SAF-RC-107
100-H Remaining Sites Burial Grounds – Soil Full Protocol
FINAL DATA PACKAGE

COMPLETE COPY OF DATA PACKAGE TO:

Kathy Wendt H4-21 KW 10/2/14
NITIAL/DATE

COMMENTS:

SDG JP0865 SAF-RC-107

Rad only ☑ Chem only Rad & Chem

☑ Complete Partial

Waste Site: 100-H-43

ANALYTICAL REPORT

Job Number: 280-60397-1

SDG Number: JP0865

Job Description: SAF# RC-107

For:
Washington Closure Hanford
2620 Fermi Avenue
Richland, WA 99354

Attention: Joan H Kessner

Approved for release.
Kae E Yoder
Senior Project Manager
10/2/2014 10:36 AM

Kae E Yoder, Senior Project Manager
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10/02/2014

The test results in this report relate only to the samples in this report and meet all requirements of NELAC, with any exceptions noted. Pursuant to NELAP, this report shall not be reproduced except in full, without the written approval of the laboratory. All questions regarding this report should be directed to the TestAmerica Denver Project Manager.

The Lab Certification ID# is 4025.

Reporting limits are adjusted for sample size used, dilutions and moisture content if applicable.

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CASE NARRATIVE

Client: Washington Closure Hanford

Project: WASHINGTON CLOSURE HANFORD

Report Number: 280-60397-1

SDG #: JP0865
SAF#: RC-107

Date SDG Closed: September 25, 2014
Data Deliverable: 7 Day / Summary

CLIENT ID	LAB ID	ANALYSES REQUESTED	ANALYSES PERFORMED
J1V0F0	280-60397-1	6010	6010B
J1V0F1	280-60397-2	6010	6010B
J1V0F2	280-60397-3	8310	8310

I certify that this data package is in compliance with the SOW, both technically and for completeness, for other than the conditions detailed in this Case Narrative. Release of the data contained in this hard copy data package has been authorized by the Laboratory Manager or a designee, as verified by the signature on the Report Cover.

With exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. All laboratory quality control samples analyzed in conjunction with the samples in this project were within established control limits, with any exceptions noted. Calculations are performed before rounding to avoid round-off errors in calculated results.

This report includes reporting limits (RLs) less than TestAmerica Denver's practical quantitation limits. These reporting limits are being used specifically at the client's request to meet the needs of this project. Please note that data are not normally reported to these levels without qualification, since they are inherently less reliable and potentially less defensible than required by the current NELAC standards.

The results, RLs and MDLs included in this report have been adjusted for dry weight, as appropriate.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT
The samples were received on 9/25/2014 9:50 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.6º C.

HPLC - SW846 8310 - PAHs
The MSD aliquot of the MS/MSD performed on sample J1V0F2 exhibited the percent recovery outside the control limits for Dibenzo(a,h)anthracene, and the associated sample result has been flagged "N". The acceptable LCS analysis data indicated that the analytical system was operating within control; therefore, corrective action is deemed unnecessary.

No other anomalies were encountered.

TOTAL METALS - SW846 6010B
Serial dilution of a digestate in batch 280-244957 indicates that physical and chemical interferences are present for Copper. Results have been flagged with an "X".

It can be noted that the sample amount was greater than four times the spike amount for Aluminum, Iron and Manganese in the Matrix Spike performed on sample J1V0F1; therefore, control limits are not applicable.

Magnesium was recovered outside the control limits in the Matrix Spike performed on sample J1V0F1, and the associated sample result has been flagged "N". There is no indication that the analytical system was operating out of control, and method accuracy has been verified by the acceptable LCS analysis data; therefore, corrective action is deemed unnecessary.

No other anomalies were encountered.

DATA REPORTING QUALIFIERS

Client: Washington Closure Hanford

Job Number: 280-60397-1
Sdg Number: JP0865

Lab Section	Qualifier	Description
HPLC/IC		
	U	Analyzed for but not detected.
	N	MS, MSD: Spike recovery exceeds upper or lower control limits.
Metals		
	U	Analyzed for but not detected.
	B	Estimated result. Result is less than the RL, but greater than MDL
	4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
	N	Recovery exceeds upper or lower control limits
	X	Serial dilution in the analytical batch indicates that physical and chemical interferences are present.

SAMPLE SUMMARY

Client: Washington Closure Hanford

Job Number: 280-60397-1
Sdg Number: JP0865

Lab Sample ID	Client Sample ID	Client Matrix	Date/Time Sampled	Date/Time Received
280-60397-1	J1V0F0	Solid	09/22/2014 0840	09/25/2014 0950
280-60397-2	J1V0F1	Solid	09/22/2014 0846	09/25/2014 0950
280-60397-3	J1V0F2	Solid	09/22/2014 0842	09/25/2014 0950

METHOD SUMMARY

Client: Washington Closure Hanford

Job Number: 280-60397-1
Sdg Number: JP0865

Description	Lab Location	Method	Preparation Method
Matrix: Solid			
PAHs (HPLC)	TAL DEN	SW846 8310	
Ultrasonic Extraction	TAL DEN		SW846 3550C
Metals (ICP)	TAL DEN	SW846 6010B	
Preparation, Metals	TAL DEN		SW846 3050B
ASTM D-2216	TAL DEN	ASTM D-2216	

Lab References:

TAL DEN = TestAmerica Denver

Method References:

ASTM = ASTM International

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

METHOD / ANALYST SUMMARY

Client: Washington Closure Hanford

Job Number: 280-60397-1
Sdg Number: JP0865

Method	Analyst	Analyst ID
SW846 6010B	Scott, Samantha J	SJS
ASTM D-2216	Schwemin, Andrew J	AJS
SW846 8310	Fiedler, Heather K	HKF

SAMPLE RESULTS

Client: Washington Closure Hanford

Job Number: 280-60397-1
Sdg Number: JP0865

Client Sample ID: **J1V0F2**

Lab Sample ID: 280-60397-3
Client Matrix: Solid
% Moisture: 0.3

Date Sampled: 09/22/2014 0842
Date Received: 09/25/2014 0950

8310 PAHs (HPLC)

Analysis Method:	8310	Analysis Batch:	280-245595	Instrument ID:	CHHPLC_G
Prep Method:	3550C	Prep Batch:	280-244966	Initial Weight/Volume:	30.6 g
Dilution:	1.0			Final Weight/Volume:	4 mL
Analysis Date:	09/30/2014 1850			Injection Volume:	20 uL
Prep Date:	09/25/2014 2008			Result Type:	PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Acenaphthene		9.8	U	9.8	98
Acenaphthylene		8.9	U	8.9	98
Anthracene		3.0	U	3.0	20
Benzo[a]anthracene		3.1	U	3.1	15
Benzo[a]pyrene		6.3	U	6.3	15
Benzo[b]fluoranthene		4.1	U	4.1	15
Benzo[g,h,i]perylene		7.1	U	7.1	30
Benzo[k]fluoranthene		3.9	U	3.9	15
Chrysene		4.8	U	4.8	39
Dibenzo(a,h)anthracene		11	U N	11	30
Fluoranthene		13	U	13	39
Fluorene		5.2	U	5.2	30
Indeno[1,2,3-cd]pyrene		12	U	12	30
Naphthalene		12	U	12	98
Phenanthrene		12	U	12	39
Pyrene		12	U	12	39

Surrogate	%Rec	Qualifier	Acceptance Limits
Terphenyl-d14 (SUR)	91		72 - 115

Client: Washington Closure Hanford

Job Number: 280-60397-1
Sdg Number: JP0865

Client Sample ID: **J1V0F0**

Lab Sample ID: 280-60397-1
Client Matrix: Solid
% Moisture: 1.1

Date Sampled: 09/22/2014 0840
Date Received: 09/25/2014 0950

6010B Metals (ICP)

Analysis Method:	6010B	Analysis Batch:	280-245182	Instrument ID:	MT_026
Prep Method:	3050B	Prep Batch:	280-244957	Lab File ID:	26a092614b.asc
Dilution:	1.0			Initial Weight/Volume:	1.11 g
Analysis Date:	09/26/2014 1604			Final Weight/Volume:	100 mL
Prep Date:	09/26/2014 0700				

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Aluminum		7300		1.4	4.6
Antimony		0.35	U	0.35	0.55
Arsenic		15.8		0.60	0.91
Barium		50.7		0.069	0.46
Beryllium		0.030	U	0.030	0.18
Boron		1.1	B	0.89	1.8
Cadmium		0.037	U	0.037	0.18
Calcium		5750		12.8	45.6
Chromium		11.2		0.053	0.18
Cobalt		5.9		0.091	0.91
Copper		12.2	X	0.20	0.91
Iron		17000		3.5	4.6
Lead		47.5		0.25	0.46
Magnesium		4210		3.4	18.2
Manganese		273		0.091	0.91
Molybdenum		0.37	B	0.24	1.8
Nickel		12.0		0.11	3.6
Potassium		1060		37.4	273
Selenium		0.98		0.78	0.91
Silicon		284		5.2	9.1
Silver		0.15	U	0.15	0.18
Sodium		201		53.7	109
Vanadium		41.1		0.086	1.8
Zinc		33.7		0.36	0.91

Client: Washington Closure Hanford

Job Number: 280-60397-1
Sdg Number: JP0865

Client Sample ID: **J1V0F1**

Lab Sample ID: 280-60397-2
Client Matrix: Solid
% Moisture: 1.2

Date Sampled: 09/22/2014 0846
Date Received: 09/25/2014 0950

6010B Metals (ICP)

Analysis Method:	6010B	Analysis Batch:	280-245182	Instrument ID:	MT_026
Prep Method:	3050B	Prep Batch:	280-244957	Lab File ID:	26a092614b.asc
Dilution:	1.0			Initial Weight/Volume:	1.18 g
Analysis Date:	09/26/2014 1606			Final Weight/Volume:	100 mL
Prep Date:	09/26/2014 0700				

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Aluminum		5390		1.3	4.3
Antimony		0.33	U	0.33	0.51
Arsenic		3.1		0.57	0.86
Barium		41.6		0.065	0.43
Beryllium		0.028	U	0.028	0.17
Boron		0.84	U	0.84	1.7
Cadmium		0.088	B	0.035	0.17
Calcium		4930		12.1	42.9
Chromium		9.7		0.050	0.17
Cobalt		4.8		0.086	0.86
Copper		11.0	X	0.19	0.86
Iron		14000		3.3	4.3
Lead		4.4		0.23	0.43
Magnesium		3710	N	3.2	17.2
Manganese		222		0.086	0.86
Molybdenum		0.22	U	0.22	1.7
Nickel		10.6		0.11	3.4
Potassium		547		35.2	257
Selenium		0.74	U	0.74	0.86
Silicon		128		4.9	8.6
Silver		0.14	U	0.14	0.17
Sodium		164		50.6	103
Vanadium		37.2		0.081	1.7
Zinc		26.9		0.34	0.86

Client: Washington Closure Hanford

Job Number: 280-60397-1
Sdg Number: JP0865

General Chemistry

Client Sample ID: **J1V0F0**

Lab Sample ID: 280-60397-1
Client Matrix: Solid

Date Sampled: 09/22/2014 0840
Date Received: 09/25/2014 0950

Analyte	Result	Qual	Units	RL	RL	Dil	Method
Percent Moisture	1.1		%	0.10	0.10	1.0	D-2216

Analysis Batch: 280-245877 Analysis Date: 10/01/2014 1741 DryWt Corrected: N

Client: Washington Closure Hanford

Job Number: 280-60397-1
Sdg Number: JP0865

General Chemistry

Client Sample ID: **J1V0F1**

Lab Sample ID: 280-60397-2
Client Matrix: Solid

Date Sampled: 09/22/2014 0846
Date Received: 09/25/2014 0950

Analyte	Result	Qual	Units	RL	RL	Dil	Method
Percent Moisture	1.2		%	0.10	0.10	1.0	D-2216

Analysis Batch: 280-245877 Analysis Date: 10/01/2014 1741 DryWt Corrected: N

Client: Washington Closure Hanford

Job Number: 280-60397-1
Sdg Number: JP0865

General Chemistry

Client Sample ID: **J1V0F2**

Lab Sample ID: 280-60397-3
Client Matrix: Solid

Date Sampled: 09/22/2014 0842
Date Received: 09/25/2014 0950

Analyte	Result	Qual	Units	RL	RL	Dil	Method
Percent Moisture	0.33		%	0.10	0.10	1.0	D-2216

Analysis Batch: 280-245877 Analysis Date: 10/01/2014 1741 DryWt Corrected: N

QUALITY CONTROL RESULTS

Client: Washington Closure Hanford

Job Number: 280-60397-1
Sdg Number: JP0865

Surrogate Recovery Report

8310 PAHs (HPLC)

Client Matrix: Solid

Lab Sample ID	Client Sample ID	TPH1 %Rec
280-60397-3	J1V0F2	91
MB 280-244966/1-A		90
LCS 280-244966/2-A		92
280-60397-3 MS	J1V0F2 MS	87
280-60397-3 MSD	J1V0F2 MSD	86

Surrogate	Acceptance Limits
TPH = Terphenyl-d14 (SUR)	72-115

Client: Washington Closure Hanford

Job Number: 280-60397-1
Sdg Number: JP0865

Method Blank - Batch: 280-244966

Method: 8310
Preparation: 3550C

Lab Sample ID:	MB 280-244966/1-A	Analysis Batch:	280-245595	Instrument ID:	CHHPLC_G
Client Matrix:	Solid	Prep Batch:	280-244966	Lab File ID:	G0930008.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	30 g
Analysis Date:	09/30/2014 1749	Units:	ug/Kg	Final Weight/Volume:	4 mL
Prep Date:	09/25/2014 2008			Injection Volume:	20 uL
Leach Date:	N/A			Column ID:	PRIMARY

Analyte	Result	Qual	MDL	RL
Acenaphthene	10	U	10	100
Acenaphthylene	9.0	U	9.0	100
Anthracene	3.1	U	3.1	20
Benzo[a]anthracene	3.2	U	3.2	15
Benzo[a]pyrene	6.4	U	6.4	15
Benzo[b]fluoranthene	4.2	U	4.2	15
Benzo[g,h,i]perylene	7.2	U	7.2	30
Benzo[k]fluoranthene	3.9	U	3.9	15
Chrysene	4.8	U	4.8	40
Dibenzo(a,h)anthracene	11	U	11	30
Fluoranthene	13	U	13	40
Fluorene	5.3	U	5.3	30
Indeno[1,2,3-cd]pyrene	12	U	12	30
Naphthalene	12	U	12	100
Phenanthrene	12	U	12	40
Pyrene	12	U	12	40

Surrogate	% Rec	Acceptance Limits
Terphenyl-d14 (SUR)	90	72 - 115

Client: Washington Closure Hanford

Job Number: 280-60397-1
Sdg Number: JP0865

Lab Control Sample - Batch: 280-244966

Method: 8310
Preparation: 3550C

Lab Sample ID:	LCS 280-244966/2-A	Analysis Batch:	280-245595	Instrument ID:	CHHPLC_G
Client Matrix:	Solid	Prep Batch:	280-244966	Lab File ID:	G0930009.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	30 g
Analysis Date:	09/30/2014 1820	Units:	ug/Kg	Final Weight/Volume:	4 mL
Prep Date:	09/25/2014 2008			Injection Volume:	20 uL
Leach Date:	N/A			Column ID:	PRIMARY

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Acenaphthene	2000	1840	92	78 - 116	
Acenaphthylene	2000	1810	91	76 - 115	
Anthracene	2000	1960	98	74 - 115	
Benzo[a]anthracene	2000	1920	96	85 - 120	
Benzo[a]pyrene	2000	1900	95	74 - 121	
Benzo[b]fluoranthene	2000	1880	94	85 - 115	
Benzo[g,h,i]perylene	2000	2050	102	85 - 120	
Benzo[k]fluoranthene	2000	1860	93	85 - 115	
Chrysene	2000	2000	100	83 - 115	
Dibenzo(a,h)anthracene	2000	1760	88	83 - 115	
Fluoranthene	2000	1870	94	83 - 115	
Fluorene	2000	1890	94	80 - 115	
Indeno[1,2,3-cd]pyrene	2000	1970	99	85 - 123	
Naphthalene	2000	1850	92	80 - 121	
Phenanthrene	2000	1850	92	80 - 115	
Pyrene	2000	1970	98	75 - 116	

Surrogate	% Rec	Acceptance Limits
Terphenyl-d14 (SUR)	92	72 - 115

Client: Washington Closure Hanford

Job Number: 280-60397-1
Sdg Number: JP0865

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-244966

Method: 8310
Preparation: 3550C

MS Lab Sample ID:	280-60397-3	Analysis Batch:	280-245595	Instrument ID:	CHHPLC_G
Client Matrix:	Solid	Prep Batch:	280-244966	Lab File ID:	G0930011.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	32.5 g
Analysis Date:	09/30/2014 1921			Final Weight/Volume:	4 mL
Prep Date:	09/25/2014 2008			Injection Volume:	20 uL
Leach Date:	N/A			Column ID:	PRIMARY

MSD Lab Sample ID:	280-60397-3	Analysis Batch:	280-245595	Instrument ID:	CHHPLC_G
Client Matrix:	Solid	Prep Batch:	280-244966	Lab File ID:	G0930012.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	31.2 g
Analysis Date:	09/30/2014 1951			Final Weight/Volume:	4 mL
Prep Date:	09/25/2014 2008			Injection Volume:	20 uL
Leach Date:	N/A			Column ID:	PRIMARY

	% Rec.						
Analyte	MS	MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
Acenaphthene	87	87	78 - 116	3	20		
Acenaphthylene	85	85	76 - 115	4	21		
Anthracene	91	90	74 - 115	3	20		
Benzo[a]anthracene	90	89	85 - 120	3	20		
Benzo[a]pyrene	94	88	74 - 121	3	20		
Benzo[b]fluoranthene	89	88	85 - 115	2	20		
Benzo[g,h,i]perylene	98	95	85 - 120	1	20		
Benzo[k]fluoranthene	89	87	85 - 115	1	20		
Chrysene	94	93	83 - 115	3	20		
Dibenzo(a,h)anthracene	85	82	83 - 115	0	20		N
Fluoranthene	88	87	83 - 115	3	20		
Fluorene	88	88	80 - 115	4	20		
Indeno[1,2,3-cd]pyrene	95	92	85 - 123	0	20		
Naphthalene	88	87	80 - 121	4	20		
Phenanthrene	87	86	80 - 115	3	20		
Pyrene	93	92	75 - 116	3	20		

Surrogate	MS % Rec	MSD % Rec	Acceptance Limits
Terphenyl-d14 (SUR)	87	86	72 - 115

Client: Washington Closure Hanford

Job Number: 280-60397-1
Sdg Number: JP0865

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-244966

Method: 8310
Preparation: 3550C

MS Lab Sample ID:	280-60397-3	Units:	ug/Kg	MSD Lab Sample ID:	280-60397-3
Client Matrix:	Solid			Client Matrix:	Solid
Dilution:	1.0			Dilution:	1.0
Analysis Date:	09/30/2014 1921			Analysis Date:	09/30/2014 1951
Prep Date:	09/25/2014 2008			Prep Date:	09/25/2014 2008
Leach Date:	N/A			Leach Date:	N/A

Analyte	Sample Result/Qual		MS Spike Amount	MSD Spike Amount	MS Result/Qual	MSD Result/Qual	
Acenaphthene	9.8	U	1850	1930	1620	1680	
Acenaphthylene	8.9	U	1850	1930	1580	1650	
Anthracene	3.0	U	1850	1930	1690	1740	
Benzo[a]anthracene	3.1	U	1850	1930	1670	1720	
Benzo[a]pyrene	6.3	U	1850	1930	1750	1700	
Benzo[b]fluoranthene	4.1	U	1850	1930	1660	1690	
Benzo[g,h,i]perylene	7.1	U	1850	1930	1820	1840	
Benzo[k]fluoranthene	3.9	U	1850	1930	1650	1670	
Chrysene	4.8	U	1850	1930	1730	1790	
Dibenzo(a,h)anthracene	11	U	1850	1930	1580	1580	N
Fluoranthene	13	U	1850	1930	1630	1680	
Fluorene	5.2	U	1850	1930	1630	1700	
Indeno[1,2,3-cd]pyrene	12	U	1850	1930	1760	1770	
Naphthalene	12	U	1850	1930	1620	1690	
Phenanthrene	12	U	1850	1930	1600	1660	
Pyrene	12	U	1850	1930	1710	1770	

Client: Washington Closure Hanford

Job Number: 280-60397-1
Sdg Number: JP0865

Method Blank - Batch: 280-244957

Method: 6010B
Preparation: 3050B

Lab Sample ID:	MB 280-244957/1-A	Analysis Batch:	280-245182	Instrument ID:	MT_026
Client Matrix:	Solid	Prep Batch:	280-244957	Lab File ID:	26a092614b.asc
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1 g
Analysis Date:	09/26/2014 1559	Units:	mg/Kg	Final Weight/Volume:	100 mL
Prep Date:	09/26/2014 0700				
Leach Date:	N/A				

Analyte	Result	Qual	MDL	RL
Aluminum	1.6	U	1.6	5.0
Antimony	0.38	U	0.38	0.60
Arsenic	0.66	U	0.66	1.0
Barium	0.076	U	0.076	0.50
Beryllium	0.033	U	0.033	0.20
Boron	0.98	U	0.98	2.0
Cadmium	0.041	U	0.041	0.20
Calcium	14.1	U	14.1	50.0
Chromium	0.058	U	0.058	0.20
Cobalt	0.10	U	0.10	1.0
Copper	0.22	U	0.22	1.0
Iron	3.8	U	3.8	5.0
Lead	0.27	U	0.27	0.50
Magnesium	3.7	U	3.7	20.0
Manganese	0.10	U	0.10	1.0
Molybdenum	0.26	U	0.26	2.0
Nickel	0.12	U	0.12	4.0
Potassium	41.0	U	41.0	300
Selenium	0.86	U	0.86	1.0
Silicon	5.7	U	5.7	10.0
Silver	0.16	U	0.16	0.20
Sodium	59.0	U	59.0	120
Vanadium	0.094	U	0.094	2.0
Zinc	0.40	U	0.40	1.0

Client: Washington Closure Hanford

Job Number: 280-60397-1
Sdg Number: JP0865

Lab Control Sample - Batch: 280-244957

Method: 6010B
Preparation: 3050B

Lab Sample ID:	LCS 280-244957/2-A	Analysis Batch:	280-245182	Instrument ID:	MT_026
Client Matrix:	Solid	Prep Batch:	280-244957	Lab File ID:	26a092614b.asc
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1 g
Analysis Date:	09/26/2014 1601	Units:	mg/Kg	Final Weight/Volume:	100 mL
Prep Date:	09/26/2014 0700				
Leach Date:	N/A				

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Aluminum	200	196.9	98	82 - 116	
Antimony	50.0	45.25	90	82 - 110	
Arsenic	100	98.64	99	85 - 110	
Barium	200	206.8	103	87 - 112	
Beryllium	5.00	4.80	96	84 - 114	
Boron	100	91.09	91	80 - 120	
Cadmium	10.0	9.56	96	87 - 110	
Calcium	5000	4748	95	82 - 114	
Chromium	20.0	20.57	103	84 - 114	
Cobalt	50.0	48.83	98	87 - 110	
Copper	25.0	24.12	96	88 - 110	
Iron	100	98.26	98	87 - 120	
Lead	50.0	49.13	98	86 - 110	
Magnesium	5000	4627	93	90 - 110	
Manganese	50.0	49.79	100	88 - 110	
Molybdenum	100	90.71	91	86 - 110	
Nickel	50.0	48.90	98	87 - 110	
Potassium	5000	4659	93	89 - 110	
Selenium	200	202.9	101	83 - 110	
Silicon	1000	100.6	10	10 - 70	
Silver	5.00	5.58	112	87 - 114	
Sodium	5000	5395	108	90 - 112	
Vanadium	50.0	49.91	100	88 - 110	
Zinc	50.0	46.54	93	76 - 114	

Client: Washington Closure Hanford

Job Number: 280-60397-1
Sdg Number: JP0865

Matrix Spike - Batch: 280-244957

Method: 6010B
Preparation: 3050B

Lab Sample ID:	280-60397-2	Analysis Batch:	280-245182	Instrument ID:	MT_026
Client Matrix:	Solid	Prep Batch:	280-244957	Lab File ID:	26a092614b.asc
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1.05 g
Analysis Date:	09/26/2014 1614	Units:	mg/Kg	Final Weight/Volume:	100 mL
Prep Date:	09/26/2014 0700				
Leach Date:	N/A				

Analyte	Sample Result/Qual		Spike Amount	Result	% Rec.	Limit	Qual
Aluminum	5390		193	6683	668	50 - 200	4
Antimony	0.33	U	48.2	26.94	56	20 - 200	
Arsenic	3.1		96.4	91.15	91	76 - 111	
Barium	41.6		193	224.9	95	52 - 159	
Beryllium	0.028	U	4.82	4.10	85	72 - 105	
Boron	0.84	U	96.4	81.26	84	80 - 120	
Cadmium	0.088	B	9.64	8.77	90	40 - 130	
Calcium	4930		4820	10190	109	43 - 165	
Chromium	9.7		19.3	31.72	114	70 - 200	
Cobalt	4.8		48.2	48.69	91	72 - 106	
Copper	11.0		24.1	33.63	94	37 - 187	
Iron	14000		96.4	15670	1769	70 - 200	4
Lead	4.4		48.2	47.96	90	70 - 200	
Magnesium	3710		4820	11360	159	64 - 145	N
Manganese	222		48.2	293.8	149	40 - 200	4
Molybdenum	0.22	U	96.4	80.49	83	75 - 103	
Nickel	10.6		48.2	67.10	117	61 - 126	
Potassium	547		4820	4876	90	56 - 172	
Selenium	0.74	U	193	178.4	93	76 - 104	
Silicon	128		964	387.2	27	20 - 200	
Silver	0.14	U	4.82	5.20	108	75 - 141	
Sodium	164		4820	5263	106	78 - 111	
Vanadium	37.2		48.2	89.60	109	50 - 169	
Zinc	26.9		48.2	71.58	93	70 - 200	

Client: Washington Closure Hanford

Job Number: 280-60397-1
Sdg Number: JP0865

Duplicate - Batch: 280-244957

Method: 6010B
Preparation: 3050B

Lab Sample ID:	280-60397-2	Analysis Batch:	280-245182	Instrument ID:	MT_026
Client Matrix:	Solid	Prep Batch:	280-244957	Lab File ID:	26a092614b.asc
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1.06 g
Analysis Date:	09/26/2014 1612	Units:	mg/Kg	Final Weight/Volume:	100 mL
Prep Date:	09/26/2014 0700				
Leach Date:	N/A				

Analyte	Sample Result/Qual		Result	RPD	Limit	Qual
Aluminum	5390		4881	10	40	
Antimony	0.33	U	0.36	NC	40	U
Arsenic	3.1		2.88	8	30	
Barium	41.6		31.08	29	30	
Beryllium	0.028	U	0.032	NC	30	U
Boron	0.84	U	0.94	NC	30	U
Cadmium	0.088	B	0.100	14	30	B
Calcium	4930		4623	7	30	
Chromium	9.7		9.12	6	40	
Cobalt	4.8		5.14	7	30	
Copper	11.0		12.23	11	30	
Iron	14000		15120	8	40	
Lead	4.4		3.84	14	40	
Magnesium	3710		3591	3	30	
Manganese	222		219.1	1	40	
Molybdenum	0.22	U	0.25	NC	30	U
Nickel	10.6		9.85	8	30	
Potassium	547		529.7	3	40	
Selenium	0.74	U	0.82	NC	30	U
Silicon	128		135.3	6	40	
Silver	0.14	U	0.15	NC	30	U
Sodium	164		184.1	12	30	
Vanadium	37.2		41.00	10	30	
Zinc	26.9		27.07	0.6	40	

Client: Washington Closure Hanford

Job Number: 280-60397-1
Sdg Number: JP0865

Duplicate - Batch: 280-245877

Method: D-2216
Preparation: N/A

Lab Sample ID:	280-60397-1	Analysis Batch:	280-245877	Instrument ID:	No Equipment Assigned
Client Matrix:	Solid	Prep Batch:	N/A	Lab File ID:	N/A
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	
Analysis Date:	10/01/2014 1741	Units:	%	Final Weight/Volume:	
Prep Date:	N/A				
Leach Date:	N/A				

Analyte	Sample Result/Qual	Result	RPD	Limit	Qual
Percent Moisture	1.1	0.98	13	20	

Client: Washington Closure Hanford

Job Number: 280-60397-1
Sdg Number: JP0865

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
Metals					
Prep Batch: 280-244957					
LCS 280-244957/2-A	Lab Control Sample	T	Solid	3050B	
MB 280-244957/1-A	Method Blank	T	Solid	3050B	
280-60397-1	J1V0F0	T	Solid	3050B	
280-60397-2	J1V0F1	T	Solid	3050B	
280-60397-2DU	Duplicate	T	Solid	3050B	
280-60397-2MS	Matrix Spike	T	Solid	3050B	
Analysis Batch:280-245182					
LCS 280-244957/2-A	Lab Control Sample	T	Solid	6010B	280-244957
MB 280-244957/1-A	Method Blank	T	Solid	6010B	280-244957
280-60397-1	J1V0F0	T	Solid	6010B	280-244957
280-60397-2	J1V0F1	T	Solid	6010B	280-244957
280-60397-2DU	Duplicate	T	Solid	6010B	280-244957
280-60397-2MS	Matrix Spike	T	Solid	6010B	280-244957

Report Basis
T = Total

General Chemistry					
Analysis Batch:280-245877					
280-60397-1	J1V0F0	T	Solid	D-2216	
280-60397-1DU	Duplicate	T	Solid	D-2216	
280-60397-2	J1V0F1	T	Solid	D-2216	
280-60397-3	J1V0F2	T	Solid	D-2216	

Report Basis
T = Total

Client: Washington Closure Hanford

Job Number: 280-60397-1
Sdg Number: JP0865

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
HPLC/IC					
Prep Batch: 280-244966					
LCS 280-244966/2-A	Lab Control Sample	T	Solid	3550C	
MB 280-244966/1-A	Method Blank	T	Solid	3550C	
280-60397-3	J1V0F2	T	Solid	3550C	
280-60397-3MS	Matrix Spike	T	Solid	3550C	
280-60397-3MSD	Matrix Spike Duplicate	T	Solid	3550C	
Analysis Batch:280-245595					
LCS 280-244966/2-A	Lab Control Sample	T	Solid	8310	280-244966
MB 280-244966/1-A	Method Blank	T	Solid	8310	280-244966
280-60397-3	J1V0F2	T	Solid	8310	280-244966
280-60397-3MS	Matrix Spike	T	Solid	8310	280-244966
280-60397-3MSD	Matrix Spike Duplicate	T	Solid	8310	280-244966

Report Basis
T = Total

Washington Closure Hanford

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

RC-107-115

Collector: H. Weber	Company Contact: Joan Kessner	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Project Designation: 100-H Field Remediation	Sampling Location: 100-H-43 (re-sample failed EXC and FS locations)		SAF No.: RC-107
Ice Chest No.: WCH-11-068	Field Logbook No.: EL-1627-08	COA: 010H432000	Method of Shipment: Commercial Carrier \ Fed Ex
Shipped To: TestAmerica Denver	Offsite Property No.: A131247		Bill of Lading/Air Bill No.: See OSPC

Price Code: 7 day

Data Turnaround

Other Labs Shipped To: N/A

POSSIBLE SAMPLE HAZARDS/REMARKS

N/A

Special Handling and/or Storage

Cool 4C

Preservation	Cool 4C	Cool 4C
Type of Container	G/P	aG
No. of Container(s)	1	1
Volume	250mL	250mL
Sample Analysis	See item (1) in Special Instructions	PAHs - 8310

Sample No.	Matrix	Sample Date	Sample Time		
J1V0F0	SOIL	09/22/14	0840	X	N/A
J1V0F1	SOIL	09/22/14	0846	X	N/A
J1V0F2	SOIL	09/22/14	0842	N/A	X

CHAIN OF POSSESSION	Sign/Print Names
Relinquished By/Removed From: Heather Weber / Date/Time: 09/22/2014 0850	Received By/Stored In: C. Martinez / C. Martinez Date/Time: 09/22/14 0850
Relinquished By/Removed From: C. Martinez / C. Martinez Date/Time: 09/22/14 1336	Received By/Stored In: D. Wshea / D. WSHEA Date/Time: 9/22/14 1336
Relinquished By/Removed From: D. Wshea / D. WSHEA Date/Time: 9/22/14 1540	Received By/Stored In: SM SEXTON Date/Time: 9/22/14 1540
Relinquished By/Removed From: SM SEXTON Date/Time: 9/22/14 1545	Received By/Stored In: 1060 Battelle Fridge 1A Date/Time: 9/22/14 1545
Relinquished By/Removed From: 1060 Battelle Fridge 1A Date/Time: 9/23/14 0751	Received By/Stored In: SM SEXTON Date/Time: 9/23/14 0751
Relinquished By/Removed From: WCH SM SEXTON Date/Time: 9/23/14 0755	Received By/Stored In: FED Ex Date/Time:
Relinquished By/Removed From: Date/Time:	Received By/Stored In: [signature] Date/Time: 9/25/14 9:50

FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

SPECIAL INSTRUCTIONS

(1) ICP Metals - 6010TR (Close-out List) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Molybdenum, Nickel, Potassium, Selenium, Silicon, Silver, Sodium, Vanadium, Zinc}

2.6 IR 6 CF0.0

Transfed by MT 9/25/14

REVIEWED BY K. Wood via email DATE 9/23/14

JP0865

WCH-EE-011

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

90 w/Permission

Project 28002142
Report Due: 10-2-2014
TALs TAT: Rush 5d

Sample Check-in List

Date/Time Received: 9/25/14 9:50 **GM Screen Result** 15 **microR/hr**

Client: Washington Closure Hanford **SDG #:** JP0865 NA[ ] **SAF #:** RC-107 NA [ ]

Job Number: 60397 **Chain of Custody #** RC-107-115

Shipping Container ID: WCH-11-068 **Air Bill #** 7712 5393 6463

1. Custody Seals on shipping container intact? NA [ ] Yes [✓] No [ ]
2. Custody Seals dated and signed? NA [ ] Yes [✓] No [ ]
3. Chain of Custody record present? NA [ ] Yes [✓] No [ ]
4. Cooler Temperature °C: 2.6 IR6 CF=0.0 NA [ ] 5. Vermiculite/packing materials is NA [ ] Wet [ ] Dry [✓]
6. Number of samples in shipping container: 3
7. Sample holding times exceeded? NA [ ] Yes [ ] No [✓]
8. Samples have:
   ✓ Tape
   ✓ Custody Seals
   ✓ Hazard Labels
   ✓ Appropriate Sample Labels
9. Samples are:
   ✓ In Good Condition
   ___ Broken
   ___ Leaking
   ___ Have Air Bubbles (Only for samples requiring no head space.)
10. Sample pH taken? NA [✓] pH<2 [ ] pH>2 [ ] pH>9 [ ] **Amount HNO_3 Added** ___
11. Sample Location, Sample Collector Listed? *
    *For documentation only. No corrective action needed.
12. Were any anomalies identified in sample receipt? Yes [ ] No [✓]
13. Description of anomalies (include sample numbers): ___

Sample Custodian: [signature] **Date:** 9/25/14

Client Sample ID	Analysis Requested	Condition	Comments/Action

Client Informed on ___ by ___ Person Contacted ___

[ ] No action necessary; process as is.

Project Manager Darlene Bandy Date 9-25-14

LS-023, Rev. 7, 1/08

From: (509) 376-7492
1162 Shipping
US DOE c/o MSA
2355 Stevens Dr

Richland, WA 99354

Origin ID: PSCA

FedEx Express

J1422140909032 6

Ship Date: 23SEP14
ActWgt: 28.0 LB
CAD: 105266502/INET3550

Delivery Address Bar Code

Ref # 010H432000
Invoice #
PO #
Dept #

SHIP TO: (303) 736-0190
BILL THIRD PARTY

Kae Yoder
TestAmerica
4955 Yarrow St.
A131247
ARVADA, CO 80002

WED - 24 SEP 10:30A
PRIORITY OVERNIGHT

TRK# 0201 7712 5393 6463

XH WHHA

80002
CO-US
DEN

522G1/CDB4/8AC9

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