 07/18/12
Received 07/18/12

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
Strontium-89_90	SR-RAD	LA-220-406	U	0.026	.28	pCi/g	1	0.56		07/30/12

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

B - Analyte was detected in both the BLANK and SAMPLE
U - Analyzed for but not detected above limiting criteria.
N - Spike Recovery is Outside Control Limits.
X,Y or Z - See comment detail and/or narrative.
PQL is equivalent to Estimated Quantitation Limit (EQL)

WSCF Analytical Results Report

Attention Scot Fitzgerald
Department Radiochemistry

Group # WSCF120925

Sample # 120925005
SAF# F12-030
Sample ID B2LWL4

Matrix SOIL
Sampled 07/18/12
Received 07/18/12

Test Performed	CAS #	Method	RQ		Result	TP Err	Units	DF	MDL	PQL	Analyzed
Am/Cm/Pu/U/Np Prep (AEA) S											**07/26/12**
Americium/Curium (AEA)											
Americium-241	14596-10-2	LA-508-471	U		0.013	.013	pCi/g	1	0.020		07/29/12
Plutonium (AEA)											
Plutonium-238	13981-16-3	LA-508-471	U		0.012	.017	pCi/g	1	0.027		07/29/12
Plutonium-239_240	PU-239/240	LA-508-471	U		7.7E-3	.0097	pCi/g	1	0.014		07/29/12
Uranium (AEA)											
Uranium-234	U-233/234	LA-508-471		J	0.047	.025	pCi/g	1	0.021		08/01/12
Uranium-235	15117-96-1	LA-508-471	U		-2.1E-3	.0074	pCi/g	1	0.020		08/01/12
Uranium-238	U-238	LA-508-471			0.049	.023	pCi/g	1	5.3E-3		08/01/12
Preparation for GEA (S)											**07/23/12**
Gamma Energy Analysis-general											
Cesium-137	10045-97-3	LA-508-481	U		-8.0E-4	.0076	pCi/g	1	0.014		07/24/12
Cobalt-60	10198-40-0	LA-508-481	U		-4.3E-3	.0078	pCi/g	1	0.013		07/24/12
Europium-152	14683-23-9	LA-508-481	U		0.018	.025	pCi/g	1	0.049		07/24/12
Europium-154	15585-10-1	LA-508-481	U		2.2E-3	.026	pCi/g	1	0.049		07/24/12
Europium-155	14391-16-3	LA-508-481	U		0.014	.037	pCi/g	1	0.065		07/24/12
Strontium 89/90 SOLID/SOIL PREP											**07/23/12**
Strontium 89/90 (GPC/GEA)											

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

B - Analyte was detected in both the BLANK and SAMPLE
U - Analyzed for but not detected above limiting criteria.
N - Spike Recovery is Outside Control Limits.
X,Y or Z - See comment detail and/or narrative.
PQL is equivalent to Estimated Quantitation Limit (EQL)

WSCF Analytical Results Report

Attention Scot Fitzgerald
Department Radiochemistry

Group # WSCF120925

Sample # 120925005
SAF# F12-030
Sample ID B2LWL4

Matrix SOIL
Sampled 07/18/12
Received 07/18/12

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
Strontium-89_90	SR-RAD	LA-220-406	U	0.087	.29	pCi/g	1	0.57		07/30/12

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

B - Analyte was detected in both the BLANK and SAMPLE
U - Analyzed for but not detected above limiting criteria.
N - Spike Recovery is Outside Control Limits.
X,Y or Z - See comment detail and/or narrative.
PQL is equivalent to Estimated Quantitation Limit (EQL)

WSCF Analytical Results Report

Attention Scot Fitzgerald
Department Radiochemistry

Group # WSCF120925

Sample # 120925006
SAF# F12-030
Sample ID B2LWK1

Matrix SOIL
Sampled 07/18/12
Received 07/18/12

Test Performed	CAS #	Method	RQ		Result	TP Err	Units	DF	MDL	PQL	Analyzed
Am/Cm/Pu/U/Np Prep (AEA) S											**07/26/12**
Americium/Curium (AEA)											
Americium-241	14596-10-2	LA-508-471		J	0.022	.017	pCi/g	1	0.022		07/29/12
Plutonium (AEA)											
Plutonium-238	13981-16-3	LA-508-471	U		9.5E-3	.016	pCi/g	1	0.028		07/29/12
Plutonium-239_240	PU-239/240	LA-508-471		J	0.012	.011	pCi/g	1	6.4E-3		07/29/12
Uranium (AEA)											
Uranium-234	U-233/234	LA-508-471		J	0.11	.04	pCi/g	1	0.018		08/01/12
Uranium-235	15117-96-1	LA-508-471			0.017	.013	pCi/g	1	5.8E-3		08/01/12
Uranium-238	U-238	LA-508-471			0.14	.05	pCi/g	1	0.023		08/01/12
Preparation for GEA (S)											**07/23/12**
Gamma Energy Analysis-general											
Cesium-137	10045-97-3	LA-508-481			0.027	.021	pCi/g	1	0.019		07/24/12
Cobalt-60	10198-40-0	LA-508-481	U		5.2E-3	.0092	pCi/g	1	0.018		07/24/12
Europium-152	14683-23-9	LA-508-481	U		0.027	.033	pCi/g	1	0.063		07/24/12
Europium-154	15585-10-1	LA-508-481	U		7.8E-3	.033	pCi/g	1	0.061		07/24/12
Europium-155	14391-16-3	LA-508-481	U		0.019	.055	pCi/g	1	0.095		07/24/12
Strontium 89/90 SOLID/SOIL PREP											**07/23/12**
Strontium 89/90 (GPC/GEA)											

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

B - Analyte was detected in both the BLANK and SAMPLE
U - Analyzed for but not detected above limiting criteria.
N - Spike Recovery is Outside Control Limits.
X,Y or Z - See comment detail and/or narrative.
PQL is equivalent to Estimated Quantitation Limit (EQL)

WSCF Analytical Results Report

Attention Scot Fitzgerald
Department Radiochemistry

Group # WSCF120925

Sample # 120925006
SAF# F12-030
Sample ID B2LWK1

Matrix SOIL
Sampled 07/18/12
Received 07/18/12

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
Strontium-89_90	SR-RAD	LA-220-406	U	-0.20	.24	pCi/g	1	0.53		07/30/12

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

B - Analyte was detected in both the BLANK and SAMPLE
U - Analyzed for but not detected above limiting criteria.
N - Spike Recovery is Outside Control Limits.
X,Y or Z - See comment detail and/or narrative.
PQL is equivalent to Estimated Quantitation Limit (EQL)

WSCF Analytical Results Report

Attention Scot Fitzgerald
Department Radiochemistry

Group # WSCF120925

Sample # 120925007
SAF# F12-030
Sample ID B2LWK2

Matrix SOIL
Sampled 07/18/12
Received 07/18/12

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
Am/Cm/Pu/U/Np Prep (AEA) S										**07/26/12**
Americium/Curium (AEA)										
Americium-241	14596-10-2	LA-508-471	U	9.1E-3	.016	pCi/g	1	0.029		07/29/12
Plutonium (AEA)										
Plutonium-238	13981-16-3	LA-508-471	U	-0.011	.016	pCi/g	1	0.037		07/29/12
Plutonium-239_240	PU-239/240	LA-508-471	U	0.011	.011	pCi/g	1	0.016		07/29/12
Uranium (AEA)										
Uranium-234	U-233/234	LA-508-471		0.16	.053	pCi/g	1	0.016		08/01/12
Uranium-235	15117-96-1	LA-508-471	U	5.6E-3	.0084	pCi/g	1	0.014		08/01/12
Uranium-238	U-238	LA-508-471		0.22	.066	pCi/g	1	0.013		08/01/12
Preparation for GEA (S)										**07/23/12**
Gamma Energy Analysis-general										
Cesium-137	10045-97-3	LA-508-481	U	0.023	.013	pCi/g	1	0.026		07/24/12
Cobalt-60	10198-40-0	LA-508-481	U	-0.016	.01	pCi/g	1	0.014		07/24/12
Europium-152	14683-23-9	LA-508-481	U	-0.0090	.034	pCi/g	1	0.060		07/24/12
Europium-154	15585-10-1	LA-508-481	U	0.028	.035	pCi/g	1	0.069		07/24/12
Europium-155	14391-16-3	LA-508-481	U	0.040	.048	pCi/g	1	0.086		07/24/12
Strontium 89/90 SOLID/SOIL PREP										**07/23/12**
Strontium 89/90 (GPC/GEA)										

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

B - Analyte was detected in both the BLANK and SAMPLE
U - Analyzed for but not detected above limiting criteria.
N - Spike Recovery is Outside Control Limits.
X,Y or Z - See comment detail and/or narrative.
PQL is equivalent to Estimated Quantitation Limit (EQL)

WSCF Analytical Results Report

Attention Scot Fitzgerald
Department Radiochemistry

Group # WSCF120925

Sample # 120925007
SAF# F12-030
Sample ID B2LWK2

Matrix SOIL
Sampled 07/18/12
Received 07/18/12

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
Strontium-89_90	SR-RAD	LA-220-406	U	-0.065	.25	pCi/g	1	0.54		07/30/12

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

B - Analyte was detected in both the BLANK and SAMPLE
U - Analyzed for but not detected above limiting criteria.
N - Spike Recovery is Outside Control Limits.
X,Y or Z - See comment detail and/or narrative.
PQL is equivalent to Estimated Quantitation Limit (EQL)

WSCF Analytical Results Report

Attention Scot Fitzgerald
Department Radiochemistry

Group # WSCF120925

Sample # 120925008
SAF# F12-030
Sample ID B2LWK3

Matrix SOIL
Sampled 07/18/12
Received 07/18/12

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
Am/Cm/Pu/U/Np Prep (AEA) S										**07/27/12**
Americium/Curium (AEA)										
Americium-241	14596-10-2	LA-508-471	U	0.011	.015	pCi/g	1	0.024		07/31/12
Plutonium (AEA)										
Plutonium-238	13981-16-3	LA-508-471	U	0.010	.015	pCi/g	1	0.024		07/31/12
Plutonium-239_240	PU-239/240	LA-508-471	U	0.012	.012	pCi/g	1	0.015		07/31/12
Uranium (AEA)										
Uranium-234	U-233/234	LA-508-471		0.19	.062	pCi/g	1	0.017		08/01/12
Uranium-235	15117-96-1	LA-508-471		0.014	.011	pCi/g	1	5.5E-3		08/01/12
Uranium-238	U-238	LA-508-471		0.16	.052	pCi/g	1	5.1E-3		08/01/12
Preparation for GEA (S)										**07/23/12**
Gamma Energy Analysis-general										
Cesium-137	10045-97-3	LA-508-481		0.059	.026	pCi/g	1	0.018		07/25/12
Cobalt-60	10198-40-0	LA-508-481	U	3.5E-3	.0096	pCi/g	1	0.019		07/25/12
Europium-152	14683-23-9	LA-508-481	U	-8.1E-3	.037	pCi/g	1	0.058		07/25/12
Europium-154	15585-10-1	LA-508-481	U	-5.5E-3	.036	pCi/g	1	0.065		07/25/12
Europium-155	14391-16-3	LA-508-481	U	0.036	.051	pCi/g	1	0.090		07/25/12
Strontium 89/90 SOLID/SOIL PREP										**07/24/12**
Strontium 89/90 (GPC/GEA)										

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

B - Analyte was detected in both the BLANK and SAMPLE
U - Analyzed for but not detected above limiting criteria.
N - Spike Recovery is Outside Control Limits.
X,Y or Z - See comment detail and/or narrative.
PQL is equivalent to Estimated Quantitation Limit (EQL)

WSCF Analytical Results Report

Attention Scot Fitzgerald
Department Radiochemistry

Group # WSCF120925

Sample # 120925008
SAF# F12-030
Sample ID B2LWK3

Matrix SOIL
Sampled 07/18/12
Received 07/18/12

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
Strontium-89_90	SR-RAD	LA-220-406	U	0.065	.25	pCi/g	1	0.57		07/31/12

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

B - Analyte was detected in both the BLANK and SAMPLE
U - Analyzed for but not detected above limiting criteria.
N - Spike Recovery is Outside Control Limits.
X,Y or Z - See comment detail and/or narrative.
PQL is equivalent to Estimated Quantitation Limit (EQL)

WSCF Analytical Results Report

Attention Scot Fitzgerald
Department Radiochemistry

Group # WSCF120925

Sample # 120925009
SAF# F12-030
Sample ID B2LWK4

Matrix SOIL
Sampled 07/18/12
Received 07/18/12

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
Am/Cm/Pu/U/Np Prep (AEA) S										**07/27/12**
Americium/Curium (AEA)										
Americium-241	14596-10-2	LA-508-471	U	-4.1E-3	.017	pCi/g	1	0.036		07/31/12
Plutonium (AEA)										
Plutonium-238	13981-16-3	LA-508-471	U	-0.020	.013	pCi/g	1	0.035		07/31/12
Plutonium-239_240	PU-239/240	LA-508-471	U	0.0060	.0089	pCi/g	1	0.015		07/31/12
Uranium (AEA)										
Uranium-234	U-233/234	LA-508-471		0.12	.043	pCi/g	1	0.016		08/01/12
Uranium-235	15117-96-1	LA-508-471		5.8E-3	.0067	pCi/g	1	5.2E-3		08/01/12
Uranium-238	U-238	LA-508-471		0.15	.05	pCi/g	1	4.8E-3		08/01/12
Preparation for GEA (S)										**07/23/12**
Gamma Energy Analysis-general										
Cesium-137	10045-97-3	LA-508-481		0.028	.023	pCi/g	1	0.019		07/25/12
Cobalt-60	10198-40-0	LA-508-481		0.042	.02	pCi/g	1	0.016		07/25/12
Europium-152	14683-23-9	LA-508-481	U	-0.011	.034	pCi/g	1	0.054		07/25/12
Europium-154	15585-10-1	LA-508-481	U	0.019	.032	pCi/g	1	0.064		07/25/12
Europium-155	14391-16-3	LA-508-481	U	0.013	.05	pCi/g	1	0.087		07/25/12
Strontium 89/90 SOLID/SOIL PREP										**07/24/12**
Strontium 89/90 (GPC/GEA)										

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

B - Analyte was detected in both the BLANK and SAMPLE
U - Analyzed for but not detected above limiting criteria.
N - Spike Recovery is Outside Control Limits.
X,Y or Z - See comment detail and/or narrative.
PQL is equivalent to Estimated Quantitation Limit (EQL)

WSCF Analytical Results Report

Attention Scot Fitzgerald
Department Radiochemistry

Group # WSCF120925

Sample # 120925009
SAF# F12-030
Sample ID B2LWK4

Matrix SOIL
Sampled 07/18/12
Received 07/18/12

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
Strontium-89_90	SR-RAD	LA-220-406	U	-0.052	.24	pCi/g	1	0.59		07/31/12

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

B - Analyte was detected in both the BLANK and SAMPLE
U - Analyzed for but not detected above limiting criteria.
N - Spike Recovery is Outside Control Limits.
X,Y or Z - See comment detail and/or narrative.
PQL is equivalent to Estimated Quantitation Limit (EQL)

WSCF Analytical Results Report

Attention Scot Fitzgerald
Department Radiochemistry

Group # WSCF120925

Sample # 120925010
SAF# F12-030
Sample ID B2LWK5

Matrix SOIL
Sampled 07/18/12
Received 07/18/12

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
Am/Cm/Pu/U/Np Prep (AEA) S										**07/27/12**
Americium/Curium (AEA)										
Americium-241	14596-10-2	LA-508-471	U	0.013	.018	pCi/g	1	0.032		07/31/12
Plutonium (AEA)										
Plutonium-238	13981-16-3	LA-508-471	U	-0.014	.017	pCi/g	1	0.041		07/31/12
Plutonium-239_240	PU-239/240	LA-508-471	U	0.012	.013	pCi/g	1	0.022		07/31/12
Uranium (AEA)										
Uranium-234	U-233/234	LA-508-471		0.19	.058	pCi/g	1	0.018		08/01/12
Uranium-235	15117-96-1	LA-508-471	U	8.6E-3	.013	pCi/g	1	0.023		08/01/12
Uranium-238	U-238	LA-508-471		0.17	.053	pCi/g	1	5.3E-3		08/01/12
Preparation for GEA (S)										**07/23/12**
Gamma Energy Analysis-general										
Cesium-137	10045-97-3	LA-508-481	U	0.020	.02	pCi/g	1	0.021		07/25/12
Cobalt-60	10198-40-0	LA-508-481	U	8.5E-4	.0086	pCi/g	1	0.018		07/25/12
Europium-152	14683-23-9	LA-508-481	U	4.5E-3	.032	pCi/g	1	0.062		07/25/12
Europium-154	15585-10-1	LA-508-481	U	0.029	.033	pCi/g	1	0.069		07/25/12
Europium-155	14391-16-3	LA-508-481	U	0.026	.048	pCi/g	1	0.090		07/25/12
Strontium 89/90 SOLID/SOIL PREP										**07/24/12**
Strontium 89/90 (GPC/GEA)										

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

B - Analyte was detected in both the BLANK and SAMPLE
U - Analyzed for but not detected above limiting criteria.
N - Spike Recovery is Outside Control Limits.
X,Y or Z - See comment detail and/or narrative.
PQL is equivalent to Estimated Quantitation Limit (EQL)

WSCF Analytical Results Report

Attention Scot Fitzgerald
Department Radiochemistry

Group # WSCF120925

Sample # 120925010
SAF# F12-030
Sample ID B2LWK5

Matrix SOIL
Sampled 07/18/12
Received 07/18/12

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
Strontium-89_90	SR-RAD	LA-220-406	U	-0.21	.27	pCi/g	1	0.74		07/31/12

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

B - Analyte was detected in both the BLANK and SAMPLE
U - Analyzed for but not detected above limiting criteria.
N - Spike Recovery is Outside Control Limits.
X,Y or Z - See comment detail and/or narrative.
PQL is equivalent to Estimated Quantitation Limit (EQL)

WSCF Analytical Results Report

Attention Scot Fitzgerald
Department Radiochemistry

Group # WSCF120925

Sample # 120925011
SAF# F12-030
Sample ID B2LWK6

Matrix SOIL
Sampled 07/18/12
Received 07/18/12

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
Am/Cm/Pu/U/Np Prep (AEA) S										**07/27/12**
Americium/Curium (AEA)										
Americium-241	14596-10-2	LA-508-471		0.038	.019	pCi/g	1	0.013		07/31/12
Plutonium (AEA)										
Plutonium-238	13981-16-3	LA-508-471	U	2.2E-3	.0095	pCi/g	1	0.020		07/31/12
Plutonium-239_240	PU-239/240	LA-508-471		0.024	.015	pCi/g	1	5.9E-3		07/31/12
Uranium (AEA)										
Uranium-234	U-233/234	LA-508-471		0.18	.058	pCi/g	1	0.014		08/01/12
Uranium-235	15117-96-1	LA-508-471	U	-3.2E-7	.01	pCi/g	1	0.023		08/01/12
Uranium-238	U-238	LA-508-471		0.20	.064	pCi/g	1	0.018		08/01/12
Preparation for GEA (S)										**07/23/12**
Gamma Energy Analysis-general										
Cesium-137	10045-97-3	LA-508-481		0.46	.066	pCi/g	1	0.012		07/25/12
Cobalt-60	10198-40-0	LA-508-481	U	1.1E-3	.007	pCi/g	1	0.011		07/25/12
Europium-152	14683-23-9	LA-508-481	U	-0.010	.021	pCi/g	1	0.036		07/25/12
Europium-154	15585-10-1	LA-508-481	U	-7.2E-3	.02	pCi/g	1	0.035		07/25/12
Europium-155	14391-16-3	LA-508-481		0.061	.046	pCi/g	1	0.051		07/25/12
Strontium 89/90 SOLID/SOIL PREP										**07/24/12**
Strontium 89/90 (GPC/GEA)										

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

B - Analyte was detected in both the BLANK and SAMPLE
U - Analyzed for but not detected above limiting criteria.
N - Spike Recovery is Outside Control Limits.
X,Y or Z - See comment detail and/or narrative.
PQL is equivalent to Estimated Quantitation Limit (EQL)

WSCF Analytical Results Report

Attention Scot Fitzgerald
Department Radiochemistry

Group # WSCF120925

Sample # 120925011
SAF# F12-030
Sample ID B2LWK6

Matrix SOIL
Sampled 07/18/12
Received 07/18/12

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
Strontium-89_90	SR-RAD	LA-220-406	U	0.27	.31	pCi/g	1	0.70		07/31/12

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

B - Analyte was detected in both the BLANK and SAMPLE
U - Analyzed for but not detected above limiting criteria.
N - Spike Recovery is Outside Control Limits.
X,Y or Z - See comment detail and/or narrative.
PQL is equivalent to Estimated Quantitation Limit (EQL)

WSCF Analytical Results Report

Attention Scot Fitzgerald
Department Radiochemistry

Group # WSCF120925

Sample # 120925012
SAF# F12-030
Sample ID B2LWK7

Matrix SOIL
Sampled 07/18/12
Received 07/18/12

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
Am/Cm/Pu/U/Np Prep (AEA) S										**07/27/12**
Americium/Curium (AEA)										
Americium-241	14596-10-2	LA-508-471	U	0.020	.019	pCi/g	1	0.027		07/31/12
Plutonium (AEA)										
Plutonium-238	13981-16-3	LA-508-471	U	-2.2E-3	.0099	pCi/g	1	0.024		07/31/12
Plutonium-239_240	PU-239/240	LA-508-471	U	6.7E-3	.012	pCi/g	1	0.021		07/31/12
Uranium (AEA)										
Uranium-234	U-233/234	LA-508-471		0.14	.048	pCi/g	1	0.017		08/01/12
Uranium-235	15117-96-1	LA-508-471	U	7.9E-3	.0097	pCi/g	1	0.014		08/01/12
Uranium-238	U-238	LA-508-471		0.18	.056	pCi/g	1	4.9E-3		08/01/12
Preparation for GEA (S)										**07/23/12**
Gamma Energy Analysis-general										
Cesium-137	10045-97-3	LA-508-481		0.050	.024	pCi/g	1	0.020		07/25/12
Cobalt-60	10198-40-0	LA-508-481	U	1.2E-3	.0097	pCi/g	1	0.018		07/25/12
Europium-152	14683-23-9	LA-508-481	U	0.013	.034	pCi/g	1	0.063		07/25/12
Europium-154	15585-10-1	LA-508-481	U	-0.013	.031	pCi/g	1	0.054		07/25/12
Europium-155	14391-16-3	LA-508-481	U	0.035	.051	pCi/g	1	0.090		07/25/12
Strontium 89/90 SOLID/SOIL PREP										**07/24/12**
Strontium 89/90 (GPC/GEA)										

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

B - Analyte was detected in both the BLANK and SAMPLE
U - Analyzed for but not detected above limiting criteria.
N - Spike Recovery is Outside Control Limits.
X,Y or Z - See comment detail and/or narrative.
PQL is equivalent to Estimated Quantitation Limit (EQL)

WSCF Analytical Results Report

Attention Scot Fitzgerald
Department Radiochemistry

Group # WSCF120925

Sample # 120925012
SAF# F12-030
Sample ID B2LWK7

Matrix SOIL
Sampled 07/18/12
Received 07/18/12

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
Strontium-89_90	SR-RAD	LA-220-406	U	3.6E-4	.26	pCi/g	1	0.60		07/31/12

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

B - Analyte was detected in both the BLANK and SAMPLE
U - Analyzed for but not detected above limiting criteria.
N - Spike Recovery is Outside Control Limits.
X,Y or Z - See comment detail and/or narrative.
PQL is equivalent to Estimated Quantitation Limit (EQL)

WSCF Analytical Results Report

Attention Scot Fitzgerald
Department Radiochemistry

Group # WSCF120925

Sample # 120925013
SAF# F12-030
Sample ID B2LWK8

Matrix SOIL
Sampled 07/18/12
Received 07/18/12

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
Am/Cm/Pu/U/Np Prep (AEA) S										**07/27/12**
Americium/Curium (AEA)										
Americium-241	14596-10-2	LA-508-471		0.021	.016	pCi/g	1	0.019		07/31/12
Plutonium (AEA)										
Plutonium-238	13981-16-3	LA-508-471	U	-1.8E-7	.013	pCi/g	1	0.028		07/31/12
Plutonium-239_240	PU-239/240	LA-508-471	U	0.011	.014	pCi/g	1	0.023		07/31/12
Uranium (AEA)										
Uranium-234	U-233/234	LA-508-471		0.17	.055	pCi/g	1	5.1E-3		08/01/12
Uranium-235	15117-96-1	LA-508-471		0.020	.014	pCi/g	1	5.5E-3		08/01/12
Uranium-238	U-238	LA-508-471		0.13	.046	pCi/g	1	5.1E-3		08/01/12
Preparation for GEA (S)										**07/23/12**
Gamma Energy Analysis-general										
Cesium-137	10045-97-3	LA-508-481		0.11	.027	pCi/g	1	0.019		07/25/12
Cobalt-60	10198-40-0	LA-508-481	U	4.5E-3	.0099	pCi/g	1	0.019		07/25/12
Europium-152	14683-23-9	LA-508-481	U	0.088	.049	pCi/g	1	0.070		07/25/12
Europium-154	15585-10-1	LA-508-481	U	7.9E-3	.034	pCi/g	1	0.063		07/25/12
Europium-155	14391-16-3	LA-508-481	U	0.033	.049	pCi/g	1	0.086		07/25/12
Strontium 89/90 SOLID/SOIL PREP										**07/24/12**
Strontium 89/90 (GPC/GEA)										

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

B - Analyte was detected in both the BLANK and SAMPLE
U - Analyzed for but not detected above limiting criteria.
N - Spike Recovery is Outside Control Limits.
X,Y or Z - See comment detail and/or narrative.
PQL is equivalent to Estimated Quantitation Limit (EQL)

WSCF Analytical Results Report

Attention Scot Fitzgerald
Department Radiochemistry

Group # WSCF120925

Sample # 120925013
SAF# F12-030
Sample ID B2LWK8

Matrix SOIL
Sampled 07/18/12
Received 07/18/12

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
Strontium-89_90	SR-RAD	LA-220-406	U	0.0040	.27	pCi/g	1	0.66		07/31/12

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

B - Analyte was detected in both the BLANK and SAMPLE
U - Analyzed for but not detected above limiting criteria.
N - Spike Recovery is Outside Control Limits.
X,Y or Z - See comment detail and/or narrative.
PQL is equivalent to Estimated Quantitation Limit (EQL)

WSCF Analytical Results Report

Attention Scot Fitzgerald
Department Radiochemistry

Group # WSCF120925

Sample # 120925014
SAF# F12-030
Sample ID B2LWK9

Matrix SOIL
Sampled 07/18/12
Received 07/18/12

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
Am/Cm/Pu/U/Np Prep (AEA) S										**07/27/12**
Americium/Curium (AEA)										
Americium-241	14596-10-2	LA-508-471		0.023	.017	pCi/g	1	0.023		07/31/12
Plutonium (AEA)										
Plutonium-238	13981-16-3	LA-508-471	U	2.7E-3	.011	pCi/g	1	0.025		07/31/12
Plutonium-239_240	PU-239/240	LA-508-471		0.019	.014	pCi/g	1	7.3E-3		07/31/12
Uranium (AEA)										
Uranium-234	U-233/234	LA-508-471		0.19	.059	pCi/g	1	0.017		08/01/12
Uranium-235	15117-96-1	LA-508-471		0.012	.011	pCi/g	1	6.7E-3		08/01/12
Uranium-238	U-238	LA-508-471		0.17	.054	pCi/g	1	0.017		08/01/12
Preparation for GEA (S)										**07/23/12**
Gamma Energy Analysis-general										
Cesium-137	10045-97-3	LA-508-481		0.19	.037	pCi/g	1	0.020		07/25/12
Cobalt-60	10198-40-0	LA-508-481	U	5.5E-3	.011	pCi/g	1	0.020		07/25/12
Europium-152	14683-23-9	LA-508-481		0.19	.049	pCi/g	1	0.057		07/25/12
Europium-154	15585-10-1	LA-508-481	U	0.013	.03	pCi/g	1	0.061		07/25/12
Europium-155	14391-16-3	LA-508-481	U	4.2E-5	.052	pCi/g	1	0.093		07/25/12
Strontium 89/90 SOLID/SOIL PREP										**07/24/12**
Strontium 89/90 (GPC/GEA)										

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

B - Analyte was detected in both the BLANK and SAMPLE
U - Analyzed for but not detected above limiting criteria.
N - Spike Recovery is Outside Control Limits.
X,Y or Z - See comment detail and/or narrative.
PQL is equivalent to Estimated Quantitation Limit (EQL)

WSCF Analytical Results Report

Attention Scot Fitzgerald
Department Radiochemistry

Group # WSCF120925

Sample # 120925014
SAF# F12-030
Sample ID B2LWK9

Matrix SOIL
Sampled 07/18/12
Received 07/18/12

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
Strontium-89_90	SR-RAD	LA-220-406	U	0.22	.24	pCi/g	1	0.60		07/31/12

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

B - Analyte was detected in both the BLANK and SAMPLE
U - Analyzed for but not detected above limiting criteria.
N - Spike Recovery is Outside Control Limits.
X,Y or Z - See comment detail and/or narrative.
PQL is equivalent to Estimated Quantitation Limit (EQL)

Appendix 4

Laboratory Narrative and Chain-of-Custody Documentation

Attachment 2
Narrative
WSCF120925

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 SDR12-322 regarding Americium-241 LCS failure 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.

Analytical Methodology for Requested Analyses

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

Inorganic Comments

Attachment 2
Narrative
WSCF120925

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

- Batch QC 205241
  - Barium, Vanadium, Zinc and Strontium – Matrix Spike and/or Matrix Spike Duplicate recoveries are outside established laboratory limits. Affected sample results in this batch were "N" flagged.
  - Vanadium and Manganese were detected in the Blank and evaluated.
  - Manganese – 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, Blank and Laboratory Control Sample were analyzed with this delivery group. Analytical Note(s):

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

Gamma Energy Analysis:

- Batch QC 204999
  - Cesium-137 – Duplicate Relative Percent Difference(s) (RPD) did not meet the established laboratory limits. Duplicate Relative Percent Difference (RPD) does not apply to results below 5X the minimum detectable activity. No flags issued.
  - All other applicable QC controls are within the established limits.

Americium-241:

- Batch QC 204950
  - Duplicate Relative Percent Difference(s) (RPD) did not meet the established laboratory limits. Duplicate Relative Percent Difference (RPD) does not apply to results below 5X the minimum detectable activity. No flags issued.

Attachment 2
Narrative
WSCF120925

- The LCS recovery was outside laboratory acceptance limits.
- All other applicable QC controls are within the established limits.

Isotopic Plutonium analysis:

- Batch QC 204950
  - Plutonium 239/240 – The Blank is less than five times the MDC. "B" Flag not required.
  - Plutonium 239/240 – The LCS recovery was outside laboratory acceptance limits, but within the 70 – 130% range allowed in the SOW.
  - All other applicable QC controls are within the established limits.

Isotopic Uranium analysis:

- Batch QC 204950
  - Uranium-234 – The Blank is less than two times the RDL. "B" Flag not required.
  - Uranium-238 – Duplicate Relative Percent Difference(s) (RPD) did not meet the established laboratory limits. Duplicate Relative Percent Difference (RPD) does not apply to results near the minimum detectable activity. No flags issued.
  - All other applicable QC controls are within the established limits.

Strontium-89/90:

- All applicable QC controls are within the established limits.

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.

Narrative

Attachment 2
Narrative
WSCF120925

SAMPLE ISSUE RESOLUTION

SIR NUM	SDR12-322
REV NUM	0
DATE INITIATED	7/31/2012

SAMPLE EVENT INFORMATION

SAF NUM(S)	F12-030
OPERABLE UNIT(S)	100-KR-2
PROJECT(S)	100 K RA
SAMPLE EVENT TITLE(S)	100 K Remedial Action
LABORATORY	Waste Sampling & Characterization

SAMPLING INFORMATION

NUMBER OF SAMPLES	7
SAMPLE NUMBERS	B2LWK1, B2LWK2, B2LWL0, B2LWL1, B2LWL2, B2LWL3, B2LWL4
SAMPLE MATRIX	SOIL
COLLECTION DATE	7/18/2012 - 7/18/2012
SDG NUM	WSCF120925

ISSUE BACKGROUND

CLASS	Laboratory Issue
TYPE	Quality Control Failure
DESCRIPTION	Am-241 LCS was high at 131.3% with laboratory control limits of 80-120% and SOW limits of 70-130%. The blank was non-detect. The results were at or below the MDC.

DISPOSITION

DESCRIPTION	PROPOSED DISPOSITION: Report the data as-is and note the QC failures in the case narrative.
JUSTIFICATION	ACCEPTED DISPOSITION: Accept proposed resolution.

SUBMITTED BY: Heather Medley/WSCF DATE: 7/31/12

ACCEPTED BY: Steve Trent/CHPRC DATE: 8/1/12
Jennifer Hammons/CHPRC DATE: 8/1/12

A-6003-640 (03/30)

PAGE 1 of 1

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F12-030-033	PAGE 1 OF 2
COLLECTOR: Dan Sparks	COMPANY CONTACT: TRENT, SJ	TELEPHONE NO.: 373-5869	PROJECT COORDINATOR: TRENT, SJ	PRICE CODE: BC	DATA TURNAROUND: 15 Days / 15 Days
SAMPLING LOCATION: Area AG Stockpile #3 Sample #10	PROJECT DESIGNATION: Area AG Sampling (Waste Area AG) Verification - Soil		SAF NO.: F12-030	AIR QUALITY: ☐	
ICE CHEST NO.: NA	FIELD LOGBOOK NO.: HNF -N-507	ACTUAL SAMPLE DEPTH: Surface	COA: 302677ES10	METHOD OF SHIPMENT: GOVERNMENT VEHICLE	ORIGINAL
SHIPPED TO: Waste Sampling & Characterization	OFFSITE PROPERTY NO.: N/A		BILL OF LADING/AIR BILL NO.: N/A		

MATRIX*: A=Air, DL=Drum Liquids, DS=Drum Solids, L=Liquid, O=Oil, S=Soil, SE=Sediment, T=Tissue, V=Vegetation, W=Water, WI=Wipe, X=Other

POSSIBLE SAMPLE HAZARDS/ REMARKS: Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1993)

120925

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION			Cool~4C	Cool~4C	None	None
HOLDING TIME			28 Days	30 Days	6 Months	6 Months
TYPE OF CONTAINER			G/P	G/P	Square Bottle - Poly	G/P
NO. OF CONTAINER(S)			1	1	1	1
VOLUME			120mL	60mL	500mL	120mL
SAMPLE ANALYSIS			SEE ITEM (1) IN SPECIAL INSTRUCTIONS 2018	Chromium Hex - 7196;	SEE ITEM (2) IN SPECIAL INSTRUCTIONS GEP	SEE ITEM (3) IN SPECIAL INSTRUCTIONS Pu Sr Am U
SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME			
B2LWL0	SOIL	JUL 18 2012	0800	X	X	X	X

TRVL- 12- 062

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS
RELINQUISHED BY/REMOVED FROM: Dan Sparks	DATE/TIME: 1220 JUL 18 2012	RECEIVED BY/STORED IN: TA FRAZIER	DATE/TIME: 1220 JUL 18 2012	SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS
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	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 7/16/2012

A-6003-618 (REV 2)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F12-030-033	PAGE 2 OF 2
COLLECTOR Dan Sparks	COMPANY CONTACT TRENT, SJ	TELEPHONE NO. 373-5869	PROJECT COORDINATOR TRENT, SJ	PRICE CODE 8C	DATA TURNARDUND 15 Days / 15 Days
SAMPLING LOCATION Area AG Stockpile #3 Sample #10	PROJECT DESIGNATION Area AG Sampling (Waste Area AG) Verification - Soil		SAF NO. F12-030	AIR QUALITY ☐	
ICE CHEST NO. NA	FIELD LOGBOOK NO. HNF-N-507-25	ACTUAL SAMPLE DEPTH See below	COA 302677ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	ORIGINAL
SHIPPED TO Waste Sampling & Characterization	OFFSITE PROPERTY NO. N/A		BILL OF LADING/AIR BILL NO. N/A		

SPECIAL INSTRUCTIONS

** The CACN for WSCF Analytical is 402580ES20.☐** The 100 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF.
(1) 200.8_HG - ICPMS {Mercury}; ICP/MS - 200.8 (TAL) {Antimony, Barium, Cadmium, Chromium, Cobalt, Copper, Manganese, Nickel, Silver, Vanadium, Zinc}; ICP/MS - 200.8 (Add-on) {Arsenic, Beryllium, Lead, Molybdenum, Selenium, Strontium, Tin, Uranium};
(2) Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155};
(3) Isotopic Plutonium {Plutonium-238, Plutonium-239/240}; Isotopic Uranium {Uranium-233/234, Uranium-235, Uranium-238}; Strontium-89,90 -- Total Sr; Americium-241;

TRVL- 12- 062

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A-6003-618 (REV 2)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F12-030-034	PAGE 1 OF 2
COLLECTOR: Dan Sparks	COMPANY CONTACT: TRENT, SJ	TELEPHONE NO.: 373-5869	PROJECT COORDINATOR: TRENT, SJ	PRICE CODE: 8C	DATA TURNAROUND: 15 Days / 15 Days
SAMPLING LOCATION: Area AG Stockpile #3 Sample #11	PROJECT DESIGNATION: Area AG Sampling (Waste Area AG) Verification - Soil		SAF NO.: F12-030	AIR QUALITY: [ ]	
ICE CHEST NO.: NA	FIELD LOGBOOK NO.: HNF-N-507-25	ACTUAL SAMPLE DEPTH: Surface	COA: 302677ES10	METHOD OF SHIPMENT: GOVERNMENT VEHICLE	ORIGINAL
SHIPPED TO: Waste Sampling & Characterization	OFFSITE PROPERTY NO.: N/A		BILL OF LADING/AIR BILL NO.: N/A		

MATRIX*: A=Air, DL=Drum Liquids, DS=Drum Solids, L=Liquid, O=Oil, S=Soil, SE=Sediment, T=Tissue, V=Vegetation, W=Water, WI=Wipe, X=Other

POSSIBLE SAMPLE HAZARDS/ REMARKS: Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1993)

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	Cool~4C	Cool~4C	None	None
HOLDING TIME	28 Days	30 Days	6 Months	6 Months
TYPE OF CONTAINER	G/P	G/P	Square Bottle - Poly	G/P
NO. OF CONTAINER(S)	1	1	1	1
VOLUME	120mL	60mL	500mL	120mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	Chromium Hex - 7196;	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	SEE ITEM (3) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME				
B2LWL1	2 SOIL	JUL 18 2012	0805	X	X	X	X

TRVL 12- 062

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS
RELINQUISHED BY/REMOVED FROM: Dan Sparks	DATE/TIME: 1220 JUL 18 2012	RECEIVED BY/STORED IN: A Frazier	DATE/TIME: 1220 JUL 18 2012	SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS
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	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 7/16/2012

A-6003-618 (REV 2)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F12-030-034	PAGE 2 OF 2
COLLECTOR Dan Sparks	COMPANY CONTACT TRENT, SJ	TELEPHONE NO. 373-5869	PROJECT COORDINATOR TRENT, SJ	PRICE CODE 8C AIR QUALITY	DATA TURNAROUND 15 Days / 15 Days
SAMPLING LOCATION Area AG Stockpile #3 Sample #11	PROJECT DESIGNATION Area AG Sampling (Waste Area AG) Verification - Soil		SAF NO. F12-030		
ICE CHEST NO. NA	FIELD LOGBOOK NO. INF-N-507- 215	ACTUAL SAMPLE DEPTH Surface	COA 302677ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	ORIGINAL
SHIPPED TO Waste Sampling & Characterization	OFFSITE PROPERTY NO. N/A		BILL OF LADING/AIR BILL NO. N/A		

SPECIAL INSTRUCTIONS

** The CACN for WSCF Analytical is 402580ES20.□** The 100 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF.
(1) 200.8_HG - ICPMS {Mercury}; ICP/MS - 200.8 (TAL) {Antimony, Barium, Cadmium, Chromium, Cobalt, Copper, Manganese, Nickel, Silver, Vanadium, Zinc}; ICP/MS - 200.8 (Add-on) {Arsenic, Beryllium, Lead, Molybdenum, Selenium, Strontium, Tin, Uranium};
(2) Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155};
(3) Isotopic Plutonium {Plutonium-238, Plutonium-239/240}; Isotopic Uranium {Uranium-233/234, Uranium-235, Uranium-238}; Strontium-89,90 -- Total Sr; Americium-241;

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A-6003-618 (REV 2)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		F12-030-035	PAGE 1 OF 2
COLLECTOR: Dan Sparks	COMPANY CONTACT: TRENT, SJ	TELEPHONE NO.: 373-5869	PROJECT COORDINATOR: TRENT, SJ	PRICE CODE: 8C
SAMPLING LOCATION: Area AG Stockpile #3 Sample #12	PROJECT DESIGNATION: Area AG Sampling (Waste Area AG) Verification - Soil		SAF NO.: F12-030	AIR QUALITY: ☐
ICE CHEST NO.: NA	FIELD LOGBOOK NO.: HNF-N-507	ACTUAL SAMPLE DEPTH: Surface	COA: 302677ES10	METHOD OF SHIPMENT: GOVERNMENT VEHICLE
SHIPPED TO: Waste Sampling & Characterization	OFFSITE PROPERTY NO.: N/A		BILL OF LADING/AIR BILL NO.: N/A	

DATA TURNAROUND: 15 Days / 15 Days

ORIGINAL

MATRIX*: A=Air, DL=Drum Liquids, DS=Drum Solids, L=Liquid, O=Oil, S=Soil, SF=Sediment, T=Tissue, V=Vegetation, W=Water, WI=Wipe, X=Other

POSSIBLE SAMPLE HAZARDS/ REMARKS: Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1993)

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	Cool<4C	Cool<4C	None	None
HOLDING TIME	28 Days	30 Days	6 Months	6 Months
TYPE OF CONTAINER	G/P	G/P	Square Bottle - Poly	G/P
NO. OF CONTAINER(S)	1	1	1	1
VOLUME	120mL	60mL	500mL	120mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	Chromium Hex - 7196;	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	SEE ITEM (3) IN SPECIAL INSTRUCTIONS

SAMPLE NO.		MATRIX*	SAMPLE DATE	SAMPLE TIME				
B2LWL2	3	SOIL	JUL 18 2012	0909	X	X	X	X

TRVL 12- 062

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS
RELINQUISHED BY/REMOVED FROM: Dan Sparks	DATE/TIME: JUL 18 2012 1220	RECEIVED BY/STORED IN: TA Pnazin	DATE/TIME: JUL 18 2012 1220	SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS
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	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 7/16/2012

A-6003-618 (REV 2)

Chain of Custody

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F12-030-035	PAGE 2 OF 2
COLLECTOR Dan Sparks	COMPANY CONTACT TRENT, SJ	TELEPHONE NO. 373-5869	PROJECT COORDINATOR TRENT, SJ	PRICE CODE 8C	DATA TURNAROUND
SAMPLING LOCATION Area AG Stockpile #3 Sample #12	PROJECT DESIGNATION Area AG Sampling (Waste Area AG) Verification - Soil		SAF NO. F12-030	AIR QUALITY	15 Days / 15 Days
ICE CHEST NO. NA	FIELD LOGBOOK NO. HNF-N-507-	ACTUAL SAMPLE DEPTH Surface	COA 302677ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	ORIGINAL
SHIPPED TO Waste Sampling & Characterization	OFFSITE PROPERTY NO. N/A		BILL OF LADING/AIR BILL NO. N/A		

SPECIAL INSTRUCTIONS

** The CACN for WSCF Analytical is 402580ES20.□** The 100 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF.
(1) 200.8_HG - ICPMS {Mercury}; ICP/MS - 200.8 (TAL) {Antimony, Barium, Cadmium, Chromium, Cobalt, Copper, Manganese, Nickel, Silver, Vanadium, Zinc}; ICP/MS - 200.8 (Add-on) {Arsenic, Beryllium, Lead, Molybdenum, Selenium, Strontium, Tin, Uranium};
(2) Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155};
(3) Isotopic Plutonium {Plutonium-238, Plutonium-239/240}; Isotopic Uranium {Uranium-233/234, Uranium-235, Uranium-238}; Strontium-89,90 -- Total Sr; Americium-241;

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A 6003 618 (REV 2)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F12-030-036	PAGE 1 OF 2
COLLECTOR Dan Sparks	COMPANY CONTACT TRENT, SJ	TELEPHONE NO. 373-5869	PROJECT COORDINATOR TRENT, SJ	PRICE CODE 8C AIR QUALITY ☐	DATA TURNAROUND 15 Days / 15 Days
SAMPLING LOCATION Area AG Stockpile #3 Sample #13	PROJECT DESIGNATION Area AG Sampling (Waste Area AG) Verification Soil		SAF NO. F12-030		
ICE CHEST NO. N/A	FIELD LOGBOOK NO. HNF-N-507-25	ACTUAL SAMPLE DEPTH Surface	COA 302677ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	ORIGINAL
SHIPPED TO Waste Sampling & Characterization	OFFSITE PROPERTY NO. N/A		BILL OF LADING/AIR BILL NO. N/A		

MATRIX*: A=Air, DI=Drum Liquids, DS=Drum Solids, L=Liquid, O=Oil, S=Soil, SF=Sediment, T=Tissue, V=Vegetation, W=Water, WI=Wipe, X=Other

POSSIBLE SAMPLE HAZARDS/ REMARKS: Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1993)

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	Cool~4C	Cool~4C	None	None
HOLDING TIME	28 Days	30 Days	6 Months	6 Months
TYPE OF CONTAINER	G/P	G/P	Square Bottle - Poly	G/P
NO. OF CONTAINER(S)	1	1	1	1
VOLUME	120mL	60mL	500mL	120mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	Chromium Hex - 7196;	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	SEE ITEM (3) IN SPECIAL INSTRUCTIONS

SAMPLE NO.		MATRIX*	SAMPLE DATE	SAMPLE TIME				
B2LWL3	4	SOIL	JUL 18 2012	0810	✓	✓	✓	✓

TRVL 12- 062

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS
RELINQUISHED BY/REMOVED FROM Dan Sparks	DATE/TIME 1220 JUL 18 2012	RECEIVED BY/STORED IN TA Fmazim	DATE/TIME 1220 JUL 18 2012	SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS
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	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

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A-6003-618 (REV 7)

Chain of Custody

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F12-030-036	PAGE 2 OF 2
COLLECTOR Dan Sparks	COMPANY CONTACT TRENT, SJ	TELEPHONE NO. 373-5869	PROJECT COORDINATOR TRENT, SJ	PRICE CODE 8C AIR QUALITY [ ]	DATA TURNAROUND 15 Days / 15 Days
SAMPLING LOCATION Area AG Stockpile #3 Sample #13	PROJECT DESIGNATION Area AG Sampling (Waste Area AG) Verification - Soil		SAF NO. F12-030		
ICE CHEST NO. NA	FIELD LOGBOOK NO. HNF-N-507-25	ACTUAL SAMPLE DEPTH Surface	COA 302677ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	ORIGINAL
SHIPPED TO Waste Sampling & Characterization	OFFSITE PROPERTY NO. N/A		BILL OF LADING/AIR BILL NO. N/A		

SPECIAL INSTRUCTIONS

** The CACN for WSCF Analytical is 402580ES20.□** The 100 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF.
(1) 200.8_HG - ICPMS {Mercury}; ICP/MS - 200.8 (TAL) {Antimony, Barium, Cadmium, Chromium, Cobalt, Copper, Manganese, Nickel, Silver, Vanadium, Zinc}; ICP/MS - 200.8 (Add-on) {Arsenic, Beryllium, Lead, Molybdenum, Selenium, Strontium, Tin, Uranium};
(2) Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155};
(3) Isotopic Plutonium {Plutonium-238, Plutonium-239/240}; Isotopic Uranium {Uranium-233/234, Uranium-235, Uranium-238}; Strontium-89,90 -- Total Sr; Americium-241;

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CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F12-030-037	PAGE 1 OF 2
COLLECTOR: DJ Sparks CHPRC	COMPANY CONTACT: TRENT, SJ	TELEPHONE NO.: 373-5869	PROJECT COORDINATOR: TRENT, SJ	PRICE CODE: 8C	DATA TURNAROUND: 15 Days / 15 Days
SAMPLING LOCATION: Area AG Stockpile #3 Sample #14	PROJECT DESIGNATION: Area AG Sampling (Waste Area AG) Verification - Soil		SAF NO.: F12-030	AIR QUALITY: ☐	
ICE CHEST NO.: NA	FIELD LOGBOOK NO.: HNF-N-507-25	ACTUAL SAMPLE DEPTH: NA	COA: 302677ES10	METHOD OF SHIPMENT: GOVERNMENT VEHICLE	ORIGINAL
SHIPPED TO: Waste Sampling & Characterization	OFFSITE PROPERTY NO.: N/A		BILL OF LADING/AIR BILL NO.: N/A		

MATRIX*: A=Air, DI=Drum Liquids, DS=Drum Solids, L=Liquid, O=Oil, S=Soil, SE=Sediment, T=Tissue, V=Vegetation, W=Water, WI=Wipe, X=Other

POSSIBLE SAMPLE HAZARDS/ REMARKS: Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1993)

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	Cool~4C	Cool~4C	None	None
HOLDING TIME	28 Days	30 Days	6 Months	6 Months
TYPE OF CONTAINER	G/P	G/P	Square Bottle - Poly	G/P
NO. OF CONTAINER(S)	1	1	1	1
VOLUME	120mL	60mL	500mL	120mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	Chromium Hex - 7196;	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	SEE ITEM (3) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME				
B2LWL4 5	SOIL	JUL 18 2012	0754	X	X	X	X

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CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS
RELINQUISHED BY/REMOVED FROM: DJ Sparks CHPRC	DATE/TIME: JUL 18 2012	RECEIVED BY/STORED IN: C Johnson	DATE/TIME: JUL 18 2012 0820	SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS
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	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 7/16/2012

A-6003-618 (REV 2)

Chain of Custody

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F12-030-037	PAGE 2 OF 2
COLLECTOR Dan Sparks	COMPANY CONTACT TRENT, SJ	TELEPHONE NO. 373-5869	PROJECT COORDINATOR TRENT, SJ	PRICE CODE 8C AIR QUALITY	DATA TURNAROUND 15 Days / 15 Days
SAMPLING LOCATION Area AG Stockpile #3 Sample #14	PROJECT DESIGNATION Area AG Sampling (Waste Area AG) Verification - Soil		SAF NO. F12-030		
ICE CHEST NO. NA	FIELD LOGBOOK NO. 25	ACTUAL SAMPLE DEPTH NA	COA 302677ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	ORIGINAL
SHIPPED TO Waste Sampling & Characterization	OFFSITE PROPERTY NO. N/A		BILL OF LADING/AIR BILL NO. N/A		

SPECIAL INSTRUCTIONS

** The CACN for WSCF Analytical is 402580ES20.LJ** The 100 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF.
(1) 200.8_HG - ICPMS {Mercury}; ICP/MS - 200.8 (TAL) {Antimony, Barium, Cadmium, Chromium, Cobalt, Copper, Manganese, Nickel, Silver, Vanadium, Zinc}; ICP/MS - 200.8 (Add-on) {Arsenic, Beryllium, Lead, Molybdenum, Selenium, Strontium, Tin, Uranium};
(2) Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155};
(3) Isotopic Plutonium {Plutonium-238, Plutonium-239/240}; Isotopic Uranium {Uranium-233/234, Uranium-235, Uranium-238}; Strontium-89,90 -- Total Sr; Americium-241;

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Sample Receipt

Chain of Custody

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F12-030-024	PAGE 1 OF 2
COLLECTOR: DJ Sparks CHPRC	COMPANY CONTACT: TRENT, SJ	TELEPHONE NO.: 373-5869	PROJECT COORDINATOR: TRENT, SJ	PRICE CODE: 8C	DATA TURNAROUND: 15 Days / 15 Days
SAMPLING LOCATION: Area AG Stockpile #3 Sample #1	PROJECT DESIGNATION: Area AG Sampling (Waste Area AG) Verification - Soil		SAF NO.: F12-030	AIR QUALITY: ☐	
ICE CHEST NO.: N/A	FIELD LOGBOOK NO.: HNF-N-507-25	ACTUAL SAMPLE DEPTH: Surface	COA: 302677ES10	METHOD OF SHIPMENT: GOVERNMENT VEHICLE	ORIGINAL
SHIPPED TO: Waste Sampling & Characterization	OFFSITE PROPERTY NO.: N/A		BILL OF LADING/AIR BILL NO.: N/A		

MATRIX*: A=Air, DL=Drum Liquids, DS=Drum Solids, L=Liquid, O=Oil, S=Soil, SE=Sediment, T=Tissue, V=Vegetation, W=Water, WI=Wipe, X=Other

POSSIBLE SAMPLE HAZARDS/ REMARKS: Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1993)

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	Cool~4C	Cool~4C	None	None
HOLDING TIME	28 Days	30 Days	6 Months	6 Months
TYPE OF CONTAINER	G/P	G/P	Square Bottle - Poly	G/P
NO. OF CONTAINER(S)	1	1	1	1
VOLUME	120mL	60mL	500mL	120mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	Chromium Hex - 7196;	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	SEE ITEM (3) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME				
B2LWK1 6	SOIL	JUL 18 2012	0757	X	X	X	X

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CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS
RELINQUISHED BY/REMOVED FROM: DJ Sparks CHPRC	DATE/TIME: JUL 18 2012 1220	RECEIVED BY/STORED IN: C. Johnson	DATE/TIME: JUL 18 2012 1220	SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS
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	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 7/16/2012

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Sample Receipt

Chain of Custody

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F12-030-024	PAGE 2 OF 2
COLLECTOR Dan Sparks	COMPANY CONTACT TRENT, SJ	TELEPHONE NO. 373-5869	PROJECT COORDINATOR TRENT, SJ	PRICE CODE 8C	DATA TURNAROUND 15 Days / 15 Days
SAMPLING LOCATION Area AG Stockpile #3 Sample #1	PROJECT DESIGNATION Area AG Sampling (Waste Area AG) Verification - Soil		SAF NO. F12-030	AIR QUALITY ☐	
ICE CHEST NO. NA	FIELD LOGBOOK NO. HNF -N-507- 25	ACTUAL SAMPLE DEPTH Surfaces	COA 302677ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	ORIGINAL
SHIPPED TO Waste Sampling & Characterization	OFFSITE PROPERTY NO. N/A		BILL OF LADING/AIR BILL NO. N/A		

SPECIAL INSTRUCTIONS

** The CACN for WSCF Analytical is 402580ES20.☐** The 100 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF.
(1) 200.8_HG - ICPMS {Mercury}; ICP/MS - 200.8 (TAL) {Antimony, Barium, Cadmium, Chromium, Cobalt, Copper, Manganese, Nickel, Silver, Vanadium, Zinc}; ICP/MS - 200.8 (Add-on) {Arsenic, Beryllium, Lead, Molybdenum, Selenium, Strontium, Tin, Uranium};
(2) Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155};
(3) Isotopic Plutonium {Plutonium-238, Plutonium-239/240}; Isotopic Uranium {Uranium-233/234, Uranium-235, Uranium-238}; Strontium-89,90 -- Total Sr; Americium-241;

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Sample Receipt

Chain of Custody

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		F12-030-025	PAGE 1 OF 2
COLLECTOR: Dan Sparks	COMPANY CONTACT: TRENT, SJ	TELEPHONE NO.: 373-5869	PROJECT COORDINATOR: TRENT, SJ	PRICE CODE: 8C; AIR QUALITY: ☐	DATA TURNAROUND: 15 Days / 15 Days
SAMPLING LOCATION: Area AG Stockpile #3 Sample #2	PROJECT DESIGNATION: Area AG Sampling (Waste Area AG) Verification - Soil		SAF NO.: F12-030	
ICE CHEST NO.: NA	FIELD LOGBOOK NO.: HNF-N-507-23	ACTUAL SAMPLE DEPTH: Surface	COA: 302677ES10	METHOD OF SHIPMENT: GOVERNMENT VEHICLE	ORIGINAL
SHIPPED TO: Waste Sampling & Characterization	OFFSITE PROPERTY NO.: N/A		BILL OF LADING/AIR BILL NO.: N/A	

MATRIX*: A=Air, DL=Drum Liquids, DS=Drum Solids, L=Liquid, O=Oil, S=Soil, SE=Sediment, T=Tissue, V=Vegetation, W=Water, WI=Wipe, X=Other

POSSIBLE SAMPLE HAZARDS/ REMARKS: Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1993)

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	Cool~4C	Cool~4C	None	None
HOLDING TIME	28 Days	30 Days	6 Months	6 Months
TYPE OF CONTAINER	G/P	G/P	Square Bottle - Poly	G/P
NO. OF CONTAINER(S)	1	1	1	1
VOLUME	120mL	60mL	500mL	120mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	Chromium Hex - 7196;	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	SEE ITEM (3) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME				
B2LWK2 7	SOIL	JUL 18 2012	0800	X	X	X	X

TRL 12- 062

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS
RELINQUISHED BY/REMOVED FROM: Dan Sparks	DATE/TIME: JUL 18 2012 2:20	RECEIVED BY/STORED IN: C Johnson	DATE/TIME: JUL 18 2012 2:20	SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS
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	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

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CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F12-030-025	PAGE 2 OF 2
COLLECTOR Dan Sparks	COMPANY CONTACT TRENT, SJ	TELEPHONE NO. 373-5869	PROJECT COORDINATOR TRENT, SJ	PRICE CODE 8C AIR QUALITY ☐	DATA TURNAROUND 15 Days / 15 Days
SAMPLING LOCATION Area AG Stockpile #3 Sample #2	PROJECT DESIGNATION Area AG Sampling (Waste Area AG) Verification - Soil		SAF NO. F12-030		
ICE CHEST NO.	FIELD LOGBOOK NO. HNF-N-502	ACTUAL SAMPLE DEPTH Surface	COA 302677ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	ORIGINAL
SHIPPED TO Waste Sampling & Characterization	OFFSITE PROPERTY NO. N/A		BILL OF LADING/AIR BILL NO. N/A		

SPECIAL INSTRUCTIONS

** The CACN for WSCF Analytical is 402580ES20.☐** The 100 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF.
(1) 200.8_HG - ICPMS {Mercury}; ICP/MS - 200.8 (TAL) {Antimony, Barium, Cadmium, Chromium, Cobalt, Copper, Manganese, Nickel, Silver, Vanadium, Zinc}; ICP/MS - 200.8 (Add-on) {Arsenic, Beryllium, Lead, Molybdenum, Selenium, Strontium, Tin, Uranium};
(2) Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155};
(3) Isotopic Plutonium {Plutonium-238, Plutonium-239/240}; Isotopic Uranium {Uranium-233/234, Uranium-235, Uranium-238}; Strontium-89,90 -- Total Sr; Americium-241;

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CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F12-030-026	PAGE 1 OF 2
COLLECTOR: Dan Sparks	COMPANY CONTACT: TRENT, SJ	TELEPHONE NO.: 373-5869	PROJECT COORDINATOR: TRENT, SJ	PRICE CODE: 8C	DATA TURNAROUND: 15 Days / 15 Days
SAMPLING LOCATION: Area AG Stockpile #3 Sample #3	PROJECT DESIGNATION: Area AG Sampling (Waste Area AG) Verification - Soil		SAF NO.: F12-030	AIR QUALITY: ☐	
ICE CHEST NO.: NA	FIELD LOGBOOK NO.: HNF-N-507-25	ACTUAL SAMPLE DEPTH: Surface	COA: 302677ES10	METHOD OF SHIPMENT: GOVERNMENT VEHICLE	ORIGINAL
SHIPPED TO: Waste Sampling & Characterization	OFFSITE PROPERTY NO.: N/A		BILL OF LADING/AIR BILL NO.: N/A		

MATRIX*: A=Air, DL=Drum Liquids, DS=Drum Solids, L=Liquid, O=Oil, S=Soil, SE=Sediment, T=Tissue, V=Vegetation, W=Water, WI=Wipe, X=Other

POSSIBLE SAMPLE HAZARDS/ REMARKS: Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1993)

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	Cool~4C	Cool~4C	None	None
HOLDING TIME	28 Days	30 Days	6 Months	6 Months
TYPE OF CONTAINER	G/P	G/P	Square Bottle - Poly	G/P
NO. OF CONTAINER(S)	1	1	1	1
VOLUME	120mL	60mL	500mL	120mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	Chromium Hex - 7196;	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	SEE ITEM (3) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME				
B2LWK3 8	SOIL	JUL 18 2012	0805	X	X	X	X

TRVL 12- 062

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS
RELINQUISHED BY/REMOVED FROM: Dan Sparks	DATE/TIME: 1220 JUL 18 2012	RECEIVED BY/STORED IN: TA Fazin	DATE/TIME: 1220 JUL 18 2012	SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS
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	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 7/16/2012

A-6003-618 (REV 2)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F12-030-026	PAGE 2 OF 2
COLLECTOR Dan Sparks	COMPANY CONTACT TRENT, SJ	TELEPHONE NO. 373-5869	PROJECT COORDINATOR TRENT, SJ	PRICE CODE 8C AIR QUALITY ☐	DATA TURNAROUND 15 Days / 15 Days
SAMPLING LOCATION Area AG Stockpile #3 Sample #3	PROJECT DESIGNATION Area AG Sampling (Waste Area AG) Verification - Soil		SAF NO. F12-030		
ICE CHEST NO. NA	FIELD LOGBOOK NO. HNF -N-507-25	ACTUAL SAMPLE DEPTH Surface	COA 302677ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	ORIGINAL
SHIPPED TO Waste Sampling & Characterization	OFFSITE PROPERTY NO. N/A		BILL OF LADING/AIR BILL NO. N/A		

SPECIAL INSTRUCTIONS

** The CACN for WSCF Analytical is 402580ES20.☐** The 100 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF.
(1) 200.8_HG - ICPMS {Mercury}; ICP/MS - 200.8 (TAL) {Antimony, Barium, Cadmium, Chromium, Cobalt, Copper, Manganese, Nickel, Silver, Vanadium, Zinc}; ICP/MS - 200.8 (Add-on) {Arsenic, Beryllium, Lead, Molybdenum, Selenium, Strontium, Tin, Uranium};
(2) Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155};
(3) Isotopic Plutonium {Plutonium-238, Plutonium-239/240}; Isotopic Uranium {Uranium-233/234, Uranium-235, Uranium-238}; Strontium-89,90 -- Total Sr; Americium-241;

TRA 12- 062

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A-6003-618 (REV 2)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F12-030-027	PAGE 1 OF 2
COLLECTOR: Dan Sparks	COMPANY CONTACT: TRENT, SJ	TELEPHONE NO.: 373-5869	PROJECT COORDINATOR: TRENT, SJ	PRICE CODE: 8C	DATA TURNAROUND: 15 Days / 15 Days
SAMPLING LOCATION: Area AG Stockpile #3 Sample #4	PROJECT DESIGNATION: Area AG Sampling (Waste Area AG) Verification - Soil		SAF NO.: F12-030	AIR QUALITY:	
ICE CHEST NO.: NA	FIELD LOGBOOK NO.: HNF-N-507-25	ACTUAL SAMPLE DEPTH: Surface	COA: 302677ES10	METHOD OF SHIPMENT: GOVERNMENT VEHICLE	ORIGINAL
SHIPPED TO: Waste Sampling & Characterization	OFFSITE PROPERTY NO.: N/A		BILL OF LADING/AIR BILL NO.: N/A		

MATRIX*: A=Air, DL=Drum Liquids, DS=Drum Solids, L=Liquid, O=Oil, S=Soil, SE=Sediment, T=Tissue, V=Vegetation, W=Water, WI=Wipe, X=Other

POSSIBLE SAMPLE HAZARDS/ REMARKS: Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1993)

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	Cool~4C	Cool~4C	None	None
HOLDING TIME	28 Days	30 Days	6 Months	6 Months
TYPE OF CONTAINER	G/P	G/P	Square Bottle - Poly	G/P
NO. OF CONTAINER(S)	1	1	1	1
VOLUME	120mL	60mL	500mL	120mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	Chromium Hex - 7196;	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	SEE ITEM (3) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME				
B2LWK4 9	SOIL	JUL 18 2012	0810				

TRN 12- 062

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS
RELINQUISHED BY/REMOVED FROM: Dan Sparks	DATE/TIME: JUL 18 2012 1220	RECEIVED BY/STORED IN: TA Brazier	DATE/TIME: JUL 18 2012 1220	SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS
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	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 7/16/2012

A-6003-618 (REV 2)

Sample Receipt

Chain of Custody

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F12-030-027	PAGE 2 OF 2
COLLECTOR Dan Sparks	COMPANY CONTACT TRENT, SJ	TELEPHONE NO. 373-5869	PROJECT COORDINATOR TRENT, SJ	PRICE CODE 8C	DATA TURNAROUND 15 Days / 15 Days
SAMPLING LOCATION Area AG Stockpile #3 Sample #4	PROJECT DESIGNATION Area AG Sampling (Waste Area AG) Verification - Soil		SAF NO. F12-030	AIR QUALITY ☐	
ICE CHEST NO.	FIELD LOGBOOK NO. HNF-N-507-25	ACTUAL SAMPLE DEPTH Surface	COA 302677ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	ORIGINAL
SHIPPED TO Waste Sampling & Characterization	OFFSITE PROPERTY NO. N/A		BILL OF LADING/AIR BILL NO. N/A		

SPECIAL INSTRUCTIONS

** The CACN for WSCF Analytical is 402580ES20.☐** The 100 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF.
(1) 200.8_HG - ICPMS {Mercury}; ICP/MS - 200.8 (TAL) {Antimony, Barium, Cadmium, Chromium, Cobalt, Copper, Manganese, Nickel, Silver, Vanadium, Zinc}; ICP/MS - 200.8 (Add-on) {Arsenic, Beryllium, Lead, Molybdenum, Selenium, Strontium, Tin, Uranium};
(2) Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155};
(3) Isotopic Plutonium {Plutonium-238, Plutonium-239/240}; Isotopic Uranium {Uranium-233/234, Uranium-235, Uranium-238}; Strontium-89,90 -- Total Sr; Americium-241;

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CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		F12-030-028	PAGE 1 OF 2
COLLECTOR: Don Sparks	COMPANY CONTACT: TRENT, SJ	TELEPHONE NO.: 373-5869	PROJECT COORDINATOR: TRENT, SJ	PRICE CODE: 8C
SAMPLING LOCATION: Area AG Stockpile #3 Sample #5	PROJECT DESIGNATION: Area AG Sampling (Waste Area AG) Verification - Soil		SAF NO.: F12-030	AIR QUALITY:
ICE CHEST NO.: NA	FIELD LOGBOOK NO.: HNF-N-807-25	ACTUAL SAMPLE DEPTH: Surface	COA: 3026//ES10	METHOD OF SHIPMENT: GOVERNMENT VEHICLE
SHIPPED TO: Waste Sampling & Characterization	OFFSITE PROPERTY NO.: N/A		BILL OF LADING/AIR BILL NO.: N/A	

DATA TURNAROUND: 15 Days / 15 Days

ORIGINAL

MATRIX*: A=Air, DI=Drum Liquids, DS=Drum Solids, L=Liquid, O=Oil, S=Soil, SE=Sediment, T=Tissue, V=Vegetation, W=Water, WI=Wipe, X=Other

POSSIBLE SAMPLE HAZARDS/ REMARKS: Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1993)

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	Cool-4C	Cool-4C	None	None
HOLDING TIME	28 Days	30 Days	6 Months	6 Months
TYPE OF CONTAINER	G/P	G/P	Square Bottle - Poly	G/P
NO. OF CONTAINER(S)	1	1	1	1
VOLUME	120mL	60mL	500mL	120mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	Chromium Hex - 7196;	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	SEE ITEM (2) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME				
B2LWK5 10	SOIL	JUL 18 2012	0821	X	X	X	X

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CHAIN OF POSSESSION	DATE/TIME	SIGN/ PRINT NAMES	DATE/TIME
RELINQUISHED BY/REMOVED FROM: Don Sparks	JUL 18 2012 1220	RECEIVED BY/STORED IN: TA Erazin	JUL 18 2012 1220
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
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME

SPECIAL INSTRUCTIONS: SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 7/16/2012

A-6003-618 (REV 2)

Sample Receipt

Chain of Custody

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F12-030-028	PAGE 2 OF 2
COLLECTOR Dan Sparks	COMPANY CONTACT TRENT, SJ	TELEPHONE NO. 373-5869	PROJECT COORDINATOR TRENT, SJ	PRICE CODE 8C AIR QUALITY ☐	DATA TURNAROUND 15 Days / 15 Days
SAMPLING LOCATION Area AG Stockpile #3 Sample #5	PROJECT DESIGNATION Area AG Sampling (Waste Area AG) Verification - Soil		SAF NO. F12-030		
ICE CHEST NO. NA	FIELD LOGBOOK NO. HNF-N-507-95	ACTUAL SAMPLE DEPTH Surface	COA 302677ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	ORIGINAL
SHIPPED TO Waste Sampling & Characterization	OFFSITE PROPERTY NO. N/A		BILL OF LADING/AIR BILL NO. N/A		

SPECIAL INSTRUCTIONS

** The CACN for WSCF Analytical is 402580ES20.LJ** The 100 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF.
(1) 200.8_HG - ICPMS {Mercury}; ICP/MS - 200.8 (TAL) {Antimony, Barium, Cadmium, Chromium, Cobalt, Copper, Manganese, Nickel, Silver, Vanadium, Zinc}; ICP/MS - 200.8 (Add-on) {Arsenic, Beryllium, Lead, Molybdenum, Selenium, Strontium, Tin, Uranium};
(2) Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155};
(3) Isotopic Plutonium {Plutonium-238, Plutonium-239/240}; Isotopic Uranium {Uranium-233/234, Uranium-235, Uranium-238}; Strontium-89,90 -- Total Sr; Americium-241;

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A-6003-618 (REV 2)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F12-030-029	PAGE 1 OF 2
COLLECTOR: Dan Sparks	COMPANY CONTACT: TRENT, SJ	TELEPHONE NO.: 373-5869	PROJECT COORDINATOR: TRENT, SJ	PRICE CODE: 8C	DATA TURNAROUND: 15 Days / 15 Days
SAMPLING LOCATION: Area AG Stockpile #3 Sample #6	PROJECT DESIGNATION: Area AG Sampling (Waste Area AG) Verification - Soil		SAF NO.: F12-030	AIR QUALITY: ☐	
ICE CHEST NO.: N/A	FIELD LOGBOOK NO.: HNF-N-507-25	ACTUAL SAMPLE DEPTH: Surface	COA: 302677ES10	METHOD OF SHIPMENT: GOVERNMENT VEHICLE	ORIGINAL
SHIPPED TO: Waste Sampling & Characterization	OFFSITE PROPERTY NO.: N/A		BILL OF LADING/AIR BILL NO.: N/A		

MATRIX*: A=Air, DL=Drum Liquids, DS=Drum Solids, L=Liquid, O=Oil, S=Soil, SE=Sediment, T=Tissue, V=Vegetation, W=Water, WI=Wipe, X=Other

POSSIBLE SAMPLE HAZARDS/ REMARKS: Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1993)

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	Cool~4C	Cool~4C	None	None	
HOLDING TIME	28 Days	30 Days	6 Months	6 Months	
TYPE OF CONTAINER	G/P	G/P	Square Bottle - Poly	G/P	
NO. OF CONTAINER(S)	1	1	1	1	
VOLUME	120mL	60mL	500mL	120mL	
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	Chromium Hex - 7196;	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	SEE ITEM (3) IN SPECIAL INSTRUCTIONS	
SAMPLE NO. / MATRIX* / SAMPLE DATE / SAMPLE TIME					
B2LWK6 11 / SOIL / JUL 18 2012 / 0825	X	X	X	X	

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CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS
RELINQUISHED BY/REMOVED FROM: Dan Sparks	DATE/TIME: JUL 18 2012 1220	RECEIVED BY/STORED IN: TA Brazim	DATE/TIME: JUL 18 2012 1220	SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS
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	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

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Sample Receipt

Chain of Custody

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F12-030-029	PAGE 2 OF 2
COLLECTOR Dan Sparks	COMPANY CONTACT TRENT, SJ	TELEPHONE NO. 373-5869	PROJECT COORDINATOR TRENT, SJ	PRICE CODE 8C	DATA TURNAROUND 15 Days / 15 Days
SAMPLING LOCATION Area AG Stockpile #3 Sample #6	PROJECT DESIGNATION Area AG Sampling (Waste Area AG) Verification - Soil		SAF NO. F12-030	AIR QUALITY	
ICE CHEST NO. NA	FIELD LOGBOOK NO. HNF-N-507-22	ACTUAL SAMPLE DEPTH Surface	COA 307677ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	ORIGINAL
SHIPPED TO Waste Sampling & Characterization	OFFSITE PROPERTY NO. N/A		BILL OF LADING/AIR BILL NO. N/A		

SPECIAL INSTRUCTIONS

** The CACN for WSCF Analytical is 402580ES20.☐** The 100 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF.
(1) 200.8_HG - ICPMS {Mercury}; ICP/MS - 200.8 (TAL) {Antimony, Barium, Cadmium, Chromium, Cobalt, Copper, Manganese, Nickel, Silver, Vanadium, Zinc}; ICP/MS - 200.8 (Add-on) {Arsenic, Beryllium, Lead, Molybdenum, Selenium, Strontium, Tin, Uranium};
(2) Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155};
(3) Isotopic Plutonium {Plutonium-238, Plutonium-239/240}; Isotopic Uranium {Uranium-233/234, Uranium-235, Uranium-238}; Strontium-89,90 -- Total Sr; Americium-241;

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Sample Receipt

Chain of Custody

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F12-030-030	PAGE 1 OF 2
COLLECTOR: Dan Sparks	COMPANY CONTACT: TRENT, SJ	TELEPHONE NO.: 373-5869	PROJECT COORDINATOR: TRENT, SJ	PRICE CODE: 8C	DATA TURNAROUND: 15 Days / 15 Days
SAMPLING LOCATION: Area AG Stockpile #3 Sample #7	PROJECT DESIGNATION: Area AG Sampling (Waste Area AG) Verification - Soil		SAF NO.: F12-030	AIR QUALITY: ☐	
ICE CHEST NO.: NA	FIELD LOGBOOK NO.: HNF-N-507-25	ACTUAL SAMPLE DEPTH: [illegible]	COA: 302677ES10	METHOD OF SHIPMENT: GOVERNMENT VEHICLE	ORIGINAL
SHIPPED TO: Waste Sampling & Characterization	OFFSITE PROPERTY NO.: N/A		BILL OF LADING/AIR BILL NO.: N/A		

MATRIX*: A=Air, DL=Drum Liquids, DS=Drum Solids, L=Liquid, O=Oil, S=Soil, SE=Sediment, T=Tissue, V=Vegetation, W=Water, WI=Wipe, X=Other

POSSIBLE SAMPLE HAZARDS/ REMARKS: Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1993)

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	Cool~4C	Cool~4C	None	None
HOLDING TIME	28 Days	30 Days	6 Months	6 Months
TYPE OF CONTAINER	G/P	G/P	Square Bottle Poly	G/P
NO. OF CONTAINER(S)	1	1	1	1
VOLUME	120mL	60mL	500mL	120mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	Chromium Hex - 7196;	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	SEE ITEM (3) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME				
B2LWK7 12	SOIL	JUL 18 2012	0830	X	X	X	X

TRVL- 12- 062

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS
RELINQUISHED BY/REMOVED FROM: Dan Sparks	DATE/TIME: JUL 18 2012 1220	RECEIVED BY/STORED IN: TA Frazier	DATE/TIME: JUL 18 2012 1220	SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS
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	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 7/16/2012

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Sample Receipt

Chain of Custody

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F12-030-030	PAGE 2 OF 2
COLLECTOR Dan Sparks	COMPANY CONTACT TRENT, SJ	TELEPHONE NO. 373-5869	PROJECT COORDINATOR TRENT, SJ	PRICE CODE BC	DATA TURNAROUND
SAMPLING LOCATION Area AG Stockpile #3 Sample #7	PROJECT DESIGNATION Area AG Sampling (Waste Area AG) Verification - Soil		SAF NO. F12-030	AIR QUALITY [ ]	15 Days / 15 Days
ICE CHEST NO. NA	FIELD LOGBOOK NO. HNF-N-507-25	ACTUAL SAMPLE DEPTH Surface	COA 302677ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	ORIGINAL
SHIPPED TO Waste Sampling & Characterization	OFFSITE PROPERTY NO. N/A		BILL OF LADING/AIR BILL NO. N/A		

SPECIAL INSTRUCTIONS

** The CACN for WSCF Analytical is 402580ES20.☐** The 100 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF.
(1) 200.8_HG - ICPMS {Mercury}; ICP/MS - 200.8 (TAL) {Antimony, Barium, Cadmium, Chromium, Cobalt, Copper, Manganese, Nickel, Silver, Vanadium, Zinc}; ICP/MS - 200.8 (Add-on) {Arsenic, Beryllium, Lead, Molybdenum, Selenium, Strontium, Tin, Uranium};
(2) Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155};
(3) Isotopic Plutonium {Plutonium-238, Plutonium-239/240}; Isotopic Uranium {Uranium-233/234, Uranium-235, Uranium-238}; Strontium-89,90 -- Total Sr; Americium-241;

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Sample Receipt

Chain of Custody

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		F12-030-031	PAGE 1 OF 2
COLLECTOR: Dan Sparks	COMPANY CONTACT: TRENT, SJ	TELEPHONE NO.: 373-5869	PROJECT COORDINATOR: TRENT, SJ	PRICE CODE: 8C; DATA TURNAROUND: 15 Days / 15 Days
SAMPLING LOCATION: Area AG Stockpile #3 Sample #8	PROJECT DESIGNATION: Area AG Sampling (Waste Area AG) Verification - Soil		SAF NO.: F12-030	AIR QUALITY: ☐
ICE CHEST NO.: N/A	FIELD LOGBOOK NO.: HNF-N-507-25	ACTUAL SAMPLE DEPTH: Surface	COA: 302677ES10	METHOD OF SHIPMENT: GOVERNMENT VEHICLE; ORIGINAL
SHIPPED TO: Waste Sampling & Characterization	OFFSITE PROPERTY NO.: N/A		BILL OF LADING/AIR BILL NO.: N/A	

MATRIX*: A=Air, DI=Drum Liquids, DS=Drum Solids, L=Liquid, O=Oil, S=Soil, SE=Sediment, T=Tissue, V=Vegetation, W=Water, WI=Wipe, X=Other

POSSIBLE SAMPLE HAZARDS/ REMARKS: Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1993)

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	Cool~4C	Cool~4C	None	None
HOLDING TIME	28 Days	30 Days	5 Months	6 Months
TYPE OF CONTAINER	G/P	G/P	Square Bottle - Poly	G/P
NO. OF CONTAINER(S)	1	1	1	1
VOLUME	120mL	60mL	500mL	120mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	Chromium Hex - 7196,	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	SEE ITEM (3) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME				
B2LWK8 13	SOIL	JUL 18 2012	0845	X	X	X	X

TRM 12- 062

CHAIN OF POSSESSION	DATE/TIME	SIGN/ PRINT NAMES	DATE/TIME
RELINQUISHED BY/REMOVED FROM: Dan Sparks	1220 JUL 18 2012	RECEIVED BY/STORED IN: TA Frazim	1220 JUL 18 2012
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
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME

SPECIAL INSTRUCTIONS: SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 7/16/2012

A-6003-618 (REV 2)

Sample Receipt

Chain of Custody

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F12-030-031	PAGE 2 OF 2
COLLECTOR	COMPANY CONTACT TRENT, SJ	TELEPHONE NO. 373-5869	PROJECT COORDINATOR TRENT, SJ	PRICE CODE 8C	DATA TURNAROUND 15 Days / 15 Days
SAMPLING LOCATION Area AG Stockpile #3 Sample #8	PROJECT DESIGNATION Area AG Sampling (Waste Area AG) Verification - Soil		SAF NO. F12-030	AIR QUALITY	
ICE CHEST NO. NA	FIELD LOGBOOK NO. HNF-N-507-22	ACTUAL SAMPLE DEPTH Surface	COA 302677ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	ORIGINAL
SHIPPED TO Waste Sampling & Characterization	OFFSITE PROPERTY NO. N/A		BILL OF LADING/AIR BILL NO. N/A		

SPECIAL INSTRUCTIONS

** The CACN for WSCF Analytical is 402580ES20.☐** The 100 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF.
(1) 200.8_HG - ICPMS {Mercury}; ICP/MS - 200.8 (TAL) {Antimony, Barium, Cadmium, Chromium, Cobalt, Copper, Manganese, Nickel, Silver, Vanadium, Zinc}; ICP/MS - 200.8 (Add-on) {Arsenic, Beryllium, Lead, Molybdenum, Selenium, Strontium, Tin, Uranium};
(2) Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155};
(3) Isotopic Plutonium {Plutonium-238, Plutonium-239/240}; Isotopic Uranium {Uranium-233/234, Uranium-235, Uranium-238}; Strontium-89,90 -- Total Sr; Americium-241;

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PRINTED ON 7/16/2012

A-6003-618 (REV 2)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F12-030-032	PAGE 1 OF 2
COLLECTOR Dan Sparks	COMPANY CONTACT TRENT, SJ	TELEPHONE NO. 373-5869	PROJECT COORDINATOR TRENT, SJ	PRICE CODE 8C	DATA TURNAROUND 15 Days / 15 Days
SAMPLING LOCATION Area AG Stockpile #3 Sample #9	PROJECT DESIGNATION Area AG Sampling (Waste Area AG) Verification - Soil		SAF NO. F12-030	AIR QUALITY ☐	
ICE CHEST NO. N/A	FIELD LOGBOOK NO. HNF-N-507-25	ACTUAL SAMPLE DEPTH Surface	COA 302677ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	ORIGINAL
SHIPPED TO Waste Sampling & Characterization	OFFSITE PROPERTY NO. N/A		BILL OF LADING/AIR BILL NO. N/A		

MATRIX*
A=Air
DL=Drum Liquids
DS=Drum Solids
L=Liquid
O=Oil
S=Soil
SE=Sediment
T=Tissue
V=Vegetation
W=Water
WI=Wipe
X=Other

POSSIBLE SAMPLE HAZARDS/ REMARKS
Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1993)

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	Cool~4C	Cool~4C	None	None
HOLDING TIME	28 Days	30 Days	6 Months	6 Months
TYPE OF CONTAINER	G/P	G/P	Square Bottle - Poly	G/P
NO. OF CONTAINER(S)	1	1	1	1
VOLUME	120mL	60mL	500mL	120mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	Chromium Hex - 7196	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	SEE ITEM (3) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME				
B2LWK9 14	SOIL	JUL 18 2012	0850	X	X	X	X

TRL 12- 062

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS
RELINQUISHED BY/REMOVED FROM Dan Sparks	DATE/TIME JUL 18 2012 1220	RECEIVED BY/STORED IN TA Engelman	DATE/TIME JUL 18 2012 1220	SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS
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	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 7/16/2012

A-6003-618 (REV 2)

Sample Receipt

Chain of Custody

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		F12-030-032	PAGE 2 OF 2
COLLECTOR Dan Sparks	COMPANY CONTACT TRENT, SJ	TELEPHONE NO. 373-5869	PROJECT COORDINATOR TRENT, SJ	PRICE CODE 8C	DATA TURNAROUND 15 Days / 15 Days
SAMPLING LOCATION Area AG Stockpile #3 Sample #9	PROJECT DESIGNATION Area AG Sampling (Waste Area AG) Verification - Soil		SAF NO. F12-030	AIR QUALITY	
ICE CHEST NO. NA	FIELD LOGBOOK NO. HNF-N-507-25	ACTUAL SAMPLE DEPTH Surface	COA 302677ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	ORIGINAL
SHIPPED TO Waste Sampling & Characterization	OFFSITE PROPERTY NO. N/A		BILL OF LADING/AIR BILL NO. N/A		

SPECIAL INSTRUCTIONS

** The CACN for WSCF Analytical is 402580ES20.L]** The 100 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF.
(1) 200.8_HG - ICPMS {Mercury}; ICP/MS - 200.8 (TAL) {Antimony, Barium, Cadmium, Chromium, Cobalt, Copper, Manganese, Nickel, Silver, Vanadium, Zinc}; ICP/MS - 200.8 (Add-on) {Arsenic, Beryllium, Lead, Molybdenum, Selenium, Strontium, Tin, Uranium};
(2) Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155};
(3) Isotopic Plutonium {Plutonium-238, Plutonium-239/240}; Isotopic Uranium {Uranium-233/234, Uranium-235, Uranium-238}; Strontium-89,90 -- Total Sr; Americium-241;

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PRINTED ON 7/16/2012

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Appendix 5

Data Validation Supporting Documentation

Appendix B - Radiochemical Data Validation Checklist

RADIOCHEMICAL DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	(C)	D	E
PROJECT: 100-K			DATA PACKAGE: VSR12-022		
VALIDATOR: Eyda Hergenreder		LAB: WSCF		DATE: 08-16-2012	
			SDG: WSCF120925		
ANALYSES PERFORMED					
Gross Alpha/Beta	Strontium-90 X	Technetium-99	Alpha Spectroscopy X	Gamma Spectroscopy X	
Total Uranium	Radium-22	Tritium	C-14	I-129	
SAMPLES/MATRIX Soil samples					
B2LWL0; B2LWL1, B2LWL2, B2LWL3, B2LWL4, B2LWK1, B2LWK2, B2LWK3, B2LWK4, B2LWK5, B2LWK6, B2LWK7; B2LWK8, B2LWK9,					

1. Completeness ..... ☐ N/A

Technical verification forms present? ..... (Yes) No N/A

Comments: None

2. Initial Calibration (Levels D, E) ..... ☒ N/A

Instruments/detectors calibrated? ..... Yes No N/A

Initial calibration acceptable? ..... Yes No N/A

Standards NIST traceable? ..... Yes No N/A

Standards Expired? ..... Yes No N/A

Calculation check acceptable? ..... Yes No N/A

Comments:

3. Continuing Calibration (Levels D, E)..... ☒ N/A

Calibration checked within required frequency? ..... Yes No N/A

Calibration check acceptable? ..... Yes No N/A

Calibration check standards traceable? ..... Yes No N/A

Calibration check standards expired? ..... Yes No N/A

Calculation check acceptable?..... Yes No N/A

Comments:

4. Background Counts (Levels D, E) ..... ☒ N/A

Background Counts checked within required frequency? ..... Yes No N/A

Background Counts acceptable? ..... Yes No N/A

Calculation check acceptable?..... Yes No N/A

Comments:

5. Blanks (Levels B, C, D, E) ☐ N/A

Method blank analyzed within required frequency? (Yes) No N/A

Method blank results acceptable? Yes (No) N/A

Analytes detected in method blank? (Yes) No N/A

Field blank(s) analyzed? (Yes) No N/A

Field blank results acceptable? Yes (No) N/A

Analytes detected in field blank(s)? (Yes) No N/A

Transcription/Calculation Errors? (Levels D, E) Yes No (N/A)

Comments:

MB (batch 204950): Pu-239/240 0.014 pCi/g; U-233/234 0.023 pCi/g

EB B2LWL4: U-234 0.047 pCi/g; U-238 0.049 pCi/G

6. Laboratory Control Samples or Blank Spike Samples (Levels C, D, E) ☐ N/A

LCS /BSS analyzed within required frequency? (Yes) No N/A

LCS/BSS recoveries acceptable? Yes (No) N/A

LCS/BSS traceable? (Levels D,E) Yes No (N/A)

LCS/BSS expired? (Levels D,E) Yes No (N/A)

LCS/BSS levels correct? (Levels D,E) Yes No (N/A)

Transcription/Calculation Errors? (Levels D, E) Yes No (N/A)

Comments:

Batch 204950: Am-241 LCS%R 131%

7. Chemical Carrier Recovery (Levels C, D, E) ..... ☐ N/A

Chemical carrier added? ..... (Yes) No N/A

Chemical recovery acceptable? ..... (Yes) No N/A

Chemical carrier traceable? (Levels D, E) ..... Yes No (N/A)

Chemical carrier expired? (Levels D, E) ..... Yes No (N/A)

Transcription/Calculation errors? (Levels D, E) ..... Yes No (N/A)

Comments: None

8. Tracer Recovery (Levels C, D, E) ..... ☐ N/A

Tracer added? ..... (Yes) No N/A

Tracer recovery acceptable? ..... (Yes) No N/A

Tracer traceable? (Levels D, E) ..... Yes No (N/A)

Tracer expired? (Levels D, E) ..... Yes No (N/A)

Transcription/Calculation errors? (Levels D, E) ..... Yes No (N/A)

Comments: None

9. Matrix Spikes (Levels C, D, E)..... ☐ N/A

Matrix spike analyzed?..... Yes No (N/A)

Spike recoveries acceptable? ..... Yes No (N/A)

Spike source traceable? (Levels D, E) ..... Yes No (N/A)

Spike source expired? Levels D, E) ..... Yes No (N/A)

Transcription/Calculation Errors? (Levels D, E)..... Yes No (N/A)

Comments: None

10. Duplicates (Levels C, D, E) ..... ☐ N/A

Duplicates Analyzed at required frequency? ..... (Yes) No N/A

RPD Values Acceptable?..... (Yes) No N/A

Transcription/Calculation Errors? (Levels D, E)..... Yes No (N/A)

Comments: None

11. Field QC Samples (Levels C, D E) ..... ☐ N/A

Field duplicate sample(s) analyzed? ..... (Yes) No N/A

Field duplicate RPD values acceptable? ..... (Yes) No N/A

Field split sample(s) analyzed? ..... Yes No (N/A)

Field split RPD values acceptable? ..... Yes No (N/A)

Performance audit sample(s) analyzed? ..... Yes No (N/A)

Performance audit sample results acceptable? ..... Yes No (N/A)

Comments: None

12. Holding Times (All levels)

Are sample holding times acceptable? ..... (Yes) No N/A

Comments: None

13. Results and Detection Limits (All Levels) ..... ☐ N/A

Results reported for all required sample analyses? ..... (Yes) No N/A

Results supported in raw data?(Levels D, E) ..... Yes No (N/A)

Results Acceptable? (Levels D, E) ..... Yes No (N/A)

Transcription/Calculation errors? (Levels D, E) ..... Yes No (N/A)

MDA's meet required detection limits? ..... (Yes) No N/A

Transcription/calculation errors? (Levels D, E) ..... Yes No (N/A)

Comments: None

Appendix 6

Additional Documentation Requested By Client

Batch QC List

Attention Scot Fitzgerald
Department Radiochemistry

Group # WSCF120925

QC Batch	Analytical Batch	S#	Type	Sample #	Client Sample#	Original	Test
204950	205255	1	BLANK	78349	BLANK		Americium/Curium (AEA)
204950	205255	2	LCS	78350	LCS		Americium/Curium (AEA)
204950	205255	3	SAMPLE	120925001	B2LWL0		Americium/Curium (AEA)
204950	205255	4	DUP	78351	B2LWL0(120925001DUP)	120925001	Americium/Curium (AEA)
204950	205255	5	SAMPLE	120925002	B2LWL1		Americium/Curium (AEA)
204950	205255	6	SAMPLE	120925003	B2LWL2		Americium/Curium (AEA)
204950	205255	7	SAMPLE	120925004	B2LWL3		Americium/Curium (AEA)
204950	205255	8	SAMPLE	120925005	B2LWL4		Americium/Curium (AEA)
204950	205255	9	SAMPLE	120925006	B2LWK1		Americium/Curium (AEA)
204950	205255	10	SAMPLE	120925007	B2LWK2		Americium/Curium (AEA)
204950	205256	1	BLANK	78349	BLANK		Plutonium (AEA)
204950	205256	2	LCS	78350	LCS		Plutonium (AEA)
204950	205256	3	SAMPLE	120925001	B2LWL0		Plutonium (AEA)
204950	205256	4	DUP	78351	B2LWL0(120925001DUP)	120925001	Plutonium (AEA)
204950	205256	5	SAMPLE	120925002	B2LWL1		Plutonium (AEA)
204950	205256	6	SAMPLE	120925003	B2LWL2		Plutonium (AEA)
204950	205256	7	SAMPLE	120925004	B2LWL3		Plutonium (AEA)
204950	205256	8	SAMPLE	120925005	B2LWL4		Plutonium (AEA)
204950	205256	9	SAMPLE	120925006	B2LWK1		Plutonium (AEA)
204950	205256	10	SAMPLE	120925007	B2LWK2		Plutonium (AEA)
204950	205257	1	BLANK	78349	BLANK		Uranium (AEA)
204950	205257	2	LCS	78350	LCS		Uranium (AEA)
204950	205257	3	SAMPLE	120925001	B2LWL0		Uranium (AEA)

Batch QC List

Attention Scot Fitzgerald
Department Radiochemistry

Group # WSCF120925

QC Batch	Analytical Batch	S#	Type	Sample #	Client Sample#	Original	Test
204950	205257	4	DUP	78351	B2LWL0(120925001DUP)	120925001	Uranium (AEA)
204950	205257	5	SAMPLE	120925002	B2LWL1		Uranium (AEA)
204950	205257	6	SAMPLE	120925003	B2LWL2		Uranium (AEA)
204950	205257	7	SAMPLE	120925004	B2LWL3		Uranium (AEA)
204950	205257	8	SAMPLE	120925005	B2LWL4		Uranium (AEA)
204950	205257	9	SAMPLE	120925006	B2LWK1		Uranium (AEA)
204950	205257	10	SAMPLE	120925007	B2LWK2		Uranium (AEA)
204951	205406	1	BLANK	78352	BLANK		Americium/Curium (AEA)
204951	205406	2	LCS	78353	LCS		Americium/Curium (AEA)
204951	205406	3	SAMPLE	120925008	B2LWK3		Americium/Curium (AEA)
204951	205406	4	DUP	78354	B2LWK3(120925008DUP)	120925008	Americium/Curium (AEA)
204951	205406	5	SAMPLE	120925009	B2LWK4		Americium/Curium (AEA)
204951	205406	6	SAMPLE	120925010	B2LWK5		Americium/Curium (AEA)
204951	205406	7	SAMPLE	120925011	B2LWK6		Americium/Curium (AEA)
204951	205406	8	SAMPLE	120925012	B2LWK7		Americium/Curium (AEA)
204951	205406	9	SAMPLE	120925013	B2LWK8		Americium/Curium (AEA)
204951	205406	10	SAMPLE	120925014	B2LWK9		Americium/Curium (AEA)
204951	205407	1	BLANK	78352	BLANK		Plutonium (AEA)
204951	205407	2	LCS	78353	LCS		Plutonium (AEA)
204951	205407	3	SAMPLE	120925008	B2LWK3		Plutonium (AEA)
204951	205407	4	DUP	78354	B2LWK3(120925008DUP)	120925008	Plutonium (AEA)
204951	205407	5	SAMPLE	120925009	B2LWK4		Plutonium (AEA)
204951	205407	6	SAMPLE	120925010	B2LWK5		Plutonium (AEA)

Batch QC List

Attention Scot Fitzgerald
Department Radiochemistry

Group # WSCF120925

QC Batch	Analytical Batch	S#	Type	Sample #	Client Sample#	Original	Test
204951	205407	7	SAMPLE	120925011	B2LWK6		Plutonium (AEA)
204951	205407	8	SAMPLE	120925012	B2LWK7		Plutonium (AEA)
204951	205407	9	SAMPLE	120925013	B2LWK8		Plutonium (AEA)
204951	205407	10	SAMPLE	120925014	B2LWK9		Plutonium (AEA)
204951	205500	1	DUP	78354	B2LWK3(120925008DUP)	120925008	Uranium (AEA)
204951	205500	2	SAMPLE	120925008	B2LWK3		Uranium (AEA)
204951	205500	3	SAMPLE	120925009	B2LWK4		Uranium (AEA)
204951	205500	4	SAMPLE	120925010	B2LWK5		Uranium (AEA)
204951	205500	5	SAMPLE	120925011	B2LWK6		Uranium (AEA)
204951	205500	6	SAMPLE	120925012	B2LWK7		Uranium (AEA)
204951	205500	7	SAMPLE	120925013	B2LWK8		Uranium (AEA)
204951	205500	8	SAMPLE	120925014	B2LWK9		Uranium (AEA)
204951	205500	9	BLANK	78352	BLANK		Uranium (AEA)
204951	205500	10	LCS	78353	LCS		Uranium (AEA)
204966	205160	1	BLANK	78389	BLANK		Strontium 89/90 (GPC/GEA)
204966	205160	2	LCS	78390	LCS		Strontium 89/90 (GPC/GEA)
204966	205160	3	DUP	78391	B2LWL0(120925001DUP)	120925001	Strontium 89/90 (GPC/GEA)
204966	205160	4	SAMPLE	120925001	B2LWL0		Strontium 89/90 (GPC/GEA)
204966	205160	5	SAMPLE	120925002	B2LWL1		Strontium 89/90 (GPC/GEA)
204966	205160	6	SAMPLE	120925003	B2LWL2		Strontium 89/90 (GPC/GEA)
204966	205160	7	SAMPLE	120925004	B2LWL3		Strontium 89/90 (GPC/GEA)
204966	205160	8	SAMPLE	120925005	B2LWL4		Strontium 89/90 (GPC/GEA)
204966	205160	9	SAMPLE	120925006	B2LWK1		Strontium 89/90 (GPC/GEA)

Batch QC List

Attention Scot Fitzgerald
Department Radiochemistry

Group # WSCF120925

QC Batch	Analytical Batch	S#	Type	Sample #	Client Sample#	Original	Test
204966	205160	10	SAMPLE	120925007	B2LWK2		Strontium 89/90 (GPC/GEA)
204967	205193	1	BLANK	78392	BLANK		Strontium 89/90 (GPC/GEA)
204967	205193	2	LCS	78393	LCS		Strontium 89/90 (GPC/GEA)
204967	205193	3	DUP	78394	B2LWK3(120925008DUP)	120925008	Strontium 89/90 (GPC/GEA)
204967	205193	4	SAMPLE	120925008	B2LWK3		Strontium 89/90 (GPC/GEA)
204967	205193	5	SAMPLE	120925009	B2LWK4		Strontium 89/90 (GPC/GEA)
204967	205193	6	SAMPLE	120925010	B2LWK5		Strontium 89/90 (GPC/GEA)
204967	205193	7	SAMPLE	120925011	B2LWK6		Strontium 89/90 (GPC/GEA)
204967	205193	8	SAMPLE	120925012	B2LWK7		Strontium 89/90 (GPC/GEA)
204967	205193	9	SAMPLE	120925013	B2LWK8		Strontium 89/90 (GPC/GEA)
204967	205193	10	SAMPLE	120925014	B2LWK9		Strontium 89/90 (GPC/GEA)
204998	205170	1	IBLANK	78520	IBLANK		Gamma Energy Analysis-general
204998	205170	2	LCS	78521	LCS		Gamma Energy Analysis-general
204998	205170	3	DUP	78522	B2LWL0(120925001DUP)	120925001	Gamma Energy Analysis-general
204998	205170	4	SAMPLE	120925001	B2LWL0		Gamma Energy Analysis-general
204998	205170	5	SAMPLE	120925002	B2LWL1		Gamma Energy Analysis-general
204998	205170	6	SAMPLE	120925003	B2LWL2		Gamma Energy Analysis-general
204998	205170	7	SAMPLE	120925004	B2LWL3		Gamma Energy Analysis-general
204998	205170	8	SAMPLE	120925005	B2LWL4		Gamma Energy Analysis-general
204998	205170	9	SAMPLE	120925006	B2LWK1		Gamma Energy Analysis-general
204998	205170	10	SAMPLE	120925007	B2LWK2		Gamma Energy Analysis-general
204999	205171	1	IBLANK	78523	IBLANK		Gamma Energy Analysis-general
204999	205171	2	LCS	78524	LCS		Gamma Energy Analysis-general

Batch QC List

Attention Scot Fitzgerald
Department Radiochemistry

Group # WSCF120925

QC Batch	Analytical Batch	S#	Type	Sample #	Client Sample#	Original	Test
204999	205171	3	DUP	78525	B2LWK3(120925008DUP)	120925008	Gamma Energy Analysis-general
204999	205171	4	SAMPLE	120925008	B2LWK3		Gamma Energy Analysis-general
204999	205171	5	SAMPLE	120925009	B2LWK4		Gamma Energy Analysis-general
204999	205171	6	SAMPLE	120925010	B2LWK5		Gamma Energy Analysis-general
204999	205171	7	SAMPLE	120925011	B2LWK6		Gamma Energy Analysis-general
204999	205171	8	SAMPLE	120925012	B2LWK7		Gamma Energy Analysis-general
204999	205171	9	SAMPLE	120925013	B2LWK8		Gamma Energy Analysis-general
204999	205171	10	SAMPLE	120925014	B2LWK9		Gamma Energy Analysis-general

Quality Control Report

Attention Scot Fitzgerald
Department Radiochemistry

Group # WSCF120925

Analytical Batch 205160 (QC Batch: 204966) **Test** Strontium 89/90 (GPC/GEA)
Associated Samples 120925001, 120925002, 120925003, 120925004, 120925005, 120925006, 120925007

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit		RQ	Analyzed
BLANK			**QC Sample #78389**								
Strontium-89_90	SR-RAD		0.20	pCi/g						U	07/30/12
LCS			**QC Sample #78390**								
Strontium-89_90	SR-RAD		22	pCi/g	102.1	80 - 120					07/30/12
DUP			**QC Sample #78391**								
			Original 120925001								
Strontium-89_90	SR-RAD	-0.074	0.22	pCi/g			398.60	30	*	U	07/30/12

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

Quality Control Report

Attention Scot Fitzgerald
Department Radiochemistry

Group # WSCF120925

Analytical Batch 205170 (QC Batch: 204998) **Test** Gamma Energy Analysis-general
Associated Samples 120925001, 120925002, 120925003, 120925004, 120925005, 120925006, 120925007

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit		RQ	Analyzed
IBLANK			**QC Sample #78520**								
Cesium-137	10045-97-3		-4.5E-3	pCi/g						U	07/25/12
Cobalt-60	10198-40-0		3.5E-3	pCi/g						U	07/25/12
Europium-152	14683-23-9		9.3E-3	pCi/g						U	07/25/12
Europium-154	15585-10-1		7.9E-3	pCi/g						U	07/25/12
Europium-155	14391-16-3		5.6E-3	pCi/g						U	07/25/12
LCS			**QC Sample #78521**								
Cesium-137	10045-97-3		6500	pCi/sample	107.3	80 - 120					07/25/12
Cobalt-60	10198-40-0		10000	pCi/sample	105.3	80 - 120					07/25/12
DUP			**QC Sample #78522**								
			Original 120925001								
Cesium-137	10045-97-3	0.22	0.19	pCi/g			14.60	30			07/24/12
Cobalt-60	10198-40-0	0.011	-2.2E-4	pCi/g			208.20	30	*	U	07/24/12
Europium-152	14683-23-9	0.27	0.24	pCi/g			16.00	30			07/24/12
Europium-154	15585-10-1	0.045	0.020	pCi/g			75.00	30	*	U	07/24/12
Europium-155	14391-16-3	0.060	0.047	pCi/g			24.80	30		U	07/24/12

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

Quality Control Report

Attention Scot Fitzgerald
Department Radiochemistry

Group # WSCF120925

Analytical Batch 205171 (QC Batch: 204999) **Test** Gamma Energy Analysis-general
Associated Samples 120925008, 120925009, 120925010, 120925011, 120925012, 120925013, 120925014

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit		RQ	Analyzed
IBLANK			**QC Sample #78523**								
Cesium-137	10045-97-3		-1.5E-3	pCi/g						U	07/25/12
Cobalt-60	10198-40-0		0.0020	pCi/g						U	07/25/12
Europium-152	14683-23-9		2.4E-3	pCi/g						U	07/25/12
Europium-154	15585-10-1		-2.4E-3	pCi/g						U	07/25/12
Europium-155	14391-16-3		7.3E-3	pCi/g						U	07/25/12
LCS			**QC Sample #78524**								
Cesium-137	10045-97-3		6400	pCi/sample	106.1	80 - 120					07/26/12
Cobalt-60	10198-40-0		10000	pCi/sample	104.1	80 - 120					07/26/12
DUP			**QC Sample #78525**								
			Original 120925008								
Cesium-137	10045-97-3	0.059	0.034	pCi/g			52.20	30	*	X	07/25/12
Cobalt-60	10198-40-0	3.5E-3	-6.3E-5	pCi/g			207.20	30	*	U	07/25/12
Europium-152	14683-23-9	-8.1E-3	-0.015	pCi/g			-60.90	30	*	U	07/25/12
Europium-154	15585-10-1	-5.5E-3	-0.014	pCi/g			-82.60	30	*	U	07/25/12
Europium-155	14391-16-3	0.036	6.4E-3	pCi/g			140.40	30	*	U	07/25/12

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

Quality Control Report

Attention Scot Fitzgerald
Department Radiochemistry

Group # WSCF120925

Analytical Batch 205193 (QC Batch: 204967) **Test** Strontium 89/90 (GPC/GEA)
Associated Samples 120925008, 120925009, 120925010, 120925011, 120925012, 120925013, 120925014

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit		RQ	Analyzed
BLANK			**QC Sample #78392**								
Strontium-89_90	SR-RAD		0.23	pCi/g						U	07/31/12
LCS			**QC Sample #78393**								
Strontium-89_90	SR-RAD		21	pCi/g	97.2	80 - 120					07/31/12
DUP			**QC Sample #78394**								
			Original 120925008								
Strontium-89_90	SR-RAD	0.065	0.041	pCi/g			43.80	30	*	U	07/31/12

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

Quality Control Report

Attention Scot Fitzgerald
Department Radiochemistry

Group # WSCF120925

Analytical Batch 205255 (QC Batch: 204950) **Test** Americium/Curium (AEA)
Associated Samples 120925001, 120925002, 120925003, 120925004, 120925005, 120925006, 120925007

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit		RQ	Analyzed
BLANK			**QC Sample #78349**								
Americium-241	14596-10-2		0.030	pCi/g						U	07/29/12
LCS			**QC Sample #78350**								
Americium-241	14596-10-2		29	pCi/sample	131.3	80 - 120				X	07/29/12
DUP			**QC Sample #78351**								
			Original 120925001								
Americium-241	14596-10-2	0.013	0.019	pCi/g			37.50	30	*	X	07/29/12

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

Quality Control Report

Attention Scot Fitzgerald
Department Radiochemistry

Group # WSCF120925

Analytical Batch 205256 (QC Batch: 204950) **Test** Plutonium (AEA)
Associated Samples 120925001, 120925002, 120925003, 120925004, 120925005, 120925006, 120925007

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit		RQ	Analyzed
BLANK			**QC Sample #78349**								
Plutonium-238	13981-16-3		0.0020	pCi/g						U	07/27/12
Plutonium-239_240	PU-239/240		0.014	pCi/g						X	07/27/12
LCS			**QC Sample #78350**								
Plutonium-239_240	PU-239/240		28	pCi/sample	120.3	80 - 120				X	07/27/12
DUP			**QC Sample #78351**								
			Original 120925001								
Plutonium-238	13981-16-3	-0.0020	0.0040	pCi/g			600.00	30	*	UX	07/27/12
Plutonium-239_240	PU-239/240	0.012	0.0040	pCi/g			100.00	30	*	UX	07/27/12

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

Quality Control Report

Attention Scot Fitzgerald
Department Radiochemistry

Group # WSCF120925

Analytical Batch 205257 (QC Batch: 204950) **Test** Uranium (AEA)
Associated Samples 120925001, 120925002, 120925003, 120925004, 120925005, 120925006, 120925007

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit		RQ	Analyzed
BLANK			**QC Sample #78349**								
Uranium-234	U-233/234		0.023	pCi/g						X	08/01/12
Uranium-235	15117-96-1		4.6E-3	pCi/g						U	08/01/12
Uranium-238	U-238		0.015	pCi/g						U	08/01/12
LCS			**QC Sample #78350**								
Uranium-234	U-233/234		34	pCi/sample	104.7	80 - 120					08/01/12
DUP			**QC Sample #78351**								
			Original 120925001								
Uranium-234	U-233/234	0.18	0.14	pCi/g			25.00	30			08/01/12
Uranium-235	15117-96-1	-2.3E-3	0.015	pCi/g			268.80	30	*	UX	08/01/12
Uranium-238	U-238	0.19	0.13	pCi/g			37.50	30	*	X	08/01/12

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

Quality Control Report

Attention Scot Fitzgerald
Department Radiochemistry

Group # WSCF120925

Analytical Batch 205406 (QC Batch: 204951) **Test** Americium/Curium (AEA)
Associated Samples 120925008, 120925009, 120925010, 120925011, 120925012, 120925013, 120925014

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit		RQ	Analyzed
BLANK			**QC Sample #78352**								
Americium-241	14596-10-2		5.5E-3	pCi/g						U	07/31/12
LCS			**QC Sample #78353**								
Americium-241	14596-10-2		24	pCi/sample	108.8	80 - 120					07/31/12
DUP			**QC Sample #78354**								
			Original 120925008								
Americium-241	14596-10-2	0.011	0.024	pCi/g			74.30	30	*	U	07/31/12

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

Quality Control Report

Attention Scot Fitzgerald
Department Radiochemistry

Group # WSCF120925

Analytical Batch 205407 (QC Batch: 204951) **Test** Plutonium (AEA)
Associated Samples 120925008, 120925009, 120925010, 120925011, 120925012, 120925013, 120925014

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit		RQ	Analyzed
BLANK			**QC Sample #78352**								
Plutonium-238	13981-16-3		-0.011	pCi/g						U	07/31/12
Plutonium-239_240	PU-239/240		1.9E-3	pCi/g						U	07/31/12
LCS			**QC Sample #78353**								
Plutonium-239_240	PU-239/240		23	pCi/sample	97.6	80 - 120					07/31/12
DUP			**QC Sample #78354**								
			Original 120925008								
Plutonium-238	13981-16-3	0.010	2.5E-3	pCi/g			120.00	30	*	UX	07/31/12
Plutonium-239_240	PU-239/240	0.012	0.010	pCi/g			18.20	30		U	07/31/12

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

Quality Control Report

Attention Scot Fitzgerald
Department Radiochemistry

Group # WSCF120925

Analytical Batch 205500 (QC Batch: 204951) **Test** Uranium (AEA)
Associated Samples 120925008, 120925009, 120925010, 120925011, 120925012, 120925013, 120925014

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
BLANK			**QC Sample #78352**							
Uranium-234	U-233/234		8.9E-3	pCi/g					U	08/01/12
Uranium-235	15117-96-1		7.8E-3	pCi/g					U	08/01/12
Uranium-238	U-238		5.4E-3	pCi/g					U	08/01/12
LCS			**QC Sample #78353**							
Uranium-234	U-233/234		35	pCi/sample	107.1	80 - 120				08/01/12
DUP			**QC Sample #78354**							
			Original 120925008							
Uranium-234	U-233/234	0.19	0.20	pCi/g			5.10	30		08/01/12
Uranium-235	15117-96-1	0.014	0.018	pCi/g			25.00	30		08/01/12
Uranium-238	U-238	0.16	0.15	pCi/g			0.00	30		08/01/12

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

Quality Control Report

Attention Scot Fitzgerald
Department Radiochemistry

Group # WSCF120925

Analytical Batch 205160 (QC Batch: 204966) **Test** Strontium 89/90 (GPC/GEA)
Associated Samples 120925001, 120925002, 120925003, 120925004, 120925005, 120925006, 120925007

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
SAMPLE			**Sample #120925001**							
Strontium-85	13967-73-2			pCi/sample	71.2	25 - 105				07/30/12
SAMPLE			**Sample #120925002**							
Strontium-85	13967-73-2			pCi/sample	66.5	25 - 105				07/30/12
SAMPLE			**Sample #120925003**							
Strontium-85	13967-73-2			pCi/sample	54.2	25 - 105				07/30/12
SAMPLE			**Sample #120925004**							
Strontium-85	13967-73-2			pCi/sample	63.1	25 - 105				07/30/12
SAMPLE			**Sample #120925005**							
Strontium-85	13967-73-2			pCi/sample	60.3	25 - 105				07/30/12
SAMPLE			**Sample #120925006**							
Strontium-85	13967-73-2			pCi/sample	65.9	25 - 105				07/30/12
SAMPLE			**Sample #120925007**							
Strontium-85	13967-73-2			pCi/sample	61.6	25 - 105				07/30/12

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

Quality Control Report

Attention Scot Fitzgerald
Department Radiochemistry

Group # WSCF120925

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
BLANK			**QC Sample #78389**							
Strontium-85	13967-73-2			pCi/sample	86.3	25 - 105				07/30/12
LCS			**QC Sample #78390**							
Strontium-85	13967-73-2			pCi/sample	76.8	25 - 105				07/30/12
DUP			**QC Sample #78391**							
			Original 120925001							
Strontium-85	13967-73-2	30		pCi/sample	47.4	25 - 105	n/a			07/30/12

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

Quality Control Report

Attention Scot Fitzgerald
Department Radiochemistry

Group # WSCF120925

Analytical Batch 205193 (QC Batch: 204967) **Test** Strontium 89/90 (GPC/GEA)
Associated Samples 120925008, 120925009, 120925010, 120925011, 120925012, 120925013, 120925014

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
SAMPLE			**Sample #120925008**							
Strontium-85	13967-73-2			pCi/sample	64	25 - 105				07/31/12
SAMPLE			**Sample #120925009**							
Strontium-85	13967-73-2			pCi/sample	60	25 - 105				07/31/12
SAMPLE			**Sample #120925010**							
Strontium-85	13967-73-2			pCi/sample	52.5	25 - 105				07/31/12
SAMPLE			**Sample #120925011**							
Strontium-85	13967-73-2			pCi/sample	53.3	25 - 105				07/31/12
SAMPLE			**Sample #120925012**							
Strontium-85	13967-73-2			pCi/sample	60.4	25 - 105				07/31/12
SAMPLE			**Sample #120925013**							
Strontium-85	13967-73-2			pCi/sample	55.3	25 - 105				07/31/12
SAMPLE			**Sample #120925014**							
Strontium-85	13967-73-2			pCi/sample	63.7	25 - 105				07/31/12

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

Quality Control Report

Attention Scot Fitzgerald
Department Radiochemistry

Group # WSCF120925

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
BLANK			**QC Sample #78392**							
Strontium-85	13967-73-2			pCi/sample	65.2	25 - 105				07/31/12
LCS			**QC Sample #78393**							
Strontium-85	13967-73-2			pCi/sample	76.4	25 - 105				07/31/12
DUP			**QC Sample #78394**							
			Original 120925008							
Strontium-85	13967-73-2	26		pCi/sample	64.1	25 - 105	n/a			07/31/12

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

Quality Control Report

Attention Scot Fitzgerald
Department Radiochemistry

Group # WSCF120925

Analytical Batch 205255 (QC Batch: 204950) **Test** Americium/Curium (AEA)
Associated Samples 120925001, 120925002, 120925003, 120925004, 120925005, 120925006, 120925007

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
SAMPLE			**Sample #120925001**							
Americium-243 Tracer	14993-75-0				85.5	25 - 105				07/29/12
SAMPLE			**Sample #120925002**							
Americium-243 Tracer	14993-75-0				86	25 - 105				07/29/12
SAMPLE			**Sample #120925003**							
Americium-243 Tracer	14993-75-0				89.4	25 - 105				07/29/12
SAMPLE			**Sample #120925004**							
Americium-243 Tracer	14993-75-0				98.6	25 - 105				07/29/12
SAMPLE			**Sample #120925005**							
Americium-243 Tracer	14993-75-0				86.9	25 - 105				07/29/12
SAMPLE			**Sample #120925006**							
Americium-243 Tracer	14993-75-0				94.4	25 - 105				07/29/12
SAMPLE			**Sample #120925007**							
Americium-243 Tracer	14993-75-0				83.1	25 - 105				07/29/12

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

Quality Control Report

Attention Scot Fitzgerald
Department Radiochemistry

Group # WSCF120925

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
BLANK			**QC Sample #78349**							
Americium-243 Tracer	14993-75-0				78.2	25 - 105				07/29/12
LCS			**QC Sample #78350**							
Americium-243 Tracer	14993-75-0				71.6	25 - 105				07/29/12
DUP			**QC Sample #78351**							
			Original 120925001							
Americium-243 Tracer	14993-75-0				94.5	25 - 105	n/a			07/29/12

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

Quality Control Report

Attention Scot Fitzgerald
Department Radiochemistry

Group # WSCF120925

Analytical Batch 205256 (QC Batch: 204950) **Test** Plutonium (AEA)
Associated Samples 120925001, 120925002, 120925003, 120925004, 120925005, 120925006, 120925007

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
SAMPLE			**Sample #120925001**							
Plutonium-242 Tracer	13982-10-0				81.1	25 - 105				07/27/12
SAMPLE			**Sample #120925002**							
Plutonium-242 Tracer	13982-10-0				77.7	25 - 105				07/27/12
SAMPLE			**Sample #120925003**							
Plutonium-242 Tracer	13982-10-0				73	25 - 105				07/29/12
SAMPLE			**Sample #120925004**							
Plutonium-242 Tracer	13982-10-0				65.4	25 - 105				07/29/12
SAMPLE			**Sample #120925005**							
Plutonium-242 Tracer	13982-10-0				87.5	25 - 105				07/29/12
SAMPLE			**Sample #120925006**							
Plutonium-242 Tracer	13982-10-0				68.3	25 - 105				07/29/12
SAMPLE			**Sample #120925007**							
Plutonium-242 Tracer	13982-10-0				70.8	25 - 105				07/29/12

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

Quality Control Report

Attention Scot Fitzgerald
Department Radiochemistry

Group # WSCF120925

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
BLANK			**QC Sample #78349**							
Plutonium-242 Tracer	13982-10-0				85.8	25 - 105				07/27/12
LCS			**QC Sample #78350**							
Plutonium-242 Tracer	13982-10-0				70.2	25 - 105				07/27/12
DUP			**QC Sample #78351**							
			Original 120925001							
Plutonium-242 Tracer	13982-10-0				82.5	25 - 105	n/a			07/27/12

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

Quality Control Report

Attention Scot Fitzgerald
Department Radiochemistry

Group # WSCF120925

Analytical Batch 205257 (QC Batch: 204950) **Test** Uranium (AEA)
Associated Samples 120925001, 120925002, 120925003, 120925004, 120925005, 120925006, 120925007

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
SAMPLE			**Sample #120925001**							
Uranium-232 Tracer	14158-29-3				78.8	25 - 105				08/01/12
SAMPLE			**Sample #120925002**							
Uranium-232 Tracer	14158-29-3				86.1	25 - 105				08/01/12
SAMPLE			**Sample #120925003**							
Uranium-232 Tracer	14158-29-3				82.8	25 - 105				08/01/12
SAMPLE			**Sample #120925004**							
Uranium-232 Tracer	14158-29-3				97.3	25 - 105				08/01/12
SAMPLE			**Sample #120925005**							
Uranium-232 Tracer	14158-29-3				81.4	25 - 105				08/01/12
SAMPLE			**Sample #120925006**							
Uranium-232 Tracer	14158-29-3				81.6	25 - 105				08/01/12
SAMPLE			**Sample #120925007**							
Uranium-232 Tracer	14158-29-3				94.4	25 - 105				08/01/12

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

Quality Control Report

Attention Scot Fitzgerald
Department Radiochemistry

Group # WSCF120925

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
BLANK			**QC Sample #78349**							
Uranium-232 Tracer	14158-29-3				75.7	25 - 105				08/01/12
LCS			**QC Sample #78350**							
Uranium-232 Tracer	14158-29-3				81.2	25 - 105				08/01/12
DUP			**QC Sample #78351**							
			Original 120925001							
Uranium-232 Tracer	14158-29-3				87.3	25 - 105	n/a			08/01/12

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

Quality Control Report

Attention Scot Fitzgerald
Department Radiochemistry

Group # WSCF120925

Analytical Batch 205406 (QC Batch: 204951) **Test** Americium/Curium (AEA)
Associated Samples 120925008, 120925009, 120925010, 120925011, 120925012, 120925013, 120925014

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
SAMPLE			**Sample #120925008**							
Americium-243 Tracer	14993-75-0				95.6	25 - 105				07/31/12
SAMPLE			**Sample #120925009**							
Americium-243 Tracer	14993-75-0				75.6	25 - 105				07/31/12
SAMPLE			**Sample #120925010**							
Americium-243 Tracer	14993-75-0				98.4	25 - 105				07/31/12
SAMPLE			**Sample #120925011**							
Americium-243 Tracer	14993-75-0				95.8	25 - 105				07/31/12
SAMPLE			**Sample #120925012**							
Americium-243 Tracer	14993-75-0				81	25 - 105				07/31/12
SAMPLE			**Sample #120925013**							
Americium-243 Tracer	14993-75-0				101	25 - 105				07/31/12
SAMPLE			**Sample #120925014**							
Americium-243 Tracer	14993-75-0				91.5	25 - 105				07/31/12

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

Quality Control Report

Attention Scot Fitzgerald
Department Radiochemistry

Group # WSCF120925

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
BLANK			**QC Sample #78352**							
Americium-243 Tracer	14993-75-0				86.1	25 - 105				07/31/12
LCS			**QC Sample #78353**							
Americium-243 Tracer	14993-75-0				74.1	25 - 105				07/31/12
DUP			**QC Sample #78354**							
			Original 120925008							
Americium-243 Tracer	14993-75-0				82.3	25 - 105	n/a			07/31/12

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

Quality Control Report

Attention Scot Fitzgerald
Department Radiochemistry

Group # WSCF120925

Analytical Batch 205407 (QC Batch: 204951) **Test** Plutonium (AEA)
Associated Samples 120925008, 120925009, 120925010, 120925011, 120925012, 120925013, 120925014

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
SAMPLE			**Sample #120925008**							
Plutonium-242 Tracer	13982-10-0				81.8	25 - 105				07/31/12
SAMPLE			**Sample #120925009**							
Plutonium-242 Tracer	13982-10-0				79	25 - 105				07/31/12
SAMPLE			**Sample #120925010**							
Plutonium-242 Tracer	13982-10-0				71.8	25 - 105				07/31/12
SAMPLE			**Sample #120925011**							
Plutonium-242 Tracer	13982-10-0				82.3	25 - 105				07/31/12
SAMPLE			**Sample #120925012**							
Plutonium-242 Tracer	13982-10-0				74.4	25 - 105				07/31/12
SAMPLE			**Sample #120925013**							
Plutonium-242 Tracer	13982-10-0				76	25 - 105				07/31/12
SAMPLE			**Sample #120925014**							
Plutonium-242 Tracer	13982-10-0				68.7	25 - 105				07/31/12

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

Quality Control Report

Attention Scot Fitzgerald
Department Radiochemistry

Group # WSCF120925

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
BLANK			**QC Sample #78352**							
Plutonium-242 Tracer	13982-10-0				83.3	25 - 105				07/31/12
LCS			**QC Sample #78353**							
Plutonium-242 Tracer	13982-10-0				93.5	25 - 105				07/31/12
DUP			**QC Sample #78354**							
			Original 120925008							
Plutonium-242 Tracer	13982-10-0				70.2	25 - 105	n/a			07/31/12

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

Quality Control Report

Attention Scot Fitzgerald
Department Radiochemistry

Group # WSCF120925

Analytical Batch 205500 (QC Batch: 204951) **Test** Uranium (AEA)
Associated Samples 120925008, 120925009, 120925010, 120925011, 120925012, 120925013, 120925014

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
SAMPLE			**Sample #120925008**							
Uranium-232 Tracer	14158-29-3				95.1	25 - 105				08/01/12
SAMPLE			**Sample #120925009**							
Uranium-232 Tracer	14158-29-3				88.9	25 - 105				08/01/12
SAMPLE			**Sample #120925010**							
Uranium-232 Tracer	14158-29-3				92.6	25 - 105				08/01/12
SAMPLE			**Sample #120925011**							
Uranium-232 Tracer	14158-29-3				86	25 - 105				08/01/12
SAMPLE			**Sample #120925012**							
Uranium-232 Tracer	14158-29-3				90.8	25 - 105				08/01/12
SAMPLE			**Sample #120925013**							
Uranium-232 Tracer	14158-29-3				94.3	25 - 105				08/01/12
SAMPLE			**Sample #120925014**							
Uranium-232 Tracer	14158-29-3				77.2	25 - 105				08/01/12

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

Quality Control Report

Attention Scot Fitzgerald
Department Radiochemistry

Group # WSCF120925

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
BLANK			**QC Sample #78352**							
Uranium-232 Tracer	14158-29-3				88.6	25 - 105				08/01/12
LCS			**QC Sample #78353**							
Uranium-232 Tracer	14158-29-3				58.7	25 - 105				08/01/12
DUP			**QC Sample #78354**							
			Original 120925008							
Uranium-232 Tracer	14158-29-3				88.4	25 - 105	n/a			08/01/12

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