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 JP0874 SAF-RC-075

Waste Site: 100-D-99

Date: 24 November 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-99
Subject: Volatile Organic - Data Package No. JP0874-TAL

INTRODUCTION

This memo presents the results of data validation on Data Package No. JP0874 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
J1V140	10/22/14	Soil	C	See note 1
J1V141	10/22/14	Soil	C	See note 1
J1V142	10/22/14	Soil	C	See note 1
J1V143	10/22/14	Soil	C	See note 1
J1V144	10/22/14	Soil	C	See note 1
J1V145	10/22/14	Soil	C	See note 1
J1V146	10/22/14	Soil	C	See note 1
J1V147	10/22/14	Soil	C	See note 1
J1V148	10/22/14	Soil	C	See note 1
J1V149	10/22/14	Soil	C	See note 1
J1V150	10/22/14	Soil	C	See note 1
J1V151	10/22/14	Soil	C	See note 1
J1V152	10/22/14	Soil	C	See note 1
J1V153	10/22/14	Soil	C	See note 1
J1V155	10/22/14	Soil	C	See note 1

1 – Volatile organics by 8260B.

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 analyzed within 14 days of the date of sample collection.

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".

Due to method blank contamination, the 1,1-dichloroethane, 1,1-dichloroethene and trichloroethene results in sample J1V153 were qualified as undetected and flagged "U".

All other method blank results were acceptable.

Field (equipment) Blanks

One trip blank (J1T155) and one equipment blank (J1T153) were submitted for analysis. Chloroform, 1,1-dichlorethane, 1,1-dichlroethene and dichoroethene were detected in the equipment blank. Under the WCH statement of work, no qualification is required. No other analytes were detected in the field blanks.

- **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.

All 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.

Due to RPDs outside QC limits, all acetone (38%), bromomethane (34%), 2-butanone (48%), chloroethane (33%), chloromethane (35%), 2-hexanone (46%), 4-methyl-2-pentanone (45%) and vinyl chloride (35%) results (except J1V153) were qualified as estimates and flagged "J".

Due to RPDs outside QC limits, all volatile organic results (except trans-1,3-dichloropropene) in sample J1V153 were qualified as estimates and flagged "J".

All other duplicate results were acceptable.

Field Duplicate Samples

One set field duplicates (J1TV44/J1TV52) 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. JP0874 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 method blank contamination, the 1,1-dichloroethane, 1,1-dichloroethene and trichloroethene results in sample J1V153 were qualified as undetected and flagged "U".

- Due to RPDs outside QC limits, all acetone (38%), bromomethane (34%), 2-butanone (48%), chloroethane (33%), chloromethane (35%), 2-hexanone (46%),

4-methyl-2-pentanone (45%) and vinyl chloride (35%) results (except J1V153) were qualified as estimates and flagged "J".

- Due to RPDs outside QC limits, all volatile organic results (except trans-1,3-dichloropropene) in sample J1V153 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

VOLATILE ORGANIC DATA QUALIFICATION SUMMARY*

SDG: JP0874	**REVIEWER: ELR**	**Project: 100-D-99**	**PAGE 1 OF 1**
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
acetone bromomethane 2-butanone chloroethane chloromethane 2-hexanone 4-methyl-2-pentanone Vinyl chloride	J	All (except J1V153)	RPD
All (except trans-1,3-dichloropropene)	J	J1V153	RPD
1,1-dichloroethane 1,1-dichloroethene trichloroethene	U	J1V153	Method blank contamination

* - 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: 280-61707-1
Sdg Number: JP0874

Client Sample ID: J1V140

Lab Sample ID: 280-61707-1
Client Matrix: Solid % Moisture: 5.8

Date Sampled: 10/22/2014 0842
Date Received: 10/24/2014 1000

8260B Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B	Analysis Batch:	280-249925	Instrument ID:	VMS_G2
Prep Method:	5035	Prep Batch:	280-249945	Lab File ID:	G2_7356.D
Dilution:	1.0			Initial Weight/Volume:	4.496 g
Analysis Date:	10/28/2014 2027			Final Weight/Volume:	5 mL
Prep Date:	10/22/2014 0842				

11/26/14

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Acetone		6.3	U J	6.3	24
Benzene		0.55	U	0.55	5.9
Bromodichloromethane		0.26	U	0.26	5.9
Bromoform		0.27	U	0.27	5.9
Bromomethane		0.59	U J	0.59	12
2-Butanone (MEK)		2.2	U J	2.2	12
Carbon disulfide		0.50	U	0.50	5.9
Carbon tetrachloride		0.74	U	0.74	5.9
Chlorobenzene		0.64	U	0.64	5.9
Dibromochloromethane		0.67	U	0.67	5.9
Chloroethane		1.1	U J	1.1	12
Chloroform		9.2		0.34	5.9
Chloromethane		0.91	U J	0.91	12
1,1-Dichloroethane		0.25	U	0.25	5.9
1,2-Dichloroethane		0.83	U	0.83	5.9
1,1-Dichloroethene		1.1	J	0.70	5.9
1,2-Dichloroethene, Total		0.46	U	0.46	5.9
1,2-Dichloropropane		0.65	U	0.65	5.9
cis-1,3-Dichloropropene		1.5	U	1.5	5.9
trans-1,3-Dichloropropene		0.79	U	0.79	5.9
Ethylbenzene		0.79	U	0.79	5.9
2-Hexanone		5.8	U J	5.8	24
Methylene Chloride		1.9	U	1.9	5.9
4-Methyl-2-pentanone (MIBK)		5.1	U J	5.1	12
Styrene		0.74	U	0.74	5.9
1,1,2,2-Tetrachloroethane		0.72	U	0.72	5.9
Tetrachloroethene		0.70	U	0.70	5.9
Toluene		0.83	J	0.81	5.9
1,1,1-Trichloroethane		0.61	U	0.61	5.9
1,1,2-Trichloroethane		1.0	U	1.0	5.9
Trichloroethene		0.27	U	0.27	5.9
Vinyl chloride		1.6	U J	1.6	5.9
Xylenes, Total		0.72	U	0.72	5.9

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	107		58 - 140
Toluene-d8 (Surr)	97		80 - 126
4-Bromofluorobenzene (Surr)	93		76 - 127
Dibromofluoromethane (Surr)	105		75 - 121

Client: Washington Closure Hanford

Job Number: 280-61707-1
Sdg Number: JP0874

Client Sample ID: **J1V140**

Lab Sample ID: 280-61707-1
Client Matrix: Solid % Moisture: 5.8

Date Sampled: 10/22/2014 0842
Date Received: 10/24/2014 1000

8260B Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B	Analysis Batch:	280-249925	Instrument ID:	VMS_G2
Prep Method:	5035	Prep Batch:	280-249945	Lab File ID:	G2_7356.D
Dilution:	1.0			Initial Weight/Volume:	4.496 g
Analysis Date:	10/28/2014 2027			Final Weight/Volume:	5 mL
Prep Date:	10/22/2014 0842				

11/22/14

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

Cas Number	Analyte	RT	Est. Result (ug/Kg)	Qualifier
	Unknown	4.38	240	N J
74-88-4	Iodomethane	5.54	1.5	J N B
141-78-6	Ethyl acetate	6.57	2.7	J N
78-92-2	sec-Butyl Alcohol	6.57	90	J N
	Unknown	6.57	1000	N J
71-36-3	n-Butanol	7.56	18	J N

Client: Washington Closure Hanford

Job Number: 280-61707-1
Sdg Number: JP0874

Client Sample ID: J1V141

Lab Sample ID: 280-61707-2
Client Matrix: Solid

% Moisture: 4.5

Date Sampled: 10/22/2014 0851
Date Received: 10/24/2014 1000

8260B Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B	Analysis Batch:	280-249925	Instrument ID:	VMS_G2
Prep Method:	5035	Prep Batch:	280-249945	Lab File ID:	G2_7357.D
Dilution:	1.0			Initial Weight/Volume:	5.244 g
Analysis Date:	10/28/2014 2048			Final Weight/Volume:	5 mL
Prep Date:	10/22/2014 0851				

11/22/14

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Acetone		5.4	U J	5.4	20
Benzene		0.47	U	0.47	5.0
Bromodichloromethane		0.22	U	0.22	5.0
Bromoform		0.23	U	0.23	5.0
Bromomethane		0.50	U J	0.50	10
2-Butanone (MEK)		1.8	U J	1.8	10
Carbon disulfide		0.42	U	0.42	5.0
Carbon tetrachloride		0.63	U	0.63	5.0
Chlorobenzene		0.54	U	0.54	5.0
Dibromochloromethane		0.57	U	0.57	5.0
Chloroethane		0.89	U J	0.89	10
Chloroform		0.29	U	0.29	5.0
Chloromethane		0.77	U J	0.77	10
1,1-Dichloroethane		0.21	U	0.21	5.0
1,2-Dichloroethane		0.70	U	0.70	5.0
1,1-Dichloroethene		0.59	U	0.59	5.0
1,2-Dichloroethene, Total		0.39	U	0.39	5.0
1,2-Dichloropropane		0.55	U	0.55	5.0
cis-1,3-Dichloropropene		1.3	U	1.3	5.0
trans-1,3-Dichloropropene		0.67	U	0.67	5.0
Ethylbenzene		0.67	U	0.67	5.0
2-Hexanone		4.9	U J	4.9	20
Methylene Chloride		1.6	U	1.6	5.0
4-Methyl-2-pentanone (MIBK)		4.4	U J	4.4	10
Styrene		0.63	U	0.63	5.0
1,1,2,2-Tetrachloroethane		0.61	U	0.61	5.0
Tetrachloroethene		0.59	U	0.59	5.0
Toluene		0.69	U	0.69	5.0
1,1,1-Trichloroethane		0.52	U	0.52	5.0
1,1,2-Trichloroethane		0.88	U	0.88	5.0
Trichloroethene		0.23	U	0.23	5.0
Vinyl chloride		1.3	U J	1.3	5.0
Xylenes, Total		0.61	U	0.61	5.0

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	111		58 - 140
Toluene-d8 (Surr)	99		80 - 126
4-Bromofluorobenzene (Surr)	99		76 - 127
Dibromofluoromethane (Surr)	110		75 - 121

Client: Washington Closure Hanford

Job Number: 280-61707-1
Sdg Number: JP0874

Client Sample ID: J1V141

Lab Sample ID: 280-61707-2
Client Matrix: Solid

% Moisture: 4.5

Date Sampled: 10/22/2014 0851
Date Received: 10/24/2014 1000

8260B Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B	Analysis Batch:	280-249925	Instrument ID:	VMS_G2
Prep Method:	5035	Prep Batch:	280-249945	Lab File ID:	G2_7357.D
Dilution:	1.0			Initial Weight/Volume:	5.244 g
Analysis Date:	10/28/2014 2048			Final Weight/Volume:	5 mL
Prep Date:	10/22/2014 0851				

11/22/14

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

Cas Number	Analyte	RT	Est. Result (ug/Kg)	Qualifier
	Unknown	4.38	210	N J
74-88-4	Iodomethane	5.54	0.95	J N B
141-78-6	Ethyl acetate	6.57	1.7	J N
	Unknown	6.57	830	N J
78-92-2	sec-Butyl Alcohol	6.58	80	J N
71-36-3	n-Butanol	7.56	16	J N

Client: Washington Closure Hanford

Job Number: 280-61707-1
Sdg Number: JP0874

Client Sample ID: J1V142

Lab Sample ID: 280-61707-3
Client Matrix: Solid

% Moisture: 6.4

Date Sampled: 10/22/2014 0910
Date Received: 10/24/2014 1000

8260B Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B	Analysis Batch:	280-249925	Instrument ID:	VMS_G2
Prep Method:	5035	Prep Batch:	280-249945	Lab File ID:	G2_7361.D
Dilution:	1.0			Initial Weight/Volume:	5.343 g
Analysis Date:	10/28/2014 2214			Final Weight/Volume:	5 mL
Prep Date:	10/22/2014 0910				

11/22/14

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Acetone		5.4	U J	5.4	20
Benzene		0.47	U	0.47	5.0
Bromodichloromethane		0.22	U	0.22	5.0
Bromoform		0.23	U	0.23	5.0
Bromomethane		0.50	U J	0.50	10
2-Butanone (MEK)		1.8	U J	1.8	10
Carbon disulfide		0.42	U	0.42	5.0
Carbon tetrachloride		0.63	U	0.63	5.0
Chlorobenzene		0.54	U	0.54	5.0
Dibromochloromethane		0.57	U	0.57	5.0
Chloroethane		0.89	U J	0.89	10
Chloroform		13		0.29	5.0
Chloromethane		0.77	U J	0.77	10
1,1-Dichloroethane		0.22	J	0.21	5.0
1,2-Dichloroethane		0.70	U	0.70	5.0
1,1-Dichloroethene		0.59	U	0.59	5.0
1,2-Dichloroethene, Total		0.39	U	0.39	5.0
1,2-Dichloropropane		0.55	U	0.55	5.0
cis-1,3-Dichloropropene		1.3	U	1.3	5.0
trans-1,3-Dichloropropene		0.67	U	0.67	5.0
Ethylbenzene		0.67	U	0.67	5.0
2-Hexanone		4.9	U J	4.9	20
Methylene Chloride		1.6	U	1.6	5.0
4-Methyl-2-pentanone (MIBK)		4.4	U J	4.4	10
Styrene		0.63	U	0.63	5.0
1,1,2,2-Tetrachloroethane		0.61	U	0.61	5.0
Tetrachloroethene		0.59	U	0.59	5.0
Toluene		1.0	J	0.69	5.0
1,1,1-Trichloroethane		0.52	U	0.52	5.0
1,1,2-Trichloroethane		0.88	U	0.88	5.0
Trichloroethene		0.23	U	0.23	5.0
Vinyl chloride		1.3	U J	1.3	5.0
Xylenes, Total		0.61	U	0.61	5.0

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	108		58 - 140
Toluene-d8 (Surr)	95		80 - 126
4-Bromofluorobenzene (Surr)	99		76 - 127
Dibromofluoromethane (Surr)	108		75 - 121

Client: Washington Closure Hanford

Job Number: 280-61707-1
Sdg Number: JP0874

Client Sample ID: J1V142

Lab Sample ID: 280-61707-3
Client Matrix: Solid

% Moisture: 6.4

Date Sampled: 10/22/2014 0910
Date Received: 10/24/2014 1000

8260B Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B	Analysis Batch:	280-249925	Instrument ID:	VMS_G2
Prep Method:	5035	Prep Batch:	280-249945	Lab File ID:	G2_7361.D
Dilution:	1.0			Initial Weight/Volume:	5.343 g
Analysis Date:	10/28/2014 2214			Final Weight/Volume:	5 mL
Prep Date:	10/22/2014 0910				

11/22/14

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

Cas Number	Analyte	RT	Est. Result (ug/Kg)	Qualifier
	Unknown	4.41	260	J N
74-88-4	Iodomethane	5.53	1.3	J B N
	Unknown	6.56	800	J N
91-20-3	Naphthalene	14.05	1.8	J B N

Client: Washington Closure Hanford

Job Number: 280-61707-1
Sdg Number: JP0874

Client Sample ID: J1V143

Lab Sample ID: 280-61707-4
Client Matrix: Solid

% Moisture: 3.7

Date Sampled: 10/22/2014 0924
Date Received: 10/24/2014 1000

8260B Volatile Organic Compounds (GC/MS)

Analysis Method: 8260B
Prep Method: 5035
Dilution: 1.0
Analysis Date: 10/28/2014 2234
Prep Date: 10/22/2014 0924

Analysis Batch: 280-249925
Prep Batch: 280-249945

11/22/14

Instrument ID: VMS_G2
Lab File ID: G2_7362.D
Initial Weight/Volume: 5.293 g
Final Weight/Volume: 5 mL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Acetone		5.3	U J	5.3	20
Benzene		0.46	U	0.46	4.9
Bromodichloromethane		0.22	U	0.22	4.9
Bromoform		0.23	U	0.23	4.9
Bromomethane		0.49	U J	0.49	9.8
2-Butanone (MEK)		1.8	U J	1.8	9.8
Carbon disulfide		0.41	U	0.41	4.9
Carbon tetrachloride		0.62	U	0.62	4.9
Chlorobenzene		0.53	U	0.53	4.9
Dibromochloromethane		0.56	U	0.56	4.9
Chloroethane		0.87	U J	0.87	9.8
Chloroform		0.28	U	0.28	4.9
Chloromethane		0.76	U J	0.76	9.8
1,1-Dichloroethane		0.21	U	0.21	4.9
1,2-Dichloroethane		0.69	U	0.69	4.9
1,1-Dichloroethene		0.68	J	0.58	4.9
1,2-Dichloroethene, Total		0.38	U	0.38	4.9
1,2-Dichloropropane		0.54	U	0.54	4.9
cis-1,3-Dichloropropene		1.3	U	1.3	4.9
trans-1,3-Dichloropropene		0.66	U	0.66	4.9
Ethylbenzene		0.66	U	0.66	4.9
2-Hexanone		4.8	U J	4.8	20
Methylene Chloride		1.6	U	1.6	4.9
4-Methyl-2-pentanone (MIBK)		4.3	U J	4.3	9.8
Styrene		0.62	U	0.62	4.9
1,1,2,2-Tetrachloroethane		0.60	U	0.60	4.9
Tetrachloroethene		0.58	U	0.58	4.9
Toluene		0.69	J	0.68	4.9
1,1,1-Trichloroethane		0.51	U	0.51	4.9
1,1,2-Trichloroethane		0.86	U	0.86	4.9
Trichloroethene		0.23	U	0.23	4.9
Vinyl chloride		1.3	U J	1.3	4.9
Xylenes, Total		0.60	U	0.60	4.9

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	118		58 - 140
Toluene-d8 (Surr)	101		80 - 126
4-Bromofluorobenzene (Surr)	98		76 - 127
Dibromofluoromethane (Surr)	113		75 - 121

Client: Washington Closure Hanford

Job Number: 280-61707-1
Sdg Number: JP0874

Client Sample ID: **J1V143**

Lab Sample ID: 280-61707-4
Client Matrix: Solid

% Moisture: 3.7

Date Sampled: 10/22/2014 0924
Date Received: 10/24/2014 1000

8260B Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B	Analysis Batch:	280-249925	Instrument ID:	VMS_G2
Prep Method:	5035	Prep Batch:	280-249945	Lab File ID:	G2_7362.D
Dilution:	1.0			Initial Weight/Volume:	5.293 g
Analysis Date:	10/28/2014 2234			Final Weight/Volume:	5 mL
Prep Date:	10/22/2014 0924				

11/22/14

Tentatively Identified Compounds **Number TIC's Found:** 7

Cas Number	Analyte	RT	Est. Result (ug/Kg)	Qualifier
	Unknown	3.76	120	N J
	Unknown	4.43	220	N J
74-88-4	Iodomethane	5.53	1.2	J N B
60-29-7	Ethyl ether	5.74	0.93	J N
	Unknown	6.56	790	N J
141-78-6	Ethyl acetate	6.57	3.2	J N
78-92-2	sec-Butyl Alcohol	6.57	92	J N

Client: Washington Closure Hanford

Job Number: 280-61707-1
Sdg Number: JP0874

Client Sample ID: J1V144

Lab Sample ID: 280-61707-5
Client Matrix: Solid

% Moisture: 3.2

Date Sampled: 10/22/2014 0818
Date Received: 10/24/2014 1000

8260B Volatile Organic Compounds (GC/MS)

Analysis Method: 8260B
Prep Method: 5035
Dilution: 1.0
Analysis Date: 10/28/2014 2254
Prep Date: 10/22/2014 0818

Analysis Batch: 280-249925
Prep Batch: 280-249945

11/22/14

Instrument ID: VMS_G2
Lab File ID: G2_7363.D
Initial Weight/Volume: 4.499 g
Final Weight/Volume: 5 mL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Acetone		6.2	U J	6.2	23
Benzene		0.54	U	0.54	5.7
Bromodichloromethane		0.25	U	0.25	5.7
Bromoform		0.26	U	0.26	5.7
Bromomethane		0.57	U J	0.57	11
2-Butanone (MEK)		2.1	U J	2.1	11
Carbon disulfide		0.48	U	0.48	5.7
Carbon tetrachloride		0.72	U	0.72	5.7
Chlorobenzene		0.62	U	0.62	5.7
Dibromochloromethane		0.65	U	0.65	5.7
Chloroethane		1.0	U J	1.0	11
Chloroform		0.33	U	0.33	5.7
Chloromethane		0.88	U J	0.88	11
1,1-Dichloroethane		0.24	U	0.24	5.7
1,2-Dichloroethane		0.80	U	0.80	5.7
1,1-Dichloroethene		0.75	J	0.68	5.7
1,2-Dichloroethene, Total		0.45	U	0.45	5.7
1,2-Dichloropropane		0.63	U	0.63	5.7
cis-1,3-Dichloropropene		1.5	U	1.5	5.7
trans-1,3-Dichloropropene		0.77	U	0.77	5.7
Ethylbenzene		0.77	U	0.77	5.7
2-Hexanone		5.6	U J	5.6	23
Methylene Chloride		1.8	U	1.8	5.7
4-Methyl-2-pentanone (MIBK)		5.0	U J	5.0	11
Styrene		0.72	U	0.72	5.7
1,1,2,2-Tetrachloroethane		0.70	U	0.70	5.7
Tetrachloroethene		0.68	U	0.68	5.7
Toluene		0.79	U	0.79	5.7
1,1,1-Trichloroethane		0.60	U	0.60	5.7
1,1,2-Trichloroethane		1.0	U	1.0	5.7
Trichloroethene		0.26	U	0.26	5.7
Vinyl chloride		1.5	U J	1.5	5.7
Xylenes, Total		0.70	U	0.70	5.7

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	104		58 - 140
Toluene-d8 (Surr)	84		80 - 126
4-Bromofluorobenzene (Surr)	79		76 - 127
Dibromofluoromethane (Surr)	98		75 - 121

Client: Washington Closure Hanford

Job Number: 280-61707-1
Sdg Number: JP0874

Client Sample ID: J1V144

Lab Sample ID: 280-61707-5
Client Matrix: Solid

% Moisture: 3.2

Date Sampled: 10/22/2014 0818
Date Received: 10/24/2014 1000

8260B Volatile Organic Compounds (GC/MS)

Analysis Method: 8260B
Prep Method: 5035
Dilution: 1.0
Analysis Date: 10/28/2014 2254
Prep Date: 10/22/2014 0818

Analysis Batch: 280-249925
Prep Batch: 280-249945

V 11/22/14

Instrument ID: VMS_G2
Lab File ID: G2_7363.D
Initial Weight/Volume: 4.499 g
Final Weight/Volume: 5 mL

Tentatively Identified Compounds

Number TIC's Found: 6

Cas Number	Analyte	RT	Est. Result (ug/Kg)	Qualifier
	Unknown	4.38	180	N J
74-88-4	Iodomethane	5.53	1.2	J N B
60-29-7	Ethyl ether	5.74	0.53	J N
141-78-6	Ethyl acetate	6.56	2.7	J N
	Unknown	6.56	900	N J
78-92-2	sec-Butyl Alcohol	6.57	100	J N

Client: Washington Closure Hanford

Job Number: 280-61707-1
Sdg Number: JP0874

Client Sample ID: J1V145

Lab Sample ID: 280-61707-6
Client Matrix: Solid

% Moisture: 3.2

Date Sampled: 10/22/2014 0802
Date Received: 10/24/2014 1000

8260B Volatile Organic Compounds (GC/MS)

Analysis Method: 8260B
Prep Method: 5035
Dilution: 1.0
Analysis Date: 10/28/2014 2314
Prep Date: 10/22/2014 0802

Analysis Batch: 280-249925
Prep Batch: 280-249945

11/22/14

Instrument ID: VMS_G2
Lab File ID: G2_7364.D
Initial Weight/Volume: 5.017 g
Final Weight/Volume: 5 mL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Acetone		5.5	U J	5.5	21
Benzene		0.48	U	0.48	5.1
Bromodichloromethane		0.23	U	0.23	5.1
Bromoform		0.24	U	0.24	5.1
Bromomethane		0.51	U J	0.51	10
2-Butanone (MEK)		1.9	U J	1.9	10
Carbon disulfide		0.43	U	0.43	5.1
Carbon tetrachloride		0.65	U	0.65	5.1
Chlorobenzene		0.56	U	0.56	5.1
Dibromochloromethane		0.59	U	0.59	5.1
Chloroethane		0.92	U J	0.92	10
Chloroform		0.30	U	0.30	5.1
Chloromethane		0.79	U J	0.79	10
1,1-Dichloroethane		0.22	U	0.22	5.1
1,2-Dichloroethane		0.72	U	0.72	5.1
1,1-Dichloroethene		0.61	U	0.61	5.1
1,2-Dichloroethene, Total		0.40	U	0.40	5.1
1,2-Dichloropropane		0.57	U	0.57	5.1
cis-1,3-Dichloropropene		1.3	U	1.3	5.1
trans-1,3-Dichloropropene		0.69	U	0.69	5.1
Ethylbenzene		0.69	U	0.69	5.1
2-Hexanone		5.0	U J	5.0	21
Methylene Chloride		1.6	U	1.6	5.1
4-Methyl-2-pentanone (MIBK)		4.5	U J	4.5	10
Styrene		0.65	U	0.65	5.1
1,1,2,2-Tetrachloroethane		0.63	U	0.63	5.1
Tetrachloroethene		0.61	U	0.61	5.1
Toluene		0.71	J	0.71	5.1
1,1,1-Trichloroethane		0.54	U	0.54	5.1
1,1,2-Trichloroethane		0.91	U	0.91	5.1
Trichloroethene		0.24	U	0.24	5.1
Vinyl chloride		1.4	U J	1.4	5.1
Xylenes, Total		0.63	U	0.63	5.1

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	122		58 - 140
Toluene-d8 (Surr)	101		80 - 126
4-Bromofluorobenzene (Surr)	96		76 - 127
Dibromofluoromethane (Surr)	114		75 - 121

Client: Washington Closure Hanford

Job Number: 280-61707-1
Sdg Number: JP0874

Client Sample ID: **J1V145**

Lab Sample ID: 280-61707-6
Client Matrix: Solid

% Moisture: 3.2

Date Sampled: 10/22/2014 0802
Date Received: 10/24/2014 1000

8260B Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B	Analysis Batch:	280-249925	Instrument ID:	VMS_G2
Prep Method:	5035	Prep Batch:	280-249945	Lab File ID:	G2_7364.D
Dilution:	1.0			Initial Weight/Volume:	5.017 g
Analysis Date:	10/28/2014 2314			Final Weight/Volume:	5 mL
Prep Date:	10/22/2014 0802				

11/22/14

Tentatively Identified Compounds **Number TIC's Found:** 7

Cas Number	Analyte	RT	Est. Result (ug/Kg)	Qualifier
	Unknown	4.38	230	N J
74-88-4	Iodomethane	5.54	0.94	J N B
60-29-7	Ethyl ether	5.74	0.56	J N
141-78-6	Ethyl acetate	6.57	1.8	J N
	Unknown	6.57	820	N J
78-92-2	sec-Butyl Alcohol	6.58	96	J N
71-36-3	n-Butanol	7.56	13	J N

Client: Washington Closure Hanford

Job Number: 280-61707-1
Sdg Number: JP0874

Client Sample ID: **J1V146**

Lab Sample ID: 280-61707-7
Client Matrix: Solid

% Moisture: 3.7

Date Sampled: 10/22/2014 0940
Date Received: 10/24/2014 1000

8260B Volatile Organic Compounds (GC/MS)

Analysis Method: 8260B
Prep Method: 5035
Dilution: 1.0
Analysis Date: 10/28/2014 2334
Prep Date: 10/22/2014 0940

Analysis Batch: 280-249925
Prep Batch: 280-249945

11/22/14

Instrument ID: VMS_G2
Lab File ID: G2_7365.D
Initial Weight/Volume: 5.054 g
Final Weight/Volume: 5 mL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Acetone		5.5	U J	5.5	21
Benzene		0.48	U	0.48	5.1
Bromodichloromethane		0.23	U	0.23	5.1
Bromoform		0.24	U	0.24	5.1
Bromomethane		0.51	U J	0.51	10
2-Butanone (MEK)		1.9	U J	1.9	10
Carbon disulfide		0.43	U	0.43	5.1
Carbon tetrachloride		0.65	U	0.65	5.1
Chlorobenzene		0.55	U	0.55	5.1
Dibromochloromethane		0.59	U	0.59	5.1
Chloroethane		0.91	U J	0.91	10
Chloroform		0.30	U	0.30	5.1
Chloromethane		0.79	U J	0.79	10
1,1-Dichloroethane		0.22	U	0.22	5.1
1,2-Dichloroethane		0.72	U	0.72	5.1
1,1-Dichloroethene		0.61	U	0.61	5.1
1,2-Dichloroethene, Total		0.40	U	0.40	5.1
1,2-Dichloropropane		0.57	U	0.57	5.1
cis-1,3-Dichloropropene		1.3	U	1.3	5.1
trans-1,3-Dichloropropene		0.69	U	0.69	5.1
Ethylbenzene		0.69	U	0.69	5.1
2-Hexanone		5.0	U J	5.0	21
Methylene Chloride		1.6	U	1.6	5.1
4-Methyl-2-pentanone (MIBK)		4.5	U J	4.5	10
Styrene		0.65	U	0.65	5.1
1,1,2,2-Tetrachloroethane		0.63	U	0.63	5.1
Tetrachloroethene		0.61	U	0.61	5.1
Toluene		0.71	U	0.71	5.1
1,1,1-Trichloroethane		0.53	U	0.53	5.1
1,1,2-Trichloroethane		0.90	U	0.90	5.1
Trichloroethene		0.24	U	0.24	5.1
Vinyl chloride		1.4	U	1.4	5.1
Xylenes, Total		0.63	U J	0.63	5.1

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	106		58 - 140
Toluene-d8 (Surr)	89		80 - 126
4-Bromofluorobenzene (Surr)	88		76 - 127
Dibromofluoromethane (Surr)	100		75 - 121

Client: Washington Closure Hanford

Job Number: 280-61707-1
Sdg Number: JP0874

Client Sample ID: J1V146

Lab Sample ID: 280-61707-7
Client Matrix: Solid

% Moisture: 3.7

Date Sampled: 10/22/2014 0940
Date Received: 10/24/2014 1000

8260B Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B	Analysis Batch:	280-249925	Instrument ID:	VMS_G2
Prep Method:	5035	Prep Batch:	280-249945	Lab File ID:	G2_7365.D
Dilution:	1.0			Initial Weight/Volume:	5.054 g
Analysis Date:	10/28/2014 2334			Final Weight/Volume:	5 mL
Prep Date:	10/22/2014 0940				

11/22/14

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

Cas Number	Analyte	RT	Est. Result (ug/Kg)	Qualifier
107-07-3	2-Chloroethanol	4.38	180	N J
74-88-4	Iodomethane	5.54	0.82	J N J B
60-29-7	Ethyl ether	5.74	0.64	J N J
141-78-6	Ethyl acetate	6.57	1.9	J N J
78-92-2	sec-Butyl Alcohol	6.57	85	J N J
	Unknown	6.57	840	N J

Client: Washington Closure Hanford

Job Number: 280-61707-1
Sdg Number: JP0874

Client Sample ID: J1V147

Lab Sample ID: 280-61707-8
Client Matrix: Solid

% Moisture: 4.8

Date Sampled: 10/22/2014 0949
Date Received: 10/24/2014 1000

8260B Volatile Organic Compounds (GC/MS)

Analysis Method: 8260B
Prep Method: 5035
Dilution: 1.0
Analysis Date: 10/28/2014 2355
Prep Date: 10/22/2014 0949

Analysis Batch: 280-249925
Prep Batch: 280-249945

11/22/14

Instrument ID: VMS_G2
Lab File ID: G2_7366.D
Initial Weight/Volume: 4.718 g
Final Weight/Volume: 5 mL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Acetone		6.0	U J	6.0	22
Benzene		0.52	U	0.52	5.6
Bromodichloromethane		0.24	U	0.24	5.6
Bromoform		0.26	U	0.26	5.6
Bromomethane		0.56	U J	0.56	11
2-Butanone (MEK)		2.0	U J	2.0	11
Carbon disulfide		0.47	U	0.47	5.6
Carbon tetrachloride		0.70	U	0.70	5.6
Chlorobenzene		0.60	U	0.60	5.6
Dibromochloromethane		0.63	U	0.63	5.6
Chloroethane		0.99	U J	0.99	11
Chloroform		0.32	U	0.32	5.6
Chloromethane		0.86	U J	0.86	11
1,1-Dichloroethane		0.23	U	0.23	5.6
1,2-Dichloroethane		0.78	U	0.78	5.6
1,1-Dichloroethene		0.82	J	0.66	5.6
1,2-Dichloroethene, Total		0.43	U	0.43	5.6
1,2-Dichloropropane		0.61	U	0.61	5.6
cis-1,3-Dichloropropene		1.4	U	1.4	5.6
trans-1,3-Dichloropropene		0.75	U	0.75	5.6
Ethylbenzene		0.75	U	0.75	5.6
2-Hexanone		5.4	U J	5.4	22
Methylene Chloride		1.8	U	1.8	5.6
4-Methyl-2-pentanone (MIBK)		4.9	U J	4.9	11
Styrene		0.70	U	0.70	5.6
1,1,2,2-Tetrachloroethane		0.68	U	0.68	5.6
Tetrachloroethene		0.66	U	0.66	5.6
Toluene		0.77	U	0.77	5.6
1,1,1-Trichloroethane		0.58	U	0.58	5.6
1,1,2-Trichloroethane		0.98	U	0.98	5.6
Trichloroethene		0.26	U	0.26	5.6
Vinyl chloride		1.5	U J	1.5	5.6
Xylenes, Total		0.68	U	0.68	5.6

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	108		58 - 140
Toluene-d8 (Surr)	85		80 - 126
4-Bromofluorobenzene (Surr)	84		76 - 127
Dibromofluoromethane (Surr)	102		75 - 121

Client: Washington Closure Hanford

Job Number: 280-61707-1
Sdg Number: JP0874

Client Sample ID: **J1V147**

Lab Sample ID: 280-61707-8
Client Matrix: Solid

% Moisture: 4.8

Date Sampled: 10/22/2014 0949
Date Received: 10/24/2014 1000

8260B Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B	Analysis Batch:	280-249925	Instrument ID:	VMS_G2
Prep Method:	5035	Prep Batch:	280-249945	Lab File ID:	G2_7366 D
Dilution:	1.0			Initial Weight/Volume:	4.718 g
Analysis Date:	10/28/2014 2355			Final Weight/Volume:	5 mL
Prep Date:	10/22/2014 0949				

11/22/14

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

Cas Number	Analyte	RT	Est. Result (ug/Kg)	Qualifier
	Unknown	4.41	170	N J
74-88-4	Iodomethane	5.53	0.94	J N B
60-29-7	Ethyl ether	5.74	0.54	J N
	Unknown	6.57	900	N J
141-78-6	Ethyl acetate	6.58	1.9	J N
78-92-2	sec-Butyl Alcohol	6.58	100	J N

Client: Washington Closure Hanford

Job Number: 280-61707-1
Sdg Number: JP0874

Client Sample ID: J1V148

Lab Sample ID: 280-61707-9
Client Matrix: Solid

% Moisture: 3.8

Date Sampled: 10/22/2014 1008
Date Received: 10/24/2014 1000

8260B Volatile Organic Compounds (GC/MS)

Analysis Method: 8260B
Prep Method: 5035
Dilution: 1.0
Analysis Date: 10/29/2014 0015
Prep Date: 10/22/2014 1008

Analysis Batch: 280-249925
Prep Batch: 280-249945

11/22/14

Instrument ID: VMS_G2
Lab File ID: G2_7367.D
Initial Weight/Volume: 4.786 g
Final Weight/Volume: 5 mL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Acetone		5.8	U J	5.8	22
Benzene		0.51	U	0.51	5.4
Bromodichloromethane		0.24	U	0.24	5.4
Bromoform		0.25	U	0.25	5.4
Bromomethane		0.54	U J	0.54	11
2-Butanone (MEK)		2.0	U J	2.0	11
Carbon disulfide		0.46	U	0.46	5.4
Carbon tetrachloride		0.68	U	0.68	5.4
Chlorobenzene		0.59	U	0.59	5.4
Dibromochloromethane		0.62	U	0.62	5.4
Chloroethane		0.97	U J	0.97	11
Chloroform		0.31	U	0.31	5.4
Chloromethane		0.84	U J	0.84	11
1,1-Dichloroethane		0.23	U	0.23	5.4
1,2-Dichloroethane		0.76	U	0.76	5.4
1,1-Dichloroethene		0.64	U	0.64	5.4
1,2-Dichloroethene, Total		0.42	U	0.42	5.4
1,2-Dichloropropane		0.60	U	0.60	5.4
cis-1,3-Dichloropropene		1.4	U	1.4	5.4
trans-1,3-Dichloropropene		0.73	U	0.73	5.4
Ethylbenzene		0.73	U	0.73	5.4
2-Hexanone		5.3	U J	5.3	22
Methylene Chloride		1.7	U	1.7	5.4
4-Methyl-2-pentanone (MIBK)		4.7	U J	4.7	11
Styrene		0.68	U	0.68	5.4
1,1,2,2-Tetrachloroethane		0.66	U	0.66	5.4
Tetrachloroethene		0.64	U	0.64	5.4
Toluene		0.85	J	0.75	5.4
1,1,1-Trichloroethane		0.56	U	0.56	5.4
1,1,2-Trichloroethane		0.96	U	0.96	5.4
Trichloroethene		0.25	U	0.25	5.4
Vinyl chloride		1.5	U J	1.5	5.4
Xylenes, Total		0.66	U	0.66	5.4

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	119		58 - 140
Toluene-d8 (Surr)	96		80 - 126
4-Bromofluorobenzene (Surr)	91		76 - 127
Dibromofluoromethane (Surr)	110		75 - 121

Client: Washington Closure Hanford

Job Number: 280-61707-1
Sdg Number: JP0874

Client Sample ID: **J1V148**

Lab Sample ID: 280-61707-9
Client Matrix: Solid

% Moisture: 3.8

Date Sampled: 10/22/2014 1008
Date Received: 10/24/2014 1000

8260B Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B	Analysis Batch:	280-249925	Instrument ID:	VMS_G2
Prep Method:	5035	Prep Batch:	280-249945	Lab File ID:	G2_7367.D
Dilution:	1.0			Initial Weight/Volume:	4.786 g
Analysis Date:	10/29/2014 0015			Final Weight/Volume:	5 mL
Prep Date:	10/22/2014 1008				

11/22/14

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

Cas Number	Analyte	RT	Est. Result (ug/Kg)	Qualifier
107-07-3	2-Chloroethanol	4.41	170	N J
74-88-4	Iodomethane	5.53	0.69	N J B
60-29-7	Ethyl ether	5.74	0.79	N J
	Unknown	6.56	810	N J
141-78-6	Ethyl acetate	6.57	2.4	N J
78-92-2	sec-Butyl Alcohol	6.57	99	N J

Client: Washington Closure Hanford

Job Number: 280-61707-1
Sdg Number: JP0874

Client Sample ID: J1V149

Lab Sample ID: 280-61707-10
Client Matrix: Solid

% Moisture: 4.3

Date Sampled: 10/22/2014 1015
Date Received: 10/24/2014 1000

8260B Volatile Organic Compounds (GC/MS)

Analysis Method: 8260B
Prep Method: 5035
Dilution: 1.0
Analysis Date: 10/29/2014 0035
Prep Date: 10/22/2014 1015

Analysis Batch: 280-249925
Prep Batch: 280-249945

11/22/14

Instrument ID: VMS_G2
Lab File ID: G2_7368.D
Initial Weight/Volume: 5.466 g
Final Weight/Volume: 5 mL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Acetone		5.1	U J	5.1	19
Benzene		0.45	U	0.45	4.8
Bromodichloromethane		0.21	U	0.21	4.8
Bromoform		0.22	U	0.22	4.8
Bromomethane		0.48	U J	0.48	9.6
2-Butanone (MEK)		1.7	U J	1.7	9.6
Carbon disulfide		0.40	U	0.40	4.8
Carbon tetrachloride		0.60	U	0.60	4.8
Chlorobenzene		0.52	U	0.52	4.8
Dibromochloromethane		0.54	U	0.54	4.8
Chloroethane		0.85	U J	0.85	9.6
Chloroform		0.28	U	0.28	4.8
Chloromethane		0.74	U J	0.74	9.6
1,1-Dichloroethane		0.20	U	0.20	4.8
1,2-Dichloroethane		0.67	U	0.67	4.8
1,1-Dichloroethene		0.56	U	0.56	4.8
1,2-Dichloroethene, Total		0.37	U	0.37	4.8
1,2-Dichloropropane		0.53	U	0.53	4.8
cis-1,3-Dichloropropene		1.2	U	1.2	4.8
trans-1,3-Dichloropropene		0.64	U	0.64	4.8
Ethylbenzene		0.64	U	0.64	4.8
2-Hexanone		4.7	U J	4.7	19
Methylene Chloride		1.5	U	1.5	4.8
4-Methyl-2-pentanone (MIBK)		4.2	U J	4.2	9.6
Styrene		0.60	U	0.60	4.8
1,1,2,2-Tetrachloroethane		0.58	U	0.58	4.8
Tetrachloroethene		0.56	U	0.56	4.8
Toluene		0.66	U	0.66	4.8
1,1,1-Trichloroethane		0.50	U	0.50	4.8
1,1,2-Trichloroethane		0.84	U	0.84	4.8
Trichloroethene		0.22	U	0.22	4.8
Vinyl chloride		1.3	U J	1.3	4.8
Xylenes, Total		0.58	U	0.58	4.8

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	105		58 - 140
Toluene-d8 (Surr)	85		80 - 126
4-Bromofluorobenzene (Surr)	84		76 - 127
Dibromofluoromethane (Surr)	99		75 - 121

Client: Washington Closure Hanford

Job Number: 280-61707-1
Sdg Number: JP0874

Client Sample ID: **J1V149**

Lab Sample ID: 280-61707-10
Client Matrix: Solid

% Moisture: 4.3

Date Sampled: 10/22/2014 1015
Date Received: 10/24/2014 1000

8260B Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B	Analysis Batch:	280-249925	Instrument ID:	VMS_G2
Prep Method:	5035	Prep Batch:	280-249945	Lab File ID:	G2_7368.D
Dilution:	1.0			Initial Weight/Volume:	5.466 g
Analysis Date:	10/29/2014 0035			Final Weight/Volume:	5 mL
Prep Date:	10/22/2014 1015				

11/22/14

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

Cas Number	Analyte	RT	Est. Result (ug/Kg)	Qualifier
	Unknown	4.44	150	J N
74-88-4	Iodomethane	5.54	0.53	J B N
141-78-6	Ethyl acetate	6.57	1.5	J N
	Unknown	6.57	760	J N
78-92-2	sec-Butyl Alcohol	6.58	88	J N
71-36-3	n-Butanol	7.56	12	J N

Client: Washington Closure Hanford

Job Number: 280-61707-1
Sdg Number: JP0874

Client Sample ID: J1V150

Lab Sample ID: 280-61707-11
Client Matrix: Solid

% Moisture: 4.5

Date Sampled: 10/22/2014 1027
Date Received: 10/24/2014 1000

8260B Volatile Organic Compounds (GC/MS)

Analysis Method: 8260B
Prep Method: 5035
Dilution: 1.0
Analysis Date: 10/29/2014 0055
Prep Date: 10/22/2014 1027

Analysis Batch: 280-249925
Prep Batch: 280-249945

11/22/14

Instrument ID: VMS_G2
Lab File ID: G2_7369.D
Initial Weight/Volume: 5.549 g
Final Weight/Volume: 5 mL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Acetone		5.1	U J	5.1	19
Benzene		0.44	U	0.44	4.7
Bromodichloromethane		0.21	U	0.21	4.7
Bromoform		0.22	U	0.22	4.7
Bromomethane		0.47	U J	0.47	9.4
2-Butanone (MEK)		1.7	U J	1.7	9.4
Carbon disulfide		0.40	U	0.40	4.7
Carbon tetrachloride		0.59	U	0.59	4.7
Chlorobenzene		0.51	U	0.51	4.7
Dibromochloromethane		0.54	U	0.54	4.7
Chloroethane		0.84	U J	0.84	9.4
Chloroform		0.27	U	0.27	4.7
Chloromethane		0.73	U J	0.73	9.4
1,1-Dichloroethane		0.20	U	0.20	4.7
1,2-Dichloroethane		0.66	U	0.66	4.7
1,1-Dichloroethene		0.56	U	0.56	4.7
1,2-Dichloroethene, Total		0.37	U	0.37	4.7
1,2-Dichloropropane		0.52	U	0.52	4.7
cis-1,3-Dichloropropene		1.2	U	1.2	4.7
trans-1,3-Dichloropropene		0.63	U	0.63	4.7
Ethylbenzene		0.63	U	0.63	4.7
2-Hexanone		4.6	U J	4.6	19
Methylene Chloride		1.5	U	1.5	4.7
4-Methyl-2-pentanone (MIBK)		4.1	U J	4.1	9.4
Styrene		0.59	U	0.59	4.7
1,1,2,2-Tetrachloroethane		0.58	U	0.58	4.7
Tetrachloroethene		0.56	U	0.56	4.7
Toluene		0.65	U	0.65	4.7
1,1,1-Trichloroethane		0.49	U	0.49	4.7
1,1,2-Trichloroethane		0.83	U	0.83	4.7
Trichloroethene		0.22	U	0.22	4.7
Vinyl chloride		1.3	U J	1.3	4.7
Xylenes, Total		0.58	U	0.58	4.7

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	104		58 - 140
Toluene-d8 (Surr)	85		80 - 126
4-Bromofluorobenzene (Surr)	83		76 - 127
Dibromofluoromethane (Surr)	97		75 - 121

Client: Washington Closure Hanford

Job Number: 280-61707-1
Sdg Number: JP0874

Client Sample ID: **J1V150**

Lab Sample ID: 280-61707-11
Client Matrix: Solid

% Moisture: 4.5

Date Sampled: 10/22/2014 1027
Date Received: 10/24/2014 1000

8260B Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B	Analysis Batch:	280-249925	Instrument ID:	VMS_G2
Prep Method:	5035	Prep Batch:	280-249945	Lab File ID:	G2_7369.D
Dilution:	1.0			Initial Weight/Volume:	5.549 g
Analysis Date:	10/29/2014 0055			Final Weight/Volume:	5 mL
Prep Date:	10/22/2014 1027				

11/22/14

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

Cas Number	Analyte	RT	Est. Result (ug/Kg)	Qualifier
	Unknown	4.44	210	J N
74-88-4	Iodomethane	5.53	0.47	J B N
78-92-2	sec-Butyl Alcohol	6.57	83	J N
	Unknown	6.57	710	J N

Client: Washington Closure Hanford

Job Number: 280-61707-1
Sdg Number: JP0874

Client Sample ID: J1V151

Lab Sample ID: 280-61707-12
Client Matrix: Solid

% Moisture: 4.7

Date Sampled: 10/22/2014 1042
Date Received: 10/24/2014 1000

8260B Volatile Organic Compounds (GC/MS)

Analysis Method: 8260B
Prep Method: 5035
Dilution: 1.0
Analysis Date: 10/29/2014 0115
Prep Date: 10/22/2014 1042

Analysis Batch: 280-249925
Prep Batch: 280-249945

11/22/14

Instrument ID: VMS_G2
Lab File ID: G2_7370.D
Initial Weight/Volume: 4.572 g
Final Weight/Volume: 5 mL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Acetone		6.2	U J	6.2	23
Benzene		0.54	U	0.54	5.7
Bromodichloromethane		0.25	U	0.25	5.7
Bromoform		0.26	U	0.26	5.7
Bromomethane		0.57	U J	0.57	11
2-Butanone (MEK)		2.1	U J	2.1	11
Carbon disulfide		0.48	U	0.48	5.7
Carbon tetrachloride		0.72	U	0.72	5.7
Chlorobenzene		0.62	U	0.62	5.7
Dibromochloromethane		0.65	U	0.65	5.7
Chloroethane		1.0	U J	1.0	11
Chloroform		0.33	U	0.33	5.7
Chloromethane		0.88	U J	0.88	11
1,1-Dichloroethane		0.24	U	0.24	5.7
1,2-Dichloroethane		0.80	U	0.80	5.7
1,1-Dichloroethene		0.68	U	0.68	5.7
1,2-Dichloroethene, Total		0.45	U	0.45	5.7
1,2-Dichloropropane		0.63	U	0.63	5.7
cis-1,3-Dichloropropene		1.5	U	1.5	5.7
trans-1,3-Dichloropropene		0.77	U	0.77	5.7
Ethylbenzene		0.77	U	0.77	5.7
2-Hexanone		5.6	U J	5.6	23
Methylene Chloride		1.8	U	1.8	5.7
4-Methyl-2-pentanone (MIBK)		5.0	U J	5.0	11
Styrene		0.72	U	0.72	5.7
1,1,2,2-Tetrachloroethane		0.70	U	0.70	5.7
Tetrachloroethene		0.68	U	0.68	5.7
Toluene		0.79	U	0.79	5.7
1,1,1-Trichloroethane		0.60	U	0.60	5.7
1,1,2-Trichloroethane		1.0	U	1.0	5.7
Trichloroethene		0.26	U	0.26	5.7
Vinyl chloride		1.5	U J	1.5	5.7
Xylenes, Total		0.70	U	0.70	5.7

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	117		58 - 140
Toluene-d8 (Surr)	94		80 - 126
4-Bromofluorobenzene (Surr)	92		76 - 127
Dibromofluoromethane (Surr)	109		75 - 121

Client: Washington Closure Hanford

Job Number: 280-61707-1
Sdg Number: JP0874

Client Sample ID: J1V151

Lab Sample ID: 280-61707-12
Client Matrix: Solid % Moisture: 4.7

Date Sampled: 10/22/2014 1042
Date Received: 10/24/2014 1000

8260B Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B	Analysis Batch:	280-249925	Instrument ID:	VMS_G2
Prep Method:	5035	Prep Batch:	280-249945	Lab File ID:	G2_7370.D
Dilution:	1.0			Initial Weight/Volume:	4.572 g
Analysis Date:	10/29/2014 0115			Final Weight/Volume:	5 mL
Prep Date:	10/22/2014 1042				

11/22/14

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

Cas Number	Analyte	RT	Est. Result (ug/Kg)	Qualifier
107-07-3	2-Chloroethanol	4.40	140	N J
74-88-4	Iodomethane	5.53	0.85	J B N J
60-29-7	Ethyl ether	5.74	0.79	J N J
78-92-2	sec-Butyl Alcohol	6.57	110	J N J
	Unknown	6.57	870	N J
141-78-6	Ethyl acetate	6.60	3.9	J N J

Client: Washington Closure Hanford

Job Number: 280-61707-1
Sdg Number: JP0874

Client Sample ID: J1V152

Lab Sample ID: 280-61707-13
Client Matrix: Solid

% Moisture: 3.3

Date Sampled: 10/22/2014 0818
Date Received: 10/24/2014 1000

8260B Volatile Organic Compounds (GC/MS)

Analysis Method: 8260B
Prep Method: 5035
Dilution: 1.0
Analysis Date: 10/29/2014 0135
Prep Date: 10/22/2014 0818

Analysis Batch: 280-249925
Prep Batch: 280-249945

11/22/14

Instrument ID: VMS_G2
Lab File ID: G2_7371.D
Initial Weight/Volume: 4.391 g
Final Weight/Volume: 5 mL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Acetone		6.3	U J	6.3	24
Benzene		0.55	U	0.55	5.9
Bromodichloromethane		0.26	U	0.26	5.9
Bromoform		0.27	U	0.27	5.9
Bromomethane		0.59	U J	0.59	12
2-Butanone (MEK)		2.2	U J	2.2	12
Carbon disulfide		0.49	U	0.49	5.9
Carbon tetrachloride		0.74	U	0.74	5.9
Chlorobenzene		0.64	U	0.64	5.9
Dibromochloromethane		0.67	U	0.67	5.9
Chloroethane		1.0	U J	1.0	12
Chloroform		0.34	U	0.34	5.9
Chloromethane		0.91	U J	0.91	12
1,1-Dichloroethane		0.25	U	0.25	5.9
1,2-Dichloroethane		0.82	U	0.82	5.9
1,1-Dichloroethene		0.69	U	0.69	5.9
1,2-Dichloroethene, Total		0.46	U	0.46	5.9
1,2-Dichloropropane		0.65	U	0.65	5.9
cis-1,3-Dichloropropene		1.5	U	1.5	5.9
trans-1,3-Dichloropropene		0.79	U	0.79	5.9
Ethylbenzene		0.79	U	0.79	5.9
2-Hexanone		5.8	U J	5.8	24
Methylene Chloride		1.9	U	1.9	5.9
4-Methyl-2-pentanone (MIBK)		5.1	U J	5.1	12
Styrene		0.74	U	0.74	5.9
1,1,2,2-Tetrachloroethane		0.72	U	0.72	5.9
Tetrachloroethene		0.69	U	0.69	5.9
Toluene		0.81	U	0.81	5.9
1,1,1-Trichloroethane		0.61	U	0.61	5.9
1,1,2-Trichloroethane		1.0	U	1.0	5.9
Trichloroethene		0.27	U	0.27	5.9
Vinyl chloride		1.6	U J	1.6	5.9
Xylenes, Total		0.72	U	0.72	5.9

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	106		58 - 140
Toluene-d8 (Surr)	*81*		*80 - 126*
4-Bromofluorobenzene (Surr)	79		76 - 127
Dibromofluoromethane (Surr)	97		75 - 121

Client: Washington Closure Hanford

Job Number: 280-61707-1
Sdg Number: JP0874

Client Sample ID: **J1V152**

Lab Sample ID: 280-61707-13
Client Matrix: Solid

% Moisture: 3.3

Date Sampled: 10/22/2014 0818
Date Received: 10/24/2014 1000

8260B Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B	Analysis Batch:	280-249925	Instrument ID:	VMS_G2
Prep Method:	5035	Prep Batch:	280-249945	Lab File ID:	G2_7371.D
Dilution:	1.0			Initial Weight/Volume:	4.391 g
Analysis Date:	10/29/2014 0135			Final Weight/Volume:	5 mL
Prep Date:	10/22/2014 0818				

11/22/14

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

Cas Number	Analyte	RT	Est. Result (ug/Kg)	Qualifier
	Unknown	4.43	180	J N
74-88-4	Iodomethane	5.54	0.62	J B N
60-29-7	Ethyl ether	5.74	0.59	J N
141-78-6	Ethyl acetate	6.57	2.4	J N
78-92-2	sec-Butyl Alcohol	6.57	100	J N
	Unknown	6.57	960	J N

Client: Washington Closure Hanford

Job Number: 280-61707-1
Sdg Number: JP0874

Client Sample ID: J1V153

Lab Sample ID: 280-61707-14
Client Matrix: Solid

% Moisture: 0.0

Date Sampled: 10/22/2014 0753
Date Received: 10/24/2014 1000

8260B Volatile Organic Compounds (GC/MS)

Analysis Method: 8260B
Prep Method: 5035
Dilution: 1.0
Analysis Date: 10/29/2014 1702
Prep Date: 10/22/2014 0753

Analysis Batch: 280-250381
Prep Batch: 280-250397

Instrument ID: VMS_J
Lab File ID: J4206.D
Initial Weight/Volume: 3.822 g
Final Weight/Volume: 5 mL

11/23/14

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Acetone		7.0	U T J	7.0	26
Benzene		0.61	U	0.61	6.5
Bromodichloromethane		0.29	U	0.29	6.5
Bromoform		0.30	U	0.30	6.5
Bromomethane		0.65	U	0.65	13
2-Butanone (MEK)		2.4	U	2.4	13
Carbon disulfide		0.55	U	0.55	6.5
Carbon tetrachloride		0.82	U	0.82	6.5
Chlorobenzene		0.71	U	0.71	6.5
Dibromochloromethane		0.75	U	0.75	6.5
Chloroethane		1.2	U	1.2	13
Chloroform		15	T	0.38	6.5
Chloromethane		1.0	U	1.0	13
1,1-Dichloroethane		0.62	J B U	0.27	6.5
1,2-Dichloroethane		0.92	U	0.92	6.5
1,1-Dichloroethene		0.80	J B U	0.77	6.5
1,2-Dichloroethene, Total		0.51	U	0.51	6.5
1,2-Dichloropropane		0.72	U	0.72	6.5
cis-1,3-Dichloropropene		1.7	U	1.7	6.5
trans-1,3-Dichloropropene		0.88	U	0.88	6.5
Ethylbenzene		0.88	U J	0.88	6.5
2-Hexanone		6.4	U	6.4	26
Methylene Chloride		2.1	U	2.1	6.5
4-Methyl-2-pentanone (MIBK)		5.7	U	5.7	13
Styrene		0.82	U	0.82	6.5
1,1,2,2-Tetrachloroethane		0.80	U	0.80	6.5
Tetrachloroethene		0.77	U	0.77	6.5
Toluene		0.90	U	0.90	6.5
1,1,1-Trichloroethane		0.68	U	0.68	6.5
1,1,2-Trichloroethane		1.2	U	1.2	6.5
Trichloroethene		0.44	J B U	0.30	6.5
Vinyl chloride		1.8	U	1.8	6.5
Xylenes, Total		0.80	U	0.80	6.5

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	96		58 - 140
Toluene-d8 (Surr)	99		80 - 126
4-Bromofluorobenzene (Surr)	97		76 - 127
Dibromofluoromethane (Surr)	100		75 - 121

Client: Washington Closure Hanford

Job Number: 280-61707-1
Sdg Number: JP0874

Client Sample ID: J1V153

Lab Sample ID: 280-61707-14
Client Matrix: Solid

% Moisture: 0.0

Date Sampled: 10/22/2014 0753
Date Received: 10/24/2014 1000

8260B Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B	Analysis Batch:	280-250381	Instrument ID:	VMS_J
Prep Method:	5035	Prep Batch:	280-250397	Lab File ID:	J4206.D
Dilution:	1.0			Initial Weight/Volume:	3.822 g
Analysis Date:	10/29/2014 1702			Final Weight/Volume:	5 mL
Prep Date:	10/22/2014 0753				

11/22/14

Tentatively Identified Compounds **Number TIC's Found:** 7

Cas Number	Analyte	RT	Est. Result (ug/Kg)	Qualifier
78-92-2	sec-Butyl Alcohol	6.93	81	J N J
	Unknown	6.93	40	N J
108-67-8	1,3,5-Trimethylbenzene	12.05	1.1	J B N J
95-63-6	1,2,4-Trimethylbenzene	12.43	1.4	J B N J
470-67-7	7-Oxabicyclo[2.2.1]heptane, 1-methyl-4-(	12.57	6.5	N J
99-87-6	4-Isopropyltoluene	12.71	1.2	J N J
104-51-8	n-Butylbenzene	13.12	1.0	J B N J

Client: Washington Closure Hanford

Job Number: 280-61707-1
Sdg Number: JP0874

Client Sample ID: J1V155

Lab Sample ID: 280-61707-15
Client Matrix: Solid

% Moisture: 0.0

Date Sampled: 10/22/2014 0747
Date Received: 10/24/2014 1000

8260B Volatile Organic Compounds (GC/MS)

Analysis Method: 8260B
Prep Method: 5035
Dilution: 1.0
Analysis Date: 10/29/2014 0215
Prep Date: 10/22/2014 0747

Analysis Batch: 280-249925
Prep Batch: 280-249945

11/22/14

Instrument ID: VMS_G2
Lab File ID: G2_7373.D
Initial Weight/Volume: 4.031 g
Final Weight/Volume: 5 mL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Acetone		6.7	U J	6.7	25
Benzene		0.58	U	0.58	6.2
Bromodichloromethane		0.27	U J	0.27	6.2
Bromoform		0.29	U	0.29	6.2
Bromomethane		0.62	U	0.62	12
2-Butanone (MEK)		2.3	U J	2.3	12
Carbon disulfide		0.52	U	0.52	6.2
Carbon tetrachloride		0.78	U	0.78	6.2
Chlorobenzene		0.67	U	0.67	6.2
Dibromochloromethane		0.71	U	0.71	6.2
Chloroethane		1.1	U J	1.1	12
Chloroform		0.36	U	0.36	6.2
Chloromethane		0.96	U J	0.96	12
1,1-Dichloroethane		0.26	U	0.26	6.2
1,2-Dichloroethane		0.87	U	0.87	6.2
1,1-Dichloroethene		0.73	U	0.73	6.2
1,2-Dichloroethene, Total		0.48	U	0.48	6.2
1,2-Dichloropropane		0.68	U	0.68	6.2
cis-1,3-Dichloropropene		1.6	U	1.6	6.2
trans-1,3-Dichloropropene		0.83	U	0.83	6.2
Ethylbenzene		0.83	U	0.83	6.2
2-Hexanone		6.1	U J	6.1	25
Methylene Chloride		2.0	U	2.0	6.2
4-Methyl-2-pentanone (MIBK)		5.4	U J	5.4	12
Styrene		0.78	U	0.78	6.2
1,1,2,2-Tetrachloroethane		0.76	U	0.76	6.2
Tetrachloroethene		0.73	U	0.73	6.2
Toluene		0.86	U	0.86	6.2
1,1,1-Trichloroethane		0.65	U	0.65	6.2
1,1,2-Trichloroethane		1.1	U	1.1	6.2
Trichloroethene		0.29	U	0.29	6.2
Vinyl chloride		1.7	U J	1.7	6.2
Xylenes, Total		0.76	U	0.76	6.2

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	123		58 - 140
Toluene-d8 (Surr)	91		80 - 126
4-Bromofluorobenzene (Surr)	85		76 - 127
Dibromofluoromethane (Surr)	115		75 - 121

Client: Washington Closure Hanford

Job Number: 280-61707-1
Sdg Number: JP0874

Client Sample ID: **J1V155**

Lab Sample ID: 280-61707-15
Client Matrix: Solid

% Moisture: 0.0

Date Sampled: 10/22/2014 0747
Date Received: 10/24/2014 1000

8260B Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B	Analysis Batch:	280-249925	Instrument ID:	VMS_G2
Prep Method:	5035	Prep Batch:	280-249945	Lab File ID:	G2_7373.D
Dilution:	1.0			Initial Weight/Volume:	4.031 g
Analysis Date:	10/29/2014 0215			Final Weight/Volume:	5 mL
Prep Date:	10/22/2014 0747				

11/22/14

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

Cas Number	Analyte	RT	Est. Result (ug/Kg)	Qualifier
	Unknown	6.56	920	J N

Appendix 4

Laboratory Narrative and Chain-of-Custody Documentation

CASE NARRATIVE

Client: Washington Closure Hanford

Project: WASHINGTON CLOSURE HANFORD

Report Number: 280-61707-1

SDG #: JP0874
SAF#: RC-075

Date SDG Closed: October 24, 2014
Data Deliverable: 7 Day / Summary

CLIENT ID	LAB ID	ANALYSES REQUESTED	ANALYSES PERFORMED
J1V140	280-61707-1	6010/7471/9056M/353.2/8081/WTPH-D+/ 8082/8310/8260B	6010B/7471A/9056M/353.2/8081A/NWTPH-Dx/ 8082/8310/8260B
J1V141	280-61707-2	6010/7471/9056M/353.2/8081/WTPH-D+/ 8082/8310/8260B	6010B/7471A/9056M/353.2/8081A/NWTPH-Dx/ 8082/8310/8260B
J1V142	280-61707-3	6010/7471/9056M/353.2/8081/WTPH-D+/ 8082/8310/8260B	6010B/7471A/9056M/353.2/8081A/NWTPH-Dx/ 8082/8310/8260B
J1V143	280-61707-4	6010/7471/9056M/353.2/8081/WTPH-D+/ 8082/8310/8260B	6010B/7471A/9056M/353.2/8081A/NWTPH-Dx/ 8082/8310/8260B
J1V144	280-61707-5	6010/7471/9056M/353.2/8081/WTPH-D+/ 8082/8310/8260B	6010B/7471A/9056M/353.2/8081A/NWTPH-Dx/ 8082/8310/8260B
J1V145	280-61707-6	6010/7471/9056M/353.2/8081/WTPH-D+/ 8082/8310/8260B	6010B/7471A/9056M/353.2/8081A/NWTPH-Dx/ 8082/8310/8260B
J1V146	280-61707-7	6010/7471/9056M/353.2/8081/WTPH-D+/ 8082/8310/8260B	6010B/7471A/9056M/353.2/8081A/NWTPH-Dx/ 8082/8310/8260B
J1V147	280-61707-8	6010/7471/9056M/353.2/8081/WTPH-D+/ 8082/8310/8260B	6010B/7471A/9056M/353.2/8081A/NWTPH-Dx/ 8082/8310/8260B
J1V148	280-61707-9	6010/7471/9056M/353.2/8081/WTPH-D+/ 8082/8310/8260B	6010B/7471A/9056M/353.2/8081A/NWTPH-Dx/ 8082/8310/8260B
J1V149	280-61707-10	6010/7471/9056M/353.2/8081/WTPH-D+/ 8082/8310/8260B	6010B/7471A/9056M/353.2/8081A/NWTPH-Dx/ 8082/8310/8260B
J1V150	280-61707-11	6010/7471/9056M/353.2/8081/WTPH-D+/ 8082/8310/8260B	6010B/7471A/9056M/353.2/8081A/NWTPH-Dx/ 8082/8310/8260B
J1V151	280-61707-12	6010/7471/9056M/353.2/8081/WTPH-D+/ 8082/8310/8260B	6010B/7471A/9056M/353.2/8081A/NWTPH-Dx/ 8082/8310/8260B
J1V152	280-61707-13	6010/7471/9056M/353.2/8081/WTPH-D+/ 8082/8310/8260B	6010B/7471A/9056M/353.2/8081A/NWTPH-Dx/ 8082/8310/8260B
J1V153	280-61707-14	6010/7471/8260B	6010B/7471A/8260B
J1V155	280-61707-15	8260B	8260B

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 10/24/2014 10:00 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 7 coolers at receipt time were 0.3° C, 0.3° C, 0.4° C, 2.2° C, 2.8° C, 3.9° C and 5.6° C.

It can be noted that the Chains of Custody indicate "VOA samples frozen upon collection", and the 5035/8260B VOA samples were placed in the freezer upon receipt at the laboratory. The client was notified on 10/27/2014.

The 250mL container submitted for sample J1V145, requesting PCBs 8082 analysis, was received at the laboratory broken. The uncompromised volume was transferred to a new container and was placed on hold, as sufficient volume remained to proceed with the requested analyses using containers that were received intact. The client was notified on 10/27/2014.

GC/MS VOLATILES - SW846 8260B
Low levels of 1,1-Dichloroethane, 1,1-Dichloroethene and Trichloroethene are present in the method blank associated with prep batch 280-250397. Because the concentrations in the method blank are not present at levels greater than half the reporting limit, corrective action is deemed unnecessary. Associated sample results present above the MDL and/or RL have been flagged with a "B".

The MS/MSD performed on sample J1V142 exhibited RPD data outside the control limits. The acceptable LCS analysis data indicated that the analytical system was operating within control; therefore, corrective action is deemed unnecessary. The laboratory noted that the sample size used in the preparation of the MS and MSD for sample J1V142 exceeded 10% difference. As the RPD calculation is based upon the MS/MSD concentration as opposed to the MS/MSD percent recovery, elevated %RPD values were obtained.

The MSD aliquot of the MS/MSD performed on sample J1V153 exhibited percent recoveries outside the control limits for Acetone and Chloroform, and the associated sample results have been flagged "T". In addition, RPD limits were exceeded. The acceptable LCS analysis data indicated that the analytical system was operating within control; therefore, corrective action is deemed unnecessary. The laboratory noted that the sample size used in the preparation of the MS and MSD for sample J1V153 exceeded 10% difference. As the RPD calculation is based upon the MS/MSD concentration as opposed to the MS/MSD percent recovery, elevated %RPD values were obtained.

No other anomalies were encountered.

GC SEMIVOLATILES - SW846 8081A - Pesticides
Surrogate Decachlorobiphenyl was recovered outside the control limits, biased low, in samples J1V143, J1V146, J1V150 and J1V151. The laboratory noted that this anomaly is due to obvious matrix interference; therefore, corrective action is deemed unnecessary. Samples had numerous non-target peaks and significant baseline rise interfering with identification and quantitation of the surrogate.

The RPD between the primary and confirmation columns exceeded 40% for 4,4'-DDT in samples J1V148 and J1V150. The lower of the two values has been reported, as matrix interference is evident. The results have been flagged with an "X".

The MS aliquot of the MS/MSD performed on sample J1V142 exhibited the percent recovery outside the control limits for beta-BHC, and the associated sample result has been flagged "N". The acceptable LCS analysis data indicated that the analytical system was operating within control; therefore, corrective action is deemed unnecessary.

The Initial Calibration Verification (ICV) standard demonstrated a low bias for Endosulfan II (-25%) and a high bias for Methoxychlor (+18%) on the primary column. These analytes were in control on the confirmation column, and there were no tentative detections in the samples (peaks requiring second column confirmation). As there is no bias on the confirmation column and the method detection limit is valid for evaluating non-detected results, corrective action is deemed unnecessary and data for the affected analytes are reported from the column that is in control.

A Continuing Calibration Verification (CCV) standard associated with samples J1V144, J1V145, J1V148 and J1V152 exhibited %Difference (%D) values >15%, biased high, for 4,4'-DDT (+24%, +18%). The samples associated with this CCV were non-detect or less than the RL for the affected analyte; therefore, corrective action is deemed unnecessary.

No other anomalies were encountered.

GC SEMIVOLATILES - SW846 8082 - PCBs
No anomalies were encountered.

GC SEMIVOLATILES - NWTPH-Dx - DRO
No anomalies were encountered.

HPLC - SW846 8310 - PAHs
The MS/MSD performed on sample J1V141 exhibited spike compound recoveries outside the control limits, and the associated sample results have been flagged "N". The acceptable LCS analysis data indicated that the analytical system was operating within control; therefore, corrective action is deemed unnecessary.

No other anomalies were encountered.

TOTAL METALS - SW846 6010B/7471A
Serial dilution of a digestate in batch 280-249878 indicates that physical and chemical interferences are present for several elements. Results have been flagged with an "X".

Each sample is analyzed to achieve the lowest possible reporting limits within the constraints of the methods. Samples J1V144, J1V145 and J1V152 required a 5X dilution prior to the analysis of Antimony, Beryllium, Cobalt, Copper, Lead and Vanadium to minimize the interference caused by Titanium concentrations greater than the linear range. The reporting limits have been adjusted relative to the dilution required.

Each sample is analyzed to achieve the lowest possible reporting limits within the constraints of the methods. Due to matrix interferences, the Beryllium analysis of samples J1V141, J1V142, J1V146, J1V147, J1V148, J1V149, J1V150 and J1V151 had to be performed at dilutions. The reporting limits have been adjusted relative to the dilutions required.

Low levels of Barium, Manganese and Silicon are present in the method blank associated with batch 280-249878. 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.

Aluminum and Iron are present at levels greater than the reporting limits in the method blank associated with batch 280-249878. 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 J1V140; therefore, control limits are not applicable.

The Matrix Spike performed on sample J1V140 exhibited the percent recovery outside the control limits for Silicon, and the Matrix Spike performed on sample J1V153 exhibited the percent recovery outside the control limits for Aluminum. The associated sample results have been flagged "N". There is no indication that the analytical systems were operating out of control, and method accuracy has been verified by the acceptable LCS analysis data; therefore, corrective action is deemed unnecessary.

The duplicate analysis of sample J1V140 exceeded the RPD limit for Mercury, and the duplicate analysis of sample J1V153 exceeded the RPD limit for Iron. The associated sample results have been flagged "M". There is no indication that the analytical systems were operating out of control, and method accuracy has been verified by the acceptable LCS analysis data; therefore, corrective action is deemed unnecessary.

No other anomalies were encountered.

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

GENERAL CHEMISTRY - SW846 9056M - ANIONS
The Matrix Spike performed on sample J1V141 exhibited the percent recovery outside the control limits for Orthophosphate as P, and the Matrix Spike performed on sample J1V152 exhibited percent recoveries outside the control limits for Orthophosphate as P and Sulfate. The associated sample results have been flagged "N". There is no indication that the analytical systems were operating out of control, and method accuracy has been verified by the acceptable LCS analysis data; therefore, corrective action is deemed unnecessary.

No other anomalies were encountered.

Washington Closure Hanford

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

RC-075-456

Collector: W. Sexsmith	Company Contact: Joan Kessner	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Project Designation: 100-D/DR Field Remediation	Sampling Location: 100-D-99, Verification, stockpile area		SAF No.: RC-075
Ice Chest No.: ERC-02-407	Field Logbook No.: EL-1662-03	COA: 010D992000	Method of Shipment: Commercial Carrier — fed EX
Shipped To: TestAmerica Denver	Offsite Property No.: A131276-278		Bill of Lading/Air Bill No.: see OSPC

Price Code: 8B

Data Turnaround: 7 days

Other Labs Shipped To: TestAmerica Richland

POSSIBLE SAMPLE HAZARDS/REMARKS: None

Special Handling and/or Storage: None

Sample No.	Matrix	Sample Date	Sample Time	Preservation	Type of Container	No. of Container(s)	Volume	Sample Analysis: See item (1) in Special Instructions	Sample Analysis: IC Anions - 9056 Modified; NO2NO3 - 353.2	Sample Analysis: Pesticides - 8081	Sample Analysis: TPH-Diesel Range - WTPH-D +	Sample Analysis: PCBs - 8082	Sample Analysis: PAHs - 8310	Sample Analysis: VOA - 5035/8260 (TCL)
J1V140	SOIL	10/22/14	0842	Cool 4C	G/P	1	250mL	✓	✓	✓	✓	✓	✓	✓
J1V141	SOIL	10/22/14	0851	Cool 4C	G/P	1	250mL	✓	✓	✓	✓	✓	✓	✓
J1V142	SOIL	10/22/14	0910	Cool 4C	aG	1	250mL	✓	✓	✓	✓	✓	✓	✓
J1V143	SOIL	10/22/14	0924	Cool 4C	aG	1	125mL	✓	✓	✓	✓	✓	✓	✓
J1V144	SOIL	10/22/14	0818	Cool 4C	aG	1	250mL	✓	✓	✓	✓	✓	✓	✓
				Freeze	aGs*	5	40mL							**

CHAIN OF POSSESSION

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Kitney T. Sexsmith	10/22/14 1055	JOSHUA DWSHEA	10/22/14 1055
JOSHUA DWSHEA	10/22/14 1735	C. Bingham	10-22-14 1735
C. Bingham	10-22-14 1740	1060 Battelle, fridge #1B	10-22-14 1740
Battelle, fridge #1B	10-23-14 0855	C. Bingham	10-23-14 0855
C. Bingham WCH	10-23-14 0900	fed EX	
			10/24/14 10:00

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)

10-23-14 CMB

* 20ml vial → % moisture

** freeze upon receipt

3.5, 2.8, 0.3, 2.2

0.3, 5.6, 0.4

IRL CF=1.0

Transferred by MCP 10/24/14

VOA samples frozen upon collection

REVIEWED BY KW DATE 10/23/14

JP0874

CH-EE-011

Washington Closure Hanford

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

RC-075-456 | Page 2 of 3

Collector: W. Sexsmith
Company Contact: Joan Kessner | Telephone No.: 375-4688
Project Coordinator: KESSNER, JH
Price Code: 8B | Data Turnaround: 7 days

Project Designation: 100-D/DR Field Remediation
Sampling Location: 100-D-99, Verification, stockpile area
SAF No.: RC-075

Ice Chest No.: ERC-02-407
Field Logbook No.: EL-1662-03 | COA: 010D992000
Method of Shipment: Commercial Carrier — fed EX

Shipped To: TestAmerica Denver
Offsite Property No.: A131276-278
Bill of Lading/Air Bill No.: see OSPC

Other Labs Shipped To: TestAmerica Richland

POSSIBLE SAMPLE HAZARDS/REMARKS: None

Special Handling and/or Storage: None

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Freeze			
Type of Container	G/P	G/P	aG	aG	aG	aG	aG*			
No. of Container(s)	1	1	1	1	1	1	5			
Volume	250mL	250mL	250mL	125mL	250mL	250mL	40mL			
Sample Analysis	See Item (1) in Special Instructions	IC Anions - 9056 Modified; NO2/NO3 - 353.2	Pesticides - 8081	TPH-Diesel Range - WTPH-D +	PCBs - 8082	PAHs - 8310	** VOA - 5035/8260 (TCL)			

Sample No.	Matrix	Sample Date	Sample Time
J1V145	SOIL	10/22/14	0802
J1V146	SOIL	10/22/14	0940
J1V147	SOIL	10/22/14	0949
J1V148	SOIL	10/22/14	1005
J1V149	SOIL	10/22/14	1015

CHAIN OF POSSESSION

Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Sidney T. Sexsmith	10/22/14 1055	DWSkea DWSHEA	10/22/14 1055
DWSkea DWSHEA	10/22/14 1735	C Bingham	10-22-14 1735
C Bingham	10-22-14 1740	1010 battelle, fridge #1B	10-22-14 1740
1010 Battelle, fridge #1B	10-23-14 0855	C Bingham	10-23-14 0855
C Bingham	10-23-14 0900	fed EX	
			10/24/14 10:00

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)

* 20 ml vial → % moisture 10-23-14 CMB
** freeze upon receipt

VOA samples frozen upon collection

REVIEWED BY KW DATE 10/23/14

JP0874

WCH-EE-011

Washington Closure Hanford

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

RC-075-456

Collector: W. Seesmith	Company Contact: Joan Kessner	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Project Designation: 100-D/DR Field Remediation	Sampling Location: 100-D-99, Verification, stockpile area		SAF No.: RC-075
Ice Chest No.: ERC-02-407	Field Logbook No.: EL-1662-03	COA: 010D992000	Method of Shipment: Commercial Carrier — fed EX
Shipped To: TestAmerica Denver	Offsite Property No.: A131276-278		Bill of Lading/Air Bill No.: See OSPC
Other Labs Shipped To: TestAmerica Richland			Price Code: 8B — Data Turnaround: 7 days

POSSIBLE SAMPLE HAZARDS/REMARKS: None

Special Handling and/or Storage: None

Sample No.	Matrix	Sample Date	Sample Time	Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Freeze
				Type of Container	G/P	G/P	aG	aG	aG	aG	aG*
				No. of Container(s)	1	1	1	1	1	1	5
				Volume	250mL	250mL	250mL	125mL	250mL	250mL	40mL
				Sample Analysis	See Item (1) in Special Instructions	IC Anions - 9056 Modified; NO2/NO3 - 353.2	Pesticides - 8081	TPH-Diesel Range - WTPH-D +	PCBs - 8082	PAHs - 8310	** VOA - 5035/6260 (TCL)
1V150	SOIL	10/22/14	1027		✓	✓	✓	✓	✓	✓	✓
1V151	SOIL	10/22/14	1042		✓	✓	✓	✓	✓	✓	✓
1V152	SOIL	10/24/14	0818		✓	✓	✓	✓	✓	✓	✓
1V153	SOIL	10/22/14	0753		✓			10-23-14 CMB			✓

CHAIN OF POSSESSION

Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Sidney T. Seesmith	10/22/14 1055	DWSHEA DWSHEA	10/22/14 1055
DWSHEA DWSHEA	10/22/14 1735	C. Bingham	10-22-14 1735
C. Bingham	10-22-14 1740	100D Battelle, fridge #1B	10-22-14 1740
100D Battelle, fridge #1B	10-23-14 0855	C. Bingham	10-23-14 0855
C. Bingham WCH	10-23-14 0900	fed EX	
			10/24/14 10:00

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)

* 20 ml vial → % moisture 10-23-14 CMB
** freeze upon receipt

VOA samples frozen upon collection

REVIEWED BY KW DATE 10/23/14

JP 0874

WCH-EE-011

Washington Closure Hanford

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

RC-075-458 | Page 1 of 1

Collector: W. Sexsmith	Company Contact: Joan Kessner	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Project Designation: 100-D/DR Field Remediation	Sampling Location: 100-D-99, Verification, VOA trip blank		SAF No.: RC-075
Ice Chest No.: ERC-02-407	Field Logbook No.: EL-1662-03	COA: 010D992000	Method of Shipment: Commercial Carrier — fed EX
Shipped To: TestAmerica Denver	Offsite Property No.: A131276-278		Bill of Lading/Air Bill No.: See OSPC

Price Code: 8B | Data Turnaround: 7days

Other Labs Shipped To: NA

POSSIBLE SAMPLE HAZARDS/REMARKS: None

Special Handling and/or Storage: None

Preservation	Type of Container	No. of Container(s)	Volume	Sample Analysis
Freeze	aGs*	5	40mL	VOA - 5035/8260 (TCL)

Sample No.	Matrix	Sample Date	Sample Time	
J1V055	SOIL	10/22/14	0747	✓

Page 1 of 1

CHAIN OF POSSESSION / Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Whitney T. Sexsmith	10/22/14 1055	DWSHEA DWSHEA	10/22/14 1055
DWSHEA DWSHEA	10/22/14 1735	C. Bingham	10-22-14 1735
C. Bingham	10-22-14 1740	#1B 1060 Battelle fridge	10-22-14 1740
1060 Battelle fridge #1B	10-23-14 0855	C. Bingham	10-23-14 0855
C. Bingham WCH	10-23-14 0900	fed EX	
			10/24/14 1000

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

SPECIAL INSTRUCTIONS

10-23-14 CMB

*20 ml vial → % moisture

**freeze upon receipt

VOA samples frozen upon collection

REVIEWED BY KW DATE 10/23/14

~~JP0875~~ 10-23-14 CMB

JP0874

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-99		DATA PACKAGE:	JP0874	
VALIDATOR:	ECR	LAB:	TAL	DATE:	11/22/14
			SDG:	JP0874	

ANALYSES PERFORMED					
SW-846 8260		SW-846 8260 (TCLP)	SW-846 8270		SW-846 8270 (TCLP)

SAMPLES/MATRIX				
J1V140	J1V141	J1V142	J1V143	J1V144
J1V145	J1V146	J1V147	J1V148	J1V149
J1V150	J1V151	J1V152	J1V153	J1V155
				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: 1,1-dichloroethane 1,1-dichloroethene trichloroeth - U - S3

S3 - 1111 - detects

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:

no PAs

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: RPD - NH 111 - out J all (except 53)
53 - RPD - J all but 1

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: 280-61707-1
Sdg Number: JP0874

Method Blank - Batch: 280-249945

Method: 8260B
Preparation: 5035

Lab Sample ID:	MB 280-249945/1-A	Analysis Batch:	280-249925	Instrument ID:	VMS_G2
Client Matrix:	Solid	Prep Batch:	280-249945	Lab File ID:	G2_7355.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	5 g
Analysis Date:	10/28/2014 2007	Units:	ug/Kg	Final Weight/Volume:	5 mL
Prep Date:	10/27/2014 1600				
Leach Date:	N/A				

Analyte	Result	Qual	MDL	RL
Acetone	5.4	U	5.4	20
Benzene	0.47	U	0.47	5.0
Bromodichloromethane	0.22	U	0.22	5.0
Bromoform	0.23	U	0.23	5.0
Bromomethane	0.50	U	0.50	10
2-Butanone (MEK)	1.8	U	1.8	10
Carbon disulfide	0.42	U	0.42	5.0
Carbon tetrachloride	0.63	U	0.63	5.0
Chlorobenzene	0.54	U	0.54	5.0
Dibromochloromethane	0.57	U	0.57	5.0
Chloroethane	0.89	U	0.89	10
Chloroform	0.29	U	0.29	5.0
Chloromethane	0.77	U	0.77	10
1,1-Dichloroethane	0.21	U	0.21	5.0
1,2-Dichloroethane	0.70	U	0.70	5.0
1,1-Dichloroethene	0.59	U	0.59	5.0
1,2-Dichloroethene, Total	0.39	U	0.39	5.0
1,2-Dichloropropane	0.55	U	0.55	5.0
cis-1,3-Dichloropropene	1.3	U	1.3	5.0
trans-1,3-Dichloropropene	0.67	U	0.67	5.0
Ethylbenzene	0.67	U	0.67	5.0
2-Hexanone	4.9	U	4.9	20
Methylene Chloride	1.6	U	1.6	5.0
4-Methyl-2-pentanone (MIBK)	4.4	U	4.4	10
Styrene	0.63	U	0.63	5.0
1,1,2,2-Tetrachloroethane	0.61	U	0.61	5.0
Tetrachloroethene	0.59	U	0.59	5.0
Toluene	0.69	U	0.69	5.0
1,1,1-Trichloroethane	0.52	U	0.52	5.0
1,1,2-Trichloroethane	0.88	U	0.88	5.0
Trichloroethene	0.23	U	0.23	5.0
Vinyl chloride	1.3	U	1.3	5.0
Xylenes, Total	0.61	U	0.61	5.0

Surrogate	% Rec	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	108	58 - 140
Toluene-d8 (Surr)	94	80 - 126
4-Bromofluorobenzene (Surr)	92	76 - 127
Dibromofluoromethane (Surr)	107	75 - 121

Client: Washington Closure Hanford

Job Number: 280-61707-1
Sdg Number: JP0874

Method Blank TICs- Batch: 280-249945

Cas Number	Analyte	RT	Est. Result (ug/K	Qual
74-88-4	Iodomethane	5.53	1.79	J J N
91-20-3	Naphthalene	14.05	1.81	J J N
	Unknown	4.37	195	N J
	Unknown	6.56	748	N J
106-35-4	3-Heptanone	10.19	5.19	N J
556-67-2	Cyclotetrasiloxane, octamethyl-	10.58	5.78	N J

Client: Washington Closure Hanford

Job Number: 280-61707-1
Sdg Number: JP0874

Lab Control Sample - Batch: 280-249945

Method: 8260B
Preparation: 5035

Lab Sample ID:	LCS 280-249945/2-A	Analysis Batch:	280-249925	Instrument ID:	VMS_G2
Client Matrix:	Solid	Prep Batch:	280-249945	Lab File ID:	G2_7354.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	5 g
Analysis Date:	10/28/2014 1941	Units:	ug/Kg	Final Weight/Volume:	5 mL
Prep Date:	10/27/2014 1600				
Leach Date:	N/A				

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Acetone	200	169	84	65 - 150	
Benzene	50.0	59.2	118	75 - 135	
Bromodichloromethane	50.0	58.5	117	73 - 135	
Bromoform	50.0	47.1	94	77 - 135	
Bromomethane	50.0	43.1	86	52 - 135	
2-Butanone (MEK)	200	215	107	45 - 177	
Carbon disulfide	50.0	66.8	134	45 - 150	
Carbon tetrachloride	50.0	64.1	128	69 - 138	
Chlorobenzene	50.0	51.6	103	78 - 135	
Dibromochloromethane	50.0	54.6	109	77 - 135	
Chloroethane	50.0	43.2	86	51 - 145	
Chloroform	50.0	58.4	117	73 - 123	
Chloromethane	50.0	43.9	88	41 - 138	
1,1-Dichloroethane	50.0	61.2	122	70 - 135	
1,2-Dichloroethane	50.0	56.6	113	69 - 135	
1,1-Dichloroethene	50.0	65.3	131	79 - 135	
1,2-Dichloroethene, Total	100	123	123	78 - 135	
1,2-Dichloropropane	50.0	53.2	106	72 - 121	
cis-1,3-Dichloropropene	50.0	57.5	115	71 - 135	
trans-1,3-Dichloropropene	50.0	65.0	130	71 - 135	
Ethylbenzene	50.0	53.8	108	73 - 125	
2-Hexanone	200	182	91	67 - 150	
Methylene Chloride	50.0	60.0	120	76 - 136	
4-Methyl-2-pentanone (MIBK)	200	205	103	69 - 150	
Styrene	50.0	48.5	97	76 - 135	
1,1,2,2-Tetrachloroethane	50.0	46.4	93	65 - 135	
Tetrachloroethene	50.0	54.0	108	76 - 135	
Toluene	50.0	59.5	119	77 - 122	
1,1,1-Trichloroethane	50.0	61.2	122	70 - 135	
1,1,2-Trichloroethane	50.0	55.7	111	78 - 135	
Trichloroethene	50.0	59.9	120	77 - 135	
Vinyl chloride	50.0	45.1	90	43 - 145	
Xylenes, Total	100	110	110	76 - 135	

Surrogate	% Rec	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	109	58 - 140
Toluene-d8 (Surr)	98	80 - 126
4-Bromofluorobenzene (Surr)	92	76 - 127
Dibromofluoromethane (Surr)	109	75 - 121

Client: Washington Closure Hanford

Job Number: 280-61707-1
Sdg Number JP0874

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-249945

Method: 8260B
Preparation: 5035

MS Lab Sample ID:	280-61707-3	Analysis Batch:	280-249925	Instrument ID:	VMS_G2
Client Matrix:	Solid	Prep Batch:	280-249945	Lab File ID:	G2_7359.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	6.447 g
Analysis Date:	10/28/2014 2129			Final Weight/Volume:	5 mL
Prep Date:	10/22/2014 0910				5 mL
Leach Date:	N/A				

MSD Lab Sample ID:	280-61707-3	Analysis Batch:	280-249925	Instrument ID:	VMS_G2
Client Matrix:	Solid	Prep Batch:	280-249945	Lab File ID:	G2_7360.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	4.836 g
Analysis Date:	10/28/2014 2149			Final Weight/Volume:	5 mL
Prep Date:	10/22/2014 0910				5 mL
Leach Date:	N/A				

Analyte	% Rec. MS	% Rec. MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
Acetone	108	119	65 - 150	38	28		*
Benzene	121	112	75 - 135	21	20		*
Bromodichloromethane	123	118	73 - 135	24	20		*
Bromoform	99	93	77 - 135	22	20		*
Bromomethane	96	102	52 - 135	34	22		*
2-Butanone (MEK)	137	167	45 - 177	48	32		*
Carbon disulfide	131	120	45 - 150	20	24		
Carbon tetrachloride	129	116	69 - 138	18	20		
Chlorobenzene	105	98	78 - 135	21	20		*
Dibromochloromethane	116	109	77 - 135	23	20		*
Chloroethane	97	102	51 - 145	33	22		*
Chloroform	89	87	73 - 123	20	20		
Chloromethane	94	100	41 - 138	35	25		*
1,1-Dichloroethane	123	114	70 - 135	21	20		*
1,2-Dichloroethane	119	112	69 - 135	23	20		*
1,1-Dichloroethene	133	122	79 - 135	21	20		*
1,2-Dichloroethene, Total	125	116	78 - 135	21	20		*
1,2-Dichloropropane	109	107	72 - 121	26	20		*
cis-1,3-Dichloropropene	121	115	71 - 135	24	20		*
trans-1,3-Dichloropropene	133	133	71 - 135	29	20		*
Ethylbenzene	110	100	73 - 125	19	20		
2-Hexanone	109	130	67 - 150	46	29		*
Methylene Chloride	121	112	76 - 136	21	21		
4-Methyl-2-pentanone (MIBK)	121	143	69 - 150	45	25		*
Styrene	99	89	76 - 135	18	20		
1,1,2,2-Tetrachloroethane	96	97	65 - 135	30	21		*
Tetrachloroethene	110	100	76 - 135	19	20		
Toluene	119	113	77 - 122	23	20		*
1,1,1-Trichloroethane	126	114	70 - 135	19	20		
1,1,2-Trichloroethane	118	117	78 - 135	28	20		*
Trichloroethene	124	117	77 - 135	22	20		*
Vinyl chloride	98	105	43 - 145	35	24		*
Xylenes, Total	112	102	76 - 135	19	20		

Client: Washington Closure Hanford

Job Number: 280-61707-1
Sdg Number: JP0874

Surrogate	MS % Rec	MSD % Rec	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	112	107	58 - 140
Toluene-d8 (Surr)	98	95	80 - 126
4-Bromofluorobenzene (Surr)	95	92	76 - 127
Dibromofluoromethane (Surr)	110	105	75 - 121

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-249945

Method: 8260B
Preparation: 5035

MS Lab Sample ID:	280-61707-3	Units: ug/Kg	
Client Matrix:	Solid		
Dilution:	1.0		
Analysis Date:	10/28/2014 2129		
Prep Date:	10/22/2014 0910		
Leach Date:	N/A		

MSD Lab Sample ID:	280-61707-3
Client Matrix:	Solid
Dilution:	1.0
Analysis Date:	10/28/2014 2149
Prep Date:	10/22/2014 0910
Leach Date:	N/A

Analyte	Sample Result/Qual		MS Spike Amount	MSD Spike Amount	MS Result/Qual	MSD Result/Qual	
Acetone	5.4	U	166	221	179	263	*
Benzene	0.47	U	41.4	55.2	50.3	62.1	*
Bromodichloromethane	0.22	U	41.4	55.2	50.8	65.0	*
Bromoform	0.23	U	41.4	55.2	40.9	51.2	*
Bromomethane	0.50	U	41.4	55.2	39.9	56.2	*
2-Butanone (MEK)	1.8	U	166	221	227	369	*
Carbon disulfide	0.42	U	41.4	55.2	54.2	66.3	
Carbon tetrachloride	0.63	U	41.4	55.2	53.6	64.1	
Chlorobenzene	0.54	U	41.4	55.2	43.7	53.9	*
Dibromochloromethane	0.57	U	41.4	55.2	48.0	60.4	*
Chloroethane	0.89	U	41.4	55.2	40.2	56.1	*
Chloroform	13		41.4	55.2	49.4	60.6	
Chloromethane	0.77	U	41.4	55.2	39.0	55.5	*
1,1-Dichloroethane	0.22	J	41.4	55.2	51.2	63.0	*
1,2-Dichloroethane	0.70	U	41.4	55.2	49.1	61.7	*
1,1-Dichloroethene	0.59	U	41.4	55.2	54.9	67.5	*
1,2-Dichloroethene, Total	0.39	U	82.9	110	103	128	*
1,2-Dichloropropane	0.55	U	41.4	55.2	45.3	58.9	*
cis-1,3-Dichloropropene	1.3	U	41.4	55.2	50.2	63.7	*
trans-1,3-Dichloropropene	0.67	U	41.4	55.2	55.1	73.5	*
Ethylbenzene	0.67	U	41.4	55.2	45.5	55.2	
2-Hexanone	4.9	U	166	221	181	287	*
Methylene Chloride	1.6	U	41.4	55.2	50.2	62.1	
4-Methyl-2-pentanone (MIBK)	4.4	U	166	221	201	316	*
Styrene	0.63	U	41.4	55.2	40.9	49.0	
1,1,2,2-Tetrachloroethane	0.61	U	41.4	55.2	39.9	53.8	*
Tetrachloroethene	0.59	U	41.4	55.2	45.5	55.3	
Toluene	1.0	J	41.4	55.2	50.3	63.6	*
1,1,1-Trichloroethane	0.52	U	41.4	55.2	52.1	62.7	
1,1,2-Trichloroethane	0.88	U	41.4	55.2	48.9	64.8	*
Trichloroethene	0.23	U	41.4	55.2	51.4	64.4	*
Vinyl chloride	1.3	U	41.4	55.2	40.5	58.0	*
Xylenes, Total	0.61	U	82.9	110	92.7	112	

Client: Washington Closure Hanford

Job Number: 280-61707-1
Sdg Number: JP0874

Method Blank - Batch: 280-250397

Method: 8260B
Preparation: 5035

Lab Sample ID:	MB 280-250397/1-A	Analysis Batch:	280-250381	Instrument ID:	VMS_J
Client Matrix:	Solid	Prep Batch:	280-250397	Lab File ID:	J4205.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	5 g
Analysis Date:	10/29/2014 1627	Units:	ug/Kg	Final Weight/Volume:	5 mL
Prep Date:	10/29/2014 1600				
Leach Date:	N/A				

Analyte	Result	Qual	MDL	RL
Acetone	5.4	U	5.4	20
Benzene	0.47	U	0.47	5.0
Bromodichloromethane	0.22	U	0.22	5.0
Bromoform	0.23	U	0.23	5.0
Bromomethane	0.50	U	0.50	10
2-Butanone (MEK)	1.8	U	1.8	10
Carbon disulfide	0.42	U	0.42	5.0
Carbon tetrachloride	0.63	U	0.63	5.0
Chlorobenzene	0.54	U	0.54	5.0
Dibromochloromethane	0.57	U	0.57	5.0
Chloroethane	0.89	U	0.89	10
Chloroform	0.29	U	0.29	5.0
Chloromethane	0.77	U	0.77	10
1,1-Dichloroethane	0.289	J	0.21	5.0
1,2-Dichloroethane	0.70	U	0.70	5.0
1,1-Dichloroethene	0.663	J	0.59	5.0
1,2-Dichloroethene, Total	0.39	U	0.39	5.0
1,2-Dichloropropane	0.55	U	0.55	5.0
cis-1,3-Dichloropropene	1.3	U	1.3	5.0
trans-1,3-Dichloropropene	0.67	U	0.67	5.0
Ethylbenzene	0.67	U	0.67	5.0
2-Hexanone	4.9	U	4.9	20
Methylene Chloride	1.6	U	1.6	5.0
4-Methyl-2-pentanone (MIBK)	4.4	U	4.4	10
Styrene	0.63	U	0.63	5.0
1,1,2,2-Tetrachloroethane	0.61	U	0.61	5.0
Tetrachloroethene	0.59	U	0.59	5.0
Toluene	0.69	U	0.69	5.0
1,1,1-Trichloroethane	0.52	U	0.52	5.0
1,1,2-Trichloroethane	0.88	U	0.88	5.0
Trichloroethene	0.293	J	0.23	5.0
Vinyl chloride	1.3	U	1.3	5.0
Xylenes, Total	0.61	U	0.61	5.0

Surrogate	% Rec	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	98	58 - 140
Toluene-d8 (Surr)	99	80 - 126
4-Bromofluorobenzene (Surr)	94	76 - 127
Dibromofluoromethane (Surr)	101	75 - 121

Client: Washington Closure Hanford

Job Number: 280-61707-1
Sdg Number: JP0874

Method Blank TICs- Batch: 280-250397

Cas Number	Analyte	RT	Est. Result (ug/K	Qual
110-82-7	Cyclohexane	7.57	0.408	J N J
104-51-8	n-Butylbenzene	13.13	0.749	J N J
95-63-6	1,2,4-Trimethylbenzene	12.43	0.978	J N J
108-67-8	1,3,5-Trimethylbenzene	12.05	0.716	J N J
	Unknown	4.53	8.76	N J
	Unknown	5.26	7.58	N J
	Unknown	6.93	30.9	N J
	Unknown	13.39	5.60	N J
	Unknown	13.73	6.96	N J
72218-58-7	3-Methylheptyl acetate	14.03	25.8	N J

Client: Washington Closure Hanford

Job Number: 280-61707-1
Sdg Number: JP0874

Lab Control Sample - Batch: 280-250397

Method: 8260B
Preparation: 5035

Lab Sample ID:	LCS 280-250397/2-A	Analysis Batch:	280-250381	Instrument ID:	VMS_J
Client Matrix:	Solid	Prep Batch:	280-250397	Lab File ID:	J4204.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	5 g
Analysis Date:	10/29/2014 1606	Units:	ug/Kg	Final Weight/Volume:	5 mL
Prep Date:	10/29/2014 1600				
Leach Date:	N/A				

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Acetone	200	237	118	65 - 150	
Benzene	50.0	48.3	97	75 - 135	
Bromodichloromethane	50.0	47.4	95	73 - 135	
Bromoform	50.0	50.5	101	77 - 135	
Bromomethane	50.0	49.6	99	52 - 135	
2-Butanone (MEK)	200	234	117	45 - 177	
Carbon disulfide	50.0	46.6	93	45 - 150	
Carbon tetrachloride	50.0	49.0	98	69 - 138	
Chlorobenzene	50.0	48.5	97	78 - 135	
Dibromochloromethane	50.0	48.0	96	77 - 135	
Chloroethane	50.0	52.5	105	51 - 145	
Chloroform	50.0	47.0	94	73 - 123	
Chloromethane	50.0	49.3	99	41 - 138	
1,1-Dichloroethane	50.0	46.1	92	70 - 135	B
1,2-Dichloroethane	50.0	47.6	95	69 - 135	
1,1-Dichloroethene	50.0	51.2	102	79 - 135	B
1,2-Dichloroethene, Total	100	94.4	94	78 - 135	
1,2-Dichloropropane	50.0	45.4	91	72 - 121	
cis-1,3-Dichloropropene	50.0	47.4	95	71 - 135	
trans-1,3-Dichloropropene	50.0	48.8	98	71 - 135	
Ethylbenzene	50.0	48.6	97	73 - 125	
2-Hexanone	200	233	117	67 - 150	
Methylene Chloride	50.0	47.1	94	76 - 136	
4-Methyl-2-pentanone (MIBK)	200	238	119	69 - 150	
Styrene	50.0	49.4	99	76 - 135	
1,1,2,2-Tetrachloroethane	50.0	49.8	100	65 - 135	
Tetrachloroethene	50.0	49.5	99	76 - 135	
Toluene	50.0	48.4	97	77 - 122	
1,1,1-Trichloroethane	50.0	48.0	96	70 - 135	
1,1,2-Trichloroethane	50.0	49.8	100	78 - 135	
Trichloroethene	50.0	47.6	95	77 - 135	B
Vinyl chloride	50.0	53.1	106	43 - 145	
Xylenes, Total	100	94.7	95	76 - 135	

Surrogate	% Rec	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	96	58 - 140
Toluene-d8 (Surr)	99	80 - 126
4-Bromofluorobenzene (Surr)	92	76 - 127
Dibromofluoromethane (Surr)	101	75 - 121

Client: Washington Closure Hanford

Job Number: 280-61707-1
Sdg Number: JP0874

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-250397

Method: 8260B
Preparation: 5035

MS Lab Sample ID:	280-61707-14	Analysis Batch:	280-250381	Instrument ID:	VMS_J
Client Matrix:	Solid	Prep Batch:	280-250397	Lab File ID:	J4207.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	4.545 g
Analysis Date:	10/29/2014 1722			Final Weight/Volume:	5 mL
Prep Date:	10/22/2014 0753				5 mL
Leach Date:	N/A				

MSD Lab Sample ID:	280-61707-14	Analysis Batch:	280-250381	Instrument ID:	VMS_J
Client Matrix:	Solid	Prep Batch:	280-250397	Lab File ID:	J4208.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	7.745 g
Analysis Date:	10/29/2014 1743			Final Weight/Volume:	5 mL
Prep Date:	10/22/2014 0753				5 mL
Leach Date:	N/A				

Analyte	% Rec. MS	% Rec. MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
Acetone	140	162	65 - 150	38	28		T *
Benzene	112	110	75 - 135	54	20		*
Bromodichloromethane	111	112	73 - 135	52	20		*
Bromoform	120	119	77 - 135	52	20		*
Bromomethane	101	98	52 - 135	55	22		*
2-Butanone (MEK)	131	142	45 - 177	45	32		*
Carbon disulfide	109	107	45 - 150	54	24		*
Carbon tetrachloride	114	111	69 - 138	55	20		*
Chlorobenzene	114	107	78 - 135	58	20		*
Dibromochloromethane	113	113	77 - 135	52	20		*
Chloroethane	108	104	51 - 145	56	22		*
Chloroform	81	59	73 - 123	53	20		T *
Chloromethane	101	102	41 - 138	51	25		*
1,1-Dichloroethane	107	104	70 - 135	54	20	B	* B
1,2-Dichloroethane	112	111	69 - 135	53	20		*
1,1-Dichloroethene	120	115	79 - 135	55	20	B	* B
1,2-Dichloroethene, Total	108	107	78 - 135	54	20		*
1,2-Dichloropropane	106	104	72 - 121	53	20		*
cis-1,3-Dichloropropene	112	107	71 - 135	56	20		*
trans-1,3-Dichloropropene	72	112	71 - 135	9	20		
Ethylbenzene	111	107	73 - 125	56	20		*
2-Hexanone	128	138	67 - 150	45	29		*
Methylene Chloride	110	108	76 - 136	54	21		*
4-Methyl-2-pentanone (MIBK)	129	139	69 - 150	45	25		*
Styrene	114	111	76 - 135	55	20		*
1,1,2,2-Tetrachloroethane	123	121	65 - 135	53	21		*
Tetrachloroethene	112	107	76 - 135	57	20		*
Toluene	113	109	77 - 122	55	20		*
1,1,1-Trichloroethane	113	110	70 - 135	55	20		*
1,1,2-Trichloroethane	119	120	78 - 135	51	20		*
Trichloroethene	108	107	77 - 135	53	20	B	* B
Vinyl chloride	108	109	43 - 145	52	24		*
Xylenes, Total	110	104	76 - 135	57	20		*

Client: Washington Closure Hanford

Job Number: 280-61707-1
Sdg Number: JP0874

Surrogate	MS % Rec	MSD % Rec	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	97	98	58 - 140
Toluene-d8 (Surr)	101	100	80 - 126
4-Bromofluorobenzene (Surr)	97	93	76 - 127
Dibromofluoromethane (Surr)	100	102	75 - 121

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-250397

Method: 8260B
Preparation: 5035

MS Lab Sample ID:	280-61707-14	Units: ug/Kg	
Client Matrix:	Solid		
Dilution:	1.0		
Analysis Date:	10/29/2014 1722		
Prep Date:	10/22/2014 0753		
Leach Date:	N/A		

MSD Lab Sample ID:	280-61707-14
Client Matrix:	Solid
Dilution:	1.0
Analysis Date:	10/29/2014 1743
Prep Date:	10/22/2014 0753
Leach Date:	N/A

Analyte	Sample Result/Qual		MS Spike Amount	MSD Spike Amount	MS Result/Qual		MSD Result/Qual	
Acetone	7.0	U	220	129	308		209	T *
Benzene	0.61	U	55.0	32.3	61.7		35.5	*
Bromodichloromethane	0.29	U	55.0	32.3	61.2		36.0	*
Bromoform	0.30	U	55.0	32.3	66.0		38.6	*
Bromomethane	0.65	U	55.0	32.3	55.3		31.6	*
2-Butanone (MEK)	2.4	U	220	129	289		184	*
Carbon disulfide	0.55	U	55.0	32.3	60.0		34.5	*
Carbon tetrachloride	0.82	U	55.0	32.3	62.8		35.8	*
Chlorobenzene	0.71	U	55.0	32.3	62.8		34.7	*
Dibromochloromethane	0.75	U	55.0	32.3	62.4		36.5	*
Chloroethane	1.2	U	55.0	32.3	59.6		33.7	*
Chloroform	15		55.0	32.3	59.7		34.6	T *
Chloromethane	1.0	U	55.0	32.3	55.7		32.9	*
1,1-Dichloroethane	0.62	J	55.0	32.3	59.3	B	34.2	* B
1,2-Dichloroethane	0.92	U	55.0	32.3	61.8		35.8	*
1,1-Dichloroethene	0.80	J	55.0	32.3	67.0	B	37.9	* B
1,2-Dichloroethene, Total	0.51	U	110	64.6	119		68.8	*
1,2-Dichloropropane	0.72	U	55.0	32.3	58.1		33.6	*
cis-1,3-Dichloropropene	1.7	U	55.0	32.3	61.8		34.7	*
trans-1,3-Dichloropropene	0.88	U	55.0	32.3	39.8		36.3	
Ethylbenzene	0.88	U	55.0	32.3	61.2		34.6	*
2-Hexanone	6.4	U	220	129	281		178	*
Methylene Chloride	2.1	U	55.0	32.3	60.5		34.8	*
4-Methyl-2-pentanone (MIBK)	5.7	U	220	129	284		180	*
Styrene	0.82	U	55.0	32.3	62.8		35.7	*
1,1,2,2-Tetrachloroethane	0.80	U	55.0	32.3	67.7		39.1	*
Tetrachloroethene	0.77	U	55.0	32.3	61.8		34.5	*
Toluene	0.90	U	55.0	32.3	62.1		35.1	*
1,1,1-Trichloroethane	0.68	U	55.0	32.3	62.0		35.4	*
1,1,2-Trichloroethane	1.2	U	55.0	32.3	65.2		38.6	*
Trichloroethene	0.44	J	55.0	32.3	60.0	B	34.9	* B
Vinyl chloride	1.8	U	55.0	32.3	59.5		35.1	*
Xylenes, Total	0.80	U	110	64.6	121		67.4	*

Date: 24 November 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-99
Subject: Inorganic - Data Package No. JP0874-TAL

INTRODUCTION

This memo presents the results of data validation on Data Package No. JP0874 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
J1V140	10/22/14	Soil	C	See note 1
J1V141	10/22/14	Soil	C	See note 1
J1V142	10/22/14	Soil	C	See note 1
J1V143	10/22/14	Soil	C	See note 1
J1V144	10/22/14	Soil	C	See note 1
J1V145	10/22/14	Soil	C	See note 1
J1V146	10/22/14	Soil	C	See note 1
J1V147	10/22/14	Soil	C	See note 1
J1V148	10/22/14	Soil	C	See note 1
J1V149	10/22/14	Soil	C	See note 1
J1V150	10/22/14	Soil	C	See note 1
J1V151	10/22/14	Soil	C	See note 1
J1V152	10/22/14	Soil	C	See note 1
J1V153	10/22/14	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

One field blank J1V153) was submitted for analysis. Twelve analytes were detected in the field blank. Under the WCH statement of work no qualification is required.

- **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.

Due to matrix spike recoveries outside QC limits, all antimony (56%) and silicon (14% & 48%) results were qualified as estimates and flagged "J".

Due to an LCS recovery outside QC limits (11% & 40%), all silicon results were qualified as estimates and flagged "J".

Due to a matrix spike recoveries outside QC limits, the aluminum (235%) and iron (145%) results in sample J1V153.

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.

Due to an RPD outside QC limits, the iron (98%) result in sample J1V153 was qualified as an estimate and flagged "J".

All other laboratory duplicate results were acceptable.

Field Duplicate

One set of field duplicates (J1V045/J1V057) 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. JP0874 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 (56%) and silicon (14% & 48%) results were qualified as estimates and flagged "J".
- Due to an LCS recovery outside QC limits (11% & 40%), all silicon results were qualified as estimates and flagged "J".
- Due to a matrix spike recoveries outside QC limits, the aluminum (235%) and iron (145%) results in sample J1V153.
- Due to an RPD outside QC limits, the iron (98%) result in sample J1V153 was qualified as an estimate 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: JP0874	**REVIEWER: ELR**	**Project: 100-D-99**	**PAGE_1_OF_1**
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
Silicon	J	All	LCS recovery
Antimony Silicon	J	All	MS recovery
Aluminum Iron	J	J1V153	MS recovery
Iron	J	J1V153	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

Client: Washington Closure Hanford

Job Number: 280-61707-1
Sdg Number: JP0874

Client Sample ID: J1V140

Lab Sample ID: 280-61707-1
Client Matrix: Solid

% Moisture: 5.8

Date Sampled: 10/22/2014 0842
Date Received: 10/24/2014 1000

6010B Metals (ICP)

Analysis Method: 6010B
Prep Method: 3050B
Dilution: 1.0
Analysis Date: 10/28/2014 1818
Prep Date: 10/28/2014 0830

Analysis Batch: 280-250247
Prep Batch: 280-249878

11/22/14

Instrument ID: MT_026
Lab File ID: 26b102814.asc
Initial Weight/Volume: 1.09 g
Final Weight/Volume: 100 mL

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Aluminum		7470		1.5	4.9
Antimony		0.37	U J	0.37	0.58
Arsenic		4.3		0.64	0.97
Barium		81.4	X	0.074	0.49
Beryllium		0.032	U	0.032	0.19
Boron		1.7	B	0.95	1.9
Cadmium		0.11	B	0.040	0.19
Calcium		14500		13.7	48.7
Chromium		11.1		0.056	0.19
Cobalt		7.4	X	0.097	0.97
Copper		17.2		0.21	0.97
Iron		20100	X	3.7	4.9
Lead		3.9		0.26	0.49
Magnesium		4920	X	3.6	19.5
Manganese		306	X	0.097	0.97
Molybdenum		0.25	U	0.25	1.9
Nickel		12.5	X	0.12	3.9
Potassium		1110		39.9	292
Selenium		0.85	B	0.84	0.97
Silicon		505	N X J	5.5	9.7
Silver		0.16	U	0.16	0.19
Sodium		264		57.4	117
Vanadium		48.5		0.092	1.9
Zinc		39.0	X	0.39	0.97

7471A Mercury (CVAA)

Analysis Method: 7471A
Prep Method: 7471A
Dilution: 1.0
Analysis Date: 10/29/2014 1442
Prep Date: 10/29/2014 1230

Analysis Batch: 280-250347
Prep Batch: 280-250297

Instrument ID: MT_033
Lab File ID: 141027aa.txt
Initial Weight/Volume: 0.68 g
Final Weight/Volume: 50 mL

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Mercury		0.0057	B M	0.0052	0.016

Client: Washington Closure Hanford

Job Number: 280-61707-1
Sdg Number: JP0874

Client Sample ID: J1V141

Lab Sample ID: 280-61707-2
Client Matrix: Solid

% Moisture: 4.5

Date Sampled: 10/22/2014 0851
Date Received: 10/24/2014 1000

6010B Metals (ICP)

Analysis Method: 6010B
Prep Method: 3050B
Dilution: 1.0
Analysis Date: 10/28/2014 1828
Prep Date: 10/28/2014 0830

Analysis Batch: 280-250247
Prep Batch: 280-249878

11/22/14

Instrument ID: MT_026
Lab File ID: 26b102814.asc
Initial Weight/Volume: 1.04 g
Final Weight/Volume: 100 mL

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Aluminum		5040		1.6	5.0
Antimony		0.38	U J	0.38	0.60
Arsenic		2.7		0.66	1.0
Barium		53.3	X	0.077	0.50
Boron		0.99	U	0.99	2.0
Cadmium		0.11	B	0.041	0.20
Calcium		7580		14.2	50.4
Chromium		5.6		0.058	0.20
Cobalt		8.9	X	0.10	1.0
Copper		15.8		0.22	1.0
Iron		24600	X	3.8	5.0
Lead		3.1		0.27	0.50
Magnesium		4640	X	3.7	20.1
Manganese		318	X	0.10	1.0
Molybdenum		0.26	U	0.26	2.0
Nickel		9.1	X	0.12	4.0
Potassium		675		41.3	302
Selenium		0.93	B	0.87	1.0
Silicon		493	X J	5.7	10.1
Silver		0.16	U	0.16	0.20
Sodium		280		59.4	121
Vanadium		63.9		0.095	2.0
Zinc		42.5	X	0.40	1.0

Analysis Method: 6010B
Prep Method: 3050B
Dilution: 5.0
Analysis Date: 10/30/2014 0958
Prep Date: 10/28/2014 0830

Analysis Batch: 280-250564
Prep Batch: 280-249878

Instrument ID: MT_026
Lab File ID: 26g102914.asc
Initial Weight/Volume: 1.04 g
Final Weight/Volume: 100 mL

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Beryllium		0.17	U	0.17	1.0

7471A Mercury (CVAA)

Analysis Method: 7471A
Prep Method: 7471A
Dilution: 1.0
Analysis Date: 10/29/2014 1449
Prep Date: 10/29/2014 1230

Analysis Batch: 280-250347
Prep Batch: 280-250297

Instrument ID: MT_033
Lab File ID: 141027aa.txt
Initial Weight/Volume: 0.65 g
Final Weight/Volume: 50 mL

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

Client: Washington Closure Hanford

Job Number: 280-61707-1
Sdg Number: JP0874

Client Sample ID: J1V142

Lab Sample ID: 280-61707-3
Client Matrix: Solid

% Moisture: 6.4

Date Sampled: 10/22/2014 0910
Date Received: 10/24/2014 1000

6010B Metals (ICP)

Analysis Method: 6010B
Prep Method: 3050B
Dilution: 1.0
Analysis Date: 10/28/2014 1831
Prep Date: 10/28/2014 0830

Analysis Batch: 280-250247
Prep Batch: 280-249878

11/22/14

Instrument ID: MT_026
Lab File ID: 26b102814.asc
Initial Weight/Volume: 1.12 g
Final Weight/Volume: 100 mL

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Aluminum		5350		1.5	4.8
Antimony		0.36	U J	0.36	0.57
Arsenic		2.2		0.63	0.95
Barium		55.7	X	0.073	0.48
Boron		0.93	U	0.93	1.9
Cadmium		0.092	B	0.039	0.19
Calcium		6490		13.5	47.7
Chromium		6.9		0.055	0.19
Cobalt		7.3	X	0.095	0.95
Copper		13.0		0.21	0.95
Iron		20300	X	3.6	4.8
Lead		3.3		0.26	0.48
Magnesium		4350	X	3.5	19.1
Manganese		271	X	0.095	0.95
Molybdenum		0.25	U	0.25	1.9
Nickel		9.4	X	0.12	3.8
Potassium		844		39.1	286
Selenium		0.82	U	0.82	0.95
Silicon		402	X J	5.4	9.5
Silver		0.15	U	0.15	0.19
Sodium		288		56.3	114
Vanadium		51.9		0.090	1.9
Zinc		37.4	X	0.38	0.95

Analysis Method: 6010B
Prep Method: 3050B
Dilution: 2.0
Analysis Date: 10/30/2014 1001
Prep Date: 10/28/2014 0830

Analysis Batch: 280-250564
Prep Batch: 280-249878

Instrument ID: MT_026
Lab File ID: 26g102914.asc
Initial Weight/Volume: 1.12 g
Final Weight/Volume: 100 mL

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Beryllium		0.063	U	0.063	0.38

7471A Mercury (CVAA)

Analysis Method: 7471A
Prep Method: 7471A
Dilution: 1.0
Analysis Date: 10/29/2014 1451
Prep Date: 10/29/2014 1230

Analysis Batch: 280-250347
Prep Batch: 280-250297

Instrument ID: MT_033
Lab File ID: 141027aa.txt
Initial Weight/Volume: 0.60 g
Final Weight/Volume: 50 mL

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Mercury		0.0059	U	0.0059	0.018

Client: Washington Closure Hanford

Job Number: 280-61707-1
Sdg Number: JP0874

Client Sample ID: J1V143

Lab Sample ID: 280-61707-4
Client Matrix: Solid

% Moisture: 3.7

Date Sampled: 10/22/2014 0924
Date Received: 10/24/2014 1000

6010B Metals (ICP)

Analysis Method: 6010B
Prep Method: 3050B
Dilution: 1.0
Analysis Date: 10/28/2014 1833
Prep Date: 10/28/2014 0830

Analysis Batch: 280-250247
Prep Batch: 280-249878

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Instrument ID: MT_026
Lab File ID: 26b102814.asc
Initial Weight/Volume: 1.01 g
Final Weight/Volume: 100 mL

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Aluminum		6470		1.6	5.1
Antimony		0.39	U J	0.39	0.62
Arsenic		3.2		0.68	1.0
Barium		71.2	X	0.078	0.51
Beryllium		0.034	U	0.034	0.21
Boron		1.6	B	1.0	2.1
Cadmium		0.13	B	0.042	0.21
Calcium		7840		14.5	51.4
Chromium		9.1		0.060	0.21
Cobalt		8.2	X	0.10	1.0
Copper		16.3		0.22	1.0
Iron		22100	X	3.9	5.1
Lead		5.3		0.28	0.51
Magnesium		4820	X	3.8	20.6
Manganese		298	X	0.10	1.0
Molybdenum		0.27	U	0.27	2.1
Nickel		11.3	X	0.13	4.1
Potassium		1060		42.1	308
Selenium		0.88	U	0.88	1.0
Silicon		604	X J	5.8	10.3
Silver		0.16	U	0.16	0.21
Sodium		311		60.6	123
Vanadium		53.2		0.097	2.1
Zinc		44.7	X	0.41	1.0

7471A Mercury (CVAA)

Analysis Method: 7471A
Prep Method: 7471A
Dilution: 1.0
Analysis Date: 10/29/2014 1453
Prep Date: 10/29/2014 1230

Analysis Batch: 280-250347
Prep Batch: 280-250297

Instrument ID: MT_033
Lab File ID: 141027aa.txt
Initial Weight/Volume: 0.54 g
Final Weight/Volume: 50 mL

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Mercury		0.012	B	0.0064	0.020

Client: Washington Closure Hanford

Job Number: 280-61707-1
Sdg Number: JP0874

Client Sample ID: J1V144

Lab Sample ID: 280-61707-5
Client Matrix: Solid

% Moisture: 3.2

Date Sampled: 10/22/2014 0818
Date Received: 10/24/2014 1000

6010B Metals (ICP)

Analysis Method: 6010B
Prep Method: 3050B
Dilution: 1.0
Analysis Date: 10/28/2014 1836
Prep Date: 10/28/2014 0830

Analysis Batch: 280-250247
Prep Batch: 280-249878

V 11/24/14

Instrument ID: MT_026
Lab File ID: 26b102814.asc
Initial Weight/Volume: 1.07 g
Final Weight/Volume: 100 mL

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Aluminum		4310		1.5	4.8
Arsenic		1.6		0.64	0.97
Barium		58.8	X	0.073	0.48
Boron		0.95	U	0.95	1.9
Cadmium		0.095	B	0.040	0.19
Calcium		6200		13.6	48.3
Chromium		4.5		0.056	0.19
Iron		25900	X	3.7	4.8
Magnesium		4440	X	3.6	19.3
Manganese		317	X	0.097	0.97
Molybdenum		0.25	U	0.25	1.9
Nickel		9.4	X	0.12	3.9
Potassium		583		39.6	290
Selenium		0.83	U J	0.83	0.97
Silicon		287	X	5.5	9.7
Silver		0.15	U	0.15	0.19
Sodium		292		57.0	116
Zinc		44.2	X	0.38	0.97

Analysis Method: 6010B
Prep Method: 3050B
Dilution: 5.0
Analysis Date: 10/30/2014 1003
Prep Date: 10/28/2014 0830

Analysis Batch: 280-250564
Prep Batch: 280-249878

Instrument ID: MT_026
Lab File ID: 26g102914.asc
Initial Weight/Volume: 1.07 g
Final Weight/Volume: 100 mL

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Antimony		1.8	U J	1.8	2.9
Beryllium		0.16	U	0.16	0.97
Cobalt		11.4	X	0.48	4.8
Copper		18.2		1.0	4.8
Lead		3.4		1.3	2.4
Vanadium		81.8		0.45	9.7

7471A Mercury (CVAA)

Analysis Method: 7471A
Prep Method: 7471A
Dilution: 1.0
Analysis Date: 10/29/2014 1456
Prep Date: 10/29/2014 1230

Analysis Batch: 280-250347
Prep Batch: 280-250297

Instrument ID: MT_033
Lab File ID: 141027aa.txt
Initial Weight/Volume: 0.65 g
Final Weight/Volume: 50 mL

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

Client: Washington Closure Hanford

Job Number: 280-61707-1
Sdg Number: JP0874

Client Sample ID: J1V145

Lab Sample ID: 280-61707-6
Client Matrix: Solid

% Moisture: 3.2

Date Sampled: 10/22/2014 0802
Date Received: 10/24/2014 1000

6010B Metals (ICP)

Analysis Method: 6010B
Prep Method: 3050B
Dilution: 1.0
Analysis Date: 10/30/2014 1006
Prep Date: 10/28/2014 0830

Analysis Batch: 280-250564
Prep Batch: 280-249878

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Instrument ID: MT_026
Lab File ID: 26g102914.asc
Initial Weight/Volume: 1.14 g
Final Weight/Volume: 100 mL

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Aluminum		4460		1.4	4.5
Arsenic		2.6		0.60	0.91
Barium		52.4	X	0.069	0.45
Boron		0.89	U	0.89	1.8
Cadmium		0.12	B	0.037	0.18
Calcium		6330		12.8	45.3
Chromium		5.2		0.053	0.18
Iron		24400	X	3.4	4.5
Magnesium		4360	X	3.4	18.1
Manganese		293	X	0.091	0.91
Molybdenum		0.24	U	0.24	1.8
Nickel		10.3	X	0.11	3.6
Potassium		656		37.2	272
Selenium		0.79	B	0.78	0.91
Silicon		212	X J	5.1	9.1
Silver		0.15	U	0.15	0.18
Sodium		321		53.5	109
Zinc		43.7	X	0.36	0.91

Analysis Method: 6010B
Prep Method: 3050B
Dilution: 5.0
Analysis Date: 10/30/2014 1111
Prep Date: 10/28/2014 0830

Analysis Batch: 280-250564
Prep Batch: 280-249878

Instrument ID: MT_026
Lab File ID: 26g102914.asc
Initial Weight/Volume: 1.14 g
Final Weight/Volume: 100 mL

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Antimony		1.7	U J	1.7	2.7
Beryllium		0.15	U	0.15	0.91
Cobalt		10.7	X	0.45	4.5
Copper		17.5		0.98	4.5
Lead		8.6		1.2	2.3
Vanadium		77.0		0.43	9.1

7471A Mercury (CVAA)

Analysis Method: 7471A
Prep Method: 7471A
Dilution: 1.0
Analysis Date: 10/29/2014 1458
Prep Date: 10/29/2014 1230

Analysis Batch: 280-250347
Prep Batch: 280-250297

Instrument ID: MT_033
Lab File ID: 141027aa.txt
Initial Weight/Volume: 0.56 g
Final Weight/Volume: 50 mL

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Mercury		0.0061	U	0.0061	0.019

Client: Washington Closure Hanford

Job Number: 280-61707-1
Sdg Number: JP0874

Client Sample ID: J1V146

Lab Sample ID: 280-61707-7
Client Matrix: Solid

% Moisture: 3.7

Date Sampled: 10/22/2014 0940
Date Received: 10/24/2014 1000

6010B Metals (ICP)

Analysis Method:	6010B	Analysis Batch:	280-250564	Instrument ID:	MT_026
Prep Method:	3050B	Prep Batch:	280-249878	Lab File ID:	26g102914.asc
Dilution:	1.0			Initial Weight/Volume:	1.08 g
Analysis Date:	10/30/2014 1009			Final Weight/Volume:	100 mL
Prep Date:	10/28/2014 0830				

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Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Aluminum		6340		1.5	4.8
Antimony		0.37	U J	0.37	0.58
Arsenic		3.2		0.63	0.96
Barium		69.2	X	0.073	0.48
Boron		0.94	U	0.94	1.9
Cadmium		0.14	B	0.039	0.19
Calcium		7390		13.6	48.1
Chromium		8.1		0.056	0.19
Cobalt		7.8	X	0.096	0.96
Copper		15.5		0.21	0.96
Iron		21500	X	3.7	4.8
Lead		4.3		0.26	0.48
Magnesium		4520	X	3.6	19.2
Manganese		302	X	0.096	0.96
Molybdenum		0.25	U	0.25	1.9
Nickel		10.0	X	0.12	3.8
Potassium		1040		39.4	288
Selenium		0.83	U	0.83	0.96
Silicon		422	X J	5.4	9.6
Silver		0.15	U	0.15	0.19
Sodium		254		56.7	115
Vanadium		53.6		0.090	1.9
Zinc		44.8	X	0.38	0.96

Analysis Method:	6010B	Analysis Batch:	280-250564	Instrument ID:	MT_026
Prep Method:	3050B	Prep Batch:	280-249878	Lab File ID:	26g102914.asc
Dilution:	2.0			Initial Weight/Volume:	1.08 g
Analysis Date:	10/30/2014 1114			Final Weight/Volume:	100 mL
Prep Date:	10/28/2014 0830				

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Beryllium		0.063	U	0.063	0.38

7471A Mercury (CVAA)

Analysis Method:	7471A	Analysis Batch:	280-250347	Instrument ID:	MT_033
Prep Method:	7471A	Prep Batch:	280-250297	Lab File ID:	141027aa.txt
Dilution:	1.0			Initial Weight/Volume:	0.58 g
Analysis Date:	10/29/2014 1505			Final Weight/Volume:	50 mL
Prep Date:	10/29/2014 1230				

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Mercury		0.0059	U	0.0059	0.018

Client: Washington Closure Hanford

Job Number: 280-61707-1
Sdg Number: JP0874

Client Sample ID: J1V147

Lab Sample ID: 280-61707-8
Client Matrix: Solid

% Moisture: 4.8

Date Sampled: 10/22/2014 0949
Date Received: 10/24/2014 1000

6010B Metals (ICP)

Analysis Method: 6010B
Prep Method: 3050B
Dilution: 1.0
Analysis Date: 10/30/2014 1011
Prep Date: 10/28/2014 0830

Analysis Batch: 280-250564
Prep Batch: 280-249878

Instrument ID: MT_026
Lab File ID: 26g102914.asc
Initial Weight/Volume: 1.10 g
Final Weight/Volume: 100 mL

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Aluminum		5960		1.5	4.8
Antimony		0.36	U J	0.36	0.57
Arsenic		2.9		0.63	0.95
Barium		63.8	X	0.073	0.48
Boron		0.94	U	0.94	1.9
Cadmium		0.14	B	0.039	0.19
Calcium		6640		13.5	47.7
Chromium		7.8		0.055	0.19
Cobalt		7.6	X	0.095	0.95
Copper		15.2		0.21	0.95
Iron		21400	X	3.6	4.8
Lead		3.8		0.26	0.48
Magnesium		4380	X	3.5	19.1
Manganese		297	X	0.095	0.95
Molybdenum		0.25	U	0.25	1.9
Nickel		10	X	0.12	3.8
Potassium		878		39.2	286
Selenium		1.3		0.82	0.95
Silicon		310	X J	5.4	9.5
Silver		0.15	U	0.15	0.19
Sodium		277		56.3	115
Vanadium		54.7		0.090	1.9
Zinc		40.7	X	0.38	0.95

Analysis Method: 6010B
Prep Method: 3050B
Dilution: 2.0
Analysis Date: 10/30/2014 1116
Prep Date: 10/28/2014 0830

Analysis Batch: 280-250564
Prep Batch: 280-249878

Instrument ID: MT_026
Lab File ID: 26g102914.asc
Initial Weight/Volume: 1.10 g
Final Weight/Volume: 100 mL

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Beryllium		0.063	U	0.063	0.38

7471A Mercury (CVAA)

Analysis Method: 7471A
Prep Method: 7471A
Dilution: 1.0
Analysis Date: 10/29/2014 1507
Prep Date: 10/29/2014 1230

Analysis Batch: 280-250347
Prep Batch: 280-250297

Instrument ID: MT_033
Lab File ID: 141027aa.txt
Initial Weight/Volume: 0.56 g
Final Weight/Volume: 50 mL

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Mercury		0.0062	U	0.0062	0.019

Client: Washington Closure Hanford

Job Number: 280-61707-1
Sdg Number: JP0874

Client Sample ID: J1V148

Lab Sample ID: 280-61707-9
Client Matrix: Solid

% Moisture: 3.8

Date Sampled: 10/22/2014 1008
Date Received: 10/24/2014 1000

6010B Metals (ICP)

Analysis Method: 6010B
Prep Method: 3050B
Dilution: 1.0
Analysis Date: 10/30/2014 1014
Prep Date: 10/28/2014 0830

Analysis Batch: 280-250564
Prep Batch: 280-249878

Instrument ID: MT_026
Lab File ID: 26g102914.asc
Initial Weight/Volume: 1.11 g
Final Weight/Volume: 100 mL

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Aluminum		6280		1.5	4.7
Antimony		0.36	U J	0.36	0.56
Arsenic		4.1		0.62	0.94
Barium		60.8	X	0.071	0.47
Boron		0.92	U	0.92	1.9
Cadmium		0.15	B	0.038	0.19
Calcium		8230		13.2	46.8
Chromium		10.6		0.054	0.19
Cobalt		7.4	X	0.094	0.94
Copper		15.9		0.20	0.94
Iron		19800	X	3.6	4.7
Lead		4.3		0.25	0.47
Magnesium		5190	X	3.5	18.7
Manganese		297	X	0.094	0.94
Molybdenum		0.24	U	0.24	1.9
Nickel		12.1	X	0.12	3.7
Potassium		1070		38.4	281
Selenium		1.1		0.81	0.94
Silicon		305	X J	5.3	9.4
Silver		0.15	U	0.15	0.19
Sodium		324		55.2	112
Vanadium		47.2		0.088	1.9
Zinc		40.3	X	0.37	0.94

Analysis Method: 6010B
Prep Method: 3050B
Dilution: 2.0
Analysis Date: 10/30/2014 1119
Prep Date: 10/28/2014 0830

Analysis Batch: 280-250564
Prep Batch: 280-249878

Instrument ID: MT_026
Lab File ID: 26g102914.asc
Initial Weight/Volume: 1.11 g
Final Weight/Volume: 100 mL

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Beryllium		0.062	U	0.062	0.37

7471A Mercury (CVAA)

Analysis Method: 7471A
Prep Method: 7471A
Dilution: 1.0
Analysis Date: 10/29/2014 1510
Prep Date: 10/29/2014 1230

Analysis Batch: 280-250347
Prep Batch: 280-250297

Instrument ID: MT_033
Lab File ID: 141027aa.txt
Initial Weight/Volume: 0.67 g
Final Weight/Volume: 50 mL

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

Client: Washington Closure Hanford

Job Number: 280-61707-1
Sdg Number: JP0874

Client Sample ID: J1V149

Lab Sample ID: 280-61707-10
Client Matrix: Solid

% Moisture: 4.3

Date Sampled: 10/22/2014 1015
Date Received: 10/24/2014 1000

6010B Metals (ICP)

Analysis Method: 6010B
Prep Method: 3050B
Dilution: 1.0
Analysis Date: 10/30/2014 1016
Prep Date: 10/28/2014 0830

Analysis Batch: 280-250564
Prep Batch: 280-249878

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Instrument ID: MT_026
Lab File ID: 26g102914.asc
Initial Weight/Volume: 1.08 g
Final Weight/Volume: 100 mL

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Aluminum		6670		1.5	4.8
Antimony		0.37	U J	0.37	0.58
Arsenic		3.6		0.64	0.97
Barium		69.3	X	0.074	0.48
Boron		1.3	B	0.95	1.9
Cadmium		0.15	B	0.040	0.19
Calcium		7300		13.6	48.4
Chromium		8.8		0.056	0.19
Cobalt		7.6	X	0.097	0.97
Copper		16.2		0.21	0.97
Iron		21000	X	3.7	4.8
Lead		5.0		0.26	0.48
Magnesium		4650	X	3.6	19.4
Manganese		309	X	0.097	0.97
Molybdenum		0.25	U	0.25	1.9
Nickel		11.0	X	0.12	3.9
Potassium		1140		39.7	290
Selenium		1.5		0.83	0.97
Silicon		342	X J	5.5	9.7
Silver		0.15	U	0.15	0.19
Sodium		296		57.1	116
Vanadium		51.7		0.091	1.9
Zinc		43.7	X	0.39	0.97

Analysis Method: 6010B
Prep Method: 3050B
Dilution: 2.0
Analysis Date: 10/30/2014 1121
Prep Date: 10/28/2014 0830

Analysis Batch: 280-250564
Prep Batch: 280-249878

Instrument ID: MT_026
Lab File ID: 26g102914.asc
Initial Weight/Volume: 1.08 g
Final Weight/Volume: 100 mL

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Beryllium		0.064	U	0.064	0.39

7471A Mercury (CVAA)

Analysis Method: 7471A
Prep Method: 7471A
Dilution: 1.0
Analysis Date: 10/29/2014 1512
Prep Date: 10/29/2014 1230

Analysis Batch: 280-250347
Prep Batch: 280-250297

Instrument ID: MT_033
Lab File ID: 141027aa.txt
Initial Weight/Volume: 0.58 g
Final Weight/Volume: 50 mL

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Mercury		0.010	B	0.0060	0.018

Client: Washington Closure Hanford

Job Number: 280-61707-1
Sdg Number: JP0874

Client Sample ID: J1V150

Lab Sample ID: 280-61707-11
Client Matrix: Solid

% Moisture: 4.5

Date Sampled: 10/22/2014 1027
Date Received: 10/24/2014 1000

6010B Metals (ICP)

Analysis Method: 6010B
Prep Method: 3050B
Dilution: 1.0
Analysis Date: 10/30/2014 1019
Prep Date: 10/28/2014 0830

Analysis Batch: 280-250564
Prep Batch: 280-249878

W 11/22/14

Instrument ID: MT_026
Lab File ID: 26g102914.asc
Initial Weight/Volume: 1.13 g
Final Weight/Volume: 100 mL

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Aluminum		6700		1.4	4.6
Antimony		0.35	U J	0.35	0.56
Arsenic		3.2		0.61	0.93
Barium		75.4	X	0.070	0.46
Boron		1.4	B	0.91	1.9
Cadmium		0.13	B	0.038	0.19
Calcium		7090		13.1	46.3
Chromium		8.9		0.054	0.19
Cobalt		7.6	X	0.093	0.93
Copper		16.3		0.20	0.93
Iron		20700	X	3.5	4.6
Lead		5.9		0.25	0.46
Magnesium		4490	X	3.4	18.5
Manganese		307	X	0.093	0.93
Molybdenum		0.57	B	0.24	1.9
Nickel		10.5	X	0.11	3.7
Potassium		1210		38.0	278
Selenium		0.80	U	0.80	0.93
Silicon		386	X J	5.2	9.3
Silver		0.15	U	0.15	0.19
Sodium		317		54.7	111
Vanadium		51.3		0.087	1.9
Zinc		42.5	X	0.37	0.93

Analysis Method: 6010B
Prep Method: 3050B
Dilution: 2.0
Analysis Date: 10/30/2014 1124
Prep Date: 10/28/2014 0830

Analysis Batch: 280-250564
Prep Batch: 280-249878

Instrument ID: MT_026
Lab File ID: 26g102914.asc
Initial Weight/Volume: 1.13 g
Final Weight/Volume: 100 mL

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Beryllium		0.061	U	0.061	0.37

7471A Mercury (CVAA)

Analysis Method: 7471A
Prep Method: 7471A
Dilution: 1.0
Analysis Date: 10/29/2014 1514
Prep Date: 10/29/2014 1230

Analysis Batch: 280-250347
Prep Batch: 280-250297

Instrument ID: MT_033
Lab File ID: 141027aa.txt
Initial Weight/Volume: 0.70 g
Final Weight/Volume: 50 mL

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Mercury		0.0087	B	0.0050	0.015

Client: Washington Closure Hanford

Job Number: 280-61707-1
Sdg Number: JP0874

Client Sample ID: J1V151

Lab Sample ID: 280-61707-12
Client Matrix: Solid

% Moisture: 4.7

Date Sampled: 10/22/2014 1042
Date Received: 10/24/2014 1000

6010B Metals (ICP)

Analysis Method: 6010B
Prep Method: 3050B
Dilution: 1.0
Analysis Date: 10/30/2014 1032
Prep Date: 10/28/2014 0830

Analysis Batch: 280-250564
Prep Batch: 280-249878

W 11/22/14

Instrument ID: MT_026
Lab File ID: 26g102914.asc
Initial Weight/Volume: 1.15 g
Final Weight/Volume: 100 mL

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Aluminum		7220		1.4	4.6
Antimony		0.35	U J	0.35	0.55
Barium		74.1	X	0.069	0.46
Boron		1.3	B	0.89	1.8
Cadmium		0.15	B	0.037	0.18
Calcium		8510		12.9	45.6
Chromium		10.8		0.053	0.18
Cobalt		7.7	X	0.091	0.91
Copper		17.3		0.20	0.91
Iron		20100	X	3.5	4.6
Lead		5.6		0.25	0.46
Magnesium		4940	X	3.4	18.2
Manganese		303	X	0.091	0.91
Molybdenum		0.52	B	0.24	1.8
Nickel		13.0	X	0.11	3.6
Potassium		1250		37.4	274
Selenium		1.3		0.78	0.91
Silicon		429	X J	5.2	9.1
Silver		0.15	U	0.15	0.18
Sodium		339		53.8	109
Vanadium		50.5		0.086	1.8
Zinc		44.8	X	0.36	0.91

Analysis Method: 6010B
Prep Method: 3050B
Dilution: 1.0
Analysis Date: 10/30/2014 2229
Prep Date: 10/28/2014 0830

Analysis Batch: 280-250706
Prep Batch: 280-249878

Instrument ID: MT_026
Lab File ID: 26A103014D.asc
Initial Weight/Volume: 1.15 g
Final Weight/Volume: 100 mL

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Arsenic		3.4		0.60	0.91

Analysis Method: 6010B
Prep Method: 3050B
Dilution: 2.0
Analysis Date: 10/30/2014 1126
Prep Date: 10/28/2014 0830

Analysis Batch: 280-250564
Prep Batch: 280-249878

Instrument ID: MT_026
Lab File ID: 26g102914.asc
Initial Weight/Volume: 1.15 g
Final Weight/Volume: 100 mL

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Beryllium		0.060	U	0.060	0.36

7471A Mercury (CVAA)

Client: Washington Closure Hanford

Job Number: 280-61707-1
Sdg Number: JP0874

Client Sample ID: **J1V151**

Lab Sample ID: 280-61707-12
Client Matrix: Solid

% Moisture: 4.7

Date Sampled: 10/22/2014 1042
Date Received: 10/24/2014 1000

7471A Mercury (CVAA)

Analysis Method:	7471A	Analysis Batch:	280-250347	Instrument ID:	MT_033
Prep Method:	7471A	Prep Batch:	280-250297	Lab File ID:	141027aa.txt
Dilution:	1.0			Initial Weight/Volume:	0.60 g
Analysis Date:	10/29/2014 1517			Final Weight/Volume:	50 mL
Prep Date:	10/29/2014 1230				

11/22/14

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Mercury		0.011	B	0.0058	0.018

Client: Washington Closure Hanford

Job Number: 280-61707-1
Sdg Number: JP0874

Client Sample ID: J1V152

Lab Sample ID: 280-61707-13
Client Matrix: Solid

% Moisture: 3.3

Date Sampled: 10/22/2014 0818
Date Received: 10/24/2014 1000

6010B Metals (ICP)

Analysis Method: 6010B
Prep Method: 3050B
Dilution: 1.0
Analysis Date: 10/30/2014 1035
Prep Date: 10/28/2014 0830

Analysis Batch: 280-250564
Prep Batch: 280-249878

11/22/14

Instrument ID: MT_026
Lab File ID: 26g102914.asc
Initial Weight/Volume: 1.11 g
Final Weight/Volume: 100 mL

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Aluminum		4170		1.4	4.7
Barium		54.0	X	0.071	0.47
Boron		0.91	U	0.91	1.9
Cadmium		0.12	B	0.038	0.19
Calcium		6040		13.1	46.6
Chromium		3.4		0.054	0.19
Iron		24100	X	3.5	4.7
Magnesium		4320	X	3.4	18.6
Manganese		275	X	0.093	0.93
Molybdenum		0.24	U	0.24	1.9
Nickel		7.4	X	0.11	3.7
Potassium		587		38.2	279
Selenium		0.89	B	0.80	0.93
Silicon		178	X J	5.3	9.3
Silver		0.15	U	0.15	0.19
Sodium		304		54.9	112
Zinc		42.0	X	0.37	0.93

Analysis Method: 6010B
Prep Method: 3050B
Dilution: 1.0
Analysis Date: 10/30/2014 2231
Prep Date: 10/28/2014 0830

Analysis Batch: 280-250706
Prep Batch: 280-249878

Instrument ID: MT_026
Lab File ID: 26A103014D.asc
Initial Weight/Volume: 1.11 g
Final Weight/Volume: 100 mL

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Arsenic		1.8		0.61	0.93

Analysis Method: 6010B
Prep Method: 3050B
Dilution: 5.0
Analysis Date: 10/30/2014 1129
Prep Date: 10/28/2014 0830

Analysis Batch: 280-250564
Prep Batch: 280-249878

Instrument ID: MT_026
Lab File ID: 26g102914.asc
Initial Weight/Volume: 1.11 g
Final Weight/Volume: 100 mL

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Antimony		1.8	U J	1.8	2.8
Beryllium		0.15	U	0.15	0.93
Cobalt		10.4	X	0.47	4.7
Copper		17.7		1.0	4.7
Lead		2.6		1.3	2.3
Vanadium		74.5		0.44	9.3

7471A Mercury (CVAA)

Client: Washington Closure Hanford

Job Number: 280-61707-1
Sdg Number: JP0874

Client Sample ID: J1V152

Lab Sample ID: 280-61707-13
Client Matrix: Solid

% Moisture: 3.3

Date Sampled: 10/22/2014 0818
Date Received: 10/24/2014 1000

7471A Mercury (CVAA)

Analysis Method:	7471A	Analysis Batch:	280-250347	Instrument ID:	MT_033
Prep Method:	7471A	Prep Batch:	280-250297	Lab File ID:	141027aa.txt
Dilution:	1.0			Initial Weight/Volume:	0.62 g
Analysis Date:	10/29/2014 1519			Final Weight/Volume:	50 mL
Prep Date:	10/29/2014 1230				

11/22/14

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

Client: Washington Closure Hanford

Job Number: 280-61707-1
Sdg Number: JP0874

Client Sample ID: J1V153

Lab Sample ID: 280-61707-14
Client Matrix: Solid

% Moisture: 0.0

Date Sampled: 10/22/2014 0753
Date Received: 10/24/2014 1000

6010B Metals (ICP)

Analysis Method: 6010B
Prep Method: 3050B
Dilution: 1.0
Analysis Date: 10/30/2014 1037
Prep Date: 10/28/2014 0830

Analysis Batch: 280-250564
Prep Batch: 280-249878

Instrument ID: MT_026
Lab File ID: 26g102914.asc
Initial Weight/Volume: 1.05 g
Final Weight/Volume: 100 mL

11/22/14

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Antimony		0.36	U J	0.36	0.57
Barium		1.4	X	0.072	0.48
Beryllium		0.031	U	0.031	0.19
Boron		0.93	U	0.93	1.9
Cadmium		0.039	U	0.039	0.19
Calcium		30.2	B	13.4	47.6
Chromium		0.15	B	0.055	0.19
Cobalt		0.095	U X	0.095	0.95
Copper		0.31	B	0.21	0.95
Lead		0.26	U	0.26	0.48
Magnesium		16.3	B X	3.5	19.0
Manganese		2.9	X	0.095	0.95
Molybdenum		0.25	U	0.25	1.9
Nickel		0.17	B X	0.12	3.8
Potassium		39.0	U	39.0	286
Selenium		0.82	U	0.82	0.95
Silver		0.15	U	0.15	0.19
Sodium		56.2	U	56.2	114
Vanadium		0.28	B	0.090	1.9
Zinc		0.70	B X	0.38	0.95

Analysis Method: 6010B
Prep Method: 3050B
Dilution: 1.0
Analysis Date: 10/30/2014 2234
Prep Date: 10/28/2014 0830

Analysis Batch: 280-250706
Prep Batch: 280-249878

Instrument ID: MT_026
Lab File ID: 26A103014D.asc
Initial Weight/Volume: 1.05 g
Final Weight/Volume: 100 mL

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Arsenic		0.63	U	0.63	0.95

Analysis Method: 6010B
Prep Method: 3050B
Dilution: 1.0
Analysis Date: 10/30/2014 2252
Prep Date: 10/30/2014 1400

Analysis Batch: 280-250707
Prep Batch: 280-250590

Instrument ID: MT_026
Lab File ID: 26A103014E.asc
Initial Weight/Volume: 1.04 g
Final Weight/Volume: 100 mL

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Aluminum		105	N J	1.5	4.8
Iron		131	M J	3.7	4.8
Silicon		128	J	5.4	9.6

7471A Mercury (CVAA)

Client: Washington Closure Hanford

Job Number: 280-61707-1
Sdg Number: JP0874

Client Sample ID: J1V153

Lab Sample ID: 280-61707-14
Client Matrix: Solid

% Moisture: 0.0

Date Sampled: 10/22/2014 0753
Date Received: 10/24/2014 1000

7471A Mercury (CVAA)

Analysis Method:	7471A	Analysis Batch:	280-250347	Instrument ID:	MT_033
Prep Method:	7471A	Prep Batch:	280-250297	Lab File ID:	141027aa.txt
Dilution:	1.0			Initial Weight/Volume:	0.71 g
Analysis Date:	10/29/2014 1521			Final Weight/Volume:	50 mL
Prep Date:	10/29/2014 1230				

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Mercury		0.0047	U	0.0047	0.014

Appendix 4

Laboratory Narrative and Chain-of-Custody Documentation

CASE NARRATIVE

Client: Washington Closure Hanford

Project: WASHINGTON CLOSURE HANFORD

Report Number: 280-61707-1

SDG #: JP0874
SAF#: RC-075

Date SDG Closed: October 24, 2014
Data Deliverable: 7 Day / Summary

CLIENT ID	LAB ID	ANALYSES REQUESTED	ANALYSES PERFORMED
J1V140	280-61707-1	6010/7471/9056M/353.2/8081/WTPH-D+/ 8082/8310/8260B	6010B/7471A/9056M/353.2/8081A/NWTPH-Dx/ 8082/8310/8260B
J1V141	280-61707-2	6010/7471/9056M/353.2/8081/WTPH-D+/ 8082/8310/8260B	6010B/7471A/9056M/353.2/8081A/NWTPH-Dx/ 8082/8310/8260B
J1V142	280-61707-3	6010/7471/9056M/353.2/8081/WTPH-D+/ 8082/8310/8260B	6010B/7471A/9056M/353.2/8081A/NWTPH-Dx/ 8082/8310/8260B
J1V143	280-61707-4	6010/7471/9056M/353.2/8081/WTPH-D+/ 8082/8310/8260B	6010B/7471A/9056M/353.2/8081A/NWTPH-Dx/ 8082/8310/8260B
J1V144	280-61707-5	6010/7471/9056M/353.2/8081/WTPH-D+/ 8082/8310/8260B	6010B/7471A/9056M/353.2/8081A/NWTPH-Dx/ 8082/8310/8260B
J1V145	280-61707-6	6010/7471/9056M/353.2/8081/WTPH-D+/ 8082/8310/8260B	6010B/7471A/9056M/353.2/8081A/NWTPH-Dx/ 8082/8310/8260B
J1V146	280-61707-7	6010/7471/9056M/353.2/8081/WTPH-D+/ 8082/8310/8260B	6010B/7471A/9056M/353.2/8081A/NWTPH-Dx/ 8082/8310/8260B
J1V147	280-61707-8	6010/7471/9056M/353.2/8081/WTPH-D+/ 8082/8310/8260B	6010B/7471A/9056M/353.2/8081A/NWTPH-Dx/ 8082/8310/8260B
J1V148	280-61707-9	6010/7471/9056M/353.2/8081/WTPH-D+/ 8082/8310/8260B	6010B/7471A/9056M/353.2/8081A/NWTPH-Dx/ 8082/8310/8260B
J1V149	280-61707-10	6010/7471/9056M/353.2/8081/WTPH-D+/ 8082/8310/8260B	6010B/7471A/9056M/353.2/8081A/NWTPH-Dx/ 8082/8310/8260B
J1V150	280-61707-11	6010/7471/9056M/353.2/8081/WTPH-D+/ 8082/8310/8260B	6010B/7471A/9056M/353.2/8081A/NWTPH-Dx/ 8082/8310/8260B
J1V151	280-61707-12	6010/7471/9056M/353.2/8081/WTPH-D+/ 8082/8310/8260B	6010B/7471A/9056M/353.2/8081A/NWTPH-Dx/ 8082/8310/8260B
J1V152	280-61707-13	6010/7471/9056M/353.2/8081/WTPH-D+/ 8082/8310/8260B	6010B/7471A/9056M/353.2/8081A/NWTPH-Dx/ 8082/8310/8260B
J1V153	280-61707-14	6010/7471/8260B	6010B/7471A/8260B
J1V155	280-61707-15	8260B	8260B

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 10/24/2014 10:00 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 7 coolers at receipt time were 0.3° C, 0.3° C, 0.4° C, 2.2° C, 2.8° C, 3.9° C and 5.6° C.

It can be noted that the Chains of Custody indicate "VOA samples frozen upon collection", and the 5035/8260B VOA samples were placed in the freezer upon receipt at the laboratory. The client was notified on 10/27/2014.

The 250mL container submitted for sample J1V145, requesting PCBs 8082 analysis, was received at the laboratory broken. The uncompromised volume was transferred to a new container and was placed on hold, as sufficient volume remained to proceed with the requested analyses using containers that were received intact. The client was notified on 10/27/2014.

GC/MS VOLATILES - SW846 8260B
Low levels of 1,1-Dichloroethane, 1,1-Dichloroethene and Trichloroethene are present in the method blank associated with prep batch 280-250397. Because the concentrations in the method blank are not present at levels greater than half the reporting limit, corrective action is deemed unnecessary. Associated sample results present above the MDL and/or RL have been flagged with a "B".

The MS/MSD performed on sample J1V142 exhibited RPD data outside the control limits. The acceptable LCS analysis data indicated that the analytical system was operating within control; therefore, corrective action is deemed unnecessary. The laboratory noted that the sample size used in the preparation of the MS and MSD for sample J1V142 exceeded 10% difference. As the RPD calculation is based upon the MS/MSD concentration as opposed to the MS/MSD percent recovery, elevated %RPD values were obtained.

The MSD aliquot of the MS/MSD performed on sample J1V153 exhibited percent recoveries outside the control limits for Acetone and Chloroform, and the associated sample results have been flagged "T". In addition, RPD limits were exceeded. The acceptable LCS analysis data indicated that the analytical system was operating within control; therefore, corrective action is deemed unnecessary. The laboratory noted that the sample size used in the preparation of the MS and MSD for sample J1V153 exceeded 10% difference. As the RPD calculation is based upon the MS/MSD concentration as opposed to the MS/MSD percent recovery, elevated %RPD values were obtained.

No other anomalies were encountered.

GC SEMIVOLATILES - SW846 8081A - Pesticides
Surrogate Decachlorobiphenyl was recovered outside the control limits, biased low, in samples J1V143, J1V146, J1V150 and J1V151. The laboratory noted that this anomaly is due to obvious matrix interference; therefore, corrective action is deemed unnecessary. Samples had numerous non-target peaks and significant baseline rise interfering with identification and quantitation of the surrogate.

The RPD between the primary and confirmation columns exceeded 40% for 4,4'-DDT in samples J1V148 and J1V150. The lower of the two values has been reported, as matrix interference is evident. The results have been flagged with an "X".

The MS aliquot of the MS/MSD performed on sample J1V142 exhibited the percent recovery outside the control limits for beta-BHC, and the associated sample result has been flagged "N". The acceptable LCS analysis data indicated that the analytical system was operating within control; therefore, corrective action is deemed unnecessary.

The Initial Calibration Verification (ICV) standard demonstrated a low bias for Endosulfan II (-25%) and a high bias for Methoxychlor (+18%) on the primary column. These analytes were in control on the confirmation column, and there were no tentative detections in the samples (peaks requiring second column confirmation). As there is no bias on the confirmation column and the method detection limit is valid for evaluating non-detected results, corrective action is deemed unnecessary and data for the affected analytes are reported from the column that is in control.

A Continuing Calibration Verification (CCV) standard associated with samples J1V144, J1V145, J1V148 and J1V152 exhibited %Difference (%D) values >15%, biased high, for 4,4'-DDT (+24%, +18%). The samples associated with this CCV were non-detect or less than the RL for the affected analyte; therefore, corrective action is deemed unnecessary.

No other anomalies were encountered.

GC SEMIVOLATILES - SW846 8082 - PCBs
No anomalies were encountered.

GC SEMIVOLATILES - NWTPH-Dx - DRO
No anomalies were encountered.

HPLC - SW846 8310 - PAHs
The MS/MSD performed on sample J1V141 exhibited spike compound recoveries outside the control limits, and the associated sample results have been flagged "N". The acceptable LCS analysis data indicated that the analytical system was operating within control; therefore, corrective action is deemed unnecessary.

No other anomalies were encountered.

TOTAL METALS - SW846 6010B/7471A
Serial dilution of a digestate in batch 280-249878 indicates that physical and chemical interferences are present for several elements. Results have been flagged with an "X".

Each sample is analyzed to achieve the lowest possible reporting limits within the constraints of the methods. Samples J1V144, J1V145 and J1V152 required a 5X dilution prior to the analysis of Antimony, Beryllium, Cobalt, Copper, Lead and Vanadium to minimize the interference caused by Titanium concentrations greater than the linear range. The reporting limits have been adjusted relative to the dilution required.

Each sample is analyzed to achieve the lowest possible reporting limits within the constraints of the methods. Due to matrix interferences, the Beryllium analysis of samples J1V141, J1V142, J1V146, J1V147, J1V148, J1V149, J1V150 and J1V151 had to be performed at dilutions. The reporting limits have been adjusted relative to the dilutions required.

Low levels of Barium, Manganese and Silicon are present in the method blank associated with batch 280-249878. 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.

Aluminum and Iron are present at levels greater than the reporting limits in the method blank associated with batch 280-249878. 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 J1V140; therefore, control limits are not applicable.

The Matrix Spike performed on sample J1V140 exhibited the percent recovery outside the control limits for Silicon, and the Matrix Spike performed on sample J1V153 exhibited the percent recovery outside the control limits for Aluminum. The associated sample results have been flagged "N". There is no indication that the analytical systems were operating out of control, and method accuracy has been verified by the acceptable LCS analysis data; therefore, corrective action is deemed unnecessary.

The duplicate analysis of sample J1V140 exceeded the RPD limit for Mercury, and the duplicate analysis of sample J1V153 exceeded the RPD limit for Iron. The associated sample results have been flagged "M". There is no indication that the analytical systems were operating out of control, and method accuracy has been verified by the acceptable LCS analysis data; therefore, corrective action is deemed unnecessary.

No other anomalies were encountered.

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

GENERAL CHEMISTRY - SW846 9056M - ANIONS
The Matrix Spike performed on sample J1V141 exhibited the percent recovery outside the control limits for Orthophosphate as P, and the Matrix Spike performed on sample J1V152 exhibited percent recoveries outside the control limits for Orthophosphate as P and Sulfate. The associated sample results have been flagged "N". There is no indication that the analytical systems were operating out of control, and method accuracy has been verified by the acceptable LCS analysis data; therefore, corrective action is deemed unnecessary.

No other anomalies were encountered.

Washington Closure Hanford

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

RC-075-456 | Page 1 of 3

Collector: J. Sorsmith	Company Contact: Joan Kessner	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Project Designation: 100-D/DR Field Remediation	Sampling Location: 100-D-99, Verification, stockpile area		SAF No.: RC-075
Ice Chest No.: ERC-02-407	Field Logbook No.: EL-1662-03	COA: 010D992000	Method of Shipment: Commercial Carrier — fed EX
Shipped To: TestAmerica Denver	Offsite Property No.: A131276-278		Bill of Lading/Air Bill No.: see OSPC

Price Code: 8B | Data Turnaround: 7 days

Other Labs Shipped To: TestAmerica Richland

POSSIBLE SAMPLE HAZARDS/REMARKS: none

Special Handling and/or Storage: none

Sample No.	Matrix	Sample Date	Sample Time	Preservation	Type of Container	No. of Container(s)	Volume	Sample Analysis: See Item (1) in Special Instructions	Sample Analysis: IC Anions - 9056 Modified; NO2/NO3 - 353.2	Sample Analysis: Pesticides - 8081	Sample Analysis: TPH-Diesel Range - WTPH-D +	Sample Analysis: PCBs - 8082	Sample Analysis: PAHs - 8310	Sample Analysis: VOA - 5035/8260 (TCL)
				Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Freeze			
				G/P	G/P	aG	aG	aG	aG	aG	aGs*			
				1	1	1	1	1	1	1	5			
				250mL	250mL	250mL	125mL	250mL	250mL	40mL				
1V140	SOIL	10/22/14	0842	✓	✓	✓	✓	✓	✓	✓	✓**			
1V141	SOIL	10/22/14	0851	✓	✓	✓	✓	✓	✓	✓	✓			
1V142	SOIL	10/22/14	0910	✓	✓	✓	✓	✓	✓	✓	✓			
1V143	SOIL	10/22/14	0924	✓	✓	✓	✓	✓	✓	✓	✓			
1V144	SOIL	10/22/14	0818	✓	✓	✓	✓	✓	✓	✓	✓			

CHAIN OF POSSESSION

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Libby T. Sorsmith	10/22/14 1055	WCH DUSHEA	10/22/14 1055
DUSHEA DUSHEA	10/22/14 1735	C Bingham	10-22-14 1735
C Bingham	10-22-14 1740	1060 Bottelle, fridge #1B	10-22-14 1740
1060 Bottelle, fridge #1B	10-23-14 0855	C Bingham	10-23-14 0855
C Bingham WCH	10-23-14 0900	fed EX	
			10/24/14 10:00

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)

10-23-14 LMB

* 20ml vial → % moisture

** freeze upon receipt

3.9, 2.8, 0.3, 2.2

0.3, 5.6, 0.4

IR6 CF=0.0

Transferred by MG 10/24/14

VOA samples frozen upon collection

REVIEWED BY KN DATE 10/23/14

JP0874

WCH-EE-011

Washington Closure Hanford

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

RC-075-456

Collector: W. Sexsmith

Company Contact: Joan Kessner — Telephone No.: 375-4688

Project Coordinator: KESSNER, JH

Price Code: 8B

Data Turnaround: 7 days

Project Designation: 100-D/DR Field Remediation

Sampling Location: 100-D-99, Verification, stockpile area

SAF No.: RC-075

Ice Chest No.: ERC-02-407

Field Logbook No.: EL-1662-03

COA: 010D992000

Method of Shipment: Commercial Carrier — fed EX

Shipped To: TestAmerica Denver

Offsite Property No.: A131276-278

Bill of Lading/Air Bill No.: see OSPC

Other Labs Shipped To: TestAmerica Richland

POSSIBLE SAMPLE HAZARDS/REMARKS: none

Special Handling and/or Storage: none

Sample No.	Matrix	Sample Date	Sample Time	Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Freeze
				Type of Container	G/P	G/P	aG	aG	aG	aG	aGs*
				No. of Container(s)	1	1	1	1	1	1	5
				Volume	250mL	250mL	250mL	125mL	250mL	250mL	40mL
				Sample Analysis	See Item (1) in Special Instructions	IC Anions - 9056 Modified; NO2/NO3 - 353.2	Pesticides - 8081	TPH-Diesel Range - WTPH-D +	PCBs - 8082	PAHs - 8310	** VOA - 5035/8260 (TCL)
1V145	SOIL	10/22/14	0802		✓	✓	✓	✓	✓	✓	✓
1V146	SOIL	10/22/14	0940		✓	✓	✓	✓	✓	✓	✓
1V147	SOIL	10/22/14	0949		✓	✓	✓	✓	✓	✓	✓
1V148	SOIL	10/22/14	1005		✓	✓	✓	✓	✓	✓	✓
1V149	SOIL	10/22/14	1015		✓	✓	✓	✓	✓	✓	✓

CHAIN OF POSSESSION

Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
W. T. Sexsmith	10/22/14 1055	DWSkea DWSHEA	10/22/14 1055
DWSkea DWSHEA	10/22/14 1735	C Bingham	10-22-14 1735
C Bingham	10-22-14 1740	1060 Battelle, fridge #1B	10-22-14 1740
1060 Battelle, fridge #1B	10-23-14 0855	C Bingham	10-23-14 0855
C Bingham WCH	10-23-14 0900	fed EX	
			10/24/14 10:00

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)

* 20 ml vial → % moisture 10-23-14 CMB

** freeze upon receipt

VOA samples frozen upon collection

REVIEWED BY KW DATE 10/23/14

JP0874

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

Washington Closure Hanford

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

RC-075-456

lector J. Seagsmith	Company Contact: Joan Kessner	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
ject Designation: 100-D/DR Field Remediation	Sampling Location: 100-D-99, Verification, stockpile area		SAF No.: RC-075
Chest No.: ERC-02-407	Field Logbook No.: EL-1662-03	COA: 010D992000	Method of Shipment: Commercial Carrier — fed EX
pped To: TestAmerica Denver	Offsite Property No.: A13/276-278		Bill of Lading/Air Bill No.: see OSPC

Price Code: 8B	Data Turnaround: 7 days										
er Labs Shipped To: TestAmerica Richland	Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Freeze			
	Type of Container	G/P	G/P	aG	aG	aG	aG	aGs*			
SSIBLE SAMPLE HAZARDS/REMARKS: ne	No. of Container(s)	1	1	1	1	1	1	5			
	Volume	250mL	250mL	250mL	125mL	250mL	250mL	40mL			
ecial Handling and/or Storage: ne	Sample Analysis	See Item (1) in Special Instructions	IC Anions - 9056 Modified; NO2/NO3 - 353.2	Pesticides - 8081	TPH-Diesel Range - WTPH-D +	PCBs - 8082	PAHs - 8310	** VOA - 5035/8260 (TCL)			

Sample No.	Matrix	Sample Date	Sample Time								
1V150	SOIL	10/22/14	1027	✓	✓	✓	✓	✓	✓	✓	
1V151	SOIL	10/22/14	1042	✓	✓	✓	✓	✓	✓	✓	
1V152	SOIL	10/22/14	0818	✓	✓	✓	✓	✓	✓	✓	
1V153	SOIL	10/22/14	0753	✓		10-23-14 CMB				✓	

CHAIN OF POSSESSION

Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Kelsey T. Seagrist	10/22/14 1055	DWSHEA	10/22/14 1055
DWSHEA	10/22/14 1735	C. Bingham	10-22-14 1735
C. Bingham	10-22-14 1740	100D Battelle, fridge #1B	10-22-14 1740
100D Battelle, fridge #1B	10-23-14 0855	C. Bingham	10-23-14 0855
C. Bingham WCH	10-23-14 0900	fed EX	
			10/24/14 10:00

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)

* 20 ml vial ⇒ % moisture 10-23-14 CMB

** freeze upon receipt

VOA samples frozen upon collection

REVIEWED BY KW DATE 10/22/14

JP 0874

Washington Closure Hanford

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

RC-075-458

Collector: W. Sexsmith	Company Contact: Joan Kessner	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Project Designation: 100-D/DR Field Remediation	Sampling Location: 100-D-99, Verification, VOA trip blank		SAF No.: RC-075
Ice Chest No.: ERC-02-407	Field Logbook No.: EL-1662-03	COA: 010D992000	Method of Shipment: Commercial Carrier — fed EX
Shipped To: TestAmerica Denver	Offsite Property No.: A131276-278		Bill of Lading/Air Bill No.: See OSPC

Price Code: 8B

Data Turnaround: 7days

Other Labs Shipped To: NA

POSSIBLE SAMPLE HAZARDS/REMARKS: None

Special Handling and/or Storage: None

Preservation	Freeze
Type of Container	aGs*
No. of Container(s)	5
Volume	40mL
Sample Analysis	VOA - 5035/8260 (TCL)

Sample No.	Matrix	Sample Date	Sample Time	
J19155	SOIL	10/22/14	0747	✓

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CHAIN OF POSSESSION

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Whitney I. Sexsmith	10/22/14 1055	DWSHEA	10/22/14 1055
DWSHEA	10/22/14 1735	C. Bingham	10-22-14 1735
C. Bingham	10-22-14 1740	1060 Battelle fridge #1B	10-22-14 1740
1060 Battelle fridge #1B	10-23-14 0855	C. Bingham	10-23-14 0855
C. Bingham	10-23-14 0900	fed EX	
			10/24/14 1000

Sign/Print Names

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

SPECIAL INSTRUCTIONS

10-23-14 cmB

*20 ml vial → % moisture

**freeze upon receipt

VOA samples frozen upon collection

REVIEWED BY KW DATE 10/23/14

~~JP0875~~ 10-23-14 cmB

JP0874

WCH-EE-011

Appendix 5

Data Validation Supporting Documentation

INORGANIC ANALYSIS DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	E
PROJECT:	100-D-99		DATA PACKAGE:	JP0874	
VALIDATOR:	ELR	LAB:	TAC	DATE:	11/22/14
			SDG:	JP0874	

ANALYSES PERFORMED					
SW-846/ICP	SW-846/GFAA	SW-846/Hg	SW-846 Cyanide		

SAMPLES/MATRIX				
JV140	JV141	JV142	JV143	JV144
JV145	JV146	JV147	JV148	JV149
JV150	JV151	JV152	JV153	
				Sol

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:

FD 12 detects

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 - silicon (11%) - J all
(48%)

MS - antmy (5C%) silicon (14%) - J all
(48%)

batch 07/90 no PAS
al - MS - 235% - J (53)
iron - MS - 143% - J

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: 07/90 - Iron RPD - 98 - J

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: 280-61707-1
Sdg Number: JP0874

Method Blank - Batch: 280-249878

Method: 6010B
Preparation: 3050B

Lab Sample ID:	MB 280-249878/1-A	Analysis Batch:	280-250247	Instrument ID:	MT_026
Client Matrix:	Solid	Prep Batch:	280-249878	Lab File ID:	26b102814.asc
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1 g
Analysis Date:	10/28/2014 1813	Units:	mg/Kg	Final Weight/Volume:	100 mL
Prep Date:	10/28/2014 0830				
Leach Date:	N/A				

Analyte	Result	Qual	MDL	RL
Aluminum	5.24		1.6	5.0
Antimony	0.38	U	0.38	0.60
Arsenic	0.66	U	0.66	1.0
Barium	0.113	B	0.076	0.50
Beryllium	0.033	U	0.033	0.20
Boron	0.98	U	0.98	2.0
Cadmium	0.041	U	0.041	0.20
Calcium	14.1	U	14.1	50.0
Chromium	0.058	U	0.058	0.20
Cobalt	0.10	U	0.10	1.0
Copper	0.22	U	0.22	1.0
Iron	11.64		3.8	5.0
Lead	0.27	U	0.27	0.50
Magnesium	3.7	U	3.7	20.0
Manganese	0.131	B	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	6.75	B	5.7	10.0
Silver	0.16	U	0.16	0.20
Sodium	*59.0*	U	*59.0*	*120*
Vanadium	0.094	U	0.094	2.0
Zinc	0.40	U	0.40	1.0

Client: Washington Closure Hanford

Job Number: 280-61707-1
Sdg Number: JP0874

Lab Control Sample - Batch: 280-249878

Method: 6010B
Preparation: 3050B

Lab Sample ID:	LCS 280-249878/2-A	Analysis Batch:	280-250247	Instrument ID:	MT_026
Client Matrix:	Solid	Prep Batch:	280-249878	Lab File ID:	26b102814.asc
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1 g
Analysis Date:	10/28/2014 1815	Units:	mg/Kg	Final Weight/Volume:	100 mL
Prep Date:	10/28/2014 0830				
Leach Date:	N/A				

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Aluminum	200	204.9	102	82 - 116	
Antimony	50.0	51.49	103	82 - 110	
Arsenic	100	99.33	99	85 - 110	
Barium	200	205.0	103	87 - 112	
Beryllium	5.00	4.99	100	84 - 114	
Boron	100	101.2	101	80 - 120	
Cadmium	10.0	9.64	96	87 - 110	
Calcium	5000	5103	102	82 - 114	
Chromium	20.0	20.22	101	84 - 114	
Cobalt	50.0	50.21	100	87 - 110	
Copper	25.0	24.86	99	88 - 110	
Iron	100	110.8	111	87 - 120	
Lead	50.0	50.81	102	86 - 110	
Magnesium	5000	4966	99	90 - 110	
Manganese	50.0	49.98	100	88 - 110	
Molybdenum	100	103.5	103	86 - 110	
Nickel	50.0	49.98	100	87 - 110	
Potassium	5000	5111	102	89 - 110	
Selenium	200	204.2	102	83 - 110	
Silicon	1000	111.6	11	10 - 70	
Silver	5.00	5.39	108	87 - 114	
Sodium	5000	5354	107	90 - 112	
Vanadium	50.0	50.54	101	88 - 110	
Zinc	50.0	49.64	99	76 - 114	

Client: Washington Closure Hanford

Job Number: 280-61707-1
Sdg Number: JP0874

Matrix Spike - Batch: 280-249878

Method: 6010B
Preparation: 3050B

Lab Sample ID:	280-61707-1	Analysis Batch:	280-250247	Instrument ID:	MT_026
Client Matrix:	Solid	Prep Batch:	280-249878	Lab File ID:	26b102814.asc
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1.00 g
Analysis Date:	10/28/2014 1826	Units:	mg/Kg	Final Weight/Volume:	100 mL
Prep Date:	10/28/2014 0830				
Leach Date:	N/A				

Analyte	Sample Result/Qual		Spike Amount	Result	% Rec.	Limit	Qual
Aluminum	7470		212	9580	992	50 - 200	4
Antimony	0.37	U	53.1	29.78	56	20 - 200	
Arsenic	4.3		106	98.80	89	76 - 111	
Barium	81.4		212	279.4	93	52 - 159	
Beryllium	0.032	U	5.31	4.39	83	72 - 105	
Boron	1.7	B	106	94.73	88	80 - 120	
Cadmium	0.11	B	10.6	9.38	87	40 - 130	
Calcium	14500		5310	20240	108	43 - 165	
Chromium	11.1		21.2	32.03	99	70 - 200	
Cobalt	7.4		53.1	54.10	88	72 - 106	
Copper	17.2		26.5	40.97	89	37 - 187	
Iron	20100		106	20620	454	70 - 200	4
Lead	3.9		53.1	50.97	89	70 - 200	
Magnesium	4920		5310	10060	97	64 - 145	
Manganese	306		53.1	374.9	130	40 - 200	4
Molybdenum	0.25	U	106	95.09	90	75 - 103	
Nickel	12.5		53.1	58.91	87	61 - 126	
Potassium	1110		5310	6286	97	56 - 172	
Selenium	0.85	B	212	192.6	90	76 - 104	
Silicon	505		1060	649.4	14	20 - 200	N
Silver	0.16	U	5.31	5.40	102	75 - 141	
Sodium	264		5310	5565	100	78 - 111	
Vanadium	48.5		53.1	102.8	102	50 - 169	
Zinc	39.0		53.1	85.99	89	70 - 200	

Client: Washington Closure Hanford

Job Number: 280-61707-1
Sdg Number: JP0874

Duplicate - Batch: 280-249878

Method: 6010B
Preparation: 3050B

Lab Sample ID:	280-61707-1	Analysis Batch:	280-250247	Instrument ID:	MT_026
Client Matrix:	Solid	Prep Batch:	280-249878	Lab File ID:	26b102814.asc
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1.12 g
Analysis Date:	10/28/2014 1823	Units:	mg/Kg	Final Weight/Volume:	100 mL
Prep Date:	10/28/2014 0830				
Leach Date:	N/A				

Analyte	Sample Result/Qual		Result	RPD	Limit	Qual
Aluminum	7470		7343	2	40	
Antimony	0.37	U	0.36	NC	40	U
Arsenic	4.3		4.31	0.3	30	
Barium	81.4		77.59	5	30	
Beryllium	0.032	U	0.031	NC	30	U
Boron	1.7	B	1.64	6	30	B
Cadmium	0.11	B	0.116	4	30	B
Calcium	14500		14490	0.02	30	
Chromium	11.1		11.27	1	40	
Cobalt	7.4		7.09	5	30	
Copper	17.2		16.73	3	30	
Iron	20100		19830	2	40	
Lead	3.9		3.81	2	40	
Magnesium	4920		4664	5	30	
Manganese	306		307.1	0.3	40	
Molybdenum	0.25	U	0.25	NC	30	U
Nickel	12.5		11.64	7	30	
Potassium	1110		1133	2	40	
Selenium	0.85	B	0.81	NC	30	U
Silicon	505		560.0	10	40	
Silver	0.16	U	0.15	NC	30	U
Sodium	264		247.8	6	30	
Vanadium	48.5		45.83	6	30	
Zinc	39.0		38.05	2	40	

Client: Washington Closure Hanford

Job Number: 280-61707-1
Sdg Number: JP0874

Method Blank - Batch: 280-250590

Method: 6010B
Preparation: 3050B

Lab Sample ID:	MB 280-250590/1-A	Analysis Batch:	280-250707	Instrument ID:	MT_026
Client Matrix:	Solid	Prep Batch:	280-250590	Lab File ID:	26A103014E.asc
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1.00 g
Analysis Date:	10/30/2014 2247	Units:	mg/Kg	Final Weight/Volume:	100 mL
Prep Date:	10/30/2014 1400				
Leach Date:	N/A				

Analyte	Result	Qual	MDL	RL
Aluminum	1.6	U	1.6	5.0
Iron	3.8	U	3.8	5.0
Silicon	5.7	U	5.7	10.0

Lab Control Sample - Batch: 280-250590

Method: 6010B
Preparation: 3050B

Lab Sample ID:	LCS 280-250590/2-A	Analysis Batch:	280-250707	Instrument ID:	MT_026
Client Matrix:	Solid	Prep Batch:	280-250590	Lab File ID:	26A103014E.asc
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1.00 g
Analysis Date:	10/30/2014 2250	Units:	mg/Kg	Final Weight/Volume:	100 mL
Prep Date:	10/30/2014 1400				
Leach Date:	N/A				

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Aluminum	200	201.4	101	82 - 116	
Iron	100	106.6	107	87 - 120	
Silicon	1000	402.8	40	10 - 70	

Matrix Spike - Batch: 280-250590

Method: 6010B
Preparation: 3050B

Lab Sample ID:	280-61707-14	Analysis Batch:	280-250707	Instrument ID:	MT_026
Client Matrix:	Solid	Prep Batch:	280-250590	Lab File ID:	26A103014E.asc
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1.08 g
Analysis Date:	10/30/2014 2300	Units:	mg/Kg	Final Weight/Volume:	100 mL
Prep Date:	10/30/2014 1400				
Leach Date:	N/A				

Analyte	Sample Result/Qual	Spike Amount	Result	% Rec.	Limit	Qual
Aluminum	105	185	539.5	235	50 - 200	N
Iron	131	92.6	265.7	145	70 - 200	
Silicon	128	926	573.2	48	20 - 200	

Client: Washington Closure Hanford

Job Number: 280-61707-1
Sdg Number: JP0874

Duplicate - Batch: 280-250590

Method: 6010B
Preparation: 3050B

Lab Sample ID:	280-61707-14	Analysis Batch:	280-250707	Instrument ID:	MT_026
Client Matrix:	Solid	Prep Batch:	280-250590	Lab File ID:	26A103014E.asc
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1.08 g
Analysis Date:	10/30/2014 2258	Units:	mg/Kg	Final Weight/Volume:	100 mL
Prep Date:	10/30/2014 1400				
Leach Date:	N/A				

Analyte	Sample Result/Qual	Result	RPD	Limit	Qual
Aluminum	105	113.9	8	40	
Iron	131	380.6	98	40	M
Silicon	128	142.5	11	40	

Client: Washington Closure Hanford

Job Number: 280-61707-1
Sdg Number: JP0874

Method Blank - Batch: 280-250297

Method: 7471A
Preparation: 7471A

Lab Sample ID:	MB 280-250297/1-A	Analysis Batch:	280-250347	Instrument ID:	MT_033
Client Matrix:	Solid	Prep Batch:	280-250297	Lab File ID:	141027aa.txt
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	.6 g
Analysis Date:	10/29/2014 1437	Units:	mg/Kg	Final Weight/Volume:	50 mL
Prep Date:	10/29/2014 1230				
Leach Date:	N/A				

Analyte	Result	Qual	MDL	RL
Mercury	0.0055	U	0.0055	0.017

Lab Control Sample - Batch: 280-250297

Method: 7471A
Preparation: 7471A

Lab Sample ID:	LCS 280-250297/2-A	Analysis Batch:	280-250347	Instrument ID:	MT_033
Client Matrix:	Solid	Prep Batch:	280-250297	Lab File ID:	141027aa.txt
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	.6 g
Analysis Date:	10/29/2014 1440	Units:	mg/Kg	Final Weight/Volume:	50 mL
Prep Date:	10/29/2014 1230				
Leach Date:	N/A				

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Mercury	0.417	0.432	104	87 - 111	

Matrix Spike - Batch: 280-250297

Method: 7471A
Preparation: 7471A

Lab Sample ID:	280-61707-1	Analysis Batch:	280-250347	Instrument ID:	MT_033
Client Matrix:	Solid	Prep Batch:	280-250297	Lab File ID:	141027aa.txt
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	0.59 g
Analysis Date:	10/29/2014 1447	Units:	mg/Kg	Final Weight/Volume:	50 mL
Prep Date:	10/29/2014 1230				
Leach Date:	N/A				

Analyte	Sample Result/Qual		Spike Amount	Result	% Rec.	Limit	Qual
Mercury	0.0057	B	0.450	0.449	99	87 - 111	

Client: Washington Closure Hanford

Job Number: 280-61707-1
Sdg Number: JP0874

Duplicate - Batch: 280-250297

Method: 7471A
Preparation: 7471A

Lab Sample ID:	280-61707-1	Analysis Batch:	280-250347	Instrument ID:	MT_033
Client Matrix:	Solid	Prep Batch:	280-250297	Lab File ID:	141027aa.txt
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	0.53 g
Analysis Date:	10/29/2014 1444	Units:	mg/Kg	Final Weight/Volume:	50 mL
Prep Date:	10/29/2014 1230				
Leach Date:	N/A				

Analyte	Sample Result/Qual		Result	RPD	Limit	Qual
Mercury	0.0057	B	0.00791	33	20	B M

Date: 24 November 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-99
Subject: Diesel Rang Organic - Data Package No. JP0874-TAL

INTRODUCTION

This memo presents the results of data validation on Data Package No. JP0874 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
J1V140	10/22/14	Soil	C	See note 1
J1V141	10/22/14	Soil	C	See note 1
J1V142	10/22/14	Soil	C	See note 1
J1V143	10/22/14	Soil	C	See note 1
J1V144	10/22/14	Soil	C	See note 1
J1V145	10/22/14	Soil	C	See note 1
J1V146	10/22/14	Soil	C	See note 1
J1V147	10/22/14	Soil	C	See note 1
J1V148	10/22/14	Soil	C	See note 1
J1V149	10/22/14	Soil	C	See note 1
J1V150	10/22/14	Soil	C	See note 1
J1V151	10/22/14	Soil	C	See note 1
J1V152	10/22/14	Soil	C	See note 1

1 – Diesel range organics by NWTHP-d.

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, February 2005). 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: Samples 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 Blanks

No field blank was 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.

All 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 other 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 of field duplicates (J1V144/J1V152) were submitted for analysis. Laboratory 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 (RQL's) to ensure that laboratory detection levels meet the required criteria. All analytes met the RQL.

- **Completeness**

Data package No. JP0874 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*, March 2008.

DOE/RL-96-22, Rev. 4, *100 Area Remedial Action Sampling and Analysis Plan*, U.S. Department of Energy, February 2005.

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

DIESEL RANGE ORGANIC DATA QUALIFICATION SUMMARY*

SDG: JP0874	REVIEWER: ELR	Project: 100-D-99	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: 280-61707-1
Sdg Number: JP0874

Client Sample ID: ***J1V140***

Lab Sample ID: 280-61707-1
Client Matrix: Solid

% Moisture: 5.8

Date Sampled: 10/22/2014 0842
Date Received: 10/24/2014 1000

NWTPH-Dx Northwest - Semi-Volatile Petroleum Products (GC)

Analysis Method:	NWTPH-Dx	Analysis Batch:	280-250283	Instrument ID:	SGC_U
Prep Method:	3550C	Prep Batch:	280-249906	Lab File ID:	10290023.D
Dilution:	1.0			Initial Weight/Volume:	30.7 g
Analysis Date:	*10/29/2014 2036*			*Final Weight/Volume:*	*1 mL*
Prep Date:	10/28/2014 0005			Injection Volume:	1 uL

11/22/14

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
C10-C36		1000	U	1000	4100
C10-C28		770	J	700	4100

Surrogate	%Rec	Qualifier	Acceptance Limits
o-Terphenyl	91		49 - 115

Client: Washington Closure Hanford

Job Number: 280-61707-1
Sdg Number: JP0874

Client Sample ID: J1V141

Lab Sample ID: 280-61707-2
Client Matrix: Solid

% Moisture: 4.5

Date Sampled: 10/22/2014 0851
Date Received: 10/24/2014 1000

NWTPH-Dx Northwest - Semi-Volatile Petroleum Products (GC)

Analysis Method:	NWTPH-Dx	Analysis Batch:	280-250283	Instrument ID:	SGC_U
Prep Method:	3550C	Prep Batch:	280-249906	Lab File ID:	10290024.D
Dilution:	1.0			Initial Weight/Volume:	30.0 g
Analysis Date:	10/29/2014 2103			Final Weight/Volume:	1 mL
Prep Date:	10/28/2014 0005			Injection Volume:	1 uL

11/22/14

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
C10-C36		1000	U	1000	4200
C10-C28		710	U	710	4200

Surrogate	%Rec	Qualifier	Acceptance Limits
o-Terphenyl	92		49 - 115

Client: Washington Closure Hanford

Job Number: 280-61707-1
Sdg Number: JP0874

Client Sample ID: ***J1V142***

Lab Sample ID: 280-61707-3
Client Matrix: Solid

% Moisture: 6.4

Date Sampled: 10/22/2014 0910
Date Received: 10/24/2014 1000

NWTPH-Dx Northwest - Semi-Volatile Petroleum Products (GC)

Analysis Method:	NWTPH-Dx	Analysis Batch:	280-250283	Instrument ID:	SGC_U
Prep Method:	3550C	Prep Batch:	280-249906	Lab File ID:	10290025.D
Dilution:	1.0			Initial Weight/Volume:	31.2 g
Analysis Date:	10/29/2014 2130			Final Weight/Volume:	1 mL
Prep Date:	10/28/2014 0005			Injection Volume:	1 uL

11/22/14

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
C10-C36		1800	J	1000	4100
C10-C28		1300	J	700	4100

Surrogate	%Rec	Qualifier	Acceptance Limits
o-Terphenyl	94		49 - 115

Client: Washington Closure Hanford

Job Number: 280-61707-1
Sdg Number: JP0874

Client Sample ID: ***J1V143***

Lab Sample ID: 280-61707-4
Client Matrix: Solid

% Moisture: 3.7

Date Sampled: 10/22/2014 0924
Date Received: 10/24/2014 1000

NWTPH-Dx Northwest - Semi-Volatile Petroleum Products (GC)

Analysis Method:	NWTPH-Dx	Analysis Batch:	280-250283	Instrument ID:	SGC_U
Prep Method:	3550C	Prep Batch:	280-249906	Lab File ID:	10290026.D
Dilution:	1.0			Initial Weight/Volume:	30.5 g
Analysis Date:	10/29/2014 2157			Final Weight/Volume:	1 mL
Prep Date:	10/28/2014 0005			Injection Volume:	1 uL

11/22/14

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
C10-C36		44000		1000	4100
C10-C28		13000		690	4100

Surrogate	%Rec	Qualifier	Acceptance Limits
o-Terphenyl	90		49 - 115

Client: Washington Closure Hanford

Job Number: 280-61707-1
Sdg Number: JP0874

Client Sample ID: ***J1V144***

Lab Sample ID: 280-61707-5
Client Matrix: Solid % Moisture: 3.2

Date Sampled: 10/22/2014 0818
Date Received: 10/24/2014 1000

NWTPH-Dx Northwest - Semi-Volatile Petroleum Products (GC)

Analysis Method:	NWTPH-Dx	Analysis Batch:	280-250283	Instrument ID:	SGC_U
Prep Method:	3550C	Prep Batch:	280-249906	Lab File ID:	10290029.D
Dilution:	1.0			Initial Weight/Volume:	31.0 g
Analysis Date:	10/29/2014 2317			Final Weight/Volume:	1 mL
Prep Date:	10/28/2014 0005			Injection Volume:	1 uL

11/22/14

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
C10-C36		2400	J	1000	4000
C10-C28		1500	J	680	4000

Surrogate	%Rec	Qualifier	Acceptance Limits
o-Terphenyl	97		49 - 115

Client: Washington Closure Hanford

Job Number: 280-61707-1
Sdg Number: JP0874

Client Sample ID: **J1V145**

Lab Sample ID: 280-61707-6
Client Matrix: Solid % Moisture: 3.2

Date Sampled: 10/22/2014 0802
Date Received: 10/24/2014 1000

NWTPH-Dx Northwest - Semi-Volatile Petroleum Products (GC)

Analysis Method:	NWTPH-Dx	Analysis Batch:	280-250283	Instrument ID:	SGC_U
Prep Method:	3550C	Prep Batch:	280-249906	Lab File ID:	10290030.D
Dilution:	1.0			Initial Weight/Volume:	30.6 g
Analysis Date:	10/29/2014 2344			Final Weight/Volume:	1 mL
Prep Date:	10/28/2014 0005			Injection Volume:	1 uL

11/22/14

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
C10-C36		4000	J	1000	4100
C10-C28		1500	J	690	4100

Surrogate	%Rec	Qualifier	Acceptance Limits
o-Terphenyl	86		49 - 115

Client: Washington Closure Hanford

Job Number: 280-61707-1
Sdg Number: JP0874

Client Sample ID: ***J1V146***

Lab Sample ID: 280-61707-7
Client Matrix: Solid

% Moisture: 3.7

Date Sampled: 10/22/2014 0940
Date Received: 10/24/2014 1000

NWTPH-Dx Northwest - Semi-Volatile Petroleum Products (GC)

Analysis Method:	NWTPH-Dx	Analysis Batch:	280-250283	Instrument ID:	SGC_U
Prep Method:	3550C	Prep Batch:	280-249906	Lab File ID:	10290031.D
Dilution:	1.0			Initial Weight/Volume:	31.3 g
Analysis Date:	10/30/2014 0010			Final Weight/Volume:	1 mL
Prep Date:	10/28/2014 0005			Injection Volume:	1 uL

11/22/14

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
C10-C36		5800		990	4000
C10-C28		2000	J	670	4000

Surrogate	%Rec	Qualifier	Acceptance Limits
o-Terphenyl	94		49 - 115

Client: Washington Closure Hanford

Job Number: 280-61707-1
Sdg Number: JP0874

Client Sample ID: **J1V147**

Lab Sample ID: 280-61707-8
Client Matrix: Solid

% Moisture: 4.8

Date Sampled: 10/22/2014 0949
Date Received: 10/24/2014 1000

NWTPH-Dx Northwest - Semi-Volatile Petroleum Products (GC)

Analysis Method:	NWTPH-Dx	Analysis Batch:	280-250283	Instrument ID:	SGC_U
Prep Method:	3550C	Prep Batch:	280-249906	Lab File ID:	10290032.D
Dilution:	1.0			Initial Weight/Volume:	32.7 g
Analysis Date:	10/30/2014 0037			Final Weight/Volume:	1 mL
Prep Date:	10/28/2014 0005			Injection Volume:	1 uL

11/22/14

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
C10-C36		7500		960	3900
C10-C28		2600	J	650	3900

Surrogate	%Rec	Qualifier	Acceptance Limits
o-Terphenyl	86		49 - 115

Client: Washington Closure Hanford

Job Number: 280-61707-1
Sdg Number: JP0874

Client Sample ID: ***J1V148***

Lab Sample ID: 280-61707-9
Client Matrix: Solid

% Moisture: 3.8

Date Sampled: 10/22/2014 1008
Date Received: 10/24/2014 1000

NWTPH-Dx Northwest - Semi-Volatile Petroleum Products (GC)

Analysis Method:	NWTPH-Dx	Analysis Batch:	280-250283	Instrument ID:	SGC_U
Prep Method:	3550C	Prep Batch:	280-249906	Lab File ID:	10290033.D
Dilution:	1.0			Initial Weight/Volume:	30.5 g
Analysis Date:	10/30/2014 0104			Final Weight/Volume:	1 mL
Prep Date:	10/28/2014 0005			Injection Volume:	1 uL

11/22/14

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
C10-C36		1000	U	1000	4100
C10-C28		790	J	690	4100

Surrogate	%Rec	Qualifier	Acceptance Limits
o-Terphenyl	85		49 - 115

Client: Washington Closure Hanford

Job Number: 280-61707-1
Sdg Number: JP0874

Client Sample ID: ***J1V149***

Lab Sample ID: 280-61707-10
Client Matrix: Solid

% Moisture: 4.3

Date Sampled: 10/22/2014 1015
Date Received: 10/24/2014 1000

NWTPH-Dx Northwest - Semi-Volatile Petroleum Products (GC)

Analysis Method:	NWTPH-Dx	Analysis Batch:	280-250283	Instrument ID:	SGC_U
Prep Method:	3550C	Prep Batch:	280-249906	Lab File ID:	10290034.D
Dilution:	1.0			Initial Weight/Volume:	30.4 g
Analysis Date:	10/30/2014 0131			Final Weight/Volume:	1 mL
Prep Date:	10/28/2014 0005			Injection Volume:	1 uL

11/22/14

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
C10-C36		10000		1000	4100
C10-C28		3300	J	700	4100

Surrogate	%Rec	Qualifier	Acceptance Limits
o-Terphenyl	88		49 - 115

Client: Washington Closure Hanford

Job Number: 280-61707-1
Sdg Number: JP0874

Client Sample ID: ***J1V150***

Lab Sample ID: 280-61707-11
Client Matrix: Solid

% Moisture: 4.5

Date Sampled: 10/22/2014 1027
Date Received: 10/24/2014 1000

NWTPH-Dx Northwest - Semi-Volatile Petroleum Products (GC)

Analysis Method:	NWTPH-Dx	Analysis Batch:	280-250283	Instrument ID:	SGC_U
Prep Method:	3550C	Prep Batch:	280-249906	Lab File ID:	10290036.D
Dilution:	1.0			Initial Weight/Volume:	30.7 g
Analysis Date:	10/30/2014 0225			Final Weight/Volume:	1 mL
Prep Date:	10/28/2014 0005			Injection Volume:	1 uL

11/22/14

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
C10-C36		28000		1000	4100
C10-C28		8500		690	4100

Surrogate	%Rec	Qualifier	Acceptance Limits
o-Terphenyl	88		49 - 115

Client: Washington Closure Hanford

Job Number: 280-61707-1
Sdg Number: JP0874

Client Sample ID: ***J1V151***

Lab Sample ID: 280-61707-12
Client Matrix: Solid

% Moisture: 4.7

Date Sampled: 10/22/2014 1042
Date Received: 10/24/2014 1000

NWTPH-Dx Northwest - Semi-Volatile Petroleum Products (GC)

Analysis Method:	NWTPH-Dx	Analysis Batch:	280-250283	Instrument ID:	SGC_U
Prep Method:	3550C	Prep Batch:	280-249906	Lab File ID:	10290037.D
Dilution:	1.0			Initial Weight/Volume:	30.1 g
Analysis Date:	10/30/2014 0253			Final Weight/Volume:	1 mL
Prep Date:	10/28/2014 0005			Injection Volume:	1 uL

11/22/14

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
C10-C36		34000		1000	4200
C10-C28		10000		710	4200

Surrogate	%Rec	Qualifier	Acceptance Limits
o-Terphenyl	87		49 - 115

Client: Washington Closure Hanford

Job Number: 280-61707-1
Sdg Number: JP0874

Client Sample ID: ***J1V152***

Lab Sample ID: 280-61707-13
Client Matrix: Solid

% Moisture: 3.3

Date Sampled: 10/22/2014 0818
Date Received: 10/24/2014 1000

NWTPH-Dx Northwest - Semi-Volatile Petroleum Products (GC)

Analysis Method:	NWTPH-Dx	Analysis Batch:	280-250283	Instrument ID:	SGC_U
Prep Method:	3550C	Prep Batch:	280-249906	Lab File ID:	10290038.D
Dilution:	1.0			Initial Weight/Volume:	30.1 g
Analysis Date:	10/30/2014 0320			Final Weight/Volume:	1 mL
Prep Date:	10/28/2014 0005			Injection Volume:	1 uL

11/22/14

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
C10-C36		2400	J	1000	4100
C10-C28		1500	J	700	4100

Surrogate	%Rec	Qualifier	Acceptance Limits
o-Terphenyl	96		49 - 115

Appendix 4

Laboratory Narrative and Chain-of-Custody Documentation

CASE NARRATIVE

Client: Washington Closure Hanford

Project: WASHINGTON CLOSURE HANFORD

Report Number: 280-61707-1

SDG #: JP0874
SAF#: RC-075

Date SDG Closed: October 24, 2014
Data Deliverable: 7 Day / Summary

CLIENT ID	LAB ID	ANALYSES REQUESTED	ANALYSES PERFORMED
J1V140	280-61707-1	6010/7471/9056M/353.2/8081/WTPH-D+/ 8082/8310/8260B	6010B/7471A/9056M/353.2/8081A/NWTPH-Dx/ 8082/8310/8260B
J1V141	280-61707-2	6010/7471/9056M/353.2/8081/WTPH-D+/ 8082/8310/8260B	6010B/7471A/9056M/353.2/8081A/NWTPH-Dx/ 8082/8310/8260B
J1V142	280-61707-3	6010/7471/9056M/353.2/8081/WTPH-D+/ 8082/8310/8260B	6010B/7471A/9056M/353.2/8081A/NWTPH-Dx/ 8082/8310/8260B
J1V143	280-61707-4	6010/7471/9056M/353.2/8081/WTPH-D+/ 8082/8310/8260B	6010B/7471A/9056M/353.2/8081A/NWTPH-Dx/ 8082/8310/8260B
J1V144	280-61707-5	6010/7471/9056M/353.2/8081/WTPH-D+/ 8082/8310/8260B	6010B/7471A/9056M/353.2/8081A/NWTPH-Dx/ 8082/8310/8260B
J1V145	280-61707-6	6010/7471/9056M/353.2/8081/WTPH-D+/ 8082/8310/8260B	6010B/7471A/9056M/353.2/8081A/NWTPH-Dx/ 8082/8310/8260B
J1V146	280-61707-7	6010/7471/9056M/353.2/8081/WTPH-D+/ 8082/8310/8260B	6010B/7471A/9056M/353.2/8081A/NWTPH-Dx/ 8082/8310/8260B
J1V147	280-61707-8	6010/7471/9056M/353.2/8081/WTPH-D+/ 8082/8310/8260B	6010B/7471A/9056M/353.2/8081A/NWTPH-Dx/ 8082/8310/8260B
J1V148	280-61707-9	6010/7471/9056M/353.2/8081/WTPH-D+/ 8082/8310/8260B	6010B/7471A/9056M/353.2/8081A/NWTPH-Dx/ 8082/8310/8260B
J1V149	280-61707-10	6010/7471/9056M/353.2/8081/WTPH-D+/ 8082/8310/8260B	6010B/7471A/9056M/353.2/8081A/NWTPH-Dx/ 8082/8310/8260B
J1V150	280-61707-11	6010/7471/9056M/353.2/8081/WTPH-D+/ 8082/8310/8260B	6010B/7471A/9056M/353.2/8081A/NWTPH-Dx/ 8082/8310/8260B
J1V151	280-61707-12	6010/7471/9056M/353.2/8081/WTPH-D+/ 8082/8310/8260B	6010B/7471A/9056M/353.2/8081A/NWTPH-Dx/ 8082/8310/8260B
J1V152	280-61707-13	6010/7471/9056M/353.2/8081/WTPH-D+/ 8082/8310/8260B	6010B/7471A/9056M/353.2/8081A/NWTPH-Dx/ 8082/8310/8260B
J1V153	280-61707-14	6010/7471/8260B	6010B/7471A/8260B
J1V155	280-61707-15	8260B	8260B

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 10/24/2014 10:00 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 7 coolers at receipt time were 0.3° C, 0.3° C, 0.4° C, 2.2° C, 2.8° C, 3.9° C and 5.6° C.

It can be noted that the Chains of Custody indicate "VOA samples frozen upon collection", and the 5035/8260B VOA samples were placed in the freezer upon receipt at the laboratory. The client was notified on 10/27/2014.

The 250mL container submitted for sample J1V145, requesting PCBs 8082 analysis, was received at the laboratory broken. The uncompromised volume was transferred to a new container and was placed on hold, as sufficient volume remained to proceed with the requested analyses using containers that were received intact. The client was notified on 10/27/2014.

GC/MS VOLATILES - SW846 8260B
Low levels of 1,1-Dichloroethane, 1,1-Dichloroethene and Trichloroethene are present in the method blank associated with prep batch 280-250397. Because the concentrations in the method blank are not present at levels greater than half the reporting limit, corrective action is deemed unnecessary. Associated sample results present above the MDL and/or RL have been flagged with a "B".

The MS/MSD performed on sample J1V142 exhibited RPD data outside the control limits. The acceptable LCS analysis data indicated that the analytical system was operating within control; therefore, corrective action is deemed unnecessary. The laboratory noted that the sample size used in the preparation of the MS and MSD for sample J1V142 exceeded 10% difference. As the RPD calculation is based upon the MS/MSD concentration as opposed to the MS/MSD percent recovery, elevated %RPD values were obtained.

The MSD aliquot of the MS/MSD performed on sample J1V153 exhibited percent recoveries outside the control limits for Acetone and Chloroform, and the associated sample results have been flagged "T". In addition, RPD limits were exceeded. The acceptable LCS analysis data indicated that the analytical system was operating within control; therefore, corrective action is deemed unnecessary. The laboratory noted that the sample size used in the preparation of the MS and MSD for sample J1V153 exceeded 10% difference. As the RPD calculation is based upon the MS/MSD concentration as opposed to the MS/MSD percent recovery, elevated %RPD values were obtained.

No other anomalies were encountered.

GC SEMIVOLATILES - SW846 8081A - Pesticides
Surrogate Decachlorobiphenyl was recovered outside the control limits, biased low, in samples J1V143, J1V146, J1V150 and J1V151. The laboratory noted that this anomaly is due to obvious matrix interference; therefore, corrective action is deemed unnecessary. Samples had numerous non-target peaks and significant baseline rise interfering with identification and quantitation of the surrogate.

The RPD between the primary and confirmation columns exceeded 40% for 4,4'-DDT in samples J1V148 and J1V150. The lower of the two values has been reported, as matrix interference is evident. The results have been flagged with an "X".

The MS aliquot of the MS/MSD performed on sample J1V142 exhibited the percent recovery outside the control limits for beta-BHC, and the associated sample result has been flagged "N". The acceptable LCS analysis data indicated that the analytical system was operating within control; therefore, corrective action is deemed unnecessary.

The Initial Calibration Verification (ICV) standard demonstrated a low bias for Endosulfan II (-25%) and a high bias for Methoxychlor (+18%) on the primary column. These analytes were in control on the confirmation column, and there were no tentative detections in the samples (peaks requiring second column confirmation). As there is no bias on the confirmation column and the method detection limit is valid for evaluating non-detected results, corrective action is deemed unnecessary and data for the affected analytes are reported from the column that is in control.

A Continuing Calibration Verification (CCV) standard associated with samples J1V144, J1V145, J1V148 and J1V152 exhibited %Difference (%D) values >15%, biased high, for 4,4'-DDT (+24%, +18%). The samples associated with this CCV were non-detect or less than the RL for the affected analyte; therefore, corrective action is deemed unnecessary.

No other anomalies were encountered.

GC SEMIVOLATILES - SW846 8082 - PCBs
No anomalies were encountered.

GC SEMIVOLATILES - NWTPH-Dx - DRO
No anomalies were encountered.

HPLC - SW846 8310 - PAHs
The MS/MSD performed on sample J1V141 exhibited spike compound recoveries outside the control limits, and the associated sample results have been flagged "N". The acceptable LCS analysis data indicated that the analytical system was operating within control; therefore, corrective action is deemed unnecessary.

No other anomalies were encountered.

TOTAL METALS - SW846 6010B/7471A
Serial dilution of a digestate in batch 280-249878 indicates that physical and chemical interferences are present for several elements. Results have been flagged with an "X".

Each sample is analyzed to achieve the lowest possible reporting limits within the constraints of the methods. Samples J1V144, J1V145 and J1V152 required a 5X dilution prior to the analysis of Antimony, Beryllium, Cobalt, Copper, Lead and Vanadium to minimize the interference caused by Titanium concentrations greater than the linear range. The reporting limits have been adjusted relative to the dilution required.

Each sample is analyzed to achieve the lowest possible reporting limits within the constraints of the methods. Due to matrix interferences, the Beryllium analysis of samples J1V141, J1V142, J1V146, J1V147, J1V148, J1V149, J1V150 and J1V151 had to be performed at dilutions. The reporting limits have been adjusted relative to the dilutions required.

Low levels of Barium, Manganese and Silicon are present in the method blank associated with batch 280-249878. 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.

Aluminum and Iron are present at levels greater than the reporting limits in the method blank associated with batch 280-249878. 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 J1V140; therefore, control limits are not applicable.

The Matrix Spike performed on sample J1V140 exhibited the percent recovery outside the control limits for Silicon, and the Matrix Spike performed on sample J1V153 exhibited the percent recovery outside the control limits for Aluminum. The associated sample results have been flagged "N". There is no indication that the analytical systems were operating out of control, and method accuracy has been verified by the acceptable LCS analysis data; therefore, corrective action is deemed unnecessary.

The duplicate analysis of sample J1V140 exceeded the RPD limit for Mercury, and the duplicate analysis of sample J1V153 exceeded the RPD limit for Iron. The associated sample results have been flagged "M". There is no indication that the analytical systems were operating out of control, and method accuracy has been verified by the acceptable LCS analysis data; therefore, corrective action is deemed unnecessary.

No other anomalies were encountered.

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

GENERAL CHEMISTRY - SW846 9056M - ANIONS
The Matrix Spike performed on sample J1V141 exhibited the percent recovery outside the control limits for Orthophosphate as P, and the Matrix Spike performed on sample J1V152 exhibited percent recoveries outside the control limits for Orthophosphate as P and Sulfate. The associated sample results have been flagged "N". There is no indication that the analytical systems were operating out of control, and method accuracy has been verified by the acceptable LCS analysis data; therefore, corrective action is deemed unnecessary.

No other anomalies were encountered.

Washington Closure Hanford

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

RC-075-456 | Page 1 of 3

Collector: J. Sexsmith	Company Contact: Joan Kessner	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Project Designation: 100-D/DR Field Remediation	Sampling Location: 100-D-99, Verification, stockpile area		SAF No.: RC-075
Ice Chest No.: ERC-02-407	Field Logbook No.: EL-1662-03	COA: 010D992000	Method of Shipment: Commercial Carrier — fed EX
Shipped To: TestAmerica Denver	Offsite Property No.: A131276-278		Bill of Lading/Air Bill No.: see OSPC
Other Labs Shipped To: TestAmerica Richland			

Price Code: 8B | Data Turnaround: 7 days

POSSIBLE SAMPLE HAZARDS/REMARKS: none

Special Handling and/or Storage: none

Sample No.	Matrix	Sample Date	Sample Time	Preservation	Type of Container	No. of Container(s)	Volume	See Item (1) in Special Instructions	IC Anions - 9056 Modified; NO2/NO3 - 353.2	Pesticides - 8081	TPH-Diesel Range - WTPH-D +	PCBs - 8082	PAHs - 8310	VOA - 5035/8260 (TCL)
				Cool 4C	G/P	1	250mL							
				Cool 4C	G/P	1	250mL							
				Cool 4C	aG	1	250mL							
				Cool 4C	aG	1	125mL							
				Cool 4C	aG	1	250mL							
				Cool 4C	aG	1	250mL							
				Freeze	aGs*	5	40mL							**
1V140	SOIL	10/22/14	0842					✓	✓	✓	✓	✓	✓	✓
1V141	SOIL	10/22/14	0851					✓	✓	✓	✓	✓	✓	✓
1V142	SOIL	10/22/14	0910					✓	✓	✓	✓	✓	✓	✓
1V143	SOIL	10/22/14	0924					✓	✓	✓	✓	✓	✓	✓
1V144	SOIL	10/22/14	0818					✓	✓	✓	✓	✓	✓	✓

CHAIN OF POSSESSION

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Kitney T. Sexsmith	10/22/14 1055	WCH DWSHEA	10/22/14 1055
WSHEA DWSHEA	10/22/14 1735	C. Bingham	10-22-14 1735
C. Bingham	10-22-14 1740	1060 Battelle, fridge #1B	10-22-14 1740
Battelle, fridge #1B	10-23-14 0855	C. Bingham	10-23-14 0855
C. Bingham WCH	10-23-14 0900	fed EX	
			10/24/14 10:00

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)

10-23-14 CMB

* 20ml vial → % moisture

** freeze upon receipt

3.5, 2.8, 0.3, 2.2

0.3, 5.6, 0.4

IR6 CF=1.0

Transferred by MCG 10/24/14

VOA samples frozen upon collection

REVIEWED BY KW DATE 10/23/14

JP0874

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

CH-EE-011

Washington Closure Hanford

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

RC-075-456 | Page 2 of 3

Collector: W. Saxsmith	Company Contact: Joan Kessner	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Project Designation: 100-D/DR Field Remediation	Sampling Location: 100-D-99, Verification, stockpile area		SAF No.: RC-075
Ice Chest No.: ERC-02-407	Field Logbook No.: EL-1662-03	COA: 010D992000	Method of Shipment: Commercial Carrier — fed EX
Shipped To: TestAmerica Denver	Offsite Property No.: A1312776-278		Bill of Lading/Air Bill No.: see OSPC

Price Code: 8B | Data Turnaround: 7 days

Other Labs Shipped To: TestAmerica Richland

POSSIBLE SAMPLE HAZARDS/REMARKS: None

Special Handling and/or Storage: None

Sample No.	Matrix	Sample Date	Sample Time	Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Freeze			
				Type of Container	G/P	G/P	aG	aG	aG	aG	aGs*			
				No. of Container(s)	1	1	1	1	1	1	5			
				Volume	250mL	250mL	250mL	125mL	250mL	250mL	40mL			
				Sample Analysis	See Item (1) in Special Instructions	IC Anions - 9056 Modified; NO2/NO3 - 353.2	Pesticides - 8081	TPH-Diesel Range - WTPH-D +	PCBs - 8082	PAHs - 8310	VOA - 5035/8260 (TCL)			
J1V145	SOIL	10/22/14	0802	✓	✓	✓	✓	✓	✓	✓				
J1V146	SOIL	10/22/14	0940	✓	✓	✓	✓	✓	✓	✓				
J1V147	SOIL	10/22/14	0949	✓	✓	✓	✓	✓	✓	✓				
J1V148	SOIL	10/22/14	1005	✓	✓	✓	✓	✓	✓	✓				
J1V149	SOIL	10/22/14	1015	✓	✓	✓	✓	✓	✓	✓				

CHAIN OF POSSESSION

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Whitney T. Saxsmith	10/22/14 1055	DWSkea DWSHEA	10/22/14 1055
DWSkea DWSHEA	10/22/14 1735	C. Bingham	10-22-14 1735
C. Bingham	10-22-14 1740	1060 battelle, fridge #1B	10-22-14 1740
1060 Battelle, fridge #1B	10-23-14 0855	C. Bingham	10-23-14 0855
C. Bingham	10-23-14 0900	fed EX	
			10/24/14 10:00

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}

* 20 ml vial → % moisture 10-23-14 CMB
** freeze upon receipt

VOA samples frozen upon collection

REVIEWED BY KW DATE 10/23/14

JP0874

Washington Closure Hanford

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

RC-075-456

Collector: N. Sorensith	Company Contact: Joan Kessner	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Project Designation: 100-D/DR Field Remediation	Sampling Location: 100-D-99, Verification, stockpile area		SAF No.: RC-075
Ice Chest No.: ERC-02-407	Field Logbook No.: EL-1662-03	COA: 010D992000	Method of Shipment: Commercial Carrier — fed EX
Shipped To: TestAmerica Denver	Offsite Property No.: A131276-278		Bill of Lading/Air Bill No.: see OSPC
Other Labs Shipped To: TestAmerica Richland			Price Code: 8B — Data Turnaround: 7 days

POSSIBLE SAMPLE HAZARDS/REMARKS: none

Special Handling and/or Storage: none

Sample No.	Matrix	Sample Date	Sample Time	Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Freeze			
				Type of Container	G/P	G/P	aG	aG	aG	aG	aGs*			
				No. of Container(s)	1	1	1	1	1	1	5			
				Volume	250mL	250mL	250mL	125mL	250mL	250mL	40mL			
				Sample Analysis	See item (1) in Special Instructions	IC Anions - 9056 Modified; NO2/NO3 - 353.2	Pesticides - 8081	TPH-Diesel Range - WTPH-D +	PCBs - 8082	PAHs - 8310	** VOA - 5035/8260 (TCL)			
IV150	SOIL	10/22/14	1027		✓	✓	✓	✓	✓	✓	✓			
IV151	SOIL	10/22/14	1042		✓	✓	✓	✓	✓	✓	✓			
IV152	SOIL	10/22/14	0818		✓	✓	✓	✓	✓	✓	✓			
IV153	SOIL	10/22/14	0753		✓	—	—	10-23-14 CMB	—	—	✓			

CHAIN OF POSSESSION

Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Sidney T. Sorensith	10/22/14 1035	DWSHEA DWSHEA	10/22/14 1055
DWSHEA DWSHEA	10/22/14 1735	C. Bingham	10-22-14 1735
C. Bingham	10-22-14 1740	060 Battelle, fridge FTB	10-22-14 1740
060 Battelle, fridge FTB	10-23-14 0855	C. Bingham	10-23-14 0855
C. Bingham WCH	10-23-14 0900	fed EX	
			10/24/14 10:00

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)

* 20 ml vial → % moisture 10-23-14 CMB

** freeze upon receipt

VOA samples frozen upon collection

REVIEWED BY KW DATE 10/22/14

JP 0874

WCH-EE-011

Washington Closure Hanford

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

RC-075-468 | Page 1 of 1

Collector: W. Sassmith	Company Contact: Joan Kessner	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Project Designation: 100-D/DR Field Remediation	Sampling Location: 100-D-99, Verification, VOA trip blank		SAF No.: RC-075
Ice Chest No.: ERC-02-407	Field Logbook No.: EL-1662-03	COA: 010D992000	Method of Shipment: Commercial Carrier — fed EX
Shipped To: TestAmerica Denver	Offsite Property No.: A131276-278		Bill of Lading/Air Bill No.: See OSPC

Price Code: 8B | Data Turnaround: 7days

Other Labs Shipped To: NA

POSSIBLE SAMPLE HAZARDS/REMARKS: None

Special Handling and/or Storage: None

Page 1 of 1

Preservation	Freeze													
Type of Container	aGe*													
No. of Container(s)	5													
Volume	40mL													
Sample Analysis	VOA 5035/8260 (TCL)													

Sample No.	Matrix	Sample Date	Sample Time											
J10158	SOIL	10/22/14	0747	✓										

CHAIN OF POSSESSION

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
W. Sassmith	10/22/14 1055	DUSHEA	10/22/14 1055
DUSHEA	10/22/14 1735	C. Bingham	10-22-14 1735
C. Bingham	10-22-14 1740	1060 Battelle fridge #1B	10-22-14 1740
1060 Battelle fridge #1B	10-23-14 0855	C. Bingham	10-23-14 0855
C. Bingham	10-23-14 0900	fed EX	
			10/24/14 1000

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

SPECIAL INSTRUCTIONS

10-23-14 CMB

*20 ml vial → % moisture

**freeze upon receipt

VOA samples frozen upon collection

REVIEWED BY KW DATE 10/23/14

JP0875 10-23-14 CMB

JP0874

WCH-EE-011

Appendix 5

Data Validation Supporting Documentation

GENERAL ORGANIC DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	(C)	D	E
PROJECT:	100-D-99		DATA PACKAGE:	JP0874	
VALIDATOR:	ECR	LAB:	TAC	DATE:	11/22/14
			SDG:	JP0874	

ANALYSES PERFORMED					
8015	8021	8141	8151	8315	
		WTPH-HCID	WTPH-G	(WTPH-D)	

SAMPLES/MATRIX:				
J1V140	J1V141	J1V142	J1V143	J1V144
J1V145	J1V146	J1V147	J1V148	J1V149
J1V150	J1V151	J1V152		
				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)

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: _____

GENERAL 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 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 PAS

GENERAL ORGANIC 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 ORGANIC DATA VALIDATION CHECKLIST

8. COMPOUND IDENTIFICATION, 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:_____

9. SAMPLE CLEANUP (Levels D and E)

Fluoricil ® (or other aborbant) cleanup performed? ..... Yes No N/A
Lot check performed? ..... Yes No N/A
Check recoveries aceptable? ..... Yes No N/A
Check materials traceable? ..... Yes No N/A
Check 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: 280-61707-1
Sdg Number: JP0874

Method Blank - Batch: 280-249906

Method: NWTPH-Dx
Preparation: 3550C

Lab Sample ID:	MB 280-249906/1-A	Analysis Batch:	280-250283	Instrument ID:	SGC_U
Client Matrix:	Solid	Prep Batch:	280-249906	Lab File ID:	10290021.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	30.8 g
Analysis Date:	10/29/2014 1942	Units:	ug/Kg	Final Weight/Volume:	1 mL
Prep Date:	10/28/2014 0005			Injection Volume:	1 uL
Leach Date:	N/A				

Analyte	Result	Qual	MDL	RL
C10-C36	970	U	970	3900
C10-C28	660	U	660	3900

Surrogate	% Rec	Acceptance Limits
o-Terphenyl	96	49 - 115

Lab Control Sample - Batch: 280-249906

Method: NWTPH-Dx
Preparation: 3550C

Lab Sample ID:	LCS 280-249906/2-A	Analysis Batch:	280-250283	Instrument ID:	SGC_U
Client Matrix:	Solid	Prep Batch:	280-249906	Lab File ID:	10290022.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	31.7 g
Analysis Date:	10/29/2014 2009	Units:	ug/Kg	Final Weight/Volume:	1 mL
Prep Date:	10/28/2014 0005			Injection Volume:	1 uL
Leach Date:	N/A				

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
C10-C36	63100	55000	87	57 - 115	
C10-C28	63100	55000	87	53 - 115	

Surrogate	% Rec	Acceptance Limits
o-Terphenyl	95	49 - 115

Client: Washington Closure Hanford

Job Number: 280-61707-1
Sdg Number: JP0874

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-249906

Method: NWTPH-Dx
Preparation: 3550C

MS Lab Sample ID:	280-61707-4	Analysis Batch:	280-250283	Instrument ID:	SGC_U
Client Matrix:	Solid	Prep Batch:	280-249906	Lab File ID:	10290027.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	32.1 g
Analysis Date:	10/29/2014 2224			Final Weight/Volume:	1 mL
Prep Date:	10/28/2014 0005			Injection Volume:	1 uL
Leach Date:	N/A				

MSD Lab Sample ID:	280-61707-4	Analysis Batch:	280-250283	Instrument ID:	SGC_U
Client Matrix:	Solid	Prep Batch:	280-249906	Lab File ID:	10290028.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	30.4 g
Analysis Date:	10/29/2014 2250			Final Weight/Volume:	1 mL
Prep Date:	10/28/2014 0005			Injection Volume:	1 uL
Leach Date:	N/A				

	% Rec.					
Analyte	MS	MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
C10-C36	72	86	57 - 115	12	23		
C10-C28	82	91	56 - 115	13	23		

Surrogate	MS % Rec	MSD % Rec	Acceptance Limits
o-Terphenyl	92	96	49 - 115

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-249906

Method: NWTPH-Dx
Preparation: 3550C

MS Lab Sample ID:	280-61707-13	Analysis Batch:	280-250283	Instrument ID:	SGC_U
Client Matrix:	Solid	Prep Batch:	280-249906	Lab File ID:	10290039.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	31.0 g
Analysis Date:	10/30/2014 0347			Final Weight/Volume:	1 mL
Prep Date:	10/28/2014 0005			Injection Volume:	1 uL
Leach Date:	N/A				

MSD Lab Sample ID:	280-61707-13	Analysis Batch:	280-250283	Instrument ID:	SGC_U
Client Matrix:	Solid	Prep Batch:	280-249906	Lab File ID:	10290040.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	30.9 g
Analysis Date:	10/30/2014 0414			Final Weight/Volume:	1 mL
Prep Date:	10/28/2014 0005			Injection Volume:	1 uL
Leach Date:	N/A				

	% Rec.					
Analyte	MS	MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
C10-C36	85	84	57 - 115	1	23		
C10-C28	86	85	56 - 115	1	23		

Surrogate	MS % Rec	MSD % Rec	Acceptance Limits
o-Terphenyl	91	91	49 - 115

Client: Washington Closure Hanford

Job Number: 280-61707-1
Sdg Number: JP0874

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-249906

Method: NWTPH-Dx
Preparation: 3550C

MS Lab Sample ID:	280-61707-4	Units: ug/Kg	
Client Matrix:	Solid		
Dilution:	1.0		
Analysis Date:	10/29/2014 2224		
Prep Date:	10/28/2014 0005		
Leach Date:	N/A		

MSD Lab Sample ID:	280-61707-4
Client Matrix:	Solid
Dilution:	1.0
Analysis Date:	10/29/2014 2250
Prep Date:	10/28/2014 0005
Leach Date:	N/A

Analyte	Sample Result/Qual	MS Spike Amount	MSD Spike Amount	MS Result/Qual	MSD Result/Qual
C10-C36	44000	64700	68300	91100	103000
C10-C28	13000	64700	68300	66000	75000

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-249906

Method: NWTPH-Dx
Preparation: 3550C

MS Lab Sample ID:	280-61707-13	Units: ug/Kg	
Client Matrix:	Solid		
Dilution:	1.0		
Analysis Date:	10/30/2014 0347		
Prep Date:	10/28/2014 0005		
Leach Date:	N/A		

MSD Lab Sample ID:	280-61707-13
Client Matrix:	Solid
Dilution:	1.0
Analysis Date:	10/30/2014 0414
Prep Date:	10/28/2014 0005
Leach Date:	N/A

Analyte	Sample Result/Qual		MS Spike Amount	MSD Spike Amount	MS Result/Qual	MSD Result/Qual
C10-C36	2400	J	66700	66900	59400	58700
C10-C28	1500	J	66700	66900	58900	58200

Date: 24 November 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-99
Subject: Polyaromatic Hydrocarbon - Data Package No. JP0874-TAL

INTRODUCTION

This memo presents the results of data validation on Data Package No. JP0874 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
J1V140	10/22/14	Soil	C	See note 1
J1V141	10/22/14	Soil	C	See note 1
J1V142	10/22/14	Soil	C	See note 1
J1V143	10/22/14	Soil	C	See note 1
J1V144	10/22/14	Soil	C	See note 1
J1V145	10/22/14	Soil	C	See note 1
J1V146	10/22/14	Soil	C	See note 1
J1V147	10/22/14	Soil	C	See note 1
J1V148	10/22/14	Soil	C	See note 1
J1V149	10/22/14	Soil	C	See note 1
J1V150	10/22/14	Soil	C	See note 1
J1V151	10/22/14	Soil	C	See note 1
J1V152	10/22/14	Soil	C	See note 1

1 – Polyaromatic hydrocarbons by 8310.

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: Samples 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.

All 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 laboratory results were acceptable.

Field Duplicate Samples

One set of field duplicates (J1V144/J1V152) 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 (RQL's) to ensure that laboratory detection levels meet the required criteria. All analytes met the RQL.

- **Completeness**

Data package No. JP0874 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*, 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

POLYAROMATIC HYDROCARBON DATA QUALIFICATION SUMMARY*

SDG: JP0874	REVIEWER: ELR	Project: 100-D-99	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: 280-61707-1
Sdg Number: JP0874

Client Sample ID: ***J1V140***

Lab Sample ID: 280-61707-1
Client Matrix: Solid

% Moisture: 5.8

Date Sampled: 10/22/2014 0842
Date Received: 10/24/2014 1000

8310 PAHs (HPLC)

Analysis Method:	8310	Analysis Batch:	280-250483	Instrument ID:	CHHPLC_G
Prep Method:	3550C	Prep Batch:	280-249898	Initial Weight/Volume:	31.9 g
Dilution:	1.0			Final Weight/Volume:	4 mL
Analysis Date:	10/30/2014 1333			Injection Volume:	20 µL
Prep Date:	10/27/2014 2120			Result Type:	PRIMARY

11/22/14

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Acenaphthene		10	U	10	100
Acenaphthylene		9.0	U	9.0	100
Anthracene		3.0	U	3.0	20
Benzo[a]anthracene		3.2	U	3.2	15
Benzo[a]pyrene		6.4	U	6.4	15
Benzo[b]fluoranthene		4.2	U	4.2	15
Benzo[g,h,i]perylene		7.2	U	7.2	30
Benzo[k]fluoranthene		3.9	U	3.9	15
Chrysene		4.8	U	4.8	40
Dibenzo(a,h)anthracene		11	U	11	30
Fluoranthene		13	U	13	40
Fluorene		5.3	U	5.3	30
Indeno[1,2,3-cd]pyrene		12	U	12	30
Naphthalene		12	U	12	100
Phenanthrene		12	U	12	40
Pyrene		12	U	12	40

Surrogate	%Rec	Qualifier	Acceptance Limits
Terphenyl-d14 (SUR)	80		72 - 115

Client: Washington Closure Hanford

Job Number: 280-61707-1
Sdg Number: JP0874

Client Sample ID: ***J1V141***

Lab Sample ID: 280-61707-2
Client Matrix: Solid

% Moisture: 4.5

Date Sampled: 10/22/2014 0851
Date Received: 10/24/2014 1000

8310 PAHs (HPLC)

Analysis Method:	8310	Analysis Batch:	280-250483	Instrument ID:	CHHPLC_G
Prep Method:	3550C	Prep Batch:	280-249898	Initial Weight/Volume:	31.3 g
Dilution:	1.0			Final Weight/Volume:	4 mL
Analysis Date:	10/30/2014 1404			Injection Volume:	20 uL
Prep Date:	10/27/2014 2120			Result Type:	PRIMARY

11/22/14

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Acenaphthene		10	U	10	100
Acenaphthylene		9.0	U	9.0	100
Anthracene		3.1	U	3.1	20
Benzo[a]anthracene		3.2	U N	3.2	15
Benzo[a]pyrene		6.4	U	6.4	15
Benzo[b]fluoranthene		4.2	U N	4.2	15
Benzo[g,h,i]perylene		7.2	*U*	7.2	*30*
Benzo[k]fluoranthene		4.0	U N	4.0	15
Chrysene		4.9	U	4.9	40
Dibenzo(a,h)anthracene		11	U N	11	30
Fluoranthene		13	U N	13	40
Fluorene		5.3	U	5.3	30
Indeno[1,2,3-cd]pyrene		12	U N	12	30
Naphthalene		12	U N	12	100
Phenanthrene		12	U N	12	40
Pyrene		12	U	12	40

Surrogate	%Rec	Qualifier	Acceptance Limits
Terphenyl-d14 (SUR)	83		72 - 115

Client: Washington Closure Hanford

Job Number: 280-61707-1
Sdg Number: JP0874

Client Sample ID: J1V142

Lab Sample ID: 280-61707-3
Client Matrix: Solid

% Moisture: 6.4

Date Sampled: 10/22/2014 0910
Date Received: 10/24/2014 1000

8310 PAHs (HPLC)

Analysis Method:	8310	Analysis Batch:	280-250483	Instrument ID:	CHHPLC_G
Prep Method:	3550C	Prep Batch:	280-249898	Initial Weight/Volume:	32.2 g
Dilution:	1.0			Final Weight/Volume:	4 mL
Analysis Date:	10/30/2014 1535			Injection Volume:	20 uL
Prep Date:	10/27/2014 2120			Result Type:	PRIMARY

11/22/14

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Acenaphthene		10	U	10	100
Acenaphthylene		9.0	U	9.0	100
Anthracene		3.0	U	3.0	20
Benzo[a]anthracene		3.2	U	3.2	15
Benzo[a]pyrene		6.4	U	6.4	15
Benzo[b]fluoranthene		4.2	U	4.2	15
Benzo[g,h,i]perylene		7.2	U	7.2	30
Benzo[k]fluoranthene		3.9	U	3.9	15
Chrysene		4.8	U	4.8	40
Dibenzo(a,h)anthracene		11	U	11	30
Fluoranthene		13	U	13	40
Fluorene		5.3	U	5.3	30
Indeno[1,2,3-cd]pyrene		12	U	12	30
Naphthalene		12	U	12	100
Phenanthrene		12	U	12	40
Pyrene		12	U	12	40

Surrogate	%Rec	Qualifier	Acceptance Limits
Terphenyl-d14 (SUR)	82		72 - 115

Client: Washington Closure Hanford

Job Number: 280-61707-1
Sdg Number: JP0874

Client Sample ID: J1V143

Lab Sample ID: 280-61707-4
Client Matrix: Solid

% Moisture: 3.7

Date Sampled: 10/22/2014 0924
Date Received: 10/24/2014 1000

8310 PAHs (HPLC)

Analysis Method:	8310	Analysis Batch:	280-250483	Instrument ID:	CHHPLC_G
Prep Method:	3550C	Prep Batch:	280-249898	Initial Weight/Volume:	30.9 g
Dilution:	1.0			Final Weight/Volume:	4 mL
Analysis Date:	10/30/2014 1606			Injection Volume:	20 uL
Prep Date:	10/27/2014 2120			Result Type:	PRIMARY

11/22/14

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Acenaphthene		10	U	10	100
Acenaphthylene		9.1	U	9.1	100
Anthracene		3.1	U	3.1	20
Benzo[a]anthracene		3.2	U	3.2	15
Benzo[a]pyrene		6.5	U	6.5	15
Benzo[b]fluoranthene		4.2	U	4.2	15
Benzo[g,h,i]perylene		7.3	U	7.3	30
Benzo[k]fluoranthene		4.0	U	4.0	15
Chrysene		4.9	U	4.9	40
Dibenzo(a,h)anthracene		11	U	11	30
Fluoranthene		13	U	13	40
Fluorene		5.3	U	5.3	30
Indeno[1,2,3-cd]pyrene		12	U	12	30
Naphthalene		12	U	12	100
Phenanthrene		12	U	12	40
Pyrene		12	U	12	40

Surrogate	%Rec	Qualifier	Acceptance Limits
Terphenyl-d14 (SUR)	78		72 - 115

Client: Washington Closure Hanford

Job Number 280-61707-1
Sdg Number: JP0874

Client Sample ID: **J1V144**

Lab Sample ID: 280-61707-5
Client Matrix: Solid

% Moisture: 3.2

Date Sampled: 10/22/2014 0818
Date Received: 10/24/2014 1000

8310 PAHs (HPLC)

Analysis Method:	8310	Analysis Batch:	280-250483	Instrument ID:	CHHPLC_G
Prep Method:	3550C	Prep Batch:	280-249898	Initial Weight/Volume:	30.3 g
Dilution:	1.0			Final Weight/Volume:	4 mL
Analysis Date:	10/30/2014 1637			Injection Volume:	20 uL
Prep Date:	10/27/2014 2120			Result Type:	PRIMARY

11/22/14

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Acenaphthene		10	U	10	100
Acenaphthylene		9.2	U	9.2	100
Anthracene		3.1	U	3.1	20
Benzo[a]anthracene		3.3	U	3.3	15
Benzo[a]pyrene		6.6	U	6.6	15
Benzo[b]fluoranthene		4.3	U	4.3	15
Benzo[g,h,i]perylene		7.4	U	7.4	31
Benzo[k]fluoranthene		4.0	U	4.0	15
Chrysene		5.0	U	5.0	41
Dibenzo(a,h)anthracene		11	U	11	31
Fluoranthene		13	U	13	41
Fluorene		5.4	U	5.4	31
Indeno[1,2,3-cd]pyrene		12	U	12	31
Naphthalene		12	U	12	100
Phenanthrene		12	U	12	41
Pyrene		12	U	12	41

Surrogate	%Rec	Qualifier	Acceptance Limits
Terphenyl-d14 (SUR)	77		72 - 115

Client: Washington Closure Hanford

Job Number: 280-61707-1
Sdg Number: JP0874

Client Sample ID: ***J1V145***

Lab Sample ID: 280-61707-6
Client Matrix: Solid

% Moisture: 3.2

Date Sampled: 10/22/2014 0802
Date Received: 10/24/2014 1000

8310 PAHs (HPLC)

Analysis Method:	8310	Analysis Batch:	280-250483	Instrument ID:	CHHPLC_G
Prep Method:	3550C	Prep Batch:	280-249898	Initial Weight/Volume:	31.3 g
Dilution:	1.0			Final Weight/Volume:	4 mL
Analysis Date:	10/30/2014 1707			Injection Volume:	20 uL
Prep Date:	10/27/2014 2120			Result Type:	PRIMARY

11/22/14

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Acenaphthene		9.9	U	9.9	99
Acenaphthylene		8.9	U	8.9	99
Anthracene		3.0	U	3.0	20
Benzo[a]anthracene		3.2	U	3.2	15
Benzo[a]pyrene		6.3	U	6.3	15
Benzo[b]fluoranthene		4.2	U	4.2	15
Benzo[g,h,i]perylene		*7.1*	*U*	*7.1*	*30*
Benzo[k]fluoranthene		3.9	U	3.9	15
Chrysene		4.8	U	4.8	40
Dibenzo(a,h)anthracene		11	U	11	30
Fluoranthene		13	U	13	40
Fluorene		*5.2*	*U*	*5.2*	*30*
Indeno[1,2,3-cd]pyrene		12	U	12	30
Naphthalene		12	U	12	99
Phenanthrene		12	U	12	40
Pyrene		12	U	12	40

Surrogate	%Rec	Qualifier	Acceptance Limits
Terphenyl-d14 (SUR)	85		72 - 115

Client: Washington Closure Hanford

Job Number: 280-61707-1
Sdg Number: JP0874

Client Sample ID: ***J1V146***

Lab Sample ID: 280-61707-7
Client Matrix: Solid

% Moisture: 3.7

Date Sampled: 10/22/2014 0940
Date Received: 10/24/2014 1000

8310 PAHs (HPLC)

Analysis Method:	8310	Analysis Batch:	280-250483	Instrument ID:	CHHPLC_G
Prep Method:	3550C	Prep Batch:	280-249898	Initial Weight/Volume:	30.9 g
Dilution:	1.0			Final Weight/Volume:	4 mL
Analysis Date:	10/30/2014 1808			Injection Volume:	20 uL
Prep Date:	10/27/2014 2120			Result Type:	PRIMARY

11/22/14

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Acenaphthene		10	U	10	100
Acenaphthylene		9.1	U	9.1	100
Anthracene		3.1	U	3.1	20
Benzo[a]anthracene		3.2	U	3.2	15
Benzo[a]pyrene		6.5	U	6.5	15
Benzo[b]fluoranthene		4.2	U	4.2	15
Benzo[g,h,i]perylene		*7.3*	*U*	*7.3*	*30*
Benzo[k]fluoranthene		4.0	U	4.0	15
Chrysene		4.9	U	4.9	40
Dibenzo(a,h)anthracene		11	U	11	30
Fluoranthene		13	U	13	40
Fluorene		5.3	U	5.3	30
Indeno[1,2,3-cd]pyrene		12	U	12	30
Naphthalene		12	U	12	100
Phenanthrene		12	U	12	40
Pyrene		12	U	12	40

Surrogate	%Rec	Qualifier	Acceptance Limits
Terphenyl-d14 (SUR)	80		72 - 115

Client: Washington Closure Hanford

Job Number: 280-61707-1
Sdg Number: JP0874

Client Sample ID: J1V147

Lab Sample ID: 280-61707-8
Client Matrix: Solid

% Moisture: 4.8

Date Sampled: 10/22/2014 0949
Date Received: 10/24/2014 1000

8310 PAHs (HPLC)

Analysis Method: 8310
Prep Method: 3550C
Dilution: 1.0
Analysis Date: 10/30/2014 1839
Prep Date: 10/27/2014 2120

Analysis Batch: 280-250483
Prep Batch: 280-249898

11/2/14

Instrument ID: CHHPLC_G
Initial Weight/Volume: 31.1 g
Final Weight/Volume: 4 mL
Injection Volume: 20 uL
Result Type: PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Acenaphthene		10	U	10	100
Acenaphthylene		9.1	U	9.1	100
Anthracene		3.1	U	3.1	20
Benzo[a]anthracene		3.2	U	3.2	15
Benzo[a]pyrene		6.5	U	6.5	15
Benzo[b]fluoranthene		4.3	U	4.3	15
Benzo[g,h,i]perylene		7.3	U	7.3	30
Benzo[k]fluoranthene		4.0	U	4.0	15
Chrysene		4.9	U	4.9	41
Dibenzo(a,h)anthracene		11	U	11	30
Fluoranthene		13	U	13	41
Fluorene		5.4	U	5.4	30
Indeno[1,2,3-cd]pyrene		12	U	12	30
Naphthalene		12	U	12	100
Phenanthrene		12	U	12	41
Pyrene		12	U	12	41

Surrogate	%Rec	Qualifier	Acceptance Limits
Terphenyl-d14 (SUR)	83		72 - 115

Client: Washington Closure Hanford

Job Number: 280-61707-1
Sdg Number: JP0874

Client Sample ID: ***J1V148***

Lab Sample ID: 280-61707-9
Client Matrix: Solid

% Moisture: 3.8

Date Sampled: 10/22/2014 1008
Date Received: 10/24/2014 1000

8310 PAHs (HPLC)

Analysis Method:	8310	Analysis Batch:	280-250483	Instrument ID:	CHHPLC_G
Prep Method:	3550C	Prep Batch:	280-249898	Initial Weight/Volume:	32.5 g
Dilution:	1.0			Final Weight/Volume:	4 mL
Analysis Date:	10/30/2014 1909			Injection Volume:	20 uL
Prep Date:	10/27/2014 2120			Result Type:	PRIMARY

11/22/14

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Acenaphthene		9.6	U	9.6	96
Acenaphthylene		8.6	U	8.6	96
Anthracene		2.9	U	2.9	19
Benzo[a]anthracene		3.1	U	3.1	14
Benzo[a]pyrene		6.1	U	6.1	14
Benzo[b]fluoranthene		4.0	U	4.0	14
Benzo[g,h,i]perylene		*6.9*	*U*	*6.9*	*29*
Benzo[k]fluoranthene		3.8	U	3.8	14
Chrysene		4.6	U	4.6	38
Dibenzo(a,h)anthracene		11	U	11	29
Fluoranthene		12	U	12	38
Fluorene		5.1	U	5.1	29
Indeno[1,2,3-cd]pyrene		12	U	12	29
Naphthalene		12	U	12	96
Phenanthrene		12	U	12	38
Pyrene		12	U	12	38

Surrogate	%Rec	Qualifier	Acceptance Limits
Terphenyl-d14 (SUR)	80		72 - 115

Client: Washington Closure Hanford

Job Number: 280-61707-1
Sdg Number: JP0874

Client Sample ID: J1V149

Lab Sample ID: 280-61707-10
Client Matrix: Solid

% Moisture: 4.3

Date Sampled: 10/22/2014 1015
Date Received: 10/24/2014 1000

8310 PAHs (HPLC)

Analysis Method: 8310
Prep Method: 3550C
Dilution: 1.0
Analysis Date: 10/30/2014 1940
Prep Date: 10/27/2014 2120

Analysis Batch: 280-250483
Prep Batch: 280-249898

11/22/14

Instrument ID: CHHPLC_G
Initial Weight/Volume: 30.5 g
Final Weight/Volume: 4 mL
Injection Volume: 20 uL
Result Type: PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Acenaphthene		10	U	10	100
Acenaphthylene		9.3	U	9.3	100
Anthracene		3.1	U	3.1	21
Benzo[a]anthracene		3.3	U	3.3	15
Benzo[a]pyrene		6.6	U	6.6	15
Benzo[b]fluoranthene		4.3	U	4.3	15
Benzo[g,h,i]perylene		7.4	U	7.4	31
Benzo[k]fluoranthene		4.1	U	4.1	15
Chrysene		5.0	U	5.0	41
Dibenzo(a,h)anthracene		11	U	11	31
Fluoranthene		13	U	13	41
Fluorene		5.4	U	5.4	31
Indeno[1,2,3-cd]pyrene		12	U	12	31
Naphthalene		12	U	12	100
Phenanthrene		12	U	12	41
Pyrene		12	U	12	41

Surrogate	%Rec	Qualifier	Acceptance Limits
Terphenyl-d14 (SUR)	84		72 - 115

Client: Washington Closure Hanford

Job Number: 280-61707-1
Sdg Number: JP0874

Client Sample ID: J1V150

Lab Sample ID: 280-61707-11
Client Matrix: Solid

% Moisture: 4.5

Date Sampled: 10/22/2014 1027
Date Received: 10/24/2014 1000

8310 PAHs (HPLC)

Analysis Method: 8310
Prep Method: 3550C
Dilution: 1.0
Analysis Date: 10/30/2014 2010
Prep Date: 10/27/2014 2120

Analysis Batch: 280-250483
Prep Batch: 280-249898

11/22/14

Instrument ID: CHHPLC_G
Initial Weight/Volume: 30.5 g
Final Weight/Volume: 4 mL
Injection Volume: 20 uL
Result Type: PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Acenaphthene		10	U	10	100
Acenaphthylene		9.3	U	9.3	100
Anthracene		3.1	U	3.1	21
Benzo[a]anthracene		3.3	U	3.3	15
Benzo[a]pyrene		6.6	U	6.6	15
Benzo[b]fluoranthene		4.3	U	4.3	15
Benzo[g,h,i]perylene		7.4	U	7.4	31
Benzo[k]fluoranthene		4.1	U	4.1	15
Chrysene		5.0	U	5.0	41
Dibenzo(a,h)anthracene		11	U	11	31
Fluoranthene		13	U	13	41
Fluorene		5.4	U	5.4	31
Indeno[1,2,3-cd]pyrene		12	U	12	31
Naphthalene		12	U	12	100
Phenanthrene		12	U	12	41
Pyrene		12	U	12	41

Surrogate	%Rec	Qualifier	Acceptance Limits
Terphenyl-d14 (SUR)	82		72 - 115

Client: Washington Closure Hanford

Job Number: 280-61707-1
Sdg Number: JP0874

Client Sample ID: J1V151

Lab Sample ID: 280-61707-12
Client Matrix: Solid

% Moisture: 4.7

Date Sampled: 10/22/2014 1042
Date Received: 10/24/2014 1000

8310 PAHs (HPLC)

Analysis Method:	8310	Analysis Batch:	280-250483	Instrument ID:	CHHPLC_G
Prep Method:	3550C	Prep Batch:	280-249898	Initial Weight/Volume:	30.5 g
Dilution:	1.0			Final Weight/Volume:	4 mL
Analysis Date:	10/30/2014 2041			Injection Volume:	20 uL
Prep Date:	10/27/2014 2120			Result Type:	PRIMARY

11/12/14

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Acenaphthene		10	U	10	100
Acenaphthylene		9.3	U	9.3	100
Anthracene		3.1	U	3.1	21
Benzo[a]anthracene		3.3	U	3.3	15
Benzo[a]pyrene		6.6	U	6.6	15
Benzo[b]fluoranthene		4.3	U	4.3	15
Benzo[g,h,i]perylene		7.4	U	7.4	31
Benzo[k]fluoranthene		4.1	U	4.1	15
Chrysene		5.0	U	5.0	41
Dibenzo(a,h)anthracene		11	U	11	31
Fluoranthene		13	U	13	41
Fluorene		5.4	U	5.4	31
Indeno[1,2,3-cd]pyrene		12	U	12	31
Naphthalene		12	U	12	100
Phenanthrene		12	U	12	41
Pyrene		12	U	12	41

Surrogate	%Rec	Qualifier	Acceptance Limits
Terphenyl-d14 (SUR)	78		72 - 115

Client: Washington Closure Hanford

Job Number: 280-61707-1
Sdg Number: JP0874

Client Sample ID: **J1V152**

Lab Sample ID: 280-61707-13
Client Matrix: Solid % Moisture: 3.3

Date Sampled: 10/22/2014 0818
Date Received: 10/24/2014 1000

8310 PAHs (HPLC)

Analysis Method:	8310	Analysis Batch:	280-250483	Instrument ID:	CHHPLC_G
Prep Method:	3550C	Prep Batch:	280-249898	Initial Weight/Volume:	31.6 g
Dilution:	1.0			Final Weight/Volume:	4 mL
Analysis Date:	10/30/2014 2111			Injection Volume:	20 uL
Prep Date:	10/27/2014 2120			Result Type:	PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Acenaphthene		9.8	U	9.8	98
Acenaphthylene		8.8	U	8.8	98
Anthracene		3.0	U	3.0	20
Benzo[a]anthracene		3.1	U	3.1	15
Benzo[a]pyrene		6.3	U	6.3	15
Benzo[b]fluoranthene		4.1	U	4.1	15
Benzo[g,h,i]perylene		*7.1*	*U*	*7.1*	*29*
Benzo[k]fluoranthene		3.9	U	3.9	15
Chrysene		4.8	U	4.8	39
Dibenzo(a,h)anthracene		11	U	11	29
Fluoranthene		13	U	13	39
Fluorene		5.2	U	5.2	29
Indeno[1,2,3-cd]pyrene		12	U	12	29
Naphthalene		12	U	12	98
Phenanthrene		12	U	12	39
Pyrene		12	U	12	39

Surrogate	%Rec	Qualifier	Acceptance Limits
Terphenyl-d14 (SUR)	82		72 - 115

Appendix 4

Laboratory Narrative and Chain-of-Custody Documentation

CASE NARRATIVE

Client: Washington Closure Hanford

Project: WASHINGTON CLOSURE HANFORD

Report Number: 280-61707-1

SDG #: JP0874
SAF#: RC-075

Date SDG Closed: October 24, 2014
Data Deliverable: 7 Day / Summary

CLIENT ID	LAB ID	ANALYSES REQUESTED	ANALYSES PERFORMED
J1V140	280-61707-1	6010/7471/9056M/353.2/8081/WTPH-D+/ 8082/8310/8260B	6010B/7471A/9056M/353.2/8081A/NWTPH-Dx/ 8082/8310/8260B
J1V141	280-61707-2	6010/7471/9056M/353.2/8081/WTPH-D+/ 8082/8310/8260B	6010B/7471A/9056M/353.2/8081A/NWTPH-Dx/ 8082/8310/8260B
J1V142	280-61707-3	6010/7471/9056M/353.2/8081/WTPH-D+/ 8082/8310/8260B	6010B/7471A/9056M/353.2/8081A/NWTPH-Dx/ 8082/8310/8260B
J1V143	280-61707-4	6010/7471/9056M/353.2/8081/WTPH-D+/ 8082/8310/8260B	6010B/7471A/9056M/353.2/8081A/NWTPH-Dx/ 8082/8310/8260B
J1V144	280-61707-5	6010/7471/9056M/353.2/8081/WTPH-D+/ 8082/8310/8260B	6010B/7471A/9056M/353.2/8081A/NWTPH-Dx/ 8082/8310/8260B
J1V145	280-61707-6	6010/7471/9056M/353.2/8081/WTPH-D+/ 8082/8310/8260B	6010B/7471A/9056M/353.2/8081A/NWTPH-Dx/ 8082/8310/8260B
J1V146	280-61707-7	6010/7471/9056M/353.2/8081/WTPH-D+/ 8082/8310/8260B	6010B/7471A/9056M/353.2/8081A/NWTPH-Dx/ 8082/8310/8260B
J1V147	280-61707-8	6010/7471/9056M/353.2/8081/WTPH-D+/ 8082/8310/8260B	6010B/7471A/9056M/353.2/8081A/NWTPH-Dx/ 8082/8310/8260B
J1V148	280-61707-9	6010/7471/9056M/353.2/8081/WTPH-D+/ 8082/8310/8260B	6010B/7471A/9056M/353.2/8081A/NWTPH-Dx/ 8082/8310/8260B
J1V149	280-61707-10	6010/7471/9056M/353.2/8081/WTPH-D+/ 8082/8310/8260B	6010B/7471A/9056M/353.2/8081A/NWTPH-Dx/ 8082/8310/8260B
J1V150	280-61707-11	6010/7471/9056M/353.2/8081/WTPH-D+/ 8082/8310/8260B	6010B/7471A/9056M/353.2/8081A/NWTPH-Dx/ 8082/8310/8260B
J1V151	280-61707-12	6010/7471/9056M/353.2/8081/WTPH-D+/ 8082/8310/8260B	6010B/7471A/9056M/353.2/8081A/NWTPH-Dx/ 8082/8310/8260B
J1V152	280-61707-13	6010/7471/9056M/353.2/8081/WTPH-D+/ 8082/8310/8260B	6010B/7471A/9056M/353.2/8081A/NWTPH-Dx/ 8082/8310/8260B
J1V153	280-61707-14	6010/7471/8260B	6010B/7471A/8260B
J1V155	280-61707-15	8260B	8260B

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 10/24/2014 10:00 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 7 coolers at receipt time were 0.3° C, 0.3° C, 0.4° C, 2.2° C, 2.8° C, 3.9° C and 5.6° C.

It can be noted that the Chains of Custody indicate "VOA samples frozen upon collection", and the 5035/8260B VOA samples were placed in the freezer upon receipt at the laboratory. The client was notified on 10/27/2014.

The 250mL container submitted for sample J1V145, requesting PCBs 8082 analysis, was received at the laboratory broken. The uncompromised volume was transferred to a new container and was placed on hold, as sufficient volume remained to proceed with the requested analyses using containers that were received intact. The client was notified on 10/27/2014.

GC/MS VOLATILES - SW846 8260B
Low levels of 1,1-Dichloroethane, 1,1-Dichloroethene and Trichloroethene are present in the method blank associated with prep batch 280-250397. Because the concentrations in the method blank are not present at levels greater than half the reporting limit, corrective action is deemed unnecessary. Associated sample results present above the MDL and/or RL have been flagged with a "B".

The MS/MSD performed on sample J1V142 exhibited RPD data outside the control limits. The acceptable LCS analysis data indicated that the analytical system was operating within control; therefore, corrective action is deemed unnecessary. The laboratory noted that the sample size used in the preparation of the MS and MSD for sample J1V142 exceeded 10% difference. As the RPD calculation is based upon the MS/MSD concentration as opposed to the MS/MSD percent recovery, elevated %RPD values were obtained.

The MSD aliquot of the MS/MSD performed on sample J1V153 exhibited percent recoveries outside the control limits for Acetone and Chloroform, and the associated sample results have been flagged "T". In addition, RPD limits were exceeded. The acceptable LCS analysis data indicated that the analytical system was operating within control; therefore, corrective action is deemed unnecessary. The laboratory noted that the sample size used in the preparation of the MS and MSD for sample J1V153 exceeded 10% difference. As the RPD calculation is based upon the MS/MSD concentration as opposed to the MS/MSD percent recovery, elevated %RPD values were obtained.

No other anomalies were encountered.

GC SEMIVOLATILES - SW846 8081A - Pesticides
Surrogate Decachlorobiphenyl was recovered outside the control limits, biased low, in samples J1V143, J1V146, J1V150 and J1V151. The laboratory noted that this anomaly is due to obvious matrix interference; therefore, corrective action is deemed unnecessary. Samples had numerous non-target peaks and significant baseline rise interfering with identification and quantitation of the surrogate.

The RPD between the primary and confirmation columns exceeded 40% for 4,4'-DDT in samples J1V148 and J1V150. The lower of the two values has been reported, as matrix interference is evident. The results have been flagged with an "X".

The MS aliquot of the MS/MSD performed on sample J1V142 exhibited the percent recovery outside the control limits for beta-BHC, and the associated sample result has been flagged "N". The acceptable LCS analysis data indicated that the analytical system was operating within control; therefore, corrective action is deemed unnecessary.

The Initial Calibration Verification (ICV) standard demonstrated a low bias for Endosulfan II (-25%) and a high bias for Methoxychlor (+18%) on the primary column. These analytes were in control on the confirmation column, and there were no tentative detections in the samples (peaks requiring second column confirmation). As there is no bias on the confirmation column and the method detection limit is valid for evaluating non-detected results, corrective action is deemed unnecessary and data for the affected analytes are reported from the column that is in control.

A Continuing Calibration Verification (CCV) standard associated with samples J1V144, J1V145, J1V148 and J1V152 exhibited %Difference (%D) values >15%, biased high, for 4,4'-DDT (+24%, +18%). The samples associated with this CCV were non-detect or less than the RL for the affected analyte; therefore, corrective action is deemed unnecessary.

No other anomalies were encountered.

GC SEMIVOLATILES - SW846 8082 - PCBs
No anomalies were encountered.

GC SEMIVOLATILES - NWTPH-Dx - DRO
No anomalies were encountered.

HPLC - SW846 8310 - PAHs
The MS/MSD performed on sample J1V141 exhibited spike compound recoveries outside the control limits, and the associated sample results have been flagged "N". The acceptable LCS analysis data indicated that the analytical system was operating within control; therefore, corrective action is deemed unnecessary.

No other anomalies were encountered.

TOTAL METALS - SW846 6010B/7471A
Serial dilution of a digestate in batch 280-249878 indicates that physical and chemical interferences are present for several elements. Results have been flagged with an "X".

Each sample is analyzed to achieve the lowest possible reporting limits within the constraints of the methods. Samples J1V144, J1V145 and J1V152 required a 5X dilution prior to the analysis of Antimony, Beryllium, Cobalt, Copper, Lead and Vanadium to minimize the interference caused by Titanium concentrations greater than the linear range. The reporting limits have been adjusted relative to the dilution required.

Each sample is analyzed to achieve the lowest possible reporting limits within the constraints of the methods. Due to matrix interferences, the Beryllium analysis of samples J1V141, J1V142, J1V146, J1V147, J1V148, J1V149, J1V150 and J1V151 had to be performed at dilutions. The reporting limits have been adjusted relative to the dilutions required.

Low levels of Barium, Manganese and Silicon are present in the method blank associated with batch 280-249878. 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.

Aluminum and Iron are present at levels greater than the reporting limits in the method blank associated with batch 280-249878. 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 J1V140; therefore, control limits are not applicable.

The Matrix Spike performed on sample J1V140 exhibited the percent recovery outside the control limits for Silicon, and the Matrix Spike performed on sample J1V153 exhibited the percent recovery outside the control limits for Aluminum. The associated sample results have been flagged "N". There is no indication that the analytical systems were operating out of control, and method accuracy has been verified by the acceptable LCS analysis data; therefore, corrective action is deemed unnecessary.

The duplicate analysis of sample J1V140 exceeded the RPD limit for Mercury, and the duplicate analysis of sample J1V153 exceeded the RPD limit for Iron. The associated sample results have been flagged "M". There is no indication that the analytical systems were operating out of control, and method accuracy has been verified by the acceptable LCS analysis data; therefore, corrective action is deemed unnecessary.

No other anomalies were encountered.

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

GENERAL CHEMISTRY - SW846 9056M - ANIONS
The Matrix Spike performed on sample J1V141 exhibited the percent recovery outside the control limits for Orthophosphate as P, and the Matrix Spike performed on sample J1V152 exhibited percent recoveries outside the control limits for Orthophosphate as P and Sulfate. The associated sample results have been flagged "N". There is no indication that the analytical systems were operating out of control, and method accuracy has been verified by the acceptable LCS analysis data; therefore, corrective action is deemed unnecessary.

No other anomalies were encountered.

Washington Closure Hanford

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

RC-075-456 | Page 1 of 3

Collector: N. Sexsmith
Project Designation: 100-D/DR Field Remediation
Ice Chest No.: ERC-02-407
Shipped To: TestAmerica Denver
Other Labs Shipped To: TestAmerica Richland

Company Contact: Joan Kessner | Telephone No.: 375-4688
Project Coordinator: KESSNER, JH | Price Code: 8B | Data Turnaround: 7 days
Sampling Location: 100-D-99, Verification, stockpile area
SAF No.: RC-075
Field Logbook No.: EL-1662-03 | COA: 010D992000
Method of Shipment: Commercial Carrier fed EX
Offsite Property No.: A131276-278
Bill of Lading/Air Bill No.: see OSPC

POSSIBLE SAMPLE HAZARDS/REMARKS: none

Special Handling and/or Storage: none

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Freeze			
Type of Container	G/P	G/P	aG	aG	aG	aG	aG*			
No. of Container(s)	1	1	1	1	1	1	5			
Volume	250mL	250mL	250mL	125mL	250mL	250mL	40mL			
Sample Analysis	See Item (1) in Special Instructions	IC Anions - 9056 Modified; NO2/NO3 - 353.2	Pesticides - 8081	TPH-Diesel Range - WTPH-D +	PCBs - 8082	PAHs - 8310	** VOA - 5035/8260 (TCL)			

Sample No.	Matrix	Sample Date	Sample Time									
1V140	SOIL	10/22/14	0842	✓	✓	✓	✓	✓	✓	✓		
1V141	SOIL	10/22/14	0851	✓	✓	✓	✓	✓	✓	✓		
1V142	SOIL	10/22/14	0910	✓	✓	✓	✓	✓	✓	✓		
1V143	SOIL	10/22/14	0924	✓	✓	✓	✓	✓	✓	✓		
1V144	SOIL	10/22/14	0818	✓	✓	✓	✓	✓	✓	✓		

CHAIN OF POSSESSION

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Whitney T. Sexsmith	10/22/14 1055	DWSHEA	10/22/14 1055
DWSHEA	10/22/14 1735	C. Bingham	10-22-14 1735
C. Bingham	10-22-14 1740	1060 Battelle fridge #1B	10-22-14 1740
Battelle fridge #1B	10-23-14 0855	C. Bingham	10-23-14 0855
C. Bingham WCH	10-23-14 0900	fed EX	
			10/24/14 10:00

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}

10-23-14 CMB

* 20ml vial → % moisture
** freeze upon receipt

3.9, 2.8, 0.3, 2.2
0.3, 5.6, 0.4
IR6 CF=2.0
Transfer by MCJ 10/24/14

VOA samples frozen upon collection

REVIEWED BY KN DATE 10/23/14

JP0874

CH-EE-011

Washington Closure Hanford

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

RC-075-456

Collector: W. Sexsmith

Company Contact: Joan Kessner

Telephone No.: 375-4688

Project Coordinator: KESSNER, JH

Price Code: 8B

Data Turnaround: 7 days

Project Designation: 100-D/DR Field Remediation

Sampling Location: 100-D-99, Verification, stockpile area

SAF No.: RC-075

Ice Chest No.: ERC-02-407

Field Logbook No.: EL-1662-03

COA: 010D992000

Method of Shipment: Commercial Carrier fed EX

Shipped To: TestAmerica Denver

Offsite Property No.: A1312776-278

Bill of Lading/Air Bill No.: see OSPC

Other Labs Shipped To: TestAmerica Richland

POSSIBLE SAMPLE HAZARDS/REMARKS: none

Special Handling and/or Storage: none

Sample No.	Matrix	Sample Date	Sample Time	Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Freeze
				Type of Container	G/P	G/P	aG	aG	aG	aG	aGs*
				No. of Container(s)	1	1	1	1	1	1	5
				Volume	250mL	250mL	250mL	125mL	250mL	250mL	40mL
				Sample Analysis	See Item (1) in Special Instructions	IC Anions - 9056 Modified; NO2/NO3 - 353.2	Pesticides - 8081	TPH-Diesel Range - WTPH-D+	PCBs - 8082	PAHs - 8310	** VOA - 5035/8260 (TCL)
J1V145	SOIL	10/22/14	0802	✓	✓	✓	✓	✓	✓	✓	
J1V146	SOIL	10/22/14	0940	✓	✓	✓	✓	✓	✓	✓	
J1V147	SOIL	10/22/14	0949	✓	✓	✓	✓	✓	✓	✓	
J1V148	SOIL	10/22/14	1005	✓	✓	✓	✓	✓	✓	✓	
J1V149	SOIL	10/22/14	1015	✓	✓	✓	✓	✓	✓	✓	

CHAIN OF POSSESSION

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Sidney T. Sexsmith	10/22/14 1055	DWS Lea DWSTEA	10/22/14 1055
DWS Lea DWSTEA	10/22/14 1735	C. Bingham	10-22-14 1735
C. Bingham	10-22-14 1740	#1B 1060 Battelle, fridge	10-22-14 1740
#1B 1060 Battelle, fridge	10-23-14 0855	C. Bingham	10-23-14 0855
C. Bingham WCH	10-23-14 0900	fed EX	
			10/24/14 10:00

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)

* 20 ml vial → % moisture 10-23-14 CMB

** freeze upon receipt

VOA samples frozen upon collection

REVIEWED BY KW DATE 10/22/14

JP0874

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

WCH-EE-011

Washington Closure Hanford

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

RC-075-456

lector: J. Seymith	Company Contact: Joan Kessner	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Price Code: 8B	Data Turnaround: 7 days		
ject Designation: 100-D/DR Field Remediation	Sampling Location: 100-D-99, Verification, stockpile area		SAF No.: RC-075
Chest No.: ERC-02-407	Field Logbook No.: EL-1662-03	COA: 010D992000	Method of Shipment: Commercial Carrier — fed EX
pped To: TestAmerica Denver	Offsite Property No.: A131276-278		Bill of Lading/Air Bill No.: see OSPC
er Labs Shipped To: TestAmerica Richland			

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Freeze			
Type of Container	G/P	G/P	aG	aG	aG	aG	aG*			
No. of Container(s)	1	1	1	1	1	1	5			
Volume	250mL	250mL	250mL	125mL	250mL	250mL	40mL			
Sample Analysis	See item (1) in Special Instructions	IC Anions - 9056 Modified; NO2/NO3 - 353.2	Pesticides - 8081	TPH-Diesel Range - WTPH-D+	PCBs - 8082	PAHs - 8310	** VOA - 5035/8260 (TCL)			

OSSIBLE SAMPLE HAZARDS/REMARKS

ne

ecial Handling and/or Storage

ne

Sample No.	Matrix	Sample Date	Sample Time								
IV160	SOIL	10/22/14	1027	✓	✓	✓	✓	✓	✓	✓	
IV161	SOIL	10/22/14	1042	✓	✓	✓	✓	✓	✓	✓	
IV162	SOIL	10/22/14	0818	✓	✓	✓	✓	✓	✓	✓	
IV163	SOIL	10/22/14	0753	✓			10-23-14 CMB			✓	

CHAIN OF POSSESSION

Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Sidney T. Seymith	10/22/14 1035	DwShea DwSHEA	10/22/14 1055
DwShea DwSHEA	10/22/14 1735	C. Bingham	10-22-14 1735
C. Bingham	10-22-14 1740	100D Baffle, fridge #1B	10-22-14 1740
100D Baffle, fridge #1B	10-23-14 0855	C. Bingham	10-23-14 0855
C. Bingham WCH	10-23-14 0900	fed EX	
			10/24/14 10:00

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)

* 20 ml vial → % moisture 10-23-14 CMB
** freeze upon receipt

VOA samples frozen upon collection

REVIEWED BY KW DATE 10/23/14

JP0874

WCH-EE-011

Washington Closure Hanford

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

RC-075-458

Page 1 of 1

Collector: W. Sexsmith	Company Contact: Joan Kessner	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Project Designation: 100-D/DR Field Remediation	Sampling Location: 100-D-99, Verification, VOA trip blank		SAF No.: RC-075
Ice Chest No.: ERC-02-407	Field Logbook No.: EL-1662-03	COA: 010D992000	Method of Shipment: Commercial Carrier — fed EX
Shipped To: TestAmerica Denver	Offsite Property No.: A131276-278		Bill of Lading/Air Bill No.: see OSPC

Price Code: 8B

Data Turnaround: 7days

Other Labs Shipped To: NA

POSSIBLE SAMPLE HAZARDS/REMARKS: None

Special Handling and/or Storage: None

Preservation	Freeze
Type of Container	aGs*
No. of Container(s)	5
Volume	40mL
Sample Analysis	VOA- 8035/8260 (TCL)

Sample No.	Matrix	Sample Date	Sample Time	
J1N155	SOIL	10/22/14	0747	✓

Page 30 of 197

CHAIN OF POSSESSION

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Whitney E. Sexsmith	10/22/14 1055	D.W. Shea D.W. SHEA	10/22/14 1055
D.W. Shea D.W. SHEA	10/22/14 1735	C. Bingham	10-22-14 1735
C. Bingham	10-22-14 1740	1060 Battelle fridge #1B	10-22-14 1740
1060 Battelle fridge #1B	10-23-14 0855	C. Bingham	10-23-14 0855
C. Bingham WCH	10-23-14 0900	fed EX	
			10/24/14 1000

Sign/Print Names

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

SPECIAL INSTRUCTIONS: 10-23-14 CMB

*20 ml vial → % moisture

**freeze upon receipt

VOA samples frozen upon collection

REVIEWED BY KW DATE 10/28/14

~~JP0875~~ 10-23-14 CMB

JP0874

WCH-EE-011

Appendix 5

Data Validation Supporting Documentation

GENERAL ORGANIC DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	E
PROJECT:	100-D-99		DATA PACKAGE:	JP0874	
VALIDATOR:	FLR	LAB:	TAL	DATE:	
			SDG:	JP0874	

ANALYSES PERFORMED					
8015	8021	8141	8151	8315	8310
		WTPH-HCID	WTPH-G	WTPH-D	

SAMPLES/MATRIX:				
J1V140	J1V141	J1V142	J1V143	J1V144
J1V145	J1V146	J1V147	J1V148	J1V149
J1V150	J1V151	J1V152		
				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)

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: _____

GENERAL 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 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 PAS

GENERAL ORGANIC 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 ORGANIC DATA VALIDATION CHECKLIST

8. COMPOUND IDENTIFICATION, 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: _____

9. SAMPLE CLEANUP (Levels D and E)

Fluoricil ® (or other aborbant) cleanup performed? ..... Yes No N/A

Lot check performed? ..... Yes No N/A

Check recoveries aceptable? ..... Yes No N/A

Check materials traceable? ..... Yes No N/A

Check 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: 280-61707-1
Sdg Number: JP0874

Method Blank - Batch: 280-249898

Method: 8310
Preparation: 3550C

Lab Sample ID:	MB 280-249898/1-A	Analysis Batch:	280-250483	Instrument ID:	CHHPLC_G
Client Matrix:	Solid	Prep Batch:	280-249898	Lab File ID:	G1030008.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	32.3 g
Analysis Date:	10/30/2014 1232	Units:	ug/Kg	Final Weight/Volume:	4 mL
Prep Date:	10/27/2014 2120			Injection Volume:	20 uL
Leach Date:	N/A			Column ID:	PRIMARY

Analyte	Result	Qual	MDL	RL
Acenaphthene	9.3	U	9.3	93
Acenaphthylene	8.4	U	8.4	93
Anthracene	2.8	U	2.8	19
Benzo[a]anthracene	3.0	U	3.0	14
Benzo[a]pyrene	6.0	U	6.0	14
Benzo[b]fluoranthene	3.9	U	3.9	14
Benzo[g,h,i]perylene	6.7	U	6.7	28
Benzo[k]fluoranthene	3.7	U	3.7	14
Chrysene	4.5	U	4.5	37
Dibenzo(a,h)anthracene	10	U	10	28
Fluoranthene	12	U	12	37
Fluorene	4.9	U	4.9	28
Indeno[1,2,3-cd]pyrene	11	U	11	28
Naphthalene	11	U	11	93
Phenanthrene	11	U	11	37
Pyrene	11	U	11	37

Surrogate	% Rec	Acceptance Limits
Terphenyl-d14 (SUR)	81	72 - 115

Client: Washington Closure Hanford

Job Number: 280-61707-1
Sdg Number: JP0874

Lab Control Sample - Batch: 280-249898

Method: 8310
Preparation: 3550C

Lab Sample ID:	LCS 280-249898/2-A	Analysis Batch:	280-250483	Instrument ID:	CHHPLC_G
Client Matrix:	Solid	Prep Batch:	280-249898	Lab File ID:	G1030009.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	30.8 g
Analysis Date:	10/30/2014 1303	Units:	ug/Kg	Final Weight/Volume:	4 mL
Prep Date:	10/27/2014 2120			Injection Volume:	20 uL
Leach Date:	N/A			Column ID:	PRIMARY

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Acenaphthene	1950	1620	83	78 - 116	
Acenaphthylene	1950	1610	82	76 - 115	
Anthracene	1950	1580	81	74 - 115	
Benzo[a]anthracene	1950	1650	85	85 - 120	
Benzo[a]pyrene	1950	1760	90	74 - 121	
Benzo[b]fluoranthene	1950	1650	85	85 - 115	
Benzo[g,h,i]perylene	1950	1810	93	85 - 120	
Benzo[k]fluoranthene	1950	1650	85	85 - 115	
Chrysene	1950	1730	89	83 - 115	
Dibenzo(a,h)anthracene	1950	1620	83	83 - 115	
Fluoranthene	1950	1640	84	83 - 115	
Fluorene	1950	1660	85	80 - 115	
Indeno[1,2,3-cd]pyrene	1950	1750	90	85 - 123	
Naphthalene	1950	1580	81	80 - 121	
Phenanthrene	1950	1590	82	80 - 115	
Pyrene	1950	1740	89	75 - 116	

Surrogate	% Rec	Acceptance Limits
Terphenyl-d14 (SUR)	88	72 - 115

Client: Washington Closure Hanford

Job Number: 280-61707-1
Sdg Number: JP0874

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-249898

Method: 8310
Preparation: 3550C

MS Lab Sample ID:	280-61707-2	Analysis Batch:	280-250483	Instrument ID:	CHHPLC_G
Client Matrix:	Solid	Prep Batch:	280-249898	Lab File ID:	G1030012.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	32.3 g
Analysis Date:	10/30/2014 1434			Final Weight/Volume:	4 mL
Prep Date:	10/27/2014 2120			Injection Volume:	20 uL
Leach Date:	N/A			Column ID:	PRIMARY

MSD Lab Sample ID:	280-61707-2	Analysis Batch:	280-250483	Instrument ID:	CHHPLC_G
Client Matrix:	Solid	Prep Batch:	280-249898	Lab File ID:	G1030013.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	30.1 g
Analysis Date:	10/30/2014 1505			Final Weight/Volume:	4 mL
Prep Date:	10/27/2014 2120			Injection Volume:	20 uL
Leach Date:	N/A			Column ID:	PRIMARY

	% Rec.					
Analyte	MS	MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
Acenaphthene	82	80	78 - 116	5	20		
Acenaphthylene	80	79	76 - 115	6	21		
Anthracene	77	76	74 - 115	6	20		
Benzo[a]anthracene	81	79	85 - 120	5	20	N	N
Benzo[a]pyrene	82	80	74 - 121	5	20		
Benzo[b]fluoranthene	80	79	85 - 115	5	20	N	N
Benzo[g,h,i]perylene	87	85	85 - 120	5	20		
Benzo[k]fluoranthene	79	78	85 - 115	5	20	N	N
Chrysene	85	83	83 - 115	5	20		
Dibenzo(a,h)anthracene	79	78	83 - 115	5	20	N	N
Fluoranthene	81	79	83 - 115	5	20	N	N
Fluorene	82	81	80 - 115	5	20		
Indeno[1,2,3-cd]pyrene	84	83	85 - 123	6	20	N	N
Naphthalene	79	78	80 - 121	5	20	N	N
Phenanthrene	79	78	80 - 115	5	20	N	N
Pyrene	85	84	75 - 116	6	20		

Surrogate	MS % Rec	MSD % Rec	Acceptance Limits
Terphenyl-d14 (SUR)	83	82	72 - 115

Client: Washington Closure Hanford

Job Number: 280-61707-1
Sdg Number: JP0874

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-249898

Method: 8310
Preparation: 3550C

MS Lab Sample ID:	280-61707-2	Units: ug/Kg	MSD Lab Sample ID:	280-61707-2	
Client Matrix:	Solid		Client Matrix:	Solid	
Dilution:	1.0		Dilution:	1.0	
Analysis Date:	10/30/2014 1434		Analysis Date:	10/30/2014 1505	
Prep Date:	10/27/2014 2120		Prep Date:	10/27/2014 2120	
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	10	U	1950	2090	1590		1670	
Acenaphthylene	9.0	U	1950	2090	1560		1650	
Anthracene	3.1	U	1950	2090	1500		1590	
Benzo[a]anthracene	3.2	U	1950	2090	1570	N	1660	N
Benzo[a]pyrene	6.4	U	1950	2090	1590		1670	
Benzo[b]fluoranthene	4.2	U	1950	2090	1560	N	1640	N
Benzo[g,h,i]perylene	7.2	U	1950	2090	1690		1780	
Benzo[k]fluoranthene	4.0	U	1950	2090	1540	N	1620	N
Chrysene	4.9	U	1950	2090	1640		1740	
Dibenzo(a,h)anthracene	11	U	1950	2090	1540	N	1620	N
Fluoranthene	13	U	1950	2090	1570	N	1650	N
Fluorene	5.3	U	1950	2090	1600		1690	
Indeno[1,2,3-cd]pyrene	12	U	1950	2090	1640	N	1740	N
Naphthalene	12	U	1950	2090	1540	N	1630	N
Phenanthrene	12	U	1950	2090	1530	N	1620	N
Pyrene	12	U	1950	2090	1660		1750	

Date: 24 November 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-99
Subject: Pesticide/PCB - Data Package No. JP0874-TAL

INTRODUCTION

This memo presents the results of data validation on Data Package No. JP0874 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
J1V140	10/22/14	Soil	C	See note 1
J1V141	10/22/14	Soil	C	See note 1
J1V142	10/22/14	Soil	C	See note 1
J1V143	10/22/14	Soil	C	See note 1
J1V144	10/22/14	Soil	C	See note 1
J1V145	10/22/14	Soil	C	See note 1
J1V146	10/22/14	Soil	C	See note 1
J1V147	10/22/14	Soil	C	See note 1
J1V148	10/22/14	Soil	C	See note 1
J1V149	10/22/14	Soil	C	See note 1
J1V150	10/22/14	Soil	C	See note 1
J1V151	10/22/14	Soil	C	See note 1
J1V152	10/22/14	Soil	C	See note 1

1 – Pesticides by 8081B and 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**

Analytical holding times were assessed to ascertain whether the holding time requirements were met by the laboratory. The holding time requirements are as follows: Samples must be extracted within 14 days of the date of sample collection and analyzed within 40 days from the date of extraction. Holding times are not applicable for PCB analysis.

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 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.

Due to the lack of a matrix spike, matrix spike duplicate or LCS analysis, all toxaphene results were qualified as estimates and flagged "J".

All other 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.

Due to surrogate recoveries outside QC limits, all pesticide results in samples J1V143, J1V146, J1V150 and J1V151 were qualified as estimates and flagged "J".

All other 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 the lack of a matrix spike and matrix spike duplicate analysis, all toxaphene results were qualified as estimates and flagged "J".

All other precision results were acceptable.

Field Duplicate Samples

One set of field duplicates (J1V044/J1V052) 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. JP0874 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 the lack of a matrix spike, matrix spike duplicate or LCS analysis, all toxaphene results were qualified as estimates and flagged "J".
- Due to surrogate recoveries outside QC limits, all pesticide results in samples J1V143, J1V146, J1V150 and J1V151 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

PESTICIDE/PCB DATA QUALIFICATION SUMMARY*

SDG: JP0874	**REVIEWER: ELR**	**Project: 100-D-99**	**PAGE_1_OF_1**
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
Toxaphene	J	All	No MS/MSD/LCS analysis
All pesticide analytes	J	J1V143, J1V146, J1V150, J1V151	Surrogate 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: 280-61707-1
Sdg Number: JP0874

Client Sample ID: ***J1V140***

Lab Sample ID: 280-61707-1
Client Matrix: Solid

% Moisture: 5.8

Date Sampled: 10/22/2014 0842
Date Received: 10/24/2014 1000

8081A Organochlorine Pesticides (GC)

Analysis Method: 8081A
Prep Method: 3550C
Dilution: 1.0
Analysis Date: 10/30/2014 0026
Prep Date: 10/27/2014 2300

Analysis Batch: 280-250311
Prep Batch: 280-249901

11/26/14

Instrument ID: SGC_C
Initial Weight/Volume: 31.7 g
Final Weight/Volume: 10 mL
Injection Volume: 1 uL
Result Type: PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
4,4'-DDD		0.55	U	0.55	1.7
4,4'-DDE		0.24	U	0.24	1.7
4,4'-DDT		0.59	U	0.59	1.7
Aldrin		0.25	U	0.25	1.7
alpha-BHC		0.21	U	0.21	1.7
beta-BHC		0.67	U	0.67	1.7
delta-BHC		0.40	U	0.40	1.7
gamma-BHC (Lindane)		0.47	U	0.47	1.7
Heptachlor		0.21	U	0.21	1.7
Heptachlor epoxide		0.43	U	0.43	1.7
Endosulfan I		0.18	U	0.18	1.7
Endosulfan II		0.29	U	0.29	1.7
Endosulfan sulfate		0.28	U	0.28	1.7
Endrin		0.31	U	0.31	1.7
Endrin aldehyde		0.17	U	0.17	1.7
Endrin ketone		0.49	U	0.49	1.7
gamma-Chlordane		0.27	U	0.27	1.7
Methoxychlor		0.45	U	0.45	3.3
alpha-Chlordane		0.32	U	0.32	1.7
Dieldrin		0.21	U	0.21	1.7
Toxaphene		16	U J	16	170

Surrogate	%Rec	Qualifier	Acceptance Limits
Tetrachloro-m-xylene	77		59 - 115
Decachlorobiphenyl	76		63 - 124

Client: Washington Closure Hanford

Job Number: 280-61707-1
Sdg Number: JP0874

Client Sample ID: J1V141

Lab Sample ID: 280-61707-2
Client Matrix: Solid

% Moisture: 4.5

Date Sampled: 10/22/2014 0851
Date Received: 10/24/2014 1000

8081A Organochlorine Pesticides (GC)

Analysis Method: 8081A
Prep Method: 3550C
Dilution: 1.0
Analysis Date: 10/30/2014 0043
Prep Date: 10/27/2014 2300

Analysis Batch: 280-250311
Prep Batch: 280-249901

11/22/14

Instrument ID: SGC_C
Initial Weight/Volume: 30.5 g
Final Weight/Volume: 10 mL
Injection Volume: 1 uL
Result Type: PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
4,4'-DDD		0.56	U	0.56	1.8
4,4'-DDE		0.25	U	0.25	1.8
4,4'-DDT		0.61	U	0.61	1.8
Aldrin		0.26	U	0.26	1.7
alpha-BHC		0.22	U	0.22	1.7
beta-BHC		0.68	U	0.68	1.7
delta-BHC		0.41	U	0.41	1.7
gamma-BHC (Lindane)		0.48	U	0.48	1.7
Heptachlor		0.22	U	0.22	1.7
Heptachlor epoxide		0.44	U	0.44	1.7
Endosulfan I		0.18	U	0.18	1.7
Endosulfan II		0.30	U	0.30	1.8
Endosulfan sulfate		0.28	U	0.28	1.8
Endrin		0.32	U	0.32	1.8
Endrin aldehyde		0.18	U	0.18	1.8
Endrin ketone		0.50	U	0.50	1.8
gamma-Chlordane		0.60	J	0.27	1.8
Methoxychlor		0.46	U	0.46	3.4
alpha-Chlordane		0.33	U	0.33	1.8
Dieldrin		0.22	U	0.22	1.8
Toxaphene		16	U J	16	170

Surrogate	%Rec	Qualifier	Acceptance Limits
Tetrachloro-m-xylene	80		59 - 115
Decachlorobiphenyl	81		63 - 124

Client: Washington Closure Hanford

Job Number: 280-61707-1
Sdg Number: JP0874

Client Sample ID: J1V142

Lab Sample ID: 280-61707-3
Client Matrix: Solid

% Moisture: 6.4

Date Sampled: 10/22/2014 0910
Date Received: 10/24/2014 1000

8081A Organochlorine Pesticides (GC)

Analysis Method: 8081A
Prep Method: 3550C
Dilution: 1.0
Analysis Date: 10/30/2014 0100
Prep Date: 10/27/2014 2300

Analysis Batch: 280-250311
Prep Batch: 280-249901

11/22/14

Instrument ID: SGC_C
Initial Weight/Volume: 31.4 g
Final Weight/Volume: 10 mL
Injection Volume: 1 uL
Result Type: PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
4,4'-DDD		0.56	U	0.56	1.7
4,4'-DDE		0.24	U	0.24	1.7
4,4'-DDT		0.60	U	0.60	1.7
Aldrin		0.26	U	0.26	1.7
alpha-BHC		0.22	U	0.22	1.7
beta-BHC		0.68	U N	0.68	1.7
delta-BHC		0.41	U	0.41	1.7
gamma-BHC (Lindane)		0.47	U	0.47	1.7
Heptachlor		0.22	U	0.22	1.7
Heptachlor epoxide		0.43	U	0.43	1.7
Endosulfan I		0.18	U	0.18	1.7
Endosulfan II		0.29	U	0.29	1.7
Endosulfan sulfate		0.28	U	0.28	1.7
Endrin		0.31	U	0.31	1.7
Endrin aldehyde		0.17	U	0.17	1.7
Endrin ketone		0.50	U	0.50	1.7
gamma-Chlordane		0.27	U	0.27	1.7
Methoxychlor		0.46	U	0.46	3.4
alpha-Chlordane		0.33	U	0.33	1.7
Dieldrin		0.21	U	0.21	1.7
Toxaphene		16	U J	16	170

Surrogate	%Rec	Qualifier	Acceptance Limits
Tetrachloro-m-xylene	74		59 - 115
Decachlorobiphenyl	78		63 - 124

Client: Washington Closure Hanford

Job Number: 280-61707-1
Sdg Number: JP0874

Client Sample ID: J1V143

Lab Sample ID: 280-61707-4
Client Matrix: Solid

% Moisture: 3.7

Date Sampled: 10/22/2014 0924
Date Received: 10/24/2014 1000

8081A Organochlorine Pesticides (GC)

Analysis Method: 8081A
Prep Method: 3550C
Dilution: 1.0
Analysis Date: 10/30/2014 0935
Prep Date: 10/27/2014 2300

Analysis Batch: 280-250311
Prep Batch: 280-249901

11/22/14

Instrument ID: SGC_C
Initial Weight/Volume: 30.5 g
Final Weight/Volume: 10 mL
Injection Volume: 1 uL
Result Type: PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
4,4'-DDD		0.56	U J	0.56	1.7
4,4'-DDE		0.69	J	0.24	1.7
4,4'-DDT		1.5	J	0.60	1.7
Aldrin		0.26	U	0.26	1.7
alpha-BHC		0.22	U	0.22	1.7
beta-BHC		0.68	U	0.68	1.7
delta-BHC		0.41	U	0.41	1.7
gamma-BHC (Lindane)		0.47	U	0.47	1.7
Heptachlor		0.22	U	0.22	1.7
Heptachlor epoxide		0.44	U	0.44	1.7
Endosulfan I		0.18	U	0.18	1.7
Endosulfan II		0.29	U	0.29	1.7
Endosulfan sulfate		0.28	U	0.28	1.7
Endrin		0.31	U	0.31	1.7
Endrin aldehyde		0.17	U	0.17	1.7
Endrin ketone		0.50	U	0.50	1.7
gamma-Chlordane		0.27	U	0.27	1.7
Methoxychlor		0.46	U	0.46	3.4
alpha-Chlordane		0.33	U	0.33	1.7
Dieldrin		0.21	U	0.21	1.7
Toxaphene		16	U	16	170

Surrogate	%Rec	Qualifier	Acceptance Limits
Tetrachloro-m-xylene	72		59 - 115
Decachlorobiphenyl	59	*	63 - 124

Client: Washington Closure Hanford

Job Number: 280-61707-1
Sdg Number: JP0874

Client Sample ID: J1V144

Lab Sample ID: 280-61707-5
Client Matrix: Solid

% Moisture: 3.2

Date Sampled: 10/22/2014 0818
Date Received: 10/24/2014 1000

8081A Organochlorine Pesticides (GC)

Analysis Method: 8081A
Prep Method: 3550C
Dilution: 1.0
Analysis Date: 10/30/2014 0243
Prep Date: 10/27/2014 2300

Analysis Batch: 280-250311
Prep Batch: 280-249901

11/22/14

Instrument ID: SGC_C
Initial Weight/Volume: 32.2 g
Final Weight/Volume: 10 mL
Injection Volume: 1 uL
Result Type: PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
4,4'-DDD		0.53	U	0.53	1.6
4,4'-DDE		0.23	U	0.23	1.6
4,4'-DDT		0.57	U	0.57	1.6
Aldrin		0.24	U	0.24	1.6
alpha-BHC		0.21	U	0.21	1.6
beta-BHC		0.64	U	0.64	1.6
delta-BHC		0.39	U	0.39	1.6
gamma-BHC (Lindane)		0.45	U	0.45	1.6
Heptachlor		0.21	U	0.21	1.6
Heptachlor epoxide		0.41	U	0.41	1.6
Endosulfan I		0.17	U	0.17	1.6
Endosulfan II		0.28	U	0.28	1.6
Endosulfan sulfate		0.27	U	0.27	1.6
Endrin		0.29	U	0.29	1.6
Endrin aldehyde		0.16	U	0.16	1.6
Endrin ketone		0.47	U	0.47	1.6
gamma-Chlordane		0.26	U	0.26	1.6
Methoxychlor		0.43	U	0.43	3.2
alpha-Chlordane		0.31	U	0.31	1.6
Dieldrin		0.20	U	0.20	1.6
Toxaphene		15	U J	15	160

Surrogate	%Rec	Qualifier	Acceptance Limits
Tetrachloro-m-xylene	75		59 - 115
Decachlorobiphenyl	75		63 - 124

Client: Washington Closure Hanford

Job Number: 280-61707-1
Sdg Number: JP0874

Client Sample ID: J1V145

Lab Sample ID: 280-61707-6
Client Matrix: Solid

% Moisture: 3.2

Date Sampled: 10/22/2014 0802
Date Received: 10/24/2014 1000

8081A Organochlorine Pesticides (GC)

Analysis Method: 8081A
Prep Method: 3550C
Dilution: 1.0
Analysis Date: 10/30/2014 0300
Prep Date: 10/27/2014 2300

Analysis Batch: 280-250311
Prep Batch: 280-249901

11/22/14

Instrument ID: SGC_C
Initial Weight/Volume: 31.4 g
Final Weight/Volume: 10 mL
Injection Volume: 1 uL
Result Type: PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
4,4'-DDD		0.54	U	0.54	1.7
4,4'-DDE		0.23	U	0.23	1.7
4,4'-DDT		0.58	U	0.58	1.7
Aldrin		0.25	U	0.25	1.6
alpha-BHC		0.21	U	0.21	1.6
beta-BHC		0.66	U	0.66	1.6
delta-BHC		0.40	U	0.40	1.6
gamma-BHC (Lindane)		0.46	U	0.46	1.6
Heptachlor		0.21	U	0.21	1.6
Heptachlor epoxide		0.42	U	0.42	1.6
Endosulfan I		0.17	U	0.17	1.6
Endosulfan II		0.28	U	0.28	1.7
Endosulfan sulfate		0.27	U	0.27	1.7
Endrin		0.30	U	0.30	1.7
Endrin aldehyde		0.17	U	0.17	1.7
Endrin ketone		0.48	U	0.48	1.7
gamma-Chlordane		0.26	U	0.26	1.7
Methoxychlor		0.44	U	0.44	3.3
alpha-Chlordane		0.32	U	0.32	1.7
Dieldrin		0.21	U	0.21	1.7
Toxaphene		16	UJ	16	160

Surrogate	%Rec	Qualifier	Acceptance Limits
Tetrachloro-m-xylene	77		59 - 115
Decachlorobiphenyl	76		63 - 124

Client: Washington Closure Hanford

Job Number: 280-61707-1
Sdg Number: JP0874

Client Sample ID: ***J1V146***

Lab Sample ID: 280-61707-7
Client Matrix: Solid

% Moisture: 3.7

Date Sampled: 10/22/2014 0940
Date Received: 10/24/2014 1000

8081A Organochlorine Pesticides (GC)

Analysis Method: 8081A
Prep Method: 3550C
Dilution: 1.0
Analysis Date: 10/30/2014 0952
Prep Date: 10/27/2014 2300

Analysis Batch: 280-250311
Prep Batch: 280-249901

11/22/14

Instrument ID: SGC_C
Initial Weight/Volume: 31.3 g
Final Weight/Volume: 10 mL
Injection Volume: 1 uL
Result Type: PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
4,4'-DDD		0.54	U J	0.54	1.7
4,4'-DDE		0.24	U	0.24	1.7
4,4'-DDT		0.59	U	0.59	1.7
Aldrin		0.25	U	0.25	1.6
alpha-BHC		0.21	U	0.21	1.6
beta-BHC		0.66	U	0.66	1.6
delta-BHC		*0.40*	*U*	*0.40*	*1.6*
gamma-BHC (Lindane)		0.46	U	0.46	1.6
Heptachlor		0.21	U	0.21	1.6
Heptachlor epoxide		0.42	U	0.42	1.6
Endosulfan I		0.18	U	0.18	1.6
Endosulfan II		0.29	U	0.29	1.7
Endosulfan sulfate		0.27	U	0.27	1.7
Endrin		0.30	U	0.30	1.7
Endrin aldehyde		0.17	U	0.17	1.7
Endrin ketone		0.49	U	0.49	1.7
gamma-Chlordane		0.26	U	0.26	1.7
Methoxychlor		0.45	U	0.45	3.3
alpha-Chlordane		0.32	U	0.32	1.7
Dieldrin		0.21	U	0.21	1.7
Toxaphene		16	U	16	160

Surrogate	%Rec	Qualifier	Acceptance Limits
Tetrachloro-m-xylene	67		59 - 115
Decachlorobiphenyl	59	*	63 - 124

Client: Washington Closure Hanford

Job Number: 280-61707-1
Sdg Number: JP0874

Client Sample ID: J1V147

Lab Sample ID: 280-61707-8
Client Matrix: Solid

% Moisture: 4.8

Date Sampled: 10/22/2014 0949
Date Received: 10/24/2014 1000

8081A Organochlorine Pesticides (GC)

Analysis Method: 8081A
Prep Method: 3550C
Dilution: 1.0
Analysis Date: 10/30/2014 1010
Prep Date: 10/27/2014 2300

Analysis Batch: 280-250311
Prep Batch: 280-249901

11/22/14

Instrument ID: SGC_C
Initial Weight/Volume: 31.1 g
Final Weight/Volume: 10 mL
Injection Volume: 1 uL
Result Type: PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
4,4'-DDD		0.55	U	0.55	1.7
4,4'-DDE		0.24	U	0.24	1.7
4,4'-DDT		0.60	U	0.60	1.7
Aldrin		0.25	U	0.25	1.7
alpha-BHC		0.22	U	0.22	1.7
beta-BHC		0.67	U	0.67	1.7
delta-BHC		0.41	U	0.41	1.7
gamma-BHC (Lindane)		0.47	U	0.47	1.7
Heptachlor		0.22	U	0.22	1.7
Heptachlor epoxide		0.43	U	0.43	1.7
Endosulfan I		0.18	U	0.18	1.7
Endosulfan II		0.29	U	0.29	1.7
Endosulfan sulfate		0.28	U	0.28	1.7
Endrin		0.31	U	0.31	1.7
Endrin aldehyde		0.17	U	0.17	1.7
Endrin ketone		0.50	U	0.50	1.7
gamma-Chlordane		0.27	U	0.27	1.7
Methoxychlor		0.46	U	0.46	3.3
alpha-Chlordane		0.33	U	0.33	1.7
Dieldrin		0.21	U	0.21	1.7
Toxaphene		16	U J	16	170

Surrogate	%Rec	Qualifier	Acceptance Limits
Tetrachloro-m-xylene	68		59 - 115
Decachlorobiphenyl	67		63 - 124

Client: Washington Closure Hanford

Job Number: 280-61707-1
Sdg Number: JP0874

Client Sample ID: J1V148

Lab Sample ID: 280-61707-9
Client Matrix: Solid

% Moisture: 3.8

Date Sampled: 10/22/2014 1008
Date Received: 10/24/2014 1000

8081A Organochlorine Pesticides (GC)

Analysis Method: 8081A
Prep Method: 3550C
Dilution: 1.0
Analysis Date: 10/30/2014 0351
Prep Date: 10/27/2014 2300

Analysis Batch: 280-250311
Prep Batch: 280-249901

11/22/14

Instrument ID: SGC_C
Initial Weight/Volume: 31.6 g
Final Weight/Volume: 10 mL
Injection Volume: 1 uL
Result Type: PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
4,4'-DDD		0.54	U	0.54	1.7
4,4'-DDE		0.23	U	0.23	1.7
4,4'-DDT		0.90	J X	0.58	1.7
Aldrin		0.25	U	0.25	1.6
alpha-BHC		0.21	U	0.21	1.6
beta-BHC		0.66	U	0.66	1.6
delta-BHC		0.40	U	0.40	1.6
gamma-BHC (Lindane)		0.46	U	0.46	1.6
Heptachlor		0.21	U	0.21	1.6
Heptachlor epoxide		0.42	U	0.42	1.6
Endosulfan I		0.17	U	0.17	1.6
Endosulfan II		0.28	U	0.28	1.7
Endosulfan sulfate		0.27	U	0.27	1.7
Endrin		0.30	U	0.30	1.7
Endrin aldehyde		0.17	U	0.17	1.7
Endrin ketone		0.48	U	0.48	1.7
gamma-Chlordane		0.26	U	0.26	1.7
Methoxychlor		0.44	U	0.44	3.3
alpha-Chlordane		0.32	U	0.32	1.7
Dieldrin		0.21	U	0.21	1.7
Toxaphene		51	J J	16	160

Surrogate	%Rec	Qualifier	Acceptance Limits
Tetrachloro-m-xylene	82		59 - 115
Decachlorobiphenyl	82		63 - 124

Client: Washington Closure Hanford

Job Number: 280-61707-1
Sdg Number: JP0874

Client Sample ID: ***J1V149***

Lab Sample ID: 280-61707-10
Client Matrix: Solid

% Moisture: 4.3

Date Sampled: 10/22/2014 1015
Date Received: 10/24/2014 1000

8081A Organochlorine Pesticides (GC)

Analysis Method: 8081A
Prep Method: 3550C
Dilution: 1.0
Analysis Date: 10/30/2014 1027
Prep Date: 10/27/2014 2300

Analysis Batch: 280-250311
Prep Batch: 280-249901

V 11/22/14

Instrument ID: SGC_C
Initial Weight/Volume: 33.0 g
Final Weight/Volume: 10 mL
Injection Volume: 1 uL
Result Type: PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
4,4'-DDD		0.52	U	0.52	1.6
4,4'-DDE		0.23	U	0.23	1.6
4,4'-DDT		0.56	U	0.56	1.6
Aldrin		0.24	U	0.24	1.6
alpha-BHC		0.20	U	0.20	1.6
beta-BHC		0.63	U	0.63	1.6
delta-BHC		*0.38*	*U*	*0.38*	*1.6*
gamma-BHC (Lindane)		0.44	U	0.44	1.6
Heptachlor		0.20	U	0.20	1.6
Heptachlor epoxide		0.40	U	0.40	1.6
Endosulfan I		0.17	U	0.17	1.6
Endosulfan II		0.27	U	0.27	1.6
Endosulfan sulfate		0.26	U	0.26	1.6
Endrin		0.29	U	0.29	1.6
Endrin aldehyde		0.16	U	0.16	1.6
Endrin ketone		0.46	U	0.46	1.6
gamma-Chlordane		0.25	U	0.25	1.6
Methoxychlor		0.43	U	0.43	3.1
alpha-Chlordane		0.31	U	0.31	1.6
Dieldrin		0.20	U	0.20	1.6
Toxaphene		15	U J	15	160

Surrogate	%Rec	Qualifier	Acceptance Limits
Tetrachloro-m-xylene	69		59 - 115
Decachlorobiphenyl	65		63 - 124

Client: Washington Closure Hanford

Job Number: 280-61707-1
Sdg Number: JP0874

Client Sample ID: J1V150

Lab Sample ID: 280-61707-11
Client Matrix: Solid

% Moisture: 4.5

Date Sampled: 10/22/2014 1027
Date Received: 10/24/2014 1000

8081A Organochlorine Pesticides (GC)

Analysis Method: 8081A
Prep Method: 3550C
Dilution: 1.0
Analysis Date: *10/30/2014 1044*
Prep Date: 10/27/2014 2300

Analysis Batch: 280-250311
Prep Batch: 280-249901

Instrument ID: SGC_C
Initial Weight/Volume: 30.2 g
Final Weight/Volume: 10 mL
Injection Volume: *1 uL*
Result Type: PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
4,4'-DDD		0.57	U J	0.57	1.8
4,4'-DDE		0.32	J	0.25	1.8
4,4'-DDT		0.74	J X	0.61	1.8
Aldrin		0.26	U	0.26	1.7
alpha-BHC		0.22	U	0.22	1.7
beta-BHC		0.69	U	0.69	1.7
delta-BHC		0.42	U	0.42	1.7
gamma-BHC (Lindane)		0.48	U	0.48	1.7
Heptachlor		0.22	U	0.22	1.7
Heptachlor epoxide		0.44	U	0.44	1.7
Endosulfan I		0.18	U	0.18	1.7
Endosulfan II		0.30	U	0.30	1.8
Endosulfan sulfate		0.29	U	0.29	1.8
Endrin		0.32	U	0.32	1.8
Endrin aldehyde		0.18	U	0.18	1.8
Endrin ketone		0.51	U	0.51	1.8
gamma-Chlordane		0.28	U	0.28	1.8
Methoxychlor		0.47	U	0.47	3.4
alpha-Chlordane		0.34	U	0.34	1.8
Dieldrin		0.22	U	0.22	1.8
Toxaphene		16	U	16	170

Surrogate	%Rec	Qualifier	Acceptance Limits
Tetrachloro-m-xylene	70		59 - 115
Decachlorobiphenyl	59	*	63 - 124

Client: Washington Closure Hanford

Job Number: 280-61707-1
Sdg Number: JP0874

Client Sample ID: **J1V151**

Lab Sample ID: 280-61707-12
Client Matrix: Solid

% Moisture: 4.7

Date Sampled: 10/22/2014 1042
Date Received: 10/24/2014 1000

8081A Organochlorine Pesticides (GC)

Analysis Method: 8081A
Prep Method: 3550C
Dilution: 1.0
Analysis Date: 10/30/2014 1101
Prep Date: 10/27/2014 2300

Analysis Batch: 280-250311
Prep Batch: 280-249901

11/22/14

Instrument ID: SGC_C
Initial Weight/Volume: 32.2 g
Final Weight/Volume: 10 mL
Injection Volume: 1 uL
Result Type: PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
4,4'-DDD		0.53	U	0.53	1.7
4,4'-DDE		0.29	J	0.23	1.7
4,4'-DDT		0.69	J	0.58	1.7
Aldrin		0.25	U	0.25	1.6
alpha-BHC		0.21	U	0.21	1.6
beta-BHC		0.65	U	0.65	1.6
delta-BHC		0.39	U	0.39	1.6
gamma-BHC (Lindane)		0.45	U	0.45	1.6
Heptachlor		0.21	U	0.21	1.6
Heptachlor epoxide		0.42	U	0.42	1.6
Endosulfan I		0.17	U	0.17	1.6
Endosulfan II		0.28	U	0.28	1.7
Endosulfan sulfate		0.27	U	0.27	1.7
Endrin		0.30	U	0.30	1.7
Endrin aldehyde		0.17	U	0.17	1.7
Endrin ketone		0.48	U	0.48	1.7
gamma-Chlordane		0.26	U	0.26	1.7
Methoxychlor		0.44	U	0.44	3.2
alpha-Chlordane		0.32	U	0.32	1.7
Dieldrin		0.21	U	0.21	1.7
Toxaphene		15	U	15	160

Surrogate	%Rec	Qualifier	Acceptance Limits
Tetrachloro-m-xylene	65		59 - 115
Decachlorobiphenyl	58	*	63 - 124

Client: Washington Closure Hanford

Job Number: 280-61707-1
Sdg Number: JP0874

Client Sample ID: J1V152

Lab Sample ID: 280-61707-13
Client Matrix: Solid

% Moisture: 3.3

Date Sampled: 10/22/2014 0818
Date Received: 10/24/2014 1000

8081A Organochlorine Pesticides (GC)

Analysis Method: 8081A
Prep Method: 3550C
Dilution: 1.0
Analysis Date: 10/30/2014 0500
Prep Date: 10/27/2014 2300

Analysis Batch: 280-250311
Prep Batch: 280-249901

11/22/14

Instrument ID: SGC_C
Initial Weight/Volume: 30.3 g
Final Weight/Volume: 10 mL
Injection Volume: 1 uL
Result Type: PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
4,4'-DDD		0.56	U	0.56	1.7
4,4'-DDE		0.24	U	0.24	1.7
4,4'-DDT		0.60	U	0.60	1.7
Aldrin		0.26	U	0.26	1.7
alpha-BHC		0.22	U	0.22	1.7
beta-BHC		0.68	U	0.68	1.7
delta-BHC		0.41	U	0.41	1.7
gamma-BHC (Lindane)		0.47	U	0.47	1.7
Heptachlor		0.22	U	0.22	1.7
Heptachlor epoxide		0.44	U	0.44	1.7
Endosulfan I		0.18	U	0.18	1.7
Endosulfan II		0.29	U	0.29	1.7
Endosulfan sulfate		0.28	U	0.28	1.7
Endrin		0.31	U	0.31	1.7
Endrin aldehyde		0.18	U	0.18	1.7
Endrin ketone		0.50	U	0.50	1.7
gamma-Chlordane		0.27	U	0.27	1.7
Methoxychlor		0.46	U	0.46	3.4
alpha-Chlordane		0.33	U	0.33	1.7
Dieldrin		0.21	U	0.21	1.7
Toxaphene		16	U J	16	170

Surrogate	%Rec	Qualifier	Acceptance Limits
Tetrachloro-m-xylene	77		59 - 115
Decachlorobiphenyl	76		63 - 124

Client: Washington Closure Hanford

Job Number: 280-61707-1
Sdg Number: JP0874

Client Sample ID: J1V140

Lab Sample ID: 280-61707-1
Client Matrix: Solid

% Moisture: 5.8

Date Sampled: 10/22/2014 0842
Date Received: 10/24/2014 1000

8082 Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analysis Method: 8082
Prep Method: 3550C
Dilution: 1.0
Analysis Date: 10/29/2014 1307
Prep Date: 10/28/2014 0957

Analysis Batch: 280-250287
Prep Batch: 280-249907

11/22/14

Instrument ID: SGC_W
Initial Weight/Volume: 31.8 g
Final Weight/Volume: 5 mL
Injection Volume: 1 uL
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	17
Aroclor 1232		2.0	U	2.0	10
Aroclor 1242		4.7	U	4.7	10
Aroclor 1248		4.7	U	4.7	10
Aroclor 1254		2.6	U	2.6	10
Aroclor 1260		2.6	U	2.6	10

Surrogate	%Rec	Qualifier	Acceptance Limits
Decachlorobiphenyl	78		59 - 130
Tetrachloro-m-xylene	68		53 - 128

Client: Washington Closure Hanford

Job Number: 280-61707-1
Sdg Number: JP0874

Client Sample ID: ***J1V141***

Lab Sample ID: 280-61707-2
Client Matrix: Solid

% Moisture: 4.5

Date Sampled: 10/22/2014 0851
Date Received: 10/24/2014 1000

8082 Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analysis Method: 8082
Prep Method: 3550C
Dilution: 1.0
Analysis Date: 10/29/2014 1331
Prep Date: 10/28/2014 0957

Analysis Batch: 280-250287
Prep Batch: 280-249907

11/22/14

Instrument ID: SGC_W
Initial Weight/Volume: 32.8 g
Final Weight/Volume: 5 mL
Injection Volume: 1 uL
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	18
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	Qualifier	Acceptance Limits
Decachlorobiphenyl	78		59 - 130
Tetrachloro-m-xylene	72		53 - 128

Client: Washington Closure Hanford

Job Number: 280-61707-1
Sdg Number: JP0874

Client Sample ID: J1V142

Lab Sample ID: 280-61707-3
Client Matrix: Solid

% Moisture: 6.4

Date Sampled: 10/22/2014 0910
Date Received: 10/24/2014 1000

8082 Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analysis Method:	8082	Analysis Batch:	280-250287	Instrument ID:	SGC_W
Prep Method:	3550C	Prep Batch:	280-249907	Initial Weight/Volume:	31.2 g
Dilution:	1.0			Final Weight/Volume:	5 mL
Analysis Date:	10/29/2014 1354			Injection Volume:	1 uL
Prep Date:	10/28/2014 0957			Result Type:	PRIMARY

11/22/14

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Aroclor 1016		2.8	U	2.8	10
Aroclor 1221		8.2	U	8.2	17
Aroclor 1232		2.1	U	2.1	10
Aroclor 1242		4.8	U	4.8	10
Aroclor 1248		4.8	U	4.8	10
Aroclor 1254		2.7	U	2.7	10
Aroclor 1260		2.7	U	2.7	10

Surrogate	%Rec	Qualifier	Acceptance Limits
Decachlorobiphenyl	81		59 - 130
Tetrachloro-m-xylene	72		53 - 128

Client: Washington Closure Hanford

Job Number: 280-61707-1
Sdg Number: JP0874

Client Sample ID: J1V143

Lab Sample ID: 280-61707-4
Client Matrix: Solid

% Moisture: 3.7

Date Sampled: 10/22/2014 0924
Date Received: 10/24/2014 1000

8082 Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analysis Method:	8082	Analysis Batch:	280-250287	Instrument ID:	SGC_W
Prep Method:	3550C	Prep Batch:	280-249907	Initial Weight/Volume:	30.0 g
Dilution:	1.0			Final Weight/Volume:	5 mL
Analysis Date:	10/29/2014 1418			Injection Volume:	1 uL
Prep Date:	10/28/2014 0957			Result Type:	PRIMARY

11/22/14

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Aroclor 1016		2.9	U	2.9	10
Aroclor 1221		8.3	U	8.3	17
Aroclor 1232		2.1	U	2.1	10
Aroclor 1242		4.8	U	4.8	10
Aroclor 1248		4.8	U	4.8	10
Aroclor 1254		2.7	U	2.7	10
Aroclor 1260		2.7	U	2.7	10

Surrogate	%Rec	Qualifier	Acceptance Limits
Decachlorobiphenyl	65		59 - 130
Tetrachloro-m-xylene	72		53 - 128

Client: Washington Closure Hanford

Job Number: 280-61707-1
Sdg Number: JP0874

Client Sample ID: J1V144

Lab Sample ID: 280-61707-5
Client Matrix: Solid

% Moisture: 3.2

Date Sampled: 10/22/2014 0818
Date Received: 10/24/2014 1000

8082 Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analysis Method:	8082	Analysis Batch:	280-250287	Instrument ID:	SGC_W
Prep Method:	3550C	Prep Batch:	280-249907	Initial Weight/Volume:	32.1 g
Dilution:	1.0			Final Weight/Volume:	5 mL
Analysis Date:	10/29/2014 1529			Injection Volume:	1 uL
Prep Date:	10/28/2014 0957			Result Type:	PRIMARY

11/22/14

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	2.5	9.7

Surrogate	%Rec	Qualifier	Acceptance Limits
Decachlorobiphenyl	66		59 - 130
Tetrachloro-m-xylene	68		53 - 128

Client: Washington Closure Hanford

Job Number: 280-61707-1
Sdg Number: JP0874

Client Sample ID: J1V146

Lab Sample ID: 280-61707-6
Client Matrix: Solid

% Moisture: 3.2

Date Sampled: 10/22/2014 0802
Date Received: 10/24/2014 1000

8082 Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analysis Method:	8082	Analysis Batch:	280-250287	Instrument ID:	SGC_W
Prep Method:	3550C	Prep Batch:	280-249907	Initial Weight/Volume:	31.2 g
Dilution:	1.0			Final Weight/Volume:	5 mL
Analysis Date:	10/29/2014 1552			Injection Volume:	1 uL
Prep Date:	10/28/2014 0957			Result Type:	PRIMARY

11/22/14

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Aroclor 1016		2.8	U	2.8	9.9
Aroclor 1221		8.0	U	8.0	16
Aroclor 1232		2.0	U	2.0	9.9
Aroclor 1242		4.6	U	4.6	9.9
Aroclor 1248		4.6	U	4.6	9.9
Aroclor 1254		2.6	U	2.6	9.9
Aroclor 1260		2.6	U	2.6	9.9

Surrogate	%Rec	Qualifier	Acceptance Limits
Decachlorobiphenyl	71		59 - 130
Tetrachloro-m-xylene	67		53 - 128

Client: Washington Closure Hanford

Job Number: 280-61707-1
Sdg Number: JP0874

Client Sample ID: ***J1V146***

Lab Sample ID: 280-61707-7
Client Matrix: Solid

% Moisture: 3.7

Date Sampled: 10/22/2014 0940
Date Received: 10/24/2014 1000

8082 Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analysis Method:	8082	Analysis Batch:	280-250287	Instrument ID:	SGC_W
Prep Method:	3550C	Prep Batch:	280-249907	Initial Weight/Volume:	30.6 g
Dilution:	1.0			Final Weight/Volume:	5 mL
Analysis Date:	10/29/2014 1639			Injection Volume:	1 uL
Prep Date:	10/28/2014 0957			Result Type:	PRIMARY

11/22/14

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Aroclor 1016		2.8	U	2.8	10
Aroclor 1221		8.2	U	8.2	17
Aroclor 1232		2.0	U	2.0	10
Aroclor 1242		4.7	U	4.7	10
Aroclor 1248		4.7	U	4.7	10
Aroclor 1254		2.6	U	2.6	10
Aroclor 1260		*2.6*	*U*	*2.6*	*10*

Surrogate	%Rec	Qualifier	Acceptance Limits
Decachlorobiphenyl	77		59 - 130
Tetrachloro-m-xylene	72		53 - 128

Client: Washington Closure Hanford

Job Number: 280-61707-1
Sdg Number: JP0874

Client Sample ID: J1V147

Lab Sample ID: 280-61707-8
Client Matrix: Solid

% Moisture: 4.8

Date Sampled: 10/22/2014 0949
Date Received: 10/24/2014 1000

8082 Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analysis Method:	8082	Analysis Batch:	280-250287	Instrument ID:	SGC_W
Prep Method:	3550C	Prep Batch:	280-249907	Initial Weight/Volume:	30.2 g
Dilution:	1.0			Final Weight/Volume:	5 mL
Analysis Date:	10/29/2014 1703			Injection Volume:	1 uL
Prep Date:	10/28/2014 0957			Result Type:	PRIMARY

11/22/14

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Aroclor 1016		2.9	U	2.9	10
Aroclor 1221		8.4	U	8.4	17
Aroclor 1232		2.1	U	2.1	10
Aroclor 1242		4.9	U	4.9	10
Aroclor 1248		4.9	U	4.9	10
Aroclor 1254		2.7	U	2.7	10
Aroclor 1260		2.7	U	2.7	10

Surrogate	%Rec	Qualifier	Acceptance Limits
Decachlorobiphenyl	72		59 - 130
Tetrachloro-m-xylene	69		53 - 128

Client: Washington Closure Hanford

Job Number: 280-61707-1
Sdg Number: JP0874

Client Sample ID: **J1V148**

Lab Sample ID: 280-61707-9
Client Matrix: Solid

% Moisture: 3.8

Date Sampled: 10/22/2014 1008
Date Received: 10/24/2014 1000

8082 Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analysis Method:	8082	Analysis Batch:	280-250287	Instrument ID:	SGC_W
Prep Method:	3550C	Prep Batch:	280-249907	Initial Weight/Volume:	31.6 g
Dilution:	1.0			Final Weight/Volume:	5 mL
Analysis Date:	10/29/2014 1726			Injection Volume:	1 uL
Prep Date:	10/28/2014 0957			Result Type:	PRIMARY

11/22/14

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Aroclor 1016		2.7	U	2.7	9.9
Aroclor 1221		7.9	U	7.9	16
Aroclor 1232		2.0	U	2.0	9.9
Aroclor 1242		4.6	U	4.6	9.9
Aroclor 1248		4.6	U	4.6	9.9
Aroclor 1254		2.6	U	2.6	9.9
Aroclor 1260		2.6	U	2.6	9.9

Surrogate	%Rec	Qualifier	Acceptance Limits
Decachlorobiphenyl	74		59 - 130
Tetrachloro-m-xylene	67		53 - 128

Client: Washington Closure Hanford

Job Number: 280-61707-1
Sdg Number: JP0874

Client Sample ID: J1V149

Lab Sample ID: 280-61707-10
Client Matrix: Solid

% Moisture: 4.3

Date Sampled: 10/22/2014 1015
Date Received: 10/24/2014 1000

8082 Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analysis Method:	8082	Analysis Batch:	280-250287	Instrument ID:	SGC_W
Prep Method:	3550C	Prep Batch:	280-249907	Initial Weight/Volume:	31.0 g
Dilution:	1.0			Final Weight/Volume:	5 mL
Analysis Date:	10/29/2014 1750			Injection Volume:	1 uL
Prep Date:	10/28/2014 0957			Result Type:	PRIMARY

V 11/22/14

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Aroclor 1016		2.8	U	2.8	10
Aroclor 1221		8.1	U	8.1	17
Aroclor 1232		2.0	U	2.0	10
Aroclor 1242		4.7	U	4.7	10
Aroclor 1248		4.7	U	4.7	10
Aroclor 1254		2.6	U	2.6	10
Aroclor 1260		2.6	U	2.6	10

Surrogate	%Rec	Qualifier	Acceptance Limits
Decachlorobiphenyl	65		59 - 130
Tetrachloro-m-xylene	69		53 - 128

Client: Washington Closure Hanford

Job Number: 280-61707-1
Sdg Number: JP0874

Client Sample ID: J1V150

Lab Sample ID: 280-61707-11
Client Matrix: Solid

% Moisture: 4.5

Date Sampled: 10/22/2014 1027
Date Received: 10/24/2014 1000

8082 Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analysis Method:	8082	Analysis Batch:	280-250287	Instrument ID:	SGC_W
Prep Method:	3550C	Prep Batch:	280-249907	Initial Weight/Volume:	31.1 g
Dilution:	1.0			Final Weight/Volume:	5 mL
Analysis Date:	10/29/2014 1814			Injection Volume:	1 uL
Prep Date:	10/28/2014 0957			Result Type:	PRIMARY

11/22/14

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Aroclor 1016		2.8	U	2.8	10
Aroclor 1221		8.1	U	8.1	17
Aroclor 1232		2.0	U	2.0	10
Aroclor 1242		4.7	U	4.7	10
Aroclor 1248		4.7	U	4.7	10
Aroclor 1254		2.6	U	2.6	10
Aroclor 1260		2.6	U	2.6	10

Surrogate	%Rec	Qualifier	Acceptance Limits
Decachlorobiphenyl	64		59 - 130
Tetrachloro-m-xylene	70		53 - 128

Client: Washington Closure Hanford

Job Number: 280-61707-1
Sdg Number: JP0874

Client Sample ID: J1V151

Lab Sample ID: 280-61707-12
Client Matrix: Solid % Moisture: 4.7

Date Sampled: 10/22/2014 1042
Date Received: 10/24/2014 1000

8082 Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analysis Method:	8082	Analysis Batch:	280-250287	Instrument ID:	SGC_W
Prep Method:	3550C	Prep Batch:	280-249907	Initial Weight/Volume:	32.2 g
Dilution:	1.0			Final Weight/Volume:	5 mL
Analysis Date:	10/29/2014 1837			Injection Volume:	1 uL
Prep Date:	10/28/2014 0957			Result Type:	PRIMARY

11/22/14

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		4.6	U	4.6	9.8
Aroclor 1248		4.6	U	4.6	9.8
Aroclor 1254		2.5	U	2.5	9.8
Aroclor 1260		*2.5*	*U*	*2.5*	*9.8*

Surrogate	%Rec	Qualifier	Acceptance Limits
Decachlorobiphenyl	61		59 - 130
Tetrachloro-m-xylene	70		53 - 128

Client: Washington Closure Hanford

Job Number: 280-61707-1
Sdg Number: JP0874

Client Sample ID: **J1V152**

Lab Sample ID: 280-61707-13
Client Matrix: Solid % Moisture: 3.3

Date Sampled: 10/22/2014 0818
Date Received: 10/24/2014 1000

8082 Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analysis Method:	8082	Analysis Batch:	280-250287	Instrument ID:	SGC_W
Prep Method:	3550C	Prep Batch:	280-249907	Initial Weight/Volume:	31.5 g
Dilution:	1.0			Final Weight/Volume:	5 mL
Analysis Date:	10/29/2014 1900			Injection Volume:	1 uL
Prep Date:	10/28/2014 0957			Result Type:	PRIMARY

11/22/14

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	2.6	9.8

Surrogate	%Rec	Qualifier	Acceptance Limits
Decachlorobiphenyl	71		59 - 130
Tetrachloro-m-xylene	71		53 - 128

Appendix 4

Laboratory Narrative and Chain-of-Custody Documentation

CASE NARRATIVE

Client: Washington Closure Hanford

Project: WASHINGTON CLOSURE HANFORD

Report Number: 280-61707-1

SDG #: JP0874
SAF#: RC-075

Date SDG Closed: October 24, 2014
Data Deliverable: 7 Day / Summary

CLIENT ID	LAB ID	ANALYSES REQUESTED	ANALYSES PERFORMED
J1V140	280-61707-1	6010/7471/9056M/353.2/8081/WTPH-D+/ 8082/8310/8260B	6010B/7471A/9056M/353.2/8081A/NWTPH-Dx/ 8082/8310/8260B
J1V141	280-61707-2	6010/7471/9056M/353.2/8081/WTPH-D+/ 8082/8310/8260B	6010B/7471A/9056M/353.2/8081A/NWTPH-Dx/ 8082/8310/8260B
J1V142	280-61707-3	6010/7471/9056M/353.2/8081/WTPH-D+/ 8082/8310/8260B	6010B/7471A/9056M/353.2/8081A/NWTPH-Dx/ 8082/8310/8260B
J1V143	280-61707-4	6010/7471/9056M/353.2/8081/WTPH-D+/ 8082/8310/8260B	6010B/7471A/9056M/353.2/8081A/NWTPH-Dx/ 8082/8310/8260B
J1V144	280-61707-5	6010/7471/9056M/353.2/8081/WTPH-D+/ 8082/8310/8260B	6010B/7471A/9056M/353.2/8081A/NWTPH-Dx/ 8082/8310/8260B
J1V145	280-61707-6	6010/7471/9056M/353.2/8081/WTPH-D+/ 8082/8310/8260B	6010B/7471A/9056M/353.2/8081A/NWTPH-Dx/ 8082/8310/8260B
J1V146	280-61707-7	6010/7471/9056M/353.2/8081/WTPH-D+/ 8082/8310/8260B	6010B/7471A/9056M/353.2/8081A/NWTPH-Dx/ 8082/8310/8260B
J1V147	280-61707-8	6010/7471/9056M/353.2/8081/WTPH-D+/ 8082/8310/8260B	6010B/7471A/9056M/353.2/8081A/NWTPH-Dx/ 8082/8310/8260B
J1V148	280-61707-9	6010/7471/9056M/353.2/8081/WTPH-D+/ 8082/8310/8260B	6010B/7471A/9056M/353.2/8081A/NWTPH-Dx/ 8082/8310/8260B
J1V149	280-61707-10	6010/7471/9056M/353.2/8081/WTPH-D+/ 8082/8310/8260B	6010B/7471A/9056M/353.2/8081A/NWTPH-Dx/ 8082/8310/8260B
J1V150	280-61707-11	6010/7471/9056M/353.2/8081/WTPH-D+/ 8082/8310/8260B	6010B/7471A/9056M/353.2/8081A/NWTPH-Dx/ 8082/8310/8260B
J1V151	280-61707-12	6010/7471/9056M/353.2/8081/WTPH-D+/ 8082/8310/8260B	6010B/7471A/9056M/353.2/8081A/NWTPH-Dx/ 8082/8310/8260B
J1V152	280-61707-13	6010/7471/9056M/353.2/8081/WTPH-D+/ 8082/8310/8260B	6010B/7471A/9056M/353.2/8081A/NWTPH-Dx/ 8082/8310/8260B
J1V153	280-61707-14	6010/7471/8260B	6010B/7471A/8260B
J1V155	280-61707-15	8260B	8260B

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 10/24/2014 10:00 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 7 coolers at receipt time were 0.3° C, 0.3° C, 0.4° C, 2.2° C, 2.8° C, 3.9° C and 5.6° C.

It can be noted that the Chains of Custody indicate "VOA samples frozen upon collection", and the 5035/8260B VOA samples were placed in the freezer upon receipt at the laboratory. The client was notified on 10/27/2014.

The 250mL container submitted for sample J1V145, requesting PCBs 8082 analysis, was received at the laboratory broken. The uncompromised volume was transferred to a new container and was placed on hold, as sufficient volume remained to proceed with the requested analyses using containers that were received intact. The client was notified on 10/27/2014.

GC/MS VOLATILES - SW846 8260B
Low levels of 1,1-Dichloroethane, 1,1-Dichloroethene and Trichloroethene are present in the method blank associated with prep batch 280-250397. Because the concentrations in the method blank are not present at levels greater than half the reporting limit, corrective action is deemed unnecessary. Associated sample results present above the MDL and/or RL have been flagged with a "B".

The MS/MSD performed on sample J1V142 exhibited RPD data outside the control limits. The acceptable LCS analysis data indicated that the analytical system was operating within control; therefore, corrective action is deemed unnecessary. The laboratory noted that the sample size used in the preparation of the MS and MSD for sample J1V142 exceeded 10% difference. As the RPD calculation is based upon the MS/MSD concentration as opposed to the MS/MSD percent recovery, elevated %RPD values were obtained.

The MSD aliquot of the MS/MSD performed on sample J1V153 exhibited percent recoveries outside the control limits for Acetone and Chloroform, and the associated sample results have been flagged "T". In addition, RPD limits were exceeded. The acceptable LCS analysis data indicated that the analytical system was operating within control; therefore, corrective action is deemed unnecessary. The laboratory noted that the sample size used in the preparation of the MS and MSD for sample J1V153 exceeded 10% difference. As the RPD calculation is based upon the MS/MSD concentration as opposed to the MS/MSD percent recovery, elevated %RPD values were obtained.

No other anomalies were encountered.

GC SEMIVOLATILES - SW846 8081A - Pesticides
Surrogate Decachlorobiphenyl was recovered outside the control limits, biased low, in samples J1V143, J1V146, J1V150 and J1V151. The laboratory noted that this anomaly is due to obvious matrix interference; therefore, corrective action is deemed unnecessary. Samples had numerous non-target peaks and significant baseline rise interfering with identification and quantitation of the surrogate.

The RPD between the primary and confirmation columns exceeded 40% for 4,4'-DDT in samples J1V148 and J1V150. The lower of the two values has been reported, as matrix interference is evident. The results have been flagged with an "X".

The MS aliquot of the MS/MSD performed on sample J1V142 exhibited the percent recovery outside the control limits for beta-BHC, and the associated sample result has been flagged "N". The acceptable LCS analysis data indicated that the analytical system was operating within control; therefore, corrective action is deemed unnecessary.

The Initial Calibration Verification (ICV) standard demonstrated a low bias for Endosulfan II (-25%) and a high bias for Methoxychlor (+18%) on the primary column. These analytes were in control on the confirmation column, and there were no tentative detections in the samples (peaks requiring second column confirmation). As there is no bias on the confirmation column and the method detection limit is valid for evaluating non-detected results, corrective action is deemed unnecessary and data for the affected analytes are reported from the column that is in control.

A Continuing Calibration Verification (CCV) standard associated with samples J1V144, J1V145, J1V148 and J1V152 exhibited %Difference (%D) values >15%, biased high, for 4,4'-DDT (+24%, +18%). The samples associated with this CCV were non-detect or less than the RL for the affected analyte; therefore, corrective action is deemed unnecessary.

No other anomalies were encountered.

GC SEMIVOLATILES - SW846 8082 - PCBs
No anomalies were encountered.

GC SEMIVOLATILES - NWTPH-Dx - DRO
No anomalies were encountered.

HPLC - SW846 8310 - PAHs
The MS/MSD performed on sample J1V141 exhibited spike compound recoveries outside the control limits, and the associated sample results have been flagged "N". The acceptable LCS analysis data indicated that the analytical system was operating within control; therefore, corrective action is deemed unnecessary.

No other anomalies were encountered.

TOTAL METALS - SW846 6010B/7471A
Serial dilution of a digestate in batch 280-249878 indicates that physical and chemical interferences are present for several elements. Results have been flagged with an "X".

Each sample is analyzed to achieve the lowest possible reporting limits within the constraints of the methods. Samples J1V144, J1V145 and J1V152 required a 5X dilution prior to the analysis of Antimony, Beryllium, Cobalt, Copper, Lead and Vanadium to minimize the interference caused by Titanium concentrations greater than the linear range. The reporting limits have been adjusted relative to the dilution required.

Each sample is analyzed to achieve the lowest possible reporting limits within the constraints of the methods. Due to matrix interferences, the Beryllium analysis of samples J1V141, J1V142, J1V146, J1V147, J1V148, J1V149, J1V150 and J1V151 had to be performed at dilutions. The reporting limits have been adjusted relative to the dilutions required.

Low levels of Barium, Manganese and Silicon are present in the method blank associated with batch 280-249878. 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.

Aluminum and Iron are present at levels greater than the reporting limits in the method blank associated with batch 280-249878. 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 J1V140; therefore, control limits are not applicable.

The Matrix Spike performed on sample J1V140 exhibited the percent recovery outside the control limits for Silicon, and the Matrix Spike performed on sample J1V153 exhibited the percent recovery outside the control limits for Aluminum. The associated sample results have been flagged "N". There is no indication that the analytical systems were operating out of control, and method accuracy has been verified by the acceptable LCS analysis data; therefore, corrective action is deemed unnecessary.

The duplicate analysis of sample J1V140 exceeded the RPD limit for Mercury, and the duplicate analysis of sample J1V153 exceeded the RPD limit for Iron. The associated sample results have been flagged "M". There is no indication that the analytical systems were operating out of control, and method accuracy has been verified by the acceptable LCS analysis data; therefore, corrective action is deemed unnecessary.

No other anomalies were encountered.

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

GENERAL CHEMISTRY - SW846 9056M - ANIONS
The Matrix Spike performed on sample J1V141 exhibited the percent recovery outside the control limits for Orthophosphate as P, and the Matrix Spike performed on sample J1V152 exhibited percent recoveries outside the control limits for Orthophosphate as P and Sulfate. The associated sample results have been flagged "N". There is no indication that the analytical systems were operating out of control, and method accuracy has been verified by the acceptable LCS analysis data; therefore, corrective action is deemed unnecessary.

No other anomalies were encountered.

Washington Closure Hanford

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

RC-075-456 | Page 1 of 3

ector: J. Sussmith	Company Contact: Joan Kessner	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
ject Designation: 100-D/DR Field Remediation	Sampling Location: 100-D-99, Verification, stockpile area		SAF No.: RC-075
Chest No.: ERC-02-407	Field Logbook No.: EL-1662-03	COA: 010D992000	Method of Shipment: Commercial Carrier — fed EX
pped To: TestAmerica Denver	Offsite Property No.: A131276-278		Bill of Lading/Air Bill No.: see OSPC
er Labs Shipped To: TestAmerica Richland			

Price Code: 8B | Data Turnaround: 7 days

)SSIBLE SAMPLE HAZARDS/REMARKS
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ecial Handling and/or Storage
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Sample No.	Matrix	Sample Date	Sample Time	Preservation	Type of Container	No. of Container(s)	Volume	Sample Analysis: See item (1) in Special Instructions	Sample Analysis: IC Anions - 9056 Modified; NO2/NO3 - 353.2	Sample Analysis: Pesticides - 8081	Sample Analysis: TPH-Diesel Range - WTPH-D +	Sample Analysis: PCBs - 8082	Sample Analysis: PAHs - 8310	Sample Analysis: VOA - 5035/8260 (TCL)
				Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Freeze
				G/P	G/P	aG	aG	aG	aG	aG	aG	aG	aG	aG*
				1	1	1	1	1	1	1	1	1	1	5
				250mL	250mL	250mL	125mL	250mL	250mL	250mL	250mL	250mL	250mL	40mL
IV140	SOIL	10/22/14	0842	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓ **
IV141	SOIL	10/22/14	0851	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
IV142	SOIL	10/22/14	0910	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
IV143	SOIL	10/22/14	0924	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
IV144	SOIL	10/22/14	0818	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

CHAIN OF POSSESSION

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Sidney T. Sussmith	10/22/14 1055	DJ Shea DJSHEA	10/22/14 1055
DJ Shea DJSHEA	10/22/14 1735	C. Bingham	10-22-14 1735
C. Bingham	10-22-14 1740	1060 Battelle, fridge #1B	10-22-14 1740
1060 Battelle, fridge #1B	10-23-14 0855	C. Bingham	10-23-14 0855
C. Bingham WCH	10-23-14 0900	fed EX	
			10/24/14 10:10

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)

10-23-14 CMB

* 20ml vial → % moisture
** freeze upon receipt

3.9, 2.8, 0.3, 2.2
0.3, 5.6, 0.4
IRG CF=0.0
Transferred by MCP 10/24/14

VOA samples frozen upon collection

REVIEWED BY KN DATE 10/23/14

JP0874

WCH-EE-011

Washington Closure Hanford

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

RC-075-456 | Page 2 of 3

lector: J. Sexsmith	Company Contact: Joan Kessner	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Price Code: 8B	Data Turnaround: 7 days		
ject Designation: 100-D/DR Field Remediation	Sampling Location: 100-D-99, Verification, stockpile area		SAF No.: RC-075
Chest No.: ERC-02-407	Field Logbook No.: EL-1662-03	COA: 010D992000	Method of Shipment: Commercial Carrier — fed EX
ipped To: TestAmerica Denver	Offsite Property No.: A1312776-278		Bill of Lading/Air Bill No.: see OSPC

ier Labs Shipped To: TestAmerica Richland

OSSIBLE SAMPLE HAZARDS/REMARKS: ne

pecial Handling and/or Storage: ne

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Freeze			
Type of Container	G/P	G/P	aG	aG	aG	aG	aGs*			
No. of Container(s)	1	1	1	1	1	1	5			
Volume	250mL	250mL	250mL	125mL	250mL	250mL	40mL			
Sample Analysis	See Item (1) in Special Instructions	IC Anions - 9056 Modified; NO2/NO3 - 353.2	Pesticides - 8081	TPH-Diesel Range - WTPH-D +	PCBs - 8082	PAHs - 8310	** VOA - 5035/8260 (TCL)			

Sample No.	Matrix	Sample Date	Sample Time									
1V145	SOIL	10/22/14	0802	✓	✓	✓	✓	✓	✓	✓		
1V146	SOIL	10/22/14	0940	✓	✓	✓	✓	✓	✓	✓		
1V147	SOIL	10/22/14	0949	✓	✓	✓	✓	✓	✓	✓		
1V148	SOIL	10/22/14	1005	✓	✓	✓	✓	✓	✓	✓		
1V149	SOIL	10/22/14	1015	✓	✓	✓	✓	✓	✓	✓		

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CHAIN OF POSSESSION

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Sidney T. Sexsmith	10/22/14 1055	DWSHEA DWSHEA	10/22/14 1055
DWSHEA DWSHEA	10/22/14 1735	C. Bingham	10-22-14 1735
C. Bingham	10-22-14 1740	1060 Battelle, fridge #1B	10-22-14 1740
1060 Battelle, fridge #1B	10-23-14 0855	C. Bingham	10-23-14 0855
C. Bingham WCH	10-23-14 0900	fed EX	
			10/24/14 10:00

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)

* 20 ml vial → % moisture 10-23-14 CMB
** freeze upon receipt

VOA samples frozen upon collection

REVIEWED BY KW DATE 10/23/14

JP0874

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

WCH-EE-011

Washington Closure Hanford

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

RC-075-456 | Page 3 of 3

ctor J. Seramith	Company Contact Joan Kessner	Telephone No. 375-4688	Project Coordinator KESSNER, JH
ct Designation 00-D/DR Field Remediation	Sampling Location 100-D-99, Verification, stockpile area		SAF No. RC-075
heet No. ERC-02-407	Field Logbook No. EL-1662-03	COA 010D992000	Method of Shipment Commercial Carrier fed EX
ped To TestAmerica Denver	Offsite Property No. A131276-278		Bill of Lading/Air Bill No. See OSPC

Price Code: 8B | Data Turnaround: 7 days

r Labs Shipped To
TestAmerica Richland

SSIBLE SAMPLE HAZARDS/REMARKS
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ecial Handling and/or Storage
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Sample No.	Matrix	Sample Date	Sample Time	Preservation	Type of Container	No. of Container(s)	Volume	Sample Analysis
				Cool 4C	G/P	1	250mL	See Item (1) in Special Instructions
				Cool 4C	G/P	1	250mL	IC Anions - 9056 Modified; NO2/NO3 - 353.2
				Cool 4C	aG	1	250mL	Pesticides - 8081
				Cool 4C	aG	1	125mL	TPH-Diesel Range - WTPH-D +
				Cool 4C	aG	1	250mL	PCBs - 8082
				Cool 4C	aG	1	250mL	PAHs - 8310
				Freeze	aGs*	5	40mL	VOA - 5035/8260 (TCL)
V150	SOIL	10/22/14	1027	✓	✓	✓	✓	✓
V151	SOIL	10/22/14	1042	✓	✓	✓	✓	✓
V152	SOIL	10/22/14	0818	✓	✓	✓	✓	✓
V153	SOIL	10/22/14	0753	✓		10-23-14 CMB		✓

CHAIN OF POSSESSION

Sign/Print Names	Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
	Libby I. Segrill	10/23/14 1055	DuShea DuSHEA	10/22/14 1055
	DuShea DuSHEA	10/22/14 1735	C. Bingham	10-22-14 1735
	C. Bingham	10-22-14 1740	100D Battelle, fridge #1B	1740 10-22-14
	100D Battelle, fridge #1B	10-23-14 0855	C. Bingham	10-23-14 0855
	C. Bingham WCH	10-23-14 0900	fed EX	
				10/24/14 10:00

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}

* 20 ml vial → % moisture 10-23-14 CMB
** freeze upon receipt

VOA samples frozen upon collection

REVIEWED BY KW DATE 10/23/14

JP0874

WCH-EE-011

Washington Closure Hanford

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

RC-075-458

Page 1 of 1

Collector: W. Sexsmith	Company Contact: Joan Kessner	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Project Designation: 100-D/DR Field Remediation	Sampling Location: 100-D-99, Verification, VOA trip blank		SAF No.: RC-075
Ice Chest No.: ERC-02-407	Field Logbook No.: EL-1662-03	COA: 010D992000	Method of Shipment: Commercial Carrier — fed EX
Shipped To: TestAmerica Denver	Offsite Property No.: A131276-278		Bill of Lading/Air Bill No.: See OSPC

Price Code: 8B

Data Turnaround: 7days

Other Labs Shipped To: NA

POSSIBLE SAMPLE HAZARDS/REMARKS

None

Special Handling and/or Storage

None

Preservation	Freeze											
Type of Container	aGs*											
No. of Container(s)	5											
Volume	40mL											
Sample Analysis	VOA 5035/8260 (TCL)											

Sample No.	Matrix	Sample Date	Sample Time									
J1W155	SOIL	10/22/14	0747	✓								

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CHAIN OF POSSESSION

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Whitney J. Sexsmith	10/22/14 1055	DWSHEA	10/22/14 1055
DWSHEA DWSHEA	10/22/14 1735	C. Bingham	10-22-14 1735
C. Bingham	10-22-14 1740	1060 Battelle fridge #1B	10-22-14 1740
1060 Battelle fridge #1B	10-23-14 0855	C. Bingham	10-23-14 0855
C. Bingham WCH	10-23-14 0900	fed EX	
			10/24/14 1000

Sign/Print Names

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

SPECIAL INSTRUCTIONS

10-23-14 cmB

*20 ml vial → % moisture

**freeze upon receipt

VOA samples frozen upon collection

REVIEWED BY KW DATE 10/23/14

~~JP0875~~ 10-23-14 cmB

JP0874

WCH-EE-011

Appendix 5

Data Validation Supporting Documentation

PCB DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	E
PROJECT:	100-D-99		DATA PACKAGE:	JP0874	
VALIDATOR:	ECR	LAB: TAL		DATE:	11/22/14
			SDG:	JP0874	

ANALYSES PERFORMED					
SW-846 8081	SW-846 8081 (TCLP)	SW-846 8082	SW-846 8081 (TCLP)		

SAMPLES/MATRIX				
J1U140	J1U141	J1U142	J1U143	J1U144
J1U145	J1U146	J1U147	J1U148	J1U149
J1U150	J1U151	J1U152		
				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: surr - 43, 46, 50, 51 - post - J all
no tax MS/MSD/LCS - Jall
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: No tox MS/MSD - Jalf

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: 280-61707-1
Sdg Number: JP0874

Method Blank - Batch: 280-249901

Method: 8081A
Preparation: 3550C

Lab Sample ID:	MB 280-249901/1-A	Analysis Batch:	280-250311	Instrument ID:	SGC_C
Client Matrix:	Solid	Prep Batch:	280-249901	Lab File ID:	10280038.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	30.4 g
Analysis Date:	10/29/2014 2351	Units:	ug/Kg	Final Weight/Volume:	10 mL
Prep Date:	10/27/2014 2300			Injection Volume:	1 uL
Leach Date:	N/A			Column ID:	PRIMARY

Analyte	Result	Qual	MDL	RL
4,4'-DDD	0.54	U	0.54	1.7
4,4'-DDE	0.23	U	0.23	1.7
4,4'-DDT	0.58	U	0.58	1.7
Aldrin	0.25	U	0.25	1.6
alpha-BHC	0.21	U	0.21	1.6
beta-BHC	0.66	U	0.66	1.6
delta-BHC	0.40	U	0.40	1.6
gamma-BHC (Lindane)	0.46	U	0.46	1.6
Heptachlor	0.21	U	0.21	1.6
Heptachlor epoxide	0.42	U	0.42	1.6
Endosulfan I	0.17	U	0.17	1.6
Endosulfan II	0.28	U	0.28	1.7
Endosulfan sulfate	0.27	U	0.27	1.7
Endrin	0.30	U	0.30	1.7
Endrin aldehyde	0.17	U	0.17	1.7
Endrin ketone	0.48	U	0.48	1.7
gamma-Chlordane	0.26	U	0.26	1.7
Methoxychlor	0.44	U	0.44	3.3
alpha-Chlordane	0.32	U	0.32	1.7
Dieldrin	0.21	U	0.21	1.7
Toxaphene	16	U	16	160

Surrogate	% Rec	Acceptance Limits
Tetrachloro-m-xylene	61	59 - 115
Decachlorobiphenyl	67	63 - 124

Client: Washington Closure Hanford

Job Number: 280-61707-1
Sdg Number: JP0874

Lab Control Sample - Batch: 280-249901

Method: 8081A
Preparation: 3550C

Lab Sample ID:	LCS 280-249901/2-A	Analysis Batch:	280-250311	Instrument ID:	SGC_C
Client Matrix:	Solid	Prep Batch:	280-249901	Lab File ID:	10280080.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	30.1 g
Analysis Date:	10/30/2014 1255	Units:	ug/Kg	Final Weight/Volume:	10 mL
Prep Date:	10/27/2014 2300			Injection Volume:	1 uL
Leach Date:	N/A			Column ID:	PRIMARY

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
4,4'-DDD	16.6	14.8	89	69 - 126	
4,4'-DDE	16.6	15.6	94	71 - 116	
4,4'-DDT	16.6	18.4	111	67 - 132	
Aldrin	16.6	14.7	89	69 - 116	
alpha-BHC	16.6	14.5	88	65 - 122	
beta-BHC	16.6	12.6	76	62 - 121	
delta-BHC	16.6	15.6	94	67 - 122	
gamma-BHC (Lindane)	16.6	14.9	90	66 - 120	
Heptachlor	16.6	15.7	94	61 - 126	
Heptachlor epoxide	16.6	15.4	93	71 - 119	
Endosulfan I	16.6	14.9	89	67 - 115	
Endosulfan II	16.6	14.7	88	69 - 120	
Endosulfan sulfate	16.6	16.2	97	69 - 126	
Endrin	16.6	15.3	92	69 - 129	
Endrin aldehyde	16.6	12.3	74	41 - 128	
Endrin ketone	16.6	16.5	99	70 - 125	
gamma-Chlordane	16.6	15.4	93	69 - 122	
Methoxychlor	16.6	19.7	118	65 - 139	
alpha-Chlordane	16.6	15.2	91	71 - 118	
Dieldrin	16.6	15.4	93	71 - 120	

Surrogate	% Rec	Acceptance Limits
Tetrachloro-m-xylene	83	59 - 115
Decachlorobiphenyl	91	63 - 124

Client: Washington Closure Hanford

Job Number: 280-61707-1
Sdg Number: JP0874

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-249901

Method: 8081A
Preparation: 3550C

MS Lab Sample ID:	280-61707-3	Analysis Batch:	280-250311	Instrument ID:	SGC_C
Client Matrix:	Solid	Prep Batch:	280-249901	Lab File ID:	10280043.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	30.7 g
Analysis Date:	10/30/2014 0117			Final Weight/Volume:	10 mL
Prep Date:	10/27/2014 2300			Injection Volume:	1 uL
Leach Date:	N/A			Column ID:	PRIMARY

MSD Lab Sample ID:	280-61707-3	Analysis Batch:	280-250311	Instrument ID:	SGC_C
Client Matrix:	Solid	Prep Batch:	280-249901	Lab File ID:	10280044.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	30.9 g
Analysis Date:	10/30/2014 0134			Final Weight/Volume:	10 mL
Prep Date:	10/27/2014 2300			Injection Volume:	1 uL
Leach Date:	N/A			Column ID:	PRIMARY

Analyte	% Rec. MS	% Rec. MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
4,4'-DDD	71	75	69 - 126	5	20		
4,4'-DDE	76	83	71 - 116	8	15		
4,4'-DDT	91	100	67 - 132	8	29		
Aldrin	72	78	69 - 116	7	50		
alpha-BHC	72	78	65 - 122	7	17		
beta-BHC	60	65	62 - 121	7	17	N	
delta-BHC	71	76	67 - 122	6	19		
gamma-BHC (Lindane)	73	78	66 - 120	7	24		
Heptachlor	76	82	61 - 126	7	18		
Heptachlor epoxide	75	80	71 - 119	6	18		
Endosulfan I	72	78	67 - 115	7	26		
Endosulfan II	73	78	69 - 120	5	20		
Endosulfan sulfate	73	77	69 - 126	4	22		
Endrin	73	78	69 - 129	6	30		
Endrin aldehyde	62	66	41 - 128	5	29		
Endrin ketone	78	84	70 - 125	7	20		
gamma-Chlordane	74	80	69 - 122	7	21		
Methoxychlor	85	88	65 - 139	3	23		
alpha-Chlordane	74	79	71 - 118	7	18		
Dieldrin	75	80	71 - 120	6	25		

Surrogate	MS % Rec	MSD % Rec	Acceptance Limits
Tetrachloro-m-xylene	69	74	59 - 115
Decachlorobiphenyl	68	74	63 - 124

Client: Washington Closure Hanford

Job Number: 280-61707-1
Sdg Number: JP0874

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-249901

Method: 8081A
Preparation: 3550C

MS Lab Sample ID:	280-61707-3	Units: ug/Kg	
Client Matrix:	Solid		
Dilution:	1.0		
Analysis Date:	10/30/2014 0117		
Prep Date:	10/27/2014 2300		
Leach Date:	N/A		

MSD Lab Sample ID:	280-61707-3
Client Matrix:	Solid
Dilution:	1.0
Analysis Date:	10/30/2014 0134
Prep Date:	10/27/2014 2300
Leach Date:	N/A

Analyte	Sample Result/Qual		MS Spike Amount	MSD Spike Amount	MS Result/Qual		MSD Result/Qual
4,4'-DDD	0.56	U	17.4	17.3	12.3		12.9
4,4'-DDE	0.24	U	17.4	17.3	13.2		14.3
4,4'-DDT	0.60	U	17.4	17.3	15.8		17.2
Aldrin	0.26	U	17.4	17.3	12.6		13.5
alpha-BHC	0.22	U	17.4	17.3	12.5		13.4
beta-BHC	0.68	U	17.4	17.3	10.4	N	11.3
delta-BHC	0.41	U	17.4	17.3	12.4		13.2
gamma-BHC (Lindane)	0.47	U	17.4	17.3	12.7		13.6
Heptachlor	0.22	U	17.4	17.3	13.3		14.2
Heptachlor epoxide	0.43	U	17.4	17.3	13.0		13.9
Endosulfan I	0.18	U	17.4	17.3	12.6		13.5
Endosulfan II	0.29	U	17.4	17.3	12.8		13.4
Endosulfan sulfate	0.28	U	17.4	17.3	12.8		13.2
Endrin	0.31	U	17.4	17.3	12.7		13.5
Endrin aldehyde	0.17	U	17.4	17.3	10.8		11.4
Endrin ketone	0.50	U	17.4	17.3	13.5		14.5
gamma-Chlordane	0.27	U	17.4	17.3	12.9		13.8
Methoxychlor	0.46	U	17.4	17.3	14.8		15.3
alpha-Chlordane	0.33	U	17.4	17.3	12.8		13.7
Dieldrin	0.21	U	17.4	17.3	13.0		13.9

Client: Washington Closure Hanford

Job Number 280-61707-1
Sdg Number: JP0874

Method Blank - Batch: 280-249907

Method: 8082
Preparation: 3550C

Lab Sample ID:	MB 280-249907/1-B	Analysis Batch:	280-250287	Instrument ID:	SGC_W
Client Matrix:	Solid	Prep Batch:	280-249907	Lab File ID:	10291404.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	30.5 g
Analysis Date:	10/29/2014 1220	Units:	ug/Kg	Final Weight/Volume:	5 mL
Prep Date:	10/28/2014 0957			Injection Volume:	1 uL
Leach Date:	N/A			Column ID:	PRIMARY

Analyte	Result	Qual	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	2.6	9.8

Surrogate	% Rec	Acceptance Limits
Decachlorobiphenyl	73	59 - 130
Tetrachloro-m-xylene	64	53 - 128

Lab Control Sample - Batch: 280-249907

Method: 8082
Preparation: 3550C

Lab Sample ID:	LCS 280-249907/2-B	Analysis Batch:	280-250287	Instrument ID:	SGC_W
Client Matrix:	Solid	Prep Batch:	280-249907	Lab File ID:	10291405.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	32.6 g
Analysis Date:	10/29/2014 1243	Units:	ug/Kg	Final Weight/Volume:	5 mL
Prep Date:	10/28/2014 0957			Injection Volume:	1 uL
Leach Date:	N/A			Column ID:	PRIMARY

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Aroclor 1016	30.7	21.1	69	54 - 132	
Aroclor 1260	30.7	24.0	78	62 - 129	

Surrogate	% Rec	Acceptance Limits
Decachlorobiphenyl	81	59 - 130
Tetrachloro-m-xylene	64	53 - 128

Client: Washington Closure Hanford

Job Number: 280-61707-1
Sdg Number: JP0874

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-249907

Method: 8082
Preparation: 3550C

MS Lab Sample ID:	280-61707-4	Analysis Batch:	280-250287	Instrument ID:	SGC_W
Client Matrix:	Solid	Prep Batch:	280-249907	Lab File ID:	10291410.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	30.5 g
Analysis Date:	10/29/2014 1442			Final Weight/Volume:	5 mL
Prep Date:	10/28/2014 0957			Injection Volume:	1 uL
Leach Date:	N/A			Column ID:	PRIMARY

MSD Lab Sample ID:	280-61707-4	Analysis Batch:	280-250287	Instrument ID:	SGC_W
Client Matrix:	Solid	Prep Batch:	280-249907	Lab File ID:	10291411.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	30.4 g
Analysis Date:	10/29/2014 1505			Final Weight/Volume:	5 mL
Prep Date:	10/28/2014 0957			Injection Volume:	1 uL
Leach Date:	N/A			Column ID:	PRIMARY

	% Rec.						
Analyte	MS	MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
Aroclor 1016	80	81	54 - 132	1	26		
Aroclor 1260	71	72	62 - 129	1	26		

Surrogate	MS % Rec	MSD % Rec	Acceptance Limits
Decachlorobiphenyl	62	60	59 - 130
Tetrachloro-m-xylene	73	73	53 - 128

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-249907

Method: 8082
Preparation: 3550C

MS Lab Sample ID:	280-61707-4	Units: ug/Kg	MSD Lab Sample ID: 280-61707-4
Client Matrix:	Solid		Client Matrix: Solid
Dilution:	1.0		Dilution: 1.0
Analysis Date:	10/29/2014 1442		Analysis Date: 10/29/2014 1505
Prep Date:	10/28/2014 0957		Prep Date: 10/28/2014 0957
Leach Date:	N/A		Leach Date: N/A

	Sample		MS Spike	MSD Spike	MS	MSD
Analyte	Result/Qual		Amount	Amount	Result/Qual	Result/Qual
Aroclor 1016	2.9	U	34.0	34.2	27.3	27.7
Aroclor 1260	2.7	U	34.0	34.2	24.3	24.6

Date: 24 November 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-99
Subject: Wet Chemistry - Data Package No. JP0874-TAL

INTRODUCTION

This memo presents the results of data validation on Data Package No. JP0874 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
J1V140	10/22/14	Soil	C	See note 1
J1V141	10/22/14	Soil	C	See note 1
J1V142	10/22/14	Soil	C	See note 1
J1V143	10/22/14	Soil	C	See note 1
J1V144	10/22/14	Soil	C	See note 1
J1V145	10/22/14	Soil	C	See note 1
J1V146	10/22/14	Soil	C	See note 1
J1V147	10/22/14	Soil	C	See note 1
J1V148	10/22/14	Soil	C	See note 1
J1V149	10/22/14	Soil	C	See note 1
J1V150	10/22/14	Soil	C	See note 1
J1V151	10/22/14	Soil	C	See note 1
J1V152	10/22/14	Soil	C	See note 1

1 – IC anions by 300.0, nitrate/nitrite by 353.2 and chromium VI by 7196.

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; 28 days for nitrate/nitrite, chloride, fluoride, bromide, sulfate; and 48 hours for nitrate, nitrite and orthophosphate.

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".

Due to the holding time being exceeded by greater than twice the limit, all detected nitrate, nitrate and orthophosphate results were qualified as estimates and flagged "J".

Due to the holding time being exceeded by greater than twice the limit, all undetected nitrate, nitrate and orthophosphate results were qualified as rejected and flagged "UR".

All other 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 field 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.

Due to a matrix spike recovery outside QC limits (162% & 153%), all detected orthophosphate results were qualified as estimates and flagged "J" (qualifier not applied due to rejection of the data).

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 (J1V144/J1V152) 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 JP0874 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 75%.

MAJOR DEFICIENCIES

The following major deficiencies were noted:

- Due to the holding time being exceeded by greater than twice the limit, all undetected nitrate, nitrate and orthophosphate results were qualified as rejected and flagged "UR".

Rejected data is unusable and should not be reported.

MINOR DEFICIENCIES

The following minor deficiencies were noted:

- Due to the holding time being exceeded by greater than twice the limit, all detected pH, nitrate, nitrate and orthophosphate results were qualified as estimates and flagged "J".

- Due to a matrix spike recovery outside QC limits (162% & 153%), all detected orthophosphate results were qualified as estimates and flagged "J" (qualifier not applied due to rejection of the data).

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*.

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: JP0874	**REVIEWER: ELR**	**Project: 100-D-99**	**PAGE 1 OF 1**
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
Nitrate	J	All	Hold time
Nitrite	UR	All	Hold time
Orthophosphate			
Orthophosphate	J	All detected analytes	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

General Chemistry

Client Sample ID: J1V140

Lab Sample ID: 280-61707-1
Client Matrix: Solid

% Moisture: 5.8

V 11/22/14

Date Sampled: 10/22/2014 0842
Date Received: 10/24/2014 1000

Analyte	Result	Qual	Units	MDL	RL	Dil	Method
Nitrate Nitrite as N-Soluble	7.2		mg/Kg	0.38	0.79	1.0	353.2
Analysis Batch: 280-250205	Analysis Date: 10/28/2014 1601						DryWt Corrected: Y
Chloride-Soluble	9.9		mg/Kg	2.0	5.0	1.0	9056M
Analysis Batch: 280-250021	Analysis Date: 10/28/2014 1727						DryWt Corrected: Y
Nitrate as N-Soluble	7.4	J	mg/Kg	0.31	2.5	1.0	9056M
Analysis Batch: 280-250020	Analysis Date: 10/28/2014 1727						DryWt Corrected: Y
Bromide-Soluble	0.39	U	mg/Kg	0.39	2.0	1.0	9056M
Analysis Batch: 280-250021	Analysis Date: 10/28/2014 1727						DryWt Corrected: Y
Nitrite as N-Soluble	0.34	U R	mg/Kg	0.34	2.5	1.0	9056M
Analysis Batch: 280-250020	Analysis Date: 10/28/2014 1727						DryWt Corrected: Y
Orthophosphate as P-Soluble	1.2	U R	mg/Kg	1.2	5.0	1.0	9056M
Analysis Batch: 280-250020	Analysis Date: 10/28/2014 1727						DryWt Corrected: Y
Sulfate-Soluble	30.9		mg/Kg	1.7	5.0	1.0	9056M
Analysis Batch: 280-250021	Analysis Date: 10/28/2014 1727						DryWt Corrected: Y
Fluoride-Soluble	1.7	B	mg/Kg	0.82	5.0	1.0	9056M
Analysis Batch: 280-250021	Analysis Date: 10/28/2014 1727						DryWt Corrected: Y

Analyte	Result	Qual	Units	RL	RL	Dil	Method
Percent Moisture	5.8		%	0.10	0.10	1.0	D-2216
Analysis Batch: 280-249890	Analysis Date: 10/27/2014 1312						DryWt Corrected: N

General Chemistry

Client Sample ID: **J1V141**

Lab Sample ID: 280-61707-2
Client Matrix: Solid

% Moisture: 4.5

Date Sampled: 10/22/2014 0851
Date Received: 10/24/2014 1000

Analyte	Result	Qual	Units	MDL	RL	Dil	Method
Nitrate Nitrite as N-Soluble	0.42	B	mg/Kg	0.37	0.78	1.0	353.2
Analysis Batch: 280-250205	Analysis Date: 10/28/2014 1607						DryWt Corrected: Y
Chloride-Soluble	8.1		mg/Kg	2.0	5.0	1.0	9056M
Analysis Batch: 280-250021	Analysis Date: 10/28/2014 1747						DryWt Corrected: Y
Nitrate as N-Soluble	1.3	B J	mg/Kg	0.31	2.5	1.0	9056M
Analysis Batch: 280-250020	Analysis Date: 10/28/2014 1747						DryWt Corrected: Y
Bromide-Soluble	0.39	U	mg/Kg	0.39	2.0	1.0	9056M
Analysis Batch: 280-250021	Analysis Date: 10/28/2014 1747						DryWt Corrected: Y
Nitrite as N-Soluble	0.33	U R	mg/Kg	0.33	2.5	1.0	9056M
Analysis Batch: 280-250020	Analysis Date: 10/28/2014 1747						DryWt Corrected: Y
Orthophosphate as P-Soluble	1.2	U N R	mg/Kg	1.2	5.0	1.0	9056M
Analysis Batch: 280-250020	Analysis Date: 10/28/2014 1747						DryWt Corrected: Y
Sulfate-Soluble	15.2		mg/Kg	1.7	5.0	1.0	9056M
Analysis Batch: 280-250021	Analysis Date: 10/28/2014 1747						DryWt Corrected: Y
Fluoride-Soluble	1.8	B	mg/Kg	0.81	5.0	1.0	9056M
Analysis Batch: 280-250021	Analysis Date: 10/28/2014 1747						DryWt Corrected: Y

Analyte	Result	Qual	Units	RL	RL	Dil	Method
Percent Moisture	4.5		%	0.10	0.10	1.0	D-2216
Analysis Batch: 280-249890	Analysis Date: 10/27/2014 1312						DryWt Corrected: N

General Chemistry

11/22/14

Client Sample ID: J1V142

Lab Sample ID: 280-61707-3
Client Matrix: Solid

% Moisture: 6.4

Date Sampled: 10/22/2014 0910
Date Received: 10/24/2014 1000

Analyte	Result	Qual	Units	MDL	RL	Dil	Method
Nitrate Nitrite as N-Soluble	0.38	U	mg/Kg	0.38	0.80	1.0	353.2
Analysis Batch: 280-250205	Analysis Date: 10/28/2014 1609						DryWt Corrected: Y
Chloride-Soluble	9.8		mg/Kg	2.0	5.1	1.0	9056M
Analysis Batch: 280-250021	Analysis Date: 10/28/2014 1847						DryWt Corrected: Y
Nitrate as N-Soluble	1.2	B J	mg/Kg	0.32	2.5	1.0	9056M
Analysis Batch: 280-250020	Analysis Date: 10/28/2014 1847						DryWt Corrected: Y
Bromide-Soluble	0.40	U	mg/Kg	0.40	2.0	1.0	9056M
Analysis Batch: 280-250021	Analysis Date: 10/28/2014 1847						DryWt Corrected: Y
Nitrite as N-Soluble	0.34	U R	mg/Kg	0.34	2.5	1.0	9056M
Analysis Batch: 280-250020	Analysis Date: 10/28/2014 1847						DryWt Corrected: Y
Orthophosphate as P-Soluble	1.3	U R	mg/Kg	1.3	5.1	1.0	9056M
Analysis Batch: 280-250020	Analysis Date: 10/28/2014 1847						DryWt Corrected: Y
Sulfate-Soluble	76.2		mg/Kg	1.7	5.1	1.0	9056M
Analysis Batch: 280-250021	Analysis Date: 10/28/2014 1847						DryWt Corrected: Y
Fluoride-Soluble	1.3	B	mg/Kg	0.83	5.1	1.0	9056M
Analysis Batch: 280-250021	Analysis Date: 10/28/2014 1847						DryWt Corrected: Y

Analyte	Result	Qual	Units	RL	RL	Dil	Method
Percent Moisture	6.4		%	0.10	0.10	1.0	D-2216
Analysis Batch: 280-249890	Analysis Date: 10/27/2014 1312						DryWt Corrected: N

Client: Washington Closure Hanford

Job Number: 280-61707-1
Sdg Number: JP0874

General Chemistry

Client Sample ID: **J1V143**

Lab Sample ID: 280-61707-4
Client Matrix: Solid

% Moisture: 3.7

11/22/14

Date Sampled: 10/22/2014 0924
Date Received: 10/24/2014 1000

Analyte	Result	Qual	Units	MDL	RL	Dil	Method
Nitrate Nitrite as N-Soluble	2.6		mg/Kg	0.37	0.77	1.0	353.2
Analysis Batch: 280-250205	Analysis Date: 10/28/2014 1611						DryWt Corrected: Y
Chloride-Soluble	9.0		mg/Kg	2.0	5.1	1.0	9056M
Analysis Batch: 280-250021	Analysis Date: 10/28/2014 1907						DryWt Corrected: Y
Nitrate as N-Soluble	3.3	J	mg/Kg	0.32	2.5	1.0	9056M
Analysis Batch: 280-250020	Analysis Date: 10/28/2014 1907						DryWt Corrected: Y
Bromide-Soluble	0.40	U	mg/Kg	0.40	2.0	1.0	9056M
Analysis Batch: 280-250021	Analysis Date: 10/28/2014 1907						DryWt Corrected: Y
Nitrite as N-Soluble	0.34	U R	mg/Kg	0.34	2.5	1.0	9056M
Analysis Batch: 280-250020	Analysis Date: 10/28/2014 1907						DryWt Corrected: Y
Orthophosphate as P-Soluble	1.3	U R	mg/Kg	1.3	5.1	1.0	9056M
Analysis Batch: 280-250020	Analysis Date: 10/28/2014 1907						DryWt Corrected: Y
Sulfate-Soluble	26.6		mg/Kg	1.7	5.1	1.0	9056M
Analysis Batch: 280-250021	Analysis Date: 10/28/2014 1907						DryWt Corrected: Y
Fluoride-Soluble	1.3	B	mg/Kg	0.83	5.1	1.0	9056M
Analysis Batch: 280-250021	Analysis Date: 10/28/2014 1907						DryWt Corrected: Y

Analyte	Result	Qual	Units	RL	RL	Dil	Method
Percent Moisture	3.7		%	0.10	0.10	1.0	D-2216
Analysis Batch: 280-249890	Analysis Date: 10/27/2014 1312						DryWt Corrected: N

General Chemistry

Client Sample ID: J1V144

Lab Sample ID: 280-61707-5
Client Matrix: Solid

% Moisture: 3.2

Date Sampled: 10/22/2014 0818
Date Received: 10/24/2014 1000

Analyte	Result	Qual	Units	MDL	RL	Dil	Method
Nitrate Nitrite as N-Soluble	0.37	U	mg/Kg	0.37	0.77	1.0	353.2
Analysis Batch: 280-250205	Analysis Date: 10/28/2014 1613						DryWt Corrected: Y
Chloride-Soluble	7.5		mg/Kg	2.0	5.0	1.0	9056M
Analysis Batch: 280-250021	Analysis Date: 10/28/2014 1926						DryWt Corrected: Y
Nitrate as N-Soluble	1.0	B J	mg/Kg	0.31	2.5	1.0	9056M
Analysis Batch: 280-250020	Analysis Date: 10/28/2014 1926						DryWt Corrected: Y
Bromide-Soluble	0.39	U	mg/Kg	0.39	2.0	1.0	9056M
Analysis Batch: 280-250021	Analysis Date: 10/28/2014 1926						DryWt Corrected: Y
Nitrite as N-Soluble	0.33	U R	mg/Kg	0.33	2.5	1.0	9056M
Analysis Batch: 280-250020	Analysis Date: 10/28/2014 1926						DryWt Corrected: Y
Orthophosphate as P-Soluble	1.2	U R	mg/Kg	1.2	5.0	1.0	9056M
Analysis Batch: 280-250020	Analysis Date: 10/28/2014 1926						DryWt Corrected: Y
Sulfate-Soluble	10.6		mg/Kg	1.7	5.0	1.0	9056M
Analysis Batch: 280-250021	Analysis Date: 10/28/2014 1926						DryWt Corrected: Y
Fluoride-Soluble	1.4	B	mg/Kg	0.81	5.0	1.0	9056M
Analysis Batch: 280-250021	Analysis Date: 10/28/2014 1926						DryWt Corrected: Y

Analyte	Result	Qual	Units	RL	RL	Dil	Method
Percent Moisture	3.2		%	0.10	0.10	1.0	D-2216
Analysis Batch: 280-249890	Analysis Date: 10/27/2014 1312						DryWt Corrected: N

General Chemistry

Client Sample ID: J1V145

Lab Sample ID: 280-61707-6
Client Matrix: Solid

% Moisture: 3.2

Date Sampled: 10/22/2014 0802
Date Received: 10/24/2014 1000

Analyte	Result	Qual	Units	MDL	RL	Dil	Method
Nitrate Nitrite as N-Soluble	0.37	U	mg/Kg	0.37	0.77	1.0	353.2
Analysis Batch: 280-250205	Analysis Date: 10/28/2014 1615						DryWt Corrected: Y
Chloride-Soluble	7.7		mg/Kg	2.0	4.9	1.0	9056M
Analysis Batch: 280-250021	Analysis Date: 10/28/2014 1946						DryWt Corrected: Y
Nitrate as N-Soluble	1.1	B J	mg/Kg	0.31	2.5	1.0	9056M
Analysis Batch: 280-250020	Analysis Date: 10/28/2014 1946						DryWt Corrected: Y
Bromide-Soluble	0.38	U	mg/Kg	0.38	2.0	1.0	9056M
Analysis Batch: 280-250021	Analysis Date: 10/28/2014 1946						DryWt Corrected: Y
Nitrite as N-Soluble	0.33	U R	mg/Kg	0.33	2.5	1.0	9056M
Analysis Batch: 280-250020	Analysis Date: 10/28/2014 1946						DryWt Corrected: Y
Orthophosphate as P-Soluble	1.2	U R	mg/Kg	1.2	4.9	1.0	9056M
Analysis Batch: 280-250020	Analysis Date: 10/28/2014 1946						DryWt Corrected: Y
Sulfate-Soluble	16.6		mg/Kg	1.7	4.9	1.0	9056M
Analysis Batch: 280-250021	Analysis Date: 10/28/2014 1946						DryWt Corrected: Y
Fluoride-Soluble	1.2	B	mg/Kg	0.81	4.9	1.0	9056M
Analysis Batch: 280-250021	Analysis Date: 10/28/2014 1946						DryWt Corrected: Y

Analyte	Result	Qual	Units	RL	RL	Dil	Method
Percent Moisture	3.2		%	0.10	0.10	1.0	D-2216
Analysis Batch: 280-249890	Analysis Date: 10/27/2014 1312						DryWt Corrected: N

General Chemistry

Client Sample ID: J1V146

Lab Sample ID: 280-61707-7
Client Matrix: Solid

% Moisture: 3.7

11/22/14

Date Sampled: 10/22/2014 0940
Date Received: 10/24/2014 1000

Analyte	Result	Qual	Units	MDL	RL	Dil	Method
Nitrate Nitrite as N-Soluble	3.6		mg/Kg	0.37	0.78	1.0	353.2
Analysis Batch: 280-250205	Analysis Date: 10/28/2014 1650						DryWt Corrected: Y
Chloride-Soluble	9.9		mg/Kg	1.9	4.8	1.0	9056M
Analysis Batch: 280-250021	Analysis Date: 10/28/2014 2046						DryWt Corrected: Y
Nitrate as N-Soluble	3.7	J	mg/Kg	0.30	2.4	1.0	9056M
Analysis Batch: 280-250020	Analysis Date: 10/28/2014 2046						DryWt Corrected: Y
Bromide-Soluble	0.38	U	mg/Kg	0.38	1.9	1.0	9056M
Analysis Batch: 280-250021	Analysis Date: 10/28/2014 2046						DryWt Corrected: Y
Nitrite as N-Soluble	0.32	U R	mg/Kg	0.32	2.4	1.0	9056M
Analysis Batch: 280-250020	Analysis Date: 10/28/2014 2046						DryWt Corrected: Y
Orthophosphate as P-Soluble	1.2	U R	mg/Kg	1.2	4.8	1.0	9056M
Analysis Batch: 280-250020	Analysis Date: 10/28/2014 2046						DryWt Corrected: Y
Sulfate-Soluble	38.2		mg/Kg	1.6	4.8	1.0	9056M
Analysis Batch: 280-250021	Analysis Date: 10/28/2014 2046						DryWt Corrected: Y
Fluoride-Soluble	2.0	B	mg/Kg	0.79	4.8	1.0	9056M
Analysis Batch: 280-250021	Analysis Date: 10/28/2014 2046						DryWt Corrected: Y

Analyte	Result	Qual	Units	RL	RL	Dil	Method
Percent Moisture	3.7		%	0.10	0.10	1.0	D-2216
Analysis Batch: 280-249890	Analysis Date: 10/27/2014 1312						DryWt Corrected: N

General Chemistry

Client Sample ID: J1V147

Lab Sample ID: 280-61707-8
Client Matrix: Solid

% Moisture: 4.8

11/22/14

Date Sampled: 10/22/2014 0949
Date Received: 10/24/2014 1000

Analyte	Result	Qual	Units	MDL	RL	Dil	Method
Nitrate Nitrite as N-Soluble	0.37	U	mg/Kg	0.37	0.78	1.0	353.2
Analysis Batch: 280-250205	Analysis Date: 10/28/2014 1652						DryWt Corrected: Y
Chloride-Soluble	7.8		mg/Kg	2.0	5.1	1.0	9056M
Analysis Batch: 280-250021	Analysis Date: 10/28/2014 2106						DryWt Corrected: Y
Nitrate as N-Soluble	1.0	B J	mg/Kg	0.32	2.5	1.0	9056M
Analysis Batch: 280-250020	Analysis Date: 10/28/2014 2106						DryWt Corrected: Y
Bromide-Soluble	0.40	U	mg/Kg	0.40	2.0	1.0	9056M
Analysis Batch: 280-250021	Analysis Date: 10/28/2014 2106						DryWt Corrected: Y
Nitrite as N-Soluble	0.34	U R	mg/Kg	0.34	2.5	1.0	9056M
Analysis Batch: 280-250020	Analysis Date: 10/28/2014 2106						DryWt Corrected: Y
Orthophosphate as P-Soluble	1.3	U R	mg/Kg	1.3	5.1	1.0	9056M
Analysis Batch: 280-250020	Analysis Date: 10/28/2014 2106						DryWt Corrected: Y
Sulfate-Soluble	11.5		mg/Kg	1.7	5.1	1.0	9056M
Analysis Batch: 280-250021	Analysis Date: 10/28/2014 2106						DryWt Corrected: Y
Fluoride-Soluble	1.7	B	mg/Kg	0.83	5.1	1.0	9056M
Analysis Batch: 280-250021	Analysis Date: 10/28/2014 2106						DryWt Corrected: Y

Analyte	Result	Qual	Units	RL	RL	Dil	Method
Percent Moisture	4.8		%	0.10	0.10	1.0	D-2216
Analysis Batch: 280-249890	Analysis Date: 10/27/2014 1312						DryWt Corrected: N

General Chemistry

Client Sample ID: J1V148

Lab Sample ID: 280-61707-9
Client Matrix: Solid

% Moisture: 3.8

11/22/14

Date Sampled: 10/22/2014 1008
Date Received: 10/24/2014 1000

Analyte	Result	Qual	Units	MDL	RL	Dil	Method
Nitrate Nitrite as N-Soluble	2.8		mg/Kg	0.37	0.77	1.0	353.2
Analysis Batch: 280-250205	Analysis Date: 10/28/2014 1654						DryWt Corrected: Y
Chloride-Soluble	11.4		mg/Kg	2.0	5.1	1.0	9056M
Analysis Batch: 280-250021	Analysis Date: 10/28/2014 2126						DryWt Corrected: Y
Nitrate as N-Soluble	3.0	J	mg/Kg	0.32	2.5	1.0	9056M
Analysis Batch: 280-250020	Analysis Date: 10/28/2014 2126						DryWt Corrected: Y
Bromide-Soluble	0.40	U	mg/Kg	0.40	2.0	1.0	9056M
Analysis Batch: 280-250021	Analysis Date: 10/28/2014 2126						DryWt Corrected: Y
Nitrite as N-Soluble	0.34	U R	mg/Kg	0.34	2.5	1.0	9056M
Analysis Batch: 280-250020	Analysis Date: 10/28/2014 2126						DryWt Corrected: Y
Orthophosphate as P-Soluble	1.3	U R	mg/Kg	1.3	5.1	1.0	9056M
Analysis Batch: 280-250020	Analysis Date: 10/28/2014 2126						DryWt Corrected: Y
Sulfate-Soluble	218		mg/Kg	1.7	5.1	1.0	9056M
Analysis Batch: 280-250021	Analysis Date: 10/28/2014 2126						DryWt Corrected: Y
Fluoride-Soluble	1.3	B	mg/Kg	0.83	5.1	1.0	9056M
Analysis Batch: 280-250021	Analysis Date: 10/28/2014 2126						DryWt Corrected: Y

Analyte	Result	Qual	Units	RL	RL	Dil	Method
Percent Moisture	3.8		%	0.10	0.10	1.0	D-2216
Analysis Batch: 280-249890	Analysis Date: 10/27/2014 1312						DryWt Corrected: N

General Chemistry

Client Sample ID: J1V149

Lab Sample ID: 280-61707-10
Client Matrix: Solid

% Moisture: 4.3

11/22/14

Date Sampled: 10/22/2014 1015
Date Received: 10/24/2014 1000

Analyte	Result	Qual	Units	MDL	RL	Dil	Method
Nitrate Nitrite as N-Soluble	14.2		mg/Kg	0.37	0.78	1.0	353.2
Analysis Batch: 280-250205	Analysis Date: 10/28/2014 1656						DryWt Corrected: Y
Chloride-Soluble	13.4		mg/Kg	2.0	5.1	1.0	9056M
Analysis Batch: 280-250021	Analysis Date: 10/28/2014 2146						DryWt Corrected: Y
Nitrate as N-Soluble	11.5	J	mg/Kg	0.32	2.5	1.0	9056M
Analysis Batch: 280-250020	Analysis Date: 10/28/2014 2146						DryWt Corrected: Y
Bromide-Soluble	0.39	U	mg/Kg	0.39	2.0	1.0	9056M
Analysis Batch: 280-250021	Analysis Date: 10/28/2014 2146						DryWt Corrected: Y
Nitrite as N-Soluble	0.34	U R	mg/Kg	0.34	2.5	1.0	9056M
Analysis Batch: 280-250020	Analysis Date: 10/28/2014 2146						DryWt Corrected: Y
Orthophosphate as P-Soluble	1.3	U R	mg/Kg	1.3	5.1	1.0	9056M
Analysis Batch: 280-250020	Analysis Date: 10/28/2014 2146						DryWt Corrected: Y
Sulfate-Soluble	86.8		mg/Kg	1.7	5.1	1.0	9056M
Analysis Batch: 280-250021	Analysis Date: 10/28/2014 2146						DryWt Corrected: Y
Fluoride-Soluble	1.5	B	mg/Kg	0.83	5.1	1.0	9056M
Analysis Batch: 280-250021	Analysis Date: 10/28/2014 2146						DryWt Corrected: Y

Analyte	Result	Qual	Units	RL	RL	Dil	Method
Percent Moisture	4.3		%	0.10	0.10	1.0	D-2216
Analysis Batch: 280-249890	Analysis Date: 10/27/2014 1312						DryWt Corrected: N

General Chemistry

Client Sample ID: J1V150

Lab Sample ID: 280-61707-11
Client Matrix: Solid

% Moisture: 4.5

11/22/14

Date Sampled: 10/22/2014 1027
Date Received: 10/24/2014 1000

Analyte	Result	Qual	Units	MDL	RL	Dil	Method
Nitrate Nitrite as N-Soluble	17.8		mg/Kg	0.37	0.78	1.0	353.2
Analysis Batch: 280-250205	Analysis Date: 10/28/2014 1658						DryWt Corrected: Y
Chloride-Soluble	18.1		mg/Kg	2.0	5.1	1.0	9056M
Analysis Batch: 280-250021	Analysis Date: 10/28/2014 2206						DryWt Corrected: Y
Nitrate as N-Soluble	17.9	J	mg/Kg	0.32	2.6	1.0	9056M
Analysis Batch: 280-250020	Analysis Date: 10/28/2014 2206						DryWt Corrected: Y
Bromide-Soluble	0.40	U	mg/Kg	0.40	2.0	1.0	9056M
Analysis Batch: 280-250021	Analysis Date: 10/28/2014 2206						DryWt Corrected: Y
Nitrite as N-Soluble	0.34	U R	mg/Kg	0.34	2.6	1.0	9056M
Analysis Batch: 280-250020	Analysis Date: 10/28/2014 2206						DryWt Corrected: Y
Orthophosphate as P-Soluble	1.3	U R	mg/Kg	1.3	5.1	1.0	9056M
Analysis Batch: 280-250020	Analysis Date: 10/28/2014 2206						DryWt Corrected: Y
Sulfate-Soluble	158		mg/Kg	1.7	5.1	1.0	9056M
Analysis Batch: 280-250021	Analysis Date: 10/28/2014 2206						DryWt Corrected: Y
Fluoride-Soluble	1.9	B	mg/Kg	0.84	5.1	1.0	9056M
Analysis Batch: 280-250021	Analysis Date: 10/28/2014 2206						DryWt Corrected: Y

Analyte	Result	Qual	Units	RL	RL	Dil	Method
Percent Moisture	4.5		%	0.10	0.10	1.0	D-2216
Analysis Batch: 280-249890	Analysis Date: 10/27/2014 1312						DryWt Corrected: N

General Chemistry

Client Sample ID: J1V151

Lab Sample ID: 280-61707-12
Client Matrix: Solid

% Moisture: 4.7

Date Sampled: 10/22/2014 1042
Date Received: 10/24/2014 1000

Analyte	Result	Qual	Units	MDL	RL	Dil	Method
Nitrate Nitrite as N-Soluble	10.4		mg/Kg	0.37	0.79	1.0	353.2
Analysis Batch: 280-250205	Analysis Date: 10/28/2014 1704						DryWt Corrected: Y
Chloride-Soluble	15.8		mg/Kg	2.0	5.0	1.0	9056M
Analysis Batch: 280-250021	Analysis Date: 10/28/2014 2226						DryWt Corrected: Y
Nitrate as N-Soluble	11.6	J	mg/Kg	0.32	2.5	1.0	9056M
Analysis Batch: 280-250020	Analysis Date: 10/28/2014 2226						DryWt Corrected: Y
Bromide-Soluble	0.39	U	mg/Kg	0.39	2.0	1.0	9056M
Analysis Batch: 280-250021	Analysis Date: 10/28/2014 2226						DryWt Corrected: Y
Nitrite as N-Soluble	0.34	UR	mg/Kg	0.34	2.5	1.0	9056M
Analysis Batch: 280-250020	Analysis Date: 10/28/2014 2226						DryWt Corrected: Y
Orthophosphate as P-Soluble	1.2	UR	mg/Kg	1.2	5.0	1.0	9056M
Analysis Batch: 280-250020	Analysis Date: 10/28/2014 2226						DryWt Corrected: Y
Sulfate-Soluble	98.8		mg/Kg	1.7	5.0	1.0	9056M
Analysis Batch: 280-250021	Analysis Date: 10/28/2014 2226						DryWt Corrected: Y
Fluoride-Soluble	1.6	B	mg/Kg	0.83	5.0	1.0	9056M
Analysis Batch: 280-250021	Analysis Date: 10/28/2014 2226						DryWt Corrected: Y

Analyte	Result	Qual	Units	RL	RL	Dil	Method
Percent Moisture	4.7		%	0.10	0.10	1.0	D-2216
Analysis Batch: 280-249890	Analysis Date: 10/27/2014 1312						DryWt Corrected: N

General Chemistry

Client Sample ID: J1V152

Lab Sample ID: 280-61707-13
Client Matrix: Solid

% Moisture: 3.3

Date Sampled: 10/22/2014 0818
Date Received: 10/24/2014 1000

Analyte	Result	Qual	Units	MDL	RL	Dil	Method
Nitrate Nitrite as N-Soluble	0.37	U	mg/Kg	0.37	0.77	1.0	353.2
Analysis Batch: 280-250205	Analysis Date: 10/28/2014 1706						DryWt Corrected: Y
Chloride-Soluble	7.6		mg/Kg	2.0	5.0	1.0	9056M
Analysis Batch: 280-250021	Analysis Date: 10/28/2014 2246						DryWt Corrected: Y
Nitrate as N-Soluble	1.1	B J	mg/Kg	0.31	2.5	1.0	9056M
Analysis Batch: 280-250020	Analysis Date: 10/28/2014 2246						DryWt Corrected: Y
Bromide-Soluble	0.39	U	mg/Kg	0.39	2.0	1.0	9056M
Analysis Batch: 280-250021	Analysis Date: 10/28/2014 2246						DryWt Corrected: Y
Nitrite as N-Soluble	0.34	U R	mg/Kg	0.34	2.5	1.0	9056M
Analysis Batch: 280-250020	Analysis Date: 10/28/2014 2246						DryWt Corrected: Y
Orthophosphate as P-Soluble	1.2	U N R	mg/Kg	1.2	5.0	1.0	9056M
Analysis Batch: 280-250020	Analysis Date: 10/28/2014 2246						DryWt Corrected: Y
Sulfate-Soluble	10.7	N	mg/Kg	1.7	5.0	1.0	9056M
Analysis Batch: 280-250021	Analysis Date: 10/28/2014 2246						DryWt Corrected: Y
Fluoride-Soluble	1.4	B	mg/Kg	0.82	5.0	1.0	9056M
Analysis Batch: 280-250021	Analysis Date: 10/28/2014 2246						DryWt Corrected: Y

Analyte	Result	Qual	Units	RL	RL	Dil	Method
Percent Moisture	3.3		%	0.10	0.10	1.0	D-2216
Analysis Batch: 280-249890	Analysis Date: 10/27/2014 1312						DryWt Corrected: N

Sample Results Summary

Date: 29-Oct-14

TestAmerica Inc TARL

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

Report No. : 63139 11/22/14 SDG No: JP0874

Batch	Client Id / Work Order	Parameter	Result +- Uncertainty (2s)	Qual	Units	Tracer Yield	MDL	CRDL	RPD
4300020	7196_CR6								
	J1V140								
	M5C391AA	HEXCHROME	1.81E-01 +- 0.0E+00		mg/kg	N/A	1.55E-01	1.55E-01	
	M5C391AD	HEXCHROME	1.55E-01 +- 0.0E+00	U	mg/kg	N/A	1.55E-01	1.55E-01	15.5
	J1V141								
	M5C4A1AA	HEXCHROME	3.70E-01 +- 0.0E+00		mg/kg	N/A	1.55E-01	1.55E-01	
	J1V142								
	M5C4C1AA	HEXCHROME	4.82E-01 +- 0.0E+00		mg/kg	N/A	1.55E-01	1.55E-01	
	J1V143								
	M5C4D1AA	HEXCHROME	5.80E-01 +- 0.0E+00		mg/kg	N/A	1.55E-01	1.55E-01	
	J1V144								
	M5C4E1AA	HEXCHROME	3.65E-01 +- 0.0E+00		mg/kg	N/A	1.55E-01	1.55E-01	
	J1V145								
	M5C4F1AA	HEXCHROME	1.74E-01 +- 0.0E+00		mg/kg	N/A	1.55E-01	1.55E-01	
	J1V146								
	M5C4G1AA	HEXCHROME	3.67E-01 +- 0.0E+00		mg/kg	N/A	1.55E-01	1.55E-01	
	J1V147								
	M5C4H1AA	HEXCHROME	2.22E-01 +- 0.0E+00		mg/kg	N/A	1.55E-01	1.55E-01	
	J1V148								
	M5C4J1AA	HEXCHROME	2.61E-01 +- 0.0E+00		mg/kg	N/A	1.55E-01	1.55E-01	
	J1V149								
	M5C4K1AA	HEXCHROME	1.55E-01 +- 0.0E+00	U	mg/kg	N/A	1.55E-01	1.55E-01	
	J1V150								
	M5C4L1AA	HEXCHROME	1.55E-01 +- 0.0E+00	U	mg/kg	N/A	1.55E-01	1.55E-01	
	J1V151								
	M5C4M1AA	HEXCHROME	1.55E-01 +- 0.0E+00	U	mg/kg	N/A	1.55E-01	1.55E-01	
	J1V152								
	M5C4N1AA	HEXCHROME	4.07E-01 +- 0.0E+00		mg/kg	N/A	1.55E-01	1.55E-01	

No. of Results: 14

TestAmerica Inc
rptTALRchSaSummary2 V6.3.6
A2002

RPD - Relative Percent Difference.

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.

Appendix 4

Laboratory Narrative and Chain-of-Custody Documentation

CASE NARRATIVE

Client: Washington Closure Hanford

Project: WASHINGTON CLOSURE HANFORD

Report Number: 280-61707-1

SDG #: JP0874
SAF#: RC-075

Date SDG Closed: October 24, 2014
Data Deliverable: 7 Day / Summary

CLIENT ID	LAB ID	ANALYSES REQUESTED	ANALYSES PERFORMED
J1V140	280-61707-1	6010/7471/9056M/353.2/8081/WTPH-D+/ 8082/8310/8260B	6010B/7471A/9056M/353.2/8081A/NWTPH-Dx/ 8082/8310/8260B
J1V141	280-61707-2	6010/7471/9056M/353.2/8081/WTPH-D+/ 8082/8310/8260B	6010B/7471A/9056M/353.2/8081A/NWTPH-Dx/ 8082/8310/8260B
J1V142	280-61707-3	6010/7471/9056M/353.2/8081/WTPH-D+/ 8082/8310/8260B	6010B/7471A/9056M/353.2/8081A/NWTPH-Dx/ 8082/8310/8260B
J1V143	280-61707-4	6010/7471/9056M/353.2/8081/WTPH-D+/ 8082/8310/8260B	6010B/7471A/9056M/353.2/8081A/NWTPH-Dx/ 8082/8310/8260B
J1V144	280-61707-5	6010/7471/9056M/353.2/8081/WTPH-D+/ 8082/8310/8260B	6010B/7471A/9056M/353.2/8081A/NWTPH-Dx/ 8082/8310/8260B
J1V145	280-61707-6	6010/7471/9056M/353.2/8081/WTPH-D+/ 8082/8310/8260B	6010B/7471A/9056M/353.2/8081A/NWTPH-Dx/ 8082/8310/8260B
J1V146	280-61707-7	6010/7471/9056M/353.2/8081/WTPH-D+/ 8082/8310/8260B	6010B/7471A/9056M/353.2/8081A/NWTPH-Dx/ 8082/8310/8260B
J1V147	280-61707-8	6010/7471/9056M/353.2/8081/WTPH-D+/ 8082/8310/8260B	6010B/7471A/9056M/353.2/8081A/NWTPH-Dx/ 8082/8310/8260B
J1V148	280-61707-9	6010/7471/9056M/353.2/8081/WTPH-D+/ 8082/8310/8260B	6010B/7471A/9056M/353.2/8081A/NWTPH-Dx/ 8082/8310/8260B
J1V149	280-61707-10	6010/7471/9056M/353.2/8081/WTPH-D+/ 8082/8310/8260B	6010B/7471A/9056M/353.2/8081A/NWTPH-Dx/ 8082/8310/8260B
J1V150	280-61707-11	6010/7471/9056M/353.2/8081/WTPH-D+/ 8082/8310/8260B	6010B/7471A/9056M/353.2/8081A/NWTPH-Dx/ 8082/8310/8260B
J1V151	280-61707-12	6010/7471/9056M/353.2/8081/WTPH-D+/ 8082/8310/8260B	6010B/7471A/9056M/353.2/8081A/NWTPH-Dx/ 8082/8310/8260B
J1V152	280-61707-13	6010/7471/9056M/353.2/8081/WTPH-D+/ 8082/8310/8260B	6010B/7471A/9056M/353.2/8081A/NWTPH-Dx/ 8082/8310/8260B
J1V153	280-61707-14	6010/7471/8260B	6010B/7471A/8260B
J1V155	280-61707-15	8260B	8260B

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 10/24/2014 10:00 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 7 coolers at receipt time were 0.3° C, 0.3° C, 0.4° C, 2.2° C, 2.8° C, 3.9° C and 5.6° C.

It can be noted that the Chains of Custody indicate "VOA samples frozen upon collection", and the 5035/8260B VOA samples were placed in the freezer upon receipt at the laboratory. The client was notified on 10/27/2014.

The 250mL container submitted for sample J1V145, requesting PCBs 8082 analysis, was received at the laboratory broken. The uncompromised volume was transferred to a new container and was placed on hold, as sufficient volume remained to proceed with the requested analyses using containers that were received intact. The client was notified on 10/27/2014.

GC/MS VOLATILES - SW846 8260B
Low levels of 1,1-Dichloroethane, 1,1-Dichloroethene and Trichloroethene are present in the method blank associated with prep batch 280-250397. Because the concentrations in the method blank are not present at levels greater than half the reporting limit, corrective action is deemed unnecessary. Associated sample results present above the MDL and/or RL have been flagged with a "B".

The MS/MSD performed on sample J1V142 exhibited RPD data outside the control limits. The acceptable LCS analysis data indicated that the analytical system was operating within control; therefore, corrective action is deemed unnecessary. The laboratory noted that the sample size used in the preparation of the MS and MSD for sample J1V142 exceeded 10% difference. As the RPD calculation is based upon the MS/MSD concentration as opposed to the MS/MSD percent recovery, elevated %RPD values were obtained.

The MSD aliquot of the MS/MSD performed on sample J1V153 exhibited percent recoveries outside the control limits for Acetone and Chloroform, and the associated sample results have been flagged "T". In addition, RPD limits were exceeded. The acceptable LCS analysis data indicated that the analytical system was operating within control; therefore, corrective action is deemed unnecessary. The laboratory noted that the sample size used in the preparation of the MS and MSD for sample J1V153 exceeded 10% difference. As the RPD calculation is based upon the MS/MSD concentration as opposed to the MS/MSD percent recovery, elevated %RPD values were obtained.

No other anomalies were encountered.

GC SEMIVOLATILES - SW846 8081A - Pesticides
Surrogate Decachlorobiphenyl was recovered outside the control limits, biased low, in samples J1V143, J1V146, J1V150 and J1V151. The laboratory noted that this anomaly is due to obvious matrix interference; therefore, corrective action is deemed unnecessary. Samples had numerous non-target peaks and significant baseline rise interfering with identification and quantitation of the surrogate.

The RPD between the primary and confirmation columns exceeded 40% for 4,4'-DDT in samples J1V148 and J1V150. The lower of the two values has been reported, as matrix interference is evident. The results have been flagged with an "X".

The MS aliquot of the MS/MSD performed on sample J1V142 exhibited the percent recovery outside the control limits for beta-BHC, and the associated sample result has been flagged "N". The acceptable LCS analysis data indicated that the analytical system was operating within control; therefore, corrective action is deemed unnecessary.

The Initial Calibration Verification (ICV) standard demonstrated a low bias for Endosulfan II (-25%) and a high bias for Methoxychlor (+18%) on the primary column. These analytes were in control on the confirmation column, and there were no tentative detections in the samples (peaks requiring second column confirmation). As there is no bias on the confirmation column and the method detection limit is valid for evaluating non-detected results, corrective action is deemed unnecessary and data for the affected analytes are reported from the column that is in control.

A Continuing Calibration Verification (CCV) standard associated with samples J1V144, J1V145, J1V148 and J1V152 exhibited %Difference (%D) values >15%, biased high, for 4,4'-DDT (+24%, +18%). The samples associated with this CCV were non-detect or less than the RL for the affected analyte; therefore, corrective action is deemed unnecessary.

No other anomalies were encountered.

GC SEMIVOLATILES - SW846 8082 - PCBs
No anomalies were encountered.

GC SEMIVOLATILES - NWTPH-Dx - DRO
No anomalies were encountered.

HPLC - SW846 8310 - PAHs
The MS/MSD performed on sample J1V141 exhibited spike compound recoveries outside the control limits, and the associated sample results have been flagged "N". The acceptable LCS analysis data indicated that the analytical system was operating within control; therefore, corrective action is deemed unnecessary.

No other anomalies were encountered.

TOTAL METALS - SW846 6010B/7471A
Serial dilution of a digestate in batch 280-249878 indicates that physical and chemical interferences are present for several elements. Results have been flagged with an "X".

Each sample is analyzed to achieve the lowest possible reporting limits within the constraints of the methods. Samples J1V144, J1V145 and J1V152 required a 5X dilution prior to the analysis of Antimony, Beryllium, Cobalt, Copper, Lead and Vanadium to minimize the interference caused by Titanium concentrations greater than the linear range. The reporting limits have been adjusted relative to the dilution required.

Each sample is analyzed to achieve the lowest possible reporting limits within the constraints of the methods. Due to matrix interferences, the Beryllium analysis of samples J1V141, J1V142, J1V146, J1V147, J1V148, J1V149, J1V150 and J1V151 had to be performed at dilutions. The reporting limits have been adjusted relative to the dilutions required.

Low levels of Barium, Manganese and Silicon are present in the method blank associated with batch 280-249878. 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.

Aluminum and Iron are present at levels greater than the reporting limits in the method blank associated with batch 280-249878. 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 J1V140; therefore, control limits are not applicable.

The Matrix Spike performed on sample J1V140 exhibited the percent recovery outside the control limits for Silicon, and the Matrix Spike performed on sample J1V153 exhibited the percent recovery outside the control limits for Aluminum. The associated sample results have been flagged "N". There is no indication that the analytical systems were operating out of control, and method accuracy has been verified by the acceptable LCS analysis data; therefore, corrective action is deemed unnecessary.

The duplicate analysis of sample J1V140 exceeded the RPD limit for Mercury, and the duplicate analysis of sample J1V153 exceeded the RPD limit for Iron. The associated sample results have been flagged "M". There is no indication that the analytical systems were operating out of control, and method accuracy has been verified by the acceptable LCS analysis data; therefore, corrective action is deemed unnecessary.

No other anomalies were encountered.

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

GENERAL CHEMISTRY - SW846 9056M - ANIONS
The Matrix Spike performed on sample J1V141 exhibited the percent recovery outside the control limits for Orthophosphate as P, and the Matrix Spike performed on sample J1V152 exhibited percent recoveries outside the control limits for Orthophosphate as P and Sulfate. The associated sample results have been flagged "N". There is no indication that the analytical systems were operating out of control, and method accuracy has been verified by the acceptable LCS analysis data; therefore, corrective action is deemed unnecessary.

No other anomalies were encountered.

Washington Closure Hanford

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

RC-075-456 | Page 1 of 3

Collector: W. Sexsmith	Company Contact: Joan Kessner	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Price Code: 8B	Data Turnaround: 7 days		
Project Designation: 100-D/DR Field Remediation	Sampling Location: 100-D-99, Verification, stockpile area		SAF No.: RC-075
Ice Chest No.: ERC-02-407	Field Logbook No.: EL-1662-03	COA: 010D992000	Method of Shipment: Commercial Carrier — fed EX
Shipped To: TestAmerica Denver	Offsite Property No.: A131276-278		Bill of Lading/Air Bill No.: see OSPC

Other Labs Shipped To: TestAmerica Richland

POSSIBLE SAMPLE HAZARDS/REMARKS: None

Special Handling and/or Storage: None

Sample No.	Matrix	Sample Date	Sample Time	Preservation	Type of Container	No. of Container(s)	Volume	Sample Analysis						
				Cool 4C	G/P	1	250mL	See item (1) in Special Instructions	IC Anions - 9056 Modified; NO2/NO3 - 353.2	Pesticides - 8081	TPH-Diesel Range - WTPH-D +	PCBs - 8082	PAHs - 8310	VOA - 5035/8260 (TCL)
J1V140	SOIL	10/22/14	0842	Cool 4C	G/P	1	250mL	✓	✓	✓	✓	✓	✓	✓
J1V141	SOIL	10/22/14	0851	Cool 4C	G/P	1	250mL	✓	✓	✓	✓	✓	✓	✓
J1V142	SOIL	10/22/14	0910	Cool 4C	G/P	1	250mL	✓	✓	✓	✓	✓	✓	✓
J1V143	SOIL	10/22/14	0924	Cool 4C	G/P	1	250mL	✓	✓	✓	✓	✓	✓	✓
J1V144	SOIL	10/22/14	0818	Cool 4C	G/P	1	250mL	✓	✓	✓	✓	✓	✓	✓
				Cool 4C	aG	1	250mL							
				Cool 4C	aG	1	125mL							
				Cool 4C	aG	1	250mL							
				Cool 4C	aG	1	250mL							
				Freeze	aGs*	5	40mL							**

Page 1 of 2

CHAIN OF POSSESSION

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Whitney T. Sexsmith	10/22/14 1055	DWSHEA	10/22/14 1055
DWSHEA	10/22/14 1735	C. Bingham	10-22-14 1735
C. Bingham	10-22-14 1740	1060, Battelle, fridge #1B	10-22-14 1740
Battelle, fridge #1B	10-23-14 0855	C. Bingham	10-23-14 0855
C. Bingham WCH	10-23-14 0900	fed EX	
			10/24/14 10:00

Sign/Print Names

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

ECH-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}

10-23-14 CMB

* 20ml vial → % moisture

** freeze upon receipt

VOA samples frozen upon collection

REVIEWED BY KW DATE 10/23/14

3.9, 2.8, 0.3, 2.2
0.3, 5.6, 0.4
IR6 CF=0.0
Transfer by MG 10/24/14

JP0874

Washington Closure Hanford

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

RC-075-456

Collector: W. Luxsmith	Company Contact: Joan Kessner	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Project Designation: 100-D/DR Field Remediation	Sampling Location: 100-D-99, Verification, stockpile area		SAF No.: RC-075
Ice Chest No.: ERC-02-407	Field Logbook No.: EL-1662-03	COA: 010D992000	Method of Shipment: Commercial Carrier — fed EX
Shipped To: TestAmerica Denver	Offsite Property No.: A131276-278		Bill of Lading/Air Bill No.: see OSPC

Price Code: 8B

Data Turnaround: 7 days

Other Labs Shipped To: TestAmerica Richland

POSSIBLE SAMPLE HAZARDS/REMARKS

None

Special Handling and/or Storage

None

Sample No.	Matrix	Sample Date	Sample Time	Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Freeze			
				Type of Container	G/P	G/P	aG	aG	aG	aG	aGs*			
				No. of Container(s)	1	1	1	1	1	1	5			
				Volume	250mL	250mL	250mL	125mL	250mL	250mL	40mL			
				Sample Analysis	See item (1) in Special Instructions	IC Anions - 9056 Modified; NO2/NO3 - 353.2	Pesticides - 8081	TPH-Diesel Range - WTPH-D +	PCBs - 8082	PAHs - 8310	** VOA - 5035/8260 (TCL)			
J1V145	SOIL	10/22/14	0802	✓	✓	✓	✓	✓	✓	✓				
J1V146	SOIL	10/22/14	0940	✓	✓	✓	✓	✓	✓	✓				
J1V147	SOIL	10/22/14	0949	✓	✓	✓	✓	✓	✓	✓				
J1V148	SOIL	10/22/14	1005	✓	✓	✓	✓	✓	✓	✓				
J1V149	SOIL	10/22/14	1015	✓	✓	✓	✓	✓	✓	✓				

CHAIN OF POSSESSION

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Whitney T. Luxsmith	10/22/14 1055	DWSHEA DWSHEA	10/22/14 1055
DWSHEA DWSHEA	10/22/14 1735	C Bingham	10-22-14 1735
C Bingham	10-22-14 1740	1060 Battelle, fridge #1B	10-22-14 1740
1060 Battelle, fridge #1B	10-23-14 0855	C Bingham	10-23-14 0855
C Bingham WCH	10-23-14 0900	fed EX	
			10/24/14 10:00

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

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}

* 20 ml vial → % moisture 10-23-14 CMB

** freeze upon receipt

VOA samples frozen upon collection

REVIEWED BY KW DATE 10/23/14

JP0874

WCH-EE-011

Washington Closure Hanford

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

RC-075-456

Collector: W. Sexsmith	Company Contact: Joan Kessner	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Project Designation: 100-D/DR Field Remediation	Sampling Location: 100-D-99, Verification, stockpile area		SAF No.: RC-075
Ice Chest No.: ERC-02-407	Field Logbook No.: EL-1662-03	COA: 010D992000	Method of Shipment: Commercial Carrier — fed EX
Shipped To: TestAmerica Denver	Offsite Property No.: A131276-278		Bill of Lading/Air Bill No.: See OSPC

Price Code: 8B

Data Turnaround: 7 days

Other Labs Shipped To: TestAmerica Richland

POSSIBLE SAMPLE HAZARDS/REMARKS

None

Special Handling and/or Storage

None

Sample No.	Matrix	Sample Date	Sample Time	Preservation	Type of Container	No. of Container(s)	Volume	Sample Analysis: See item (1) in Special Instructions	Sample Analysis: IC Anions - 9056 Modified; NO2/NO3 - 353.2	Sample Analysis: Pesticides - 8081	Sample Analysis: TPH-Diesel Range - WTPH-D +	Sample Analysis: PCBs - 8082	Sample Analysis: PAHs - 8310	Sample Analysis: VOA - 5035/8260 (TCL)
				Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Freeze
				G/P	G/P	aG	aG	aG	aG	aG	aG	aG	aG	aGs*
				1	1	1	1	1	1	1	1	1	1	5
				250mL	250mL	250mL	125mL	250mL	250mL	40mL				
J1V150	SOIL	10/22/14	1027	✓	✓	✓	✓	✓	✓	✓				
J1V151	SOIL	10/22/14	1042	✓	✓	✓	✓	✓	✓	✓				
J1V152	SOIL	10/22/14	0818	✓	✓	✓	✓	✓	✓	✓				
J1V153	SOIL	10/22/14	0753	✓	—	10-23-14 CMB		—						✓

CHAIN OF POSSESSION

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time	Sign/Print Names
Sidney T. Sexsmith	10/22/14 1055	DWSHEA DWSHEA	10/22/14 1055	
DWSHEA DWSHEA	10/22/14 1735	C. Bingham	10-22-14 1735	
C. Bingham	10-22-14 1740	1060 Battelle, fridge #1B	10-22-14 1740	
1060 Battelle, fridge #1B	10-23-14 0855	C. Bingham	10-23-14 0855	
C. Bingham WCH	10-23-14 0900	fed EX		
			10/24/14 10:00	

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}

* 20 ml vial → % moisture 10-23-14 CMB

** freeze upon receipt

VOA samples frozen upon collection

REVIEWED BY KW DATE 10/22/14

JP 0874

FINAL SAMPLE DISPOSITION

Disposal Method: | Disposed By: | Date/Time:

WCH-EE-011

Washington Closure Hanford

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

RC-075-458

Page 1 of 1

Collector: W. Sexsmith	Company Contact: Joan Kessner	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Price Code: 8B	Data Turnaround: 7days		
Project Designation: 100-D/DR Field Remediation	Sampling Location: 100-D-99, Verification, VOA trip blank		SAF No.: RC-075
Ice Chest No.: ERC-02-407	Field Logbook No.: EL-1662-03	COA: 010D992000	Method of Shipment: Commercial Carrier fed EX
Shipped To: TestAmerica Denver	Offsite Property No.: A131276-278		Bill of Lading/Air Bill No.: See OSPC

Other Labs Shipped To: NA

POSSIBLE SAMPLE HAZARDS/REMARKS: None

Special Handling and/or Storage: None

Preservation	Freeze											
Type of Container	aGs*											
No. of Container(s)	5											
Volume	40mL											
Sample Analysis	VOA-5035/8260 (TCL)											

Sample No.	Matrix	Sample Date	Sample Time		
JN2155	SOIL	10/22/14	0747	✓	

Page 180 of 197

CHAIN OF POSSESSION

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
W. Kay T. Sexsmith	10/22/14 1055	DWSHEA	10/22/14 1055
DWSHEA	10/22/14 1735	C. Bingham	10-22-14 1735
C. Bingham	10-22-14 1740	1060 Battelle fridge #1B	10-22-14 1740
1060 Battelle fridge #1B	10-23-14 0855	C. Bingham	10-23-14 0855
C. Bingham WCH	10-23-14 0900	fed EX	
			10/24/14 1000

Sign/Print Names

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

SPECIAL INSTRUCTIONS: 10-23-14 CMB

*20 ml vial → % moisture

**freeze upon receipt

VOA samples frozen upon collection

REVIEWED BY KW DATE 10/23/14

~~JP0875~~ 10-23-14 CMB

JP0874

WCH-EE-011

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Certificate of Analysis

Washington Hanford Closure
2620 Fermi Avenue
Richland, WA 99354

October 29, 2014

Attention: Joan Kessner

SAF Number	:	RC-075
Date SDG Closed	:	October 23, 2014
Number of Samples	:	Thirteen (13)
Sample Type	:	Soil
SDG Number	:	JP0874
Data Deliverable	:	7-Day / Summary

CASE NARRATIVE

I. Introduction

On October 23, 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
J1V140	M5C39	SOIL	10/23/14
J1V141	M5C4A	SOIL	10/23/14
J1V142	M5C4C	SOIL	10/23/14
J1V143	M5C4D	SOIL	10/23/14
J1V144	M5C4E	SOIL	10/23/14
J1V145	M5C4F	SOIL	10/23/14
J1V146	M5C4G	SOIL	10/23/14
J1V147	M5C4H	SOIL	10/23/14
J1V148	M5C4J	SOIL	10/23/14
J1V149	M5C4K	SOIL	10/23/14
J1V150	M5C4L	SOIL	10/23/14
J1V151	M5C4M	SOIL	10/23/14
J1V152	M5C4N	SOIL	10/23/14

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 (J1V140) and sample matrix spike (J1V140) 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

TestAmerica Laboratories, Inc.

Washington Closure Hanford

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

RC-075-456

Collector: W. Smith	Company Contact: Joan Kessner	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Project Designation: 100-D/DR Field Remediation	Sampling Location: 100-D-99, Verification, stockpile area		SAF No.: RC-075
Ice Chest No.: AFS-04-0121 10-23-14 OMC	Field Logbook No.: EL-1662-03	COA: 010D992000	Method of Shipment: Local Delivery
Shipped To: TestAmerica Richland	Offsite Property No.: NA		Bill of Lading/Air Bill No.: NA

Price Code: 8B

Data Turnaround: 7days

Other Labs Shipped To: TestAmerica Denver

POSSIBLE SAMPLE HAZARDS/REMARKS

None

Special Handling and/or Storage

None

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								
J1V140 M5C39	SOIL	10/22/14	0842	✓							
J1V141 M5C4A	SOIL	10/22/14	0851	✓							
J1V142 M5C4C	SOIL	10/22/14	0910	✓							
J1V143 M5C4D	SOIL	10/22/14	0924	✓							
J1V144 M5C4E	SOIL	10/22/14	0818	✓							

CHAIN OF POSSESSION

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time	Sign/Print Names
Gray T. Smith	10/22/14 1055	DWSheaDWSHEA	10/22/14 1055	
DWSheaDWSHEA	10/22/14 1735	C. Bingham	10-22-14 1735	
C. Bingham	10-22-14 1740	1060 Battelle, fndse #1B	10-22-14 1740	
1060 Battelle, fndse #1B	10-23-14 0855	C Bingham	10-23-14 0855	
C. Bingham	10-23-14 1430	J. Fricst	10/23/14 1430	

FINAL SAMPLE DISPOSITION

Disposal Method: | Disposed By: | Date/Time:

WCH-EE-011

SPECIAL INSTRUCTIONS

J4J230437

Due 10-30-14

SDG:

JP0874

J4J230437

REVIEWED BY KW DATE 10/23/14

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-075-456	Page 2 of 3

Collector	Company Contact	Telephone No.	Project Coordinator	Price Code	Data Turnaround
W. Sexsmith	Joan Kessner	375-4688	KESSNER, JH	8B	7days
Project Designation	**Sampling Location**		**SAF No.**		
100-D/DR Field Remediation	100-D-99, Verification, stockpile area		RC-075		
Ice Chest No.	**Field Logbook No.**	**COA**	**Method of Shipment**		
AFS-04-121	EL-1662-03	010D992000	Local Delivery		
Shipped To	**Offsite Property No.**		**Bill of Lading/Air Bill No.**		
TestAmerica Richland	NA		NA		

Other Labs Shipped To: TestAmerica Denver

POSSIBLE SAMPLE HAZARDS/REMARKS
None

Special Handling and/or Storage
None

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								
J1V145 MSC4F	SOIL	10/22/14	0802	✓							
J1V146 MSC4G	SOIL	10/22/14	0940	✓							
J1V147 MSC4H	SOIL	10/22/14	0949	✓							
J1V148 MSC4J	SOIL	10/22/14	1008	✓							
J1V149 MSC4K	SOIL	10/22/14	1015	✓							

CHAIN OF POSSESSION

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Whitney T. Sexsmith	10/22/14 1055	DWSHEA DWSHEA	10/22/14 1055
DWSHEA DWSHEA	10/22/14 1735	C. Bingham	10-22-14 1735
C. Bingham	10-22-14 1740	1060 Battelle, fndge #1B	10-22-14 1740
1060 Battelle, fndge #1B	10-23-14 0855	C. Bingham	10-23-14 0855
C. Bingham WCH	10-23-14 1430	J. Friese	10/23/14 1430

Sign/Print Names

SPECIAL INSTRUCTIONS

J4J230437
Due 10-30-14

REVIEWED BY KW DATE 10/23/14

JP0874

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

WCH-EE-011

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-075-456	Page 3 of 3

Collector: W. Sexsmith	Company Contact: Joan Kessner	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Project Designation: 100-D/DR Field Remediation	Sampling Location: 100-D-99, Verification, stockpile area		SAF No.: RC-075
Ice Chest No.: AFS-04-0121 (10-23-14 cmd)	Field Logbook No.: EL-1662-03	COA: 010D992000	Method of Shipment: Local Delivery
Shipped To: TestAmerica Richland	Offsite Property No.: NA		Bill of Lading/Air Bill No.: NA

Price Code: 8B

Data Turnaround: 7days

Other Labs Shipped To: TestAmerica Denver

POSSIBLE SAMPLE HAZARDS/REMARKS: None

Special Handling and/or Storage: None

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									
J1V150 MSC4L	SOIL	10/22/14	1027	✓								
J1V151 MSC4M	SOIL	10/22/14	1042	✓								
J1V152 MSC4N	SOIL	10/22/14	0818	✓								
~~J1V153~~	~~SOIL~~	~~10/22/14~~	~~0753~~	DWS	10/22/14							

CHAIN OF POSSESSION

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Whitney T. Sexsmith	10/22/14 1035	DWSHEA DWSHEA	10/22/14 1055
DWSHEA DWSHEA	10/22/14 1735	C Bingham	10-22-14 1735
C Bingham	10-22-14 1740	1060 Battelle, fridge #18	10-22-14 1740
1060 Battelle, fridge #18	10-23-14 0855	C Bingham	10-23-14 0855
C Bingham WCH	10-23-14 1430	J. Fiser	10/23/14 1430

Sign/Print Names

SPECIAL INSTRUCTIONS

JY3230437
Due 10-30-14

REVIEWED BY KW DATE 10/23/14

JP0874

FINAL SAMPLE DISPOSITION

Disposal Method: | Disposed By: | Date/Time:

WCH-EE-011

Appendix 5

Data Validation Supporting Documentation

GENERAL CHEMISTRY ANALYSIS DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	E
PROJECT: 100-0-99			DATA PACKAGE: JP0874		
VALIDATOR: ELR		LAB: TAL		DATE: 11/22/14	
			SDG: JP0874		

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				
J1V140	J1V141	J1V142	J1V143	~~J1V146~~
J1V144	J1V145	J1V146	J1V147	J1V148
J1V149	~~J1V147~~	~~J1V148~~	~~J1V149~~	J1V150
J1V150	J1V151	J1V152		
				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 FB

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: MS - ortho - 162 + 153 - J all detect

no PAS

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:

ortho, nitrate + nitrate - >2x J/UR

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: 280-61707-1
Sdg Number: JP0874

Method Blank - Batch: 280-250205

Method: 353.2
Preparation: N/A

Lab Sample ID:	MB 280-249902/1-A	Analysis Batch:	280-250205	Instrument ID:	WC_Alp 2
Client Matrix:	Solid	Prep Batch:	N/A	Lab File ID:	C:\FLOW_4\102814.RST
Dilution:	1.0	Leach Batch:	280-249902	Initial Weight/Volume:	
Analysis Date:	10/28/2014 1840	Units:	mg/Kg	Final Weight/Volume:	
Prep Date:	N/A				
Leach Date:	10/27/2014 1426				

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

Method Reporting Limit Check - Batch: 280-250205

Method: 353.2
Preparation: N/A

Lab Sample ID:	*MRL 280-250205/18*	*Analysis Batch:*	*280-250205*	*Instrument ID:*	*WC_Alp 2*
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	C:\FLOW_4\102814.RST
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	100 mL
Analysis Date:	10/28/2014 1406	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	0.0953	95	50 - 150	B

Lab Control Sample - Batch: 280-250205

Method: 353.2
Preparation: N/A

Lab Sample ID:	LCS 280-249902/2-A	Analysis Batch:	280-250205	Instrument ID:	WC_Alp 2
Client Matrix:	Solid	Prep Batch:	N/A	Lab File ID:	C:\FLOW_4\102814.RST
Dilution:	1.0	Leach Batch:	280-249902	Initial Weight/Volume:	
Analysis Date:	10/28/2014 1559	Units:	mg/Kg	Final Weight/Volume:	
Prep Date:	N/A				
Leach Date:	10/27/2014 1426				

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Nitrate Nitrite as N-Soluble	49.7	49.58	100	90 - 110	

Client: Washington Closure Hanford

Job Number: 280-61707-1
Sdg Number: JP0874

Matrix Spike - Batch: 280-250205

Method: 353.2
Preparation: N/A

Lab Sample ID:	280-61707-1	Analysis Batch:	280-250205	Instrument ID:	WC_Alp 2
Client Matrix:	Solid	Prep Batch:	N/A	Lab File ID:	C:\FLOW_4\102814.RST
Dilution:	1.0	Leach Batch:	280-249902	Initial Weight/Volume:	
Analysis Date:	10/28/2014 1605	Units:	mg/Kg	Final Weight/Volume:	
Prep Date:	N/A				
Leach Date:	10/27/2014 1426				

Analyte	Sample Result/Qual	Spike Amount	Result	% Rec.	Limit	Qual
Nitrate Nitrite as N-Soluble	7.2	42.3	51.34	104	90 - 110	

Matrix Spike - Batch: 280-250205

Method: 353.2
Preparation: N/A

Lab Sample ID:	280-61707-11	Analysis Batch:	280-250205	Instrument ID:	WC_Alp 2
Client Matrix:	Solid	Prep Batch:	N/A	Lab File ID:	C:\FLOW_4\102814.RST
Dilution:	1.0	Leach Batch:	280-249902	Initial Weight/Volume:	
Analysis Date:	10/28/2014 1702	Units:	mg/Kg	Final Weight/Volume:	
Prep Date:	N/A				
Leach Date:	10/27/2014 1426				

Analyte	Sample Result/Qual	Spike Amount	Result	% Rec.	Limit	Qual
Nitrate Nitrite as N-Soluble	17.8	41.5	59.10	99	90 - 110	

Client: Washington Closure Hanford

Job Number: 280-61707-1
Sdg Number: JP0874

Duplicate - Batch: 280-250205

Method: 353.2
Preparation: N/A

Lab Sample ID:	280-61707-1	Analysis Batch:	280-250205	Instrument ID:	WC_Alp 2
Client Matrix:	Solid	Prep Batch:	N/A	Lab File ID:	C:\FLOW_4\102814.RST
Dilution:	1.0	Leach Batch:	280-249902	Initial Weight/Volume:	
Analysis Date:	10/28/2014 1603	Units:	mg/Kg	Final Weight/Volume:	
Prep Date:	N/A				
Leach Date:	10/27/2014 1426				

Analyte	Sample Result/Qual	Result	RPD	Limit	Qual
Nitrate Nitrite as N-Soluble	7.2	6.55	9	10	

Duplicate - Batch: 280-250205

Method: 353.2
Preparation: N/A

Lab Sample ID:	280-61707-11	Analysis Batch:	280-250205	Instrument ID:	WC_Alp 2
Client Matrix:	Solid	Prep Batch:	N/A	Lab File ID:	C:\FLOW_4\102814.RST
Dilution:	1.0	Leach Batch:	280-249902	Initial Weight/Volume:	
Analysis Date:	10/28/2014 1700	Units:	mg/Kg	Final Weight/Volume:	
Prep Date:	N/A				
Leach Date:	10/27/2014 1426				

Analyte	Sample Result/Qual	Result	RPD	Limit	Qual
Nitrate Nitrite as N-Soluble	17.8	17.91	0.4	10	

Client: Washington Closure Hanford

Job Number: 280-61707-1
Sdg Number: JP0874

Method Blank - Batch: 280-250020

Method: 9056M
Preparation: N/A

Lab Sample ID:	MB 280-250072/2-A	Analysis Batch:	280-250020	Instrument ID:	WC_IonChrom11
Client Matrix:	Solid	Prep Batch:	N/A	Lab File ID:	0015.d
Dilution:	1.0	Leach Batch:	280-250072	Initial Weight/Volume:	5 mL
Analysis Date:	10/28/2014 1707	Units:	mg/Kg	Final Weight/Volume:	5 mL
Prep Date:	N/A				
Leach Date:	10/28/2014 1412				

Analyte	Result	Qual	MDL	RL
Nitrate as N-Soluble	0.31	U	0.31	2.5
Nitrite as N-Soluble	0.34	U	0.34	2.5
Orthophosphate as P-Soluble	1.2	U	1.2	5.0

Method Reporting Limit Check - Batch: 280-250020

Method: 9056M
Preparation: N/A

Lab Sample ID:	MRL 280-250020/3	Analysis Batch:	280-250020	Instrument ID:	WC_IonChrom11
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	0010.d
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	5 mL
Analysis Date:	10/28/2014 1348	Units:	mg/L	Final Weight/Volume:	5 mL
Prep Date:	N/A				
Leach Date:	N/A				

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Nitrate as N-Soluble	0.200	0.244	122	50 - 150	B
Nitrite as N-Soluble	0.200	0.228	114	50 - 150	B
Orthophosphate as P-Soluble	0.200	0.206	103	50 - 150	B

Lab Control Sample - Batch: 280-250020

Method: 9056M
Preparation: N/A

Lab Sample ID:	LCS 280-250072/1-A	Analysis Batch:	280-250020	Instrument ID:	WC_IonChrom11
Client Matrix:	Solid	Prep Batch:	N/A	Lab File ID:	0014.d
Dilution:	1.0	Leach Batch:	280-250072	Initial Weight/Volume:	5 mL
Analysis Date:	10/28/2014 1647	Units:	mg/Kg	Final Weight/Volume:	5 mL
Prep Date:	N/A				
Leach Date:	10/28/2014 1412				

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Nitrate as N-Soluble	50.0	50.22	101	90 - 110	
Nitrite as N-Soluble	50.0	48.48	97	90 - 110	
Orthophosphate as P-Soluble	50.0	51.01	102	90 - 110	

Client: Washington Closure Hanford

Job Number: 280-61707-1
Sdg Number: JP0874

Matrix Spike - Batch: 280-250020

Method: 9056M
Preparation: N/A

Lab Sample ID:	280-61707-2	Analysis Batch:	280-250020	Instrument ID:	WC_IonChrom11
Client Matrix:	Solid	Prep Batch:	N/A	Lab File ID:	0019.d
Dilution:	1.0	Leach Batch:	280-250072	Initial Weight/Volume:	5 mL
Analysis Date:	10/28/2014 1827	Units:	mg/Kg	Final Weight/Volume:	5 mL
Prep Date:	N/A				25 uL
Leach Date:	10/28/2014 1412				

Analyte	Sample Result/Qual		Spike Amount	Result	% Rec.	Limit	Qual
Nitrate as N-Soluble	1.3	B	51.8	51.46	97	80 - 120	
Nitrite as N-Soluble	0.33	U	51.8	50.98	98	80 - 120	
Orthophosphate as P-Soluble	1.2	U	51.8	83.96	162	80 - 120	N

Matrix Spike - Batch: 280-250020

Method: 9056M
Preparation: N/A

Lab Sample ID:	280-61707-13	Analysis Batch:	280-250020	Instrument ID:	WC_IonChrom11
Client Matrix:	Solid	Prep Batch:	N/A	Lab File ID:	0034.d
Dilution:	1.0	Leach Batch:	280-250072	Initial Weight/Volume:	5 mL
Analysis Date:	10/28/2014 2325	Units:	mg/Kg	Final Weight/Volume:	5 mL
Prep Date:	N/A				25 uL
Leach Date:	10/28/2014 1415				

Analyte	Sample Result/Qual		Spike Amount	Result	% Rec.	Limit	Qual
Nitrate as N-Soluble	1.1	B	50.8	49.69	96	80 - 120	
Nitrite as N-Soluble	0.34	U	50.8	49.01	97	80 - 120	
Orthophosphate as P-Soluble	1.2	U	50.8	77.91	153	80 - 120	N

Client: Washington Closure Hanford

Job Number: 280-61707-1
Sdg Number: JP0874

Duplicate - Batch: 280-250020

Method: 9056M
Preparation: N/A

Lab Sample ID:	280-61707-2	Analysis Batch:	280-250020	Instrument ID:	WC_IonChrom11
Client Matrix:	Solid	Prep Batch:	N/A	Lab File ID:	0018.d
Dilution:	1.0	Leach Batch:	280-250072	Initial Weight/Volume:	5 mL
Analysis Date:	10/28/2014 1807	Units:	mg/Kg	Final Weight/Volume:	5 mL
Prep Date:	N/A				25 uL
Leach Date:	10/28/2014 1412				

Analyte	Sample Result/Qual		Result	RPD	Limit	Qual
Nitrate as N-Soluble	1.3	B	1.27	1	15	B
Nitrite as N-Soluble	0.33	U	0.33	NC	15	U
Orthophosphate as P-Soluble	1.2	U	1.2	NC	15	U

Duplicate - Batch: 280-250020

Method: 9056M
Preparation: N/A

Lab Sample ID:	280-61707-13	Analysis Batch:	280-250020	Instrument ID:	WC_IonChrom11
Client Matrix:	Solid	Prep Batch:	N/A	Lab File ID:	0033.d
Dilution:	1.0	Leach Batch:	280-250072	Initial Weight/Volume:	5 mL
Analysis Date:	10/28/2014 2306	Units:	mg/Kg	Final Weight/Volume:	5 mL
Prep Date:	N/A				25 uL
Leach Date:	10/28/2014 1415				

Analyte	Sample Result/Qual		Result	RPD	Limit	Qual
Nitrate as N-Soluble	1.1	B	1.02	4	15	B
Nitrite as N-Soluble	0.34	U	0.34	NC	15	U
Orthophosphate as P-Soluble	1.2	U	1.2	NC	15	U

Client: Washington Closure Hanford

Job Number: 280-61707-1
Sdg Number: JP0874

Method Blank - Batch: 280-250021

Method: 9056M
Preparation: N/A

Lab Sample ID:	*MB 280-250072/2-A*	*Analysis Batch:*	*280-250021*	*Instrument ID:*	*WC_IonChrom11*
Client Matrix:	Solid	Prep Batch:	N/A	Lab File ID:	0015.d
Dilution:	1.0	Leach Batch:	280-250072	Initial Weight/Volume:	5 mL
Analysis Date:	10/28/2014 1707	Units:	mg/Kg	Final Weight/Volume:	5 mL
Prep Date:	N/A				
Leach Date:	10/28/2014 1412				

Analyte	Result	Qual	MDL	RL
Chloride-Soluble	2.0	U	2.0	5.0
Bromide-Soluble	0.39	U	0.39	2.0
Sulfate-Soluble	1.7	U	1.7	5.0
Fluoride-Soluble	0.82	U	0.82	5.0

Method Reporting Limit Check - Batch: 280-250021

Method: 9056M
Preparation: N/A

Lab Sample ID:	MRL 280-250021/3	Analysis Batch:	280-250021	Instrument ID:	WC_IonChrom11
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	0010.d
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	5 mL
Analysis Date:	10/28/2014 1348	Units:	mg/L	Final Weight/Volume:	5 mL
Prep Date:	N/A				
Leach Date:	N/A				

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Chloride-Soluble	2.50	2.37	95	50 - 150	B
Bromide-Soluble	0.200	0.224	112	50 - 150	
Sulfate-Soluble	2.50	2.42	97	50 - 150	B
Fluoride-Soluble	0.200	0.221	111	50 - 150	B

Lab Control Sample - Batch: 280-250021

Method: 9056M
Preparation: N/A

Lab Sample ID:	LCS 280-250072/1-A	Analysis Batch:	280-250021	Instrument ID:	WC_IonChrom11
Client Matrix:	Solid	Prep Batch:	N/A	Lab File ID:	0014.d
Dilution:	1.0	Leach Batch:	280-250072	Initial Weight/Volume:	5 mL
Analysis Date:	10/28/2014 1647	Units:	mg/Kg	Final Weight/Volume:	5 mL
Prep Date:	N/A				
Leach Date:	10/28/2014 1412				

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Chloride-Soluble	999	1003	100	90 - 110	
Bromide-Soluble	50.0	50.26	101	90 - 110	
Sulfate-Soluble	999	979.4	98	90 - 110	
Fluoride-Soluble	50.0	48.51	97	90 - 110	

Client: Washington Closure Hanford

Job Number: 280-61707-1
Sdg Number: JP0874

Matrix Spike - Batch: 280-250021

Method: 9056M
Preparation: N/A

Lab Sample ID:	280-61707-2	Analysis Batch:	280-250021	Instrument ID:	WC_IonChrom11
Client Matrix:	Solid	Prep Batch:	N/A	Lab File ID:	0019.d
Dilution:	1.0	Leach Batch:	280-250072	Initial Weight/Volume:	5 mL
Analysis Date:	10/28/2014 1827	Units:	mg/Kg	Final Weight/Volume:	5 mL
Prep Date:	N/A				25 uL
Leach Date:	10/28/2014 1412				

Analyte	Sample Result/Qual		Spike Amount	Result	% Rec.	Limit	Qual
Chloride-Soluble	8.1		259	222.0	83	80 - 120	
Bromide-Soluble	0.39	U	51.8	51.12	99	80 - 120	
Sulfate-Soluble	15.2		259	223.3	80	80 - 120	
Fluoride-Soluble	1.8	B	51.8	44.87	83	80 - 120	

Matrix Spike - Batch: 280-250021

Method: 9056M
Preparation: N/A

Lab Sample ID:	280-61707-13	Analysis Batch:	280-250021	Instrument ID:	WC_IonChrom11
Client Matrix:	Solid	Prep Batch:	N/A	Lab File ID:	0034.d
Dilution:	1.0	Leach Batch:	280-250072	Initial Weight/Volume:	5 mL
Analysis Date:	10/28/2014 2325	Units:	mg/Kg	Final Weight/Volume:	5 mL
Prep Date:	N/A				25 uL
Leach Date:	10/28/2014 1415				

Analyte	Sample Result/Qual		Spike Amount	Result	% Rec.	Limit	Qual
Chloride-Soluble	7.6		254	214.9	82	80 - 120	
Bromide-Soluble	0.39	U	50.8	49.51	98	80 - 120	
Sulfate-Soluble	10.7		254	210.7	79	80 - 120	N
Fluoride-Soluble	1.4	B	50.8	42.17	80	80 - 120	

Client: Washington Closure Hanford

Job Number: 280-61707-1
Sdg Number: JP0874

Duplicate - Batch: 280-250021

Method: 9056M
Preparation: N/A

Lab Sample ID:	*280-61707-2*	*Analysis Batch:*	*280-250021*	*Instrument ID:*	*WC_IonChrom11*
Client Matrix:	Solid	Prep Batch:	N/A	Lab File ID:	0018.d
Dilution:	1.0	Leach Batch:	280-250072	Initial Weight/Volume:	5 mL
Analysis Date:	10/28/2014 1807	Units:	mg/Kg	Final Weight/Volume:	5 mL
Prep Date:	N/A				25 uL
Leach Date:	10/28/2014 1412				

Analyte	Sample Result/Qual		Result	RPD	Limit	Qual
Chloride-Soluble	8.1		8.14	0.4	10	
Bromide-Soluble	0.39	U	0.39	NC	10	U
Sulfate-Soluble	15.2		15.28	0.4	10	
Fluoride-Soluble	1.8	B	1.83	2	10	B

Duplicate - Batch: 280-250021

Method: 9056M
Preparation: N/A

Lab Sample ID:	280-61707-13	Analysis Batch:	280-250021	Instrument ID:	WC_IonChrom11
Client Matrix:	Solid	Prep Batch:	N/A	Lab File ID:	0033.d
Dilution:	1.0	Leach Batch:	280-250072	Initial Weight/Volume:	5 mL
Analysis Date:	10/28/2014 2306	Units:	mg/Kg	Final Weight/Volume:	5 mL
Prep Date:	N/A				25 uL
Leach Date:	10/28/2014 1415				

Analyte	Sample Result/Qual		Result	RPD	Limit	Qual
Chloride-Soluble	7.6		7.61	0.3	10	
Bromide-Soluble	0.39	U	0.39	NC	10	U
Sulfate-Soluble	10.7		10.84	1	10	
Fluoride-Soluble	1.4	B	1.47	1	10	B

QC Results Summary

Date: 29-Oct-14

TestAmerica Inc TARL

Ordered by Method, Batch No, QC Type,.

Report No. : 63139

SDG No.: JP0874

Batch Work Order	Parameter	Result +- Uncertainty (2s)	Qual	Units	Tracer Yield	LCS Recovery	Bias	MDL
7196_CR6								
4300020 MATRIX SPIKE, J1V140								
M5C391AC	HEXCHROME	2.64E+01 +- 0.0E+00		mg/kg	N/A	83%	-0.2	1.55E-01
4300020 LCS,								
M5DJ91AC	HEXCHROME	1.87E+01 +- 0.0E+00		mg/kg	N/A	93%	-0.1	1.55E-01
4300020 BLANK QC,								
M5DJ91AA	HEXCHROME	1.55E-01 +- 0.0E+00	U	mg/kg	N/A			1.55E-01

No. of Results: 3

TestAmerica Inc
rptSTLRchQcSummary V5.3.5 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.