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

COMPLETE COPY OF FINAL VALIDATION PACKAGE TO:

Kathy Wendt H4-21

COMMENTS:

SDG JP0885 SAF-RC-107

Waste Site: 100-H-28:2

Date: 4 May 2015
To: Washington Closure Hanford Inc. (technical representative)
From: ELR Consulting
Project: 100-H Remaining Sites Burial Grounds – Soil Full Protocol - Waste Subsite 100-H-28:2
Subject: Wet Chemistry - Data Package No. JP0885-TAL

INTRODUCTION

This memo presents the results of data validation on Data Package No. JP0885 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
J1V269	12/15/14	Soil	C	See note 1
J1V270	12/15/14	Soil	C	See note 1
J1V271	12/15/14	Soil	C	See note 1
J1V272	12/15/14	Soil	C	See note 1
J1V273	12/15/14	Soil	C	See note 1
J1V274	12/15/14	Soil	C	See note 1
J1V275	12/15/14	Soil	C	See note 1
J1V276	12/15/14	Soil	C	See note 1
J1V277	12/15/14	Soil	C	See note 1
J1V278	12/15/14	Soil	C	See note 1
J1V279	12/15/14	Soil	C	See note 1
J1V280	12/15/14	Soil	C	See note 1
J1V281	12/15/14	Soil	C	See note 1
J1V282	12/15/14	Soil	C	See note 1
J1V283	12/15/14	Soil	C	See note 1
J1V284	12/15/14	Soil	C	See note 1
J1V285	12/15/14	Soil	C	See note 1

1 – IC anions by 300.0, nitrate/nitrite by 353.2, pH by 9045C 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 pH results were qualified as estimates and flagged "J".

Due to the holding time being exceeded by less than twice the limit, all nitrate, nitrite and orthophosphate results were qualified as estimated and flagged "J".

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.

All accuracy results were acceptable.

- **Precision**

Laboratory Duplicate Samples

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

All laboratory duplicate results were acceptable.

Field Duplicate

One set of field duplicates (J1V272/J1V285) 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 JP0885 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 holding time being exceeded by greater than twice the limit, all pH results were qualified as estimates and flagged "J".
- Due to the holding time being exceeded by less than twice the limit, all nitrate, nitrite and orthophosphate results were qualified as estimated 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.*

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: JP0885	**REVIEWER: ELR**	**Project: 100-H-28:2**	**PAGE_1_OF_1**
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
Nitrate Nitrite Orthophosphate pH	J	All	Hold time

* - 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: 280-63697-1
Sdg Number: JP0885

General Chemistry

Client Sample ID: **J1V269**

Lab Sample ID: 280-63697-1
Client Matrix: Solid
% Moisture: 8.2

Date Sampled: 12/15/2014 1224
Date Received: 12/17/2014 1030

Analyte	Result	Qual	Units	MDL	RL	Dil	Method
Nitrate Nitrite as N-Soluble	1.4		mg/Kg	0.39	0.81	1.0	353.2
Analysis Batch: 280-257924	Analysis Date: 12/19/2014 1227						DryWt Corrected: Y
Chloride-Soluble	12.8		mg/Kg	2.1	5.2	1.0	9056M
Analysis Batch: 280-257673	Analysis Date: 12/18/2014 1749						DryWt Corrected: Y
Nitrate as N-Soluble	2.1	B J	mg/Kg	0.33	2.6	1.0	9056M
Analysis Batch: 280-257672	Analysis Date: 12/18/2014 1749						DryWt Corrected: Y
Bromide-Soluble	0.41	U	mg/Kg	0.41	2.1	1.0	9056M
Analysis Batch: 280-257673	Analysis Date: 12/18/2014 1749						DryWt Corrected: Y
Nitrite as N-Soluble	0.98	B J	mg/Kg	0.35	2.6	1.0	9056M
Analysis Batch: 280-257672	Analysis Date: 12/18/2014 1749						DryWt Corrected: Y
Orthophosphate as P-Soluble	2.8	B J	mg/Kg	1.3	5.2	1.0	9056M
Analysis Batch: 280-257672	Analysis Date: 12/18/2014 1749						DryWt Corrected: Y
Sulfate-Soluble	12.1		mg/Kg	1.8	5.2	1.0	9056M
Analysis Batch: 280-257673	Analysis Date: 12/18/2014 1749						DryWt Corrected: Y
Fluoride-Soluble	1.6	B	mg/Kg	0.86	5.2	1.0	9056M
Analysis Batch: 280-257673	Analysis Date: 12/18/2014 1749						DryWt Corrected: Y

Analyte	Result	Qual	Units	RL	RL	Dil	Method
pH adj. to 25 deg C-Soluble	8.83	J	SU	0.100	0.100	1.0	9045C
Analysis Batch: 280-257577	Analysis Date: 12/17/2014 1927						DryWt Corrected: N
Percent Moisture	8.2		%	0.10	0.10	1.0	D-2216
Analysis Batch: 280-257765	Analysis Date: 12/18/2014 1742						DryWt Corrected: N

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

General Chemistry

Client Sample ID: **J1V270**

Lab Sample ID: 280-63697-2
Client Matrix: Solid
% Moisture: 4.6

Date Sampled: 12/15/2014 0922
Date Received: 12/17/2014 1030

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: 280-257924	Analysis Date: 12/19/2014 1233						DryWt Corrected: Y
Chloride-Soluble	2.0	U	mg/Kg	2.0	5.1	1.0	9056M
Analysis Batch: 280-257673	Analysis Date: 12/18/2014 1849						DryWt Corrected: Y
Nitrate as N-Soluble	0.83	B J	mg/Kg	0.32	2.6	1.0	9056M
Analysis Batch: 280-257672	Analysis Date: 12/18/2014 1849						DryWt Corrected: Y
Bromide-Soluble	0.40	U	mg/Kg	0.40	2.0	1.0	9056M
Analysis Batch: 280-257673	Analysis Date: 12/18/2014 1849						DryWt Corrected: Y
Nitrite as N-Soluble	0.34	U J	mg/Kg	0.34	2.6	1.0	9056M
Analysis Batch: 280-257672	Analysis Date: 12/18/2014 1849						DryWt Corrected: Y
Orthophosphate as P-Soluble	1.3	U J	mg/Kg	1.3	5.1	1.0	9056M
Analysis Batch: 280-257672	Analysis Date: 12/18/2014 1849						DryWt Corrected: Y
Sulfate-Soluble	17.2		mg/Kg	1.7	5.1	1.0	9056M
Analysis Batch: 280-257673	Analysis Date: 12/18/2014 1849						DryWt Corrected: Y
Fluoride-Soluble	1.2	B	mg/Kg	0.84	5.1	1.0	9056M
Analysis Batch: 280-257673	Analysis Date: 12/18/2014 1849						DryWt Corrected: Y

Analyte	Result	Qual	Units	RL	RL	Dil	Method
pH adj. to 25 deg C-Soluble	9.07	J	SU	0.100	0.100	1.0	9045C
Analysis Batch: 280-257577	Analysis Date: 12/17/2014 1927						DryWt Corrected: N
Percent Moisture	4.6		%	0.10	0.10	1.0	D-2216
Analysis Batch: 280-257765	Analysis Date: 12/18/2014 1742						DryWt Corrected: N

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

General Chemistry

Client Sample ID: **J1V271**

Lab Sample ID: 280-63697-3
Client Matrix: Solid

% Moisture: 1.8

✓ 4/30/15

Date Sampled: 12/15/2014 1029
Date Received: 12/17/2014 1030

Analyte	Result	Qual	Units	MDL	RL	Dil	Method
Nitrate Nitrite as N-Soluble	0.36	U	mg/Kg	0.36	0.76	1.0	353.2
Analysis Batch: 280-257924	Analysis Date: 12/19/2014 1235						DryWt Corrected: Y
Chloride-Soluble	2.0	U	mg/Kg	2.0	5.0	1.0	9056M
Analysis Batch: 280-257673	Analysis Date: 12/18/2014 1909						DryWt Corrected: Y
Nitrate as N-Soluble	0.32	U J	mg/Kg	0.32	2.5	1.0	9056M
Analysis Batch: 280-257672	Analysis Date: 12/18/2014 1909						DryWt Corrected: Y
Bromide-Soluble	0.39	U	mg/Kg	0.39	2.0	1.0	9056M
Analysis Batch: 280-257673	Analysis Date: 12/18/2014 1909						DryWt Corrected: Y
Nitrite as N-Soluble	0.34	U J	mg/Kg	0.34	2.5	1.0	9056M
Analysis Batch: 280-257672	Analysis Date: 12/18/2014 1909						DryWt Corrected: Y
Orthophosphate as P-Soluble	1.2	U J	mg/Kg	1.2	5.0	1.0	9056M
Analysis Batch: 280-257672	Analysis Date: 12/18/2014 1909						DryWt Corrected: Y
Sulfate-Soluble	8.2		mg/Kg	1.7	5.0	1.0	9056M
Analysis Batch: 280-257673	Analysis Date: 12/18/2014 1909						DryWt Corrected: Y
Fluoride-Soluble	0.83	U	mg/Kg	0.83	5.0	1.0	9056M
Analysis Batch: 280-257673	Analysis Date: 12/18/2014 1909						DryWt Corrected: Y

Analyte	Result	Qual	Units	RL	RL	Dil	Method
pH adj. to 25 deg C-Soluble	9.16	J	SU	0.100	0.100	1.0	9045C
Analysis Batch: 280-257577	Analysis Date: 12/17/2014 1927						DryWt Corrected: N
Percent Moisture	1.8		%	0.10	0.10	1.0	D-2216
Analysis Batch: 280-257765	Analysis Date: 12/18/2014 1742						DryWt Corrected: N

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

General Chemistry

Client Sample ID: **J1V272**

Lab Sample ID: 280-63697-4
Client Matrix: Solid

% Moisture: 8.3

Date Sampled: 12/15/2014 0856
Date Received: 12/17/2014 1030

Analyte	Result	Qual	Units	MDL	RL	Dil	Method
Nitrate Nitrite as N-Soluble	0.39	U	mg/Kg	0.39	0.81	1.0	353.2
Analysis Batch: 280-257924	Analysis Date: 12/19/2014 1237						DryWt Corrected: Y
Chloride-Soluble	2.2	U	mg/Kg	2.2	5.4	1.0	9056M
Analysis Batch: 280-257673	Analysis Date: 12/18/2014 1928						DryWt Corrected: Y
Nitrate as N-Soluble	0.88	B J	mg/Kg	0.34	2.7	1.0	9056M
Analysis Batch: 280-257672	Analysis Date: 12/18/2014 1928						DryWt Corrected: Y
Bromide-Soluble	0.42	U	mg/Kg	0.42	2.2	1.0	9056M
Analysis Batch: 280-257673	Analysis Date: 12/18/2014 1928						DryWt Corrected: Y
Nitrite as N-Soluble	0.36	U J	mg/Kg	0.36	2.7	1.0	9056M
Analysis Batch: 280-257672	Analysis Date: 12/18/2014 1928						DryWt Corrected: Y
Orthophosphate as P-Soluble	2.4	B J	mg/Kg	1.3	5.4	1.0	9056M
Analysis Batch: 280-257672	Analysis Date: 12/18/2014 1928						DryWt Corrected: Y
Sulfate-Soluble	13.2		mg/Kg	1.8	5.4	1.0	9056M
Analysis Batch: 280-257673	Analysis Date: 12/18/2014 1928						DryWt Corrected: Y
Fluoride-Soluble	1.6	B	mg/Kg	0.89	5.4	1.0	9056M
Analysis Batch: 280-257673	Analysis Date: 12/18/2014 1928						DryWt Corrected: Y

Analyte	Result	Qual	Units	RL	RL	Dil	Method
pH adj. to 25 deg C-Soluble	9.74	J	SU	0.100	0.100	1.0	9045C
Analysis Batch: 280-257577	Analysis Date: 12/17/2014 1927						DryWt Corrected: N
Percent Moisture	8.3		%	0.10	0.10	1.0	D-2216
Analysis Batch: 280-257765	Analysis Date: 12/18/2014 1742						DryWt Corrected: N

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

General Chemistry

Client Sample ID: J1V273

Lab Sample ID: 280-63697-5
Client Matrix: Solid

% Moisture: 3.0

Date Sampled: 12/15/2014 1002
Date Received: 12/17/2014 1030

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: 280-257924	Analysis Date: 12/19/2014 1251						DryWt Corrected: Y
Chloride-Soluble	2.0	U	mg/Kg	2.0	5.0	1.0	9056M
Analysis Batch: 280-257673	Analysis Date: 12/18/2014 1948						DryWt Corrected: Y
Nitrate as N-Soluble	0.31	U J	mg/Kg	0.31	2.5	1.0	9056M
Analysis Batch: 280-257672	Analysis Date: 12/18/2014 1948						DryWt Corrected: Y
Bromide-Soluble	0.39	U	mg/Kg	0.39	2.0	1.0	9056M
Analysis Batch: 280-257673	Analysis Date: 12/18/2014 1948						DryWt Corrected: Y
Nitrite as N-Soluble	0.33	U J	mg/Kg	0.33	2.5	1.0	9056M
Analysis Batch: 280-257672	Analysis Date: 12/18/2014 1948						DryWt Corrected: Y
Orthophosphate as P-Soluble	1.2	U J	mg/Kg	1.2	5.0	1.0	9056M
Analysis Batch: 280-257672	Analysis Date: 12/18/2014 1948						DryWt Corrected: Y
Sulfate-Soluble	7.9		mg/Kg	1.7	5.0	1.0	9056M
Analysis Batch: 280-257673	Analysis Date: 12/18/2014 1948						DryWt Corrected: Y
Fluoride-Soluble	0.81	U	mg/Kg	0.81	5.0	1.0	9056M
Analysis Batch: 280-257673	Analysis Date: 12/18/2014 1948						DryWt Corrected: Y

Analyte	Result	Qual	Units	RL	RL	Dil	Method
pH adj. to 25 deg C-Soluble	9.42	J	SU	0.100	0.100	1.0	9045C
Analysis Batch: 280-257577	Analysis Date: 12/17/2014 1927						DryWt Corrected: N
Percent Moisture	3.0		%	0.10	0.10	1.0	D-2216
Analysis Batch: 280-257765	Analysis Date: 12/18/2014 1742						DryWt Corrected: N

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

General Chemistry

Client Sample ID: **J1V274**

Lab Sample ID: 280-63697-6
Client Matrix: Solid

% Moisture: 3.0

Rj 4/30/15

Date Sampled: 12/15/2014 1106
Date Received: 12/17/2014 1030

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: 280-257924	Analysis Date: 12/19/2014 1253						DryWt Corrected: Y
Chloride-Soluble	2.0	U	mg/Kg	2.0	5.0	1.0	9056M
Analysis Batch: 280-257673	Analysis Date: 12/18/2014 2008						DryWt Corrected: Y
Nitrate as N-Soluble	0.71	B J	mg/Kg	0.31	2.5	1.0	9056M
Analysis Batch: 280-257672	Analysis Date: 12/18/2014 2008						DryWt Corrected: Y
Bromide-Soluble	0.39	U	mg/Kg	0.39	2.0	1.0	9056M
Analysis Batch: 280-257673	Analysis Date: 12/18/2014 2008						DryWt Corrected: Y
Nitrite as N-Soluble	0.33	U J	mg/Kg	0.33	2.5	1.0	9056M
Analysis Batch: 280-257672	Analysis Date: 12/18/2014 2008						DryWt Corrected: Y
Orthophosphate as P-Soluble	1.2	U J	mg/Kg	1.2	5.0	1.0	9056M
Analysis Batch: 280-257672	Analysis Date: 12/18/2014 2008						DryWt Corrected: Y
Sulfate-Soluble	8.9		mg/Kg	1.7	5.0	1.0	9056M
Analysis Batch: 280-257673	Analysis Date: 12/18/2014 2008						DryWt Corrected: Y
Fluoride-Soluble	0.84	B	mg/Kg	0.81	5.0	1.0	9056M
Analysis Batch: 280-257673	Analysis Date: 12/18/2014 2008						DryWt Corrected: Y

Analyte	Result	Qual	Units	RL	RL	Dil	Method
pH adj. to 25 deg C-Soluble	8.95	J	SU	0.100	0.100	1.0	9045C
Analysis Batch: 280-257577	Analysis Date: 12/17/2014 1927						DryWt Corrected: N
Percent Moisture	3.0		%	0.10	0.10	1.0	D-2216
Analysis Batch: 280-257765	Analysis Date: 12/18/2014 1742						DryWt Corrected: N

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

General Chemistry

Client Sample ID: **J1V275**

Lab Sample ID: 280-63697-7
Client Matrix: Solid

% Moisture: 2.2

4/30/15

Date Sampled: 12/15/2014 1058
Date Received: 12/17/2014 1030

Analyte	Result	Qual	Units	MDL	RL	Dil	Method
Nitrate Nitrite as N-Soluble	0.37	U	mg/Kg	0.37	0.76	1.0	353.2
Analysis Batch: 280-257924	Analysis Date: 12/19/2014 1255						DryWt Corrected: Y
Chloride-Soluble	2.0	U	mg/Kg	2.0	5.0	1.0	9056M
Analysis Batch: 280-257673	Analysis Date: 12/18/2014 2108						DryWt Corrected: Y
Nitrate as N-Soluble	0.76	B J	mg/Kg	0.32	2.5	1.0	9056M
Analysis Batch: 280-257672	Analysis Date: 12/18/2014 2108						DryWt Corrected: Y
Bromide-Soluble	0.39	U	mg/Kg	0.39	2.0	1.0	9056M
Analysis Batch: 280-257673	Analysis Date: 12/18/2014 2108						DryWt Corrected: Y
Nitrite as N-Soluble	0.34	U J	mg/Kg	0.34	2.5	1.0	9056M
Analysis Batch: 280-257672	Analysis Date: 12/18/2014 2108						DryWt Corrected: Y
Orthophosphate as P-Soluble	1.2	U J	mg/Kg	1.2	5.0	1.0	9056M
Analysis Batch: 280-257672	Analysis Date: 12/18/2014 2108						DryWt Corrected: Y
Sulfate-Soluble	7.8		mg/Kg	1.7	5.0	1.0	9056M
Analysis Batch: 280-257673	Analysis Date: 12/18/2014 2108						DryWt Corrected: Y
Fluoride-Soluble	0.82	U	mg/Kg	0.82	5.0	1.0	9056M
Analysis Batch: 280-257673	Analysis Date: 12/18/2014 2108						DryWt Corrected: Y

Analyte	Result	Qual	Units	RL	RL	Dil	Method
pH adj. to 25 deg C-Soluble	9.16	J	SU	0.100	0.100	1.0	9045C
Analysis Batch: 280-257577	Analysis Date: 12/17/2014 1927						DryWt Corrected: N
Percent Moisture	2.2		%	0.10	0.10	1.0	D-2216
Analysis Batch: 280-257765	Analysis Date: 12/18/2014 1742						DryWt Corrected: N

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

General Chemistry

Client Sample ID: J1V276

Lab Sample ID: 280-63697-8
Client Matrix: Solid
% Moisture: 8.8

Date Sampled: 12/15/2014 0935
Date Received: 12/17/2014 1030

Analyte	Result	Qual	Units	MDL	RL	Dil	Method
Nitrate Nitrite as N-Soluble	0.39	U	mg/Kg	0.39	0.81	1.0	353.2
Analysis Batch: 280-257924	Analysis Date: 12/19/2014 1257						DryWt Corrected: Y
Chloride-Soluble	2.2	U	mg/Kg	2.2	5.4	1.0	9056M
Analysis Batch: 280-257673	Analysis Date: 12/18/2014 2128						DryWt Corrected: Y
Nitrate as N-Soluble	1.2	B J	mg/Kg	0.34	2.7	1.0	9056M
Analysis Batch: 280-257672	Analysis Date: 12/18/2014 2128						DryWt Corrected: Y
Bromide-Soluble	0.42	U	mg/Kg	0.42	2.2	1.0	9056M
Analysis Batch: 280-257673	Analysis Date: 12/18/2014 2128						DryWt Corrected: Y
Nitrite as N-Soluble	0.37	U J	mg/Kg	0.37	2.7	1.0	9056M
Analysis Batch: 280-257672	Analysis Date: 12/18/2014 2128						DryWt Corrected: Y
Orthophosphate as P-Soluble	1.3	U J	mg/Kg	1.3	5.4	1.0	9056M
Analysis Batch: 280-257672	Analysis Date: 12/18/2014 2128						DryWt Corrected: Y
Sulfate-Soluble	17.9		mg/Kg	1.8	5.4	1.0	9056M
Analysis Batch: 280-257673	Analysis Date: 12/18/2014 2128						DryWt Corrected: Y
Fluoride-Soluble	1.4	B	mg/Kg	0.89	5.4	1.0	9056M
Analysis Batch: 280-257673	Analysis Date: 12/18/2014 2128						DryWt Corrected: Y

Analyte	Result	Qual	Units	RL	RL	Dil	Method
pH adj. to 25 deg C-Soluble	9.09	J	SU	0.100	0.100	1.0	9045C
Analysis Batch: 280-257577	Analysis Date: 12/17/2014 1927						DryWt Corrected: N
Percent Moisture	8.8		%	0.10	0.10	1.0	D-2216
Analysis Batch: 280-257765	Analysis Date: 12/18/2014 1742						DryWt Corrected: N

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Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

General Chemistry

Client Sample ID: **J1V277**

Lab Sample ID: 280-63697-9
Client Matrix: Solid

% Moisture: 3.1

4/30/15

Date Sampled: 12/15/2014 1115
Date Received: 12/17/2014 1030

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: 280-257924	Analysis Date: 12/19/2014 1259						DryWt Corrected: Y
Chloride-Soluble	2.0	U	mg/Kg	2.0	5.1	1.0	9056M
Analysis Batch: 280-257673	Analysis Date: 12/18/2014 2148						DryWt Corrected: Y
Nitrate as N-Soluble	0.32	U J	mg/Kg	0.32	2.6	1.0	9056M
Analysis Batch: 280-257672	Analysis Date: 12/18/2014 2148						DryWt Corrected: Y
Bromide-Soluble	0.40	U	mg/Kg	0.40	2.0	1.0	9056M
Analysis Batch: 280-257673	Analysis Date: 12/18/2014 2148						DryWt Corrected: Y
Nitrite as N-Soluble	0.34	U J	mg/Kg	0.34	2.6	1.0	9056M
Analysis Batch: 280-257672	Analysis Date: 12/18/2014 2148						DryWt Corrected: Y
Orthophosphate as P-Soluble	1.3	U J	mg/Kg	1.3	5.1	1.0	9056M
Analysis Batch: 280-257672	Analysis Date: 12/18/2014 2148						DryWt Corrected: Y
Sulfate-Soluble	18.9		mg/Kg	1.7	5.1	1.0	9056M
Analysis Batch: 280-257673	Analysis Date: 12/18/2014 2148						DryWt Corrected: Y
Fluoride-Soluble	0.87	B	mg/Kg	0.84	5.1	1.0	9056M
Analysis Batch: 280-257673	Analysis Date: 12/18/2014 2148						DryWt Corrected: Y

Analyte	Result	Qual	Units	RL	RL	Dil	Method
pH adj. to 25 deg C-Soluble	9.15	J	SU	0.100	0.100	1.0	9045C
Analysis Batch: 280-257577	Analysis Date: 12/17/2014 1927						DryWt Corrected: N
Percent Moisture	3.1		%	0.10	0.10	1.0	D-2216
Analysis Batch: 280-257765	Analysis Date: 12/18/2014 1742						DryWt Corrected: N

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

General Chemistry

Client Sample ID: **J1V278**

Lab Sample ID: 280-63697-10
Client Matrix: Solid

% Moisture: 10.0

4/30/15

Date Sampled: 12/15/2014 1158
Date Received: 12/17/2014 1030

Analyte	Result	Qual	Units	MDL	RL	Dil	Method
Nitrate Nitrite as N-Soluble	0.40	U	mg/Kg	0.40	0.83	1.0	353.2
Analysis Batch: 280-257924	Analysis Date: 12/19/2014 1301						DryWt Corrected: Y
Chloride-Soluble	2.2	U	mg/Kg	2.2	5.5	1.0	9056M
Analysis Batch: 280-257673	Analysis Date: 12/18/2014 2208						DryWt Corrected: Y
Nitrate as N-Soluble	0.34	U J	mg/Kg	0.34	2.7	1.0	9056M
Analysis Batch: 280-257672	Analysis Date: 12/18/2014 2208						DryWt Corrected: Y
Bromide-Soluble	0.43	U	mg/Kg	0.43	2.2	1.0	9056M
Analysis Batch: 280-257673	Analysis Date: 12/18/2014 2208						DryWt Corrected: Y
Nitrite as N-Soluble	0.37	U J	mg/Kg	0.37	2.7	1.0	9056M
Analysis Batch: 280-257672	Analysis Date: 12/18/2014 2208						DryWt Corrected: Y
Orthophosphate as P-Soluble	1.4	U J	mg/Kg	1.4	5.5	1.0	9056M
Analysis Batch: 280-257672	Analysis Date: 12/18/2014 2208						DryWt Corrected: Y
Sulfate-Soluble	14.8		mg/Kg	1.9	5.5	1.0	9056M
Analysis Batch: 280-257673	Analysis Date: 12/18/2014 2208						DryWt Corrected: Y
Fluoride-Soluble	0.95	B	mg/Kg	0.90	5.5	1.0	9056M
Analysis Batch: 280-257673	Analysis Date: 12/18/2014 2208						DryWt Corrected: Y

Analyte	Result	Qual	Units	RL	RL	Dil	Method
pH adj. to 25 deg C-Soluble	8.87	J	SU	0.100	0.100	1.0	9045C
Analysis Batch: 280-257577	Analysis Date: 12/17/2014 1927						DryWt Corrected: N
Percent Moisture	10		%	0.10	0.10	1.0	D-2216
Analysis Batch: 280-257765	Analysis Date: 12/18/2014 1742						DryWt Corrected: N

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

General Chemistry

Client Sample ID: **J1V279**

Lab Sample ID: 280-63697-11
Client Matrix: Solid

% Moisture: 2.3

V 4/30/15

Date Sampled: 12/15/2014 1145
Date Received: 12/17/2014 1030

Analyte	Result	Qual	Units	MDL	RL	Dil	Method
Nitrate Nitrite as N-Soluble	0.36	U	mg/Kg	0.36	0.76	1.0	353.2
Analysis Batch: 280-257924	Analysis Date: 12/19/2014 1303						DryWt Corrected: Y
Chloride-Soluble	2.0	U	mg/Kg	2.0	5.1	1.0	9056M
Analysis Batch: 280-257673	Analysis Date: 12/18/2014 2228						DryWt Corrected: Y
Nitrate as N-Soluble	0.70	B J	mg/Kg	0.32	2.5	1.0	9056M
Analysis Batch: 280-257672	Analysis Date: 12/18/2014 2228						DryWt Corrected: Y
Bromide-Soluble	0.39	U	mg/Kg	0.39	2.0	1.0	9056M
Analysis Batch: 280-257673	Analysis Date: 12/18/2014 2228						DryWt Corrected: Y
Nitrite as N-Soluble	0.34	U J	mg/Kg	0.34	2.5	1.0	9056M
Analysis Batch: 280-257672	Analysis Date: 12/18/2014 2228						DryWt Corrected: Y
Orthophosphate as P-Soluble	1.3	U J	mg/Kg	1.3	5.1	1.0	9056M
Analysis Batch: 280-257672	Analysis Date: 12/18/2014 2228						DryWt Corrected: Y
Sulfate-Soluble	10.1		mg/Kg	1.7	5.1	1.0	9056M
Analysis Batch: 280-257673	Analysis Date: 12/18/2014 2228						DryWt Corrected: Y
Fluoride-Soluble	0.83	U	mg/Kg	0.83	5.1	1.0	9056M
Analysis Batch: 280-257673	Analysis Date: 12/18/2014 2228						DryWt Corrected: Y

Analyte	Result	Qual	Units	RL	RL	Dil	Method
pH adj. to 25 deg C-Soluble	9.24	J	SU	0.100	0.100	1.0	9045C
Analysis Batch: 280-257577	Analysis Date: 12/17/2014 1927						DryWt Corrected: N
Percent Moisture	2.3		%	0.10	0.10	1.0	D-2216
Analysis Batch: 280-257765	Analysis Date: 12/18/2014 1742						DryWt Corrected: N

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Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

General Chemistry

Client Sample ID: **J1V280**

Lab Sample ID: 280-63697-12
Client Matrix: Solid
% Moisture: 4.6

Date Sampled: 12/15/2014 0949
Date Received: 12/17/2014 1030

Analyte	Result	Qual	Units	MDL	RL	Dil	Method
Nitrate Nitrite as N-Soluble	0.63	B	mg/Kg	0.37	0.78	1.0	353.2
Analysis Batch: 280-257924	Analysis Date: 12/19/2014 1305						DryWt Corrected: Y
Chloride-Soluble	2.0	U	mg/Kg	2.0	5.1	1.0	9056M
Analysis Batch: 280-257673	Analysis Date: 12/18/2014 2328						DryWt Corrected: Y
Nitrate as N-Soluble	1.1	B J	mg/Kg	0.32	2.5	1.0	9056M
Analysis Batch: 280-257672	Analysis Date: 12/18/2014 2328						DryWt Corrected: Y
Bromide-Soluble	0.40	U	mg/Kg	0.40	2.0	1.0	9056M
Analysis Batch: 280-257673	Analysis Date: 12/18/2014 2328						DryWt Corrected: Y
Nitrite as N-Soluble	0.34	U J	mg/Kg	0.34	2.5	1.0	9056M
Analysis Batch: 280-257672	Analysis Date: 12/18/2014 2328						DryWt Corrected: Y
Orthophosphate as P-Soluble	1.3	U J	mg/Kg	1.3	5.1	1.0	9056M
Analysis Batch: 280-257672	Analysis Date: 12/18/2014 2328						DryWt Corrected: Y
Sulfate-Soluble	58.7		mg/Kg	1.7	5.1	1.0	9056M
Analysis Batch: 280-257673	Analysis Date: 12/18/2014 2328						DryWt Corrected: Y
Fluoride-Soluble	0.83	U	mg/Kg	0.83	5.1	1.0	9056M
Analysis Batch: 280-257673	Analysis Date: 12/18/2014 2328						DryWt Corrected: Y

Analyte	Result	Qual	Units	RL	RL	Dil	Method
pH adj. to 25 deg C-Soluble	9.68	J	SU	0.100	0.100	1.0	9045C
Analysis Batch: 280-257577	Analysis Date: 12/17/2014 1927						DryWt Corrected: N
Percent Moisture	4.6		%	0.10	0.10	1.0	D-2216
Analysis Batch: 280-257765	Analysis Date: 12/18/2014 1742						DryWt Corrected: N

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

General Chemistry

Client Sample ID: **J1V281**

Lab Sample ID: 280-63697-13
Client Matrix: Solid

% Moisture: 9.1

Date Sampled: 12/15/2014 1018
Date Received: 12/17/2014 1030

Analyte	Result	Qual	Units	MDL	RL	Dil	Method
Nitrate Nitrite as N-Soluble	0.61	B	mg/Kg	0.39	0.83	1.0	353.2
Analysis Batch: 280-257924	Analysis Date: 12/19/2014 1307						DryWt Corrected: Y
Chloride-Soluble	2.1	U	mg/Kg	2.1	5.4	1.0	9056M
Analysis Batch: 280-257673	Analysis Date: 12/18/2014 2347						DryWt Corrected: Y
Nitrate as N-Soluble	1.3	B J	mg/Kg	0.34	2.7	1.0	9056M
Analysis Batch: 280-257672	Analysis Date: 12/18/2014 2347						DryWt Corrected: Y
Bromide-Soluble	0.42	U	mg/Kg	0.42	2.1	1.0	9056M
Analysis Batch: 280-257673	Analysis Date: 12/18/2014 2347						DryWt Corrected: Y
Nitrite as N-Soluble	0.36	U J	mg/Kg	0.36	2.7	1.0	9056M
Analysis Batch: 280-257672	Analysis Date: 12/18/2014 2347						DryWt Corrected: Y
Orthophosphate as P-Soluble	1.3	U J	mg/Kg	1.3	5.4	1.0	9056M
Analysis Batch: 280-257672	Analysis Date: 12/18/2014 2347						DryWt Corrected: Y
Sulfate-Soluble	78.9		mg/Kg	1.8	5.4	1.0	9056M
Analysis Batch: 280-257673	Analysis Date: 12/18/2014 2347						DryWt Corrected: Y
Fluoride-Soluble	1.9	B	mg/Kg	0.88	5.4	1.0	9056M
Analysis Batch: 280-257673	Analysis Date: 12/18/2014 2347						DryWt Corrected: Y

Analyte	Result	Qual	Units	RL	RL	Dil	Method
pH adj. to 25 deg C-Soluble	8.72	J	SU	0.100	0.100	1.0	9045C
Analysis Batch: 280-257577	Analysis Date: 12/17/2014 1927						DryWt Corrected: N
Percent Moisture	9.1		%	0.10	0.10	1.0	D-2216
Analysis Batch: 280-257765	Analysis Date: 12/18/2014 1742						DryWt Corrected: N

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

General Chemistry

Client Sample ID: **J1V282**

Lab Sample ID: 280-63697-14
Client Matrix: Solid

% Moisture: 1.8

Date Sampled: 12/15/2014 1208
Date Received: 12/17/2014 1030

Analyte	Result	Qual	Units	MDL	RL	Dil	Method
Nitrate Nitrite as N-Soluble	0.36	U	mg/Kg	0.36	0.76	1.0	353.2
Analysis Batch: 280-257924	Analysis Date: 12/19/2014 1309						DryWt Corrected: Y
Chloride-Soluble	2.0	U	mg/Kg	2.0	5.1	1.0	9056M
Analysis Batch: 280-257673	Analysis Date: 12/19/2014 0007						DryWt Corrected: Y
Nitrate as N-Soluble	0.32	U J	mg/Kg	0.32	2.5	1.0	9056M
Analysis Batch: 280-257672	Analysis Date: 12/19/2014 0007						DryWt Corrected: Y
Bromide-Soluble	0.40	U	mg/Kg	0.40	2.0	1.0	9056M
Analysis Batch: 280-257673	Analysis Date: 12/19/2014 0007						DryWt Corrected: Y
Nitrite as N-Soluble	0.34	U J	mg/Kg	0.34	2.5	1.0	9056M
Analysis Batch: 280-257672	Analysis Date: 12/19/2014 0007						DryWt Corrected: Y
Orthophosphate as P-Soluble	1.3	U J	mg/Kg	1.3	5.1	1.0	9056M
Analysis Batch: 280-257672	Analysis Date: 12/19/2014 0007						DryWt Corrected: Y
Sulfate-Soluble	7.4		mg/Kg	1.7	5.1	1.0	9056M
Analysis Batch: 280-257673	Analysis Date: 12/19/2014 0007						DryWt Corrected: Y
Fluoride-Soluble	0.84	B	mg/Kg	0.83	5.1	1.0	9056M
Analysis Batch: 280-257673	Analysis Date: 12/19/2014 0007						DryWt Corrected: Y

Analyte	Result	Qual	Units	RL	RL	Dil	Method
pH adj. to 25 deg C-Soluble	9.09	J	SU	0.100	0.100	1.0	9045C
Analysis Batch: 280-257577	Analysis Date: 12/17/2014 1927						DryWt Corrected: N
Percent Moisture	1.8		%	0.10	0.10	1.0	D-2216
Analysis Batch: 280-257765	Analysis Date: 12/18/2014 1742						DryWt Corrected: N

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

General Chemistry

Client Sample ID: **J1V283**

Lab Sample ID: 280-63697-15
Client Matrix: Solid

% Moisture: 9.6

Date Sampled: 12/15/2014 1133
Date Received: 12/17/2014 1030

Analyte	Result	Qual	Units	MDL	RL	Dil	Method
Nitrate Nitrite as N-Soluble	4.6	M	mg/Kg	0.40	0.83	1.0	353.2
Analysis Batch: 280-257924	Analysis Date: 12/19/2014 1323						DryWt Corrected: Y
Chloride-Soluble	2.2	U	mg/Kg	2.2	5.5	1.0	9056M
Analysis Batch: 280-257673	Analysis Date: 12/19/2014 0107						DryWt Corrected: Y
Nitrate as N-Soluble	3.9	J	mg/Kg	0.34	2.7	1.0	9056M
Analysis Batch: 280-257672	Analysis Date: 12/19/2014 0107						DryWt Corrected: Y
Bromide-Soluble	0.43	U	mg/Kg	0.43	2.2	1.0	9056M
Analysis Batch: 280-257673	Analysis Date: 12/19/2014 0107						DryWt Corrected: Y
Nitrite as N-Soluble	0.37	U J	mg/Kg	0.37	2.7	1.0	9056M
Analysis Batch: 280-257672	Analysis Date: 12/19/2014 0107						DryWt Corrected: Y
Orthophosphate as P-Soluble	2.3	B J	mg/Kg	1.4	5.5	1.0	9056M
Analysis Batch: 280-257672	Analysis Date: 12/19/2014 0107						DryWt Corrected: Y
Sulfate-Soluble	89.6		mg/Kg	1.9	5.5	1.0	9056M
Analysis Batch: 280-257673	Analysis Date: 12/19/2014 0107						DryWt Corrected: Y
Fluoride-Soluble	1.2	B	mg/Kg	0.90	5.5	1.0	9056M
Analysis Batch: 280-257673	Analysis Date: 12/19/2014 0107						DryWt Corrected: Y

Analyte	Result	Qual	Units	RL	RL	Dil	Method
pH adj. to 25 deg C-Soluble	8.99	J	SU	0.100	0.100	1.0	9045C
Analysis Batch: 280-257577	Analysis Date: 12/17/2014 1927						DryWt Corrected: N
Percent Moisture	9.6		%	0.10	0.10	1.0	D-2216
Analysis Batch: 280-257765	Analysis Date: 12/18/2014 1742						DryWt Corrected: N

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

General Chemistry

Client Sample ID: **J1V284**

Lab Sample ID: 280-63697-16
Client Matrix: Solid

% Moisture: 4.1

Date Sampled: 12/15/2014 1249
Date Received: 12/17/2014 1030

Analyte	Result	Qual	Units	MDL	RL	Dil	Method
Nitrate Nitrite as N-Soluble	1.0		mg/Kg	0.37	0.78	1.0	353.2
Analysis Batch: 280-257924	Analysis Date: 12/19/2014 1335						DryWt Corrected: Y
Chloride-Soluble	2.0	U	mg/Kg	2.0	5.1	1.0	9056M
Analysis Batch: 280-257673	Analysis Date: 12/19/2014 0127						DryWt Corrected: Y
Nitrate as N-Soluble	1.5	B J	mg/Kg	0.32	2.5	1.0	9056M
Analysis Batch: 280-257672	Analysis Date: 12/19/2014 0127						DryWt Corrected: Y
Bromide-Soluble	0.40	U	mg/Kg	0.40	2.0	1.0	9056M
Analysis Batch: 280-257673	Analysis Date: 12/19/2014 0127						DryWt Corrected: Y
Nitrite as N-Soluble	0.34	U J	mg/Kg	0.34	2.5	1.0	9056M
Analysis Batch: 280-257672	Analysis Date: 12/19/2014 0127						DryWt Corrected: Y
Orthophosphate as P-Soluble	1.3	U J	mg/Kg	1.3	5.1	1.0	9056M
Analysis Batch: 280-257672	Analysis Date: 12/19/2014 0127						DryWt Corrected: Y
Sulfate-Soluble	18.0		mg/Kg	1.7	5.1	1.0	9056M
Analysis Batch: 280-257673	Analysis Date: 12/19/2014 0127						DryWt Corrected: Y
Fluoride-Soluble	1.0	B	mg/Kg	0.83	5.1	1.0	9056M
Analysis Batch: 280-257673	Analysis Date: 12/19/2014 0127						DryWt Corrected: Y

Analyte	Result	Qual	Units	RL	RL	Dil	Method
pH adj. to 25 deg C-Soluble	9.09	J	SU	0.100	0.100	1.0	9045C
Analysis Batch: 280-257577	Analysis Date: 12/17/2014 1927						DryWt Corrected: N
Percent Moisture	4.1		%	0.10	0.10	1.0	D-2216
Analysis Batch: 280-257765	Analysis Date: 12/18/2014 1742						DryWt Corrected: N

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

General Chemistry

Client Sample ID: **J1V286**

Lab Sample ID: 280-63697-17
Client Matrix: Solid
% Moisture: 7.7

Date Sampled: 12/15/2014 0856
Date Received: 12/17/2014 1030

Analyte	Result	Qual	Units	MDL	RL	Dil	Method
Nitrate Nitrite as N-Soluble	0.38	U	mg/Kg	0.38	0.81	1.0	353.2
Analysis Batch: 280-257924	Analysis Date: 12/19/2014 1337						DryWt Corrected: Y
Chloride-Soluble	2.2	U	mg/Kg	2.2	5.4	1.0	9056M
Analysis Batch: 280-257673	Analysis Date: 12/19/2014 0147						DryWt Corrected: Y
Nitrate as N-Soluble	1.1	B J	mg/Kg	0.34	2.7	1.0	9056M
Analysis Batch: 280-257672	Analysis Date: 12/19/2014 0147						DryWt Corrected: Y
Bromide-Soluble	0.42	U	mg/Kg	0.42	2.2	1.0	9056M
Analysis Batch: 280-257673	Analysis Date: 12/19/2014 0147						DryWt Corrected: Y
Nitrite as N-Soluble	0.36	U J	mg/Kg	0.36	2.7	1.0	9056M
Analysis Batch: 280-257672	Analysis Date: 12/19/2014 0147						DryWt Corrected: Y
Orthophosphate as P-Soluble	2.6	B J	mg/Kg	1.3	5.4	1.0	9056M
Analysis Batch: 280-257672	Analysis Date: 12/19/2014 0147						DryWt Corrected: Y
Sulfate-Soluble	13.8		mg/Kg	1.8	5.4	1.0	9056M
Analysis Batch: 280-257673	Analysis Date: 12/19/2014 0147						DryWt Corrected: Y
Fluoride-Soluble	1.5	B	mg/Kg	0.88	5.4	1.0	9056M
Analysis Batch: 280-257673	Analysis Date: 12/19/2014 0147						DryWt Corrected: Y

Analyte	Result	Qual	Units	RL	RL	Dil	Method
pH adj. to 25 deg C-Soluble	9.36	J	SU	0.100	0.100	1.0	9045C
Analysis Batch: 280-257577	Analysis Date: 12/17/2014 1951						DryWt Corrected: N
Percent Moisture	7.7		%	0.10	0.10	1.0	D-2216
Analysis Batch: 280-257765	Analysis Date: 12/18/2014 1742						DryWt Corrected: N

Sample Results Summary

Date: 22-Dec-14

TestAmerica Inc TARL

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

Report No. : 64000

SDG No: JP0885

Batch	Client Id Work Order	Parameter	Result +- Uncertainty (2s)	Qual	Units	Tracer Yield	MDL	CRDL	RPD
4361024	NI63_LSC								
	J1V271								
	M5Q311AF	NI-63	1.09E+00 +- 2.8E+00	U	pCi/g	99%	6.13E+00	3.00E+01	
	J1V272								
	M5Q321AF	NI-63	1.40E+00 +- 2.9E+00	U	pCi/g	95%	6.24E+00	3.00E+01	
	J1V273								
	M5Q341AF	NI-63	-9.79E-01 +- 2.6E+00	U	pCi/g	97%	6.06E+00	3.00E+01	
	J1V274								
	M5Q361AF	NI-63	1.92E+00 +- 2.8E+00	U	pCi/g	96%	6.07E+00	3.00E+01	
	J1V275								
	M5Q4A1AF	NI-63	9.26E-01 +- 2.8E+00	U	pCi/g	95%	6.13E+00	3.00E+01	
	J1V276								
	M5Q4D1AF	NI-63	3.82E+00 +- 3.0E+00	U	pCi/g	96%	6.27E+00	3.00E+01	
	J1V277								
	M5Q4F1AF	NI-63	2.59E+00 +- 3.0E+00	U	pCi/g	97%	6.20E+00	3.00E+01	
	J1V278								
	M5Q4G1AF	NI-63	1.54E+00 +- 2.8E+00	U	pCi/g	100%	6.05E+00	3.00E+01	
	J1V279								
	M5Q4H1AF	NI-63	1.86E-01 +- 2.7E+00	U	pCi/g	97%	6.09E+00	3.00E+01	
	J1V280								
	M5Q4J1AF	NI-63	3.50E+00 +- 3.0E+00	U	pCi/g	99%	6.12E+00	3.00E+01	
	J1V281								
	M5Q4L1AF	NI-63	5.16E-01 +- 2.8E+00	U	pCi/g	94%	6.32E+00	3.00E+01	
	J1V282								
	M5Q4N1AF	NI-63	8.99E+00 +- 3.4E+00		pCi/g	95%	6.10E+00	3.00E+01	
	J1V283								
	M5Q4P1AF	NI-63	-2.02E-01 +- 2.7E+00	U	pCi/g	99%	6.13E+00	3.00E+01	
	J1V284								
	M5Q4Q1AF	NI-63	1.54E+00 +- 3.0E+00	U	pCi/g	93%	6.51E+00	3.00E+01	
	J1V285								
	M5Q4T1AF	NI-63	1.09E+00 +- 2.7E+00	U	pCi/g	100%	5.87E+00	3.00E+01	
4361054	7196_CR6								
	J1V269								
	M5Q3X1AA	HEXCHROME	1.55E-01 +- 0.0E+00	U	mg/kg	N/A	1.55E-01	1.55E-01	
	M5Q3X1AJ	HEXCHROME	1.55E-01 +- 0.0E+00	U	mg/kg	N/A	1.55E-01	1.55E-01	0.0
	J1V270								
	M5Q301AA	HEXCHROME	2.66E-01 +- 0.0E+00		mg/kg	N/A	1.55E-01	1.55E-01	
	J1V271								
	M5Q311AA	HEXCHROME	1.55E-01 +- 0.0E+00	U	mg/kg	N/A	1.55E-01	1.55E-01	
	J1V272								

TestAmerica Inc

rptTALRchSaSummary2 V5.3.5.1 A2002

RPD - Relative Percent Difference.

U Qual - Analyzed for but not detected above limiting criteria, Mde/Mda/Mdl, Total Uncert, RDL or not identified by gamma scan software.

Date: 22-Dec-14

Sample Results Summary

TestAmerica Inc TARL

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

Report No. : 64000

SDG No: JP0885

Batch	Client Id / Work Order	Parameter	Result +- Uncertainty (2s)	Qual	Units	Tracer Yield	MDL	CRDL	RPD
4351054 7198_CR6									
	J1V272								
	M5Q321AA	HEXCHROME	1.55E-01 +- 0.0E+00	U	mg/kg	N/A	1.55E-01	1.55E-01	
	J1V273								
	M5Q341AA	HEXCHROME	1.55E-01 +- 0.0E+00	U	mg/kg	N/A	1.55E-01	1.55E-01	
	J1V274								
	M5Q361AA	HEXCHROME	1.55E-01 +- 0.0E+00	U	mg/kg	N/A	1.55E-01	1.55E-01	
	J1V275								
	M5Q4A1AA	HEXCHROME	1.55E-01 +- 0.0E+00	U	mg/kg	N/A	1.55E-01	1.55E-01	
	J1V276								
	M5Q4D1AA	HEXCHROME	3.17E-01 +- 0.0E+00		mg/kg	N/A	1.55E-01	1.55E-01	
	J1V277								
	M5Q4F1AA	HEXCHROME	1.55E-01 +- 0.0E+00	U	mg/kg	N/A	1.55E-01	1.55E-01	
	J1V278								
	M5Q4G1AA	HEXCHROME	2.13E-01 +- 0.0E+00		mg/kg	N/A	1.55E-01	1.55E-01	
	J1V279								
	M5Q4H1AA	HEXCHROME	1.55E-01 +- 0.0E+00	U	mg/kg	N/A	1.55E-01	1.55E-01	
	J1V280								
	M5Q4J1AA	HEXCHROME	2.01E-01 +- 0.0E+00		mg/kg	N/A	1.55E-01	1.55E-01	
	J1V281								
	M5Q4L1AA	HEXCHROME	1.55E-01 +- 0.0E+00	U	mg/kg	N/A	1.55E-01	1.55E-01	
	J1V282								
	M5Q4N1AA	HEXCHROME	1.93E-01 +- 0.0E+00		mg/kg	N/A	1.55E-01	1.55E-01	
	J1V283								
	M5Q4P1AA	HEXCHROME	1.55E-01 +- 0.0E+00	U	mg/kg	N/A	1.55E-01	1.55E-01	
	J1V284								
	M5Q4Q1AA	HEXCHROME	1.96E-01 +- 0.0E+00		mg/kg	N/A	1.55E-01	1.55E-01	
	J1V285								
	M5Q4T1AA	HEXCHROME	2.04E-01 +- 0.0E+00		mg/kg	N/A	1.55E-01	1.55E-01	

No. of Results: 216

Fd 130/11

TestAmerica Inc

rptTALRchSaSummary2 V5.3.6.1 A2002

RPD - Relative Percent Difference.

U Qual - Analyzed for but not detected above limiting criteria, Mdc/Mda/Mdl, Total Uncert, RDL or not identified by gamma scan software.

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Appendix 4

Laboratory Narrative and Chain-of-Custody Documentation

CASE NARRATIVE
Revision 1

Client: Washington Closure Hanford

Project: WASHINGTON CLOSURE HANFORD

Job Number: 280-63697-1

SDG #: JP0885
SAF#: RC-107

Date SDG Closed: January 5, 2015
Data Deliverable: 7 Day / Summary

CLIENT ID	LAB ID	ANALYSES REQUESTED	ANALYSES PERFORMED
J1V269	280-63697-1	6010/7471/9056M/353.2/9045/8082/8270/ WTPH-D+/8310/8081	6010B/7471A/9056M/353.2/9045C/8082/8270C/ NWTPH-Dx/8310/8081A/1311-6010B-7470A
J1V270	280-63697-2	6010/7471/9056M/353.2/9045/8082/8270/ WTPH-D+/8310/8081	6010B/7471A/9056M/353.2/9045C/8082/8270C/ NWTPH-Dx/8310/8081A
J1V271	280-63697-3	6010/7471/9056M/353.2/9045/8082/8270/ WTPH-D+/8310/8081	6010B/7471A/9056M/353.2/9045C/8082/8270C/ NWTPH-Dx/8310/8081A
J1V272	280-63697-4	6010/7471/9056M/353.2/9045/8082/8270/ WTPH-D+/8310/8081	6010B/7471A/9056M/353.2/9045C/8082/8270C/ NWTPH-Dx/8310/8081A
J1V273	280-63697-5	6010/7471/9056M/353.2/9045/8082/8270/ WTPH-D+/8310/8081	6010B/7471A/9056M/353.2/9045C/8082/8270C/ NWTPH-Dx/8310/8081A
J1V274	280-63697-6	6010/7471/9056M/353.2/9045/8082/8270/ WTPH-D+/8310/8081	6010B/7471A/9056M/353.2/9045C/8082/8270C/ NWTPH-Dx/8310/8081A
J1V275	280-63697-7	6010/7471/9056M/353.2/9045/8082/8270/ WTPH-D+/8310/8081	6010B/7471A/9056M/353.2/9045C/8082/8270C/ NWTPH-Dx/8310/8081A
J1V276	280-63697-8	6010/7471/9056M/353.2/9045/8082/8270/ WTPH-D+/8310/8081	6010B/7471A/9056M/353.2/9045C/8082/8270C/ NWTPH-Dx/8310/8081A
J1V277	280-63697-9	6010/7471/9056M/353.2/9045/8082/8270/ WTPH-D+/8310/8081	6010B/7471A/9056M/353.2/9045C/8082/8270C/ NWTPH-Dx/8310/8081A
J1V278	280-63697-10	6010/7471/9056M/353.2/9045/8082/8270/ WTPH-D+/8310/8081	6010B/7471A/9056M/353.2/9045C/8082/8270C/ NWTPH-Dx/8310/8081A
J1V279	280-63697-11	6010/7471/9056M/353.2/9045/8082/8270/ WTPH-D+/8310/8081	6010B/7471A/9056M/353.2/9045C/8082/8270C/ NWTPH-Dx/8310/8081A
J1V280	280-63697-12	6010/7471/9056M/353.2/9045/8082/8270/ WTPH-D+/8310/8081	6010B/7471A/9056M/353.2/9045C/8082/8270C/ NWTPH-Dx/8310/8081A
J1V281	280-63697-13	6010/7471/9056M/353.2/9045/8082/8270/ WTPH-D+/8310/8081	6010B/7471A/9056M/353.2/9045C/8082/8270C/ NWTPH-Dx/8310/8081A
J1V282	280-63697-14	6010/7471/9056M/353.2/9045/8082/8270/ WTPH-D+/8310/8081	6010B/7471A/9056M/353.2/9045C/8082/8270C/ NWTPH-Dx/8310/8081A
J1V283	280-63697-15	6010/7471/9056M/353.2/9045/8082/8270/ WTPH-D+/8310/8081	6010B/7471A/9056M/353.2/9045C/8082/8270C/ NWTPH-Dx/8310/8081A/1311-6010B-7470A
J1V284	280-63697-16	6010/7471/9056M/353.2/9045/8082/8270/ WTPH-D+/8310/8081	6010B/7471A/9056M/353.2/9045C/8082/8270C/ NWTPH-Dx/8310/8081A
J1V285	280-63697-17	6010/7471/9056M/353.2/9045/8082/8270/ WTPH-D+/8310/8081	6010B/7471A/9056M/353.2/9045C/8082/8270C/ NWTPH-Dx/8310/8081A

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.

Revision 1
On 1/5/2015, the client requested TCLP Metals 1311/6010B/7470A analysis for samples J1V269 and J1V283. Those results are included in this report.

RECEIPT
The samples were received on 12/17/2014 10:30 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 5 coolers at receipt time were 0.5° C, 0.7° C, 1.6° C, 2.3° C and 2.9° C.

GC/MS SEMIVOLATILES - SW846 8270C
Compounds Benzo(b)fluoranthene and Benzo(k)fluoranthene were unresolved in samples J1V269 and J1V283 due to matrix interferences. It can be noted that these compounds were adequately resolved in associated standards, indicating the instrument is achieving separation. The combined peak was reported as Benzo(b)fluoranthene, while Benzo(k)fluoranthene was reported as undetected even though it may be present. Associated results have been flagged with a "K".

No other anomalies were encountered.

GC SEMIVOLATILES - SW846 8081A - Pesticides
The organic prep laboratory noted that a Florisil clean-up was performed on sample J1V270 to reduce matrix interferences.

The RPD between the primary and confirmation columns exceeded 40% for 4,4'-DDE in sample J1V270. The higher of the two values has been reported, as matrix interference is evident. The result has been flagged with an "Y".

Continuing Calibration Verification (CCV) standards associated with samples in analysis batch 280-258011 exhibited %Difference (%D) values >15%, biased high, for multiple analytes. The samples associated with these CCVs were non-detect for the affected analytes; therefore, corrective action is deemed unnecessary.

The closing Continuing Calibration Verification (CCV) standard associated with samples in analysis batch 280-258011 exhibited the %Difference (%D) value >15%, biased low, for 4,4'-DDT (-22%) and Methoxychlor (-21%) on the confirmation column. The overall mean %D is ≤15%; therefore, method criteria have been met and corrective action is deemed unnecessary. The samples associated with this CCV were non-detect for the affected analytes.

Continuing Calibration Verification (CCV) standards associated with samples in analysis batch 280-258172 exhibited %Difference (%D) values >15%, biased high, on one of the dual columns, as detailed below. The samples associated with these CCVs were either non-detect for the affected analytes or the confirmation column data confirm the detections within the method defined 40% difference; therefore, data are reported from the column that is in control and corrective action is deemed unnecessary. The sequence is as follows:

CCV: Primary: 4,4'-DDD (+21%), Methoxychlor (+19%)
Confirmation: OK
Samples: J1V270, J1V272, J1V274, J1V276, J1V278, J1V285
CCV: Primary: 4,4'-DDD (+30%), 4,4'-DDT (+16%), Endrin (+18%), Heptachlor (+16%), Methoxychlor (+17%)
Toxaphene (+18%)
Confirmation: 4,4'-DDE (+16%), alpha-BHC (+16%)

It can be noted that the closing CCV standard associated with sample J1V270 in analysis batch 280-258172 exhibited the %Difference (%D) value >15%, biased high, for 4,4'-DDE (+16%) on the confirmation column. Sample J1V270 showed an estimated detection present below the reporting limit on both columns for 4,4'-DDE; however, the detection was not confirmed within the method defined 40% difference. The 4,4'-DDE result for sample J1V270 has been reported from the primary column, which was in control.

No other anomalies were encountered.

GC SEMIVOLATILES - SW846 8082 - PCBs
The laboratory noted that a Sulfuric Acid clean-up was performed on the samples presented in this report to reduce matrix interferences.

It can be noted that Aroclor 1221 is reported from a separate injection for several samples in order to acquire/maintain the associated second column confirmation chromatographic data for the samples. Due to a system limitation, this reporting style is necessary when samples are analyzed on a non-sequential injection instrument and second column confirmation is required.

Samples J1V272, J1V284 and J1V285 contained a combination of Aroclor 1254 and Aroclor 1260 with insufficient separation to quantify individually. The samples have been quantified and reported as the predominant Aroclor.

No other anomalies were encountered.

GC SEMIVOLATILES - NWTPH-Dx - DRO
The MSD aliquot of the MS/MSD performed on sample J1V270 exhibited spike compound recoveries outside the control limits, and the associated sample results have been flagged "N". In addition, the RPD limits were exceeded. There is no indication that the analytical system was operating out of control, and method accuracy has been verified by the acceptable LCS analysis data; therefore, corrective action is deemed unnecessary.

No other anomalies were encountered.

HPLC - SW846 8310 - PAHs
The RPD between the primary and confirmation columns exceeded 40% for analytes in samples J1V269, J1V270, J1V273 and J1V275. The lower of the two values has been reported, as matrix interference is evident on both columns. Associated results have been flagged with an "X".

The MS/MSD performed on sample J1V269 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 280-257573 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. Due to high constituent concentration, sample J1V283 required a dilution prior to the analysis of Mercury. The reporting limit has been adjusted relative to the dilution required.

Silicon was recovered outside the control limits, biased low, in the LCS associated with batch 280-257573, and the associated sample results have been flagged "N". Silicon has been identified as a poor performing element when analyzed using this method and has a history of reacting inconsistently; therefore, corrective action is not initiated. Data are reported as is.

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 J1V269; therefore, control limits are not applicable.

The duplicate analysis of sample J1V269 exhibited RPD data outside the control limits for Arsenic and Lead, and the associated sample results have been flagged "M". There is no indication that the analytical system was operating out of control, and method accuracy has been verified by the acceptable LCS analysis data; therefore, corrective action is deemed unnecessary.

No other anomalies were encountered.

TCLP METALS - SW846 1311/6010B/7470A
Low levels of Arsenic, Barium, Lead and Mercury are present in the method blanks associated with batches 280-259357 and 280-259874, respectively. Because the concentrations in the method blanks are not present at levels greater than half the reporting limit, corrective action is deemed unnecessary.

The duplicate analysis of sample J1V269 exhibited RPD data outside the control limits for Mercury, and the associated sample result has been flagged "M". There is no indication that the analytical system was operating out of control, and method accuracy has been verified by the acceptable LCS analysis data; therefore, corrective action is deemed unnecessary.

No other anomalies were encountered.

GENERAL CHEMISTRY - MCAWW 353.2 - NITRATE NITRITE as N
The Nitrate Nitrite as N duplicate analysis of sample J1V283 exceeded the RPD limit, and the associated sample result has been flagged "M". There is no indication that the analytical system was operating out of control, and method accuracy has been verified by the acceptable LCS analysis data; therefore, corrective action is deemed unnecessary.

No other anomalies were encountered.

GENERAL CHEMISTRY - SW846 9056M - ANIONS
No anomalies were encountered.

GENERAL CHEMISTRY - SW846 9045C - PH
SU = standard units

No anomalies were encountered.

Washington Closure Hanford

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

RC-107-123

Collector: H. Weber

Company Contact: Joan Kessner

Telephone No.: 375-4688

Project Coordinator: KESSNER, JH

Price Code: 8B

Data Turnaround: 7days

Project Designation: 100-H Field Remediation

Sampling Location: 100-H-28:2, EXC1, verification

SAF No.: RC-107

Ice Chest No.: ERC-02-007

Field Logbook No.: EL-1627-08

COA: 01H2822000

Method of Shipment: Commercial Carrier – fed EX

Offsite Property No.: A131288

Bill of Lading/Air Bill No.: See OSR

Shipped To: TestAmerica Denver

Other Labs Shipped To: TestAmerica Richland

POSSIBLE SAMPLE HAZARDS/REMARKS: None

Special Handling and/or Storage: cool as required

Sample No.	Matrix	Sample Date	Sample Time	Sample Analysis: See item (1) in Special Instructions	See item (2) in Special Instructions	PCBs - 8082	Semi-VOA - 8270 (TCL)	TPH-Diesel Range - WTPH-D +	PAHs - 8310	Pesticides - 8081
Preservation				Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C
Type of Container				G/P	G/P	aG	aG	aG	aG	aG
No. of Container(s)				1	1	1	1	1	1	1
Volume				250mL	250mL	250mL	250mL	125mL	250mL	250mL
J1V269	SOIL	12-15-14	1224	✓	✓	✓	✓	✓	✓	✓
J1V270	SOIL	12-15-14	0922	✓	✓	✓	✓	✓	✓	✓
J1V271	SOIL	12-15-14	1029	✓	✓	✓	✓	✓	✓	✓
J1V272	SOIL	12-15-14	0856	✓	✓	✓	✓	✓	✓	✓
J1V273	SOIL	12-15-14	1002	✓	✓	✓	✓	✓	✓	✓

CHAIN OF POSSESSION

Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Heather Weber / [illegible]	12/15/14 1306	Dusha DUSHEA (WCH)	12/15/14 1306
Dusha DUSHEA	12/15/14 1545	C. Bingham	12-15-14 1545
C. Bingham	12-15-14 1600	1060 Battelle fridge	12-15-14 1600
1060 Battelle, fridge	12-16-14 0840	C. Bingham	12-16-14 0840
C. Bingham	12-16-14 0900	fed EX	
			12/17/14 10:30

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)
(2) IC Anions - 9056 Modified (Bromide, Chloride, Fluoride, Nitrogen in Nitrate, Nitrogen in Nitrite, Phosphorous in phosphate, Sulfate); NO2/NO3 - 353.2; pH (Soil) - 9045

280-63697 Chain of Custody

REVIEWED BY [illegible] DATE 12/16/14

2.4, 1.8, 1.1, 0.0, 0.2 IRS +0.5 MJ 12/19/14

JP0885

Washington Closure Hanford

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

RC-107-123

Collector: A. Weber	Company Contact: Joan Kessner	Telephone No.: 375-4888	Project Coordinator: KESSNER, JH
Price Code: 8B	Data Turnaround: 7 days		
Project Designation: 100-H Field Remediation	Sampling Location: 100-H-28:2, EXC1, verification		SAF No.: RC-107
Ice Chest No.: ERC-02-007	Field Logbook No.: EL-1627-08	COA: 01H2822000	Method of Shipment: Commercial Carrier ~ fed EX
Shipped To: TestAmerica Denver	Offsite Property No.: A131288		Bill of Lading/Air Bill No.: See OSPC

Other Labs Shipped To: TestAmerica Richland

POSSIBLE SAMPLE HAZARDS/REMARKS

None

Special Handling and/or Storage

cool as required

Sample No.	Matrix	Sample Date	Sample Time	Preservation: Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C			
				Type of Container: G/P	G/P	aG	aG	aG	aG	aG			
				No. of Container(s): 1	1	1	1	1	1	1			
				Volume: 250mL	250mL	250mL	250mL	125mL	250mL	250mL			
				Sample Analysis: See Item (1) in Special Instructions	See Item (2) in Special Instructions	PCBs - 8082	Semi-VOA - 8270 (TCL)	TPH-Diesel Range - WTPH-D +	PAHs - 8310	Pesticides - 8081			
J1V274	SOIL	12-15-14	1106	✓	✓	✓	✓	✓	✓	✓			
J1V275	SOIL	12-15-14	1058	✓	✓	✓	✓	✓	✓	✓			
J1V276	SOIL	12-15-14	0935	✓	✓	✓	✓	✓	✓	✓			
J1V277	SOIL	12-15-14	1115	✓	✓	✓	✓	✓	✓	✓			
J1V278	SOIL	12-15-14	1158	✓	✓	✓	✓	✓	✓	✓			

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CHAIN OF POSSESSION

Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Weber/Nelson/Stahl	12/15/14 1306	(WCH) Dushea Dushea	12/15/14 1306
Dushea Dushea	12/15/14 1545	C. Bingham	12-15-14 1545
C. Bingham	12-15-14 1600	1060 Battelle, fridge #14	12-15-14 1600
1060 Battelle, fridge #14	12-16-14 0840	C. Bingham	12-16-14 0840
C. Bingham WCH	12-16-14 0900	Fed EX	
			12/17/14 10:30

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)
(2) IC Anions - 9056 Modified (Bromide, Chloride, Fluoride, Nitrogen in Nitrate, Nitrogen in Nitrite, Phosphorous in phosphate, Sulfate); NO2/NO3 - 353.2; pH (Soil) - 9045

REVIEWED BY DAS DATE 12/16/14

JP0885

WCH-EE-011

Washington Closure Hanford

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

RC-107-123

Collector: W. Weber	Company Contact: Joan Kessner	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Price Code: 8B	Data Turnaround: 7 days		
Project Designation: 100-H Field Remediation	Sampling Location: 100-H-28:2, EXC1, verification		SAF No.: RC-107
Ice Chest No.: ERC-02-007	Field Logbook No.: EL-1627-08	COA: 01H2822000	Method of Shipment: Commercial Carrier - fed EX
Shipped To: TestAmerica Denver	Offsite Property No.: A131288		Bill of Lading/Air Bill No.: See OSPC

Other Labs Shipped To: TestAmerica Richland

POSSIBLE SAMPLE HAZARDS/REMARKS

None
CJ

Special Handling and/or Storage

cool as required

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C			
Type of Container	G/P	G/P	aG	aG	aG	aG	aG			
No. of Container(s)	1	1	1	1	1	1	1			
Volume	250mL	250mL	250mL	250mL	125mL	250mL	250mL			
Sample Analysis	See item (1) in Special Instructions	See item (2) in Special Instructions	PCBs - 8082	Semi-VOA - 8270 (TCL)	TPH-Diesel Range - WTPH-D +	PAHs - 8310	Pesticides - 8081			

Sample No.	Matrix	Sample Date	Sample Time									
J1V279	SOIL	12-15-14	1145	✓	✓	✓	✓	✓	✓	✓		
J1V280	SOIL	12-15-14	0949	✓	✓	✓	✓	✓	✓	✓		
J1V281	SOIL	12-15-14	1018	✓	✓	✓	✓	✓	✓	✓		
J1V282	SOIL	12-15-14	1208	✓	✓	✓	✓	✓	✓	✓		
J1V283	SOIL	12-15-14	1133	✓	✓	✓	✓	✓	✓	✓		

Page 2 of 3

CHAIN OF POSSESSION

Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Heather Weber/	12/15/14 1306	(WCH) Rushea DuShea	12/15/14 1306
Rushea DuShea	12/15/14 1545	C. Bingham	12-15-14 1545
C. Bingham	12-15-14 1600	1060 Battelle, fridge #1B	12-15-14 1600
1060 Battelle, fridge #1B	12-16-14 0840	C. Bingham	12-16-14 0840
C. Bingham WCH	12-16-14 0900	fed EX	
			12/17/14 10:30

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)
(2) IC Anions - 9056 Modified {Bromide, Chloride, Fluoride, Nitrogen in Nitrate, Nitrogen in Nitrite, Phosphorous in phosphate, Sulfate}; NO2/NO3 - 353.2; pH (Soil) - 9045

REVIEWED BY
DATE 12/16/14

JPO 885

WCH-EE-011

Washington Closure Hanford

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

RC-107-123

Collector: H Weber	Company Contact: Joan Kessner	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Price Code: 8B	Data Turnaround: 7 days		
Project Designation: 100-H Field Remediation	Sampling Location: 100-H-28:2, EXC1, verification		SAF No.: RC-107
Ice Chest No.: ERC-02-007	Field Logbook No.: EL-1627-08	COA: 01H2822000	Method of Shipment: Commercial Carrier fed EX
Shipped To: TestAmerica Denver	Offsite Property No.: A131288		Bill of Lading/Air Bill No.: See OSPC
Other Labs Shipped To: TestAmerica Richland			

POSSIBLE SAMPLE HAZARDS/REMARKS

None

Special Handling and/or Storage

cool as required

Sample No.	Matrix	Sample Date	Sample Time	Preservation: Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C			
				Type of Container: G/P	G/P	aG	aG	aG	aG	aG			
				No. of Container(s): 1	1	1	1	1	1	1			
				Volume: 250mL	250mL	250mL	250mL	125mL	250mL	250mL			
				Sample Analysis: See Item (1) in Special Instructions	See Item (2) in Special Instructions	PCBs - 8082	Semi-VOA - 8270 (TCL)	TPH-Diesel Range - WTPH-D +	PAHs - 8310	Pesticides - 8081			
J4V284	SOIL	12-15-14	1249	✓	✓	✓	✓	✓	✓	✓			
J4V285	SOIL	12-15-14	0856	✓	✓	✓	✓	✓	✓	✓			

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Heather Weber	12/15/14 1306	(10CH) Joshua DuShea	12/15/14 1306
Joshua DuShea	12/15/14 1545	C. Bingham	12-15-14 1545
C. Bingham	12-15-14 1600	1060 Battelle, fridge #18	12-15-14 1600
1060 Battelle, fridge #18	12-16-14 0840	C. Bingham	12-16-14 0840
C. Bingham	12-16-14 0900	fed EX	
			12/17/14 10:30

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)
(2) IC Anions - 9056 Modified (Bromide, Chloride, Fluoride, Nitrogen in Nitrate, Nitrogen in Nitrite, Phosphorous in phosphate, Sulfate); NO2/NO3 - 353.2; pH (Soil) - 9045

REVIEWED BY [illegible] DATE 12/16/14

JP0885

WCH-EE-011

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Certificate of Analysis

Washington Hanford Closure
2620 Fermi Avenue
Richland, WA 99354

December 22, 2014

Attention: Joan Kessner

SAF Number	:	RC-107
Date SDG Closed	:	December 16, 2014
Number of Samples	:	Seventeen (17)
Sample Type	:	Soil
SDG Number	:	JP0885
Data Deliverable	:	7– Day / Summary

CASE NARRATIVE

I. Introduction

On December 16, 2014, seventeen soil samples were received at TestAmerica for radiochemical analysis. Upon receipt, the samples were assigned the following laboratory ID number to correspond with the Washington Closure Hanford (WCH) specific ID:

WCH ID#	TARL ID#	MATRIX	DATE OF RECEIPT
J1V269	M5Q3X	SOIL	12/16/14
J1V270	M5Q30	SOIL	12/16/14
J1V271	M5Q31	SOIL	12/16/14
J1V272	M5Q32	SOIL	12/16/14
J1V273	M5FQ34	SOIL	12/16/14
J1V274	M5Q36	SOIL	12/16/14
J1V275	M5Q4A	SOIL	12/16/14
J1V276	M5Q4D	SOIL	12/16/14
J1V277	M5Q4F	SOIL	12/16/14
J1V278	M5Q4G	SOIL	12/16/14
J1V279	M5Q4H	SOIL	12/16/14
J1V280	M5Q4J	SOIL	12/16/14
J1V281	M5Q4L	SOIL	12/16/14
J1V282	M5Q4N	SOIL	12/16/14
J1V283	M5Q4P	SOIL	12/16/14
J1V284	M5Q4Q	SOIL	12/16/14

WCH ID#	TARL ID#	MATRIX	DATE OF RECEIPT
J1V285	M5Q4T	SOIL	12/16/14

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 analyses were:

Gamma Spectroscopy
Gamma Spec by method RL-GAM-001
Liquid Scintillation Counting
Carbon-14 by method RL-LSC-008
Nickel-63 by method RL-LCS-017
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

Gamma Spectroscopy
Gamma Spec by method RL-GAM-001:
The CRDL was not met for some of the analytes. Except as noted, the LCS, batch blank, samples and sample duplicate (J1V270) results are within contractual requirements.

Liquid Scintillation Counting
Carbon-14 by method RL-LSC-008:
The LCS, batch blank, samples and sample duplicate (J1V271) results are within contractual requirements.

Nickel-63 by method RL-LCS-017:
The LCS, batch blank, samples and sample duplicate (J1V269) results are within contractual requirements.

Chemical Analysis
Hexavalent Chromium by EPA method 7196A
The LCS, batch blank, samples, sample duplicate (J1V269) and sample matrix spike (J1V269) results are within contractual requirements.

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

Reviewed and approved:

Rhonda Wagar
Project Manager

Washington Closure Hanford

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

RC-107-123

Collector: H. Weber	Company Contact: Joan Kessner	Telephone No.: 375-4588	Project Coordinator: KESSNER, JH
Price Code: 8B	Data Turnaround: 7 days		
Project Designation: 100-H Field Remediation	Sampling Location: 100-H-28:2, EXC1, verification		SAF No.: RC-107
Ice Chest No.: ERC-02-407 / WCH-12-008	Field Logbook No.: EL-1627-08	COA: 01H2822000	Method of Shipment: Local Delivery
Shipped To: TestAmerica Richland	Offsite Property No.: NA		Bill of Lading/Air Bill No.: NA
Other Labs Shipped To: TestAmerica Denver			

POSSIBLE SAMPLE HAZARDS/REMARKS
None

Special Handling and/or Storage
cool as required

Preservation	Cool 4C	None	None								
Type of Container	G/P	G/P	G/P								
No. of Container(s)	1	1	1								
Volume	125mL	1000mL	125mL								
Sample Analysis	Chromium Hex - 7196	See Item (3) in Special Instructions	Carbon-14 Low Level; Nickel-63								

Sample No.	Matrix	Sample Date	Sample Time										
J1V269 M5Q3X	SOIL	12-15-14	1224	✓	✓	✓							
J1V270 M5Q3D	SOIL	12-15-14	0922	✓	✓	✓							
J1V271 M5Q31	SOIL	12-15-14	1029	✓	✓	✓							
J1V272 M5Q32	SOIL	12-15-14	0856	✓	✓	✓							
J1V273 M5Q34	SOIL	12-15-14	1002	✓	✓	✓							

REVIEWED BY [illegible] DATE 12/16/14

CHAIN OF POSSESSION

Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Heather Weber	12/15/14 1300	Mashea Dwight (WCH)	12/15/14 1306
Mashea Dwight	12/15/14 1545	C. Bingham	12-15-14 1545
C. Bingham	12-15-14 1600	1000 Battelle, fridge #1A	12-15-14 1600
1000 Battelle, fridge #1A	12-16-14 0840	C. Bingham	12-16-14 0840
C. Bingham	12-16-14 1355	J. Friesz, TARI	12/16/14 1355

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

WCH-EE-011

SPECIAL INSTRUCTIONS

(3) Gamma Spec (Client List) (Americium-241, Barium-133, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155, Silver-108 metastable)

J4L160441
Due 12-23-14

J4L160441

SDS.

JP0885

Washington Closure Hanford — CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

RC-107-123

Collector	A. Weber
Company Contact	Joan Kessner
Telephone No.	375-4688
Project Coordinator	KESSNER, JH
Price Code	8B
Data Turnaround	7 days
Project Designation	100-H Field Remediation
Sampling Location	100-H-28:2, EXC1, verification
SAF No.	RC-107
Ice Chest No.	ERC-02-4-07 / WCH-12-008
Field Logbook No.	EL-1627-06
COA	01H2822000
Method of Shipment	Local Delivery
Shipped To	TestAmerica Richland
Offsite Property No.	NA
Bill of Lading/Air Bill No.	NA
Other Labs Shipped To	TestAmerica Denver

POSSIBLE SAMPLE HAZARDS/REMARKS
None

Special Handling and/or Storage
cool as required

Preservation	Cool 4C	None	None
Type of Container	G/P	G/P	G/P
No. of Container(s)	1	1	1
Volume	125mL	1000mL	125mL
Sample Analysis	Chromium Hex - 7196	See Item (3) in Special Instructions	Carbon-14 Low Level; Nickel-63

Sample No.	Matrix	Sample Date	Sample Time			
J1V274 MSQ3E	SOIL	12-15-14	1106	✓	✓	✓
J1V275 MSQ4A	SOIL	12-15-14	1058	✓	✓	✓
J1V276 MSQ4D	SOIL	12-15-14	0935	✓	✓	✓
J1V277 MSQ4F	SOIL	12-15-14	1115	✓	✓	✓
J1V278 MSQ4G	SOIL	12-15-14	1158	✓	✓	✓

REVIEWED BY
DATE 12/16/14

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Northwest Metal Solutions	12/15/14 1306	Joshua Justice (WCH)	12/15/14 1306
Joshua Justice	12/15/14 1545	C. Bingham	12-15-14 1545
C. Bingham	12-15-14 1600	1060 Battelle, fridge #1A	12-15-14 1600
1060 Battelle, fridge #1A	12-16-14 0840	C. Bingham	12-16-14 0840
C. Bingham WCH	12-16-14 1355	J. Friesz, TARL	12/16/14 1355

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

SPECIAL INSTRUCTIONS
(3) Gamma Spec (Client List) (Americium-241, Barium-133, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155, Silver-108 metastable)

J4L160441
Due 12-23-14

JP0885

WCH-EE-011

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Washington Closure Hanford

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

RC-107-123

Collector	H. Weber
Company Contact	Joan Kessner
Telephone No.	375-4888
Project Coordinator	KESSNER, JH
Price Code	8B
Data Turnaround	7days
Project Designation	100-H Field Remediation
Sampling Location	100-H-28:2, EXC1, verification
SAF No.	RC-107
Ice Chest No.	ERC-02-407 / WCH-12-008
Field Logbook No.	EL-1627-08
COA	01H2822000
Method of Shipment	Local Delivery
Shipped To	TestAmerica Richland
Offsite Property No.	NA
Bill of Lading/Air Bill No.	NA
Other Labs Shipped To	TestAmerica Denver

POSSIBLE SAMPLE HAZARDS/REMARKS

None

Special Handling and/or Storage

cool as required

Preservation	Cool 4C	None	None
Type of Container	G/P	G/P	G/P
No. of Container(s)	1	1	1
Volume	125mL	1000mL	125mL
Sample Analysis	Chromium Hex - 7196	See Item (3) in Special Instructions	Carbon-14 Low Level; Nickel-63

Sample No.	Matrix	Sample Date	Sample Time			
J1V279 MSQ4H	SOIL	12-15-14	1145	✓	✓	✓
J1V280 MSQ4J	SOIL	12-15-14	0949	✓	✓	✓
J1V281 MSQ4L	SOIL	12-15-14	1018	✓	✓	✓
J1V282 MSQ4N	SOIL	12-15-14	1208	✓	✓	✓
J1V283 MSQ4P	SOIL	12-15-14	1133	✓	✓	✓

REVIEWED BY [illegible] DATE 12/16/14

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Heather Weber / [illegible]	12/15/14 1300	(WCH) Joshua Dwshea	12/15/14 1306
Joshua Dwshea	12/15/14 1545	C. Bingham	12-15-14 1545
C. Bingham	12-15-14 1600	1060 Battelle, fridge #18	12-15-14 1600
1060 Battelle, fridge #1B	12-16-14 0840	C. Bingham	12-16-14 0840
C. Bingham WCH	12-16-14 1355	J. Friesz, TARL	12/16/14 1355

FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

SPECIAL INSTRUCTIONS

(3) Gamma Spec (Client List) (Americium-241, Barium-133, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155, Silver-108 metastable)

J4L160441
Due 12-23-14

JP0885

WCH-EE-011

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-107-123	Page 4 of 4

Collector: H. Weber	Company Contact: Joan Kessner	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Price Code: 8B	Data Turnaround: 7 days		
Project Designation: 100-H Field Remediation	Sampling Location: 100-H-28:2, EXC1, verification	SAF No.: RC-107	
Ice Chest No.: FRC-02-407 / WCH-12-008	Field Logbook No.: EL-1627-08	COA: 01H2822000	Method of Shipment: Local Delivery
Shipped To: TestAmerica Richland	Offsite Property No.: NA	Bill of Lading/Air Bill No.: NA	

Other Labs Shipped To: TestAmerica Denver

POSSIBLE SAMPLE HAZARDS/REMARKS
None

Special Handling and/or Storage
cool as required

Preservation	Cool 4C	None	None								
Type of Container	G/P	G/P	G/P								
No. of Container(s)	1	1	1								
Volume	125mL	1000mL	125mL								
Sample Analysis	Chromium Hex - 7196	See Item (3) in Special Instructions	Carbon-14 Low Level; Nickel-63								

Sample No.	Matrix	Sample Date	Sample Time										
J1V284 MSQ4Q	SOIL	12-15-14	1249	✓	✓	✓							
J1V285 MSQ4T	SOIL	12-15-14	0856	✓	✓	✓							

REVIEWED BY [signature] DATE 12/16/14

CHAIN OF POSSESSION		Sign/Print Names	
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Heather Weber/Store	12/15/14 1306	Joshua DuBHEA (WCH)	12/15/14 1306
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Joshua DuBHEA	12/15/14 1545	C. Bingham	12-15-14 1545
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
C. Bingham	12-15-14 1600	1060 Battelle, Fridge #18	12-15-14 1600
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
1060 Battelle, Fridge #18	12-16-14 0840	C. Bingham	12-16-14 0840
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
C. Bingham	12-16-14 1355	J. Friesz, TARL	12/16/14 1355
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

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

SPECIAL INSTRUCTIONS
(3) Gamma Spec (Client List) (Americium-241, Barium-133, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155, Silver-108 metastable)

J4L160441
Due 12-23-14

JP0885

WCH-EE-011

Appendix 5

Data Validation Supporting Documentation

GENERAL CHEMISTRY ANALYSIS DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	E
PROJECT: 100-H-2812			DATA PACKAGE: JP0885		
VALIDATOR: ELR		LAB: TAL		DATE:	
			SDG: JP0885		

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				
J1U269	J1U270	J1U271	J1U272	J1U273
J1U274	J1U275	J1U276	J1U277	J1U278
J1U279	J1U280	J1U281	J1U282	J1U283
J1U284	J1U285			
				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:

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

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

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

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

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

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

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

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

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

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

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

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

Comments:

No 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: FD 85/72

6. HOLDING TIMES (all levels)

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

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

Comments: Ph >2X – J all

ortho, nitrite, nitrate – <2X – J all

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: 280-63697-1
Sdg Number: JP0885

Method Blank - Batch: 280-257924

Method: 353.2
Preparation: N/A

Lab Sample ID:	MB 280-257799/1-A	Analysis Batch:	280-257924	Instrument ID:	WC_Alp 2
Client Matrix:	Solid	Prep Batch:	N/A	Lab File ID:	C:\FLOW_4\121914.RST
Dilution:	1.0	Leach Batch:	280-257799	Initial Weight/Volume:	
Analysis Date:	12/19/2014 1223	Units:	mg/Kg	Final Weight/Volume:	
Prep Date:	N/A				
Leach Date:	12/18/2014 2106				

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

Method Reporting Limit Check - Batch: 280-257924

Method: 353.2
Preparation: N/A

Lab Sample ID:	MRL 280-257924/18	Analysis Batch:	280-257924	Instrument ID:	WC_Alp 2
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	C:\FLOW_4\121914.RST
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	100 mL
Analysis Date:	12/19/2014 0905	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	0.0831	83	50 - 150	B

Lab Control Sample - Batch: 280-257924

Method: 353.2
Preparation: N/A

Lab Sample ID:	LCS 280-257799/2-A	Analysis Batch:	280-257924	Instrument ID:	WC_Alp 2
Client Matrix:	Solid	Prep Batch:	N/A	Lab File ID:	C:\FLOW_4\121914.RST
Dilution:	1.0	Leach Batch:	280-257799	Initial Weight/Volume:	
Analysis Date:	12/19/2014 1225	Units:	mg/Kg	Final Weight/Volume:	
Prep Date:	N/A				
Leach Date:	12/18/2014 2106				

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Nitrate Nitrite as N-Soluble	50.0	52.49	105	90 - 110	

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Matrix Spike - Batch: 280-257924

Method: 353.2
Preparation: N/A

Lab Sample ID:	280-63697-1	Analysis Batch:	280-257924	Instrument ID:	WC_Alp 2
Client Matrix:	Solid	Prep Batch:	N/A	Lab File ID:	C:\FLOW_4\121914.RST
Dilution:	1.0	Leach Batch:	280-257799	Initial Weight/Volume:	
Analysis Date:	12/19/2014 1231	Units:	mg/Kg	Final Weight/Volume:	
Prep Date:	N/A				
Leach Date:	12/18/2014 2106				

Analyte	Sample Result/Qual	Spike Amount	Result	% Rec.	Limit	Qual
Nitrate Nitrite as N-Soluble	1.4	43.5	47.74	107	90 - 110	

Matrix Spike - Batch: 280-257924

Method: 353.2
Preparation: N/A

Lab Sample ID:	280-63697-15	Analysis Batch:	280-257924	Instrument ID:	WC_Alp 2
Client Matrix:	Solid	Prep Batch:	N/A	Lab File ID:	C:\FLOW_4\121914.RST
Dilution:	1.0	Leach Batch:	280-257799	Initial Weight/Volume:	
Analysis Date:	12/19/2014 1333	Units:	mg/Kg	Final Weight/Volume:	
Prep Date:	N/A				
Leach Date:	12/18/2014 2106				

Analyte	Sample Result/Qual	Spike Amount	Result	% Rec.	Limit	Qual
Nitrate Nitrite as N-Soluble	4.6	44.2	51.37	106	90 - 110	

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Duplicate - Batch: 280-257924

Method: 353.2
Preparation: N/A

Lab Sample ID:	280-63697-1	Analysis Batch:	280-257924	Instrument ID:	WC_Alp 2
Client Matrix:	Solid	Prep Batch:	N/A	Lab File ID:	C:\FLOW_4\121914.RST
Dilution:	1.0	Leach Batch:	280-257799	Initial Weight/Volume:	
Analysis Date:	12/19/2014 1229	Units:	mg/Kg	Final Weight/Volume:	
Prep Date:	N/A				
Leach Date:	12/18/2014 2106				

Analyte	Sample Result/Qual	Result	RPD	Limit	Qual
Nitrate Nitrite as N-Soluble	1.4	1.54	10	10	

Duplicate - Batch: 280-257924

Method: 353.2
Preparation: N/A

Lab Sample ID:	280-63697-15	Analysis Batch:	280-257924	Instrument ID:	WC_Alp 2
Client Matrix:	Solid	Prep Batch:	N/A	Lab File ID:	C:\FLOW_4\121914.RST
Dilution:	1.0	Leach Batch:	280-257799	Initial Weight/Volume:	
Analysis Date:	12/19/2014 1331	Units:	mg/Kg	Final Weight/Volume:	
Prep Date:	N/A				
Leach Date:	12/18/2014 2106				

Analyte	Sample Result/Qual	Result	RPD	Limit	Qual
Nitrate Nitrite as N-Soluble	4.6	3.92	15	10	M

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 280-257577

Method: 9045C
Preparation: N/A

LCS Lab Sample ID:	LCS 280-257578/1-A	Analysis Batch:	280-257577	Instrument ID:	No Equipment Assigned
Client Matrix:	Solid	Prep Batch:	N/A	Lab File ID:	N/A
Dilution:	1.0	Leach Batch:	280-257578	Initial Weight/Volume:	1 mL
Analysis Date:	12/17/2014 1927	Units:	SU	Final Weight/Volume:	1 mL
Prep Date:	N/A				
Leach Date:	12/17/2014 1743				

LCSD Lab Sample ID:	LCSD 280-257578/2-A	Analysis Batch:	280-257577	Instrument ID:	No Equipment Assigned		
Client Matrix:	Solid	Prep Batch:	N/A	Lab File ID:	N/A		
Dilution:	1.0	Leach Batch:	280-257578	Initial Weight/Volume:	1 mL		
Analysis Date:	12/17/2014 1927	Units:	SU	Final Weight/Volume:	1 mL		
Prep Date:	N/A						
Leach Date:	12/17/2014 1743						

Analyte	% Rec. LCS	% Rec. LCSD	Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
pH adj. to 25 deg C-Soluble	100	100	97 - 103	0	5		

Laboratory Control/
Laboratory Duplicate Data Report - Batch: 280-257577

Method: 9045C
Preparation: N/A

LCS Lab Sample ID:	LCS 280-257578/1-A	Units:	SU	LCSD Lab Sample ID:	LCSD 280-257578/2-A
Client Matrix:	Solid			Client Matrix:	Solid
Dilution:	1.0			Dilution:	1.0
Analysis Date:	12/17/2014 1927			Analysis Date:	12/17/2014 1927
Prep Date:	N/A			Prep Date:	N/A
Leach Date:	12/17/2014 1743			Leach Date:	12/17/2014 1743

Analyte	LCS Spike Amount	LCSD Spike Amount	LCS Result/Qual	LCSD Result/Qual
pH adj. to 25 deg C-Soluble	7.00	7.00	7.010	7.000

Duplicate - Batch: 280-257577

Method: 9045C
Preparation: N/A

Lab Sample ID:	280-63697-1	Analysis Batch:	280-257577	Instrument ID:	No Equipment Assigned
Client Matrix:	Solid	Prep Batch:	N/A	Lab File ID:	N/A
Dilution:	1.0	Leach Batch:	280-257578	Initial Weight/Volume:	
Analysis Date:	12/17/2014 1927	Units:	SU	Final Weight/Volume:	
Prep Date:	N/A				
Leach Date:	12/17/2014 1743				

Analyte	Sample Result/Qual	Result	RPD	Limit	Qual
pH adj. to 25 deg C-Soluble	8.83	8.840	0.1	5	

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Method Blank - Batch: 280-257672

Method: 9056M
Preparation: N/A

Lab Sample ID:	MB 280-257586/2-A	Analysis Batch:	280-257672	Instrument ID:	WC_IonChrom11
Client Matrix:	Solid	Prep Batch:	N/A	Lab File ID:	0015.d
Dilution:	1.0	Leach Batch:	280-257586	Initial Weight/Volume:	5 mL
Analysis Date:	12/18/2014 1729	Units:	mg/Kg	Final Weight/Volume:	5 mL
Prep Date:	N/A				
Leach Date:	12/17/2014 2113				

Analyte	Result	Qual	MDL	RL
Nitrate as N-Soluble	0.31	U	0.31	2.5
Nitrite as N-Soluble	0.33	U	0.33	2.5
Orthophosphate as P-Soluble	1.2	U	1.2	5.0

Method Reporting Limit Check - Batch: 280-257672

Method: 9056M
Preparation: N/A

Lab Sample ID:	MRL 280-257672/3	Analysis Batch:	280-257672	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:	12/18/2014 1342	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	0.223	112	50 - 150	B
Nitrite as N-Soluble	0.200	0.245	122	50 - 150	B
Orthophosphate as P-Soluble	0.200	0.296	148	50 - 150	B

Lab Control Sample - Batch: 280-257672

Method: 9056M
Preparation: N/A

Lab Sample ID:	LCS 280-257586/1-A	Analysis Batch:	280-257672	Instrument ID:	WC_IonChrom11
Client Matrix:	Solid	Prep Batch:	N/A	Lab File ID:	0014.d
Dilution:	1.0	Leach Batch:	280-257586	Initial Weight/Volume:	5 mL
Analysis Date:	12/18/2014 1709	Units:	mg/Kg	Final Weight/Volume:	5 mL
Prep Date:	N/A				
Leach Date:	12/17/2014 2113				

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Nitrate as N-Soluble	50.0	48.10	96	90 - 110	
Nitrite as N-Soluble	50.0	49.82	100	90 - 110	
Orthophosphate as P-Soluble	50.0	51.70	103	90 - 110	

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Matrix Spike - Batch: 280-257672

Method: 9056M
Preparation: N/A

Lab Sample ID:	280-63697-1	Analysis Batch:	280-257672	Instrument ID:	WC_IonChrom11
Client Matrix:	Solid	Prep Batch:	N/A	Lab File ID:	0018.d
Dilution:	1.0	Leach Batch:	280-257586	Initial Weight/Volume:	5 mL
Analysis Date:	12/18/2014 1829	Units:	mg/Kg	Final Weight/Volume:	5 mL
Prep Date:	N/A				25 uL
Leach Date:	12/17/2014 2113				

Analyte	Sample Result/Qual		Spike Amount	Result	% Rec.	Limit	Qual
Nitrate as N-Soluble	2.1	B	52.2	53.05	98	80 - 120	
Nitrite as N-Soluble	0.98	B	52.2	54.28	102	80 - 120	
Orthophosphate as P-Soluble	2.8	B	52.2	52.20	95	80 - 120	

Matrix Spike - Batch: 280-257672

Method: 9056M
Preparation: N/A

Lab Sample ID:	280-63697-11	Analysis Batch:	280-257672	Instrument ID:	WC_IonChrom11
Client Matrix:	Solid	Prep Batch:	N/A	Lab File ID:	0032.d
Dilution:	1.0	Leach Batch:	280-257586	Initial Weight/Volume:	5 mL
Analysis Date:	12/18/2014 2308	Units:	mg/Kg	Final Weight/Volume:	5 mL
Prep Date:	N/A				25 uL
Leach Date:	12/17/2014 2113				

Analyte	Sample Result/Qual		Spike Amount	Result	% Rec.	Limit	Qual
Nitrate as N-Soluble	0.70	B	50.0	48.29	95	80 - 120	
Nitrite as N-Soluble	0.34	U	50.0	51.11	102	80 - 120	
Orthophosphate as P-Soluble	1.3	U	50.0	50.66	101	80 - 120	

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Duplicate - Batch: 280-257672

Method: 9056M
Preparation: N/A

Lab Sample ID:	280-63697-1	Analysis Batch:	280-257672	Instrument ID:	WC_IonChrom11
Client Matrix:	Solid	Prep Batch:	N/A	Lab File ID:	0017.d
Dilution:	1.0	Leach Batch:	280-257586	Initial Weight/Volume:	5 mL
Analysis Date:	12/18/2014 1809	Units:	mg/Kg	Final Weight/Volume:	5 mL
Prep Date:	N/A				25 uL
Leach Date:	12/17/2014 2113				

Analyte	Sample Result/Qual		Result	RPD	Limit	Qual
Nitrate as N-Soluble	2.1	B	2.02	3	15	B
Nitrite as N-Soluble	0.98	B	0.999	2	15	B
Orthophosphate as P-Soluble	2.8	B	2.97	6	15	B

Duplicate - Batch: 280-257672

Method: 9056M
Preparation: N/A

Lab Sample ID:	280-63697-11	Analysis Batch:	280-257672	Instrument ID:	WC_IonChrom11
Client Matrix:	Solid	Prep Batch:	N/A	Lab File ID:	0031.d
Dilution:	1.0	Leach Batch:	280-257586	Initial Weight/Volume:	5 mL
Analysis Date:	12/18/2014 2248	Units:	mg/Kg	Final Weight/Volume:	5 mL
Prep Date:	N/A				25 uL
Leach Date:	12/17/2014 2113				

Analyte	Sample Result/Qual		Result	RPD	Limit	Qual
Nitrate as N-Soluble	0.70	B	0.675	4	15	B
Nitrite as N-Soluble	0.34	U	0.34	NC	15	U
Orthophosphate as P-Soluble	1.3	U	1.3	NC	15	U

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Method Blank - Batch: 280-257673

Method: 9056M
Preparation: N/A

Lab Sample ID:	MB 280-257586/2-A	Analysis Batch:	280-257673	Instrument ID:	WC_IonChrom11
Client Matrix:	Solid	Prep Batch:	N/A	Lab File ID:	0015.d
Dilution:	1.0	Leach Batch:	280-257586	Initial Weight/Volume:	5 mL
Analysis Date:	12/18/2014 1729	Units:	mg/Kg	Final Weight/Volume:	5 mL
Prep Date:	N/A				
Leach Date:	12/17/2014 2113				

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	0.81	U	0.81	5.0

Method Reporting Limit Check - Batch: 280-257673

Method: 9056M
Preparation: N/A

Lab Sample ID:	MRL 280-257673/3	Analysis Batch:	280-257673	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:	12/18/2014 1342	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	2.34	94	50 - 150	B
Bromide-Soluble	0.200	0.226	113	50 - 150	
Sulfate-Soluble	2.50	2.49	99	50 - 150	B
Fluoride-Soluble	0.200	0.244	122	50 - 150	B

Lab Control Sample - Batch: 280-257673

Method: 9056M
Preparation: N/A

Lab Sample ID:	LCS 280-257586/1-A	Analysis Batch:	280-257673	Instrument ID:	WC_IonChrom11
Client Matrix:	Solid	Prep Batch:	N/A	Lab File ID:	0014.d
Dilution:	1.0	Leach Batch:	280-257586	Initial Weight/Volume:	5 mL
Analysis Date:	12/18/2014 1709	Units:	mg/Kg	Final Weight/Volume:	5 mL
Prep Date:	N/A				
Leach Date:	12/17/2014 2113				

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Chloride-Soluble	1000	956.5	96	90 - 110	
Bromide-Soluble	50.0	50.22	100	90 - 110	
Sulfate-Soluble	1000	978.1	98	90 - 110	
Fluoride-Soluble	50.0	51.31	103	90 - 110	

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Matrix Spike - Batch: 280-257673

Method: 9056M
Preparation: N/A

Lab Sample ID:	280-63697-1	Analysis Batch:	280-257673	Instrument ID:	WC_IonChrom11
Client Matrix:	Solid	Prep Batch:	N/A	Lab File ID:	0018.d
Dilution:	1.0	Leach Batch:	280-257586	Initial Weight/Volume:	5 mL
Analysis Date:	12/18/2014 1829	Units:	mg/Kg	Final Weight/Volume:	5 mL
Prep Date:	N/A				25 uL
Leach Date:	12/17/2014 2113				

Analyte	Sample Result/Qual		Spike Amount	Result	% Rec.	Limit	Qual
Chloride-Soluble	12.8		261	230.9	84	80 - 120	
Bromide-Soluble	0.41	U	52.2	52.19	100	80 - 120	
Sulfate-Soluble	12.1		261	229.8	83	80 - 120	
Fluoride-Soluble	1.6	B	52.2	52.72	98	80 - 120	

Matrix Spike - Batch: 280-257673

Method: 9056M
Preparation: N/A

Lab Sample ID:	280-63697-11	Analysis Batch:	280-257673	Instrument ID:	WC_IonChrom11
Client Matrix:	Solid	Prep Batch:	N/A	Lab File ID:	0032.d
Dilution:	1.0	Leach Batch:	280-257586	Initial Weight/Volume:	5 mL
Analysis Date:	12/18/2014 2308	Units:	mg/Kg	Final Weight/Volume:	5 mL
Prep Date:	N/A				25 uL
Leach Date:	12/17/2014 2113				

Analyte	Sample Result/Qual		Spike Amount	Result	% Rec.	Limit	Qual
Chloride-Soluble	2.0	U	250	210.3	84	80 - 120	
Bromide-Soluble	0.39	U	50.0	49.85	100	80 - 120	
Sulfate-Soluble	10.1		250	215.9	82	80 - 120	
Fluoride-Soluble	0.83	U	50.0	51.06	102	80 - 120	

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Duplicate - Batch: 280-257673

Method: 9056M
Preparation: N/A

Lab Sample ID:	280-63697-1	Analysis Batch:	280-257673	Instrument ID:	WC_IonChrom11
Client Matrix:	Solid	Prep Batch:	N/A	Lab File ID:	0017.d
Dilution:	1.0	Leach Batch:	280-257586	Initial Weight/Volume:	5 mL
Analysis Date:	12/18/2014 1809	Units:	mg/Kg	Final Weight/Volume:	5 mL
Prep Date:	N/A				25 uL
Leach Date:	12/17/2014 2113				

Analyte	Sample Result/Qual		Result	RPD	Limit	Qual
Chloride-Soluble	12.8		12.63	1	10	
Bromide-Soluble	0.41	U	0.40	NC	10	U
Sulfate-Soluble	12.1		12.15	0.5	10	
Fluoride-Soluble	1.6	B	1.54	2	10	B

Duplicate - Batch: 280-257673

Method: 9056M
Preparation: N/A

Lab Sample ID:	280-63697-11	Analysis Batch:	280-257673	Instrument ID:	WC_IonChrom11
Client Matrix:	Solid	Prep Batch:	N/A	Lab File ID:	0031.d
Dilution:	1.0	Leach Batch:	280-257586	Initial Weight/Volume:	5 mL
Analysis Date:	12/18/2014 2248	Units:	mg/Kg	Final Weight/Volume:	5 mL
Prep Date:	N/A				25 uL
Leach Date:	12/17/2014 2113				

Analyte	Sample Result/Qual		Result	RPD	Limit	Qual
Chloride-Soluble	2.0	U	2.0	NC	10	U
Bromide-Soluble	0.39	U	0.39	NC	10	U
Sulfate-Soluble	10.1		9.58	5	10	
Fluoride-Soluble	0.83	U	0.83	NC	10	U

QC Results Summary

TestAmerica Inc TARL

Ordered by Method, Batch No, QC Type,.

Date: 22-Dec-14

Report No. : 64000

SDG No.: JP0885

Batch Work Order	Parameter	Result +- Uncertainty (2s)	Qual	Units	Tracer Yield	LCS Recovery	Bias	MDL
C14_CHEM_LSC								
4351026 BLANK QC,								
M5RA51AA	C-14	-2.95E-02 +- 1.4E-01	U	pCi/g	100%			3.13E-01
4351026 LCS,								
M5RA51AC	C-14	7.27E+00 +- 5.1E-01		pCi/g	100%	99%	0.0	3.17E-01
GAMMA_GS								
4351025 BLANK QC,								
M5RA41AA	AG-108M	4.90E-04 +- 5.8E-03	U	pCi/g				1.03E-02
	AMERICIUM 241	-2.64E-03 +- 9.1E-03	U	pCi/g				1.55E-02
	BA-133	-5.81E-03 +- 7.9E-03	U	pCi/g				1.29E-02
	CO-60	2.90E-03 +- 8.2E-03	U	pCi/g				1.63E-02
	CS-137	8.93E-03 +- 7.5E-03	U	pCi/g				1.49E-02
	EU-152	4.31E-03 +- 1.8E-02	U	pCi/g				3.25E-02
	EU-154	5.07E-03 +- 2.4E-02	U	pCi/g				4.62E-02
	EU-155	-1.66E-03 +- 1.2E-02	U	pCi/g				2.19E-02
	K-40	-4.62E-01 +- 2.1E-01	U	pCi/g				4.22E-01
4351025 LCS,								
M5RA41AC	CS-137	1.03E+00 +- 1.4E-01		pCi/g		103%	0.0	2.48E-02
	RA-226	8.97E-01 +- 1.3E-01		pCi/g		79%	-0.2	3.95E-02
	RA-228	6.21E-01 +- 1.3E-01		pCi/g		103%	0.0	8.31E-02
	U-238	9.56E-01 +- 1.3E-01		pCi/g		80%	-0.2	4.34E-02
NI63_LSC								
4351024 BLANK QC,								
M5RA31AA	NI-63	1.14E-01 +- 2.8E+00	U	pCi/g	91%			6.27E+00
4351024 LCS,								
M5RA31AC	NI-63	2.54E+02 +- 1.9E+01		pCi/g	92%	86%	-0.1	6.14E+00
7196_CR6								
4351054 MATRIX SPIKE, J1V269								
M5Q3X1AH	HEXCHROME	2.91E+01 +- 0.0E+00		mg/kg	N/A	88%	-0.1	1.55E-01
4351054 LCS,								
M5RGV1AC	HEXCHROME	1.98E+01 +- 0.0E+00		mg/kg	N/A	99%	0.0	1.55E-01
4351054 BLANK QC,								
M5RGV1AA	HEXCHROME	1.55E-01 +- 0.0E+00	U	mg/kg	N/A			1.55E-01

No. of Results: 20

TestAmerica Inc
rptSTLRchQcSummary V5.3.6.1
A2002

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

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Date: 4 May 2015
To: Washington Closure Hanford Inc. (technical representative)
From: ELR Consulting
Project: 100-H Remaining Sites Burial Grounds – Soil Full Protocol - Waste Subsite 100-H-28:2
Subject: Radiochemistry - Data Package No. JP0885-TAL

INTRODUCTION

This memo presents the results of data validation on Data Package No. JP0885 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
J1V269	12/15/14	Soil	C	See note 1
J1V270	12/15/14	Soil	C	See note 1
J1V271	12/15/14	Soil	C	See note 1
J1V272	12/15/14	Soil	C	See note 1
J1V273	12/15/14	Soil	C	See note 1
J1V274	12/15/14	Soil	C	See note 1
J1V275	12/15/14	Soil	C	See note 1
J1V276	12/15/14	Soil	C	See note 1
J1V277	12/15/14	Soil	C	See note 1
J1V278	12/15/14	Soil	C	See note 1
J1V279	12/15/14	Soil	C	See note 1
J1V280	12/15/14	Soil	C	See note 1
J1V281	12/15/14	Soil	C	See note 1
J1V282	12/15/14	Soil	C	See note 1
J1V283	12/15/14	Soil	C	See note 1
J1V284	12/15/14	Soil	C	See note 1
J1V285	12/15/14	Soil	C	See note 1

1 – Gamma spectroscopy, nickel-63 carbon-14.

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 PARAMETERS

- **Holding Times**

Holding times are calculated from Chain-of-Custody forms to determine the validity of the results. The maximum holding time for radiochemical analysis is 6 months.

All holding times were acceptable.

- **Preparation (Method) Blanks**

Laboratory Blanks

Blank samples are analyzed to determine if positive results are due to laboratory reagent, sample container, or detector contamination. If blank analysis results indicate the presence of an analyte above the minimum detectable activity (MDA), the following qualifiers are applied: All positive sample results less than five times the highest blank concentration are qualified as estimates and flagged "J"; sample results below the MDA are qualified as undetected and flagged "U"; sample results above the MDA and greater than five times the highest blank concentration are not qualified.

All laboratory blank results were acceptable.

Field (Equipment) Blank

No field blanks were submitted for analysis.

- **Accuracy**

Accuracy is evaluated from laboratory control sample (LCS) or blank spike sample (BSS) batch samples and spiked samples from the analytical batch. Measured activities are compared to the known added amounts. The acceptable LCS or BSS and matrix spike (MS) recovery range is 70-130%. In addition, samples may be spiked with a radiochemical tracer to assist in isolating the radioisotope of interest with the yield of the tracer being used in calculating sample activity. The acceptable range for tracer recovery is 20% to 105%. Spike sample results outside the above ranges result in associated sample results being qualified as estimates, or not qualified, depending on the activity of the individual sample. Results are rejected for LCS/BSS recoveries of less than 30% and tracer recoveries of less than 5%.

Due to the lack of a matrix spike analysis, all carbon-14 results were qualified as estimates and flagged "J".

All other accuracy results were acceptable.

- **Laboratory Duplicates.**

Analytical precision is expressed by the relative percent differences (RPD) between the recoveries of duplicate matrix spike 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 contract required detection limit (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 duplicate results were acceptable.

Field Duplicates

One set of field duplicates (J1V272/J1V285) were submitted for analysis. Field duplicates are compared using the same criteria as for laboratory duplicates. All field duplicate results were acceptable.

- **Detection Levels**

Reported analytical detection levels for undetected analytes are compared against the remaining waste sites RQLs to ensure that laboratory detection levels meet the required criteria. Three analytes exceeded the RQL. Under the WCH statement of work, no qualification is required. All other analytes met the RQL.

- **Completeness**

Data package No. JP0885 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 analysis, all carbon-14 results were qualified as estimates and flagged "J".

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

REFERENCES

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

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 statement of work are as follows:

U - Indicates the compound or analyte was analyzed for and not detected above the minimum detectable activity (MDA) in the sample. The value reported is the sample result corrected for sample dilution and moisture content by the laboratory. The data is usable for decision making purposes.

UJ - Indicates the compound or analyte was analyzed for and not detected at concentrations above the minimum detectable activity (MDA) in the sample. Due to a minor QC deficiency identified during the data validation, the associated quantitation limit is an estimate, but is usable for decision making purposes.

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.

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.

Appendix 2

Summary of Data Qualification

RADIOCHEMISTRY DATA QUALIFICATION SUMMARY*

SDG: JP0885	REVIEWER: ELR	Project: 100-H-28:2	PAGE_1_OF_1
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
Carbon-14	J	All	No MS analysis

* - 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

Sample Results Summary

TestAmerica Inc TARL

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

Date: 22-Dec-14

Report No. : 64000

µ s/2/c)

SDG No: JP0885

Batch	Client Id / Work Order	Parameter	Result +- Uncertainty (2s)	Qual	Units	Tracer Yield	MDL	CRDL	RPD
4361026 C14_CHEM_LSC									
	J1V269								
	M5Q3X1AE	C-14	1.03E-01 +- 1.5E-01	U J	pCi/g	100%	3.18E-01	1.00E+00	
	J1V270								
	M5Q301AE	C-14	2.86E-02 +- 1.4E-01	U J	pCi/g	100%	3.19E-01	1.00E+00	
	J1V271								
	M5Q311AE	C-14	7.67E-04 +- 1.4E-01	U J	pCi/g	100%	3.21E-01	1.00E+00	
	J1V271 DUP								
	M5Q311AG	C-14	-8.88E-03 +- 1.4E-01	U	pCi/g	100%	3.16E-01	1.00E+00	-237.8
	J1V272								
	M5Q321AE	C-14	2.71E-02 +- 1.5E-01	U J	pCi/g	100%	3.18E-01	1.00E+00	
	J1V273								
	M5Q341AE	C-14	-1.92E-02 +- 1.4E-01	U	pCi/g	100%	3.18E-01	1.00E+00	
	J1V274								
	M5Q361AE	C-14	5.80E-02 +- 1.5E-01	U	pCi/g	100%	3.20E-01	1.00E+00	
	J1V275								
	M5Q4A1AE	C-14	-1.25E-03 +- 1.4E-01	U	pCi/g	100%	3.20E-01	1.00E+00	
	J1V276								
	M5Q4D1AE	C-14	-1.77E-02 +- 1.4E-01	U	pCi/g	100%	3.18E-01	1.00E+00	
	J1V277								
	M5Q4F1AE	C-14	1.01E-02 +- 1.4E-01	U	pCi/g	100%	3.10E-01	1.00E+00	
	J1V278								
	M5Q4G1AE	C-14	2.45E-02 +- 1.4E-01	U	pCi/g	100%	3.12E-01	1.00E+00	
	J1V279								
	M5Q4H1AE	C-14	-2.95E-02 +- 1.4E-01	U	pCi/g	100%	3.09E-01	1.00E+00	
	J1V280								
	M5Q4J1AE	C-14	1.19E-01 +- 1.5E-01	U	pCi/g	100%	3.14E-01	1.00E+00	
	J1V281								
	M5Q4L1AE	C-14	1.25E-01 +- 1.5E-01	U	pCi/g	100%	3.16E-01	1.00E+00	
	J1V282								
	M5Q4N1AE	C-14	-5.87E-03 +- 1.4E-01	U	pCi/g	100%	3.18E-01	1.00E+00	
	J1V283								
	M5Q4P1AE	C-14	1.81E-02 +- 1.4E-01	U	pCi/g	100%	3.18E-01	1.00E+00	
	J1V284								
	M5Q4Q1AE	C-14	1.21E-01 +- 1.5E-01	U	pCi/g	100%	3.17E-01	1.00E+00	
	J1V285								
	M5Q4T1AE	C-14	5.87E-02 +- 1.5E-01	U	pCi/g	100%	3.18E-01	1.00E+00	
4361025 GAMMA_GS									
	J1V269								
	M5Q3X1AC	AG-108M	-1.57E-04 +- 1.6E-02	U	pCi/g		2.71E-02		

TestAmerica Inc

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RPD - Relative Percent Difference.

U Qual - Analyzed for but not detected above limiting criteria, Mdc/Mda/Mdl, Total Uncert, RDL or not identified by gamma scan software.

Date: 22-Dec-14

Sample Results Summary

TestAmerica Inc TARL

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

Report No. : 64000

K 5/2/15

SDG No: JP0885

Batch	Client Id / Work Order	Parameter	Result +- Uncertainty (2s)	Qual	Units	Tracer Yield	MDL	CRDL	RPD
4361025 GAMMA_GS									
J1V269									
	M5Q3X1AC	AMERICIUM 241	-1.94E-03 +- 6.5E-02	U	pCi/g		1.12E-01		
		BA-133	5.11E-03 +- 2.5E-02	U	pCi/g		3.77E-02		
		CO-60	4.04E-03 +- 2.1E-02	U	pCi/g		3.74E-02	5.00E-02	
		CS-137	-7.59E-03 +- 2.1E-02	U	pCi/g		3.51E-02	1.00E-01	
		EU-152	3.50E-03 +- 5.1E-02	U	pCi/g		8.71E-02	1.00E-01	
		EU-154	-3.65E-03 +- 7.1E-02	U	pCi/g		1.24E-01	1.00E-01	
		EU-155	6.47E-02 +- 5.2E-02	U	pCi/g		8.99E-02	1.00E-01	
		K-40	1.42E+01 +- 1.9E+00		pCi/g		2.74E-01		
J1V270									
	M5Q301AC	AG-108M	-1.50E-03 +- 1.4E-02	U	pCi/g		2.35E-02		
		AMERICIUM 241	-1.00E-01 +- 3.5E-02	U	pCi/g		1.37E-01		
		BA-133	1.09E-01 +- 2.9E-02	U	pCi/g		4.32E-02		
		CO-60	9.72E-03 +- 1.6E-02	U	pCi/g		2.90E-02	5.00E-02	
		CS-137	3.98E-02 +- 1.9E-02	U	pCi/g		3.38E-02	1.00E-01	
		EU-152	2.75E-02 +- 1.3E-01	U	pCi/g		8.39E-02	1.00E-01	
		EU-154	2.42E-02 +- 5.4E-02	U	pCi/g		9.52E-02	1.00E-01	
		EU-155	9.86E-03 +- 5.8E-02	U	pCi/g		9.73E-02	1.00E-01	
		K-40	1.32E+01 +- 1.7E+00		pCi/g		1.93E-01		
J1V270 DUP									
	M5Q301AG	AG-108M	3.09E-03 +- 1.5E-02	U	pCi/g		2.66E-02		577.8
		AMERICIUM 241	8.65E-03 +- 6.3E-02	U	pCi/g		1.09E-01		-237.7
		BA-133	4.35E-03 +- 2.3E-02	U	pCi/g		3.52E-02		184.7
		CO-60	1.39E-02 +- 2.1E-02	U	pCi/g		3.88E-02	5.00E-02	35.7
		CS-137	3.60E-02 +- 2.4E-02	U	pCi/g		4.30E-02	1.00E-01	9.9
		EU-152	-3.67E-02 +- 5.3E-02	U	pCi/g		8.56E-02	1.00E-01	-1385.8
		EU-154	-6.60E-03 +- 6.9E-02	U	pCi/g		1.20E-01	1.00E-01	350.0
		EU-155	3.45E-02 +- 5.0E-02	U	pCi/g		8.50E-02	1.00E-01	111.0
		K-40	1.41E+01 +- 1.9E+00		pCi/g		3.19E-01		6.7
J1V271									
	M5Q311AC	AG-108M	-7.18E-03 +- 1.1E-02	U	pCi/g		1.75E-02		
		AMERICIUM 241	-6.97E-02 +- 9.3E-02	U	pCi/g		1.68E-01		
		BA-133	1.24E-02 +- 1.8E-02	U	pCi/g		2.60E-02		
		CO-60	-8.51E-03 +- 1.6E-02	U	pCi/g		2.61E-02	5.00E-02	
		CS-137	-1.87E-02 +- 1.6E-02	U	pCi/g		2.05E-02	1.00E-01	
		EU-152	-1.24E-02 +- 3.5E-02	U	pCi/g		5.85E-02	1.00E-01	
		EU-154	2.92E-02 +- 4.8E-02	U	pCi/g		8.80E-02	1.00E-01	
		EU-155	3.63E-02 +- 3.9E-02	U	pCi/g		6.75E-02	1.00E-01	

TestAmerica Inc

rptTALRchSaSummary2 V5.3.6.1 A2002

RPD - Relative Percent Difference.

U Qual - Analyzed for but not detected above limiting criteria, Mdc/Mda/Mdl, Total Uncert, RDL or not identified by gamma scan software.

Sample Results Summary

TestAmerica Inc TARL

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

Date: 22-Dec-14

Report No. : 64000

M 5/2/15

SDG No: JP0885

Batch	Client Id Work Order	Parameter	Result +- Uncertainty (2s)	Qual	Units	Tracer Yield	MDL	CRDL	RPD
4351025 GAMMA_GS									
J1V271									
	M5Q311AC	K-40	1.39E+01 +- 1.7E+00		pCi/g		2.24E-01		
J1V272									
	M5Q321AC	AG-108M	-7.32E-03 +- 1.3E-02	U	pCi/g		2.04E-02		
		AMERICIUM 241	-8.01E-03 +- 3.0E-02	U	pCi/g		4.61E-02		
		BA-133	-2.82E-03 +- 2.0E-02	U	pCi/g		2.89E-02		
		CO-60	-3.10E-03 +- 1.6E-02	U	pCi/g		2.72E-02	5.00E-02	
		CS-137	-4.93E-03 +- 1.7E-02	U	pCi/g		2.89E-02	1.00E-01	
		EU-152	-5.25E-02 +- 4.4E-02	U	pCi/g		6.52E-02	1.00E-01	
		EU-154	2.10E-02 +- 5.1E-02	U	pCi/g		9.19E-02	1.00E-01	
		EU-155	5.36E-02 +- 4.1E-02	U	pCi/g		7.11E-02	1.00E-01	
		K-40	1.67E+01 +- 2.0E+00		pCi/g		2.68E-01		
J1V273									
	M5Q341AC	AG-108M	4.60E-03 +- 8.3E-03	U	pCi/g		1.46E-02		
		AMERICIUM 241	-7.36E-03 +- 1.7E-02	U	pCi/g		2.62E-02		
		BA-133	-5.02E-04 +- 1.1E-02	U	pCi/g		1.79E-02		
		CO-60	-2.70E-03 +- 1.5E-02	U	pCi/g		2.57E-02	5.00E-02	
		CS-137	1.71E-03 +- 1.2E-02	U	pCi/g		2.03E-02	1.00E-01	
		EU-152	-1.27E-03 +- 2.6E-02	U	pCi/g		4.21E-02	1.00E-01	
		EU-154	-1.93E-02 +- 4.3E-02	U	pCi/g		7.15E-02	1.00E-01	
		EU-155	4.07E-02 +- 2.3E-02	U	pCi/g		3.91E-02	1.00E-01	
		K-40	1.40E+01 +- 1.7E+00		pCi/g		2.31E-01		
J1V274									
	M5Q361AC	AG-108M	-4.90E-03 +- 8.0E-03	U	pCi/g		1.28E-02		
		AMERICIUM 241	-5.54E-03 +- 1.3E-02	U	pCi/g		2.23E-02		
		BA-133	5.09E-04 +- 1.1E-02	U	pCi/g		1.74E-02		
		CO-60	-7.55E-03 +- 1.2E-02	U	pCi/g		2.04E-02	5.00E-02	
		CS-137	-4.62E-03 +- 1.2E-02	U	pCi/g		1.77E-02	1.00E-01	
		EU-152	2.36E-03 +- 3.0E-02	U	pCi/g		3.99E-02	1.00E-01	
		EU-154	-3.33E-02 +- 4.3E-02	U	pCi/g		7.06E-02	1.00E-01	
		EU-155	2.77E-02 +- 2.8E-02	U	pCi/g		3.41E-02	1.00E-01	
		K-40	1.21E+01 +- 1.4E+00		pCi/g		1.86E-01		
J1V275									
	M5Q4A1AC	AG-108M	-8.79E-03 +- 8.4E-03	U	pCi/g		1.34E-02		
		AMERICIUM 241	1.13E-02 +- 1.6E-02	U	pCi/g		2.75E-02		
		BA-133	-4.13E-03 +- 1.1E-02	U	pCi/g		1.81E-02		
		CO-60	-5.12E-04 +- 1.3E-02	U	pCi/g		2.29E-02	5.00E-02	
		CS-137	-1.10E-02 +- 1.1E-02	U	pCi/g		1.82E-02	1.00E-01	

TestAmerica Inc

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RPD - Relative Percent Difference.

U Qual - Analyzed for but not detected above limiting criteria, Mdc/Mda/Mdl, Total Uncert, RDL or not identified by gamma scan software.

Date: 22-Dec-14

Sample Results Summary

TestAmerica Inc TARL

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

Report No. : 64000

SDG No: JP0885

Batch	Client Id Work Order	Parameter	Result +- Uncertainty (2s)	Qual	Units	Tracer Yield	MDL	CRDL	RPD
4351025 GAMMA_GS									
J1V275									
	M5Q4A1AC	EU-152	2.71E-03 +- 2.4E-02	U	pCi/g		4.25E-02	1.00E-01	
		EU-154	-1.99E-02 +- 4.4E-02	U	pCi/g		7.44E-02	1.00E-01	
		EU-155	2.80E-02 +- 2.3E-02	U	pCi/g		4.09E-02	1.00E-01	
		K-40	1.32E+01 +- 1.6E+00		pCi/g		2.03E-01		
J1V276									
	M5Q4D1AC	AG-108M	-6.54E-03 +- 1.1E-02	U	pCi/g		1.86E-02		
		AMERICIUM 241	1.19E-03 +- 2.3E-02	U	pCi/g		3.72E-02		
		BA-133	3.61E-05 +- 1.6E-02	U	pCi/g		2.43E-02		
		CO-60	-8.13E-03 +- 1.7E-02	U	pCi/g		2.81E-02	5.00E-02	
		CS-137	9.94E-03 +- 1.7E-02	U	pCi/g		2.95E-02	1.00E-01	
		EU-152	-1.34E-02 +- 3.6E-02	U	pCi/g		5.66E-02	1.00E-01	
		EU-154	-3.35E-03 +- 5.4E-02	U	pCi/g		9.40E-02	1.00E-01	
		EU-155	3.70E-02 +- 3.1E-02	U	pCi/g		5.41E-02	1.00E-01	
		K-40	1.58E+01 +- 1.9E+00		pCi/g		2.07E-01		
J1V277									
	M5Q4F1AC	AG-108M	-7.13E-03 +- 1.3E-02	U	pCi/g		2.23E-02		
		AMERICIUM 241	-1.97E-02 +- 8.2E-02	U	pCi/g		1.36E-01		
		BA-133	8.36E-02 +- 2.8E-02	U	pCi/g		4.22E-02		
		CO-60	1.11E-02 +- 1.8E-02	U	pCi/g		3.16E-02	5.00E-02	
		CS-137	-1.60E-04 +- 1.6E-02	U	pCi/g		2.69E-02	1.00E-01	
		EU-152	1.24E-02 +- 1.2E-01	U	pCi/g		7.65E-02	1.00E-01	
		EU-154	1.04E-03 +- 6.3E-02	U	pCi/g		9.17E-02	1.00E-01	
		EU-155	-4.53E-02 +- 5.8E-02	U	pCi/g		9.50E-02	1.00E-01	
		K-40	1.37E+01 +- 1.7E+00		pCi/g		2.31E-01		
J1V278									
	M5Q4G1AC	AG-108M	1.41E-02 +- 1.2E-02	U	pCi/g		2.08E-02		
		AMERICIUM 241	-2.76E-02 +- 1.0E-01	U	pCi/g		1.75E-01		
		BA-133	1.17E-02 +- 1.8E-02	U	pCi/g		2.79E-02		
		CO-60	-6.12E-03 +- 1.6E-02	U	pCi/g		2.73E-02	5.00E-02	
		CS-137	-5.62E-03 +- 1.8E-02	U	pCi/g		2.49E-02	1.00E-01	
		EU-152	-1.27E-02 +- 3.6E-02	U	pCi/g		6.01E-02	1.00E-01	
		EU-154	4.13E-02 +- 4.8E-02	U	pCi/g		8.88E-02	1.00E-01	
		EU-155	4.22E-02 +- 4.4E-02	U	pCi/g		7.63E-02	1.00E-01	
		K-40	1.40E+01 +- 1.8E+00		pCi/g		2.17E-01		
J1V279									
	M5Q4H1AC	AG-108M	-2.05E-02 +- 1.1E-02	U	pCi/g		1.65E-02		
		AMERICIUM 241	-1.18E-02 +- 2.3E-02	U	pCi/g		3.71E-02		

TestAmerica Inc

rptTALRchSaSummary2 V8.3.6.1 A2002

RPD - Relative Percent Difference.

U Qual - Analyzed for but not detected above limiting criteria, Mdc/Mda/Mdl, Total Uncert, RDL or not identified by gamma scan software.

Date: 22-Dec-14

Sample Results Summary

TestAmerica Inc TARL

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

Report No. : 64000 SDG No: JP0885

Batch	Client Id Work Order	Parameter	Result +- Uncertainty (2s)	Qual	Units	Tracer Yield	MDL	CRDL	RPD
4351025 GAMMA_GS									
J1V279									
	M5Q4H1AC	BA-133	-1.60E-03 +- 1.7E-02	U	pCi/g		2.42E-02		
		CO-60	-2.48E-03 +- 1.5E-02	U	pCi/g		2.66E-02	5.00E-02	
		CS-137	-6.55E-03 +- 1.4E-02	U	pCi/g		2.30E-02	1.00E-01	
		EU-152	-1.55E-02 +- 3.7E-02	U	pCi/g		5.62E-02	1.00E-01	
		EU-154	-9.01E-03 +- 4.8E-02	U	pCi/g		8.28E-02	1.00E-01	
		EU-155	3.27E-02 +- 3.3E-02	U	pCi/g		5.69E-02	1.00E-01	
		K-40	1.24E+01 +- 1.5E+00		pCi/g		1.77E-01		
J1V280									
	M5Q4J1AC	AG-108M	4.13E-03 +- 8.6E-03	U	pCi/g		1.51E-02		
		AMERICIUM 241	-1.99E-03 +- 1.6E-02	U	pCi/g		2.64E-02		
		BA-133	1.02E-02 +- 1.3E-02	U	pCi/g		1.99E-02		
		CO-60	5.65E-03 +- 1.3E-02	U	pCi/g		2.49E-02	5.00E-02	
		CS-137	5.71E-03 +- 1.2E-02	U	pCi/g		2.15E-02	1.00E-01	
		EU-152	1.20E-02 +- 2.8E-02	U	pCi/g		4.61E-02	1.00E-01	
		EU-154	-2.45E-02 +- 4.7E-02	U	pCi/g		7.76E-02	1.00E-01	
		EU-155	8.33E-03 +- 2.3E-02	U	pCi/g		3.83E-02	1.00E-01	
		K-40	1.44E+01 +- 1.7E+00		pCi/g		2.32E-01		
J1V281									
	M5Q4L1AC	AG-108M	1.42E-04 +- 1.0E-02	U	pCi/g		1.70E-02		
		AMERICIUM 241	-2.01E-02 +- 1.8E-02	U	pCi/g		2.94E-02		
		BA-133	1.30E-02 +- 1.5E-02	U	pCi/g		2.37E-02		
		CO-60	-9.66E-03 +- 1.5E-02	U	pCi/g		2.44E-02	5.00E-02	
		CS-137	-1.07E-02 +- 1.6E-02	U	pCi/g		2.37E-02	1.00E-01	
		EU-152	2.74E-02 +- 3.1E-02	U	pCi/g		5.57E-02	1.00E-01	
		EU-154	7.94E-02 +- 5.5E-02	U	pCi/g		1.02E-01	1.00E-01	
		EU-155	3.25E-02 +- 2.7E-02	U	pCi/g		4.75E-02	1.00E-01	
		K-40	1.46E+01 +- 1.8E+00		pCi/g		2.00E-01		
J1V282									
	M5Q4N1AC	AG-108M	-3.44E-03 +- 8.9E-03	U	pCi/g		1.48E-02		
		AMERICIUM 241	-5.95E-03 +- 1.7E-02	U	pCi/g		2.82E-02		
		BA-133	9.73E-03 +- 1.3E-02	U	pCi/g		2.01E-02		
		CO-60	4.23E-03 +- 1.2E-02	U	pCi/g		2.30E-02	5.00E-02	
		CS-137	1.07E-02 +- 1.3E-02	U	pCi/g		2.26E-02	1.00E-01	
		EU-152	1.23E-02 +- 2.6E-02	U	pCi/g		4.70E-02	1.00E-01	
		EU-154	-1.85E-02 +- 4.3E-02	U	pCi/g		7.34E-02	1.00E-01	
		EU-155	4.11E-02 +- 2.4E-02	U	pCi/g		4.30E-02	1.00E-01	
		K-40	1.30E+01 +- 1.6E+00		pCi/g		2.00E-01		

TestAmerica Inc

rptTALRchSaSummary2 V5.3.6.1 A2002

RPD - Relative Percent Difference.

U Qual - Analyzed for but not detected above limiting criteria, Mdc/Mda/Mdl, Total Uncert, RDL or not identified by gamma scan software.

Date: 22-Dec-14

Sample Results Summary

TestAmerica Inc TARL

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

Report No. : 64000 SDG No: JP0885

Batch	Client Id Work Order	Parameter	Result +- Uncertainty (2s)	Qual	Units	Tracer Yield	MDL	CRDL	RPD
4351025 GAMMA_GS									
J1V283									
	M5Q4P1AC	AG-108M	-4.77E-03 +- 1.1E-02	U	pCi/g		1.87E-02		
		AMERICIUM 241	-1.15E-02 +- 2.3E-02	U	pCi/g		3.75E-02		
		BA-133	6.08E-04 +- 1.7E-02	U	pCi/g		2.59E-02		
		CO-60	-3.72E-03 +- 1.8E-02	U	pCi/g		3.13E-02	5.00E-02	
		CS-137	6.17E-03 +- 1.6E-02	U	pCi/g		2.85E-02	1.00E-01	
		EU-152	-1.67E-02 +- 3.7E-02	U	pCi/g		5.83E-02	1.00E-01	
		EU-154	5.96E-02 +- 5.3E-02	U	pCi/g		1.01E-01	1.00E-01	
		EU-155	5.88E-02 +- 3.3E-02	U	pCi/g		5.78E-02	1.00E-01	
		K-40	1.64E+01 +- 2.0E+00		pCi/g		2.65E-01		
J1V284									
	M5Q4Q1AC	AG-108M	5.38E-03 +- 8.9E-03	U	pCi/g		1.57E-02		
		AMERICIUM 241	7.04E-03 +- 1.6E-02	U	pCi/g		2.69E-02		
		BA-133	8.50E-03 +- 1.2E-02	U	pCi/g		1.78E-02		
		CO-60	7.85E-03 +- 1.4E-02	U	pCi/g		2.68E-02	5.00E-02	
		CS-137	-4.39E-03 +- 1.2E-02	U	pCi/g		1.97E-02	1.00E-01	
		EU-152	-1.30E-02 +- 2.7E-02	U	pCi/g		4.31E-02	1.00E-01	
		EU-154	4.43E-02 +- 4.7E-02	U	pCi/g		8.81E-02	1.00E-01	
		EU-155	1.56E-03 +- 2.3E-02	U	pCi/g		3.82E-02	1.00E-01	
		K-40	1.31E+01 +- 1.6E+00		pCi/g		2.51E-01		
J1V285									
	M5Q4T1AC	AG-108M	-8.21E-03 +- 1.1E-02	U	pCi/g		1.76E-02		
		AMERICIUM 241	-1.32E-02 +- 2.1E-02	U	pCi/g		3.43E-02		
		BA-133	9.98E-03 +- 1.5E-02	U	pCi/g		2.35E-02		
		CO-60	-6.27E-04 +- 1.6E-02	U	pCi/g		2.77E-02	5.00E-02	
		CS-137	2.20E-02 +- 2.8E-02	U	pCi/g		2.48E-02	1.00E-01	
		EU-152	1.49E-02 +- 3.2E-02	U	pCi/g		5.42E-02	1.00E-01	
		EU-154	1.88E-02 +- 5.1E-02	U	pCi/g		9.27E-02	1.00E-01	
		EU-155	6.50E-02 +- 2.9E-02	U	pCi/g		5.14E-02	1.00E-01	
		K-40	1.68E+01 +- 2.0E+00		pCi/g		2.51E-01		
4351024 NI63_LSC									
J1V269									
	M5Q3X1AF	Ni-63	4.46E+00 +- 3.1E+00	U	pCi/g	91%	6.29E+00	3.00E+01	
J1V269 DUP									
	M5Q3X1AG	Ni-63	1.11E+00 +- 3.1E+00	U	pCi/g	90%	6.72E+00	3.00E+01	120.1
J1V270									
	M5Q301AF	Ni-63	2.99E+00 +- 2.9E+00	U	pCi/g	95%	6.11E+00	3.00E+01	
J1V271									

TestAmerica Inc

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RPD - Relative Percent Difference.

U Qual - Analyzed for but not detected above limiting criteria, Mdc/Mda/Mdl, Total Uncert, RDL or not identified by gamma scan software.

Sample Results Summary

Date: 22-Dec-14

TestAmerica Inc TARL

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

Report No. : 64000 W 5/2/15 **SDG No:** JP0885

Batch	Client Id / Work Order	Parameter	Result +- Uncertainty (2s)	Qual	Units	Tracer Yield	MDL	CRDL	RPD
4351024 NI63_LSC									
	J1V271								
	M5Q311AF	Ni-63	1.09E+00 +- 2.8E+00	U	pCi/g	99%	6.13E+00	3.00E+01	
	J1V272								
	M5Q321AF	Ni-63	1.40E+00 +- 2.9E+00	U	pCi/g	95%	6.24E+00	3.00E+01	
	J1V273								
	M5Q341AF	Ni-63	-9.79E-01 +- 2.6E+00	U	pCi/g	97%	6.06E+00	3.00E+01	
	J1V274								
	M5Q361AF	Ni-63	1.92E+00 +- 2.8E+00	U	pCi/g	98%	6.07E+00	3.00E+01	
	J1V275								
	M5Q4A1AF	Ni-63	9.26E-01 +- 2.8E+00	U	pCi/g	95%	6.13E+00	3.00E+01	
	J1V276								
	M5Q4D1AF	Ni-63	3.62E+00 +- 3.0E+00	U	pCi/g	98%	6.27E+00	3.00E+01	
	J1V277								
	M5Q4F1AF	Ni-63	2.59E+00 +- 3.0E+00	U	pCi/g	97%	6.20E+00	3.00E+01	
	J1V278								
	M5Q4G1AF	Ni-63	1.54E+00 +- 2.8E+00	U	pCi/g	100%	6.05E+00	3.00E+01	
	J1V279								
	M5Q4H1AF	Ni-63	1.85E-01 +- 2.7E+00	U	pCi/g	97%	6.09E+00	3.00E+01	
	J1V280								
	M5Q4J1AF	Ni-63	3.50E+00 +- 3.0E+00	U	pCi/g	99%	6.12E+00	3.00E+01	
	J1V281								
	M5Q4L1AF	Ni-63	5.16E-01 +- 2.8E+00	U	pCi/g	94%	6.32E+00	3.00E+01	
	J1V282								
	M5Q4N1AF	Ni-63	8.99E+00 +- 3.4E+00		pCi/g	95%	6.10E+00	3.00E+01	
	J1V283								
	M5Q4P1AF	Ni-63	-2.02E-01 +- 2.7E+00	U	pCi/g	99%	6.13E+00	3.00E+01	
	J1V284								
	M5Q4Q1AF	Ni-63	1.54E+00 +- 3.0E+00	U	pCi/g	93%	6.51E+00	3.00E+01	
	J1V285								
	M5Q4T1AF	Ni-63	1.09E+00 +- 2.7E+00	U	pCi/g	100%	5.87E+00	3.00E+01	
4351054 7196_CR6									
	J1V269								
	~~M5Q3X1AA~~	~~HEXCHROME~~	~~1.55E-01 +- 0.0E+00~~	~~U~~	~~mg/kg~~	~~N/A~~	~~1.55E-01~~	~~1.55E-01~~	
	M5Q3X1AJ	HEXCHROME	1.55E-01 +- 0.0E+00	U	mg/kg	N/A	1.55E-01	1.55E-01	0.0
	J1V270								
	M5Q301AA	HEXCHROME	2.66E-01 +- 0.0E+00		mg/kg	N/A	1.55E-01	1.55E-01	
	J1V271								
	M5Q311AA	HEXCHROME	1.55E-01 +- 0.0E+00	U	mg/kg	N/A	1.55E-01	1.55E-01	
	J1V272								

W 5/2/15

TestAmerica Inc
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A2002

RPD - Relative Percent Difference.
U Qual - Analyzed for but not detected above limiting criteria, Mdc/Mda/Mdl, Total Uncert, RDL or not identified by gamma scan software.

Appendix 4

Laboratory Narrative and Chain-of-Custody Documentation

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Certificate of Analysis

Washington Hanford Closure
2620 Fermi Avenue
Richland, WA 99354

December 22, 2014

Attention: Joan Kessner

SAF Number	:	RC-107
Date SDG Closed	:	December 16, 2014
Number of Samples	:	Seventeen (17)
Sample Type	:	Soil
SDG Number	:	JP0885
Data Deliverable	:	7– Day / Summary

CASE NARRATIVE

I. Introduction

On December 16, 2014, seventeen soil samples were received at TestAmerica for radiochemical analysis. Upon receipt, the samples were assigned the following laboratory ID number to correspond with the Washington Closure Hanford (WCH) specific ID:

WCH ID#	TARL ID#	MATRIX	DATE OF RECEIPT
J1V269	M5Q3X	SOIL	12/16/14
J1V270	M5Q30	SOIL	12/16/14
J1V271	M5Q31	SOIL	12/16/14
J1V272	M5Q32	SOIL	12/16/14
J1V273	M5FQ34	SOIL	12/16/14
J1V274	M5Q36	SOIL	12/16/14
J1V275	M5Q4A	SOIL	12/16/14
J1V276	M5Q4D	SOIL	12/16/14
J1V277	M5Q4F	SOIL	12/16/14
J1V278	M5Q4G	SOIL	12/16/14
J1V279	M5Q4H	SOIL	12/16/14
J1V280	M5Q4J	SOIL	12/16/14
J1V281	M5Q4L	SOIL	12/16/14
J1V282	M5Q4N	SOIL	12/16/14
J1V283	M5Q4P	SOIL	12/16/14
J1V284	M5Q4Q	SOIL	12/16/14

Washington Closure Hanford
December 22, 2014

WCH ID#	TARL ID#	MATRIX	DATE OF RECEIPT
J1V285	M5Q4T	SOIL	12/16/14

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 analyses were:

Gamma Spectroscopy
Gamma Spec by method RL-GAM-001
Liquid Scintillation Counting
Carbon-14 by method RL-LSC-008
Nickel-63 by method RL-LCS-017
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

Gamma Spectroscopy
Gamma Spec by method RL-GAM-001:
The CRDL was not met for some of the analytes. Except as noted, the LCS, batch blank, samples and sample duplicate (J1V270) results are within contractual requirements.

Liquid Scintillation Counting
Carbon-14 by method RL-LSC-008:
The LCS, batch blank, samples and sample duplicate (J1V271) results are within contractual requirements.

Nickel-63 by method RL-LCS-017:
The LCS, batch blank, samples and sample duplicate (J1V269) results are within contractual requirements.

Chemical Analysis
Hexavalent Chromium by EPA method 7196A
The LCS, batch blank, samples, sample duplicate (J1V269) and sample matrix spike (J1V269) results are within contractual requirements.

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

Reviewed and approved:

Rhonda Wagar
Project Manager

Washington Closure Hanford

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

RC-107-123

Collector: H. Weber	Company Contact: Joan Kessner	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Price Code: 8B	Data Turnaround: 7days		
Project Designation: 100-H Field Remediation	Sampling Location: 100-H-28:2, EXC1, verification		SAF No.: RC-107
Ice Chest No.: ERC-02-407 / WCH-12-008	Field Logbook No.: EL-1627-08	COA: 01H2822000	Method of Shipment: Local Delivery
Shipped To: TestAmerica Richland	Offsite Property No.: NA		Bill of Lading/Air Bill No.: NA

Other Labs Shipped To: TestAmerica Denver

POSSIBLE SAMPLE HAZARDS/REMARKS
None

Special Handling and/or Storage
cool as required

Preservation	Cool 4C	None	None								
Type of Container	G/P	G/P	G/P								
No. of Container(s)	1	1	1								
Volume	125mL	1000mL	125mL								
Sample Analysis	Chromium Hex - 7196	See item (3) in Special Instructions	Carbon-14 Low Level, Nickel-63								

Sample No.	Matrix	Sample Date	Sample Time										
J1V269 M5Q3X	SOIL	12-15-14	1224	✓	✓	✓							
J1V270 M5Q3D	SOIL	12-15-14	0922	✓	✓	✓							
J1V271 M5Q31	SOIL	12-15-14	1029	✓	✓	✓							
J1V272 M5Q32	SOIL	12-15-14	0856	✓	✓	✓							
J1V273 M5Q34	SOIL	12-15-14	1002	✓	✓	✓							

REVIEWED BY [illegible] DATE 12/16/14

CHAIN OF POSSESSION

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Weather Weber	12/15/14 1300	Mashea Dwshea (WCH)	12/15/14 1306
Mashea Dwshea	12/15/14 1545	C. Birnham	12-15-14 1545
C. Birnham	12-15-14 1600	1000 Battelle, fridge #1A	12-15-14 1600
1000 Battelle, fridge #1A	12-16-14 0840	C. Birnham	12-16-14 0840
C. Birnham WCH	12-16-14 1355	J. Friesz, TARI	12/16/14 1355

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

SPECIAL INSTRUCTIONS

(3) Gamma Spec (Client List) {Americium-241, Barium-133, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155, Silver-108 metastable}

J4L160441
Due 12-23-14

J4L160441

SDG:

JP0885

WCH-EE-011

Washington Closure Hanford

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

RC-107-123

Collector: A. Weber	Company Contact: Joan Kessner	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Project Designation: 100-H Field Remediation	Sampling Location: 100-H-28:2, EXC1, verification		SAF No.: RC-107
Ice Chest No.: ERC-02-07 / WCH-12-008	Field Logbook No.: EL-1627-08	COA: 01H2822000	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: 7 days

Other Labs Shipped To: TestAmerica Denver

POSSIBLE SAMPLE HAZARDS/REMARKS: None

Special Handling and/or Storage: cool as required

Preservation	Cool 4C	None	None									
Type of Container	G/P	G/P	G/P									
No. of Container(s)	1	1	1									
Volume	125mL	1000mL	125mL									
Sample Analysis	Chromium Hex - 7196	See Item (3) in Special Instructions	Carbon-14 Low Level; Nickel-63									

Sample No.	Matrix	Sample Date	Sample Time									
J1V274 MSQ3L	SOIL	12-15-14	1106	✓	✓	✓						
J1V275 MSQ4A	SOIL	12-15-14	1058	✓	✓	✓						
J1V276 MSQ4D	SOIL	12-15-14	0935	✓	✓	✓						
J1V277 MSQ4F	SOIL	12-15-14	1115	✓	✓	✓						
J1V278 MSQ4G	SOIL	12-15-14	1158	✓	✓	✓						

REVIEWED BY [illegible] DATE 12/16/14

CHAIN OF POSSESSION

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Heather Weber / [illegible]	12/15/14 1306	(WCH) Joshua Wolfea	12/15/14 1306
Joshua Wolfea	12/15/14 1545	C. Bingham	12-15-14 1545
C. Bingham	12-15-14 1600	1060 Battelle, fridge #1A	12-15-14 1600
1060 Battelle, fridge #1A	12-16-14 0840	C. Bingham	12-16-14 0840
C. Bingham WCH	12-16-14 1355	J. Friesz, TARL	12/16/14 1355

Sign/Print Names

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

WCH-EE-011

SPECIAL INSTRUCTIONS

(3) Gamma Spec (Client List) {Americium-241, Barium-133, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155, Silver-108 metastable}

J4L160441
Due 12-23-14

JP0885

Washington Closure Hanford

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

RC-107-123

Collector: H. Weber	Company Contact: Joan Kessner	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Price Code: 8B	Data Turnaround: 7days		
Project Designation: 100-H Field Remediation	Sampling Location: 100-H-28:2, EXC1, verification		SAF No.: RC-107
Ice Chest No.: ERC-02-407 / WCH-12-008	Field Logbook No.: EL-1627-08	COA: 01H2822000	Method of Shipment: Local Delivery
Shipped To: TestAmerica Richland	Offsite Property No.: NA		Bill of Lading/Air Bill No.: NA

Other Labs Shipped To: TestAmerica Denver

POSSIBLE SAMPLE HAZARDS/REMARKS: None

Special Handling and/or Storage: cool as required

Preservation	Cool 4C	None	None								
Type of Container	G/P	G/P	G/P								
No. of Container(s)	1	1	1								
Volume	125mL	1000mL	125mL								
Sample Analysis	Chromium Hex - 7196	See item (3) in Special Instructions	Carbon-14 Low Level; Nickel-63								

Sample No.	Matrix	Sample Date	Sample Time										
J1V279 m5Q4H	SOIL	12-15-14	1145	✓	✓	✓							
J1V280 m5Q4J	SOIL	12-15-14	0949	✓	✓	✓							
J1V281 m5Q4L	SOIL	12-15-14	1018	✓	✓	✓							
J1V282 m5Q4N	SOIL	12-15-14	1208	✓	✓	✓							
J1V283 m5Q4P	SOIL	12-15-14	1133	✓	✓	✓							

REVIEWED BY JAS DATE 12/16/14

CHAIN OF POSSESSION

Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Heather Weber / 34	12/15/14 1300	(WCH) Mishon Dwshea	12/15/14 1306
Mishon Dwshea	12/15/14 1545	C. Bingham	12-15-14 1545
C. Bingham	12-15-14 1600	1060 Battelle, fridge #18	12-15-14 1600
1060 Battelle, fridge #1B	12-16-14 0840	C. Bingham	12-16-14 0840
C. Bingham WCH	12-16-14 1355	J. Friesz, TARL	12/16/14 1355
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

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

SPECIAL INSTRUCTIONS

(3) Gamma Spec (Client List) {Americium-241, Barium-133, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155, Silver-108 metastable}

J4L160441
Due 12-23-14

JP0885

WCH-EE-011

Washington Closure Hanford

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

RC-107-123

Collector: H. Weber	Company Contact: Joan Kessner	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Price Code: 8B	Data Turnaround: 7 days		
Project Designation: 100-H Field Remediation	Sampling Location: 100-H-28:2, EXC1, verification		SAF No.: RC-107
Ice Chest No.: FRC-02-407 / WCH-12-008	Field Logbook No.: EL-1627-08	COA: 01H2822000	Method of Shipment: Local Delivery
Shipped To: TestAmerica Richland	Offsite Property No.: NA		Bill of Lading/Air Bill No.: NA

Other Labs Shipped To: TestAmerica Denver

POSSIBLE SAMPLE HAZARDS/REMARKS
None

Special Handling and/or Storage
cool as required

Preservation	Cool 4C	None	None								
Type of Container	G/P	G/P	G/P								
No. of Container(s)	1	1	1								
Volume	125mL	1000mL	125mL								
Sample Analysis	Chromium Hex - 7196	See item (3) in Special Instructions	Carbon-14 Low Level; Nickel-63								

Sample No.	Matrix	Sample Date	Sample Time										
J1V284 MSQ4Q	SOIL	12-15-14	1249	✓	✓	✓							
J1V285 MSQ4T	SOIL	12-15-14	0856	✓	✓	✓							

REVIEWED BY [illegible] DATE 12/16/14

CHAIN OF POSSESSION

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Heather Weber / [illegible]	12/15/14 1306	(WEA) Joshua Bushea	12/15/14 1306
Joshua Bushea	12/15/14 1545	C. Bingham	12-15-14 1545
C. Bingham	12-15-14 1600	1060 Battelle, fridge #18	12-15-14 1600
1060 Battelle, fridge #18	12-16-14 0840	C. Bingham	12-16-14 0840
C. Bingham	12-16-14 1355	J. Friesz, TAL	12/16/14 1355

Sign/Print Names

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

WCH-EE-011

SPECIAL INSTRUCTIONS

(3) Gamma Spec (Client List) {Americium-241, Barium-133, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155, Silver-108 metastable}

J4L160441
Due 12-23-14

JP0885

Appendix 5

Data Validation Supporting Documentation

APPENDIX A

RADIOCHEMICAL DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	E
PROJECT: 100-H-2812			DATA PACKAGE: JP0885		
VALIDATOR: ELR		LAB: TAL		DATE: 4/30/15	
			SDG: JP0885		

ANALYSES PERFORMED

☐ Gross Alpha/Beta	☐ Strontium-90	☐ Technetium-99	☐ Alpha Spectroscopy	X Gamma Spectroscopy	
☐ Total Uranium	☐ Radium-22	☐ Tritium	X C14	X H1-3	

SAMPLES/MATRIX

JV269	JV270	JV271	JV272	JV273	JV274
JV275	JV276	JV277	JV278	JV279	JV280
JV281	JV282	JV284	JV285		
					Soil

1. Completeness ..... ☐ N/A

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

Comments: _____

2. Initial Calibration (Levels D, E) ..... X ☐ N/A

Instruments/detectors calibrated? ..... Yes No N/A

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

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

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

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

Comments: _____

3. Continuing Calibration (Levels D, E) ☐ ~~N/A~~

Calibration checked within required frequency? ..... Yes No N/A

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

Calibration check standards traceable? ..... Yes No N/A

Calibration check standards expired? ..... Yes No N/A

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

Comments: _____

_____

_____

_____

_____

4. Background Counts (Levels D, E) ..... ☐ N/A

Background Counts checked within required frequency? ..... Yes No N/A

Background Counts acceptable? ..... Yes No N/A

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

Comments: _____

_____

_____

_____

_____

5. Blanks (Levels B, C, D, E) ..... ☐ N/A

Method blank analyzed within required frequency? ..... Yes No N/A

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

Analytes detected in method blank? ..... Yes No N/A

Field blank(s) analyzed? ..... Yes No N/A

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

Analytes detected in field blank(s)? ..... Yes No N/A

Transcription/Calculation Errors? (Levels D, E) ..... Yes No N/A

Comments: no FB

6. Laboratory Control Samples or Blank Spike Samples (Levels C, D, E) ..... ☐ N/A

LCS /BSS analyzed within required frequency? ..... Yes No N/A

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

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

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

LCS/BSS levels correct? (Levels D,E) ..... Yes No N/A

Transcription/Calculation Errors? (Levels D, E) ..... Yes No N/A

Comments:

7. Chemical Carrier Recovery (Levels C, D, E) ..... ☒ N/A

Chemical carrier added? ..... Yes No N/A

Chemical recovery acceptable? ..... Yes No N/A

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

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

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

Comments: _____

8. Tracer Recovery (Levels C, D, E) ..... ☐ N/A

Tracer added? ..... Yes No N/A

Tracer recovery acceptable? ..... Yes No N/A

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

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

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

Comments: _____

9. Matrix Spikes (Levels C, D, E) ..... ☐ N/A

Matrix spike analyzed? ..... Yes No N/A

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

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

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

Transcription/Calculation Errors? (Levels D, E) ..... Yes No N/A

Comments: C14- No MS - J all

10. Duplicates (Levels C, D, E) ..... ☐ N/A

Duplicates Analyzed at required frequency? ..... Yes No N/A

RPD Values Acceptable? ..... Yes No N/A

Transcription/Calculation Errors? (Levels D, E) ..... Yes No N/A

Comments: _____

11. Field QC Samples (Levels C, D E) ..... ☐ N/A

Field duplicate sample(s) analyzed? ..... Yes No N/A

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

Field split sample(s) analyzed? ..... Yes No N/A

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

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

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

Comments: No FS or PAS

12. Holding Times (All levels)

Are sample holding times acceptable? ..... Yes No N/A

Comments: _____

13. Results and Detection Limits (All Levels) ..... ☐ N/A

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

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

Results Acceptable? (Levels D, E) ..... Yes No N/A

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

MDA's meet required detection limits? ..... Yes No N/A

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

Comments: 1/1 ann

Appendix 6

Additional Documentation Requested by Client

QC Results Summary

Date: 22-Dec-14

TestAmerica Inc TARL

Ordered by Method, Batch No, QC Type,.

Report No. : 64000

SDG No.: JP0885

Batch Work Order	Parameter	Result +- Uncertainty (2s)	Qual	Units	Tracer Yield	LCS Recovery	Bias	MDL
C14_CHEM_LSC								
4351026 BLANK QC, M5RA51AA	C-14	-2.95E-02 +- 1.4E-01	U	pCi/g	100%			3.13E-01
4351026 LCS, M5RA51AC	C-14	7.27E+00 +- 5.1E-01		pCi/g	100%	99%	0.0	3.17E-01
GAMMA_GS								
4351025 BLANK QC, M5RA41AA	AG-108M	4.90E-04 +- 5.8E-03	U	pCi/g				1.03E-02
	AMERICIUM 241	-2.64E-03 +- 9.1E-03	U	pCi/g				1.55E-02
	BA-133	-5.61E-03 +- 7.9E-03	U	pCi/g				1.29E-02
	CO-60	2.90E-03 +- 8.2E-03	U	pCi/g				1.63E-02
	CS-137	8.93E-03 +- 7.5E-03	U	pCi/g				1.49E-02
	EU-152	4.31E-03 +- 1.8E-02	U	pCi/g				3.25E-02
	EU-154	5.07E-03 +- 2.4E-02	U	pCi/g				4.62E-02
	EU-155	-1.66E-03 +- 1.2E-02	U	pCi/g				2.19E-02
	K-40	-4.62E-01 +- 2.1E-01	U	pCi/g				4.22E-01
4351025 LCS, M5RA41AC	CS-137	1.03E+00 +- 1.4E-01		pCi/g		103%	0.0	2.46E-02
	RA-226	8.97E-01 +- 1.3E-01		pCi/g		79%	-0.2	3.95E-02
	RA-228	6.21E-01 +- 1.3E-01		pCi/g		103%	0.0	8.31E-02
	U-238	9.56E-01 +- 1.3E-01		pCi/g		80%	-0.2	4.34E-02
NI63_LSC								
4351024 BLANK QC, M5RA31AA	NI-63	1.14E-01 +- 2.8E+00	U	pCi/g	91%			6.27E+00
4351024 LCS, M5RA31AC	Ni-63	2.54E+02 +- 1.9E+01		pCi/g	92%	86%	-0.1	6.14E+00
7196_CR6								
4351054 MATRIX SPIKE, J1V269 M5Q3X1AH	HEXCHROME	2.91E+01 +- 0.0E+00		mg/kg	N/A	88%	-0.1	1.55E-01
4351054 LCS, M5RGV1AC	HEXCHROME	1.98E+01 +- 0.0E+00		mg/kg	N/A	99%	0.0	1.55E-01
4351054 BLANK QC, M5RGV1AA	HEXCHROME	1.55E-01 +- 0.0E+00	U	mg/kg	N/A			1.55E-01

No. of Results: 20

TestAmerica Inc
rptSTLRchQcSummary V5.3.6.1
A2002

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

Date: 4 May 2015
To: Washington Closure Hanford Inc. (technical representative)
From: ELR Consulting
Project: 100-H Remaining Sites Burial Grounds – Soil Full Protocol - Waste Subsite 100-H-28:2
Subject: Semivolatile Organic - Data Package No. JP0885-TAL

INTRODUCTION

This memo presents the results of data validation on Data Package No. JP0885 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
J1V269	12/15/14	Soil	C	See note 1
J1V270	12/15/14	Soil	C	See note 1
J1V271	12/15/14	Soil	C	See note 1
J1V272	12/15/14	Soil	C	See note 1
J1V273	12/15/14	Soil	C	See note 1
J1V274	12/15/14	Soil	C	See note 1
J1V275	12/15/14	Soil	C	See note 1
J1V276	12/15/14	Soil	C	See note 1
J1V277	12/15/14	Soil	C	See note 1
J1V278	12/15/14	Soil	C	See note 1
J1V279	12/15/14	Soil	C	See note 1
J1V280	12/15/14	Soil	C	See note 1
J1V281	12/15/14	Soil	C	See note 1
J1V282	12/15/14	Soil	C	See note 1
J1V283	12/15/14	Soil	C	See note 1
J1V284	12/15/14	Soil	C	See note 1
J1V285	12/15/14	Soil	C	See note 1

1 – Semivolatile organics by 8270C.

Data validation was conducted in accordance with the Washington Closure Hanford (WCH) validation statement of work and the 100 Area Remedial Action Sampling and Analysis Plan (DOE/RL-96-22, September 2009). Appendices 1 through 6 provide the following information as indicated below:

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

DATA QUALITY OBJECTIVES

- **Holding Times**

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

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

All holding times were acceptable.

- **Method Blanks**

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

All method blank results were acceptable.

<u>Field (equipment) Blanks</u>

No field blanks were submitted for analysis.

- **Accuracy**

<u>Matrix Spike/Matrix Spike Duplicate & Blank Spike Recoveries</u>

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

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

Due to an LCS recovery outside QC limits, all 4-chloroanaline (43%) results were qualified as estimates and flagged "J".

All other accuracy results were acceptable.

Surrogate Recovery

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

All surrogate results were acceptable.

- **Precision**

Matrix Spike/Matrix Spike Duplicate Samples

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

All duplicate results were acceptable.

Field Duplicate Samples

One set field duplicates (J1V272/J1T285) 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. JP0885 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 deficiency was noted:

- Due to an LCS recovery outside QC limits, all 4-chloroanaline (43%) results were qualified as estimates and flagged "J".

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

REFERENCES

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

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

Appendix 1

Glossary of Data Reporting Qualifiers

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

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

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

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

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

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

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

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

Appendix 2

Summary of Data Qualification

SEMIVOLATILE ORGANIC DATA QUALIFICATION SUMMARY*

SDG: JP0885	REVIEWER: ELR	Project: 100-H-28:2	PAGE_1_OF_1
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
4-chloroanaline	J	All	LCS 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: 280-63697-1
Sdg Number: JP0885

Client Sample ID: **J1V269**

Lab Sample ID: 280-63697-1
Client Matrix: Solid
% Moisture: 8.2

Date Sampled: 12/15/2014 1224
Date Received: 12/17/2014 1030

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	280-258154	Instrument ID:	SMS_Y
Prep Method:	3550C	Prep Batch:	280-257733	Lab File ID:	Y2048.D
Dilution:	1.0			Initial Weight/Volume:	30.9 g
Analysis Date:	12/22/2014 1355			Final Weight/Volume:	1 mL
Prep Date:	12/18/2014 1659			Injection Volume:	0.5 uL

5/2/15

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Acenaphthene		19	J	11	350
Acenaphthylene		18	U	18	350
Anthracene		31	J	18	350
Benzo[a]anthracene		110	J	21	350
Benzo[a]pyrene		100	J	21	350
Benzo[b]fluoranthene		170	J K	28	350
Benzo[ghi]perylene		71	J	17	350
Benzo[k]fluoranthene		42	U K	42	350
Bis(2-chloroethoxy)methane		24	U	24	350
Bis(2-chloroethyl)ether		18	U	18	350
bis (2-chloroisopropyl) ether		24	U	24	350
Bis(2-ethylhexyl) phthalate		49	U	49	350
4-Bromophenyl phenyl ether		20	U	20	350
Butyl benzyl phthalate		45	U	45	350
Carbazole		38	U	38	350
4-Chloroaniline		87	U J	87	350
4-Chloro-3-methylphenol		70	U	70	350
2-Chloronaphthalene		14	J	11	350
2-Chlorophenol		22	U	22	350
4-Chlorophenyl phenyl ether		22	U	22	350
Chrysene		130	J	29	350
Dibenz(a,h)anthracene		20	U	20	350
Dibenzofuran		21	U	21	350
1,2-Dichlorobenzene		23	U	23	350
1,3-Dichlorobenzene		14	J	13	350
1,4-Dichlorobenzene		14	U	14	350
3,3'-Dichlorobenzidine		95	U	95	700
2,4-Dichlorophenol		11	U	11	350
Diethyl phthalate		27	U	27	350
2,4-Dimethylphenol		70	U	70	350
Dimethyl phthalate		24	U	24	350
Di-n-butyl phthalate		31	U	31	350
4,6-Dinitro-2-methylphenol		350	U	350	700
2,4-Dinitrophenol		350	U	350	870
2,4-Dinitrotoluene		70	U	70	350
2,6-Dinitrotoluene		30	U	30	350
Di-n-octyl phthalate		15	U	15	350
Fluoranthene		230	J	38	350
Fluorene		20	J	19	350
Hexachlorobenzene		31	U	31	350
Hexachlorobutadiene		11	U	11	350
Hexachlorocyclopentadiene		53	U	53	350
Hexachloroethane		23	U	23	350
Indeno[1,2,3-cd]pyrene		59	J	23	350
Isophorone		18	U	18	350
2-Methylnaphthalene		20	U	20	350

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Client Sample ID: **J1V269**

Lab Sample ID: 280-63697-1
Client Matrix: Solid

% Moisture: 8.2

Date Sampled: 12/15/2014 1224
Date Received: 12/17/2014 1030

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	280-258154	Instrument ID:	SMS_Y
Prep Method:	3550C	Prep Batch:	280-257733	Lab File ID:	Y2048.D
Dilution:	1.0			Initial Weight/Volume:	30.9 g
Analysis Date:	12/22/2014 1355			Final Weight/Volume:	1 mL
Prep Date:	12/18/2014 1659			Injection Volume:	0.5 uL

5/2/15

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
2-Methylphenol		14	U	14	350
3 & 4 Methylphenol		35	U	35	350
Naphthalene		33	U	33	350
2-Nitroaniline		53	U	53	350
3-Nitroaniline		77	U	77	350
4-Nitroaniline		77	U	77	350
Nitrobenzene		23	U	23	350
2-Nitrophenol		11	U	11	350
4-Nitrophenol		100	U	100	700
N-Nitrosodi-n-propylamine		33	U	33	350
N-Nitrosodiphenylamine		22	U	22	350
Pentachlorophenol		350	U	350	700
Phenanthrene		190	J	18	350
Phenol		19	U	19	350
Pyrene		310	J	13	350
1,2,4-Trichlorobenzene		30	U	30	350
2,4,5-Trichlorophenol		11	U	11	350
2,4,6-Trichlorophenol		11	U	11	350

Surrogate	%Rec	Qualifier	Acceptance Limits
2-Fluorobiphenyl	81		50 - 120
2-Fluorophenol	82		53 - 120
Nitrobenzene-d5	78		50 - 120
Phenol-d5	81		52 - 120
Terphenyl-d14	82		55 - 120
2,4,6-Tribromophenol	83		51 - 120

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Client Sample ID: **J1V269**

Lab Sample ID: 280-63697-1
Client Matrix: Solid

% Moisture: 8.2

Date Sampled: 12/15/2014 1224
Date Received: 12/17/2014 1030

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	280-258154	Instrument ID:	SMS_Y
Prep Method:	3550C	Prep Batch:	280-257733	Lab File ID:	Y2048.D
Dilution:	1.0			Initial Weight/Volume:	30.9 g
Analysis Date:	12/22/2014 1355			Final Weight/Volume:	1 mL
Prep Date:	12/18/2014 1659			Injection Volume:	0.5 uL

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

Cas Number	Analyte	RT	Est. Result (ug/Kg)	Qualifier
123-42-2	2-Pentanone, 4-hydroxy-4-methyl-	3.12	3900	N J
100-51-6	Benzyl alcohol	4.70	17	J N J
90-12-0	1-Methylnaphthalene	6.61	14	J N J
192-97-2	Benzo[e]pyrene	16.86	72	J N J

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Client Sample ID: **J1V270**

Lab Sample ID: 280-63697-2
Client Matrix: Solid
% Moisture: 4.6

Date Sampled: 12/15/2014 0922
Date Received: 12/17/2014 1030

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	280-258154	Instrument ID:	SMS_Y
Prep Method:	3550C	Prep Batch:	280-257733	Lab File ID:	Y2049.D
Dilution:	1.0			Initial Weight/Volume:	30.4 g
Analysis Date:	12/22/2014 1426			Final Weight/Volume:	1 mL
Prep Date:	12/18/2014 1659			Injection Volume:	0.5 uL

M 5/2/15

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Acenaphthene		11	U	11	340
Acenaphthylene		18	U	18	340
Anthracene		18	U	18	340
Benzo[a]anthracene		41	J	21	340
Benzo[a]pyrene		38	J	21	340
Benzo[b]fluoranthene		53	J	27	340
Benzo[ghi]perylene		31	J	17	340
Benzo[k]fluoranthene		41	U	41	340
Bis(2-chloroethoxy)methane		24	U	24	340
Bis(2-chloroethyl)ether		17	U	17	340
bis (2-chloroisopropyl) ether		24	U	24	340
Bis(2-ethylhexyl) phthalate		48	U	48	340
4-Bromophenyl phenyl ether		20	U	20	340
Butyl benzyl phthalate		45	U	45	340
Carbazole		37	U	37	340
4-Chloroaniline		85	U J	85	340
4-Chloro-3-methylphenol		68	U	68	340
2-Chloronaphthalene		10	U	10	340
2-Chlorophenol		22	U	22	340
4-Chlorophenyl phenyl ether		22	U	22	340
Chrysene		41	J	28	340
Dibenz(a,h)anthracene		20	U	20	340
Dibenzofuran		21	U	21	340
1,2-Dichlorobenzene		23	U	23	340
1,3-Dichlorobenzene		12	U	12	340
1,4-Dichlorobenzene		14	U	14	340
3,3'-Dichlorobenzidine		93	U	93	680
2,4-Dichlorophenol		10	U	10	340
Diethyl phthalate		27	U	27	340
2,4-Dimethylphenol		68	U	68	340
Dimethyl phthalate		24	U	24	340
Di-n-butyl phthalate		30	U	30	340
4,6-Dinitro-2-methylphenol		340	U	340	680
2,4-Dinitrophenol		340	U	340	850
2,4-Dinitrotoluene		68	U	68	340
2,6-Dinitrotoluene		29	U	29	340
Di-n-octyl phthalate		15	U	15	340
Fluoranthene		72	J	37	340
Fluorene		19	U	19	340
Hexachlorobenzene		30	U	30	340
Hexachlorobutadiene		10	U	10	340
Hexachlorocyclopentadiene		52	U	52	340
Hexachloroethane		22	U	22	340
Indeno[1,2,3-cd]pyrene		23	U	23	340
Isophorone		18	U	18	340
2-Methylnaphthalene		20	U	20	340

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Client Sample ID: **J1V270**

Lab Sample ID: 280-63697-2
Client Matrix: Solid
% Moisture: 4.6

Date Sampled: 12/15/2014 0922
Date Received: 12/17/2014 1030

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	280-258154	Instrument ID:	SMS_Y
Prep Method:	3550C	Prep Batch:	280-257733	Lab File ID:	Y2049.D
Dilution:	1.0			Initial Weight/Volume:	30.4 g
Analysis Date:	12/22/2014 1426			Final Weight/Volume:	1 mL
Prep Date:	12/18/2014 1659			Injection Volume:	0.5 uL

MS 1/2/15

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
2-Methylphenol		13	U	13	340
3 & 4 Methylphenol		34	U	34	340
Naphthalene		32	U	32	340
2-Nitroaniline		52	U	52	340
3-Nitroaniline		76	U	76	340
4-Nitroaniline		75	U	75	340
Nitrobenzene		23	U	23	340
2-Nitrophenol		10	U	10	340
4-Nitrophenol		100	U	100	680
N-Nitrosodi-n-propylamine		32	U	32	340
N-Nitrosodiphenylamine		22	U	22	340
Pentachlorophenol		340	U	340	680
Phenanthrene		41	J	18	340
Phenol		19	U	19	340
Pyrene		74	J	13	340
1,2,4-Trichlorobenzene		29	U	29	340
2,4,5-Trichlorophenol		10	U	10	340
2,4,6-Trichlorophenol		10	U	10	340

Surrogate	%Rec	Qualifier	Acceptance Limits
2-Fluorobiphenyl	81		50 - 120
2-Fluorophenol	78		53 - 120
Nitrobenzene-d5	73		50 - 120
Phenol-d5	81		52 - 120
Terphenyl-d14	82		55 - 120
2,4,6-Tribromophenol	86		51 - 120

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Client Sample ID: **J1V270**

Lab Sample ID: 280-63697-2
Client Matrix: Solid
% Moisture: 4.6

Date Sampled: 12/15/2014 0922
Date Received: 12/17/2014 1030

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	280-258154	Instrument ID:	SMS_Y
Prep Method:	3550C	Prep Batch:	280-257733	Lab File ID:	Y2049.D
Dilution:	1.0			Initial Weight/Volume:	30.4 g
Analysis Date:	12/22/2014 1426			Final Weight/Volume:	1 mL
Prep Date:	12/18/2014 1659			Injection Volume:	0.5 uL

W 5/2/15

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

Cas Number	Analyte	RT	Est. Result (ug/Kg)	Qualifier
	Unknown	3.12	3000	N J
192-97-2	Benzo[e]pyrene	16.85	31	J N J

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Client Sample ID: **J1V271**

Lab Sample ID: 280-63697-3
Client Matrix: Solid
% Moisture: 1.8

Date Sampled: 12/15/2014 1029
Date Received: 12/17/2014 1030

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	280-258154	Instrument ID:	SMS_Y
Prep Method:	3550C	Prep Batch:	280-257733	Lab File ID:	Y2050.D
Dilution:	1.0			Initial Weight/Volume:	30.8 g
Analysis Date:	12/22/2014 1456			Final Weight/Volume:	1 mL
Prep Date:	12/18/2014 1659			Injection Volume:	0.5 uL

5/2/15

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

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Client Sample ID: **J1V271**

Lab Sample ID: 280-63697-3
Client Matrix: Solid
% Moisture: 1.8

Date Sampled: 12/15/2014 1029
Date Received: 12/17/2014 1030

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	280-258154	Instrument ID:	SMS_Y
Prep Method:	3550C	Prep Batch:	280-257733	Lab File ID:	Y2050.D
Dilution:	1.0			Initial Weight/Volume:	30.8 g
Analysis Date:	12/22/2014 1456			Final Weight/Volume:	1 mL
Prep Date:	12/18/2014 1659			Injection Volume:	0.5 uL

12/24/14

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

Surrogate	%Rec	Qualifier	Acceptance Limits
2-Fluorobiphenyl	88		50 - 120
2-Fluorophenol	99		53 - 120
Nitrobenzene-d5	90		50 - 120
Phenol-d5	99		52 - 120
Terphenyl-d14	89		55 - 120
2,4,6-Tribromophenol	88		51 - 120

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Client Sample ID: **J1V271**

Lab Sample ID: 280-63697-3
Client Matrix: Solid
% Moisture: 1.8

Date Sampled: 12/15/2014 1029
Date Received: 12/17/2014 1030

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	280-258154	Instrument ID:	SMS_Y
Prep Method:	3550C	Prep Batch:	280-257733	Lab File ID:	Y2050.D
Dilution:	1.0			Initial Weight/Volume:	30.8 g
Analysis Date:	12/22/2014 1456			Final Weight/Volume:	1 mL
Prep Date:	12/18/2014 1659			Injection Volume:	0.5 uL

MS 12/29

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

Cas Number	Analyte	RT	Est. Result (ug/Kg)	Qualifier
	Unknown	3.12	4400	N J

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Client Sample ID: **J1V272**

Lab Sample ID: 280-63697-4
Client Matrix: Solid
% Moisture: 8.3

Date Sampled: 12/15/2014 0856
Date Received: 12/17/2014 1030

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	280-258154	Instrument ID:	SMS_Y
Prep Method:	3550C	Prep Batch:	280-257733	Lab File ID:	Y2051.D
Dilution:	1.0			Initial Weight/Volume:	30.6 g
Analysis Date:	12/22/2014 1527			Final Weight/Volume:	1 mL
Prep Date:	12/18/2014 1659			Injection Volume:	0.5 uL

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Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Acenaphthene		11	U	11	350
Acenaphthylene		18	U	18	350
Anthracene		18	U	18	350
Benzo[a]anthracene		21	U	21	350
Benzo[a]pyrene		21	U	21	350
Benzo[b]fluoranthene		28	U	28	350
Benzo[ghi]perylene		17	U	17	350
Benzo[k]fluoranthene		43	U	43	350
Bis(2-chloroethoxy)methane		25	U	25	350
Bis(2-chloroethyl)ether		18	U	18	350
bis (2-chloroisopropyl) ether		25	U	25	350
Bis(2-ethylhexyl) phthalate		49	U	49	350
4-Bromophenyl phenyl ether		20	U	20	350
Butyl benzyl phthalate		46	U	46	350
Carbazole		38	U	38	350
4-Chloroaniline		88	U J	88	350
4-Chloro-3-methylphenol		71	U	71	350
2-Chloronaphthalene		11	U	11	350
2-Chlorophenol		22	U	22	350
4-Chlorophenyl phenyl ether		22	U	22	350
Chrysene		29	U	29	350
Dibenz(a,h)anthracene		20	U	20	350
Dibenzofuran		21	U	21	350
1,2-Dichlorobenzene		24	U	24	350
1,3-Dichlorobenzene		13	U	13	350
1,4-Dichlorobenzene		15	U	15	350
3,3'-Dichlorobenzidine		96	U	96	710
2,4-Dichlorophenol		11	U	11	350
Diethyl phthalate		28	U	28	350
2,4-Dimethylphenol		71	U	71	350
Dimethyl phthalate		25	U	25	350
Di-n-butyl phthalate		31	U	31	350
4,6-Dinitro-2-methylphenol		350	U	350	710
2,4-Dinitrophenol		360	U	360	880
2,4-Dinitrotoluene		71	U	71	350
2,6-Dinitrotoluene		30	U	30	350
Di-n-octyl phthalate		15	U	15	350
Fluoranthene		38	U	38	350
Fluorene		19	U	19	350
Hexachlorobenzene		31	U	31	350
Hexachlorobutadiene		11	U	11	350
Hexachlorocyclopentadiene		53	U	53	350
Hexachloroethane		23	U	23	350
Indeno[1,2,3-cd]pyrene		24	U	24	350
Isophorone		18	U	18	350
2-Methylnaphthalene		20	U	20	350

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Client Sample ID: **J1V272**

Lab Sample ID: 280-63697-4
Client Matrix: Solid
% Moisture: 8.3

Date Sampled: 12/15/2014 0856
Date Received: 12/17/2014 1030

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	280-258154	Instrument ID:	SMS_Y
Prep Method:	3550C	Prep Batch:	280-257733	Lab File ID:	Y2051.D
Dilution:	1.0			Initial Weight/Volume:	30.6 g
Analysis Date:	12/22/2014 1527			Final Weight/Volume:	1 mL
Prep Date:	12/18/2014 1659			Injection Volume:	0.5 uL

V 5/2/15

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
2-Methylphenol		14	U	14	350
3 & 4 Methylphenol		35	U	35	350
Naphthalene		33	U	33	350
2-Nitroaniline		53	U	53	350
3-Nitroaniline		78	U	78	350
4-Nitroaniline		77	U	77	350
Nitrobenzene		24	U	24	350
2-Nitrophenol		11	U	11	350
4-Nitrophenol		100	U	100	710
N-Nitrosodi-n-propylamine		33	U	33	350
N-Nitrosodiphenylamine		22	U	22	350
Pentachlorophenol		350	U	350	710
Phenanthrene		18	U	18	350
Phenol		19	U	19	350
Pyrene		13	U	13	350
1,2,4-Trichlorobenzene		30	U	30	350
2,4,5-Trichlorophenol		11	U	11	350
2,4,6-Trichlorophenol		11	U	11	350

Surrogate	%Rec	Qualifier	Acceptance Limits
2-Fluorobiphenyl	77		50 - 120
2-Fluorophenol	82		53 - 120
Nitrobenzene-d5	77		50 - 120
Phenol-d5	82		52 - 120
Terphenyl-d14	76		55 - 120
2,4,6-Tribromophenol	79		51 - 120

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Client Sample ID: **J1V272**

Lab Sample ID: 280-63697-4
Client Matrix: Solid
% Moisture: 8.3

Date Sampled: 12/15/2014 0856
Date Received: 12/17/2014 1030

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	280-258154	Instrument ID:	SMS_Y
Prep Method:	3550C	Prep Batch:	280-257733	Lab File ID:	Y2051.D
Dilution:	1.0			Initial Weight/Volume:	30.6 g
Analysis Date:	12/22/2014 1527			Final Weight/Volume:	1 mL
Prep Date:	12/18/2014 1659			Injection Volume:	0.5 uL

K 5/2/15

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

Cas Number	Analyte	RT	Est. Result (ug/Kg)	Qualifier
	Unknown	3.12	3700	N J

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Client Sample ID: **J1V273**

Lab Sample ID: 280-63697-5
Client Matrix: Solid

% Moisture: 3.0

Date Sampled: 12/15/2014 1002
Date Received: 12/17/2014 1030

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	280-258154	Instrument ID:	SMS_Y
Prep Method:	3550C	Prep Batch:	280-257733	Lab File ID:	Y2052.D
Dilution:	1.0			Initial Weight/Volume:	30.9 g
Analysis Date:	12/22/2014 1557			Final Weight/Volume:	1 mL
Prep Date:	12/18/2014 1659			Injection Volume:	0.5 uL

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

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Client Sample ID: **J1V273**

Lab Sample ID: 280-63697-5
Client Matrix: Solid

% Moisture: 3.0

Date Sampled: 12/15/2014 1002
Date Received: 12/17/2014 1030

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	280-258154	Instrument ID:	SMS_Y
Prep Method:	3550C	Prep Batch:	280-257733	Lab File ID:	Y2052.D
Dilution:	1.0			Initial Weight/Volume:	30.9 g
Analysis Date:	12/22/2014 1557			Final Weight/Volume:	1 mL
Prep Date:	12/18/2014 1659			Injection Volume:	0.5 uL

✓ 5/2/15

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
2-Methylphenol		13	U	13	330
3 & 4 Methylphenol		33	U	33	330
Naphthalene		31	U	31	330
2-Nitroaniline		50	U	50	330
3-Nitroaniline		73	U	73	330
4-Nitroaniline		73	U	73	330
Nitrobenzene		22	U	22	330
2-Nitrophenol		10	U	10	330
4-Nitrophenol		97	U	97	660
N-Nitrosodi-n-propylamine		31	U	31	330
N-Nitrosodiphenylamine		21	U	21	330
Pentachlorophenol		330	U	330	660
Phenanthrene		17	U	17	330
Phenol		18	U	18	330
Pyrene		35	J	12	330
1,2,4-Trichlorobenzene		28	U	28	330
2,4,5-Trichlorophenol		10	U	10	330
2,4,6-Trichlorophenol		10	U	10	330

Surrogate	%Rec	Qualifier	Acceptance Limits
2-Fluorobiphenyl	77		50 - 120
2-Fluorophenol	80		53 - 120
Nitrobenzene-d5	77		50 - 120
Phenol-d5	81		52 - 120
Terphenyl-d14	77		55 - 120
2,4,6-Tribromophenol	74		51 - 120

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Client Sample ID: **J1V273**

Lab Sample ID: 280-63697-5
Client Matrix: Solid

% Moisture: 3.0

Date Sampled: 12/15/2014 1002
Date Received: 12/17/2014 1030

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	280-258154	Instrument ID:	SMS_Y
Prep Method:	3550C	Prep Batch:	280-257733	Lab File ID:	Y2052.D
Dilution:	1.0			Initial Weight/Volume:	30.9 g
Analysis Date:	12/22/2014 1557			Final Weight/Volume:	1 mL
Prep Date:	12/18/2014 1659			Injection Volume:	0.5 uL

✓ 5/2/15

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

Cas Number	Analyte	RT	Est. Result (ug/Kg)	Qualifier
	Unknown	3.12	3500	N J

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Client Sample ID: **J1V274**

Lab Sample ID: 280-63697-6
Client Matrix: Solid
% Moisture: 3.0

Date Sampled: 12/15/2014 1106
Date Received: 12/17/2014 1030

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	280-258154	Instrument ID:	SMS_Y
Prep Method:	3550C	Prep Batch:	280-257733	Lab File ID:	Y2053.D
Dilution:	1.0			Initial Weight/Volume:	32.3 g
Analysis Date:	12/22/2014 1628			Final Weight/Volume:	1 mL
Prep Date:	12/18/2014 1659			Injection Volume:	0.5 uL

V 5/2/15

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Acenaphthene		9.9	U	9.9	320
Acenaphthylene		16	U	16	320
Anthracene		16	U	16	320
Benzo[a]anthracene		19	U	19	320
Benzo[a]pyrene		19	U	19	320
Benzo[b]fluoranthene		25	U	25	320
Benzo[ghi]perylene		15	U	15	320
Benzo[k]fluoranthene		38	U	38	320
Bis(2-chloroethoxy)methane		22	U	22	320
Bis(2-chloroethyl)ether		16	U	16	320
bis (2-chloroisopropyl) ether		22	U	22	320
Bis(2-ethylhexyl) phthalate		44	U	44	320
4-Bromophenyl phenyl ether		18	U	18	320
Butyl benzyl phthalate		41	U	41	320
Carbazole		34	U	34	320
4-Chloroaniline		78	U J	78	320
4-Chloro-3-methylphenol		63	U	63	320
2-Chloronaphthalene		9.6	U	9.6	320
2-Chlorophenol		20	U	20	320
4-Chlorophenyl phenyl ether		20	U	20	320
Chrysene		26	U	26	320
Dibenz(a,h)anthracene		18	U	18	320
Dibenzofuran		19	U	19	320
1,2-Dichlorobenzene		21	U	21	320
1,3-Dichlorobenzene		11	U	11	320
1,4-Dichlorobenzene		13	U	13	320
3,3'-Dichlorobenzidine		86	U	86	630
2,4-Dichlorophenol		9.6	U	9.6	320
Diethyl phthalate		25	U	25	320
2,4-Dimethylphenol		63	U	63	320
Dimethyl phthalate		22	U	22	320
Di-n-butyl phthalate		28	U	28	320
4,6-Dinitro-2-methylphenol		320	U	320	630
2,4-Dinitrophenol		320	U	320	790
2,4-Dinitrotoluene		63	U	63	320
2,6-Dinitrotoluene		27	U	27	320
Di-n-octyl phthalate		14	U	14	320
Fluoranthene		34	U	34	320
Fluorene		17	U	17	320
Hexachlorobenzene		28	U	28	320
Hexachlorobutadiene		9.6	U	9.6	320
Hexachlorocyclopentadiene		48	U	48	320
Hexachloroethane		20	U	20	320
Indeno[1,2,3-cd]pyrene		21	U	21	320
Isophorone		16	U	16	320
2-Methylnaphthalene		18	U	18	320

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Client Sample ID: **J1V274**

Lab Sample ID: 280-63697-6
Client Matrix: Solid
% Moisture: 3.0

Date Sampled: 12/15/2014 1106
Date Received: 12/17/2014 1030

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	280-258154	Instrument ID:	SMS_Y
Prep Method:	3550C	Prep Batch:	280-257733	Lab File ID:	Y2053.D
Dilution:	1.0			Initial Weight/Volume:	32.3 g
Analysis Date:	12/22/2014 1628			Final Weight/Volume:	1 mL
Prep Date:	12/18/2014 1659			Injection Volume:	0.5 uL

5/2/15

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

Surrogate	%Rec	Qualifier	Acceptance Limits
2-Fluorobiphenyl	84		50 - 120
2-Fluorophenol	92		53 - 120
Nitrobenzene-d5	84		50 - 120
Phenol-d5	91		52 - 120
Terphenyl-d14	84		55 - 120
2,4,6-Tribromophenol	85		51 - 120

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Client Sample ID: **J1V274**

Lab Sample ID: 280-63697-6
Client Matrix: Solid

% Moisture: 3.0

Date Sampled: 12/15/2014 1106
Date Received: 12/17/2014 1030

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	280-258154	Instrument ID:	SMS_Y
Prep Method:	3550C	Prep Batch:	280-257733	Lab File ID:	Y2053.D
Dilution:	1.0			Initial Weight/Volume:	32.3 g
Analysis Date:	12/22/2014 1628			Final Weight/Volume:	1 mL
Prep Date:	12/18/2014 1659			Injection Volume:	0.5 uL

K 5/2/15

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

Cas Number	Analyte	RT	Est. Result (ug/Kg)	Qualifier
	Unknown	3.12	3800	N J

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Client Sample ID: **J1V275**

Lab Sample ID: 280-63697-7
Client Matrix: Solid
% Moisture: 2.2

Date Sampled: 12/15/2014 1058
Date Received: 12/17/2014 1030

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	280-258154	Instrument ID:	SMS_Y
Prep Method:	3550C	Prep Batch:	280-257733	Lab File ID:	Y2054.D
Dilution:	1.0			Initial Weight/Volume:	31.4 g
Analysis Date:	12/22/2014 1658			Final Weight/Volume:	1 mL
Prep Date:	12/18/2014 1659			Injection Volume:	0.5 uL

V 5/2/15

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

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Client Sample ID: **J1V275**

Lab Sample ID: 280-63697-7
Client Matrix: Solid
% Moisture: 2.2

Date Sampled: 12/15/2014 1058
Date Received: 12/17/2014 1030

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	280-258154	Instrument ID:	SMS_Y
Prep Method:	3550C	Prep Batch:	280-257733	Lab File ID:	Y2054.D
Dilution:	1.0			Initial Weight/Volume:	31.4 g
Analysis Date:	12/22/2014 1658			Final Weight/Volume:	1 mL
Prep Date:	12/18/2014 1659			Injection Volume:	0.5 uL

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

Surrogate	%Rec	Qualifier	Acceptance Limits
2-Fluorobiphenyl	81		50 - 120
2-Fluorophenol	84		53 - 120
Nitrobenzene-d5	80		50 - 120
Phenol-d5	85		52 - 120
Terphenyl-d14	82		55 - 120
2,4,6-Tribromophenol	79		51 - 120

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Client Sample ID: **J1V275**

Lab Sample ID: 280-63697-7
Client Matrix: Solid

% Moisture: 2.2

Date Sampled: 12/15/2014 1058
Date Received: 12/17/2014 1030

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	280-258154	Instrument ID:	SMS_Y
Prep Method:	3550C	Prep Batch:	280-257733	Lab File ID:	Y2054.D
Dilution:	1.0			Initial Weight/Volume:	31.4 g
Analysis Date:	12/22/2014 1658			Final Weight/Volume:	1 mL
Prep Date:	12/18/2014 1659			Injection Volume:	0.5 uL

✓ 5/2/15

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

Cas Number	Analyte	RT	Est. Result (ug/Kg)	Qualifier
78-95-5	2-Propanone, 1-chloro-	1.85	140	N J
	Unknown	3.12	3500	N J

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Client Sample ID: **J1V276**

Lab Sample ID: 280-63697-8
Client Matrix: Solid

% Moisture: 8.8

Date Sampled: 12/15/2014 0935
Date Received: 12/17/2014 1030

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	280-258154	Instrument ID:	SMS_Y
Prep Method:	3550C	Prep Batch:	280-257733	Lab File ID:	Y2055.D
Dilution:	1.0			Initial Weight/Volume:	30.0 g
Analysis Date:	12/22/2014 1729			Final Weight/Volume:	1 mL
Prep Date:	12/18/2014 1659			Injection Volume:	0.5 uL

r 5/2/15

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Acenaphthene		11	U	11	360
Acenaphthylene		19	U	19	360
Anthracene		19	U	19	360
Benzo[a]anthracene		22	U	22	360
Benzo[a]pyrene		22	U	22	360
Benzo[b]fluoranthene		29	U	29	360
Benzo[ghi]perylene		18	U	18	360
Benzo[k]fluoranthene		44	U	44	360
Bis(2-chloroethoxy)methane		25	U	25	360
Bis(2-chloroethyl)ether		18	U	18	360
bis (2-chloroisopropyl) ether		25	U	25	360
Bis(2-ethylhexyl) phthalate		50	U	50	360
4-Bromophenyl phenyl ether		21	U	21	360
Butyl benzyl phthalate		47	U	47	360
Carbazole		39	U	39	360
4-Chloroaniline		90	U J	90	360
4-Chloro-3-methylphenol		72	U	72	360
2-Chloronaphthalene		11	U	11	360
2-Chlorophenol		23	U	23	360
4-Chlorophenyl phenyl ether		23	U	23	360
Chrysene		30	U	30	360
Dibenz(a,h)anthracene		21	U	21	360
Dibenzofuran		22	U	22	360
1,2-Dichlorobenzene		24	U	24	360
1,3-Dichlorobenzene		13	U	13	360
1,4-Dichlorobenzene		15	U	15	360
3,3'-Dichlorobenzidine		99	U	99	720
2,4-Dichlorophenol		11	U	11	360
Diethyl phthalate		29	U	29	360
2,4-Dimethylphenol		72	U	72	360
Dimethyl phthalate		25	U	25	360
Di-n-butyl phthalate		32	U	32	360
4,6-Dinitro-2-methylphenol		360	U	360	720
2,4-Dinitrophenol		370	U	370	900
2,4-Dinitrotoluene		72	U	72	360
2,6-Dinitrotoluene		31	U	31	360
Di-n-octyl phthalate		16	U	16	360
Fluoranthene		39	U	39	360
Fluorene		20	U	20	360
Hexachlorobenzene		32	U	32	360
Hexachlorobutadiene		11	U	11	360
Hexachlorocyclopentadiene		55	U	55	360
Hexachloroethane		23	U	23	360
Indeno[1,2,3-cd]pyrene		24	U	24	360
Isophorone		19	U	19	360
2-Methylnaphthalene		21	U	21	360

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Client Sample ID: **J1V276**

Lab Sample ID: 280-63697-8
Client Matrix: Solid
% Moisture: 8.8

Date Sampled: 12/15/2014 0935
Date Received: 12/17/2014 1030

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	280-258154	Instrument ID:	SMS_Y
Prep Method:	3550C	Prep Batch:	280-257733	Lab File ID:	Y2055.D
Dilution:	1.0			Initial Weight/Volume:	30.0 g
Analysis Date:	12/22/2014 1729			Final Weight/Volume:	1 mL
Prep Date:	12/18/2014 1659			Injection Volume:	0.5 uL

✓ 5/2/15

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
2-Methylphenol		14	U	14	360
3 & 4 Methylphenol		36	U	36	360
Naphthalene		34	U	34	360
2-Nitroaniline		55	U	55	360
3-Nitroaniline		80	U	80	360
4-Nitroaniline		80	U	80	360
Nitrobenzene		24	U	24	360
2-Nitrophenol		11	U	11	360
4-Nitrophenol		110	U	110	720
N-Nitrosodi-n-propylamine		34	U	34	360
N-Nitrosodiphenylamine		23	U	23	360
Pentachlorophenol		360	U	360	720
Phenanthrene		29	J	19	360
Phenol		20	U	20	360
Pyrene		25	J	13	360
1,2,4-Trichlorobenzene		31	U	31	360
2,4,5-Trichlorophenol		11	U	11	360
2,4,6-Trichlorophenol		11	U	11	360

Surrogate	%Rec	Qualifier	Acceptance Limits
2-Fluorobiphenyl	73		50 - 120
2-Fluorophenol	79		53 - 120
Nitrobenzene-d5	72		50 - 120
Phenol-d5	79		52 - 120
Terphenyl-d14	75		55 - 120
2,4,6-Tribromophenol	72		51 - 120

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Client Sample ID: **J1V276**

Lab Sample ID: 280-63697-8
Client Matrix: Solid

% Moisture: 8.8

Date Sampled: 12/15/2014 0935
Date Received: 12/17/2014 1030

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	280-258154	Instrument ID:	SMS_Y
Prep Method:	3550C	Prep Batch:	280-257733	Lab File ID:	Y2055.D
Dilution:	1.0			Initial Weight/Volume:	30.0 g
Analysis Date:	12/22/2014 1729			Final Weight/Volume:	1 mL
Prep Date:	12/18/2014 1659			Injection Volume:	0.5 uL

5/2/15

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

Cas Number	Analyte	RT	Est. Result (ug/Kg)	Qualifier
	Unknown	3.12	3500	N J

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Client Sample ID: **J1V277**

Lab Sample ID: 280-63697-9
Client Matrix: Solid
% Moisture: 3.1

Date Sampled: 12/15/2014 1115
Date Received: 12/17/2014 1030

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	280-258154	Instrument ID:	SMS_Y
Prep Method:	3550C	Prep Batch:	280-257733	Lab File ID:	Y2058.D
Dilution:	1.0			Initial Weight/Volume:	30.7 g
Analysis Date:	12/22/2014 1900			Final Weight/Volume:	1 mL
Prep Date:	12/18/2014 1659			Injection Volume:	0.5 uL

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Analyte DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Acenaphthene	18	J	10	330
Acenaphthylene	17	U	17	330
Anthracene	17	U	17	330
Benzo[a]anthracene	20	J	20	330
Benzo[a]pyrene	20	U	20	330
Benzo[b]fluoranthene	26	U	26	330
Benzo[ghi]perylene	16	U	16	330
Benzo[k]fluoranthene	40	U	40	330
Bis(2-chloroethoxy)methane	23	U	23	330
Bis(2-chloroethyl)ether	17	U	17	330
bis (2-chloroisopropyl) ether	23	U	23	330
Bis(2-ethylhexyl) phthalate	46	U	46	330
4-Bromophenyl phenyl ether	19	U	19	330
Butyl benzyl phthalate	43	U	43	330
Carbazole	36	U	36	330
4-Chloroaniline	83	U J	83	330
4-Chloro-3-methylphenol	67	U	67	330
2-Chloronaphthalene	18	J	10	330
2-Chlorophenol	21	U	21	330
4-Chlorophenyl phenyl ether	21	U	21	330
Chrysene	27	U	27	330
Dibenz(a,h)anthracene	19	U	19	330
Dibenzofuran	20	U	20	330
1,2-Dichlorobenzene	22	U	22	330
1,3-Dichlorobenzene	14	J	12	330
1,4-Dichlorobenzene	14	J	14	330
3,3'-Dichlorobenzidine	91	U	91	670
2,4-Dichlorophenol	10	U	10	330
Diethyl phthalate	26	U	26	330
2,4-Dimethylphenol	67	U	67	330
Dimethyl phthalate	23	U	23	330
Di-n-butyl phthalate	29	U	29	330
4,6-Dinitro-2-methylphenol	330	U	330	670
2,4-Dinitrophenol	340	U	340	830
2,4-Dinitrotoluene	67	U	67	330
2,6-Dinitrotoluene	28	U	28	330
Di-n-octyl phthalate	15	U	15	330
Fluoranthene	36	U	36	330
Fluorene	19	J	18	330
Hexachlorobenzene	29	U	29	330
Hexachlorobutadiene	10	U	10	330
Hexachlorocyclopentadiene	50	U	50	330
Hexachloroethane	21	U	21	330
Indeno[1,2,3-cd]pyrene	22	U	22	330
Isophorone	17	U	17	330
2-Methylnaphthalene	19	U	19	330

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Client Sample ID: **J1V277**

Lab Sample ID: 280-63697-9
Client Matrix: Solid

% Moisture: 3.1

Date Sampled: 12/15/2014 1115
Date Received: 12/17/2014 1030

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	280-258154	Instrument ID:	SMS_Y
Prep Method:	3550C	Prep Batch:	280-257733	Lab File ID:	Y2058.D
Dilution:	1.0			Initial Weight/Volume:	30.7 g
Analysis Date:	12/22/2014 1900			Final Weight/Volume:	1 mL
Prep Date:	12/18/2014 1659			Injection Volume:	0.5 uL

5/2/15

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
2-Methylphenol		13	U	13	330
3 & 4 Methylphenol		33	U	33	330
Naphthalene		31	U	31	330
2-Nitroaniline		50	U	50	330
3-Nitroaniline		74	U	74	330
4-Nitroaniline		73	U	73	330
Nitrobenzene		22	U	22	330
2-Nitrophenol		14	J	10	330
4-Nitrophenol		98	U	98	670
N-Nitrosodi-n-propylamine		31	U	31	330
N-Nitrosodiphenylamine		21	U	21	330
Pentachlorophenol		330	U	330	670
Phenanthrene		20	J	17	330
Phenol		18	U	18	330
Pyrene		17	J	12	330
1,2,4-Trichlorobenzene		28	U	28	330
2,4,5-Trichlorophenol		16	J	10	330
2,4,6-Trichlorophenol		13	J	10	330

Surrogate	%Rec	Qualifier	Acceptance Limits
2-Fluorobiphenyl	69		50 - 120
2-Fluorophenol	72		53 - 120
Nitrobenzene-d5	70		50 - 120
Phenol-d5	72		52 - 120
Terphenyl-d14	69		55 - 120
2,4,6-Tribromophenol	70		51 - 120

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Client Sample ID: **J1V277**

Lab Sample ID: 280-63697-9
Client Matrix: Solid
% Moisture: 3.1

Date Sampled: 12/15/2014 1115
Date Received: 12/17/2014 1030

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	280-258154	Instrument ID:	SMS_Y
Prep Method:	3550C	Prep Batch:	280-257733	Lab File ID:	Y2058.D
Dilution:	1.0			Initial Weight/Volume:	30.7 g
Analysis Date:	12/22/2014 1900			Final Weight/Volume:	1 mL
Prep Date:	12/18/2014 1659			Injection Volume:	0.5 uL

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

Cas Number	Analyte	RT	Est. Result (ug/Kg)	Qualifier
	Unknown	3.12	3300	N J
100-51-6	Benzyl alcohol	4.70	16	J N J
90-12-0	1-Methylnaphthalene	6.61	16	J N J
544-76-3	Hexadecane	7.92	15	J N J

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Client Sample ID: **J1V278**

Lab Sample ID: 280-63697-10
Client Matrix: Solid
% Moisture: 10.0

Date Sampled: 12/15/2014 1158
Date Received: 12/17/2014 1030

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	280-258154	Instrument ID:	SMS_Y
Prep Method:	3550C	Prep Batch:	280-257733	Lab File ID:	Y2059.D
Dilution:	1.0			Initial Weight/Volume:	30.9 g
Analysis Date:	12/22/2014 1931			Final Weight/Volume:	1 mL
Prep Date:	12/18/2014 1659			Injection Volume:	0.5 uL

VR 5/2/15

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Acenaphthene		11	U	11	360
Acenaphthylene		18	U	18	360
Anthracene		18	U	18	360
Benzo[a]anthracene		22	U	22	360
Benzo[a]pyrene		22	U	22	360
Benzo[b]fluoranthene		28	U	28	360
Benzo[ghi]perylene		17	U	17	360
Benzo[k]fluoranthene		43	U	43	360
Bis(2-chloroethoxy)methane		25	U	25	360
Bis(2-chloroethyl)ether		18	U	18	360
bis (2-chloroisopropyl) ether		25	U	25	360
Bis(2-ethylhexyl) phthalate		50	U	50	360
4-Bromophenyl phenyl ether		20	U	20	360
Butyl benzyl phthalate		46	U	46	360
Carbazole		39	U	39	360
4-Chloroaniline		88	U J	88	360
4-Chloro-3-methylphenol		71	U	71	360
2-Chloronaphthalene		11	U	11	360
2-Chlorophenol		23	U	23	360
4-Chlorophenyl phenyl ether		23	U	23	360
Chrysene		29	U	29	360
Dibenz(a,h)anthracene		20	U	20	360
Dibenzofuran		22	U	22	360
1,2-Dichlorobenzene		24	U	24	360
1,3-Dichlorobenzene		13	U	13	360
1,4-Dichlorobenzene		15	U	15	360
3,3'-Dichlorobenzidine		97	U	97	710
2,4-Dichlorophenol		11	U	11	360
Diethyl phthalate		28	U	28	360
2,4-Dimethylphenol		71	U	71	360
Dimethyl phthalate		25	U	25	360
Di-n-butyl phthalate		31	U	31	360
4,6-Dinitro-2-methylphenol		360	U	360	710
2,4-Dinitrophenol		360	U	360	890
2,4-Dinitrotoluene		71	U	71	360
2,6-Dinitrotoluene		30	U	30	360
Di-n-octyl phthalate		16	U	16	360
Fluoranthene		39	U	39	360
Fluorene		19	U	19	360
Hexachlorobenzene		31	U	31	360
Hexachlorobutadiene		11	U	11	360
Hexachlorocyclopentadiene		54	U	54	360
Hexachloroethane		23	U	23	360
Indeno[1,2,3-cd]pyrene		24	U	24	360
Isophorone		18	U	18	360
2-Methylnaphthalene		20	U	20	360

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Client Sample ID: **J1V278**

Lab Sample ID: 280-63697-10
Client Matrix: Solid
% Moisture: 10.0

Date Sampled: 12/15/2014 1158
Date Received: 12/17/2014 1030

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	280-258154	Instrument ID:	SMS_Y
Prep Method:	3550C	Prep Batch:	280-257733	Lab File ID:	Y2059.D
Dilution:	1.0			Initial Weight/Volume:	30.9 g
Analysis Date:	12/22/2014 1931			Final Weight/Volume:	1 mL
Prep Date:	12/18/2014 1659			Injection Volume:	0.5 uL

5/2/15

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
2-Methylphenol		14	U	14	360
3 & 4 Methylphenol		36	U	36	360
Naphthalene		33	U	33	360
2-Nitroaniline		54	U	54	360
3-Nitroaniline		79	U	79	360
4-Nitroaniline		78	U	78	360
Nitrobenzene		24	U	24	360
2-Nitrophenol		11	U	11	360
4-Nitrophenol		100	U	100	710
N-Nitrosodi-n-propylamine		33	U	33	360
N-Nitrosodiphenylamine		23	U	23	360
Pentachlorophenol		360	U	360	710
Phenanthrene		18	U	18	360
Phenol		19	U	19	360
Pyrene		13	J	13	360
1,2,4-Trichlorobenzene		30	U	30	360
2,4,5-Trichlorophenol		11	U	11	360
2,4,6-Trichlorophenol		11	U	11	360

Surrogate	%Rec	Qualifier	Acceptance Limits
2-Fluorobiphenyl	79		50 - 120
2-Fluorophenol	84		53 - 120
Nitrobenzene-d5	79		50 - 120
Phenol-d5	85		52 - 120
Terphenyl-d14	82		55 - 120
2,4,6-Tribromophenol	83		51 - 120

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Client Sample ID: **J1V278**

Lab Sample ID: 280-63697-10
Client Matrix: Solid
% Moisture: 10.0

Date Sampled: 12/15/2014 1158
Date Received: 12/17/2014 1030

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	280-258154	Instrument ID:	SMS_Y
Prep Method:	3550C	Prep Batch:	280-257733	Lab File ID:	Y2059.D
Dilution:	1.0			Initial Weight/Volume:	30.9 g
Analysis Date:	12/22/2014 1931			Final Weight/Volume:	1 mL
Prep Date:	12/18/2014 1659			Injection Volume:	0.5 uL

✓ 5/2/15

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

Cas Number	Analyte	RT	Est. Result (ug/Kg)	Qualifier
	Unknown	3.12	4000	N J

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Client Sample ID: **J1V279**

Lab Sample ID: 280-63697-11
Client Matrix: Solid
% Moisture: 2.3

Date Sampled: 12/15/2014 1145
Date Received: 12/17/2014 1030

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	280-258154	Instrument ID:	SMS_Y
Prep Method:	3550C	Prep Batch:	280-257733	Lab File ID:	Y2060.D
Dilution:	1.0			Initial Weight/Volume:	30.5 g
Analysis Date:	12/22/2014 2001			Final Weight/Volume:	1 mL
Prep Date:	12/18/2014 1659			Injection Volume:	0.5 uL

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Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Acenaphthene		10	U	10	330
Acenaphthylene		17	U	17	330
Anthracene		17	U	17	330
Benzo[a]anthracene		20	U	20	330
Benzo[a]pyrene		20	U	20	330
Benzo[b]fluoranthene		26	U	26	330
Benzo[ghi]perylene		16	U	16	330
Benzo[k]fluoranthene		40	U	40	330
Bis(2-chloroethoxy)methane		23	U	23	330
Bis(2-chloroethyl)ether		17	U	17	330
bis (2-chloroisopropyl) ether		23	U	23	330
Bis(2-ethylhexyl) phthalate		46	U	46	330
4-Bromophenyl phenyl ether		19	U	19	330
Butyl benzyl phthalate		43	U	43	330
Carbazole		36	U	36	330
4-Chloroaniline		82	U J	82	330
4-Chloro-3-methylphenol		66	U	66	330
2-Chloronaphthalene		10	U	10	330
2-Chlorophenol		21	U	21	330
4-Chlorophenyl phenyl ether		21	U	21	330
Chrysene		27	U	27	330
Dibenz(a,h)anthracene		19	U	19	330
Dibenzofuran		20	U	20	330
1,2-Dichlorobenzene		22	U	22	330
1,3-Dichlorobenzene		12	U	12	330
1,4-Dichlorobenzene		14	U	14	330
3,3'-Dichlorobenzidine		91	U	91	660
2,4-Dichlorophenol		10	U	10	330
Diethyl phthalate		26	U	26	330
2,4-Dimethylphenol		66	U	66	330
Dimethyl phthalate		23	U	23	330
Di-n-butyl phthalate		29	U	29	330
4,6-Dinitro-2-methylphenol		330	U	330	660
2,4-Dinitrophenol		340	U	340	830
2,4-Dinitrotoluene		66	U	66	330
2,6-Dinitrotoluene		28	U	28	330
Di-n-octyl phthalate		14	U	14	330
Fluoranthene		36	U	36	330
Fluorene		18	U	18	330
Hexachlorobenzene		29	U	29	330
Hexachlorobutadiene		10	U	10	330
Hexachlorocyclopentadiene		50	U	50	330
Hexachloroethane		21	U	21	330
Indeno[1,2,3-cd]pyrene		22	U	22	330
Isophorone		17	U	17	330
2-Methylnaphthalene		19	U	19	330

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Client Sample ID: **J1V279**

Lab Sample ID: 280-63697-11
Client Matrix: Solid
% Moisture: 2.3

Date Sampled: 12/15/2014 1145
Date Received: 12/17/2014 1030

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	280-258154	Instrument ID:	SMS_Y
Prep Method:	3550C	Prep Batch:	280-257733	Lab File ID:	Y2060.D
Dilution:	1.0			Initial Weight/Volume:	30.5 g
Analysis Date:	12/22/2014 2001			Final Weight/Volume:	1 mL
Prep Date:	12/18/2014 1659			Injection Volume:	0.5 uL

✓ 5/2/15

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
2-Methylphenol		13	U	13	330
3 & 4 Methylphenol		33	U	33	330
Naphthalene		31	U	31	330
2-Nitroaniline		50	U	50	330
3-Nitroaniline		73	U	73	330
4-Nitroaniline		73	U	73	330
Nitrobenzene		22	U	22	330
2-Nitrophenol		10	U	10	330
4-Nitrophenol		98	U	98	660
N-Nitrosodi-n-propylamine		31	U	31	330
N-Nitrosodiphenylamine		21	U	21	330
Pentachlorophenol		330	U	330	660
Phenanthrene		17	U	17	330
Phenol		18	U	18	330
Pyrene		12	U	12	330
1,2,4-Trichlorobenzene		28	U	28	330
2,4,5-Trichlorophenol		10	U	10	330
2,4,6-Trichlorophenol		10	U	10	330

Surrogate	%Rec	Qualifier	Acceptance Limits
2-Fluorobiphenyl	77		50 - 120
2-Fluorophenol	83		53 - 120
Nitrobenzene-d5	78		50 - 120
Phenol-d5	84		52 - 120
Terphenyl-d14	81		55 - 120
2,4,6-Tribromophenol	77		51 - 120

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Client Sample ID: **J1V279**

Lab Sample ID: 280-63697-11
Client Matrix: Solid
% Moisture: 2.3

Date Sampled: 12/15/2014 1145
Date Received: 12/17/2014 1030

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	280-258154	Instrument ID:	SMS_Y
Prep Method:	3550C	Prep Batch:	280-257733	Lab File ID:	Y2060.D
Dilution:	1.0			Initial Weight/Volume:	30.5 g
Analysis Date:	12/22/2014 2001			Final Weight/Volume:	1 mL
Prep Date:	12/18/2014 1659			Injection Volume:	0.5 uL

5/2/15

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

Cas Number	Analyte	RT	Est. Result (ug/Kg)	Qualifier
	Unknown	3.12	3500	N J

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Client Sample ID: **J1V280**

Lab Sample ID: 280-63697-12
Client Matrix: Solid
% Moisture: 4.6

Date Sampled: 12/15/2014 0949
Date Received: 12/17/2014 1030

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	280-258154	Instrument ID:	SMS_Y
Prep Method:	3550C	Prep Batch:	280-257733	Lab File ID:	Y2061.D
Dilution:	1.0			Initial Weight/Volume:	30.4 g
Analysis Date:	12/22/2014 2032			Final Weight/Volume:	1 mL
Prep Date:	12/18/2014 1659			Injection Volume:	0.5 uL

V 5/2/15

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Acenaphthene		11	U	11	340
Acenaphthylene		18	U	18	340
Anthracene		18	U	18	340
Benzo[a]anthracene		21	U	21	340
Benzo[a]pyrene		21	U	21	340
Benzo[b]fluoranthene		27	U	27	340
Benzo[ghi]perylene		17	U	17	340
Benzo[k]fluoranthene		41	U	41	340
Bis(2-chloroethoxy)methane		24	U	24	340
Bis(2-chloroethyl)ether		17	U	17	340
bis (2-chloroisopropyl) ether		24	U	24	340
Bis(2-ethylhexyl) phthalate		48	U	48	340
4-Bromophenyl phenyl ether		20	U	20	340
Butyl benzyl phthalate		44	U	44	340
Carbazole		37	U	37	340
4-Chloroaniline		85	U J	85	340
4-Chloro-3-methylphenol		68	U	68	340
2-Chloronaphthalene		10	U	10	340
2-Chlorophenol		22	U	22	340
4-Chlorophenyl phenyl ether		22	U	22	340
Chrysene		28	U	28	340
Dibenz(a,h)anthracene		20	U	20	340
Dibenzofuran		21	U	21	340
1,2-Dichlorobenzene		23	U	23	340
1,3-Dichlorobenzene		12	U	12	340
1,4-Dichlorobenzene		14	U	14	340
3,3'-Dichlorobenzidine		93	U	93	680
2,4-Dichlorophenol		10	U	10	340
Diethyl phthalate		27	U	27	340
2,4-Dimethylphenol		68	U	68	340
Dimethyl phthalate		24	U	24	340
Di-n-butyl phthalate		30	U	30	340
4,6-Dinitro-2-methylphenol		340	U	340	680
2,4-Dinitrophenol		340	U	340	850
2,4-Dinitrotoluene		68	U	68	340
2,6-Dinitrotoluene		29	U	29	340
Di-n-octyl phthalate		15	U	15	340
Fluoranthene		37	U	37	340
Fluorene		19	U	19	340
Hexachlorobenzene		30	U	30	340
Hexachlorobutadiene		10	U	10	340
Hexachlorocyclopentadiene		52	U	52	340
Hexachloroethane		22	U	22	340
Indeno[1,2,3-cd]pyrene		23	U	23	340
Isophorone		18	U	18	340
2-Methylnaphthalene		20	U	20	340

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Client Sample ID: **J1V280**

Lab Sample ID: 280-63697-12
Client Matrix: Solid

% Moisture: 4.6

Date Sampled: 12/15/2014 0949
Date Received: 12/17/2014 1030

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	280-258154	Instrument ID:	SMS_Y
Prep Method:	3550C	Prep Batch:	280-257733	Lab File ID:	Y2061.D
Dilution:	1.0			Initial Weight/Volume:	30.4 g
Analysis Date:	12/22/2014 2032			Final Weight/Volume:	1 mL
Prep Date:	12/18/2014 1659			Injection Volume:	0.5 uL

5/2/15

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
2-Methylphenol		13	U	13	340
3 & 4 Methylphenol		34	U	34	340
Naphthalene		32	U	32	340
2-Nitroaniline		52	U	52	340
3-Nitroaniline		76	U	76	340
4-Nitroaniline		75	U	75	340
Nitrobenzene		23	U	23	340
2-Nitrophenol		10	U	10	340
4-Nitrophenol		100	U	100	680
N-Nitrosodi-n-propylamine		32	U	32	340
N-Nitrosodiphenylamine		22	U	22	340
Pentachlorophenol		340	U	340	680
Phenanthrene		18	U	18	340
Phenol		19	U	19	340
Pyrene		13	U	13	340
1,2,4-Trichlorobenzene		29	U	29	340
2,4,5-Trichlorophenol		10	U	10	340
2,4,6-Trichlorophenol		10	U	10	340

Surrogate	%Rec	Qualifier	Acceptance Limits
2-Fluorobiphenyl	74		50 - 120
2-Fluorophenol	77		53 - 120
Nitrobenzene-d5	75		50 - 120
Phenol-d5	79		52 - 120
Terphenyl-d14	74		55 - 120
2,4,6-Tribromophenol	71		51 - 120

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Client Sample ID: **J1V280**

Lab Sample ID: 280-63697-12
Client Matrix: Solid
% Moisture: 4.6

Date Sampled: 12/15/2014 0949
Date Received: 12/17/2014 1030

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	280-258154	Instrument ID:	SMS_Y
Prep Method:	3550C	Prep Batch:	280-257733	Lab File ID:	Y2061.D
Dilution:	1.0			Initial Weight/Volume:	30.4 g
Analysis Date:	12/22/2014 2032			Final Weight/Volume:	1 mL
Prep Date:	12/18/2014 1659			Injection Volume:	0.5 uL

5/2/15

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

Cas Number	Analyte	RT	Est. Result (ug/Kg)	Qualifier
	Unknown	3.12	3900	N J

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Client Sample ID: **J1V281**

Lab Sample ID: 280-63697-13
Client Matrix: Solid
% Moisture: 9.1

Date Sampled: 12/15/2014 1018
Date Received: 12/17/2014 1030

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	280-258154	Instrument ID:	SMS_Y
Prep Method:	3550C	Prep Batch:	280-257733	Lab File ID:	Y2062.D
Dilution:	1.0			Initial Weight/Volume:	30.4 g
Analysis Date:	12/22/2014 2102			Final Weight/Volume:	1 mL
Prep Date:	12/18/2014 1659			Injection Volume:	0.5 uL

5/2/15

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Acenaphthene		11	U	11	360
Acenaphthylene		18	U	18	360
Anthracene		18	U	18	360
Benzo[a]anthracene		22	U	22	360
Benzo[a]pyrene		22	U	22	360
Benzo[b]fluoranthene		28	U	28	360
Benzo[ghi]perylene		17	U	17	360
Benzo[k]fluoranthene		43	U	43	360
Bis(2-chloroethoxy)methane		25	U	25	360
Bis(2-chloroethyl)ether		18	U	18	360
bis (2-chloroisopropyl) ether		25	U	25	360
Bis(2-ethylhexyl) phthalate		50	U	50	360
4-Bromophenyl phenyl ether		21	U	21	360
Butyl benzyl phthalate		47	U	47	360
Carbazole		39	U	39	360
4-Chloroaniline		89	U J	89	360
4-Chloro-3-methylphenol		72	U	72	360
2-Chloronaphthalene		11	U	11	360
2-Chlorophenol		23	U	23	360
4-Chlorophenyl phenyl ether		23	U	23	360
Chrysene		29	U	29	360
Dibenz(a,h)anthracene		21	U	21	360
Dibenzofuran		22	U	22	360
1,2-Dichlorobenzene		24	U	24	360
1,3-Dichlorobenzene		13	U	13	360
1,4-Dichlorobenzene		15	U	15	360
3,3'-Dichlorobenzidine		98	U	98	720
2,4-Dichlorophenol		11	U	11	360
Diethyl phthalate		28	U	28	360
2,4-Dimethylphenol		72	U	72	360
Dimethyl phthalate		25	U	25	360
Di-n-butyl phthalate		31	U	31	360
4,6-Dinitro-2-methylphenol		360	U	360	720
2,4-Dinitrophenol		360	U	360	900
2,4-Dinitrotoluene		72	U	72	360
2,6-Dinitrotoluene		30	U	30	360
Di-n-octyl phthalate		16	U	16	360
Fluoranthene		39	U	39	360
Fluorene		20	U	20	360
Hexachlorobenzene		31	U	31	360
Hexachlorobutadiene		11	U	11	360
Hexachlorocyclopentadiene		54	U	54	360
Hexachloroethane		23	U	23	360
Indeno[1,2,3-cd]pyrene		24	U	24	360
Isophorone		18	U	18	360
2-Methylnaphthalene		21	U	21	360

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Client Sample ID: **J1V281**

Lab Sample ID: 280-63697-13
Client Matrix: Solid
% Moisture: 9.1

Date Sampled: 12/15/2014 1018
Date Received: 12/17/2014 1030

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	280-258154	Instrument ID:	SMS_Y
Prep Method:	3550C	Prep Batch:	280-257733	Lab File ID:	Y2062.D
Dilution:	1.0			Initial Weight/Volume:	30.4 g
Analysis Date:	12/22/2014 2102			Final Weight/Volume:	1 mL
Prep Date:	12/18/2014 1659			Injection Volume:	0.5 uL

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Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
2-Methylphenol		14	U	14	360
3 & 4 Methylphenol		36	U	36	360
Naphthalene		34	U	34	360
2-Nitroaniline		54	U	54	360
3-Nitroaniline		79	U	79	360
4-Nitroaniline		79	U	79	360
Nitrobenzene		24	U	24	360
2-Nitrophenol		11	U	11	360
4-Nitrophenol		110	U	110	720
N-Nitrosodi-n-propylamine		34	U	34	360
N-Nitrosodiphenylamine		23	U	23	360
Pentachlorophenol		360	U	360	720
Phenanthrene		18	U	18	360
Phenol		20	U	20	360
Pyrene		13	U	13	360
1,2,4-Trichlorobenzene		30	U	30	360
2,4,5-Trichlorophenol		11	U	11	360
2,4,6-Trichlorophenol		11	U	11	360

Surrogate	%Rec	Qualifier	Acceptance Limits
2-Fluorobiphenyl	78		50 - 120
2-Fluorophenol	83		53 - 120
Nitrobenzene-d5	78		50 - 120
Phenol-d5	83		52 - 120
Terphenyl-d14	78		55 - 120
2,4,6-Tribromophenol	78		51 - 120

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Client Sample ID: **J1V281**

Lab Sample ID: 280-63697-13
Client Matrix: Solid
% Moisture: 9.1

Date Sampled: 12/15/2014 1018
Date Received: 12/17/2014 1030

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	280-258154	Instrument ID:	SMS_Y
Prep Method:	3550C	Prep Batch:	280-257733	Lab File ID:	Y2062.D
Dilution:	1.0			Initial Weight/Volume:	30.4 g
Analysis Date:	12/22/2014 2102			Final Weight/Volume:	1 mL
Prep Date:	12/18/2014 1659			Injection Volume:	0.5 uL

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

Cas Number	Analyte	RT	Est. Result (ug/Kg)	Qualifier
	Unknown	3.12	3700	N J

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Client Sample ID: **J1V282**

Lab Sample ID: 280-63697-14
Client Matrix: Solid
% Moisture: 1.8

Date Sampled: 12/15/2014 1208
Date Received: 12/17/2014 1030

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	280-258154	Instrument ID:	SMS_Y
Prep Method:	3550C	Prep Batch:	280-257733	Lab File ID:	Y2063.D
Dilution:	1.0			Initial Weight/Volume:	31.0 g
Analysis Date:	12/22/2014 2133			Final Weight/Volume:	1 mL
Prep Date:	12/18/2014 1659			Injection Volume:	0.5 uL

K 5/2/15

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Acenaphthene		10	U	10	330
Acenaphthylene		17	U	17	330
Anthracene		17	U	17	330
Benzo[a]anthracene		20	U	20	330
Benzo[a]pyrene		20	U	20	330
Benzo[b]fluoranthene		26	U	26	330
Benzo[ghi]perylene		16	U	16	330
Benzo[k]fluoranthene		39	U	39	330
Bis(2-chloroethoxy)methane		23	U	23	330
Bis(2-chloroethyl)ether		16	U	16	330
bis (2-chloroisopropyl) ether		23	U	23	330
Bis(2-ethylhexyl) phthalate		45	U	45	330
4-Bromophenyl phenyl ether		19	U	19	330
Butyl benzyl phthalate		42	U	42	330
Carbazole		35	U	35	330
4-Chloroaniline		81	U J	81	330
4-Chloro-3-methylphenol		65	U	65	330
2-Chloronaphthalene		9.9	U	9.9	330
2-Chlorophenol		21	U	21	330
4-Chlorophenyl phenyl ether		21	U	21	330
Chrysene		27	U	27	330
Dibenz(a,h)anthracene		19	U	19	330
Dibenzofuran		20	U	20	330
1,2-Dichlorobenzene		22	U	22	330
1,3-Dichlorobenzene		12	U	12	330
1,4-Dichlorobenzene		13	U	13	330
3,3'-Dichlorobenzidine		89	U	89	650
2,4-Dichlorophenol		9.9	U	9.9	330
Diethyl phthalate		26	U	26	330
2,4-Dimethylphenol		65	U	65	330
Dimethyl phthalate		23	U	23	330
Di-n-butyl phthalate		29	U	29	330
4,6-Dinitro-2-methylphenol		330	U	330	650
2,4-Dinitrophenol		330	U	330	810
2,4-Dinitrotoluene		65	U	65	330
2,6-Dinitrotoluene		28	U	28	330
Di-n-octyl phthalate		14	U	14	330
Fluoranthene		35	U	35	330
Fluorene		18	U	18	330
Hexachlorobenzene		29	U	29	330
Hexachlorobutadiene		9.9	U	9.9	330
Hexachlorocyclopentadiene		49	U	49	330
Hexachloroethane		21	U	21	330
Indeno[1,2,3-cd]pyrene		22	U	22	330
Isophorone		17	U	17	330
2-Methylnaphthalene		19	U	19	330

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Client Sample ID: **J1V282**

Lab Sample ID: 280-63697-14
Client Matrix: Solid
% Moisture: 1.8

Date Sampled: 12/15/2014 1208
Date Received: 12/17/2014 1030

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	280-258154	Instrument ID:	SMS_Y
Prep Method:	3550C	Prep Batch:	280-257733	Lab File ID:	Y2063.D
Dilution:	1.0			Initial Weight/Volume:	31.0 g
Analysis Date:	12/22/2014 2133			Final Weight/Volume:	1 mL
Prep Date:	12/18/2014 1659			Injection Volume:	0.5 uL

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Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
2-Methylphenol		13	U	13	330
3 & 4 Methylphenol		33	U	33	330
Naphthalene		31	U	31	330
2-Nitroaniline		49	U	49	330
3-Nitroaniline		72	U	72	330
4-Nitroaniline		71	U	71	330
Nitrobenzene		22	U	22	330
2-Nitrophenol		9.9	U	9.9	330
4-Nitrophenol		96	U	96	650
N-Nitrosodi-n-propylamine		31	U	31	330
N-Nitrosodiphenylamine		21	U	21	330
Pentachlorophenol		330	U	330	650
Phenanthrene		17	U	17	330
Phenol		18	U	18	330
Pyrene		12	U	12	330
1,2,4-Trichlorobenzene		28	U	28	330
2,4,5-Trichlorophenol		9.9	U	9.9	330
2,4,6-Trichlorophenol		9.9	U	9.9	330

Surrogate	%Rec	Qualifier	Acceptance Limits
2-Fluorobiphenyl	78		50 - 120
2-Fluorophenol	83		53 - 120
Nitrobenzene-d5	79		50 - 120
Phenol-d5	84		52 - 120
Terphenyl-d14	79		55 - 120
2,4,6-Tribromophenol	74		51 - 120

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Client Sample ID: **J1V282**

Lab Sample ID: 280-63697-14
Client Matrix: Solid
% Moisture: 1.8

Date Sampled: 12/15/2014 1208
Date Received: 12/17/2014 1030

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	280-258154	Instrument ID:	SMS_Y
Prep Method:	3550C	Prep Batch:	280-257733	Lab File ID:	Y2063.D
Dilution:	1.0			Initial Weight/Volume:	31.0 g
Analysis Date:	12/22/2014 2133			Final Weight/Volume:	1 mL
Prep Date:	12/18/2014 1659			Injection Volume:	0.5 uL

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

Cas Number	Analyte	RT	Est. Result (ug/Kg)	Qualifier
	Unknown	3.12	3500	N J

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Client Sample ID: **J1V283**

Lab Sample ID: 280-63697-15
Client Matrix: Solid

% Moisture: 9.6

Date Sampled: 12/15/2014 1133
Date Received: 12/17/2014 1030

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	280-258154	Instrument ID:	SMS_Y
Prep Method:	3550C	Prep Batch:	280-257733	Lab File ID:	Y2064.D
Dilution:	1.0			Initial Weight/Volume:	31.8 g
Analysis Date:	12/22/2014 2203			Final Weight/Volume:	1 mL
Prep Date:	12/18/2014 1659			Injection Volume:	0.5 uL

5/2/15

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Acenaphthene		11	U	11	340
Acenaphthylene		18	U	18	340
Anthracene		18	U	18	340
Benzo[a]anthracene		44	J	21	340
Benzo[a]pyrene		36	J	21	340
Benzo[b]fluoranthene		65	J K	27	340
Benzo[ghi]perylene		17	U	17	340
Benzo[k]fluoranthene		42	U K	42	340
Bis(2-chloroethoxy)methane		24	U	24	340
Bis(2-chloroethyl)ether		17	U	17	340
bis (2-chloroisopropyl) ether		24	U	24	340
Bis(2-ethylhexyl) phthalate		48	U	48	340
4-Bromophenyl phenyl ether		20	U	20	340
Butyl benzyl phthalate		45	U	45	340
Carbazole		38	U	38	340
4-Chloroaniline		85	U J	85	340
4-Chloro-3-methylphenol		69	U	69	340
2-Chloronaphthalene		10	U	10	340
2-Chlorophenol		22	U	22	340
4-Chlorophenyl phenyl ether		22	U	22	340
Chrysene		40	J	28	340
Dibenz(a,h)anthracene		20	U	20	340
Dibenzofuran		21	U	21	340
1,2-Dichlorobenzene		23	U	23	340
1,3-Dichlorobenzene		13	U	13	340
1,4-Dichlorobenzene		14	U	14	340
3,3'-Dichlorobenzidine		94	U	94	690
2,4-Dichlorophenol		10	U	10	340
Diethyl phthalate		27	U	27	340
2,4-Dimethylphenol		69	U	69	340
Dimethyl phthalate		24	U	24	340
Di-n-butyl phthalate		30	U	30	340
4,6-Dinitro-2-methylphenol		340	U	340	690
2,4-Dinitrophenol		350	U	350	860
2,4-Dinitrotoluene		69	U	69	340
2,6-Dinitrotoluene		29	U	29	340
Di-n-octyl phthalate		15	U	15	340
Fluoranthene		81	J	38	340
Fluorene		19	U	19	340
Hexachlorobenzene		30	U	30	340
Hexachlorobutadiene		10	U	10	340
Hexachlorocyclopentadiene		52	U	52	340
Hexachloroethane		22	U	22	340
Indeno[1,2,3-cd]pyrene		23	U	23	340
Isophorone		18	U	18	340
2-Methylnaphthalene		20	U	20	340

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Client Sample ID: **J1V283**

Lab Sample ID: 280-63697-15
Client Matrix: Solid
% Moisture: 9.6

Date Sampled: 12/15/2014 1133
Date Received: 12/17/2014 1030

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	280-258154	Instrument ID:	SMS_Y
Prep Method:	3550C	Prep Batch:	280-257733	Lab File ID:	Y2064.D
Dilution:	1.0			Initial Weight/Volume:	31.8 g
Analysis Date:	12/22/2014 2203			Final Weight/Volume:	1 mL
Prep Date:	12/18/2014 1659			Injection Volume:	0.5 uL

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Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
2-Methylphenol		14	U	14	340
3 & 4 Methylphenol		34	U	34	340
Naphthalene		32	U	32	340
2-Nitroaniline		52	U	52	340
3-Nitroaniline		76	U	76	340
4-Nitroaniline		76	U	76	340
Nitrobenzene		23	U	23	340
2-Nitrophenol		10	U	10	340
4-Nitrophenol		100	U	100	690
N-Nitrosodi-n-propylamine		32	U	32	340
N-Nitrosodiphenylamine		22	U	22	340
Pentachlorophenol		340	U	340	690
Phenanthrene		47	J	18	340
Phenol		19	U	19	340
Pyrene		68	J	13	340
1,2,4-Trichlorobenzene		29	U	29	340
2,4,5-Trichlorophenol		10	U	10	340
2,4,6-Trichlorophenol		10	U	10	340

Surrogate	%Rec	Qualifier	Acceptance Limits
2-Fluorobiphenyl	80		50 - 120
2-Fluorophenol	87		53 - 120
Nitrobenzene-d5	81		50 - 120
Phenol-d5	88		52 - 120
Terphenyl-d14	80		55 - 120
2,4,6-Tribromophenol	79		51 - 120

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Client Sample ID: **J1V283**

Lab Sample ID: 280-63697-15
Client Matrix: Solid
% Moisture: 9.6

Date Sampled: 12/15/2014 1133
Date Received: 12/17/2014 1030

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	280-258154	Instrument ID:	SMS_Y
Prep Method:	3550C	Prep Batch:	280-257733	Lab File ID:	Y2064.D
Dilution:	1.0			Initial Weight/Volume:	31.8 g
Analysis Date:	12/22/2014 2203			Final Weight/Volume:	1 mL
Prep Date:	12/18/2014 1659			Injection Volume:	0.5 uL

12/2/14

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

Cas Number	Analyte	RT	Est. Result (ug/Kg)	Qualifier
	Unknown	3.12	4000	N J
192-97-2	Benzo[e]pyrene	16.85	29	J N J

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Client Sample ID: J1V284

Lab Sample ID: 280-63697-16
Client Matrix: Solid

% Moisture: 4.1

Date Sampled: 12/15/2014 1249
Date Received: 12/17/2014 1030

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	280-258154	Instrument ID:	SMS_Y
Prep Method:	3550C	Prep Batch:	280-257733	Lab File ID:	Y2065.D
Dilution:	1.0			Initial Weight/Volume:	30.4 g
Analysis Date:	12/22/2014 2234			Final Weight/Volume:	1 mL
Prep Date:	12/18/2014 1659			Injection Volume:	0.5 uL

4/2/15

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Acenaphthene		11	U	11	340
Acenaphthylene		17	U	17	340
Anthracene		17	U	17	340
Benzo[a]anthracene		21	U	21	340
Benzo[a]pyrene		21	U	21	340
Benzo[b]fluoranthene		27	U	27	340
Benzo[ghi]perylene		16	U	16	340
Benzo[k]fluoranthene		41	U	41	340
Bis(2-chloroethoxy)methane		24	U	24	340
Bis(2-chloroethyl)ether		17	U	17	340
bis (2-chloroisopropyl) ether		24	U	24	340
Bis(2-ethylhexyl) phthalate		47	U	47	340
4-Bromophenyl phenyl ether		20	U	20	340
Butyl benzyl phthalate		44	U	44	340
Carbazole		37	U	37	340
4-Chloroaniline		84	U J	84	340
4-Chloro-3-methylphenol		68	U	68	340
2-Chloronaphthalene		10	U	10	340
2-Chlorophenol		22	U	22	340
4-Chlorophenyl phenyl ether		22	U	22	340
Chrysene		28	U	28	340
Dibenz(a,h)anthracene		20	U	20	340
Dibenzofuran		21	U	21	340
1,2-Dichlorobenzene		23	U	23	340
1,3-Dichlorobenzene		12	U	12	340
1,4-Dichlorobenzene		14	U	14	340
3,3'-Dichlorobenzidine		93	U	93	680
2,4-Dichlorophenol		10	U	10	340
Diethyl phthalate		27	U	27	340
2,4-Dimethylphenol		68	U	68	340
Dimethyl phthalate		24	U	24	340
Di-n-butyl phthalate		30	U	30	340
4,6-Dinitro-2-methylphenol		340	U	340	680
2,4-Dinitrophenol		340	U	340	850
2,4-Dinitrotoluene		68	U	68	340
2,6-Dinitrotoluene		29	U	29	340
Di-n-octyl phthalate		15	U	15	340
Fluoranthene		37	U	37	340
Fluorene		19	U	19	340
Hexachlorobenzene		30	U	30	340
Hexachlorobutadiene		10	U	10	340
Hexachlorocyclopentadiene		51	U	51	340
Hexachloroethane		22	U	22	340
Indeno[1,2,3-cd]pyrene		23	U	23	340
Isophorone		17	U	17	340
2-Methylnaphthalene		20	U	20	340

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Client Sample ID: **J1V284**

Lab Sample ID: 280-63697-16
Client Matrix: Solid
% Moisture: 4.1

Date Sampled: 12/15/2014 1249
Date Received: 12/17/2014 1030

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	280-258154	Instrument ID:	SMS_Y
Prep Method:	3550C	Prep Batch:	280-257733	Lab File ID:	Y2065.D
Dilution:	1.0			Initial Weight/Volume:	30.4 g
Analysis Date:	12/22/2014 2234			Final Weight/Volume:	1 mL
Prep Date:	12/18/2014 1659			Injection Volume:	0.5 uL

5/2/15

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
2-Methylphenol		13	U	13	340
3 & 4 Methylphenol		34	U	34	340
Naphthalene		32	U	32	340
2-Nitroaniline		51	U	51	340
3-Nitroaniline		75	U	75	340
4-Nitroaniline		75	U	75	340
Nitrobenzene		23	U	23	340
2-Nitrophenol		10	U	10	340
4-Nitrophenol		100	U	100	680
N-Nitrosodi-n-propylamine		32	U	32	340
N-Nitrosodiphenylamine		22	U	22	340
Pentachlorophenol		340	U	340	680
Phenanthrene		17	U	17	340
Phenol		19	U	19	340
Pyrene		12	U	12	340
1,2,4-Trichlorobenzene		29	U	29	340
2,4,5-Trichlorophenol		10	U	10	340
2,4,6-Trichlorophenol		10	U	10	340

Surrogate	%Rec	Qualifier	Acceptance Limits
2-Fluorobiphenyl	79		50 - 120
2-Fluorophenol	80		53 - 120
Nitrobenzene-d5	77		50 - 120
Phenol-d5	81		52 - 120
Terphenyl-d14	81		55 - 120
2,4,6-Tribromophenol	83		51 - 120

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Client Sample ID: **J1V284**

Lab Sample ID: 280-63697-16
Client Matrix: Solid

% Moisture: 4.1

Date Sampled: 12/15/2014 1249
Date Received: 12/17/2014 1030

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	280-258154	Instrument ID:	SMS_Y
Prep Method:	3550C	Prep Batch:	280-257733	Lab File ID:	Y2065.D
Dilution:	1.0			Initial Weight/Volume:	30.4 g
Analysis Date:	12/22/2014 2234			Final Weight/Volume:	1 mL
Prep Date:	12/18/2014 1659			Injection Volume:	0.5 uL

K 5/2/15

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

Cas Number	Analyte	RT	Est. Result (ug/Kg)	Qualifier
	Unknown	3.12	3500	N J

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Client Sample ID: **J1V285**

Lab Sample ID: 280-63697-17
Client Matrix: Solid
% Moisture: 7.7

Date Sampled: 12/15/2014 0856
Date Received: 12/17/2014 1030

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	280-258154	Instrument ID:	SMS_Y
Prep Method:	3550C	Prep Batch:	280-257733	Lab File ID:	Y2066.D
Dilution:	1.0			Initial Weight/Volume:	30.5 g
Analysis Date:	12/22/2014 2305			Final Weight/Volume:	1 mL
Prep Date:	12/18/2014 1659			Injection Volume:	0.5 uL

5/2/15

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Acenaphthene		11	U	11	350
Acenaphthylene		18	U	18	350
Anthracene		18	U	18	350
Benzo[a]anthracene		21	U	21	350
Benzo[a]pyrene		21	U	21	350
Benzo[b]fluoranthene		28	U	28	350
Benzo[ghi]perylene		17	U	17	350
Benzo[k]fluoranthene		43	U	43	350
Bis(2-chloroethoxy)methane		25	U	25	350
Bis(2-chloroethyl)ether		18	U	18	350
bis (2-chloroisopropyl) ether		25	U	25	350
Bis(2-ethylhexyl) phthalate		49	U	49	350
4-Bromophenyl phenyl ether		20	U	20	350
Butyl benzyl phthalate		46	U	46	350
Carbazole		38	U	38	350
4-Chloroaniline		87	U J	87	350
4-Chloro-3-methylphenol		70	U	70	350
2-Chloronaphthalene		11	U	11	350
2-Chlorophenol		22	U	22	350
4-Chlorophenyl phenyl ether		22	U	22	350
Chrysene		29	U	29	350
Dibenz(a,h)anthracene		20	U	20	350
Dibenzofuran		21	U	21	350
1,2-Dichlorobenzene		23	U	23	350
1,3-Dichlorobenzene		13	U	13	350
1,4-Dichlorobenzene		14	U	14	350
3,3'-Dichlorobenzidine		96	U	96	700
2,4-Dichlorophenol		11	U	11	350
Diethyl phthalate		28	U	28	350
2,4-Dimethylphenol		70	U	70	350
Dimethyl phthalate		25	U	25	350
Di-n-butyl phthalate		31	U	31	350
4,6-Dinitro-2-methylphenol		350	U	350	700
2,4-Dinitrophenol		350	U	350	880
2,4-Dinitrotoluene		70	U	70	350
2,6-Dinitrotoluene		30	U	30	350
Di-n-octyl phthalate		15	U	15	350
Fluoranthene		38	U	38	350
Fluorene		19	U	19	350
Hexachlorobenzene		31	U	31	350
Hexachlorobutadiene		11	U	11	350
Hexachlorocyclopentadiene		53	U	53	350
Hexachloroethane		23	U	23	350
Indeno[1,2,3-cd]pyrene		23	U	23	350
Isophorone		18	U	18	350
2-Methylnaphthalene		20	U	20	350

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Client Sample ID: **J1V285**

Lab Sample ID: 280-63697-17
Client Matrix: Solid
% Moisture: 7.7

Date Sampled: 12/15/2014 0856
Date Received: 12/17/2014 1030

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	280-258154	Instrument ID:	SMS_Y
Prep Method:	3550C	Prep Batch:	280-257733	Lab File ID:	Y2066.D
Dilution:	1.0			Initial Weight/Volume:	30.5 g
Analysis Date:	12/22/2014 2305			Final Weight/Volume:	1 mL
Prep Date:	12/18/2014 1659			Injection Volume:	0.5 uL

5/2/15

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
2-Methylphenol		14	U	14	350
3 & 4 Methylphenol		35	U	35	350
Naphthalene		33	U	33	350
2-Nitroaniline		53	U	53	350
3-Nitroaniline		78	U	78	350
4-Nitroaniline		77	U	77	350
Nitrobenzene		23	U	23	350
2-Nitrophenol		11	U	11	350
4-Nitrophenol		100	U	100	700
N-Nitrosodi-n-propylamine		33	U	33	350
N-Nitrosodiphenylamine		22	U	22	350
Pentachlorophenol		350	U	350	700
Phenanthrene		18	U	18	350
Phenol		19	U	19	350
Pyrene		13	U	13	350
1,2,4-Trichlorobenzene		30	U	30	350
2,4,5-Trichlorophenol		11	U	11	350
2,4,6-Trichlorophenol		11	U	11	350

Surrogate	%Rec	Qualifier	Acceptance Limits
2-Fluorobiphenyl	77		50 - 120
2-Fluorophenol	83		53 - 120
Nitrobenzene-d5	78		50 - 120
Phenol-d5	85		52 - 120
Terphenyl-d14	77		55 - 120
2,4,6-Tribromophenol	79		51 - 120

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Client Sample ID: **J1V285**

Lab Sample ID: 280-63697-17
Client Matrix: Solid
% Moisture: 7.7

Date Sampled: 12/15/2014 0856
Date Received: 12/17/2014 1030

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	280-258154	Instrument ID:	SMS_Y
Prep Method:	3550C	Prep Batch:	280-257733	Lab File ID:	Y2066.D
Dilution:	1.0			Initial Weight/Volume:	30.5 g
Analysis Date:	12/22/2014 2305			Final Weight/Volume:	1 mL
Prep Date:	12/18/2014 1659			Injection Volume:	0.5 uL

MS 5/2/9

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

Cas Number	Analyte	RT	Est. Result (ug/Kg)	Qualifier
	Unknown	3.12	4000	N J

Appendix 4

Laboratory Narrative and Chain-of-Custody Documentation

CASE NARRATIVE

Revision 1

Client: Washington Closure Hanford

Project: WASHINGTON CLOSURE HANFORD

Job Number: 280-63697-1

SDG #: JP0885
SAF#: RC-107

Date SDG Closed: January 5, 2015
Data Deliverable: 7 Day / Summary

CLIENT ID	LAB ID	ANALYSES REQUESTED	ANALYSES PERFORMED
J1V269	280-63697-1	6010/7471/9056M/353.2/9045/8082/8270/ WTPH-D+/8310/8081	6010B/7471A/9056M/353.2/9045C/8082/8270C/ NWTPH-Dx/8310/8081A/1311-6010B-7470A
J1V270	280-63697-2	6010/7471/9056M/353.2/9045/8082/8270/ WTPH-D+/8310/8081	6010B/7471A/9056M/353.2/9045C/8082/8270C/ NWTPH-Dx/8310/8081A
J1V271	280-63697-3	6010/7471/9056M/353.2/9045/8082/8270/ WTPH-D+/8310/8081	6010B/7471A/9056M/353.2/9045C/8082/8270C/ NWTPH-Dx/8310/8081A
J1V272	280-63697-4	6010/7471/9056M/353.2/9045/8082/8270/ WTPH-D+/8310/8081	6010B/7471A/9056M/353.2/9045C/8082/8270C/ NWTPH-Dx/8310/8081A
J1V273	280-63697-5	6010/7471/9056M/353.2/9045/8082/8270/ WTPH-D+/8310/8081	6010B/7471A/9056M/353.2/9045C/8082/8270C/ NWTPH-Dx/8310/8081A
J1V274	280-63697-6	6010/7471/9056M/353.2/9045/8082/8270/ WTPH-D+/8310/8081	6010B/7471A/9056M/353.2/9045C/8082/8270C/ NWTPH-Dx/8310/8081A
J1V275	280-63697-7	6010/7471/9056M/353.2/9045/8082/8270/ WTPH-D+/8310/8081	6010B/7471A/9056M/353.2/9045C/8082/8270C/ NWTPH-Dx/8310/8081A
J1V276	280-63697-8	6010/7471/9056M/353.2/9045/8082/8270/ WTPH-D+/8310/8081	6010B/7471A/9056M/353.2/9045C/8082/8270C/ NWTPH-Dx/8310/8081A
J1V277	280-63697-9	6010/7471/9056M/353.2/9045/8082/8270/ WTPH-D+/8310/8081	6010B/7471A/9056M/353.2/9045C/8082/8270C/ NWTPH-Dx/8310/8081A
J1V278	280-63697-10	6010/7471/9056M/353.2/9045/8082/8270/ WTPH-D+/8310/8081	6010B/7471A/9056M/353.2/9045C/8082/8270C/ NWTPH-Dx/8310/8081A
J1V279	280-63697-11	6010/7471/9056M/353.2/9045/8082/8270/ WTPH-D+/8310/8081	6010B/7471A/9056M/353.2/9045C/8082/8270C/ NWTPH-Dx/8310/8081A
J1V280	280-63697-12	6010/7471/9056M/353.2/9045/8082/8270/ WTPH-D+/8310/8081	6010B/7471A/9056M/353.2/9045C/8082/8270C/ NWTPH-Dx/8310/8081A
J1V281	280-63697-13	6010/7471/9056M/353.2/9045/8082/8270/ WTPH-D+/8310/8081	6010B/7471A/9056M/353.2/9045C/8082/8270C/ NWTPH-Dx/8310/8081A
J1V282	280-63697-14	6010/7471/9056M/353.2/9045/8082/8270/ WTPH-D+/8310/8081	6010B/7471A/9056M/353.2/9045C/8082/8270C/ NWTPH-Dx/8310/8081A
J1V283	280-63697-15	6010/7471/9056M/353.2/9045/8082/8270/ WTPH-D+/8310/8081	6010B/7471A/9056M/353.2/9045C/8082/8270C/ NWTPH-Dx/8310/8081A/1311-6010B-7470A
J1V284	280-63697-16	6010/7471/9056M/353.2/9045/8082/8270/ WTPH-D+/8310/8081	6010B/7471A/9056M/353.2/9045C/8082/8270C/ NWTPH-Dx/8310/8081A
J1V285	280-63697-17	6010/7471/9056M/353.2/9045/8082/8270/ WTPH-D+/8310/8081	6010B/7471A/9056M/353.2/9045C/8082/8270C/ NWTPH-Dx/8310/8081A

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.

Revision 1
On 1/5/2015, the client requested TCLP Metals 1311/6010B/7470A analysis for samples J1V269 and J1V283. Those results are included in this report.

RECEIPT
The samples were received on 12/17/2014 10:30 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 5 coolers at receipt time were 0.5° C, 0.7° C, 1.6° C, 2.3° C and 2.9° C.

GC/MS SEMIVOLATILES - SW846 8270C
Compounds Benzo(b)fluoranthene and Benzo(k)fluoranthene were unresolved in samples J1V269 and J1V283 due to matrix interferences. It can be noted that these compounds were adequately resolved in associated standards, indicating the instrument is achieving separation. The combined peak was reported as Benzo(b)fluoranthene, while Benzo(k)fluoranthene was reported as undetected even though it may be present. Associated results have been flagged with a "K".

No other anomalies were encountered.

GC SEMIVOLATILES - SW846 8081A - Pesticides
The organic prep laboratory noted that a Florisil clean-up was performed on sample J1V270 to reduce matrix interferences.

The RPD between the primary and confirmation columns exceeded 40% for 4,4'-DDE in sample J1V270. The higher of the two values has been reported, as matrix interference is evident. The result has been flagged with an "Y".

Continuing Calibration Verification (CCV) standards associated with samples in analysis batch 280-258011 exhibited %Difference (%D) values >15%, biased high, for multiple analytes. The samples associated with these CCVs were non-detect for the affected analytes; therefore, corrective action is deemed unnecessary.

The closing Continuing Calibration Verification (CCV) standard associated with samples in analysis batch 280-258011 exhibited the %Difference (%D) value >15%, biased low, for 4,4'-DDT (-22%) and Methoxychlor (-21%) on the confirmation column. The overall mean %D is ≤15%; therefore, method criteria have been met and corrective action is deemed unnecessary. The samples associated with this CCV were non-detect for the affected analytes.

Continuing Calibration Verification (CCV) standards associated with samples in analysis batch 280-258172 exhibited %Difference (%D) values >15%, biased high, on one of the dual columns, as detailed below. The samples associated with these CCVs were either non-detect for the affected analytes or the confirmation column data confirm the detections within the method defined 40% difference; therefore, data are reported from the column that is in control and corrective action is deemed unnecessary. The sequence is as follows:

CCV: Primary: 4,4'-DDD (+21%), Methoxychlor (+19%)
Confirmation: OK
Samples: J1V270, J1V272, J1V274, J1V276, J1V278, J1V285
CCV: Primary: 4,4'-DDD (+30%), 4,4'-DDT (+16%), Endrin (+18%), Heptachlor (+16%), Methoxychlor (+17%) Toxaphene (+18%)
Confirmation: 4,4'-DDE (+16%), alpha-BHC (+16%)

It can be noted that the closing CCV standard associated with sample J1V270 in analysis batch 280-258172 exhibited the %Difference (%D) value >15%, biased high, for 4,4'-DDE (+16%) on the confirmation column. Sample J1V270 showed an estimated detection present below the reporting limit on both columns for 4,4'-DDE; however, the detection was not confirmed within the method defined 40% difference. The 4,4'-DDE result for sample J1V270 has been reported from the primary column, which was in control.

No other anomalies were encountered.

GC SEMIVOLATILES - SW846 8082 - PCBs
The laboratory noted that a Sulfuric Acid clean-up was performed on the samples presented in this report to reduce matrix interferences.

It can be noted that Aroclor 1221 is reported from a separate injection for several samples in order to acquire/maintain the associated second column confirmation chromatographic data for the samples. Due to a system limitation, this reporting style is necessary when samples are analyzed on a non-sequential injection instrument and second column confirmation is required.

Samples J1V272, J1V284 and J1V285 contained a combination of Aroclor 1254 and Aroclor 1260 with insufficient separation to quantify individually. The samples have been quantified and reported as the predominant Aroclor.

No other anomalies were encountered.

GC SEMIVOLATILES - NWTPH-Dx - DRO
The MSD aliquot of the MS/MSD performed on sample J1V270 exhibited spike compound recoveries outside the control limits, and the associated sample results have been flagged "N". In addition, the RPD limits were exceeded. There is no indication that the analytical system was operating out of control, and method accuracy has been verified by the acceptable LCS analysis data; therefore, corrective action is deemed unnecessary.

No other anomalies were encountered.

HPLC - SW846 8310 - PAHs
The RPD between the primary and confirmation columns exceeded 40% for analytes in samples J1V269, J1V270, J1V273 and J1V275. The lower of the two values has been reported, as matrix interference is evident on both columns. Associated results have been flagged with an "X".

The MS/MSD performed on sample J1V269 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 280-257573 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. Due to high constituent concentration, sample J1V283 required a dilution prior to the analysis of Mercury. The reporting limit has been adjusted relative to the dilution required.

Silicon was recovered outside the control limits, biased low, in the LCS associated with batch 280-257573, and the associated sample results have been flagged "N". Silicon has been identified as a poor performing element when analyzed using this method and has a history of reacting inconsistently; therefore, corrective action is not initiated. Data are reported as is.

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 J1V269; therefore, control limits are not applicable.

The duplicate analysis of sample J1V269 exhibited RPD data outside the control limits for Arsenic and Lead, and the associated sample results have been flagged "M". There is no indication that the analytical system was operating out of control, and method accuracy has been verified by the acceptable LCS analysis data; therefore, corrective action is deemed unnecessary.

No other anomalies were encountered.

TCLP METALS - SW846 1311/6010B/7470A
Low levels of Arsenic, Barium, Lead and Mercury are present in the method blanks associated with batches 280-259357 and 280-259874, respectively. Because the concentrations in the method blanks are not present at levels greater than half the reporting limit, corrective action is deemed unnecessary.

The duplicate analysis of sample J1V269 exhibited RPD data outside the control limits for Mercury, and the associated sample result has been flagged "M". There is no indication that the analytical system was operating out of control, and method accuracy has been verified by the acceptable LCS analysis data; therefore, corrective action is deemed unnecessary.

No other anomalies were encountered.

GENERAL CHEMISTRY - MCAWW 353.2 - NITRATE NITRITE as N
The Nitrate Nitrite as N duplicate analysis of sample J1V283 exceeded the RPD limit, and the associated sample result has been flagged "M". There is no indication that the analytical system was operating out of control, and method accuracy has been verified by the acceptable LCS analysis data; therefore, corrective action is deemed unnecessary.

No other anomalies were encountered.

GENERAL CHEMISTRY - SW846 9056M - ANIONS
No anomalies were encountered.

GENERAL CHEMISTRY - SW846 9045C - PH
SU = standard units

No anomalies were encountered.

Washington Closure Hanford

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

RC-107-123

Collector: H. Weber

Company Contact: Joan Kessner

Telephone No.: 375-4688

Project Coordinator: KESSNER, JH

Price Code: 8B

Data Turnaround: 7days

Project Designation: 100-H Field Remediation

SAF No.: RC-107

Sampling Location: 100-H-28:2, EXC1, verification

Ice Chest No.: ERC-02-007

Field Logbook No.: EL-1627-08

COA: 01H2822000

Method of Shipment: Commercial Carrier - fed EX

Offsite Property No.: A131288

Bill of Lading/Air Bill No.: see OSR

Shipped To: TestAmerica Denver

Other Labs Shipped To: TestAmerica Richland

POSSIBLE SAMPLE HAZARDS/REMARKS: None

Special Handling and/or Storage: cool as required

Sample No.	Matrix	Sample Date	Sample Time	Preservation: Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C			
				Type of Container: G/P	G/P	aG	aG	aG	aG	aG			
				No. of Container(s): 1	1	1	1	1	1	1			
				Volume: 250mL	250mL	250mL	250mL	125mL	250mL	250mL			
				Sample Analysis: See item (1) in Special Instructions	See item (2) in Special Instructions	PCBs - 8082	Semi-VOA - 8270 (TCL)	TPH-Diesel Range - WTPH-D +	PAHs - 8310	Pesticides - 8081			
J1V269	SOIL	12-15-14	1224	✓	✓	✓	✓	✓	✓	✓			
J1V270	SOIL	12-15-14	0922	✓	✓	✓	✓	✓	✓	✓			
J1V271	SOIL	12-15-14	1029	✓	✓	✓	✓	✓	✓	✓			
J1V272	SOIL	12-15-14	0856	✓	✓	✓	✓	✓	✓	✓			
J1V273	SOIL	12-15-14	1002	✓	✓	✓	✓	✓	✓	✓			

CHAIN OF POSSESSION

Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Heather Weber / [illegible]	12/15/14 1306	(WCH) Dustin Dustin EA	12/15/14 1306
Dustin Dustin EA	12/15/14 1545	C. Bingham	12-15-14 1545
C. Bingham	12-15-14 1600	1060 Battelle fridge #1A	12-15-14 1600
1060 Battelle fridge #1A	12-16-14 0840	C. Bingham	12-16-14 0840
C. Bingham	12-16-14 0900	fed EX	
		[illegible]	12/17/14 10:30

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)
(2) IC Anions - 9056 Modified (Bromide, Chloride, Fluoride, Nitrogen in Nitrate, Nitrogen in Nitrite, Phosphorous in phosphate, Sulfate); NO2/NO3 - 353.2; pH (Soil) - 9045

280-63697 Chain of Custody

REVIEWED BY [illegible] DATE 12/16/14

0.4, 1.8, 1.1, 0.0, 0.2 IRS +0.5 MJ 12/17/14

JP0885

WCH-EE-011

Washington Closure Hanford

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Collector	H. Weber
Project Designation	100-H Field Remediation
Ice Chest No.	ERC-02-007
Shipped To	TestAmerica Denver
Other Labs Shipped To	TestAmerica Richland
Company Contact	Joan Kessner
Telephone No.	375-4688
Sampling Location	100-H-28:2, EXC1, verification
Field Logbook No.	EL-1627-08
COA	01H2822000
Offsite Property No.	A131288
Project Coordinator	KESSNER, JH
SAF No.	RC-107
Method of Shipment	Commercial Carrier - fed EX
Bill of Lading/Air Bill No.	See OSPC
Price Code	8B
Data Turnaround	7days

POSSIBLE SAMPLE HAZARDS/REMARKS
None

Special Handling and/or Storage
cool as required

Sample No.	Matrix	Sample Date	Sample Time	Preservation: Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C			
				Type of Container: G/P	G/P	aG	aG	aG	aG	aG			
				No. of Container(s): 1	1	1	1	1	1	1			
				Volume: 250mL	250mL	250mL	250mL	125mL	250mL	250mL			
				Sample Analysis: See item (1) in Special Instructions	See item (2) in Special Instructions	PCBs - 8082	Semi-VOA - 8270 (TCL)	TPH-Diesel Range - WTPH-D+	PAHs - 8310	Pesticides - 8081			
J1V274	SOIL	12-15-14	1106	✓	✓	✓	✓	✓	✓	✓			
J1V275	SOIL	12-15-14	1058	✓	✓	✓	✓	✓	✓	✓			
J1V276	SOIL	12-15-14	0935	✓	✓	✓	✓	✓	✓	✓			
J1V277	SOIL	12-15-14	1115	✓	✓	✓	✓	✓	✓	✓			
J1V278	SOIL	12-15-14	1158	✓	✓	✓	✓	✓	✓	✓			

Page 2 of 3

CHAIN OF POSSESSION

Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Warner Weber	12/15/14 1306	Dushea Dushea (DUCH)	12/15/14 1306
Dushea Dushea	12/15/14 1545	C. Bingham	12-15-14 1545
C. Bingham	12-15-14 1600	1060 Battelle, fridge #14	12-15-14 1600
1060 Battelle, fridge #14	12-16-14 0840	C. Bingham	12-16-14 0840
C. Bingham WCH	12-16-14 0900	fed EX	
			12/17/14 10:30

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)
(2) IC Anions - 9056 Modified (Bromide, Chloride, Fluoride, Nitrogen in Nitrate, Nitrogen in Nitrite, Phosphorous in phosphate, Sulfate); NO2/NO3 - 353.2; pH (Soil) - 9045

REVIEWED BY JAS DATE 12/16/14

JP0885

WCH-EE-011

Washington Closure Hanford

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

RC-107-123

Collector	H. Weber
Project Designation	100-H Field Remediation
Ice Chest No.	ERC-02-007
Shipped To	TestAmerica Denver
Other Labs Shipped To	TestAmerica Richland
Company Contact	Joan Kessner
Telephone No.	375-4688
Sampling Location	100-H-28:2, EXC1, verification
Field Logbook No.	EL-1627-08
COA	01H2822000
Offsite Property No.	A131288
Project Coordinator	KESSNER, JH
SAF No.	RC-107
Price Code	8B
Data Turnaround	7 days
Method of Shipment	Commercial Carrier - Fed EX
Bill of Lading/Air Bill No.	See OSAC

POSSIBLE SAMPLE HAZARDS/REMARKS

None

Special Handling and/or Storage

cool as required

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C			
Type of Container	G/P	G/P	aG	aG	aG	aG	aG			
No. of Container(s)	1	1	1	1	1	1	1			
Volume	250mL	250mL	250mL	250mL	125mL	250mL	250mL			
Sample Analysis	See item (1) in Special Instructions	See item (2) in Special Instructions	PCBs - 8082	Semi-VOA - 8270 (TCL)	TPH-Diesel Range - WTPH-D +	PAHs - 8310	Pesticides - 8081			

Sample No.	Matrix	Sample Date	Sample Time										
J1V279	SOIL	12-15-14	1145	✓	✓	✓	✓	✓	✓	✓			
J1V280	SOIL	12-15-14	0949	✓	✓	✓	✓	✓	✓	✓			
J1V281	SOIL	12-15-14	1018	✓	✓	✓	✓	✓	✓	✓			
J1V282	SOIL	12-15-14	1208	✓	✓	✓	✓	✓	✓	✓			
J1V283	SOIL	12-15-14	1133	✓	✓	✓	✓	✓	✓	✓			

CHAIN OF POSSESSION — **Sign/Print Names**

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Heather Weber	12/15/14 1306	Joshua Dwyer (WCH)	12/15/14 1306
Joshua Dwyer	12/15/14 1545	C. Bingham	12-15-14 1545
C. Bingham	12-15-14 1600	1060 Battelle, Fridge #18	12-15-14 1600
1060 Battelle, Fridge #18	12-16-14 0840	C. Bingham	12-16-14 0840
C. Bingham WCH	12-16-14 0900	Fed EX	
			12/17/14 10:30

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)
(2) IC Anions - 9056 Modified (Bromide, Chloride, Fluoride, Nitrogen in Nitrate, Nitrogen in Nitrite, Phosphorous in phosphate, Sulfate); NO2/NO3 - 353.2; pH (Soil) - 9045

REVIEWED BY DAP DATE 12/16/14

JP0885

WCH-EE-011

Washington Closure Hanford

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

RC-107-123

Collector: H Weber	Company Contact: Joan Kessner	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Project Designation: 100-H Field Remediation	Sampling Location: 100-H-28:2, EXC1, verification		SAF No.: RC-107
Ice Chest No.: ERC-02-007	Field Logbook No.: EL-1627-08	COA: 01H2822000	Method of Shipment: Commercial Carrier — fed EX
Shipped To: TestAmerica Denver	Offsite Property No.: A131288		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

cool as required

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	See item (2) in Special Instructions
				Cool 4C	aG	1	250mL	PCBs - 8082
				Cool 4C	aG	1	250mL	Semi-VOA - 8270 (TCL)
				Cool 4C	aG	1	125mL	TPH-Diesel Range - WTPH-D +
				Cool 4C	aG	1	250mL	PAHs - 8310
				Cool 4C	aG	1	250mL	Pesticides - 8081
J41/284	SOIL	12-15-14	1249	✓	✓	✓	✓	✓ ✓ ✓
J41/285	SOIL	12-15-14	0856	✓	✓	✓	✓	✓ ✓ ✓

Page 2 of 3

CHAIN OF POSSESSION

Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Heather Weber	12/15/14 1306	Joshua DeSHEA (WCH)	12/15/14 1306
Joshua DeSHEA	12/15/14 1545	C. Bingham	12-15-14 1545
C. Bingham	12-15-14 1600	1060 Battelle, fridge #18	12-15-14 1600
1060 Battelle, fridge #18	12-16-14 0840	C. Bingham	12-16-14 0840
C. Bingham	12-16-14 0900	fed EX	
			12/17/14 10:30

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)
(2) IC Anions - 9056 Modified (Bromide, Chloride, Fluoride, Nitrogen in Nitrate, Nitrogen in Nitrite, Phosphorous in phosphate, Sulfate); NO2/NO3 - 353.2; pH (Soil) - 9045

REVIEWED BY DAS DATE 12/16/14

JP0885

WCH-EE-011

Appendix 5

Data Validation Supporting Documentation

GC/MS ORGANIC DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	E
PROJECT:	100-H-2912		DATA PACKAGE:	JP0885	
VALIDATOR:	ELR	LAB: TAL		DATE: 4/30/15	
			SDG:	JP0885	
ANALYSES PERFORMED					
SW-846 8260		SW-846 8260 (TCLP)	SW-846 8270		SW-846 8270 (TCLP)
SAMPLES/MATRIX					
J1V269 J1V270 J1V271 J1V272 J1V273 J1V274 J1V275					
J1V276 J1V277 J1V278 J1V279 J1V280 J1V281 J1V282					
J1V283 J1V284 J1V285					
					Soil

1. DATA PACKAGE COMPLETENESS AND CASE NARRATIVE

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

Comments:

2. INSTRUMENT TUNING AND CALIBRATION (Levels D and E)

GC/MS tuning/performance check acceptable? ..... Yes No N/A

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

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

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

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

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

Comments:

GC/MS ORGANIC DATA VALIDATION CHECKLIST

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

Calibration blanks analyzed? (Levels D, E) ..... Yes No N/A
Calibration blank results acceptable? (Levels D, E) ..... Yes No N/A
Laboratory blanks analyzed? ..... Yes No N/A
Laboratory blank results acceptable? ..... Yes No N/A
Field/trip blanks analyzed? (Levels C, D, E) ..... Yes No N/A
Field/trip blank results acceptable? (Levels C, D, E) ..... Yes No N/A
Transcription/calculation errors? (Levels D, E) ..... Yes No N/A

Comments: no PQ

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

Surrogates/system monitoring compounds analyzed? ..... Yes No N/A
Surrogate/system monitoring compound recoveries acceptable? ..... Yes No N/A
Surrogates traceable? (Levels D, E) ..... Yes No N/A
Surrogates expired? (Levels D, E) ..... Yes No N/A
MS/MSD samples analyzed? ..... Yes No N/A
MS/MSD results acceptable? ..... Yes No N/A
MS/MSD standards NIST traceable? (Levels D, E) ..... Yes No N/A
MS/MSD standards? (Levels D, E) ..... Yes No N/A
LCS/BSS samples analyzed? ..... Yes No N/A
LCS/BSS results acceptable? ..... Yes No N/A
Standards traceable? (Levels D, E) ..... Yes No N/A
Standards expired? (Levels D, E) ..... Yes No N/A
Transcription/calculation errors? (Levels D, E) ..... Yes No N/A
Performance audit sample(s) analyzed? ..... Yes No N/A
Performance audit sample results acceptable? ..... Yes No N/A

Comments: LCS- 4 chloroaniline (433) -J cell

no PQ

GC/MS ORGANIC DATA VALIDATION CHECKLIST

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

MS/MSD samples analyzed? ..... Yes No N/A
MS/MSD RPD values acceptable? ..... Yes No N/A
MS/MSD standards NIST traceable? (Levels D, E) ..... Yes No N/A
MS/MSD standards expired? (Levels D, E) ..... Yes No N/A
Field duplicate RPD values acceptable? ..... Yes No N/A
Field split RPD values acceptable? ..... Yes No N/A
Transcription/calculation errors? (Levels D, E) ..... Yes No N/A

Comments: _____

6. SYSTEM PERFORMANCE (Levels D and E)

Internal standards analyzed? ..... Yes No N/A
Iinternal standard areas acceptable? ..... Yes No N/A
Internal standard retention times acceptable? ..... Yes No N/A
Standards traceable? ..... Yes No N/A
Standards expired? ..... Yes No N/A
Transcription/calculation errors? ..... Yes No N/A

Comments: _____

7. HOLDING TIMES (all levels)

Samples properly preserved? ..... Yes No N/A
Sample holding times acceptable? ..... Yes No N/A

Comments: _____

GC/MS ORGANIC DATA VALIDATION CHECKLIST

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

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

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

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

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

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

Laboratory properly identified and coded all TIC? (Levels D, E) ..... Yes No N/A

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

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

Comments: _____

9. SAMPLE CLEANUP (Levels D and E)

GPC cleanup performed? ..... Yes No N/A

GPC check performed? ..... Yes No N/A

GPC check recoveries acceptable? ..... Yes No N/A

GPC calibration performed? ..... Yes No N/A

GPC calibration check performed? ..... Yes No N/A

GPC calibration check retention times acceptable? ..... Yes No N/A

Check/calibration materials traceable? ..... Yes No N/A

Check/calibration materials Expired? ..... Yes No N/A

Analytical batch QC given similar cleanup? ..... Yes No N/A

Transcription/Calculation Errors? ..... Yes No N/A

Comments: _____

Appendix 6

Additional Documentation Requested by Client

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Method Blank - Batch: 280-257733

Method: 8270C
Preparation: 3550C

Lab Sample ID:	MB 280-257733/1-A	Analysis Batch:	280-258154	Instrument ID:	SMS_Y
Client Matrix:	Solid	Prep Batch:	280-257733	Lab File ID:	Y2046.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	31.0 g
Analysis Date:	12/22/2014 1254	Units:	ug/Kg	Final Weight/Volume:	1 mL
Prep Date:	12/18/2014 1659			Injection Volume:	0.5 uL
Leach Date:	N/A				

Analyte	Result	Qual	MDL	RL
Acenaphthene	10	U	10	320
Acenaphthylene	16	U	16	320
Anthracene	16	U	16	320
Benzo[a]anthracene	19	U	19	320
Benzo[a]pyrene	19	U	19	320
Benzo[b]fluoranthene	25	U	25	320
Benzo[ghi]perylene	15	U	15	320
Benzo[k]fluoranthene	39	U	39	320
Bis(2-chloroethoxy)methane	22	U	22	320
Bis(2-chloroethyl)ether	16	U	16	320
bis (2-chloroisopropyl) ether	22	U	22	320
Bis(2-ethylhexyl) phthalate	45	U	45	320
4-Bromophenyl phenyl ether	18	U	18	320
Butyl benzyl phthalate	42	U	42	320
Carbazole	35	U	35	320
4-Chloroaniline	79	U	79	320
4-Chloro-3-methylphenol	64	U	64	320
2-Chloronaphthalene	9.7	U	9.7	320
2-Chlorophenol	20	U	20	320
4-Chlorophenyl phenyl ether	20	U	20	320
Chrysene	26	U	26	320
Dibenz(a,h)anthracene	18	U	18	320
Dibenzofuran	19	U	19	320
1,2-Dichlorobenzene	21	U	21	320
1,3-Dichlorobenzene	12	U	12	320
1,4-Dichlorobenzene	13	U	13	320
3,3'-Dichlorobenzidine	87	U	87	640
2,4-Dichlorophenol	9.7	U	9.7	320
Diethyl phthalate	25	U	25	320
2,4-Dimethylphenol	64	U	64	320
Dimethyl phthalate	22	U	22	320
Di-n-butyl phthalate	28	U	28	320
4,6-Dinitro-2-methylphenol	320	U	320	640
2,4-Dinitrophenol	320	U	320	800
2,4-Dinitrotoluene	64	U	64	320
2,6-Dinitrotoluene	27	U	27	320
Di-n-octyl phthalate	14	U	14	320
Fluoranthene	35	U	35	320
Fluorene	17	U	17	320
Hexachlorobenzene	28	U	28	320
Hexachlorobutadiene	9.7	U	9.7	320
Hexachlorocyclopentadiene	48	U	48	320
Hexachloroethane	21	U	21	320
Indeno[1,2,3-cd]pyrene	21	U	21	320
Isophorone	16	U	16	320

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Method Blank - Batch: 280-257733

Method: 8270C
Preparation: 3550C

Lab Sample ID:	MB 280-257733/1-A	Analysis Batch:	280-258154	Instrument ID:	SMS_Y
Client Matrix:	Solid	Prep Batch:	280-257733	Lab File ID:	Y2046.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	31.0 g
Analysis Date:	12/22/2014 1254	Units:	ug/Kg	Final Weight/Volume:	1 mL
Prep Date:	12/18/2014 1659			Injection Volume:	0.5 uL
Leach Date:	N/A				

Analyte	Result	Qual	MDL	RL
2-Methylnaphthalene	18	U	18	320
2-Methylphenol	13	U	13	320
3 & 4 Methylphenol	32	U	32	320
Naphthalene	30	U	30	320
2-Nitroaniline	48	U	48	320
3-Nitroaniline	71	U	71	320
4-Nitroaniline	70	U	70	320
Nitrobenzene	21	U	21	320
2-Nitrophenol	9.7	U	9.7	320
4-Nitrophenol	94	U	94	640
N-Nitrosodi-n-propylamine	30	U	30	320
N-Nitrosodiphenylamine	20	U	20	320
Pentachlorophenol	320	U	320	640
Phenanthrene	16	U	16	320
Phenol	17	U	17	320
Pyrene	12	U	12	320
1,2,4-Trichlorobenzene	27	U	27	320
2,4,5-Trichlorophenol	9.7	U	9.7	320
2,4,6-Trichlorophenol	9.7	U	9.7	320

Surrogate	% Rec	Acceptance Limits
2-Fluorobiphenyl	84	50 - 120
2-Fluorophenol	83	53 - 120
Nitrobenzene-d5	81	50 - 120
Phenol-d5	84	52 - 120
Terphenyl-d14	86	55 - 120
2,4,6-Tribromophenol	76	51 - 120

Method Blank TICs- Batch: 280-257733

Cas Number	Analyte	RT	Est. Result (ug/K	Qual
	Unknown	3.12	3270	N J

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Lab Control Sample - Batch: 280-257733

Method: 8270C
Preparation: 3550C

Lab Sample ID:	LCS 280-257733/2-A	Analysis Batch:	280-258154	Instrument ID:	SMS_Y
Client Matrix:	Solid	Prep Batch:	280-257733	Lab File ID:	Y2047.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	30.2 g
Analysis Date:	12/22/2014 1324	Units:	ug/Kg	Final Weight/Volume:	1 mL
Prep Date:	12/18/2014 1659			Injection Volume:	0.5 uL
Leach Date:	N/A				

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Acenaphthene	2650	2310	87	60 - 120	
Acenaphthylene	2650	2250	85	64 - 120	
Anthracene	2650	2380	90	63 - 120	
Benzo[a]anthracene	2650	2400	91	65 - 120	
Benzo[a]pyrene	2650	2370	90	59 - 120	
Benzo[b]fluoranthene	2650	2450	93	47 - 129	
Benzo[ghi]perylene	2650	2400	90	55 - 126	
Benzo[k]fluoranthene	2650	2550	96	48 - 130	
Bis(2-chloroethoxy)methane	2650	2180	82	56 - 120	
Bis(2-chloroethyl)ether	2650	2270	86	51 - 120	
bis (2-chloroisopropyl) ether	2650	1970	74	49 - 120	
Bis(2-ethylhexyl) phthalate	2650	2420	91	65 - 120	
4-Bromophenyl phenyl ether	2650	2390	90	64 - 120	
Butyl benzyl phthalate	2650	2370	90	65 - 120	
Carbazole	2650	2410	91	64 - 120	
4-Chloroaniline	2650	1150	43	28 - 120	
4-Chloro-3-methylphenol	2650	2300	87	63 - 120	
2-Chloronaphthalene	2650	2250	85	59 - 120	
2-Chlorophenol	2650	2180	82	57 - 120	
4-Chlorophenyl phenyl ether	2650	2380	90	64 - 120	
Chrysene	2650	2450	92	64 - 120	
Dibenz(a,h)anthracene	2650	2420	91	50 - 133	
Dibenzofuran	2650	2320	88	61 - 120	
1,2-Dichlorobenzene	2650	2140	81	53 - 120	
1,3-Dichlorobenzene	2650	2140	81	52 - 120	
1,4-Dichlorobenzene	2650	2150	81	52 - 120	
3,3'-Dichlorobenzidine	2650	1460	55	30 - 120	
2,4-Dichlorophenol	2650	2250	85	60 - 120	
Diethyl phthalate	2650	2450	92	66 - 120	
2,4-Dimethylphenol	2650	2180	82	54 - 120	
Dimethyl phthalate	2650	2400	91	65 - 120	
Di-n-butyl phthalate	2650	2480	94	67 - 120	
4,6-Dinitro-2-methylphenol	5300	4960	94	57 - 120	
2,4-Dinitrophenol	5300	4300	81	46 - 120	
2,4-Dinitrotoluene	2650	2510	95	68 - 120	
2,6-Dinitrotoluene	2650	2420	91	64 - 120	
Di-n-octyl phthalate	2650	2310	87	66 - 120	
Fluoranthene	2650	2500	94	66 - 120	
Fluorene	2650	2390	90	64 - 120	
Hexachlorobenzene	2650	2380	90	62 - 120	
Hexachlorobutadiene	2650	2200	83	53 - 120	
Hexachlorocyclopentadiene	2650	1980	75	47 - 120	
Hexachloroethane	2650	2080	78	51 - 120	
Indeno[1,2,3-cd]pyrene	2650	2270	86	63 - 120	
Isophorone	2650	2060	78	56 - 120	
2-Methylnaphthalene	2650	2230	84	57 - 120	

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Lab Control Sample - Batch: 280-257733

Method: 8270C
Preparation: 3550C

Lab Sample ID:	LCS 280-257733/2-A	Analysis Batch:	280-258154	Instrument ID:	SMS_Y
Client Matrix:	Solid	Prep Batch:	280-257733	Lab File ID:	Y2047.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	30.2 g
Analysis Date:	12/22/2014 1324	Units:	ug/Kg	Final Weight/Volume:	1 mL
Prep Date:	12/18/2014 1659			Injection Volume:	0.5 uL
Leach Date:	N/A				

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
2-Methylphenol	2650	2190	83	56 - 120	
3 & 4 Methylphenol	2650	2180	82	53 - 120	
Naphthalene	2650	2200	83	57 - 120	
2-Nitroaniline	2650	2310	87	63 - 120	
3-Nitroaniline	2650	1590	60	47 - 120	
4-Nitroaniline	2650	2260	85	64 - 120	
Nitrobenzene	2650	2140	81	54 - 120	
2-Nitrophenol	2650	2220	84	56 - 120	
4-Nitrophenol	5300	4900	93	63 - 121	
N-Nitrosodi-n-propylamine	2650	2080	78	51 - 120	
N-Nitrosodiphenylamine	2650	2410	91	61 - 120	
Pentachlorophenol	5300	4360	82	56 - 120	
Phenanthrene	2650	2470	93	64 - 120	
Phenol	2650	2220	84	56 - 120	
Pyrene	2650	2410	91	64 - 120	
1,2,4-Trichlorobenzene	2650	2180	82	52 - 120	
2,4,5-Trichlorophenol	2650	2440	92	64 - 120	
2,4,6-Trichlorophenol	2650	2330	88	61 - 120	

Surrogate	% Rec	Acceptance Limits
2-Fluorobiphenyl	82	50 - 120
2-Fluorophenol	79	53 - 120
Nitrobenzene-d5	79	50 - 120
Phenol-d5	79	52 - 120
Terphenyl-d14	82	55 - 120
2,4,6-Tribromophenol	90	51 - 120

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-257733

Method: 8270C
Preparation: 3550C

MS Lab Sample ID:	280-63697-8	Analysis Batch:	280-258154	Instrument ID:	SMS_Y
Client Matrix:	Solid	Prep Batch:	280-257733	Lab File ID:	Y2056.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	30.6 g
Analysis Date:	12/22/2014 1759			Final Weight/Volume:	1 mL
Prep Date:	12/18/2014 1659			Injection Volume:	0.5 uL
Leach Date:	N/A				

MSD Lab Sample ID:	280-63697-8	Analysis Batch:	280-258154	Instrument ID:	SMS_Y
Client Matrix:	Solid	Prep Batch:	280-257733	Lab File ID:	Y2057.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	30.2 g
Analysis Date:	12/22/2014 1830			Final Weight/Volume:	1 mL
Prep Date:	12/18/2014 1659			Injection Volume:	0.5 uL
Leach Date:	N/A				

Analyte	% Rec. MS	% Rec. MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
Acenaphthene	82	88	60 - 120	8	30		
Acenaphthylene	80	86	64 - 120	9	30		
Anthracene	83	89	63 - 120	8	30		
Benzo[a]anthracene	83	90	65 - 120	9	30		
Benzo[a]pyrene	84	90	59 - 120	8	30		
Benzo[b]fluoranthene	85	93	47 - 129	10	44		
Benzo[ghi]perylene	81	89	55 - 126	11	31		
Benzo[k]fluoranthene	89	94	48 - 130	7	30		
Bis(2-chloroethoxy)methane	80	89	56 - 120	13	30		
Bis(2-chloroethyl)ether	82	91	51 - 120	12	30		
bis (2-chloroisopropyl) ether	76	83	49 - 120	10	30		
Bis(2-ethylhexyl) phthalate	88	96	65 - 120	10	30		
4-Bromophenyl phenyl ether	84	89	64 - 120	8	30		
Butyl benzyl phthalate	86	93	65 - 120	9	30		
Carbazole	84	90	64 - 120	8	30		
4-Chloroaniline	58	71	28 - 120	22	30		
4-Chloro-3-methylphenol	88	96	63 - 120	10	30		
2-Chloronaphthalene	79	86	59 - 120	9	30		
2-Chlorophenol	82	90	57 - 120	11	30		
4-Chlorophenyl phenyl ether	84	89	64 - 120	7	30		
Chrysene	84	91	64 - 120	10	35		
Dibenz(a,h)anthracene	81	89	50 - 133	10	30		
Dibenzofuran	83	89	61 - 120	8	30		
1,2-Dichlorobenzene	78	86	53 - 120	11	30		
1,3-Dichlorobenzene	77	84	52 - 120	10	32		
1,4-Dichlorobenzene	77	85	52 - 120	11	30		
3,3'-Dichlorobenzidine	72	82	30 - 120	15	30		
2,4-Dichlorophenol	83	90	60 - 120	10	30		
Diethyl phthalate	86	91	66 - 120	7	30		
2,4-Dimethylphenol	81	88	54 - 120	9	30		
Dimethyl phthalate	85	90	65 - 120	8	30		
Di-n-butyl phthalate	87	92	67 - 120	8	30		
4,6-Dinitro-2-methylphenol	80	83	57 - 120	4	30		

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-257733

Method: 8270C
Preparation: 3550C

MS Lab Sample ID:	280-63697-8	Analysis Batch:	280-258154	Instrument ID:	SMS_Y
Client Matrix:	Solid	Prep Batch:	280-257733	Lab File ID:	Y2056.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	30.6 g
Analysis Date:	12/22/2014 1759			Final Weight/Volume:	1 mL
Prep Date:	12/18/2014 1659			Injection Volume:	0.5 uL
Leach Date:	N/A				

MSD Lab Sample ID:	280-63697-8	Analysis Batch:	280-258154	Instrument ID:	SMS_Y
Client Matrix:	Solid	Prep Batch:	280-257733	Lab File ID:	Y2057.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	30.2 g
Analysis Date:	12/22/2014 1830			Final Weight/Volume:	1 mL
Prep Date:	12/18/2014 1659			Injection Volume:	0.5 uL
Leach Date:	N/A				

Analyte	% Rec. MS	% Rec. MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
2,4-Dinitrophenol	62	62	46 - 120	1	34		
2,4-Dinitrotoluene	88	93	68 - 120	7	30		
2,6-Dinitrotoluene	86	92	64 - 120	7	30		
Di-n-octyl phthalate	88	97	66 - 120	11	30		
Fluoranthene	86	91	66 - 120	7	30		
Fluorene	84	89	64 - 120	8	30		
Hexachlorobenzene	83	89	62 - 120	8	30		
Hexachlorobutadiene	77	86	53 - 120	12	30		
Hexachlorocyclopentadiene	63	69	47 - 120	10	30		
Hexachloroethane	76	82	51 - 120	9	30		
Indeno[1,2,3-cd]pyrene	77	85	63 - 120	11	30		
Isophorone	76	84	56 - 120	11	30		
2-Methylnaphthalene	81	89	57 - 120	11	30		
2-Methylphenol	81	92	56 - 120	13	30		
3 & 4 Methylphenol	82	91	53 - 120	12	30		
Naphthalene	80	86	57 - 120	9	30		
2-Nitroaniline	82	90	63 - 120	10	30		
3-Nitroaniline	69	78	47 - 120	13	30		
4-Nitroaniline	81	87	64 - 120	9	30		
Nitrobenzene	78	86	54 - 120	11	30		
2-Nitrophenol	80	89	56 - 120	11	30		
4-Nitrophenol	85	88	63 - 121	6	30		
N-Nitrosodi-n-propylamine	77	87	51 - 120	13	30		
N-Nitrosodiphenylamine	83	90	61 - 120	8	36		
Pentachlorophenol	77	83	56 - 120	9	30		
Phenanthrene	83	90	64 - 120	10	30		
Phenol	80	91	56 - 120	14	30		
Pyrene	85	91	64 - 120	8	38		
1,2,4-Trichlorobenzene	79	85	52 - 120	9	30		
2,4,5-Trichlorophenol	87	91	64 - 120	7	30		
2,4,6-Trichlorophenol	84	91	61 - 120	9	30		

Surrogate	MS % Rec	MSD % Rec	Acceptance Limits
2-Fluorobiphenyl	76	82	50 - 120

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Surrogate	MS % Rec	MSD % Rec	Acceptance Limits
2-Fluorophenol	78	87	53 - 120
Nitrobenzene-d5	74	82	50 - 120
Phenol-d5	79	86	52 - 120
Terphenyl-d14	76	82	55 - 120
2,4,6-Tribromophenol	79	88	51 - 120

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-257733

Method: 8270C
Preparation: 3550C

MS Lab Sample ID:	280-63697-8	Units: ug/Kg		MSD Lab Sample ID:	280-63697-8
Client Matrix:	Solid			Client Matrix:	Solid
Dilution:	1.0			Dilution:	1.0
Analysis Date:	12/22/2014 1759			Analysis Date:	12/22/2014 1830
Prep Date:	12/18/2014 1659			Prep Date:	12/18/2014 1659
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	11	U	2870	2900	2360	2550
Acenaphthylene	19	U	2870	2900	2280	2500
Anthracene	19	U	2870	2900	2370	2580
Benzo[a]anthracene	22	U	2870	2900	2380	2620
Benzo[a]pyrene	22	U	2870	2900	2420	2620
Benzo[b]fluoranthene	29	U	2870	2900	2450	2700
Benzo[ghi]perylene	18	U	2870	2900	2330	2600
Benzo[k]fluoranthene	44	U	2870	2900	2550	2740
Bis(2-chloroethoxy)methane	25	U	2870	2900	2280	2590
Bis(2-chloroethyl)ether	18	U	2870	2900	2350	2640
bis (2-chloroisopropyl) ether	25	U	2870	2900	2180	2410
Bis(2-ethylhexyl) phthalate	50	U	2870	2900	2520	2790
4-Bromophenyl phenyl ether	21	U	2870	2900	2390	2600
Butyl benzyl phthalate	47	U	2870	2900	2470	2700
Carbazole	39	U	2870	2900	2410	2620
4-Chloroaniline	90	U	2870	2900	1660	2070
4-Chloro-3-methylphenol	72	U	2870	2900	2520	2780
2-Chloronaphthalene	11	U	2870	2900	2270	2500
2-Chlorophenol	23	U	2870	2900	2350	2620
4-Chlorophenyl phenyl ether	23	U	2870	2900	2410	2590
Chrysene	30	U	2870	2900	2400	2650
Dibenz(a,h)anthracene	21	U	2870	2900	2330	2580
Dibenzofuran	22	U	2870	2900	2380	2580
1,2-Dichlorobenzene	24	U	2870	2900	2240	2500
1,3-Dichlorobenzene	13	U	2870	2900	2210	2440
1,4-Dichlorobenzene	15	U	2870	2900	2210	2450
3,3'-Dichlorobenzidine	99	U	2870	2900	2050	2380
2,4-Dichlorophenol	11	U	2870	2900	2380	2630
Diethyl phthalate	29	U	2870	2900	2470	2650
2,4-Dimethylphenol	72	U	2870	2900	2340	2570
Dimethyl phthalate	25	U	2870	2900	2430	2630
Di-n-butyl phthalate	32	U	2870	2900	2480	2680
4,6-Dinitro-2-methylphenol	360	U	5730	5810	4610	4790
2,4-Dinitrophenol	370	U	5730	5810	3580	3610
2,4-Dinitrotoluene	72	U	2870	2900	2520	2700
2,6-Dinitrotoluene	31	U	2870	2900	2470	2660
Di-n-octyl phthalate	16	U	2870	2900	2530	2830
Fluoranthene	39	U	2870	2900	2470	2650
Fluorene	20	U	2870	2900	2400	2600
Hexachlorobenzene	32	U	2870	2900	2390	2580
Hexachlorobutadiene	11	U	2870	2900	2220	2510
Hexachlorocyclopentadiene	55	U	2870	2900	1800	1990
Hexachloroethane	23	U	2870	2900	2190	2390

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-257733

Method: 8270C
Preparation: 3550C

MS Lab Sample ID:	280-63697-8	Units: ug/Kg	
Client Matrix:	Solid		
Dilution:	1.0		
Analysis Date:	12/22/2014 1759		
Prep Date:	12/18/2014 1659		
Leach Date:	N/A		

MSD Lab Sample ID:	280-63697-8
Client Matrix:	Solid
Dilution:	1.0
Analysis Date:	12/22/2014 1830
Prep Date:	12/18/2014 1659
Leach Date:	N/A

Analyte	Sample Result/Qual		MS Spike Amount	MSD Spike Amount	MS Result/Qual	MSD Result/Qual
Indeno[1,2,3-cd]pyrene	24	U	2870	2900	2220	2480
Isophorone	19	U	2870	2900	2180	2430
2-Methylnaphthalene	21	U	2870	2900	2310	2590
2-Methylphenol	14	U	2870	2900	2330	2670
3 & 4 Methylphenol	36	U	2870	2900	2350	2640
Naphthalene	34	U	2870	2900	2280	2500
2-Nitroaniline	55	U	2870	2900	2360	2610
3-Nitroaniline	80	U	2870	2900	1970	2260
4-Nitroaniline	80	U	2870	2900	2320	2530
Nitrobenzene	24	U	2870	2900	2230	2490
2-Nitrophenol	11	U	2870	2900	2310	2580
4-Nitrophenol	110	U	5730	5810	4850	5130
N-Nitrosodi-n-propylamine	34	U	2870	2900	2220	2540
N-Nitrosodiphenylamine	23	U	2870	2900	2390	2600
Pentachlorophenol	360	U	5730	5810	4430	4840
Phenanthrene	29	J	2870	2900	2410	2650
Phenol	20	U	2870	2900	2300	2640
Pyrene	25	J	2870	2900	2460	2660
1,2,4-Trichlorobenzene	31	U	2870	2900	2260	2470
2,4,5-Trichlorophenol	11	U	2870	2900	2480	2650
2,4,6-Trichlorophenol	11	U	2870	2900	2410	2650

Date: 4 May 2015
To: Washington Closure Hanford Inc. (technical representative)
From: ELR Consulting
Project: 100-H Remaining Sites Burial Grounds – Soil Full Protocol - Waste Subsite 100-H-28:2
Subject: Diesel Range Organic - Data Package No. JP0885-TAL

INTRODUCTION

This memo presents the results of data validation on Data Package No. JP0885 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
J1V269	12/15/14	Soil	C	See note 1
J1V270	12/15/14	Soil	C	See note 1
J1V271	12/15/14	Soil	C	See note 1
J1V272	12/15/14	Soil	C	See note 1
J1V273	12/15/14	Soil	C	See note 1
J1V274	12/15/14	Soil	C	See note 1
J1V275	12/15/14	Soil	C	See note 1
J1V276	12/15/14	Soil	C	See note 1
J1V277	12/15/14	Soil	C	See note 1
J1V278	12/15/14	Soil	C	See note 1
J1V279	12/15/14	Soil	C	See note 1
J1V280	12/15/14	Soil	C	See note 1
J1V281	12/15/14	Soil	C	See note 1
J1V282	12/15/14	Soil	C	See note 1
J1V283	12/15/14	Soil	C	See note 1
J1V284	12/15/14	Soil	C	See note 1
J1V285	12/15/14	Soil	C	See note 1

1 – Diesel range organics by 8015B.

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 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.

Due to a matrix spike duplicate recovery outside QC limits (155%), all C10-C36 results were qualified as estimates and flagged "J".

All other accuracy results were acceptable.

Surrogate Recovery

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

All surrogate results were acceptable.

- **Precision**

Matrix Spike/Matrix Spike Duplicate Samples

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

Due to an RPD outside QC limits (36%), all C10-C36 results were qualified as estimates and flagged "J".

All other duplicate results were acceptable.

Field Duplicate Samples

One set of field duplicates (J1V272/J1T285) 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. JP0885 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 a matrix spike duplicate recovery outside QC limits (155%), all C10-C36 results were qualified as estimates and flagged "J".
- Due to an RPD outside QC limits (36%), all C10-C36 results were qualified as estimates and flagged "J".

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

REFERENCES

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

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

Appendix 1

Glossary of Data Reporting Qualifiers

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

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

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

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

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

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

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

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

Appendix 2

Summary of Data Qualification

DIESEL RANGE ORGANIC DATA QUALIFICATION SUMMARY*

SDG: JP0885	REVIEWER: ELR	Project: 100-H-28:2	PAGE 1 OF 1
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
C10-C36	J	All	MSD recovery & RPD

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

Appendix 3

Annotated Laboratory Reports

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Client Sample ID: J1V269

Lab Sample ID: 280-63697-1
Client Matrix: Solid

% Moisture: 8.2

Date Sampled: 12/15/2014 1224
Date Received: 12/17/2014 1030

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

Analysis Method:	NWTPH-Dx	Analysis Batch:	280-257702	Instrument ID:	SGC_U
Prep Method:	3550C	Prep Batch:	280-257560	Lab File ID:	021B2101.D
Dilution:	1.0			Initial Weight/Volume:	30.7 g
Analysis Date:	12/18/2014 2123			Final Weight/Volume:	1 mL
Prep Date:	12/17/2014 2040			Injection Volume:	1 uL

✓ 5/2/15

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
C10-C36		7200	J	1100	4300
C10-C28		4300		720	4300

Surrogate	%Rec	Qualifier	Acceptance Limits
o-Terphenyl	84		49 - 115

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Client Sample ID: **J1V270**

Lab Sample ID: 280-63697-2
Client Matrix: Solid

% Moisture: 4.6

Date Sampled: 12/15/2014 0922
Date Received: 12/17/2014 1030

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

Analysis Method:	NWTPH-Dx	Analysis Batch:	280-257702	Instrument ID:	SGC_U
Prep Method:	3550C	Prep Batch:	280-257560	Lab File ID:	022B2201.D
Dilution:	1.0			Initial Weight/Volume:	31.6 g
Analysis Date:	12/18/2014 2151			Final Weight/Volume:	1 mL
Prep Date:	12/17/2014 2040			Injection Volume:	1 uL

5/2/15

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
C10-C36		78000	N J	990	4000
C10-C28		33000	N	680	4000

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

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Client Sample ID: **J1V271**

Lab Sample ID: 280-63697-3
Client Matrix: Solid

% Moisture: 1.8

Date Sampled: 12/15/2014 1029
Date Received: 12/17/2014 1030

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

Analysis Method:	NWTPH-Dx	Analysis Batch:	280-257702	Instrument ID:	SGC_U
Prep Method:	3550C	Prep Batch:	280-257560	Lab File ID:	025B2501.D
Dilution:	1.0			Initial Weight/Volume:	30.2 g
Analysis Date:	12/18/2014 2314			Final Weight/Volume:	1 mL
Prep Date:	12/17/2014 2040			Injection Volume:	1 uL

✓ 5/2/15

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
C10-C36		1200	J	1000	4000
C10-C28		690	J	690	4000

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

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Client Sample ID: **J1V272**

Lab Sample ID: 280-63697-4
Client Matrix: Solid

% Moisture: 8.3

Date Sampled: 12/15/2014 0856
Date Received: 12/17/2014 1030

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

Analysis Method:	NWTPH-Dx	Analysis Batch:	280-257702	Instrument ID:	SGC_U
Prep Method:	3550C	Prep Batch:	280-257560	Lab File ID:	026B2601.D
Dilution:	1.0			Initial Weight/Volume:	30.3 g
Analysis Date:	12/18/2014 2342			Final Weight/Volume:	1 mL
Prep Date:	12/17/2014 2040			Injection Volume:	1 uL

VK 5/2/15

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
C10-C36		2900	J	1100	4300
C10-C28		1300	J	730	4300

Surrogate	%Rec	Qualifier	Acceptance Limits
o-Terphenyl	83		49 - 115

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Client Sample ID: **J1V273**

Lab Sample ID: 280-63697-5
Client Matrix: Solid

% Moisture: 3.0

Date Sampled: 12/15/2014 1002
Date Received: 12/17/2014 1030

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

Analysis Method:	NWTPH-Dx	Analysis Batch:	280-257702	Instrument ID:	SGC_U
Prep Method:	3550C	Prep Batch:	280-257560	Lab File ID:	027B2701.D
Dilution:	1.0			Initial Weight/Volume:	30.9 g
Analysis Date:	12/19/2014 0010			Final Weight/Volume:	1 mL
Prep Date:	12/17/2014 2040			Injection Volume:	1 uL

V 5/2/15

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
C10-C36		3000	J J	1000	4000
C10-C28		2200	J	680	4000

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

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Client Sample ID: J1V274

Lab Sample ID: 280-63697-6
Client Matrix: Solid

% Moisture: 3.0

Date Sampled: 12/15/2014 1106
Date Received: 12/17/2014 1030

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

Analysis Method:	NWTPH-Dx	Analysis Batch:	280-257702	Instrument ID:	SGC_U
Prep Method:	3550C	Prep Batch:	280-257560	Lab File ID:	028B2801.D
Dilution:	1.0			Initial Weight/Volume:	31.4 g
Analysis Date:	12/19/2014 0038			Final Weight/Volume:	1 mL
Prep Date:	12/17/2014 2040			Injection Volume:	1 uL

5/2/15

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
C10-C38		2500	J J	980	3900
C10-C28		1500	J	670	3900

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

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Client Sample ID: **J1V275**

Lab Sample ID: 280-63697-7
Client Matrix: Solid

% Moisture: 2.2

Date Sampled: 12/15/2014 1058
Date Received: 12/17/2014 1030

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

Analysis Method:	NWTPH-Dx	Analysis Batch:	280-257702	Instrument ID:	SGC_U
Prep Method:	3550C	Prep Batch:	280-257560	Lab File ID:	029B2901.D
Dilution:	1.0			Initial Weight/Volume:	32.5 g
Analysis Date:	12/19/2014 0106			Final Weight/Volume:	1 mL
Prep Date:	12/17/2014 2040			Injection Volume:	1 uL

V 5/2/15

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
C10-C36		1500	J J	940	3800
C10-C28		800	J	640	3800

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

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Client Sample ID: **J1V276**

Lab Sample ID: 280-63697-8
Client Matrix: Solid

% Moisture: 8.8

Date Sampled: 12/15/2014 0935
Date Received: 12/17/2014 1030

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

Analysis Method:	NWTPH-Dx	Analysis Batch:	280-257702	Instrument ID:	SGC_U
Prep Method:	3550C	Prep Batch:	280-257560	Lab File ID:	032B3201.D
Dilution:	1.0			Initial Weight/Volume:	30.7 g
Analysis Date:	12/19/2014 0230			Final Weight/Volume:	1 mL
Prep Date:	12/17/2014 2040			Injection Volume:	1 uL

M 5/2/15

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
C10-C36		7300	J	1100	4300
C10-C28		3400	J	730	4300

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

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Client Sample ID: **J1V277**

Lab Sample ID: 280-63697-9
Client Matrix: Solid

% Moisture: 3.1

Date Sampled: 12/15/2014 1115
Date Received: 12/17/2014 1030

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

Analysis Method:	NWTPH-Dx	Analysis Batch:	280-257702	Instrument ID:	SGC_U
Prep Method:	3550C	Prep Batch:	280-257560	Lab File ID:	033B3301.D
Dilution:	1.0			Initial Weight/Volume:	31.8 g
Analysis Date:	12/19/2014 0258			Final Weight/Volume:	1 mL
Prep Date:	12/17/2014 2040			Injection Volume:	1 uL

MT 5/2/15

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
C10-C36		8300	J	970	3900
C10-C28		3000	J	660	3900

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

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Client Sample ID: **J1V278**

Lab Sample ID: 280-63697-10
Client Matrix: Solid

% Moisture: 10.0

Date Sampled: 12/15/2014 1158
Date Received: 12/17/2014 1030

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

Analysis Method:	NWTPH-Dx	Analysis Batch:	280-257702	Instrument ID:	SGC_U
Prep Method:	3550C	Prep Batch:	280-257560	Lab File ID:	034B3401.D
Dilution:	1.0			Initial Weight/Volume:	30.9 g
Analysis Date:	12/19/2014 0326			Final Weight/Volume:	1 mL
Prep Date:	12/17/2014 2040			Injection Volume:	1 uL

✓ 5/2/15

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
C10-C36		6300	J	1100	4300
C10-C28		2500	J	730	4300

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

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Client Sample ID: **J1V279**

Lab Sample ID: 280-63697-11
Client Matrix: Solid

% Moisture: 2.3

Date Sampled: 12/15/2014 1145
Date Received: 12/17/2014 1030

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

Analysis Method:	NWTPH-Dx	Analysis Batch:	280-257702	Instrument ID:	SGC_U
Prep Method:	3550C	Prep Batch:	280-257560	Lab File ID:	035B3501.D
Dilution:	1.0			Initial Weight/Volume:	30.7 g
Analysis Date:	12/19/2014 0353			Final Weight/Volume:	1 mL
Prep Date:	12/17/2014 2040			Injection Volume:	1 uL

5/2/15

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
C10-C36		2300	J	1000	4000
C10-C28		1600	J	680	4000

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

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Client Sample ID: **J1V280**

Lab Sample ID: 280-63697-12
Client Matrix: Solid

% Moisture: 4.6

Date Sampled: 12/15/2014 0949
Date Received: 12/17/2014 1030

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

Analysis Method:	NWTPH-Dx	Analysis Batch:	280-257702	Instrument ID:	SGC_U
Prep Method:	3550C	Prep Batch:	280-257560	Lab File ID:	036B3601.D
Dilution:	1.0			Initial Weight/Volume:	31.0 g
Analysis Date:	12/19/2014 0421			Final Weight/Volume:	1 mL
Prep Date:	12/17/2014 2040			Injection Volume:	1 uL

1/5/2/15

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
C10-C36		7700	J	1000	4100
C10-C28		4000	J	690	4100

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

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Client Sample ID: J1V281

Lab Sample ID: 280-63697-13
Client Matrix: Solid

% Moisture: 9.1

Date Sampled: 12/15/2014 1018
Date Received: 12/17/2014 1030

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

Analysis Method:	NWTPH-Dx	Analysis Batch:	280-257702	Instrument ID:	SGC_U
Prep Method:	3550C	Prep Batch:	280-257560	Lab File ID:	037B3701.D
Dilution:	1.0			Initial Weight/Volume:	31.6 g
Analysis Date:	12/19/2014 0449			Final Weight/Volume:	1 mL
Prep Date:	12/17/2014 2040			Injection Volume:	1 uL

5/2/15

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
C10-C36		8100	J	1000	4200
C10-C28		3100	J	710	4200

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

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Client Sample ID: **J1V282**

Lab Sample ID: 280-63697-14
Client Matrix: Solid

% Moisture: 1.8

Date Sampled: 12/15/2014 1208
Date Received: 12/17/2014 1030

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

Analysis Method:	NWTPH-Dx	Analysis Batch:	280-257702	Instrument ID:	SGC_U
Prep Method:	3550C	Prep Batch:	280-257560	Lab File ID:	038B3801.D
Dilution:	1.0			Initial Weight/Volume:	31.6 g
Analysis Date:	12/19/2014 0517			Final Weight/Volume:	1 mL
Prep Date:	12/17/2014 2040			Injection Volume:	1 uL

✓ 5/2/15

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
C10-C36		1800	J	960	3900
C10-C28		1500	J	660	3900

Surrogate	%Rec	Qualifier	Acceptance Limits
o-Terphenyl	89		49 - 115

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Client Sample ID: **J1V283**

Lab Sample ID: 280-63697-15
Client Matrix: Solid

% Moisture: 9.6

Date Sampled: 12/15/2014 1133
Date Received: 12/17/2014 1030

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

Analysis Method:	NWTPH-Dx	Analysis Batch:	280-257702	Instrument ID:	SGC_U
Prep Method:	3550C	Prep Batch:	280-257560	Lab File ID:	039B3901.D
Dilution:	1.0			Initial Weight/Volume:	31.1 g
Analysis Date:	12/19/2014 0545			Final Weight/Volume:	1 mL
Prep Date:	12/17/2014 2040			Injection Volume:	1 uL

V 5/2/15

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
C10-C36		6300	J	1100	4300
C10-C28		3100	J	720	4300

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

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Client Sample ID: **J1V284**

Lab Sample ID: 280-63697-16
Client Matrix: Solid

% Moisture: 4.1

Date Sampled: 12/15/2014 1249
Date Received: 12/17/2014 1030

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

Analysis Method:	NWTPH-Dx	Analysis Batch:	280-257702	Instrument ID:	SGC_U
Prep Method:	3550C	Prep Batch:	280-257560	Lab File ID:	040B4001.D
Dilution:	1.0			Initial Weight/Volume:	30.9 g
Analysis Date:	12/19/2014 0613			Final Weight/Volume:	1 mL
Prep Date:	12/17/2014 2040			Injection Volume:	1 uL

5/2/15

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
C10-C36		3200	J J	1000	4000
C10-C28		1900	J	690	4000

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

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Client Sample ID: **J1V286**

Lab Sample ID: 280-63697-17
Client Matrix: Solid

% Moisture: 7.7

Date Sampled: 12/15/2014 0856
Date Received: 12/17/2014 1030

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

Analysis Method:	NWTPH-Dx	Analysis Batch:	280-257702	Instrument ID:	SGC_U
Prep Method:	3550C	Prep Batch:	280-257560	Lab File ID:	041B4101.D
Dilution:	1.0			Initial Weight/Volume:	31.0 g
Analysis Date:	12/19/2014 0641			Final Weight/Volume:	1 mL
Prep Date:	12/17/2014 2040			Injection Volume:	1 uL

5/2/15

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
C10-C36		3400	J J	1000	4200
C10-C28		1800	J	710	4200

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

Appendix 4

Laboratory Narrative and Chain-of-Custody Documentation

CASE NARRATIVE

Revision 1

Client: Washington Closure Hanford

Project: WASHINGTON CLOSURE HANFORD

Job Number: 280-63697-1

SDG #: JP0885
SAF#: RC-107

Date SDG Closed: January 5, 2015
Data Deliverable: 7 Day / Summary

CLIENT ID	LAB ID	ANALYSES REQUESTED	ANALYSES PERFORMED
J1V269	280-63697-1	6010/7471/9056M/353.2/9045/8082/8270/ WTPH-D+/8310/8081	6010B/7471A/9056M/353.2/9045C/8082/8270C/ NWTPH-Dx/8310/8081A/1311-6010B-7470A
J1V270	280-63697-2	6010/7471/9056M/353.2/9045/8082/8270/ WTPH-D+/8310/8081	6010B/7471A/9056M/353.2/9045C/8082/8270C/ NWTPH-Dx/8310/8081A
J1V271	280-63697-3	6010/7471/9056M/353.2/9045/8082/8270/ WTPH-D+/8310/8081	6010B/7471A/9056M/353.2/9045C/8082/8270C/ NWTPH-Dx/8310/8081A
J1V272	280-63697-4	6010/7471/9056M/353.2/9045/8082/8270/ WTPH-D+/8310/8081	6010B/7471A/9056M/353.2/9045C/8082/8270C/ NWTPH-Dx/8310/8081A
J1V273	280-63697-5	6010/7471/9056M/353.2/9045/8082/8270/ WTPH-D+/8310/8081	6010B/7471A/9056M/353.2/9045C/8082/8270C/ NWTPH-Dx/8310/8081A
J1V274	280-63697-6	6010/7471/9056M/353.2/9045/8082/8270/ WTPH-D+/8310/8081	6010B/7471A/9056M/353.2/9045C/8082/8270C/ NWTPH-Dx/8310/8081A
J1V275	280-63697-7	6010/7471/9056M/353.2/9045/8082/8270/ WTPH-D+/8310/8081	6010B/7471A/9056M/353.2/9045C/8082/8270C/ NWTPH-Dx/8310/8081A
J1V276	280-63697-8	6010/7471/9056M/353.2/9045/8082/8270/ WTPH-D+/8310/8081	6010B/7471A/9056M/353.2/9045C/8082/8270C/ NWTPH-Dx/8310/8081A
J1V277	280-63697-9	6010/7471/9056M/353.2/9045/8082/8270/ WTPH-D+/8310/8081	6010B/7471A/9056M/353.2/9045C/8082/8270C/ NWTPH-Dx/8310/8081A
J1V278	280-63697-10	6010/7471/9056M/353.2/9045/8082/8270/ WTPH-D+/8310/8081	6010B/7471A/9056M/353.2/9045C/8082/8270C/ NWTPH-Dx/8310/8081A
J1V279	280-63697-11	6010/7471/9056M/353.2/9045/8082/8270/ WTPH-D+/8310/8081	6010B/7471A/9056M/353.2/9045C/8082/8270C/ NWTPH-Dx/8310/8081A
J1V280	280-63697-12	6010/7471/9056M/353.2/9045/8082/8270/ WTPH-D+/8310/8081	6010B/7471A/9056M/353.2/9045C/8082/8270C/ NWTPH-Dx/8310/8081A
J1V281	280-63697-13	6010/7471/9056M/353.2/9045/8082/8270/ WTPH-D+/8310/8081	6010B/7471A/9056M/353.2/9045C/8082/8270C/ NWTPH-Dx/8310/8081A
J1V282	280-63697-14	6010/7471/9056M/353.2/9045/8082/8270/ WTPH-D+/8310/8081	6010B/7471A/9056M/353.2/9045C/8082/8270C/ NWTPH-Dx/8310/8081A
J1V283	280-63697-15	6010/7471/9056M/353.2/9045/8082/8270/ WTPH-D+/8310/8081	6010B/7471A/9056M/353.2/9045C/8082/8270C/ NWTPH-Dx/8310/8081A/1311-6010B-7470A
J1V284	280-63697-16	6010/7471/9056M/353.2/9045/8082/8270/ WTPH-D+/8310/8081	6010B/7471A/9056M/353.2/9045C/8082/8270C/ NWTPH-Dx/8310/8081A
J1V285	280-63697-17	6010/7471/9056M/353.2/9045/8082/8270/ WTPH-D+/8310/8081	6010B/7471A/9056M/353.2/9045C/8082/8270C/ NWTPH-Dx/8310/8081A

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.

Revision 1
On 1/5/2015, the client requested TCLP Metals 1311/6010B/7470A analysis for samples J1V269 and J1V283. Those results are included in this report.

RECEIPT
The samples were received on 12/17/2014 10:30 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 5 coolers at receipt time were 0.5° C, 0.7° C, 1.6° C, 2.3° C and 2.9° C.

GC/MS SEMIVOLATILES - SW846 8270C
Compounds Benzo(b)fluoranthene and Benzo(k)fluoranthene were unresolved in samples J1V269 and J1V283 due to matrix interferences. It can be noted that these compounds were adequately resolved in associated standards, indicating the instrument is achieving separation. The combined peak was reported as Benzo(b)fluoranthene, while Benzo(k)fluoranthene was reported as undetected even though it may be present. Associated results have been flagged with a "K".

No other anomalies were encountered.

GC SEMIVOLATILES - SW846 8081A - Pesticides
The organic prep laboratory noted that a Florisil clean-up was performed on sample J1V270 to reduce matrix interferences.

The RPD between the primary and confirmation columns exceeded 40% for 4,4'-DDE in sample J1V270. The higher of the two values has been reported, as matrix interference is evident. The result has been flagged with an "Y".

Continuing Calibration Verification (CCV) standards associated with samples in analysis batch 280-258011 exhibited %Difference (%D) values >15%, biased high, for multiple analytes. The samples associated with these CCVs were non-detect for the affected analytes; therefore, corrective action is deemed unnecessary.

The closing Continuing Calibration Verification (CCV) standard associated with samples in analysis batch 280-258011 exhibited the %Difference (%D) value >15%, biased low, for 4,4'-DDT (-22%) and Methoxychlor (-21%) on the confirmation column. The overall mean %D is ≤15%; therefore, method criteria have been met and corrective action is deemed unnecessary. The samples associated with this CCV were non-detect for the affected analytes.

Continuing Calibration Verification (CCV) standards associated with samples in analysis batch 280-258172 exhibited %Difference (%D) values >15%, biased high, on one of the dual columns, as detailed below. The samples associated with these CCVs were either non-detect for the affected analytes or the confirmation column data confirm the detections within the method defined 40% difference; therefore, data are reported from the column that is in control and corrective action is deemed unnecessary. The sequence is as follows:

CCV: Primary: 4,4'-DDD (+21%), Methoxychlor (+19%)
Confirmation: OK
Samples: J1V270, J1V272, J1V274, J1V276, J1V278, J1V285
CCV: Primary: 4,4'-DDD (+30%), 4,4'-DDT (+16%), Endrin (+18%), Heptachlor (+16%), Methoxychlor (+17%)
Toxaphene (+18%)
Confirmation: 4,4'-DDE (+16%), alpha-BHC (+16%)

It can be noted that the closing CCV standard associated with sample J1V270 in analysis batch 280-258172 exhibited the %Difference (%D) value >15%, biased high, for 4,4'-DDE (+16%) on the confirmation column. Sample J1V270 showed an estimated detection present below the reporting limit on both columns for 4,4'-DDE; however, the detection was not confirmed within the method defined 40% difference. The 4,4'-DDE result for sample J1V270 has been reported from the primary column, which was in control.

No other anomalies were encountered.

GC SEMIVOLATILES - SW846 8082 - PCBs
The laboratory noted that a Sulfuric Acid clean-up was performed on the samples presented in this report to reduce matrix interferences.

It can be noted that Aroclor 1221 is reported from a separate injection for several samples in order to acquire/maintain the associated second column confirmation chromatographic data for the samples. Due to a system limitation, this reporting style is necessary when samples are analyzed on a non-sequential injection instrument and second column confirmation is required.

Samples J1V272, J1V284 and J1V285 contained a combination of Aroclor 1254 and Aroclor 1260 with insufficient separation to quantify individually. The samples have been quantified and reported as the predominant Aroclor.

No other anomalies were encountered.

GC SEMIVOLATILES - NWTPH-Dx - DRO
The MSD aliquot of the MS/MSD performed on sample J1V270 exhibited spike compound recoveries outside the control limits, and the associated sample results have been flagged "N". In addition, the RPD limits were exceeded. There is no indication that the analytical system was operating out of control, and method accuracy has been verified by the acceptable LCS analysis data; therefore, corrective action is deemed unnecessary.

No other anomalies were encountered.

HPLC - SW846 8310 - PAHs
The RPD between the primary and confirmation columns exceeded 40% for analytes in samples J1V269, J1V270, J1V273 and J1V275. The lower of the two values has been reported, as matrix interference is evident on both columns. Associated results have been flagged with an "X".

The MS/MSD performed on sample J1V269 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 280-257573 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. Due to high constituent concentration, sample J1V283 required a dilution prior to the analysis of Mercury. The reporting limit has been adjusted relative to the dilution required.

Silicon was recovered outside the control limits, biased low, in the LCS associated with batch 280-257573, and the associated sample results have been flagged "N". Silicon has been identified as a poor performing element when analyzed using this method and has a history of reacting inconsistently; therefore, corrective action is not initiated. Data are reported as is.

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 J1V269; therefore, control limits are not applicable.

The duplicate analysis of sample J1V269 exhibited RPD data outside the control limits for Arsenic and Lead, and the associated sample results have been flagged "M". There is no indication that the analytical system was operating out of control, and method accuracy has been verified by the acceptable LCS analysis data; therefore, corrective action is deemed unnecessary.

No other anomalies were encountered.

TCLP METALS - SW846 1311/6010B/7470A
Low levels of Arsenic, Barium, Lead and Mercury are present in the method blanks associated with batches 280-259357 and 280-259874, respectively. Because the concentrations in the method blanks are not present at levels greater than half the reporting limit, corrective action is deemed unnecessary.

The duplicate analysis of sample J1V269 exhibited RPD data outside the control limits for Mercury, and the associated sample result has been flagged "M". There is no indication that the analytical system was operating out of control, and method accuracy has been verified by the acceptable LCS analysis data; therefore, corrective action is deemed unnecessary.

No other anomalies were encountered.

GENERAL CHEMISTRY - MCAWW 353.2 - NITRATE NITRITE as N
The Nitrate Nitrite as N duplicate analysis of sample J1V283 exceeded the RPD limit, and the associated sample result has been flagged "M". There is no indication that the analytical system was operating out of control, and method accuracy has been verified by the acceptable LCS analysis data; therefore, corrective action is deemed unnecessary.

No other anomalies were encountered.

GENERAL CHEMISTRY - SW846 9056M - ANIONS
No anomalies were encountered.

GENERAL CHEMISTRY - SW846 9045C - PH
SU = standard units

No anomalies were encountered.

Washington Closure Hanford

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

RC-107-123

Collector: H. Weber

Company Contact: Joan Kessner

Telephone No.: 375-4688

Project Coordinator: KESSNER, JH

Price Code: 8B

Data Turnaround: 7days

Project Designation: 100-H Field Remediation

Sampling Location: 100-H-28:2, EXC1, verification

SAF No.: RC-107

Ice Chest No.: ERC-02-007

Field Logbook No.: EL-1627-08

COA: 01H2822000

Method of Shipment: Commercial Carrier - fed EX

Offsite Property No.: A131288

Bill of Lading/Air Bill No.: see OSR

Shipped To: TestAmerica Denver

Other Labs Shipped To: TestAmerica Richland

POSSIBLE SAMPLE HAZARDS/REMARKS

None

Special Handling and/or Storage

cool as required

Sample No.	Matrix	Sample Date	Sample Time	See item (1) in Special Instructions	See item (2) in Special Instructions	PCBs - 8082	Semi-VOA - 8270 (TCL)	TPH-Diesel Range - WTPH-D +	PAHs - 8310	Pesticides - 8081
Preservation				Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C
Type of Container				G/P	G/P	aG	aG	aG	aG	aG
No. of Container(s)				1	1	1	1	1	1	1
Volume				250mL	250mL	250mL	250mL	125mL	250mL	250mL
J1V269	SOIL	12-15-14	1224	✓	✓	✓	✓	✓	✓	✓
J1V270	SOIL	12-15-14	0922	✓	✓	✓	✓	✓	✓	✓
J1V271	SOIL	12-15-14	1029	✓	✓	✓	✓	✓	✓	✓
J1V272	SOIL	12-15-14	0856	✓	✓	✓	✓	✓	✓	✓
J1V273	SOIL	12-15-14	1002	✓	✓	✓	✓	✓	✓	✓

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CHAIN OF POSSESSION

Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Heather Weber / [illegible]	12/15/14 1306	[illegible] (WCH) / [illegible]	12/15/14 1306
[illegible] / [illegible]	12/15/14 1545	C. Bingham	12-15-14 1545
C. Bingham	12-15-14 1600	1060 Battelle, fridge #14	12-15-14 1600
1060 Battelle, fridge #14	12-16-14 0840	C. Bingham	12-16-14 0840
C. Bingham	12-16-14 0900	fed EX	
		[illegible]	12/17/14 10:30

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)
(2) IC Anions - 9056 Modified {Bromide, Chloride, Fluoride, Nitrogen in Nitrate, Nitrogen in Nitrite, Phosphorous in phosphate, Sulfate}; NO2/NO3 - 353.2; pH (Soil) - 9045

280-63697 Chain of Custody

REVIEWED BY [illegible] DATE 12/16/14

2.4, 1.8, 1.1, 0.0, 0.2 IRS +0.5 MJ 12/17/14

JP0885

Washington Closure Hanford

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Collector	N. Weber
Company Contact	Joan Kessner
Telephone No.	375-4688
Project Coordinator	KESSNER, JH
Price Code	8B
Data Turnaround	7days
Project Designation	100-H Field Remediation
Sampling Location	100-H-28:2, EXC1, verification
SAF No.	RC-107
Ice Chest No.	ERC-02-007
Field Logbook No.	EL-1627-08
COA	01H2822000
Method of Shipment	Commercial Carrier - fed EX
Bill of Lading/Air Bill No.	See OSPC
Offsite Property No.	A131288
Shipped To	TestAmerica Denver
Other Labs Shipped To	TestAmerica Richland

POSSIBLE SAMPLE HAZARDS/REMARKS

None

Special Handling and/or Storage

cool as required

Sample No.	Matrix	Sample Date	Sample Time	See item (1) in Special Instructions	See item (2) in Special Instructions	PCBs - 8082	Semi-VOA - 8270 (TCL)	TPH-Diesel Range - WTPH-D +	PAHs - 8310	Pesticides - 8081
Preservation				Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C
Type of Container				G/P	G/P	aG	aG	aG	aG	aG
No. of Container(s)				1	1	1	1	1	1	1
Volume				250mL	250mL	250mL	250mL	125mL	250mL	250mL
J1V274	SOIL	12-15-14	1106	✓	✓	✓	✓	✓	✓	✓
J1V275	SOIL	12-15-14	1058	✓	✓	✓	✓	✓	✓	✓
J1V276	SOIL	12-15-14	0935	✓	✓	✓	✓	✓	✓	✓
J1V277	SOIL	12-15-14	1115	✓	✓	✓	✓	✓	✓	✓
J1V278	SOIL	12-15-14	1158	✓	✓	✓	✓	✓	✓	✓

Page 2 of 3

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Norbert Weber	12/15/14 1306	(fedex) DUSHEA	12/15/14 1306
DUSHEA	12/15/14 1545	C. Bingham	12-15-14 1545
C. Bingham	12-15-14 1600	1060 Battelle, fridge	12-15-14 1600
1060 Battelle, fridge	12-16-14 0840	C. Bingham	12-16-14 0840
C. Bingham	12-16-14 0900	fed EX	
			12/17/14 1630

Disposed By	Date/Time

FINAL SAMPLE DISPOSITION — Disposal Method

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)
(2) IC Anions - 9056 Modified (Bromide, Chloride, Fluoride, Nitrogen in Nitrate, Nitrogen in Nitrite, Phosphorous in phosphate, Sulfate); NO2/NO3 - 353.2; pH (Soil) - 9045

REVIEWED BY GDS DATE 12/16/14

JP0885

WCH-EE-011

Washington Closure Hanford

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

RC-107-123

Collector	H. Weber
Company Contact	Joan Kessner
Telephone No.	375-4688
Project Coordinator	KESSNER, JH
Price Code	8B
Data Turnaround	7 days
Project Designation	100-H Field Remediation
Sampling Location	100-H-28:2, EXC1, verification
SAF No.	RC-107
Ice Chest No.	ERC-02-007
Field Logbook No.	EL-1627-08
COA	01H2822000
Method of Shipment	Commercial Carrier - fed EX
Bill of Lading/Air Bill No.	See OSR
Offsite Property No.	A131288
Shipped To	TestAmerica Denver
Other Labs Shipped To	TestAmerica Richland

POSSIBLE SAMPLE HAZARDS/REMARKS

None

Special Handling and/or Storage

cool as required

Sample No.	Matrix	Sample Date	Sample Time	Preservation: Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C			
				Type of Container: G/P	G/P	aG	aG	aG	aG	aG			
				No. of Container(s): 1	1	1	1	1	1	1			
				Volume: 250mL	250mL	250mL	250mL	125mL	250mL	250mL			
				Sample Analysis: See item (1) in Special Instructions	See item (2) in Special Instructions	PCBs - 8082	Semi-VOA - 8270 (TCL)	TPH-Diesel Range - WTPH-D +	PAHs - 8310	Pesticides - 8081			
J1V279	SOIL	12-15-14	1145	✓	✓	✓	✓	✓	✓	✓			
J1V280	SOIL	12-15-14	0949	✓	✓	✓	✓	✓	✓	✓			
J1V281	SOIL	12-15-14	1018	✓	✓	✓	✓	✓	✓	✓			
J1V282	SOIL	12-15-14	1208	✓	✓	✓	✓	✓	✓	✓			
J1V283	SOIL	12-15-14	1133	✓	✓	✓	✓	✓	✓	✓			

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CHAIN OF POSSESSION

Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Heather Weber	12/15/14 1306	(WCH) Joshua DuBose	12/15/14 1306
Joshua DuBose	12/15/14 1545	C. Bingham	12-15-14 1545
C. Bingham	12-15-14 1600	1060 Battelle, fridge #1B	12-15-14 1600
1060 Battelle, fridge #1B	12-16-14 0840	C. Bingham	12-16-14 0840
C. Bingham WCH	12-16-14 0900	fed EX	
			12/17/14 10:30

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)
(2) IC Anions - 9056 Modified (Bromide, Chloride, Fluoride, Nitrogen in Nitrate, Nitrogen in Nitrite, Phosphorous in phosphate, Sulfate); NO2/NO3 - 353.2; pH (Soil) - 9045

REVIEWED BY [illegible] DATE 12/16/14

JP0885

WCH-EE-011

Washington Closure Hanford

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

RC-107-123

Collector: H Weber	Company Contact: Joan Kessner	Telephone No.: 375-4888	Project Coordinator: KESSNER, JH
Price Code: 8B	Data Turnaround: 7 days		
Project Designation: 100-H Field Remediation	Sampling Location: 100-H-28:2, EXCT, verification	SAF No.: RC-107	
Ice Chest No.: EBC-02-007	Field Logbook No.: EL-1627-08	COA: 01H2822000	Method of Shipment: Commercial Carrier fed EX
Shipped To: TestAmerica Denver	Offsite Property No.: A131288		Bill of Lading/Air Bill No.: See OSPC
Other Labs Shipped To: TestAmerica Richland			

POSSIBLE SAMPLE HAZARDS/REMARKS

None

Special Handling and/or Storage

cool as required

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C			
Type of Container	G/P	G/P	aG	aG	aG	aG	aG			
No. of Container(s)	1	1	1	1	1	1	1			
Volume	250mL	250mL	250mL	250mL	125mL	250mL	250mL			
Sample Analysis	See item (1) in Special Instructions	See item (2) in Special Instructions	PCBs - 8082	Semi-VOA - 8270 (TCL)	TPH-Diesel Range - WTPH-D +	PAHs - 8310	Pesticides - 8081			

Sample No.	Matrix	Sample Date	Sample Time									
JH1284	SOIL	12-15-14	1249	✓	✓	✓	✓	✓	✓	✓		
JH1285	SOIL	12-15-14	0856	✓	✓	✓	✓	✓	✓	✓		

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CHAIN OF POSSESSION

Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Heather Weber / [illegible]	12/15/14 1306	(LOCA) Joshua Dwshea	12/15/14 1306
Joshua Dwshea	12/15/14 1545	C. Bingham	12-15-14 1545
C. Bingham	12-15-14 1600	10100 Battelle, fridge	12-15-14 1600
10100 Battelle, fridge	12-16-14 0840	C. Bingham	12-16-14 0840
C. Bingham	12-16-14 0900	fed EX	
		[illegible]	12/17/14 10:30

Disposed By: Date/Time

FINAL SAMPLE DISPOSITION: Disposal Method:

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)
(2) IC Anions - 9056 Modified (Bromide, Chloride, Fluoride, Nitrogen in Nitrate, Nitrogen in Nitrite, Phosphorous in phosphate, Sulfate); NO2/NO3 - 353.2; pH (Soil) - 9045

REVIEWED BY [illegible] DATE 12/16/14

JP0885

WCH-EE-011

Appendix 5

Data Validation Supporting Documentation

GENERAL ORGANIC DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	E
PROJECT: 100-H-2812			DATA PACKAGE: JP0885		
VALIDATOR: ELR		LAB: TAL		DATE: 4/30/15	
			SDG: JP0885		

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

SAMPLES/MATRIX:

J1V269	J1V270	J1V271	J1V272	J1V273	J1V274
J1V275	J1V276	J1V277	J1V278	J1V279	J1V280
J1V281	J1V282	J1V283	J1V284	J1V285	

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:

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: MSD - C10-C36 155% - J all

no RAS

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: C10-C36-1 (362)

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: 280-63697-1
Sdg Number: JP0885

Method Blank - Batch: 280-257560

Method: NWTPH-Dx
Preparation: 3550C

Lab Sample ID:	MB 280-257560/1-A	Analysis Batch:	280-257702	Instrument ID:	SGC_U
Client Matrix:	Solid	Prep Batch:	280-257560	Lab File ID:	019B1901.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	31.2 g
Analysis Date:	12/18/2014 2027	Units:	ug/Kg	Final Weight/Volume:	1 mL
Prep Date:	12/17/2014 2040			Injection Volume:	1 uL
Leach Date:	N/A				

Analyte	Result	Qual	MDL	RL
C10-C36	960	U	960	3800
C10-C28	650	U	650	3800

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

Lab Control Sample - Batch: 280-257560

Method: NWTPH-Dx
Preparation: 3550C

Lab Sample ID:	LCS 280-257560/2-A	Analysis Batch:	280-257702	Instrument ID:	SGC_U
Client Matrix:	Solid	Prep Batch:	280-257560	Lab File ID:	020B2001.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	30.9 g
Analysis Date:	12/18/2014 2055	Units:	ug/Kg	Final Weight/Volume:	1 mL
Prep Date:	12/17/2014 2040			Injection Volume:	1 uL
Leach Date:	N/A				

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
C10-C36	64700	56700	88	57 - 115	
C10-C28	64700	56300	87	53 - 115	

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

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-257560

Method: NWTPH-Dx
Preparation: 3550C

MS Lab Sample ID:	280-63697-2	Analysis Batch:	280-257702	Instrument ID:	SGC_U
Client Matrix:	Solid	Prep Batch:	280-257560	Lab File ID:	023B2301.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	30.1 g
Analysis Date:	12/18/2014 2218			Final Weight/Volume:	1 mL
Prep Date:	12/17/2014 2040			Injection Volume:	1 uL
Leach Date:	N/A				

MSD Lab Sample ID:	280-63697-2	Analysis Batch:	280-257702	Instrument ID:	SGC_U
Client Matrix:	Solid	Prep Batch:	280-257560	Lab File ID:	024B2401.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	30.4 g
Analysis Date:	12/18/2014 2246			Final Weight/Volume:	1 mL
Prep Date:	12/17/2014 2040			Injection Volume:	1 uL
Leach Date:	N/A				

Analyte	% Rec. MS	% Rec. MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
C10-C36	73	155	57 - 115	36	23		N *
C10-C28	82	121	56 - 115	26	23		N *

Surrogate	MS % Rec	MSD % Rec	Acceptance Limits
o-Terphenyl	87	88	49 - 115

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-257560

Method: NWTPH-Dx
Preparation: 3550C

MS Lab Sample ID:	280-63697-17	Analysis Batch:	280-257702	Instrument ID:	SGC_U
Client Matrix:	Solid	Prep Batch:	280-257560	Lab File ID:	042B4201.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	30.4 g
Analysis Date:	12/19/2014 0709			Final Weight/Volume:	1 mL
Prep Date:	12/17/2014 2040			Injection Volume:	1 uL
Leach Date:	N/A				

MSD Lab Sample ID:	280-63697-17	Analysis Batch:	280-257702	Instrument ID:	SGC_U
Client Matrix:	Solid	Prep Batch:	280-257560	Lab File ID:	043B4301.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	30.1 g
Analysis Date:	12/19/2014 0737			Final Weight/Volume:	1 mL
Prep Date:	12/17/2014 2040			Injection Volume:	1 uL
Leach Date:	N/A				

Analyte	% Rec. MS	% Rec. MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
C10-C36	85	83	57 - 115	2	23		
C10-C28	85	82	56 - 115	2	23		

Surrogate	MS % Rec	MSD % Rec	Acceptance Limits
o-Terphenyl	86	84	49 - 115

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-257560

Method: NWTPH-Dx
Preparation: 3550C

MS Lab Sample ID:	280-63697-2	Units:	ug/Kg
Client Matrix:	Solid		
Dilution:	1.0		
Analysis Date:	12/18/2014 2218		
Prep Date:	12/17/2014 2040		
Leach Date:	N/A		

MSD Lab Sample ID:	280-63697-2
Client Matrix:	Solid
Dilution:	1.0
Analysis Date:	12/18/2014 2246
Prep Date:	12/17/2014 2040
Leach Date:	N/A

Analyte	Sample Result/Qual		MS Spike Amount	MSD Spike Amount	MS Result/Qual	MSD Result/Qual	
C10-C36	78000		69700	69000	128000	184000	N *
C10-C28	33000		69700	69000	89800	116000	N *

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-257560

Method: NWTPH-Dx
Preparation: 3550C

MS Lab Sample ID:	280-63697-17	Units:	ug/Kg
Client Matrix:	Solid		
Dilution:	1.0		
Analysis Date:	12/19/2014 0709		
Prep Date:	12/17/2014 2040		
Leach Date:	N/A		

MSD Lab Sample ID:	280-63697-17
Client Matrix:	Solid
Dilution:	1.0
Analysis Date:	12/19/2014 0737
Prep Date:	12/17/2014 2040
Leach Date:	N/A

Analyte	Sample Result/Qual		MS Spike Amount	MSD Spike Amount	MS Result/Qual	MSD Result/Qual
C10-C36	3400	J	71300	72000	64300	62800
C10-C28	1800	J	71300	72000	62000	60900

Date: 4 May 2015
To: Washington Closure Hanford Inc. (technical representative)
From: ELR Consulting
Project: 100-H Remaining Sites Burial Grounds – Soil Full Protocol - Waste Subsite 100-H-28:2
Subject: Inorganic - Data Package No. JP0885-TAL

INTRODUCTION

This memo presents the results of data validation on Data Package No. JP0885 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
J1V269	12/15/14	Soil	C	See note 1 & 2
J1V270	12/15/14	Soil	C	See note 1
J1V271	12/15/14	Soil	C	See note 1
J1V272	12/15/14	Soil	C	See note 1
J1V273	12/15/14	Soil	C	See note 1
J1V274	12/15/14	Soil	C	See note 1
J1V275	12/15/14	Soil	C	See note 1
J1V276	12/15/14	Soil	C	See note 1
J1V277	12/15/14	Soil	C	See note 1
J1V278	12/15/14	Soil	C	See note 1
J1V279	12/15/14	Soil	C	See note 1
J1V280	12/15/14	Soil	C	See note 1
J1V281	12/15/14	Soil	C	See note 1
J1V282	12/15/14	Soil	C	See note 1
J1V283	12/15/14	Soil	C	See note 1 & 2
J1V284	12/15/14	Soil	C	See note 1
J1V285	12/15/14	Soil	C	See note 1

1 - ICP metals (6010B) and mercury by 7471A.
2 – ICP metals (6010B) TCLP.

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 6 months for ICP metals and 28 days for mercury.

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.

Due to method blank contamination, the TCLP arsenic result in sample J1V283 was qualified as undetected and flagged "UJ".

All other preparation blank results were acceptable.

Field (Equipment) Blank

No field blank was submitted for analysis.

- **Accuracy**

Matrix Spike and Laboratory Control Sample

Matrix spike (MS) and laboratory control sample (LCS) analyses are used to assess the analytical accuracy of the reported data. The matrix spike is used to assess the effect of the matrix on the ability to accurately quantify sample concentrations. Recoveries must fall within the range of 75% to 125%. Samples with a recovery of less than 30% and a sample result below the IDL are rejected and flagged "UR". Samples with a recovery of 30% to 74% and a sample result less than the IDL are qualified "UJ". Samples with a recovery of greater than 125% or less than 74% and a sample result greater than the IDL are qualified as estimates and flagged "J". Finally, for samples with a recovery greater than 125% and a sample result less than the IDL, no qualification is required.

Due to matrix spike recoveries outside QC limits, all antimony (55%) and silicon (21%) results were qualified as estimates and flagged "J".

Due to an LCS recovery outside QC limits, all silicon (7%) results were qualified as estimates and flagged "J".

All other accuracy results were acceptable

- **Precision**

Laboratory Duplicate Samples

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

Due to an RPD outside QC limits, all arsenic (57%) and lead (54%) results were qualified as estimates and flagged "J".

All other laboratory duplicate results were acceptable.

Field Duplicate

One set of field duplicates (J1V272/J1T285) 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. JP0885 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 TCLP arsenic result in sample J1V283 was qualified as undetected and flagged "UJ".
- Due to matrix spike recoveries outside QC limits, all antimony (55%) and silicon (21%) results were qualified as estimates and flagged "J".
- Due to an LCS recovery outside QC limits, all silicon (7%) results were qualified as estimates and flagged "J".
- Due to an RPD outside QC limits, all arsenic (57%) and lead (54%) results were qualified as estimates and flagged "J".

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

REFERENCES

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

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

Appendix 1

Glossary of Data Reporting Qualifiers

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

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

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

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

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

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

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

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

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

Appendix 2

Summary of Data Qualification

INORGANIC DATA QUALIFICATION SUMMARY*

SDG: JP0885	**REVIEWER: ELR**	**Project: 100-H-28:2**	**PAGE_1_OF_1**
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
Antimony Silicon	J	All	MS recovery
Silicon	J	All	LCS recovery
Arsenic Lead	J	All	RPD
Arsenic (TCLP)	UJ	J1V283	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: 280-63697-1
Sdg Number: JP0885

Client Sample ID: **J1V269**

Lab Sample ID: 280-63697-1
Client Matrix: Solid
% Moisture: 8.2

Date Sampled: 12/15/2014 1224
Date Received: 12/17/2014 1030

6010B Metals (ICP)

Analysis Method:	6010B	Analysis Batch:	280-257946	Instrument ID:	MT_026
Prep Method:	3050B	Prep Batch:	280-257573	Lab File ID:	26a121914.asc
Dilution:	1.0			Initial Weight/Volume:	1.07 g
Analysis Date:	12/19/2014 1205			Final Weight/Volume:	100 mL
Prep Date:	12/18/2014 0930				

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Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Aluminum		7810	X	1.6	5.1
Antimony		0.39	U J	0.39	0.61
Arsenic		57.3	M J	0.67	1.0
Barium		74.2		0.077	0.51
Beryllium		0.034	U	0.034	0.20
Boron		4.1		1.0	2.0
Cadmium		0.042	U	0.042	0.20
Calcium		5130	X	14.3	50.9
Chromium		10.9		0.059	0.20
Cobalt		6.5	X	0.10	1.0
Copper		13.3		0.22	1.0
Iron		17200		3.9	5.1
Lead		200	M X J	0.27	0.51
Magnesium		3900	X	3.8	20.4
Manganese		272	X	0.10	1.0
Molybdenum		0.26	U	0.26	2.0
Nickel		10.6	X	0.13	4.1
Potassium		1260		41.7	305
Selenium		0.88	U	0.88	1.0
Silicon		211	N J	5.8	10.2
Silver		0.16	U	0.16	0.20
Sodium		214		60.0	122
Vanadium		38.4		0.096	2.0
Zinc		46.0	X	0.41	1.0

6010B TCLP Metals (ICP)-TCLP

Analysis Method:	6010B	Analysis Batch:	280-259633	Instrument ID:	MT_026
Prep Method:	3010A	Prep Batch:	280-259357	Lab File ID:	26a010815c.asc
Dilution:	1.0	Leach Batch:	280-259212	Initial Weight/Volume:	10 mL
Analysis Date:	01/08/2015 1515			Final Weight/Volume:	50 mL
Prep Date:	01/07/2015 1445				
Leach Date:	01/06/2015 1133				

Analyte	DryWt Corrected: N	Result (mg/L)	Qualifier	MDL	RL
Arsenic		0.59		0.022	0.50
Barium		0.56	B	0.0020	1.0
Cadmium		0.0025	B	0.0020	0.10
Chromium		0.0048	B	0.0030	0.50
Lead		0.37	B	0.013	0.50
Selenium		0.024	U	0.024	0.10
Silver		0.0040	U	0.0040	0.50

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Client Sample ID: **J1V269**

Lab Sample ID: 280-63697-1
Client Matrix: Solid

Date Sampled: 12/15/2014 1224
Date Received: 12/17/2014 1030

7470A TCLP Mercury-TCLP

Analysis Method:	7470A	Analysis Batch:	280-259898	Instrument ID:	MT_034
Prep Method:	7470A	Prep Batch:	280-259874	Lab File ID:	150112ba.txt
Dilution:	1.0	Leach Batch:	280-259212	Initial Weight/Volume:	30 mL
Analysis Date:	01/12/2015 1559			Final Weight/Volume:	30 mL
Prep Date:	01/12/2015 1345				
Leach Date:	01/06/2015 1133				

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Analyte	DryWt Corrected: N	Result (mg/L)	Qualifier	MDL	RL
Mercury		0.00010	B C M	0.000030	0.0020

7471A Mercury (CVAA)

Analysis Method:	7471A	Analysis Batch:	280-258408	Instrument ID:	MT_033
Prep Method:	7471A	Prep Batch:	280-257626	Lab File ID:	141223aa.txt
Dilution:	1.0			Initial Weight/Volume:	0.65 g
Analysis Date:	12/23/2014 1056			Final Weight/Volume:	50 mL
Prep Date:	12/23/2014 0700				

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Mercury		0.0056	U	0.0056	0.017

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Client Sample ID: **J1V270**

Lab Sample ID: 280-63697-2
Client Matrix: Solid
% Moisture: 4.6

Date Sampled: 12/15/2014 0922
Date Received: 12/17/2014 1030

6010B Metals (ICP)

Analysis Method:	6010B	Analysis Batch:	280-257946	Instrument ID:	MT_026
Prep Method:	3050B	Prep Batch:	280-257573	Lab File ID:	26a121914.asc
Dilution:	1.0			Initial Weight/Volume:	1.04 g
Analysis Date:	12/19/2014 1215			Final Weight/Volume:	100 mL
Prep Date:	12/18/2014 0930				

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Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Aluminum		5460	X	1.6	5.0
Antimony		0.38	U J	0.38	0.61
Arsenic		5.4	J	0.67	1.0
Barium		60.4		0.077	0.50
Beryllium		0.033	U	0.033	0.20
Boron		1.2	B	0.99	2.0
Cadmium		0.072	B	0.041	0.20
Calcium		5420	X	14.2	50.4
Chromium		9.0		0.058	0.20
Cobalt		5.6	X	0.10	1.0
Copper		11.8		0.22	1.0
Iron		15600		3.8	5.0
Lead		15.6	X J	0.27	0.50
Magnesium		3480	X	3.7	20.2
Manganese		217	X	0.10	1.0
Molybdenum		0.26	U	0.26	2.0
Nickel		9.2	X	0.12	4.0
Potassium		806		41.3	303
Selenium		0.87	U	0.87	1.0
Silicon		147	N J	5.7	10.1
Silver		0.16	U	0.16	0.20
Sodium		251		59.5	121
Vanadium		39.0		0.095	2.0
Zinc		31.9	X	0.40	1.0

7471A Mercury (CVAA)

Analysis Method:	7471A	Analysis Batch:	280-258408	Instrument ID:	MT_033
Prep Method:	7471A	Prep Batch:	280-257626	Lab File ID:	141223aa.txt
Dilution:	1.0			Initial Weight/Volume:	0.62 g
Analysis Date:	12/23/2014 1108			Final Weight/Volume:	50 mL
Prep Date:	12/23/2014 0700				

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Mercury		0.063		0.0056	0.017

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Client Sample ID: **J1V271**

Lab Sample ID: 280-63697-3
Client Matrix: Solid

% Moisture: 1.8

Date Sampled: 12/15/2014 1029
Date Received: 12/17/2014 1030

6010B Metals (ICP)

Analysis Method:	6010B	Analysis Batch:	280-257946	Instrument ID:	MT_026
Prep Method:	3050B	Prep Batch:	280-257573	Lab File ID:	26a121914.asc
Dilution:	1.0			Initial Weight/Volume:	1.02 g
Analysis Date:	12/19/2014 1230			Final Weight/Volume:	100 mL
Prep Date:	12/18/2014 0930				

12/30/15

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Aluminum		3910	X	1.5	5.0
Antimony		0.38	U J	0.38	0.60
Arsenic		2.0	J	0.66	1.0
Barium		23.7		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		4200	X	14.1	49.9
Chromium		6.4		0.058	0.20
Cobalt		3.8	X	0.10	1.0
Copper		9.6		0.22	1.0
Iron		10500		3.8	5.0
Lead		1.7	X J	0.27	0.50
Magnesium		2810	X	3.7	20.0
Manganese		160	X	0.10	1.0
Molybdenum		0.26	U	0.26	2.0
Nickel		7.4	X	0.12	4.0
Potassium		413		41.0	300
Selenium		0.86	U	0.86	1.0
Silicon		102	N J	5.7	10
Silver		0.16	U	0.16	0.20
Sodium		160		58.9	120
Vanadium		25.4		0.094	2.0
Zinc		20.6	X	0.40	1.0

7471A Mercury (CVAA)

Analysis Method:	7471A	Analysis Batch:	280-258408	Instrument ID:	MT_033
Prep Method:	7471A	Prep Batch:	280-257626	Lab File ID:	141223aa.txt
Dilution:	1.0			Initial Weight/Volume:	0.61 g
Analysis Date:	12/23/2014 1110			Final Weight/Volume:	50 mL
Prep Date:	12/23/2014 0700				

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

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Client Sample ID: **J1V272**

Lab Sample ID: 280-63697-4
Client Matrix: Solid
% Moisture: 8.3

Date Sampled: 12/15/2014 0856
Date Received: 12/17/2014 1030

6010B Metals (ICP)

Analysis Method:	6010B	Analysis Batch:	280-257946	Instrument ID:	MT_026
Prep Method:	3050B	Prep Batch:	280-257573	Lab File ID:	26a121914.asc
Dilution:	1.0			Initial Weight/Volume:	1.14 g
Analysis Date:	12/19/2014 1233			Final Weight/Volume:	100 mL
Prep Date:	12/18/2014 0930				

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Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Aluminum		8020	X	1.5	4.8
Antimony		0.36	~~U~~ J	0.36	0.57
Arsenic		4.9	J	0.63	0.96
Barium		72.1		0.073	0.48
Beryllium		0.055	B	0.032	0.19
Boron		0.94	U	0.94	1.9
Cadmium		0.12	B	0.039	0.19
Calcium		3910	X	13.5	47.8
Chromium		16.2		0.055	0.19
Cobalt		5.8	X	0.096	0.96
Copper		12.3		0.21	0.96
Iron		15900		3.6	4.8
Lead		6.3	X J	0.26	0.48
Magnesium		5100	X	3.5	19.1
Manganese		227	X	0.096	0.96
Molybdenum		0.25	U	0.25	1.9
Nickel		15.0	X	0.12	3.8
Potassium		1030		39.2	287
Selenium		0.82	U	0.82	0.96
Silicon		233	N J	5.4	9.6
Silver		0.15	U	0.15	0.19
Sodium		299		56.4	115
Vanadium		30.8		0.090	1.9
Zinc		41.4	X	0.38	0.96

7471A Mercury (CVAA)

Analysis Method:	7471A	Analysis Batch:	280-258408	Instrument ID:	MT_033
Prep Method:	7471A	Prep Batch:	280-257626	Lab File ID:	141223aa.txt
Dilution:	1.0			Initial Weight/Volume:	0.63 g
Analysis Date:	12/23/2014 1113			Final Weight/Volume:	50 mL
Prep Date:	12/23/2014 0700				

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Mercury		0.029		0.0057	0.018

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Client Sample ID: **J1V273**

Lab Sample ID: 280-63697-5
Client Matrix: Solid
% Moisture: 3.0

Date Sampled: 12/15/2014 1002
Date Received: 12/17/2014 1030

6010B Metals (ICP)

Analysis Method:	6010B	Analysis Batch:	280-257946	Instrument ID:	MT_026
Prep Method:	3050B	Prep Batch:	280-257573	Lab File ID:	26a121914.asc
Dilution:	1.0			Initial Weight/Volume:	1.09 g
Analysis Date:	12/19/2014 1235			Final Weight/Volume:	100 mL
Prep Date:	12/18/2014 0930				

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Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Aluminum		4940	X	1.5	4.7
Antimony		0.36	U J	0.36	0.57
Arsenic		1.9	J	0.62	0.95
Barium		35.5		0.072	0.47
Beryllium		0.031	U	0.031	0.19
Boron		0.93	U	0.93	1.9
Cadmium		0.060	B	0.039	0.19
Calcium		5910	X	13.3	47.3
Chromium		8.1		0.055	0.19
Cobalt		4.9	X	0.095	0.95
Copper		11.1		0.21	0.95
Iron		13600		3.6	4.7
Lead		2.3	X J	0.26	0.47
Magnesium		3510	X	3.5	18.9
Manganese		199	X	0.095	0.95
Molybdenum		0.25	U	0.25	1.9
Nickel		7.3	X	0.12	3.8
Potassium		590		38.8	284
Selenium		0.81	U	0.81	0.95
Silicon		115	N J	5.4	9.5
Silver		0.15	U	0.15	0.19
Sodium		252		55.8	114
Vanadium		34.0		0.089	1.9
Zinc		27.2	X	0.38	0.95

7471A Mercury (CVAA)

Analysis Method:	7471A	Analysis Batch:	280-258408	Instrument ID:	MT_033
Prep Method:	7471A	Prep Batch:	280-257626	Lab File ID:	141223aa.txt
Dilution:	1.0			Initial Weight/Volume:	0.62 g
Analysis Date:	12/23/2014 1115			Final Weight/Volume:	50 mL
Prep Date:	12/23/2014 0700				

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

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Client Sample ID: **J1V274**

Lab Sample ID: 280-63697-6
Client Matrix: Solid

% Moisture: 3.0

Date Sampled: 12/15/2014 1106
Date Received: 12/17/2014 1030

6010B Metals (ICP)

Analysis Method:	6010B	Analysis Batch:	280-257946	Instrument ID:	MT_026
Prep Method:	3050B	Prep Batch:	280-257573	Lab File ID:	26a121914.asc
Dilution:	1.0			Initial Weight/Volume:	1.03 g
Analysis Date:	12/19/2014 1238			Final Weight/Volume:	100 mL
Prep Date:	12/18/2014 0930				

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Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Aluminum		4040	X	1.6	5.0
Antimony		0.38	U J	0.38	0.60
Arsenic		2.9	J	0.66	1.0
Barium		33.4		0.076	0.50
Beryllium		0.033	U	0.033	0.20
Boron		0.98	U	0.98	2.0
Cadmium		0.085	B	0.041	0.20
Calcium		4480	X	14.1	50.1
Chromium		11.9		0.058	0.20
Cobalt		5.9	X	0.10	1.0
Copper		10.9		0.22	1.0
Iron		14400		3.8	5.0
Lead		2.7	X J	0.27	0.50
Magnesium		4760	X	3.7	20.0
Manganese		195	X	0.10	1.0
Molybdenum		0.26	U	0.26	2.0
Nickel		22.2	X	0.12	4.0
Potassium		501		41.1	300
Selenium		0.86	U	0.86	1.0
Silicon		108	N J	5.7	10.0
Silver		0.16	U	0.16	0.20
Sodium		157		59.1	120
Vanadium		34.3		0.094	2.0
Zinc		26.0	X	0.40	1.0

7471A Mercury (CVAA)

Analysis Method:	7471A	Analysis Batch:	280-258408	Instrument ID:	MT_033
Prep Method:	7471A	Prep Batch:	280-257626	Lab File ID:	141223aa.txt
Dilution:	1.0			Initial Weight/Volume:	0.61 g
Analysis Date:	12/23/2014 1117			Final Weight/Volume:	50 mL
Prep Date:	12/23/2014 0700				

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Mercury		0.0056	U	0.0056	0.017

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Client Sample ID: **J1V275**

Lab Sample ID: 280-63697-7
Client Matrix: Solid
% Moisture: 2.2

Date Sampled: 12/15/2014 1058
Date Received: 12/17/2014 1030

6010B Metals (ICP)

Analysis Method:	6010B	Analysis Batch:	280-257946	Instrument ID:	MT_026
Prep Method:	3050B	Prep Batch:	280-257573	Lab File ID:	26a121914.asc
Dilution:	1.0			Initial Weight/Volume:	1.06 g
Analysis Date:	12/19/2014 1240			Final Weight/Volume:	100 mL
Prep Date:	12/18/2014 0930				

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Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Aluminum		4170	X	1.5	4.8
Antimony		0.37	U J	0.37	0.58
Arsenic		2.1	J	0.64	0.96
Barium		37.7		0.073	0.48
Beryllium		0.032	U	0.032	0.19
Boron		0.95	U	0.95	1.9
Cadmium		0.064	B	0.040	0.19
Calcium		4350	X	13.6	48.2
Chromium		7.5		0.056	0.19
Cobalt		4.4	X	0.096	0.96
Copper		9.3		0.21	0.96
Iron		11600		3.7	4.8
Lead		4.3	X J	0.26	0.48
Magnesium		3000	X	3.6	19.3
Manganese		173	X	0.096	0.96
Molybdenum		0.25	U	0.25	1.9
Nickel		6.8	X	0.12	3.9
Potassium		532		39.6	289
Selenium		0.83	U	0.83	0.96
Silicon		118	N J	5.5	9.6
Silver		0.15	U	0.15	0.19
Sodium		137		56.9	116
Vanadium		30.3		0.091	1.9
Zinc		22.4	X	0.38	0.96

7471A Mercury (CVAA)

Analysis Method:	7471A	Analysis Batch:	280-258408	Instrument ID:	MT_033
Prep Method:	7471A	Prep Batch:	280-257626	Lab File ID:	141223aa.txt
Dilution:	1.0			Initial Weight/Volume:	0.61 g
Analysis Date:	12/23/2014 1119			Final Weight/Volume:	50 mL
Prep Date:	12/23/2014 0700				

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Mercury		0.0056	U	0.0056	0.017

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Client Sample ID: **J1V276**

Lab Sample ID: 280-63697-8
Client Matrix: Solid
% Moisture: 8.8

Date Sampled: 12/15/2014 0935
Date Received: 12/17/2014 1030

6010B Metals (ICP)

Analysis Method:	6010B	Analysis Batch:	280-257946	Instrument ID:	MT_026
Prep Method:	3050B	Prep Batch:	280-257573	Lab File ID:	26a121914.asc
Dilution:	1.0			Initial Weight/Volume:	1.16 g
Analysis Date:	12/19/2014 1243			Final Weight/Volume:	100 mL
Prep Date:	12/18/2014 0930				

M 4/30/14

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Aluminum		9390	X	1.5	4.7
Antimony		0.36	U J	0.36	0.57
Arsenic		5.1	J	0.62	0.95
Barium		81.4		0.072	0.47
Beryllium		0.086	B	0.031	0.19
Boron		1.1	B	0.93	1.9
Cadmium		0.20		0.039	0.19
Calcium		5380	X	13.3	47.3
Chromium		21.0		0.055	0.19
Cobalt		6.5	X	0.095	0.95
Copper		21.2		0.21	0.95
Iron		17800		3.6	4.7
Lead		12.5	X J	0.26	0.47
Magnesium		5420	X	3.5	18.9
Manganese		271	X	0.095	0.95
Molybdenum		0.25	U	0.25	1.9
Nickel		17.2	X	0.12	3.8
Potassium		1200		38.8	284
Selenium		0.81	U	0.81	0.95
Silicon		219	N J	5.4	9.5
Silver		0.15	U	0.15	0.19
Sodium		264		55.8	113
Vanadium		33.8		0.089	1.9
Zinc		48.7	X	0.38	0.95

7471A Mercury (CVAA)

Analysis Method:	7471A	Analysis Batch:	280-258408	Instrument ID:	MT_033
Prep Method:	7471A	Prep Batch:	280-257626	Lab File ID:	141223aa.txt
Dilution:	1.0			Initial Weight/Volume:	0.61 g
Analysis Date:	12/23/2014 1122			Final Weight/Volume:	50 mL
Prep Date:	12/23/2014 0700				

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Mercury		0.43		0.0060	0.018

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Client Sample ID: **J1V277**

Lab Sample ID: 280-63697-9
Client Matrix: Solid
% Moisture: 3.1

Date Sampled: 12/15/2014 1115
Date Received: 12/17/2014 1030

6010B Metals (ICP)

Analysis Method:	6010B	Analysis Batch:	280-257946	Instrument ID:	MT_026
Prep Method:	3050B	Prep Batch:	280-257573	Lab File ID:	26a121914.asc
Dilution:	1.0			Initial Weight/Volume:	1.10 g
Analysis Date:	12/19/2014 1245			Final Weight/Volume:	100 mL
Prep Date:	12/18/2014 0930				

4/30/15

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Aluminum		3660	X	1.5	4.7
Antimony		0.36	~~U~~ J	0.36	0.56
Arsenic		2.7	J	0.62	0.94
Barium		31.9		0.071	0.47
Beryllium		0.031	U	0.031	0.19
Boron		0.92	U	0.92	1.9
Cadmium		0.052	B	0.038	0.19
Calcium		3700	X	13.2	46.9
Chromium		7.0		0.054	0.19
Cobalt		4.0	X	0.094	0.94
Copper		9.6		0.20	0.94
Iron		11600		3.6	4.7
Lead		5.4	X J	0.25	0.47
Magnesium		2700	X	3.5	18.8
Manganese		167	X	0.094	0.94
Molybdenum		0.24	U	0.24	1.9
Nickel		8.6	X	0.12	3.8
Potassium		459		38.5	281
Selenium		0.81	U	0.81	0.94
Silicon		115	N J	5.3	9.4
Silver		0.15	U	0.15	0.19
Sodium		136		55.4	113
Vanadium		28.6		0.088	1.9
Zinc		20.4	X	0.37	0.94

7471A Mercury (CVAA)

Analysis Method:	7471A	Analysis Batch:	280-258408	Instrument ID:	MT_033
Prep Method:	7471A	Prep Batch:	280-257626	Lab File ID:	141223aa.txt
Dilution:	1.0			Initial Weight/Volume:	0.68 g
Analysis Date:	12/23/2014 1124			Final Weight/Volume:	50 mL
Prep Date:	12/23/2014 0700				

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

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Client Sample ID: **J1V278**

Lab Sample ID: 280-63697-10
Client Matrix: Solid
% Moisture: 10.0

Date Sampled: 12/15/2014 1158
Date Received: 12/17/2014 1030

6010B Metals (ICP)

Analysis Method:	6010B	Analysis Batch:	280-257946	Instrument ID:	MT_026
Prep Method:	3050B	Prep Batch:	280-257573	Lab File ID:	26a121914.asc
Dilution:	1.0			Initial Weight/Volume:	1.13 g
Analysis Date:	12/19/2014 1248			Final Weight/Volume:	100 mL
Prep Date:	12/18/2014 0930				

4/30/14

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Aluminum		6510	X	1.5	4.9
Antimony		0.37	U J	0.37	0.59
Arsenic		9.4	J	0.65	0.98
Barium		54.0		0.075	0.49
Beryllium		0.032	U	0.032	0.20
Boron		1.0	B	0.96	2.0
Cadmium		0.059	B	0.040	0.20
Calcium		6400	X	13.9	49.2
Chromium		10.1		0.057	0.20
Cobalt		5.3	X	0.098	0.98
Copper		11.0		0.21	0.98
Iron		14200		3.7	4.9
Lead		30.2	X J	0.27	0.49
Magnesium		3820	X	3.6	19.7
Manganese		218	X	0.098	0.98
Molybdenum		0.26	U	0.26	2.0
Nickel		9.9	X	0.12	3.9
Potassium		1030		40.3	295
Selenium		0.85	U	0.85	0.98
Silicon		163	N J	5.6	9.8
Silver		0.16	U	0.16	0.20
Sodium		250		58.0	118
Vanadium		30.6		0.092	2.0
Zinc		30.7	X	0.39	0.98

7471A Mercury (CVAA)

Analysis Method:	7471A	Analysis Batch:	280-258408	Instrument ID:	MT_033
Prep Method:	7471A	Prep Batch:	280-257626	Lab File ID:	141223aa.txt
Dilution:	1.0			Initial Weight/Volume:	0.68 g
Analysis Date:	12/23/2014 1126			Final Weight/Volume:	50 mL
Prep Date:	12/23/2014 0700				

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Mercury		0.12		0.0054	0.017

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Client Sample ID: **J1V279**

Lab Sample ID: 280-63697-11
Client Matrix: Solid
% Moisture: 2.3

Date Sampled: 12/15/2014 1145
Date Received: 12/17/2014 1030

6010B Metals (ICP)

Analysis Method:	6010B	Analysis Batch:	280-257946	Instrument ID:	MT_026
Prep Method:	3050B	Prep Batch:	280-257573	Lab File ID:	26a121914.asc
Dilution:	1.0			Initial Weight/Volume:	1.01 g
Analysis Date:	12/19/2014 1250			Final Weight/Volume:	100 mL
Prep Date:	12/18/2014 0930				

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Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Aluminum		4550	X	1.6	5.1
Antimony		0.38	U J	0.38	0.61
Arsenic		2.0	J	0.67	1.0
Barium		36.1		0.077	0.51
Beryllium		0.033	U	0.033	0.20
Boron		0.99	U	0.99	2.0
Cadmium		0.085	B	0.042	0.20
Calcium		4360	X	14.3	50.7
Chromium		7.2		0.059	0.20
Cobalt		5.1	X	0.10	1.0
Copper		10.1		0.22	1.0
Iron		13700		3.8	5.1
Lead		4.7	X J	0.27	0.51
Magnesium		3220	X	3.7	20.3
Manganese		189	X	0.10	1.0
Molybdenum		0.26	U	0.26	2.0
Nickel		8.2	X	0.12	4.1
Potassium		528		41.5	304
Selenium		0.87	U	0.87	1.0
Silicon		118	N J	5.7	10.1
Silver		0.16	U	0.16	0.20
Sodium		197		59.8	122
Vanadium		37.1		0.095	2.0
Zinc		25.6	X	0.40	1.0

7471A Mercury (CVAA)

Analysis Method:	7471A	Analysis Batch:	280-258408	Instrument ID:	MT_033
Prep Method:	7471A	Prep Batch:	280-257626	Lab File ID:	141223aa.txt
Dilution:	1.0			Initial Weight/Volume:	0.65 g
Analysis Date:	12/23/2014 1133			Final Weight/Volume:	50 mL
Prep Date:	12/23/2014 0700				

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Mercury		0.013	B	0.0052	0.016

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Client Sample ID: **J1V280**

Lab Sample ID: 280-63697-12
Client Matrix: Solid

% Moisture: 4.6

Date Sampled: 12/15/2014 0949
Date Received: 12/17/2014 1030

6010B Metals (ICP)

Analysis Method:	6010B	Analysis Batch:	280-257946	Instrument ID:	MT_026
Prep Method:	3050B	Prep Batch:	280-257573	Lab File ID:	26a121914.asc
Dilution:	1.0			Initial Weight/Volume:	1.06 g
Analysis Date:	12/19/2014 1303			Final Weight/Volume:	100 mL
Prep Date:	12/18/2014 0930				

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Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Aluminum		7680	X	1.5	4.9
Antimony		0.39	B J	0.38	0.59
Arsenic		9.0	J	0.65	0.99
Barium		59.2		0.075	0.49
Beryllium		0.033	U	0.033	0.20
Boron		2.0		0.97	2.0
Cadmium		0.046	B	0.041	0.20
Calcium		18200	X	13.9	49.5
Chromium		11.5		0.057	0.20
Cobalt		5.9	X	0.099	0.99
Copper		20.9		0.21	0.99
Iron		14100		3.8	4.9
Lead		4.1	X J	0.27	0.49
Magnesium		4270	X	3.7	19.8
Manganese		253	X	0.099	0.99
Molybdenum		0.30	B	0.26	2.0
Nickel		10.9	X	0.12	4.0
Potassium		836		40.6	297
Selenium		0.85	U	0.85	0.99
Silicon		150	N J	5.6	9.9
Silver		0.16	U	0.16	0.20
Sodium		356		58.4	119
Vanadium		35.9		0.093	2.0
Zinc		44.2	X	0.39	0.99

7471A Mercury (CVAA)

Analysis Method:	7471A	Analysis Batch:	280-258408	Instrument ID:	MT_033
Prep Method:	7471A	Prep Batch:	280-257626	Lab File ID:	141223aa.txt
Dilution:	1.0			Initial Weight/Volume:	0.62 g
Analysis Date:	12/23/2014 1136			Final Weight/Volume:	50 mL
Prep Date:	12/23/2014 0700				

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Mercury		0.0077	B	0.0056	0.017

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Client Sample ID: **J1V281**

Lab Sample ID: 280-63697-13
Client Matrix: Solid
% Moisture: 9.1

Date Sampled: 12/15/2014 1018
Date Received: 12/17/2014 1030

6010B Metals (ICP)

Analysis Method:	6010B	Analysis Batch:	280-257946	Instrument ID:	MT_026
Prep Method:	3050B	Prep Batch:	280-257573	Lab File ID:	26a121914.asc
Dilution:	1.0			Initial Weight/Volume:	1.15 g
Analysis Date:	12/19/2014 1305			Final Weight/Volume:	100 mL
Prep Date:	12/18/2014 0930				

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Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Aluminum		8890	X	1.5	4.8
Antimony		0.36	U J	0.36	0.57
Arsenic		6.2	J	0.63	0.96
Barium		75.4		0.073	0.48
Beryllium		0.064	B	0.032	0.19
Boron		3.6		0.94	1.9
Cadmium		0.11	B	0.039	0.19
Calcium		7880	X	13.5	47.9
Chromium		17.3		0.056	0.19
Cobalt		6.1	X	0.096	0.96
Copper		13.8		0.21	0.96
Iron		16600		3.6	4.8
Lead		10.4	X J	0.26	0.48
Magnesium		5210	X	3.5	19.1
Manganese		257	X	0.096	0.96
Molybdenum		0.25	U	0.25	1.9
Nickel		14.4	X	0.12	3.8
Potassium		1440		39.2	287
Selenium		0.82	U	0.82	0.96
Silicon		226	N J	5.4	9.6
Silver		0.15	U	0.15	0.19
Sodium		284		56.5	115
Vanadium		32.9		0.090	1.9
Zinc		40.2	X	0.38	0.96

7471A Mercury (CVAA)

Analysis Method:	7471A	Analysis Batch:	280-258408	Instrument ID:	MT_033
Prep Method:	7471A	Prep Batch:	280-257626	Lab File ID:	141223aa.txt
Dilution:	1.0			Initial Weight/Volume:	0.61 g
Analysis Date:	12/23/2014 1138			Final Weight/Volume:	50 mL
Prep Date:	12/23/2014 0700				

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Mercury		0.073		0.0060	0.018

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Client Sample ID: **J1V282**

Lab Sample ID: 280-63697-14
Client Matrix: Solid
% Moisture: 1.8

Date Sampled: 12/15/2014 1208
Date Received: 12/17/2014 1030

6010B Metals (ICP)

Analysis Method:	6010B	Analysis Batch:	280-257946	Instrument ID:	MT_026
Prep Method:	3050B	Prep Batch:	280-257573	Lab File ID:	26a121914.asc
Dilution:	1.0			Initial Weight/Volume:	1.07 g
Analysis Date:	12/19/2014 1308			Final Weight/Volume:	100 mL
Prep Date:	12/18/2014 0930				

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Aluminum		3640	X	1.5	4.8
Antimony		0.36	UJ	0.36	0.57
Arsenic		1.5	J	0.63	0.95
Barium		29.6		0.072	0.48
Beryllium		0.031	U	0.031	0.19
Boron		0.93	U	0.93	1.9
Cadmium		0.10	B	0.039	0.19
Calcium		3560	X	13.4	47.6
Chromium		7.1		0.055	0.19
Cobalt		5.5	X	0.095	0.95
Copper		12.4		0.21	0.95
Iron		12400		3.6	4.8
Lead		2.1	X J	0.26	0.48
Magnesium		2640	X	3.5	19.0
Manganese		149	X	0.095	0.95
Molybdenum		0.25	U	0.25	1.9
Nickel		7.2	X	0.12	3.8
Potassium		425		39.0	286
Selenium		0.82	U	0.82	0.95
Silicon		92.5	N J	5.4	9.5
Silver		0.15	U	0.15	0.19
Sodium		195		56.2	114
Vanadium		34.6		0.089	1.9
Zinc		23.9	X	0.38	0.95

7471A Mercury (CVAA)

Analysis Method:	7471A	Analysis Batch:	280-258408	Instrument ID:	MT_033
Prep Method:	7471A	Prep Batch:	280-257626	Lab File ID:	141223aa.txt
Dilution:	1.0			Initial Weight/Volume:	0.61 g
Analysis Date:	12/23/2014 1140			Final Weight/Volume:	50 mL
Prep Date:	12/23/2014 0700				

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

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Client Sample ID: **J1V283**

Lab Sample ID: 280-63697-15
Client Matrix: Solid
% Moisture: 9.6

Date Sampled: 12/15/2014 1133
Date Received: 12/17/2014 1030

6010B Metals (ICP)

Analysis Method:	6010B	Analysis Batch:	280-257946	Instrument ID:	MT_026
Prep Method:	3050B	Prep Batch:	280-257573	Lab File ID:	26a121914.asc
Dilution:	1.0			Initial Weight/Volume:	1.19 g
Analysis Date:	12/19/2014 1310			Final Weight/Volume:	100 mL
Prep Date:	12/18/2014 0930				

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Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Aluminum		9790	X	1.4	4.6
Antimony		0.35	U J	0.35	0.56
Arsenic		4.5	J	0.61	0.93
Barium		87.6		0.071	0.46
Beryllium		0.11	B	0.031	0.19
Boron		3.6		0.91	1.9
Cadmium		0.15	B	0.038	0.19
Calcium		9220	X	13.1	46.5
Chromium		18.2		0.054	0.19
Cobalt		6.5	X	0.093	0.93
Copper		14.2		0.20	0.93
Iron		17400		3.5	4.6
Lead		6.6	X J	0.25	0.46
Magnesium		6140	X	3.4	18.6
Manganese		259	X	0.093	0.93
Molybdenum		0.24	U	0.24	1.9
Nickel		15.8	X	0.11	3.7
Potassium		1660		38.1	279
Selenium		0.80	U	0.80	0.93
Silicon		199	N J	5.3	9.3
Silver		0.15	U	0.15	0.19
Sodium		368		54.8	112
Vanadium		33.4		0.087	1.9
Zinc		42.2	X	0.37	0.93

6010B TCLP Metals (ICP)-TCLP

Analysis Method:	6010B	Analysis Batch:	280-259811	Instrument ID:	MT_026
Prep Method:	3010A	Prep Batch:	280-259357	Lab File ID:	26a010915.asc
Dilution:	1.0	Leach Batch:	280-259212	Initial Weight/Volume:	10 mL
Analysis Date:	01/09/2015 1325			Final Weight/Volume:	50 mL
Prep Date:	01/07/2015 1445				
Leach Date:	01/06/2015 1133				

Analyte	DryWt Corrected: N	Result (mg/L)	Qualifier	MDL	RL
Arsenic		0.053	B C UJ	0.022	0.50
Barium		0.66	B	0.0020	1.0
Cadmium		0.0039	B	0.0020	0.10
Chromium		0.0030	B	0.0030	0.50
Lead		0.10	B	0.013	0.50
Selenium		0.024	U	0.024	0.10
Silver		0.0040	U	0.0040	0.50

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Client Sample ID: **J1V283**

Lab Sample ID: 280-63697-15
Client Matrix: Solid

Date Sampled: 12/15/2014 1133
Date Received: 12/17/2014 1030

7470A TCLP Mercury-TCLP

Analysis Method:	7470A	Analysis Batch:	280-259898	Instrument ID:	MT_034
Prep Method:	7470A	Prep Batch:	280-259874	Lab File ID:	150112ba.txt
Dilution:	1.0	Leach Batch:	280-259212	Initial Weight/Volume:	30 mL
Analysis Date:	01/12/2015 1606			Final Weight/Volume:	30 mL
Prep Date:	01/12/2015 1345				
Leach Date:	01/06/2015 1133				

VJ 1/30/15

Analyte	DryWt Corrected: N	Result (mg/L)	Qualifier	MDL	RL
Mercury		0.0030		0.000030	0.0020

7471A Mercury (CVAA)

Analysis Method:	7471A	Analysis Batch:	280-258408	Instrument ID:	MT_033
Prep Method:	7471A	Prep Batch:	280-257626	Lab File ID:	141223aa.txt
Dilution:	10			Initial Weight/Volume:	0.62 g
Analysis Date:	12/23/2014 1452			Final Weight/Volume:	50 mL
Prep Date:	12/23/2014 0700				

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Mercury		4.9		0.059	0.18

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Client Sample ID: **J1V284**

Lab Sample ID: 280-63697-16
Client Matrix: Solid

% Moisture: 4.1

Date Sampled: 12/15/2014 1249
Date Received: 12/17/2014 1030

6010B Metals (ICP)

Analysis Method:	6010B	Analysis Batch:	280-257946	Instrument ID:	MT_026
Prep Method:	3050B	Prep Batch:	280-257573	Lab File ID:	26a121914.asc
Dilution:	1.0			Initial Weight/Volume:	1.05 g
Analysis Date:	12/19/2014 1313			Final Weight/Volume:	100 mL
Prep Date:	12/18/2014 0930				

M 6/30/15

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Aluminum		5190	X	1.5	5.0
Antimony		0.38	U J	0.38	0.60
Arsenic		4.0	J	0.66	0.99
Barium		40.1		0.075	0.50
Beryllium		0.033	U	0.033	0.20
Boron		0.97	U	0.97	2.0
Cadmium		0.066	B	0.041	0.20
Calcium		4450	X	14.0	49.6
Chromium		8.7		0.058	0.20
Cobalt		5.1	X	0.099	0.99
Copper		11.5		0.22	0.99
Iron		13900		3.8	5.0
Lead		4.2	X J	0.27	0.50
Magnesium		3470	X	3.7	19.9
Manganese		208	X	0.099	0.99
Molybdenum		0.26	U	0.26	2.0
Nickel		8.6	X	0.12	4.0
Potassium		620		40.7	298
Selenium		0.85	U	0.85	0.99
Silicon		134	N J	5.6	9.9
Silver		0.16	U	0.16	0.20
Sodium		200		58.6	119
Vanadium		35.5		0.093	2.0
Zinc		27.9	X	0.40	0.99

7471A Mercury (CVAA)

Analysis Method:	7471A	Analysis Batch:	280-258408	Instrument ID:	MT_033
Prep Method:	7471A	Prep Batch:	280-257626	Lab File ID:	141223aa.txt
Dilution:	1.0			Initial Weight/Volume:	0.62 g
Analysis Date:	12/23/2014 1147			Final Weight/Volume:	50 mL
Prep Date:	12/23/2014 0700				

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Mercury		0.0088	B	0.0056	0.017

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Client Sample ID: **J1V285**

Lab Sample ID: 280-63697-17
Client Matrix: Solid
% Moisture: 7.7

Date Sampled: 12/15/2014 0856
Date Received: 12/17/2014 1030

6010B Metals (ICP)

Analysis Method:	6010B	Analysis Batch:	280-257946	Instrument ID:	MT_026
Prep Method:	3050B	Prep Batch:	280-257573	Lab File ID:	26a121914.asc
Dilution:	1.0			Initial Weight/Volume:	1.12 g
Analysis Date:	12/19/2014 1315			Final Weight/Volume:	100 mL
Prep Date:	12/18/2014 0930				

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Aluminum		7510	X	1.5	4.8
Antimony		0.37	U J	0.37	0.58
Arsenic		5.2	J	0.64	0.97
Barium		66.7		0.074	0.48
Beryllium		0.040	B	0.032	0.19
Boron		0.95	U	0.95	1.9
Cadmium		0.13	B	0.040	0.19
Calcium		3760	X	13.6	48.4
Chromium		15.8		0.056	0.19
Cobalt		5.7	X	0.097	0.97
Copper		12.3		0.21	0.97
Iron		15600		3.7	4.8
Lead		8.2	X J	0.26	0.48
Magnesium		4850	X	3.6	19.3
Manganese		217	X	0.097	0.97
Molybdenum		0.25	U	0.25	1.9
Nickel		14.6	X	0.12	3.9
Potassium		975		39.7	290
Selenium		0.83	U	0.83	0.97
Silicon		218	N J	5.5	9.7
Silver		0.15	U	0.15	0.19
Sodium		290		57.1	116
Vanadium		31.3		0.091	1.9
Zinc		42.3	X	0.38	0.97

7471A Mercury (CVAA)

Analysis Method:	7471A	Analysis Batch:	280-258408	Instrument ID:	MT_033
Prep Method:	7471A	Prep Batch:	280-257626	Lab File ID:	141223aa.txt
Dilution:	1.0			Initial Weight/Volume:	0.61 g
Analysis Date:	12/23/2014 1149			Final Weight/Volume:	50 mL
Prep Date:	12/23/2014 0700				

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Mercury		0.040		0.0059	0.018

Appendix 4

Laboratory Narrative and Chain-of-Custody Documentation

CASE NARRATIVE
Revision 1

Client: Washington Closure Hanford

Project: WASHINGTON CLOSURE HANFORD

Job Number: 280-63697-1

SDG #: JP0885
SAF#: RC-107

Date SDG Closed: January 5, 2015
Data Deliverable: 7 Day / Summary

CLIENT ID	LAB ID	ANALYSES REQUESTED	ANALYSES PERFORMED
J1V269	280-63697-1	6010/7471/9056M/353.2/9045/8082/8270/ WTPH-D+/8310/8081	6010B/7471A/9056M/353.2/9045C/8082/8270C/ NWTPH-Dx/8310/8081A/1311-6010B-7470A
J1V270	280-63697-2	6010/7471/9056M/353.2/9045/8082/8270/ WTPH-D+/8310/8081	6010B/7471A/9056M/353.2/9045C/8082/8270C/ NWTPH-Dx/8310/8081A
J1V271	280-63697-3	6010/7471/9056M/353.2/9045/8082/8270/ WTPH-D+/8310/8081	6010B/7471A/9056M/353.2/9045C/8082/8270C/ NWTPH-Dx/8310/8081A
J1V272	280-63697-4	6010/7471/9056M/353.2/9045/8082/8270/ WTPH-D+/8310/8081	6010B/7471A/9056M/353.2/9045C/8082/8270C/ NWTPH-Dx/8310/8081A
J1V273	280-63697-5	6010/7471/9056M/353.2/9045/8082/8270/ WTPH-D+/8310/8081	6010B/7471A/9056M/353.2/9045C/8082/8270C/ NWTPH-Dx/8310/8081A
J1V274	280-63697-6	6010/7471/9056M/353.2/9045/8082/8270/ WTPH-D+/8310/8081	6010B/7471A/9056M/353.2/9045C/8082/8270C/ NWTPH-Dx/8310/8081A
J1V275	280-63697-7	6010/7471/9056M/353.2/9045/8082/8270/ WTPH-D+/8310/8081	6010B/7471A/9056M/353.2/9045C/8082/8270C/ NWTPH-Dx/8310/8081A
J1V276	280-63697-8	6010/7471/9056M/353.2/9045/8082/8270/ WTPH-D+/8310/8081	6010B/7471A/9056M/353.2/9045C/8082/8270C/ NWTPH-Dx/8310/8081A
J1V277	280-63697-9	6010/7471/9056M/353.2/9045/8082/8270/ WTPH-D+/8310/8081	6010B/7471A/9056M/353.2/9045C/8082/8270C/ NWTPH-Dx/8310/8081A
J1V278	280-63697-10	6010/7471/9056M/353.2/9045/8082/8270/ WTPH-D+/8310/8081	6010B/7471A/9056M/353.2/9045C/8082/8270C/ NWTPH-Dx/8310/8081A
J1V279	280-63697-11	6010/7471/9056M/353.2/9045/8082/8270/ WTPH-D+/8310/8081	6010B/7471A/9056M/353.2/9045C/8082/8270C/ NWTPH-Dx/8310/8081A
J1V280	280-63697-12	6010/7471/9056M/353.2/9045/8082/8270/ WTPH-D+/8310/8081	6010B/7471A/9056M/353.2/9045C/8082/8270C/ NWTPH-Dx/8310/8081A
J1V281	280-63697-13	6010/7471/9056M/353.2/9045/8082/8270/ WTPH-D+/8310/8081	6010B/7471A/9056M/353.2/9045C/8082/8270C/ NWTPH-Dx/8310/8081A
J1V282	280-63697-14	6010/7471/9056M/353.2/9045/8082/8270/ WTPH-D+/8310/8081	6010B/7471A/9056M/353.2/9045C/8082/8270C/ NWTPH-Dx/8310/8081A
J1V283	280-63697-15	6010/7471/9056M/353.2/9045/8082/8270/ WTPH-D+/8310/8081	6010B/7471A/9056M/353.2/9045C/8082/8270C/ NWTPH-Dx/8310/8081A/1311-6010B-7470A
J1V284	280-63697-16	6010/7471/9056M/353.2/9045/8082/8270/ WTPH-D+/8310/8081	6010B/7471A/9056M/353.2/9045C/8082/8270C/ NWTPH-Dx/8310/8081A
J1V285	280-63697-17	6010/7471/9056M/353.2/9045/8082/8270/ WTPH-D+/8310/8081	6010B/7471A/9056M/353.2/9045C/8082/8270C/ NWTPH-Dx/8310/8081A

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.

Revision 1
On 1/5/2015, the client requested TCLP Metals 1311/6010B/7470A analysis for samples J1V269 and J1V283. Those results are included in this report.

RECEIPT
The samples were received on 12/17/2014 10:30 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 5 coolers at receipt time were 0.5° C, 0.7° C, 1.6° C, 2.3° C and 2.9° C.

GC/MS SEMIVOLATILES - SW846 8270C
Compounds Benzo(b)fluoranthene and Benzo(k)fluoranthene were unresolved in samples J1V269 and J1V283 due to matrix interferences. It can be noted that these compounds were adequately resolved in associated standards, indicating the instrument is achieving separation. The combined peak was reported as Benzo(b)fluoranthene, while Benzo(k)fluoranthene was reported as undetected even though it may be present. Associated results have been flagged with a "K".

No other anomalies were encountered.

GC SEMIVOLATILES - SW846 8081A - Pesticides
The organic prep laboratory noted that a Florisil clean-up was performed on sample J1V270 to reduce matrix interferences.

The RPD between the primary and confirmation columns exceeded 40% for 4,4'-DDE in sample J1V270. The higher of the two values has been reported, as matrix interference is evident. The result has been flagged with an "Y".

Continuing Calibration Verification (CCV) standards associated with samples in analysis batch 280-258011 exhibited %Difference (%D) values >15%, biased high, for multiple analytes. The samples associated with these CCVs were non-detect for the affected analytes; therefore, corrective action is deemed unnecessary.

The closing Continuing Calibration Verification (CCV) standard associated with samples in analysis batch 280-258011 exhibited the %Difference (%D) value >15%, biased low, for 4,4'-DDT (-22%) and Methoxychlor (-21%) on the confirmation column. The overall mean %D is ≤15%; therefore, method criteria have been met and corrective action is deemed unnecessary. The samples associated with this CCV were non-detect for the affected analytes.

Continuing Calibration Verification (CCV) standards associated with samples in analysis batch 280-258172 exhibited %Difference (%D) values >15%, biased high, on one of the dual columns, as detailed below. The samples associated with these CCVs were either non-detect for the affected analytes or the confirmation column data confirm the detections within the method defined 40% difference; therefore, data are reported from the column that is in control and corrective action is deemed unnecessary. The sequence is as follows:

CCV: Primary: 4,4'-DDD (+21%), Methoxychlor (+19%)
Confirmation: OK
Samples: J1V270, J1V272, J1V274, J1V276, J1V278, J1V285
CCV: Primary: 4,4'-DDD (+30%), 4,4'-DDT (+16%), Endrin (+18%), Heptachlor (+16%), Methoxychlor (+17%) Toxaphene (+18%)
Confirmation: 4,4'-DDE (+16%), alpha-BHC (+16%)

It can be noted that the closing CCV standard associated with sample J1V270 in analysis batch 280-258172 exhibited the %Difference (%D) value >15%, biased high, for 4,4'-DDE (+16%) on the confirmation column. Sample J1V270 showed an estimated detection present below the reporting limit on both columns for 4,4'-DDE; however, the detection was not confirmed within the method defined 40% difference. The 4,4'-DDE result for sample J1V270 has been reported from the primary column, which was in control.

No other anomalies were encountered.

GC SEMIVOLATILES - SW846 8082 - PCBs
The laboratory noted that a Sulfuric Acid clean-up was performed on the samples presented in this report to reduce matrix interferences.

It can be noted that Aroclor 1221 is reported from a separate injection for several samples in order to acquire/maintain the associated second column confirmation chromatographic data for the samples. Due to a system limitation, this reporting style is necessary when samples are analyzed on a non-sequential injection instrument and second column confirmation is required.

Samples J1V272, J1V284 and J1V285 contained a combination of Aroclor 1254 and Aroclor 1260 with insufficient separation to quantify individually. The samples have been quantified and reported as the predominant Aroclor.

No other anomalies were encountered.

GC SEMIVOLATILES - NWTPH-Dx - DRO
The MSD aliquot of the MS/MSD performed on sample J1V270 exhibited spike compound recoveries outside the control limits, and the associated sample results have been flagged "N". In addition, the RPD limits were exceeded. There is no indication that the analytical system was operating out of control, and method accuracy has been verified by the acceptable LCS analysis data; therefore, corrective action is deemed unnecessary.

No other anomalies were encountered.

HPLC - SW846 8310 - PAHs
The RPD between the primary and confirmation columns exceeded 40% for analytes in samples J1V269, J1V270, J1V273 and J1V275. The lower of the two values has been reported, as matrix interference is evident on both columns. Associated results have been flagged with an "X".

The MS/MSD performed on sample J1V269 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 280-257573 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. Due to high constituent concentration, sample J1V283 required a dilution prior to the analysis of Mercury. The reporting limit has been adjusted relative to the dilution required.

Silicon was recovered outside the control limits, biased low, in the LCS associated with batch 280-257573, and the associated sample results have been flagged "N". Silicon has been identified as a poor performing element when analyzed using this method and has a history of reacting inconsistently; therefore, corrective action is not initiated. Data are reported as is.

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 J1V269; therefore, control limits are not applicable.

The duplicate analysis of sample J1V269 exhibited RPD data outside the control limits for Arsenic and Lead, and the associated sample results have been flagged "M". There is no indication that the analytical system was operating out of control, and method accuracy has been verified by the acceptable LCS analysis data; therefore, corrective action is deemed unnecessary.

No other anomalies were encountered.

TCLP METALS - SW846 1311/6010B/7470A
Low levels of Arsenic, Barium, Lead and Mercury are present in the method blanks associated with batches 280-259357 and 280-259874, respectively. Because the concentrations in the method blanks are not present at levels greater than half the reporting limit, corrective action is deemed unnecessary.

The duplicate analysis of sample J1V269 exhibited RPD data outside the control limits for Mercury, and the associated sample result has been flagged "M". There is no indication that the analytical system was operating out of control, and method accuracy has been verified by the acceptable LCS analysis data; therefore, corrective action is deemed unnecessary.

No other anomalies were encountered.

GENERAL CHEMISTRY - MCAWW 353.2 - NITRATE NITRITE as N
The Nitrate Nitrite as N duplicate analysis of sample J1V283 exceeded the RPD limit, and the associated sample result has been flagged "M". There is no indication that the analytical system was operating out of control, and method accuracy has been verified by the acceptable LCS analysis data; therefore, corrective action is deemed unnecessary.

No other anomalies were encountered.

GENERAL CHEMISTRY - SW846 9056M - ANIONS
No anomalies were encountered.

GENERAL CHEMISTRY - SW846 9045C - PH
SU = standard units

No anomalies were encountered.

Washington Closure Hanford

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

RC-107-123

Collector: H. Weber	Company Contact: Joan Kessner	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Price Code: 8B	Data Turnaround: 7days		
Project Designation: 100-H Field Remediation	Sampling Location: 100-H-28:2, EXC1, verification		SAF No.: RC-107
Ice Chest No.: ERC-02-007	Field Logbook No.: EL-1627-08	COA: 01H2822000	Method of Shipment: Commercial Carrier - fed EX
Shipped To: TestAmerica Denver	Offsite Property No.: A131288		Bill of Lading/Air Bill No.: See OSPC

Other Labs Shipped To: TestAmerica Richland

POSSIBLE SAMPLE HAZARDS/REMARKS

None

Special Handling and/or Storage

cool as required

Sample No.	Matrix	Sample Date	Sample Time	Preservation: Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C			
				Type of Container: G/P	G/P	aG	aG	aG	aG	aG			
				No. of Container(s): 1	1	1	1	1	1	1			
				Volume: 250mL	250mL	250mL	250mL	125mL	250mL	250mL			
				Sample Analysis: See item (1) in Special Instructions	See item (2) in Special Instructions	PCBs - 8082	Semi-VOA - 8270 (TCL)	TPH-Diesel Range - WTPH-D +	PAHs - 8310	Pesticides - 8081			
J1V269	SOIL	12-15-14	1224	✓	✓	✓	✓	✓	✓	✓			
J1V270	SOIL	12-15-14	0922	✓	✓	✓	✓	✓	✓	✓			
J1V271	SOIL	12-15-14	1029	✓	✓	✓	✓	✓	✓	✓			
J1V272	SOIL	12-15-14	0856	✓	✓	✓	✓	✓	✓	✓			
J1V273	SOIL	12-15-14	1002	✓	✓	✓	✓	✓	✓	✓			

CHAIN OF POSSESSION

Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Heather Weber	12/15/14 1306	Joshua Washea (WCH)	12/15/14 1306
Joshua Washea	12/15/14 1545	C. Bingham	12-15-14 1545
C. Bingham	12-15-14 1600	1060 Battelle fridge #14	12-15-14 1600
1060 Battelle, fridge #14	12-16-14 0840	C. Bingham	12-16-14 0840
C. Bingham	12-16-14 0900	fed EX	
			4/17/14 10:30

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)
(2) IC Anions - 9056 Modified {Bromide, Chloride, Fluoride, Nitrogen in Nitrate, Nitrogen in Nitrite, Phosphorous in phosphate, Sulfate}; NO2/NO3 - 353.2; pH (Soil) - 9045

280-63697 Chain of Custody

REVIEWED BY JAG DATE 12/16/14

2.4, 1.8, 1.1, 0.0, 0.2 IRS +0.5 MT 4/28/14

JP0885

WCH-EE-011

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-107-123	Page 2 of 4

Collector: A. Weber	Company Contact: Joan Kessner	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Price Code: 8B	Data Turnaround: 7days		
Project Designation: 100-H Field Remediation	Sampling Location: 100-H-28:2, EXC1, verification	SAF No.: RC-107	
Ice Chest No.: ERC-02-007	Field Logbook No.: EL-1627-08	COA: 01H2822000	Method of Shipment: Commercial Carrier - fed EX
Shipped To: TestAmerica Denver	Offsite Property No.: A131288		Bill of Lading/Air Bill No.: See OSPC

Other Labs Shipped To: TestAmerica Richland

POSSIBLE SAMPLE HAZARDS/REMARKS
None

Special Handling and/or Storage
cool as required

Sample No.	Matrix	Sample Date	Sample Time	Preservation: Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C			
				Type of Container: G/P	G/P	aG	aG	aG	aG	aG			
				No. of Container(s): 1	1	1	1	1	1	1			
				Volume: 250mL	250mL	250mL	250mL	125mL	250mL	250mL			
				Sample Analysis: See item (1) in Special Instructions	See item (2) in Special Instructions	PCBs - 8082	Semi-VOA - 8270 (TCL)	TPH-Diesel Range - WTPH-D +	PAHs - 8310	Pesticides - 8081			
J1V274	SOIL	12-15-14	1106	✓	✓	✓	✓	✓	✓	✓			
J1V275	SOIL	12-15-14	1058	✓	✓	✓	✓	✓	✓	✓			
J1V276	SOIL	12-15-14	0935	✓	✓	✓	✓	✓	✓	✓			
J1V277	SOIL	12-15-14	1115	✓	✓	✓	✓	✓	✓	✓			
J1V278	SOIL	12-15-14	1158	✓	✓	✓	✓	✓	✓	✓			

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
A. Weber	12/15/14 1306	DWSHEA (WCH)	12/15/14 1306
DWSHEA	12/15/14 1545	C. Bingham	12-15-14 1545
C. Bingham	12-15-14 1600	1060 Battelle, fridge #14	12-15-14 1600
1060 Battelle, fridge #14	12-16-14 0840	C. Bingham	12-16-14 0840
C. Bingham WCH	12-16-14 0900	fed EX	
			12/17/14 10:30

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)
(2) IC Anions - 9056 Modified {Bromide, Chloride, Fluoride, Nitrogen in Nitrate, Nitrogen in Nitrite, Phosphorous in phosphate, Sulfate}; NO2/NO3 - 353.2; pH (Soil) - 9045

REVIEWED BY DAS DATE 12/16/14

JP0885

WCH-EE-011

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-107-123	Page 3 of 4

Collector: W. Weber	Company Contact: Joan Kessner	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Price Code: 8B	Data Turnaround: 7 days		
Project Designation: 100-H Field Remediation	Sampling Location: 100-H-28:2, EXC1, verification	SAF No.: RC-107	
Ice Chest No.: ERC-02-007	Field Logbook No.: EL-1627-08	COA: 01H2822000	Method of Shipment: Commercial Carrier - fed EX
Shipped To: TestAmerica Denver	Offsite Property No.: A131 288		Bill of Lading/Air Bill No.: See OSPC

Other Labs Shipped To: TestAmerica Richland

POSSIBLE SAMPLE HAZARDS/REMARKS
None

Special Handling and/or Storage
cool as required

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C			
Type of Container	G/P	G/P	aG	aG	aG	aG	aG			
No. of Container(s)	1	1	1	1	1	1	1			
Volume	250mL	250mL	250mL	250mL	125mL	250mL	250mL			
Sample Analysis	See item (1) in Special Instructions	See item (2) in Special Instructions	PCBs - 8082	Semi-VOA - 8270 (TCL)	TPH-Diesel Range - WTPH-D +	PAHs - 8310	Pesticides - 8081			
Sample No.	Matrix	Sample Date	Sample Time								
J1V279	SOIL	12-15-14	1145	✓	✓	✓	✓	✓	✓	✓	
J1V280	SOIL	12-15-14	0949	✓	✓	✓	✓	✓	✓	✓	
J1V281	SOIL	12-15-14	1018	✓	✓	✓	✓	✓	✓	✓	
J1V282	SOIL	12-15-14	1208	✓	✓	✓	✓	✓	✓	✓	
J1V283	SOIL	12-15-14	1133	✓	✓	✓	✓	✓	✓	✓	

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CHAIN OF POSSESSION		Sign/Print Names	
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Heather Weber	12/15/14 1306	(WCH) Joshua DuShea	12/15/14 1306
Relinquished By/Removed From: Joshua DuShea	12/15/14 1545	Received By/Stored In: C. Bingham	12-15-14 1545
Relinquished By/Removed From: C. Bingham	12-15-14 1600	Received By/Stored In: 1060 Battelle, fridge #1B	1600 12-15-14
Relinquished By/Removed From: 1060 Battelle, fridge #1B	0840 12-16-14	Received By/Stored In: C. Bingham	12-16-14 0840
Relinquished By/Removed From: C. Bingham WCH	12-16-14 0900	Received By/Stored In: fed EX	
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time 12/17/14 10:30
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

SPECIAL INSTRUCTIONS

(1) ICP Metals - 6010TR (Close-out List) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Molybdenum, Nickel, Potassium, Selenium, Silicon, Silver, Sodium, Vanadium, Zinc}; Mercury - 7471 - (CV)
(2) IC Anions - 9056 Modified {Bromide, Chloride, Fluoride, Nitrogen in Nitrate, Nitrogen in Nitrite, Phosphorous in phosphate, Sulfate}; NO2/NO3 - 353.2; pH (Soil) - 9045

REVIEWED BY [illegible] DATE 12/16/14

JP0 885

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WCH-EE-011

Washington Closure Hanford — CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

RC-107-123

Collector: H Weber	Company Contact: Joan Kessner	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Price Code: 8B	Data Turnaround: 7 days		
Project Designation: 100-H Field Remediation	Sampling Location: 100-H-28:2, EXC1, verification		SAF No.: RC-107
Ice Chest No.: EPC-02-007	Field Logbook No.: EL-1627-08	COA: 01H2822000	Method of Shipment: Commercial Carrier — fed EX
Shipped To: TestAmerica Denver	Offsite Property No.: A131288		Bill of Lading/Air Bill No.: See OSPC

Other Labs Shipped To: TestAmerica Richland

POSSIBLE SAMPLE HAZARDS/REMARKS: None

Special Handling and/or Storage: cool as required

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C			
Type of Container	G/P	G/P	aG	aG	aG	aG	aG			
No. of Container(s)	1	1	1	1	1	1	1			
Volume	250mL	250mL	250mL	250mL	125mL	250mL	250mL			
Sample Analysis	See item (1) in Special Instructions	See item (2) in Special Instructions	PCBs - 8082	Semi-VOA - 8270 (TCL)	TPH-Diesel Range - WTPH-D +	PAHs - 8310	Pesticides - 8081			
Sample No.	Matrix	Sample Date	Sample Time							
J11/284	SOIL	12-15-14	1249	✓	✓	✓	✓	✓	✓	✓
J11/285	SOIL	12-15-14	0856	✓	✓	✓	✓	✓	✓	✓

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CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Heather Weber / [signature]	12/15/14 1306	(WCH) Joshua DuSHEA	12/15/14 1306
Joshua DuSHEA	12/15/14 1545	C Bingham	12-15-14 1545
C. Bingham	12-15-14 1600	1060 Battelle, fridge #18	1600 12-15-14
1060 Battelle, fridge #18	0840 12-16-14	C Bingham	12-16-14 0840
C Bingham	12-16-14 0900	fed. EX	
		[signature]	12/17/14 10:30

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)
(2) IC Anions - 9056 Modified {Bromide, Chloride, Fluoride, Nitrogen in Nitrate, Nitrogen in Nitrite, Phosphorous in phosphate, Sulfate}; NO2/NO3 - 353.2; pH (Soil) - 9045

REVIEWED BY DAB DATE 12/16/14

JP0885

WCH-EE-011

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Appendix 5

Data Validation Supporting Documentation

INORGANIC ANALYSIS DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	E
PROJECT:	100-H-28:2		DATA PACKAGE:	JP0885	
VALIDATOR:	ELR	LAB: TAL		DATE: 4/30/15	
			SDG:	JP0885	

ANALYSES PERFORMED

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

SAMPLES/MATRIX

J1V269	J1V270	J1V271	J1V272	J1V273	J1V274
J1V275	J1V276	J1V277	J1V278	J1V279	J1V280
J1V281	J1V282	J1V283	J1V284	J1V285	
					Soil

1. DATA PACKAGE COMPLETENESS AND CASE NARRATIVE

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

Comments:

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

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

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

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

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

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

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

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

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

Comments:

INORGANIC ANALYSIS DATA VALIDATION CHECKLIST

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

ICB and CCB checks performed for all applicable analyses? (Levels D, E) ..... Yes No ~~N/A~~
ICB and CCB results acceptable? (Levels D, E) ..... Yes No N/A
Laboratory blanks analyzed? ..... Yes No N/A
Laboratory blank results acceptable? ..... Yes No N/A
Field blanks analyzed? (Levels C, D, E) ..... Yes No ~~N/A~~
Field blank results acceptable? (Levels C, D, E) ..... Yes No ~~N/A~~
Transcription/calculation errors? (Levels D, E) ..... Yes No ~~N/A~~

Comments: tCLP arsenic U5 83

No FB

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 (77%) - J cell
MS - antimony (55%) - silicon (212) - J cell

No PAS

INORGANIC ANALYSIS DATA VALIDATION CHECKLIST

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

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

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

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

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

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

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

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

Comments: arsenic (57%) lead (54%) - J all

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: 280-63697-1
Sdg Number: JP0885

Method Blank - Batch: 280-257573

Method: 6010B
Preparation: 3050B

Lab Sample ID:	MB 280-257573/1-A	Analysis Batch:	280-257946	Instrument ID:	MT_026
Client Matrix:	Solid	Prep Batch:	280-257573	Lab File ID:	26a121914.asc
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1 g
Analysis Date:	12/19/2014 1200	Units:	mg/Kg	Final Weight/Volume:	100 mL
Prep Date:	12/18/2014 0930				
Leach Date:	N/A				

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

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Lab Control Sample - Batch: 280-257573

Method: 6010B
Preparation: 3050B

Lab Sample ID:	LCS 280-257573/2-A	Analysis Batch:	280-257946	Instrument ID:	MT_026
Client Matrix:	Solid	Prep Batch:	280-257573	Lab File ID:	26a121914.asc
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1 g
Analysis Date:	12/19/2014 1218	Units:	mg/Kg	Final Weight/Volume:	100 mL
Prep Date:	12/18/2014 0930				
Leach Date:	N/A				

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Aluminum	200	199.8	100	82 - 116	
Antimony	50.0	52.01	104	82 - 110	
Arsenic	100	99.82	100	85 - 110	
Barium	200	209.2	105	87 - 112	
Beryllium	5.00	4.94	99	84 - 114	
Boron	100	101.6	102	80 - 120	
Cadmium	10.0	9.71	97	87 - 110	
Calcium	5000	5106	102	82 - 114	
Chromium	20.0	20.39	102	84 - 114	
Cobalt	50.0	50.03	100	87 - 110	
Copper	25.0	25.09	100	88 - 110	
Iron	100	110.2	110	87 - 120	
Lead	50.0	50.22	100	86 - 110	
Magnesium	5000	4990	100	90 - 110	
Manganese	50.0	49.41	99	88 - 110	
Molybdenum	100	104.1	104	86 - 110	
Nickel	50.0	50.29	101	87 - 110	
Potassium	5000	5139	103	89 - 110	
Selenium	200	204.8	102	83 - 110	
Silicon	1000	66.62	7	10 - 70	N
Silver	5.00	4.92	98	87 - 114	
Sodium	5000	5336	107	90 - 112	
Vanadium	50.0	49.56	99	88 - 110	
Zinc	50.0	49.52	99	76 - 114	

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Matrix Spike - Batch: 280-257573

Method: 6010B
Preparation: 3050B

Lab Sample ID:	280-63697-1	Analysis Batch:	280-257946	Instrument ID:	MT_026
Client Matrix:	Solid	Prep Batch:	280-257573	Lab File ID:	26a121914.asc
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1.05 g
Analysis Date:	12/19/2014 1822	Units:	mg/Kg	Final Weight/Volume:	100 mL
Prep Date:	12/18/2014 0930				
Leach Date:	N/A				

Analyte	Sample Result/Qual		Spike Amount	Result	% Rec.	Limit	Qual
Aluminum	7810		207	11170	1619	50 - 200	4
Antimony	0.39	U	51.9	28.36	55	20 - 200	
Arsenic	57.3		104	147.2	87	76 - 111	
Barium	74.2		207	293.8	106	52 - 159	
Beryllium	0.034	U	5.19	4.59	89	72 - 105	
Boron	4.1		104	95.95	89	80 - 120	
Cadmium	0.042	U	10.4	8.91	86	40 - 130	
Calcium	5130		5190	11200	117	43 - 165	
Chromium	10.9		20.7	33.06	107	70 - 200	
Cobalt	6.5		51.9	54.00	92	72 - 106	
Copper	13.3		25.9	40.04	103	37 - 187	
Iron	17200		104	19780	2531	70 - 200	4
Lead	200		51.9	239.9	77	70 - 200	
Magnesium	3900		5190	9794	114	64 - 145	
Manganese	272		51.9	367.8	185	40 - 200	4
Molybdenum	0.26	U	104	95.28	92	75 - 103	
Nickel	10.6		51.9	59.66	95	61 - 126	
Potassium	1260		5190	6743	106	56 - 172	
Selenium	0.88	U	207	187.0	90	76 - 104	
Silicon	211		1040	430.3	21	20 - 200	
Silver	0.16	U	5.19	4.87	94	75 - 141	
Sodium	214		5190	5623	104	78 - 111	
Vanadium	38.4		51.9	97.80	115	50 - 169	
Zinc	46.0		51.9	95.16	95	70 - 200	

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Duplicate - Batch: 280-257573

Method: 6010B
Preparation: 3050B

Lab Sample ID:	280-63697-1	Analysis Batch:	280-257946	Instrument ID:	MT_026
Client Matrix:	Solid	Prep Batch:	280-257573	Lab File ID:	26a121914.asc
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1.12 g
Analysis Date:	12/19/2014 1210	Units:	mg/Kg	Final Weight/Volume:	100 mL
Prep Date:	12/18/2014 0930				
Leach Date:	N/A				

Analyte	Sample Result/Qual		Result	RPD	Limit	Qual
Aluminum	7810		6637	16	40	
Antimony	0.39	U	0.37	NC	40	U
Arsenic	57.3		31.92	57	30	M
Barium	74.2		64.25	14	30	
Beryllium	0.034	U	0.032	NC	30	U
Boron	4.1		4.63	11	30	
Cadmium	0.042	U	0.040	NC	30	U
Calcium	5130		4212	20	30	
Chromium	10.9		9.66	12	40	
Cobalt	6.5		5.45	18	30	
Copper	13.3		11.36	16	30	
Iron	17200		14690	15	40	
Lead	200		114.8	54	40	M
Magnesium	3900		3435	13	30	
Manganese	272		218.9	22	40	
Molybdenum	0.26	U	0.25	NC	30	U
Nickel	10.6		8.91	18	30	
Potassium	1260		966.8	26	40	
Selenium	0.88	U	0.84	NC	30	U
Silicon	211		162.5	26	40	N
Silver	0.16	U	0.16	NC	30	U
Sodium	214		199.6	7	30	
Vanadium	38.4		33.45	14	30	
Zinc	46.0		34.98	27	40	

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

TCLP SPLPE Leachate Blank - Batch: 280-259357

Method: 6010B
Preparation: 3010A
TCLP

Lab Sample ID:	LB 280-259212/1-B	Analysis Batch:	280-259633	Instrument ID:	MT_026
Client Matrix:	Solid	Prep Batch:	280-259357	Lab File ID:	26a010815c.asc
Dilution:	1.0	Leach Batch:	280-259212	Initial Weight/Volume:	10 mL
Analysis Date:	01/08/2015 1510	Units:	mg/L	Final Weight/Volume:	50 mL
Prep Date:	01/07/2015 1445				
Leach Date:	01/06/2015 1133				

Analyte	Result	Qual	MDL	RL
Arsenic	0.0285	B	0.022	0.50
Barium	0.00955	B	0.0020	1.0
Cadmium	0.0020	U	0.0020	0.10
Chromium	0.0030	U	0.0030	0.50
Lead	0.0196	B	0.013	0.50
Selenium	0.024	U	0.024	0.10
Silver	0.0040	U	0.0040	0.50

Lab Control Sample - Batch: 280-259357

Method: 6010B
Preparation: 3010A
TCLP

Lab Sample ID:	LCS 280-259212/2-B	Analysis Batch:	280-259633	Instrument ID:	MT_026
Client Matrix:	Solid	Prep Batch:	280-259357	Lab File ID:	26a010815c.asc
Dilution:	1.0	Leach Batch:	280-259212	Initial Weight/Volume:	10 mL
Analysis Date:	01/08/2015 1513	Units:	mg/L	Final Weight/Volume:	50 mL
Prep Date:	01/07/2015 1445				
Leach Date:	01/06/2015 1133				

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Arsenic	4.00	4.38	109	80 - 120	
Barium	12.0	12.79	107	80 - 120	
Cadmium	1.10	1.23	111	80 - 120	
Chromium	5.20	5.72	110	80 - 120	
Lead	5.50	6.11	111	80 - 120	
Selenium	3.00	3.25	108	80 - 120	
Silver	1.05	1.24	118	80 - 120	

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Matrix Spike - Batch: 280-259357

Method: 6010B
Preparation: 3010A
TCLP

Lab Sample ID:	280-63697-15	Analysis Batch:	280-259633	Instrument ID:	MT_026
Client Matrix:	Solid	Prep Batch:	280-259357	Lab File ID:	26a010815c.asc
Dilution:	1.0	Leach Batch:	280-259212	Initial Weight/Volume:	10 mL
Analysis Date:	01/08/2015 1526	Units:	mg/L	Final Weight/Volume:	50 mL
Prep Date:	01/07/2015 1445				
Leach Date:	01/06/2015 1133				

Analyte	Sample Result/Qual		Spike Amount	Result	% Rec.	Limit	Qual
Arsenic	0.043	B	4.00	4.29	106	80 - 120	
Barium	0.0020	U	12.0	13.15	110	80 - 120	
Cadmium	0.0020	U	1.10	1.19	108	80 - 120	
Chromium	0.0034	B	5.20	5.60	108	80 - 120	
Lead	0.013	U	5.50	5.96	108	80 - 120	
Selenium	0.024	U	3.00	3.11	104	80 - 120	
Silver	0.0040	U	1.05	1.21	115	80 - 120	

Duplicate - Batch: 280-259357

Method: 6010B
Preparation: 3010A
TCLP

Lab Sample ID:	280-63697-15	Analysis Batch:	280-259633	Instrument ID:	MT_026
Client Matrix:	Solid	Prep Batch:	280-259357	Lab File ID:	26a010815c.asc
Dilution:	1.0	Leach Batch:	280-259212	Initial Weight/Volume:	10 mL
Analysis Date:	01/08/2015 1523	Units:	mg/L	Final Weight/Volume:	50 mL
Prep Date:	01/07/2015 1445				
Leach Date:	01/06/2015 1133				

Analyte	Sample Result/Qual		Result	RPD	Limit	Qual
Arsenic	0.043	B	0.0489	12	20	B C
Barium	0.0020	U	0.629	NC	20	B
Cadmium	0.0020	U	0.00335	NC	20	B
Chromium	0.0034	B	0.0030	NC	20	U
Lead	0.013	U	0.109	NC	20	B
Selenium	0.024	U	0.024	NC	20	U
Silver	0.0040	U	0.0040	NC	20	U

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

TCLP SPLPE Leachate Blank - Batch: 280-259874

Method: 7470A
Preparation: 7470A
TCLP

Lab Sample ID:	LB 280-259212/1-D	Analysis Batch:	280-259898	Instrument ID:	MT_034
Client Matrix:	Solid	Prep Batch:	280-259874	Lab File ID:	150112ba.txt
Dilution:	1.0	Leach Batch:	280-259212	Initial Weight/Volume:	30 mL
Analysis Date:	01/12/2015 1555	Units:	mg/L	Final Weight/Volume:	30 mL
Prep Date:	01/12/2015 1345				
Leach Date:	01/06/2015 1133				

Analyte	Result	Qual	MDL	RL
Mercury	0.0000450	B	0.000030	0.0020

Lab Control Sample - Batch: 280-259874

Method: 7470A
Preparation: 7470A
TCLP

Lab Sample ID:	LCS 280-259212/2-D	Analysis Batch:	280-259898	Instrument ID:	MT_034
Client Matrix:	Solid	Prep Batch:	280-259874	Lab File ID:	150112ba.txt
Dilution:	1.0	Leach Batch:	280-259212	Initial Weight/Volume:	30 mL
Analysis Date:	01/12/2015 1557	Units:	mg/L	Final Weight/Volume:	30 mL
Prep Date:	01/12/2015 1345				
Leach Date:	01/06/2015 1133				

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Mercury	0.00500	0.00539	108	90 - 116	

Matrix Spike - Batch: 280-259874

Method: 7470A
Preparation: 7470A
TCLP

Lab Sample ID:	280-63697-1	Analysis Batch:	280-259898	Instrument ID:	MT_034
Client Matrix:	Solid	Prep Batch:	280-259874	Lab File ID:	150112ba.txt
Dilution:	1.0	Leach Batch:	280-259212	Initial Weight/Volume:	30 mL
Analysis Date:	01/12/2015 1604	Units:	mg/L	Final Weight/Volume:	30 mL
Prep Date:	01/12/2015 1345				
Leach Date:	01/06/2015 1133				

Analyte	Sample Result/Qual		Spike Amount	Result	% Rec.	Limit	Qual
Mercury	0.00010	B	0.00500	0.00535	105	90 - 116	

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Duplicate - Batch: 280-259874

Method: 7470A
Preparation: 7470A
TCLP

Lab Sample ID:	280-63697-1	Analysis Batch:	280-259898	Instrument ID:	MT_034
Client Matrix:	Solid	Prep Batch:	280-259874	Lab File ID:	150112ba.txt
Dilution:	1.0	Leach Batch:	280-259212	Initial Weight/Volume:	30 mL
Analysis Date:	01/12/2015 1602	Units:	mg/L	Final Weight/Volume:	30 mL
Prep Date:	01/12/2015 1345				
Leach Date:	01/06/2015 1133				

Analyte	Sample Result/Qual		Result	RPD	Limit	Qual
Mercury	0.00010	B	0.0000800	22	20	B C M

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Method Blank - Batch: 280-257626

Method: 7471A
Preparation: 7471A

Lab Sample ID:	MB 280-257626/1-A	Analysis Batch:	280-258408	Instrument ID:	MT_033
Client Matrix:	Solid	Prep Batch:	280-257626	Lab File ID:	141223aa.txt
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	0.60 g
Analysis Date:	12/23/2014 1052	Units:	mg/Kg	Final Weight/Volume:	50 mL
Prep Date:	12/23/2014 0700				
Leach Date:	N/A				

Analyte	Result	Qual	MDL	RL
Mercury	0.0055	U	0.0055	0.017

Lab Control Sample - Batch: 280-257626

Method: 7471A
Preparation: 7471A

Lab Sample ID:	LCS 280-257626/2-A	Analysis Batch:	280-258408	Instrument ID:	MT_033
Client Matrix:	Solid	Prep Batch:	280-257626	Lab File ID:	141223aa.txt
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	0.60 g
Analysis Date:	12/23/2014 1054	Units:	mg/Kg	Final Weight/Volume:	50 mL
Prep Date:	12/23/2014 0700				
Leach Date:	N/A				

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Mercury	0.417	0.440	106	87 - 111	

Matrix Spike - Batch: 280-257626

Method: 7471A
Preparation: 7471A

Lab Sample ID:	280-63697-1	Analysis Batch:	280-258408	Instrument ID:	MT_033
Client Matrix:	Solid	Prep Batch:	280-257626	Lab File ID:	141223aa.txt
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	0.66 g
Analysis Date:	12/23/2014 1106	Units:	mg/Kg	Final Weight/Volume:	50 mL
Prep Date:	12/23/2014 0700				
Leach Date:	N/A				

Analyte	Sample Result/Qual		Spike Amount	Result	% Rec.	Limit	Qual
Mercury	0.0056	U	0.412	0.442	107	87 - 111	

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Duplicate - Batch: 280-257626

Method: 7471A
Preparation: 7471A

Lab Sample ID:	280-63697-1	Analysis Batch:	280-258408	Instrument ID:	MT_033
Client Matrix:	Solid	Prep Batch:	280-257626	Lab File ID:	141223aa.txt
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	0.64 g
Analysis Date:	12/23/2014 1059	Units:	mg/Kg	Final Weight/Volume:	50 mL
Prep Date:	12/23/2014 0700				
Leach Date:	N/A				

Analyte	Sample Result/Qual		Result	RPD	Limit	Qual
Mercury	0.0056	U	0.00570	NC	20	B

Date: 4 May 2015
To: Washington Closure Hanford Inc. (technical representative)
From: ELR Consulting
Project: 100-H Remaining Sites Burial Grounds – Soil Full Protocol - Waste Subsite 100-H-28:2
Subject: Polyaromatic Hydrocarbon- Data Package No. JP0885-TAL

INTRODUCTION

This memo presents the results of data validation on Data Package No. JP0885 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
J1V269	12/15/14	Soil	C	See note 1
J1V270	12/15/14	Soil	C	See note 1
J1V271	12/15/14	Soil	C	See note 1
J1V272	12/15/14	Soil	C	See note 1
J1V273	12/15/14	Soil	C	See note 1
J1V274	12/15/14	Soil	C	See note 1
J1V275	12/15/14	Soil	C	See note 1
J1V276	12/15/14	Soil	C	See note 1
J1V277	12/15/14	Soil	C	See note 1
J1V278	12/15/14	Soil	C	See note 1
J1V279	12/15/14	Soil	C	See note 1
J1V280	12/15/14	Soil	C	See note 1
J1V281	12/15/14	Soil	C	See note 1
J1V282	12/15/14	Soil	C	See note 1
J1V283	12/15/14	Soil	C	See note 1
J1V284	12/15/14	Soil	C	See note 1
J1V285	12/15/14	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 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 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 (J1V272/J1T285) 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. JP0885 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: JP0885	REVIEWER: ELR	Project: 100-H-28:2	PAGE_1_OF_1
COMMENTS: No qualifiers assigned			

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

Appendix 3

Annotated Laboratory Reports

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Client Sample ID: **J1V269**

Lab Sample ID: 280-63697-1
Client Matrix: Solid
% Moisture: 8.2

Date Sampled: 12/15/2014 1224
Date Received: 12/17/2014 1030

8310 PAHs (HPLC)

Analysis Method:	8310	Analysis Batch:	280-258044	Instrument ID:	CHHPLC_G
Prep Method:	3550C	Prep Batch:	280-257880	Initial Weight/Volume:	30.1 g
Dilution:	1.0			Final Weight/Volume:	4 mL
Analysis Date:	12/22/2014 0616			Injection Volume:	20 uL
Prep Date:	12/19/2014 1320			Result Type:	PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Acenaphthene		20	J	11	110
Acenaphthylene		9.8	U	9.8	110
Anthracene		60	X	3.3	22
Benzo[a]anthracene		180		3.5	16
Benzo[a]pyrene		200		7.0	16
Benzo[b]fluoranthene		110		4.6	16
Benzo[g,h,i]perylene		150		7.8	33
Benzo[k]fluoranthene		78		4.3	16
Chrysene		180		5.3	43
Dibenzo(a,h)anthracene		18	J X	12	33
Fluoranthene		410	N	14	43
Fluorene		17	J	5.7	33
Indeno[1,2,3-cd]pyrene		110		13	33
Naphthalene		13	U	13	110
Phenanthrene		360	N	13	43
Pyrene		610	N	13	43

Surrogate	%Rec	Qualifier	Acceptance Limits
Terphenyl-d14 (SUR)	113		72 - 115

5/2/15

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Client Sample ID: **J1V270**

Lab Sample ID: 280-63697-2
Client Matrix: Solid

% Moisture: 4.6

Date Sampled: 12/15/2014 0922
Date Received: 12/17/2014 1030

8310 PAHs (HPLC)

Analysis Method:	8310	Analysis Batch:	280-258044	Instrument ID:	CHHPLC_G
Prep Method:	3550C	Prep Batch:	280-257880	Initial Weight/Volume:	30.0 g
Dilution:	1.0			Final Weight/Volume:	4 mL
Analysis Date:	12/22/2014 0748			Injection Volume:	20 uL
Prep Date:	12/19/2014 1320			Result Type:	PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Acenaphthene		10	U	10	100
Acenaphthylene		9.4	U	9.4	100
Anthracene		3.2	U	3.2	21
Benzo[a]anthracene		15	J X	3.3	16
Benzo[a]pyrene		47	X	6.7	16
Benzo[b]fluoranthene		37	X	4.4	16
Benzo[g,h,i]perylene		43	X	7.6	31
Benzo[k]fluoranthene		11	J	4.1	16
Chrysene		29	J X	5.1	42
Dibenzo(a,h)anthracene		12	U	12	31
Fluoranthene		63		14	42
Fluorene		5.5	U	5.5	31
Indeno[1,2,3-cd]pyrene		13	U	13	31
Naphthalene		13	U	13	100
Phenanthrene		38	J	13	42
Pyrene		61		13	42

Surrogate	%Rec	Qualifier	Acceptance Limits
Terphenyl-d14 (SUR)	97		72 - 115

5/2/15

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Client Sample ID: **J1V271**

Lab Sample ID: 280-63697-3
Client Matrix: Solid
% Moisture: 1.8

Date Sampled: 12/15/2014 1029
Date Received: 12/17/2014 1030

8310 PAHs (HPLC)

Analysis Method:	8310	Analysis Batch:	280-258044	Instrument ID:	CHHPLC_G
Prep Method:	3550C	Prep Batch:	280-257880	Initial Weight/Volume:	30.6 g
Dilution:	1.0			Final Weight/Volume:	4 mL
Analysis Date:	12/22/2014 0818			Injection Volume:	20 uL
Prep Date:	12/19/2014 1320			Result Type:	PRIMARY

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)	92		72 - 115

5/12/15

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Client Sample ID: **J1V272**

Lab Sample ID: 280-63697-4
Client Matrix: Solid
% Moisture: 8.3

Date Sampled: 12/15/2014 0856
Date Received: 12/17/2014 1030

8310 PAHs (HPLC)

Analysis Method:	8310	Analysis Batch:	280-258044	Instrument ID:	CHHPLC_G
Prep Method:	3550C	Prep Batch:	280-257880	Initial Weight/Volume:	31.0 g
Dilution:	1.0			Final Weight/Volume:	4 mL
Analysis Date:	12/22/2014 0849			Injection Volume:	20 uL
Prep Date:	12/19/2014 1320			Result Type:	PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Acenaphthene		11	U	11	110
Acenaphthylene		9.5	U	9.5	110
Anthracene		3.2	U	3.2	21
Benzo[a]anthracene		3.4	U	3.4	16
Benzo[a]pyrene		6.8	U	6.8	16
Benzo[b]fluoranthene		4.4	U	4.4	16
Benzo[g,h,i]perylene		7.6	U	7.6	32
Benzo[k]fluoranthene		4.2	U	4.2	16
Chrysene		5.1	U	5.1	42
Dibenzo(a,h)anthracene		12	U	12	32
Fluoranthene		14	U	14	42
Fluorene		5.6	U	5.6	32
Indeno[1,2,3-cd]pyrene		13	U	13	32
Naphthalene		13	U	13	110
Phenanthrene		13	U	13	42
Pyrene		13	U	13	42

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

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Client Sample ID: **J1V273**

Lab Sample ID: 280-63697-5
Client Matrix: Solid
% Moisture: 3.0

Date Sampled: 12/15/2014 1002
Date Received: 12/17/2014 1030

8310 PAHs (HPLC)

Analysis Method:	8310	Analysis Batch:	280-258044	Instrument ID:	CHHPLC_G
Prep Method:	3550C	Prep Batch:	280-257880	Initial Weight/Volume:	31.3 g
Dilution:	1.0			Final Weight/Volume:	4 mL
Analysis Date:	12/22/2014 0919			Injection Volume:	20 uL
Prep Date:	12/19/2014 1320			Result Type:	PRIMARY

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		24		3.2	15
Benzo[a]pyrene		30		6.3	15
Benzo[b]fluoranthene		34	X	4.2	15
Benzo[g,h,i]perylene		17	J X	7.1	30
Benzo[k]fluoranthene		13	J	3.9	15
Chrysene		18	J X	4.8	40
Dibenzo(a,h)anthracene		11	U	11	30
Fluoranthene		48		13	40
Fluorene		5.2	U	5.2	30
Indeno[1,2,3-cd]pyrene		25	J	12	30
Naphthalene		12	U	12	99
Phenanthrene		16	J	12	40
Pyrene		49		12	40

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

5/2/15

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Client Sample ID: **J1V274**

Lab Sample ID: 280-63697-6
Client Matrix: Solid
% Moisture: 3.0

Date Sampled: 12/15/2014 1106
Date Received: 12/17/2014 1030

8310 PAHs (HPLC)

Analysis Method:	8310	Analysis Batch:	280-258044	Instrument ID:	CHHPLC_G
Prep Method:	3550C	Prep Batch:	280-257880	Initial Weight/Volume:	32.6 g
Dilution:	1.0			Final Weight/Volume:	4 mL
Analysis Date:	12/22/2014 0950			Injection Volume:	20 uL
Prep Date:	12/19/2014 1320			Result Type:	PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Acenaphthene		9.5	U	9.5	95
Acenaphthylene		8.5	U	8.5	95
Anthracene		2.9	U	2.9	19
Benzo[a]anthracene		3.0	U	3.0	14
Benzo[a]pyrene		6.1	U	6.1	14
Benzo[b]fluoranthene		4.0	U	4.0	14
Benzo[g,h,i]perylene		6.8	U	6.8	28
Benzo[k]fluoranthene		3.7	U	3.7	14
Chrysene		4.6	U	4.6	38
Dibenzo(a,h)anthracene		10	U	10	28
Fluoranthene		12	U	12	38
Fluorene		5.0	U	5.0	28
Indeno[1,2,3-cd]pyrene		11	U	11	28
Naphthalene		11	U	11	95
Phenanthrene		11	U	11	38
Pyrene		11	U	11	38

Surrogate	%Rec	Qualifier	Acceptance Limits
Terphenyl-d14 (SUR)	93		72 - 115

5/2/15

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Client Sample ID: **J1V275**

Lab Sample ID: 280-63697-7
Client Matrix: Solid
% Moisture: 2.2

Date Sampled: 12/15/2014 1058
Date Received: 12/17/2014 1030

8310 PAHs (HPLC)

Analysis Method:	8310	Analysis Batch:	280-258044	Instrument ID:	CHHPLC_G
Prep Method:	3550C	Prep Batch:	280-257880	Initial Weight/Volume:	31.1 g
Dilution:	1.0			Final Weight/Volume:	4 mL
Analysis Date:	12/22/2014 1051			Injection Volume:	20 uL
Prep Date:	12/19/2014 1320			Result Type:	PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Acenaphthene		16	J	9.9	99
Acenaphthylene		8.9	U	8.9	99
Anthracene		3.0	U	3.0	20
Benzo[a]anthracene		32		3.1	15
Benzo[a]pyrene		28		6.3	15
Benzo[b]fluoranthene		32		4.1	15
Benzo[g,h,i]perylene		29	J	7.1	30
Benzo[k]fluoranthene		9.6	J	3.9	15
Chrysene		29	J X	4.8	39
Dibenzo(a,h)anthracene		11	U	11	30
Fluoranthene		78		13	39
Fluorene		12	J	5.2	30
Indeno[1,2,3-cd]pyrene		21	J	12	30
Naphthalene		12	U	12	99
Phenanthrene		70		12	39
Pyrene		82		12	39

Surrogate	%Rec	Qualifier	Acceptance Limits
Terphenyl-d14 (SUR)	94		72 - 115

W 5/9/15

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Client Sample ID: **J1V276**

Lab Sample ID: 280-63697-8
Client Matrix: Solid
% Moisture: 8.8

Date Sampled: 12/15/2014 0935
Date Received: 12/17/2014 1030

8310 PAHs (HPLC)

Analysis Method:	8310	Analysis Batch:	280-258044	Instrument ID:	CHHPLC_G
Prep Method:	3550C	Prep Batch:	280-257880	Initial Weight/Volume:	30.3 g
Dilution:	1.0			Final Weight/Volume:	4 mL
Analysis Date:	12/22/2014 1121			Injection Volume:	20 uL
Prep Date:	12/19/2014 1320			Result Type:	PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Acenaphthene		11	U	11	110
Acenaphthylene		9.8	U	9.8	110
Anthracene		3.3	U	3.3	22
Benzo[a]anthracene		3.5	U	3.5	16
Benzo[a]pyrene		7.0	U	7.0	16
Benzo[b]fluoranthene		4.6	U	4.6	16
Benzo[g,h,i]perylene		7.8	U	7.8	33
Benzo[k]fluoranthene		4.3	U	4.3	16
Chrysene		5.3	U	5.3	43
Dibenzo(a,h)anthracene		12	U	12	33
Fluoranthene		14	U	14	43
Fluorene		5.7	U	5.7	33
Indeno[1,2,3-cd]pyrene		13	U	13	33
Naphthalene		13	U	13	110
Phenanthrene		13	U	13	43
Pyrene		13	U	13	43

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

5/2/15

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Client Sample ID: **J1V277**

Lab Sample ID: 280-63697-9
Client Matrix: Solid
% Moisture: 3.1

Date Sampled: 12/15/2014 1115
Date Received: 12/17/2014 1030

8310 PAHs (HPLC)

Analysis Method:	8310	Analysis Batch:	280-258044	Instrument ID:	CHHPLC_G
Prep Method:	3550C	Prep Batch:	280-257880	Initial Weight/Volume:	30.9 g
Dilution:	1.0			Final Weight/Volume:	4 mL
Analysis Date:	12/22/2014 1152			Injection Volume:	20 uL
Prep Date:	12/19/2014 1320			Result Type:	PRIMARY

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	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)	93		72 - 115

5/2/15

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Client Sample ID: **J1V278**

Lab Sample ID: 280-63697-10
Client Matrix: Solid
% Moisture: 10.0

Date Sampled: 12/15/2014 1158
Date Received: 12/17/2014 1030

8310 PAHs (HPLC)

Analysis Method:	8310	Analysis Batch:	280-258044	Instrument ID:	CHHPLC_G
Prep Method:	3550C	Prep Batch:	280-257880	Initial Weight/Volume:	30.5 g
Dilution:	1.0			Final Weight/Volume:	4 mL
Analysis Date:	12/22/2014 1222			Injection Volume:	20 uL
Prep Date:	12/19/2014 1320			Result Type:	PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Acenaphthene		11	U	11	110
Acenaphthylene		9.8	U	9.8	110
Anthracene		3.3	U	3.3	22
Benzo[a]anthracene		3.5	U	3.5	16
Benzo[a]pyrene		7.0	U	7.0	16
Benzo[b]fluoranthene		4.6	U	4.6	16
Benzo[g,h,i]perylene		7.9	U	7.9	33
Benzo[k]fluoranthene		4.3	U	4.3	16
Chrysene		5.3	U	5.3	44
Dibenzo(a,h)anthracene		12	U	12	33
Fluoranthene		14	U	14	44
Fluorene		5.8	U	5.8	33
Indeno[1,2,3-cd]pyrene		13	U	13	33
Naphthalene		13	U	13	110
Phenanthrene		13	U	13	44
Pyrene		13	U	13	44

Surrogate	%Rec	Qualifier	Acceptance Limits
Terphenyl-d14 (SUR)	89		72 - 115

5/2/15

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Client Sample ID: **J1V279**

Lab Sample ID: 280-63697-11
Client Matrix: Solid
% Moisture: 2.3

Date Sampled: 12/15/2014 1145
Date Received: 12/17/2014 1030

8310 PAHs (HPLC)

Analysis Method:	8310	Analysis Batch:	280-258044	Instrument ID:	CHHPLC_G
Prep Method:	3550C	Prep Batch:	280-257880	Initial Weight/Volume:	31.2 g
Dilution:	1.0			Final Weight/Volume:	4 mL
Analysis Date:	12/22/2014 1253			Injection Volume:	20 uL
Prep Date:	12/19/2014 1320			Result Type:	PRIMARY

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

Surrogate	%Rec	Qualifier	Acceptance Limits
Terphenyl-d14 (SUR)	94		72 - 115

VT 5/2/15

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Client Sample ID: **J1V280**

Lab Sample ID: 280-63697-12
Client Matrix: Solid
% Moisture: 4.6

Date Sampled: 12/15/2014 0949
Date Received: 12/17/2014 1030

8310 PAHs (HPLC)

Analysis Method:	8310	Analysis Batch:	280-258044	Instrument ID:	CHHPLC_G
Prep Method:	3550C	Prep Batch:	280-257880	Initial Weight/Volume:	30.4 g
Dilution:	1.0			Final Weight/Volume:	4 mL
Analysis Date:	12/22/2014 1323			Injection Volume:	20 uL
Prep Date:	12/19/2014 1320			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		3.2	U	3.2	21
Benzo[a]anthracene		3.3	U	3.3	16
Benzo[a]pyrene		6.6	U	6.6	16
Benzo[b]fluoranthene		4.3	U	4.3	16
Benzo[g,h,i]perylene		7.4	U	7.4	31
Benzo[k]fluoranthene		4.1	U	4.1	16
Chrysene		5.0	U	5.0	41
Dibenzo(a,h)anthracene		11	U	11	31
Fluoranthene		13	U	13	41
Fluorene		5.5	U	5.5	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)	90		72 - 115

5/2/15

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Client Sample ID: **J1V281**

Lab Sample ID: 280-63697-13
Client Matrix: Solid
% Moisture: 9.1

Date Sampled: 12/15/2014 1018
Date Received: 12/17/2014 1030

8310 PAHs (HPLC)

Analysis Method:	8310	Analysis Batch:	280-258044	Instrument ID:	CHHPLC_G
Prep Method:	3550C	Prep Batch:	280-257880	Initial Weight/Volume:	30.2 g
Dilution:	1.0			Final Weight/Volume:	4 mL
Analysis Date:	12/22/2014 1354			Injection Volume:	20 uL
Prep Date:	12/19/2014 1320			Result Type:	PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Acenaphthene		11	U	11	110
Acenaphthylene		9.8	U	9.8	110
Anthracene		3.3	U	3.3	22
Benzo[a]anthracene		3.5	U	3.5	16
Benzo[a]pyrene		7.0	U	7.0	16
Benzo[b]fluoranthene		4.6	U	4.6	16
Benzo[g,h,i]perylene		7.9	U	7.9	33
Benzo[k]fluoranthene		4.3	U	4.3	16
Chrysene		5.3	U	5.3	44
Dibenzo(a,h)anthracene		12	U	12	33
Fluoranthene		14	U	14	44
Fluorene		5.8	U	5.8	33
Indeno[1,2,3-cd]pyrene		13	U	13	33
Naphthalene		13	U	13	110
Phenanthrene		13	U	13	44
Pyrene		13	U	13	44

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

5/2/15

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Client Sample ID: **J1V282**

Lab Sample ID: 280-63697-14
Client Matrix: Solid
% Moisture: 1.8

Date Sampled: 12/15/2014 1208
Date Received: 12/17/2014 1030

8310 PAHs (HPLC)

Analysis Method:	8310	Analysis Batch:	280-258044	Instrument ID:	CHHPLC_G
Prep Method:	3550C	Prep Batch:	280-257880	Initial Weight/Volume:	30.5 g
Dilution:	1.0			Final Weight/Volume:	4 mL
Analysis Date:	12/22/2014 1424			Injection Volume:	20 uL
Prep Date:	12/19/2014 1320			Result Type:	PRIMARY

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	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)	88		72 - 115

5/2/15

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Client Sample ID: **J1V283**

Lab Sample ID: 280-63697-15
Client Matrix: Solid

% Moisture: 9.6

Date Sampled: 12/15/2014 1133
Date Received: 12/17/2014 1030

8310 PAHs (HPLC)

Analysis Method:	8310	Analysis Batch:	280-258044	Instrument ID:	CHHPLC_G
Prep Method:	3550C	Prep Batch:	280-257880	Initial Weight/Volume:	31.6 g
Dilution:	1.0			Final Weight/Volume:	4 mL
Analysis Date:	12/22/2014 1455			Injection Volume:	20 uL
Prep Date:	12/19/2014 1320			Result Type:	PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Acenaphthene		13	J	11	110
Acenaphthylene		9.5	U	9.5	110
Anthracene		3.2	U	3.2	21
Benzo[a]anthracene		24		3.3	16
Benzo[a]pyrene		27		6.7	16
Benzo[b]fluoranthene		26		4.4	16
Benzo[g,h,i]perylene		8.0	J	7.6	32
Benzo[k]fluoranthene		10	J	4.1	16
Chrysene		21	J	5.1	42
Dibenzo(a,h)anthracene		12	U	12	32
Fluoranthene		59		14	42
Fluorene		12	J	5.5	32
Indeno[1,2,3-cd]pyrene		23	J	13	32
Naphthalene		13	U	13	110
Phenanthrene		48		13	42
Pyrene		59		13	42

Surrogate	%Rec	Qualifier	Acceptance Limits
Terphenyl-d14 (SUR)	95		72 - 115

5/2/15

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Client Sample ID: **J1V284**

Lab Sample ID: 280-63697-16
Client Matrix: Solid
% Moisture: 4.1

Date Sampled: 12/15/2014 1249
Date Received: 12/17/2014 1030

8310 PAHs (HPLC)

Analysis Method:	8310	Analysis Batch:	280-258044	Instrument ID:	CHHPLC_G
Prep Method:	3550C	Prep Batch:	280-257880	Initial Weight/Volume:	31.2 g
Dilution:	1.0			Final Weight/Volume:	4 mL
Analysis Date:	12/22/2014 1526			Injection Volume:	20 uL
Prep Date:	12/19/2014 1320			Result Type:	PRIMARY

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	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		4.9	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)	92		72 - 115

5/2/15

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Client Sample ID: **J1V285**

Lab Sample ID: 280-63697-17
Client Matrix: Solid
% Moisture: 7.7

Date Sampled: 12/15/2014 0856
Date Received: 12/17/2014 1030

8310 PAHs (HPLC)

Analysis Method:	8310	Analysis Batch:	280-258044	Instrument ID:	CHHPLC_G
Prep Method:	3550C	Prep Batch:	280-257880	Initial Weight/Volume:	30.7 g
Dilution:	1.0			Final Weight/Volume:	4 mL
Analysis Date:	12/22/2014 1627			Injection Volume:	20 uL
Prep Date:	12/19/2014 1320			Result Type:	PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Acenaphthene		11	U	11	110
Acenaphthylene		9.5	U	9.5	110
Anthracene		3.2	U	3.2	21
Benzo[a]anthracene		3.4	U	3.4	16
Benzo[a]pyrene		6.8	U	6.8	16
Benzo[b]fluoranthene		4.4	U	4.4	16
Benzo[g,h,i]perylene		7.6	U	7.6	32
Benzo[k]fluoranthene		4.2	U	4.2	16
Chrysene		5.1	U	5.1	42
Dibenzo(a,h)anthracene		12	U	12	32
Fluoranthene		14	U	14	42
Fluorene		5.6	U	5.6	32
Indeno[1,2,3-cd]pyrene		13	U	13	32
Naphthalene		13	U	13	110
Phenanthrene		13	U	13	42
Pyrene		13	U	13	42

Surrogate	%Rec	Qualifier	Acceptance Limits
Terphenyl-d14 (SUR)	88		72 - 115

5/2/15

Appendix 4

Laboratory Narrative and Chain-of-Custody Documentation

CASE NARRATIVE
Revision 1

Client: Washington Closure Hanford

Project: WASHINGTON CLOSURE HANFORD

Job Number: 280-63697-1

SDG #: JP0885
SAF#: RC-107

Date SDG Closed: January 5, 2015
Data Deliverable: 7 Day / Summary

CLIENT ID	LAB ID	ANALYSES REQUESTED	ANALYSES PERFORMED
J1V269	280-63697-1	6010/7471/9056M/353.2/9045/8082/8270/ WTPH-D+/8310/8081	6010B/7471A/9056M/353.2/9045C/8082/8270C/ NWTPH-Dx/8310/8081A/1311-6010B-7470A
J1V270	280-63697-2	6010/7471/9056M/353.2/9045/8082/8270/ WTPH-D+/8310/8081	6010B/7471A/9056M/353.2/9045C/8082/8270C/ NWTPH-Dx/8310/8081A
J1V271	280-63697-3	6010/7471/9056M/353.2/9045/8082/8270/ WTPH-D+/8310/8081	6010B/7471A/9056M/353.2/9045C/8082/8270C/ NWTPH-Dx/8310/8081A
J1V272	280-63697-4	6010/7471/9056M/353.2/9045/8082/8270/ WTPH-D+/8310/8081	6010B/7471A/9056M/353.2/9045C/8082/8270C/ NWTPH-Dx/8310/8081A
J1V273	280-63697-5	6010/7471/9056M/353.2/9045/8082/8270/ WTPH-D+/8310/8081	6010B/7471A/9056M/353.2/9045C/8082/8270C/ NWTPH-Dx/8310/8081A
J1V274	280-63697-6	6010/7471/9056M/353.2/9045/8082/8270/ WTPH-D+/8310/8081	6010B/7471A/9056M/353.2/9045C/8082/8270C/ NWTPH-Dx/8310/8081A
J1V275	280-63697-7	6010/7471/9056M/353.2/9045/8082/8270/ WTPH-D+/8310/8081	6010B/7471A/9056M/353.2/9045C/8082/8270C/ NWTPH-Dx/8310/8081A
J1V276	280-63697-8	6010/7471/9056M/353.2/9045/8082/8270/ WTPH-D+/8310/8081	6010B/7471A/9056M/353.2/9045C/8082/8270C/ NWTPH-Dx/8310/8081A
J1V277	280-63697-9	6010/7471/9056M/353.2/9045/8082/8270/ WTPH-D+/8310/8081	6010B/7471A/9056M/353.2/9045C/8082/8270C/ NWTPH-Dx/8310/8081A
J1V278	280-63697-10	6010/7471/9056M/353.2/9045/8082/8270/ WTPH-D+/8310/8081	6010B/7471A/9056M/353.2/9045C/8082/8270C/ NWTPH-Dx/8310/8081A
J1V279	280-63697-11	6010/7471/9056M/353.2/9045/8082/8270/ WTPH-D+/8310/8081	6010B/7471A/9056M/353.2/9045C/8082/8270C/ NWTPH-Dx/8310/8081A
J1V280	280-63697-12	6010/7471/9056M/353.2/9045/8082/8270/ WTPH-D+/8310/8081	6010B/7471A/9056M/353.2/9045C/8082/8270C/ NWTPH-Dx/8310/8081A
J1V281	280-63697-13	6010/7471/9056M/353.2/9045/8082/8270/ WTPH-D+/8310/8081	6010B/7471A/9056M/353.2/9045C/8082/8270C/ NWTPH-Dx/8310/8081A
J1V282	280-63697-14	6010/7471/9056M/353.2/9045/8082/8270/ WTPH-D+/8310/8081	6010B/7471A/9056M/353.2/9045C/8082/8270C/ NWTPH-Dx/8310/8081A
J1V283	280-63697-15	6010/7471/9056M/353.2/9045/8082/8270/ WTPH-D+/8310/8081	6010B/7471A/9056M/353.2/9045C/8082/8270C/ NWTPH-Dx/8310/8081A/1311-6010B-7470A
J1V284	280-63697-16	6010/7471/9056M/353.2/9045/8082/8270/ WTPH-D+/8310/8081	6010B/7471A/9056M/353.2/9045C/8082/8270C/ NWTPH-Dx/8310/8081A
J1V285	280-63697-17	6010/7471/9056M/353.2/9045/8082/8270/ WTPH-D+/8310/8081	6010B/7471A/9056M/353.2/9045C/8082/8270C/ NWTPH-Dx/8310/8081A

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.

Revision 1
On 1/5/2015, the client requested TCLP Metals 1311/6010B/7470A analysis for samples J1V269 and J1V283. Those results are included in this report.

RECEIPT
The samples were received on 12/17/2014 10:30 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 5 coolers at receipt time were 0.5° C, 0.7° C, 1.6° C, 2.3° C and 2.9° C.

GC/MS SEMIVOLATILES - SW846 8270C
Compounds Benzo(b)fluoranthene and Benzo(k)fluoranthene were unresolved in samples J1V269 and J1V283 due to matrix interferences. It can be noted that these compounds were adequately resolved in associated standards, indicating the instrument is achieving separation. The combined peak was reported as Benzo(b)fluoranthene, while Benzo(k)fluoranthene was reported as undetected even though it may be present. Associated results have been flagged with a "K".

No other anomalies were encountered.

GC SEMIVOLATILES - SW846 8081A - Pesticides
The organic prep laboratory noted that a Florisil clean-up was performed on sample J1V270 to reduce matrix interferences.

The RPD between the primary and confirmation columns exceeded 40% for 4,4'-DDE in sample J1V270. The higher of the two values has been reported, as matrix interference is evident. The result has been flagged with an "Y".

Continuing Calibration Verification (CCV) standards associated with samples in analysis batch 280-258011 exhibited %Difference (%D) values >15%, biased high, for multiple analytes. The samples associated with these CCVs were non-detect for the affected analytes; therefore, corrective action is deemed unnecessary.

The closing Continuing Calibration Verification (CCV) standard associated with samples in analysis batch 280-258011 exhibited the %Difference (%D) value >15%, biased low, for 4,4'-DDT (-22%) and Methoxychlor (-21%) on the confirmation column. The overall mean %D is ≤15%; therefore, method criteria have been met and corrective action is deemed unnecessary. The samples associated with this CCV were non-detect for the affected analytes.

Continuing Calibration Verification (CCV) standards associated with samples in analysis batch 280-258172 exhibited %Difference (%D) values >15%, biased high, on one of the dual columns, as detailed below. The samples associated with these CCVs were either non-detect for the affected analytes or the confirmation column data confirm the detections within the method defined 40% difference; therefore, data are reported from the column that is in control and corrective action is deemed unnecessary. The sequence is as follows:

CCV: Primary: 4,4'-DDD (+21%), Methoxychlor (+19%)
Confirmation: OK
Samples: J1V270, J1V272, J1V274, J1V276, J1V278, J1V285
CCV: Primary: 4,4'-DDD (+30%), 4,4'-DDT (+16%), Endrin (+18%), Heptachlor (+16%), Methoxychlor (+17%) Toxaphene (+18%)
Confirmation: 4,4'-DDE (+16%), alpha-BHC (+16%)

It can be noted that the closing CCV standard associated with sample J1V270 in analysis batch 280-258172 exhibited the %Difference (%D) value >15%, biased high, for 4,4'-DDE (+16%) on the confirmation column. Sample J1V270 showed an estimated detection present below the reporting limit on both columns for 4,4'-DDE; however, the detection was not confirmed within the method defined 40% difference. The 4,4'-DDE result for sample J1V270 has been reported from the primary column, which was in control.

No other anomalies were encountered.

GC SEMIVOLATILES - SW846 8082 - PCBs
The laboratory noted that a Sulfuric Acid clean-up was performed on the samples presented in this report to reduce matrix interferences.

It can be noted that Aroclor 1221 is reported from a separate injection for several samples in order to acquire/maintain the associated second column confirmation chromatographic data for the samples. Due to a system limitation, this reporting style is necessary when samples are analyzed on a non-sequential injection instrument and second column confirmation is required.

Samples J1V272, J1V284 and J1V285 contained a combination of Aroclor 1254 and Aroclor 1260 with insufficient separation to quantify individually. The samples have been quantified and reported as the predominant Aroclor.

No other anomalies were encountered.

GC SEMIVOLATILES - NWTPH-Dx - DRO
The MSD aliquot of the MS/MSD performed on sample J1V270 exhibited spike compound recoveries outside the control limits, and the associated sample results have been flagged "N". In addition, the RPD limits were exceeded. There is no indication that the analytical system was operating out of control, and method accuracy has been verified by the acceptable LCS analysis data; therefore, corrective action is deemed unnecessary.

No other anomalies were encountered.

HPLC - SW846 8310 - PAHs
The RPD between the primary and confirmation columns exceeded 40% for analytes in samples J1V269, J1V270, J1V273 and J1V275. The lower of the two values has been reported, as matrix interference is evident on both columns. Associated results have been flagged with an "X".

The MS/MSD performed on sample J1V269 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 280-257573 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. Due to high constituent concentration, sample J1V283 required a dilution prior to the analysis of Mercury. The reporting limit has been adjusted relative to the dilution required.

Silicon was recovered outside the control limits, biased low, in the LCS associated with batch 280-257573, and the associated sample results have been flagged "N". Silicon has been identified as a poor performing element when analyzed using this method and has a history of reacting inconsistently; therefore, corrective action is not initiated. Data are reported as is.

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 J1V269; therefore, control limits are not applicable.

The duplicate analysis of sample J1V269 exhibited RPD data outside the control limits for Arsenic and Lead, and the associated sample results have been flagged "M". There is no indication that the analytical system was operating out of control, and method accuracy has been verified by the acceptable LCS analysis data; therefore, corrective action is deemed unnecessary.

No other anomalies were encountered.

TCLP METALS - SW846 1311/6010B/7470A
Low levels of Arsenic, Barium, Lead and Mercury are present in the method blanks associated with batches 280-259357 and 280-259874, respectively. Because the concentrations in the method blanks are not present at levels greater than half the reporting limit, corrective action is deemed unnecessary.

The duplicate analysis of sample J1V269 exhibited RPD data outside the control limits for Mercury, and the associated sample result has been flagged "M". There is no indication that the analytical system was operating out of control, and method accuracy has been verified by the acceptable LCS analysis data; therefore, corrective action is deemed unnecessary.

No other anomalies were encountered.

GENERAL CHEMISTRY - MCAWW 353.2 - NITRATE NITRITE as N
The Nitrate Nitrite as N duplicate analysis of sample J1V283 exceeded the RPD limit, and the associated sample result has been flagged "M". There is no indication that the analytical system was operating out of control, and method accuracy has been verified by the acceptable LCS analysis data; therefore, corrective action is deemed unnecessary.

No other anomalies were encountered.

GENERAL CHEMISTRY - SW846 9056M - ANIONS
No anomalies were encountered.

GENERAL CHEMISTRY - SW846 9045C - PH
SU = standard units

No anomalies were encountered.

Washington Closure Hanford

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

RC-107-123

Collector: H. Weber

Company Contact: Joan Kessner

Telephone No.: 375-4688

Project Coordinator: KESSNER, JH

Price Code: 8B

Data Turnaround: 7days

Project Designation: 100-H Field Remediation

Sampling Location: 100-H-28:2, EXC1, verification

SAF No.: RC-107

Ice Chest No.: ERC-02-007

Field Logbook No.: EL-1627-08

COA: 01H2822000

Method of Shipment: Commercial Carrier - fed EX

Offsite Property No.: A131288

Bill of Lading/Air Bill No.: see OSR

Shipped To: TestAmerica Denver

Other Labs Shipped To: TestAmerica Richland

POSSIBLE SAMPLE HAZARDS/REMARKS

None

Special Handling and/or Storage

cool as required

Sample No.	Matrix	Sample Date	Sample Time	Preservation: Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C			
				Type of Container: G/P	G/P	aG	aG	aG	aG	aG			
				No. of Container(s): 1	1	1	1	1	1	1			
				Volume: 250mL	250mL	250mL	250mL	125mL	250mL	250mL			
				Sample Analysis: See Item (1) in Special Instructions	See Item (2) in Special Instructions	PCBs - 8082	Semi-VOA - 8270 (TCL)	TPH-Diesel Range - WTPH-D +	PAHs - 8310	Pesticides - 8081			
J1V269	SOIL	12-15-14	1224	✓	✓	✓	✓	✓	✓	✓			
J1V270	SOIL	12-15-14	0922	✓	✓	✓	✓	✓	✓	✓			
J1V271	SOIL	12-15-14	1029	✓	✓	✓	✓	✓	✓	✓			
J1V272	SOIL	12-15-14	0856	✓	✓	✓	✓	✓	✓	✓			
J1V273	SOIL	12-15-14	1002	✓	✓	✓	✓	✓	✓	✓			

Page 2 of 3

CHAIN OF POSSESSION

Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Heather Weber/	12/15/14 1306	Rushea Quasea (WCH)	12/15/14 1306
Rushea Quasea	12/15/14 1545	C. Bingham	12-15-14 1545
C. Bingham	12-15-14 1600	1060 Battelle fridge #14	12-15-14 1600
1060 Battelle, fridge #14	12-16-14 0840	C. Bingham	12-16-14 0840
C. Bingham	12-16-14 0900	fed EX	
			4/17/14 10:30

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)
(2) IC Anions - 9056 Modified (Bromide, Chloride, Fluoride, Nitrogen in Nitrate, Nitrogen in Nitrite, Phosphorous in phosphate, Sulfate); NO2/NO3 - 353.2; pH (Soil) - 9045

280-63697 Chain of Custody

REVIEWED BY [illegible] DATE 12/16/14

0.4, 1.8, 1.1, 0.0, 0.2 IRS + 0.5
MJ
WAM

JP0885

Washington Closure Hanford

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

RC-107-123

Collector: H. Weber	Company Contact: Joan Kessner	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Price Code: 8B	Data Turnaround: 7days		
Project Designation: 100-H Field Remediation	Sampling Location: 100-H-28:2, EXC1, verification		SAF No.: RC-107
Ice Chest No.: ERC-02-007	Field Logbook No.: EL-1627-08	COA: 01H2822000	Method of Shipment: Commercial Carrier - fed EX
Shipped To: TestAmerica Denver	Offsite Property No.: A131288		Bill of Lading/Air Bill No.: See OSPC

Other Labs Shipped To: TestAmerica Richland

POSSIBLE SAMPLE HAZARDS/REMARKS

None

Special Handling and/or Storage

cool as required

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C			
Type of Container	G/P	G/P	aG	aG	aG	aG	aG			
No. of Container(s)	1	1	1	1	1	1	1			
Volume	250mL	250mL	250mL	250mL	125mL	250mL	250mL			
Sample Analysis	See item (1) in Special Instructions	See item (2) in Special Instructions	PCBs - 8082	Semi-VOA - 8270 (TCL)	TPH-Diesel Range - WTPH-D +	PAHs - 8310	Pesticides - 8081			

Sample No.	Matrix	Sample Date	Sample Time									
J1V274	SOIL	12-15-14	1106	✓	✓	✓	✓	✓	✓	✓		
J1V275	SOIL	12-15-14	1058	✓	✓	✓	✓	✓	✓	✓		
J1V276	SOIL	12-15-14	0935	✓	✓	✓	✓	✓	✓	✓		
J1V277	SOIL	12-15-14	1115	✓	✓	✓	✓	✓	✓	✓		
J1V278	SOIL	12-15-14	1158	✓	✓	✓	✓	✓	✓	✓		

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CHAIN OF POSSESSION

Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Herbert Weber/	12/15/14 1306	(Batch) DWSHEA DWSHEA	12/15/14 1306
DWSHEA DWSHEA	12/15/14 1545	C. Bingham	12-15-14 1545
C. Bingham	12-15-14 1600	1060 Battelle, fridge #14	12-15-14 1600
1060 Battelle, fridge #14	12-16-14 0840	C. Bingham	12-16-14 0840
C. Bingham WCH	12-16-14 0900	fed EX	
			12/17/14 10:30

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)
(2) IC Anions - 9056 Modified (Bromide, Chloride, Fluoride, Nitrogen in Nitrate, Nitrogen in Nitrite, Phosphorous in phosphate, Sulfate); NO2/NO3 - 353.2; pH (Soil) - 9045

REVIEWED BY [illegible] DATE 12/16/14

JP0885

WCH-EE-011

Washington Closure Hanford

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

RC-107-123

Collector: H. Weber	Company Contact: Joan Kessner	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Price Code: 8B	Data Turnaround: 7days		
Project Designation: 100-H Field Remediation	Sampling Location: 100-H-28:2, EXC1, verification		SAF No.: RC-107
Ice Chest No.: ERC-02-007	Field Logbook No.: EL-1627-08	COA: 01H2822000	Method of Shipment: Commercial Carrier - fed EX
Shipped To: TestAmerica Denver	Offsite Property No.: A131288		Bill of Lading/Air Bill No.: See OSPC
Other Labs Shipped To: TestAmerica Richland			

POSSIBLE SAMPLE HAZARDS/REMARKS

None

Special Handling and/or Storage

cool as required

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C			
Type of Container	G/P	G/P	aG	aG	aG	aG	aG			
No. of Container(s)	1	1	1	1	1	1	1			
Volume	250mL	250mL	250mL	250mL	125mL	250mL	250mL			
Sample Analysis	See Item (1) in Special Instructions	See Item (2) in Special Instructions	PCBs - 8082	Semi-VOA - 8270 (TCL)	TPH-Diesel Range - WTPH-D +	PAHs - 8310	Pesticides - 8081			

Sample No.	Matrix	Sample Date	Sample Time										
J1V279	SOIL	12-15-14	1145	✓	✓	✓	✓	✓	✓	✓			
J1V280	SOIL	12-15-14	0949	✓	✓	✓	✓	✓	✓	✓			
J1V281	SOIL	12-15-14	1018	✓	✓	✓	✓	✓	✓	✓			
J1V282	SOIL	12-15-14	1208	✓	✓	✓	✓	✓	✓	✓			
J1V283	SOIL	12-15-14	1133	✓	✓	✓	✓	✓	✓	✓			

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Heather Weber	12/15/14 1306	(WCH) Joshua DuShea	12/15/14 1306
Joshua DuShea	12/15/14 1545	C. Bingham	12-15-14 1545
C. Bingham	12-15-14 1600	1060 Battelle, fridge #18	12-15-14 1600
1060 Battelle, fridge #18	12-16-14 0840	C. Bingham	12-16-14 0840
C. Bingham WCH	12-16-14 0900	fed EX	
			12/17/14 10:30

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)
(2) IC Anions - 9056 Modified {Bromide, Chloride, Fluoride, Nitrogen in Nitrate, Nitrogen in Nitrite, Phosphorous in phosphate, Sulfate}; NO2/NO3 - 353.2; pH (Soil) - 9045

REVIEWED BY DAZ DATE 12/16/14

JPO 885

WCH-EE-011

Washington Closure Hanford

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

RC-107-123

Collector: H Weber	Company Contact: Joan Kessner	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Price Code: 8B	Data Turnaround: 7 days		
Project Designation: 100-H Field Remediation	Sampling Location: 100-H-28:2, EXC1, verification		SAF No.: RC-107
Ice Chest No.: ERC-02-007	Field Logbook No.: EL-1627-08	COA: 01H2822000	Method of Shipment: Commercial Carrier fed EX
Shipped To: TestAmerica Denver	Offsite Property No.: A131288		Bill of Lading/Air Bill No.: See OSPC
Other Labs Shipped To: TestAmerica Richland			

POSSIBLE SAMPLE HAZARDS/REMARKS

None

Special Handling and/or Storage

cool as required

Sample No.	Matrix	Sample Date	Sample Time	Preservation: Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C			
				Type of Container: G/P	G/P	aG	aG	aG	aG	aG			
				No. of Container(s): 1	1	1	1	1	1	1			
				Volume: 250mL	250mL	250mL	250mL	125mL	250mL	250mL			
				Sample Analysis: See item (1) in Special Instructions	See item (2) in Special Instructions	PCBs - 8082	Semi-VOA - 8270 (TCL)	TPH-Diesel Range - WTPH-D +	PAHs - 8310	Pesticides - 8081			
JW284	SOIL	12-15-14	1249	✓	✓	✓	✓	✓	✓	✓			
JW285	SOIL	12-15-14	0856	✓	✓	✓	✓	✓	✓	✓			

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CHAIN OF POSSESSION

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Heather Weber/DJ Sh	12/15/14 1206	(WCH) Dustin Dustman	12/15/14 1306
Dustin Dustman	12/15/14 1545	C. Bingham	12-15-14 1545
C. Bingham	12-15-14 1600	10160 Battelle, fridge #118	12-15-14 1600
10160 Battelle, fridge #118	12-16-14 0840	C. Bingham	12-16-14 0840
C. Bingham	12-16-14 0900	fed EX	
			12/17/14 10:30

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)
(2) IC Anions - 9056 Modified (Bromide, Chloride, Fluoride, Nitrogen in Nitrate, Nitrogen in Nitrite, Phosphorous in phosphate, Sulfate); NO2/NO3 - 353.2; pH (Soil) - 9045

REVIEWED BY DAS DATE 12/16/14

JP0885

Appendix 5

Data Validation Supporting Documentation

GENERAL ORGANIC DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	E
PROJECT: 100-H-2812			DATA PACKAGE: JP088J		
VALIDATOR: ECR		LAB: TAL		DATE: 4/30/15	
			SDG: JP088J		
ANALYSES PERFORMED					
8015	8021	8141	8151	8315	8310
		WTPH-HCID	WTPH-G	WTPH-D	
SAMPLES/MATRIX:					
J1V269	J1V270	J1V271	J1V272	J1V273	J1V274
J1V275	J1V276	J1V277	J1V278	J1V279	J1V280
J1V281	J1V282	J1V283	J1V284	J1V285	
					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: 280-63697-1
Sdg Number: JP0885

Method Blank - Batch: 280-257880

Method: 8310
Preparation: 3550C

Lab Sample ID:	MB 280-257880/1-A	Analysis Batch:	280-258044	Instrument ID:	CHHPLC_G
Client Matrix:	Solid	Prep Batch:	280-257880	Lab File ID:	G1221027.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	30.6 g
Analysis Date:	12/22/2014 0515	Units:	ug/Kg	Final Weight/Volume:	4 mL
Prep Date:	12/19/2014 1320			Injection Volume:	20 uL
Leach Date:	N/A			Column ID:	PRIMARY

Analyte	Result	Qual	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	4.7	U	4.7	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	Acceptance Limits
Terphenyl-d14 (SUR)	92	72 - 115

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Lab Control Sample - Batch: 280-257880

Method: 8310
Preparation: 3550C

Lab Sample ID:	LCS 280-257880/2-A	Analysis Batch:	280-258044	Instrument ID:	CHHPLC_G
Client Matrix:	Solid	Prep Batch:	280-257880	Lab File ID:	G1221028.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	30.4 g
Analysis Date:	12/22/2014 0545	Units:	ug/Kg	Final Weight/Volume:	4 mL
Prep Date:	12/19/2014 1320			Injection Volume:	20 uL
Leach Date:	N/A			Column ID:	PRIMARY

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Acenaphthene	1970	1790	91	78 - 116	
Acenaphthylene	1970	1800	91	76 - 115	
Anthracene	1970	1890	96	74 - 115	
Benzo[a]anthracene	1970	1830	93	85 - 120	
Benzo[a]pyrene	1970	1790	91	74 - 121	
Benzo[b]fluoranthene	1970	1810	92	85 - 115	
Benzo[g,h,i]perylene	1970	1950	99	85 - 120	
Benzo[k]fluoranthene	1970	1790	90	85 - 115	
Chrysene	1970	1920	97	83 - 115	
Dibenzo(a,h)anthracene	1970	1670	84	83 - 115	
Fluoranthene	1970	1820	92	83 - 115	
Fluorene	1970	1860	94	80 - 115	
Indeno[1,2,3-cd]pyrene	1970	1910	97	85 - 123	
Naphthalene	1970	1790	91	80 - 121	
Phenanthrene	1970	1780	90	80 - 115	
Pyrene	1970	1930	98	75 - 116	

Surrogate	% Rec	Acceptance Limits
Terphenyl-d14 (SUR)	98	72 - 115

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-257880

Method: 8310
Preparation: 3550C

MS Lab Sample ID:	280-63697-1	Analysis Batch:	280-258044	Instrument ID:	CHHPLC_G
Client Matrix:	Solid	Prep Batch:	280-257880	Lab File ID:	G1221030.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	30.5 g
Analysis Date:	12/22/2014 0646			Final Weight/Volume:	4 mL
Prep Date:	12/19/2014 1320			Injection Volume:	20 uL
Leach Date:	N/A			Column ID:	PRIMARY

MSD Lab Sample ID:	280-63697-1	Analysis Batch:	280-258044	Instrument ID:	CHHPLC_G
Client Matrix:	Solid	Prep Batch:	280-257880	Lab File ID:	G1221031.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	31.4 g
Analysis Date:	12/22/2014 0717			Final Weight/Volume:	4 mL
Prep Date:	12/19/2014 1320			Injection Volume:	20 uL
Leach Date:	N/A			Column ID:	PRIMARY

Analyte	% Rec. MS	% Rec. MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
Acenaphthene	84	87	78 - 116	6	20		
Acenaphthylene	86	87	76 - 115	1	21		
Anthracene	83	85	74 - 115	1	20		
Benzo[a]anthracene	87	89	85 - 120	0	20		
Benzo[a]pyrene	88	90	74 - 121	1	20		
Benzo[b]fluoranthene	87	90	85 - 115	0	20		
Benzo[g,h,i]perylene	95	98	85 - 120	1	20		
Benzo[k]fluoranthene	89	91	85 - 115	0	20		
Chrysene	93	95	83 - 115	0	20		
Dibenzo(a,h)anthracene	88	90	83 - 115	1	20		
Fluoranthene	76	78	83 - 115	0	20	N	N
Fluorene	90	92	80 - 115	1	20		
Indeno[1,2,3-cd]pyrene	100	98	85 - 123	5	20		
Naphthalene	87	90	80 - 121	0	20		
Phenanthrene	76	79	80 - 115	0	20	N	N
Pyrene	74	76	75 - 116	0	20	N	

Surrogate	MS % Rec	MSD % Rec	Acceptance Limits
Terphenyl-d14 (SUR)	100	98	72 - 115

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-257880

Method: 8310
Preparation: 3550C

MS Lab Sample ID:	280-63697-1	Units: ug/Kg	
Client Matrix:	Solid		
Dilution:	1.0		
Analysis Date:	12/22/2014 0646		
Prep Date:	12/19/2014 1320		
Leach Date:	N/A		

MSD Lab Sample ID:	280-63697-1
Client Matrix:	Solid
Dilution:	1.0
Analysis Date:	12/22/2014 0717
Prep Date:	12/19/2014 1320
Leach Date:	N/A

Analyte	Sample Result/Qual		MS Spike Amount	MSD Spike Amount	MS Result/Qual		MSD Result/Qual	
Acenaphthene	20	J	2140	2080	1820		1830	
Acenaphthylene	9.8	U	2140	2080	1840		1820	
Anthracene	60		2140	2080	1850		1830	
Benzo[a]anthracene	180		2140	2080	2040		2030	
Benzo[a]pyrene	200		2140	2080	2090		2080	
Benzo[b]fluoranthene	110		2140	2080	1980		1990	
Benzo[g,h,i]perylene	150		2140	2080	2190		2180	
Benzo[k]fluoranthene	78		2140	2080	1980		1980	
Chrysene	180		2140	2080	2170		2160	
Dibenzo(a,h)anthracene	18	J	2140	2080	1900		1880	
Fluoranthene	410		2140	2080	2030	N	2030	N
Fluorene	17	J	2140	2080	1950		1940	
Indeno[1,2,3-cd]pyrene	110		2140	2080	2250		2150	
Naphthalene	13	U	2140	2080	1870		1880	
Phenanthrene	360		2140	2080	1990	N	2000	N
Pyrene	610		2140	2080	2190	N	2190	

Date: 4 May 2015
To: Washington Closure Hanford Inc. (technical representative)
From: ELR Consulting
Project: 100-H Remaining Sites Burial Grounds – Soil Full Protocol - Waste Subsite 100-H-28:2
Subject: Pesticide/PCB- Data Package No. JP0885-TAL

INTRODUCTION

This memo presents the results of data validation on Data Package No. JP0885 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
J1V269	12/15/14	Soil	C	See note 1
J1V270	12/15/14	Soil	C	See note 1
J1V271	12/15/14	Soil	C	See note 1
J1V272	12/15/14	Soil	C	See note 1
J1V273	12/15/14	Soil	C	See note 1
J1V274	12/15/14	Soil	C	See note 1
J1V275	12/15/14	Soil	C	See note 1
J1V276	12/15/14	Soil	C	See note 1
J1V277	12/15/14	Soil	C	See note 1
J1V278	12/15/14	Soil	C	See note 1
J1V279	12/15/14	Soil	C	See note 1
J1V280	12/15/14	Soil	C	See note 1
J1V281	12/15/14	Soil	C	See note 1
J1V282	12/15/14	Soil	C	See note 1
J1V283	12/15/14	Soil	C	See note 1
J1V284	12/15/14	Soil	C	See note 1
J1V285	12/15/14	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.

All surrogate results were acceptable.

Precision

Matrix Spike/Matrix Spike Duplicate Samples

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

Due to 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 (J1V272/J1T285) 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. JP0885 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".

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: JP0885	**REVIEWER: ELR**	**Project: 100-H-28:2**	**PAGE_1_OF_1**
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
Toxaphene	J	All	No MS/MSD/LCS analysis

* - 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: 280-63697-1
Sdg Number: JP0885

Client Sample ID: **J1V269**

Lab Sample ID: 280-63697-1
Client Matrix: Solid
% Moisture: 8.2

Date Sampled: 12/15/2014 1224
Date Received: 12/17/2014 1030

8082 Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analysis Method:	8082	Analysis Batch:	280-258020	Instrument ID:	SGC_P3a
Prep Method:	3550C	Prep Batch:	280-257927	Initial Weight/Volume:	31.1 g
Dilution:	1.0			Final Weight/Volume:	5 mL
Analysis Date:	12/21/2014 1548			Injection Volume:	1 uL
Prep Date:	12/19/2014 1605			Result Type:	PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Aroclor 1016		2.9	U	2.9	11
Aroclor 1221		8.4	U	8.4	17
Aroclor 1232		2.1	U	2.1	11
Aroclor 1242		4.9	U	4.9	11
Aroclor 1248		4.9	U	4.9	11
Aroclor 1254		2.7	U	2.7	11
Aroclor 1260		2.7	U	2.7	11

Surrogate	%Rec	Qualifier	Acceptance Limits
Decachlorobiphenyl	79		59 - 130
Tetrachloro-m-xylene	86		53 - 128

5/2/15

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Client Sample ID: **J1V270**

Lab Sample ID: 280-63697-2
Client Matrix: Solid
% Moisture: 4.6

Date Sampled: 12/15/2014 0922
Date Received: 12/17/2014 1030

8082 Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analysis Method:	8082	Analysis Batch:	280-258020	Instrument ID:	SGC_P3a
Prep Method:	3550C	Prep Batch:	280-257927	Initial Weight/Volume:	30.2 g
Dilution:	1.0			Final Weight/Volume:	5 mL
Analysis Date:	12/21/2014 1609			Injection Volume:	1 uL
Prep Date:	12/19/2014 1605			Result Type:	PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Aroclor 1016		2.9	U	2.9	10
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		15		2.7	10

Surrogate	%Rec	Qualifier	Acceptance Limits
Decachlorobiphenyl	67		59 - 130
Tetrachloro-m-xylene	94		53 - 128

5/2/15

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Client Sample ID: **J1V270**

Lab Sample ID: 280-63697-2
Client Matrix: Solid

% Moisture: 4.6

Date Sampled: 12/15/2014 0922
Date Received: 12/17/2014 1030

8082 Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analysis Method:	8082	Analysis Batch:	280-258022	Instrument ID:	SGC_P3b
Prep Method:	3550C	Prep Batch:	280-257927	Initial Weight/Volume:	30.2 g
Dilution:	1.0			Final Weight/Volume:	5 mL
Analysis Date:	12/21/2014 1630			Injection Volume:	1 uL
Prep Date:	12/19/2014 1605			Result Type:	PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Aroclor 1221		8.4	U	8.4	17

5/2/15

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Client Sample ID: **J1V271**

Lab Sample ID: 280-63697-3
Client Matrix: Solid
% Moisture: 1.8

Date Sampled: 12/15/2014 1029
Date Received: 12/17/2014 1030

8082 Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analysis Method:	8082	Analysis Batch:	280-258020	Instrument ID:	SGC_P3a
Prep Method:	3550C	Prep Batch:	280-257927	Initial Weight/Volume:	30.3 g
Dilution:	1.0			Final Weight/Volume:	5 mL
Analysis Date:	12/21/2014 1630			Injection Volume:	1 uL
Prep Date:	12/19/2014 1605			Result Type:	PRIMARY

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	85		59 - 130
Tetrachloro-m-xylene	91		53 - 128

N 5/2/15

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Client Sample ID: **J1V272**

Lab Sample ID: 280-63697-4
Client Matrix: Solid
% Moisture: 8.3

Date Sampled: 12/15/2014 0856
Date Received: 12/17/2014 1030

8082 Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analysis Method:	8082	Analysis Batch:	280-258020	Instrument ID:	SGC_P3a
Prep Method:	3550C	Prep Batch:	280-257927	Initial Weight/Volume:	32.6 g
Dilution:	1.0			Final Weight/Volume:	5 mL
Analysis Date:	12/21/2014 1652			Injection Volume:	1 uL
Prep Date:	12/19/2014 1605			Result Type:	PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Aroclor 1016		2.8	U	2.8	10
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		15		2.6	10
Aroclor 1260		2.6	U	2.6	10

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

5/2/15

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Client Sample ID: **J1V272**

Lab Sample ID: 280-63697-4
Client Matrix: Solid
% Moisture: 8.3

Date Sampled: 12/15/2014 0856
Date Received: 12/17/2014 1030

8082 Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analysis Method:	8082	Analysis Batch:	280-258022	Instrument ID:	SGC_P3b
Prep Method:	3550C	Prep Batch:	280-257927	Initial Weight/Volume:	32.6 g
Dilution:	1.0			Final Weight/Volume:	5 mL
Analysis Date:	12/21/2014 1713			Injection Volume:	1 uL
Prep Date:	12/19/2014 1605			Result Type:	PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Aroclor 1221		8.0	U	8.0	17

5/2/15

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Client Sample ID: **J1V273**

Lab Sample ID: 280-63697-5
Client Matrix: Solid
% Moisture: 3.0

Date Sampled: 12/15/2014 1002
Date Received: 12/17/2014 1030

8082 Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analysis Method:	8082	Analysis Batch:	280-258020	Instrument ID:	SGC_P3a
Prep Method:	3550C	Prep Batch:	280-257927	Initial Weight/Volume:	30.2 g
Dilution:	1.0			Final Weight/Volume:	5 mL
Analysis Date:	12/21/2014 1756			Injection Volume:	1 uL
Prep Date:	12/19/2014 1605			Result Type:	PRIMARY

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		4.8	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	75		59 - 130
Tetrachloro-m-xylene	89		53 - 128

5/2/15

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Client Sample ID: **J1V274**

Lab Sample ID: 280-63697-6
Client Matrix: Solid
% Moisture: 3.0

Date Sampled: 12/15/2014 1106
Date Received: 12/17/2014 1030

8082 Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analysis Method:	8082	Analysis Batch:	280-258020	Instrument ID:	SGC_P3a
Prep Method:	3550C	Prep Batch:	280-257927	Initial Weight/Volume:	30.4 g
Dilution:	1.0			Final Weight/Volume:	5 mL
Analysis Date:	12/21/2014 1818			Injection Volume:	1 uL
Prep Date:	12/19/2014 1605			Result Type:	PRIMARY

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	88		53 - 128

5/2/15

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Client Sample ID: **J1V275**

Lab Sample ID: 280-63697-7
Client Matrix: Solid
% Moisture: 2.2

Date Sampled: 12/15/2014 1058
Date Received: 12/17/2014 1030

8082 Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analysis Method:	8082	Analysis Batch:	280-258020	Instrument ID:	SGC_P3a
Prep Method:	3550C	Prep Batch:	280-257927	Initial Weight/Volume:	30.4 g
Dilution:	1.0			Final Weight/Volume:	5 mL
Analysis Date:	12/21/2014 1839			Injection Volume:	1 uL
Prep Date:	12/19/2014 1605			Result Type:	PRIMARY

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	86		59 - 130
Tetrachloro-m-xylene	88		53 - 128

5/2/15

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Client Sample ID: **J1V276**

Lab Sample ID: 280-63697-8
Client Matrix: Solid
% Moisture: 8.8

Date Sampled: 12/15/2014 0935
Date Received: 12/17/2014 1030

8082 Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analysis Method:	8082	Analysis Batch:	280-258020	Instrument ID:	SGC_P3a
Prep Method:	3550C	Prep Batch:	280-257927	Initial Weight/Volume:	30.1 g
Dilution:	1.0			Final Weight/Volume:	5 mL
Analysis Date:	12/21/2014 1922			Injection Volume:	1 uL
Prep Date:	12/19/2014 1605			Result Type:	PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Aroclor 1016		3.0	U	3.0	11
Aroclor 1232		2.2	U	2.2	11
Aroclor 1242		5.1	U	5.1	11
Aroclor 1248		5.1	U	5.1	11
Aroclor 1254		2.8	U	2.8	11
Aroclor 1260		17		2.8	11

Surrogate	%Rec	Qualifier	Acceptance Limits
Decachlorobiphenyl	83		59 - 130
Tetrachloro-m-xylene	94		53 - 128

5/2/15

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Client Sample ID: **J1V276**

Lab Sample ID: 280-63697-8
Client Matrix: Solid
% Moisture: 8.8

Date Sampled: 12/15/2014 0935
Date Received: 12/17/2014 1030

8082 Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analysis Method:	8082	Analysis Batch:	280-258022	Instrument ID:	SGC_P3b
Prep Method:	3550C	Prep Batch:	280-257927	Initial Weight/Volume:	30.1 g
Dilution:	1.0			Final Weight/Volume:	5 mL
Analysis Date:	12/21/2014 1943			Injection Volume:	1 uL
Prep Date:	12/19/2014 1605			Result Type:	PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Aroclor 1221		8.8	U	8.8	18

3/2/15

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Client Sample ID: **J1V277**

Lab Sample ID: 280-63697-9
Client Matrix: Solid
% Moisture: 3.1

Date Sampled: 12/15/2014 1115
Date Received: 12/17/2014 1030

8082 Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analysis Method:	8082	Analysis Batch:	280-258020	Instrument ID:	SGC_P3a
Prep Method:	3550C	Prep Batch:	280-257927	Initial Weight/Volume:	30.3 g
Dilution:	1.0			Final Weight/Volume:	5 mL
Analysis Date:	12/21/2014 1943			Injection Volume:	1 uL
Prep Date:	12/19/2014 1605			Result Type:	PRIMARY

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		4.8	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	86		59 - 130
Tetrachloro-m-xylene	92		53 - 128

5/2/15

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Client Sample ID: **J1V278**

Lab Sample ID: 280-63697-10
Client Matrix: Solid
% Moisture: 10.0

Date Sampled: 12/15/2014 1158
Date Received: 12/17/2014 1030

8082 Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analysis Method:	8082	Analysis Batch:	280-258020	Instrument ID:	SGC_P3a
Prep Method:	3550C	Prep Batch:	280-257927	Initial Weight/Volume:	31.6 g
Dilution:	1.0			Final Weight/Volume:	5 mL
Analysis Date:	12/21/2014 2004			Injection Volume:	1 uL
Prep Date:	12/19/2014 1605			Result Type:	PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Aroclor 1016		2.9	U	2.9	11
Aroclor 1221		8.5	U	8.5	17
Aroclor 1232		2.1	U	2.1	11
Aroclor 1242		4.9	U	4.9	11
Aroclor 1248		4.9	U	4.9	11
Aroclor 1254		2.7	U	2.7	11
Aroclor 1260		2.7	U	2.7	11

Surrogate	%Rec	Qualifier	Acceptance Limits
Decachlorobiphenyl	82		59 - 130
Tetrachloro-m-xylene	94		53 - 128

5/2/15

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Client Sample ID: **J1V279**

Lab Sample ID: 280-63697-11
Client Matrix: Solid
% Moisture: 2.3

Date Sampled: 12/15/2014 1145
Date Received: 12/17/2014 1030

8082 Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analysis Method:	8082	Analysis Batch:	280-258020	Instrument ID:	SGC_P3a
Prep Method:	3550C	Prep Batch:	280-257927	Initial Weight/Volume:	30.6 g
Dilution:	1.0			Final Weight/Volume:	5 mL
Analysis Date:	12/21/2014 2026			Injection Volume:	1 uL
Prep Date:	12/19/2014 1605			Result Type:	PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Aroclor 1016		2.8	U	2.8	10
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		14		2.6	10

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

5/2/15

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Client Sample ID: **J1V279**

Lab Sample ID: 280-63697-11
Client Matrix: Solid
% Moisture: 2.3

Date Sampled: 12/15/2014 1145
Date Received: 12/17/2014 1030

8082 Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analysis Method:	8082	Analysis Batch:	280-258022	Instrument ID:	SGC_P3b
Prep Method:	3550C	Prep Batch:	280-257927	Initial Weight/Volume:	30.6 g
Dilution:	1.0			Final Weight/Volume:	5 mL
Analysis Date:	12/21/2014 2047			Injection Volume:	1 uL
Prep Date:	12/19/2014 1605			Result Type:	PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Aroclor 1221		8.0	U	8.0	17

5/2/15

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Client Sample ID: **J1V280**

Lab Sample ID: 280-63697-12
Client Matrix: Solid % Moisture: 4.6

Date Sampled: 12/15/2014 0949
Date Received: 12/17/2014 1030

8082 Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analysis Method:	8082	Analysis Batch:	280-258020	Instrument ID:	SGC_P3a
Prep Method:	3550C	Prep Batch:	280-257927	Initial Weight/Volume:	30.4 g
Dilution:	1.0			Final Weight/Volume:	5 mL
Analysis Date:	12/21/2014 2047			Injection Volume:	1 uL
Prep Date:	12/19/2014 1605			Result Type:	PRIMARY

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	76		59 - 130
Tetrachloro-m-xylene	91		53 - 128

5/2/15

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Client Sample ID: **J1V281**

Lab Sample ID: 280-63697-13
Client Matrix: Solid

% Moisture: 9.1

Date Sampled: 12/15/2014 1018
Date Received: 12/17/2014 1030

8082 Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analysis Method:	8082	Analysis Batch:	280-258020	Instrument ID:	SGC_P3a
Prep Method:	3550C	Prep Batch:	280-257927	Initial Weight/Volume:	30.4 g
Dilution:	1.0			Final Weight/Volume:	5 mL
Analysis Date:	12/21/2014 2108			Injection Volume:	1 uL
Prep Date:	12/19/2014 1605			Result Type:	PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Aroclor 1016		3.0	U	3.0	11
Aroclor 1232		2.2	U	2.2	11
Aroclor 1242		5.1	U	5.1	11
Aroclor 1248		5.1	U	5.1	11
Aroclor 1254		2.8	U	2.8	11
Aroclor 1260		34		2.8	11

Surrogate	%Rec	Qualifier	Acceptance Limits
Decachlorobiphenyl	84		59 - 130
Tetrachloro-m-xylene	95		53 - 128

5/2/15

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Client Sample ID: **J1V281**

Lab Sample ID: 280-63697-13
Client Matrix: Solid % Moisture: 9.1

Date Sampled: 12/15/2014 1018
Date Received: 12/17/2014 1030

8082 Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analysis Method:	8082	Analysis Batch:	280-258022	Instrument ID:	SGC_P3b
Prep Method:	3550C	Prep Batch:	280-257927	Initial Weight/Volume:	30.4 g
Dilution:	1.0			Final Weight/Volume:	5 mL
Analysis Date:	12/21/2014 2130			Injection Volume:	1 uL
Prep Date:	12/19/2014 1605			Result Type:	PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Aroclor 1221		8.7	U	8.7	18

5/2/15

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Client Sample ID: **J1V282**

Lab Sample ID: 280-63697-14
Client Matrix: Solid
% Moisture: 1.8

Date Sampled: 12/15/2014 1208
Date Received: 12/17/2014 1030

8082 Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analysis Method:	8082	Analysis Batch:	280-258020	Instrument ID:	SGC_P3a
Prep Method:	3550C	Prep Batch:	280-257927	Initial Weight/Volume:	31.0 g
Dilution:	1.0			Final Weight/Volume:	5 mL
Analysis Date:	12/21/2014 2130			Injection Volume:	1 uL
Prep Date:	12/19/2014 1605			Result Type:	PRIMARY

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	89		59 - 130
Tetrachloro-m-xylene	94		53 - 128

5/2/15

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Client Sample ID: **J1V283**

Lab Sample ID: 280-63697-15
Client Matrix: Solid % Moisture: 9.6

Date Sampled: 12/15/2014 1133
Date Received: 12/17/2014 1030

8082 Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analysis Method:	8082	Analysis Batch:	280-258020	Instrument ID:	SGC_P3a
Prep Method:	3550C	Prep Batch:	280-257927	Initial Weight/Volume:	31.1 g
Dilution:	1.0			Final Weight/Volume:	5 mL
Analysis Date:	12/21/2014 2151			Injection Volume:	1 uL
Prep Date:	12/19/2014 1605			Result Type:	PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Aroclor 1016		3.0	U	3.0	11
Aroclor 1232		2.1	U	2.1	11
Aroclor 1242		5.0	U	5.0	11
Aroclor 1248		5.0	U	5.0	11
Aroclor 1254		2.8	U	2.8	11
Aroclor 1260		20		2.8	11

Surrogate	%Rec	Qualifier	Acceptance Limits
Decachlorobiphenyl	80		59 - 130
Tetrachloro-m-xylene	92		53 - 128

5/2/15

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Client Sample ID: **J1V283**

Lab Sample ID: 280-63697-15
Client Matrix: Solid
% Moisture: 9.6

Date Sampled: 12/15/2014 1133
Date Received: 12/17/2014 1030

8082 Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analysis Method:	8082	Analysis Batch:	280-258022	Instrument ID:	SGC_P3b
Prep Method:	3550C	Prep Batch:	280-257927	Initial Weight/Volume:	31.1 g
Dilution:	1.0			Final Weight/Volume:	5 mL
Analysis Date:	12/21/2014 2213			Injection Volume:	1 uL
Prep Date:	12/19/2014 1605			Result Type:	PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Aroclor 1221		8.6	U	8.6	18

5/2/15

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Client Sample ID: **J1V284**

Lab Sample ID: 280-63697-16
Client Matrix: Solid % Moisture: 4.1

Date Sampled: 12/15/2014 1249
Date Received: 12/17/2014 1030

8082 Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analysis Method:	8082	Analysis Batch:	280-258020	Instrument ID:	SGC_P3a
Prep Method:	3550C	Prep Batch:	280-257927	Initial Weight/Volume:	31.3 g
Dilution:	1.0			Final Weight/Volume:	5 mL
Analysis Date:	12/21/2014 2213			Injection Volume:	1 uL
Prep Date:	12/19/2014 1605			Result Type:	PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Aroclor 1016		2.8	U	2.8	10
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		10		2.6	10
Aroclor 1260		2.6	U	2.6	10

Surrogate	%Rec	Qualifier	Acceptance Limits
Decachlorobiphenyl	82		59 - 130
Tetrachloro-m-xylene	91		53 - 128

5/2/15

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Client Sample ID: **J1V284**

Lab Sample ID: 280-63697-16
Client Matrix: Solid

% Moisture: 4.1

Date Sampled: 12/15/2014 1249
Date Received: 12/17/2014 1030

8082 Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analysis Method:	8082	Analysis Batch:	280-258022	Instrument ID:	SGC_P3b
Prep Method:	3550C	Prep Batch:	280-257927	Initial Weight/Volume:	31.3 g
Dilution:	1.0			Final Weight/Volume:	5 mL
Analysis Date:	12/21/2014 2234			Injection Volume:	1 uL
Prep Date:	12/19/2014 1605			Result Type:	PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Aroclor 1221		8.0	U	8.0	16

5/2/15

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Client Sample ID: **J1V285**

Lab Sample ID: 280-63697-17
Client Matrix: Solid % Moisture: 7.7

Date Sampled: 12/15/2014 0856
Date Received: 12/17/2014 1030

8082 Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analysis Method:	8082	Analysis Batch:	280-258020	Instrument ID:	SGC_P3a
Prep Method:	3550C	Prep Batch:	280-257927	Initial Weight/Volume:	32.4 g
Dilution:	1.0			Final Weight/Volume:	5 mL
Analysis Date:	12/21/2014 2234			Injection Volume:	1 uL
Prep Date:	12/19/2014 1605			Result Type:	PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Aroclor 1016		2.8	U	2.8	10
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		24		2.6	10
Aroclor 1260		2.6	U	2.6	10

Surrogate	%Rec	Qualifier	Acceptance Limits
Decachlorobiphenyl	79		59 - 130
Tetrachloro-m-xylene	90		53 - 128

5/2/15

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Client Sample ID: **J1V285**

Lab Sample ID: 280-63697-17
Client Matrix: Solid

% Moisture: 7.7

Date Sampled: 12/15/2014 0856
Date Received: 12/17/2014 1030

8082 Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analysis Method:	8082	Analysis Batch:	280-258022	Instrument ID:	SGC_P3b
Prep Method:	3550C	Prep Batch:	280-257927	Initial Weight/Volume:	32.4 g
Dilution:	1.0			Final Weight/Volume:	5 mL
Analysis Date:	12/21/2014 2255			Injection Volume:	1 uL
Prep Date:	12/19/2014 1605			Result Type:	PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Aroclor 1221		8.0	U	8.0	17

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Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Client Sample ID: **J1V269**

Lab Sample ID: 280-63697-1
Client Matrix: Solid

% Moisture: 8.2

Date Sampled: 12/15/2014 1224
Date Received: 12/17/2014 1030

8081A Organochlorine Pesticides (GC)

Analysis Method:	8081A	Analysis Batch:	280-258011	Instrument ID:	SGC_P2
Prep Method:	3550C	Prep Batch:	280-257796	Initial Weight/Volume:	30.8 g
Dilution:	1.0			Final Weight/Volume:	10 mL
Analysis Date:	12/21/2014 2129			Injection Volume:	1 uL
Prep Date:	12/18/2014 2149			Result Type:	PRIMARY

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Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
4,4'-DDD		0.58	U	0.58	1.8
4,4'-DDE		0.25	U	0.25	1.8
4,4'-DDT		0.63	U	0.63	1.8
Aldrin		0.27	U	0.27	1.8
alpha-BHC		0.23	U	0.23	1.8
beta-BHC		0.70	U	0.70	1.8
delta-BHC		0.43	U	0.43	1.8
gamma-BHC (Lindane)		0.49	U	0.49	1.8
Heptachlor		0.23	U	0.23	1.8
Heptachlor epoxide		0.45	U	0.45	1.8
Endosulfan I		0.19	U	0.19	1.8
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		0.52	U	0.52	1.8
gamma-Chlordane		0.28	U	0.28	1.8
Methoxychlor		0.48	U	0.48	3.5
alpha-Chlordane		0.34	U	0.34	1.8
Dieldrin		0.22	U	0.22	1.8
Toxaphene		17	U J	17	180

Surrogate	%Rec	Qualifier	Acceptance Limits
Tetrachloro-m-xylene	90		59 - 115
Decachlorobiphenyl	115		63 - 124

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Client Sample ID: **J1V270**

Lab Sample ID: 280-63697-2
Client Matrix: Solid
% Moisture: 4.6

Date Sampled: 12/15/2014 0922
Date Received: 12/17/2014 1030

8081A Organochlorine Pesticides (GC)

Analysis Method:	8081A	Analysis Batch:	280-258172	Instrument ID:	SGC_P2
Prep Method:	3550C	Prep Batch:	280-257796	Initial Weight/Volume:	30.1 g
Dilution:	1.0			Final Weight/Volume:	10 mL
Analysis Date:	12/22/2014 1713			Injection Volume:	1 uL
Prep Date:	12/18/2014 2149			Result Type:	PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
4,4'-DDD		0.57	U	0.57	1.8
4,4'-DDE		0.93	J Y	0.25	1.8
4,4'-DDT		2.9		0.62	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)		0.49	U	0.49	1.7
Heptachlor		0.22	U	0.22	1.7
Heptachlor epoxide		0.45	U	0.45	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		17	U J	17	170

Surrogate	%Rec	Qualifier	Acceptance Limits
Tetrachloro-m-xylene	103		59 - 115
Decachlorobiphenyl	108		63 - 124

5/2/15

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Client Sample ID: **J1V271**

Lab Sample ID: 280-63697-3
Client Matrix: Solid

% Moisture: 1.8

Date Sampled: 12/15/2014 1029
Date Received: 12/17/2014 1030

8081A Organochlorine Pesticides (GC)

Analysis Method:	8081A	Analysis Batch:	280-258011	Instrument ID:	SGC_P2
Prep Method:	3550C	Prep Batch:	280-257796	Initial Weight/Volume:	30.7 g
Dilution:	1.0			Final Weight/Volume:	10 mL
Analysis Date:	12/21/2014 2203			Injection Volume:	1 uL
Prep Date:	12/18/2014 2149			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		0.24	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 J	16	160

Surrogate	%Rec	Qualifier	Acceptance Limits
Tetrachloro-m-xylene	92		59 - 115
Decachlorobiphenyl	92		63 - 124

5/2/15

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Client Sample ID: **J1V272**

Lab Sample ID: 280-63697-4
Client Matrix: Solid

% Moisture: 8.3

Date Sampled: 12/15/2014 0856
Date Received: 12/17/2014 1030

8081A Organochlorine Pesticides (GC)

Analysis Method:	8081A	Analysis Batch:	280-258172	Instrument ID:	SGC_P2
Prep Method:	3550C	Prep Batch:	280-257796	Initial Weight/Volume:	30.4 g
Dilution:	1.0			Final Weight/Volume:	10 mL
Analysis Date:	12/22/2014 1730			Injection Volume:	1 uL
Prep Date:	12/18/2014 2149			Result Type:	PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
4,4'-DDD		0.59	U	0.59	1.8
4,4'-DDE		0.26	U	0.26	1.8
4,4'-DDT		0.74	J	0.63	1.8
Aldrin		0.27	U	0.27	1.8
alpha-BHC		0.23	U	0.23	1.8
beta-BHC		0.71	U	0.71	1.8
delta-BHC		0.43	U	0.43	1.8
gamma-BHC (Lindane)		0.50	U	0.50	1.8
Heptachlor		0.23	U	0.23	1.8
Heptachlor epoxide		0.46	U	0.46	1.8
Endosulfan I		0.19	U	0.19	1.8
Endosulfan II		0.31	U	0.31	1.8
Endosulfan sulfate		0.30	U	0.30	1.8
Endrin		0.33	U	0.33	1.8
Endrin aldehyde		0.18	U	0.18	1.8
Endrin ketone		0.53	U	0.53	1.8
gamma-Chlordane		0.29	U	0.29	1.8
Methoxychlor		0.48	U	0.48	3.6
alpha-Chlordane		0.35	U	0.35	1.8
Dieldrin		0.23	U	0.23	1.8
Toxaphene		17	U J	17	180

Surrogate	%Rec	Qualifier	Acceptance Limits
Tetrachloro-m-xylene	95		59 - 115
Decachlorobiphenyl	117		63 - 124

5/2/15

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Client Sample ID: **J1V273**

Lab Sample ID: 280-63697-5
Client Matrix: Solid

% Moisture: 3.0

Date Sampled: 12/15/2014 1002
Date Received: 12/17/2014 1030

8081A Organochlorine Pesticides (GC)

Analysis Method:	8081A	Analysis Batch:	280-258011	Instrument ID:	SGC_P2
Prep Method:	3550C	Prep Batch:	280-257796	Initial Weight/Volume:	30.2 g
Dilution:	1.0			Final Weight/Volume:	10 mL
Analysis Date:	12/21/2014 2237			Injection Volume:	1 uL
Prep Date:	12/18/2014 2149			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)		0.48	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		0.29	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		0.22	U	0.22	1.7
Toxaphene		16	U J	16	170

Surrogate	%Rec	Qualifier	Acceptance Limits
Tetrachloro-m-xylene	93		59 - 115
Decachlorobiphenyl	104		63 - 124

5/2/15

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Client Sample ID: **J1V274**

Lab Sample ID: 280-63697-6
Client Matrix: Solid

% Moisture: 3.0

Date Sampled: 12/15/2014 1106
Date Received: 12/17/2014 1030

8081A Organochlorine Pesticides (GC)

Analysis Method:	8081A	Analysis Batch:	280-258172	Instrument ID:	SGC_P2
Prep Method:	3550C	Prep Batch:	280-257796	Initial Weight/Volume:	30.7 g
Dilution:	1.0			Final Weight/Volume:	10 mL
Analysis Date:	12/22/2014 1747			Injection Volume:	1 uL
Prep Date:	12/18/2014 2149			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		1.1	J	0.24	1.7
4,4'-DDT		1.6	J	0.59	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		0.40	U	0.40	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		0.49	U	0.49	1.7
gamma-Chlordane		0.27	U	0.27	1.7
Methoxychlor		0.45	U	0.45	3.3
alpha-Chlordane		0.33	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	99		59 - 115
Decachlorobiphenyl	120		63 - 124

5/2/15

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Client Sample ID: **J1V275**

Lab Sample ID: 280-63697-7
Client Matrix: Solid
% Moisture: 2.2

Date Sampled: 12/15/2014 1058
Date Received: 12/17/2014 1030

8081A Organochlorine Pesticides (GC)

Analysis Method:	8081A	Analysis Batch:	280-258011	Instrument ID:	SGC_P2
Prep Method:	3550C	Prep Batch:	280-257796	Initial Weight/Volume:	30.2 g
Dilution:	1.0			Final Weight/Volume:	10 mL
Analysis Date:	12/21/2014 2311			Injection Volume:	1 uL
Prep Date:	12/18/2014 2149			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		0.26	U	0.26	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	3.4
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	93		59 - 115
Decachlorobiphenyl	101		63 - 124

5/2/15

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Client Sample ID: **J1V276**

Lab Sample ID: 280-63697-8
Client Matrix: Solid

% Moisture: 8.8

Date Sampled: 12/15/2014 0935
Date Received: 12/17/2014 1030

8081A Organochlorine Pesticides (GC)

Analysis Method:	8081A	Analysis Batch:	280-258172	Instrument ID:	SGC_P2
Prep Method:	3550C	Prep Batch:	280-257796	Initial Weight/Volume:	30.2 g
Dilution:	1.0			Final Weight/Volume:	10 mL
Analysis Date:	12/22/2014 1804			Injection Volume:	1 uL
Prep Date:	12/18/2014 2149			Result Type:	PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
4,4'-DDD		0.59	U	0.59	1.9
4,4'-DDE		0.26	U	0.26	1.9
4,4'-DDT		0.64	U	0.64	1.9
Aldrin		0.27	U	0.27	1.8
alpha-BHC		0.23	U	0.23	1.8
beta-BHC		0.72	U	0.72	1.8
delta-BHC		0.44	U	0.44	1.8
gamma-BHC (Lindane)		0.51	U	0.51	1.8
Heptachlor		0.23	U	0.23	1.8
Heptachlor epoxide		0.46	U	0.46	1.8
Endosulfan I		0.19	U	0.19	1.8
Endosulfan II		0.31	U	0.31	1.9
Endosulfan sulfate		0.30	U	0.30	1.9
Endrin		0.33	U	0.33	1.9
Endrin aldehyde		0.19	U	0.19	1.9
Endrin ketone		0.53	U	0.53	1.9
gamma-Chlordane		0.29	U	0.29	1.9
Methoxychlor		0.49	U	0.49	3.6
alpha-Chlordane		0.35	U	0.35	1.9
Dieldrin		0.23	U	0.23	1.9
Toxaphene		17	U J	17	180

Surrogate	%Rec	Qualifier	Acceptance Limits
Tetrachloro-m-xylene	99		59 - 115
Decachlorobiphenyl	119		63 - 124

5/2/15

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Client Sample ID: **J1V277**

Lab Sample ID: 280-63697-9
Client Matrix: Solid

% Moisture: 3.1

Date Sampled: 12/15/2014 1115
Date Received: 12/17/2014 1030

8081A Organochlorine Pesticides (GC)

Analysis Method:	8081A	Analysis Batch:	280-258011	Instrument ID:	SGC_P2
Prep Method:	3550C	Prep Batch:	280-257796	Initial Weight/Volume:	30.5 g
Dilution:	1.0			Final Weight/Volume:	10 mL
Analysis Date:	12/22/2014 0053			Injection Volume:	1 uL
Prep Date:	12/18/2014 2149			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	95		59 - 115
Decachlorobiphenyl	103		63 - 124

5/2/15

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Client Sample ID: J1V278

Lab Sample ID: 280-63697-10
Client Matrix: Solid

% Moisture: 10.0

Date Sampled: 12/15/2014 1158
Date Received: 12/17/2014 1030

8081A Organochlorine Pesticides (GC)

Analysis Method:	8081A	Analysis Batch:	280-258172	Instrument ID:	SGC_P2
Prep Method:	3550C	Prep Batch:	280-257796	Initial Weight/Volume:	30.4 g
Dilution:	1.0			Final Weight/Volume:	10 mL
Analysis Date:	12/22/2014 1821			Injection Volume:	1 uL
Prep Date:	12/18/2014 2149			Result Type:	PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
4,4'-DDD		0.60	U	0.60	1.9
4,4'-DDE		0.26	U	0.26	1.9
4,4'-DDT		0.65	U	0.65	1.9
Aldrin		0.28	U	0.28	1.8
alpha-BHC		0.23	U	0.23	1.8
beta-BHC		0.73	U	0.73	1.8
delta-BHC		0.44	U	0.44	1.8
gamma-BHC (Lindane)		0.51	U	0.51	1.8
Heptachlor		0.23	U	0.23	1.8
Heptachlor epoxide		0.47	U	0.47	1.8
Endosulfan I		0.19	U	0.19	1.8
Endosulfan II		0.31	U	0.31	1.9
Endosulfan sulfate		0.30	U	0.30	1.9
Endrin		0.34	U	0.34	1.9
Endrin aldehyde		0.19	U	0.19	1.9
Endrin ketone		0.54	U	0.54	1.9
gamma-Chlordane		0.29	U	0.29	1.9
Methoxychlor		0.49	U	0.49	3.6
alpha-Chlordane		0.35	U	0.35	1.9
Dieldrin		0.23	U	0.23	1.9
Toxaphene		17	U J	17	180

Surrogate	%Rec	Qualifier	Acceptance Limits
Tetrachloro-m-xylene	94		59 - 115
Decachlorobiphenyl	118		63 - 124

5/2/15

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Client Sample ID: **J1V279**

Lab Sample ID: 280-63697-11
Client Matrix: Solid

% Moisture: 2.3

Date Sampled: 12/15/2014 1145
Date Received: 12/17/2014 1030

8081A Organochlorine Pesticides (GC)

Analysis Method:	8081A	Analysis Batch:	280-258011	Instrument ID:	SGC_P2
Prep Method:	3550C	Prep Batch:	280-257796	Initial Weight/Volume:	30.9 g
Dilution:	1.0			Final Weight/Volume:	10 mL
Analysis Date:	12/22/2014 0128			Injection Volume:	1 uL
Prep Date:	12/18/2014 2149			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		0.24	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		0.17	U	0.17	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 J	16	160

Surrogate	%Rec	Qualifier	Acceptance Limits
Tetrachloro-m-xylene	94		59 - 115
Decachlorobiphenyl	101		63 - 124

5/2/15

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Client Sample ID: **J1V280**

Lab Sample ID: 280-63697-12
Client Matrix: Solid
% Moisture: 4.6

Date Sampled: 12/15/2014 0949
Date Received: 12/17/2014 1030

8081A Organochlorine Pesticides (GC)

Analysis Method:	8081A	Analysis Batch:	280-258011	Instrument ID:	SGC_P2
Prep Method:	3550C	Prep Batch:	280-257796	Initial Weight/Volume:	31.3 g
Dilution:	1.0			Final Weight/Volume:	10 mL
Analysis Date:	12/22/2014 0145			Injection Volume:	1 uL
Prep Date:	12/18/2014 2149			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		0.22	U	0.22	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		0.22	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		0.49	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	95		59 - 115
Decachlorobiphenyl	104		63 - 124

5/2/15

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Client Sample ID: **J1V281**

Lab Sample ID: 280-63697-13
Client Matrix: Solid

% Moisture: 9.1

Date Sampled: 12/15/2014 1018
Date Received: 12/17/2014 1030

8081A Organochlorine Pesticides (GC)

Analysis Method:	8081A	Analysis Batch:	280-258011	Instrument ID:	SGC_P2
Prep Method:	3550C	Prep Batch:	280-257796	Initial Weight/Volume:	30.3 g
Dilution:	1.0			Final Weight/Volume:	10 mL
Analysis Date:	12/22/2014 0202			Injection Volume:	1 uL
Prep Date:	12/18/2014 2149			Result Type:	PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
4,4'-DDD		0.59	U	0.59	1.9
4,4'-DDE		0.26	U	0.26	1.9
4,4'-DDT		0.64	U	0.64	1.9
Aldrin		0.27	U	0.27	1.8
alpha-BHC		0.23	U	0.23	1.8
beta-BHC		0.72	U	0.72	1.8
delta-BHC		0.44	U	0.44	1.8
gamma-BHC (Lindane)		0.51	U	0.51	1.8
Heptachlor		0.23	U	0.23	1.8
Heptachlor epoxide		0.46	U	0.46	1.8
Endosulfan I		0.19	U	0.19	1.8
Endosulfan II		0.31	U	0.31	1.9
Endosulfan sulfate		0.30	U	0.30	1.9
Endrin		0.33	U	0.33	1.9
Endrin aldehyde		0.19	U	0.19	1.9
Endrin ketone		0.53	U	0.53	1.9
gamma-Chlordane		0.29	U	0.29	1.9
Methoxychlor		0.49	U	0.49	3.6
alpha-Chlordane		0.35	U	0.35	1.9
Dieldrin		0.23	U	0.23	1.9
Toxaphene		17	U J	17	180

Surrogate	%Rec	Qualifier	Acceptance Limits
Tetrachloro-m-xylene	93		59 - 115
Decachlorobiphenyl	99		63 - 124

5/2/15

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Client Sample ID: **J1V282**

Lab Sample ID: 280-63697-14
Client Matrix: Solid
% Moisture: 1.8

Date Sampled: 12/15/2014 1208
Date Received: 12/17/2014 1030

8081A Organochlorine Pesticides (GC)

Analysis Method:	8081A	Analysis Batch:	280-258011	Instrument ID:	SGC_P2
Prep Method:	3550C	Prep Batch:	280-257796	Initial Weight/Volume:	31.9 g
Dilution:	1.0			Final Weight/Volume:	10 mL
Analysis Date:	12/22/2014 0219			Injection Volume:	1 uL
Prep Date:	12/18/2014 2149			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		0.57	U	0.57	1.6
Aldrin		0.24	U	0.24	1.6
alpha-BHC		0.20	U	0.20	1.6
beta-BHC		0.64	U	0.64	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		0.41	U	0.41	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		0.47	U	0.47	1.6
gamma-Chlordane		0.25	U	0.25	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	92		59 - 115
Decachlorobiphenyl	101		63 - 124

5/2/15

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Client Sample ID: **J1V283**

Lab Sample ID: 280-63697-15
Client Matrix: Solid
% Moisture: 9.6

Date Sampled: 12/15/2014 1133
Date Received: 12/17/2014 1030

8081A Organochlorine Pesticides (GC)

Analysis Method:	8081A	Analysis Batch:	280-258011	Instrument ID:	SGC_P2
Prep Method:	3550C	Prep Batch:	280-257796	Initial Weight/Volume:	30.1 g
Dilution:	1.0			Final Weight/Volume:	10 mL
Analysis Date:	12/22/2014 0236			Injection Volume:	1 uL
Prep Date:	12/18/2014 2149			Result Type:	PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
4,4'-DDD		0.60	U	0.60	1.9
4,4'-DDE		0.26	U	0.26	1.9
4,4'-DDT		0.65	U	0.65	1.9
Aldrin		0.28	U	0.28	1.8
alpha-BHC		0.24	U	0.24	1.8
beta-BHC		0.73	U	0.73	1.8
delta-BHC		0.44	U	0.44	1.8
gamma-BHC (Lindane)		0.51	U	0.51	1.8
Heptachlor		0.24	U	0.24	1.8
Heptachlor epoxide		0.47	U	0.47	1.8
Endosulfan I		0.19	U	0.19	1.8
Endosulfan II		0.32	U	0.32	1.9
Endosulfan sulfate		0.30	U	0.30	1.9
Endrin		0.34	U	0.34	1.9
Endrin aldehyde		0.19	U	0.19	1.9
Endrin ketone		0.54	U	0.54	1.9
gamma-Chlordane		0.29	U	0.29	1.9
Methoxychlor		0.50	U	0.50	3.6
alpha-Chlordane		0.36	U	0.36	1.9
Dieldrin		0.23	U	0.23	1.9
Toxaphene		17	U J	17	180

Surrogate	%Rec	Qualifier	Acceptance Limits
Tetrachloro-m-xylene	92		59 - 115
Decachlorobiphenyl	110		63 - 124

5/2/15

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Client Sample ID: **J1V284**

Lab Sample ID: 280-63697-16
Client Matrix: Solid

% Moisture: 4.1

Date Sampled: 12/15/2014 1249
Date Received: 12/17/2014 1030

8081A Organochlorine Pesticides (GC)

Analysis Method:	8081A	Analysis Batch:	280-258011	Instrument ID:	SGC_P2
Prep Method:	3550C	Prep Batch:	280-257796	Initial Weight/Volume:	30.3 g
Dilution:	1.0			Final Weight/Volume:	10 mL
Analysis Date:	12/22/2014 0253			Injection Volume:	1 uL
Prep Date:	12/18/2014 2149			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		0.69	U	0.69	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		0.27	U	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	93		59 - 115
Decachlorobiphenyl	100		63 - 124

5/2/15

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Client Sample ID: **J1V285**

Lab Sample ID: 280-63697-17
Client Matrix: Solid

% Moisture: 7.7

Date Sampled: 12/15/2014 0856
Date Received: 12/17/2014 1030

8081A Organochlorine Pesticides (GC)

Analysis Method:	8081A	Analysis Batch:	280-258172	Instrument ID:	SGC_P2
Prep Method:	3550C	Prep Batch:	280-257796	Initial Weight/Volume:	30.1 g
Dilution:	1.0			Final Weight/Volume:	10 mL
Analysis Date:	12/22/2014 1838			Injection Volume:	1 uL
Prep Date:	12/18/2014 2149			Result Type:	PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
4,4'-DDD		0.59	U	0.59	1.8
4,4'-DDE		0.26	U	0.26	1.8
4,4'-DDT		1.1	J	0.64	1.8
Aldrin		0.27	U	0.27	1.8
alpha-BHC		0.23	U	0.23	1.8
beta-BHC		0.72	U	0.72	1.8
delta-BHC		0.43	U	0.43	1.8
gamma-BHC (Lindane)		0.50	U	0.50	1.8
Heptachlor		0.23	U	0.23	1.8
Heptachlor epoxide		0.46	U	0.46	1.8
Endosulfan I		0.19	U	0.19	1.8
Endosulfan II		0.31	U	0.31	1.8
Endosulfan sulfate		0.30	U	0.30	1.8
Endrin		0.33	U	0.33	1.8
Endrin aldehyde		0.18	U	0.18	1.8
Endrin ketone		0.53	U	0.53	1.8
gamma-Chlordane		0.29	U	0.29	1.8
Methoxychlor		0.49	U	0.49	3.6
alpha-Chlordane		0.35	U	0.35	1.8
Dieldrin		0.23	U	0.23	1.8
Toxaphene		17	U J	17	180

Surrogate	%Rec	Qualifier	Acceptance Limits
Tetrachloro-m-xylene	95		59 - 115
Decachlorobiphenyl	103		63 - 124

5/2/15

Appendix 4

Laboratory Narrative and Chain-of-Custody Documentation

CASE NARRATIVE

Revision 1

Client: Washington Closure Hanford

Project: WASHINGTON CLOSURE HANFORD

Job Number: 280-63697-1

SDG #: JP0885
SAF#: RC-107

Date SDG Closed: January 5, 2015
Data Deliverable: 7 Day / Summary

CLIENT ID	LAB ID	ANALYSES REQUESTED	ANALYSES PERFORMED
J1V269	280-63697-1	6010/7471/9056M/353.2/9045/8082/8270/ WTPH-D+/8310/8081	6010B/7471A/9056M/353.2/9045C/8082/8270C/ NWTPH-Dx/8310/8081A/1311-6010B-7470A
J1V270	280-63697-2	6010/7471/9056M/353.2/9045/8082/8270/ WTPH-D+/8310/8081	6010B/7471A/9056M/353.2/9045C/8082/8270C/ NWTPH-Dx/8310/8081A
J1V271	280-63697-3	6010/7471/9056M/353.2/9045/8082/8270/ WTPH-D+/8310/8081	6010B/7471A/9056M/353.2/9045C/8082/8270C/ NWTPH-Dx/8310/8081A
J1V272	280-63697-4	6010/7471/9056M/353.2/9045/8082/8270/ WTPH-D+/8310/8081	6010B/7471A/9056M/353.2/9045C/8082/8270C/ NWTPH-Dx/8310/8081A
J1V273	280-63697-5	6010/7471/9056M/353.2/9045/8082/8270/ WTPH-D+/8310/8081	6010B/7471A/9056M/353.2/9045C/8082/8270C/ NWTPH-Dx/8310/8081A
J1V274	280-63697-6	6010/7471/9056M/353.2/9045/8082/8270/ WTPH-D+/8310/8081	6010B/7471A/9056M/353.2/9045C/8082/8270C/ NWTPH-Dx/8310/8081A
J1V275	280-63697-7	6010/7471/9056M/353.2/9045/8082/8270/ WTPH-D+/8310/8081	6010B/7471A/9056M/353.2/9045C/8082/8270C/ NWTPH-Dx/8310/8081A
J1V276	280-63697-8	6010/7471/9056M/353.2/9045/8082/8270/ WTPH-D+/8310/8081	6010B/7471A/9056M/353.2/9045C/8082/8270C/ NWTPH-Dx/8310/8081A
J1V277	280-63697-9	6010/7471/9056M/353.2/9045/8082/8270/ WTPH-D+/8310/8081	6010B/7471A/9056M/353.2/9045C/8082/8270C/ NWTPH-Dx/8310/8081A
J1V278	280-63697-10	6010/7471/9056M/353.2/9045/8082/8270/ WTPH-D+/8310/8081	6010B/7471A/9056M/353.2/9045C/8082/8270C/ NWTPH-Dx/8310/8081A
J1V279	280-63697-11	6010/7471/9056M/353.2/9045/8082/8270/ WTPH-D+/8310/8081	6010B/7471A/9056M/353.2/9045C/8082/8270C/ NWTPH-Dx/8310/8081A
J1V280	280-63697-12	6010/7471/9056M/353.2/9045/8082/8270/ WTPH-D+/8310/8081	6010B/7471A/9056M/353.2/9045C/8082/8270C/ NWTPH-Dx/8310/8081A
J1V281	280-63697-13	6010/7471/9056M/353.2/9045/8082/8270/ WTPH-D+/8310/8081	6010B/7471A/9056M/353.2/9045C/8082/8270C/ NWTPH-Dx/8310/8081A
J1V282	280-63697-14	6010/7471/9056M/353.2/9045/8082/8270/ WTPH-D+/8310/8081	6010B/7471A/9056M/353.2/9045C/8082/8270C/ NWTPH-Dx/8310/8081A
J1V283	280-63697-15	6010/7471/9056M/353.2/9045/8082/8270/ WTPH-D+/8310/8081	6010B/7471A/9056M/353.2/9045C/8082/8270C/ NWTPH-Dx/8310/8081A/1311-6010B-7470A
J1V284	280-63697-16	6010/7471/9056M/353.2/9045/8082/8270/ WTPH-D+/8310/8081	6010B/7471A/9056M/353.2/9045C/8082/8270C/ NWTPH-Dx/8310/8081A
J1V285	280-63697-17	6010/7471/9056M/353.2/9045/8082/8270/ WTPH-D+/8310/8081	6010B/7471A/9056M/353.2/9045C/8082/8270C/ NWTPH-Dx/8310/8081A

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.

Revision 1
On 1/5/2015, the client requested TCLP Metals 1311/6010B/7470A analysis for samples J1V269 and J1V283. Those results are included in this report.

RECEIPT
The samples were received on 12/17/2014 10:30 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 5 coolers at receipt time were 0.5° C, 0.7° C, 1.6° C, 2.3° C and 2.9° C.

GC/MS SEMIVOLATILES - SW846 8270C
Compounds Benzo(b)fluoranthene and Benzo(k)fluoranthene were unresolved in samples J1V269 and J1V283 due to matrix interferences. It can be noted that these compounds were adequately resolved in associated standards, indicating the instrument is achieving separation. The combined peak was reported as Benzo(b)fluoranthene, while Benzo(k)fluoranthene was reported as undetected even though it may be present. Associated results have been flagged with a "K".

No other anomalies were encountered.

GC SEMIVOLATILES - SW846 8081A - Pesticides
The organic prep laboratory noted that a Florisil clean-up was performed on sample J1V270 to reduce matrix interferences.

The RPD between the primary and confirmation columns exceeded 40% for 4,4'-DDE in sample J1V270. The higher of the two values has been reported, as matrix interference is evident. The result has been flagged with an "Y".

Continuing Calibration Verification (CCV) standards associated with samples in analysis batch 280-258011 exhibited %Difference (%D) values >15%, biased high, for multiple analytes. The samples associated with these CCVs were non-detect for the affected analytes; therefore, corrective action is deemed unnecessary.

The closing Continuing Calibration Verification (CCV) standard associated with samples in analysis batch 280-258011 exhibited the %Difference (%D) value >15%, biased low, for 4,4'-DDT (-22%) and Methoxychlor (-21%) on the confirmation column. The overall mean %D is ≤15%; therefore, method criteria have been met and corrective action is deemed unnecessary. The samples associated with this CCV were non-detect for the affected analytes.

Continuing Calibration Verification (CCV) standards associated with samples in analysis batch 280-258172 exhibited %Difference (%D) values >15%, biased high, on one of the dual columns, as detailed below. The samples associated with these CCVs were either non-detect for the affected analytes or the confirmation column data confirm the detections within the method defined 40% difference; therefore, data are reported from the column that is in control and corrective action is deemed unnecessary. The sequence is as follows:

CCV: Primary: 4,4'-DDD (+21%), Methoxychlor (+19%)
Confirmation: OK
Samples: J1V270, J1V272, J1V274, J1V276, J1V278, J1V285
CCV: Primary: 4,4'-DDD (+30%), 4,4'-DDT (+16%), Endrin (+18%), Heptachlor (+16%), Methoxychlor (+17%) Toxaphene (+18%)
Confirmation: 4,4'-DDE (+16%), alpha-BHC (+16%)

It can be noted that the closing CCV standard associated with sample J1V270 in analysis batch 280-258172 exhibited the %Difference (%D) value >15%, biased high, for 4,4'-DDE (+16%) on the confirmation column. Sample J1V270 showed an estimated detection present below the reporting limit on both columns for 4,4'-DDE; however, the detection was not confirmed within the method defined 40% difference. The 4,4'-DDE result for sample J1V270 has been reported from the primary column, which was in control.

No other anomalies were encountered.

GC SEMIVOLATILES - SW846 8082 - PCBs
The laboratory noted that a Sulfuric Acid clean-up was performed on the samples presented in this report to reduce matrix interferences.

It can be noted that Aroclor 1221 is reported from a separate injection for several samples in order to acquire/maintain the associated second column confirmation chromatographic data for the samples. Due to a system limitation, this reporting style is necessary when samples are analyzed on a non-sequential injection instrument and second column confirmation is required.

Samples J1V272, J1V284 and J1V285 contained a combination of Aroclor 1254 and Aroclor 1260 with insufficient separation to quantify individually. The samples have been quantified and reported as the predominant Aroclor.

No other anomalies were encountered.

GC SEMIVOLATILES - NWTPH-Dx - DRO
The MSD aliquot of the MS/MSD performed on sample J1V270 exhibited spike compound recoveries outside the control limits, and the associated sample results have been flagged "N". In addition, the RPD limits were exceeded. There is no indication that the analytical system was operating out of control, and method accuracy has been verified by the acceptable LCS analysis data; therefore, corrective action is deemed unnecessary.

No other anomalies were encountered.

HPLC - SW846 8310 - PAHs
The RPD between the primary and confirmation columns exceeded 40% for analytes in samples J1V269, J1V270, J1V273 and J1V275. The lower of the two values has been reported, as matrix interference is evident on both columns. Associated results have been flagged with an "X".

The MS/MSD performed on sample J1V269 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 280-257573 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. Due to high constituent concentration, sample J1V283 required a dilution prior to the analysis of Mercury. The reporting limit has been adjusted relative to the dilution required.

Silicon was recovered outside the control limits, biased low, in the LCS associated with batch 280-257573, and the associated sample results have been flagged "N". Silicon has been identified as a poor performing element when analyzed using this method and has a history of reacting inconsistently; therefore, corrective action is not initiated. Data are reported as is.

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 J1V269; therefore, control limits are not applicable.

The duplicate analysis of sample J1V269 exhibited RPD data outside the control limits for Arsenic and Lead, and the associated sample results have been flagged "M". There is no indication that the analytical system was operating out of control, and method accuracy has been verified by the acceptable LCS analysis data; therefore, corrective action is deemed unnecessary.

No other anomalies were encountered.

TCLP METALS - SW846 1311/6010B/7470A
Low levels of Arsenic, Barium, Lead and Mercury are present in the method blanks associated with batches 280-259357 and 280-259874, respectively. Because the concentrations in the method blanks are not present at levels greater than half the reporting limit, corrective action is deemed unnecessary.

The duplicate analysis of sample J1V269 exhibited RPD data outside the control limits for Mercury, and the associated sample result has been flagged "M". There is no indication that the analytical system was operating out of control, and method accuracy has been verified by the acceptable LCS analysis data; therefore, corrective action is deemed unnecessary.

No other anomalies were encountered.

GENERAL CHEMISTRY - MCAWW 353.2 - NITRATE NITRITE as N
The Nitrate Nitrite as N duplicate analysis of sample J1V283 exceeded the RPD limit, and the associated sample result has been flagged "M". There is no indication that the analytical system was operating out of control, and method accuracy has been verified by the acceptable LCS analysis data; therefore, corrective action is deemed unnecessary.

No other anomalies were encountered.

GENERAL CHEMISTRY - SW846 9056M - ANIONS
No anomalies were encountered.

GENERAL CHEMISTRY - SW846 9045C - PH
SU = standard units

No anomalies were encountered.

Washington Closure Hanford

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

RC-107-123

Collector: H. Weber

Company Contact: Joan Kessner

Telephone No.: 375-4688

Project Coordinator: KESSNER, JH

Price Code: 8B

Data Turnaround: 7days

Project Designation: 100-H Field Remediation

Sampling Location: 100-H-28:2, EXC1, verification

SAF No.: RC-107

Ice Chest No.: ERC-02-007

Field Logbook No.: EL-1627-08

COA: 01H2822000

Method of Shipment: Commercial Carrier - fed EX

Offsite Property No.: A131288

Bill of Lading/Air Bill No.: see OSPC

Shipped To: TestAmerica Denver

Other Labs Shipped To: TestAmerica Richland

POSSIBLE SAMPLE HAZARDS/REMARKS

None

Special Handling and/or Storage

cool as required

Sample No.	Matrix	Sample Date	Sample Time	Preservation: Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C			
				Type of Container: G/P	G/P	aG	aG	aG	aG	aG			
				No. of Container(s): 1	1	1	1	1	1	1			
				Volume: 250mL	250mL	250mL	250mL	125mL	250mL	250mL			
				Sample Analysis: See item (1) in Special Instructions	See item (2) in Special Instructions	PCBs - 8082	Semi-VOA - 8270 (TCL)	TPH-Diesel Range - WTPH-D +	PAHs - 8310	Pesticides - 8081			
J1V269	SOIL	12-15-14	1224	✓	✓	✓	✓	✓	✓	✓			
J1V270	SOIL	12-15-14	0922	✓	✓	✓	✓	✓	✓	✓			
J1V271	SOIL	12-15-14	1029	✓	✓	✓	✓	✓	✓	✓			
J1V272	SOIL	12-15-14	0856	✓	✓	✓	✓	✓	✓	✓			
J1V273	SOIL	12-15-14	1002	✓	✓	✓	✓	✓	✓	✓			

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Heather Weber / [illegible]	12/15/14 1306	Dushea Dushea (WCH)	12/15/14 1306
Dushea Dushea	12/15/14 1545	C. Bingham	12-15-14 1545
C. Bingham	12-15-14 1600	1060 Battelle fridge #14	12-15-14 1600
1060 Battelle, fridge #14	12-16-14 0840	C. Bingham	12-16-14 0840
C. Bingham	12-16-14 0900	fed EX	
			4/17/14 10:30

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)
(2) IC Anions - 9056 Modified {Bromide, Chloride, Fluoride, Nitrogen in Nitrate, Nitrogen in Nitrite, Phosphorous in phosphate, Sulfate}; NO2/NO3 - 353.2; pH (Soil) - 9045

280-63697 Chain of Custody

REVIEWED BY [illegible] DATE 12/16/14

2.4, 1.8, 1.1, 0.0, 0.2 IRS +0.5 MT WA 1/14

JP0885

WCH-EE-011

Washington Closure Hanford

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

RC-107-123

Collector: N. Weber	Company Contact: Joan Kessner	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Project Designation: 100-H Field Remediation	Sampling Location: 100-H-28:2, EXC1, verification		SAF No.: RC-107
Ice Chest No.: ERC-02-007	Field Logbook No.: EL-1627-08	COA: 01H2822000	Method of Shipment: Commercial Carrier - fed EX
Shipped To: TestAmerica Denver	Offsite Property No.: A131288		Bill of Lading/Air Bill No.: See OSPC

Price Code: 8B

Data Turnaround: 7days

Other Labs Shipped To: TestAmerica Richland

POSSIBLE SAMPLE HAZARDS/REMARKS

None

Special Handling and/or Storage

cool as required

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	See item (2) in Special Instructions
				Cool 4C	aG	1	250mL	PCBs - 8082
				Cool 4C	aG	1	250mL	Semi-VOA - 8270 (TCL)
				Cool 4C	aG	1	125mL	TPH-Diesel Range - WTPH-D +
				Cool 4C	aG	1	250mL	PAHs - 8310
				Cool 4C	aG	1	250mL	Pesticides - 8081
J1V274	SOIL	12-15-14	1106	✓	✓	✓	✓	✓
J1V275	SOIL	12-15-14	1058	✓	✓	✓	✓	✓
J1V276	SOIL	12-15-14	0935	✓	✓	✓	✓	✓
J1V277	SOIL	12-15-14	1115	✓	✓	✓	✓	✓
J1V278	SOIL	12-15-14	1158	✓	✓	✓	✓	✓

CHAIN OF POSSESSION — **Sign/Print Names**

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Weber/Weber	12/15/14 1306	DWSHEA DWSHEA (fed ex)	12/15/14 1306
DWSHEA DWSHEA	12/15/14 1545	C. Bingham	12-15-14 1545
C. Bingham	12-15-14 1600	1060 Battelle, fridge #14	12-15-14 1600
1060 Battelle, fridge #14	12-16-14 0840	C. Bingham	12-16-14 0840
C. Bingham WCH	12-16-14 0900	fed EX	
			12/17/14 10:30

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)
(2) IC Anions - 9056 Modified (Bromide, Chloride, Fluoride, Nitrogen in Nitrate, Nitrogen in Nitrite, Phosphorous in phosphate, Sulfate); NO2/NO3 - 353.2; pH (Soil) - 9045

REVIEWED BY [illegible] DATE 12/16/14

JP0885

WCH-EE-011

Washington Closure Hanford

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

RC-107-123

Collector	H. Weber
Company Contact	Joan Kessner
Telephone No.	376-4688
Project Coordinator	KESSNER, JH
Price Code	8B
Data Turnaround	7 days
Project Designation	100-H Field Remediation
Sampling Location	100-H-28:2, EXC1, verification
SAF No.	RC-107
Ice Chest No.	ERC-02-007
Field Logbook No.	EL-1627-08
COA	01H2822000
Method of Shipment	Commercial Carrier - fed EX
Bill of Lading/Air Bill No.	See OSPC
Offsite Property No.	A131 288
Shipped To	TestAmerica Denver
Other Labs Shipped To	TestAmerica Richland

POSSIBLE SAMPLE HAZARDS/REMARKS

None

Special Handling and/or Storage

cool as required

Sample No.	Matrix	Sample Date	Sample Time	Sample Analysis: See item (1) in Special Instructions	See item (2) in Special Instructions	PCBs - 8082	Semi-VOA - 8270 (TCL)	TPH-Diesel Range - WTPH-D +	PAHs - 8310	Pesticides - 8081
Preservation				Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C
Type of Container				G/P	G/P	aG	aG	aG	aG	aG
No. of Container(s)				1	1	1	1	1	1	1
Volume				250mL	250mL	250mL	250mL	125mL	250mL	250mL
J1V279	SOIL	12-15-14	1145	✓	✓	✓	✓	✓	✓	✓
J1V280	SOIL	12-15-14	0949	✓	✓	✓	✓	✓	✓	✓
J1V281	SOIL	12-15-14	1018	✓	✓	✓	✓	✓	✓	✓
J1V282	SOIL	12-15-14	1208	✓	✓	✓	✓	✓	✓	✓
J1V283	SOIL	12-15-14	1133	✓	✓	✓	✓	✓	✓	✓

CHAIN OF POSSESSION

Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Heather Weber	12/15/14 1306	(WCH)	12/15/14 1306
Joshua Dustman	12/15/14 1545	C. Bingham	12-15-14 1545
C. Bingham	12-15-14 1600	1060 Battelle, fridge #18	12-15-14 1600
1060 Battelle, fridge #18	12-16-14 0840	C. Bingham	12-16-14 0840
C. Bingham WCH	12-16-14 0900	fed EX	
			12/17/14 10:30

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)
(2) IC-Anions - 9056 Modified {Bromide, Chloride, Fluoride, Nitrogen in Nitrate, Nitrogen in Nitrite, Phosphorous in phosphate, Sulfate}; NO2/NO3 - 353.2; pH (Soil) - 9045

REVIEWED BY [illegible] DATE 12/16/14

JP0885

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

WCH-EE-011

Washington Closure Hanford

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

RC-107-123

Collector	H Weber
Project Designation	100-H Field Remediation
Ice Chest No.	ERC-02-007
Shipped To	TestAmerica Denver
Other Labs Shipped To	TestAmerica Richland
Company Contact	Joan Kessner
Telephone No.	376-4688
Sampling Location	100-H-28:2, EXC1, verification
Field Logbook No.	EL-1627-08
COA	01H2822000
Offsite Property No.	A131288
Project Coordinator	KESSNER, JH
SAF No.	RC-107
Price Code	8B
Data Turnaround	7days
Method of Shipment	Commercial Carrier fed EX
Bill of Lading/Air Bill No.	See OSPC

POSSIBLE SAMPLE HAZARDS/REMARKS

None

Special Handling and/or Storage

cool as required

Sample No.	Matrix	Sample Date	Sample Time	Preservation: Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C			
Type of Container				G/P	G/P	aG	aG	aG	aG	aG			
No. of Container(s)				1	1	1	1	1	1	1			
Volume				250mL	250mL	250mL	250mL	125mL	250mL	250mL			
Sample Analysis				See item (1) in Special Instructions	See item (2) in Special Instructions	PCBs - 8082	Semi-VOA - 8270 (TCL)	TPH-Diesel Range - WTPH-D+	PAHs - 8310	Pesticides - 8081			
JH284	SOIL	12-15-14	1249	✓	✓	✓	✓	✓	✓	✓			
JH285	SOIL	12-15-14	0856	✓	✓	✓	✓	✓	✓	✓			

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Heather Weber / [signature]	12/15/14 1306	(LOCK) Joshua DuSHEA	12/15/14 1306
Joshua DuSHEA	12/15/14 1545	C. Bingham	12-15-14 1545
C. Bingham	12-15-14 1600	10160 Battelle, fridge #18	12-15-14 1600
10160 Battelle, fridge #18	12-16-14 0840	C. Bingham	12-16-14 0840
C. Bingham	12-16-14 0900	fed EX	
		[signature]	12/17/14 10:30

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)
(2) IC Anions - 9056 Modified (Bromide, Chloride, Fluoride, Nitrogen in Nitrate, Nitrogen in Nitrite, Phosphorous in phosphate, Sulfate); NO2/NO3 - 353.2; pH (Soil) - 9045

REVIEWED BY [signature] DATE 12/16/14

JP0885

WCH-EE-011

Appendix 5

Data Validation Supporting Documentation

PCB DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	E
PROJECT:	100-H-282		DATA PACKAGE:	JP0885	
VALIDATOR:	ELR	LAB: TAL		DATE: 4/30/15	
			SDG:	JP0885	
ANALYSES PERFORMED					
SW-846 8081	SW-846 8081 (TCLP)	SW-846 8082	SW-846 8081 (TCLP)		
SAMPLES/MATRIX					
J1V269	J1V270	J1V271	J1V272	J1V273	J1V274
J1V275	J1V276	J1V277	J1V278	J1V279	J1V280
J1V281	J1V282	J1V283	J1V284	J1V285	
					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:

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:

no tow ms/msd/LCS - J all

no DAT

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 - J all

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: 280-63697-1
Sdg Number: JP0885

Method Blank - Batch: 280-257927

Method: 8082
Preparation: 3550C

Lab Sample ID:	MB 280-257927/1-A	Analysis Batch:	280-258020	Instrument ID:	SGC_P3a
Client Matrix:	Solid	Prep Batch:	280-257927	Lab File ID:	1221A004.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	30.5 g
Analysis Date:	12/21/2014 1505	Units:	ug/Kg	Final Weight/Volume:	5 mL
Prep Date:	12/19/2014 1605			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	88	59 - 130
Tetrachloro-m-xylene	83	53 - 128

Method Blank - Batch: 280-257927

Method: 8082
Preparation: 3550C

Lab Sample ID:	MB 280-257927/1-A	Analysis Batch:	280-258022	Instrument ID:	SGC_P3b
Client Matrix:	Solid	Prep Batch:	280-257927	Lab File ID:	1221B004.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	30.5 g
Analysis Date:	12/21/2014 1526	Units:	ug/Kg	Final Weight/Volume:	5 mL
Prep Date:	12/19/2014 1605			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	83	59 - 130
Tetrachloro-m-xylene	84	53 - 128

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Lab Control Sample - Batch: 280-257927

Method: 8082
Preparation: 3550C

Lab Sample ID:	LCS 280-257927/2-A	Analysis Batch:	280-258020	Instrument ID:	SGC_P3a
Client Matrix:	Solid	Prep Batch:	280-257927	Lab File ID:	1221A005.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	32.0 g
Analysis Date:	12/21/2014 1526	Units:	ug/Kg	Final Weight/Volume:	5 mL
Prep Date:	12/19/2014 1605			Injection Volume:	1 uL
Leach Date:	N/A			Column ID:	PRIMARY

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Aroclor 1016	31.3	30.2	96	54 - 132	
Aroclor 1260	31.3	31.8	102	62 - 129	

Surrogate	% Rec	Acceptance Limits
Decachlorobiphenyl	88	59 - 130
Tetrachloro-m-xylene	90	53 - 128

Lab Control Sample - Batch: 280-257927

Method: 8082
Preparation: 3550C

Lab Sample ID:	LCS 280-257927/2-A	Analysis Batch:	280-258022	Instrument ID:	SGC_P3b
Client Matrix:	Solid	Prep Batch:	280-257927	Lab File ID:	1221B005.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	32.0 g
Analysis Date:	12/21/2014 1548	Units:	ug/Kg	Final Weight/Volume:	5 mL
Prep Date:	12/19/2014 1605			Injection Volume:	1 uL
Leach Date:	N/A			Column ID:	PRIMARY

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Aroclor 1016	31.3	28.2	90	54 - 132	
Aroclor 1260	31.3	28.2	90	62 - 129	

Surrogate	% Rec	Acceptance Limits
Decachlorobiphenyl	82	59 - 130
Tetrachloro-m-xylene	85	53 - 128

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-257927

Method: 8082
Preparation: 3550C

MS Lab Sample ID:	280-63697-4	Analysis Batch:	280-258020	Instrument ID:	SGC_P3a
Client Matrix:	Solid	Prep Batch:	280-257927	Lab File ID:	1221A010.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	30.4 g
Analysis Date:	12/21/2014 1713			Final Weight/Volume:	5 mL
Prep Date:	12/19/2014 1605			Injection Volume:	1 uL
Leach Date:	N/A			Column ID:	PRIMARY

MSD Lab Sample ID:	280-63697-4	Analysis Batch:	280-258020	Instrument ID:	SGC_P3a
Client Matrix:	Solid	Prep Batch:	280-257927	Lab File ID:	1221A011.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	30.9 g
Analysis Date:	12/21/2014 1735			Final Weight/Volume:	5 mL
Prep Date:	12/19/2014 1605			Injection Volume:	1 uL
Leach Date:	N/A			Column ID:	PRIMARY

Analyte	% Rec. MS	% Rec. MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
Aroclor 1016	118	114	54 - 132	5	26		
Aroclor 1260	112	115	62 - 129	0	26		

Surrogate	MS % Rec	MSD % Rec	Acceptance Limits
Decachlorobiphenyl	77	86	59 - 130
Tetrachloro-m-xylene	91	93	53 - 128

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-257927

Method: 8082
Preparation: 3550C

MS Lab Sample ID:	280-63697-4	Units:	ug/Kg	MSD Lab Sample ID:	280-63697-4
Client Matrix:	Solid			Client Matrix:	Solid
Dilution:	1.0			Dilution:	1.0
Analysis Date:	12/21/2014 1713			Analysis Date:	12/21/2014 1735
Prep Date:	12/19/2014 1605			Prep Date:	12/19/2014 1605
Leach Date:	N/A			Leach Date:	N/A

Analyte	Sample Result/Qual		MS Spike Amount	MSD Spike Amount	MS Result/Qual	MSD Result/Qual
Aroclor 1016	2.8	U	35.9	35.3	42.2	40.1
Aroclor 1260	2.6	U	35.9	35.3	40.3	40.4

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Method Blank - Batch: 280-257796

Method: 8081A
Preparation: 3550C

Lab Sample ID:	MB 280-257796/1-A	Analysis Batch:	280-258011	Instrument ID:	SGC_P2
Client Matrix:	Solid	Prep Batch:	280-257796	Lab File ID:	12210033.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	30.5 g
Analysis Date:	12/21/2014 2055	Units:	ug/Kg	Final Weight/Volume:	10 mL
Prep Date:	12/18/2014 2149			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	0.65	U	0.65	1.6
delta-BHC	0.39	U	0.39	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	3.2
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	90	59 - 115
Decachlorobiphenyl	99	63 - 124

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Lab Control Sample - Batch: 280-257796

Method: 8081A
Preparation: 3550C

Lab Sample ID:	LCS 280-257796/2-A	Analysis Batch:	280-258011	Instrument ID:	SGC_P2
Client Matrix:	Solid	Prep Batch:	280-257796	Lab File ID:	12210034.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	32.4 g
Analysis Date:	12/21/2014 2112	Units:	ug/Kg	Final Weight/Volume:	10 mL
Prep Date:	12/18/2014 2149			Injection Volume:	1 uL
Leach Date:	N/A			Column ID:	PRIMARY

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
4,4'-DDD	15.4	13.2	86	69 - 126	
4,4'-DDE	15.4	14.3	93	71 - 116	
4,4'-DDT	15.4	12.9	83	67 - 132	
Aldrin	15.4	13.1	85	69 - 116	
alpha-BHC	15.4	13.5	88	65 - 122	
beta-BHC	15.4	12.0	78	62 - 121	
delta-BHC	15.4	13.4	87	67 - 122	
gamma-BHC (Lindane)	15.4	13.3	86	66 - 120	
Heptachlor	15.4	12.7	82	61 - 126	
Heptachlor epoxide	15.4	13.2	85	71 - 119	
Endosulfan I	15.4	13.5	88	67 - 115	
Endosulfan II	15.4	13.8	89	69 - 120	
Endosulfan sulfate	15.4	13.6	88	69 - 126	
Endrin	15.4	13.5	88	69 - 129	
Endrin aldehyde	15.4	11.6	75	41 - 128	
Endrin ketone	15.4	13.2	86	70 - 125	
gamma-Chlordane	15.4	13.4	87	69 - 122	
Methoxychlor	15.4	12.9	83	65 - 139	
alpha-Chlordane	15.4	13.5	87	71 - 118	
Dieldrin	15.4	13.8	90	71 - 120	

Surrogate	% Rec	Acceptance Limits
Tetrachloro-m-xylene	84	59 - 115
Decachlorobiphenyl	94	63 - 124

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-257796

Method: 8081A
Preparation: 3550C

MS Lab Sample ID:	280-63697-7	Analysis Batch:	280-258011	Instrument ID:	SGC_P2
Client Matrix:	Solid	Prep Batch:	280-257796	Lab File ID:	12210042.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	30.0 g
Analysis Date:	12/21/2014 2328			Final Weight/Volume:	10 mL
Prep Date:	12/18/2014 2149			Injection Volume:	1 uL
Leach Date:	N/A			Column ID:	PRIMARY

MSD Lab Sample ID:	280-63697-7	Analysis Batch:	280-258011	Instrument ID:	SGC_P2
Client Matrix:	Solid	Prep Batch:	280-257796	Lab File ID:	12210043.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	30.3 g
Analysis Date:	12/21/2014 2345			Final Weight/Volume:	10 mL
Prep Date:	12/18/2014 2149			Injection Volume:	1 uL
Leach Date:	N/A			Column ID:	PRIMARY

	% Rec.						
Analyte	MS	MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
4,4'-DDD	94	95	69 - 126	0	20		
4,4'-DDE	101	101	71 - 116	1	15		
4,4'-DDT	92	92	67 - 132	1	29		
Aldrin	95	95	69 - 116	0	50		
alpha-BHC	99	100	65 - 122	0	17		
beta-BHC	88	88	62 - 121	1	17		
delta-BHC	99	99	67 - 122	2	19		
gamma-BHC (Lindane)	99	99	66 - 120	1	24		
Heptachlor	92	92	61 - 126	1	18		
Heptachlor epoxide	96	97	71 - 119	0	18		
Endosulfan I	97	98	67 - 115	0	26		
Endosulfan II	97	97	69 - 120	1	20		
Endosulfan sulfate	95	96	69 - 126	0	22		
Endrin	98	99	69 - 129	0	30		
Endrin aldehyde	88	88	41 - 128	1	29		
Endrin ketone	93	93	70 - 125	1	20		
gamma-Chlordane	96	97	69 - 122	0	21		
Methoxychlor	93	92	65 - 139	1	23		
alpha-Chlordane	97	97	71 - 118	1	18		
Dieldrin	98	98	71 - 120	1	25		

Surrogate	MS % Rec	MSD % Rec	Acceptance Limits
Tetrachloro-m-xylene	92	93	59 - 115
Decachlorobiphenyl	101	101	63 - 124

Client: Washington Closure Hanford

Job Number: 280-63697-1
Sdg Number: JP0885

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-257796

Method: 8081A
Preparation: 3550C

MS Lab Sample ID:	280-63697-7	Units: ug/Kg	
Client Matrix:	Solid		
Dilution:	1.0		
Analysis Date:	12/21/2014 2328		
Prep Date:	12/18/2014 2149		
Leach Date:	N/A		

MSD Lab Sample ID:	280-63697-7
Client Matrix:	Solid
Dilution:	1.0
Analysis Date:	12/21/2014 2345
Prep Date:	12/18/2014 2149
Leach Date:	N/A

Analyte	Sample Result/Qual		MS Spike Amount	MSD Spike Amount	MS Result/Qual	MSD Result/Qual
4,4'-DDD	0.55	U	17.0	16.9	16.1	16.0
4,4'-DDE	0.24	U	17.0	16.9	17.1	17.0
4,4'-DDT	0.60	U	17.0	16.9	15.7	15.6
Aldrin	0.26	U	17.0	16.9	16.1	16.1
alpha-BHC	0.22	U	17.0	16.9	16.9	16.9
beta-BHC	0.67	U	17.0	16.9	15.0	14.9
delta-BHC	0.41	U	17.0	16.9	16.9	16.7
gamma-BHC (Lindane)	0.47	U	17.0	16.9	16.8	16.7
Heptachlor	0.22	U	17.0	16.9	15.6	15.5
Heptachlor epoxide	0.43	U	17.0	16.9	16.4	16.3
Endosulfan I	0.18	U	17.0	16.9	16.6	16.5
Endosulfan II	0.29	U	17.0	16.9	16.6	16.4
Endosulfan sulfate	0.28	U	17.0	16.9	16.2	16.1
Endrin	0.31	U	17.0	16.9	16.7	16.6
Endrin aldehyde	0.17	U	17.0	16.9	15.1	14.9
Endrin ketone	0.50	U	17.0	16.9	15.8	15.7
gamma-Chlordane	0.27	U	17.0	16.9	16.4	16.4
Methoxychlor	0.46	U	17.0	16.9	15.8	15.6
alpha-Chlordane	0.33	U	17.0	16.9	16.5	16.4
Dieldrin	0.21	U	17.0	16.9	16.8	16.6