

SAF-RC-232
100-IU-2 & 100-IU-6 Remaining
Waste Sites – Soil Full Protocol
FINAL VALIDATION PACKAGE

COMPLETE COPY OF VALIDATION PACKAGE TO:

Kathy Wendt

H4-21

KW 5/19/15
INITIAL/DATE

COMMENTS:

SDG JP0960

SAF-RC-232

Sample Location: 600-358

Date: 18 May 2015
To: Washington Closure Hanford Inc. (technical representative)
From: ELR Consulting
Project: 100-IU-2 & 100-IU-6 Remaining Waste Sites – Soil Full Protocol - Waste Site 600-358
Subject: Diesel Range Organic - Data Package No. JP0960-TAL

INTRODUCTION

This memo presents the results of data validation on Data Package No. JP0960 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
J1V6N6	4/29/15	Soil	C	See note 1
J1V6N7	4/29/15	Soil	C	See note 1
J1V6N8	4/29/15	Soil	C	See note 1
J1V6N9	4/29/15	Soil	C	See note 1
J1V6P0	4/29/15	Soil	C	See note 1
J1V6P1	4/29/15	Soil	C	See note 1
J1V6P2	4/29/15	Soil	C	See note 1
J1V6P3	4/29/15	Soil	C	See note 1
J1V6P4	4/29/15	Soil	C	See note 1
J1V6P5	4/29/15	Soil	C	See note 1
J1V6P6	4/29/15	Soil	C	See note 1
J1V6P7	4/29/15	Soil	C	See note 1
J1V6P8	4/29/15	Soil	C	See note 1

1 – Diesel range organics by NWTPH-D & gasoline range organics by NWTPH-G.

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 analyzed within 14 days of the date of sample collection for gasoline range organics and extracted within 14 days and analyzed within 40 days from the date of extraction for diesel range organics.

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

All holding times were acceptable.

Method Blanks

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

All method blank results were acceptable.

Field Blanks

No field blank was submitted for analysis.

Accuracy

Matrix Spike/Matrix Spike Duplicate & Blank Spike Recoveries

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

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

All accuracy results were acceptable.

Surrogate Recovery

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

All other surrogate results were acceptable.

• **Precision**

Matrix Spike/Matrix Spike Duplicate Samples

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

All duplicate results were acceptable.

Field Duplicate Samples

One set of field duplicates (J1V6N7/J1V6P8) 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. JP0960 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

GASOLINE & DIESEL RANGE ORGANIC DATA QUALIFICATION SUMMARY*

SDG: JP0960	REVIEWER: ELR	Project: 600-358	PAGE <u>1</u> OF <u>1</u>
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

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-68614-1
Sdg Number: JP0960

Client Sample ID: J1V6N6

Lab Sample ID: 280-68614-1

Client Matrix: Solid

% Moisture: 2.6

Date Sampled: 04/29/2015 1019

Date Received: 05/01/2015 0930

NWTPH-Gx Northwest - Volatile Petroleum Products (GC)

Analysis Method:	NWTPH-Gx	Analysis Batch:	280-275853	Instrument ID:	VGC_Q
Prep Method:	5030B	Prep Batch:	280-275700	Initial Weight/Volume:	9.61 g
Dilution:	1.0			Final Weight/Volume:	10 mL
Analysis Date:	05/05/2015 0313			Injection Volume:	5 mL
Prep Date:	05/03/2015 1158			Result Type:	PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Gasoline		350	U	350	1300
Surrogate		%Rec	Qualifier	Acceptance Limits	
a,a,a-Trifluorotoluene		95		77 - 123	

rs/ak

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-68614-1
Sdg Number: JP0960

Client Sample ID: J1V6N7

Lab Sample ID: 280-68614-2

Date Sampled: 04/29/2015 1015

Client Matrix: Solid

% Moisture: 1.5

Date Received: 05/01/2015 0930

NWTPH-Gx Northwest - Volatile Petroleum Products (GC)

Analysis Method:	NWTPH-Gx	Analysis Batch:	280-275853	Instrument ID:	VGC_Q
Prep Method:	5030B	Prep Batch:	280-275700	Initial Weight/Volume:	9.62 g
Dilution:	1.0			Final Weight/Volume:	10 mL
Analysis Date:	05/05/2015 0337			Injection Volume:	5 mL
Prep Date:	05/03/2015 1158			Result Type:	PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Gasoline		340	U	340	1300
Surrogate		%Rec	Qualifier	Acceptance Limits	
a,a,a-Trifluorotoluene		96		77 - 123	

V 5/16/14

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-68614-1
Sdg Number: JP0960

Client Sample ID: J1V6N8

Lab Sample ID: 280-68614-3

Date Sampled: 04/29/2015 1103

Client Matrix: Solid

% Moisture: 1.0

Date Received: 05/01/2015 0930

NWTPH-Gx Northwest - Volatile Petroleum Products (GC)

Analysis Method:	NWTPH-Gx	Analysis Batch:	280-275853	Instrument ID:	VGC_Q
Prep Method:	5030B	Prep Batch:	280-275700	Initial Weight/Volume:	10.37 g
Dilution:	1.0			Final Weight/Volume:	10 mL
Analysis Date:	05/05/2015 0451			Injection Volume:	5 mL
Prep Date:	05/03/2015 1159			Result Type:	PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Gasoline		320	U	320	1200
Surrogate		%Rec	Qualifier	Acceptance Limits	
a,a,a-Trifluorotoluene		93		77 - 123	

ms/ckls

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-68614-1

Sdg Number: JP0960

Client Sample ID: J1V6N9

Lab Sample ID: 280-68614-4

Client Matrix: Solid

% Moisture: 3.1

Date Sampled: 04/29/2015 1024

Date Received: 05/01/2015 0930

NWTPH-Gx Northwest - Volatile Petroleum Products (GC)

Analysis Method:	NWTPH-Gx	Analysis Batch:	280-275853	Instrument ID:	VGC_Q
Prep Method:	5030B	Prep Batch:	280-275700	Initial Weight/Volume:	9.71 g
Dilution:	1.0			Final Weight/Volume:	10 mL
Analysis Date:	05/05/2015 0516			Injection Volume:	5 mL
Prep Date:	05/03/2015 1159			Result Type:	PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Gasoline		350	U	350	1300
Surrogate		%Rec	Qualifier	Acceptance Limits	
a,a,a-Trifluorotoluene		96		77 - 123	

W. Stuber

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-68614-1
Sdg Number: JP0960

Client Sample ID: J1V6P0

Lab Sample ID: 280-68614-5

Date Sampled: 04/29/2015 1045

Client Matrix: Solid

% Moisture: 2.9

Date Received: 05/01/2015 0930

NWTPH-Gx Northwest - Volatile Petroleum Products (GC)

Analysis Method:	NWTPH-Gx	Analysis Batch:	280-275853	Instrument ID:	VGC_Q
Prep Method:	5030B	Prep Batch:	280-275700	Initial Weight/Volume:	9.77 g
Dilution:	1.0			Final Weight/Volume:	10 mL
Analysis Date:	05/05/2015 0541			Injection Volume:	5 mL
Prep Date:	05/03/2015 1159			Result Type:	PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Gasoline		340	U	340	1300

Surrogate	%Rec	Qualifier	Acceptance Limits
a,a,a-Trifluorotoluene	92		77 - 123

W Stecker

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-68614-1
Sdg Number: JP0960

Client Sample ID: J1V6P1

Lab Sample ID: 280-68614-6

Client Matrix: Solid

% Moisture: 2.8

Date Sampled: 04/29/2015 1051
Date Received: 05/01/2015 0930

NWTPH-Gx Northwest - Volatile Petroleum Products (GC)

Analysis Method:	NWTPH-Gx	Analysis Batch:	280-275853	Instrument ID:	VGC_Q
Prep Method:	5030B	Prep Batch:	280-275700	Initial Weight/Volume:	9.66 g
Dilution:	1.0			Final Weight/Volume:	10 mL
Analysis Date:	05/05/2015 0605			Injection Volume:	5 mL
Prep Date:	05/03/2015 1159			Result Type:	PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Gasoline		350	U	350	1300
Surrogate		%Rec	Qualifier	Acceptance Limits	
a,a,a-Trifluorotoluene		95		77 - 123	

W/Slake

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-68614-1
Sdg Number: JP0960

Client Sample ID: J1V6P2

Lab Sample ID: 280-68614-7
Client Matrix: Solid

% Moisture: 1.1

Date Sampled: 04/29/2015 1059
Date Received: 05/01/2015 0930

NWTPH-Gx Northwest - Volatile Petroleum Products (GC)

Analysis Method:	NWTPH-Gx	Analysis Batch:	280-275853	Instrument ID:	VGC_Q
Prep Method:	5030B	Prep Batch:	280-275700	Initial Weight/Volume:	10.14 g
Dilution:	1.0			Final Weight/Volume:	10 mL
Analysis Date:	05/05/2015 0630			Injection Volume:	5 mL
Prep Date:	05/03/2015 1159			Result Type:	PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Gasoline		320	U	320	1200

Surrogate	%Rec	Qualifier	Acceptance Limits
a,a,a-Trifluorotoluene	94		77 - 123

5/16/15

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-68614-1

Sdg Number: JP0960

Client Sample ID: J1V6P3

Lab Sample ID: 280-68614-8

Date Sampled: 04/29/2015 1028

Client Matrix: Solid

% Moisture: 1.8

Date Received: 05/01/2015 0930

NWTPH-Gx Northwest - Volatile Petroleum Products (GC)

Analysis Method:	NWTPH-Gx	Analysis Batch:	280-275853	Instrument ID:	VGC_Q
Prep Method:	5030B	Prep Batch:	280-275700	Initial Weight/Volume:	10.19 g
Dilution:	1.0			Final Weight/Volume:	10 mL
Analysis Date:	05/05/2015 0655			Injection Volume:	5 mL
Prep Date:	05/03/2015 1159			Result Type:	PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Gasoline		320	U	320	1200

Surrogate	%Rec	Qualifier	Acceptance Limits
a,a,a-Trifluorotoluene	95		77 - 123

W/SLK

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-68614-1
Sdg Number: JP0960

Client Sample ID: J1V6P4

Lab Sample ID: 280-68614-9

Date Sampled: 04/29/2015 1043

Client Matrix: Solid

% Moisture: 1.7

Date Received: 05/01/2015 0930

NWTPH-Gx Northwest - Volatile Petroleum Products (GC)

Analysis Method: NWTPH-Gx	Analysis Batch: 280-275853	Instrument ID: VGC_Q
Prep Method: 5030B	Prep Batch: 280-275700	Initial Weight/Volume: 9.81 g
Dilution: 1.0		Final Weight/Volume: 10 mL
Analysis Date: 05/05/2015 0719		Injection Volume: 5 mL
Prep Date: 05/03/2015 1159		Result Type: PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Gasoline		340	U	340	1200

Surrogate	%Rec	Qualifier	Acceptance Limits
a,a,a-Trifluorotoluene	97		77 - 123

W Stecker

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-68614-1
Sdg Number: JP0960

Client Sample ID: J1V6P6

Lab Sample ID: 280-68614-10

Client Matrix: Solid

% Moisture: 2.6

Date Sampled: 04/29/2015 1056
Date Received: 05/01/2015 0930

NWTPH-Gx Northwest - Volatile Petroleum Products (GC)

Analysis Method: NWTPH-Gx	Analysis Batch: 280-275853	Instrument ID: VGC_Q
Prep Method: 5030B	Prep Batch: 280-275700	Initial Weight/Volume: 10.01 g
Dilution: 1.0		Final Weight/Volume: 10 mL
Analysis Date: 05/05/2015 0744		Injection Volume: 5 mL
Prep Date: 05/03/2015 1159		Result Type: PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Gasoline		330	U	330	1200

Surrogate	%Rec	Qualifier	Acceptance Limits
a,a,a-Trifluorotoluene	93		77 - 123

MS/MS

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-68614-1
Sdg Number: JP0960

Client Sample ID: J1V6P6

Lab Sample ID: 280-68614-11

Date Sampled: 04/29/2015 1033

Client Matrix: Solid

% Moisture: 1.3

Date Received: 05/01/2015 0930

NWTPH-Gx Northwest - Volatile Petroleum Products (GC)

Analysis Method:	NWTPH-Gx	Analysis Batch:	280-275854	Instrument ID:	VGC_Q
Prep Method:	5030B	Prep Batch:	280-275701	Initial Weight/Volume:	9.99 g
Dilution:	1.0			Final Weight/Volume:	10 mL
Analysis Date:	05/05/2015 0947			Injection Volume:	5 mL
Prep Date:	05/03/2015 1235			Result Type:	PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Gasoline		330	U	330	1200

Surrogate	%Rec	Qualifier	Acceptance Limits
a,a,a-Trifluorotoluene	93		77 - 123

W. Staker

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-68614-1

Sdg Number: JP0960

Client Sample ID: J1V6P7

Lab Sample ID: 280-68614-12

Date Sampled: 04/29/2015 1038

Client Matrix: Solid

% Moisture: 2.0

Date Received: 05/01/2015 0930

NWTPH-Gx Northwest - Volatile Petroleum Products (GC)

Analysis Method:	NWTPH-Gx	Analysis Batch:	280-275854	Instrument ID:	VGC_Q
Prep Method:	5030B	Prep Batch:	280-275701	Initial Weight/Volume:	10.31 g
Dilution:	1.0			Final Weight/Volume:	10 mL
Analysis Date:	05/05/2015 1102			Injection Volume:	5 mL
Prep Date:	05/03/2015 1235			Result Type:	PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Gasoline		320	U	320	1200
Surrogate		%Rec	Qualifier	Acceptance Limits	
a,a,a-Trifluorotoluene		91		77 - 123	

K. Stecker

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-68614-1
Sdg Number: JP0960

Client Sample ID: J1V6P8

Lab Sample ID: 280-68614-13
Client Matrix: Solid

% Moisture: 1.3

Date Sampled: 04/29/2015 1015
Date Received: 05/01/2015 0930

NWTPH-Gx Northwest - Volatile Petroleum Products (GC)

Analysis Method:	NWTPH-Gx	Analysis Batch:	280-275854	Instrument ID:	VGC_Q
Prep Method:	5030B	Prep Batch:	280-275701	Initial Weight/Volume:	9.81 g
Dilution:	1.0			Final Weight/Volume:	10 mL
Analysis Date:	05/05/2015 1127			Injection Volume:	5 mL
Prep Date:	05/03/2015 1235			Result Type:	PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Gasoline		340	U	340	1200

Surrogate	%Rec	Qualifier	Acceptance Limits
a,a,a-Trifluorotoluene	94		77 - 123

u-stalk

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-68614-1
Sdg Number: JP0960

Client Sample ID: J1V6N6

Lab Sample ID: 280-68614-1
Client Matrix: Solid

% Moisture: 2.6

Date Sampled: 04/29/2015 1019
Date Received: 05/01/2015 0930

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

Analysis Method:	NWTPH-Dx	Analysis Batch:	280-276174	Instrument ID:	SGC_U
Prep Method:	3550C	Prep Batch:	280-275871	Lab File ID:	05060008.D
Dilution:	1.0			Initial Weight/Volume:	30.6 g
Analysis Date:	05/06/2015 1307			Final Weight/Volume:	1 mL
Prep Date:	05/04/2015 2000			Injection Volume:	1 uL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
C10-C36		1000	U	1000	4000
C10-C28		940	J	680	4000

Surrogate	%Rec	Qualifier	Acceptance Limits
o-Terphenyl	73		49 - 115

W/ scales

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-68614-1

Sdg Number: JP0960

Client Sample ID: J1V6N7

Lab Sample ID: 280-68614-2

Date Sampled: 04/29/2015 1015

Client Matrix: Solid

% Moisture: 1.5

Date Received: 05/01/2015 0930

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

Analysis Method:	NWTPH-Dx	Analysis Batch:	280-276174	Instrument ID:	SGC_U
Prep Method:	3550C	Prep Batch:	280-275871	Lab File ID:	05060009.D
Dilution:	1.0			Initial Weight/Volume:	31.7 g
Analysis Date:	05/06/2015 1335			Final Weight/Volume:	1 mL
Prep Date:	05/04/2015 2000			Injection Volume:	1 uL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
C10-C36		15000		960	3800
C10-C28		7800		650	3800
Surrogate		%Rec	Qualifier	Acceptance Limits	
o-Terphenyl		81		49 - 115	

M 5/16/15

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-68614-1
Sdg Number: JP0960

Client Sample ID: J1V6N8

Lab Sample ID: 280-68614-3
Client Matrix: Solid

% Moisture: 1.0

Date Sampled: 04/29/2015 1103
Date Received: 05/01/2015 0930

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

Analysis Method: NWTPH-Dx Analysis Batch: 280-276174 Instrument ID: SGC_U
Prep Method: 3550C Prep Batch: 280-275871 Lab File ID: 05060010.D
Dilution: 1.0 Initial Weight/Volume: 33.0 g
Analysis Date: 05/06/2015 1404 Final Weight/Volume: 1 mL
Prep Date: 05/04/2015 2000 Injection Volume: 1 uL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
C10-C36		920	U	920	3700
C10-C28		620	U	620	3700
Surrogate		%Rec	Qualifier	Acceptance Limits	
o-Terphenyl		74		49 - 115	

5/6/14

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-68614-1

Sdg Number: JP0960

Client Sample ID: J1V6N9

Lab Sample ID: 280-68614-4

Date Sampled: 04/29/2015 1024

Client Matrix: Solid

% Moisture: 3.1

Date Received: 05/01/2015 0930

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

Analysis Method:	NWTPH-Dx	Analysis Batch:	280-276174	Instrument ID:	SGC_U
Prep Method:	3550C	Prep Batch:	280-275871	Lab File ID:	05060013.D
Dilution:	1.0			Initial Weight/Volume:	32.7 g
Analysis Date:	05/06/2015 1529			Final Weight/Volume:	1 mL
Prep Date:	05/04/2015 2000			Injection Volume:	1 uL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
C10-C36		8100		940	3800
C10-C28		4200		640	3800
Surrogate		%Rec	Qualifier	Acceptance Limits	
o-Terphenyl		72		49 - 115	

*W
S/GC/KS*

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-68614-1
Sdg Number: JP0960

Client Sample ID: J1V6P0

Lab Sample ID: 280-68614-5
Client Matrix: Solid

% Moisture: 2.9

Date Sampled: 04/29/2015 1045
Date Received: 05/01/2015 0930

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

Analysis Method: NWTPH-Dx Analysis Batch: 280-276388 Instrument ID: SGC_U
Prep Method: 3550C Prep Batch: 280-275871 Lab File ID: 05070006.D
Dilution: 1.0 Initial Weight/Volume: 32.7 g
Analysis Date: 05/07/2015 1229 Final Weight/Volume: 1 mL
Prep Date: 05/04/2015 2000 Injection Volume: 1 uL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
C10-C36		940	U	940	3800
C10-C28		640	U	640	3800
Surrogate		%Rec	Qualifier	Acceptance Limits	
o-Terphenyl		70		49 - 115	

MS/KC/KR

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-68614-1
Sdg Number: JP0960

Client Sample ID: J1V6P1

Lab Sample ID: 280-68614-6
Client Matrix: Solid

% Moisture: 2.8

Date Sampled: 04/29/2015 1051
Date Received: 05/01/2015 0930

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

Analysis Method:	NWTPH-Dx	Analysis Batch:	280-276388	Instrument ID:	SGC_U
Prep Method:	3550C	Prep Batch:	280-275871	Lab File ID:	05070007.D
Dilution:	1.0			Initial Weight/Volume:	30.5 g
Analysis Date:	05/07/2015 1257			Final Weight/Volume:	1 mL
Prep Date:	05/04/2015 2000			Injection Volume:	1 uL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
C10-C36		2100	J	1000	4000
C10-C28		1800	J	690	4000
Surrogate		%Rec	Qualifier	Acceptance Limits	
o-Terphenyl		72		49 - 115	

W. Stecker

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-68614-1

Sdg Number: JP0960

Client Sample ID: J1V6P2

Lab Sample ID: 280-68614-7

Date Sampled: 04/29/2015 1059

Client Matrix: Solid

% Moisture: 1.1

Date Received: 05/01/2015 0930

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

Analysis Method:	NWTPH-Dx	Analysis Batch:	280-276553	Instrument ID:	SGC_U2a
Prep Method:	3550C	Prep Batch:	280-276503	Lab File ID:	05080007.D
Dilution:	1.0			Initial Weight/Volume:	31.7 g
Analysis Date:	05/08/2015 1000			Final Weight/Volume:	1 mL
Prep Date:	05/07/2015 1700			Injection Volume:	1 uL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
C10-C36		950	U	950	3800
C10-C28		650	U	650	3800

Surrogate	%Rec	Qualifier	Acceptance Limits
o-Terphenyl	69		49 - 115

Stokes

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-68614-1
Sdg Number: JP0960

Client Sample ID: J1V6P3

Lab Sample ID: 280-68614-8
Client Matrix: Solid

% Moisture: 1.8

Date Sampled: 04/29/2015 1028
Date Received: 05/01/2015 0930

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

Analysis Method: NWTPH-Dx Analysis Batch: 280-276388 Instrument ID: SGC_U
Prep Method: 3550C Prep Batch: 280-275871 Lab File ID: 05070009.D
Dilution: 1.0 Initial Weight/Volume: 30.6 g
Analysis Date: 05/07/2015 1354 Final Weight/Volume: 1 mL
Prep Date: 05/04/2015 2000 Injection Volume: 1 uL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
C10-C36		2600	J	1000	4000
C10-C28		2200	J	680	4000
Surrogate		%Rec	Qualifier	Acceptance Limits	
o-Terphenyl		79		49 - 115	

*W
5/16/15*

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-68614-1

Sdg Number: JP0960

Client Sample ID: J1V6P4

Lab Sample ID: 280-68614-9

Date Sampled: 04/29/2015 1043

Client Matrix: Solid

% Moisture: 1.7

Date Received: 05/01/2015 0930

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

Analysis Method:	NWTPH-Dx	Analysis Batch:	280-276388	Instrument ID:	SGC_U
Prep Method:	3550C	Prep Batch:	280-275871	Lab File ID:	05070010.D
Dilution:	1.0			Initial Weight/Volume:	30.6 g
Analysis Date:	05/07/2015 1422			Final Weight/Volume:	1 mL
Prep Date:	05/04/2015 2000			Injection Volume:	1 uL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
C10-C36		2300	J	990	4000
C10-C28		1800	J	680	4000

Surrogate	%Rec	Qualifier	Acceptance Limits
o-Terphenyl	58		49 - 115

M S/ka/ks

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-68614-1

Sdg Number: JP0960

Client Sample ID: J1V6P5

Lab Sample ID: 280-68614-10

Date Sampled: 04/29/2015 1056

Client Matrix: Solid

% Moisture: 2.6

Date Received: 05/01/2015 0930

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

Analysis Method:	NWTPH-Dx	Analysis Batch:	280-276388	Instrument ID:	SGC_U
Prep Method:	3550C	Prep Batch:	280-275871	Lab File ID:	05070011.D
Dilution:	1.0			Initial Weight/Volume:	31.0 g
Analysis Date:	05/07/2015 1450			Final Weight/Volume:	1 mL
Prep Date:	05/04/2015 2000			Injection Volume:	1 uL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
C10-C36		1500	J	990	4000
C10-C28		1600	J	670	4000

Surrogate	%Rec	Qualifier	Acceptance Limits
o-Terphenyl	80		49 - 115

WJ
sticks

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-68614-1

Sdg Number: JP0960

Client Sample ID: J1V6P6

Lab Sample ID: 280-68614-11

Date Sampled: 04/29/2015 1033

Client Matrix: Solid

% Moisture: 1.3

Date Received: 05/01/2015 0930

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

Analysis Method:	NWTPH-Dx	Analysis Batch:	280-276388	Instrument ID:	SGC_U
Prep Method:	3550C	Prep Batch:	280-275871	Lab File ID:	05070012.D
Dilution:	1.0			Initial Weight/Volume:	31.0 g
Analysis Date:	05/07/2015 1518			Final Weight/Volume:	1 mL
Prep Date:	05/04/2015 2000			Injection Volume:	1 uL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
C10-C36		3400	J	980	3900
C10-C28		2500	J	660	3900
Surrogate		%Rec	Qualifier	Acceptance Limits	
o-Terphenyl		88		49 - 115	

M. S. 5/16/15

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-68614-1
Sdg Number: JP0960

Client Sample ID: J1V6P7

Lab Sample ID: 280-68614-12

Date Sampled: 04/29/2015 1038

Client Matrix: Solid

% Moisture: 2.0

Date Received: 05/01/2015 0930

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

Analysis Method:	NWTPH-Dx	Analysis Batch:	280-276388	Instrument ID:	SGC_U
Prep Method:	3550C	Prep Batch:	280-275871	Lab File ID:	05070013.D
Dilution:	1.0			Initial Weight/Volume:	32.8 g
Analysis Date:	05/07/2015 1546			Final Weight/Volume:	1 mL
Prep Date:	05/04/2015 2000			Injection Volume:	1 uL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
C10-C36		1700	J	930	3700
C10-C28		1700	J	630	3700
Surrogate		%Rec	Qualifier	Acceptance Limits	
o-Terphenyl		83		49 - 115	

Handwritten signature/initials: K S/K/S

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-68614-1
Sdg Number: JP0960

Client Sample ID: J1V6P8

Lab Sample ID: 280-68614-13
Client Matrix: Solid

% Moisture: 1.3

Date Sampled: 04/29/2015 1015
Date Received: 05/01/2015 0930

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

Analysis Method:	NWTPH-Dx	Analysis Batch:	280-276388	Instrument ID:	SGC_U
Prep Method:	3550C	Prep Batch:	280-275871	Lab File ID:	05070014.D
Dilution:	1.0			Initial Weight/Volume:	31.3 g
Analysis Date:	05/07/2015 1614			Final Weight/Volume:	1 mL
Prep Date:	05/04/2015 2000			Injection Volume:	1 uL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
C10-C36		12000		970	3900
C10-C28		5900		660	3900
Surrogate		%Rec	Qualifier	Acceptance Limits	
o-Terphenyl		77		49 - 115	

MS/CCls

Appendix 4

Laboratory Narrative and Chain-of-Custody Documentation

CASE NARRATIVE

Client: Washington Closure Hanford

Project: WASHINGTON CLOSURE HANFORD

Job Number: 280-68614-1

SDG #: JP0960

SAF#: RC-232

Date SDG Closed: May 1, 2015
Data Deliverable: 7 Day / Summary

<u>CLIENT ID</u>	<u>LAB ID</u>	<u>ANALYSES REQUESTED</u>	<u>ANALYSES PERFORMED</u>
J1V6N6	280-68614-1	6010/7471/WTPH-D+/8310/8082/WTPH-G/ 353.2	6010B/7471A/NWTPH-Dx/8310/8082/NWTPH-Gx/ 353.2
J1V6N7	280-68614-2	6010/7471/WTPH-D+/8310/8082/WTPH-G/ 353.2	6010B/7471A/NWTPH-Dx/8310/8082/NWTPH-Gx/ 353.2
J1V6N8	280-68614-3	6010/7471/WTPH-D+/8310/8082/WTPH-G/ 353.2	6010B/7471A/NWTPH-Dx/8310/8082/NWTPH-Gx/ 353.2
J1V6N9	280-68614-4	6010/7471/WTPH-D+/8310/8082/WTPH-G/ 353.2	6010B/7471A/NWTPH-Dx/8310/8082/NWTPH-Gx/ 353.2
J1V6P0	280-68614-5	6010/7471/WTPH-D+/8310/8082/WTPH-G/ 353.2	6010B/7471A/NWTPH-Dx/8310/8082/NWTPH-Gx/ 353.2
J1V6P1	280-68614-6	6010/7471/WTPH-D+/8310/8082/WTPH-G/ 353.2	6010B/7471A/NWTPH-Dx/8310/8082/NWTPH-Gx/ 353.2
J1V6P2	280-68614-7	6010/7471/WTPH-D+/8310/8082/WTPH-G/ 353.2	6010B/7471A/NWTPH-Dx/8310/8082/NWTPH-Gx/ 353.2
J1V6P3	280-68614-8	6010/7471/WTPH-D+/8310/8082/WTPH-G/ 353.2	6010B/7471A/NWTPH-Dx/8310/8082/NWTPH-Gx/ 353.2
J1V6P4	280-68614-9	6010/7471/WTPH-D+/8310/8082/WTPH-G/ 353.2	6010B/7471A/NWTPH-Dx/8310/8082/NWTPH-Gx/ 353.2
J1V6P5	280-68614-10	6010/7471/WTPH-D+/8310/8082/WTPH-G/ 353.2	6010B/7471A/NWTPH-Dx/8310/8082/NWTPH-Gx/ 353.2
J1V6P6	280-68614-11	6010/7471/WTPH-D+/8310/8082/WTPH-G/ 353.2	6010B/7471A/NWTPH-Dx/8310/8082/NWTPH-Gx/ 353.2
J1V6P7	280-68614-12	6010/7471/WTPH-D+/8310/8082/WTPH-G/ 353.2	6010B/7471A/NWTPH-Dx/8310/8082/NWTPH-Gx/ 353.2
J1V6P8	280-68614-13	6010/7471/WTPH-D+/8310/8082/WTPH-G/ 353.2	6010B/7471A/NWTPH-Dx/8310/8082/NWTPH-Gx/ 353.2
J1V6P9	280-68614-14	6010/7471	6010B/7471A

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

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

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

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

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

RECEIPT

The samples were received on 5/1/2015 9:30 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 3 coolers at receipt time were 0.3° C, 0.6° C and 4.7° C.

GC VOLATILES - NWTPH-Gx - GRO

No anomalies were encountered.

GC SEMIVOLATILES - SW846 8082 - PCBs

No anomalies were encountered.

GC SEMIVOLATILES - NWTPH-Dx - DRO

No anomalies were encountered.

HPLC - SW846 8310 - PAHs

The RPD between the primary and confirmation columns exceeded 40% for Chrysene in sample J1V6N9. The lower of the two values has been reported, as matrix interference is evident on both columns. The result has been flagged with an "X".

No other anomalies were encountered.

TOTAL METALS - SW846 8010B/7471A

Serial dilution of a digestate in batch 280-275723 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. Several samples required dilutions prior to the analysis of Antimony, Beryllium, Cobalt, Copper, Lead and Vanadium to minimize the interference caused by Titanium concentrations greater than the linear range. The reporting limits have been adjusted relative to the dilution required.

Low levels of Barium, Calcium, Magnesium, Aluminum and Iron are present in the method blank associated with batch 280-275723. Because the concentrations in the method blank are not present at levels greater than half the reporting limit or the associated sample amounts are greater than twenty times the method blank concentration, corrective action is deemed unnecessary.

Silicon is present in the method blank associated with batch 280-275723 at 6.74 mg/kg, which is greater than half the project specific reporting limit (PSRL) of 10 mg/kg. TestAmerica's practical quantitation limit (PQL) for Silicon is 50 mg/kg. The laboratory cannot maintain system cleanliness at this low level; therefore, corrective action is not initiated. It can be noted that the concentration found in the method blank is less than half of the laboratory standard PQL, and with the exception of 'blank' sample J1V6P9, the associated sample amounts are twenty times greater than the method blank concentration.

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 J1V6N6; therefore, control limits are not applicable.

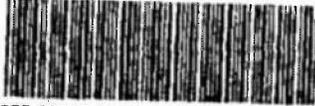
Mercury was recovered outside the control limits in the Matrix Spike performed on sample J1V6N6, and the associated sample result has been flagged "N". There is no indication that the analytical system was operating out of control, and method accuracy has been verified by the acceptable LCS analysis data; therefore, corrective action is deemed unnecessary.

No other anomalies were encountered.

GENERAL CHEMISTRY - MCAWW 353.2 - NITRATE NITRITE as N

The duplicate analysis of sample J1V6P6 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.

Washington Closure Hanford			CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST					RC-232-099		Page 1 of 3		
Collector STOWE, QG			Company Contact Joan Kessner		Telephone No. 375-4688		Project Coordinator KESSNER, JH		Price Code 8B		Data Turnaround 7 days	
Project Designation 100-IU-2 & 100-IU-6 Remaining Waste Sites			Sampling Location 800-358 (SPA, verification)			SAF No. RC-232						
Ice Chest No. RCC-07-005			Field Logbook No. EL-1667-03		COA 0603582000		Method of Shipment Commercial Carrier		Fed Ex			
Shipped To TestAmerica Denver			Offsite Property No. A131408			Bill of Lading/Air Bill No. See ASPC						
Other Label Shipped To N/A			Preservation		Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	 280-68614 Chain of Custody	
POSSIBLE SAMPLE HAZARDS/REMARKS N/A			Type of Container		GP	gP	gP	gP	GP	GP		
Special Handling and/or Storage Cooling as required			No. of Container(s)		1	1	1	1	3	1		
			Volume		250ml	125ml	250ml	250ml	40ml	250ml		
			Sample Analysis		See Item (1) in Special Instructions	TPH-Oleoil Range - WPH-D +	PAHs - 8310	PCBs - 8052	TPH-Gasoline Range - WPH-G	NO2/NO3 - 353.2 (Nitrogen in Nitrates and Nitrites)		
Sample No.	Matrix	Sample Date	Sample Time									
J1V6N6	SOIL	4/29/15	1019	X	X	X	X	X	X	X		
J1V6N7	SOIL	4/29/15	1015	X	X	X	X	X	X	X		
J1V6N8	SOIL	4/29/15	1003	X	X	X	X	X	X	X		
J1V6N9	SOIL	4/29/15	1024	X	X	X	X	X	X	X		
J1V6P0	SOIL	4/29/15	1045	X	X	X	X	X	X	X		
CHAIN OF POSSESSION				Sign/Print Names				SPECIAL INSTRUCTIONS				
Relinquished By/Removed From Quincy Gava		Date/Time 4-29-15 1150		Received By/Stored In C. Bingham		Date/Time 4/29/15 1150		(1) ICP Metals - 6010TR (Close-out List) (Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Molybdenum, Nickel, Potassium, Selenium, Silicon, Silver, Sodium, Vanadium, Zinc); Mercury - 7471 - (CV) (Mercury)				
Relinquished By/Removed From C. Bingham		Date/Time 4-29-15 1400		Received By/Stored In C. Bingham		Date/Time 4-29-15 1400						
Relinquished By/Removed From C. Bingham		Date/Time 4-29-15 1430		Received By/Stored In 1060 Battelle, Inc		Date/Time 4-29-15 1430						
Relinquished By/Removed From 1060 Battelle, Inc		Date/Time 4-30-15 0720		Received By/Stored In C. Bingham		Date/Time 4-30-15 0720						
Relinquished By/Removed From C. Bingham		Date/Time WCH 1010 4-30-15		Received By/Stored In Fed Ex		Date/Time 4-30-15						
Relinquished By/Removed From C. Bingham		Date/Time 5-1-15 9:30		Received By/Stored In Fed Ex		Date/Time 5-1-15 9:30						
FINAL SAMPLE DISPOSITION				Disposal Method				Disposed By				
WCH-EE-011								JP0960 0.1, 0.4, 4.5 IR5+02 For file, NP 5-1-15				



Washington Closure Hanford			CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST							RC-232-099		Page 2 of 3																																																																														
Collector STOWE, QG			Company Contact Joan Kessner			Telephone No. 375-4688		Project Coordinator KESSNER, JH		Price Code 8B		Data Turnaround 7 days																																																																														
Project Designation 100-IU-2 & 100-IU-6 Remaining Waste Sites			Sampling Location 600-358 (SPA, verification)			SAF No. RC-232																																																																																				
Ice Chest No. RCC-07-005			Field Logbook No. EL-1667-03		COA 0603582000		Method of Shipment Commercial Carrier Fed Ex																																																																																			
Shipped To TestAmerica Denver			Offsite Property No. A131408				Bill of Lading/Air Bill No. See OSPA																																																																																			
Other Labs Shipped To N/A			<table border="1"> <thead> <tr> <th>Preservation</th> <th>Cool 4C</th> <th></th> <th></th> <th></th> <th></th> <th></th> </tr> </thead> <tbody> <tr> <td>Type of Container</td> <td>GP</td> <td>gG</td> <td>gG</td> <td>gG</td> <td>gG</td> <td>gG</td> <td>GP</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>No. of Container(s)</td> <td>1</td> <td>1</td> <td>1</td> <td>1</td> <td>3</td> <td>1</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Volume</td> <td>250mL</td> <td>125mL</td> <td>250mL</td> <td>250mL</td> <td>40mL</td> <td>250mL</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Sample Analysis</td> <td>See Item (1) in Special Instructions</td> <td>TPH-Diesel Range - WTPH-D +</td> <td>PAHs - 8310</td> <td>PCBs - 8062</td> <td>TPH-Gasoline Range - WTPH-G</td> <td>NO2/NO3 - 353.2 (Nitrogen in Nitrite and Nitrate)</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>										Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C						Type of Container	GP	gG	gG	gG	gG	gG	GP						No. of Container(s)	1	1	1	1	3	1							Volume	250mL	125mL	250mL	250mL	40mL	250mL							Sample Analysis	See Item (1) in Special Instructions	TPH-Diesel Range - WTPH-D +	PAHs - 8310	PCBs - 8062	TPH-Gasoline Range - WTPH-G	NO2/NO3 - 353.2 (Nitrogen in Nitrite and Nitrate)																			
Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C																																																																																			
Type of Container	GP	gG	gG	gG	gG	gG	GP																																																																																			
No. of Container(s)	1	1	1	1	3	1																																																																																				
Volume	250mL	125mL	250mL	250mL	40mL	250mL																																																																																				
Sample Analysis	See Item (1) in Special Instructions	TPH-Diesel Range - WTPH-D +	PAHs - 8310	PCBs - 8062	TPH-Gasoline Range - WTPH-G	NO2/NO3 - 353.2 (Nitrogen in Nitrite and Nitrate)																																																																																				
POSSIBLE SAMPLE HAZARDS/REMARKS N/A																																																																																										
Special Handling and/or Storage Cooling as required																																																																																										
<table border="1"> <thead> <tr> <th>Sample No.</th> <th>Matrix</th> <th>Sample Date</th> <th>Sample Time</th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> </tr> </thead> <tbody> <tr> <td>J1V6P1</td> <td>SOIL</td> <td>4/29/15</td> <td>1051</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td></td> <td></td> <td></td> </tr> <tr> <td>J1V6P2</td> <td>SOIL</td> <td>4/29/15</td> <td>1059</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td></td> <td></td> <td></td> </tr> <tr> <td>J1V6P3</td> <td>SOIL</td> <td>4/29/15</td> <td>1028</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td></td> <td></td> <td></td> </tr> <tr> <td>J1V6P4</td> <td>SOIL</td> <td>4/29/15</td> <td>1043</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td></td> <td></td> <td></td> </tr> <tr> <td>J1V6P5</td> <td>SOIL</td> <td>4/29/15</td> <td>1056</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>													Sample No.	Matrix	Sample Date	Sample Time										J1V6P1	SOIL	4/29/15	1051	X	X	X	X	X	X				J1V6P2	SOIL	4/29/15	1059	X	X	X	X	X	X				J1V6P3	SOIL	4/29/15	1028	X	X	X	X	X	X				J1V6P4	SOIL	4/29/15	1043	X	X	X	X	X	X				J1V6P5	SOIL	4/29/15	1056	X	X	X	X	X	X			
Sample No.	Matrix	Sample Date	Sample Time																																																																																							
J1V6P1	SOIL	4/29/15	1051	X	X	X	X	X	X																																																																																	
J1V6P2	SOIL	4/29/15	1059	X	X	X	X	X	X																																																																																	
J1V6P3	SOIL	4/29/15	1028	X	X	X	X	X	X																																																																																	
J1V6P4	SOIL	4/29/15	1043	X	X	X	X	X	X																																																																																	
J1V6P5	SOIL	4/29/15	1056	X	X	X	X	X	X																																																																																	
CHAIN OF POSSESSION			Sign/Print Names					SPECIAL INSTRUCTIONS																																																																																		
Relinquished By/Removed From Quincy Stowe 4-29-15 1150			Received By/Stored In C. Birmingham 4-29-15 1150					(1) ICP Metals - 6010TR (Close-out List) (Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Molybdenum, Nickel, Potassium, Selenium, Silicon, Silver, Sodium, Vanadium, Zinc); Mercury - 7471 - (CV) (Mercury)																																																																																		
Relinquished By/Removed From C. Birmingham 4-29-15 1400			Received By/Stored In C. Birmingham 4-29-15 1400																																																																																							
Relinquished By/Removed From C. Birmingham 4-29-15 1430			Received By/Stored In 1060 Battelle, fridge 4-29-15 1430																																																																																							
Relinquished By/Removed From 1060 Battelle, fridge 4-30-15 0720			Received By/Stored In C. Birmingham 4-30-15 0720																																																																																							
Relinquished By/Removed From C. Birmingham 4-30-15 1010			Received By/Stored In Fed Ex 4-30-15																																																																																							
Relinquished By/Removed From			Received By/Stored In Fed Ex 5-1-15 9:30																																																																																							
Relinquished By/Removed From			Received By/Stored In																																																																																							
FINAL SAMPLE DISPOSITION			Disposed Method					Disposed By Date/Time																																																																																		



JP0960

Appendix 5
Data Validation Supporting Documentation

GENERAL ORGANIC DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	E
PROJECT:	600-358		DATA PACKAGE: JP0960		
VALIDATOR:	ELR	LAB:	TAL	DATE: 5/15/15	
			SDG: JP0960		
ANALYSES PERFORMED					
8015	8021	8141	8151	8315	
		WTPH-HCID	WTPH-G	WTPH-D	
SAMPLES/MATRIX:					
J1UGU6 J1UGU7 J1UGU8 J1UGU9 J1UGP0					
J1UGP1 J1UGP2 J1UGP3 J1UGP4 J1UGP5					
J1UGP6 J1UGP7 J1UGP8					
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 FOS

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 DATS

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)

Fluoridil ® (or other absorbant) cleanup performed? Yes No N/A
Lot check performed? Yes No N/A
Check recoveries acceptable? 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

Quality Control Results

Client: Washington Closure Hanford

Job Number: 280-68614-1
Sdg Number: JP0960

Method Blank - Batch: 280-275700

**Method: NWTPH-Gx
Preparation: 5030B**

Lab Sample ID: MB 280-275700/1-A	Analysis Batch: 280-275853	Instrument ID: VGC_Q	
Client Matrix: Solid	Prep Batch: 280-275700	Lab File ID: 027F3901.D	
Dilution: 1.0	Leach Batch: N/A	Initial Weight/Volume: 10 g	
Analysis Date: 05/05/2015 0159	Units: ug/Kg	Final Weight/Volume: 10 mL	
Prep Date: 05/03/2015 1158		Injection Volume: 5 mL	
Leach Date: N/A		Column ID: PRIMARY	

Analyte	Result	Qual	MDL	RL
Gasoline	330	U	330	1200

Surrogate	% Rec	Acceptance Limits
a,a,a-Trifluorotoluene	95	77 - 123

Lab Control Sample/

Lab Control Sample Duplicate Recovery Report - Batch: 280-275700

**Method: NWTPH-Gx
Preparation: 5030B**

LCS Lab Sample ID: LCS 280-275700/2-A	Analysis Batch: 280-275853	Instrument ID: VGC_Q	
Client Matrix: Solid	Prep Batch: 280-275700	Lab File ID: 028F4001.D	
Dilution: 1.0	Leach Batch: N/A	Initial Weight/Volume: 10 g	
Analysis Date: 05/05/2015 0223	Units: ug/Kg	Final Weight/Volume: 10 mL	
Prep Date: 05/03/2015 1158		Injection Volume: 5 mL	
Leach Date: N/A		Column ID: PRIMARY	

LCSD Lab Sample ID: LCSD 280-275700/3-A	Analysis Batch: 280-275853	Instrument ID: VGC_Q	
Client Matrix: Solid	Prep Batch: 280-275700	Lab File ID: 029F4101.D	
Dilution: 1.0	Leach Batch: N/A	Initial Weight/Volume: 10 g	
Analysis Date: 05/05/2015 0248	Units: ug/Kg	Final Weight/Volume: 10 mL	
Prep Date: 05/03/2015 1158		Injection Volume: 5 mL	
Leach Date: N/A		Column ID: PRIMARY	

Analyte	% Rec.		Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
	LCS	LCSD					
Gasoline	101	88	85 - 153	14	30		
Surrogate	LCS % Rec		LCSD % Rec	Acceptance Limits			
a,a,a-Trifluorotoluene	97		96	77 - 123			

Quality Control Results

Client: Washington Closure Hanford

Job Number: 280-68614-1
Sdg Number: JP0960

**Laboratory Control/
Laboratory Duplicate Data Report - Batch: 280-275700**

**Method: NWTPH-Gx
Preparation: 5030B**

LCS Lab Sample ID: LCS 280-275700/2-A Units: ug/Kg
Client Matrix: Solid
Dilution: 1.0
Analysis Date: 05/05/2015 0223
Prep Date: 05/03/2015 1158
Leach Date: N/A

LCSD Lab Sample ID: LCSD 280-275700/3-A
Client Matrix: Solid
Dilution: 1.0
Analysis Date: 05/05/2015 0248
Prep Date: 05/03/2015 1158
Leach Date: N/A

Analyte	LCS Spike Amount	LCSD Spike Amount	LCS Result/Qual	LCSD Result/Qual
Gasoline	5500	5500	5550	4820

**Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-275700**

**Method: NWTPH-Gx
Preparation: 5030B**

MS Lab Sample ID: 280-68614-2
Client Matrix: Solid
Dilution: 1.0
Analysis Date: 05/05/2015 0402
Prep Date: 05/03/2015 1158
Leach Date: N/A

Analysis Batch: 280-275853
Prep Batch: 280-275700
Leach Batch: N/A

Instrument ID: VGC_Q
Lab File ID: 032F4401.D
Initial Weight/Volume: 10.10 g
Final Weight/Volume: 10 mL
Injection Volume: 5 mL
Column ID: PRIMARY

MSD Lab Sample ID: 280-68614-2
Client Matrix: Solid
Dilution: 1.0
Analysis Date: 05/05/2015 0427
Prep Date: 05/03/2015 1159
Leach Date: N/A

Analysis Batch: 280-275853
Prep Batch: 280-275700
Leach Batch: N/A

Instrument ID: VGC_Q
Lab File ID: 033F4501.D
Initial Weight/Volume: 10.14 g
Final Weight/Volume: 10 mL
Injection Volume: 5 mL
Column ID: PRIMARY

Analyte	<u>% Rec.</u>			RPD	RPD Limit	MS Qual	MSD Qual
	MS	MSD	Limit				
Gasoline	87	89	85 - 153	2	30		
Surrogate		MS % Rec	MSD % Rec			Acceptance Limits	
a,a,a-Trifluorotoluene		95	96			77 - 123	

Quality Control Results

Client: Washington Closure Hanford

Job Number: 280-68614-1

Sdg Number: JP0960

**Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-275700**

**Method: NWTPH-Gx
Preparation: 5030B**

MS Lab Sample ID: 280-68614-2 Units: ug/Kg
Client Matrix: Solid
Dilution: 1.0
Analysis Date: 05/05/2015 0402
Prep Date: 05/03/2015 1158
Leach Date: N/A

MSD Lab Sample ID: 280-68614-2
Client Matrix: Solid
Dilution: 1.0
Analysis Date: 05/05/2015 0427
Prep Date: 05/03/2015 1159
Leach Date: N/A

Analyte	Sample Result/Qual	MS Spike Amount	MSD Spike Amount	MS Result/Qual	MSD Result/Qual
Gasoline	340 U	5530	5500	4790	4900

Quality Control Results

Client: Washington Closure Hanford

Job Number: 280-68614-1
Sdg Number: JP0960

Method Blank - Batch: 280-275701

**Method: NWTPH-Gx
Preparation: 5030B**

Lab Sample ID: MB 280-275701/1-A
Client Matrix: Solid
Dilution: 1.0
Analysis Date: 05/05/2015 0833
Prep Date: 05/03/2015 1235
Leach Date: N/A

Analysis Batch: 280-275854
Prep Batch: 280-275701
Leach Batch: N/A
Units: ug/Kg

Instrument ID: VGC_Q
Lab File ID: 043F5501.D
Initial Weight/Volume: 10 g
Final Weight/Volume: 10 mL
Injection Volume: 5 mL
Column ID: PRIMARY

Analyte	Result	Qual	MDL	RL
Gasoline	330	U	330	1200

Surrogate	% Rec	Acceptance Limits
a,a,a-Trifluorotoluene	93	77 - 123

**Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 280-275701**

**Method: NWTPH-Gx
Preparation: 5030B**

LCS Lab Sample ID: LCS 280-275701/2-A
Client Matrix: Solid
Dilution: 1.0
Analysis Date: 05/05/2015 0858
Prep Date: 05/03/2015 1235
Leach Date: N/A

Analysis Batch: 280-275854
Prep Batch: 280-275701
Leach Batch: N/A
Units: ug/Kg

Instrument ID: VGC_Q
Lab File ID: 044F5601.D
Initial Weight/Volume: 10 g
Final Weight/Volume: 10 mL
Injection Volume: 5 mL
Column ID: PRIMARY

LCSD Lab Sample ID: LCSD 280-275701/3-A
Client Matrix: Solid
Dilution: 1.0
Analysis Date: 05/05/2015 0923
Prep Date: 05/03/2015 1235
Leach Date: N/A

Analysis Batch: 280-275854
Prep Batch: 280-275701
Leach Batch: N/A
Units: ug/Kg

Instrument ID: VGC_Q
Lab File ID: 045F5701.D
Initial Weight/Volume: 10 g
Final Weight/Volume: 10 mL
Injection Volume: 5 mL
Column ID: PRIMARY

Analyte	% Rec.		Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
	LCS	LCSD					
Gasoline	88	86	85 - 153	3	30		

Surrogate	LCS % Rec	LCSD % Rec	Acceptance Limits
a,a,a-Trifluorotoluene	94	90	77 - 123

Quality Control Results

Client: Washington Closure Hanford

Job Number: 280-68614-1
Sdg Number: JP0960

**Laboratory Control/
Laboratory Duplicate Data Report - Batch: 280-275701**

**Method: NWTPH-Gx
Preparation: 5030B**

LCS Lab Sample ID: LCS 280-275701/2-A Units: ug/Kg
Client Matrix: Solid
Dilution: 1.0
Analysis Date: 05/05/2015 0858
Prep Date: 05/03/2015 1235
Leach Date: N/A

LCSD Lab Sample ID: LCSD 280-275701/3-A
Client Matrix: Solid
Dilution: 1.0
Analysis Date: 05/05/2015 0923
Prep Date: 05/03/2015 1235
Leach Date: N/A

Analyte	LCS Spike Amount	LCSD Spike Amount	LCS Result/Qual	LCSD Result/Qual
Gasoline	5500	5500	4830	4710

**Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-275701**

**Method: NWTPH-Gx
Preparation: 5030B**

MS Lab Sample ID: 280-68614-11
Client Matrix: Solid
Dilution: 1.0
Analysis Date: 05/05/2015 1012
Prep Date: 05/03/2015 1235
Leach Date: N/A

Analysis Batch: 280-275854
Prep Batch: 280-275701
Leach Batch: N/A

Instrument ID: VGC_Q
Lab File ID: 047F5901.D
Initial Weight/Volume: 9.72 g
Final Weight/Volume: 10 mL
Injection Volume: 5 mL
Column ID: PRIMARY

MSD Lab Sample ID: 280-68614-11
Client Matrix: Solid
Dilution: 1.0
Analysis Date: 05/05/2015 1037
Prep Date: 05/03/2015 1235
Leach Date: N/A

Analysis Batch: 280-275854
Prep Batch: 280-275701
Leach Batch: N/A

Instrument ID: VGC_Q
Lab File ID: 048F6001.D
Initial Weight/Volume: 9.85 g
Final Weight/Volume: 10 mL
Injection Volume: 5 mL
Column ID: PRIMARY

Analyte	% Rec.			RPD	RPD Limit	MS Qual	MSD Qual
	MS	MSD	Limit				
Gasoline	85	86	85 - 153	1	30		
Surrogate	MS % Rec		MSD % Rec	Acceptance Limits			
a,a,a-Trifluorotoluene	93		94	77 - 123			

Quality Control Results

Client: Washington Closure Hanford

Job Number: 280-68614-1
Sdg Number: JP0960

**Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-275701**

**Method: NWTPH-Gx
Preparation: 5030B**

MS Lab Sample ID: 280-68614-1 Units: ug/Kg
Client Matrix: Solid
Dilution: 1.0
Analysis Date: 05/05/2015 1012
Prep Date: 05/03/2015 1235
Leach Date: N/A

MSD Lab Sample ID: 280-68614-1
Client Matrix: Solid
Dilution: 1.0
Analysis Date: 05/05/2015 1037
Prep Date: 05/03/2015 1235
Leach Date: N/A

Analyte	Sample Result/Qual	MS Spike Amount	MSD Spike Amount	MS Result/Qual	MSD Result/Qual
Gasoline	330 U	5730	5660	4900	4840

Quality Control Results

Client: Washington Closure Hanford

Job Number: 280-68614-1
Sdg Number: JP0960

Method Blank - Batch: 280-275871

**Method: NWTPH-Dx
Preparation: 3550C**

Lab Sample ID: MB 280-275871/1-A	Analysis Batch: 280-276174	Instrument ID: SGC_U
Client Matrix: Solid	Prep Batch: 280-275871	Lab File ID: 05060005.D
Dilution: 1.0	Leach Batch: N/A	Initial Weight/Volume: 30.5 g
Analysis Date: 05/06/2015 1141	Units: ug/Kg	Final Weight/Volume: 1 mL
Prep Date: 05/04/2015 2000		Injection Volume: 1 uL
Leach Date: N/A		

Analyte	Result	Qual	MDL	RL
C10-C36	980	U	980	3900
C10-C28	670	U	670	3900

Surrogate	% Rec	Acceptance Limits
o-Terphenyl	81	49 - 115

Lab Control Sample/

Lab Control Sample Duplicate Recovery Report - Batch: 280-275871

**Method: NWTPH-Dx
Preparation: 3550C**

LCS Lab Sample ID: LCS 280-275871/2-A	Analysis Batch: 280-276174	Instrument ID: SGC_U
Client Matrix: Solid	Prep Batch: 280-275871	Lab File ID: 05060006.D
Dilution: 1.0	Leach Batch: N/A	Initial Weight/Volume: 30.2 g
Analysis Date: 05/06/2015 1210	Units: ug/Kg	Final Weight/Volume: 1 mL
Prep Date: 05/04/2015 2000		Injection Volume: 1 uL
Leach Date: N/A		

LCSD Lab Sample ID: LCSD 280-275871/3-A	Analysis Batch: 280-276174	Instrument ID: SGC_U
Client Matrix: Solid	Prep Batch: 280-275871	Lab File ID: 05060007.D
Dilution: 1.0	Leach Batch: N/A	Initial Weight/Volume: 30.2 g
Analysis Date: 05/06/2015 1238	Units: ug/Kg	Final Weight/Volume: 1 mL
Prep Date: 05/04/2015 2000		Injection Volume: 1 uL
Leach Date: N/A		

Analyte	% Rec.		Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
	LCS	LCSD					
C10-C36	87	86	57 - 115	2	23		
C10-C28	85	84	53 - 115	2	23		
Surrogate	LCS % Rec		LCSD % Rec		Acceptance Limits		
o-Terphenyl	82		80		49 - 115		

Quality Control Results

Client: Washington Closure Hanford

Job Number: 280-68614-1
Sdg Number: JP0960

**Laboratory Control/
Laboratory Duplicate Data Report - Batch: 280-275871**

**Method: NWTPH-Dx
Preparation: 3550C**

LCS Lab Sample ID: LCS 280-275871/2-A Units: ug/Kg
Client Matrix: Solid
Dilution: 1.0
Analysis Date: 05/06/2015 1210
Prep Date: 05/04/2015 2000
Leach Date: N/A

LCS Lab Sample ID: LCS 280-275871/3-A
Client Matrix: Solid
Dilution: 1.0
Analysis Date: 05/06/2015 1238
Prep Date: 05/04/2015 2000
Leach Date: N/A

Analyte	LCS Spike Amount	LCS Lab Spike Amount	LCS Result/Qual	LCS Lab Result/Qual
C10-C36	66200	66200	57900	56900
C10-C28	66200	66200	56300	55300

**Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-275871**

**Method: NWTPH-Dx
Preparation: 3550C**

MS Lab Sample ID: 280-68614-3
Client Matrix: Solid
Dilution: 1.0
Analysis Date: 05/08/2015 1432
Prep Date: 05/04/2015 2000
Leach Date: N/A

Analysis Batch: 280-276174
Prep Batch: 280-275871
Leach Batch: N/A

Instrument ID: SGC_U
Lab File ID: 05060011.D
Initial Weight/Volume: 31.6 g
Final Weight/Volume: 1 mL
Injection Volume: 1 uL

MSD Lab Sample ID: 280-68614-3
Client Matrix: Solid
Dilution: 1.0
Analysis Date: 05/06/2015 1500
Prep Date: 05/04/2015 2000
Leach Date: N/A

Analysis Batch: 280-276174
Prep Batch: 280-275871
Leach Batch: N/A

Instrument ID: SGC_U
Lab File ID: 05060012.D
Initial Weight/Volume: 31.3 g
Final Weight/Volume: 1 mL
Injection Volume: 1 uL

Analyte	% Rec.			RPD	RPD Limit	MS Qual	MSD Qual
	MS	MSD	Limit				
C10-C36	82	83	57 - 115	2	23		
C10-C28	79	80	56 - 115	2	23		
Surrogate	MS % Rec		MSD % Rec	Acceptance Limits			
o-Terphenyl	78		77	49 - 115			

Quality Control Results

Client: Washington Closure Hanford

Job Number: 280-68614-1
Sdg Number: JP0960

**Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-275871**

**Method: NWTPH-Dx
Preparation: 3550C**

MS Lab Sample ID: 280-68614-3 Units: ug/Kg
Client Matrix: Solid
Dilution: 1.0
Analysis Date: 05/06/2015 1432
Prep Date: 05/04/2015 2000
Leach Date: N/A

MSD Lab Sample ID: 280-68614-3
Client Matrix: Solid
Dilution: 1.0
Analysis Date: 05/06/2015 1500
Prep Date: 05/04/2015 2000
Leach Date: N/A

Analyte	Sample Result/Qual	MS Spike Amount	MSD Spike Amount	MS Result/Qual	MSD Result/Qual
C10-C36	920 U	63900	64500	52700	53700
C10-C28	620 U	63900	64500	50600	51600

Quality Control Results

Client: Washington Closure Hanford

Job Number: 280-68614-1
Sdg Number: JP0960

Method Blank - Batch: 280-276503

**Method: NWTPH-Dx
Preparation: 3550C**

Lab Sample ID: MB 280-276503/1-A	Analysis Batch: 280-276553	Instrument ID: SGC_U2a
Client Matrix: Solid	Prep Batch: 280-276503	Lab File ID: 05080005.D
Dilution: 1.0	Leach Batch: N/A	Initial Weight/Volume: 32.6 g
Analysis Date: 05/08/2015 0912	Units: ug/Kg	Final Weight/Volume: 1 mL
Prep Date: 05/07/2015 1700		Injection Volume: 1 uL
Leach Date: N/A		

Analyte	Result	Qual	MDL	RL
C10-C36	920	U	920	3700
C10-C28	620	U	620	3700
<hr/>				
Surrogate	% Rec	Acceptance Limits		
o-Terphenyl	68	49 - 115		

Lab Control Sample - Batch: 280-276503

**Method: NWTPH-Dx
Preparation: 3550C**

Lab Sample ID: LCS 280-276503/2-A	Analysis Batch: 280-276553	Instrument ID: SGC_U2a
Client Matrix: Solid	Prep Batch: 280-276503	Lab File ID: 05080006.D
Dilution: 1.0	Leach Batch: N/A	Initial Weight/Volume: 32.4 g
Analysis Date: 05/08/2015 0936	Units: ug/Kg	Final Weight/Volume: 1 mL
Prep Date: 05/07/2015 1700		Injection Volume: 1 uL
Leach Date: N/A		

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
C10-C36	61700	52400	85	57 - 115	
C10-C28	61700	51800	84	53 - 115	
<hr/>					
Surrogate	% Rec		Acceptance Limits		
o-Terphenyl	69		49 - 115		

Quality Control Results

Client: Washington Closure Hanford

Job Number: 280-68614-1
Sdg Number: JP0960

**Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-276503**

**Method: NWTPH-Dx
Preparation: 3550C**

MS Lab Sample ID: 280-68614-7
Client Matrix: Solid
Dilution: 1.0
Analysis Date: 05/08/2015 1025
Prep Date: 05/07/2015 1700
Leach Date: N/A

Analysis Batch: 280-276553
Prep Batch: 280-276503
Leach Batch: N/A

Instrument ID: SGC_U2a
Lab File ID: 05080008.D
Initial Weight/Volume: 32.8 g
Final Weight/Volume: 1 mL
Injection Volume: 1 uL

MSD Lab Sample ID: 280-68614-7
Client Matrix: Solid
Dilution: 1.0
Analysis Date: 05/08/2015 1049
Prep Date: 05/07/2015 1700
Leach Date: N/A

Analysis Batch: 280-276553
Prep Batch: 280-276503
Leach Batch: N/A

Instrument ID: SGC_U2a
Lab File ID: 05080009.D
Initial Weight/Volume: 32.6 g
Final Weight/Volume: 1 mL
Injection Volume: 1 uL

Analyte	% Rec.		Limit	RPD	RPD Limit	MS Qual	MSD Qual
	MS	MSD					
C10-C36	90	87	57 - 115	2	23		
C10-C28	89	87	56 - 115	2	23		
Surrogate	MS % Rec		MSD % Rec	Acceptance Limits			
o-Terphenyl	73		71	49 - 115			

**Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-276503**

**Method: NWTPH-Dx
Preparation: 3550C**

MS Lab Sample ID: 280-68614-7
Client Matrix: Solid
Dilution: 1.0
Analysis Date: 05/08/2015 1025
Prep Date: 05/07/2015 1700
Leach Date: N/A

Units: ug/Kg

MSD Lab Sample ID: 280-68614-7
Client Matrix: Solid
Dilution: 1.0
Analysis Date: 05/08/2015 1049
Prep Date: 05/07/2015 1700
Leach Date: N/A

Analyte	Sample		MS Spike	MSD Spike	MS	MSD
	Result/Qual		Amount	Amount	Result/Qual	Result/Qual
C10-C36	950	U	61700	62100	55300	54100
C10-C28	650	U	61700	62100	54900	53700

Date: 18 May 2015
 To: Washington Closure Hanford Inc. (technical representative)
 From: ELR Consulting
 Project: 100-IU-2 & 100-IU-6 Remaining Waste Sites – Soil Full Protocol - Waste Site 600-358
 Subject: Inorganic - Data Package No. JP0960-TAL

INTRODUCTION

This memo presents the results of data validation on Data Package No. JP0960 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
J1V6N6	4/29/15	Soil	C	See note 1
J1V6N7	4/29/15	Soil	C	See note 1
J1V6N8	4/29/15	Soil	C	See note 1
J1V6N9	4/29/15	Soil	C	See note 1
J1V6P0	4/29/15	Soil	C	See note 1
J1V6P1	4/29/15	Soil	C	See note 1
J1V6P2	4/29/15	Soil	C	See note 1
J1V6P3	4/29/15	Soil	C	See note 1
J1V6P4	4/29/15	Soil	C	See note 1
J1V6P5	4/29/15	Soil	C	See note 1
J1V6P6	4/29/15	Soil	C	See note 1
J1V6P7	4/29/15	Soil	C	See note 1
J1V6P8	4/29/15	Soil	C	See note 1
J1V6P9	4/29/15	Soil	C	See note 1

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

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

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

DATA QUALITY PARAMETERS

· Holding Times

Analytical holding times for metals are assessed to ascertain whether the holding time requirements were met by the laboratory. The holding time requirements are as follows: Soil samples must be analyzed within 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 calcium and magnesium results in sample J1V6P9 were qualified as estimates and flagged "UJ".

All other preparation blank results were acceptable.

Field (Equipment) Blank

One field blank (J1V6P9) was submitted for analysis. Ten analytes were detected in the field blank. Under the WCH statement of work, no qualification is required.

Accuracy

Matrix Spike and Laboratory Control Sample

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

Due to matrix spike recoveries outside QC limits, all mercury (69%), calcium (140%), antimony (54%) and silicon (25%) results were qualified as estimates and flagged "J".

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

All other accuracy results were acceptable

Precision

Laboratory Duplicate Samples

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

All laboratory duplicate results were acceptable.

Field Duplicate

One set of field duplicates (J1V6N7/J1T6P8) 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. JP0960 was submitted for validation and verified for completeness. Completeness is based on the percentage of data determined to be valid (i.e., not rejected). The completion percentage was 100%.

MAJOR DEFICIENCIES

None found.

MINOR DEFICIENCIES

The following minor deficiencies were noted:

- Due to matrix spike recoveries outside QC limits, all mercury (69%), calcium (140%), antimony (54%) and silicon (25%) results were qualified as estimates and flagged "J".
- Due to an LCS recovery outside QC limits, all silicon (11%) results were qualified as estimates and flagged "J".
- Due to method blank contamination, the calcium and magnesium results in sample J1V6P9 were qualified as estimates and flagged "UJ".

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

METALS DATA QUALIFICATION SUMMARY*

SDG: JP0960	REVIEWER: ELR	Project: 600-358	PAGE <u>1</u> OF <u>1</u>
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
Mercury Calcium Antimony Silicon	J	All	MS recovery
Silicon	J	All	LCS recovery
Calcium Magnesium	UJ	J1V6P9	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

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-68614-1
Sdg Number: JP0960

Client Sample ID: J1V6N6

Lab Sample ID: 280-68614-1
Client Matrix: Solid

% Moisture: 2.6

Date Sampled: 04/29/2015 1019
Date Received: 05/01/2015 0930

6010B Metals (ICP)

Analysis Method: 6010B	Analysis Batch: 280-275977	Instrument ID: MT_026
Prep Method: 3050B	Prep Batch: 280-275723	Lab File ID: 26e050415.asc
Dilution: 1.0		Initial Weight/Volume: 1.16 g
Analysis Date: 05/05/2015 0019		Final Weight/Volume: 100 mL
Prep Date: 05/04/2015 1445		

✓ skulls

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Aluminum		5730	X	1.4	4.4
Arsenic		1.8		0.58	0.88
Barium		75.1	X	0.067	0.44
Boron		1.9		0.87	1.8
Cadmium		0.050	B	0.036	0.18
Calcium		3700	X J	12.5	44.2
Chromium		6.9	X	0.051	0.18
Iron		23900	X	3.4	4.4
Magnesium		4100	X	3.3	17.7
Manganese		344	X	0.088	0.88
Molybdenum		0.23	U	0.23	1.8
Nickel		9.2	X	0.11	3.5
Potassium		1480		36.3	265
Selenium		0.76	U	0.76	0.88
Silicon		328	X J	5.0	8.8
Silver		0.14	U	0.14	0.18
Sodium		196		52.2	106
Zinc		45.6	X	0.35	0.88

Analysis Method: 6010B	Analysis Batch: 280-276143	Instrument ID: MT_026
Prep Method: 3050B	Prep Batch: 280-275723	Lab File ID: 26c050515.asc
Dilution: 5.0		Initial Weight/Volume: 1.16 g
Analysis Date: 05/05/2015 1814		Final Weight/Volume: 100 mL
Prep Date: 05/04/2015 1445		

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Antimony		1.7	U J	1.7	2.7
Beryllium		0.15	U	0.15	0.88
Cobalt		9.8		0.44	4.4
Copper		12.8		0.96	4.4
Lead		2.6		1.2	2.2
Vanadium		79.2		0.42	8.8

7471A Mercury (CVAA)

Analysis Method: 7471A	Analysis Batch: 280-276397	Instrument ID: MT_033
Prep Method: 7471A	Prep Batch: 280-275766	Lab File ID: 150506af.TXT
Dilution: 1.0		Initial Weight/Volume: 0.58 g
Analysis Date: 05/06/2015 1913		Final Weight/Volume: 50 mL
Prep Date: 05/06/2015 1500		

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

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-68614-1
Sdg Number: JP0960

Client Sample ID: J1V6N7

Lab Sample ID: 280-68614-2
Client Matrix: Solid

% Moisture: 1.5

Date Sampled: 04/29/2015 1015
Date Received: 05/01/2015 0930

6010B Metals (ICP)

Analysis Method: 6010B Analysis Batch: 280-275977 Instrument ID: MT_026
Prep Method: 3050B Prep Batch: 280-275723 Lab File ID: 26e050415.asc
Dilution: 1.0 *5/16/15* Initial Weight/Volume: 1.08 g
Analysis Date: 05/05/2015 0030 Final Weight/Volume: 100 mL
Prep Date: 05/04/2015 1445

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Aluminum		5650	X	1.5	4.7
Arsenic		1.4		0.62	0.94
Barium		82.4	X	0.071	0.47
Boron		0.95	B	0.92	1.9
Cadmium		0.12	B	0.039	0.19
Calcium		5140	X J	13.3	47.0
Chromium		6.8	X	0.055	0.19
Iron		26600	X	3.6	4.7
Magnesium		4530	X	3.5	18.8
Manganese		366	X	0.094	0.94
Molybdenum		0.27	B	0.24	1.9
Nickel		10.4	X	0.12	3.8
Potassium		955		38.5	282
Selenium		0.81	U	0.81	0.94
Silicon		375	X J	5.3	9.4
Silver		0.15	U	0.15	0.19
Sodium		270		55.4	113
Zinc		51.8	X	0.37	0.94

Analysis Method: 6010B Analysis Batch: 280-276143 Instrument ID: MT_026
Prep Method: 3050B Prep Batch: 280-275723 Lab File ID: 26c050515.asc
Dilution: 5.0 Initial Weight/Volume: 1.08 g
Analysis Date: 05/05/2015 1825 Final Weight/Volume: 100 mL
Prep Date: 05/04/2015 1445

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Antimony		1.8	U J	1.8	2.8
Beryllium		0.16	U	0.16	0.94
Cobalt		10.6		0.47	4.7
Copper		16.2		1.0	4.7
Lead		5.6		1.3	2.3
Vanadium		83.6		0.44	9.4

7471A Mercury (CVAA)

Analysis Method: 7471A Analysis Batch: 280-276397 Instrument ID: MT_033
Prep Method: 7471A Prep Batch: 280-275766 Lab File ID: 150506af.TXT
Dilution: 1.0 Initial Weight/Volume: 0.56 g
Analysis Date: 05/06/2015 1920 Final Weight/Volume: 50 mL
Prep Date: 05/06/2015 1500

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

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-68614-1
Sdg Number: JP0960

Client Sample ID: J1V6N8

Lab Sample ID: 280-68614-3
Client Matrix: Solid

% Moisture: 1.0

Date Sampled: 04/29/2015 1103
Date Received: 05/01/2015 0930

6010B Metals (ICP)

Analysis Method: 6010B	Analysis Batch: 280-275977	Instrument ID: MT_026
Prep Method: 3050B	Prep Batch: 280-275723	Lab File ID: 26e050415.asc
Dilution: 1.0		Initial Weight/Volume: 1.14 g
Analysis Date: 05/05/2015 0033	<i>sticks</i>	Final Weight/Volume: 100 mL
Prep Date: 05/04/2015 1445		

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Aluminum		6290	X	1.4	4.4
Arsenic		1.7		0.58	0.89
Barium		82.8	X	0.067	0.44
Boron		1.4	B	0.87	1.8
Cadmium		0.061	B	0.036	0.18
Calcium		4010	X J	12.5	44.3
Chromium		7.1	X	0.051	0.18
Iron		25100	X	3.4	4.4
Magnesium		4120	X	3.3	17.7
Manganese		377	X	0.089	0.89
Molybdenum		0.23	U	0.23	1.8
Nickel		9.3	X	0.11	3.5
Potassium		1470		36.3	266
Selenium		0.76	U	0.76	0.89
Silicon		316	X J	5.0	8.9
Silver		0.14	U	0.14	0.18
Sodium		220		52.3	106
Zinc		47.8	X	0.35	0.89

Analysis Method: 6010B	Analysis Batch: 280-276143	Instrument ID: MT_026
Prep Method: 3050B	Prep Batch: 280-275723	Lab File ID: 26c050515.asc
Dilution: 5.0		Initial Weight/Volume: 1.14 g
Analysis Date: 05/05/2015 1827		Final Weight/Volume: 100 mL
Prep Date: 05/04/2015 1445		

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Antimony		1.7	U J	1.7	2.7
Beryllium		0.15	U	0.15	0.89
Cobalt		10.7		0.44	4.4
Copper		13.9		0.96	4.4
Lead		3.0		1.2	2.2
Vanadium		81.7		0.42	8.9

7471A Mercury (CVAA)

Analysis Method: 7471A	Analysis Batch: 280-276397	Instrument ID: MT_033
Prep Method: 7471A	Prep Batch: 280-275766	Lab File ID: 150506af.TXT
Dilution: 1.0		Initial Weight/Volume: 0.52 g
Analysis Date: 05/06/2015 1922		Final Weight/Volume: 50 mL
Prep Date: 05/06/2015 1500		

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

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-68614-1
Sdg Number: JP0960

Client Sample ID: J1V6N9

Lab Sample ID: 280-68614-4
Client Matrix: Solid

% Moisture: 3.1

Date Sampled: 04/29/2015 1024
Date Received: 05/01/2015 0930

6010B Metals (ICP)

Analysis Method: 6010B
Prep Method: 3050B
Dilution: 1.0
Analysis Date: 05/05/2015 0036
Prep Date: 05/04/2015 1445

Analysis Batch: 280-275977
Prep Batch: 280-275723

M 5/10/15

Instrument ID: MT_026
Lab File ID: 26e050415.asc
Initial Weight/Volume: 1.03 g
Final Weight/Volume: 100 mL

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Aluminum		4050	X	1.6	5.0
Antimony		0.38	U J	0.38	0.60
Arsenic		1.0		0.66	1.0
Barium		55.1	X	0.076	0.50
Beryllium		0.040	B	0.033	0.20
Boron		0.98	U	0.98	2.0
Cadmium		0.17	B	0.041	0.20
Calcium		3330	X J	14.1	50.1
Chromium		4.9	X	0.058	0.20
Cobalt		7.5		0.10	1.0
Copper		10.5		0.22	1.0
Iron		18400	X	3.8	5.0
Lead		4.0		0.27	0.50
Magnesium		3130	X	3.7	20.0
Manganese		249	X	0.10	1.0
Molybdenum		0.28	U	0.26	2.0
Nickel		7.6	X	0.12	4.0
Potassium		757		41.1	301
Selenium		0.86	U	0.86	1.0
Silicon		227	X J	5.7	10.0
Silver		0.16	U	0.16	0.20
Sodium		180		59.1	120
Vanadium		53.3		0.094	2.0
Zinc		41.0	X	0.40	1.0

7471A Mercury (CVAA)

Analysis Method: 7471A
Prep Method: 7471A
Dilution: 1.0
Analysis Date: 05/06/2015 1924
Prep Date: 05/06/2015 1500

Analysis Batch: 280-276397
Prep Batch: 280-275766

Instrument ID: MT_033
Lab File ID: 150506af.TXT
Initial Weight/Volume: 0.56 g
Final Weight/Volume: 50 mL

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

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-68614-1
Sdg Number: JP0960

Client Sample ID: J1V6P0

Lab Sample ID: 280-68614-5
Client Matrix: Solid

% Moisture: 2.9

Date Sampled: 04/29/2015 1045
Date Received: 05/01/2015 0930

6010B Metals (ICP)

Analysis Method: 6010B Analysis Batch: 280-275977 Instrument ID: MT_026
Prep Method: 3050B Prep Batch: 280-275723 Lab File ID: 26e050415.asc
Dilution: 1.0
Analysis Date: 05/05/2015 0049 *W 5/16/15* Initial Weight/Volume: 1.12 g
Prep Date: 05/04/2015 1445 Final Weight/Volume: 100 mL

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Aluminum		6240	X	1.4	4.6
Arsenic		1.8		0.61	0.92
Barium		80.5	X	0.070	0.46
Boron		0.90	U	0.90	1.8
Cadmium		0.040	B	0.038	0.18
Calcium		4120	X J	13.0	46.0
Chromium		8.2	X	0.053	0.18
Iron		26300	X	3.5	4.6
Magnesium		4730	X	3.4	18.4
Manganese		343	X	0.092	0.92
Molybdenum		0.24	U	0.24	1.8
Nickel		11.9	X	0.11	3.7
Potassium		1330		37.7	276
Selenium		0.79	U	0.79	0.92
Silicon		435	X J	5.2	9.2
Silver		0.15	U	0.15	0.18
Sodium		230		54.3	110
Zinc		47.9	X	0.37	0.92

Analysis Method: 6010B Analysis Batch: 280-276143 Instrument ID: MT_026
Prep Method: 3050B Prep Batch: 280-275723 Lab File ID: 26c050515.asc
Dilution: 5.0
Analysis Date: 05/05/2015 1830 Initial Weight/Volume: 1.12 g
Prep Date: 05/04/2015 1445 Final Weight/Volume: 100 mL

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Antimony		1.7	U J	1.7	2.8
Beryllium		0.15	U	0.15	0.92
Cobalt		11.3		0.46	4.6
Copper		15.3		1.0	4.6
Lead		3.6		1.2	2.3
Vanadium		87.3		0.43	9.2

7471A Mercury (CVAA)

Analysis Method: 7471A Analysis Batch: 280-276397 Instrument ID: MT_033
Prep Method: 7471A Prep Batch: 280-275766 Lab File ID: 150506af.TXT
Dilution: 1.0
Analysis Date: 05/06/2015 1927 Initial Weight/Volume: 0.57 g
Prep Date: 05/06/2015 1500 Final Weight/Volume: 50 mL

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

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-68614-1

Sdg Number: JP0960

Client Sample ID: J1V6P1

Lab Sample ID: 280-68614-6

Date Sampled: 04/29/2015 1051

Client Matrix: Solid

% Moisture: 2.8

Date Received: 05/01/2015 0930

6010B Metals (ICP)

Analysis Method: 6010B	Analysis Batch: 280-275977	Instrument ID: MT_026
Prep Method: 3050B	Prep Batch: 280-275723	Lab File ID: 26e050415.asc
Dilution: 1.0		Initial Weight/Volume: 1.15 g
Analysis Date: 05/05/2015 0052	<i>M 5/16/15</i>	Final Weight/Volume: 100 mL
Prep Date: 05/04/2015 1445		

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Aluminum		5930	X	1.4	4.5
Arsenic		1.4		0.59	0.90
Barium		74.6	X	0.068	0.45
Boron		0.97	B	0.88	1.8
Cadmium		0.060	B	0.037	0.18
Calcium		3940	X J	12.6	44.8
Chromium		6.3	X	0.052	0.18
Iron		24000	X	3.4	4.5
Magnesium		4020	X	3.3	17.9
Manganese		344	X	0.090	0.90
Molybdenum		0.23	U	0.23	1.8
Nickel		10.1	X	0.11	3.6
Potassium		1250		36.7	269
Selenium		0.77	U	0.77	0.90
Silicon		358	X J	5.1	9.0
Silver		0.14	U	0.14	0.18
Sodium		203		52.8	107
Zinc		45.7	X	0.36	0.90

Analysis Method: 6010B	Analysis Batch: 280-276143	Instrument ID: MT_026
Prep Method: 3050B	Prep Batch: 280-275723	Lab File ID: 26c050515.asc
Dilution: 5.0		Initial Weight/Volume: 1.15 g
Analysis Date: 05/05/2015 1843		Final Weight/Volume: 100 mL
Prep Date: 05/04/2015 1445		

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Antimony		1.7	U J	1.7	2.7
Beryllium		0.15	U	0.15	0.90
Cobalt		10.6		0.45	4.5
Copper		13.4		0.97	4.5
Lead		3.9		1.2	2.2
Vanadium		80.2		0.42	9.0

7471A Mercury (CVAA)

Analysis Method: 7471A	Analysis Batch: 280-276397	Instrument ID: MT_033
Prep Method: 7471A	Prep Batch: 280-275766	Lab File ID: 150506af.TXT
Dilution: 1.0		Initial Weight/Volume: 0.56 g
Analysis Date: 05/06/2015 1930		Final Weight/Volume: 50 mL
Prep Date: 05/06/2015 1500		

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

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-68614-1
Sdg Number: JP0960

Client Sample ID: J1V6P2

Lab Sample ID: 280-68614-7
Client Matrix: Solid

% Moisture: 1.1

Date Sampled: 04/29/2015 1059
Date Received: 05/01/2015 0930

6010B Metals (ICP)

Analysis Method: 6010B Analysis Batch: 280-275977 Instrument ID: MT_026
Prep Method: 3050B Prep Batch: 280-275723 Lab File ID: 26e050415.asc
Dilution: 1.0
Analysis Date: 05/05/2015 0055 *W sticks* Initial Weight/Volume: 1.07 g
Prep Date: 05/04/2015 1445 Final Weight/Volume: 100 mL

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Aluminum		6390	X	1.5	4.7
Arsenic		1.5		0.62	0.95
Barium		82.7	X	0.072	0.47
Boron		0.93	U	0.93	1.9
Cadmium		0.063	B	0.039	0.19
Calcium		4050	X <i>J</i>	13.3	47.3
Chromium		9.2	X	0.055	0.19
Iron		26500	X	3.6	4.7
Magnesium		4720	X	3.5	18.9
Manganese		370	X	0.095	0.95
Molybdenum		0.25	U	0.25	1.9
Nickel		12.2	X	0.12	3.8
Potassium		1260		38.8	284
Selenium		0.81	U	0.81	0.95
Silicon		410	X <i>J</i>	5.4	9.5
Silver		0.15	U	0.15	0.19
Sodium		221		55.8	113
Zinc		48.9	X	0.38	0.95

Analysis Method: 6010B Analysis Batch: 280-276143 Instrument ID: MT_026
Prep Method: 3050B Prep Batch: 280-275723 Lab File ID: 26c050515.asc
Dilution: 5.0
Analysis Date: 05/05/2015 1846 Initial Weight/Volume: 1.07 g
Prep Date: 05/04/2015 1445 Final Weight/Volume: 100 mL

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Antimony		1.8	U <i>J</i>	1.8	2.8
Beryllium		0.16	U	0.16	0.95
Cobalt		11.2		0.47	4.7
Copper		14.3		1.0	4.7
Lead		3.5		1.3	2.4
Vanadium		80.3		0.44	9.5

7471A Mercury (CVAA)

Analysis Method: 7471A Analysis Batch: 280-276397 Instrument ID: MT_033
Prep Method: 7471A Prep Batch: 280-275766 Lab File ID: 150506af.TXT
Dilution: 1.0
Analysis Date: 05/06/2015 1940 Initial Weight/Volume: 0.55 g
Prep Date: 05/06/2015 1500 Final Weight/Volume: 50 mL

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

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-68614-1

Sdg Number: JP0960

Client Sample ID: J1V6P3

Lab Sample ID: 280-68614-8

Date Sampled: 04/29/2015 1028

Client Matrix: Solid

% Moisture: 1.8

Date Received: 05/01/2015 0930

6010B Metals (ICP)

Analysis Method: 6010B	Analysis Batch: 280-275977	Instrument ID: MT_026
Prep Method: 3050B	Prep Batch: 280-275723	Lab File ID: 26e050415.asc
Dilution: 1.0		Initial Weight/Volume: 1.03 g
Analysis Date: 05/05/2015 0058	<i>MS/SL/LS</i>	Final Weight/Volume: 100 mL
Prep Date: 05/04/2015 1445		

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Aluminum		3090	X	1.5	4.9
Antimony		0.38	U J	0.38	0.59
Arsenic		1.3		0.65	0.99
Barium		48.2	X	0.075	0.49
Beryllium		0.033	U	0.033	0.20
Boron		0.97	U	0.97	2.0
Cadmium		0.081	B	0.041	0.20
Calcium		3500	X J	13.9	49.4
Chromium		3.6	X	0.057	0.20
Cobalt		7.3		0.099	0.99
Copper		11.3		0.21	0.99
Iron		17600	X	3.8	4.9
Lead		3.4		0.27	0.49
Magnesium		2940	X	3.7	19.8
Manganese		227	X	0.099	0.99
Molybdenum		0.26	U	0.26	2.0
Nickel		7.1	X	0.12	4.0
Potassium		462		40.5	297
Selenium		0.85	U	0.85	0.99
Silicon		209	X J	5.6	9.9
Silver		0.16	U	0.16	0.20
Sodium		180		58.3	119
Vanadium		52.6		0.093	2.0
Zinc		38.6	X	0.39	0.99

7471A Mercury (CVAA)

Analysis Method: 7471A	Analysis Batch: 280-276397	Instrument ID: MT_033
Prep Method: 7471A	Prep Batch: 280-275766	Lab File ID: 150506af.TXT
Dilution: 1.0		Initial Weight/Volume: 0.52 g
Analysis Date: 05/06/2015 1942		Final Weight/Volume: 50 mL
Prep Date: 05/06/2015 1500		

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Mercury		0.0065	U J	0.0065	0.020

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-68614-1
Sdg Number: JP0960

Client Sample ID: J1V6P4

Lab Sample ID: 280-68614-9
Client Matrix: Solid

% Moisture: 1.7

Date Sampled: 04/29/2015 1043
Date Received: 05/01/2015 0930

6010B Metals (ICP)

Analysis Method: 6010B
Prep Method: 3050B
Dilution: 1.0
Analysis Date: 05/05/2015 0101
Prep Date: 05/04/2015 1445

Analysis Batch: 280-275977
Prep Batch: 280-275723

✓ slabs

Instrument ID: MT_026
Lab File ID: 26e050415.asc
Initial Weight/Volume: 1.09 g
Final Weight/Volume: 100 mL

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Aluminum		5480	X	1.4	4.7
Arsenic		1.4		0.62	0.93
Barium		77.2	X	0.071	0.47
Boron		0.91	U	0.91	1.9
Cadmium		0.044	B	0.038	0.19
Calcium		3990	X J	13.2	46.7
Chromium		6.1	X	0.054	0.19
Iron		22900	X	3.5	4.7
Magnesium		3910	X	3.5	18.7
Manganese		337	X	0.093	0.93
Molybdenum		0.24	U	0.24	1.9
Nickel		9.5	X	0.11	3.7
Potassium		987		38.3	280
Selenium		0.80	U	0.80	0.93
Silicon		371	X J	5.3	9.3
Silver		0.15	U	0.15	0.19
Sodium		217		55.1	112
Zinc		48.9	X	0.37	0.93

Analysis Method: 6010B
Prep Method: 3050B
Dilution: 2.0
Analysis Date: 05/05/2015 1848
Prep Date: 05/04/2015 1445

Analysis Batch: 280-276143
Prep Batch: 280-275723

Instrument ID: MT_026
Lab File ID: 26c050515.asc
Initial Weight/Volume: 1.09 g
Final Weight/Volume: 100 mL

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Antimony		0.71	U J	0.71	1.1
Beryllium		0.063	B	0.062	0.37
Cobalt		10		0.19	1.9
Copper		15.1		0.41	1.9
Lead		9.1		0.50	0.93
Vanadium		78.3		0.18	3.7

7471A Mercury (CVAA)

Analysis Method: 7471A
Prep Method: 7471A
Dilution: 1.0
Analysis Date: 05/06/2015 1944
Prep Date: 05/06/2015 1500

Analysis Batch: 280-276397
Prep Batch: 280-275766

Instrument ID: MT_033
Lab File ID: 150506af.TXT
Initial Weight/Volume: 0.53 g
Final Weight/Volume: 50 mL

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

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-68614-1

Sdg Number: JP0960

Client Sample ID: J1V6P5

Lab Sample ID: 280-68614-10

Date Sampled: 04/29/2015 1056

Client Matrix: Solid

% Moisture: 2.6

Date Received: 05/01/2015 0930

6010B Metals (ICP)

Analysis Method: 6010B
 Prep Method: 3050B
 Dilution: 1.0
 Analysis Date: 05/05/2015 0103
 Prep Date: 05/04/2015 1445

Analysis Batch: 280-275977
 Prep Batch: 280-275723

Handwritten: K 5/14/15

Instrument ID: MT_026
 Lab File ID: 26e050415.asc
 Initial Weight/Volume: 1.03 g
 Final Weight/Volume: 100 mL

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Aluminum		6190	X	1.5	5.0
Antimony		0.38	U J	0.38	0.60
Arsenic		1.6		0.66	1.0
Barium		79.5	X	0.076	0.50
Beryllium		0.11	B	0.033	0.20
Boron		0.98	U	0.98	2.0
Cadmium		0.074	B	0.041	0.20
Calcium		3620	X J	14.1	49.8
Chromium		7.6	X	0.058	0.20
Cobalt		9.0		0.10	1.0
Copper		11.5		0.22	1.0
Iron		22300	X	3.8	5.0
Lead		3.0		0.27	0.50
Magnesium		3870	X	3.7	19.9
Manganese		349	X	0.10	1.0
Molybdenum		0.26	U	0.26	2.0
Nickel		9.8	X	0.12	4.0
Potassium		1280		40.9	299
Selenium		0.86	U	0.86	1.0
Silicon		465	X J	5.6	10
Silver		0.16	U	0.16	0.20
Sodium		187		58.8	120
Vanadium		62.4		0.094	2.0
Zinc		43.2	X	0.40	1.0

7471A Mercury (CVAA)

Analysis Method: 7471A
 Prep Method: 7471A
 Dilution: 1.0
 Analysis Date: 05/06/2015 1947
 Prep Date: 05/06/2015 1500

Analysis Batch: 280-276397
 Prep Batch: 280-275766

Instrument ID: MT_033
 Lab File ID: 150506af.TXT
 Initial Weight/Volume: 0.53 g
 Final Weight/Volume: 50 mL

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

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-68614-1
Sdg Number: JP0960

Client Sample ID: J1V6P6

Lab Sample ID: 280-68614-11
Client Matrix: Solid

% Moisture: 1.3

Date Sampled: 04/29/2015 1033
Date Received: 05/01/2015 0930

6010B Metals (ICP)

Analysis Method: 6010B Analysis Batch: 280-275977 Instrument ID: MT_026
Prep Method: 3050B Prep Batch: 280-275723 Lab File ID: 26e050415.asc
Dilution: 1.0 *V S/4/15* Initial Weight/Volume: 1.03 g
Analysis Date: 05/05/2015 0106 Final Weight/Volume: 100 mL
Prep Date: 05/04/2015 1445

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Aluminum		3800	X	1.5	4.9
Antimony		0.37	U J	0.37	0.59
Arsenic		0.93	B	0.65	0.98
Barium		59.6	X	0.075	0.49
Beryllium		0.032	U	0.032	0.20
Boron		0.96	U	0.96	2.0
Cadmium		0.11	B	0.040	0.20
Calcium		4850	X J	13.9	49.2
Chromium		4.9	X	0.057	0.20
Cobalt		8.4		0.098	0.98
Copper		12.3		0.21	0.98
Iron		20700	X	3.7	4.9
Lead		4.7		0.27	0.49
Magnesium		3470	X	3.6	19.7
Manganese		268	X	0.098	0.98
Molybdenum		0.26	U	0.26	2.0
Nickel		8.3	X	0.12	3.9
Potassium		503		40.3	295
Selenium		0.85	U	0.85	0.98
Silicon		254	X J	5.6	9.8
Silver		0.16	U	0.16	0.20
Sodium		229		58.0	118
Vanadium		61.3		0.092	2.0
Zinc		41.9	X	0.39	0.98

7471A Mercury (CVAA)

Analysis Method: 7471A Analysis Batch: 280-276397 Instrument ID: MT_033
Prep Method: 7471A Prep Batch: 280-275766 Lab File ID: 150506af.TXT
Dilution: 1.0 Initial Weight/Volume: 0.54 g
Analysis Date: 05/06/2015 1949 Final Weight/Volume: 50 mL
Prep Date: 05/06/2015 1500

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

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-68614-1
Sdg Number: JP0960

Client Sample ID: J1V6P7

Lab Sample ID: 280-68614-12
Client Matrix: Solid

% Moisture: 2.0

Date Sampled: 04/29/2015 1038
Date Received: 05/01/2015 0930

6010B Metals (ICP)

Analysis Method: 6010B
Prep Method: 3050B
Dilution: 1.0
Analysis Date: 05/05/2015 0109
Prep Date: 05/04/2015 1445

Analysis Batch: 280-275977
Prep Batch: 280-275723

MS/16/15

Instrument ID: MT_026
Lab File ID: 26e050415.asc
Initial Weight/Volume: 1.09 g
Final Weight/Volume: 100 mL

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Aluminum		8320	X	1.5	4.7
Arsenic		1.9		0.62	0.94
Barium		100	X	0.071	0.47
Boron		0.92	U	0.92	1.9
Cadmium		0.071	B	0.038	0.19
Calcium		4110	X J	13.2	46.8
Chromium		8.5	X	0.054	0.19
Iron		27700	X	3.6	4.7
Magnesium		4590	X	3.5	18.7
Manganese		406	X	0.094	0.94
Molybdenum		0.24	U	0.24	1.9
Nickel		11.8	X	0.12	3.7
Potassium		1210		38.4	281
Selenium		0.81	U	0.81	0.94
Silicon		468	X J	5.3	9.4
Silver		0.15	U	0.15	0.19
Sodium		239		55.3	112
Zinc		50.3	X	0.37	0.94

Analysis Method: 6010B
Prep Method: 3050B
Dilution: 5.0
Analysis Date: 05/05/2015 1851
Prep Date: 05/04/2015 1445

Analysis Batch: 280-276143
Prep Batch: 280-275723

Instrument ID: MT_026
Lab File ID: 26c050515.asc
Initial Weight/Volume: 1.09 g
Final Weight/Volume: 100 mL

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Antimony		1.8	U J	1.8	2.8
Beryllium		0.19	B	0.15	0.94
Cobalt		11.8		0.47	4.7
Copper		15.7		1.0	4.7
Lead		4.6		1.3	2.3
Vanadium		82.2		0.44	9.4

7471A Mercury (CVAA)

Analysis Method: 7471A
Prep Method: 7471A
Dilution: 1.0
Analysis Date: 05/06/2015 1951
Prep Date: 05/06/2015 1500

Analysis Batch: 280-276397
Prep Batch: 280-275766

Instrument ID: MT_033
Lab File ID: 150506af.TXT
Initial Weight/Volume: 0.55 g
Final Weight/Volume: 50 mL

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

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-68614-1
Sdg Number: JP0960

Client Sample ID: J1V6P8

Lab Sample ID: 280-68614-13
Client Matrix: Solid

% Moisture: 1.3

Date Sampled: 04/29/2015 1015
Date Received: 05/01/2015 0930

6010B Metals (ICP)

Analysis Method: 6010B Analysis Batch: 280-275977 Instrument ID: MT_026
Prep Method: 3050B Prep Batch: 280-275723 Lab File ID: 26e050415.asc
Dilution: 1.0
Analysis Date: 05/05/2015 0112 *MS/CL/KS* Initial Weight/Volume: 1.04 g
Prep Date: 05/04/2015 1445 Final Weight/Volume: 100 mL

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Aluminum		4280	X	1.5	4.9
Arsenic		1.6		0.64	0.97
Barium		65.5	X	0.074	0.49
Boron		0.95	U	0.95	1.9
Cadmium		0.12	B	0.040	0.19
Calcium		4320	X J	13.7	48.7
Chromium		5.0	X	0.057	0.19
Iron		22600	X	3.7	4.9
Magnesium		3860	X	3.6	19.5
Manganese		306	X	0.097	0.97
Molybdenum		0.25	U	0.25	1.9
Nickel		9.4	X	0.12	3.9
Potassium		714		39.9	292
Selenium		0.84	U	0.84	0.97
Silicon		289	X J	5.5	9.7
Silver		0.16	U	0.16	0.19
Sodium		216		57.5	117
Zinc		43.8	X	0.39	0.97

Analysis Method: 6010B Analysis Batch: 280-276143 Instrument ID: MT_026
Prep Method: 3050B Prep Batch: 280-275723 Lab File ID: 26c050515.asc
Dilution: 2.0
Analysis Date: 05/05/2015 1854 Initial Weight/Volume: 1.04 g
Prep Date: 05/04/2015 1445 Final Weight/Volume: 100 mL

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Antimony		0.74	U J	0.74	1.2
Beryllium		0.064	U	0.064	0.39
Cobalt		9.9		0.19	1.9
Copper		14.8		0.42	1.9
Lead		3.8		0.53	0.97
Vanadium		79.1		0.18	3.9

7471A Mercury (CVAA)

Analysis Method: 7471A Analysis Batch: 280-276397 Instrument ID: MT_033
Prep Method: 7471A Prep Batch: 280-275766 Lab File ID: 150506af.TXT
Dilution: 1.0
Analysis Date: 05/06/2015 1954 Initial Weight/Volume: 0.55 g
Prep Date: 05/06/2015 1500 Final Weight/Volume: 50 mL

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

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-68614-1

Sdg Number: JP0960

Client Sample ID: J1V6P9

Lab Sample ID: 280-68614-14

Date Sampled: 04/29/2015 1009

Client Matrix: Solid

% Moisture: 0.3

Date Received: 05/01/2015 0930

6010B Metals (ICP)

Analysis Method: 6010B	Analysis Batch: 280-275977	Instrument ID: MT_026
Prep Method: 3050B	Prep Batch: 280-275723	Lab File ID: 26e050415.asc
Dilution: 1.0		Initial Weight/Volume: 1.07 g
Analysis Date: 05/05/2015 0114	<i>MS/K/S</i>	Final Weight/Volume: 100 mL
Prep Date: 05/04/2015 1445		

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Antimony		0.36	U <i>J</i>	0.36	0.56
Arsenic		0.62	U	0.62	0.94
Barium		1.4	X	0.071	0.47
Beryllium		0.031	U	0.031	0.19
Boron		0.92	U	0.92	1.9
Cadmium		0.038	U	0.038	0.19
Calcium		37.4	B C X <i>UJ</i>	13.2	46.9
Chromium		0.11	B X	0.054	0.19
Cobalt		0.094	U	0.094	0.94
Copper		0.44	B	0.20	0.94
Iron		198	X	3.6	4.7
Lead		0.31	B	0.25	0.47
Magnesium		18.0	B C X <i>UJ</i>	3.5	18.7
Manganese		3.0	X	0.094	0.94
Molybdenum		0.24	U	0.24	1.9
Nickel		0.12	U	0.12	3.7
Potassium		38.4	U	38.4	281
Selenium		0.81	U	0.81	0.94
Silicon		96.3	X <i>J</i>	5.3	9.4
Silver		0.15	U	0.15	0.19
Sodium		55.3	U	55.3	112
Vanadium		0.17	B X	0.088	1.9
Zinc		0.66	B X	0.37	0.94

Analysis Method: 6010B	Analysis Batch: 280-276143	Instrument ID: MT_026
Prep Method: 3050B	Prep Batch: 280-275723	Lab File ID: 26c050515.asc
Dilution: 1.0		Initial Weight/Volume: 1.07 g
Analysis Date: 05/05/2015 1856		Final Weight/Volume: 100 mL
Prep Date: 05/04/2015 1445		

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Aluminum		109	X	1.5	4.7

7471A Mercury (CVAA)

Analysis Method: 7471A	Analysis Batch: 280-276397	Instrument ID: MT_033
Prep Method: 7471A	Prep Batch: 280-275766	Lab File ID: 150506af.TXT
Dilution: 1.0		Initial Weight/Volume: 0.54 g
Analysis Date: 05/06/2015 1956		Final Weight/Volume: 50 mL
Prep Date: 05/06/2015 1500		

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

Appendix 4

Laboratory Narrative and Chain-of-Custody Documentation

CASE NARRATIVE

Client: Washington Closure Hanford

Project: WASHINGTON CLOSURE HANFORD

Job Number: 280-68614-1

SDG #: JP0960

SAF#: RC-232

Date SDG Closed: May 1, 2015

Data Deliverable: 7 Day / Summary

<u>CLIENT ID</u>	<u>LAB ID</u>	<u>ANALYSES REQUESTED</u>	<u>ANALYSES PERFORMED</u>
J1V6N6	280-68614-1	6010/7471/WTPH-D+/8310/8082/WTPH-G/ 353.2	6010B/7471A/NWTPH-Dx/8310/8082/NWTPH-Gx/ 353.2
J1V6N7	280-68614-2	6010/7471/WTPH-D+/8310/8082/WTPH-G/ 353.2	6010B/7471A/NWTPH-Dx/8310/8082/NWTPH-Gx/ 353.2
J1V6N8	280-68614-3	6010/7471/WTPH-D+/8310/8082/WTPH-G/ 353.2	6010B/7471A/NWTPH-Dx/8310/8082/NWTPH-Gx/ 353.2
J1V6N9	280-68614-4	6010/7471/WTPH-D+/8310/8082/WTPH-G/ 353.2	6010B/7471A/NWTPH-Dx/8310/8082/NWTPH-Gx/ 353.2
J1V6P0	280-68614-5	6010/7471/WTPH-D+/8310/8082/WTPH-G/ 353.2	6010B/7471A/NWTPH-Dx/8310/8082/NWTPH-Gx/ 353.2
J1V6P1	280-68614-6	6010/7471/WTPH-D+/8310/8082/WTPH-G/ 353.2	6010B/7471A/NWTPH-Dx/8310/8082/NWTPH-Gx/ 353.2
J1V6P2	280-68614-7	6010/7471/WTPH-D+/8310/8082/WTPH-G/ 353.2	6010B/7471A/NWTPH-Dx/8310/8082/NWTPH-Gx/ 353.2
J1V6P3	280-68614-8	6010/7471/WTPH-D+/8310/8082/WTPH-G/ 353.2	6010B/7471A/NWTPH-Dx/8310/8082/NWTPH-Gx/ 353.2
J1V6P4	280-68614-9	6010/7471/WTPH-D+/8310/8082/WTPH-G/ 353.2	6010B/7471A/NWTPH-Dx/8310/8082/NWTPH-Gx/ 353.2
J1V6P5	280-68614-10	6010/7471/WTPH-D+/8310/8082/WTPH-G/ 353.2	6010B/7471A/NWTPH-Dx/8310/8082/NWTPH-Gx/ 353.2
J1V6P6	280-68614-11	6010/7471/WTPH-D+/8310/8082/WTPH-G/ 353.2	6010B/7471A/NWTPH-Dx/8310/8082/NWTPH-Gx/ 353.2
J1V6P7	280-68614-12	6010/7471/WTPH-D+/8310/8082/WTPH-G/ 353.2	6010B/7471A/NWTPH-Dx/8310/8082/NWTPH-Gx/ 353.2
J1V6P8	280-68614-13	6010/7471/WTPH-D+/8310/8082/WTPH-G/ 353.2	6010B/7471A/NWTPH-Dx/8310/8082/NWTPH-Gx/ 353.2
J1V6P9	280-68614-14	6010/7471	6010B/7471A

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

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

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

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

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

RECEIPT

The samples were received on 5/1/2015 9:30 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 3 coolers at receipt time were 0.3° C, 0.6° C and 4.7° C.

GC VOLATILES - NWTPH-Gx - GRO

No anomalies were encountered.

GC SEMIVOLATILES - SW846 8082 - PCBs

No anomalies were encountered.

GC SEMIVOLATILES - NWTPH-Dx - DRO

No anomalies were encountered.

HPLC - SW846 8310 - PAHs

The RPD between the primary and confirmation columns exceeded 40% for Chrysene in sample J1V6N9. The lower of the two values has been reported, as matrix interference is evident on both columns. The result has been flagged with an "X".

No other anomalies were encountered.

TOTAL METALS - SW846 6010B/7471A

Serial dilution of a digestate in batch 280-275723 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. Several samples required dilutions prior to the analysis of Antimony, Beryllium, Cobalt, Copper, Lead and Vanadium to minimize the interference caused by Titanium concentrations greater than the linear range. The reporting limits have been adjusted relative to the dilution required.

Low levels of Barium, Calcium, Magnesium, Aluminum and Iron are present in the method blank associated with batch 280-275723. Because the concentrations in the method blank are not present at levels greater than half the reporting limit or the associated sample amounts are greater than twenty times the method blank concentration, corrective action is deemed unnecessary.

Silicon is present in the method blank associated with batch 280-275723 at 6.74 mg/kg, which is greater than half the project specific reporting limit (PSRL) of 10 mg/kg. TestAmerica's practical quantitation limit (PQL) for Silicon is 50 mg/kg. The laboratory cannot maintain system cleanliness at this low level; therefore, corrective action is not initiated. It can be noted that the concentration found in the method blank is less than half of the laboratory standard PQL, and with the exception of 'blank' sample J1V6P9, the associated sample amounts are twenty times greater than the method blank concentration.

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 J1V6N6; therefore, control limits are not applicable.

Mercury was recovered outside the control limits in the Matrix Spike performed on sample J1V6N6, and the associated sample result has been flagged "N". There is no indication that the analytical system was operating out of control, and method accuracy has been verified by the acceptable LCS analysis data; therefore, corrective action is deemed unnecessary.

No other anomalies were encountered.

GENERAL CHEMISTRY - MCAWW 353.2 - NITRATE NITRITE as N

The duplicate analysis of sample J1V6P8 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.

Washington Closure Hanford		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST					RC-232-099		Page 1 of 3		
Collector STOWE, QG		Company Contact Joan Kassner		Telephone No. 375-4688		Project Coordinator KESSNER, JH		Price Code 88		Data Turnaround 7 days	
Project Designation 100-IU-2 & 100-IU-6 Remaining Waste Sites		Sampling Location 600-358 (SPA, verification)		SAF No. RC-232							
Ice Chest No. RCC-07-005		Field Logbook No. EL-1667-03		COA 0603582000		Method of Shipment Commercial Carrier		Fed Ex			
Shipped To TestAmerica Denver		Offsite Property No. A131408		Bill of Lading/Air Bill No. See ASPC							
Other Labs Shipped To N/A		Preservation		Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	 280-68614 Chain of Custody	
		Type of Container		G/P	aG	aG	aG	Gs*	G/P		
		No. of Container(s)		1	1	1	1	3	1		
POSSIBLE SAMPLE HAZARDS/REMARKS N/A		Volume		250mL	125mL	250mL	250mL	40mL	250mL		
Special Handling and/or Storage Cooling as required Page 8		Sample Analysis		See item (1) in Special Instructions	TPH-Diesel Range - WTPH-D +	PAHs - 8310	PCBs - 8082	TPH-Gasoline Range - WTPH-G	NO2/NO3 - 353.2 (Nitrogen in Nitrite and Nitrate)		
Sample No.		Matrix		Sample Date		Sample Time					
J1V6N6		SOIL		4/29/15		1019		X X X X X X			
J1V6N7		SOIL		4/29/15		1015		X X X X X X			
J1V6N8		SOIL		4/29/15		1103		X X X X X X			
J1V6N9		SOIL		4/29/15		1024		X X X X X X			
J1V6P0		SOIL		4/29/15		1045		X X X X X X			
CHAIN OF POSSESSION				Sign/Print Names				SPECIAL INSTRUCTIONS			
Relinquished By/Removed From Quincy Graw 4-29-15 1150		Date/Time		Received By/Stored In Smartinez/Smartinez 4/29/15		Date/Time		(1) ICP Metals - 6010TR (Close-out List) (Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Molybdenum, Nickel, Potassium, Selenium, Silicon, Silver, Sodium, Vanadium, Zinc); Mercury - 7471 - (CV) (Mercury)			
Relinquished By/Removed From Smartinez/Smartinez 4/29/15 1400		Date/Time		Received By/Stored In C. Bingham 4-29-15 1400		Date/Time					
Relinquished By/Removed From C. Bingham 4-29-15 1430		Date/Time		Received By/Stored In 1060 Battelle, Fred 4-29-15 1430		Date/Time					
Relinquished By/Removed From 1060 Battelle, Fred 4-30-15 0720		Date/Time		Received By/Stored In C. Bingham 4-30-15 0720		Date/Time					
Relinquished By/Removed From C. Bingham WCH 1010 4-30-15		Date/Time		Received By/Stored In Fed Ex 4-30-15		Date/Time					
Relinquished By/Removed From		Date/Time		Received By/Stored In Fed Ex 5-1-15 9:30		Date/Time					
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time		0.1, 0.4, 4.5 IR5+02 Further AD 5-1-15 			
FINAL SAMPLE DISPOSITION		Disposal Method		Disposed By		Date/Time					

WCH-EE-011

Washington Closure Hanford		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST						RC-232-099		Page 2 of 3	
Collector STOWE, QG		Company Contact Joan Kessner		Telephone No. 375-4688		Project Coordinator KESSNER, JH		Price Code 83		Data Turnaround 7 days	
Project Designation 100-IU-2 & 100-IU-6 Remaining Waste Sites		Sampling Location 600-358 (SPA, verification)		SAF No. RC-232							
Ice Chest No. RCC-07-005		Field Logbook No. EL-1667-03		COA 0603582000		Method of Shipment Commercial Carrier Fed Ex					
Shipped To TestAmerica Denver		Offsite Property No. A131408		Bill of Lading/Air Bill No. See OSCP							
Other Labs Shipped To N/A		Preservation		Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C		
		Type of Container		GP	aG	aG	aG	Ge*	GP		
POSSIBLE SAMPLE HAZARDS/REMARKS N/A		No. of Container(s)		1	1	1	1	3	1		
		Volume		250mL	125mL	250mL	250mL	40mL	250mL		
Special Handling and/or Storage Cooling as required		Sample Analysis		See item (1) in Special instructions	TPH-Diesel Range - WTPH-D +	PAHs - 8310	PCBs - 8062	TPH-Gasoline Range - WTPH-G	NO2/NO3 - 353.2 (Nitrogen in Nitrate and Nitrate)		
Page 8		Sample No.		Matrix	Sample Date	Sample Time					
		J1V6P1	SOIL	4/29/15	1051	X	X	X	X	X	
		J1V6P2	SOIL	4/29/15	1059	X	X	X	X	X	
		J1V6P3	SOIL	4/29/15	1028	X	X	X	X	X	
		J1V6P4	SOIL	4/29/15	1043	X	X	X	X	X	
		J1V6P5	SOIL	4/29/15	1056	X	X	X	X	X	
CHAIN OF POSSESSION				Sign/Print Names				SPECIAL INSTRUCTIONS			
Relinquished By/Removed From Quincy Stowe 4-29-15 1150		Received By/Stored In C. Bingham 4-29-15 1150		(1) ICP Metals - 6010TR (Close-out List) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Molybdenum, Nickel, Potassium, Selenium, Silicon, Silver, Sodium, Vanadium, Zinc}; Mercury - 7471 - (CV) {Mercury}							
Relinquished By/Removed From C. Bingham 4-29-15 1400		Received By/Stored In C. Bingham 4-29-15 1400									
Relinquished By/Removed From C. Bingham 4-29-15 1430		Received By/Stored In C. Bingham 4-29-15 1430									
Relinquished By/Removed From 1060 Battelle frage 4-30-15 0720		Received By/Stored In C. Bingham 4-30-15 0720									
Relinquished By/Removed From C. Bingham 4-30-15 1010		Received By/Stored In Fed Ex 4-30-15 1010									
Relinquished By/Removed From N/A		Received By/Stored In N/A									
Relinquished By/Removed From N/A		Received By/Stored In N/A									
FINAL SAMPLE DISPOSITION		Disposal Method		Disposed By		Date/Time		JP0960			

Washington Closure Hanford		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				RC-232-099		Page 3 of 3		
Collector STOWE, QG		Company Contact Joan Kessner		Telephone No. 375-4688		Project Coordinator KESSNER, JH		Price Code 83		
Project Designation 100-IU-2 & 100-IU-6 Remaining Waste Sites		Sampling Location 600-358 (SPA, verification)		SAF No. RC-232				Data Turnaround 7 days		
Ice Chest No. RCC-07-005		Field Logbook No. EL-1667-03		COA 0603582000		Method of Shipment Commercial Carrier		Fed Ex		
Shipped To TestAmerica Denver		Offsite Property No. A131408		BIN of Lading/Air Bill No. See QSPC						
Other Labs Shipped To N/A		Preservation		Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	
		Type of Container		G/P	aG	aG	aG	Gs*	G/P	
POSSIBLE SAMPLE HAZARDS/REMARKS N/A		No. of Container(s)		1	1	1	1	3	1	
Special Handling and/or Storage Cooling as required		Volume		250mL	125mL	250mL	250mL	40mL	250mL	
		Sample Analysis		See item (1) in Special Instructions	TPH-Diesel Range - WTPH-D+	PAHs - 8310	PCBs - 8082	TPH-Gasoline Range - WTPH-G	NO2/NO3 - 353.2 (Nitrogen in Nitrate and Nitrate)	
Sample No.	Matrix	Sample Date	Sample Time							
J11V6P6	SOIL	04/29/15	1033	X	X	X	X	X	X	
J11V6P7	SOIL	04/29/15	1038	X	X	X	X	X	X	
J11V6P8	SOIL	04/29/15	1015	X	X	X	X	X	X	
J11V6P9	SOIL	04/29/15	1009	X					4/29/15 CMM	
CHAIN OF POSSESSION				Sign/Print Names			SPECIAL INSTRUCTIONS			
Relinquished By/Removed From Quincy Stowe		Date/Time 4-29-15 1150		Received By/Stored In C. Bingham		Date/Time 4/29/15 1150		(1) ICP Metals - 6010TR (Close-out List) (Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Molybdenum, Nickel, Potassium, Selenium, Silicon, Silver, Sodium, Vanadium, Zinc); Mercury - 7471 - (CV) (Mercury)		
Relinquished By/Removed From C. Bingham		Date/Time 4-29-15 1400		Received By/Stored In C. Bingham		Date/Time 4-29-15 1400				
Relinquished By/Removed From C. Bingham		Date/Time 4-29-15 1430		Received By/Stored In 1060 Battelle, fridge		Date/Time 4-29-15 1430				
Relinquished By/Removed From 1060 Battelle, fridge		Date/Time 4-30-15 0720		Received By/Stored In C. Bingham		Date/Time 4-30-15 0720				
Relinquished By/Removed From C. Bingham		Date/Time 4-30-15 1010		Received By/Stored In Fed Ex		Date/Time 4-30-15				
Relinquished By/Removed From C. Bingham		Date/Time 4-30-15		Received By/Stored In E. T. W.		Date/Time 5-1-15 9:30				
Relinquished By/Removed From N/A		Date/Time N/A		Received By/Stored In N/A		Date/Time N/A				
FINAL SAMPLE DISPOSITION		Disposal Method		Disposed By		Date/Time		JPO960 REVIEWED BY KIN DATE 4/30/15		
WCH-EE-011										

Appendix 5
Data Validation Supporting Documentation

INORGANIC ANALYSIS DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	E
PROJECT:	600-354		DATA PACKAGE: JP0960		
VALIDATOR:	BLR	LAB:	TAL	DATE: 5/15/15	
			SDG: JP0960		
ANALYSES PERFORMED					
SW-846/ICP	SW-846/GFAA	SW-846/Hg	SW-846 Cyanide		
SAMPLES/MATRIX					
J1UGNC	J1UGN7	J1UGN8	J1UGN9	J1UGP0	J1UGP1
J1UGP2	J1UGP3	J1UGP4	J1UGP5	J1UGP6	J1UGP7
J1UGP8	J1UGP9				
					S&L1

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: Calcium, magnesium - UJ PG

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

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

Comments: LCS - silicon (11%) - J cell
MS - silicon (25%) calcium (140%) antimony (25%)
ly (69%) - J cell

No PAJ

INORGANIC ANALYSIS DATA VALIDATION CHECKLIST

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

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

Comments: _____

6. ICP QUALITY CONTROL (Levels D and E)

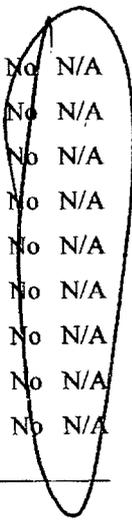
- ICP serial dilution samples analyzed? Yes No N/A
- ICP serial dilution %D values acceptable? Yes No N/A
- ICP post digestion spike required? Yes No N/A
- ICP post digestion spike values acceptable? Yes No N/A
- Standards traceable? Yes No N/A
- Standards expired? Yes No N/A
- Transcription/calculation errors? Yes No N/A

Comments: _____

INORGANIC ANALYSIS DATA VALIDATION CHECKLIST

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

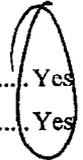
- Duplicate injections performed as required? Yes No N/A
- Duplicate injection %RSD values acceptable? Yes No N/A
- Analytical spikes performed as required? Yes No N/A
- Analytical spike recoveries acceptable? Yes No N/A
- Standards traceable? Yes No N/A
- Standards expired? Yes No N/A
- MSA performed as required? Yes No N/A
- MSA results acceptable? Yes No N/A
- Transcription/calculation errors? Yes No N/A



Comments: _____

8. HOLDING TIMES (all levels)

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



Comments: _____

INORGANIC ANALYSIS DATA VALIDATION CHECKLIST

9. RESULT QUANTITATION AND DETECTION LIMITS (all levels)

- Results reported for all requested analyses? Yes No N/A
- Results supported in the raw data? (Levels D, E)..... Yes No N/A
- Samples properly prepared? (Levels D, E)..... Yes No N/A
- Detection limits meet RDL? Yes No N/A
- Transcription/calculation errors? (Levels D, E)..... Yes No N/A

Comments: _____

Appendix 6
Additional Documentation Requested by Client

Quality Control Results

Client: Washington Closure Hanford

Job Number: 280-68614-1
Sdg Number: JP0960

Method Blank - Batch: 280-275723

**Method: 6010B
Preparation: 3050B**

Lab Sample ID: MB 280-275723/1-A
Client Matrix: Solid
Dilution: 1.0
Analysis Date: 05/05/2015 0014
Prep Date: 05/04/2015 1445
Leach Date: N/A

Analysis Batch: 280-275977
Prep Batch: 280-275723
Leach Batch: N/A
Units: mg/Kg

Instrument ID: MT_026
Lab File ID: 26e050415.asc
Initial Weight/Volume: 1.00 g
Final Weight/Volume: 100 mL

Analyte	Result	Qual	MDL	RL
Antimony	0.38	U	0.38	0.60
Arsenic	0.66	U	0.66	1.0
Barium	0.124	B	0.076	0.50
Beryllium	0.033	U	0.033	0.20
Boron	0.98	U	0.98	2.0
Cadmium	0.041	U	0.041	0.20
Calcium	23.33	B	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	4.25	B	3.8	5.0
Lead	0.27	U	0.27	0.50
Magnesium	7.07	B	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	6.74	B	5.7	10.0
Silver	0.16	U	0.16	0.20
Sodium	59.0	U	59.0	120
Vanadium	0.094	U	0.094	2.0
Zinc	0.40	U	0.40	1.0

Method Blank - Batch: 280-275723

**Method: 6010B
Preparation: 3050B**

Lab Sample ID: MB 280-275723/1-A
Client Matrix: Solid
Dilution: 1.0
Analysis Date: 05/05/2015 1809
Prep Date: 05/04/2015 1445
Leach Date: N/A

Analysis Batch: 280-276143
Prep Batch: 280-275723
Leach Batch: N/A
Units: mg/Kg

Instrument ID: MT_026
Lab File ID: 26c050515.asc
Initial Weight/Volume: 1.00 g
Final Weight/Volume: 100 mL

Analyte	Result	Qual	MDL	RL
Aluminum	2.29	B	1.6	5.0

Quality Control Results

Client: Washington Closure Hanford

Job Number: 280-68614-1
Sdg Number: JP0960

Lab Control Sample - Batch: 280-275723

Method: 6010B
Preparation: 3050B

Lab Sample ID:	LCS 280-275723/2-A	Analysis Batch:	280-275977	Instrument ID:	MT_026
Client Matrix:	Solid	Prep Batch:	280-275723	Lab File ID:	26e050415.asc
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1.00 g
Analysis Date:	05/05/2015 0017	Units:	mg/Kg	Final Weight/Volume:	100 mL
Prep Date:	05/04/2015 1445				
Leach Date:	N/A				

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Antimony	50.0	48.34	97	82 - 110	
Arsenic	100	94.00	94	85 - 110	
Barium	200	207.5	104	87 - 112	
Beryllium	5.00	4.69	94	84 - 114	
Boron	100	94.97	95	80 - 120	
Cadmium	10.0	9.81	98	87 - 110	
Calcium	5000	4877	98	82 - 114	
Chromium	20.0	19.32	97	84 - 114	
Cobalt	50.0	47.59	95	87 - 110	
Copper	25.0	25.56	102	88 - 110	
Iron	100	100.9	101	87 - 120	
Lead	50.0	48.63	97	86 - 110	
Magnesium	5000	4836	97	90 - 110	
Manganese	50.0	49.54	99	88 - 110	
Molybdenum	100	100.5	100	86 - 110	
Nickel	50.0	47.52	95	87 - 110	
Potassium	5000	4981	100	89 - 110	
Selenium	200	189.1	95	83 - 110	
Silicon	1000	106.7	11	10 - 70	
Silver	5.00	5.08	102	87 - 114	
Sodium	5000	5215	104	90 - 112	
Vanadium	50.0	49.39	99	88 - 110	
Zinc	50.0	48.21	96	76 - 114	

Lab Control Sample - Batch: 280-275723

Method: 6010B
Preparation: 3050B

Lab Sample ID:	LCS 280-275723/2-A	Analysis Batch:	280-276143	Instrument ID:	MT_026
Client Matrix:	Solid	Prep Batch:	280-275723	Lab File ID:	26c050515.asc
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1.00 g
Analysis Date:	05/05/2015 1812	Units:	mg/Kg	Final Weight/Volume:	100 mL
Prep Date:	05/04/2015 1445				
Leach Date:	N/A				

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Aluminum	200	182.1	91	82 - 116	

Quality Control Results

Client: Washington Closure Hanford

Job Number: 280-68614-1
Sdg Number: JP0960

Matrix Spike - Batch: 280-275723

Method: 6010B
Preparation: 3050B

Lab Sample ID: 280-68614-1	Analysis Batch: 280-275977	Instrument ID: MT_026
Client Matrix: Solid	Prep Batch: 280-275723	Lab File ID: 26e050415.asc
Dilution: 1.0	Leach Batch: N/A	Initial Weight/Volume: 1.00 g
Analysis Date: 05/05/2015 0028	Units: mg/Kg	Final Weight/Volume: 100 mL
Prep Date: 05/04/2015 1445		
Leach Date: N/A		

Analyte	Sample Result/Qual	Spike Amount	Result	% Rec.	Limit	Qual
Aluminum	5730	205	8712	1451	50 - 200	4
Arsenic	1.8	103	84.89	81	76 - 111	
Barium	75.1	205	277.9	99	52 - 159	
Boron	1.9	103	85.30	81	80 - 120	
Cadmium	0.050 B	10.3	9.01	87	40 - 130	
Calcium	3700	5130	10890	140	43 - 165	
Chromium	6.9	20.5	25.19	89	70 - 200	
Iron	23900	103	29190	5111	70 - 200	4
Magnesium	4100	5130	9828	112	64 - 145	
Manganese	344	51.3	499.4	303	40 - 200	4
Molybdenum	0.23 U	103	89.07	87	75 - 103	
Nickel	9.2	51.3	52.75	85	61 - 126	
Potassium	1480	5130	6357	95	56 - 172	
Selenium	0.76 U	205	168.4	82	76 - 104	
Silicon	328	1030	580.9	25	20 - 200	
Silver	0.14 U	5.13	4.70	92	75 - 141	
Sodium	196	5130	5344	100	78 - 111	
Zinc	45.6	51.3	95.96	98	70 - 200	

Matrix Spike - Batch: 280-275723

Method: 6010B
Preparation: 3050B

Lab Sample ID: 280-68614-1	Analysis Batch: 280-276143	Instrument ID: MT_026
Client Matrix: Solid	Prep Batch: 280-275723	Lab File ID: 26c050515.asc
Dilution: 5.0	Leach Batch: N/A	Initial Weight/Volume: 1.00 g
Analysis Date: 05/05/2015 1822	Units: mg/Kg	Final Weight/Volume: 100 mL
Prep Date: 05/04/2015 1445		
Leach Date: N/A		

Analyte	Sample Result/Qual	Spike Amount	Result	% Rec.	Limit	Qual
Antimony	1.7 U	51.3	27.75	54	20 - 200	
Beryllium	0.15 U	5.13	5.03	98	72 - 105	
Cobalt	9.8	51.3	61.02	100	72 - 106	
Copper	12.8	25.7	38.74	101	37 - 187	
Lead	2.6	51.3	52.75	98	70 - 200	
Vanadium	79.2	51.3	144.7	128	50 - 169	

Quality Control Results

Client: Washington Closure Hanford

Job Number: 280-68614-1
Sdg Number: JP0960

Duplicate - Batch: 280-275723

**Method: 6010B
Preparation: 3050B**

Lab Sample ID: 280-68614-1
Client Matrix: Solid
Dilution: 1.0
Analysis Date: 05/05/2015 0025
Prep Date: 05/04/2015 1445
Leach Date: N/A

Analysis Batch: 280-275977
Prep Batch: 280-275723
Leach Batch: N/A
Units: mg/Kg

Instrument ID: MT_026
Lab File ID: 26e050415.asc
Initial Weight/Volume: 1.07 g
Final Weight/Volume: 100 mL

Analyte	Sample Result/Qual	Result	RPD	Limit	Qual
Aluminum	5730	5595	2	40	
Arsenic	1.8	1.53	14	30	
Barium	75.1	72.94	3	30	
Boron	1.9	1.71	11	30	B
Cadmium	0.050 B	0.0624	23	30	B
Calcium	3700	3594	3	30	
Chromium	6.9	6.75	2	40	
Iron	23900	22850	5	40	
Magnesium	4100	4164	2	30	
Manganese	344	350.3	2	40	
Molybdenum	0.23 U	0.25	NC	30	U
Nickel	9.2	9.75	6	30	
Potassium	1480	1414	4	40	
Selenium	0.76 U	0.83	NC	30	U
Silicon	328	282.7	15	40	
Silver	0.14 U	0.15	NC	30	U
Sodium	196	195.0	0.7	30	
Zinc	45.6	44.09	3	40	

Duplicate - Batch: 280-275723

**Method: 6010B
Preparation: 3050B**

Lab Sample ID: 280-68614-1
Client Matrix: Solid
Dilution: 5.0
Analysis Date: 05/05/2015 1820
Prep Date: 05/04/2015 1445
Leach Date: N/A

Analysis Batch: 280-276143
Prep Batch: 280-275723
Leach Batch: N/A
Units: mg/Kg

Instrument ID: MT_026
Lab File ID: 26c050515.asc
Initial Weight/Volume: 1.07 g
Final Weight/Volume: 100 mL

Analyte	Sample Result/Qual	Result	RPD	Limit	Qual
Antimony	1.7 U	1.8	NC	40	U
Beryllium	0.15 U	0.16	NC	30	U
Cobalt	9.8	9.97	2	30	
Copper	12.8	12.76	0.1	30	
Lead	2.6	3.07	15	40	
Vanadium	79.2	76.59	3	30	

Quality Control Results

Client: Washington Closure Hanford

Job Number: 280-68614-1
Sdg Number: JP0960

Method Blank - Batch: 280-275766

Method: 7471A
Preparation: 7471A

Lab Sample ID: MB 280-275766/1-A	Analysis Batch: 280-276397	Instrument ID: MT_033
Client Matrix: Solid	Prep Batch: 280-275766	Lab File ID: 150506af.TXT
Dilution: 1.0	Leach Batch: N/A	Initial Weight/Volume: 0.60 g
Analysis Date: 05/06/2015 1908	Units: mg/Kg	Final Weight/Volume: 50 mL
Prep Date: 05/06/2015 1500		
Leach Date: N/A		

Analyte	Result	Qual	MDL	RL
Mercury	0.0055	U	0.0055	0.017

Lab Control Sample - Batch: 280-275766

Method: 7471A
Preparation: 7471A

Lab Sample ID: LCS 280-275766/2-A	Analysis Batch: 280-276397	Instrument ID: MT_033
Client Matrix: Solid	Prep Batch: 280-275766	Lab File ID: 150506af.TXT
Dilution: 1.0	Leach Batch: N/A	Initial Weight/Volume: 0.60 g
Analysis Date: 05/06/2015 2008	Units: mg/Kg	Final Weight/Volume: 50 mL
Prep Date: 05/06/2015 1500		
Leach Date: N/A		

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Mercury	0.417	0.433	104	87 - 111	

Matrix Spike - Batch: 280-275766

Method: 7471A
Preparation: 7471A

Lab Sample ID: 280-68614-1	Analysis Batch: 280-276397	Instrument ID: MT_033
Client Matrix: Solid	Prep Batch: 280-275766	Lab File ID: 150506af.TXT
Dilution: 1.0	Leach Batch: N/A	Initial Weight/Volume: 0.59 g
Analysis Date: 05/06/2015 1917	Units: mg/Kg	Final Weight/Volume: 50 mL
Prep Date: 05/06/2015 1500		
Leach Date: N/A		

Analyte	Sample Result/Qual	Spike Amount	Result	% Rec.	Limit	Qual
Mercury	0.0059 U	0.435	0.301	69	87 - 111	N

Quality Control Results

Client: Washington Closure Hanford

Job Number: 280-68614-1
Sdg Number: JP0960

Duplicate - Batch: 280-275766

Method: 7471A
Preparation: 7471A

Lab Sample ID: 280-68614-1
Client Matrix: Solid
Dilution: 1.0
Analysis Date: 05/06/2015 1915
Prep Date: 05/06/2015 1500
Leach Date: N/A

Analysis Batch: 280-276397
Prep Batch: 280-275766
Leach Batch: N/A
Units: mg/Kg

Instrument ID: MT_033
Lab File ID: 150506af.TXT
Initial Weight/Volume: 0.57 g
Final Weight/Volume: 50 mL

Analyte	Sample Result/Qual	Result	RPD	Limit	Qual
Mercury	0.0059 U	0.0060	NC	20	U

Date: 18 May 2015
 To: Washington Closure Hanford Inc. (technical representative)
 From: ELR Consulting
 Project: 100-IU-2 & 100-IU-6 Remaining Waste Sites – Soil Full Protocol - Waste Site 600-358
 Subject: Polyaromatic Hydrocarbon - Data Package No. JP0960-TAL

INTRODUCTION

This memo presents the results of data validation on Data Package No. JP0960 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
J1V6N6	4/29/15	Soil	C	See note 1
J1V6N7	4/29/15	Soil	C	See note 1
J1V6N8	4/29/15	Soil	C	See note 1
J1V6N9	4/29/15	Soil	C	See note 1
J1V6P0	4/29/15	Soil	C	See note 1
J1V6P1	4/29/15	Soil	C	See note 1
J1V6P2	4/29/15	Soil	C	See note 1
J1V6P3	4/29/15	Soil	C	See note 1
J1V6P4	4/29/15	Soil	C	See note 1
J1V6P5	4/29/15	Soil	C	See note 1
J1V6P6	4/29/15	Soil	C	See note 1
J1V6P7	4/29/15	Soil	C	See note 1
J1V6P8	4/29/15	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 (J1V6N7/J1V6P8) 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. JP0960 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: JP0960	REVIEWER: ELR	Project: 600-358	PAGE <u>1</u> OF <u>1</u>
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

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-68614-1

Sdg Number: JP0960

Client Sample ID: J1V6N6

Lab Sample ID: 280-68614-1

Date Sampled: 04/29/2015 1019

Client Matrix: Solid

% Moisture: 2.6

Date Received: 05/01/2015 0930

8310 PAHs (HPLC)

Analysis Method: 8310
 Prep Method: 3550C
 Dilution: 1.0
 Analysis Date: 05/06/2015 0636
 Prep Date: 05/01/2015 2339

Analysis Batch: 280-275992
 Prep Batch: 280-275636

Instrument ID: CHHPLC_G
 Initial Weight/Volume: 30.1 g
 Final Weight/Volume: 4.7 mL
 Injection Volume: 20 µL
 Result Type: PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Acenaphthene		10	U	10	100
Acenaphthylene		9.2	U	9.2	100
Anthracene		3.1	U	3.1	20
Benzo[a]anthracene		3.3	U	3.3	15
Benzo[a]pyrene		6.6	U	6.6	15
Benzo[b]fluoranthene		4.3	U	4.3	15
Benzo[g,h,i]perylene		7.4	U	7.4	31
Benzo[k]fluoranthene		4.0	U	4.0	15
Chrysene		5.0	U	5.0	41
Dibenzo(a,h)anthracene		11	U	11	31
Fluoranthene		13	U	13	41
Fluorene		5.4	U	5.4	31
Indeno[1,2,3-cd]pyrene		12	U	12	31
Naphthalene		12	U	12	100
Phenanthrene		12	U	12	41
Pyrene		12	U	12	41

Surrogate	%Rec	Qualifier	Acceptance Limits
Terphenyl-d14 (SUR)	87		72 - 115

Handwritten signature: r/6/14/15

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-68614-1
Sdg Number: JP0960

Client Sample ID: J1V6N7

Lab Sample ID: 280-68614-2
Client Matrix: Solid

% Moisture: 1.5

Date Sampled: 04/29/2015 1015
Date Received: 05/01/2015 0930

8310 PAHs (HPLC)

Analysis Method: 8310	Analysis Batch: 280-275992	Instrument ID: CHHPLC_G
Prep Method: 3550C	Prep Batch: 280-275636	Initial Weight/Volume: 32.0 g
Dilution: 1.0		Final Weight/Volume: 4 mL
Analysis Date: 05/06/2015 0707		Injection Volume: 20 uL
Prep Date: 05/01/2015 2339		Result Type: PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Acenaphthene		9.5	U	9.5	95
Acenaphthylene		8.6	U	8.6	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		6.9	U	6.9	29
Benzo[k]fluoranthene		3.7	U	3.7	14
Chrysene		4.6	U	4.6	38
Dibenzo(a,h)anthracene		10	U	10	29
Fluoranthene		12	U	12	38
Fluorene		5.0	U	5.0	29
Indeno[1,2,3-cd]pyrene		11	U	11	29
Naphthalene		11	U	11	95
Phenanthrene		11	U	11	38
Pyrene		11	U	11	38

Surrogate	%Rec	Qualifier	Acceptance Limits
Terphenyl-d14 (SUR)	89		72 - 115

✓
5/16/15

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-68614-1
Sdg Number: JP0960

Client Sample ID: J1V6N8

Lab Sample ID: 280-68614-3
Client Matrix: Solid

% Moisture: 1.0

Date Sampled: 04/29/2015 1103
Date Received: 05/01/2015 0930

8310 PAHs (HPLC)

Analysis Method: 8310	Analysis Batch: 280-275992	Instrument ID: CHHPLC_G
Prep Method: 3550C	Prep Batch: 280-275636	Initial Weight/Volume: 32.6 g
Dilution: 1.0		Final Weight/Volume: 4 mL
Analysis Date: 05/06/2015 0838		Injection Volume: 20 uL
Prep Date: 05/01/2015 2339		Result Type: PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Acenaphthene		9.3	U	9.3	93
Acenaphthylene		8.4	U	8.4	93
Anthracene		2.8	U	2.8	19
Benzo[a]anthracene		3.0	U	3.0	14
Benzo[a]pyrene		6.0	U	6.0	14
Benzo[b]fluoranthene		3.9	U	3.9	14
Benzo[g,h,i]perylene		6.7	U	6.7	28
Benzo[k]fluoranthene		3.7	U	3.7	14
Chrysene		4.5	U	4.5	37
Dibenzo(a,h)anthracene		10	U	10	28
Fluoranthene		12	U	12	37
Fluorene		4.9	U	4.9	28
Indeno[1,2,3-cd]pyrene		11	U	11	28
Naphthalene		11	U	11	93
Phenanthrene		11	U	11	37
Pyrene		11	U	11	37
Surrogate		%Rec	Qualifier	Acceptance Limits	
Terphenyl-d14 (SUR)		85		72 - 115	

Handwritten: 5/1/15

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-68614-1
Sdg Number: JP0960

Client Sample ID: J1V6N9

Lab Sample ID: 280-68614-4
Client Matrix: Solid

% Moisture: 3.1

Date Sampled: 04/29/2015 1024
Date Received: 05/01/2015 0930

8310 PAHs (HPLC)

Analysis Method: 8310	Analysis Batch: 280-275992	Instrument ID: CHHPLC_G
Prep Method: 3550C	Prep Batch: 280-275636	Initial Weight/Volume: 30.8 g
Dilution: 1.0		Final Weight/Volume: 4 mL
Analysis Date: 05/06/2015 0909		Injection Volume: 20 uL
Prep Date: 05/01/2015 2339		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		12	J	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		4.0	U	4.0	15
Chrysene		9.3	J X	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)		96		72 - 115	

*MT
5/6/15*

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-68614-1
Sdg Number: JP0960

Client Sample ID: J1V6P0

Lab Sample ID: 280-68614-5
Client Matrix: Solid

% Moisture: 2.9

Date Sampled: 04/29/2015 1045
Date Received: 05/01/2015 0930

8310 PAHs (HPLC)

Analysis Method: 8310	Analysis Batch: 280-275992	Instrument ID: CHHPLC_G
Prep Method: 3550C	Prep Batch: 280-275636	Initial Weight/Volume: 31.7 g
Dilution: 1.0		Final Weight/Volume: 4 mL
Analysis Date: 05/06/2015 0939		Injection Volume: 20 uL
Prep Date: 05/01/2015 2339		Result Type: PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Acenaphthene		9.8	U	9.8	98
Acenaphthylene		8.8	U	8.8	98
Anthracene		3.0	U	3.0	20
Benzo[a]anthracene		3.1	U	3.1	15
Benzo[a]pyrene		6.2	U	6.2	15
Benzo[b]fluoranthene		4.1	U	4.1	15
Benzo[g,h,i]perylene		7.0	U	7.0	29
Benzo[k]fluoranthene		3.8	U	3.8	15
Chrysene		4.7	U	4.7	39
Dibenzo(a,h)anthracene		11	U	11	29
Fluoranthene		13	U	13	39
Fluorene		5.1	U	5.1	29
Indeno[1,2,3-cd]pyrene		12	U	12	29
Naphthalene		12	U	12	98
Phenanthrene		12	U	12	39
Pyrene		12	U	12	39
Surrogate		%Rec	Qualifier	Acceptance Limits	
Terphenyl-d14 (SUR)		88		72 - 115	

MS/MS

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-68614-1
Sdg Number: JP0960

Client Sample ID: J1V6P1

Lab Sample ID: 280-68614-6
Client Matrix: Solid

% Moisture: 2.8

Date Sampled: 04/29/2015 1051
Date Received: 05/01/2015 0930

8310 PAHs (HPLC)

Analysis Method: 8310	Analysis Batch: 280-275992	Instrument ID: CHHPLC_G
Prep Method: 3550C	Prep Batch: 280-275636	Initial Weight/Volume: 31.1 g
Dilution: 1.0		Final Weight/Volume: 4 mL
Analysis Date: 05/06/2015 1010		Injection Volume: 20 uL
Prep Date: 05/01/2015 2339		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		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		7.1	U	7.1	30
Benzo[k]fluoranthene		3.9	U	3.9	15
Chrysene		4.8	U	4.8	40
Dibenzo(a,h)anthracene		11	U	11	30
Fluoranthene		13	U	13	40
Fluorene		5.2	U	5.2	30
Indeno[1,2,3-cd]pyrene		12	U	12	30
Naphthalene		12	U	12	99
Phenanthrene		12	U	12	40
Pyrene		12	U	12	40
Surrogate		%Rec	Qualifier	Acceptance Limits	
Terphenyl-d14 (SUR)		98		72 - 115	

Handwritten signature: M. Skelton

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-68614-1
Sdg Number: JP0960

Client Sample ID: J1V6P2

Lab Sample ID: 280-68614-7
Client Matrix: Solid

% Moisture: 1.1

Date Sampled: 04/29/2015 1059
Date Received: 05/01/2015 0930

8310 PAHs (HPLC)

Analysis Method: 8310	Analysis Batch: 280-275992	Instrument ID: CHHPLC_G
Prep Method: 3550C	Prep Batch: 280-275636	Initial Weight/Volume: 30.4 g
Dilution: 1.0		Final Weight/Volume: 4 mL
Analysis Date: 05/06/2015 1111		Injection Volume: 20 uL
Prep Date: 05/01/2015 2339		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)		91		72 - 115	

M. Slusher

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-68614-1
Sdg Number: JP0960

Client Sample ID: J1V6P3

Lab Sample ID: 280-68614-8
Client Matrix: Solid

% Moisture: 1.8

Date Sampled: 04/29/2015 1028
Date Received: 05/01/2015 0930

8310 PAHs (HPLC)

Analysis Method: 8310	Analysis Batch: 280-275992	Instrument ID: CHHPLC_G
Prep Method: 3550C	Prep Batch: 280-275636	Initial Weight/Volume: 31.1 g
Dilution: 1.0		Final Weight/Volume: 4 mL
Analysis Date: 05/06/2015 1142		Injection Volume: 20 uL
Prep Date: 05/01/2015 2339		Result Type: PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Acenaphthene		9.8	U	9.8	98
Acenaphthylene		8.8	U	8.8	98
Anthracene		3.0	U	3.0	20
Benzo[a]anthracene		3.1	U	3.1	15
Benzo[a]pyrene		6.3	U	6.3	15
Benzo[b]fluoranthene		4.1	U	4.1	15
Benzo[g,h,i]perylene		7.1	U	7.1	29
Benzo[k]fluoranthene		3.9	U	3.9	15
Chrysene		4.8	U	4.8	39
Dibenzo(a,h)anthracene		11	U	11	29
Fluoranthene		13	U	13	39
Fluorene		5.2	U	5.2	29
Indeno[1,2,3-cd]pyrene		12	U	12	29
Naphthalene		12	U	12	98
Phenanthrene		12	U	12	39
Pyrene		12	U	12	39
Surrogate		%Rec	Qualifier	Acceptance Limits	
Terphenyl-d14 (SUR)		92		72 - 115	

*M
5/6/15*

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-68614-1
Sdg Number: JP0960

Client Sample ID: J1V6P4

Lab Sample ID: 280-68614-9
Client Matrix: Solid

% Moisture: 1.7

Date Sampled: 04/29/2015 1043
Date Received: 05/01/2015 0930

8310 PAHs (HPLC)

Analysis Method: 8310	Analysis Batch: 280-275992	Instrument ID: CHHPLC_G
Prep Method: 3550C	Prep Batch: 280-275636	Initial Weight/Volume: 30.5 g
Dilution: 1.0		Final Weight/Volume: 4 mL
Analysis Date: 05/06/2015 1212		Injection Volume: 20 uL
Prep Date: 05/01/2015 2339		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)		81		72 - 115	

Handwritten signature: M. Stuckis

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-68614-1
Sdg Number: JP0960

Client Sample ID: J1V6P5

Lab Sample ID: 280-68614-10
Client Matrix: Solid

% Moisture: 2.6

Date Sampled: 04/29/2015 1056
Date Received: 05/01/2015 0930

8310 PAHs (HPLC)

Analysis Method: 8310	Analysis Batch: 280-275992	Instrument ID: CHHPLC_G
Prep Method: 3550C	Prep Batch: 280-275636	Initial Weight/Volume: 30.8 g
Dilution: 1.0		Final Weight/Volume: 4 mL
Analysis Date: 05/06/2015 1243		Injection Volume: 20 uL
Prep Date: 05/01/2015 2339		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)		80		72 - 115	

Handwritten signature: M. Stokes

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-68614-1
Sdg Number: JP0960

Client Sample ID: J1V6P6

Lab Sample ID: 280-68614-11
Client Matrix: Solid

% Moisture: 1.3

Date Sampled: 04/29/2015 1033
Date Received: 05/01/2015 0930

8310 PAHs (HPLC)

Analysis Method: 8310	Analysis Batch: 280-275992	Instrument ID: CHHPLC_G
Prep Method: 3550C	Prep Batch: 280-275636	Initial Weight/Volume: 32.4 g
Dilution: 1.0		Final Weight/Volume: 4 mL
Analysis Date: 05/06/2015 1313		Injection Volume: 20 uL
Prep Date: 05/01/2015 2339		Result Type: PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Acenaphthene		9.4	U	9.4	94
Acenaphthylene		8.4	U	8.4	94
Anthracene		2.9	U	2.9	19
Benzo[a]anthracene		3.0	U	3.0	14
Benzo[a]pyrene		6.0	U	6.0	14
Benzo[b]fluoranthene		3.9	U	3.9	14
Benzo[g,h,i]perylene		6.8	U	6.8	28
Benzo[k]fluoranthene		3.7	U	3.7	14
Chrysene		4.5	U	4.5	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	94
Phenanthrene		11	U	11	38
Pyrene		11	U	11	38
Surrogate		%Rec	Qualifier	Acceptance Limits	
Terphenyl-d14 (SUR)		90		72 - 115	

*M
5/14/15*

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-68614-1
Sdg Number: JP0960

Client Sample ID: J1V6P7

Lab Sample ID: 280-68614-12
Client Matrix: Solid

% Moisture: 2.0

Date Sampled: 04/29/2015 1038
Date Received: 05/01/2015 0930

8310 PAHs (HPLC)

Analysis Method: 8310	Analysis Batch: 280-275992	Instrument ID: CHHPLC_G
Prep Method: 3550C	Prep Batch: 280-275636	Initial Weight/Volume: 30.1 g
Dilution: 1.0		Final Weight/Volume: 4 mL
Analysis Date: 05/06/2015 1344		Injection Volume: 20 uL
Prep Date: 05/01/2015 2339		Result Type: PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Acenaphthene		10	U	10	100
Acenaphthylene		9.2	U	9.2	100
Anthracene		3.1	U	3.1	20
Benzo[a]anthracene		3.2	U	3.2	15
Benzo[a]pyrene		6.5	U	6.5	15
Benzo[b]fluoranthene		4.3	U	4.3	15
Benzo[g,h,i]perylene		7.3	U	7.3	31
Benzo[k]fluoranthene		4.0	U	4.0	15
Chrysene		4.9	U	4.9	41
Dibenzo(a,h)anthracene		11	U	11	31
Fluoranthene		13	U	13	41
Fluorene		5.4	U	5.4	31
Indeno[1,2,3-cd]pyrene		12	U	12	31
Naphthalene		12	U	12	100
Phenanthrene		12	U	12	41
Pyrene		12	U	12	41
<hr/>					
Surrogate		%Rec	Qualifier	Acceptance Limits	
Terphenyl-d14 (SUR)		86		72 - 115	

✓ 5/16/15

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-68614-1
Sdg Number: JP0960

Client Sample ID: J1V6P8

Lab Sample ID: 280-68614-13
Client Matrix: Solid

% Moisture: 1.3

Date Sampled: 04/29/2015 1015
Date Received: 05/01/2015 0930

8310 PAHs (HPLC)

Analysis Method: 8310	Analysis Batch: 280-275992	Instrument ID: CHHPLC_G
Prep Method: 3550C	Prep Batch: 280-275636	Initial Weight/Volume: 30.3 g
Dilution: 1.0		Final Weight/Volume: 4 mL
Analysis Date: 05/06/2015 1414		Injection Volume: 20 uL
Prep Date: 05/01/2015 2339		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		4.0	U	4.0	15
Chrysene		4.9	U	4.9	40
Dibenzo(a,h)anthracene		11	U	11	30
Fluoranthene		13	U	13	40
Fluorene		5.3	U	5.3	30
Indeno[1,2,3-cd]pyrene		12	U	12	30
Naphthalene		12	U	12	100
Phenanthrene		12	U	12	40
Pyrene		12	U	12	40
Surrogate		%Rec	Qualifier	Acceptance Limits	
Terphenyl-d14 (SUR)		93		72 - 115	

*M
5/6/15*

Appendix 4

Laboratory Narrative and Chain-of-Custody Documentation

CASE NARRATIVE

Client: Washington Closure Hanford

Project: WASHINGTON CLOSURE HANFORD

Job Number: 280-68614-1

SDG #: JP0960

SAF#: RC-232

Date SDG Closed: May 1, 2015
Data Deliverable: 7 Day / Summary

<u>CLIENT ID</u>	<u>LAB ID</u>	<u>ANALYSES REQUESTED</u>	<u>ANALYSES PERFORMED</u>
J1V6N6	280-68614-1	6010/7471/WTPH-D+/8310/8082/WTPH-G/ 353.2	6010B/7471A/NWTPH-Dx/8310/8082/NWTPH-Gx/ 353.2
J1V6N7	280-68614-2	6010/7471/WTPH-D+/8310/8082/WTPH-G/ 353.2	6010B/7471A/NWTPH-Dx/8310/8082/NWTPH-Gx/ 353.2
J1V6N8	280-68614-3	6010/7471/WTPH-D+/8310/8082/WTPH-G/ 353.2	6010B/7471A/NWTPH-Dx/8310/8082/NWTPH-Gx/ 353.2
J1V6N9	280-68614-4	6010/7471/WTPH-D+/8310/8082/WTPH-G/ 353.2	6010B/7471A/NWTPH-Dx/8310/8082/NWTPH-Gx/ 353.2
J1V6P0	280-68614-5	6010/7471/WTPH-D+/8310/8082/WTPH-G/ 353.2	6010B/7471A/NWTPH-Dx/8310/8082/NWTPH-Gx/ 353.2
J1V6P1	280-68614-6	6010/7471/WTPH-D+/8310/8082/WTPH-G/ 353.2	6010B/7471A/NWTPH-Dx/8310/8082/NWTPH-Gx/ 353.2
J1V6P2	280-68614-7	6010/7471/WTPH-D+/8310/8082/WTPH-G/ 353.2	6010B/7471A/NWTPH-Dx/8310/8082/NWTPH-Gx/ 353.2
J1V6P3	280-68614-8	6010/7471/WTPH-D+/8310/8082/WTPH-G/ 353.2	6010B/7471A/NWTPH-Dx/8310/8082/NWTPH-Gx/ 353.2
J1V6P4	280-68614-9	6010/7471/WTPH-D+/8310/8082/WTPH-G/ 353.2	6010B/7471A/NWTPH-Dx/8310/8082/NWTPH-Gx/ 353.2
J1V6P5	280-68614-10	6010/7471/WTPH-D+/8310/8082/WTPH-G/ 353.2	6010B/7471A/NWTPH-Dx/8310/8082/NWTPH-Gx/ 353.2
J1V6P6	280-68614-11	6010/7471/WTPH-D+/8310/8082/WTPH-G/ 353.2	6010B/7471A/NWTPH-Dx/8310/8082/NWTPH-Gx/ 353.2
J1V6P7	280-68614-12	6010/7471/WTPH-D+/8310/8082/WTPH-G/ 353.2	6010B/7471A/NWTPH-Dx/8310/8082/NWTPH-Gx/ 353.2
J1V6P8	280-68614-13	6010/7471/WTPH-D+/8310/8082/WTPH-G/ 353.2	6010B/7471A/NWTPH-Dx/8310/8082/NWTPH-Gx/ 353.2
J1V6P9	280-68614-14	6010/7471	6010B/7471A

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

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

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

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

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

RECEIPT

The samples were received on 5/1/2015 9:30 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 3 coolers at receipt time were 0.3° C, 0.6° C and 4.7° C.

GC VOLATILES - NWTPH-Gx - GRO

No anomalies were encountered.

GC SEMIVOLATILES - SW846 8082 - PCBs

No anomalies were encountered.

GC SEMIVOLATILES - NWTPH-Dx - DRO

No anomalies were encountered.

HPLC - SW846 8310 - PAHs

The RPD between the primary and confirmation columns exceeded 40% for Chrysene in sample J1V6N9. The lower of the two values has been reported, as matrix interference is evident on both columns. The result has been flagged with an "X".

No other anomalies were encountered.

TOTAL METALS - SW846 6010B/7471A

Serial dilution of a digestate in batch 280-275723 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. Several samples required dilutions prior to the analysis of Antimony, Beryllium, Cobalt, Copper, Lead and Vanadium to minimize the interference caused by Titanium concentrations greater than the linear range. The reporting limits have been adjusted relative to the dilution required.

Low levels of Barium, Calcium, Magnesium, Aluminum and Iron are present in the method blank associated with batch 280-275723. Because the concentrations in the method blank are not present at levels greater than half the reporting limit or the associated sample amounts are greater than twenty times the method blank concentration, corrective action is deemed unnecessary.

Silicon is present in the method blank associated with batch 280-275723 at 6.74 mg/kg, which is greater than half the project specific reporting limit (PSRL) of 10 mg/kg. TestAmerica's practical quantitation limit (PQL) for Silicon is 50 mg/kg. The laboratory cannot maintain system cleanliness at this low level; therefore, corrective action is not initiated. It can be noted that the concentration found in the method blank is less than half of the laboratory standard PQL, and with the exception of 'blank' sample J1V6P9, the associated sample amounts are twenty times greater than the method blank concentration.

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 J1V6N6; therefore, control limits are not applicable.

Mercury was recovered outside the control limits in the Matrix Spike performed on sample J1V6N6, and the associated sample result has been flagged "N". There is no indication that the analytical system was operating out of control, and method accuracy has been verified by the acceptable LCS analysis data; therefore, corrective action is deemed unnecessary.

No other anomalies were encountered.

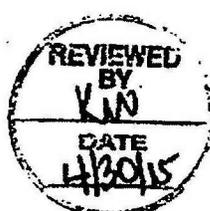
GENERAL CHEMISTRY - MCAWW 353.2 - NITRATE NITRITE as N

The duplicate analysis of sample J1V6P6 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.

Washington Closure Hanford		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST					RC-232-099		Page 1 of 3		
Collector STOWE, GQ		Company Contact Joan Kessner		Telephone No. 375-4688		Project Coordinator KESSNER, JH		Price Code 8B		Data Turnaround 7 days	
Project Designation 100-IU-2 & 100-IU-6 Remaining Waste Sites		Sampling Location 600-358 (SPA, verification)		SAF No. RC-232							
Ice Chest No. RCC-07-005		Field Logbook No. EL-1667-03		COA 0603582000		Method of Shipment Commercial Carrier		Fed Ex			
Shipped To TestAmerica Denver		Offsite Property No. A131408		Bill of Lading/Air Bill No. See ASPC							
Other Labs Shipped To N/A		Preservation		Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	 280-68614 Chain of Custody	
		Type of Container		G/P	aG	aG	aG	Ge	G/P		
		No. of Container(s)		1	1	1	1	3	1		
		Volume		250mL	125mL	250mL	250mL	40mL	250mL		
POSSIBLE SAMPLE HAZARDS/REMARKS N/A		Sample Analysis		See Item (1) in Special Instructions	TPH-Diesel Range - WTPH-D+	PAHs - 8310	PCBs - 8082	TPH-Gasoline Range - WTPH-G	NO2/NO3 - 353.2 (Nitrogen in Nitrite and Nitrate)		
Special Handling and/or Storage Cooling as required											
Sample No.		Matrix	Sample Date	Sample Time							
J1V6N6		SOIL	4/29/15	1019	X	X	X	X	X	X	
J1V6N7		SOIL	4/29/15	1015	X	X	X	X	X	X	
J1V6N8		SOIL	4/29/15	1003	X	X	X	X	X	X	
J1V6N9		SOIL	4/29/15	1024	X	X	X	X	X	X	
J1V6P0		SOIL	4/29/15	1045	X	X	X	X	X	X	
CHAIN OF POSSESSION				Sign/Print Names				SPECIAL INSTRUCTIONS			
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time		(1) ICP Metals - 6010TR (Close-out List) (Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Molybdenum, Nickel, Potassium, Selenium, Silicon, Silver, Sodium, Vanadium, Zinc); Mercury - 7471 - (CV) (Mercury)			
Quincy Awa		4-29-15 1150		C. Bincham		4-29-15 1400					
C. Bincham		4-29-15 1430		1060 Battelle, Inc.		4-29-15 1430					
1060 Battelle, Inc.		4-30-15 0720		C. Bincham		4-30-15 0720					
C. Bincham		4-30-15 1010		Fed Ex		4-30-15					
C. Bincham		4-30-15 9:30		G. J. J. J.		5-1-15 9:30					
FINAL SAMPLE DISPOSITION		Disposal Method		Disposed By		Date/Time		0.1, 0.4, 4.5 IR5+02 T-14, 17 5-1-15 JP0960			

Washington Closure Hanford			CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST						RC-232-099		Page 2 of 3				
Collector STOWE, QG			Company Contact Joan Kessner			Telephone No. 375-4688			Project Coordinator KESSNER, JH		Price Code 8B		Data Turnaround 7 days		
Project Designation 100-IU-2 & 100-IU-6 Remaining Waste Sites			Sampling Location 600-358 (SPA, verification)			SAF No. RC-232									
Ice Chest No. RCC-07-005			Field Logbook No. EL-1667-03			COA 0603582000			Method of Shipment Commercial Carrier / Fed Ex						
Shipped To TestAmerica Denver			Offsite Property No. A131408						Bill of Lading/Air Bill No. See OSA						
Other Labs Shipped To N/A			Preservation		Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C					
POSSIBLE SAMPLE HAZARDS/REMARKS N/A.			Type of Container		GP	aG	aG	aG	Ge*	GP					
			No. of Container(s)		1	1	1	1	3	1					
			Volume		250mL	125mL	250mL	250mL	40mL	250mL					
Special Handling and/or Storage Cooling as required See Sec 5			Sample Analysis		See Item (1) in Special Instructions	TPH-Diesel Range - WTPH-D+	PAHs - 6310	PCBs - 8002	TPH-Gasoline Range - WTPH-G	NO2/NO3 - 353.2 (Nitrogen in Nitrate and Nitrite)					
Sample No.		Matrix	Sample Date	Sample Time											
J1V6P1		SOIL	4/29/15	1051	X	X	X	X	X	X					
J1V6P2		SOIL	4/29/15	1059	X	X	X	X	X	X					
J1V6P3		SOIL	4/29/15	1028	X	X	X	X	X	X					
J1V6P4		SOIL	4/29/15	1043	X	X	X	X	X	X					
J1V6P5		SOIL	4/29/15	1056	X	X	X	X	X	X					
CHAIN OF POSSESSION					SPECIAL INSTRUCTIONS										
Relinquished By/Removed From Quincy Stowe		Date/Time 4-29-15 1150	Signs/Print Names C. Birmingham		Received By/Stored In C. Birmingham		Date/Time 4-29-15 1400		(1) ICP Metals - 6010TR (Close-out List) (Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Molybdenum, Nickel, Potassium, Selenium, Silicon, Silver, Sodium, Vanadium, Zinc); Mercury - 7471 - (CV) (Mercury)						
Relinquished By/Removed From C. Birmingham		Date/Time 4-29-15 1430	Signs/Print Names C. Birmingham		Received By/Stored In 1060 Battelle, fridge		Date/Time 4-29-15 0720								
Relinquished By/Removed From C. Birmingham		Date/Time 4-30-15 1010	Signs/Print Names Fed Ex		Received By/Stored In Fed Ex		Date/Time 4-30-15 9130								
Relinquished By/Removed From C. Birmingham		Date/Time 4-30-15 1010	Signs/Print Names Fed Ex		Received By/Stored In Fed Ex		Date/Time 4-30-15 1010								
Relinquished By/Removed From C. Birmingham		Date/Time 4-30-15 1010	Signs/Print Names Fed Ex		Received By/Stored In Fed Ex		Date/Time 4-30-15 1010								
Relinquished By/Removed From C. Birmingham		Date/Time 4-30-15 1010	Signs/Print Names Fed Ex		Received By/Stored In Fed Ex		Date/Time 4-30-15 1010								
Relinquished By/Removed From C. Birmingham		Date/Time 4-30-15 1010	Signs/Print Names Fed Ex		Received By/Stored In Fed Ex		Date/Time 4-30-15 1010								
Relinquished By/Removed From C. Birmingham		Date/Time 4-30-15 1010	Signs/Print Names Fed Ex		Received By/Stored In Fed Ex		Date/Time 4-30-15 1010		REVIEWED BY KW DATE 4/30/15						
Relinquished By/Removed From C. Birmingham		Date/Time 4-30-15 1010	Signs/Print Names Fed Ex		Received By/Stored In Fed Ex		Date/Time 4-30-15 1010								
FINAL SAMPLE DISPOSITION		Disposed Method	Disposed By		Date/Time		JP0960								

Washington Closure Hanford		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST					RC-232-099		Page 3 of 3		
Collector STOWE, QG		Company Contact Joan Kessner		Telephone No. 375-4688		Project Coordinator KESSNER, JH		Price Code 8 B		Data Turnaround 7 days	
Project Designation 100-IU-2 & 100-IU-6 Remaining Waste Sites		Sampling Location 600-358 (SPA, verification)			SAF No. RC-232						
Ice Chest No. RCC-07-005		Field Logbook No. EL-1667-03		COA 0603582000		Method of Shipment Commercial Carrier / Fed Ex					
Shipped To TestAmerica Denver		Offsite Property No. A131408			BNI of Lading/Air BNI No. See QSPC						
Other Labs Shipped To N/A		Preservation		Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C		
		Type of Container		G/P	eG	eG	eG	Ge*	G/P		
POSSIBLE SAMPLE HAZARDS/REMARKS N/A		No. of Container(s)		1	1	1	1	3	1		
		Volume		250mL	125mL	250mL	250mL	40mL	250mL		
Special Handling and/or Storage Cooling as required		Sample Analysis		See Item (1) in Special Instructions	TPH-Diesel Range - WTPH-D+	PAHs - 8310	PCBs - 8082	TPH-Gasoline Range - WTPH-G	NO2/NO3 - 853.2 (Nitrogen in Nitrite and Nitrate)		
Sample No.	Matrix	Sample Date	Sample Time								
J1V6P6	SOIL	04/29/15	1033	X	X	X	X	X	X		
J1V6P7	SOIL	04/29/15	1038	X	X	X	X	X	X		
J1V6P8	SOIL	04/29/15	1015	X	X	X	X	X	X		
J1V6P9	SOIL	04/29/15	1009	X							4/29/15 CWS
CHAIN OF POSSESSION				Sign/Print Names				SPECIAL INSTRUCTIONS			
Relinquished By/Removed From Dwight Stowe		Date/Time 4-29-15 1150		Received By/Stored In C. Bingham		Date/Time 4/29/15 1400		(1) ICP Metals - 8010TR (Close-out List) (Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Molybdenum, Nickel, Potassium, Selenium, Silicon, Silver, Sodium, Vanadium, Zinc); Mercury - 7471 - (CV) (Mercury)			
Relinquished By/Removed From C. Bingham		Date/Time 4-29-15 1430		Received By/Stored In 1060 Battelle, fridge		Date/Time 4-29-15 1430					
Relinquished By/Removed From 1060 Battelle, fridge		Date/Time 4-30-15 0720		Received By/Stored In C. Bingham		Date/Time 4-30-15 0720					
Relinquished By/Removed From C. Bingham		Date/Time 4-30-15 1010		Received By/Stored In Fed Ex		Date/Time 4-30-15					
Relinquished By/Removed From CO		Date/Time		Received By/Stored In E. J. Tuzi		Date/Time 5-1-15 9:30					
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time					
FINAL SAMPLE DISPOSITION		Disposal Method		Disposed By		Date/Time		 JPO960			

Appendix 5
Data Validation Supporting Documentation

GENERAL ORGANIC DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	E
PROJECT:	600-358		DATA PACKAGE: JP0960		
VALIDATOR:	ELR	LAB: TAL	DATE: 5/15/13		
		SDG: JP0960			
ANALYSES PERFORMED					
8015	8021	8141	8151	8315	8310
		WTPH-HCID	WTPH-G	WTPH-D	
SAMPLES/MATRIX:					
JIV6N6	JIV6N7	JIV6N8	JIV6N9	JIV6P5	JIV6P1
JIV6P2	JIV6P3	JIV6P4	JIV6P5	JIV6P6	JIV6P7
JIV6P8					
					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 PAJ

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)

Fluoridil ® (or other aborbant) cleanup performed? Yes No N/A
Lot check performed? Yes No N/A
Check recoveries acceptable? 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

Quality Control Results

Client: Washington Closure Hanford

Job Number: 280-68614-1
Sdg Number: JP0960

Method Blank - Batch: 280-275636

Method: 8310
Preparation: 3550C

Lab Sample ID: MB 280-275636/1-A
Client Matrix: Solid
Dilution: 1.0
Analysis Date: 05/06/2015 0535
Prep Date: 05/01/2015 2339
Leach Date: N/A

Analysis Batch: 280-275992
Prep Batch: 280-275636
Leach Batch: N/A
Units: ug/Kg

Instrument ID: CHHPLC_G
Lab File ID: G0505033.D
Initial Weight/Volume: 32.8 g
Final Weight/Volume: 4 mL
Injection Volume: 20 uL
Column ID: PRIMARY

Analyte	Result	Qual	MDL	RL
Acenaphthene	9.1	U	9.1	91
Acenaphthylene	8.2	U	8.2	91
Anthracene	2.8	U	2.8	18
Benzo[a]anthracene	2.9	U	2.9	14
Benzo[a]pyrene	5.9	U	5.9	14
Benzo[b]fluoranthene	3.8	U	3.8	14
Benzo[g,h,i]perylene	6.6	U	6.6	27
Benzo[k]fluoranthene	3.6	U	3.6	14
Chrysene	4.4	U	4.4	37
Dibenzo(a,h)anthracene	10	U	10	27
Fluoranthene	12	U	12	37
Fluorene	4.8	U	4.8	27
Indeno[1,2,3-cd]pyrene	11	U	11	27
Naphthalene	11	U	11	91
Phenanthrene	11	U	11	37
Pyrene	11	U	11	37
Surrogate	% Rec		Acceptance Limits	
Terphenyl-d14 (SUR)	92		72 - 115	

Quality Control Results

Client: Washington Closure Hanford

Job Number: 280-68614-1
Sdg Number: JP0960

Lab Control Sample - Batch: 280-275636

**Method: 8310
Preparation: 3550C**

Lab Sample ID: LCS 280-275636/2-A
Client Matrix: Solid
Dilution: 1.0
Analysis Date: 05/06/2015 0606
Prep Date: 05/01/2015 2339
Leach Date: N/A

Analysis Batch: 280-275992
Prep Batch: 280-275636
Leach Batch: N/A
Units: ug/Kg

Instrument ID: CHHPLC_G
Lab File ID: G0505034.D
Initial Weight/Volume: 32.0 g
Final Weight/Volume: 4 mL
Injection Volume: 20 uL
Column ID: PRIMARY

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Acenaphthene	1880	1640	87	75 - 116	
Acenaphthylene	1880	1620	86	66 - 115	
Anthracene	1880	1570	84	71 - 115	
Benzo[a]anthracene	1880	1720	92	77 - 120	
Benzo[a]pyrene	1880	1670	89	69 - 115	
Benzo[b]fluoranthene	1880	1680	90	56 - 115	
Benzo[g,h,i]perylene	1880	1880	101	72 - 120	
Benzo[k]fluoranthene	1880	1740	93	76 - 115	
Chrysene	1880	1700	91	79 - 115	
Dibenzo(a,h)anthracene	1880	1650	88	72 - 115	
Fluoranthene	1880	1710	91	77 - 115	
Fluorene	1880	1780	95	77 - 115	
Indeno[1,2,3-cd]pyrene	1880	1710	91	78 - 115	
Naphthalene	1880	1700	91	68 - 120	
Phenanthrene	1880	1630	87	75 - 115	
Pyrene	1880	1810	97	72 - 115	
Surrogate		% Rec		Acceptance Limits	
Terphenyl-d14 (SUR)		94		72 - 115	

Quality Control Results

Client: Washington Closure Hanford

Job Number: 280-68614-1
Sdg Number: JP0960

**Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-275636**

**Method: 8310
Preparation: 3550C**

MS Lab Sample ID: 280-68614-2
Client Matrix: Solid
Dilution: 1.0
Analysis Date: 05/06/2015 0737
Prep Date: 05/01/2015 2339
Leach Date: N/A

Analysis Batch: 280-275992
Prep Batch: 280-275636
Leach Batch: N/A

Instrument ID: CHHPLC_G
Lab File ID: G0505037.D
Initial Weight/Volume: 30.9 g
Final Weight/Volume: 4 mL
Injection Volume: 20 uL
Column ID: PRIMARY

MSD Lab Sample ID: 280-68614-2
Client Matrix: Solid
Dilution: 1.0
Analysis Date: 05/06/2015 0808
Prep Date: 05/01/2015 2339
Leach Date: N/A

Analysis Batch: 280-275992
Prep Batch: 280-275636
Leach Batch: N/A

Instrument ID: CHHPLC_G
Lab File ID: G0505038.D
Initial Weight/Volume: 30.3 g
Final Weight/Volume: 4 mL
Injection Volume: 20 uL
Column ID: PRIMARY

Analyte	% Rec.		Limit	RPD	RPD Limit	MS Qual	MSD Qual
	MS	MSD					
Acenaphthene	85	78	75 - 116	8	20		
Acenaphthylene	84	77	66 - 115	7	20		
Anthracene	82	75	71 - 115	7	20		
Benzo[a]anthracene	90	83	77 - 120	6	20		
Benzo[a]pyrene	94	87	69 - 115	6	20		
Benzo[b]fluoranthene	95	88	56 - 115	6	20		
Benzo[g,h,i]perylene	102	94	72 - 120	6	20		
Benzo[k]fluoranthene	94	87	76 - 115	6	20		
Chrysene	90	84	79 - 115	6	20		
Dibenzo(a,h)anthracene	90	83	72 - 115	6	20		
Fluoranthene	89	82	77 - 115	6	20		
Fluorene	93	85	77 - 115	7	20		
Indeno[1,2,3-cd]pyrene	92	85	78 - 115	6	20		
Naphthalene	87	81	68 - 120	6	20		
Phenanthrene	85	78	75 - 115	6	20		
Pyrene	94	86	72 - 115	6	20		
Surrogate		MS % Rec	MSD % Rec			Acceptance Limits	
Terphenyl-d14 (SUR)		92	85			72 - 115	

Quality Control Results

Client: Washington Closure Hanford

Job Number: 280-68614-1
Sdg Number: JP0960

**Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-275636**

**Method: 8310
Preparation: 3550C**

MS Lab Sample ID: 280-68614-2 Units: ug/Kg
Client Matrix: Solid
Dilution: 1.0
Analysis Date: 05/06/2015 0737
Prep Date: 05/01/2015 2339
Leach Date: N/A

MSD Lab Sample ID: 280-68614-2
Client Matrix: Solid
Dilution: 1.0
Analysis Date: 05/06/2015 0808
Prep Date: 05/01/2015 2339
Leach Date: N/A

Analyte	Sample Result/Qual	MS Spike Amount	MSD Spike Amount	MS Result/Qual	MSD Result/Qual
Acenaphthene	9.5 U	1970	2010	1670	1560
Acenaphthylene	8.6 U	1970	2010	1650	1540
Anthracene	2.9 U	1970	2010	1620	1510
Benzo[a]anthracene	3.0 U	1970	2010	1770	1670
Benzo[a]pyrene	6.1 U	1970	2010	1850	1750
Benzo[b]fluoranthene	4.0 U	1970	2010	1870	1770
Benzo[g,h,i]perylene	6.9 U	1970	2010	2010	1880
Benzo[k]fluoranthene	3.7 U	1970	2010	1860	1750
Chrysene	4.6 U	1970	2010	1780	1680
Dibenzo(a,h)anthracene	10 U	1970	2010	1770	1660
Fluoranthene	12 U	1970	2010	1760	1650
Fluorene	5.0 U	1970	2010	1830	1710
Indeno[1,2,3-cd]pyrene	11 U	1970	2010	1810	1710
Naphthalene	11 U	1970	2010	1720	1620
Phenanthrene	11 U	1970	2010	1680	1570
Pyrene	11 U	1970	2010	1850	1740

Date: 18 May 2015
 To: Washington Closure Hanford Inc. (technical representative)
 From: ELR Consulting
 Project: 100-IU-2 & 100-IU-6 Remaining Waste Sites – Soil Full Protocol - Waste Site 600-358
 Subject: PCB - Data Package No. JP0960-TAL

INTRODUCTION

This memo presents the results of data validation on Data Package No. JP0960 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
J1V6N6	4/29/15	Soil	C	See note 1
J1V6N7	4/29/15	Soil	C	See note 1
J1V6N8	4/29/15	Soil	C	See note 1
J1V6N9	4/29/15	Soil	C	See note 1
J1V6P0	4/29/15	Soil	C	See note 1
J1V6P1	4/29/15	Soil	C	See note 1
J1V6P2	4/29/15	Soil	C	See note 1
J1V6P3	4/29/15	Soil	C	See note 1
J1V6P4	4/29/15	Soil	C	See note 1
J1V6P5	4/29/15	Soil	C	See note 1
J1V6P6	4/29/15	Soil	C	See note 1
J1V6P7	4/29/15	Soil	C	See note 1
J1V6P8	4/29/15	Soil	C	See note 1

1 – PCBs by 8082.

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

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

DATA QUALITY OBJECTIVES

· **Holding Times**

Holding times are not applicable for PCB analysis.

· **Method Blank**

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

All method blank results were acceptable.

Field Blanks

No field blanks were submitted for analysis.

· **Accuracy**

Matrix Spike & Laboratory Control Sample

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

All accuracy results were acceptable.

Surrogate Recovery

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

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

All surrogate results were acceptable.

Precision

Matrix Spike/Matrix Spike Duplicate Samples

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

All precision results were acceptable.

Field Duplicate Samples

One set of field duplicates (J1V6N7/J1V6P8) 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. JP0960 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 procedures herein are as follows:

- U - Indicates the compound or analyte was analyzed for and not detected in the sample. The value reported is the sample quantitation limit corrected for sample dilution and moisture content by the laboratory.
- UJ - Indicates the compound or analyte was analyzed for and not detected in the sample. Due to a minor QC deficiency identified during the data validation, the associated quantitation limit is an estimate.
- J - Indicates the compound or analyte was analyzed for and detected. Due to a minor QC deficiency identified during the data validation, the associated quantitation limit is an estimate.
- R - Indicates the compound or analyte was analyzed for, detected, and due to an identified major QC deficiency, the data are unusable.
- UR - Indicates the compound or analyte was analyzed for and not detected in the sample. Additionally, the data is unusable due to an identified major QC deficiency.
- NJ - Indicates presumptive evidence of a compound at an estimated value. The data may not be valid for some specific applications (i.e., usable for decision-making purposes).
- N - Indicates presumptive evidence of a compound. The data may not be valid for some specific applications (i.e., usable for decision-making purposes).

Appendix 2
Summary of Data Qualification

PCB DATA QUALIFICATION SUMMARY*

SDG: JP0960	REVIEWER: ELR	Project: 600-358	PAGE <u>1</u> OF <u>1</u>
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

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-68614-1
Sdg Number: JP0960

Client Sample ID: J1V6N6

Lab Sample ID: 280-68614-1

Date Sampled: 04/29/2015 1019

Client Matrix: Solid

% Moisture: 2.6

Date Received: 05/01/2015 0930

8082 Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analysis Method: 8082 Analysis Batch: 280-275968 Instrument ID: SGC_W
Prep Method: 3550C Prep Batch: 280-275810 Initial Weight/Volume: 30.5 g
Dilution: 1.0 Final Weight/Volume: 5 mL
Analysis Date: 05/05/2015 1731 Injection Volume: 1 uL
Prep Date: 05/04/2015 1306 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		103		59 - 130	
Tetrachloro-m-xylene		88		53 - 128	

Handwritten: 5/6/15

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-68614-1

Sdg Number: JP0960

Client Sample ID: J1V6N7

Lab Sample ID: 280-68614-2

Date Sampled: 04/29/2015 1015

Client Matrix: Solid

% Moisture: 1.5

Date Received: 05/01/2015 0930

8082 Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analysis Method: 8082	Analysis Batch: 280-275968	Instrument ID: SGC_W
Prep Method: 3550C	Prep Batch: 280-275810	Initial Weight/Volume: 30.4 g
Dilution: 1.0		Final Weight/Volume: 5 mL
Analysis Date: 05/05/2015 1840		Injection Volume: 1 uL
Prep Date: 05/04/2015 1306		Result Type: PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Aroclor 1016		2.8	U	2.8	10
Aroclor 1221		8.0	U	8.0	17
Aroclor 1232		2.0	U	2.0	10
Aroclor 1242		4.7	U	4.7	10
Aroclor 1248		4.7	U	4.7	10
Aroclor 1254		2.6	U	2.6	10
Aroclor 1260		2.6	U	2.6	10
Surrogate		%Rec	Qualifier	Acceptance Limits	
Decachlorobiphenyl		91		59 - 130	
Tetrachloro-m-xylene		79		53 - 128	

ns/ckr

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-68614-1
Sdg Number: JP0960

Client Sample ID: J1V6N8

Lab Sample ID: 280-68614-3
Client Matrix: Solid

% Moisture: 1.0

Date Sampled: 04/29/2015 1103
Date Received: 05/01/2015 0930

8082 Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analysis Method: 8082 Analysis Batch: 280-275968 Instrument ID: SGC_W
Prep Method: 3550C Prep Batch: 280-275810 Initial Weight/Volume: 31.4 g
Dilution: 1.0 Final Weight/Volume: 5 mL
Analysis Date: 05/05/2015 1903 Injection Volume: 1 uL
Prep Date: 05/04/2015 1306 Result Type: PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Aroclor 1016		2.7	U	2.7	9.7
Aroclor 1221		7.7	U	7.7	16
Aroclor 1232		1.9	U	1.9	9.7
Aroclor 1242		4.5	U	4.5	9.7
Aroclor 1248		4.5	U	4.5	9.7
Aroclor 1254		2.5	U	2.5	9.7
Aroclor 1260		2.5	U	2.5	9.7
Surrogate		%Rec	Qualifier	Acceptance Limits	
Decachlorobiphenyl		97		59 - 130	
Tetrachloro-m-xylene		83		53 - 128	

M. S. K.

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-68614-1

Sdg Number: JP0960

Client Sample ID: J1V6N9

Lab Sample ID: 280-68614-4

Date Sampled: 04/29/2015 1024

Client Matrix: Solid

% Moisture: 3.1

Date Received: 05/01/2015 0930

8082 Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analysis Method: 8082	Analysis Batch: 280-275968	Instrument ID: SGC_W
Prep Method: 3550C	Prep Batch: 280-275810	Initial Weight/Volume: 30.1 g
Dilution: 1.0		Final Weight/Volume: 5 mL
Analysis Date: 05/05/2015 1928		Injection Volume: 1 uL
Prep Date: 05/04/2015 1306		Result Type: PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Aroclor 1016		2.8	U	2.8	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		101		59 - 130	
Tetrachloro-m-xylene		86		53 - 128	

MS/MS

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-68614-1
Sdg Number: JP0960

Client Sample ID: J1V6P0

Lab Sample ID: 280-68614-5
Client Matrix: Solid

% Moisture: 2.9

Date Sampled: 04/29/2015 1045
Date Received: 05/01/2015 0930

8082 Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analysis Method: 8082 Analysis Batch: 280-275968 Instrument ID: SGC_W
Prep Method: 3550C Prep Batch: 280-275810 Initial Weight/Volume: 31.5 g
Dilution: 1.0 Final Weight/Volume: 5 mL
Analysis Date: 05/05/2015 1949 Injection Volume: 1 uL
Prep Date: 05/04/2015 1306 Result Type: PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Aroclor 1016		2.7	U	2.7	9.8
Aroclor 1221		7.9	U	7.9	16
Aroclor 1232		2.0	U	2.0	9.8
Aroclor 1242		4.6	U	4.6	9.8
Aroclor 1248		4.6	U	4.6	9.8
Aroclor 1254		2.6	U	2.6	9.8
Aroclor 1260		2.6	U	2.6	9.8
Surrogate		%Rec	Qualifier	Acceptance Limits	
Decachlorobiphenyl		99		59 - 130	
Tetrachloro-m-xylene		83		53 - 128	

W stubs

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-68614-1
Sdg Number: JP0960

Client Sample ID: J1V6P1

Lab Sample ID: 280-68614-6

Date Sampled: 04/29/2015 1051

Client Matrix: Solid

% Moisture: 2.8

Date Received: 05/01/2015 0930

8082 Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analysis Method: 8082 Analysis Batch: 280-275968 Instrument ID: SGC_W
Prep Method: 3550C Prep Batch: 280-275810 Initial Weight/Volume: 30.4 g
Dilution: 1.0 Final Weight/Volume: 5 mL
Analysis Date: 05/05/2015 2012 Injection Volume: 1 uL
Prep Date: 05/04/2015 1306 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		98		59 - 130	
Tetrachloro-m-xylene		81		53 - 128	

W Stacks

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-68614-1

Sdg Number: JP0960

Client Sample ID: J1V6P2

Lab Sample ID: 280-68614-7

Date Sampled: 04/29/2015 1059

Client Matrix: Solid

% Moisture: 1.1

Date Received: 05/01/2015 0930

8082 Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analysis Method: 8082	Analysis Batch: 280-275968	Instrument ID: SGC_W
Prep Method: 3550C	Prep Batch: 280-275810	Initial Weight/Volume: 30.0 g
Dilution: 1.0		Final Weight/Volume: 5 mL
Analysis Date: 05/05/2015 2035		Injection Volume: 1 uL
Prep Date: 05/04/2015 1306		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		106		59 - 130	
Tetrachloro-m-xylene		87		53 - 128	

M. Stule

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-68614-1
Sdg Number: JP0960

Client Sample ID: J1V6P3

Lab Sample ID: 280-68614-8

Date Sampled: 04/29/2015 1028

Client Matrix: Solid

% Moisture: 1.8

Date Received: 05/01/2015 0930

8082 Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analysis Method: 8082	Analysis Batch: 280-275968	Instrument ID: SGC_W
Prep Method: 3550C	Prep Batch: 280-275810	Initial Weight/Volume: 31.1 g
Dilution: 1.0		Final Weight/Volume: 5 mL
Analysis Date: 05/05/2015 2058		Injection Volume: 1 uL
Prep Date: 05/04/2015 1306		Result Type: PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Aroclor 1016		2.7	U	2.7	9.8
Aroclor 1221		7.9	U	7.9	16
Aroclor 1232		2.0	U	2.0	9.8
Aroclor 1242		4.6	U	4.6	9.8
Aroclor 1248		4.6	U	4.6	9.8
Aroclor 1254		2.6	U	2.6	9.8
Aroclor 1260		2.6	U	2.6	9.8
Surrogate		%Rec	Qualifier	Acceptance Limits	
Decachlorobiphenyl		96		59 - 130	
Tetrachloro-m-xylene		82		53 - 128	

✓ S/G/S

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-68614-1

Sdg Number: JP0960

Client Sample ID: J1V6P4

Lab Sample ID: 280-68614-9

Date Sampled: 04/29/2015 1043

Client Matrix: Solid

% Moisture: 1.7

Date Received: 05/01/2015 0930

8082 Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analysis Method: 8082	Analysis Batch: 280-275968	Instrument ID: SGC_W
Prep Method: 3550C	Prep Batch: 280-275810	Initial Weight/Volume: 32.9 g
Dilution: 1.0		Final Weight/Volume: 5 mL
Analysis Date: 05/05/2015 2122		Injection Volume: 1 uL
Prep Date: 05/04/2015 1306		Result Type: PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Aroclor 1016		2.6	U	2.6	9.3
Aroclor 1221		7.4	U	7.4	15
Aroclor 1232		1.9	U	1.9	9.3
Aroclor 1242		4.3	U	4.3	9.3
Aroclor 1248		4.3	U	4.3	9.3
Aroclor 1254		2.4	U	2.4	9.3
Aroclor 1260		2.4	U	2.4	9.3
Surrogate		%Rec	Qualifier	Acceptance Limits	
Decachlorobiphenyl		101		59 - 130	
Tetrachloro-m-xylene		86		53 - 128	

Handwritten signature: M. Skelley

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-68614-1
Sdg Number: JP0960

Client Sample ID: J1V6P5

Lab Sample ID: 280-68614-10
Client Matrix: Solid

% Moisture: 2.6

Date Sampled: 04/29/2015 1056
Date Received: 05/01/2015 0930

8082 Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analysis Method: 8082	Analysis Batch: 280-275968	Instrument ID: SGC_W
Prep Method: 3550C	Prep Batch: 280-275810	Initial Weight/Volume: 30.4 g
Dilution: 1.0		Final Weight/Volume: 5 mL
Analysis Date: 05/05/2015 2145		Injection Volume: 1 uL
Prep Date: 05/04/2015 1306		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		91		59 - 130	
Tetrachloro-m-xylene		78		53 - 128	

W/stacks

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-68614-1
Sdg Number: JP0960

Client Sample ID: J1V6P6

Lab Sample ID: 280-68614-11

Date Sampled: 04/29/2015 1033

Client Matrix: Solid

% Moisture: 1.3

Date Received: 05/01/2015 0930

8082 Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analysis Method: 8082	Analysis Batch: 280-275968	Instrument ID: SGC_W
Prep Method: 3550C	Prep Batch: 280-275810	Initial Weight/Volume: 30.7 g
Dilution: 1.0		Final Weight/Volume: 5 mL
Analysis Date: 05/05/2015 2208		Injection Volume: 1 uL
Prep Date: 05/04/2015 1306		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		103		59 - 130	
Tetrachloro-m-xylene		85		53 - 128	

W. Stetler

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-68614-1
Sdg Number: JP0960

Client Sample ID: J1V6P7

Lab Sample ID: 280-68614-12
Client Matrix: Solid

% Moisture: 2.0

Date Sampled: 04/29/2015 1038
Date Received: 05/01/2015 0930

8082 Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analysis Method: 8082 Analysis Batch: 280-275968 Instrument ID: SGC_W
Prep Method: 3550C Prep Batch: 280-275810 Initial Weight/Volume: 30.3 g
Dilution: 1.0 Final Weight/Volume: 5 mL
Analysis Date: 05/05/2015 2231 Injection Volume: 1 uL
Prep Date: 05/04/2015 1306 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		103		59 - 130	
Tetrachloro-m-xylene		86		53 - 128	

Stack

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-68614-1
Sdg Number: JP0960

Client Sample ID: J1V6P8

Lab Sample ID: 280-68614-13
Client Matrix: Solid

% Moisture: 1.3

Date Sampled: 04/29/2015 1015
Date Received: 05/01/2015 0930

8082 Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analysis Method: 8082	Analysis Batch: 280-275968	Instrument ID: SGC_W
Prep Method: 3550C	Prep Batch: 280-275810	Initial Weight/Volume: 30.4 g
Dilution: 1.0		Final Weight/Volume: 5 mL
Analysis Date: 05/05/2015 2254		Injection Volume: 1 uL
Prep Date: 05/04/2015 1306		Result Type: PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Aroclor 1016		2.8	U	2.8	10
Aroclor 1221		8.0	U	8.0	16
Aroclor 1232		2.0	U	2.0	10
Aroclor 1242		4.7	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		93		59 - 130	
Tetrachloro-m-xylene		83		53 - 128	

MS/Cal

Appendix 4

Laboratory Narrative and Chain-of-Custody Documentation

CASE NARRATIVE

Client: Washington Closure Hanford

Project: WASHINGTON CLOSURE HANFORD

Job Number: 280-68614-1

SDG #: JP0960

SAF#: RC-232

Date SDG Closed: May 1, 2015
Data Deliverable: 7 Day / Summary

<u>CLIENT ID</u>	<u>LAB ID</u>	<u>ANALYSES REQUESTED</u>	<u>ANALYSES PERFORMED</u>
J1V6N6	280-68614-1	6010/7471/WTPH-D+/8310/8082/WTPH-G/ 353.2	6010B/7471A/NWTPH-Dx/8310/8082/NWTPH-Gx/ 353.2
J1V6N7	280-68614-2	6010/7471/WTPH-D+/8310/8082/WTPH-G/ 353.2	6010B/7471A/NWTPH-Dx/8310/8082/NWTPH-Gx/ 353.2
J1V6N8	280-68614-3	6010/7471/WTPH-D+/8310/8082/WTPH-G/ 353.2	6010B/7471A/NWTPH-Dx/8310/8082/NWTPH-Gx/ 353.2
J1V6N9	280-68614-4	6010/7471/WTPH-D+/8310/8082/WTPH-G/ 353.2	6010B/7471A/NWTPH-Dx/8310/8082/NWTPH-Gx/ 353.2
J1V6P0	280-68614-5	6010/7471/WTPH-D+/8310/8082/WTPH-G/ 353.2	6010B/7471A/NWTPH-Dx/8310/8082/NWTPH-Gx/ 353.2
J1V6P1	280-68614-6	6010/7471/WTPH-D+/8310/8082/WTPH-G/ 353.2	6010B/7471A/NWTPH-Dx/8310/8082/NWTPH-Gx/ 353.2
J1V6P2	280-68614-7	6010/7471/WTPH-D+/8310/8082/WTPH-G/ 353.2	6010B/7471A/NWTPH-Dx/8310/8082/NWTPH-Gx/ 353.2
J1V6P3	280-68614-8	6010/7471/WTPH-D+/8310/8082/WTPH-G/ 353.2	6010B/7471A/NWTPH-Dx/8310/8082/NWTPH-Gx/ 353.2
J1V6P4	280-68614-9	6010/7471/WTPH-D+/8310/8082/WTPH-G/ 353.2	6010B/7471A/NWTPH-Dx/8310/8082/NWTPH-Gx/ 353.2
J1V6P5	280-68614-10	6010/7471/WTPH-D+/8310/8082/WTPH-G/ 353.2	6010B/7471A/NWTPH-Dx/8310/8082/NWTPH-Gx/ 353.2
J1V6P6	280-68614-11	6010/7471/WTPH-D+/8310/8082/WTPH-G/ 353.2	6010B/7471A/NWTPH-Dx/8310/8082/NWTPH-Gx/ 353.2
J1V6P7	280-68614-12	6010/7471/WTPH-D+/8310/8082/WTPH-G/ 353.2	6010B/7471A/NWTPH-Dx/8310/8082/NWTPH-Gx/ 353.2
J1V6P8	280-68614-13	6010/7471/WTPH-D+/8310/8082/WTPH-G/ 353.2	6010B/7471A/NWTPH-Dx/8310/8082/NWTPH-Gx/ 353.2
J1V6P9	280-68614-14	6010/7471	6010B/7471A

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

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

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

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

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

RECEIPT

The samples were received on 5/1/2015 9:30 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 3 coolers at receipt time were 0.3° C, 0.6° C and 4.7° C.

GC VOLATILES - NWTPH-Gx - GRO

No anomalies were encountered.

GC SEMIVOLATILES - SW846 8082 - PCBs

No anomalies were encountered.

GC SEMIVOLATILES - NWTPH-Dx - DRQ

No anomalies were encountered.

HPLC - SW846 8310 - PAHs

The RPD between the primary and confirmation columns exceeded 40% for Chrysene in sample J1V6N9. The lower of the two values has been reported; as matrix interference is evident on both columns. The result has been flagged with an "X".

No other anomalies were encountered.

TOTAL METALS - SW846 6010B/7471A

Serial dilution of a digestate in batch 280-275723 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. Several samples required dilutions prior to the analysis of Antimony, Beryllium, Cobalt, Copper, Lead and Vanadium to minimize the interference caused by Titanium concentrations greater than the linear range. The reporting limits have been adjusted relative to the dilution required.

Low levels of Barium, Calcium, Magnesium, Aluminum and Iron are present in the method blank associated with batch 280-275723. Because the concentrations in the method blank are not present at levels greater than half the reporting limit or the associated sample amounts are greater than twenty times the method blank concentration, corrective action is deemed unnecessary.

Silicon is present in the method blank associated with batch 280-275723 at 6.74 mg/kg, which is greater than half the project specific reporting limit (PSRL) of 10 mg/kg. TestAmerica's practical quantitation limit (PQL) for Silicon is 50 mg/kg. The laboratory cannot maintain system cleanliness at this low level; therefore, corrective action is not initiated. It can be noted that the concentration found in the method blank is less than half of the laboratory standard PQL, and with the exception of 'blank' sample J1V6P9, the associated sample amounts are twenty times greater than the method blank concentration.

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 J1V6N6; therefore, control limits are not applicable.

Mercury was recovered outside the control limits in the Matrix Spike performed on sample J1V6N6, and the associated sample result has been flagged "N". There is no indication that the analytical system was operating out of control, and method accuracy has been verified by the acceptable LCS analysis data; therefore, corrective action is deemed unnecessary.

No other anomalies were encountered.

GENERAL CHEMISTRY - MCAWW 353.2 - NITRATE NITRITE as N

The duplicate analysis of sample J1V6P6 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.

Washington Closure Hanford		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				RC-232-099	Page 1 of 3
Collector STOWE, QG	Company Contact Joan Kessner	Telephone No. 375-4688	Project Coordinator KESSNER, JH	Price Code 88	Data Turnaround 7 days		
Project Designation 100-IU-2 & 100-IU-6 Remaining Waste Sites	Sampling Location 600-358 (SPA, verification)		SAF No. RC-232				
Ice Chest No. RCC-07-005	Field Logbook No. EL-1667-03	COA 0603582000	Method of Shipment Commercial Carrier Fed Ex				
Shipped To TestAmerica Denver	Offsite Property No. A131408	Bill of Lading/Air Bill No. See ASPC					

Other Labs Shipped To N/A	Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	 280-68614 Chain of Custody
	Type of Container	GP	gG	gG	gG	Gr	GP	
	No. of Container(s)	1	1	1	1	3	1	
	Volume	250mL	125mL	250mL	250mL	40mL	250mL	
POSSIBLE SAMPLE HAZARDS/REMARKS N/A	Sample Analysis	See Item (1) in Special Instructions	TPH-Diesel Range - WTPH-D +	PAHs - 8310	PCBs - 8062	TPH-Gasoline Range - WTPH-G	NO2/NO3 - 353.2 (Nitrogen in Nitrite and Nitrate)	
Special Handling and/or Storage Cooling as required								

Sample No.	Matrix	Sample Date	Sample Time										
J1V6N6	SOIL	4/29/15	1019	X	X	X	X	X	X				
J1V6N7	SOIL	4/29/15	1015	X	X	X	X	X	X				
J1V6N8	SOIL	4/29/15	1033	X	X	X	X	X	X				
J1V6N9	SOIL	4/29/15	1024	X	X	X	X	X	X				
J1V6P0	SOIL	4/29/15	1045	X	X	X	X	X	X				

CHAIN OF POSSESSION		Sign/Print Names	
Relinquished By/Removed From Quincy Rowe 4-29-15 1150	Received By/Stored In C. Bingham 4-29-15 1130		
Relinquished By/Removed From C. Bingham 4-29-15 1400	Received By/Stored In C. Bingham 4-29-15 1400		
Relinquished By/Removed From C. Bingham 4-29-15 1430	Received By/Stored In 1060 Battelle, Inc 4-29-15 1430		
Relinquished By/Removed From 1060 Battelle, Inc 4-30-15 0720	Received By/Stored In C. Bingham 4-30-15 0720		
Relinquished By/Removed From C. Bingham 4-30-15 1010	Received By/Stored In Cedex 4-30-15		
Relinquished By/Removed From Cedex 5-1-15 9:30	Received By/Stored In Cedex 5-1-15 9:30		
Relinquished By/Removed From O	Received By/Stored In		
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

SPECIAL INSTRUCTIONS

(1) ICP Metals - 6010TR (Close-out List) (Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Molybdenum, Nickel, Potassium, Selenium, Silicon, Silver, Sodium, Vanadium, Zinc); Mercury - 7471 - (CV) (Mercury)

O.1, 0.4, 4.5 ICS+02
Tentative AD 5-1-15

REVIEWED BY
KW
DATE
4/30/15

JP0960

Washington Closure Hanford		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST					RC-232-099		Page 2 of 3		
Collector STOWE, QG		Company Contact Joan Kessner		Telephone No. 375-4688		Project Coordinator KESSNER, JH		Price Code 88		Data Turnaround 7 days	
Project Designation 100-IU-2 & 100-IU-6 Remaining Waste Sites		Sampling Location 600-358 (SPA, verification)		SAF No. RC-232							
Ice Chest No. RCC-07-005		Field Logbook No. EL-1667-03		COA 0603582000		Method of Shipment Commercial Carrier / Fed Ex					
Shipped To TestAmerica Denver		Offsite Property No. A131408		BBI of Lading/Air Bill No. See OSFC							
Other Labs Shipped To N/A		Preservation		Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C		
POSSIBLE SAMPLE HAZARDS/REMARKS N/A		Type of Container		GF	GF	GF	GF	GF	GF		
Special Handling and/or Storage Cooling as required		No. of Container(s)		1	1	1	1	3	1		
		Volume		250mL	125mL	250mL	250mL	40mL	250mL		
		Sample Analysis		See Item (1) in Special Instructions	TPH-Diesel Range - WTPH-D +	PAHs - 8310	PCBs - 8082	TPH-Gasoline Range - WTPH-G	NO2/NO3 - 353.2 (Nitrogen in Nitrate and Nitrite)		
Sample No.	Matrix	Sample Date	Sample Time								
J1V8P1	SOIL	4/29/15	1051	X	X	X	X	X	X		
J1V8P2	SOIL	4/29/15	1059	X	X	X	X	X	X		
J1V8P3	SOIL	4/29/15	1028	X	X	X	X	X	X		
J1V8P4	SOIL	4/29/15	1043	X	X	X	X	X	X		
J1V8P5	SOIL	4/29/15	1056	X	X	X	X	X	X		
CHAIN OF POSSESSION				Sign/Print Names				SPECIAL INSTRUCTIONS			
Relinquished By/Removed From Quincy Stowe 4-29-15 1150		Received By/Stored In C. Bingham 4-29-15 1150		(1) ICP Metals - 6010TR (Close-out List) (Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Molybdenum, Nickel, Potassium, Selenium, Silicon, Silver, Sodium, Vanadium, Zinc); Mercury - 7471 - (CV) (Mercury)							
Relinquished By/Removed From C. Bingham 4-29-15 1400		Received By/Stored In C. Bingham 4-29-15 1400									
Relinquished By/Removed From C. Bingham 4-29-15 1430		Received By/Stored In 1060 Battelle, fridge 4-29-15 1430									
Relinquished By/Removed From 1060 Battelle, fridge 4-30-15 0720		Received By/Stored In C. Bingham 4-30-15 0720									
Relinquished By/Removed From C. Bingham 4-30-15 1010		Received By/Stored In Fed Ex 4-30-15									
Relinquished By/Removed From C. Bingham 4-30-15 1010		Received By/Stored In Fed Ex 5-1-15 9130									
Relinquished By/Removed From C. Bingham 4-30-15 1010		Received By/Stored In C. Bingham 4-30-15 1010									
FINAL SAMPLE DISPOSITION		Disposal Method		Disposed By		Date/Time		JP0960			

Washington Closure Hanford		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				RC-232-099	Page 3 of 3
Collector STOWE, QG	Company Contact Joan Kessner	Telephone No. 375-4688	Project Coordinator KESSNER, JH		Price Code	Data Turnaround	
Project Designation 100-IU-2 & 100-IU-6 Remaining Waste Sites	Sampling Location 800-358 (SPA, verification)	SAF No. RC-232	8 B		7 days		
Ice Chest No. RCC-07-005	Field Logbook No. EL-1667-03	COA 0603582000	Method of Shipment Commercial Carrier		Fed Ex		
Shipped To TestAmerica Denver	Offsite Property No. A131408	Bill of Lading/Air Bill No. See OSTR					

Other Labs Shipped To N/A	Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C				
	Type of Container	GP	gP	gP	gP	GP	GP				
	No. of Container(s)	1	1	1	1	3	1				
	Volume	250mL	125mL	250mL	250mL	40mL	250mL				
POSSIBLE SAMPLE HAZARDS/REMARKS N/A	Sample Analysis	See item (1) in Special Instructions	TPH-Diesel Range - WTPH-D+	PAHs - B310	PCBs - B082	TPH-Gasoline Range - WTPH-G	HQ2ND3-353.2 (Nitrogen in Nitric and Nitrate)				
Special Handling and/or Storage Cooling as required											

Sample No.	Matrix	Sample Date	Sample Time								
J1V6P6	SOIL	04/29/15	1033	X	X	X	X	X	X		
J1V6P7	SOIL	04/29/15	1038	X	X	X	X	X	X		
J1V6P8	SOIL	04/29/15	1015	X	X	X	X	X	X		
J1V6P9	SOIL	04/29/15	1009	X							4/29/15 WMS

CHAIN OF POSSESSION		Sign/Print Names	
Relinquished By/Removed From Quincy Stowe	Date/Time 4-29-15 1150	Received By/Stored in C. Bingham	Date/Time 4-29-15 1150
Relinquished By/Removed From C. Bingham	Date/Time 4-29-15 1400	Received By/Stored in C. Bingham	Date/Time 4-29-15 1400
Relinquished By/Removed From 1060 Battelle, fridge	Date/Time 4-30-15 0720	Received By/Stored in C. Bingham	Date/Time 4-30-15 0720
Relinquished By/Removed From C. Bingham	Date/Time 4-30-15 1010	Received By/Stored in Fed Ex	Date/Time 4-30-15 1010
Relinquished By/Removed From CO	Date/Time	Received By/Stored in E. J. [Signature]	Date/Time 5-1-15 9:30

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) (Mercury)



JPO960

FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

Appendix 5
Data Validation Supporting Documentation

PCB DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	E
PROJECT:	600-358		DATA PACKAGE: JP0960		
VALIDATOR:	ELR	LAB:	TAC	DATE: 5/15/15	
			SDG:	JP0960	
ANALYSES PERFORMED					
SW-846 8081	SW-846 8081 (TCLP)	SW-846 8082	SW-846 8081 (TCLP)		
SAMPLES/MATRIX					
JUG6G	JUG6N7	JUG6N8	JUG6N9	JUG6P0	JUG6P1
JUG6P2	JUG6P3	JUG6P4	JUG6P5	JUG6P6	JUG6P7
JUG6P8					
soil					

1. DATA PACKAGE COMPLETENESS AND CASE NARRATIVE

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

Comments: _____

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

Initial calibrations acceptable? Yes No **N/A**
 Continuing calibrations acceptable? Yes No **N/A**
 Standards traceable? Yes No **N/A**
 Standards expired? Yes No **N/A**
 Calculation check acceptable? Yes No **N/A**
 DDT and endrin breakdowns acceptable? Yes No **N/A**

Comments: _____

PCB DATA VALIDATION CHECKLIST

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

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

Comments: no FB

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

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

Comments: no PA

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: _____

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)

Fluorilic ® (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

Quality Control Results

Client: Washington Closure Hanford

Job Number: 280-68614-1
Sdg Number: JP0960

Method Blank - Batch: 280-275810

Method: 8082
Preparation: 3550C

Lab Sample ID: MB 280-275810/1-A
Client Matrix: Solid
Dilution: 1.0
Analysis Date: 05/05/2015 1644
Prep Date: 05/04/2015 1306
Leach Date: N/A

Analysis Batch: 280-275968
Prep Batch: 280-275810
Leach Batch: N/A
Units: ug/Kg

Instrument ID: SGC_W
Lab File ID: 05051524.D
Initial Weight/Volume: 31.4 g
Final Weight/Volume: 5 mL
Injection Volume: 1 uL
Column ID: PRIMARY

Analyte	Result	Qual	MDL	RL
Aroclor 1016	2.6	U	2.6	9.6
Aroclor 1221	7.7	U	7.7	16
Aroclor 1232	1.9	U	1.9	9.6
Aroclor 1242	4.5	U	4.5	9.6
Aroclor 1248	4.5	U	4.5	9.6
Aroclor 1254	2.5	U	2.5	9.6
Aroclor 1260	2.5	U	2.5	9.6

Surrogate	% Rec	Acceptance Limits
Decachlorobiphenyl	107	59 - 130
Tetrachloro-m-xylene	88	53 - 128

Lab Control Sample - Batch: 280-275810

Method: 8082
Preparation: 3550C

Lab Sample ID: LCS 280-275810/2-A
Client Matrix: Solid
Dilution: 1.0
Analysis Date: 05/05/2015 1707
Prep Date: 05/04/2015 1306
Leach Date: N/A

Analysis Batch: 280-275968
Prep Batch: 280-275810
Leach Batch: N/A
Units: ug/Kg

Instrument ID: SGC_W
Lab File ID: 05051525.D
Initial Weight/Volume: 31.7 g
Final Weight/Volume: 5 mL
Injection Volume: 1 uL
Column ID: PRIMARY

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Aroclor 1016	31.5	32.5	103	54 - 132	
Aroclor 1260	31.5	33.9	108	62 - 129	

Surrogate	% Rec	Acceptance Limits
Decachlorobiphenyl	104	59 - 130
Tetrachloro-m-xylene	87	53 - 128

Quality Control Results

Client: Washington Closure Hanford

Job Number: 280-68614-1
Sdg Number: JP0960

**Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-275810**

**Method: 8082
Preparation: 3550C**

MS Lab Sample ID: 280-68614-1
Client Matrix: Solid
Dilution: 1.0
Analysis Date: 05/05/2015 1754
Prep Date: 05/04/2015 1306
Leach Date: N/A

Analysis Batch: 280-275968
Prep Batch: 280-275810
Leach Batch: N/A

Instrument ID: SGC_W
Lab File ID: 05051527.D
Initial Weight/Volume: 30.2 g
Final Weight/Volume: 5 mL
Injection Volume: 1 uL
Column ID: PRIMARY

MSD Lab Sample ID: 280-68614-1
Client Matrix: Solid
Dilution: 1.0
Analysis Date: 05/05/2015 1817
Prep Date: 05/04/2015 1306
Leach Date: N/A

Analysis Batch: 280-275968
Prep Batch: 280-275810
Leach Batch: N/A

Instrument ID: SGC_W
Lab File ID: 05051528.D
Initial Weight/Volume: 30.2 g
Final Weight/Volume: 5 mL
Injection Volume: 1 uL
Column ID: PRIMARY

Analyte	% Rec.		Limit	RPD	RPD Limit	MS Qual	MSD Qual
	MS	MSD					
Aroclor 1016	100	105	54 - 132	5	26		
Aroclor 1260	107	109	62 - 129	1	26		
Surrogate	MS % Rec		MSD % Rec	Acceptance Limits			
Decachlorobiphenyl	109		103	59 - 130			
Tetrachloro-m-xylene	94		87	53 - 128			

**Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-275810**

**Method: 8082
Preparation: 3550C**

MS Lab Sample ID: 280-68614-1
Client Matrix: Solid
Dilution: 1.0
Analysis Date: 05/05/2015 1754
Prep Date: 05/04/2015 1306
Leach Date: N/A

Units: ug/Kg

MSD Lab Sample ID: 280-68614-1
Client Matrix: Solid
Dilution: 1.0
Analysis Date: 05/05/2015 1817
Prep Date: 05/04/2015 1306
Leach Date: N/A

Analyte	Sample		MS Spike Amount	MSD Spike Amount	MS Result/Qual	MSD Result/Qual
	Result/Qual	Amount				
Aroclor 1016	2.8	U	34.0	34.0	33.9	35.8
Aroclor 1260	2.6	U	34.0	34.0	36.5	37.1

Date: 18 May 2015
 To: Washington Closure Hanford Inc. (technical representative)
 From: ELR Consulting
 Project: 100-IU-2 & 100-IU-6 Remaining Waste Sites – Soil Full Protocol - Waste Site 600-358
 Subject: Wet Chemistry - Data Package No. JP0960-TAL

INTRODUCTION

This memo presents the results of data validation on Data Package No. JP0960 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
J1V6N6	4/29/15	Soil	C	See note 1
J1V6N7	4/29/15	Soil	C	See note 1
J1V6N8	4/29/15	Soil	C	See note 1
J1V6N9	4/29/15	Soil	C	See note 1
J1V6P0	4/29/15	Soil	C	See note 1
J1V6P1	4/29/15	Soil	C	See note 1
J1V6P2	4/29/15	Soil	C	See note 1
J1V6P3	4/29/15	Soil	C	See note 1
J1V6P4	4/29/15	Soil	C	See note 1
J1V6P5	4/29/15	Soil	C	See note 1
J1V6P6	4/29/15	Soil	C	See note 1
J1V6P7	4/29/15	Soil	C	See note 1
J1V6P8	4/29/15	Soil	C	See note 1

1 – Nitrate/nitrite by 353.2.

Data validation was conducted in accordance with the Washington Closure Hanford (WCH) validation statement of work and the 100 Area Remedial Action Sampling and Analysis Plan (DOE/RL-96-22, Rev. 5, September 2009). Appendices 1 through 6 provide the following information as indicated below:

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

DATA QUALITY PARAMETERS

· Holding Times

Analytical holding times for metals are assessed to ascertain whether the holding time requirements were met by the laboratory. The holding time requirements are as follows: Soil samples must be analyzed within 28 days for nitrate/nitrite.

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

All holding times were acceptable.

· Method Blanks

Method Blanks

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

All method blank results were acceptable.

Field Blanks

No 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 (J1V6N7/J1V6P8) was 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 (RQLs) to ensure that laboratory detection levels meet the required criteria. All analytes met the RQL.

- **Completeness**

Data package JP0960 was submitted for validation and verified for completeness. Completeness is based on the percentage of data determined to be valid (i.e., not rejected). The completion percentage was 100%.

MAJOR DEFICIENCIES

None found.

MINOR DEFICIENCIES

None found.

REFERENCES

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

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

Appendix 1
Glossary of Data Reporting Qualifiers

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

- U - Indicates the compound or analyte was analyzed for and not detected in the sample. The value reported is the sample quantitation limit corrected for sample dilution and moisture content by the laboratory.
- UJ - Indicates the compound or analyte was analyzed for and not detected in the sample. Due to a minor QC deficiency identified during the data validation, the associated quantitation limit is an estimate.
- J - Indicates the compound or analyte was analyzed for and detected. Due to a minor QC deficiency identified during the data validation, the associated concentration is an estimate, but the data are usable for decision-making purposes.
- BJ - Applied to inorganic analyses only. Indicates the analyte concentration was greater than the IDL but less than the CRDL and is considered an estimated value.
- R - Indicates the compound or analyte was analyzed for, detected, and due to an identified major QC deficiency, the data are unusable.
- UR - Indicates the compound or analyte was analyzed for and not detected in the sample. Additionally, the data is unusable due to an identified major QC deficiency.
- NJ - Indicates presumptive evidence of a compound at an estimated value. The data may not be valid for some specific applications (i.e., usable for decision-making purposes).
- N - Indicates presumptive evidence of a compound. The data may not be valid for some specific applications (i.e., usable for decision-making purposes).

Appendix 2
Summary of Data Qualification

WET CHEMISTRY DATA QUALIFICATION SUMMARY*

SDG: JP0960	REVIEWER: ELR	Project: 600-358	PAGE <u>1</u> OF <u>1</u>
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

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-68614-1
Sdg Number: JP0960

General Chemistry

Client Sample ID: J1V6N6

Lab Sample ID: 280-68614-1

Client Matrix: Solid

% Moisture: 2.6

Date Sampled: 04/29/2015 1019

Date Received: 05/01/2015 0930

Analyte	Result	Qual	Units	MDL	RL	Dil	Method
Nitrate Nitrite as N-Soluble	0.85		mg/Kg	0.35	0.74	1.0	353.2
Analysis Batch: 280-275928				Analysis Date: 05/04/2015 1654		DryWt Corrected: Y	

Analyte	Result	Qual	Units	RL	RL	Dil	Method
Percent Moisture	2.6		%	0.10	0.10	1.0	D-2216
Analysis Batch: 280-275680				Analysis Date: 05/02/2015 1429		DryWt Corrected: N	

✓ 5/6/15

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-68614-1
Sdg Number: JP0960

General Chemistry

Client Sample ID: J1V6N7

Lab Sample ID: 280-68614-2

Date Sampled: 04/29/2015 1015

Client Matrix: Solid

% Moisture: 1.5

Date Received: 05/01/2015 0930

Analyte	Result	Qual	Units	MDL	RL	Dil	Method
Nitrate Nitrite as N-Soluble	3.1		mg/Kg	0.34	0.71	1.0	353.2
Analysis Batch: 280-275928				Analysis Date: 05/04/2015 1700		DryWt Corrected: Y	

Analyte	Result	Qual	Units	RL	RL	Dil	Method
Percent Moisture	1.5		%	0.10	0.10	1.0	D-2216
Analysis Batch: 280-275680				Analysis Date: 05/02/2015 1429		DryWt Corrected: N	

MS/leader

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-68614-1
Sdg Number: JP0960

General Chemistry

Client Sample ID: J1V6N8

Lab Sample ID: 280-68614-3

Date Sampled: 04/29/2015 1103

Client Matrix: Solid

% Moisture: 1.0

Date Received: 05/01/2015 0930

Analyte	Result	Qual	Units	MDL	RL	Dil	Method
Nitrate Nitrite as N-Soluble	2.5		mg/Kg	0.36	0.75	1.0	353.2
Analysis Batch: 280-275928				Analysis Date: 05/04/2015 1702		DryWt Corrected: Y	

Analyte	Result	Qual	Units	RL	RL	Dil	Method
Percent Moisture	1.0		%	0.10	0.10	1.0	D-2216
Analysis Batch: 280-275680				Analysis Date: 05/02/2015 1429		DryWt Corrected: N	

MS/6/15

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-68614-1
Sdg Number: JP0960

General Chemistry

Client Sample ID: J1V6N9

Lab Sample ID: 280-68614-4
Client Matrix: Solid

% Moisture: 3.1

Date Sampled: 04/29/2015 1024
Date Received: 05/01/2015 0930

Analyte	Result	Qual	Units	MDL	RL	Dil	Method
Nitrate Nitrite as N-Soluble	1.1		mg/Kg	0.35	0.73	1.0	353.2
Analysis Batch: 280-275928				Analysis Date: 05/04/2015 1704		DryWt Corrected: Y	

Analyte	Result	Qual	Units	RL	RL	Dil	Method
Percent Moisture	3.1		%	0.10	0.10	1.0	D-2216
Analysis Batch: 280-275680				Analysis Date: 05/02/2015 1429		DryWt Corrected: N	

MS/col's

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-68614-1
Sdg Number: JP0960

General Chemistry

Client Sample ID: J1V6P0

Lab Sample ID: 280-68614-5

Date Sampled: 04/29/2015 1045

Client Matrix: Solid

% Moisture: 2.9

Date Received: 05/01/2015 0930

Analyte	Result	Qual	Units	MDL	RL	Dil	Method
Nitrate Nitrite as N-Soluble	1.9		mg/Kg	0.36	0.75	1.0	353.2
Analysis Batch: 280-275928				Analysis Date: 05/04/2015 1706		DryWt Corrected: Y	

Analyte	Result	Qual	Units	RL	RL	Dil	Method
Percent Moisture	2.9		%	0.10	0.10	1.0	D-2216
Analysis Batch: 280-275680				Analysis Date: 05/02/2015 1429		DryWt Corrected: N	

W/Slates

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-68614-1
Sdg Number: JP0960

General Chemistry

Client Sample ID: J1V6P1

Lab Sample ID: 280-68614-6

Client Matrix: Solid

% Moisture: 2.8

Date Sampled: 04/29/2015 1051
Date Received: 05/01/2015 0930

Analyte	Result	Qual	Units	MDL	RL	Dil	Method
Nitrate Nitrite as N-Soluble	32.5		mg/Kg	0.35	0.73	1.0	353.2
Analysis Batch: 280-275928				Analysis Date: 05/04/2015 1708		DryWt Corrected: Y	

Analyte	Result	Qual	Units	RL	RL	Dil	Method
Percent Moisture	2.8		%	0.10	0.10	1.0	D-2216
Analysis Batch: 280-275680				Analysis Date: 05/02/2015 1429		DryWt Corrected: N	

MS/16/15

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-68614-1
Sdg Number: JP0960

General Chemistry

Client Sample ID: J1V6P2

Lab Sample ID: 280-68614-7
Client Matrix: Solid

% Moisture: 1.1

Date Sampled: 04/29/2015 1059
Date Received: 05/01/2015 0930

Analyte	Result	Qual	Units	MDL	RL	Dil	Method
Nitrate Nitrite as N-Soluble	12.4		mg/Kg	0.33	0.70	1.0	353.2
Analysis Batch: 280-275928				Analysis Date: 05/04/2015 1710		DryWt Corrected: Y	
Analyte	Result	Qual	Units	RL	RL	Dil	Method
Percent Moisture	1.1		%	0.10	0.10	1.0	D-2216
Analysis Batch: 280-275680				Analysis Date: 05/02/2015 1429		DryWt Corrected: N	

*W
5/16/15*

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-68614-1
Sdg Number: JP0960

General Chemistry

Client Sample ID: J1V6P3

Lab Sample ID: 280-68614-8

Date Sampled: 04/29/2015 1028

Client Matrix: Solid

% Moisture: 1.8

Date Received: 05/01/2015 0930

Analyte	Result	Qual	Units	MDL	RL	Dil	Method
Nitrate Nitrite as N-Soluble	0.82		mg/Kg	0.35	0.74	1.0	353.2
Analysis Batch: 280-275928				Analysis Date: 05/04/2015 1712		DryWt Corrected: Y	

Analyte	Result	Qual	Units	RL	RL	Dil	Method
Percent Moisture	1.8		%	0.10	0.10	1.0	D-2216
Analysis Batch: 280-275680				Analysis Date: 05/02/2015 1429		DryWt Corrected: N	

MS/16/15

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-68614-1
Sdg Number: JP0960

General Chemistry

Client Sample ID: J1V6P4

Lab Sample ID: 280-68614-9

Date Sampled: 04/29/2015 1043

Client Matrix: Solid

% Moisture: 1.7

Date Received: 05/01/2015 0930

Analyte	Result	Qual	Units	MDL	RL	Dil	Method
Nitrate Nitrite as N-Soluble	8.7		mg/Kg	0.35	0.74	1.0	353.2
Analysis Batch: 280-275928				Analysis Date: 05/04/2015 1726		DryWt Corrected: Y	

Analyte	Result	Qual	Units	RL	RL	Dil	Method
Percent Moisture	1.7		%	0.10	0.10	1.0	D-2216
Analysis Batch: 280-275680				Analysis Date: 05/02/2015 1429		DryWt Corrected: N	

W/Slabs

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-68614-1
Sdg Number: JP0960

General Chemistry

Client Sample ID: J1V6P5

Lab Sample ID: 280-68614-10

Date Sampled: 04/29/2015 1056

Client Matrix: Solid

% Moisture: 2.6

Date Received: 05/01/2015 0930

Analyte	Result	Qual	Units	MDL	RL	Dil	Method
Nitrate Nitrite as N-Soluble	7.1		mg/Kg	0.36	0.75	1.0	353.2
Analysis Batch: 280-275928				Analysis Date: 05/04/2015 1728		DryWt Corrected: Y	

Analyte	Result	Qual	Units	RL	RL	Dil	Method
Percent Moisture	2.6		%	0.10	0.10	1.0	D-2216
Analysis Batch: 280-275680				Analysis Date: 05/02/2015 1429		DryWt Corrected: N	

W-5/16/15

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-68614-1
Sdg Number: JP0960

General Chemistry

Client Sample ID: J1V6P6

Lab Sample ID: 280-68614-11

Client Matrix: Solid

% Moisture: 1.3

Date Sampled: 04/29/2015 1033

Date Received: 05/01/2015 0930

Analyte	Result	Qual	Units	MDL	RL	Dil	Method
Nitrate Nitrite as N-Soluble	2.7	M	mg/Kg	0.34	0.72	1.0	353.2
Analysis Batch: 280-275928				Analysis Date: 05/04/2015 1730		DryWt Corrected: Y	

Analyte	Result	Qual	Units	RL	RL	Dil	Method
Percent Moisture	1.3		%	0.10	0.10	1.0	D-2216
Analysis Batch: 280-275680				Analysis Date: 05/02/2015 1429		DryWt Corrected: N	

5/16/15

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-68614-1
Sdg Number: JP0960

General Chemistry

Client Sample ID: J1V6P7

Lab Sample ID: 280-68614-12

Date Sampled: 04/29/2015 1038

Client Matrix: Solid

% Moisture: 2.0

Date Received: 05/01/2015 0930

Analyte	Result	Qual	Units	MDL	RL	Dil	Method
Nitrate Nitrite as N-Soluble	2.8		mg/Kg	0.34	0.72	1.0	353.2
Analysis Batch: 280-275928				Analysis Date: 05/04/2015 1736		DryWt Corrected: Y	

Analyte	Result	Qual	Units	RL	RL	Dil	Method
Percent Moisture	2.0		%	0.10	0.10	1.0	D-2216
Analysis Batch: 280-275680				Analysis Date: 05/02/2015 1429		DryWt Corrected: N	

sticks

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-68614-1
Sdg Number: JP0960

General Chemistry

Client Sample ID: J1V6P8

Lab Sample ID: 280-68614-13

Client Matrix: Solid

% Moisture: 1.3

Date Sampled: 04/29/2015 1015

Date Received: 05/01/2015 0930

Analyte	Result	Qual	Units	MDL	RL	Dil	Method
Nitrate Nitrite as N-Soluble	2.8		mg/Kg	0.35	0.73	1.0	353.2
Analysis Batch: 280-275928				Analysis Date: 05/04/2015 1738		DryWt Corrected: Y	

Analyte	Result	Qual	Units	RL	RL	Dil	Method
Percent Moisture	1.3		%	0.10	0.10	1.0	D-2216
Analysis Batch: 280-275680				Analysis Date: 05/02/2015 1429		DryWt Corrected: N	

✓ 5/16/15

Appendix 4

Laboratory Narrative and Chain-of-Custody Documentation

CASE NARRATIVE

Client: Washington Closure Hanford

Project: WASHINGTON CLOSURE HANFORD

Job Number: 280-68614-1

SDG #: JP0960

SAF#: RC-232

Date SDG Closed: May 1, 2015
Data Deliverable: 7 Day / Summary

<u>CLIENT ID</u>	<u>LAB ID</u>	<u>ANALYSES REQUESTED</u>	<u>ANALYSES PERFORMED</u>
J1V6N6	280-68614-1	6010/7471/WTPH-D+/8310/8082/WTPH-G/ 353.2	6010B/7471A/NWTPH-Dx/8310/8082/NWTPH-Gx/ 353.2
J1V6N7	280-68614-2	6010/7471/WTPH-D+/8310/8082/WTPH-G/ 353.2	6010B/7471A/NWTPH-Dx/8310/8082/NWTPH-Gx/ 353.2
J1V6N8	280-68614-3	6010/7471/WTPH-D+/8310/8082/WTPH-G/ 353.2	6010B/7471A/NWTPH-Dx/8310/8082/NWTPH-Gx/ 353.2
J1V6N9	280-68614-4	6010/7471/WTPH-D+/8310/8082/WTPH-G/ 353.2	6010B/7471A/NWTPH-Dx/8310/8082/NWTPH-Gx/ 353.2
J1V6P0	280-68614-5	6010/7471/WTPH-D+/8310/8082/WTPH-G/ 353.2	6010B/7471A/NWTPH-Dx/8310/8082/NWTPH-Gx/ 353.2
J1V6P1	280-68614-8	6010/7471/WTPH-D+/8310/8082/WTPH-G/ 353.2	6010B/7471A/NWTPH-Dx/8310/8082/NWTPH-Gx/ 353.2
J1V6P2	280-68614-7	6010/7471/WTPH-D+/8310/8082/WTPH-G/ 353.2	6010B/7471A/NWTPH-Dx/8310/8082/NWTPH-Gx/ 353.2
J1V6P3	280-68614-8	6010/7471/WTPH-D+/8310/8082/WTPH-G/ 353.2	6010B/7471A/NWTPH-Dx/8310/8082/NWTPH-Gx/ 353.2
J1V6P4	280-68614-9	6010/7471/WTPH-D+/8310/8082/WTPH-G/ 353.2	6010B/7471A/NWTPH-Dx/8310/8082/NWTPH-Gx/ 353.2
J1V6P5	280-68614-10	6010/7471/WTPH-D+/8310/8082/WTPH-G/ 353.2	6010B/7471A/NWTPH-Dx/8310/8082/NWTPH-Gx/ 353.2
J1V6P6	280-68614-11	6010/7471/WTPH-D+/8310/8082/WTPH-G/ 353.2	6010B/7471A/NWTPH-Dx/8310/8082/NWTPH-Gx/ 353.2
J1V6P7	280-68614-12	6010/7471/WTPH-D+/8310/8082/WTPH-G/ 353.2	6010B/7471A/NWTPH-Dx/8310/8082/NWTPH-Gx/ 353.2
J1V6P8	280-68614-13	6010/7471/WTPH-D+/8310/8082/WTPH-G/ 353.2	6010B/7471A/NWTPH-Dx/8310/8082/NWTPH-Gx/ 353.2
J1V6P9	280-68614-14	6010/7471	6010B/7471A

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

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

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

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

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

RECEIPT

The samples were received on 5/1/2015 9:30 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 3 coolers at receipt time were 0.3° C, 0.6° C and 4.7° C.

GC VOLATILES - NWTPH-Gx - GRO

No anomalies were encountered.

GC SEMIVOLATILES - SW846 8082 - PCBs

No anomalies were encountered.

GC SEMIVOLATILES - NWTPH-Dx - DRQ

No anomalies were encountered.

HPLC - SW846 8310 - PAHs

The RPD between the primary and confirmation columns exceeded 40% for Chrysene in sample J1V6N9. The lower of the two values has been reported, as matrix interference is evident on both columns. The result has been flagged with an "X".

No other anomalies were encountered.

TOTAL METALS - SW846 6010B/7471A

Serial dilution of a digestate in batch 280-275723 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. Several samples required dilutions prior to the analysis of Antimony, Beryllium, Cobalt, Copper, Lead and Vanadium to minimize the interference caused by Titanium concentrations greater than the linear range. The reporting limits have been adjusted relative to the dilution required.

Low levels of Barium, Calcium, Magnesium, Aluminum and Iron are present in the method blank associated with batch 280-275723. Because the concentrations in the method blank are not present at levels greater than half the reporting limit or the associated sample amounts are greater than twenty times the method blank concentration, corrective action is deemed unnecessary.

Silicon is present in the method blank associated with batch 280-275723 at 6.74 mg/kg, which is greater than half the project specific reporting limit (PSRL) of 10 mg/kg. TestAmerica's practical quantitation limit (PQL) for Silicon is 50 mg/kg. The laboratory cannot maintain system cleanliness at this low level; therefore, corrective action is not initiated. It can be noted that the concentration found in the method blank is less than half of the laboratory standard PQL, and with the exception of 'blank' sample J1V6P9, the associated sample amounts are twenty times greater than the method blank concentration.

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 J1V6N6; therefore, control limits are not applicable.

Mercury was recovered outside the control limits in the Matrix Spike performed on sample J1V6N6, and the associated sample result has been flagged "N". There is no indication that the analytical system was operating out of control, and method accuracy has been verified by the acceptable LCS analysis data; therefore, corrective action is deemed unnecessary.

No other anomalies were encountered.

GENERAL CHEMISTRY - MCAWW 353.2 - NITRATE NITRITE as N

The duplicate analysis of sample J1V6P6 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.

Washington Closure Hanford		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST					RC-232-099		Page 1 of 3		
Collector STOWE, QG		Company Contact Joan Kessner		Telephone No. 375-4688		Project Coordinator KESSNER, JH		Price Code 88		Data Turnaround 7 days	
Project Designation 100-IU-2 & 100-IU-6 Remaining Waste Sites		Sampling Location 600-358 (SPA, verification)		SAF No. RC-232							
Ice Chest No. RCC-07-005		Field Logbook No. EL-1667-03		COA 0603582000		Method of Shipment Commercial Carrier		Fed Ex			
Shipped To TestAmerica Denver		Offsite Property No. A131408		Bill of Lading/Air Bill No. See ASPC							
Other Labs Shipped To N/A		Preservation		Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	 280-68614 Chain of Custody	
		Type of Container		GP	uG	uG	uG	uG	GP		
POSSIBLE SAMPLE HAZARDS/REMARKS N/A		No. of Container(s)		1	1	1	1	3	1		
		Volume		250mL	125mL	250mL	250mL	40mL	250mL		
Special Handling and/or Storage Cooling as required P at 5		Sample Analysis		See item (1) in Special Instructions	TPH-Diesel Range - WTPH-D+	PAHs - 8310	PCBs - 8082	TPH-Gasoline Range - WTPH-G	NO2/NO3 - 33.2 (Nitrogen in Nitrates and Nitrate)		
Sample No.		Matrix		Sample Date		Sample Time					
J1V6N8		SOIL		4/29/15		1019		X	X	X	X
J1V6N7		SOIL		4/29/15		1015		X	X	X	X
J1V6N8		SOIL		4/29/15		1103		X	X	X	X
J1V6N9		SOIL		4/29/15		1024		X	X	X	X
J1V6P0		SOIL		4/29/15		1045		X	X	X	X
CHAIN OF POSSESSION				Sign/Print Names				SPECIAL INSTRUCTIONS			
Relinquished By/Removed From Quincy Rowe		Date/Time 4-29-15 1150		Received By/Stored In C. Bingham		Date/Time 4-29-15 1400		(1) ICP Metals - 6010TR (Close-out List) (Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Molybdenum, Nickel, Potassium, Selenium, Silicon, Silver, Sodium, Vanadium, Zinc); Mercury - 7471 - (CV) (Mercury). 0.1, 0.4, 4.5 IES+02 T-14, 17 5-1-15			
Relinquished By/Removed From C. Bingham		Date/Time 4-29-15 1430		Received By/Stored In 1060 Battelle, Inc		Date/Time 4-29-15 1430					
Relinquished By/Removed From 1060 Battelle, Inc		Date/Time 4-30-15 0720		Received By/Stored In C. Bingham		Date/Time 4-30-15 0720					
Relinquished By/Removed From C. Bingham		Date/Time 4-30-15 1010		Received By/Stored In Fed Ex		Date/Time 4-30-15					
Relinquished By/Removed From O		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		<div style="border: 1px solid black; border-radius: 50%; padding: 10px; display: inline-block;"> REVIEWED BY KW DATE 4/30/15 </div> JP0960			

Washington Closure Hanford		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST						RC-232-099		Page 2 of 3	
Collector STOWE, QG		Company Contact Joan Kessner		Telephone No. 375-4688		Project Coordinator KESSNER, JH		Price Code 88		Data Turnaround 7 days	
Project Designation 100-U-2 & 100-U-6 Remaining Waste Sites		Sampling Location 600-358 (SPA, verification)		SAF No. RC-232		Method of Shipment Commercial Carrier		Fed Ex			
Ice Chest No. RCC-07-005		Field Logbook No. EL-1667-03		COA 0603582000		Bill of Lading/Air Bill No. See OSA					
Shipped To TestAmerica Denver		Offsite Property No. A131408									
Other Labs Shipped To N/A		Preservation		Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C		
		Type of Container		GP	aG	aG	aG	Gs*	GP		
POSSIBLE SAMPLE HAZARDS/REMARKS N/A		No. of Container(s)		1	1	1	1	3	1		
		Volume		250mL	125mL	250mL	250mL	40mL	250mL		
Special Handling and/or Storage Cooling as required		Sample Analysis		See Item (1) in Special Instructions	TPH-Diesel Range - WTPH-D +	PAHs - B310	PCBs - 6002	TPH-Casoline Range - WTPH-G	NO2/NO3 - 353.2 (Nitrogen in Nitrite and Nitrate)		
Page 1 of 2		Sample No.		Matrix	Sample Date	Sample Time					
		J1V6P1		SOIL	4/29/15	1051	X	X	X	X	X
		J1V6P2		SOIL	4/29/15	1059	X	X	X	X	X
		J1V6P3		SOIL	4/29/15	1028	X	X	X	X	X
		J1V6P4		SOIL	4/29/15	1043	X	X	X	X	X
		J1V6P5		SOIL	4/29/15	1056	X	X	X	X	X
CHAIN OF POSSESSION				Sign/Print Names				SPECIAL INSTRUCTIONS			
Relinquished By/Removed From Quincy Howe 4-29-15		Date/Time 1150		Received By/Stored In C. Bingham 4-29-15		Date/Time 1150		(1) ICP Metals - 6010TR (Close-out List) (Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Molybdenum, Nickel, Potassium, Selenium, Silicon, Silver, Sodium, Vanadium, Zinc); Mercury - 7471 - (CV) (Mercury)			
Relinquished By/Removed From C. Bingham 4-29-15		Date/Time 1400		Received By/Stored In 1060 Battelle, fridge 4-29-15		Date/Time 1430					
Relinquished By/Removed From C. Bingham 4-30-15		Date/Time 0720		Received By/Stored In Fed Ex 4-30-15		Date/Time 0720					
Relinquished By/Removed From C. Bingham 4-30-15		Date/Time 1010		Received By/Stored In Fed Ex 5-1-15		Date/Time 9130					
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time					
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time					
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time					
FINAL SAMPLE DISPOSITION		Disposal Method		Disposed By		Date/Time		JP0960			



Washington Closure Hanford		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST					RC-232-099	Page 3 of 3
Collector STOWE, QG	Company Contact Joan Kessner	Telephone No. 375-4688	Project Coordinator KESSNER, JH		Price Code 8 B	Data Turnaround 7 days		
Project Designation 100-IU-2 & 100-IU-6 Remaining Waste Sites	Sampling Location 600-358 (SPA, verification)		SAF No. RC-232					
Ice Chest No. RCC-07-005	Field Logbook No. EL-1687-03	COA 0603582000	Method of Shipment Commercial Carrier		Fed Ex			
Shipped To TestAmerica Denver	Offsite Property No. A131408		Bill of Lading/Air Bill No. See OSTR					
Other Labs Shipped To N/A	Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	
	Type of Container	GP	aG	aG	aG	GS	GP	
POSSIBLE SAMPLE HAZARDS/REMARKS N/A	No. of Container(s)	1	1	1	1	3	1	
	Volume	250mL	125mL	250mL	250mL	40mL	250mL	
Special Handling and/or Storage Cooling as required	Sample Analysis	See item (1) in Special Instructions	TPH-Diesel Range - WTPH-D +	PAHs - 8310	PCBs - 8082	TPH-Gasoline Range - WTPH-G	NO2/NO3 - 353.2 (Nitrogen in Nitrite and Nitrate)	
Page 13	Sample No.	Matrix	Sample Date	Sample Time				
	J1V6P6	SOIL	04/29/15	1033	X	X	X	
	J1V6P7	SOIL	04/29/15	1038	X	X	X	
	J1V6P8	SOIL	04/29/15	1015	X	X	X	
	J1V6P9	SOIL	04/29/15	1009	X			
CHAIN OF POSSESSION				SPECIAL INSTRUCTIONS				
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time		
A. Stowe		4-29-15 1150		C. Bingham		4-29-15 1150		
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time		
C. Bingham		4-29-15 1400		C. Bingham		4-29-15 1400		
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time		
1060 Battelle, fridge		4-29-15 1430		C. Bingham		4-29-15 1430		
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time		
C. Bingham		4-30-15 0720		Fed Ex		4-30-15 0720		
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time		
WCH		4-30-15 1010		S. T. T. T.		5-1-15 9:30		
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time		
OO								
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time					



JPO960

Appendix 5
Data Validation Supporting Documentation

GENERAL CHEMISTRY ANALYSIS DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	E
PROJECT:	600-358		DATA PACKAGE: JP0960		
VALIDATOR:	ELR	LAB:	TAC	DATE: 5/15/15	
			SDG:	JP0960	
ANALYSES PERFORMED					
Anions/IC	TOC	TOX	TPH-418.1	Oil and Grease	Alkalinity
Ammonia	BOD/COD	Chloride	Chromium-VI	pH	NO₃/NO₂
Sulfate	TDS	TKN	Phosphate		
SAMPLES/MATRIX					
J1V6N6 J1V6N7 J1V6N8 J1V6N9 J1V6P0					
J1V6P1 J1V6P2 J1V6P3 J1V6P4 J1V6P5					
J1V6P6 J1V6P7 J1V6PY					
soil					

1. DATA PACKAGE COMPLETENESS AND CASE NARRATIVE

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

Comments: _____

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

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

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

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

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

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

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

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

Comments: _____

GENERAL CHEMISTRY ANALYSIS DATA VALIDATION CHECKLIST

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

ICB and CCB checks performed for all applicable analyses? (Levels D, E)..... Yes No N/A
ICB and CCB results acceptable? (Levels D, E) Yes No N/A
Laboratory blanks analyzed? Yes No N/A
Laboratory blank results acceptable?..... Yes No N/A
Field blanks analyzed? (Levels C, D, E) Yes No N/A
Field blank results acceptable? (Levels C, D, E)..... Yes No N/A
Transcription/calculation errors? (Levels D, E)..... Yes No N/A
Comments: no FB

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

Spike samples analyzed? Yes No N/A
Spike recoveries acceptable? Yes No N/A
Spike standards NIST traceable? (Levels D, E)..... Yes No N/A
Spike standards expired? (Levels D, E)..... Yes No N/A
LCS/BSS samples analyzed?..... Yes No N/A
LCS/BSS results acceptable?..... Yes No N/A
Standards traceable? (Levels D, E)..... Yes No N/A
Standards expired? (Levels D, E) Yes No N/A
Transcription/calculation errors? (Levels D, E)..... Yes No N/A
Performance audit sample(s) analyzed? Yes No N/A
Performance audit sample results acceptable?..... Yes No N/A
Comments: no BAS

GENERAL CHEMISTRY ANALYSIS DATA VALIDATION CHECKLIST

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

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

Comments: _____

6. HOLDING TIMES (all levels)

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

Comments: _____

GENERAL CHEMISTRY ANALYSIS DATA VALIDATION CHECKLIST

7. RESULT QUANTITATION AND DETECTION LIMITS (all levels)

- Results reported for all requested analyses? Yes No N/A
- Results supported in the raw data? (Levels D, E)..... Yes No N/A
- Samples properly prepared? (Levels D, E)..... Yes No N/A
- Detection limits meet RDL? Yes No N/A
- Transcription/calculation errors? (Levels D, E)..... Yes No N/A

Comments: _____

Appendix 6
Additional Documentation Requested by Client

Quality Control Results

Client: Washington Closure Hanford

Job Number: 280-68614-1
Sdg Number: JP0960

Method Blank - Batch: 280-275928

Method: 353.2
Preparation: N/A

Lab Sample ID: MB 280-275872/1-A
Client Matrix: Solid
Dilution: 1.0
Analysis Date: 05/04/2015 1619
Prep Date: N/A
Leach Date: 05/04/2015 1247

Analysis Batch: 280-275928
Prep Batch: N/A
Leach Batch: 280-275872
Units: mg/Kg

Instrument ID: WC_Alp 2
Lab File ID: C:\FLOW_4\050415B.R
Initial Weight/Volume:
Final Weight/Volume:

Analyte	Result	Qual	MDL	RL
Nitrate Nitrite as N-Soluble	0.36	U	0.36	0.74

Method Reporting Limit Check - Batch: 280-275928

Method: 353.2
Preparation: N/A

Lab Sample ID: MRL 280-275928/20
Client Matrix: Water
Dilution: 1.0
Analysis Date: 05/04/2015 1221
Prep Date: N/A
Leach Date: N/A

Analysis Batch: 280-275928
Prep Batch: N/A
Leach Batch: N/A
Units: mg/L

Instrument ID: WC_Alp 2
Lab File ID: C:\FLOW_4\050415B.R
Initial Weight/Volume: 100 mL
Final Weight/Volume: 100 mL

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Nitrate Nitrite as N-Soluble	0.100	0.0662	66	50 - 150	B

Lab Control Sample - Batch: 280-275928

Method: 353.2
Preparation: N/A

Lab Sample ID: LCS 280-275872/2-A
Client Matrix: Solid
Dilution: 1.0
Analysis Date: 05/04/2015 1621
Prep Date: N/A
Leach Date: 05/04/2015 1247

Analysis Batch: 280-275928
Prep Batch: N/A
Leach Batch: 280-275872
Units: mg/Kg

Instrument ID: WC_Alp 2
Lab File ID: C:\FLOW_4\050415B.R
Initial Weight/Volume:
Final Weight/Volume:

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Nitrate Nitrite as N-Soluble	49.5	48.98	99	90 - 110	

Quality Control Results

Client: Washington Closure Hanford

Job Number: 280-68614-1
Sdg Number: JP0960

Matrix Spike - Batch: 280-275928

Method: 353.2
Preparation: N/A

Lab Sample ID: 280-68614-1
Client Matrix: Solid
Dilution: 1.0
Analysis Date: 05/04/2015 1658
Prep Date: N/A
Leach Date: 05/04/2015 1247

Analysis Batch: 280-275928
Prep Batch: N/A
Leach Batch: 280-275872
Units: mg/Kg

Instrument ID: WC_Alq 2
Lab File ID: C:\FLOW_4\050415B.R:
Initial Weight/Volume:
Final Weight/Volume:

Analyte	Sample Result/Qual	Spike Amount	Result	% Rec.	Limit	Qual
Nitrate Nitrite as N-Soluble	0.85	39.8	41.42	102	90 - 110	

Matrix Spike - Batch: 280-275928

Method: 353.2
Preparation: N/A

Lab Sample ID: 280-68614-11
Client Matrix: Solid
Dilution: 1.0
Analysis Date: 05/04/2015 1734
Prep Date: N/A
Leach Date: 05/04/2015 1247

Analysis Batch: 280-275928
Prep Batch: N/A
Leach Batch: 280-275872
Units: mg/Kg

Instrument ID: WC_Alq 2
Lab File ID: C:\FLOW_4\050415B.R:
Initial Weight/Volume:
Final Weight/Volume:

Analyte	Sample Result/Qual	Spike Amount	Result	% Rec.	Limit	Qual
Nitrate Nitrite as N-Soluble	2.7	37.9	39.86	98	90 - 110	

Quality Control Results

Client: Washington Closure Hanford

Job Number: 280-68614-1
Sdg Number: JP0960

Duplicate - Batch: 280-275928

Method: 353.2
Preparation: N/A

Lab Sample ID: 280-68614-1
Client Matrix: Solid
Dilution: 1.0
Analysis Date: 05/04/2015 1656
Prep Date: N/A
Leach Date: 05/04/2015 1247

Analysis Batch: 280-275928
Prep Batch: N/A
Leach Batch: 280-275872
Units: mg/Kg

Instrument ID: WC_Alp 2
Lab File ID: C:\FLOW_4\050415B.R
Initial Weight/Volume:
Final Weight/Volume:

Analyte	Sample Result/Qual	Result	RPD	Limit	Qual
Nitrate Nitrite as N-Soluble	0.85	0.858	0.9	10	

Duplicate - Batch: 280-275928

Method: 353.2
Preparation: N/A

Lab Sample ID: 280-68614-11
Client Matrix: Solid
Dilution: 1.0
Analysis Date: 05/04/2015 1732
Prep Date: N/A
Leach Date: 05/04/2015 1247

Analysis Batch: 280-275928
Prep Batch: N/A
Leach Batch: 280-275872
Units: mg/Kg

Instrument ID: WC_Alp 2
Lab File ID: C:\FLOW_4\050415B.R
Initial Weight/Volume:
Final Weight/Volume:

Analyte	Sample Result/Qual	Result	RPD	Limit	Qual
Nitrate Nitrite as N-Soluble	2.7	3.09	13	10	M

Quality Control Results

Client: Washington Closure Hanford

Job Number: 280-68614-1
Sdg Number: JP0960

Duplicate - Batch: 280-275680

**Method: D-2216
Preparation: N/A**

Lab Sample ID: 280-68614-1
Client Matrix: Solid
Dilution: 1.0
Analysis Date: 05/02/2015 1429
Prep Date: N/A
Leach Date: N/A

Analysis Batch: 280-275680
Prep Batch: N/A
Leach Batch: N/A
Units: %

Instrument ID: WC_SHI2
Lab File ID: N/A
Initial Weight/Volume:
Final Weight/Volume:

Analyte	Sample Result/Qual	Result	RPD	Limit	Qual
Percent Moisture	2.6	2.3	11	20	