SAF-RC-075
100-D/DR Burial Grounds & Remaining Sites – Soil Full Protocol
FINAL VALIDATION PACKAGE

COMPLETE COPY OF FINAL VALIDATION PACKAGE TO:

Kathy Wendt H4-21

COMMENTS:

SDG JP0832 SAF-RC-075

Waste Site: 100-D-84:2

Date: 4 August 2014
To: Washington Closure Hanford Inc. (technical representative)
From: ELR Consulting
Project: 100-D/DR Burial Grounds & Remaining Sites – Soil Full Protocol - Waste Site 100-D-84:2
Subject: Inorganic - Data Package No. JP0832-TAL

INTRODUCTION

This memo presents the results of data validation on Data Package No. JP0832 prepared by TestAmerica Laboratories (TAL). A list of samples validated along with the analyses reported and the method of analysis is provided in the following table.

Sample ID	Sample Date	Media	Validation	Analyte
J1TW21	7/14/14	Soil	C	See note 1
J1TW22	7/14/14	Soil	C	See note 1
J1TW23	7/14/14	Soil	C	See note 1
J1TW24	7/14/14	Soil	C	See note 1
J1TW25	7/14/14	Soil	C	See note 1
J1TW26	7/14/14	Soil	C	See note 1
J1TW27	7/14/14	Soil	C	See note 1
J1TW28	7/14/14	Soil	C	See note 1
J1TW29	7/14/14	Soil	C	See note 1
J1TW30	7/15/14	Soil	C	See note 1
J1TW31	7/15/14	Soil	C	See note 1
J1TW32	7/15/14	Soil	C	See note 1
J1TW33	7/14/14	Soil	C	See note 1

1 - ICP metals (6010B) and mercury (7471A).

Data validation was conducted in accordance with the Washington Closure Hanford (WCH) validation statement of work and the 100 Area Remedial Action Sampling and Analysis Plan (DOE/RL-96-22, September 2009). 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 PARAMETERS

- **Holding Times**

Analytical holding times for metals are assessed to ascertain whether the holding time requirements were met by the laboratory. The holding time requirements are as follows: Soil samples must be analyzed within 28 days for mercury and 6 months for ICP metals.

All holding times were acceptable.

- **Preparation (Method) Blanks**

Preparation Blanks

At least one preparation blank, consisting of deionized distilled water processed through each sample preparation and analysis procedure, must be prepared and analyzed with every sample delivery group. In the case of positive blank results, samples with digestate concentrations less than five times the preparation blank value have had their associated values qualified as non-detected and flagged "UJ". Samples with concentrations of greater than five times the highest blank concentration do not require qualification.

In the case of negative blank results, if the absolute value exceeds the contract required detection limit (CRDL), all nondetects are rejected and flagged "UR" and all detects that are less than ten times the absolute value of the associated preparation blank result are qualified as estimates and flagged "J". If the absolute value of the negative preparation blank is greater than the instrument detection limit (IDL) and less than or equal to the CRDL, all nondetects are qualified as estimates and flagged "UJ" and all detects less than ten times the absolute value of the blank are qualified as estimates and flagged "J". If the sample results are greater than ten times the absolute value of the preparation blank, no qualification is necessary.

All preparation blank results were acceptable.

Field (Equipment) Blank

No field blank was submitted for analysis. .

- **Accuracy**

Matrix Spike and Laboratory Control Sample

Matrix spike (MS) and laboratory control sample (LCS) analyses are used to assess the analytical accuracy of the reported data. The matrix spike is used to assess the effect of the matrix on the ability to accurately quantify sample concentrations. Recoveries must fall within the range of 75% to 125%. Samples with a recovery of less than 30%

and a sample result below the IDL are rejected and flagged "UR". Samples with a recovery of 30% to 74% and a sample result less than the IDL are qualified "UJ". Samples with a recovery of greater than 125% or less than 74% and a sample result greater than the IDL are qualified as estimates and flagged "J". Finally, for samples with a recovery greater than 125% and a sample result less than the IDL, no qualification is required.

Due to matrix spike recoveries outside QC limits, all antimony (50%) and silicon (16%) results were qualified as estimates and flagged "J".

Due to an LCS recovery outside QC limits (19%), all silicon results were qualified as estimates and flagged "J".

All other accuracy results were acceptable

- **Precision**

Laboratory Duplicate Samples

Analytical precision is expressed by the relative percent differences (RPD) between the recoveries of matrix spike duplicate (MSD) analyses performed on a sample in the analytical batch. Precision may alternatively be assessed using unspiked duplicate analyses performed on a sample in the analytical batch. If both sample and replicate activities (concentrations) are greater than five times the CRDL and the RPD is less than 30%, no qualification is required. If either activity (concentration) is less than five times the CRDL, the RPD control limit is less than or equal to two times the CRDL. If the RPD is outside the applicable control limit, associated results are qualified as estimated detects or estimated non-detects.

All laboratory duplicate results were acceptable.

Field Duplicate

One set of field duplicates (J1TW22/J1TW33) was submitted for analysis. Field duplicates are compared using the same criteria as for laboratory duplicates. All field duplicate results were acceptable.

- **Analytical Detection Levels**

Reported analytical detection levels are compared against the 100 Area RQLs to ensure that laboratory detection levels meet the required criteria. All results met the RQL.

- **Completeness**

Data package No. JP0832 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

The following minor deficiencies were noted:

- Due to matrix spike recoveries outside QC limits, all antimony (50%) and silicon (16%) results were qualified as estimates and flagged "J".

- Due to an LCS recovery outside QC limits (19%), all silicon results were qualified as estimates and flagged "J".

Data flagged "J" indicates that the associated concentration is an estimate, but under the WCH statement of work, the data may be usable for decision-making purposes. All other validated results are considered accurate within the standard error associated with the methods.

REFERENCES

Washington Closure Hanford Contract #S00W307A00 (March 2008), *Data Validation Services*, March 2008.

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

Appendix 1

Glossary of Data Reporting Qualifiers

Qualifiers which may be applied by data validators in compliance with WCH validation SOW are as follows:

U - Indicates the compound or analyte was analyzed for and not detected in the sample. The value reported is the sample quantitation limit corrected for sample dilution and moisture content by the laboratory.

UJ - Indicates the compound or analyte was analyzed for and not detected in the sample. Due to a minor QC deficiency identified during the data validation, the associated quantitation limit is an estimate.

J - Indicates the compound or analyte was analyzed for and detected. Due to a minor QC deficiency identified during the data validation, the associated concentration is an estimate, but the data are usable for decision-making purposes.

BJ - Applied to inorganic analyses only. Indicates the analyte concentration was greater than the IDL but less than the CRDL and is considered an estimated value.

R - Indicates the compound or analyte was analyzed for, detected, and due to an identified major QC deficiency, the data are unusable.

UR - Indicates the compound or analyte was analyzed for and not detected in the sample. Additionally, the data is unusable due to an identified major QC deficiency.

NJ - Indicates presumptive evidence of a compound at an estimated value. The data may not be valid for some specific applications (i.e., usable for decision-making purposes).

N - Indicates presumptive evidence of a compound. The data may not be valid for some specific applications (i.e., usable for decision-making purposes).

Appendix 2

Summary of Data Qualification

INORGANIC DATA QUALIFICATION SUMMARY*

SDG: JP0832	**REVIEWER: ELR**	**Project: 100-D-84:2**	**PAGE_1_OF_1**
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
Silicon	J	All	LCS recovery
Antimony Silicon	J	All	MS recovery

* - The Qualified Data Summary Table includes laboratory applied "U" qualifiers not specifically identified here. The laboratory applied "U" qualifiers are included to minimize misinterpretation of results contained in the table.

Appendix 3

Annotated Laboratory Reports

Client: Washington Closure Hanford

Job Number: 280-57789-1
Sdg Number: JP0832

Client Sample ID: J1TW21

Lab Sample ID: 280-57789-1
Client Matrix: Solid
% Moisture: 0.7

Date Sampled: 07/14/2014 0832
Date Received: 07/16/2014 0900

6010B Metals (ICP)

Analysis Method:	6010B	Analysis Batch:	280-235165	Instrument ID:	MT_026
Prep Method:	3050B	Prep Batch:	280-234743	Lab File ID:	26a071914e.asc
Dilution:	1.0			Initial Weight/Volume:	1.04 g
Analysis Date:	07/20/2014 0230			Final Weight/Volume:	100 mL
Prep Date:	07/17/2014 1450				

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Aluminum		7190	X	1.5	4.8
Antimony		0.46	B J	0.37	0.58
Arsenic		2.9		0.64	0.97
Barium		66.3	X	0.074	0.48
Beryllium		0.21		0.032	0.19
Boron		1.4	B	0.95	1.9
Cadmium		0.040	U	0.040	0.19
Calcium		7170	X	13.6	48.4
Chromium		8.1	X	0.056	0.19
Cobalt		8.1	X	0.097	0.97
Copper		13.8		0.21	0.97
Iron		21300	X	3.7	4.8
Lead		4.5		0.26	0.48
Magnesium		4270	X	3.6	19.4
Manganese		295	X	0.097	0.97
Molybdenum		0.48	B	0.25	1.9
Nickel		9.1	X	0.12	3.9
Potassium		1290		39.7	290
Selenium		0.83	U	0.83	0.97
Silicon		270	N J	5.5	9.7
Silver		0.15	U	0.15	0.19
Sodium		336		57.1	116
Vanadium		50.1		0.091	1.9
Zinc		41.0	X	0.39	0.97

7471A Mercury (CVAA)

Analysis Method:	7471A	Analysis Batch:	280-235010	Instrument ID:	MT_033
Prep Method:	7471A	Prep Batch:	280-234872	Lab File ID:	140718ab.txt
Dilution:	1.0			Initial Weight/Volume:	0.64 g
Analysis Date:	07/18/2014 1249			Final Weight/Volume:	50 mL
Prep Date:	07/18/2014 1000				

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Mercury		0.010	B	0.0052	0.016

8/3/14

Client: Washington Closure Hanford

Job Number: 280-57789-1
Sdg Number: JP0832

Client Sample ID: J1TW22

Lab Sample ID: 280-57789-2
Client Matrix: Solid
% Moisture: 1.0

Date Sampled: 07/14/2014 0840
Date Received: 07/16/2014 0900

6010B Metals (ICP)

Analysis Method:	6010B	Analysis Batch:	280-235165	Instrument ID:	MT_026
Prep Method:	3050B	Prep Batch:	280-234743	Lab File ID:	26a071914e.asc
Dilution:	1.0			Initial Weight/Volume:	1.12 g
Analysis Date:	07/20/2014 0240			Final Weight/Volume:	100 mL
Prep Date:	07/17/2014 1450				

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Aluminum		6710	X	1.4	4.5
Arsenic		3.0	B	0.60	0.90
Barium		63.0	X	0.069	0.45
Beryllium		0.19		0.030	0.18
Boron		1.5	B	0.88	1.8
Cadmium		0.037	U	0.037	0.18
Calcium		6710	X	12.7	45.1
Chromium		7.8	X	0.052	0.18
Cobalt		9.0	X	0.090	0.90
Copper		13.5		0.20	0.90
Iron		22200	X	3.4	4.5
Lead		4.1		0.24	0.45
Magnesium		4490	X	3.3	18.0
Manganese		297	X	0.090	0.90
Molybdenum		0.55	B	0.23	1.8
Nickel		10.5	X	0.11	3.6
Potassium		1200		37.0	271
Selenium		0.88	B J	0.78	0.90
Silicon		204		5.1	9.0
Silver		0.14	U	0.14	0.18
Sodium		307		53.2	108
Vanadium		52.3		0.085	1.8
Zinc		41.7	X	0.36	0.90

Analysis Method:	6010B	Analysis Batch:	280-235597	Instrument ID:	MT_026
Prep Method:	3050B	Prep Batch:	280-234743	Lab File ID:	26A072214B.asc
Dilution:	1.0			Initial Weight/Volume:	1.12 g
Analysis Date:	07/22/2014 1849			Final Weight/Volume:	100 mL
Prep Date:	07/17/2014 1450				

8/3/14

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Antimony		0.52	B J	0.34	0.54

7471A Mercury (CVAA)

Analysis Method:	7471A	Analysis Batch:	280-235010	Instrument ID:	MT_033
Prep Method:	7471A	Prep Batch:	280-234872	Lab File ID:	140718ab.txt
Dilution:	1.0			Initial Weight/Volume:	0.67 g
Analysis Date:	07/18/2014 1256			Final Weight/Volume:	50 mL
Prep Date:	07/18/2014 1000				

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Mercury		0.0086	B	0.0050	0.015

Client: Washington Closure Hanford

Job Number: 280-57789-1
Sdg Number: JP0832

Client Sample ID: J1TW23

Lab Sample ID: 280-57789-3
Client Matrix: Solid
% Moisture: 0.8

Date Sampled: 07/14/2014 1032
Date Received: 07/16/2014 0900

6010B Metals (ICP)

Analysis Method:	6010B	Analysis Batch:	280-235165	Instrument ID:	MT_026
Prep Method:	3050B	Prep Batch:	280-234743	Lab File ID:	26a071914e.asc
Dilution:	1.0			Initial Weight/Volume:	1.01 g
Analysis Date:	07/20/2014 0243			Final Weight/Volume:	100 mL
Prep Date:	07/17/2014 1450				

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Aluminum		6990	X	1.5	5.0
Antimony		0.52	B J	0.38	0.60
Arsenic		2.9		0.66	1.0
Barium		64.2	X	0.076	0.50
Beryllium		0.19	B	0.033	0.20
Boron		1.4	B	0.98	2.0
Cadmium		0.041	U	0.041	0.20
Calcium		6020	X	14.1	49.9
Chromium		8.1	X	0.058	0.20
Cobalt		8.8	X	0.10	1.0
Copper		13.7		0.22	1.0
Iron		22900	X	3.8	5.0
Lead		4.4		0.27	0.50
Magnesium		4620	X	3.7	20.0
Manganese		307	X	0.10	1.0
Molybdenum		0.26	U	0.26	2.0
Nickel		11.2	X	0.12	4.0
Potassium		1290		40.9	300
Selenium		0.86	U J	0.86	1.0
Silicon		220	J	5.7	10
Silver		0.16	U	0.16	0.20
Sodium		285		58.9	120
Vanadium		55.1		0.094	2.0
Zinc		51.8	X	0.40	1.0

7471A Mercury (CVAA)

Analysis Method:	7471A	Analysis Batch:	280-235010	Instrument ID:	MT_033
Prep Method:	7471A	Prep Batch:	280-234872	Lab File ID:	140718ab.txt
Dilution:	1.0			Initial Weight/Volume:	0.61 g
Analysis Date:	07/18/2014 1258			Final Weight/Volume:	50 mL
Prep Date:	07/18/2014 1000				

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Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Mercury		0.010	B	0.0055	0.017

Client: Washington Closure Hanford

Job Number: 280-57789-1
Sdg Number: JP0832

Client Sample ID: **J1TW24**

Lab Sample ID: 280-57789-4
Client Matrix: Solid
% Moisture: 0.8

Date Sampled: 07/14/2014 0928
Date Received: 07/16/2014 0900

6010B Metals (ICP)

Analysis Method:	6010B	Analysis Batch:	280-235165	Instrument ID:	MT_026
Prep Method:	3050B	Prep Batch:	280-234743	Lab File ID:	26a071914e.asc
Dilution:	1.0			Initial Weight/Volume:	1.09 g
Analysis Date:	07/20/2014 0245			Final Weight/Volume:	100 mL
Prep Date:	07/17/2014 1450				

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Aluminum		6780	X	1.4	4.6
Antimony		0.36	B J	0.35	0.55
Arsenic		2.7		0.61	0.92
Barium		65.4	X	0.070	0.46
Beryllium		0.18		0.031	0.18
Boron		1.0	B	0.91	1.8
Cadmium		0.038	U	0.038	0.18
Calcium		6200	X	13.0	46.2
Chromium		8.0	X	0.054	0.18
Cobalt		8.9	X	0.092	0.92
Copper		13.4		0.20	0.92
Iron		23500	X	3.5	4.6
Lead		4.2		0.25	0.46
Magnesium		4560	X	3.4	18.5
Manganese		312	X	0.092	0.92
Molybdenum		0.24	U	0.24	1.8
Nickel		10.0	X	0.11	3.7
Potassium		1250		37.9	277
Selenium		0.80	U	0.80	0.92
Silicon		224	J	5.2	9.2
Silver		0.15	U	0.15	0.18
Sodium		276		54.6	111
Vanadium		58.0		0.087	1.8
Zinc		43.5	X	0.37	0.92

7471A Mercury (CVAA)

Analysis Method:	*7471A*	*Analysis Batch:*	*280-235010*	*Instrument ID:*	*MT_033*
Prep Method:	7471A	Prep Batch:	280-234872	Lab File ID:	140718ab.txt
Dilution:	1.0			Initial Weight/Volume:	0.68 g
Analysis Date:	07/18/2014 1300			Final Weight/Volume:	50 mL
Prep Date:	07/18/2014 1000				

✓ 4/3/14

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Mercury		0.0079	B	0.0049	0.015

Client: Washington Closure Hanford

Job Number: 280-57789-1
Sdg Number: JP0832

Client Sample ID: J1TW25

Lab Sample ID: 280-57789-5
Client Matrix: Solid
% Moisture: 0.6

Date Sampled: 07/14/2014 0935
Date Received: 07/16/2014 0900

6010B Metals (ICP)

Analysis Method:	6010B	Analysis Batch:	280-235165	Instrument ID:	MT_026
Prep Method:	3050B	Prep Batch:	280-234743	Lab File ID:	26a071914e.asc
Dilution:	1.0			Initial Weight/Volume:	1.07 g
Analysis Date:	07/20/2014 0248			Final Weight/Volume:	100 mL
Prep Date:	07/17/2014 1450				

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Aluminum		6540	X	1.5	4.7
Arsenic		2.4	J	0.62	0.94
Barium		58.4	X	0.071	0.47
Beryllium		0.18	B	0.031	0.19
Boron		0.93	B	0.92	1.9
Cadmium		0.039	U	0.039	0.19
Calcium		6060	X	13.3	47.0
Chromium		6.9	X	0.055	0.19
Cobalt		9.0	X	0.094	0.94
Copper		13.6		0.20	0.94
Iron		23200	X	3.6	4.7
Lead		3.8		0.25	0.47
Magnesium		4310	X	3.5	18.8
Manganese		303	X	0.094	0.94
Molybdenum		0.24	U	0.24	1.9
Nickel		8.6	X	0.12	3.8
Potassium		1160		38.6	282
Selenium		0.81	U	0.81	0.94
Silicon		148	J	5.3	9.4
Silver		0.15	U	0.15	0.19
Sodium		288		55.5	113
Vanadium		55.3		0.088	1.9
Zinc		42.1	X	0.37	0.94

Analysis Method:	6010B	Analysis Batch:	280-235597	Instrument ID:	MT_026
Prep Method:	3050B	Prep Batch:	280-234743	Lab File ID:	26A072214B.asc
Dilution:	1.0			Initial Weight/Volume:	1.07 g
Analysis Date:	07/22/2014 1852			Final Weight/Volume:	100 mL
Prep Date:	07/17/2014 1450				

8/3/14

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Antimony		0.50	B J	0.36	0.56

7471A Mercury (CVAA)

Analysis Method:	7471A	Analysis Batch:	280-235010	Instrument ID:	MT_033
Prep Method:	7471A	Prep Batch:	280-234872	Lab File ID:	140718ab.txt
Dilution:	1.0			Initial Weight/Volume:	0.63 g
Analysis Date:	07/18/2014 1307			Final Weight/Volume:	50 mL
Prep Date:	07/18/2014 1000				

Analyte	*DryWt Corrected: Y*	*Result (mg/Kg)*	*Qualifier*	*MDL*	*RL*
Mercury		0.0079	B	0.0053	0.016

Client: Washington Closure Hanford

Job Number: 280-57789-1
Sdg Number: JP0832

Client Sample ID: J1TW26

Lab Sample ID: 280-57789-6
Client Matrix: Solid
% Moisture: 1.1

Date Sampled: 07/14/2014 1038
Date Received: 07/16/2014 0900

6010B Metals (ICP)

Analysis Method:	6010B	Analysis Batch:	280-235165	Instrument ID:	MT_026
Prep Method:	3050B	Prep Batch:	280-234743	Lab File ID:	26a071914e.asc
Dilution:	1.0			Initial Weight/Volume:	1.11 g
Analysis Date:	07/20/2014 0301			Final Weight/Volume:	100 mL
Prep Date:	07/17/2014 1450				

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Aluminum		6830	X	1.4	4.6
Antimony		0.60	J	0.35	0.55
Arsenic		2.9		0.60	0.91
Barium		65.4	X	0.069	0.46
Beryllium		0.20		0.030	0.18
Boron		1.4	B	0.89	1.8
Cadmium		0.037	U	0.037	0.18
Calcium		5640	X	12.8	45.5
Chromium		8.1	X	0.053	0.18
Cobalt		8.7	X	0.091	0.91
Copper		13.0		0.20	0.91
Iron		22300	X	3.5	4.6
Lead		4.2		0.25	0.46
Magnesium		4540	X	3.4	18.2
Manganese		323	X	0.091	0.91
Molybdenum		0.24	U	0.24	1.8
Nickel		11.4	X	0.11	3.6
Potassium		1330		37.3	273
Selenium		0.78	U	0.78	0.91
Silicon		161	J	5.2	9.1
Silver		0.15	U	0.15	0.18
Sodium		265		53.7	109
Vanadium		52.9		0.086	1.8
Zinc		42.4	X	0.36	0.91

7471A Mercury (CVAA)

Analysis Method:	7471A	Analysis Batch:	280-235010	Instrument ID:	MT_033
Prep Method:	7471A	Prep Batch:	280-234872	Lab File ID:	140718ab.txt
Dilution:	1.0			Initial Weight/Volume:	0.61 g
Analysis Date:	07/18/2014 1310			Final Weight/Volume:	50 mL
Prep Date:	07/18/2014 1000				

8/13/14

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Mercury		0.0090	B	0.0055	0.017

Client: Washington Closure Hanford

Job Number: 280-57789-1
Sdg Number: JP0832

Client Sample ID: J1TW27

Lab Sample ID: 280-57789-7
Client Matrix: Solid
% Moisture: 0.7

Date Sampled: 07/14/2014 0942
Date Received: 07/16/2014 0900

6010B Metals (ICP)

Analysis Method:	6010B	Analysis Batch:	280-235165	Instrument ID:	MT_026
Prep Method:	3050B	Prep Batch:	280-234743	Lab File ID:	26a071914e.asc
Dilution:	1.0			Initial Weight/Volume:	1.08 g
Analysis Date:	07/20/2014 0303			Final Weight/Volume:	100 mL
Prep Date:	07/17/2014 1450				

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Aluminum		6630	X	1.4	4.7
Antimony		0.71	J	0.35	0.56
Arsenic		2.3		0.62	0.93
Barium		65.1	X	0.071	0.47
Beryllium		0.17	B	0.031	0.19
Boron		1.2	B	0.91	1.9
Cadmium		0.038	U	0.038	0.19
Calcium		6250	X	13.2	46.6
Chromium		7.0	X	0.054	0.19
Cobalt		9.1	X	0.093	0.93
Copper		13.7		0.20	0.93
Iron		24100	X	3.5	4.7
Lead		4.0		0.25	0.47
Magnesium		4640	X	3.5	18.7
Manganese		303	X	0.093	0.93
Molybdenum		0.24	U	0.24	1.9
Nickel		10.7	X	0.11	3.7
Potassium		1160		38.2	280
Selenium		0.80	U	0.80	0.93
Silicon		185	J	5.3	9.3
Silver		0.15	U	0.15	0.19
Sodium		317		55.0	112
Vanadium		57.5		0.088	1.9
Zinc		43.7	X	0.37	0.93

7471A Mercury (CVAA)

Analysis Method:	7471A	Analysis Batch:	280-235010	Instrument ID:	MT_033
Prep Method:	7471A	Prep Batch:	280-234872	Lab File ID:	140718ab.txt
Dilution:	1.0			Initial Weight/Volume:	0.66 g
Analysis Date:	07/18/2014 1312			Final Weight/Volume:	50 mL
Prep Date:	07/18/2014 1000				

4/3/14

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Mercury		0.0096	B	0.0051	0.016

Client: Washington Closure Hanford

Job Number: 280-57789-1
Sdg Number: JP0832

Client Sample ID: J1TW28

Lab Sample ID: 280-57789-8
Client Matrix: Solid
% Moisture: 0.6

Date Sampled: 07/14/2014 0947
Date Received: 07/16/2014 0900

6010B Metals (ICP)

Analysis Method:	6010B	Analysis Batch:	280-235165	Instrument ID:	MT_026
Prep Method:	3050B	Prep Batch:	280-234743	Lab File ID:	26a071914e.asc
Dilution:	1.0			Initial Weight/Volume:	1.19 g
Analysis Date:	07/20/2014 0306			Final Weight/Volume:	100 mL
Prep Date:	07/17/2014 1450				

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Aluminum		6420	X	1.3	4.2
Antimony		0.48	B J	0.32	0.51
Arsenic		2.9		0.56	0.85
Barium		62.2	X	0.064	0.42
Beryllium		0.19		0.028	0.17
Boron		1.1	B	0.83	1.7
Cadmium		0.035	U	0.035	0.17
Calcium		6230	X	11.9	42.3
Chromium		7.2	X	0.049	0.17
Cobalt		8.6	X	0.085	0.85
Copper		13.5		0.18	0.85
Iron		23200	X	3.2	4.2
Lead		3.9		0.23	0.42
Magnesium		4330	X	3.1	16.9
Manganese		308	X	0.085	0.85
Molybdenum		0.22	U	0.22	1.7
Nickel		9.0	X	0.10	3.4
Potassium		1140		34.7	254
Selenium		0.73	U J	0.73	0.85
Silicon		180		4.8	8.5
Silver		0.14	U	0.14	0.17
Sodium		288		49.9	101
Vanadium		55.2		0.080	1.7
Zinc		42.8	X	0.34	0.85

7471A Mercury (CVAA)

Analysis Method:	7471A	Analysis Batch:	280-235010	Instrument ID:	MT_033
Prep Method:	7471A	Prep Batch:	280-234872	Lab File ID:	140718ab.txt
Dilution:	1.0			Initial Weight/Volume:	0.68 g
Analysis Date:	07/18/2014 1314			Final Weight/Volume:	50 mL
Prep Date:	07/18/2014 1000				

8/3/14

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Mercury		0.0083	B	0.0049	0.015

Client: Washington Closure Hanford

Job Number: 280-57789-1
Sdg Number: JP0832

Client Sample ID: J1TW29

Lab Sample ID: 280-57789-9
Client Matrix: Solid
% Moisture: 0.7

Date Sampled: 07/14/2014 0952
Date Received: 07/16/2014 0900

6010B Metals (ICP)

Analysis Method:	6010B	Analysis Batch:	280-235165	Instrument ID:	MT_026
Prep Method:	3050B	Prep Batch:	280-234743	Lab File ID:	26a071914e.asc
Dilution:	1.0			Initial Weight/Volume:	1.03 g
Analysis Date:	07/20/2014 0309			Final Weight/Volume:	100 mL
Prep Date:	07/17/2014 1450				

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Aluminum		7120	X J	1.5	4.9
Antimony		0.59		0.37	0.59
Arsenic		3.2		0.65	0.98
Barium		68.0	X	0.074	0.49
Beryllium		0.21		0.032	0.20
Boron		1.2	B	0.96	2.0
Cadmium		0.040	U	0.040	0.20
Calcium		7900	X	13.8	48.9
Chromium		9.4	X	0.057	0.20
Cobalt		8.3	X	0.098	0.98
Copper		13.9		0.21	0.98
Iron		21400	X	3.7	4.9
Lead		4.5		0.26	0.49
Magnesium		4720	X	3.6	19.6
Manganese		307	X	0.098	0.98
Molybdenum		0.25	U	0.25	2.0
Nickel		11.3	X	0.12	3.9
Potassium		1230		40.1	293
Selenium		0.84	U	0.84	0.98
Silicon		217	J	5.5	9.8
Silver		0.16	U	0.16	0.20
Sodium		298		57.7	117
Vanadium		50.8		0.092	2.0
Zinc		41.3	X	0.39	0.98

7471A Mercury (CVAA)

Analysis Method:	7471A	Analysis Batch:	280-235010	Instrument ID:	MT_033
Prep Method:	7471A	Prep Batch:	280-234872	Lab File ID:	140718ab.txt
Dilution:	1.0			Initial Weight/Volume:	0.62 g
Analysis Date:	07/18/2014 1317			Final Weight/Volume:	50 mL
Prep Date:	07/18/2014 1000				

8/3/14

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Mercury		0.0089	B	0.0054	0.017

Client: Washington Closure Hanford

Job Number: 280-57789-1
Sdg Number: JP0832

Client Sample ID: **J1TW30**

Lab Sample ID: 280-57789-10
Client Matrix: Solid
% Moisture: 0.7

Date Sampled: 07/15/2014 0747
Date Received: 07/16/2014 0900

6010B Metals (ICP)

Analysis Method:	6010B	Analysis Batch:	280-235165	Instrument ID:	MT_026
Prep Method:	3050B	Prep Batch:	280-234743	Lab File ID:	26a071914e.asc
Dilution:	1.0			Initial Weight/Volume:	1.18 g
Analysis Date:	07/20/2014 0311			Final Weight/Volume:	100 mL
Prep Date:	07/17/2014 1450				

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Aluminum		6460	X	1.3	4.3
Antimony		0.32	U J	0.32	0.51
Arsenic		3.2		0.56	0.85
Barium		61.8	X	0.065	0.43
Beryllium		0.19		0.028	0.17
Boron		1.1	B	0.84	1.7
Cadmium		0.035	U	0.035	0.17
Calcium		6830	X	12.0	42.7
Chromium		9.2	X	0.049	0.17
Cobalt		7.3	X	0.085	0.85
Copper		13.0		0.19	0.85
Iron		18500	X	3.2	4.3
Lead		4.0		0.23	0.43
Magnesium		4280	X	3.2	17.1
Manganese		276	X	0.085	0.85
Molybdenum		0.22	U	0.22	1.7
Nickel		9.4	X	0.10	3.4
Potassium		1080		35.0	256
Selenium		0.73	U J	0.73	0.85
Silicon		173		4.8	8.5
Silver		0.14	U	0.14	0.17
Sodium		255		50.3	102
Vanadium		41.3		0.080	1.7
Zinc		35.8	X	0.34	0.85

7471A Mercury (CVAA)

Analysis Method:	7471A	Analysis Batch:	280-235010	Instrument ID:	MT_033
Prep Method:	7471A	Prep Batch:	280-234872	Lab File ID:	140718ab.txt
Dilution:	1.0			Initial Weight/Volume:	0.64 g
Analysis Date:	07/18/2014 1319			Final Weight/Volume:	50 mL
Prep Date:	07/18/2014 1000				

8/3/14

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Mercury		0.011	B	0.0052	0.016

Client: Washington Closure Hanford

Job Number: 280-57789-1
Sdg Number: JP0832

Client Sample ID: J1TW31

Lab Sample ID: 280-57789-11
Client Matrix: Solid
% Moisture: 0.4

Date Sampled: 07/15/2014 0740
Date Received: 07/16/2014 0900

6010B Metals (ICP)

Analysis Method:	6010B	Analysis Batch:	280-235165	Instrument ID:	MT_026
Prep Method:	3050B	Prep Batch:	280-234743	Lab File ID:	26a071914e.asc
Dilution:	1.0			Initial Weight/Volume:	1.16 g
Analysis Date:	07/20/2014 0314			Final Weight/Volume:	100 mL
Prep Date:	07/17/2014 1450				

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Aluminum		6390	X	1.3	4.3
Antimony		0.33	U J	0.33	0.52
Arsenic		3.3		0.57	0.87
Barium		54.1	X	0.066	0.43
Beryllium		0.18		0.029	0.17
Boron		1.8		0.85	1.7
Cadmium		0.048	B	0.035	0.17
Calcium		8040	X	12.2	43.3
Chromium		10.3	X	0.050	0.17
Cobalt		6.8	X	0.087	0.87
Copper		12.7		0.19	0.87
Iron		17000	X	3.3	4.3
Lead		4.0		0.23	0.43
Magnesium		4810	X	3.2	17.3
Manganese		273	X	0.087	0.87
Molybdenum		0.23	U	0.23	1.7
Nickel		11.5	X	0.11	3.5
Potassium		1080		35.5	260
Selenium		0.74	U	0.74	0.87
Silicon		171	J	4.9	8.7
Silver		0.14	U	0.14	0.17
Sodium		219		51.1	104
Vanadium		33.6		0.081	1.7
Zinc		34.6	X	0.34	0.87

7471A Mercury (CVAA)

Analysis Method:	7471A	Analysis Batch:	280-235010	Instrument ID:	MT_033
Prep Method:	7471A	Prep Batch:	280-234872	Lab File ID:	140718ab.txt
Dilution:	1.0			Initial Weight/Volume:	0.61 g
Analysis Date:	07/18/2014 1321			Final Weight/Volume:	50 mL
Prep Date:	07/18/2014 1000				

8/3/14

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Mercury		0.0083	B	0.0055	0.017

Client: Washington Closure Hanford

Job Number: 280-57789-1
Sdg Number: JP0832

Client Sample ID: J1TW32

Lab Sample ID: 280-57789-12
Client Matrix: Solid
% Moisture: 0.6

Date Sampled: 07/15/2014 0753
Date Received: 07/16/2014 0900

6010B Metals (ICP)

Analysis Method:	6010B	Analysis Batch:	280-235165	Instrument ID:	MT_026
Prep Method:	3050B	Prep Batch:	280-234743	Lab File ID:	26a071914e.asc
Dilution:	1.0			Initial Weight/Volume:	1.15 g
Analysis Date:	07/20/2014 0316			Final Weight/Volume:	100 mL
Prep Date:	07/17/2014 1450				

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Aluminum		6330	X	1.4	4.4
Antimony		0.33	U J	0.33	0.53
Arsenic		2.8		0.58	0.88
Barium		52.4	X	0.067	0.44
Beryllium		0.18		0.029	0.18
Boron		0.86	U	0.86	1.8
Cadmium		0.036	U	0.036	0.18
Calcium		7500	X	12.3	43.8
Chromium		9.4	X	0.051	0.18
Cobalt		6.5	X	0.088	0.88
Copper		12.1		0.19	0.88
Iron		17400	X	3.3	4.4
Lead		3.4		0.24	0.44
Magnesium		4420	X	3.2	17.5
Manganese		261	X	0.088	0.88
Molybdenum		0.23	U	0.23	1.8
Nickel		9.7	X	0.11	3.5
Potassium		1050		35.9	263
Selenium		0.75	U J	0.75	0.88
Silicon		141		5.0	8.8
Silver		0.14	U	0.14	0.18
Sodium		230		51.6	105
Vanadium		38.0		0.082	1.8
Zinc		34.1	X	0.35	0.88

7471A Mercury (CVAA)

Analysis Method:	7471A	Analysis Batch:	280-235010	Instrument ID:	MT_033
Prep Method:	7471A	Prep Batch:	280-234872	Lab File ID:	140718ab.txt
Dilution:	1.0			Initial Weight/Volume:	0.68 g
Analysis Date:	07/18/2014 1324			Final Weight/Volume:	50 mL
Prep Date:	07/18/2014 1000				

✓ 8/3/14

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Mercury		0.0072	B	0.0049	0.015

Client: Washington Closure Hanford

Job Number: 280-57789-1
Sdg Number: JP0832

Client Sample ID: J1TW33

Lab Sample ID: 280-57789-13
Client Matrix: Solid
% Moisture: 1.2

Date Sampled: 07/14/2014 0840
Date Received: 07/16/2014 0900

6010B Metals (ICP)

Analysis Method:	6010B	Analysis Batch:	280-235165	Instrument ID:	MT_026
Prep Method:	3050B	Prep Batch:	280-234743	Lab File ID:	26a071914e.asc
Dilution:	1.0			Initial Weight/Volume:	1.09 g
Analysis Date:	07/20/2014 0319			Final Weight/Volume:	100 mL
Prep Date:	07/17/2014 1450				

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Aluminum		7200	X J	1.4	4.6
Antimony		0.64		0.35	0.56
Arsenic		3.5		0.61	0.93
Barium		67.6	X	0.071	0.46
Beryllium		0.21		0.031	0.19
Boron		1.3	B	0.91	1.9
Cadmium		0.038	U	0.038	0.19
Calcium		6690	X	13.1	46.4
Chromium		10.6	X	0.054	0.19
Cobalt		8.9	X	0.093	0.93
Copper		13.9		0.20	0.93
Iron		22300	X	3.5	4.6
Lead		4.7		0.25	0.46
Magnesium		4760	X	3.4	18.6
Manganese		314	X	0.093	0.93
Molybdenum		0.24	U	0.24	1.9
Nickel		12.2	X	0.11	3.7
Potassium		1360		38.1	279
Selenium		0.80	U	0.80	0.93
Silicon		150	J	5.3	9.3
Silver		0.15	U	0.15	0.19
Sodium		272		54.8	111
Vanadium		50.0		0.087	1.9
Zinc		43.3	X	0.37	0.93

7471A Mercury (CVAA)

Analysis Method:	7471A	Analysis Batch:	280-235010	Instrument ID:	MT_033
Prep Method:	7471A	Prep Batch:	280-234872	Lab File ID:	140718ab.txt
Dilution:	1.0			Initial Weight/Volume:	0.67 g
Analysis Date:	07/18/2014 1326			Final Weight/Volume:	50 mL
Prep Date:	07/18/2014 1000				

8/3/14

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Mercury		0.0078	B	0.0050	0.015

Appendix 4

Laboratory Narrative and Chain-of-Custody Documentation

CASE NARRATIVE

Client: Washington Closure Hanford

Project: WASHINGTON CLOSURE HANFORD

Report Number: 280-57789-1

SDG #: JP0832
SAF#: RC-075

Date SDG Closed: July 16, 2014
Data Deliverable: 7 Day / Summary

CLIENT ID	LAB ID	ANALYSES REQUESTED	ANALYSES PERFORMED
J1TW21	280-57789-1	6010/7471/8270A/8082/353.2	6010B/7471A/8270C/8082/353.2
J1TW22	280-57789-2	6010/7471/8270A/8082/353.2	6010B/7471A/8270C/8082/353.2
J1TW23	280-57789-3	6010/7471/8270A/8082/353.2	6010B/7471A/8270C/8082/353.2
J1TW24	280-57789-4	6010/7471/8270A/8082/353.2	6010B/7471A/8270C/8082/353.2
J1TW25	280-57789-5	6010/7471/8270A/8082/353.2	6010B/7471A/8270C/8082/353.2
J1TW26	280-57789-6	6010/7471/8270A/8082/353.2	6010B/7471A/8270C/8082/353.2
J1TW27	280-57789-7	6010/7471/8270A/8082/353.2	6010B/7471A/8270C/8082/353.2
J1TW28	280-57789-8	6010/7471/8270A/8082/353.2	6010B/7471A/8270C/8082/353.2
J1TW29	280-57789-9	6010/7471/8270A/8082/353.2	6010B/7471A/8270C/8082/353.2
J1TW30	280-57789-10	6010/7471/8270A/8082/353.2	6010B/7471A/8270C/8082/353.2
J1TW31	280-57789-11	6010/7471/8270A/8082/353.2	6010B/7471A/8270C/8082/353.2
J1TW32	280-57789-12	6010/7471/8270A/8082/353.2	6010B/7471A/8270C/8082/353.2
J1TW33	280-57789-13	6010/7471/8270A/8082/353.2	6010B/7471A/8270C/8082/353.2

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 7/16/2014 9:00 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 2.9° C and 3.1° C.

GC/MS SEMIVOLATILES - SW846 8270C
Compounds Benzo(b)fluoranthene and Benzo(k)fluoranthene were unresolved in samples J1TW21, J1TW22 and J1TW31 due to matrix interferences. It can be noted that these compounds were adequately resolved in associated standards, indicating the instrument is achieving separation. The combined peak was reported as Benzo(b)fluoranthene, while Benzo(k)fluoranthene was reported as undetected even though it may be present. Associated results have been flagged with a "K".

The MS/MSD performed on sample J1TW22 exhibited percent recoveries outside the control limits for 2,4-Dinitrophenol, and the associated sample result has been flagged "T". 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.

GC SEMIVOLATILES - SW846 8082 - PCBs
Sample J1TW29 exhibited the surrogate recoveries outside the control limits, biased high. This is an indicator that data may be biased high. As no detectable concentrations are present in the sample, corrective action is deemed unnecessary.

The MSD aliquot of the MS/MSD performed on sample J1TW25 exhibited the percent recovery outside the control limits (biased high), for Aroclor 1260, and the associated sample result has been flagged "N". In addition, the RPD limit was exceeded. The laboratory noted that this anomaly is most likely due to laboratory error; however, as the parent sample was determined to be non-detect, and the method blank, LCS and MS were in control, re-extraction/reanalysis were not initiated. The data are reported as is.

No other anomalies were encountered.

TOTAL METALS - SW846 6010B/7471A
Serial dilution of a digestate in batch 280-234743 indicates that physical and chemical interferences are present for several elements. Results have been flagged with an "X".

Low levels of Aluminum and Zinc are present in the method blank associated with batch 280-234743. Because the concentrations in the method blank are not present at levels greater than half the reporting limit or the associated sample amounts are twenty times greater than the method blank concentration, corrective action is deemed unnecessary.

Chromium and Iron are present at a level greater than the reporting limit in the method blank associated with batch 280-234743. As the associated sample amounts are twenty times greater than the method blank concentrations, corrective action is deemed unnecessary.

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 J1TW21; therefore, control limits are not applicable.

Silicon was recovered outside the control limits in the Matrix Spike performed on sample J1TW21, 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.

Antimony is present at a level greater than half the reporting limit in the instrument blank (CCB) associated with samples J1TW21, J1TW23 and J1TW24 in analysis batch 280-235165. As Antimony is not present at a level greater than the reporting limit in the associated samples, corrective action is deemed unnecessary.

No other anomalies were encountered.

GENERAL CHEMISTRY - MCAWW 353.2 - NITRATE NITRITE as N
No anomalies were encountered.

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-075-434	Page 2 of 3

Collector: H. Weber	Company Contact: Joan Kessner	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Price Code:	Data Turnaround: 7 days		
Project Designation: 100-D/DR Field Remediation	Sampling Location: 100-D-84:2 (exc)		SAF No.: RC-075
Ice Chest No.: WCH-11-014 & RCC-07-012	Field Logbook No.: EL-1662-02	COA: 01D8422000	Method of Shipment: Commercial Carrier / FED EX
Shipped To: TestAmerica Denver	Offsite Property No.: ~~N/A~~ A131164		Bill of Lading/Air Bill No.: ~~N/A~~ See OSPC
Other Labs Shipped To: TestAmerica Richland			

POSSIBLE SAMPLE HAZARDS/REMARKS
N/A

Special Handling and/or Storage
Cool 4C

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C							
Type of Container	G/P	aG	aG	G/P							
No. of Container(s)	1	1	1	1							
Volume	250mL	250mL	250mL	250mL							
Sample Analysis	See Item (1) in Special Instructions	Semi-VOA - 8270A (TCL)	PCBs - 8082	NO2/NO3 - 353.2							

Sample No.	Matrix	Sample Date	Sample Time										
J1TW26	SOIL	7/14/14	1038	✓	✓	✓	✓						
J1TW27	SOIL	7/14/14	0942	✓	✓	✓	✓						
J1TW28	SOIL	7/14/14	0947	✓	✓	✓	✓						
J1TW29	SOIL	7/14/14	0952	✓	✓	✓	✓						
~~J1TW30~~	~~SOIL~~	RWSkea 7/14/14											

Page 1 of 1

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Heather Weber / 100 Bus	07/14/14 1045	R. Fehlbaum R. Fehlbaum	1048 7-14-14
R. Fehlbaum R. Fehlbaum	1500 7-14-14	Sam Sexsmith	1500 7/14/14
Sam Sexsmith	1505 7/14/14	1060 Battelle Fridge 3C	1505 7/14/14
1060 Battelle Fridge 3C	1008 7/15/14	Sam Sexsmith	1008 7/15/14
Sam Sexsmith	1010 7/15/14	FED EX	
			7/16/14 900

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); Mercury - 7471 - (CV) (Mercury)

REVIEWED BY [signature] DATE 7/15/14

JP0832

WCH-EE-011

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-075-434	Page 1 of 2

Collector: H. Weber	Company Contact: Joan Kessner	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Price Code	Data Turnaround: 7 days		
Project Designation: 100-D/DR Field Remediation	Sampling Location: 100-D-84:2 (exc)	SAF No.: RC-075	
Ice Chest No.: WCH-11-014 & RCS-07-012	Field Logbook No.: EL-1862-02	COA: 01D8422000	Method of Shipment: Commercial Carrier / FED EX
Shipped To: TestAmerica Denver	Offsite Property No.: A131164		Bill of Lading/Air Bill No.: See OSPC

Other Labs Shipped To: TestAmerica Richland

POSSIBLE SAMPLE HAZARDS/REMARKS: N/A

Special Handling and/or Storage: Cool 4C

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C							
Type of Container	G/P	aG	aG	G/P							
No. of Container(s)	1	1	1	1							
Volume	250mL	250mL	250mL	250mL							
Sample Analysis	See Item (1) in Special Instructions	Semi-VOA - 8270A (TCL)	PCBs - 8082	NO2/NO3 - 353.2							

Sample No.	Matrix	Sample Date	Sample Time										
~~J1TW26~~	~~SOIL~~												
~~J1TW27~~	~~SOIL~~	DWS 7/14/14											
~~J1TW28~~	~~SOIL~~												
~~J1TW29~~	~~SOIL~~												
J1TW30	SOIL	7/15/14	0747	✓	✓	✓	✓						

CHAIN OF POSSESSION	Sign/Print Names
Relinquished By/Removed From: Heather Weber, Date/Time: 07/15/14 0845	Received By/Stored In: R. Fahlberg, Date/Time: 0805 7.15.14
Relinquished By/Removed From: R. Fahlberg, Date/Time: 1005 7.15.14	Received By/Stored In: BM Sexton, Date/Time: 1005 7/15/14
Relinquished By/Removed From: BM Sexton, Date/Time: 1010 7/15/14	Received By/Stored In: FED EX, Date/Time:
Relinquished By/Removed From:	Received By/Stored In: Date/Time: 7/16-14 900
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:

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); Mercury - 7471 - (CV) (Mercury)

REVIEWED BY [illegible] DATE 7/15/14

JP0832

WCH-EE-011

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-075-434	Page 1 of 3

Collector: H. Weber	Company Contact: Joan Kessner	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Project Designation: 100-D/DR Field Remediation	Sampling Location: 100-D-84:2 (exc)		SAF No.: RC-075
Ice Chest No.: WCH-11-014 & RCC-07-012	Field Logbook No.: EL-1662-02	COA: 01D8422000	Method of Shipment: Commercial Carrier / FED Ex
Shipped To: TestAmerica Denver	Offsite Property No.: A131164		Bill of Lading/Air Bill No.: See OSPC

Price Code:

Data Turnaround: 7 days

Other Labs Shipped To: TestAmerica Richland

POSSIBLE SAMPLE HAZARDS/REMARKS
N/A

Special Handling and/or Storage
Cool 4C

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C								
Type of Container	G/P	aG	aG	G/P								
No. of Container(s)	1	1	1	1								
Volume	250mL	250mL	250mL	250mL								
Sample Analysis	See item (1) in Special Instructions	Semi-VOA - 8270A (TCL)	PCBs - 8082	NO2/NO3 - 353.2								

Sample No.	Matrix	Sample Date	Sample Time										
J1TW21	SOIL	7/14/14	0832	✓	✓	✓	✓						
J1TW22	SOIL	7/14/14	0840	✓	✓	✓	✓						
J1TW23	SOIL	7/14/14	~~0928~~ 1032	✓	✓	✓	✓						
J1TW24	SOIL	7/14/14	0928	✓	✓	✓	✓						
J1TW25	SOIL	7/14/14	0935	✓	✓	✓	✓						

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Heather Weber [signature]	07/14/14 1048	R. Fehlberg R. Fehlberg	1048 7-14-14
R. Fehlberg R. Fehlberg	1500 7-14-14	SM Sexton [signature]	1500 7/14/14
SM Sexton [signature]	1505 7/14/14	1060 Battelle Fridge 3C	1505 7/14/14
1060 Battelle Fridge 3C	1008 7/15/14	SM Sexton [signature]	1008 7/15/14
SM Sexton [signature]	1010 7/15/14	FED Ex	
		[signature]	7-16-14 900

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}; Mercury - 7471 - (CV) {Mercury}

REVIEWED BY K. Woodward DATE 7/15/14

JP0832

WCH-EE-011

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T.S 7-16-14

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-075-434	Page 3 of 3

Collector: H. Weber	Company Contact: Joan Kessner	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Price Code	Data Turnaround: 7 days		
Project Designation: 100-D/DR Field Remediation	Sampling Location: 100-D-84:2 (exc)		SAF No.: RC-075
Ice Chest No.: WCH-11-014 & RCC-07-012	Field Logbook No.: EL-1662-02	COA: 01D8422000	Method of Shipment: Commercial Carrier / FED Ex
Shipped To: TestAmerica Denver	Offsite Property No.: A131164		Bill of Lading/Air Bill No.: See OSPC
Other Labs Shipped To: TestAmerica Richland			

POSSIBLE SAMPLE HAZARDS/REMARKS
N/A

Special Handling and/or Storage
Cool 4C

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C						
Type of Container	G/P	aG	aG	G/P						
No. of Container(s)	1	1	1	1						
Volume	250mL	250mL	250mL	250mL						
Sample Analysis	See Item (1) in Special Instructions	Semi-VOA - 8270A (TCL)	PCBs - 8082	NO2/NO3 - 353.2						

Sample No.	Matrix	Sample Date	Sample Time									
~~J1PW31~~	~~SOIL~~	7/14/14										
~~J1PW32~~	~~SOIL~~											
J1PW33	SOIL	7/14/14	0840	✓	✓	✓	✓					

CHAIN OF POSSESSION		Sign/Print Names	
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Heather Weber / [signature]	07/14/14 1048	R. Fahlberg / R. Fahlberg	1048 7-14-14
R. Fahlberg / R. Fahlberg	1500 7-14-14	SM Sexton / [signature]	1500 7/14/14
SM Sexton / [signature]	1505 7/14/14	1010 Battelle Fridge 3C	1505 7/14/14
1010 Battelle Fridge 3C	1008 7/15/14	SM Sexton / [signature]	1008 7/15/14
SM Sexton / [signature]	1010 7/15/14	FED Ex	
		[signature]	7/16/14 900
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

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); Mercury - 7471 - (CV) (Mercury)

REVIEWED BY [signature]
DATE 7/15/14

JP0832

WCH-EE-011

2 of 2

Washington Closure Hanford — CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

RC-075-434 | ~~Page 2 of 2~~ SMS 7-15-14

Collector: H. Weber	Company Contact: Joan Kessner	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Project Designation: 100-D/DR Field Remediation	Sampling Location: 100-D-84:2 (exc)		SAF No.: RC-075
Ice Chest No.: WCH-11-014 & RCC-07-012	Field Logbook No.: EL-1662-02	COA: 01D8422000	Method of Shipment: Commercial Carrier / FED Ex
Shipped To: TestAmerica Denver	Offsite Property No.: A131164		Bill of Lading/Air Bill No.: See OSPC

Price Code:

Data Turnaround: 7days

Other Labs Shipped To: TestAmerica Richland

POSSIBLE SAMPLE HAZARDS/REMARKS
N/A

Special Handling and/or Storage
Cool 4C

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C						
Type of Container	G/P	aG	aG	G/P						
No. of Container(s)	1	1	1	1						
Volume	250mL	250mL	250mL	250mL						
Sample Analysis	See Item (1) in Special Instructions	Semi-VOA - 8270A (TCL)	PCBs - 8082	NO2/NO3 - 353.2						

Sample No.	Matrix	Sample Date	Sample Time										
JTTW31	SOIL	7/15/14	0740	✓	✓	✓	✓						
JTTW32	SOIL	7/15/14	0753	✓	✓	✓	✓						
~~JTTW33~~	~~SOIL~~	MOS 7/14/14											

CHAIN OF POSSESSION		Sign/Print Names	
Relinquished By/Removed From: Heather Weber	Date/Time: 07/15/14 0805	Received By/Stored In: R. Fahlberg R. Fahlberg	Date/Time: 0805 7-15-14
Relinquished By/Removed From: R. Fahlberg R. Fahlberg	Date/Time: 1005 7-15-14	Received By/Stored In: SM Sexton	Date/Time: 1005 7/15/14
Relinquished By/Removed From: WCH SM Sexton	Date/Time: 1010 7/15/14	Received By/Stored In: FED Ex	Date/Time:
Relinquished By/Removed From:	Date/Time:	Received By/Stored In:	Date/Time: 7-16-14 900
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:

FINAL SAMPLE DISPOSITION | Disposal Method | Disposed By | Date/Time

SPECIAL INSTRUCTIONS

(1) ICP Metals - 8010TR (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}; Mercury - 7471 - (CV) {Mercury}

REVIEWED BY K. Woodvine-mail DATE 7/15/14

JP 0832

WCH-EE-011

Appendix 5

Data Validation Supporting Documentation

INORGANIC ANALYSIS DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	E
PROJECT: 100-D-8412			DATA PACKAGE: JP0832		
VALIDATOR: ELR		LAB: TAC		DATE: 8/2/14	
			SDG: JP0832		
ANALYSES PERFORMED					
SW-846/ICP	SW-846/GFAA	SW-846/Hg	SW-846 Cyanide		
SAMPLES/MATRIX					
J1TW21	J1TW22	J1TW23	J1TW24		
J1TW25	J1TW26	J1TW27	J1TW28		
J1TW29	J1TW30	J1TW31	J1TW32		
J1TW33					
				Soil	

1. DATA PACKAGE COMPLETENESS AND CASE NARRATIVE

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

Comments:

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:

INORGANIC ANALYSIS DATA VALIDATION CHECKLIST

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:

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: LCS silica (19%) - J all

MS antny -50% silica (16%) - J all

no PAS

INORGANIC ANALYSIS DATA VALIDATION CHECKLIST

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: _____

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: _____

INORGANIC ANALYSIS DATA VALIDATION CHECKLIST

7. FURNACE AA QUALITY CONTROL (Levels D and E)

Duplicate injections performed as required? ..... Yes No N/A

Duplicate injection %RSD values acceptable? ..... Yes No N/A

Analytical spikes performed as required? ..... Yes No N/A

Analytical spike recoveries acceptable? ..... Yes No N/A

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

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

MSA performed as required? ..... Yes No N/A

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

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

Comments: _____

8. HOLDING TIMES (all levels)

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

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

Comments: _____

INORGANIC ANALYSIS DATA VALIDATION CHECKLIST

9. 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:

Appendix 6

Additional Documentation Requested by Client

Client: Washington Closure Hanford

Job Number: 280-57789-1
Sdg Number: JP0832

Method Blank - Batch: 280-234743

Method: 6010B
Preparation: 3050B

Lab Sample ID:	MB 280-234743/1-A	Analysis Batch:	280-235165	Instrument ID:	MT_026
Client Matrix:	Solid	Prep Batch:	280-234743	Lab File ID:	26a071914e.asc
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1 g
Analysis Date:	07/20/2014 0225	Units:	mg/Kg	Final Weight/Volume:	100 mL
Prep Date:	07/17/2014 1450				
Leach Date:	N/A				

Analyte	Result	Qual	MDL	RL
Aluminum	1.69	B	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	68.65		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	10.56		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	0.740	B	0.40	1.0

Client: Washington Closure Hanford

Job Number: 280-57789-1
Sdg Number: JP0832

Lab Control Sample - Batch: 280-234743

Method: 6010B
Preparation: 3050B

Lab Sample ID:	LCS 280-234743/2-A	Analysis Batch:	280-235165	Instrument ID:	MT_026
Client Matrix:	Solid	Prep Batch:	280-234743	Lab File ID:	26a071914e.asc
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1 g
Analysis Date:	07/20/2014 0227	Units:	mg/Kg	Final Weight/Volume:	100 mL
Prep Date:	07/17/2014 1450				
Leach Date:	N/A				

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Aluminum	200	193.0	97	82 - 116	
Antimony	50.0	52.77	106	82 - 110	
Arsenic	100	101.9	102	85 - 110	
Barium	200	197.7	99	87 - 112	
Beryllium	5.00	4.84	97	84 - 114	
Boron	100	100.1	100	80 - 120	
Cadmium	10.0	10.16	102	87 - 110	
Calcium	5000	4786	96	82 - 114	
Chromium	20.0	19.93	100	84 - 114	
Cobalt	50.0	49.21	98	87 - 110	
Copper	25.0	24.89	100	88 - 110	
Iron	100	99.28	99	87 - 120	
Lead	50.0	50.65	101	86 - 110	
Magnesium	5000	4815	96	90 - 110	
Manganese	50.0	47.35	95	88 - 110	
Molybdenum	100	102.1	102	86 - 110	
Nickel	50.0	48.74	97	87 - 110	
Potassium	5000	5035	101	89 - 110	
Selenium	200	198.4	99	83 - 110	
Silicon	1000	194.7	19	10 - 70	
Silver	5.00	4.75	95	87 - 114	
Sodium	5000	5427	109	90 - 112	
Vanadium	50.0	47.80	96	88 - 110	
Zinc	50.0	47.81	96	76 - 114	

Client: Washington Closure Hanford

Job Number: 280-57789-1
Sdg Number: JP0832

Matrix Spike - Batch: 280-234743

Method: 6010B
Preparation: 3050B

Lab Sample ID:	280-57789-1	Analysis Batch:	280-235165	Instrument ID:	MT_026
Client Matrix:	Solid	Prep Batch:	280-234743	Lab File ID:	26a071914e.asc
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1.13 g
Analysis Date:	07/20/2014 0237	Units:	mg/Kg	Final Weight/Volume:	100 mL
Prep Date:	07/17/2014 1450				
Leach Date:	N/A				

Analyte	Sample Result/Qual		Spike Amount	Result	% Rec.	Limit	Qual
Aluminum	7190		178	9532	1314	50 - 200	4
Antimony	0.46	B	44.5	22.91	50	20 - 200	
Arsenic	2.9		89.1	80.41	87	76 - 111	
Barium	66.3		178	223.8	88	52 - 159	
Beryllium	0.21		4.45	3.93	84	72 - 105	
Boron	1.4	B	89.1	76.53	84	80 - 120	
Cadmium	0.040	U	8.91	7.91	89	40 - 130	
Calcium	7170		4450	12270	114	43 - 165	
Chromium	8.1		17.8	25.10	95	70 - 200	
Cobalt	8.1		44.5	46.21	86	72 - 106	
Copper	13.8		22.3	33.23	87	37 - 187	
Iron	21300		89.1	23590	2607	70 - 200	4
Lead	4.5		44.5	42.56	86	70 - 200	
Magnesium	4270		4450	8906	104	64 - 145	
Manganese	295		44.5	365.8	160	40 - 200	4
Molybdenum	0.48	B	89.1	76.39	85	75 - 103	
Nickel	9.1		44.5	47.33	86	61 - 126	
Potassium	1290		4450	5416	93	56 - 172	
Selenium	0.83	U	178	150.9	85	76 - 104	
Silicon	270		891	409.2	16	20 - 200	N
Silver	0.15	U	4.45	3.62	81	75 - 141	
Sodium	336		4450	4907	103	78 - 111	
Vanadium	50.1		44.5	94.10	99	50 - 169	
Zinc	41.0		44.5	79.78	87	70 - 200	

Client: Washington Closure Hanford

Job Number: 280-57789-1
Sdg Number: JP0832

Duplicate - Batch: 280-234743

Method: 6010B
Preparation: 3050B

Lab Sample ID:	280-57789-1	Analysis Batch:	280-235165	Instrument ID:	MT_026
Client Matrix:	Solid	Prep Batch:	280-234743	Lab File ID:	26a071914e.asc
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1.12 g
Analysis Date:	07/20/2014 0235	Units:	mg/Kg	Final Weight/Volume:	100 mL
Prep Date:	07/17/2014 1450				
Leach Date:	N/A				

Analyte	Sample Result/Qual		Result	RPD	Limit	Qual
Aluminum	7190		7083	2	40	
Antimony	0.46	B	0.563	20	40	
Arsenic	2.9		2.81	2	30	
Barium	66.3		65.83	0.6	30	
Beryllium	0.21		0.197	4	30	
Boron	1.4	B	1.40	0.7	30	B
Cadmium	0.040	U	0.037	NC	30	U
Calcium	7170		7104	1	30	
Chromium	8.1		8.64	6	40	
Cobalt	8.1		8.45	4	30	
Copper	13.8		13.86	0.5	30	
Iron	21300		22250	5	40	
Lead	4.5		4.22	6	40	
Magnesium	4270		4530	6	30	
Manganese	295		305.8	4	40	
Molybdenum	0.48	B	0.23	NC	30	U
Nickel	9.1		9.90	8	30	
Potassium	1290		1224	5	40	
Selenium	0.83	U	0.77	NC	30	U
Silicon	270		254.4	6	40	
Silver	0.15	U	0.14	NC	30	U
Sodium	336		326.5	3	30	
Vanadium	50.1		53.19	6	30	
Zinc	41.0		41.66	2	40	

Client: Washington Closure Hanford

Job Number: 280-57789-1
Sdg Number: JP0832

Method Blank - Batch: 280-234872

Method: 7471A
Preparation: 7471A

Lab Sample ID:	MB 280-234872/1-A	Analysis Batch:	280-235010	Instrument ID:	MT_033
Client Matrix:	Solid	Prep Batch:	280-234872	Lab File ID:	140718ab.txt
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	0.60 g
Analysis Date:	07/18/2014 1244	Units:	mg/Kg	Final Weight/Volume:	50 mL
Prep Date:	07/18/2014 1000				
Leach Date:	N/A				

Analyte	Result	Qual	MDL	RL
Mercury	0.0055	U	0.0055	0.017

Lab Control Sample - Batch: 280-234872

Method: 7471A
Preparation: 7471A

Lab Sample ID:	LCS 280-234872/2-A	Analysis Batch:	280-235010	Instrument ID:	MT_033
Client Matrix:	Solid	Prep Batch:	280-234872	Lab File ID:	140718ab.txt
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	0.60 g
Analysis Date:	07/18/2014 1247	Units:	mg/Kg	Final Weight/Volume:	50 mL
Prep Date:	07/18/2014 1000				
Leach Date:	N/A				

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Mercury	0.417	0.379	91	87 - 111	

Matrix Spike - Batch: 280-234872

Method: 7471A
Preparation: 7471A

Lab Sample ID:	280-57789-1	Analysis Batch:	280-235010	Instrument ID:	MT_033
Client Matrix:	Solid	Prep Batch:	280-234872	Lab File ID:	140718ab.txt
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	0.68 g
Analysis Date:	07/18/2014 1251	Units:	mg/Kg	Final Weight/Volume:	50 mL
Prep Date:	07/18/2014 1000				
Leach Date:	N/A				

Analyte	Sample Result/Qual		Spike Amount	Result	% Rec.	Limit	Qual
Mercury	0.010	B	0.370	0.347	91	87 - 111	

Client: Washington Closure Hanford

Job Number: 280-57789-1
Sdg Number: JP0832

Duplicate - Batch: 280-234872

Method: 7471A
Preparation: 7471A

Lab Sample ID:	280-57789-1	Analysis Batch:	280-235010	Instrument ID:	MT_033
Client Matrix:	Solid	Prep Batch:	280-234872	Lab File ID:	140718ab.txt
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	0.62 g
Analysis Date:	07/18/2014 1254	Units:	mg/Kg	Final Weight/Volume:	50 mL
Prep Date:	07/18/2014 1000				
Leach Date:	N/A				

Analyte	Sample Result/Qual		Result	RPD	Limit	Qual
Mercury	0.010	B	0.00926	8	20	B

Date: 4 August 2014
To: Washington Closure Hanford Inc. (technical representative)
From: ELR Consulting
Project: 100-D/DR Burial Grounds & Remaining Sites – Soil Full Protocol - Waste Site 100-D-84:2
Subject: Wet Chemistry - Data Package No. JP0832TAL

INTRODUCTION

This memo presents the results of data validation on Data Package No. JP0832 prepared by TestAmerica Laboratories (TAL). A list of samples validated along with the analyses reported and the method of analysis is provided in the following table.

Sample ID	Sample Date	Media	Validation	Analyte
J1TW21	7/14/14	Soil	C	See note 1
J1TW22	7/14/14	Soil	C	See note 1
J1TW23	7/14/14	Soil	C	See note 1
J1TW24	7/14/14	Soil	C	See note 1
J1TW25	7/14/14	Soil	C	See note 1
J1TW26	7/14/14	Soil	C	See note 1
J1TW27	7/14/14	Soil	C	See note 1
J1TW28	7/14/14	Soil	C	See note 1
J1TW29	7/14/14	Soil	C	See note 1
J1TW30	7/15/14	Soil	C	See note 1
J1TW31	7/15/14	Soil	C	See note 1
J1TW32	7/15/14	Soil	C	See note 1
J1TW33	7/14/14	Soil	C	See note 1

1 – Chromium VI by 7196 and nitrate/nitrite by 353.2.

Data validation was conducted in accordance with the Washington Closure Hanford (WCH) validation statement of work and the 100 Area Remedial Action Sampling and Analysis Plan (DOE/RL-96-22, September 2009). 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 PARAMETERS

Holding Times

Analytical holding times for metals are assessed to ascertain whether the holding time requirements were met by the laboratory. The holding time requirements

are as follows: 30 days for chromium VI and 28 days for nitrate/nitrite.

If holding times are exceeded, but not by greater than two times the limit, all associated sample results are qualified as estimates and flagged "J" for detects and "UJ" for non-detects. If holding times are exceeded by greater than two times the limit, all associated detectable sample results are qualified as estimates and flagged "J" and all non-detects are rejected and flagged "UR".

All holding times were acceptable.

- **Method Blanks**

Method Blanks

Method blank analyses are performed to determine the extent of laboratory contamination introduced through sampling, sample preparation and analysis. At least one acceptable method blank analysis must be conducted for every 20 samples. No contaminants should be present in the method blank. All blank results must fall below the contract required detection limit (CRQL) to be acceptable.

All method blank results were acceptable.

Field Blanks

No blanks were submitted for analysis.

- **Accuracy**

Matrix Spike and Laboratory Control Sample

Matrix spike (MS) and laboratory control sample (LCS) analyses are used to assess the analytical accuracy of the reported data. The matrix spike is used to assess the effect of the matrix on the ability to accurately quantify sample concentrations. Recoveries must fall within the range of 70% to 130%. Samples with a recovery of less than 30% and a sample result below the IDL are rejected and flagged "UR". Samples with a recovery of 30% to 69% and a sample result less than the IDL are qualified "UJ". Samples with a recovery of greater than 130% or less than 70% and a sample result greater than the IDL are qualified as estimates and flagged "J". Finally, for samples with a recovery greater than 130% and a sample result less than the IDL, no qualification is required.

All accuracy results were acceptable.

- **Precision**

Laboratory Duplicate Samples

Analytical precision is expressed by the relative percent differences (RPD) between the recoveries of matrix spike duplicate (MSD) analyses performed on a sample in the analytical batch. Precision may alternatively be assessed using unspiked duplicate analyses performed on a sample in the analytical batch. If both sample and replicate activities (concentrations) are greater than five times the CRDL and the RPD is less than 30%, no qualification is required. If either activity (concentration) is less than five times the CRDL, the RPD control limit is less than or equal to two times the CRDL. If the RPD is outside the applicable control limit, associated results are qualified as estimated detects or estimated non-detects.

All laboratory duplicate results were acceptable.

Field Duplicate

One set of field duplicates (J1TW22/J1TW33) were submitted for analysis. Field duplicates are compared using the same criteria as for laboratory duplicates. All field duplicate results were acceptable.

- **Analytical Detection Levels**

Reported analytical detection levels are compared against the required quantitation limits (RQLs) to ensure that laboratory detection levels meet the required criteria. All analytes met the RQL.

- **Completeness**

Data package JP0832 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

Washington Closure Hanford Contract #S00W307A00 (March 2008), *Data Validation Services*.

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

Appendix 1

Glossary of Data Reporting Qualifiers

Qualifiers which may be applied by data validators in compliance with WCH validation SOW are as follows:

U - Indicates the compound or analyte was analyzed for and not detected in the sample. The value reported is the sample quantitation limit corrected for sample dilution and moisture content by the laboratory.

UJ - Indicates the compound or analyte was analyzed for and not detected in the sample. Due to a minor QC deficiency identified during the data validation, the associated quantitation limit is an estimate.

J - Indicates the compound or analyte was analyzed for and detected. Due to a minor QC deficiency identified during the data validation, the associated concentration is an estimate, but the data are usable for decision-making purposes.

BJ - Applied to inorganic analyses only. Indicates the analyte concentration was greater than the IDL but less than the CRDL and is considered an estimated value.

R - Indicates the compound or analyte was analyzed for, detected, and due to an identified major QC deficiency, the data are unusable.

UR - Indicates the compound or analyte was analyzed for and not detected in the sample. Additionally, the data is unusable due to an identified major QC deficiency.

NJ - Indicates presumptive evidence of a compound at an estimated value. The data may not be valid for some specific applications (i.e., usable for decision-making purposes).

N - Indicates presumptive evidence of a compound. The data may not be valid for some specific applications (i.e., usable for decision-making purposes).

Appendix 2

Summary of Data Qualification

WET CHEMISTRY DATA QUALIFICATION SUMMARY*

SDG: JP0832	**REVIEWER: ELR**	**Project: 100-D-84:2**	**PAGE 1 OF 1**
COMMENTS: No qualifiers assigned			

* - The Qualified Data Summary Table includes laboratory applied "U" qualifiers not specifically identified here. The laboratory applied "U" qualifiers are included to minimize misinterpretation of results contained in the table.

Appendix 3

Annotated Laboratory Reports

Client: Washington Closure Hanford

Job Number: 280-57789-1
Sdg Number: JP0832

General Chemistry

Client Sample ID: **J1TW21**

Lab Sample ID: 280-57789-1
Client Matrix: Solid
% Moisture: 0.7

Date Sampled: 07/14/2014 0832
Date Received: 07/16/2014 0900

Analyte	Result	Qual	Units	MDL	RL	Dil	Method
Nitrate Nitrite as N-Soluble	0.84		mg/Kg	0.36	0.76	1.0	353.2

Analysis Batch: 280-235041 Analysis Date: 07/18/2014 2253 DryWt Corrected: Y

Analyte	Result	Qual	Units	RL	RL	Dil	Method
Percent Moisture	0.67		%	0.10	0.10	1.0	D-2216

Analysis Batch: 280-234765 Analysis Date: 07/17/2014 1128 DryWt Corrected: N

8/6/14

Client: Washington Closure Hanford

Job Number: 280-57789-1
Sdg Number: JP0832

General Chemistry

Client Sample ID: **J1TW22**

Lab Sample ID: 280-57789-2
Client Matrix: Solid
% Moisture: 1.0

Date Sampled: 07/14/2014 0840
Date Received: 07/16/2014 0900

Analyte	Result	Qual	Units	MDL	RL	Dil	Method
Nitrate Nitrite as N-Soluble	0.36	U	mg/Kg	0.36	0.76	1.0	353.2

Analysis Batch: 280-235041 Analysis Date: 07/18/2014 2249 DryWt Corrected: Y

Analyte	Result	Qual	Units	RL	RL	Dil	Method
Percent Moisture	0.99		%	0.10	0.10	1.0	D-2216

Analysis Batch: 280-234765 Analysis Date: 07/17/2014 1128 DryWt Corrected: N

8/3/14

Client: Washington Closure Hanford

Job Number: 280-57789-1
Sdg Number: JP0832

General Chemistry

Client Sample ID: **J1TW23**

Lab Sample ID: 280-57789-3
Client Matrix: Solid
% Moisture: 0.8

Date Sampled: 07/14/2014 1032
Date Received: 07/16/2014 0900

Analyte	Result	Qual	Units	MDL	RL	Dil	Method
Nitrate Nitrite as N-Soluble	1.8		mg/Kg	0.36	0.76	1.0	353.2

Analysis Batch: 280-235041 Analysis Date: 07/18/2014 2226 DryWt Corrected: Y

Analyte	Result	Qual	Units	RL	RL	Dil	Method
Percent Moisture	0.83		%	0.10	0.10	1.0	D-2216

Analysis Batch: 280-234765 Analysis Date: 07/17/2014 1128 DryWt Corrected: N

8/3/14

Client: Washington Closure Hanford

Job Number: 280-57789-1
Sdg Number: JP0832

General Chemistry

Client Sample ID: **J1TW24**

Lab Sample ID: 280-57789-4
Client Matrix: Solid
% Moisture: 0.8

Date Sampled: 07/14/2014 0928
Date Received: 07/16/2014 0900

Analyte	Result	Qual	Units	MDL	RL	Dil	Method
Nitrate Nitrite as N-Soluble	0.36	U	mg/Kg	0.36	0.76	1.0	353.2
Analysis Batch: 280-235041	Analysis Date: 07/18/2014 2238						DryWt Corrected: Y

Analyte	Result	Qual	Units	RL	RL	Dil	Method
Percent Moisture	0.80		%	0.10	0.10	1.0	D-2216
Analysis Batch: 280-234765	Analysis Date: 07/17/2014 1128						DryWt Corrected: N

8/3/14

Client: Washington Closure Hanford

Job Number: 280-57789-1
Sdg Number: JP0832

General Chemistry

Client Sample ID: **J1TW25**

Lab Sample ID: 280-57789-5
Client Matrix: Solid
% Moisture: 0.6

Date Sampled: 07/14/2014 0935
Date Received: 07/16/2014 0900

Analyte	Result	Qual	Units	MDL	RL	Dil	Method
Nitrate Nitrite as N-Soluble	0.36	U	mg/Kg	0.36	0.75	1.0	353.2

Analysis Batch: 280-235041 Analysis Date: 07/18/2014 2236 DryWt Corrected: Y

Analyte	Result	Qual	Units	RL	RL	Dil	Method
Percent Moisture	0.64		%	0.10	0.10	1.0	D-2216

Analysis Batch: 280-234765 Analysis Date: 07/17/2014 1128 DryWt Corrected: N

8/3/14

Client: Washington Closure Hanford

Job Number: 280-57789-1
Sdg Number: JP0832

General Chemistry

Client Sample ID: **J1TW26**

Lab Sample ID: 280-57789-6
Client Matrix: Solid
% Moisture: 1.1

Date Sampled: 07/14/2014 1038
Date Received: 07/16/2014 0900

Analyte	Result	Qual	Units	MDL	RL	Dil	Method
Nitrate Nitrite as N-Soluble	0.36	U	mg/Kg	0.36	0.76	1.0	353.2

Analysis Batch: 280-235041 Analysis Date: 07/18/2014 2301 DryWt Corrected: Y

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

Analysis Batch: 280-234765 Analysis Date: 07/17/2014 1128 DryWt Corrected: N

8/3/14

Client: Washington Closure Hanford

Job Number: 280-57789-1
Sdg Number: JP0832

General Chemistry

Client Sample ID: **J1TW27**

Lab Sample ID: 280-57789-7
Client Matrix: Solid
% Moisture: 0.7

Date Sampled: 07/14/2014 0942
Date Received: 07/16/2014 0900

Analyte	Result	Qual	Units	MDL	RL	Dil	Method
Nitrate Nitrite as N-Soluble	0.36	U	mg/Kg	0.36	0.76	1.0	353.2

Analysis Batch: 280-235041 Analysis Date: 07/18/2014 2251 DryWt Corrected: Y

Analyte	Result	Qual	Units	RL	RL	Dil	Method
Percent Moisture	0.73		%	0.10	0.10	1.0	D-2216

Analysis Batch: 280-234765 Analysis Date: 07/17/2014 1128 DryWt Corrected: N

8/3/14

Client: Washington Closure Hanford

Job Number: 280-57789-1
Sdg Number: JP0832

General Chemistry

Client Sample ID: **J1TW28**

Lab Sample ID: 280-57789-8
Client Matrix: Solid
% Moisture: 0.6

Date Sampled: 07/14/2014 0947
Date Received: 07/16/2014 0900

Analyte	Result	Qual	Units	MDL	RL	Dil	Method
Nitrate Nitrite as N-Soluble	0.36	U	mg/Kg	0.36	0.75	1.0	353.2

Analysis Batch: 280-235041 Analysis Date: 07/18/2014 2234 DryWt Corrected: Y

Analyte	Result	Qual	Units	RL	RL	Dil	Method
Percent Moisture	0.64		%	0.10	0.10	1.0	D-2216

Analysis Batch: 280-234765 Analysis Date: 07/17/2014 1128 DryWt Corrected: N

8/3/14

Client: Washington Closure Hanford

Job Number: 280-57789-1
Sdg Number: JP0832

General Chemistry

Client Sample ID: **J1TW29**

Lab Sample ID: 280-57789-9
Client Matrix: Solid
% Moisture: 0.7

Date Sampled: 07/14/2014 0952
Date Received: 07/16/2014 0900

Analyte	Result	Qual	Units	MDL	RL	Dil	Method
Nitrate Nitrite as N-Soluble	0.80		mg/Kg	0.36	0.76	1.0	353.2

Analysis Batch: 280-235041 Analysis Date: 07/18/2014 2258 DryWt Corrected: Y

Analyte	Result	Qual	Units	RL	RL	Dil	Method
Percent Moisture	0.70		%	0.10	0.10	1.0	D-2216

Analysis Batch: 280-234765 Analysis Date: 07/17/2014 1128 DryWt Corrected: N

8/3/14

Client: Washington Closure Hanford

Job Number: 280-57789-1
Sdg Number: JP0832

General Chemistry

Client Sample ID: **J1TW30**

Lab Sample ID: 280-57789-10
Client Matrix: Solid
% Moisture: 0.7

Date Sampled: 07/15/2014 0747
Date Received: 07/16/2014 0900

Analyte	Result	Qual	Units	MDL	RL	Dil	Method
Nitrate Nitrite as N-Soluble	0.52	B	mg/Kg	0.36	0.75	1.0	353.2

Analysis Batch: 280-235041 Analysis Date: 07/18/2014 2233 DryWt Corrected: Y

Analyte	Result	Qual	Units	RL	RL	Dil	Method
Percent Moisture	0.65		%	0.10	0.10	1.0	D-2216

Analysis Batch: 280-234765 Analysis Date: 07/17/2014 1128 DryWt Corrected: N

8/3/14

Client: Washington Closure Hanford

Job Number: 280-57789-1
Sdg Number: JP0832

General Chemistry

Client Sample ID: **J1TW31**

Lab Sample ID: 280-57789-11
Client Matrix: Solid
% Moisture: 0.4

Date Sampled: 07/15/2014 0740
Date Received: 07/16/2014 0900

Analyte	Result	Qual	Units	MDL	RL	Dil	Method
Nitrate Nitrite as N-Soluble	0.62	B	mg/Kg	0.36	0.75	1.0	353.2

Analysis Batch: 280-235041 Analysis Date: 07/18/2014 2259 DryWt Corrected: Y

Analyte	Result	Qual	Units	RL	RL	Dil	Method
Percent Moisture	0.39		%	0.10	0.10	1.0	D-2216

Analysis Batch: 280-234765 Analysis Date: 07/17/2014 1128 DryWt Corrected: N

8/3/14

Client: Washington Closure Hanford

Job Number: 280-57789-1
Sdg Number: JP0832

General Chemistry

Client Sample ID: **J1TW32**

Lab Sample ID: 280-57789-12
Client Matrix: Solid
% Moisture: 0.6

Date Sampled: 07/15/2014 0753
Date Received: 07/16/2014 0900

Analyte	Result	Qual	Units	MDL	RL	Dil	Method
Nitrate Nitrite as N-Soluble	0.36	U	mg/Kg	0.36	0.75	1.0	353.2

Analysis Batch: 280-235041 Analysis Date: 07/18/2014 2231 DryWt Corrected: Y

Analyte	Result	Qual	Units	RL	RL	Dil	Method
Percent Moisture	0.62		%	0.10	0.10	1.0	D-2216

Analysis Batch: 280-234765 Analysis Date: 07/17/2014 1128 DryWt Corrected: N

8/13/14

Client: Washington Closure Hanford

Job Number: 280-57789-1
Sdg Number: JP0832

General Chemistry

Client Sample ID: **J1TW33**

Lab Sample ID: 280-57789-13
Client Matrix: Solid
% Moisture: 1.2

Date Sampled: 07/14/2014 0840
Date Received: 07/16/2014 0900

Analyte	Result	Qual	Units	MDL	RL	Dil	Method
Nitrate Nitrite as N-Soluble	0.47	B	mg/Kg	0.36	0.76	1.0	353.2

Analysis Batch: 280-235041 Analysis Date: 07/18/2014 2303 DryWt Corrected: Y

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

Analysis Batch: 280-234765 Analysis Date: 07/17/2014 1128 DryWt Corrected: N

8/3/14

Sample Results Summary

Date: 22-Jul-14

TestAmerica Inc TARL

Ordered by Method, Batch No., Client Sample ID.

Report No. : 61369

SDG No: JP0832

Batch	Client Id Work Order	Parameter	Result +- Uncertainty (2s)	Qual	Units	Tracer Yield	MDL	CRDL	RPD
4197029	7196_CR6								
	J1TW21								
	M4CRT1AA	HEXCHROME	3.38E-01 +- 0.0E+00		mg/kg	N/A	1.55E-01	1.55E-01	
	M4CRT1AE	HEXCHROME	3.39E-01 +- 0.0E+00		mg/kg	N/A	1.55E-01	1.55E-01	0.3
	J1TW22								
	M4CRV1AA	HEXCHROME	3.56E-01 +- 0.0E+00		mg/kg	N/A	1.55E-01	1.55E-01	
	J1TW23								
	M4CRW1AA	HEXCHROME	3.36E-01 +- 0.0E+00		mg/kg	N/A	1.55E-01	1.55E-01	
	J1TW24								
	M4CRX1AA	HEXCHROME	2.76E-01 +- 0.0E+00		mg/kg	N/A	1.55E-01	1.55E-01	
	J1TW25								
	M4CR01AA	HEXCHROME	3.37E-01 +- 0.0E+00		mg/kg	N/A	1.55E-01	1.55E-01	
	J1TW26								
	M4CR11AA	HEXCHROME	3.17E-01 +- 0.0E+00		mg/kg	N/A	1.55E-01	1.55E-01	
	J1TW27								
	M4CR21AA	HEXCHROME	3.79E-01 +- 0.0E+00		mg/kg	N/A	1.55E-01	1.55E-01	
	J1TW28								
	M4CR31AA	HEXCHROME	3.15E-01 +- 0.0E+00		mg/kg	N/A	1.55E-01	1.55E-01	
	J1TW29								
	M4CR41AA	HEXCHROME	2.54E-01 +- 0.0E+00		mg/kg	N/A	1.55E-01	1.55E-01	
	J1TW30								
	M4CR61AA	HEXCHROME	3.36E-01 +- 0.0E+00		mg/kg	N/A	1.55E-01	1.55E-01	
	J1TW31								
	M4CR71AA	HEXCHROME	2.53E-01 +- 0.0E+00		mg/kg	N/A	1.55E-01	1.55E-01	
	J1TW32								
	M4CR81AA	HEXCHROME	2.54E-01 +- 0.0E+00		mg/kg	N/A	1.55E-01	1.55E-01	
	J1TW33								
	M4CR51AA	HEXCHROME	3.58E-01 +- 0.0E+00		mg/kg	N/A	1.55E-01	1.55E-01	

No. of Results: 14

8/3/14

TestAmerica Inc RPD - Relative Percent Difference.

rptTALRchSaSum
mary2 V5.3.3
A2002

Appendix 4

Laboratory Narrative and Chain-of-Custody Documentation

CASE NARRATIVE

Client: Washington Closure Hanford

Project: WASHINGTON CLOSURE HANFORD

Report Number: 280-57789-1

SDG #: JP0832
SAF#: RC-075

Date SDG Closed: July 16, 2014
Data Deliverable: 7 Day / Summary

CLIENT ID	LAB ID	ANALYSES REQUESTED	ANALYSES PERFORMED
J1TW21	280-57789-1	6010/7471/8270A/8082/353.2	6010B/7471A/8270C/8082/353.2
J1TW22	280-57789-2	6010/7471/8270A/8082/353.2	6010B/7471A/8270C/8082/353.2
J1TW23	280-57789-3	6010/7471/8270A/8082/353.2	6010B/7471A/8270C/8082/353.2
J1TW24	280-57789-4	6010/7471/8270A/8082/353.2	6010B/7471A/8270C/8082/353.2
J1TW25	280-57789-5	6010/7471/8270A/8082/353.2	6010B/7471A/8270C/8082/353.2
J1TW26	280-57789-6	6010/7471/8270A/8082/353.2	6010B/7471A/8270C/8082/353.2
J1TW27	280-57789-7	6010/7471/8270A/8082/353.2	6010B/7471A/8270C/8082/353.2
J1TW28	280-57789-8	6010/7471/8270A/8082/353.2	6010B/7471A/8270C/8082/353.2
J1TW29	280-57789-9	6010/7471/8270A/8082/353.2	6010B/7471A/8270C/8082/353.2
J1TW30	280-57789-10	6010/7471/8270A/8082/353.2	6010B/7471A/8270C/8082/353.2
J1TW31	280-57789-11	6010/7471/8270A/8082/353.2	6010B/7471A/8270C/8082/353.2
J1TW32	280-57789-12	6010/7471/8270A/8082/353.2	6010B/7471A/8270C/8082/353.2
J1TW33	280-57789-13	6010/7471/8270A/8082/353.2	6010B/7471A/8270C/8082/353.2

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 7/16/2014 9:00 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 2.9° C and 3.1° C.

GC/MS SEMIVOLATILES - SW846 8270C
Compounds Benzo(b)fluoranthene and Benzo(k)fluoranthene were unresolved in samples J1TW21, J1TW22 and J1TW31 due to matrix interferences. It can be noted that these compounds were adequately resolved in associated standards, indicating the instrument is achieving separation. The combined peak was reported as Benzo(b)fluoranthene, while Benzo(k)fluoranthene was reported as undetected even though it may be present. Associated results have been flagged with a "K".

The MS/MSD performed on sample J1TW22 exhibited percent recoveries outside the control limits for 2,4-Dinitrophenol, and the associated sample result has been flagged "T". 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.

GC SEMIVOLATILES - SW846 8082 - PCBs
Sample J1TW29 exhibited the surrogate recoveries outside the control limits, biased high. This is an indicator that data may be biased high. As no detectable concentrations are present in the sample, corrective action is deemed unnecessary.

The MSD aliquot of the MS/MSD performed on sample J1TW25 exhibited the percent recovery outside the control limits (biased high), for Aroclor 1260, and the associated sample result has been flagged "N". In addition, the RPD limit was exceeded. The laboratory noted that this anomaly is most likely due to laboratory error; however, as the parent sample was determined to be non-detect, and the method blank, LCS and MS were in control, re-extraction/reanalysis were not initiated. The data are reported as is.

No other anomalies were encountered.

TOTAL METALS - SW846 6010B/7471A
Serial dilution of a digestate in batch 280-234743 indicates that physical and chemical interferences are present for several elements. Results have been flagged with an "X".

Low levels of Aluminum and Zinc are present in the method blank associated with batch 280-234743. Because the concentrations in the method blank are not present at levels greater than half the reporting limit or the associated sample amounts are twenty times greater than the method blank concentration, corrective action is deemed unnecessary.

Chromium and Iron are present at a level greater than the reporting limit in the method blank associated with batch 280-234743. As the associated sample amounts are twenty times greater than the method blank concentrations, corrective action is deemed unnecessary.

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 J1TW21; therefore, control limits are not applicable.

Silicon was recovered outside the control limits in the Matrix Spike performed on sample J1TW21, 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.

Antimony is present at a level greater than half the reporting limit in the instrument blank (CCB) associated with samples J1TW21, J1TW23 and J1TW24 in analysis batch 280-235165. As Antimony is not present at a level greater than the reporting limit in the associated samples, corrective action is deemed unnecessary.

No other anomalies were encountered.

GENERAL CHEMISTRY - MCAWW 353.2 - NITRATE NITRITE as N
No anomalies were encountered.

Washington Closure Hanford

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

RC-075-434

Collector: H. Weber	Company Contact: Joan Kessner	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Project Designation: 100-D/DR Field Remediation	Sampling Location: 100-D-84:2 (exc)		SAF No.: RC-075
Ice Chest No.: WCH-11-014 & RCC-07-012	Field Logbook No.: EL-1662-02	COA: 01D8422000	Method of Shipment: Commercial Carrier / FED Ex
Shipped To: TestAmerica Denver	Offsite Property No.: ~~N/A~~ A131164		Bill of Lading/Air Bill No.: ~~N/A~~ Sec OSPC
Other Labs Shipped To: TestAmerica Richland			

Price Code:

Data Turnaround: 7 days

POSSIBLE SAMPLE HAZARDS/REMARKS

N/A

Special Handling and/or Storage

Cool 4C

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C						
Type of Container	G/P	aG	aG	G/P						
No. of Container(s)	1	1	1	1						
Volume	250mL	250mL	250mL	250mL						
Sample Analysis	See Item (1) in Special Instructions	Semi-VOA - 8270A (TCL)	PCBs - 8082	NO2/NO3 - 353.2						

Sample No.	Matrix	Sample Date	Sample Time										
J1TW26	SOIL	7/14/14	1038	✓	✓	✓	✓						
J1TW27	SOIL	7/14/14	0942	✓	✓	✓	✓						
J1TW28	SOIL	7/14/14	0947	✓	✓	✓	✓						
J1TW29	SOIL	7/14/14	0952	✓	✓	✓	✓						
~~J1TW30~~	~~SOIL~~	DWShea 7/14/14											

CHAIN OF POSSESSION

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Heather Weber [signature]	07/14/14 1045	R. Fehlberg R. Fehlberg	1048 7.14.14
R. Fehlberg R. Fehlberg	1500 7.14.14	SM Sexton [signature]	1500 7/14/14
SM Sexton [signature]	1505 7/14/14	1060 Battelle Fridge 3C	1505 7/14/14
1060 Battelle Fridge 3C	1008 7/15/14	SM Sexton [signature]	1008 7/15/14
SM Sexton [signature]	1010 7/15/14	FED Ex	
		[signature]	7/16/14 900

Sign/Print Names

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}; Mercury - 7471 - (CV) {Mercury}

REVIEWED BY [signature] DATE 7/15/14

JP0832

WCH-EE-011

1 of 2

Washington Closure Hanford

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

RC-075-434

Page ~~2 of 3~~ 7-15-14

Collector: H. Weber	Company Contact: Joan Kessner	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Project Designation: 100-D/DR Field Remediation	Sampling Location: 100-D-84:2 (exc)		SAF No.: RC-075
Ice Chest No.: WCH-11-014 & RCC-07-012	Field Logbook No.: EL-1662-02	COA: 01D8422000	Method of Shipment: Commercial Carrier / FED Ex
Shipped To: TestAmerica Denver	Offsite Property No.: A131164		Bill of Lading/Air Bill No.: See OSPC

Price Code:

Data Turnaround: 7days

Other Labs Shipped To: TestAmerica Richland

POSSIBLE SAMPLE HAZARDS/REMARKS

N/A

Special Handling and/or Storage

Cool 4C

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C						
Type of Container	G/P	aG	aG	G/P						
No. of Container(s)	1	1	1	1						
Volume	250mL	250mL	250mL	250mL						
Sample Analysis	See Item (1) in Special Instructions	Semi-VOA - 8270A (TCL)	PCBs - 8082	NO2/NO3 - 353.2						

Sample No.	Matrix	Sample Date	Sample Time										
~~J1TW26~~	~~SOIL~~	DWS 7/14/14											
~~J1TW27~~	~~SOIL~~												
~~J1TW28~~	~~SOIL~~												
~~J1TW29~~	~~SOIL~~												
J1TW30	SOIL	7/15/14	0747	✓	✓	✓	✓						

CHAIN OF POSSESSION

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Heather Weber [signature]	07/15/14 0805	R. Fahlberg R. Fahlberg	0805 7.15.14
R. Fahlberg R. Fahlberg	1005 7.15.14	SM Sexton / [signature]	1005 7/15/14
SM Sexton / [signature]	WCH 1010 7/15/14	FED Ex	
		[signature]	7-16-14 900

Sign/Print Names

FINAL SAMPLE DISPOSITION — Disposal Method — Disposed By — Date/Time

WCH-EE-011

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}; Mercury - 7471 - (CV) {Mercury}

REVIEWED BY [signature] DATE 7/15/14

JP0832

Washington Closure Hanford

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

RC-075-434

Collector: H. Weber	Company Contact: Joan Kessner	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Project Designation: 100-D/DR Field Remediation	Sampling Location: 100-D-84:2 (exc)		SAF No.: RC-075
Ice Chest No.: WCH-11-014 & RCC-07-012	Field Logbook No.: EL-1662-02	COA: 01D8422000	Method of Shipment: Commercial Carrier / FED Ex
Shipped To: TestAmerica Denver	Offsite Property No.: A131164		Bill of Lading/Air Bill No.: See OSPC

Price Code:

Data Turnaround: 7 days

Other Labs Shipped To: TestAmerica Richland

POSSIBLE SAMPLE HAZARDS/REMARKS

N/A

Special Handling and/or Storage

Cool 4C

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C						
Type of Container	G/P	aG	aG	G/P						
No. of Container(s)	1	1	1	1						
Volume	250mL	250mL	250mL	250mL						
Sample Analysis	See item (1) in Special Instructions	Semi-VOA - 8270A (TCL)	PCBs - 8082	NO2/NO3 - 353.2						

Sample No.	Matrix	Sample Date	Sample Time										
J1TW21	SOIL	7/14/14	0832	✓	✓	✓	✓						
J1TW22	SOIL	7/14/14	0840	✓	✓	✓	✓						
J1TW23	SOIL	7/14/14	~~0928~~ 1032	✓	✓	✓	✓						
J1TW24	SOIL	7/14/14	0928	✓	✓	✓	✓						
J1TW25	SOIL	7/14/14	0935	✓	✓	✓	✓						

CHAIN OF POSSESSION

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Heather Weber / [signature]	07/14/14 1048	R. Fehlberg / R. Fehlberg	1048 7.14.14
R. Fehlberg / R. Fehlberg	1500 7.14.14	SM Sexton / [signature]	1500 7/14/14
SM Sexton / [signature]	1505 7/14/14	1060 Battelle Fridge 3C	1505 7/14/14
1060 Battelle Fridge 3C	1008 7/15/14	SM Sexton / [signature]	1008 7/15/14
SM Sexton / [signature]	1010 7/15/14	FED Ex	
		[signature]	7-16-14 900

Sign/Print Names

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}; Mercury - 7471 - (CV) {Mercury}

REVIEWED BY K. Woodward DATE 7/15/14

JP0832

WCH-EE-011

2.6, 2.4

IR4 MS
T.S 7-16-14

Washington Closure Hanford

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

RC-075-434

Collector: H. Weber	Company Contact: Joan Kessner	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Project Designation: 100-D/DR Field Remediation	Sampling Location: 100-D-84:2 (exc)		SAF No.: RC-075
Ice Chest No.: WCH-11-014 & RCC-07-012	Field Logbook No.: EL-1662-02	COA: 01D8422000	Method of Shipment: Commercial Carrier / FED Ex
Shipped To: TestAmerica Denver	Offsite Property No.: A131164		Bill of Lading/Air Bill No.: See OSPC

Price Code:

Data Turnaround: 7 days

Other Labs Shipped To: TestAmerica Richland

POSSIBLE SAMPLE HAZARDS/REMARKS
N/A

Special Handling and/or Storage
Cool 4C

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C						
Type of Container	G/P	aG	aG	G/P						
No. of Container(s)	1	1	1	1						
Volume	250mL	250mL	250mL	250mL						
Sample Analysis	See Item (1) in Special Instructions	Semi-VOA - 8270A (TCL)	PCBs - 8082	NO2/NO3 - 353.2						

Sample No.	Matrix	Sample Date	Sample Time										
~~J1TW31~~	~~SOIL~~ } DWS 7/14/14												
~~J1TW32~~	~~SOIL~~ }												
J1TW33	SOIL	7/14/14	0840	✓	✓	✓	✓						

CHAIN OF POSSESSION

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Heather Weber / [signature]	07/14/14 1048	R. Fahlberg R. Fahlberg	1048 7-14-14
R. Fahlberg R. Fahlberg	1500 7-14-14	SM Sexton / [signature]	1500 7/14/14
SM Sexton / [signature]	1505 7/14/14	1060 Battelle Fridge 3C	1505 7/14/14
1060 Battelle Fridge 3C	1008 7/15/14	SM Sexton / [signature]	1008 7/15/14
SM Sexton / [signature]	1010 7/15/14	FED Ex	
		[signature]	7-16-14 900

Sign/Print Names

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}; Mercury - 7471 - (CV) {Mercury}

REVIEWED BY [signature] DATE 7/15/14

JP0832

FINAL SAMPLE DISPOSITION | Disposal Method | Disposed By | Date/Time

WCH-EE-011

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-075-434	Page 2 of 2 GNS 7-15-14

Collector: H. Weber	Company Contact: Joan Kessner	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Price Code	Data Turnaround: 7 days		
Project Designation: 100-D/DR Field Remediation	Sampling Location: 100-D-84:2 (exc)		SAF No.: RC-075
Ice Chest No.: WCH-11-014 & RCC-07-012	Field Logbook No.: EL-1662-02	COA: 01D6422000	Method of Shipment: Commercial Carrier / FED EX
Shipped To: TestAmerica Denver	Offsite Property No.: A131164		Bill of Lading/Air Bill No.: See OSPC
Other Labs Shipped To: TestAmerica Richland			

POSSIBLE SAMPLE HAZARDS/REMARKS
N/A

Special Handling and/or Storage
Cool 4C

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C							
Type of Container	G/P	aG	aG	G/P							
No. of Container(s)	1	1	1	1							
Volume	250mL	250mL	250mL	250mL							
Sample Analysis	See Item (1) in Special Instructions	Semi-VOA - 8270A (TCL)	PCBs - 8082	NO2/NO3 - 353.2							

Sample No.	Matrix	Sample Date	Sample Time										
J1TW31	SOIL	7/15/14	0740	✓	✓	✓	✓						
J1TW32	SOIL	7/15/14	0753	✓	✓	✓	✓						
~~J1TW33~~	~~SOIL~~	GNS 7/14/14											

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From: Heather Weber	Date/Time: 07/15/14 0805	Received By/Stored In: R. Fahlberg R. Fahlberg	Date/Time: 0805 7-15-14
Relinquished By/Removed From: R. Fahlberg R. Fahlberg	Date/Time: 7-15-14 1005	Received By/Stored In: SM Sexton	Date/Time: 1005 7/15/14
Relinquished By/Removed From: SM Sexton	Date/Time: 7/15/14 1010	Received By/Stored In: FED EX	Date/Time:
Relinquished By/Removed From:	Date/Time:	Received By/Stored In:	Date/Time: 7-16-14 900
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:
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); Mercury - 7471 - (CV) (Mercury)

REVIEWED BY [illegible] DATE 7/15/14

JP 0832

WCH-EE-011

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Certificate of Analysis

Washington Hanford Closure
2620 Fermi Avenue
Richland, WA 99354

July 22, 2014

Attention: Joan Kessner

SAF Number	:	RC-075
Date SDG Closed	:	July 15, 2014
Number of Samples	:	Thirteen (13)
Sample Type	:	Soil
SDG Number	:	JP0832
Data Deliverable	:	7-Day / Summary

CASE NARRATIVE

I. Introduction

On July 15, 2014, thirteen soil samples were received at TestAmerica for chemistry analysis. Upon receipt, the samples were assigned the following laboratory ID numbers to correspond with the Washington Closure Hanford (WCH) specific ID:

WCH ID#	TARL ID#	MATRIX	DATE OF RECEIPT
J1TW21	M4CRT	SOIL	7/15/14
J1TW22	M4CRV	SOIL	7/15/14
J1TW23	M4CRW	SOIL	7/15/14
J1TW24	M4CRX	SOIL	7/15/14
J1TW25	M4CR0	SOIL	7/15/14
J1TW26	M4CR1	SOIL	7/15/14
J1TW27	M4CR2	SOIL	7/15/14
J1TW28	M4CR3	SOIL	7/15/14
J1TW29	M4CR4	SOIL	7/15/14
J1TW33	M4CR5	SOIL	7/15/14
J1TW30	M4CR6	SOIL	7/15/14
J1TW31	M4CR7	SOIL	7/15/14
J1TW32	M4CR8	SOIL	7/15/14

II. Sample Receipt

The samples were received in good condition and no anomalies were noted during check-in.

III. Analytical Results/Methodology

The analytical results for this report are presented by laboratory sample ID. Each set of data includes sample identification information, analytical results and the appropriate associated statistical errors.

The requested analysis was:

Chemical Analysis
Hexavalent Chromium by EPA method 7196A

IV. Quality Control

The analytical results for each analysis performed includes a minimum of one laboratory control sample (LCS), one method (reagent) blank, and one duplicate sample analysis. Any exceptions have been noted in the "Comments" section.

QC and sample results are reported in the same units.

V. Comments

Chemical Analysis
Hexavalent Chromium by EPA method 7196A:
The LCS, batch blank, samples, sample duplicate (J1TW21) and sample matrix spike (J1TW21) results are within contractual requirements.

I certify that this Certificate of Analysis 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 hard copy data package has been authorized by the Laboratory Manager, or a designee as verified by the following signature.

Reviewed and approved:

Rhonda Wagar
Project Manager

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-075-434	Page 1 of 3

Collector: H. Weber	Company Contact: Joan Kessner	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Project Designation: 100-D/DR Field Remediation	Sampling Location: 100-D-84:2 (exc)		SAF No.: RC-075
Ice Chest No.: WCH-12-11-7	Field Logbook No.: EL-1662-02	COA: 01D8422000	Method of Shipment: Local Delivery
Shipped To: TestAmerica Richland	Offsite Property No.: N/A		Bill of Lading/Air Bill No.: N/A

Price Code:

Data Turnaround: 7days

Other Labs Shipped To: TestAmerica Denver

POSSIBLE SAMPLE HAZARDS/REMARKS
N/A

Special Handling and/or Storage
Cool 4C

Preservation	Cool 4C
Type of Container	G/P
No. of Container(s)	1
Volume	125mL
Sample Analysis	Chromium Hex - 7196

Sample No.	Matrix	Sample Date	Sample Time									
J1TW21 MUCRT	SOIL	7/14/14	0832	✓								
J1TW22 MUCRV	SOIL	7/14/14	0840	✓								
J1TW23 MUCRW	SOIL	7/14/14	1032	✓								
J1TW24 MUCRX	SOIL	7/14/14	0928	✓								
J1TW25 MUCRO	SOIL	7/14/14	0935	✓								

CHAIN OF POSSESSION	Sign/Print Names
Relinquished By/Removed From: Heather Weber / Date/Time: 07/14/14 1048	Received By/Stored In: R. Fehlberg / Date/Time: 7-14-14 1048
Relinquished By/Removed From: R. Fehlberg / Date/Time: 7-14-14 1500	Received By/Stored In: SM Sexton / Date/Time: 7/14/14 1500
Relinquished By/Removed From: SM Sexton / Date/Time: 7/14/14 1505	Received By/Stored In: 1060 Battelle Fridge 3C / Date/Time: 7/14/14 1505
Relinquished By/Removed From: 1060 Battelle Fridge 3C / Date/Time: 7/15/14 1015	Received By/Stored In: SM Sexton / Date/Time: 7/15/14 1015
Relinquished By/Removed From: SM Sexton / Date/Time: 7/15/14 1430	Received By/Stored In: J Bock / Date/Time: 7-15-14 1430
Relinquished By/Removed From: / Date/Time:	Received By/Stored In: / Date/Time:
Relinquished By/Removed From: / Date/Time:	Received By/Stored In: / Date/Time:

FINAL SAMPLE DISPOSITION — Disposal Method: — Disposed By: — Date/Time:

SPECIAL INSTRUCTIONS

J4G150453
Due 7-22-14

REVIEWED BY K. Wood Via email
DATE 7/15/14

SDG:
JP0832

J4G150453

WCH-EE-011

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-075-434	Page 2 of 3

Collector: H. Weber	Company Contact: Joan Kessner	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Project Designation: 100-D/DR Field Remediation	Sampling Location: 100-D-84:2 (exc)		SAF No.: RC-075
Ice Chest No.: WCH-12-11-7	Field Logbook No.: EL-1662-02	COA: 01D8422000	Method of Shipment: Local Delivery
Shipped To: TestAmerica Richland	Offsite Property No.: N/A		Bill of Lading/Air Bill No.: N/A

Price Code:

Data Turnaround: 7 days

Other Labs Shipped To: TestAmerica Denver

POSSIBLE SAMPLE HAZARDS/REMARKS
N/A

Special Handling and/or Storage
Cool 4C

Preservation	Cool 4C
Type of Container	G/P
No. of Container(s)	1
Volume	125mL
Sample Analysis	Chromium Hex - 7196

Sample No.	Matrix	Sample Date	Sample Time										
J1TW26 MUCR1	SOIL	7/14/14	1038	✓									
J1TW27 MUCR2	SOIL	7/14/14	0942	✓									
J1TW28 MUCR3	SOIL	7/14/14	0947	✓									
J1TW29 MUCR4	SOIL	7/14/14	0952	✓									
~~J1TW30~~	~~SOIL~~ DWS	7/14/14											

CHAIN OF POSSESSION	Sign/Print Names
Relinquished By/Removed From: Heather Weber [signature] Date/Time: 07/14/14 1048	Received By/Stored In: R. Fehlberg R. Fehlberg Date/Time: 7.14.14 1048
Relinquished By/Removed From: R. Fehlberg R. Fehlberg Date/Time: 7.14.14 1500	Received By/Stored In: SM Sexton [signature] Date/Time: 7/14/14 1500
Relinquished By/Removed From: SM Sexton [signature] Date/Time: 7/14/14 1505	Received By/Stored In: 1060 Battelle Fridge 3C Date/Time: 7/14/14 1505
Relinquished By/Removed From: 1060 Battelle Fridge 3C Date/Time: 7/15/14 1015	Received By/Stored In: SM Sexton [signature] Date/Time: 7/15/14 1015
Relinquished By/Removed From: SM Sexton [signature] Date/Time: 7/15/14 1430	Received By/Stored In: J. Gold [signature] TALR Date/Time: 7-15-14 1430
Relinquished By/Removed From: Date/Time:	Received By/Stored In: Date/Time:
Relinquished By/Removed From: Date/Time:	Received By/Stored In: Date/Time:

FINAL SAMPLE DISPOSITION — Disposal Method: — Disposed By: — Date/Time:

SPECIAL INSTRUCTIONS

J46150453
Due 7-22-14

REVIEWED BY K. Woodvine-Weil DATE 7/15/14

JP0832

WCH-EE-011

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-075-434	Page 3 of 3

Collector: H. Weber	Company Contact: Joan Kessner	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Project Designation: 100-D/DR Field Remediation	Sampling Location: 100-D-84:2 (exc)		SAF No.: RC-075
Ice Chest No.: WCH-12-11-7	Field Logbook No.: EL-1662-02	COA: 01D8422000	Method of Shipment: Local Delivery
Shipped To: TestAmerica Richland	Offsite Property No.: N/A		Bill of Lading/Air Bill No.: N/A

Price Code:

Data Turnaround: 7days

Other Labs Shipped To: TestAmerica Denver

POSSIBLE SAMPLE HAZARDS/REMARKS
N/A

Special Handling and/or Storage
Cool 4C

Preservation	Cool 4C										
Type of Container	G/P										
No. of Container(s)	1										
Volume	125mL										
Sample Analysis	Chromium Hex - 7196										

Sample No.	Matrix	Sample Date	Sample Time										
~~J1TW31~~	~~SOIL~~	DWS 7/14/14											
~~J1TW32~~	~~SOIL~~												
J1TW33 MHCRS	SOIL	7/14/14	0840	✓									

CHAIN OF POSSESSION	Sign/Print Names
Relinquished By/Removed From: Heather Weber Date/Time: 07/14/14 1048	Received By/Stored In: R. Fehlberg Date/Time: 1048 7-14-14
Relinquished By/Removed From: R. Fehlberg Date/Time: 1500 7-14-14	Received By/Stored In: SM Sexton Date/Time: 1500 7/14/14
Relinquished By/Removed From: SM Sexton Date/Time: 1505 7/14/14	Received By/Stored In: 1060 Battelle Fridge 3C Date/Time: 1505 7/14/14
Relinquished By/Removed From: 1060 Battelle Fridge 3C Date/Time: 1015 7/15/14	Received By/Stored In: SM Sexton Date/Time: 1015 7/15/14
Relinquished By/Removed From: SM Sexton Date/Time: 1430 7/15/14	Received By/Stored In: J. Dole Date/Time: TALK 7-15-14 1430
Relinquished By/Removed From: Date/Time:	Received By/Stored In: Date/Time:
Relinquished By/Removed From: Date/Time:	Received By/Stored In: Date/Time:

FINAL SAMPLE DISPOSITION — Disposal Method: — Disposed By: — Date/Time:

SPECIAL INSTRUCTIONS

J4G150453

Due 7-22-14

JP0832

REVIEWED BY K. Woodward DATE 7/15/14

WCH-EE-011

TestAmerica Laboratories, Inc.

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-075-434	Page ~~2 of 3~~ 1 of 2 BMS 7-15-14

Collector: H. Weber	Company Contact: Joan Kessner	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Price Code	Data Turnaround: 7 days		
Project Designation: 100-D/DR Field Remediation	Sampling Location: 100-D-84:2 (exc)		SAF No.: RC-075
Ice Chest No.: WCH-12-11-7	Field Logbook No.: EL-1662-02	COA: 01D8422000	Method of Shipment: Local Delivery
Shipped To: TestAmerica Richland	Offsite Property No.: N/A		Bill of Lading/Air Bill No.: N/A

Other Labs Shipped To: TestAmerica Denver

POSSIBLE SAMPLE HAZARDS/REMARKS: N/A

Special Handling and/or Storage: Cool 4C

Preservation	Cool 4C										
Type of Container	G/P										
No. of Container(s)	1										
Volume	125mL										
Sample Analysis	Chromium Hex - 7196										

Sample No.	Matrix	Sample Date	Sample Time									
~~J1TW26~~	~~SOIL~~	BMS 7/14/14										
~~J1TW27~~	~~SOIL~~											
~~J1TW28~~	~~SOIL~~											
~~J1TW29~~	~~SOIL~~											
J1TW30 MUCRO	SOIL	7/15/14	0747	✓								

CHAIN OF POSSESSION	Sign/Print Names	
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Heather Weber / [signature]	07/15/14 0805	R. Fahlberg / [signature]	7-15-14 0805
R. Fahlberg / [signature]	7-15-14 1005	[signature] / [signature]	7/15/14 1005
[signature] / [signature]	7/15/14 1430	J Beck / [signature]	7-15-14 1430

SPECIAL INSTRUCTIONS

J4G150453

Due 7-22-14

REVIEWED BY K. Woodward D. 7/15/14

JP0832

FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

WCH-EE-011

SMS 7-15-14
~~1 of 1~~ 2 of 2

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-075-434	~~Page 3 of 3~~ SMS 7-15-14

Collector: H. Weber	Company Contact: Joan Kessner	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Project Designation: 100-D/DR Field Remediation	Sampling Location: 100-D-84:2 (exc)		SAF No.: RC-075
Ice Chest No.: UCH-12-11-7	Field Logbook No.: EL-1662-02	COA: 01D8422000	Method of Shipment: Local Delivery
Shipped To: TestAmerica Richland	Offsite Property No.: N/A		Bill of Lading/Air Bill No.: N/A

Price Code:

Data Turnaround: 7 days

Other Labs Shipped To: TestAmerica Denver

POSSIBLE SAMPLE HAZARDS/REMARKS
N/A

Special Handling and/or Storage
Cool 4C

Preservation	Cool 4C
Type of Container	G/P
No. of Container(s)	1
Volume	125mL
Sample Analysis	Chromium Hex - 7196

Sample No.	Matrix	Sample Date	Sample Time	
J1TW31 MUCR7	SOIL	7/15/14	0740	✓
J1TW32 MUCR8	SOIL	7/15/14	0753	✓
~~J1TW33~~	~~SOIL~~	DWS 7/14/14		

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Heather Weber / [signature]	07/15/14 0805	R. Fahlberg / R. Fahlberg	0805 7.15.14
R. Fahlberg / R. Fahlberg	1005 7.15.14	SM Sexton / [signature]	1005 7/15/14
SM Sexton / [signature]	1430 7/15/14	J. Bock / [signature]	TALK 7-15-14 1430

FINAL SAMPLE DISPOSITION — Disposal Method — Disposed By — Date/Time

SPECIAL INSTRUCTIONS

REVIEWED BY K. Woodward
DATE 7/15/14

JUG150453
Due 7-22-14

JP0832

WCH-EE-011

Appendix 5

Data Validation Supporting Documentation

GENERAL CHEMISTRY ANALYSIS DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	E
PROJECT: 100-D-84:2			DATA PACKAGE: JP0832		
VALIDATOR: ELR		LAB: TAL		DATE: 8/2/14	
			SDG: JP0832		
ANALYSES PERFORMED					
Anions/IC	TOC	TOX	TPH-418.1	Oil and Grease	Alkalinity
Ammonia	BOD/COD	Chloride	Chromium-VI	pH	NO_3/NO_2
Sulfate	TDS	TKN	Phosphate		
SAMPLES/MATRIX					
J1FW21	J1FW22	J1FW23	J1FW24		
J1FW25	J1FW26	J1FW27	J1FW28		
J1FW29	J1FW30	J1FW31	J1FW32		
J1FW33					
				Soil	

1. DATA PACKAGE COMPLETENESS AND CASE NARRATIVE

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

Comments:

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:

GENERAL CHEMISTRY ANALYSIS DATA VALIDATION CHECKLIST

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:

no PB

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

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

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

Sike 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:

no PB

GENERAL CHEMISTRY ANALYSIS DATA VALIDATION CHECKLIST

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:

6. HOLDING TIMES (all levels)

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

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

Comments:

GENERAL CHEMISTRY ANALYSIS DATA VALIDATION CHECKLIST

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:

Appendix 6

Additional Documentation Requested by Client

Client: Washington Closure Hanford

Job Number: 280-57789-1
Sdg Number: JP0832

Method Blank - Batch: 280-235041

Method: 353.2
Preparation: N/A

Lab Sample ID:	MB 280-235021/1-A	Analysis Batch:	280-235041	Instrument ID:	WC_Alp 2
Client Matrix:	Solid	Prep Batch:	N/A	Lab File ID:	C:\FLOW_4\0718NXNW.R
Dilution:	1.0	Leach Batch:	280-235021	Initial Weight/Volume:	
Analysis Date:	07/18/2014 2223	Units:	mg/Kg	Final Weight/Volume:	
Prep Date:	N/A				
Leach Date:	07/18/2014 1708				

Analyte	Result	Qual	MDL	RL
Nitrate Nitrite as N-Soluble	0.36	U	0.36	0.75

Method Reporting Limit Check - Batch: 280-235041

Method: 353.2
Preparation: N/A

Lab Sample ID:	MRL 280-235041/18	Analysis Batch:	280-235041	Instrument ID:	WC_Alp 2
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	C:\FLOW_4\0718NXNW.R
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	100 mL
Analysis Date:	07/18/2014 1712	Units:	mg/L	Final Weight/Volume:	100 mL
Prep Date:	N/A				
Leach Date:	N/A				

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Nitrate Nitrite as N-Soluble	0.100	0.0806	81	50 - 150	B

Lab Control Sample - Batch: 280-235041

Method: 353.2
Preparation: N/A

Lab Sample ID:	LCS 280-235021/2-A	Analysis Batch:	280-235041	Instrument ID:	WC_Alp 2
Client Matrix:	Solid	Prep Batch:	N/A	Lab File ID:	C:\FLOW_4\0718NXNW.R
Dilution:	1.0	Leach Batch:	280-235021	Initial Weight/Volume:	
Analysis Date:	07/18/2014 2224	Units:	mg/Kg	Final Weight/Volume:	
Prep Date:	N/A				
Leach Date:	07/18/2014 1708				

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Nitrate Nitrite as N-Soluble	50.0	51.68	103	90 - 110	

Client: Washington Closure Hanford

Job Number: 280-57789-1
Sdg Number: JP0832

Matrix Spike - Batch: 280-235041

Method: 353.2
Preparation: N/A

Lab Sample ID:	280-57789-3	Analysis Batch:	280-235041	Instrument ID:	WC_Alp 2
Client Matrix:	Solid	Prep Batch:	N/A	Lab File ID:	C:\FLOW_4\0718NXNW.R
Dilution:	1.0	Leach Batch:	280-235021	Initial Weight/Volume:	
Analysis Date:	07/18/2014 2229	Units:	mg/Kg	Final Weight/Volume:	
Prep Date:	N/A				
Leach Date:	07/18/2014 1708				

Analyte	Sample Result/Qual	Spike Amount	Result	% Rec.	Limit	Qual
Nitrate Nitrite as N-Soluble	1.8	40.3	45.33	108	90 - 110	

Matrix Spike - Batch: 280-235041

Method: 353.2
Preparation: N/A

Lab Sample ID:	280-57789-1	Analysis Batch:	280-235041	Instrument ID:	WC_Alp 2
Client Matrix:	Solid	Prep Batch:	N/A	Lab File ID:	C:\FLOW_4\0718NXNW.R
Dilution:	1.0	Leach Batch:	280-235021	Initial Weight/Volume:	
Analysis Date:	07/18/2014 2256	Units:	mg/Kg	Final Weight/Volume:	
Prep Date:	N/A				
Leach Date:	07/18/2014 1708				

Analyte	Sample Result/Qual	Spike Amount	Result	% Rec.	Limit	Qual
Nitrate Nitrite as N-Soluble	0.84	40.3	45.03	110	90 - 110	

Client: Washington Closure Hanford

Job Number: 280-57789-1
Sdg Number: JP0832

Duplicate - Batch: 280-235041

Method: 353.2
Preparation: N/A

Lab Sample ID:	280-57789-3	Analysis Batch:	280-235041	Instrument ID:	WC_Alp 2
Client Matrix:	Solid	Prep Batch:	N/A	Lab File ID:	C:\FLOW_4\0718NXNW.R
Dilution:	1.0	Leach Batch:	280-235021	Initial Weight/Volume:	
Analysis Date:	07/18/2014 2228	Units:	mg/Kg	Final Weight/Volume:	
Prep Date:	N/A				
Leach Date:	07/18/2014 1708				

Analyte	Sample Result/Qual	Result	RPD	Limit	Qual
Nitrate Nitrite as N-Soluble	1.8	1.85	6	10	

Duplicate - Batch: 280-235041

Method: 353.2
Preparation: N/A

Lab Sample ID:	280-57789-1	Analysis Batch:	280-235041	Instrument ID:	WC_Alp 2
Client Matrix:	Solid	Prep Batch:	N/A	Lab File ID:	C:\FLOW_4\0718NXNW.R
Dilution:	1.0	Leach Batch:	280-235021	Initial Weight/Volume:	
Analysis Date:	07/18/2014 2254	Units:	mg/Kg	Final Weight/Volume:	
Prep Date:	N/A				
Leach Date:	07/18/2014 1708				

Analyte	Sample Result/Qual	Result	RPD	Limit	Qual
Nitrate Nitrite as N-Soluble	0.84	0.827	2	10	

QC Results Summary

Date: 22-Jul-14

TestAmerica Inc TARL

Ordered by Method, Batch No, QC Type,.

Report No. : 61369

SDG No.: JP0832

Batch Work Order	Parameter	Result +- Uncertainty (2s)	Qual	Units	Tracer Yield	LCS Recovery	Bias	MDL
7196_CR6								
4197029 MATRIX SPIKE, J1TW21								
M4CRT1AC	HEXCHROME	2.56E+01 +- 0.0E+00		mg/kg	N/A	84%	-0.2	1.55E-01
4197029 LCS,								
M4CWN1AC	HEXCHROME	1.90E+01 +- 0.0E+00		mg/kg	N/A	95%	0.0	1.55E-01
4197029 BLANK QC,								
M4CWN1AA	HEXCHROME	1.55E-01 +- 0.0E+00	U	mg/kg	N/A			1.55E-01

No. of Results: 3

TestAmerica Inc
rptSTLRchQcSummary V5.3.3 A2002

Bias - (Result/Expected)-1 as defined by ANSI N13.30.
U Qual - Analyzed for but not detected above limiting criteria. Limit criteria is less than the Mdc/Mda/Mdl, Total Uncert, CRDL, RDL or not identified by gamma scan software.

Date: 4 August 2014
To: Washington Closure Hanford Inc. (technical representative)
From: ELR Consulting
Project: 100-D/DR Burial Grounds & Remaining Sites – Soil Full Protocol - Waste Site 100-D-84:2
Subject: PCB - Data Package No. JP0832-TAL

INTRODUCTION

This memo presents the results of data validation on Data Package No. JP0832 prepared by TestAmerica Laboratories (TAL). A list of samples validated along with the analyses reported and the method of analysis is provided in the following table.

Sample ID	Sample Date	Media	Validation	Analyte
J1TW21	7/14/14	Soil	C	See note 1
J1TW22	7/14/14	Soil	C	See note 1
J1TW23	7/14/14	Soil	C	See note 1
J1TW24	7/14/14	Soil	C	See note 1
J1TW25	7/14/14	Soil	C	See note 1
J1TW26	7/14/14	Soil	C	See note 1
J1TW27	7/14/14	Soil	C	See note 1
J1TW28	7/14/14	Soil	C	See note 1
J1TW29	7/14/14	Soil	C	See note 1
J1TW30	7/15/14	Soil	C	See note 1
J1TW31	7/15/14	Soil	C	See note 1
J1TW32	7/15/14	Soil	C	See note 1
J1TW33	7/14/14	Soil	C	See note 1

1 – PCBs by 8082.

Data validation was conducted in accordance with the Washington Closure Hanford (WCH) validation statement of work and the 100 Area Remedial Action Sampling and Analysis Plan (DOE/RL-96-22, September 2009). 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**

Holding times are not applicable for PCB analysis.

- **Method Blank**

Method blank analyses are performed to determine the extent of laboratory contamination introduced through sampling, sample preparation or analysis. At least one method blank analysis must be conducted for every 20 samples. Method blanks should not contain target compounds at a concentration greater than required quantitation limit (RQL). If target compounds are present, sample results less than five times the blank concentration are qualified as undetected and flagged "U". If the sample result is less than five times the blank concentration and less than RQL, the result is qualified as undetected and elevated to the RQL.

All method blank results were acceptable.

Field Blanks

No field blanks were submitted for analysis.

- **Accuracy**

Matrix Spike & Laboratory Control Sample

Matrix spike (MS) and laboratory control sample (LCS) analyses are used to assess the analytical accuracy of the reported data. The matrix spike is used to assess the effect of the matrix on the ability to accurately quantify sample concentrations. Recoveries must fall within the range of 70% to 130%. If spike recoveries are outside control limits, detected sample results less than five times the spike concentration are qualified as estimates and flagged "J". Non-detected sample results with spike recoveries outside control limits are qualified as estimates and flagged "UJ". Sample results greater than five times the spike concentration require no qualification.

All accuracy results were acceptable.

Surrogate Recovery

The analysis of surrogate compounds provides a measure of performance for individual samples. Matrix-specific surrogate compound recovery control windows have been established by the laboratory. When a surrogate compound recovery is outside the control window, all positively identified target compounds associated with the

unacceptable surrogate recoveries are qualified as estimates and flagged "J". Non-detected compounds with surrogate recoveries less than the lower control limit are qualified as having an estimated detection limit and flagged "UJ". Non-detected compounds with surrogate recoveries above the upper control limit require no qualification.

All surrogate results were acceptable.

- **Precision**

Matrix Spike/Matrix Spike Duplicate Samples

Matrix spike/matrix spike duplicate results provide matrix-specific information on the precision of the method for specific target compound classes. Precision is expressed as the relative percent difference (RPD) between the recoveries of duplicate matrix spike analyses performed on a sample. For soil samples, results must be within RPD limits of plus/minus 30%. If RPD values are out of specification and the sample concentration is less than five times the spike concentration, all associated detected sample results are qualified as estimates and flagged "J". If RPD values are out of specification and the sample concentration is greater than five times the spike concentration, no qualification is required.

Due to an RPD outside QC limits (144%), all aroclor-1260 results were qualified as estimates and flagged "J".

All other precision results were acceptable.

Field Duplicate Samples

One set of field duplicates (J1TW22/J1TW33) were submitted for analysis. Field duplicates are compared using the same criteria as for laboratory duplicates. All field duplicate results were acceptable.

- **Analytical Detection Levels**

Reported analytical detection levels are compared against the 100 Area RQLs to ensure that laboratory detection levels meet the required criteria. All results met the RQL.

- **Completeness**

Data Package No. JP0832 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

The following minor deficiencies were noted:

- Due to an RPD outside QC limits (144%), all aroclor-1260 results were qualified as estimates and flagged "J".

Data flagged "J" indicates that the associated concentration is an estimate, but under the WCH statement of work, the data may be usable for decision-making purposes. All other validated results are considered accurate within the standard error associated with the methods.

REFERENCES

Washington Closure Hanford Contract #S00W307A00 (March 2008), *Data Validation Services*, March 2008.

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

Appendix 1

Glossary of Data Reporting Qualifiers

Qualifiers which may be applied by data validators in compliance with the procedures herein are as follows:

U - Indicates the compound or analyte was analyzed for and not detected in the sample. The value reported is the sample quantitation limit corrected for sample dilution and moisture content by the laboratory.

UJ - Indicates the compound or analyte was analyzed for and not detected in the sample. Due to a minor QC deficiency identified during the data validation, the associated quantitation limit is an estimate.

J - Indicates the compound or analyte was analyzed for and detected. Due to a minor QC deficiency identified during the data validation, the associated quantitation limit is an estimate.

R - Indicates the compound or analyte was analyzed for, detected, and due to an identified major QC deficiency, the data are unusable.

UR - Indicates the compound or analyte was analyzed for and not detected in the sample. Additionally, the data is unusable due to an identified major QC deficiency.

NJ - Indicates presumptive evidence of a compound at an estimated value. The data may not be valid for some specific applications (i.e., usable for decision-making purposes).

N - Indicates presumptive evidence of a compound. The data may not be valid for some specific applications (i.e., usable for decision-making purposes).

Appendix 2

Summary of Data Qualification

PCB DATA QUALIFICATION SUMMARY*

SDG: JP0832	REVIEWER: ELR	Project: 100-D-84:2	PAGE_1_OF_1
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
Aroclor-1260	J	All	RPD

* - The Qualified Data Summary Table includes laboratory applied "U" qualifiers not specifically identified here. The laboratory applied "U" qualifiers are included to minimize misinterpretation of results contained in the table.

Appendix 3

Annotated Laboratory Reports

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-57789-1
Sdg Number: JP0832

Client Sample ID: J1TW21

Lab Sample ID: 280-57789-1
Client Matrix: Solid

% Moisture: 0.7

Date Sampled: 07/14/2014 0832
Date Received: 07/16/2014 0900

8082 Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analysis Method:	8082	Analysis Batch:	280-235038	Instrument ID:	SGC_W
Prep Method:	3550C	Prep Batch:	280-234802	Initial Weight/Volume:	31.3 g
Dilution:	1.0			Final Weight/Volume:	5 mL
Analysis Date:	07/20/2014 0127			Injection Volume:	1 uL
Prep Date:	07/17/2014 1652			Result Type:	PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Aroclor 1016		2.7	U	2.7	9.6
Aroclor 1221		7.7	U	7.7	16
Aroclor 1232		1.9	U	1.9	9.6
Aroclor 1242		4.5	U	4.5	9.6
Aroclor 1248		4.5	U	4.5	9.6
Aroclor 1254		2.5	U	2.5	9.6
Aroclor 1260		2.5	U J	2.5	9.6

Surrogate	%Rec	Qualifier	Acceptance Limits
Decachlorobiphenyl	78		59 - 130
Tetrachloro-m-xylene	79		53 - 128

8/3/14

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-57789-1
Sdg Number: JP0832

Client Sample ID: **J1TW22**

Lab Sample ID: 280-57789-2
Client Matrix: Solid
% Moisture: 1.0

Date Sampled: 07/14/2014 0840
Date Received: 07/16/2014 0900

8082 Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analysis Method:	8082	Analysis Batch:	280-235038	Instrument ID:	SGC_W
Prep Method:	3550C	Prep Batch:	280-234802	Initial Weight/Volume:	31.4 g
Dilution:	1.0			Final Weight/Volume:	5 mL
Analysis Date:	07/20/2014 0151			Injection Volume:	1 uL
Prep Date:	07/17/2014 1652			Result Type:	PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Aroclor 1016		2.7	U	2.7	9.6
Aroclor 1221		7.7	U	7.7	16
Aroclor 1232		1.9	U	1.9	9.6
Aroclor 1242		4.5	U	4.5	9.6
Aroclor 1248		4.5	U	4.5	9.6
Aroclor 1254		2.5	U	2.5	9.6
Aroclor 1260		2.5	U J	2.5	9.6

Surrogate	%Rec	Qualifier	Acceptance Limits
Decachlorobiphenyl	81		59 - 130
Tetrachloro-m-xylene	82		53 - 128

8/13/14

Client: Washington Closure Hanford

Job Number: 280-57789-1
Sdg Number: JP0832

Client Sample ID: J1TW23

Lab Sample ID: 280-57789-3
Client Matrix: Solid
% Moisture: 0.8

Date Sampled: 07/14/2014 1032
Date Received: 07/16/2014 0900

8082 Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analysis Method:	8082	Analysis Batch:	280-235038	Instrument ID:	SGC_W
Prep Method:	3550C	Prep Batch:	280-234802	Initial Weight/Volume:	32.5 g
Dilution:	1.0			Final Weight/Volume:	5 mL
Analysis Date:	07/20/2014 0215			Injection Volume:	1 uL
Prep Date:	07/17/2014 1652			Result Type:	PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Aroclor 1016		2.6	U	2.6	9.3
Aroclor 1221		7.5	U	7.5	15
Aroclor 1232		1.9	U	1.9	9.3
Aroclor 1242		4.3	U	4.3	9.3
Aroclor 1248		4.3	U	4.3	9.3
Aroclor 1254		2.4	U	2.4	9.3
Aroclor 1260		2.4	U J	2.4	9.3

Surrogate	%Rec	Qualifier	Acceptance Limits
Decachlorobiphenyl	85		59 - 130
Tetrachloro-m-xylene	80		53 - 128

8/3/14

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-57789-1
Sdg Number: JP0832

Client Sample ID: J1TW24

Lab Sample ID: 280-57789-4
Client Matrix: Solid

% Moisture: 0.8

Date Sampled: 07/14/2014 0928
Date Received: 07/16/2014 0900

8082 Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analysis Method:	8082	Analysis Batch:	280-235038	Instrument ID:	SGC_W
Prep Method:	3550C	Prep Batch:	280-234802	Initial Weight/Volume:	31.8 g
Dilution:	1.0			Final Weight/Volume:	5 mL
Analysis Date:	07/20/2014 0239			Injection Volume:	1 uL
Prep Date:	07/17/2014 1652			Result Type:	PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Aroclor 1016		2.6	U	2.6	9.5
Aroclor 1221		7.6	U	7.6	16
Aroclor 1232		1.9	U	1.9	9.5
Aroclor 1242		4.4	U	4.4	9.5
Aroclor 1248		4.4	U	4.4	9.5
Aroclor 1254		2.5	U	2.5	9.5
Aroclor 1260		2.5	U J	2.5	9.5

Surrogate	%Rec	Qualifier	Acceptance Limits
Decachlorobiphenyl	89		59 - 130
Tetrachloro-m-xylene	83		53 - 128

8/3/14

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-57789-1
Sdg Number: JP0832

Client Sample ID: **J1TW25**

Lab Sample ID: 280-57789-5
Client Matrix: Solid

% Moisture: 0.6

Date Sampled: 07/14/2014 0935
Date Received: 07/16/2014 0900

8082 Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analysis Method:	8082	Analysis Batch:	280-235038	Instrument ID:	SGC_W
Prep Method:	3550C	Prep Batch:	280-234802	Initial Weight/Volume:	31.6 g
Dilution:	1.0			Final Weight/Volume:	5 mL
Analysis Date:	07/20/2014 0303			Injection Volume:	1 uL
Prep Date:	07/17/2014 1652			Result Type:	PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Aroclor 1016		2.6	U	2.6	9.6
Aroclor 1221		7.7	U	7.7	16
Aroclor 1232		1.9	U	1.9	9.6
Aroclor 1242		4.5	U	4.5	9.6
Aroclor 1248		4.5	U	4.5	9.6
Aroclor 1254		2.5	U	2.5	9.6
Aroclor 1260		2.5	U N J	2.5	9.6

Surrogate	%Rec	Qualifier	Acceptance Limits
Decachlorobiphenyl	92		59 - 130
Tetrachloro-m-xylene	84		53 - 128

8/3/14

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-57789-1
Sdg Number: JP0832

Client Sample ID: J1TW26

Lab Sample ID: 280-57789-6
Client Matrix: Solid
% Moisture: 1.1

Date Sampled: 07/14/2014 1038
Date Received: 07/16/2014 0900

8082 Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analysis Method:	8082	Analysis Batch:	280-235038	Instrument ID:	SGC_W
Prep Method:	3550C	Prep Batch:	280-234802	Initial Weight/Volume:	31.4 g
Dilution:	1.0			Final Weight/Volume:	5 mL
Analysis Date:	07/20/2014 0437			Injection Volume:	1 uL
Prep Date:	07/17/2014 1652			Result Type:	PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Aroclor 1016		2.7	U	2.7	9.7
Aroclor 1221		7.7	U	7.7	16
Aroclor 1232		1.9	U	1.9	9.7
Aroclor 1242		4.5	U	4.5	9.7
Aroclor 1248		4.5	U	4.5	9.7
Aroclor 1254		2.5	U	2.5	9.7
Aroclor 1260		2.5	U J	2.5	9.7

Surrogate	%Rec	Qualifier	Acceptance Limits
Decachlorobiphenyl	90		59 - 130
Tetrachloro-m-xylene	86		53 - 128

8/3/14

Client: Washington Closure Hanford

Job Number: 280-57789-1
Sdg Number: JP0832

Client Sample ID: **J1TW27**

Lab Sample ID: 280-57789-7
Client Matrix: Solid
% Moisture: 0.7

Date Sampled: 07/14/2014 0942
Date Received: 07/16/2014 0900

8082 Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analysis Method:	8082	Analysis Batch:	280-235038	Instrument ID:	SGC_W
Prep Method:	3550C	Prep Batch:	280-234802	Initial Weight/Volume:	31.4 g
Dilution:	1.0			Final Weight/Volume:	5 mL
Analysis Date:	07/20/2014 0501			Injection Volume:	1 uL
Prep Date:	07/17/2014 1652			Result Type:	PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Aroclor 1016		2.7	U	2.7	9.6
Aroclor 1221		7.7	U	7.7	16
Aroclor 1232		1.9	U	1.9	9.6
Aroclor 1242		4.5	U	4.5	9.6
Aroclor 1248		4.5	U	4.5	9.6
Aroclor 1254		2.5	U	2.5	9.6
Aroclor 1260		2.5	U J	2.5	9.6

Surrogate	%Rec	Qualifier	Acceptance Limits
Decachlorobiphenyl	84		59 - 130
Tetrachloro-m-xylene	84		53 - 128

8/3/14

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-57789-1
Sdg Number: JP0832

Client Sample ID: **J1TW28**

Lab Sample ID: 280-57789-8
Client Matrix: Solid
% Moisture: 0.6

Date Sampled: 07/14/2014 0947
Date Received: 07/16/2014 0900

8082 Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analysis Method:	8082	Analysis Batch:	280-235038	Instrument ID:	SGC_W
Prep Method:	3550C	Prep Batch:	280-234802	Initial Weight/Volume:	32.9 g
Dilution:	1.0			Final Weight/Volume:	5 mL
Analysis Date:	07/20/2014 0525			Injection Volume:	1 uL
Prep Date:	07/17/2014 1652			Result Type:	PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Aroclor 1016		2.5	U	2.5	9.2
Aroclor 1221		7.4	U	7.4	15
Aroclor 1232		1.8	U	1.8	9.2
Aroclor 1242		4.3	U	4.3	9.2
Aroclor 1248		4.3	U	4.3	9.2
Aroclor 1254		2.4	U	2.4	9.2
Aroclor 1260		2.4	U J	2.4	9.2

Surrogate	%Rec	Qualifier	Acceptance Limits
Decachlorobiphenyl	82		59 - 130
Tetrachloro-m-xylene	81		53 - 128

8/3/14

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-57789-1
Sdg Number: JP0832

Client Sample ID: J1TW29

Lab Sample ID: 280-57789-9
Client Matrix: Solid

% Moisture: 0.7

Date Sampled: 07/14/2014 0952
Date Received: 07/16/2014 0900

8082 Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analysis Method:	8082	Analysis Batch:	280-235038	Instrument ID:	SGC_W
Prep Method:	3550C	Prep Batch:	280-234802	Initial Weight/Volume:	31.7 g
Dilution:	1.0			Final Weight/Volume:	5 mL
Analysis Date:	07/20/2014 0548			Injection Volume:	1 uL
Prep Date:	07/17/2014 1652			Result Type:	PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Aroclor 1016		2.6	U	2.6	9.5
Aroclor 1221		7.6	U	7.6	16
Aroclor 1232		1.9	U	1.9	9.5
Aroclor 1242		4.4	U	4.4	9.5
Aroclor 1248		4.4	U	4.4	9.5
Aroclor 1254		2.5	U	2.5	9.5
Aroclor 1260		2.5	U J	2.5	9.5

Surrogate	%Rec	Qualifier	Acceptance Limits
Decachlorobiphenyl	260	*	59 - 130
Tetrachloro-m-xylene	347	*	53 - 128

8/3/14

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-57789-1
Sdg Number: JP0832

Client Sample ID: J1TW30

Lab Sample ID: 280-57789-10
Client Matrix: Solid
% Moisture: 0.7

Date Sampled: 07/15/2014 0747
Date Received: 07/16/2014 0900

8082 Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analysis Method:	8082	Analysis Batch:	280-235038	Instrument ID:	SGC_W
Prep Method:	3550C	Prep Batch:	280-234802	Initial Weight/Volume:	31.0 g
Dilution:	1.0			Final Weight/Volume:	5 mL
Analysis Date:	07/20/2014 0612			Injection Volume:	1 uL
Prep Date:	07/17/2014 1652			Result Type:	PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Aroclor 1016		2.7	U	2.7	9.7
Aroclor 1221		7.8	U	7.8	16
Aroclor 1232		1.9	U	1.9	9.7
Aroclor 1242		4.5	U	4.5	9.7
Aroclor 1248		4.5	U	4.5	9.7
Aroclor 1254		2.5	U	2.5	9.7
Aroclor 1260		2.5	U J	2.5	9.7

Surrogate	%Rec	Qualifier	Acceptance Limits
Decachlorobiphenyl	90		59 - 130
Tetrachloro-m-xylene	86		53 - 128

6/3/14

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-57789-1
Sdg Number: JP0832

Client Sample ID: J1TW31

Lab Sample ID: 280-57789-11
Client Matrix: Solid

% Moisture: 0.4

Date Sampled: 07/15/2014 0740
Date Received: 07/16/2014 0900

8082 Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analysis Method:	8082	Analysis Batch:	280-235038	Instrument ID:	SGC_W
Prep Method:	3550C	Prep Batch:	280-234802	Initial Weight/Volume:	30.2 g
Dilution:	1.0			Final Weight/Volume:	5 mL
Analysis Date:	07/20/2014 0636			Injection Volume:	1 uL
Prep Date:	07/17/2014 1652			Result Type:	PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Aroclor 1016		2.8	U	2.8	10
Aroclor 1221		8.0	U	8.0	16
Aroclor 1232		2.0	U	2.0	10
Aroclor 1242		4.6	U	4.6	10
Aroclor 1248		4.6	U	4.6	10
Aroclor 1254		2.6	U	2.6	10
Aroclor 1260		2.6	U J	2.6	10

Surrogate	%Rec	Qualifier	Acceptance Limits
Decachlorobiphenyl	89		59 - 130
Tetrachloro-m-xylene	89		53 - 128

8/3/14

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-57789-1
Sdg Number: JP0832

Client Sample ID: **J1TW32**

Lab Sample ID: 280-57789-12
Client Matrix: Solid
% Moisture: 0.6

Date Sampled: 07/15/2014 0753
Date Received: 07/16/2014 0900

8082 Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analysis Method:	8082	Analysis Batch:	280-235038	Instrument ID:	SGC_W
Prep Method:	3550C	Prep Batch:	280-234802	Initial Weight/Volume:	30.7 g
Dilution:	1.0			Final Weight/Volume:	5 mL
Analysis Date:	07/20/2014 0659			Injection Volume:	1 uL
Prep Date:	07/17/2014 1652			Result Type:	PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Aroclor 1016		2.7	U	2.7	9.8
Aroclor 1221		7.9	U	7.9	16
Aroclor 1232		2.0	U	2.0	9.8
Aroclor 1242		4.6	U	4.6	9.8
Aroclor 1248		4.6	U	4.6	9.8
Aroclor 1254		2.6	U	2.6	9.8
Aroclor 1260		2.6	U J	2.6	9.8

Surrogate	%Rec	Qualifier	Acceptance Limits
Decachlorobiphenyl	91		59 - 130
Tetrachloro-m-xylene	84		53 - 128

8/3/14

Client: Washington Closure Hanford

Job Number: 280-57789-1
Sdg Number: JP0832

Client Sample ID: J1TW33

Lab Sample ID: 280-57789-13
Client Matrix: Solid
% Moisture: 1.2

Date Sampled: 07/14/2014 0840
Date Received: 07/16/2014 0900

8082 Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analysis Method:	8082	Analysis Batch:	280-235038	Instrument ID:	SGC_W
Prep Method:	3550C	Prep Batch:	280-234802	Initial Weight/Volume:	31.1 g
Dilution:	1.0			Final Weight/Volume:	5 mL
Analysis Date:	07/20/2014 0723			Injection Volume:	1 uL
Prep Date:	07/17/2014 1652			Result Type:	PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Aroclor 1016		2.7	U	2.7	9.8
Aroclor 1221		7.8	U	7.8	16
Aroclor 1232		2.0	U	2.0	9.8
Aroclor 1242		4.5	U	4.5	9.8
Aroclor 1248		4.5	U	4.5	9.8
Aroclor 1254		2.5	U	2.5	9.8
Aroclor 1260		2.5	U J	2.5	9.8

Surrogate	%Rec	Qualifier	Acceptance Limits
Decachlorobiphenyl	88		59 - 130
Tetrachloro-m-xylene	87		53 - 128

8/13/14

Appendix 4

Laboratory Narrative and Chain-of-Custody Documentation

CASE NARRATIVE

Client: Washington Closure Hanford

Project: WASHINGTON CLOSURE HANFORD

Report Number: 280-57789-1

SDG #: JP0832
SAF#: RC-075

Date SDG Closed: July 16, 2014
Data Deliverable: 7 Day / Summary

CLIENT ID	LAB ID	ANALYSES REQUESTED	ANALYSES PERFORMED
J1TW21	280-57789-1	6010/7471/8270A/8082/353.2	6010B/7471A/8270C/8082/353.2
J1TW22	280-57789-2	6010/7471/8270A/8082/353.2	6010B/7471A/8270C/8082/353.2
J1TW23	280-57789-3	6010/7471/8270A/8082/353.2	6010B/7471A/8270C/8082/353.2
J1TW24	280-57789-4	6010/7471/8270A/8082/353.2	6010B/7471A/8270C/8082/353.2
J1TW25	280-57789-5	6010/7471/8270A/8082/353.2	6010B/7471A/8270C/8082/353.2
J1TW26	280-57789-6	6010/7471/8270A/8082/353.2	6010B/7471A/8270C/8082/353.2
J1TW27	280-57789-7	6010/7471/8270A/8082/353.2	6010B/7471A/8270C/8082/353.2
J1TW28	280-57789-8	6010/7471/8270A/8082/353.2	6010B/7471A/8270C/8082/353.2
J1TW29	280-57789-9	6010/7471/8270A/8082/353.2	6010B/7471A/8270C/8082/353.2
J1TW30	280-57789-10	6010/7471/8270A/8082/353.2	6010B/7471A/8270C/8082/353.2
J1TW31	280-57789-11	6010/7471/8270A/8082/353.2	6010B/7471A/8270C/8082/353.2
J1TW32	280-57789-12	6010/7471/8270A/8082/353.2	6010B/7471A/8270C/8082/353.2
J1TW33	280-57789-13	6010/7471/8270A/8082/353.2	6010B/7471A/8270C/8082/353.2

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 7/16/2014 9:00 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 2.9° C and 3.1° C.

GC/MS SEMIVOLATILES - SW846 8270C
Compounds Benzo(b)fluoranthene and Benzo(k)fluoranthene were unresolved in samples J1TW21, J1TW22 and J1TW31 due to matrix interferences. It can be noted that these compounds were adequately resolved in associated standards, indicating the instrument is achieving separation. The combined peak was reported as Benzo(b)fluoranthene, while Benzo(k)fluoranthene was reported as undetected even though it may be present. Associated results have been flagged with a "K".

The MS/MSD performed on sample J1TW22 exhibited percent recoveries outside the control limits for 2,4-Dinitrophenol, and the associated sample result has been flagged "T". 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.

GC SEMIVOLATILES - SW846 8082 - PCBs
Sample J1TW29 exhibited the surrogate recoveries outside the control limits, biased high. This is an indicator that data may be biased high. As no detectable concentrations are present in the sample, corrective action is deemed unnecessary.

The MSD aliquot of the MS/MSD performed on sample J1TW25 exhibited the percent recovery outside the control limits (biased high), for Aroclor 1260, and the associated sample result has been flagged "N". In addition, the RPD limit was exceeded. The laboratory noted that this anomaly is most likely due to laboratory error; however, as the parent sample was determined to be non-detect, and the method blank, LCS and MS were in control, re-extraction/reanalysis were not initiated. The data are reported as is.

No other anomalies were encountered.

TOTAL METALS - SW846 6010B/7471A
Serial dilution of a digestate in batch 280-234743 indicates that physical and chemical interferences are present for several elements. Results have been flagged with an "X".

Low levels of Aluminum and Zinc are present in the method blank associated with batch 280-234743. Because the concentrations in the method blank are not present at levels greater than half the reporting limit or the associated sample amounts are twenty times greater than the method blank concentration, corrective action is deemed unnecessary.

Chromium and Iron are present at a level greater than the reporting limit in the method blank associated with batch 280-234743. As the associated sample amounts are twenty times greater than the method blank concentrations, corrective action is deemed unnecessary.

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 J1TW21; therefore, control limits are not applicable.

Silicon was recovered outside the control limits in the Matrix Spike performed on sample J1TW21, 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.

Antimony is present at a level greater than half the reporting limit in the instrument blank (CCB) associated with samples J1TW21, J1TW23 and J1TW24 in analysis batch 280-235165. As Antimony is not present at a level greater than the reporting limit in the associated samples, corrective action is deemed unnecessary.

No other anomalies were encountered.

GENERAL CHEMISTRY - MCAWW 353.2 - NITRATE NITRITE as N
No anomalies were encountered.

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-075-434	Page 2 of 3

Collector: H. Weber	Company Contact: Joan Kessner	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Price Code	Data Turnaround: 7 days		
Project Designation: 100-D/DR Field Remediation	Sampling Location: 100-D-84:2 (exc)		SAF No.: RC-075
Ice Chest No.: WCH-11-014 & RCC-07-012	Field Logbook No.: EL-1662-02	COA: 01D8422000	Method of Shipment: Commercial Carrier / FED EX
Shipped To: TestAmerica Denver	Offsite Property No.: ~~N/A~~ A131164		Bill of Lading/Air Bill No.: ~~N/A~~ See OSPC
Other Labs Shipped To: TestAmerica Richland			

POSSIBLE SAMPLE HAZARDS/REMARKS
N/A

Special Handling and/or Storage
Cool 4C

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C							
Type of Container	G/P	aG	aG	G/P							
No. of Container(s)	1	1	1	1							
Volume	250mL	250mL	250mL	250mL							
Sample Analysis	See Item (1) in Special Instructions	Semi-VOA - 8270A (TCL)	PCBs - 8082	NO2/NO3 - 353.2							

Sample No.	Matrix	Sample Date	Sample Time									
J1TW26	SOIL	7/14/14	1038	✓	✓	✓	✓					
J1TW27	SOIL	7/14/14	0942	✓	✓	✓	✓					
J1TW28	SOIL	7/14/14	0947	✓	✓	✓	✓					
J1TW29	SOIL	7/14/14	0952	✓	✓	✓	✓					
~~J1TW30~~	~~SOIL~~	7/14/14										

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Heather Weber	07/14/14 1045	R. Fehlberg	7-14-14 1048
R. Fehlberg	7-14-14 1500	Sam Sexton	7/14/14 1500
Sam Sexton	7/14/14 1505	1060 Battelle Fridge 3C	7/14/14 1505
1060 Battelle Fridge 3C	7/15/14 1008	Sam Sexton	7/15/14 1008
Sam Sexton	7/15/14 1010	FED EX	
			7/16/14 900

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); Mercury - 7471 - (CV) (Mercury)

REVIEWED BY [signature] DATE 7/15/14

JP0832

WCH-EE-011

1 of 2

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-075-434	Page 2 of 5 JMS 7-15-14

Collector: H. Weber	Company Contact: Joan Kessner	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Price Code:	Date Turnaround: 7 days		
Project Designation: 100-D/DR Field Remediation	Sampling Location: 100-D-84:2 (exc)		SAF No.: RC-075
Ice Chest No.: WCH-11-014 & RCS-07-012	Field Logbook No.: EL-1862-02	COA: 01D8422000	Method of Shipment: Commercial Carrier / FED Ex
Shipped To: TestAmerica Denver	Offsite Property No.: A131164		Bill of Lading/Air Bill No.: See OSPC
Other Labs Shipped To: TestAmerica Richland			

POSSIBLE SAMPLE HAZARDS/REMARKS
N/A

Special Handling and/or Storage
Cool 4C

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C							
Type of Container	G/P	aG	aG	G/P							
No. of Container(s)	1	1	1	1							
Volume	250mL	250mL	250mL	250mL							
Sample Analysis	See Item (1) in Special Instructions	Semi-VOA - 8270A (TCL)	PCBs - 8082	NO2/NO3 - 353.2							

Sample No.	Matrix	Sample Date	Sample Time									
~~J1TW26~~	~~SOIL~~											
~~J1TW27~~	~~SOIL~~	DWS 7/14/14										
~~J1TW28~~	~~SOIL~~											
~~J1TW29~~	~~SOIL~~											
J1TW30	SOIL	7/15/14	0747	✓	✓	✓	✓					

CHAIN OF POSSESSION	Sign/Print Names	Date/Time
Relinquished By/Removed From		
Received By/Stored In	R. Fahlberg R. Fahlberg	7.15.14 0805
Relinquished By/Removed From	R. Fahlberg R. Fahlberg	7.15.14 1005
Received By/Stored In	BM Sexton	7/15/14 1005
Relinquished By/Removed From	BM Sexton	7/15/14 1010
Received By/Stored In	FED Ex	
Relinquished By/Removed From		
Received By/Stored In		7-16-14 900
Relinquished By/Removed From		
Received By/Stored In		
Relinquished By/Removed From		
Received By/Stored In		
Relinquished By/Removed From		
Received By/Stored In		

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); Mercury - 7471 - (CV) (Mercury)

REVIEWED BY K. Wardwell DATE 7/15/14

JP0832

WCH-EE-011

Washington Closure Hanford

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

RC-075-434

Collector: H. Weber	Company Contact: Joan Kessner	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Project Designation: 100-D/DR Field Remediation	Sampling Location: 100-D-84:2 (exc)		SAF No.: RC-075
Ice Chest No.: WCH-11-014 & RCC-07-012	Field Logbook No.: EL-1662-02	COA: 01D8422000	Method of Shipment: Commercial Carrier / FED Ex
Shipped To: TestAmerica Denver	Offsite Property No.: A131164		Bill of Lading/Air Bill No.: See OSPC

Price Code:

Data Turnaround: 7 days

Other Labs Shipped To: TestAmerica Richland

POSSIBLE SAMPLE HAZARDS/REMARKS

N/A

Special Handling and/or Storage

Cool 4C

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C									
Type of Container	G/P	aG	aG	G/P									
No. of Container(s)	1	1	1	1									
Volume	250mL	250mL	250mL	250mL									
Sample Analysis	See item (1) in Special Instructions	Semi-VOA - 8270A (TCL)	PCBs - 8082	NO2/NO3 - 353.2									

Sample No.	Matrix	Sample Date	Sample Time										
J1TW21	SOIL	7/14/14	0832	✓	✓	✓	✓						
J1TW22	SOIL	7/14/14	0840	✓	✓	✓	✓						
J1TW23	SOIL	7/14/14	DWS 7/14/14 ~~0928~~ 1032	✓	✓	✓	✓						
J1TW24	SOIL	7/14/14	0928	✓	✓	✓	✓						
J1TW25	SOIL	7/14/14	0935	✓	✓	✓	✓						

CHAIN OF POSSESSION

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Heather Weber [signature]	07/14/14 1048	R. Fehlberg R. Fehlberg	1048 7-14-14
R. Fehlberg R. Fehlberg	1500 7-14-14	SM Sexton [signature]	1500 7/14/14
SM Sexton [signature]	1505 7/14/14	1060 Battelle Fridge 3C	1505 7/14/14
1060 Battelle Fridge 3C	1008 7/15/14	SM Sexton [signature]	1008 7/15/14
SM Sexton [signature]	1010 7/15/14	FED Exc	
		[signature]	7-16-14 900

Sign/Print Names

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}; Mercury - 7471 - (CV) {Mercury}

REVIEWED BY K. Woodward DATE 7/15/14

JP0832

FINAL SAMPLE DISPOSITION | Disposal Method | Disposed By | Date/Time

WCH-EE-011

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T.S 7-16-14

Washington Closure Hanford

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

RC-075-434

Collector: H. Weber	Company Contact: Joan Kessner	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Price Code:	Data Turnaround: 7 days		
Project Designation: 100-D/DR Field Remediation	Sampling Location: 100-D-84:2 (exc)		SAF No.: RC-075
Ice Chest No.: WCH-11-014 & RCC-07-012	Field Logbook No.: EL-1662-02	COA: 01D8422000	Method of Shipment: Commercial Carrier / FED EX
Shipped To: TestAmerica Denver	Offsite Property No.: A131164		Bill of Lading/Air Bill No.: See OSPC
Other Labs Shipped To: TestAmerica Richland			

POSSIBLE SAMPLE HAZARDS/REMARKS

N/A

Special Handling and/or Storage

Cool 4C

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C							
Type of Container	G/P	aG	aG	G/P							
No. of Container(s)	1	1	1	1							
Volume	250mL	250mL	250mL	250mL							
Sample Analysis	See Item (1) in Special Instructions	Semi-VOA - 8270A (TCL)	PCBs - 8082	NO2/NO3 - 353.2							

Sample No.	Matrix	Sample Date	Sample Time									
~~J1RW31~~	~~SOIL~~	7/14/14										
~~J1RW32~~	~~SOIL~~											
J1RW33	SOIL	7/14/14	0840	✓	✓	✓	✓					

CHAIN OF POSSESSION / Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Heather Weber / [signature]	07/14/14 1048	R. Fahlberg / R. Fahlberg	1048 7-14-14
R. Fahlberg / R. Fahlberg	1500 7-14-14	SM Sexton / [signature]	1500 7/14/14
SM Sexton / [signature]	1505 7/14/14	1060 Battelle Fridge 3C	1545 7/14/14
1060 Battelle Fridge 3C	1008 7/15/14	SM Sexton / [signature]	1008 7/15/14
SM Sexton / [signature]	1010 7/15/14	FED EX	
		[signature]	7/16/14 900

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); Mercury - 7471 - (CV) (Mercury)

REVIEWED BY [signature] DATE 7/15/14

JP0832

WCH-EE-011

2 of 2

Washington Closure Hanford

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

RC-075-434

Page ~~6 of 6~~ Sms 7-15-14

Collector: H. Weber	Company Contact: Joan Kessner	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Project Designation: 100-D/DR Field Remediation	Sampling Location: 100-D-84:2 (exc)		SAF No.: RC-075
Ice Chest No.: WCH-11-014 & RCC-07-012	Field Logbook No.: EL-1662-02	COA: 01D8422000	Method of Shipment: Commercial Carrier / FED Ex
Shipped To: TestAmerica Denver	Offsite Property No.: A131 164		Bill of Lading/Air Bill No.: See OSPC

Price Code:

Data Turnaround: 7days

Other Labs Shipped To: TestAmerica Richland

POSSIBLE SAMPLE HAZARDS/REMARKS

N/A

Special Handling and/or Storage

Cool 4C

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C
Type of Container	G/P	aG	aG	G/P
No. of Container(s)	1	1	1	1
Volume	250mL	250mL	250mL	250mL
Sample Analysis	See Item (1) in Special Instructions	Semi-VOA - 8270A (TCL)	PCBs - 8082	NO2/NO3 - 353.2

Sample No.	Matrix	Sample Date	Sample Time				
J1TW31	SOIL	7/15/14	0740	✓	✓	✓	✓
J1TW32	SOIL	7/15/14	0753	✓	✓	✓	✓
~~J1TW33~~	~~SOIL~~	MOS 7/14/14					

CHAIN OF POSSESSION

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Heather Weber [signature]	07/15/14 0805	R. Fahlberg R. Fahlberg	0805 7-15-14
R. Fahlberg R. Fahlberg	1005 7-15-14	SM Sextral [signature]	1005 7/15/14
SM Sextral [signature] WCH	1010 7/15/14	FED Ex	
		[signature]	7-16-14 900

Sign/Print Names

FINAL SAMPLE DISPOSITION — Disposal Method — Disposed By — Date/Time

WCH-EE-011

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}; Mercury - 7471 - (CV) {Mercury}

REVIEWED BY K. Woodvitemail DATE 7/15/14

JP 0832

Appendix 5

Data Validation Supporting Documentation

PCB DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	E
PROJECT: 100-D-84:2			DATA PACKAGE: JP0832		
VALIDATOR: ELR		LAB: TAL		DATE: 8/2/14	
			SDG: JP0832		
ANALYSES PERFORMED					
SW-846 8081	SW-846 8081 (TCLP)	SW-846 8082	SW-846 8081 (TCLP)		
SAMPLES/MATRIX					
J1TW21	J1TW22	J1TW23	J1TW24		
J1TW25	J1TW26	J1TW27	J1TW28		
J1TW29	J1TW30	J1TW31	J1TW32		
J1TW33					
					Soil

1. DATA PACKAGE COMPLETENESS AND CASE NARRATIVE

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

Comments:

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

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

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

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

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

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

DDT and endrin breakdowns acceptable? ..... Yes No N/A

Comments:

PCB DATA VALIDATION CHECKLIST

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

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

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

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

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

Comments: no FB

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

Surrogates analyzed? ..... Yes No N/A

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

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

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

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: ~~MSD - 1260 - Jall~~ (no detcy

no PAS

PCB DATA VALIDATION CHECKLIST

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: RPD - 1200 - Jall

6. SYSTEM PERFORMANCE (Levels D and E)

Chromatographic performance acceptable? ..... Yes No N/A

Positive results resolved acceptably? ..... 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:

PCB DATA VALIDATION CHECKLIST

8. COMPOUND IDENTIFICATION, QUANTITATION, AND DETECTION LIMITS (all levels)

Compound identification acceptable? (Levels D, E) ..... Yes No N/A
Compound quantitation acceptable? (Levels D, E) ..... Yes No N/A
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: _____

9. SAMPLE CLEANUP (Levels D and E)

Fluoricil ® (or other absorbent) cleanup performed? ..... Yes No N/A
Lot check performed? ..... Yes No N/A
Check recoveries acceptable? ..... Yes No N/A
GPC cleanup performed? ..... Yes No N/A
GPC check performed? ..... Yes No N/A
GPC check recoveries acceptable? ..... Yes No N/A
GPC calibration performed? ..... Yes No N/A
GPC calibration check performed? ..... Yes No N/A
GPC calibration check retention times acceptable? ..... Yes No N/A
Check/calibration materials traceable? ..... Yes No N/A
Check/calibration materials Expired? ..... Yes No N/A
Analytical batch QC given similar cleanup? ..... Yes No N/A
Transcription/Calculation Errors? ..... Yes No N/A

Comments: _____

Appendix 6

Additional Documentation Requested by Client

Client: Washington Closure Hanford

Job Number: 280-57789-1
Sdg Number: JP0832

Method Blank - Batch: 280-234802

Method: 8082
Preparation: 3550C

Lab Sample ID:	MB 280-234802/1-A	Analysis Batch:	280-235038	Instrument ID:	SGC_W
Client Matrix:	Solid	Prep Batch:	280-234802	Lab File ID:	07191441.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	31.2 g
Analysis Date:	07/20/2014 0040	Units:	ug/Kg	Final Weight/Volume:	5 mL
Prep Date:	07/17/2014 1652			Injection Volume:	1 uL
Leach Date:	N/A			Column ID:	PRIMARY

Analyte	Result	Qual	MDL	RL
Aroclor 1016	2.7	U	2.7	9.6
Aroclor 1221	7.7	U	7.7	16
Aroclor 1232	1.9	U	1.9	9.6
Aroclor 1242	4.5	U	4.5	9.6
Aroclor 1248	4.5	U	4.5	9.6
Aroclor 1254	2.5	U	2.5	9.6
Aroclor 1260	2.5	U	2.5	9.6

Surrogate	% Rec	Acceptance Limits
Decachlorobiphenyl	89	59 - 130
Tetrachloro-m-xylene	85	53 - 128

Lab Control Sample - Batch: 280-234802

Method: 8082
Preparation: 3550C

Lab Sample ID:	LCS 280-234802/2-A	Analysis Batch:	280-235038	Instrument ID:	SGC_W
Client Matrix:	Solid	Prep Batch:	280-234802	Lab File ID:	07191442.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	30.4 g
Analysis Date:	07/20/2014 0104	Units:	ug/Kg	Final Weight/Volume:	5 mL
Prep Date:	07/17/2014 1652			Injection Volume:	1 uL
Leach Date:	N/A			Column ID:	PRIMARY

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Aroclor 1016	32.9	29.9	91	54 - 132	
Aroclor 1260	32.9	30.5	93	62 - 129	

Surrogate	% Rec	Acceptance Limits
Decachlorobiphenyl	88	59 - 130
Tetrachloro-m-xylene	83	53 - 128

Client: Washington Closure Hanford

Job Number: 280-57789-1
Sdg Number: JP0832

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-234802

Method: 8082
Preparation: 3550C

MS Lab Sample ID:	280-57789-5	Analysis Batch:	280-235038	Instrument ID:	SGC_W
Client Matrix:	Solid	Prep Batch:	280-234802	Lab File ID:	07191448.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	31.7 g
Analysis Date:	07/20/2014 0326			Final Weight/Volume:	5 mL
Prep Date:	07/17/2014 1652			Injection Volume:	1 uL
Leach Date:	N/A			Column ID:	PRIMARY

MSD Lab Sample ID:	280-57789-5	Analysis Batch:	280-235038	Instrument ID:	SGC_W
Client Matrix:	Solid	Prep Batch:	280-234802	Lab File ID:	07191449.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	30.4 g
Analysis Date:	07/20/2014 0350			Final Weight/Volume:	5 mL
Prep Date:	07/17/2014 1652			Injection Volume:	1 uL
Leach Date:	N/A			Column ID:	PRIMARY

Analyte	% Rec. MS	% Rec. MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
Aroclor 1016	97	98	54 - 132	5	26		
Aroclor 1260	92	542	62 - 129	144	26		N *

Surrogate	MS % Rec	MSD % Rec	Acceptance Limits
Decachlorobiphenyl	94	91	59 - 130
Tetrachloro-m-xylene	88	87	53 - 128

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-234802

Method: 8082
Preparation: 3550C

MS Lab Sample ID:	280-57789-5	Units:	ug/Kg	MSD Lab Sample ID:	280-57789-5
Client Matrix:	Solid			Client Matrix:	Solid
Dilution:	1.0			Dilution:	1.0
Analysis Date:	07/20/2014 0326			Analysis Date:	07/20/2014 0350
Prep Date:	07/17/2014 1652			Prep Date:	07/17/2014 1652
Leach Date:	N/A			Leach Date:	N/A

Analyte	Sample Result/Qual		MS Spike Amount	MSD Spike Amount	MS Result/Qual	MSD Result/Qual	
Aroclor 1016	2.6	U	31.7	33.1	30.9	32.6	
Aroclor 1260	2.5	U	31.7	33.1	29.1	179	N *

Date: 4 August 2014
To: Washington Closure Hanford Inc. (technical representative)
From: ELR Consulting
Project: 100-D/DR Burial Grounds & Remaining Sites – Soil Full Protocol - Waste Site 100-D-84:2
Subject: Semivolatile Organic - Data Package No. JP0832TAL

INTRODUCTION

This memo presents the results of data validation on Data Package No. JP0832 prepared by TestAmerica Laboratories (TAL). A list of samples validated along with the analyses reported and the method of analysis is provided in the following table.

Sample ID	Sample Date	Media	Validation	Analyte
J1TW21	7/14/14	Soil	C	See note 1
J1TW22	7/14/14	Soil	C	See note 1
J1TW23	7/14/14	Soil	C	See note 1
J1TW24	7/14/14	Soil	C	See note 1
J1TW25	7/14/14	Soil	C	See note 1
J1TW26	7/14/14	Soil	C	See note 1
J1TW27	7/14/14	Soil	C	See note 1
J1TW28	7/14/14	Soil	C	See note 1
J1TW29	7/14/14	Soil	C	See note 1
J1TW30	7/15/14	Soil	C	See note 1
J1TW31	7/15/14	Soil	C	See note 1
J1TW32	7/15/14	Soil	C	See note 1
J1TW33	7/14/14	Soil	C	See note 1

1 – Semivolatile organics by 8270C.

Data validation was conducted in accordance with the Washington Closure Hanford (WCH) validation statement of work and the 100 Area Remedial Action Sampling and Analysis Plan (DOE/RL-96-22, September 2009). 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 Data Requested by Client

DATA QUALITY OBJECTIVES

Holding Times

Analytical holding times were assessed to ascertain whether the holding time requirements were met by the laboratory. The holding time requirements are as follows: Analytes must be extracted within 14 days of the date of sample collection and analyzed within 40 days from the date of extraction.

If holding times are exceeded, but not by greater than two times the limit, all associated sample results are qualified as estimates and flagged "J" for detects and "UJ" for non-detects. If holding times are exceeded by greater than two times the limit, all associated detectable sample results are qualified as estimates and flagged "J" and all non-detects are rejected and flagged "UR".

All holding times were acceptable.

Method Blanks

Method blank analyses are conducted to determine the extent of laboratory contamination introduced through sampling, sample preparation and analysis. At least one acceptable method blank analysis must be conducted for every 20 samples. No contaminants should be present in the method blank. Analytical results for analytes present in any sample at less than five times the concentration of that analyte found in the associated blank are qualified as non-detects and flagged "U". Common laboratory contaminants present in samples at less than ten times the concentration of that analyte found in the associated blank are qualified as non-detects. If a sample result is less than the CRQL and is less than five times (or less than ten times for lab contaminants) the highest associated blank result, the sample result value is raised to the CRQL level and qualified as undetected "U".

All method blank results were acceptable.

Field (equipment) Blanks

No field blanks were submitted for analysis.

Accuracy

Matrix Spike/Matrix Spike Duplicate & Blank Spike Recoveries

Matrix spike/matrix spike duplicate analyses are used to assess the analytical accuracy of the reported data and the effect of the matrix on the ability to accurately quantify sample concentrations. Matrix spike/matrix spike duplicate analyses are performed in

duplicate using five compounds for which percent recoveries must be within a range of 50-150% or within laboratory control limits. If spike recoveries are outside control limits, detected sample results less than five times the spike concentration are qualified as estimates and flagged "J". Undetected sample results with spike recoveries below control limits are qualified as estimates and flagged "UJ". Undetected sample results are not qualified if the spike recovery is above control limits. Sample results greater than five times the spike concentration require no qualification.

Due to an LCS recovery outside QC limits, all 3,3-dichlorobenzidine (47%) results were qualified as estimates and flagged "J".

Due to MS and MSD recoveries outside QC limits, all 2,4-dinitrophenol (31% & 28%) results were qualified as estimates and flagged "J".

All other accuracy results were acceptable.

Surrogate Recovery

The analyses of surrogate compounds provide a measure of performance for individual samples. Matrix-specific surrogate compound recovery control windows have been established by the EPA CLP program. If two surrogates of the same class of compounds (base/neutral or acid) are out of control limits, all associated sample results greater than the contract required quantitation limit (CRQL) are qualified as estimates and flagged "J". Sample results less than the CRQL and below the lower control limit are qualified as estimates and flagged "UJ". Sample results less than the CRQL with recoveries above the upper control limit require no qualification. If a surrogate recovery is less than 10%, detects are qualified as estimates and flagged "J" and nondetects are rejected and flagged "UR".

All surrogate results were acceptable.

Precision

Matrix Spike/Matrix Spike Duplicate Samples

Matrix spike (MS)/matrix spike duplicate (MSD) results provide matrix-specific information on the precision of the method for specific target compound classes. Precision is expressed by the relative percent difference (RPD) between the recoveries of duplicate matrix spike analyses performed on a sample. Samples results must be within RPD limits of +/-30%. If RPD values are out of specification and the sample concentration is less than five times the spike concentration, all associated detected sample results are qualified as estimates and flagged "J". If RPD values are out of specification and the sample concentration is greater than five times the spike concentration, no qualification is required.

All duplicate results were acceptable.

Field Duplicate Samples

One set field duplicates (J1RW22/J1RW33) were submitted for analysis. Laboratory duplicates are compared using the same criteria as for laboratory results. All field duplicate results are acceptable.

Analytical Detection Levels

Reported analytical detection levels are compared against the required quantitation limits (RQL's) to ensure that laboratory detection levels meet the required criteria. All analytes met the RQL.

Completeness

Data package No. JP0832 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

The following minor deficiencies were noted:

- Due to an LCS recovery outside QC limits, all 3,3-dichlorobenzidine (47%) results were qualified as estimates and flagged "J".
- Due to MS and MSD recoveries outside QC limits, all 2,4-dinitrophenol (31% & 28%) results were qualified as estimates and flagged "J".

Data flagged "J" indicates that the associated concentration is an estimate, but under the WCH statement of work, the data may be usable for decision-making purposes. All other validated results are considered accurate within the standard error associated with the methods.

REFERENCES

Washington Closure Hanford Contract #S00W307A00 (March 2008), *Data Validation Services*, March 2008.

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

Appendix 1

Glossary of Data Reporting Qualifiers

Qualifiers which may be applied by data validators in compliance with the WCH validation SOW are as follows:

U - Indicates the compound or analyte was analyzed for and not detected in the sample. The value reported is the same quantitation limit corrected for sample dilution and moisture content by the laboratory.

UJ - Indicates the compound or analyte was analyzed for and not detected in the sample. Due to a minor QC deficiency identified during the data validation, the associated quantitation limit is an estimate.

J - Indicates the compound or analyte was analyzed for and detected. Due to a minor QC deficiency identified during the data validation, the associated quantitation limit is an estimate.

R - Indicates the compound or analyte was analyzed for, detected, and due to an identified major QC deficiency, the data are unusable.

UR - Indicates the compound or analyte was analyzed for and not detected in the sample. Additionally, the data is unusable due to an identified major QC deficiency.

NJ - Indicates presumptive evidence of a compound at an estimated value. The data may not be valid for some specific applications (i.e., usable for decision-making purposes).

N - Indicates presumptive evidence of a compound. The data may not be valid for some specific applications usable for decision-making purposes).

Appendix 2

Summary of Data Qualification

SEMIVOLATILE ORGANIC DATA QUALIFICATION SUMMARY*

SDG: JP0832	**REVIEWER: ELR**	**Project: 100-D-84:2**	**PAGE_1_OF_1**
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
3,3-Dichlorobenzidine	J	All	LCS recovery
2,4-dinitrophenol	J	All	MS & MSD recovery

* - The Qualified Data Summary Table includes laboratory applied "U" qualifiers not specifically identified here. The laboratory applied "U" qualifiers are included to minimize misinterpretation of results contained in the table.

Appendix 3

Annotated Laboratory Reports

Client: Washington Closure Hanford

Job Number: 280-57789-1
Sdg Number: JP0832

Client Sample ID: J1TW21

Lab Sample ID: 280-57789-1
Client Matrix: Solid

% Moisture: 0.7

Date Sampled: 07/14/2014 0832
Date Received: 07/16/2014 0900

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	280-235196	Instrument ID:	SMS_G6
Prep Method:	3550C	Prep Batch:	280-234791	Lab File ID:	G6_14046.D
Dilution:	1.0			Initial Weight/Volume:	31.5 g
Analysis Date:	07/21/2014 1530			Final Weight/Volume:	1 mL
Prep Date:	07/17/2014 1844			Injection Volume:	0.5 uL

✓ 8/3/14

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Acenaphthene		9.9	U	9.9	320
Acenaphthylene		16	U	16	320
Anthracene		16	U	16	320
Benzo[a]anthracene		26	J	19	320
Benzo[a]pyrene		19	U	19	320
Benzo[b]fluoranthene		33	J K	25	320
Benzo[ghi]perylene		15	U	15	320
Benzo[k]fluoranthene		38	U K	38	320
Bis(2-chloroethoxy)methane		22	U	22	320
Bis(2-chloroethyl)ether		16	U	16	320
bis (2-chloroisopropyl) ether		22	U	22	320
Bis(2-ethylhexyl) phthalate		44	U	44	320
4-Bromophenyl phenyl ether		18	U	18	320
Butyl benzyl phthalate		41	U	41	320
Carbazole		35	U	35	320
4-Chloroaniline		79	U	79	320
4-Chloro-3-methylphenol		63	U	63	320
2-Chloronaphthalene		9.6	U	9.6	320
2-Chlorophenol		20	U	20	320
4-Chlorophenyl phenyl ether		20	U	20	320
Chrysene		30	J	26	320
Dibenz(a,h)anthracene		18	U	18	320
Dibenzofuran		19	U	19	320
1,2-Dichlorobenzene		21	U	21	320
1,3-Dichlorobenzene		12	U	12	320
1,4-Dichlorobenzene		13	U	13	320
3,3'-Dichlorobenzidine		86	U J	86	630
2,4-Dichlorophenol		9.6	U	9.6	320
Diethyl phthalate		25	U	25	320
2,4-Dimethylphenol		63	U	63	320
Dimethyl phthalate		22	U	22	320
Di-n-butyl phthalate		28	U	28	320
4,6-Dinitro-2-methylphenol		320	U	320	630
2,4-Dinitrophenol		320	U J	320	790
2,4-Dinitrotoluene		63	U	63	320
2,6-Dinitrotoluene		27	U	27	320
Di-n-octyl phthalate		14	U	14	320
Fluoranthene		37	J	35	320
Fluorene		17	U	17	320
Hexachlorobenzene		28	U	28	320
Hexachlorobutadiene		9.6	U	9.6	320
Hexachlorocyclopentadiene		48	U	48	320
Hexachloroethane		20	U	20	320
Indeno[1,2,3-cd]pyrene		21	U	21	320
Isophorone		16	U	16	320
2-Methylnaphthalene		18	U	18	320

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-57789-1
Sdg Number: JP0832

Client Sample ID: J1TW21

Lab Sample ID: 280-57789-1
Client Matrix: Solid
% Moisture: 0.7

Date Sampled: 07/14/2014 0832
Date Received: 07/16/2014 0900

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	280-235196	Instrument ID:	SMS_G6
Prep Method:	3550C	Prep Batch:	280-234791	Lab File ID:	G6_14046.D
Dilution:	1.0			Initial Weight/Volume:	31.5 g
Analysis Date:	07/21/2014 1530			Final Weight/Volume:	1 mL
Prep Date:	07/17/2014 1844			Injection Volume:	0.5 uL

8/3/14

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
2-Methylphenol		12	U	12	320
3 & 4 Methylphenol		32	U	32	320
Naphthalene		30	U	30	320
2-Nitroaniline		48	U	48	320
3-Nitroaniline		70	U	70	320
4-Nitroaniline		70	U	70	320
Nitrobenzene		21	U	21	320
2-Nitrophenol		9.6	U	9.6	320
4-Nitrophenol		93	U	93	630
N-Nitrosodi-n-propylamine		30	U	30	320
N-Nitrosodiphenylamine		20	U	20	320
Pentachlorophenol		320	U	320	630
Phenanthrene		16	U	16	320
Phenol		17	U	17	320
Pyrene		40	J	12	320
1,2,4-Trichlorobenzene		27	U	27	320
2,4,5-Trichlorophenol		9.6	U	9.6	320
2,4,6-Trichlorophenol		9.6	U	9.6	320

Surrogate	%Rec	Qualifier	Acceptance Limits
2-Fluorobiphenyl	78		50 - 120
2-Fluorophenol	74		53 - 120
Nitrobenzene-d5	72		50 - 120
Phenol-d5	73		52 - 120
Terphenyl-d14	88		55 - 120
2,4,6-Tribromophenol	69		51 - 120

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-57789-1
Sdg Number: JP0832

Client Sample ID: J1TW21

Lab Sample ID: 280-57789-1
Client Matrix: Solid

% Moisture: 0.7

Date Sampled: 07/14/2014 0832
Date Received: 07/16/2014 0900

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	280-235196	Instrument ID:	SMS_G6
Prep Method:	3550C	Prep Batch:	280-234791	Lab File ID:	G6_14046.D
Dilution:	1.0			Initial Weight/Volume:	31.5 g
Analysis Date:	07/21/2014 1530			Final Weight/Volume:	1 mL
Prep Date:	07/17/2014 1844			Injection Volume:	0.5 uL

8/3/14

Tentatively Identified Compounds **Number TIC's Found:** 2

Cas Number	Analyte	RT	Est. Result (ug/Kg)	Qualifier
141-79-7	3-Penten-2-one, 4-methyl-	2.69	150	N J
123-42-2	2-Pentanone, 4-hydroxy-4-methyl-	3.09	6000	N J

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-57789-1
Sdg Number: JP0832

Client Sample ID: J1TW22

Lab Sample ID: 280-57789-2
Client Matrix: Solid

% Moisture: 1.0

Date Sampled: 07/14/2014 0840
Date Received: 07/16/2014 0900

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	280-235196	Instrument ID:	SMS_G6
Prep Method:	3550C	Prep Batch:	280-234791	Lab File ID:	G6_14047.D
Dilution:	1.0			Initial Weight/Volume:	31.7 g
Analysis Date:	07/21/2014 1557			Final Weight/Volume:	1 mL
Prep Date:	07/17/2014 1844			Injection Volume:	0.5 uL

pr 8/3/14

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Acenaphthene		9.8	U	9.8	320
Acenaphthylene		16	U	16	320
Anthracene		16	U	16	320
Benzo[a]anthracene		20	J	19	320
Benzo[a]pyrene		19	U	19	320
Benzo[b]fluoranthene		25	J K	25	320
Benzo[ghi]perylene		15	U	15	320
Benzo[k]fluoranthene		38	U K	38	320
Bis(2-chloroethoxy)methane		22	U	22	320
Bis(2-chloroethyl)ether		16	U	16	320
bis (2-chloroisopropyl) ether		22	U	22	320
Bis(2-ethylhexyl) phthalate		44	U	44	320
4-Bromophenyl phenyl ether		18	U	18	320
Butyl benzyl phthalate		41	U	41	320
Carbazole		34	U	34	320
4-Chloroaniline		78	U	78	320
4-Chloro-3-methylphenol		63	U	63	320
2-Chloronaphthalene		9.6	U	9.6	320
2-Chlorophenol		20	U	20	320
4-Chlorophenyl phenyl ether		20	U	20	320
Chrysene		26	U	26	320
Dibenz(a,h)anthracene		18	U	18	320
Dibenzofuran		19	U	19	320
1,2-Dichlorobenzene		21	U	21	320
1,3-Dichlorobenzene		11	U	11	320
1,4-Dichlorobenzene		13	U	13	320
3,3'-Dichlorobenzidine		86	U J	86	630
2,4-Dichlorophenol		9.6	U	9.6	320
Diethyl phthalate		25	U	25	320
2,4-Dimethylphenol		63	U	63	320
Dimethyl phthalate		22	U	22	320
Di-n-butyl phthalate		28	U	28	320
4,6-Dinitro-2-methylphenol		320	U	320	630
2,4-Dinitrophenol		320	U T J	320	790
2,4-Dinitrotoluene		63	U	63	320
2,6-Dinitrotoluene		27	U	27	320
Di-n-octyl phthalate		14	U	14	320
Fluoranthene		34	U	34	320
Fluorene		17	U	17	320
Hexachlorobenzene		28	U	28	320
Hexachlorobutadiene		9.6	U	9.6	320
Hexachlorocyclopentadiene		48	U	48	320
Hexachloroethane		20	U	20	320
Indeno[1,2,3-cd]pyrene		21	U	21	320
Isophorone		16	U	16	320
2-Methylnaphthalene		18	U	18	320

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-57789-1
Sdg Number: JP0832

Client Sample ID: J1TW22

Lab Sample ID: 280-57789-2
Client Matrix: Solid
% Moisture: 1.0

Date Sampled: 07/14/2014 0840
Date Received: 07/16/2014 0900

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	280-235196	Instrument ID:	SMS_G6
Prep Method:	3550C	Prep Batch:	280-234791	Lab File ID:	G6_14047.D
Dilution:	1.0			Initial Weight/Volume:	31.7 g
Analysis Date:	07/21/2014 1557			Final Weight/Volume:	1 mL
Prep Date:	07/17/2014 1844			Injection Volume:	0.5 uL

8/3/14

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
2-Methylphenol		12	U	12	320
3 & 4 Methylphenol		32	U	32	320
Naphthalene		30	U	30	320
2-Nitroaniline		48	U	48	320
3-Nitroaniline		70	U	70	320
4-Nitroaniline		69	U	69	320
Nitrobenzene		21	U	21	320
2-Nitrophenol		9.6	U	9.6	320
4-Nitrophenol		93	U	93	630
N-Nitrosodi-n-propylamine		30	U	30	320
N-Nitrosodiphenylamine		20	U	20	320
Pentachlorophenol		320	U	320	630
Phenanthrene		16	U	16	320
Phenol		17	U	17	320
Pyrene		32	J	12	320
1,2,4-Trichlorobenzene		27	U	27	320
2,4,5-Trichlorophenol		9.6	U	9.6	320
2,4,6-Trichlorophenol		9.6	U	9.6	320

Surrogate	%Rec	Qualifier	Acceptance Limits
2-Fluorobiphenyl	76		50 - 120
2-Fluorophenol	70		53 - 120
Nitrobenzene-d5	68		50 - 120
Phenol-d5	70		52 - 120
Terphenyl-d14	86		55 - 120
2,4,6-Tribromophenol	69		51 - 120

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-57789-1
Sdg Number: JP0832

Client Sample ID: J1TW22

Lab Sample ID: 280-57789-2
Client Matrix: Solid

% Moisture: 1.0

Date Sampled: 07/14/2014 0840
Date Received: 07/16/2014 0900

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	280-235196	Instrument ID:	SMS_G6
Prep Method:	3550C	Prep Batch:	280-234791	Lab File ID:	G6_14047.D
Dilution:	1.0			Initial Weight/Volume:	31.7 g
Analysis Date:	07/21/2014 1557			Final Weight/Volume:	1 mL
Prep Date:	07/17/2014 1844			Injection Volume:	0.5 uL

8/3/14

Tentatively Identified Compounds **Number TIC's Found:** 6

Cas Number	Analyte	RT	Est. Result (ug/Kg)	Qualifier
994-05-8	Butane, 2-methoxy-2-methyl-	1.66	180	N J
123-42-2	2-Pentanone, 4-hydroxy-4-methyl-	3.09	5000	N J
100-51-6	Benzyl alcohol	4.72	22	J N
76-22-2	Camphor	5.57	310	N J
71616-00-7	Achillin	10.87	460	N J
5956-04-7	Azuleno[4,5-b]furan-2,7-dione, 3,3a,4,5,	11.17	220	N J

Client: Washington Closure Hanford

Job Number: 280-57789-1
Sdg Number: JP0832

Client Sample ID: **J1TW23**

Lab Sample ID: 280-57789-3
Client Matrix: Solid
% Moisture: 0.8

Date Sampled: 07/14/2014 1032
Date Received: 07/16/2014 0900

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	280-235196	Instrument ID:	SMS_G6
Prep Method:	3550C	Prep Batch:	280-234791	Lab File ID:	G6_14050.D
Dilution:	1.0			Initial Weight/Volume:	30.4 g
Analysis Date:	*07/21/2014 1718*			*Final Weight/Volume:*	*1 mL*
Prep Date:	07/17/2014 1844			Injection Volume:	0.5 uL

8/3/14

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Acenaphthene		10	U	10	330
Acenaphthylene		17	U	17	330
Anthracene		17	U	17	330
Benzo[a]anthracene		20	U	20	330
Benzo[a]pyrene		20	U	20	330
Benzo[b]fluoranthene		26	U	26	330
Benzo[ghi]perylene		16	U	16	330
Benzo[k]fluoranthene		40	U	40	330
Bis(2-chloroethoxy)methane		23	U	23	330
Bis(2-chloroethyl)ether		17	U	17	330
bis (2-chloroisopropyl) ether		23	U	23	330
Bis(2-ethylhexyl) phthalate		46	U	46	330
4-Bromophenyl phenyl ether		19	U	19	330
Butyl benzyl phthalate		43	U	43	330
Carbazole		36	U	36	330
4-Chloroaniline		81	U	81	330
4-Chloro-3-methylphenol		66	U	66	330
2-Chloronaphthalene		10	U	10	330
2-Chlorophenol		21	U	21	330
4-Chlorophenyl phenyl ether		21	U	21	330
Chrysene		27	U	27	330
Dibenz(a,h)anthracene		19	U	19	330
Dibenzofuran		20	U	20	330
1,2-Dichlorobenzene		22	U	22	330
1,3-Dichlorobenzene		12	U	12	330
1,4-Dichlorobenzene		14	U	14	330
3,3'-Dichlorobenzidine		90	U J	90	660
2,4-Dichlorophenol		10	U	10	330
Diethyl phthalate		26	U	26	330
2,4-Dimethylphenol		66	U	66	330
Dimethyl phthalate		23	U	23	330
Di-n-butyl phthalate		29	U	29	330
4,6-Dinitro-2-methylphenol		330	U	330	660
2,4-Dinitrophenol		330	U J	330	820
2,4-Dinitrotoluene		66	U	66	330
2,6-Dinitrotoluene		28	U	28	330
Di-n-octyl phthalate		14	U	14	330
Fluoranthene		36	U	36	330
Fluorene		18	U	18	330
Hexachlorobenzene		29	U	29	330
Hexachlorobutadiene		10	U	10	330
Hexachlorocyclopentadiene		50	U	50	330
Hexachloroethane		21	U	21	330
Indeno[1,2,3-cd]pyrene		22	U	22	330
Isophorone		17	U	17	330
2-Methylnaphthalene		19	U	19	330

Client: Washington Closure Hanford

Job Number: 280-57789-1
Sdg Number: JP0832

Client Sample ID: J1TW23

Lab Sample ID: 280-57789-3
Client Matrix: Solid
% Moisture: 0.8

Date Sampled: 07/14/2014 1032
Date Received: 07/16/2014 0900

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	280-235196	Instrument ID:	SMS_G6
Prep Method:	3550C	Prep Batch:	280-234791	Lab File ID:	G6_14050.D
Dilution:	1.0			Initial Weight/Volume:	30.4 g
Analysis Date:	07/21/2014 1718			Final Weight/Volume:	1 mL
Prep Date:	07/17/2014 1844			Injection Volume:	0.5 uL

8/3/14

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
2-Methylphenol		13	U	13	330
3 & 4 Methylphenol		33	U	33	330
Naphthalene		31	U	31	330
2-Nitroaniline		50	U	50	330
3-Nitroaniline		73	U	73	330
4-Nitroaniline		72	U	72	330
Nitrobenzene		22	U	22	330
2-Nitrophenol		10	U	10	330
4-Nitrophenol		97	U	97	660
N-Nitrosodi-n-propylamine		31	U	31	330
N-Nitrosodiphenylamine		21	U	21	330
Pentachlorophenol		330	U	330	660
Phenanthrene		17	U	17	330
Phenol		18	U	18	330
Pyrene		12	U	12	330
1,2,4-Trichlorobenzene		28	U	28	330
2,4,5-Trichlorophenol		10	U	10	330
2,4,6-Trichlorophenol		10	U	10	330

Surrogate	%Rec	Qualifier	Acceptance Limits
2-Fluorobiphenyl	78		50 - 120
2-Fluorophenol	74		53 - 120
Nitrobenzene-d5	72		50 - 120
Phenol-d5	75		52 - 120
Terphenyl-d14	88		55 - 120
2,4,6-Tribromophenol	71		51 - 120

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-57789-1
Sdg Number: JP0832

Client Sample ID: J1TW23

Lab Sample ID: 280-57789-3
Client Matrix: Solid
% Moisture: 0.8

Date Sampled: 07/14/2014 1032
Date Received: 07/16/2014 0900

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	280-235196	Instrument ID:	SMS_G6
Prep Method:	3550C	Prep Batch:	280-234791	Lab File ID:	G6_14050.D
Dilution:	1.0			Initial Weight/Volume:	30.4 g
Analysis Date:	07/21/2014 1718			Final Weight/Volume:	1 mL
Prep Date:	07/17/2014 1844			Injection Volume:	0.5 uL

7/31/14

Tentatively Identified Compounds **Number TIC's Found:** 3

Cas Number	Analyte	RT	Est. Result (ug/Kg)	Qualifier
994-05-8	Butane, 2-methoxy-2-methyl-	1.66	130	N J
763-93-9	3-Hexen-2-one	2.70	150	N J
123-42-2	2-Pentanone, 4-hydroxy-4-methyl-	3.09	5800	N J

Client: Washington Closure Hanford

Job Number: 280-57789-1
Sdg Number: JP0832

Client Sample ID: J1TW24

Lab Sample ID: 280-57789-4
Client Matrix: Solid
% Moisture: 0.8

Date Sampled: 07/14/2014 0928
Date Received: 07/16/2014 0900

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	280-235196	Instrument ID:	SMS_G6
Prep Method:	3550C	Prep Batch:	280-234791	Lab File ID:	G6_14051.D
Dilution:	1.0			Initial Weight/Volume:	31.2 g
Analysis Date:	07/21/2014 1745			Final Weight/Volume:	1 mL
Prep Date:	07/17/2014 1844			Injection Volume:	0.5 uL

JP 8/3/14

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Acenaphthene		10	U	10	320
Acenaphthylene		16	U	16	320
Anthracene		16	U	16	320
Benzo[a]anthracene		19	U	19	320
Benzo[a]pyrene		19	U	19	320
Benzo[b]fluoranthene		25	U	25	320
Benzo[ghi]perylene		16	U	16	320
Benzo[k]fluoranthene		39	U	39	320
Bis(2-chloroethoxy)methane		22	U	22	320
Bis(2-chloroethyl)ether		16	U	16	320
bis (2-chloroisopropyl) ether		22	U	22	320
Bis(2-ethylhexyl) phthalate		45	U	45	320
4-Bromophenyl phenyl ether		18	U	18	320
Butyl benzyl phthalate		42	U	42	320
Carbazole		35	U	35	320
4-Chloroaniline		79	U	79	320
4-Chloro-3-methylphenol		64	U	64	320
2-Chloronaphthalene		9.7	U	9.7	320
2-Chlorophenol		20	U	20	320
4-Chlorophenyl phenyl ether		20	U	20	320
Chrysene		26	U	26	320
Dibenz(a,h)anthracene		18	U	18	320
Dibenzofuran		19	U	19	320
1,2-Dichlorobenzene		21	U	21	320
1,3-Dichlorobenzene		12	U	12	320
1,4-Dichlorobenzene		13	U	13	320
3,3'-Dichlorobenzidine		87	U J	87	640
2,4-Dichlorophenol		9.7	U	9.7	320
Diethyl phthalate		25	U	25	320
2,4-Dimethylphenol		64	U	64	320
Dimethyl phthalate		22	U	22	320
Di-n-butyl phthalate		28	U	28	320
4,6-Dinitro-2-methylphenol		320	U	320	640
2,4-Dinitrophenol		320	U J	320	800
2,4-Dinitrotoluene		64	U	64	320
2,6-Dinitrotoluene		27	U	27	320
Di-n-octyl phthalate		14	U	14	320
Fluoranthene		35	U	35	320
Fluorene		17	U	17	320
Hexachlorobenzene		28	U	28	320
Hexachlorobutadiene		9.7	U	9.7	320
Hexachlorocyclopentadiene		48	U	48	320
Hexachloroethane		21	U	21	320
Indeno[1,2,3-cd]pyrene		21	U	21	320
Isophorone		16	U	16	320
2-Methylnaphthalene		18	U	18	320

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-57789-1
Sdg Number: JP0832

Client Sample ID: J1TW24

Lab Sample ID: 280-57789-4
Client Matrix: Solid

% Moisture: 0.8

Date Sampled: 07/14/2014 0928
Date Received: 07/16/2014 0900

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	280-235196	Instrument ID:	SMS_G6
Prep Method:	3550C	Prep Batch:	280-234791	Lab File ID:	G6_14051.D
Dilution:	1.0			Initial Weight/Volume:	31.2 g
Analysis Date:	07/21/2014 1745			Final Weight/Volume:	1 mL
Prep Date:	07/17/2014 1844			Injection Volume:	0.5 uL

8/3/14

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
2-Methylphenol		13	U	13	320
3 & 4 Methylphenol		32	U	32	320
Naphthalene		30	U	30	320
2-Nitroaniline		48	U	48	320
3-Nitroaniline		71	U	71	320
4-Nitroaniline		70	U	70	320
Nitrobenzene		21	U	21	320
2-Nitrophenol		9.7	U	9.7	320
4-Nitrophenol		94	U	94	640
N-Nitrosodi-n-propylamine		30	U	30	320
N-Nitrosodiphenylamine		20	U	20	320
Pentachlorophenol		320	U	320	640
Phenanthrene		16	U	16	320
Phenol		17	U	17	320
Pyrene		12	U	12	320
1,2,4-Trichlorobenzene		27	U	27	320
2,4,5-Trichlorophenol		9.7	U	9.7	320
2,4,6-Trichlorophenol		9.7	U	9.7	320

Surrogate	%Rec	Qualifier	Acceptance Limits
2-Fluorobiphenyl	77		50 - 120
2-Fluorophenol	72		53 - 120
Nitrobenzene-d5	71		50 - 120
Phenol-d5	73		52 - 120
Terphenyl-d14	88		55 - 120
2,4,6-Tribromophenol	70		51 - 120

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-57789-1
Sdg Number: JP0832

Client Sample ID: J1TW24

Lab Sample ID: 280-57789-4
Client Matrix: Solid
% Moisture: 0.8

Date Sampled: 07/14/2014 0928
Date Received: 07/16/2014 0900

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	280-235196	Instrument ID:	SMS_G6
Prep Method:	3550C	Prep Batch:	280-234791	Lab File ID:	G6_14051.D
Dilution:	1.0			Initial Weight/Volume:	31.2 g
Analysis Date:	07/21/2014 1745			Final Weight/Volume:	1 mL
Prep Date:	07/17/2014 1844			Injection Volume:	0.5 uL

8/3/14

Tentatively Identified Compounds **Number TIC's Found:** 4

Cas Number	Analyte	RT	Est. Result (ug/Kg)	Qualifier
994-05-8	Butane, 2-methoxy-2-methyl-	1.66	150	N J
141-79-7	3-Penten-2-one, 4-methyl-	2.69	140	N J
123-42-2	2-Pentanone, 4-hydroxy-4-methyl-	3.09	5500	N J
629-54-9	Hexadecanamide	15.54	200	N J

Client: Washington Closure Hanford

Job Number: 280-57789-1
Sdg Number: JP0832

Client Sample ID: J1TW25

Lab Sample ID: 280-57789-5
Client Matrix: Solid

% Moisture: 0.6

Date Sampled: 07/14/2014 0935
Date Received: 07/16/2014 0900

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	280-235196	Instrument ID:	SMS_G6
Prep Method:	3550C	Prep Batch:	280-234791	Lab File ID:	G6_14052.D
Dilution:	1.0			Initial Weight/Volume:	32.4 g
Analysis Date:	07/21/2014 1812			Final Weight/Volume:	1 mL
Prep Date:	07/17/2014 1844			Injection Volume:	0.5 uL

8/3/14

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Acenaphthene		9.6	U	9.6	310
Acenaphthylene		16	U	16	310
Anthracene		16	U	16	310
Benzo[a]anthracene		19	U	19	310
Benzo[a]pyrene		19	U	19	310
Benzo[b]fluoranthene		24	U	24	310
Benzo[ghi]perylene		15	U	15	310
Benzo[k]fluoranthene		37	U	37	310
Bis(2-chloroethoxy)methane		21	U	21	310
Bis(2-chloroethyl)ether		15	U	15	310
bis (2-chloroisopropyl) ether		21	U	21	310
Bis(2-ethylhexyl) phthalate		43	U	43	310
4-Bromophenyl phenyl ether		18	U	18	310
Butyl benzyl phthalate		40	U	40	310
Carbazole		34	U	34	310
4-Chloroaniline		76	U	76	310
4-Chloro-3-methylphenol		62	U	62	310
2-Chloronaphthalene		9.3	U	9.3	310
2-Chlorophenol		20	U	20	310
4-Chlorophenyl phenyl ether		20	U	20	310
Chrysene		25	U	25	310
Dibenz(a,h)anthracene		18	U	18	310
Dibenzofuran		19	U	19	310
1,2-Dichlorobenzene		21	U	21	310
1,3-Dichlorobenzene		11	U	11	310
1,4-Dichlorobenzene		13	U	13	310
3,3'-Dichlorobenzidine		84	U J	84	620
2,4-Dichlorophenol		9.3	U	9.3	310
Diethyl phthalate		24	U	24	310
2,4-Dimethylphenol		62	U	62	310
Dimethyl phthalate		21	U	21	310
Di-n-butyl phthalate		27	U	27	310
4,6-Dinitro-2-methylphenol		310	U	310	620
2,4-Dinitrophenol		310	U J	310	770
2,4-Dinitrotoluene		62	U	62	310
2,6-Dinitrotoluene		26	U	26	310
Di-n-octyl phthalate		13	U	13	310
Fluoranthene		34	U	34	310
Fluorene		17	U	17	310
Hexachlorobenzene		27	U	27	310
Hexachlorobutadiene		9.3	U	9.3	310
Hexachlorocyclopentadiene		47	U	47	310
Hexachloroethane		20	U	20	310
Indeno[1,2,3-cd]pyrene		21	U	21	310
Isophorone		16	U	16	310
2-Methylnaphthalene		18	U	18	310

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-57789-1
Sdg Number: JP0832

Client Sample ID: **J1TW25**

Lab Sample ID: 280-57789-5
Client Matrix: Solid
% Moisture: 0.6

Date Sampled: 07/14/2014 0935
Date Received: 07/16/2014 0900

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	280-235196	Instrument ID:	SMS_G6
Prep Method:	3550C	Prep Batch:	280-234791	Lab File ID:	G6_14052.D
Dilution:	1.0			Initial Weight/Volume:	32.4 g
Analysis Date:	07/21/2014 1812			Final Weight/Volume:	1 mL
Prep Date:	07/17/2014 1844			Injection Volume:	0.5 uL

2/3/14

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
2-Methylphenol		12	U	12	310
3 & 4 Methylphenol		31	U	31	310
Naphthalene		29	U	29	310
2-Nitroaniline		47	U	47	310
3-Nitroaniline		68	U	68	310
4-Nitroaniline		68	U	68	310
Nitrobenzene		21	U	21	310
2-Nitrophenol		9.3	U	9.3	310
4-Nitrophenol		90	U	90	620
N-Nitrosodi-n-propylamine		29	U	29	310
N-Nitrosodiphenylamine		20	U	20	310
Pentachlorophenol		310	U	310	620
Phenanthrene		16	U	16	310
Phenol		17	U	17	310
Pyrene		11	U	11	310
1,2,4-Trichlorobenzene		26	U	26	310
2,4,5-Trichlorophenol		9.3	U	9.3	310
2,4,6-Trichlorophenol		9.3	U	9.3	310

Surrogate	%Rec	Qualifier	Acceptance Limits
2-Fluorobiphenyl	76		50 - 120
2-Fluorophenol	73		53 - 120
Nitrobenzene-d5	73		50 - 120
Phenol-d5	75		52 - 120
Terphenyl-d14	88		55 - 120
2,4,6-Tribromophenol	69		51 - 120

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-57789-1
Sdg Number: JP0832

Client Sample ID: **J1TW25**

Lab Sample ID: 280-57789-5
Client Matrix: Solid
% Moisture: 0.6

Date Sampled: 07/14/2014 0935
Date Received: 07/16/2014 0900

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	280-235196	Instrument ID:	SMS_G6
Prep Method:	3550C	Prep Batch:	280-234791	Lab File ID:	G6_14052.D
Dilution:	1.0			Initial Weight/Volume:	32.4 g
Analysis Date:	07/21/2014 1812			Final Weight/Volume:	1 mL
Prep Date:	07/17/2014 1844			Injection Volume:	0.5 uL

8/3/14

Tentatively Identified Compounds **Number TIC's Found:** 5

Cas Number	Analyte	RT	Est. Result (ug/Kg)	Qualifier
994-05-8	Butane, 2-methoxy-2-methyl-	1.66	150	N J
123-42-2	2-Pentanone, 4-hydroxy-4-methyl-	3.09	4700	N J
301-02-0	9-Octadecenamide, (Z)-	15.55	310	N J
630-06-8	Hexatriacontane	16.61	130	N J
638-67-5	Tricosane	18.74	140	N J

Client: Washington Closure Hanford

Job Number: 280-57789-1
Sdg Number: JP0832

Client Sample ID: J1TW26

Lab Sample ID: 280-57789-6
Client Matrix: Solid

% Moisture: 1.1

Date Sampled: 07/14/2014 1038
Date Received: 07/16/2014 0900

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	280-235196	Instrument ID:	SMS_G6
Prep Method:	3550C	Prep Batch:	280-234791	Lab File ID:	G6_14053.D
Dilution:	1.0			Initial Weight/Volume:	30.6 g
Analysis Date:	07/21/2014 1839			Final Weight/Volume:	1 mL
Prep Date:	07/17/2014 1844			Injection Volume:	0.5 uL

8/3/14

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Acenaphthene		10	U	10	330
Acenaphthylene		17	U	17	330
Anthracene		17	U	17	330
Benzo[a]anthracene		20	U	20	330
Benzo[a]pyrene		20	U	20	330
Benzo[b]fluoranthene		26	U	26	330
Benzo[ghi]perylene		16	U	16	330
Benzo[k]fluoranthene		40	U	40	330
Bis(2-chloroethoxy)methane		23	U	23	330
Bis(2-chloroethyl)ether		16	U	16	330
bis (2-chloroisopropyl) ether		23	U	23	330
Bis(2-ethylhexyl) phthalate		46	U	46	330
4-Bromophenyl phenyl ether		19	U	19	330
Butyl benzyl phthalate		43	U	43	330
Carbazole		36	U	36	330
4-Chloroaniline		81	U	81	330
4-Chloro-3-methylphenol		65	U	65	330
2-Chloronaphthalene		9.9	U	9.9	330
2-Chlorophenol		21	U	21	330
4-Chlorophenyl phenyl ether		21	U	21	330
Chrysene		27	U	27	330
Dibenz(a,h)anthracene		19	U	19	330
Dibenzofuran		20	U	20	330
1,2-Dichlorobenzene		22	U	22	330
1,3-Dichlorobenzene		12	U	12	330
1,4-Dichlorobenzene		13	U	13	330
3,3'-Dichlorobenzidine		89	U J	89	650
2,4-Dichlorophenol		9.9	U	9.9	330
Diethyl phthalate		26	U	26	330
2,4-Dimethylphenol		65	U	65	330
Dimethyl phthalate		23	U	23	330
Di-n-butyl phthalate		29	U	29	330
4,6-Dinitro-2-methylphenol		330	U	330	650
2,4-Dinitrophenol		330	U J	330	820
2,4-Dinitrotoluene		65	U	65	330
2,6-Dinitrotoluene		28	U	28	330
Di-n-octyl phthalate		14	U	14	330
Fluoranthene		36	U	36	330
Fluorene		18	U	18	330
Hexachlorobenzene		29	U	29	330
Hexachlorobutadiene		9.9	U	9.9	330
Hexachlorocyclopentadiene		50	U	50	330
Hexachloroethane		21	U	21	330
Indeno[1,2,3-cd]pyrene		22	U	22	330
Isophorone		17	U	17	330
2-Methylnaphthalene		19	U	19	330

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-57789-1
Sdg Number: JP0832

Client Sample ID: **J1TW26**

Lab Sample ID: 280-57789-6
Client Matrix: Solid

% Moisture: 1.1

Date Sampled: 07/14/2014 1038
Date Received: 07/16/2014 0900

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	280-235196	Instrument ID:	SMS_G6
Prep Method:	3550C	Prep Batch:	280-234791	Lab File ID:	G6_14053.D
Dilution:	1.0			Initial Weight/Volume:	30.6 g
Analysis Date:	07/21/2014 1839			Final Weight/Volume:	1 mL
Prep Date:	07/17/2014 1844			Injection Volume:	0.5 uL

8/3/14

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
2-Methylphenol		13	U	13	330
3 & 4 Methylphenol		33	U	33	330
Naphthalene		31	U	31	330
2-Nitroaniline		50	U	50	330
3-Nitroaniline		72	U	72	330
4-Nitroaniline		72	U	72	330
Nitrobenzene		22	U	22	330
2-Nitrophenol		9.9	U	9.9	330
4-Nitrophenol		96	U	96	650
N-Nitrosodi-n-propylamine		31	U	31	330
N-Nitrosodiphenylamine		21	U	21	330
Pentachlorophenol		330	U	330	650
Phenanthrene		17	U	17	330
Phenol		18	U	18	330
Pyrene		12	U	12	330
1,2,4-Trichlorobenzene		28	U	28	330
2,4,5-Trichlorophenol		9.9	U	9.9	330
2,4,6-Trichlorophenol		9.9	U	9.9	330

Surrogate	%Rec	Qualifier	Acceptance Limits
2-Fluorobiphenyl	70		50 - 120
2-Fluorophenol	67		53 - 120
Nitrobenzene-d5	65		50 - 120
Phenol-d5	68		52 - 120
Terphenyl-d14	80		55 - 120
2,4,6-Tribromophenol	63		51 - 120

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-57789-1
Sdg Number: JP0832

Client Sample ID: **J1TW26**

Lab Sample ID: 280-57789-6
Client Matrix: Solid

% Moisture: 1.1

Date Sampled: 07/14/2014 1038
Date Received: 07/16/2014 0900

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	280-235196	Instrument ID:	SMS_G6
Prep Method:	3550C	Prep Batch:	280-234791	Lab File ID:	G6_14053.D
Dilution:	1.0			Initial Weight/Volume:	30.6 g
Analysis Date:	07/21/2014 1839			Final Weight/Volume:	1 mL
Prep Date:	07/17/2014 1844			Injection Volume:	0.5 uL

8/3/14

Tentatively Identified Compounds **Number TIC's Found:** 1

Cas Number	Analyte	RT	Est. Result (ug/Kg)	Qualifier
123-42-2	2-Pentanone, 4-hydroxy-4-methyl-	3.09	5200	N J

Client: Washington Closure Hanford

Job Number: 280-57789-1
Sdg Number: JP0832

Client Sample ID: J1TW27

Lab Sample ID: 280-57789-7
Client Matrix: Solid
% Moisture: 0.7

Date Sampled: 07/14/2014 0942
Date Received: 07/16/2014 0900

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	280-235196	Instrument ID:	SMS_G6
Prep Method:	3550C	Prep Batch:	280-234791	Lab File ID:	G6_14054.D
Dilution:	1.0			Initial Weight/Volume:	30.1 g
Analysis Date:	07/21/2014 1906			Final Weight/Volume:	1 mL
Prep Date:	07/17/2014 1844			Injection Volume:	0.5 uL

8/3/14

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Acenaphthene		10	U	10	330
Acenaphthylene		17	U	17	330
Anthracene		17	U	17	330
Benzo[a]anthracene		20	U	20	330
Benzo[a]pyrene		20	U	20	330
Benzo[b]fluoranthene		26	U	26	330
Benzo[ghi]perylene		16	U	16	330
Benzo[k]fluoranthene		40	U	40	330
Bis(2-chloroethoxy)methane		23	U	23	330
Bis(2-chloroethyl)ether		17	U	17	330
bis (2-chloroisopropyl) ether		23	U	23	330
Bis(2-ethylhexyl) phthalate		46	U	46	330
4-Bromophenyl phenyl ether		19	U	19	330
Butyl benzyl phthalate		43	U	43	330
Carbazole		36	U	36	330
4-Chloroaniline		82	U	82	330
4-Chloro-3-methylphenol		66	U	66	330
2-Chloronaphthalene		10	U	10	330
2-Chlorophenol		21	U	21	330
4-Chlorophenyl phenyl ether		21	U	21	330
Chrysene		27	U	27	330
Dibenz(a,h)anthracene		19	U	19	330
Dibenzofuran		20	U	20	330
1,2-Dichlorobenzene		22	U	22	330
1,3-Dichlorobenzene		12	U	12	330
1,4-Dichlorobenzene		14	U	14	330
3,3'-Dichlorobenzidine		90	U J	90	660
2,4-Dichlorophenol		10	U	10	330
Diethyl phthalate		26	U	26	330
2,4-Dimethylphenol		66	U	66	330
Dimethyl phthalate		23	U	23	330
Di-n-butyl phthalate		29	U	29	330
4,6-Dinitro-2-methylphenol		330	U	330	660
2,4-Dinitrophenol		330	U J	330	830
2,4-Dinitrotoluene		66	U	66	330
2,6-Dinitrotoluene		28	U	28	330
Di-n-octyl phthalate		14	U	14	330
Fluoranthene		36	U	36	330
Fluorene		18	U	18	330
Hexachlorobenzene		29	U	29	330
Hexachlorobutadiene		10	U	10	330
Hexachlorocyclopentadiene		50	U	50	330
Hexachloroethane		21	U	21	330
Indeno[1,2,3-cd]pyrene		22	U	22	330
Isophorone		17	U	17	330
2-Methylnaphthalene		19	U	19	330

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-57789-1
Sdg Number: JP0832

Client Sample ID: J1TW27

Lab Sample ID: 280-57789-7
Client Matrix: Solid

% Moisture: 0.7

Date Sampled: 07/14/2014 0942
Date Received: 07/16/2014 0900

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	280-235196	Instrument ID:	SMS_G6
Prep Method:	3550C	Prep Batch:	280-234791	Lab File ID:	G6_14054.D
Dilution:	1.0			Initial Weight/Volume:	30.1 g
Analysis Date:	07/21/2014 1906			Final Weight/Volume:	1 mL
Prep Date:	07/17/2014 1844			Injection Volume:	0.5 uL

8/3/14

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
2-Methylphenol		13	U	13	330
3 & 4 Methylphenol		33	U	33	330
Naphthalene		31	U	31	330
2-Nitroaniline		50	U	50	330
3-Nitroaniline		73	U	73	330
4-Nitroaniline		73	U	73	330
Nitrobenzene		22	U	22	330
2-Nitrophenol		10	U	10	330
4-Nitrophenol		97	U	97	660
N-Nitrosodi-n-propylamine		31	U	31	330
N-Nitrosodiphenylamine		21	U	21	330
Pentachlorophenol		330	U	330	660
Phenanthrene		17	U	17	330
Phenol		18	U	18	330
Pyrene		20	J	12	330
1,2,4-Trichlorobenzene		28	U	28	330
2,4,5-Trichlorophenol		10	U	10	330
2,4,6-Trichlorophenol		10	U	10	330

Surrogate	%Rec	Qualifier	Acceptance Limits
2-Fluorobiphenyl	73		50 - 120
2-Fluorophenol	69		53 - 120
Nitrobenzene-d5	67		50 - 120
Phenol-d5	69		52 - 120
Terphenyl-d14	80		55 - 120
2,4,6-Tribromophenol	63		51 - 120

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-57789-1
Sdg Number: JP0832

Client Sample ID: J1TW27

Lab Sample ID: 280-57789-7
Client Matrix: Solid
% Moisture: 0.7

Date Sampled: 07/14/2014 0942
Date Received: 07/16/2014 0900

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	280-235196	Instrument ID:	SMS_G6
Prep Method:	3550C	Prep Batch:	280-234791	Lab File ID:	G6_14054.D
Dilution:	1.0			Initial Weight/Volume:	30.1 g
Analysis Date:	07/21/2014 1906			Final Weight/Volume:	1 mL
Prep Date:	07/17/2014 1844			Injection Volume:	0.5 uL

Tentatively Identified Compounds **Number TIC's Found:** 3

Cas Number	Analyte	RT	Est. Result (ug/Kg)	Qualifier
994-05-8	Butane, 2-methoxy-2-methyl-	1.66	150	N J
141-79-7	3-Penten-2-one, 4-methyl-	2.69	140	N J
123-42-2	2-Pentanone, 4-hydroxy-4-methyl-	3.09	5900	N J

Client: Washington Closure Hanford

Job Number: 280-57789-1
Sdg Number: JP0832

Client Sample ID: J1TW28

Lab Sample ID: 280-57789-8
Client Matrix: Solid
% Moisture: 0.6

Date Sampled: 07/14/2014 0947
Date Received: 07/16/2014 0900

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	280-235196	Instrument ID:	SMS_G6
Prep Method:	3550C	Prep Batch:	280-234791	Lab File ID:	G6_14055.D
Dilution:	1.0			Initial Weight/Volume:	30.9 g
Analysis Date:	07/21/2014 1933			Final Weight/Volume:	1 mL
Prep Date:	07/17/2014 1844			Injection Volume:	0.5 uL

8/3/14

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Acenaphthene		10	U	10	320
Acenaphthylene		17	U	17	320
Anthracene		17	U	17	320
Benzo[a]anthracene		20	U	20	320
Benzo[a]pyrene		20	U	20	320
Benzo[b]fluoranthene		26	U	26	320
Benzo[ghi]perylene		16	U	16	320
Benzo[k]fluoranthene		39	U	39	320
Bis(2-chloroethoxy)methane		22	U	22	320
Bis(2-chloroethyl)ether		16	U	16	320
bis (2-chloroisopropyl) ether		22	U	22	320
Bis(2-ethylhexyl) phthalate		45	U	45	320
4-Bromophenyl phenyl ether		19	U	19	320
Butyl benzyl phthalate		42	U	42	320
Carbazole		35	U	35	320
4-Chloroaniline		80	U	80	320
4-Chloro-3-methylphenol		64	U	64	320
2-Chloronaphthalene		9.8	U	9.8	320
2-Chlorophenol		21	U	21	320
4-Chlorophenyl phenyl ether		21	U	21	320
Chrysene		26	U	26	320
Dibenz(a,h)anthracene		19	U	19	320
Dibenzofuran		20	U	20	320
1,2-Dichlorobenzene		21	U	21	320
1,3-Dichlorobenzene		12	U	12	320
1,4-Dichlorobenzene		13	U	13	320
3,3'-Dichlorobenzidine		88	U J	88	640
2,4-Dichlorophenol		9.8	U	9.8	320
Diethyl phthalate		25	U	25	320
2,4-Dimethylphenol		64	U	64	320
Dimethyl phthalate		22	U	22	320
Di-n-butyl phthalate		28	U	28	320
4,6-Dinitro-2-methylphenol		320	U	320	640
2,4-Dinitrophenol		330	U J	330	810
2,4-Dinitrotoluene		64	U	64	320
2,6-Dinitrotoluene		27	U	27	320
Di-n-octyl phthalate		14	U	14	320
Fluoranthene		35	U	35	320
Fluorene		18	U	18	320
Hexachlorobenzene		28	U	28	320
Hexachlorobutadiene		9.8	U	9.8	320
Hexachlorocyclopentadiene		49	U	49	320
Hexachloroethane		21	U	21	320
Indeno[1,2,3-cd]pyrene		21	U	21	320
Isophorone		17	U	17	320
2-Methylnaphthalene		19	U	19	320

Client: Washington Closure Hanford

Job Number: 280-57789-1
Sdg Number: JP0832

Client Sample ID: J1TW28

Lab Sample ID: 280-57789-8
Client Matrix: Solid
% Moisture: 0.6

Date Sampled: 07/14/2014 0947
Date Received: 07/16/2014 0900

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	280-235196	Instrument ID:	SMS_G6
Prep Method:	3550C	Prep Batch:	280-234791	Lab File ID:	G6_14055.D
Dilution:	1.0			Initial Weight/Volume:	30.9 g
Analysis Date:	07/21/2014 1933			Final Weight/Volume:	1 mL
Prep Date:	07/17/2014 1844			Injection Volume:	0.5 uL

8/3/14

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
2-Methylphenol		13	U	13	320
3 & 4 Methylphenol		32	U	32	320
Naphthalene		30	U	30	320
2-Nitroaniline		49	U	49	320
3-Nitroaniline		71	U	71	320
4-Nitroaniline		71	U	71	320
Nitrobenzene		21	U	21	320
2-Nitrophenol		9.8	U	9.8	320
4-Nitrophenol		95	U	95	640
N-Nitrosodi-n-propylamine		30	U	30	320
N-Nitrosodiphenylamine		21	U	21	320
Pentachlorophenol		320	U	320	640
Phenanthrene		17	U	17	320
Phenol		18	U	18	320
Pyrene		21	J	12	320
1,2,4-Trichlorobenzene		27	U	27	320
2,4,5-Trichlorophenol		9.8	U	9.8	320
2,4,6-Trichlorophenol		9.8	U	9.8	320

Surrogate	%Rec	Qualifier	Acceptance Limits
2-Fluorobiphenyl	73		50 - 120
2-Fluorophenol	69		53 - 120
Nitrobenzene-d5	67		50 - 120
Phenol-d5	69		52 - 120
Terphenyl-d14	85		55 - 120
2,4,6-Tribromophenol	65		51 - 120

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-57789-1
Sdg Number: JP0832

Client Sample ID: J1TW28

Lab Sample ID: 280-57789-8
Client Matrix: Solid
% Moisture: 0.6

Date Sampled: 07/14/2014 0947
Date Received: 07/16/2014 0900

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	280-235196	Instrument ID:	SMS_G6
Prep Method:	3550C	Prep Batch:	280-234791	Lab File ID:	G6_14055.D
Dilution:	1.0			Initial Weight/Volume:	30.9 g
Analysis Date:	07/21/2014 1933			Final Weight/Volume:	1 mL
Prep Date:	07/17/2014 1844			Injection Volume:	0.5 uL

V 8/5/14

Tentatively Identified Compounds **Number TIC's Found:** 3

Cas Number	Analyte	RT	Est. Result (ug/Kg)	Qualifier
994-05-8	Butane, 2-methoxy-2-methyl-	1.66	160	N J
141-79-7	3-Penten-2-one, 4-methyl-	2.70	130	N J
123-42-2	2-Pentanone, 4-hydroxy-4-methyl-	3.09	5400	N J

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-57789-1
Sdg Number: JP0832

Client Sample ID: J1TW29

Lab Sample ID: 280-57789-9
Client Matrix: Solid

% Moisture: 0.7

Date Sampled: 07/14/2014 0952
Date Received: 07/16/2014 0900

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	280-235196	Instrument ID:	SMS_G6
Prep Method:	3550C	Prep Batch:	280-234791	Lab File ID:	G6_14056.D
Dilution:	1.0			Initial Weight/Volume:	31.1 g
Analysis Date:	07/21/2014 2000			Final Weight/Volume:	1 mL
Prep Date:	07/17/2014 1844			Injection Volume:	0.5 uL

K 8/21/14

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Acenaphthene		10	U	10	320
Acenaphthylene		17	U	17	320
Anthracene		17	U	17	320
Benzo[a]anthracene		20	J	19	320
Benzo[a]pyrene		19	U	19	320
Benzo[b]fluoranthene		25	U	25	320
Benzo[ghi]perylene		16	U	16	320
Benzo[k]fluoranthene		39	U	39	320
Bis(2-chloroethoxy)methane		22	U	22	320
Bis(2-chloroethyl)ether		16	U	16	320
bis (2-chloroisopropyl) ether		22	U	22	320
Bis(2-ethylhexyl) phthalate		45	U	45	320
4-Bromophenyl phenyl ether		18	U	18	320
Butyl benzyl phthalate		42	U	42	320
Carbazole		35	U	35	320
4-Chloroaniline		80	U	80	320
4-Chloro-3-methylphenol		64	U	64	320
2-Chloronaphthalene		9.7	U	9.7	320
2-Chlorophenol		20	U	20	320
4-Chlorophenyl phenyl ether		20	U	20	320
Chrysene		26	U	26	320
Dibenz(a,h)anthracene		18	U	18	320
Dibenzofuran		19	U	19	320
1,2-Dichlorobenzene		21	U	21	320
1,3-Dichlorobenzene		12	U	12	320
1,4-Dichlorobenzene		13	U	13	320
3,3'-Dichlorobenzidine		87	U J	87	640
2,4-Dichlorophenol		9.7	U	9.7	320
Diethyl phthalate		25	U	25	320
2,4-Dimethylphenol		64	U	64	320
Dimethyl phthalate		22	U	22	320
Di-n-butyl phthalate		28	U	28	320
4,6-Dinitro-2-methylphenol		320	U	320	640
2,4-Dinitrophenol		320	U J	320	800
2,4-Dinitrotoluene		64	U	64	320
2,6-Dinitrotoluene		27	U	27	320
Di-n-octyl phthalate		14	U	14	320
Fluoranthene		35	J	35	320
Fluorene		17	U	17	320
Hexachlorobenzene		28	U	28	320
Hexachlorobutadiene		9.7	U	9.7	320
Hexachlorocyclopentadiene		49	U	49	320
Hexachloroethane		21	U	21	320
Indeno[1,2,3-cd]pyrene		21	U	21	320
Isophorone		17	U	17	320
2-Methylnaphthalene		18	U	18	320

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-57789-1
Sdg Number: JP0832

Client Sample ID: J1TW29

Lab Sample ID: 280-57789-9
Client Matrix: Solid
% Moisture: 0.7

Date Sampled: 07/14/2014 0952
Date Received: 07/16/2014 0900

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	280-235196	Instrument ID:	SMS_G6
Prep Method:	3550C	Prep Batch:	280-234791	Lab File ID:	G6_14056.D
Dilution:	1.0			Initial Weight/Volume:	31.1 g
Analysis Date:	07/21/2014 2000			Final Weight/Volume:	1 mL
Prep Date:	07/17/2014 1844			Injection Volume:	0.5 uL

8/3/14

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
2-Methylphenol		13	U	13	320
3 & 4 Methylphenol		32	U	32	320
Naphthalene		30	U	30	320
2-Nitroaniline		49	U	49	320
3-Nitroaniline		71	U	71	320
4-Nitroaniline		70	U	70	320
Nitrobenzene		21	U	21	320
2-Nitrophenol		9.7	U	9.7	320
4-Nitrophenol		94	U	94	640
N-Nitrosodi-n-propylamine		30	U	30	320
N-Nitrosodiphenylamine		20	U	20	320
Pentachlorophenol		320	U	320	640
Phenanthrene		17	U	17	320
Phenol		17	U	17	320
Pyrene		34	J	12	320
1,2,4-Trichlorobenzene		27	U	27	320
2,4,5-Trichlorophenol		9.7	U	9.7	320
2,4,6-Trichlorophenol		9.7	U	9.7	320

Surrogate	%Rec	Qualifier	Acceptance Limits
2-Fluorobiphenyl	75		50 - 120
2-Fluorophenol	73		53 - 120
Nitrobenzene-d5	71		50 - 120
Phenol-d5	72		52 - 120
Terphenyl-d14	86		55 - 120
2,4,6-Tribromophenol	64		51 - 120

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-57789-1
Sdg Number: JP0832

Client Sample ID: J1TW29

Lab Sample ID: 280-57789-9
Client Matrix: Solid

% Moisture: 0.7

Date Sampled: 07/14/2014 0952
Date Received: 07/16/2014 0900

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	280-235196	Instrument ID:	SMS_G6
Prep Method:	3550C	Prep Batch:	280-234791	Lab File ID:	G6_14056.D
Dilution:	1.0			Initial Weight/Volume:	31.1 g
Analysis Date:	07/21/2014 2000			Final Weight/Volume:	1 mL
Prep Date:	07/17/2014 1844			Injection Volume:	0.5 uL

K 8/3/14

Tentatively Identified Compounds **Number TIC's Found:** 3

Cas Number	Analyte	RT	Est. Result (ug/Kg)	Qualifier
994-05-8	Butane, 2-methoxy-2-methyl-	1.66	140	N J
141-79-7	3-Penten-2-one, 4-methyl-	2.70	140	N J
123-42-2	2-Pentanone, 4-hydroxy-4-methyl-	3.09	5200	N J

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-57789-1
Sdg Number: JP0832

Client Sample ID: **J1TW30**

Lab Sample ID: 280-57789-10
Client Matrix: Solid

% Moisture: 0.7

Date Sampled: 07/15/2014 0747
Date Received: 07/16/2014 0900

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	280-235196	Instrument ID:	SMS_G6
Prep Method:	3550C	Prep Batch:	280-234791	Lab File ID:	G6_14057.D
Dilution:	1.0			Initial Weight/Volume:	31.9 g
Analysis Date:	07/21/2014 2028			Final Weight/Volume:	1 mL
Prep Date:	07/17/2014 1844			Injection Volume:	0.5 uL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Acenaphthene		9.7	U	9.7	310
Acenaphthylene		16	U	16	310
Anthracene		16	U	16	310
Benzo[a]anthracene		19	U	19	310
Benzo[a]pyrene		19	U	19	310
Benzo[b]fluoranthene		25	U	25	310
Benzo[ghi]perylene		15	U	15	310
Benzo[k]fluoranthene		38	U	38	310
Bis(2-chloroethoxy)methane		22	U	22	310
Bis(2-chloroethyl)ether		16	U	16	310
bis (2-chloroisopropyl) ether		22	U	22	310
Bis(2-ethylhexyl) phthalate		44	U	44	310
4-Bromophenyl phenyl ether		18	U	18	310
Butyl benzyl phthalate		41	U	41	310
Carbazole		34	U	34	310
4-Chloroaniline		78	U	78	310
4-Chloro-3-methylphenol		62	U	62	310
2-Chloronaphthalene		9.5	U	9.5	310
2-Chlorophenol		20	U	20	310
4-Chlorophenyl phenyl ether		20	U	20	310
Chrysene		26	U	26	310
Dibenz(a,h)anthracene		18	U	18	310
Dibenzofuran		19	U	19	310
1,2-Dichlorobenzene		21	U	21	310
1,3-Dichlorobenzene		11	U	11	310
1,4-Dichlorobenzene		13	U	13	310
3,3'-Dichlorobenzidine		85	U J	85	620
2,4-Dichlorophenol		9.5	U	9.5	310
Diethyl phthalate		25	U	25	310
2,4-Dimethylphenol		62	U	62	310
Dimethyl phthalate		22	U	22	310
Di-n-butyl phthalate		27	U	27	310
4,6-Dinitro-2-methylphenol		310	U	310	620
2,4-Dinitrophenol		320	U J	320	780
2,4-Dinitrotoluene		62	U	62	310
2,6-Dinitrotoluene		27	U	27	310
Di-n-octyl phthalate		14	U	14	310
Fluoranthene		34	U	34	310
Fluorene		17	U	17	310
Hexachlorobenzene		27	U	27	310
Hexachlorobutadiene		9.5	U	9.5	310
Hexachlorocyclopentadiene		47	U	47	310
Hexachloroethane		20	U	20	310
Indeno[1,2,3-cd]pyrene		21	U	21	310
Isophorone		16	U	16	310
2-Methylnaphthalene		18	U	18	310

Client: Washington Closure Hanford

Job Number: 280-57789-1
Sdg Number: JP0832

Client Sample ID: J1TW30

Lab Sample ID: 280-57789-10
Client Matrix: Solid
% Moisture: 0.7

Date Sampled: 07/15/2014 0747
Date Received: 07/16/2014 0900

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	280-235196	Instrument ID:	SMS_G6
Prep Method:	3550C	Prep Batch:	280-234791	Lab File ID:	G6_14057.D
Dilution:	1.0			Initial Weight/Volume:	31.9 g
Analysis Date:	07/21/2014 2028			Final Weight/Volume:	1 mL
Prep Date:	07/17/2014 1844			Injection Volume:	0.5 uL

K 8/3/14

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
2-Methylphenol		12	U	12	310
3 & 4 Methylphenol		31	U	31	310
Naphthalene		29	U	29	310
2-Nitroaniline		47	U	47	310
3-Nitroaniline		69	U	69	310
4-Nitroaniline		69	U	69	310
Nitrobenzene		21	U	21	310
2-Nitrophenol		9.5	U	9.5	310
4-Nitrophenol		92	U	92	620
N-Nitrosodi-n-propylamine		29	U	29	310
N-Nitrosodiphenylamine		20	U	20	310
Pentachlorophenol		310	U	310	620
Phenanthrene		16	U	16	310
Phenol		17	U	17	310
Pyrene		11	U	11	310
1,2,4-Trichlorobenzene		27	U	27	310
2,4,5-Trichlorophenol		9.5	U	9.5	310
2,4,6-Trichlorophenol		9.5	U	9.5	310

Surrogate	%Rec	Qualifier	Acceptance Limits
2-Fluorobiphenyl	69		50 - 120
2-Fluorophenol	65		53 - 120
Nitrobenzene-d5	63		50 - 120
Phenol-d5	66		52 - 120
Terphenyl-d14	86		55 - 120
2,4,6-Tribromophenol	66		51 - 120

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-57789-1
Sdg Number: JP0832

Client Sample ID: J1TW30

Lab Sample ID: 280-57789-10
Client Matrix: Solid
% Moisture: 0.7

Date Sampled: 07/15/2014 0747
Date Received: 07/16/2014 0900

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	280-235196	Instrument ID:	SMS_G6
Prep Method:	3550C	Prep Batch:	280-234791	Lab File ID:	G6_14057.D
Dilution:	1.0			Initial Weight/Volume:	31.9 g
Analysis Date:	07/21/2014 2028			Final Weight/Volume:	1 mL
Prep Date:	07/17/2014 1844			Injection Volume:	0.5 uL

8/3/14

Tentatively Identified Compounds **Number TIC's Found:** 2

Cas Number	Analyte	RT	Est. Result (ug/Kg)	Qualifier
994-05-8	Butane, 2-methoxy-2-methyl-	1.66	160	N J
123-42-2	2-Pentanone, 4-hydroxy-4-methyl-	3.09	4600	N J

Client: Washington Closure Hanford

Job Number: 280-57789-1
Sdg Number: JP0832

Client Sample ID: J1TW31

Lab Sample ID: 280-57789-11
Client Matrix: Solid
% Moisture: 0.4

Date Sampled: 07/15/2014 0740
Date Received: 07/16/2014 0900

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	280-235196	Instrument ID:	SMS_G6
Prep Method:	3550C	Prep Batch:	280-234791	Lab File ID:	G6_14058.D
Dilution:	1.0			Initial Weight/Volume:	31.6 g
Analysis Date:	07/21/2014 2054			Final Weight/Volume:	1 mL
Prep Date:	07/17/2014 1844			Injection Volume:	0.5 uL

8/3/14

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Acenaphthene		9.8	U	9.8	310
Acenaphthylene		16	U	16	310
Anthracene		16	U	16	310
Benzo[a]anthracene		27	J	19	310
Benzo[a]pyrene		19	U	19	310
Benzo[b]fluoranthene		31	J K	25	310
Benzo[ghi]perylene		15	U	15	310
Benzo[k]fluoranthene		38	U K	38	310
Bis(2-chloroethoxy)methane		22	U	22	310
Bis(2-chloroethyl)ether		16	U	16	310
bis (2-chloroisopropyl) ether		22	U	22	310
Bis(2-ethylhexyl) phthalate		44	U	44	310
4-Bromophenyl phenyl ether		18	U	18	310
Butyl benzyl phthalate		41	U	41	310
Carbazole		34	U	34	310
4-Chloroaniline		78	U	78	310
4-Chloro-3-methylphenol		63	U	63	310
2-Chloronaphthalene		9.5	U	9.5	310
2-Chlorophenol		20	U	20	310
4-Chlorophenyl phenyl ether		20	U	20	310
Chrysene		35	J	26	310
Dibenz(a,h)anthracene		18	U	18	310
Dibenzofuran		19	U	19	310
1,2-Dichlorobenzene		21	U	21	310
1,3-Dichlorobenzene		11	U	11	310
1,4-Dichlorobenzene		13	U	13	310
3,3'-Dichlorobenzidine		86	U J	86	630
2,4-Dichlorophenol		9.5	U	9.5	310
Diethyl phthalate		25	U	25	310
2,4-Dimethylphenol		63	U	63	310
Dimethyl phthalate		22	U	22	310
Di-n-butyl phthalate		28	U	28	310
4,6-Dinitro-2-methylphenol		310	U	310	630
2,4-Dinitrophenol		320	U J	320	790
2,4-Dinitrotoluene		63	U	63	310
2,6-Dinitrotoluene		27	U	27	310
Di-n-octyl phthalate		14	U	14	310
Fluoranthene		52	J	34	310
Fluorene		17	U	17	310
Hexachlorobenzene		28	U	28	310
Hexachlorobutadiene		9.5	U	9.5	310
Hexachlorocyclopentadiene		48	U	48	310
Hexachloroethane		20	U	20	310
Indeno[1,2,3-cd]pyrene		21	U	21	310
Isophorone		16	U	16	310
2-Methylnaphthalene		18	U	18	310

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-57789-1
Sdg Number: JP0832

Client Sample ID: J1TW31

Lab Sample ID: 280-57789-11
Client Matrix: Solid

% Moisture: 0.4

Date Sampled: 07/15/2014 0740
Date Received: 07/16/2014 0900

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	280-235196	Instrument ID:	SMS_G6
Prep Method:	3550C	Prep Batch:	280-234791	Lab File ID:	G6_14058.D
Dilution:	1.0			Initial Weight/Volume:	31.6 g
Analysis Date:	07/21/2014 2054			Final Weight/Volume:	1 mL
Prep Date:	07/17/2014 1844			Injection Volume:	0.5 uL

8/3/14

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
2-Methylphenol		12	U	12	310
3 & 4 Methylphenol		31	U	31	310
Naphthalene		30	U	30	310
2-Nitroaniline		48	U	48	310
3-Nitroaniline		70	U	70	310
4-Nitroaniline		69	U	69	310
Nitrobenzene		21	U	21	310
2-Nitrophenol		9.5	U	9.5	310
4-Nitrophenol		92	U	92	630
N-Nitrosodi-n-propylamine		30	U	30	310
N-Nitrosodiphenylamine		20	U	20	310
Pentachlorophenol		310	U	310	630
Phenanthrene		17	J	16	310
Phenol		17	U	17	310
Pyrene		52	J	12	310
1,2,4-Trichlorobenzene		27	U	27	310
2,4,5-Trichlorophenol		9.5	U	9.5	310
2,4,6-Trichlorophenol		9.5	U	9.5	310

Surrogate	%Rec	Qualifier	Acceptance Limits
2-Fluorobiphenyl	73		50 - 120
2-Fluorophenol	70		53 - 120
Nitrobenzene-d5	69		50 - 120
Phenol-d5	71		52 - 120
Terphenyl-d14	85		55 - 120
2,4,6-Tribromophenol	62		51 - 120

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-57789-1
Sdg Number: JP0832

Client Sample ID: **J1TW31**

Lab Sample ID: 280-57789-11
Client Matrix: Solid
% Moisture: 0.4

Date Sampled: 07/15/2014 0740
Date Received: 07/16/2014 0900

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	280-235196	Instrument ID:	SMS_G6
Prep Method:	3550C	Prep Batch:	280-234791	Lab File ID:	G6_14058.D
Dilution:	1.0			Initial Weight/Volume:	31.6 g
Analysis Date:	07/21/2014 2054			Final Weight/Volume:	1 mL
Prep Date:	07/17/2014 1844			Injection Volume:	0.5 uL

8/3/14

Tentatively Identified Compounds **Number TIC's Found:** 3

Cas Number	Analyte	RT	Est. Result (ug/Kg)	Qualifier
994-05-8	Butane, 2-methoxy-2-methyl-	1.66	130	N J
141-79-7	3-Penten-2-one, 4-methyl-	2.70	130	N J
123-42-2	2-Pentanone, 4-hydroxy-4-methyl-	3.09	5000	N J

Client: Washington Closure Hanford

Job Number: 280-57789-1
Sdg Number: JP0832

Client Sample ID: J1TW32

Lab Sample ID: 280-57789-12
Client Matrix: Solid
% Moisture: 0.6

Date Sampled: 07/15/2014 0753
Date Received: 07/16/2014 0900

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	280-235196	Instrument ID:	SMS_G6
Prep Method:	3550C	Prep Batch:	280-234791	Lab File ID:	G6_14059.D
Dilution:	1.0			Initial Weight/Volume:	31.3 g
Analysis Date:	07/21/2014 2121			Final Weight/Volume:	1 mL
Prep Date:	07/17/2014 1844			Injection Volume:	0.5 uL

8/3/14

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Acenaphthene		9.9	U	9.9	320
Acenaphthylene		16	U	16	320
Anthracene		16	U	16	320
Benzo[a]anthracene		19	U	19	320
Benzo[a]pyrene		19	U	19	320
Benzo[b]fluoranthene		25	U	25	320
Benzo[ghi]perylene		15	U	15	320
Benzo[k]fluoranthene		39	U	39	320
Bis(2-chloroethoxy)methane		22	U	22	320
Bis(2-chloroethyl)ether		16	U	16	320
bis (2-chloroisopropyl) ether		22	U	22	320
Bis(2-ethylhexyl) phthalate		44	U	44	320
4-Bromophenyl phenyl ether		18	U	18	320
Butyl benzyl phthalate		41	U	41	320
Carbazole		35	U	35	320
4-Chloroaniline		79	U	79	320
4-Chloro-3-methylphenol		64	U	64	320
2-Chloronaphthalene		9.6	U	9.6	320
2-Chlorophenol		20	U	20	320
4-Chlorophenyl phenyl ether		20	U	20	320
Chrysene		26	U	26	320
Dibenz(a,h)anthracene		18	U	18	320
Dibenzofuran		19	U	19	320
1,2-Dichlorobenzene		21	U	21	320
1,3-Dichlorobenzene		12	U	12	320
1,4-Dichlorobenzene		13	U	13	320
3,3'-Dichlorobenzidine		87	U J	87	640
2,4-Dichlorophenol		9.6	U	9.6	320
Diethyl phthalate		25	U	25	320
2,4-Dimethylphenol		64	U	64	320
Dimethyl phthalate		22	U	22	320
Di-n-butyl phthalate		28	U	28	320
4,6-Dinitro-2-methylphenol		320	U	320	640
2,4-Dinitrophenol		320	U J	320	800
2,4-Dinitrotoluene		64	U	64	320
2,6-Dinitrotoluene		27	U	27	320
Di-n-octyl phthalate		14	U	14	320
Fluoranthene		35	U	35	320
Fluorene		17	U	17	320
Hexachlorobenzene		28	U	28	320
Hexachlorobutadiene		9.6	U	9.6	320
Hexachlorocyclopentadiene		48	U	48	320
Hexachloroethane		21	U	21	320
Indeno[1,2,3-cd]pyrene		21	U	21	320
Isophorone		16	U	16	320
2-Methylnaphthalene		18	U	18	320

Client: Washington Closure Hanford

Job Number: 280-57789-1
Sdg Number: JP0832

Client Sample ID: J1TW32

Lab Sample ID: 280-57789-12
Client Matrix: Solid
% Moisture: 0.6

Date Sampled: 07/15/2014 0753
Date Received: 07/16/2014 0900

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	280-235196	Instrument ID:	SMS_G6
Prep Method:	3550C	Prep Batch:	280-234791	Lab File ID:	G6_14059.D
Dilution:	1.0			Initial Weight/Volume:	31.3 g
Analysis Date:	07/21/2014 2121			Final Weight/Volume:	1 mL
Prep Date:	07/17/2014 1844			Injection Volume:	0.5 uL

8/13/14

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
2-Methylphenol		13	U	13	320
3 & 4 Methylphenol		32	U	32	320
Naphthalene		30	U	30	320
2-Nitroaniline		48	U	48	320
3-Nitroaniline		70	U	70	320
4-Nitroaniline		70	U	70	320
Nitrobenzene		21	U	21	320
2-Nitrophenol		9.6	U	9.6	320
4-Nitrophenol		94	U	94	640
N-Nitrosodi-n-propylamine		30	U	30	320
N-Nitrosodiphenylamine		20	U	20	320
Pentachlorophenol		320	U	320	640
Phenanthrene		16	U	16	320
Phenol		17	U	17	320
Pyrene		12	U	12	320
1,2,4-Trichlorobenzene		27	U	27	320
2,4,5-Trichlorophenol		9.6	U	9.6	320
2,4,6-Trichlorophenol		9.6	U	9.6	320

Surrogate	%Rec	Qualifier	Acceptance Limits
2-Fluorobiphenyl	73		50 - 120
2-Fluorophenol	71		53 - 120
Nitrobenzene-d5	71		50 - 120
Phenol-d5	71		52 - 120
Terphenyl-d14	89		55 - 120
2,4,6-Tribromophenol	64		51 - 120

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-57789-1
Sdg Number: JP0832

Client Sample ID: J1TW32

Lab Sample ID: 280-57789-12
Client Matrix: Solid
% Moisture: 0.6

Date Sampled: 07/15/2014 0753
Date Received: 07/16/2014 0900

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	280-235196	Instrument ID:	SMS_G6
Prep Method:	3550C	Prep Batch:	280-234791	Lab File ID:	G6_14059.D
Dilution:	1.0			Initial Weight/Volume:	31.3 g
Analysis Date:	07/21/2014 2121			Final Weight/Volume:	1 mL
Prep Date:	07/17/2014 1844			Injection Volume:	0.5 uL

8/3/14

Tentatively Identified Compounds **Number TIC's Found:** 1

Cas Number	Analyte	RT	Est. Result (ug/Kg)	Qualifier
123-42-2	2-Pentanone, 4-hydroxy-4-methyl-	3.10	5700	N J

Client: Washington Closure Hanford

Job Number: 280-57789-1
Sdg Number: JP0832

Client Sample ID: J1TW33

Lab Sample ID: 280-57789-13
Client Matrix: Solid
% Moisture: 1.2

Date Sampled: 07/14/2014 0840
Date Received: 07/16/2014 0900

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	280-235196	Instrument ID:	SMS_G6
Prep Method:	3550C	Prep Batch:	280-234791	Lab File ID:	G6_14060.D
Dilution:	1.0			Initial Weight/Volume:	30.6 g
Analysis Date:	07/21/2014 2148			Final Weight/Volume:	1 mL
Prep Date:	07/17/2014 1844			Injection Volume:	0.5 uL

8/3/14

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Acenaphthene		10	U	10	330
Acenaphthylene		17	U	17	330
Anthracene		17	U	17	330
Benzo[a]anthracene		20	U	20	330
Benzo[a]pyrene		20	U	20	330
Benzo[b]fluoranthene		26	U	26	330
Benzo[ghi]perylene		16	U	16	330
Benzo[k]fluoranthene		40	U	40	330
Bis(2-chloroethoxy)methane		23	U	23	330
Bis(2-chloroethyl)ether		16	U	16	330
bis (2-chloroisopropyl) ether		23	U	23	330
Bis(2-ethylhexyl) phthalate		46	U	46	330
4-Bromophenyl phenyl ether		19	U	19	330
Butyl benzyl phthalate		43	U	43	330
Carbazole		36	U	36	330
4-Chloroaniline		81	U	81	330
4-Chloro-3-methylphenol		65	U	65	330
2-Chloronaphthalene		9.9	U	9.9	330
2-Chlorophenol		21	U	21	330
4-Chlorophenyl phenyl ether		21	U	21	330
Chrysene		27	U	27	330
Dibenz(a,h)anthracene		19	U	19	330
Dibenzofuran		20	U	20	330
1,2-Dichlorobenzene		22	U	22	330
1,3-Dichlorobenzene		12	U	12	330
1,4-Dichlorobenzene		13	U	13	330
3,3'-Dichlorobenzidine		89	U J	89	650
2,4-Dichlorophenol		9.9	U	9.9	330
Diethyl phthalate		26	U	26	330
2,4-Dimethylphenol		65	U	65	330
Dimethyl phthalate		23	U	23	330
Di-n-butyl phthalate		29	U	29	330
4,6-Dinitro-2-methylphenol		330	U	330	650
2,4-Dinitrophenol		330	U J	330	820
2,4-Dinitrotoluene		65	U	65	330
2,6-Dinitrotoluene		28	U	28	330
Di-n-octyl phthalate		14	U	14	330
Fluoranthene		36	U	36	330
Fluorene		18	U	18	330
Hexachlorobenzene		29	U	29	330
Hexachlorobutadiene		9.9	U	9.9	330
Hexachlorocyclopentadiene		50	U	50	330
Hexachloroethane		21	U	21	330
Indeno[1,2,3-cd]pyrene		22	U	22	330
Isophorone		17	U	17	330
2-Methylnaphthalene		19	U	19	330

Client: Washington Closure Hanford

Job Number: 280-57789-1
Sdg Number: JP0832

Client Sample ID: J1TW33

Lab Sample ID: 280-57789-13
Client Matrix: Solid
% Moisture: 1.2

Date Sampled: 07/14/2014 0840
Date Received: 07/16/2014 0900

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	280-235196	Instrument ID:	SMS_G6
Prep Method:	3550C	Prep Batch:	280-234791	Lab File ID:	G6_14060.D
Dilution:	1.0			Initial Weight/Volume:	30.6 g
Analysis Date:	07/21/2014 2148			Final Weight/Volume:	1 mL
Prep Date:	07/17/2014 1844			Injection Volume:	0.5 uL

8/3/14

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
2-Methylphenol		13	U	13	330
3 & 4 Methylphenol		33	U	33	330
Naphthalene		31	U	31	330
2-Nitroaniline		50	U	50	330
3-Nitroaniline		72	U	72	330
4-Nitroaniline		72	U	72	330
Nitrobenzene		22	U	22	330
2-Nitrophenol		9.9	U	9.9	330
4-Nitrophenol		96	U	96	650
N-Nitrosodi-n-propylamine		31	U	31	330
N-Nitrosodiphenylamine		21	U	21	330
Pentachlorophenol		330	U	330	650
Phenanthrene		17	U	17	330
Phenol		18	U	18	330
Pyrene		22	J	12	330
1,2,4-Trichlorobenzene		28	U	28	330
2,4,5-Trichlorophenol		9.9	U	9.9	330
2,4,6-Trichlorophenol		9.9	U	9.9	330

Surrogate	%Rec	Qualifier	Acceptance Limits
2-Fluorobiphenyl	72		50 - 120
2-Fluorophenol	71		53 - 120
Nitrobenzene-d5	68		50 - 120
Phenol-d5	71		52 - 120
Terphenyl-d14	82		55 - 120
2,4,6-Tribromophenol	64		51 - 120

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-57789-1
Sdg Number: JP0832

Client Sample ID: **J1TW33**

Lab Sample ID: 280-57789-13
Client Matrix: Solid

% Moisture: 1.2

Date Sampled: 07/14/2014 0840
Date Received: 07/16/2014 0900

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	280-235196	Instrument ID:	SMS_G6
Prep Method:	3550C	Prep Batch:	280-234791	Lab File ID:	G6_14060.D
Dilution:	1.0			Initial Weight/Volume:	30.6 g
Analysis Date:	07/21/2014 2148			Final Weight/Volume:	1 mL
Prep Date:	07/17/2014 1844			Injection Volume:	0.5 uL

8/3/14

Tentatively Identified Compounds **Number TIC's Found:** 3

Cas Number	Analyte	RT	Est. Result (ug/Kg)	Qualifier
994-05-8	Butane, 2-methoxy-2-methyl-	1.66	150	N J
141-79-7	3-Penten-2-one, 4-methyl-	2.70	130	N J
123-42-2	2-Pentanone, 4-hydroxy-4-methyl-	3.10	5200	N J

Appendix 4

Laboratory Narrative and Chain-of-Custody Documentation

CASE NARRATIVE

Client: Washington Closure Hanford

Project: WASHINGTON CLOSURE HANFORD

Report Number: 280-57789-1

SDG #: JP0832
SAF#: RC-075

Date SDG Closed: July 16, 2014
Data Deliverable: 7 Day / Summary

CLIENT ID	LAB ID	ANALYSES REQUESTED	ANALYSES PERFORMED
J1TW21	280-57789-1	6010/7471/8270A/8082/353.2	6010B/7471A/8270C/8082/353.2
J1TW22	280-57789-2	6010/7471/8270A/8082/353.2	6010B/7471A/8270C/8082/353.2
J1TW23	280-57789-3	6010/7471/8270A/8082/353.2	6010B/7471A/8270C/8082/353.2
J1TW24	280-57789-4	6010/7471/8270A/8082/353.2	6010B/7471A/8270C/8082/353.2
J1TW25	280-57789-5	6010/7471/8270A/8082/353.2	6010B/7471A/8270C/8082/353.2
J1TW26	280-57789-6	6010/7471/8270A/8082/353.2	6010B/7471A/8270C/8082/353.2
J1TW27	280-57789-7	6010/7471/8270A/8082/353.2	6010B/7471A/8270C/8082/353.2
J1TW28	280-57789-8	6010/7471/8270A/8082/353.2	6010B/7471A/8270C/8082/353.2
J1TW29	280-57789-9	6010/7471/8270A/8082/353.2	6010B/7471A/8270C/8082/353.2
J1TW30	280-57789-10	6010/7471/8270A/8082/353.2	6010B/7471A/8270C/8082/353.2
J1TW31	280-57789-11	6010/7471/8270A/8082/353.2	6010B/7471A/8270C/8082/353.2
J1TW32	280-57789-12	6010/7471/8270A/8082/353.2	6010B/7471A/8270C/8082/353.2
J1TW33	280-57789-13	6010/7471/8270A/8082/353.2	6010B/7471A/8270C/8082/353.2

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 7/16/2014 9:00 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 2.9° C and 3.1° C.

GC/MS SEMIVOLATILES - SW846 8270C
Compounds Benzo(b)fluoranthene and Benzo(k)fluoranthene were unresolved in samples J1TW21, J1TW22 and J1TW31 due to matrix interferences. It can be noted that these compounds were adequately resolved in associated standards, indicating the instrument is achieving separation. The combined peak was reported as Benzo(b)fluoranthene, while Benzo(k)fluoranthene was reported as undetected even though it may be present. Associated results have been flagged with a "K".

The MS/MSD performed on sample J1TW22 exhibited percent recoveries outside the control limits for 2,4-Dinitrophenol, and the associated sample result has been flagged "T". 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.

GC SEMIVOLATILES - SW846 8082 - PCBs
Sample J1TW29 exhibited the surrogate recoveries outside the control limits, biased high. This is an indicator that data may be biased high. As no detectable concentrations are present in the sample, corrective action is deemed unnecessary.

The MSD aliquot of the MS/MSD performed on sample J1TW25 exhibited the percent recovery outside the control limits (biased high), for Aroclor 1260, and the associated sample result has been flagged "N". In addition, the RPD limit was exceeded. The laboratory noted that this anomaly is most likely due to laboratory error; however, as the parent sample was determined to be non-detect, and the method blank, LCS and MS were in control, re-extraction/reanalysis were not initiated. The data are reported as is.

No other anomalies were encountered.

TOTAL METALS - SW846 6010B/7471A
Serial dilution of a digestate in batch 280-234743 indicates that physical and chemical interferences are present for several elements. Results have been flagged with an "X".

Low levels of Aluminum and Zinc are present in the method blank associated with batch 280-234743. Because the concentrations in the method blank are not present at levels greater than half the reporting limit or the associated sample amounts are twenty times greater than the method blank concentration, corrective action is deemed unnecessary.

Chromium and Iron are present at a level greater than the reporting limit in the method blank associated with batch 280-234743. As the associated sample amounts are twenty times greater than the method blank concentrations, corrective action is deemed unnecessary.

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 J1TW21; therefore, control limits are not applicable.

Silicon was recovered outside the control limits in the Matrix Spike performed on sample J1TW21, 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.

Antimony is present at a level greater than half the reporting limit in the instrument blank (CCB) associated with samples J1TW21, J1TW23 and J1TW24 in analysis batch 280-235165. As Antimony is not present at a level greater than the reporting limit in the associated samples, corrective action is deemed unnecessary.

No other anomalies were encountered.

GENERAL CHEMISTRY - MCAWW 353.2 - NITRATE NITRITE as N
No anomalies were encountered.

Washington Closure Hanford

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

RC-075-434

Collector: G. Cusher	Company Contact: Joan Kessner	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Price Code:	Data Turnaround: 7 days		
Project Designation: 100-D/DR Field Remediation	Sampling Location: 100-D-84:2 (exc)		SAF No.: RC-075
Ice Chest No.: WCH-11-014 & RCC-07-012	Field Logbook No.: EL-1662-02	COA: 01D8422000	Method of Shipment: Commercial Carrier / FED EX
Shipped To: TestAmerica Denver	Offsite Property No.: A131164		Bill of Lading/Air Bill No.: See OSPC
Other Labs Shipped To: TestAmerica Richland			

POSSIBLE SAMPLE HAZARDS/REMARKS

N/A

Special Handling and/or Storage

Cool 4C

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C
Type of Container	G/P	aG	aG	G/P
No. of Container(s)	1	1	1	1
Volume	250mL	250mL	250mL	250mL
Sample Analysis	See item (1) in Special Instructions	Semi-VOA - 8270A (TCL)	PCBs - 8082	NO2/NO3 - 353.2

Sample No.	Matrix	Sample Date	Sample Time				
J1TW21	SOIL	7/14/14	0832	✓	✓	✓	✓
J1TW22	SOIL	7/14/14	0840	✓	✓	✓	✓
J1TW23	SOIL	7/14/14	0828 1052	✓	✓	✓	✓
J1TW24	SOIL	7/14/14	0928	✓	✓	✓	✓
J1TW25	SOIL	7/14/14	0935	✓	✓	✓	✓

CHAIN OF POSSESSION

Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
[signature]	07/14/14 1048	R. Fehlberg R. Fehlberg	1048 7-14-14
R. Fehlberg R. Fehlberg	7-14-14 1500	SM Sexton [signature]	1500 7/14/14
SM Sexton [signature]	7/14/14 1505	1060 Battelle Fridge 3C	1505 7/14/14
1060 Battelle Fridge 3C	7/15/14 1008	SM Sexton [signature]	1008 7/15/14
SM Sexton [signature]	7/15/14 1010	FED EX	
		[signature]	7-16-14 900

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

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}; Mercury - 7471 - (CV) {Mercury}

REVIEWED BY K. Woodworth DATE 7/15/14

JP0832

WCH-EE-011

2.6, 2.4

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+.5 7-16-14

Washington Closure Hanford

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

RC-075-434

Collector: H. Weber	Company Contact: Joan Kessner	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Project Designation: 100-D/DR Field Remediation	Sampling Location: 100-D-84:2 (exc)		SAF No.: RC-075
Ice Chest No.: WCH-11-014 & RCC-07-012	Field Logbook No.: EL-1662-02	COA: 01D8422000	Method of Shipment: Commercial Carrier / FED Ex
Shipped To: TestAmerica Denver	Offsite Property No.: ~~N/A~~ SMS 7-14-14 A131164		Bill of Lading/Air Bill No.: ~~N/A~~ SMS 7-14-14 See OSPC

Price Code:

Data Turnaround: 7 days

Other Labs Shipped To: TestAmerica Richland

POSSIBLE SAMPLE HAZARDS/REMARKS

N/A

Special Handling and/or Storage

Cool 4C

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C
Type of Container	G/P	aG	aG	G/P
No. of Container(s)	1	1	1	1
Volume	250mL	250mL	250mL	250mL
Sample Analysis	See item (1) in Special Instructions	Semi-VOA - 8270A (TCL)	PCBs - 8082	NO2/NO3 - 353.2

Sample No.	Matrix	Sample Date	Sample Time				
J1TW26	SOIL	7/14/14	1038	✓	✓	✓	✓
J1TW27	SOIL	7/14/14	0942	✓	✓	✓	✓
J1TW28	SOIL	7/14/14	0947	✓	✓	✓	✓
J1TW29	SOIL	7/14/14	0952	✓	✓	✓	✓
~~J1TW30~~	~~SOIL~~	DWShea 7/14/14					

CHAIN OF POSSESSION

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Heather Weber [signature]	07/14/14 1045	R. Fehlberg R. Fehlberg	7-14-14 1048
R. Fehlberg R. Fehlberg	7-14-14 1500	SM Sextral [signature]	7/14/14 1500
SM Sextral [signature]	7/14/14 1505	1060 Battelle Fridge 3C	7/14/14 1505
1060 Battelle Fridge 3C	7/15/14 1008	SM Sextral [signature]	7/15/14 1008
SM Sextral [signature]	7/15/14 1010	FED Ex	
		[signature]	7/16/14 900

Sign/Print Names

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); Mercury - 7471 - (CV) (Mercury)

REVIEWED BY [signature] DATE 7/15/14

JP0832

WCH-EE-011

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Washington Closure Hanford

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

RC-075-434

Page ~~2 of 5~~ JMS 7-15-14

Collector: H. Weber	Company Contact: Joan Kessner	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Project Designation: 100-D/DR Field Remediation	Sampling Location: 100-D-84:2 (exc)		SAF No.: RC-075
Ice Chest No.: WCH-11-014 & RCC-07-012	Field Logbook No.: EL-1662-02	COA: 01D8422000	Method of Shipment: Commercial Carrier / FED Ex
Shipped To: TestAmerica Denver	Offsite Property No.: A131164		Bill of Lading/Air Bill No.: See OSPC

Price Code:

Data Turnaround: 7days

Other Labs Shipped To: TestAmerica Richland

POSSIBLE SAMPLE HAZARDS/REMARKS

N/A

Special Handling and/or Storage

Cool 4C

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C								
Type of Container	G/P	aG	aG	G/P								
No. of Container(s)	1	1	1	1								
Volume	250mL	250mL	250mL	250mL								
Sample Analysis	See item (1) in Special Instructions	Semi-VOA - 8270A (TCL)	PCBs - 8082	NO2/NO3 - 353.2								

Sample No.	Matrix	Sample Date	Sample Time										
~~J1TW26~~	~~SOIL~~	DWS 7/14/14											
~~J1TW27~~	~~SOIL~~												
~~J1TW28~~	~~SOIL~~												
~~J1TW29~~	~~SOIL~~												
J1TW30	SOIL	7/15/14	0747	✓	✓	✓	✓						

CHAIN OF POSSESSION		Sign/Print Names	
Relinquished By/Removed From: Heather Weber	Date/Time: 07/15/14 0845	Received By/Stored In: R. Fahlberg R. Fahlberg	Date/Time: 0805 7.15.14
Relinquished By/Removed From: R. Fahlberg R. Fahlberg	Date/Time: 1005 7.15.14	Received By/Stored In: SM Sexton	Date/Time: 1005 7/15/14
Relinquished By/Removed From: SM Sexton	Date/Time: WCH 1010 7/15/14	Received By/Stored In: FED Ex	Date/Time:
Relinquished By/Removed From:	Date/Time:	Received By/Stored In:	Date/Time: 7-16-14 900
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:

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}; Mercury - 7471 - (CV) {Mercury}

REVIEWED BY K. Woodvine email DATE 7/15/14

JP0832

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Washington Closure Hanford — CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

RC-075-434 | ~~Page 3 of 3~~ SMS 7-15-14

Collector: H. Weber	Company Contact: Joan Kessner	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Project Designation: 100-D/DR Field Remediation	Sampling Location: 100-D-84:2 (exc)		SAF No.: RC-075
Ice Chest No.: WCH-11-014 & RCC-07-012	Field Logbook No.: EL-1662-02	COA: 01D8422000	Method of Shipment: Commercial Carrier / FED Ex
Shipped To: TestAmerica Denver	Offsite Property No.: A131164		Bill of Lading/Air Bill No.: See OSPC

Price Code:

Data Turnaround: 7days

Other Labs Shipped To: TestAmerica Richland

POSSIBLE SAMPLE HAZARDS/REMARKS
N/A

Special Handling and/or Storage
Cool 4C

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C
Type of Container	G/P	aG	aG	G/P
No. of Container(s)	1	1	1	1
Volume	250mL	250mL	250mL	250mL
Sample Analysis	See Item (1) in Special Instructions	Semi-VOA - 8270A (TCL)	PCBs - 8082	NO2/NO3 - 353.2

Sample No.	Matrix	Sample Date	Sample Time				
J1TW31	SOIL	7/15/14	0740	✓	✓	✓	✓
J1TW32	SOIL	7/15/14	0753	✓	✓	✓	✓
~~J1TW33~~	~~SOIL~~	MOS 7/14/14					

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CHAIN OF POSSESSION

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Heather Weber [signature]	07/15/14 0805	R. Fahlberg R. Fahlberg	0805 7-15-14
R. Fahlberg R. Fahlberg	1005 7-15-14	SM Sexton [signature]	1005 7/15/14
SM Sexton [signature] WCH	1010 7/15/14	FED Ex	
		[signature]	7-16-14 900

Sign/Print Names

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}; Mercury - 7471 - (CV) (Mercury)

REVIEWED BY K. Woodvermeil DATE 7/15/14

JP 0832

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Washington Closure Hanford

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

RC-075-434

Collector: H. Weber	Company Contact: Joan Kessner	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Project Designation: 100-D/DR Field Remediation	Sampling Location: 100-D-84:2 (exc)		SAF No.: RC-075
Ice Chest No.: WCH-11-014 & RCC-07-012	Field Logbook No.: EL-1662-02	COA: 01D8422000	Method of Shipment: Commercial Carrier / FED Ex
Shipped To: TestAmerica Denver	Offsite Property No.: A131164		Bill of Lading/Air Bill No.: See OSPC

Price Code:

Data Turnaround: 7 days

Other Labs Shipped To: TestAmerica Richland

POSSIBLE SAMPLE HAZARDS/REMARKS

N/A

Special Handling and/or Storage

Cool 4C

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C									
Type of Container	G/P	aG	aG	G/P									
No. of Container(s)	1	1	1	1									
Volume	250mL	250mL	250mL	250mL									
Sample Analysis	See item (1) in Special Instructions	Semi-VOA - 8270A (TCL)	PCBs - 8082	NO2/NO3 - 353.2									

Sample No.	Matrix	Sample Date	Sample Time										
~~J1TW31~~	~~SOIL~~	BWS 7/14/14											
~~J1TW32~~	~~SOIL~~												
J1TW33	SOIL	7/14/14	0840	✓	✓	✓	✓						

CHAIN OF POSSESSION / **Sign/Print Names**

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Heather Weber / [signature]	07/14/14 1048	R. Fahlberg R. Fahlberg	1048 7-14-14
R. Fahlberg R. Fahlberg	1500 7-14-14	SM Sexton [signature]	1500 7/14/14
SM Sexton [signature]	1505 7/14/14	1060 Battelle Fridge 3C	1505 7/14/14
1060 Battelle Fridge 3C	1008 7/15/14	SM Sexton [signature]	1008 7/15/14
SM Sexton [signature]	1010 7/15/14	FED Ex	
		[signature]	7-16-14 900

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}; Mercury - 7471 - (CV) {Mercury}

REVIEWED BY [signature] DATE 7/15/14

JP0832

WCH-EE-011

Appendix 5

Data Validation Supporting Documentation

GC/MS ORGANIC DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	E
PROJECT: 100-D-84:2			DATA PACKAGE: JP0832		
VALIDATOR: ELR		LAB: TAL		DATE: 8/2/14	
			SDG: JP0832		
ANALYSES PERFORMED					
SW-846 8260		SW-846 8260 (TCLP)	SW-846 8270		SW-846 8270 (TCLP)
SAMPLES/MATRIX					
J1TW21	J1TW22	J1TW23	J1TW24		
J1TW25	J1TW26	J1TW27	J1TW28		
J1TW29	J1TW30	J1TW31	J1TW32		
J1TW33					
				Soil	

1. DATA PACKAGE COMPLETENESS AND CASE NARRATIVE

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

Comments:

2. INSTRUMENT TUNING AND CALIBRATION (Levels D and E)

GC/MS tuning/performance check acceptable? ..... Yes No N/A

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

Continuing calibrations 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:

GC/MS ORGANIC DATA VALIDATION CHECKLIST

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

Calibration blanks analyzed? (Levels D, E) ..... Yes No N/A
Calibration blank 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/trip blanks analyzed? (Levels C, D, E) ..... Yes No N/A
Field/trip blank results acceptable? (Levels C, D, E) ..... Yes No N/A
Transcription/calculation errors? (Levels D, E) ..... Yes No N/A

Comments: no FB

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

Surrogates/system monitoring compounds analyzed? ..... Yes No N/A
Surrogate/system monitoring compound recoveries acceptable? ..... Yes No N/A
Surrogates traceable? (Levels D, E) ..... Yes No N/A
Surrogates expired? (Levels D, E) ..... Yes No N/A
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? (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: LCS - 1 - Jall
MS + MSD - 1 - Jall
No FB

GC/MS ORGANIC DATA VALIDATION CHECKLIST

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

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

MS/MSD RPD values 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: _____

6. SYSTEM PERFORMANCE (Levels D and E)

Internal standards analyzed? ..... Yes No N/A

Iinternal standard areas acceptable? ..... Yes No N/A

Internal standard retention times 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: _____

GC/MS ORGANIC DATA VALIDATION CHECKLIST

8. COMPOUND IDENTIFICATION, QUANTITATION, AND DETECTION LIMITS (all levels)

Compound identification acceptable? (Levels D, E) ..... Yes No N/A

Compound quantitation acceptable? (Levels D, E) ..... Yes No N/A

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

Laboratory properly identified and coded all TIC? (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:

9. SAMPLE CLEANUP (Levels D and E)

GPC cleanup performed? ..... Yes No N/A

GPC check performed? ..... Yes No N/A

GPC check recoveries acceptable? ..... Yes No N/A

GPC calibration performed? ..... Yes No N/A

GPC calibration check performed? ..... Yes No N/A

GPC calibration check retention times acceptable? ..... Yes No N/A

Check/calibration materials traceable? ..... Yes No N/A

Check/calibration materials Expired? ..... Yes No N/A

Analytical batch QC given similar cleanup? ..... Yes No N/A

Transcription/Calculation Errors? ..... Yes No N/A

Comments:

Appendix 6

Additional Documentation Requested by Client

Client: Washington Closure Hanford

Job Number: 280-57789-1
Sdg Number: JP0832

Method Blank - Batch: 280-234791

Method: 8270C
Preparation: 3550C

Lab Sample ID:	MB 280-234791/1-A	Analysis Batch:	280-235196	Instrument ID:	SMS_G6
Client Matrix:	Solid	Prep Batch:	280-234791	Lab File ID:	G6_14040.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	31.5 g
Analysis Date:	07/21/2014 1307	Units:	ug/Kg	Final Weight/Volume:	1 mL
Prep Date:	07/17/2014 1844			Injection Volume:	0.5 uL
Leach Date:	N/A				

Analyte	Result	Qual	MDL	RL
Acenaphthene	9.8	U	9.8	310
Acenaphthylene	16	U	16	310
Anthracene	16	U	16	310
Benzo[a]anthracene	19	U	19	310
Benzo[a]pyrene	19	U	19	310
Benzo[b]fluoranthene	25	U	25	310
Benzo[ghi]perylene	15	U	15	310
Benzo[k]fluoranthene	38	U	38	310
Bis(2-chloroethoxy)methane	22	U	22	310
Bis(2-chloroethyl)ether	16	U	16	310
bis (2-chloroisopropyl) ether	22	U	22	310
Bis(2-ethylhexyl) phthalate	44	U	44	310
4-Bromophenyl phenyl ether	18	U	18	310
Butyl benzyl phthalate	41	U	41	310
Carbazole	34	U	34	310
4-Chloroaniline	78	U	78	310
4-Chloro-3-methylphenol	63	U	63	310
2-Chloronaphthalene	9.5	U	9.5	310
2-Chlorophenol	20	U	20	310
4-Chlorophenyl phenyl ether	20	U	20	310
Chrysene	26	U	26	310
Dibenz(a,h)anthracene	18	U	18	310
Dibenzofuran	19	U	19	310
1,2-Dichlorobenzene	21	U	21	310
1,3-Dichlorobenzene	11	U	11	310
1,4-Dichlorobenzene	13	U	13	310
3,3'-Dichlorobenzidine	86	U	86	630
2,4-Dichlorophenol	9.5	U	9.5	310
Diethyl phthalate	25	U	25	310
2,4-Dimethylphenol	63	U	63	310
Dimethyl phthalate	22	U	22	310
Di-n-butyl phthalate	28	U	28	310
4,6-Dinitro-2-methylphenol	310	U	310	630
2,4-Dinitrophenol	320	U	320	790
2,4-Dinitrotoluene	63	U	63	310
2,6-Dinitrotoluene	27	U	27	310
Di-n-octyl phthalate	14	U	14	310
Fluoranthene	34	U	34	310
Fluorene	17	U	17	310
Hexachlorobenzene	28	U	28	310
Hexachlorobutadiene	9.5	U	9.5	310
Hexachlorocyclopentadiene	48	U	48	310
Hexachloroethane	20	U	20	310
Indeno[1,2,3-cd]pyrene	21	U	21	310
Isophorone	16	U	16	310

Client: Washington Closure Hanford

Job Number: 280-57789-1
Sdg Number: JP0832

Method Blank - Batch: 280-234791

Method: 8270C
Preparation: 3550C

Lab Sample ID:	MB 280-234791/1-A	Analysis Batch:	280-235196	Instrument ID:	SMS_G6
Client Matrix:	Solid	Prep Batch:	280-234791	Lab File ID:	G6_14040.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	31.5 g
Analysis Date:	07/21/2014 1307	Units:	ug/Kg	Final Weight/Volume:	1 mL
Prep Date:	07/17/2014 1844			Injection Volume:	0.5 uL
Leach Date:	N/A				

Analyte	Result	Qual	MDL	RL
2-Methylnaphthalene	18	U	18	310
2-Methylphenol	12	U	12	310
3 & 4 Methylphenol	31	U	31	310
Naphthalene	30	U	30	310
2-Nitroaniline	48	U	48	310
3-Nitroaniline	70	U	70	310
4-Nitroaniline	69	U	69	310
Nitrobenzene	21	U	21	310
2-Nitrophenol	9.5	U	9.5	310
4-Nitrophenol	92	U	92	630
N-Nitrosodi-n-propylamine	30	U	30	310
N-Nitrosodiphenylamine	20	U	20	310
Pentachlorophenol	310	U	310	630
Phenanthrene	16	U	16	310
Phenol	17	U	17	310
Pyrene	12	U	12	310
1,2,4-Trichlorobenzene	27	U	27	310
2,4,5-Trichlorophenol	9.5	U	9.5	310
2,4,6-Trichlorophenol	9.5	U	9.5	310

Surrogate	% Rec	Acceptance Limits
2-Fluorobiphenyl	77	50 - 120
2-Fluorophenol	72	53 - 120
Nitrobenzene-d5	71	50 - 120
Phenol-d5	72	52 - 120
Terphenyl-d14	84	55 - 120
2,4,6-Tribromophenol	68	51 - 120

Method Blank TICs- Batch: 280-234791

Cas Number	Analyte	RT	Est. Result (ug/K	Qual
	Tentatively Identified Compound		None	N J

Client: Washington Closure Hanford

Job Number: 280-57789-1
Sdg Number: JP0832

Lab Control Sample - Batch: 280-234791

Method: 8270C
Preparation: 3550C

Lab Sample ID:	LCS 280-234791/2-A	Analysis Batch:	280-235196	Instrument ID:	SMS_G6
Client Matrix:	Solid	Prep Batch:	280-234791	Lab File ID:	G6_14041.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	32.0 g
Analysis Date:	07/21/2014 1334	Units:	ug/Kg	Final Weight/Volume:	1 mL
Prep Date:	07/17/2014 1844			Injection Volume:	0.5 uL
Leach Date:	N/A				

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Acenaphthene	2500	2100	84	60 - 120	
Acenaphthylene	2500	2080	83	64 - 120	
Anthracene	2500	2190	87	63 - 120	
Benzo[a]anthracene	2500	2270	91	65 - 120	
Benzo[a]pyrene	2500	2270	91	59 - 120	
Benzo[b]fluoranthene	2500	2440	97	47 - 129	
Benzo[ghi]perylene	2500	2390	95	55 - 126	
Benzo[k]fluoranthene	2500	2380	95	48 - 130	
Bis(2-chloroethoxy)methane	2500	1940	78	56 - 120	
Bis(2-chloroethyl)ether	2500	2100	84	51 - 120	
bis (2-chloroisopropyl) ether	2500	1650	66	49 - 120	
Bis(2-ethylhexyl) phthalate	2500	2440	97	65 - 120	
4-Bromophenyl phenyl ether	2500	2160	86	64 - 120	
Butyl benzyl phthalate	2500	2450	98	65 - 120	
Carbazole	2500	2210	88	64 - 120	
4-Chloroaniline	2500	1280	51	28 - 120	
4-Chloro-3-methylphenol	2500	2010	80	63 - 120	
2-Chloronaphthalene	2500	2080	83	59 - 120	
2-Chlorophenol	2500	1920	77	57 - 120	
4-Chlorophenyl phenyl ether	2500	2070	83	64 - 120	
Chrysene	2500	2260	90	64 - 120	
Dibenz(a,h)anthracene	2500	2370	95	50 - 133	
Dibenzofuran	2500	2130	85	61 - 120	
1,2-Dichlorobenzene	2500	1840	74	53 - 120	
1,3-Dichlorobenzene	2500	1820	73	52 - 120	
1,4-Dichlorobenzene	2500	1840	74	52 - 120	
3,3'-Dichlorobenzidine	2500	1190	47	30 - 120	
2,4-Dichlorophenol	2500	2080	83	60 - 120	
Diethyl phthalate	2500	2230	89	66 - 120	
2,4-Dimethylphenol	2500	1940	78	54 - 120	
Dimethyl phthalate	2500	2160	87	65 - 120	
Di-n-butyl phthalate	2500	2280	91	67 - 120	
4,6-Dinitro-2-methylphenol	5000	4450	89	57 - 120	
2,4-Dinitrophenol	5000	4320	86	46 - 120	
2,4-Dinitrotoluene	2500	2310	92	68 - 120	
2,6-Dinitrotoluene	2500	2290	92	64 - 120	
Di-n-octyl phthalate	2500	2360	94	66 - 120	
Fluoranthene	2500	2220	89	66 - 120	
Fluorene	2500	2190	88	64 - 120	
Hexachlorobenzene	2500	2010	80	62 - 120	
Hexachlorobutadiene	2500	1840	73	53 - 120	
Hexachlorocyclopentadiene	2500	1570	63	47 - 120	
Hexachloroethane	2500	1850	74	51 - 120	
Indeno[1,2,3-cd]pyrene	2500	2340	93	63 - 120	
Isophorone	2500	1740	70	56 - 120	
2-Methylnaphthalene	2500	1990	79	57 - 120	

Quality Control Results

Client: Washington Closure Hanford

Job Number: 280-57789-1
Sdg Number: JP0832

Lab Control Sample - Batch: 280-234791

Method: 8270C
Preparation: 3550C

Lab Sample ID:	LCS 280-234791/2-A	Analysis Batch:	280-235196	Instrument ID:	SMS_G6
Client Matrix:	Solid	Prep Batch:	280-234791	Lab File ID:	G6_14041.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	32.0 g
Analysis Date:	07/21/2014 1334	Units:	ug/Kg	Final Weight/Volume:	1 mL
Prep Date:	07/17/2014 1844			Injection Volume:	0.5 uL
Leach Date:	N/A				

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
2-Methylphenol	2500	1800	72	56 - 120	
3 & 4 Methylphenol	2500	1850	74	53 - 120	
Naphthalene	2500	1870	75	57 - 120	
2-Nitroaniline	2500	2100	84	63 - 120	
3-Nitroaniline	2500	1600	64	47 - 120	
4-Nitroaniline	2500	2050	82	64 - 120	
Nitrobenzene	2500	1850	74	54 - 120	
2-Nitrophenol	2500	2060	82	56 - 120	
4-Nitrophenol	5000	4600	92	63 - 121	
N-Nitrosodi-n-propylamine	2500	1850	74	51 - 120	
N-Nitrosodiphenylamine	2500	2160	86	61 - 120	
Pentachlorophenol	5000	4680	94	56 - 120	
Phenanthrene	2500	2230	89	64 - 120	
Phenol	2500	1840	74	56 - 120	
Pyrene	2500	2300	92	64 - 120	
1,2,4-Trichlorobenzene	2500	1940	78	52 - 120	
2,4,5-Trichlorophenol	2500	2280	91	64 - 120	
2,4,6-Trichlorophenol	2500	2260	91	61 - 120	

Surrogate	% Rec	Acceptance Limits
2-Fluorobiphenyl	81	50 - 120
2-Fluorophenol	73	53 - 120
Nitrobenzene-d5	73	50 - 120
Phenol-d5	72	52 - 120
Terphenyl-d14	89	55 - 120
2,4,6-Tribromophenol	79	51 - 120

Client: Washington Closure Hanford

Job Number: 280-57789-1
Sdg Number: JP0832

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-234791

Method: 8270C
Preparation: 3550C

MS Lab Sample ID:	280-57789-2	Analysis Batch:	280-235196	Instrument ID:	SMS_G6
Client Matrix:	Solid	Prep Batch:	280-234791	Lab File ID:	G6_14048.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	32.1 g
Analysis Date:	07/21/2014 1624			Final Weight/Volume:	1 mL
Prep Date:	07/17/2014 1844			Injection Volume:	0.5 uL
Leach Date:	N/A				

MSD Lab Sample ID:	280-57789-2	Analysis Batch:	280-235196	Instrument ID:	SMS_G6
Client Matrix:	Solid	Prep Batch:	280-234791	Lab File ID:	G6_14049.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	32.2 g
Analysis Date:	07/21/2014 1651			Final Weight/Volume:	1 mL
Prep Date:	07/17/2014 1844			Injection Volume:	0.5 uL
Leach Date:	N/A				

Analyte	% Rec. MS	% Rec. MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
Acenaphthene	84	82	60 - 120	3	30		
Acenaphthylene	83	81	64 - 120	3	30		
Anthracene	89	86	63 - 120	4	30		
Benzo[a]anthracene	90	88	65 - 120	2	30		
Benzo[a]pyrene	89	91	59 - 120	1	30		
Benzo[b]fluoranthene	95	94	47 - 129	1	44		
Benzo[ghi]perylene	89	90	55 - 126	1	31		
Benzo[k]fluoranthene	90	92	48 - 130	1	30		
Bis(2-chloroethoxy)methane	79	76	56 - 120	5	30		
Bis(2-chloroethyl)ether	82	78	51 - 120	6	30		
bis (2-chloroisopropyl) ether	69	66	49 - 120	4	30		
Bis(2-ethylhexyl) phthalate	99	97	65 - 120	2	30		
4-Bromophenyl phenyl ether	86	82	64 - 120	4	30		
Butyl benzyl phthalate	99	97	65 - 120	2	30		
Carbazole	90	88	64 - 120	2	30		
4-Chloroaniline	64	61	28 - 120	5	30		
4-Chloro-3-methylphenol	82	79	63 - 120	4	30		
2-Chloronaphthalene	83	81	59 - 120	3	30		
2-Chlorophenol	79	74	57 - 120	6	30		
4-Chlorophenyl phenyl ether	82	81	64 - 120	2	30		
Chrysene	92	89	64 - 120	4	35		
Dibenz(a,h)anthracene	91	86	50 - 133	6	30		
Dibenzofuran	86	83	61 - 120	3	30		
1,2-Dichlorobenzene	75	73	53 - 120	4	30		
1,3-Dichlorobenzene	75	72	52 - 120	4	32		
1,4-Dichlorobenzene	76	73	52 - 120	5	30		
3,3'-Dichlorobenzidine	70	67	30 - 120	4	30		
2,4-Dichlorophenol	82	80	60 - 120	3	30		
Diethyl phthalate	90	87	66 - 120	3	30		
2,4-Dimethylphenol	75	71	54 - 120	6	30		
Dimethyl phthalate	85	84	65 - 120	2	30		
Di-n-butyl phthalate	93	90	67 - 120	4	30		
4,6-Dinitro-2-methylphenol	66	62	57 - 120	7	30		

Client: Washington Closure Hanford

Job Number: 280-57789-1
Sdg Number: JP0832

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-234791

Method: 8270C
Preparation: 3550C

MS Lab Sample ID:	280-57789-2	Analysis Batch:	280-235196	Instrument ID:	SMS_G6
Client Matrix:	Solid	Prep Batch:	280-234791	Lab File ID:	G6_14048.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	32.1 g
Analysis Date:	07/21/2014 1624			Final Weight/Volume:	1 mL
Prep Date:	07/17/2014 1844			Injection Volume:	0.5 uL
Leach Date:	N/A				

MSD Lab Sample ID:	280-57789-2	Analysis Batch:	280-235196	Instrument ID:	SMS_G6
Client Matrix:	Solid	Prep Batch:	280-234791	Lab File ID:	G6_14049.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	32.2 g
Analysis Date:	07/21/2014 1651			Final Weight/Volume:	1 mL
Prep Date:	07/17/2014 1844			Injection Volume:	0.5 uL
Leach Date:	N/A				

Analyte	% Rec. MS	% Rec. MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
2,4-Dinitrophenol	31	28	46 - 120	10	34	T	T
2,4-Dinitrotoluene	93	91	68 - 120	2	30		
2,6-Dinitrotoluene	90	89	64 - 120	1	30		
Di-n-octyl phthalate	93	92	66 - 120	2	30		
Fluoranthene	91	88	66 - 120	4	30		
Fluorene	86	86	64 - 120	0	30		
Hexachlorobenzene	80	78	62 - 120	3	30		
Hexachlorobutadiene	73	70	53 - 120	5	30		
Hexachlorocyclopentadiene	64	61	47 - 120	5	30		
Hexachloroethane	77	73	51 - 120	6	30		
Indeno[1,2,3-cd]pyrene	90	87	63 - 120	4	30		
Isophorone	69	68	56 - 120	2	30		
2-Methylnaphthalene	79	77	57 - 120	3	30		
2-Methylphenol	72	70	56 - 120	4	30		
3 & 4 Methylphenol	76	75	53 - 120	2	30		
Naphthalene	75	72	57 - 120	4	30		
2-Nitroaniline	85	82	63 - 120	4	30		
3-Nitroaniline	80	77	47 - 120	4	30		
4-Nitroaniline	85	84	64 - 120	2	30		
Nitrobenzene	74	71	54 - 120	4	30		
2-Nitrophenol	79	77	56 - 120	4	30		
4-Nitrophenol	88	87	63 - 121	2	30		
N-Nitrosodi-n-propylamine	75	73	51 - 120	3	30		
N-Nitrosodiphenylamine	88	84	61 - 120	4	36		
Pentachlorophenol	83	79	56 - 120	5	30		
Phenanthrene	91	88	64 - 120	4	30		
Phenol	74	71	56 - 120	4	30		
Pyrene	93	90	64 - 120	4	38		
1,2,4-Trichlorobenzene	76	74	52 - 120	4	30		
2,4,5-Trichlorophenol	89	86	64 - 120	4	30		
2,4,6-Trichlorophenol	88	87	61 - 120	1	30		

Surrogate	MS % Rec	MSD % Rec	Acceptance Limits
2-Fluorobiphenyl	80	77	50 - 120

Client: Washington Closure Hanford

Job Number: 280-57789-1
Sdg Number: JP0832

Surrogate	MS % Rec	MSD % Rec	Acceptance Limits
2-Fluorophenol	74	71	53 - 120
Nitrobenzene-d5	73	71	50 - 120
Phenol-d5	73	70	52 - 120
Terphenyl-d14	90	87	55 - 120
2,4,6-Tribromophenol	75	74	51 - 120

Client: Washington Closure Hanford

Job Number: 280-57789-1
Sdg Number: JP0832

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-234791

Method: 8270C
Preparation: 3550C

MS Lab Sample ID:	280-57789-2	Units:	ug/Kg	MSD Lab Sample ID:	280-57789-2
Client Matrix:	Solid			Client Matrix:	Solid
Dilution:	1.0			Dilution:	1.0
Analysis Date:	07/21/2014 1624			Analysis Date:	07/21/2014 1651
Prep Date:	07/17/2014 1844			Prep Date:	07/17/2014 1844
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	2520	2510	2110		2050	
Acenaphthylene	16	U	2520	2510	2100		2030	
Anthracene	16	U	2520	2510	2230		2150	
Benzo[a]anthracene	20	J	2520	2510	2290		2230	
Benzo[a]pyrene	19	U	2520	2510	2250		2280	
Benzo[b]fluoranthene	25	J	2520	2510	2390		2370	
Benzo[ghi]perylene	15	U	2520	2510	2240		2250	
Benzo[k]fluoranthene	38	U	2520	2510	2280		2300	
Bis(2-chloroethoxy)methane	22	U	2520	2510	2000		1900	
Bis(2-chloroethyl)ether	16	U	2520	2510	2080		1960	
bis (2-chloroisopropyl) ether	22	U	2520	2510	1730		1660	
Bis(2-ethylhexyl) phthalate	44	U	2520	2510	2490		2440	
4-Bromophenyl phenyl ether	18	U	2520	2510	2160		2070	
Butyl benzyl phthalate	41	U	2520	2510	2490		2430	
Carbazole	34	U	2520	2510	2270		2220	
4-Chloroaniline	78	U	2520	2510	1600		1530	
4-Chloro-3-methylphenol	63	U	2520	2510	2060		1990	
2-Chloronaphthalene	9.6	U	2520	2510	2080		2020	
2-Chlorophenol	20	U	2520	2510	1980		1870	
4-Chlorophenyl phenyl ether	20	U	2520	2510	2070		2030	
Chrysene	26	U	2520	2510	2330		2250	
Dibenz(a,h)anthracene	18	U	2520	2510	2290		2150	
Dibenzofuran	19	U	2520	2510	2160		2090	
1,2-Dichlorobenzene	21	U	2520	2510	1900		1830	
1,3-Dichlorobenzene	11	U	2520	2510	1900		1820	
1,4-Dichlorobenzene	13	U	2520	2510	1910		1830	
3,3'-Dichlorobenzidine	86	U	2520	2510	1750		1690	
2,4-Dichlorophenol	9.6	U	2520	2510	2080		2010	
Diethyl phthalate	25	U	2520	2510	2260		2190	
2,4-Dimethylphenol	63	U	2520	2510	1890		1790	
Dimethyl phthalate	22	U	2520	2510	2150		2100	
Di-n-butyl phthalate	28	U	2520	2510	2340		2250	
4,6-Dinitro-2-methylphenol	320	U	5030	5020	3330		3090	
2,4-Dinitrophenol	320	U	5030	5020	1550	T	1400	T
2,4-Dinitrotoluene	63	U	2520	2510	2330		2290	
2,6-Dinitrotoluene	27	U	2520	2510	2260		2230	
Di-n-octyl phthalate	14	U	2520	2510	2350		2300	
Fluoranthene	34	U	2520	2510	2290		2200	
Fluorene	17	U	2520	2510	2150		2150	
Hexachlorobenzene	28	U	2520	2510	2020		1970	
Hexachlorobutadiene	9.6	U	2520	2510	1850		1760	
Hexachlorocyclopentadiene	48	U	2520	2510	1600		1530	
Hexachloroethane	20	U	2520	2510	1940		1840	

Client: Washington Closure Hanford

Job Number: 280-57789-1
Sdg Number: JP0832

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-234791

Method: 8270C
Preparation: 3550C

MS Lab Sample ID:	280-57789-2	Units:	ug/Kg	MSD Lab Sample ID:	280-57789-2
Client Matrix:	Solid			Client Matrix:	Solid
Dilution:	1.0			Dilution:	1.0
Analysis Date:	07/21/2014 1624			Analysis Date:	07/21/2014 1651
Prep Date:	07/17/2014 1844			Prep Date:	07/17/2014 1844
Leach Date:	N/A			Leach Date:	N/A

Analyte	Sample Result/Qual		MS Spike Amount	MSD Spike Amount	MS Result/Qual	MSD Result/Qual
Indeno[1,2,3-cd]pyrene	21	U	2520	2510	2270	2180
Isophorone	16	U	2520	2510	1740	1700
2-Methylnaphthalene	18	U	2520	2510	1990	1930
2-Methylphenol	12	U	2520	2510	1810	1740
3 & 4 Methylphenol	32	U	2520	2510	1900	1870
Naphthalene	30	U	2520	2510	1880	1810
2-Nitroaniline	48	U	2520	2510	2140	2050
3-Nitroaniline	70	U	2520	2510	2020	1940
4-Nitroaniline	69	U	2520	2510	2150	2100
Nitrobenzene	21	U	2520	2510	1860	1790
2-Nitrophenol	9.6	U	2520	2510	2000	1920
4-Nitrophenol	93	U	5030	5020	4430	4360
N-Nitrosodi-n-propylamine	30	U	2520	2510	1880	1830
N-Nitrosodiphenylamine	20	U	2520	2510	2210	2110
Pentachlorophenol	320	U	5030	5020	4180	3980
Phenanthrene	16	U	2520	2510	2290	2210
Phenol	17	U	2520	2510	1860	1790
Pyrene	32	J	2520	2510	2380	2300
1,2,4-Trichlorobenzene	27	U	2520	2510	1920	1860
2,4,5-Trichlorophenol	9.6	U	2520	2510	2240	2150
2,4,6-Trichlorophenol	9.6	U	2520	2510	2220	2190