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

COMPLETE COPY OF FINAL VALIDATION PACKAGE TO:

Kathy Wendt H4-21

COMMENTS:

SDG JP0833 SAF-RC-075

Waste Site: 100-D-106

Date: 6 August 2014
To: Washington Closure Hanford Inc. (technical representative)
From: ELR Consulting
Project: 100-D/DR Burial Grounds & Remaining Sites – Soil Full Protocol - Waste Site 100-D-106
Subject: Semivolatile Organic - Data Package No. JP0833TAL

INTRODUCTION

This memo presents the results of data validation on Data Package No. JP0833 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
J1TW94	7/16/14	Soil	C	See note 1
J1TW95	7/16/14	Soil	C	See note 1
J1TW96	7/16/14	Soil	C	See note 1
J1TW97	7/16/14	Soil	C	See note 1
J1TW98	7/16/14	Soil	C	See note 1
J1TW99	7/16/14	Soil	C	See note 1
J1TWC0	7/16/14	Soil	C	See note 1
J1TWC1	7/16/14	Soil	C	See note 1
J1TWC2	7/16/14	Soil	C	See note 1
J1TWC3	7/16/14	Soil	C	See note 1
J1TWC4	7/16/14	Soil	C	See note 1
J1TWC5	7/16/14	Soil	C	See note 1
J1TWC6	7/16/14	Soil	C	See note 1
J1TWC7	7/16/14	Soil	C	See note 1

1 – Semivolatile organics by 8270C.

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

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

DATA QUALITY OBJECTIVES

- **Holding Times**

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

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

All holding times were acceptable.

- **Method Blanks**

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

All method blank results were acceptable.

Field (equipment) Blanks

One field blank (J1TWC7) was submitted for analysis. No analytes were detected in the field blank.

- **Accuracy**

Matrix Spike/Matrix Spike Duplicate & Blank Spike Recoveries

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

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

Due to MS and MSD recoveries outside QC limits, all 2,4-dinitrophenol (30% & 30%) results were qualified as estimates and flagged "J".

All other accuracy results were acceptable.

Surrogate Recovery

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

All surrogate results were acceptable.

- **Precision**

Matrix Spike/Matrix Spike Duplicate Samples

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

All duplicate results were acceptable.

Field Duplicate Samples

One set field duplicates (J1RWC0/J1RWC6) were submitted for analysis. Laboratory duplicates are compared using the same criteria as for laboratory results. All field duplicate results are acceptable.

Analytical Detection Levels

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

Completeness

Data package No. JP0833 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 MS and MSD recoveries outside QC limits, all 2,4-dinitrophenol (30% & 30%) results were qualified as estimates and flagged "J".

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

REFERENCES

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

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

Appendix 1

Glossary of Data Reporting Qualifiers

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

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

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

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

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

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

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

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

Appendix 2

Summary of Data Qualification

SEMIVOLATILE ORGANIC DATA QUALIFICATION SUMMARY*

SDG: JP0833	**REVIEWER: ELR**	**Project: 100-D-106**	**PAGE_1_OF_1**
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
2,4-dinitrophenol	J	All	MS & MSD recovery

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

Appendix 3

Annotated Laboratory Reports

Client: Washington Closure Hanford

Job Number: 280-57846-1
Sdg Number: JP0833

Client Sample ID: **J1TW94**

Lab Sample ID: 280-57846-1
Client Matrix: Solid
% Moisture: 1.2

Date Sampled: 07/16/2014 0745
Date Received: 07/17/2014 0910

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	280-235622	Instrument ID:	SMS_G6
Prep Method:	3550C	Prep Batch:	280-235127	Lab File ID:	G6_14104.D
Dilution:	1.0			Initial Weight/Volume:	31.9 g
Analysis Date:	07/23/2014 1446			Final Weight/Volume:	1 mL
Prep Date:	07/21/2014 1130			Injection Volume:	0.5 uL

8/6/14

Analyte DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Acenaphthene	9.8	U	9.8	310
Acenaphthylene	16	U	16	310
Anthracene	16	U	16	310
Benzo[a]anthracene	19	U	19	310
Benzo[a]pyrene	19	U	19	310
Benzo[b]fluoranthene	25	U	25	310
Benzo[ghi]perylene	15	U	15	310
Benzo[k]fluoranthene	38	U	38	310
Bis(2-chloroethoxy)methane	22	U	22	310
Bis(2-chloroethyl)ether	16	U	16	310
bis (2-chloroisopropyl) ether	22	U	22	310
Bis(2-ethylhexyl) phthalate	44	U	44	310
4-Bromophenyl phenyl ether	18	U	18	310
Butyl benzyl phthalate	41	U	41	310
Carbazole	34	U	34	310
4-Chloroaniline	78	U	78	310
4-Chloro-3-methylphenol	63	U	63	310
2-Chloronaphthalene	9.5	U	9.5	310
2-Chlorophenol	20	U	20	310
4-Chlorophenyl phenyl ether	20	U	20	310
Chrysene	26	U	26	310
Dibenz(a,h)anthracene	18	U	18	310
Dibenzofuran	19	U	19	310
1,2-Dichlorobenzene	21	U	21	310
1,3-Dichlorobenzene	11	U	11	310
1,4-Dichlorobenzene	13	U	13	310
3,3'-Dichlorobenzidine	86	U	86	630
2,4-Dichlorophenol	9.5	U	9.5	310
Diethyl phthalate	25	U	25	310
2,4-Dimethylphenol	63	U	63	310
Dimethyl phthalate	22	U	22	310
Di-n-butyl phthalate	28	U	28	310
4,6-Dinitro-2-methylphenol	310	U	310	630
2,4-Dinitrophenol	320	U J	320	790
2,4-Dinitrotoluene	63	U	63	310
2,6-Dinitrotoluene	27	U	27	310
Di-n-octyl phthalate	14	U	14	310
Fluoranthene	34	U	34	310
Fluorene	17	U	17	310
Hexachlorobenzene	28	U	28	310
Hexachlorobutadiene	9.5	U	9.5	310
Hexachlorocyclopentadiene	48	U	48	310
Hexachloroethane	20	U	20	310
Indeno[1,2,3-cd]pyrene	21	U	21	310
Isophorone	16	U	16	310
2-Methylnaphthalene	18	U	18	310

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-57846-1
Sdg Number: JP0833

Client Sample ID: **J1TW94**

Lab Sample ID: 280-57846-1
Client Matrix: Solid

% Moisture: 1.2

Date Sampled: 07/16/2014 0745
Date Received: 07/17/2014 0910

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	280-235622	Instrument ID:	SMS_G6
Prep Method:	3550C	Prep Batch:	280-235127	Lab File ID:	G6_14104.D
Dilution:	1.0			Initial Weight/Volume:	31.9 g
Analysis Date:	07/23/2014 1446			Final Weight/Volume:	1 mL
Prep Date:	07/21/2014 1130			Injection Volume:	0.5 uL

r 8/6/14

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
2-Methylphenol		12	U	12	310
3 & 4 Methylphenol		31	U	31	310
Naphthalene		30	U	30	310
2-Nitroaniline		48	U	48	310
3-Nitroaniline		70	U	70	310
4-Nitroaniline		69	U	69	310
Nitrobenzene		21	U	21	310
2-Nitrophenol		9.5	U	9.5	310
4-Nitrophenol		92	U	92	630
N-Nitrosodi-n-propylamine		30	U	30	310
N-Nitrosodiphenylamine		20	U	20	310
Pentachlorophenol		310	U	310	630
Phenanthrene		16	U	16	310
Phenol		17	U	17	310
Pyrene		12	U	12	310
1,2,4-Trichlorobenzene		27	U	27	310
2,4,5-Trichlorophenol		9.5	U	9.5	310
2,4,6-Trichlorophenol		9.5	U	9.5	310

Surrogate	%Rec	Qualifier	Acceptance Limits
2-Fluorobiphenyl	84		50 - 120
2-Fluorophenol	79		53 - 120
Nitrobenzene-d5	78		50 - 120
Phenol-d5	78		52 - 120
Terphenyl-d14	98		55 - 120
2,4,6-Tribromophenol	76		51 - 120

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-57846-1
Sdg Number: JP0833

Client Sample ID: **J1TW94**

Lab Sample ID: 280-57846-1
Client Matrix: Solid

% Moisture: 1.2

Date Sampled: 07/16/2014 0745
Date Received: 07/17/2014 0910

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	280-235622	Instrument ID:	SMS_G6
Prep Method:	3550C	Prep Batch:	280-235127	Lab File ID:	G6_14104.D
Dilution:	1.0			Initial Weight/Volume:	31.9 g
Analysis Date:	07/23/2014 1446			Final Weight/Volume:	1 mL
Prep Date:	07/21/2014 1130			Injection Volume:	0.5 uL

8/6/14

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

Cas Number	Analyte	RT	Est. Result (ug/Kg)	Qualifier
141-79-7	3-Penten-2-one, 4-methyl-	2.66	140	N J
123-42-2	2-Pentanone, 4-hydroxy-4-methyl-	3.06	5400	N J
54789-40-1	Heptanamide, 4-ethyl-5-methyl-	15.40	150	N J

Client: Washington Closure Hanford

Job Number: 280-57846-1
Sdg Number: JP0833

Client Sample ID: **J1TW96**

Lab Sample ID: 280-57846-2
Client Matrix: Solid

% Moisture: 1.1

Date Sampled: 07/16/2014 0807
Date Received: 07/17/2014 0910

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	280-235622	Instrument ID:	SMS_G6
Prep Method:	3550C	Prep Batch:	280-235127	Lab File ID:	G6_14105.D
Dilution:	1.0			Initial Weight/Volume:	32.8 g
Analysis Date:	07/23/2014 1513			Final Weight/Volume:	1 mL
Prep Date:	07/21/2014 1130			Injection Volume:	0.5 uL

8/6/14

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Acenaphthene		9.5	U	9.5	310
Acenaphthylene		16	U	16	310
Anthracene		16	U	16	310
Benzo[a]anthracene		19	U	19	310
Benzo[a]pyrene		19	U	19	310
Benzo[b]fluoranthene		24	U	24	310
Benzo[ghi]perylene		15	U	15	310
Benzo[k]fluoranthene		37	U	37	310
Bis(2-chloroethoxy)methane		21	U	21	310
Bis(2-chloroethyl)ether		15	U	15	310
bis (2-chloroisopropyl) ether		21	U	21	310
Bis(2-ethylhexyl) phthalate		43	U	43	310
4-Bromophenyl phenyl ether		18	U	18	310
Butyl benzyl phthalate		40	U	40	310
Carbazole		33	U	33	310
4-Chloroaniline		76	U	76	310
4-Chloro-3-methylphenol		61	U	61	310
2-Chloronaphthalene		9.3	U	9.3	310
2-Chlorophenol		19	U	19	310
4-Chlorophenyl phenyl ether		19	U	19	310
Chrysene		25	U	25	310
Dibenz(a,h)anthracene		18	U	18	310
Dibenzofuran		19	U	19	310
1,2-Dichlorobenzene		20	U	20	310
1,3-Dichlorobenzene		11	U	11	310
1,4-Dichlorobenzene		13	U	13	310
3,3'-Dichlorobenzidine		83	U	83	610
2,4-Dichlorophenol		9.3	U	9.3	310
Diethyl phthalate		24	U	24	310
2,4-Dimethylphenol		61	U	61	310
Dimethyl phthalate		21	U	21	310
Di-n-butyl phthalate		27	U	27	310
4,6-Dinitro-2-methylphenol		310	U	310	610
2,4-Dinitrophenol		310	U J	310	760
2,4-Dinitrotoluene		61	U	61	310
2,6-Dinitrotoluene		26	U	26	310
Di-n-octyl phthalate		13	U	13	310
Fluoranthene		33	U	33	310
Fluorene		17	U	17	310
Hexachlorobenzene		27	U	27	310
Hexachlorobutadiene		9.3	U	9.3	310
Hexachlorocyclopentadiene		46	U	46	310
Hexachloroethane		20	U	20	310
Indeno[1,2,3-cd]pyrene		20	U	20	310
Isophorone		16	U	16	310
2-Methylnaphthalene		18	U	18	310

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-57846-1
Sdg Number: JP0833

Client Sample ID: **J1TW95**

Lab Sample ID: 280-57846-2
Client Matrix: Solid

% Moisture: 1.1

Date Sampled: 07/16/2014 0807
Date Received: 07/17/2014 0910

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	280-235622	Instrument ID:	SMS_G6
Prep Method:	3550C	Prep Batch:	280-235127	Lab File ID:	G6_14105.D
Dilution:	1.0			Initial Weight/Volume:	32.8 g
Analysis Date:	07/23/2014 1513			Final Weight/Volume:	1 mL
Prep Date:	07/21/2014 1130			Injection Volume:	0.5 uL

8/6/14

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
2-Methylphenol		12	U	12	310
3 & 4 Methylphenol		31	U	31	310
Naphthalene		29	U	29	310
2-Nitroaniline		46	U	46	310
3-Nitroaniline		68	U	68	310
4-Nitroaniline		67	U	67	310
Nitrobenzene		20	U	20	310
2-Nitrophenol		9.3	U	9.3	310
4-Nitrophenol		90	U	90	610
N-Nitrosodi-n-propylamine		29	U	29	310
N-Nitrosodiphenylamine		19	U	19	310
Pentachlorophenol		310	U	310	610
Phenanthrene		16	U	16	310
Phenol		17	U	17	310
Pyrene		11	U	11	310
1,2,4-Trichlorobenzene		26	U	26	310
2,4,5-Trichlorophenol		9.3	U	9.3	310
2,4,6-Trichlorophenol		9.3	U	9.3	310

Surrogate	%Rec	Qualifier	Acceptance Limits
2-Fluorobiphenyl	78		50 - 120
2-Fluorophenol	74		53 - 120
Nitrobenzene-d5	73		50 - 120
Phenol-d5	73		52 - 120
Terphenyl-d14	90		55 - 120
2,4,6-Tribromophenol	68		51 - 120

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-57846-1
Sdg Number: JP0833

Client Sample ID: **J1TW95**

Lab Sample ID: 280-57846-2
Client Matrix: Solid

% Moisture: 1.1

Date Sampled: 07/16/2014 0807
Date Received: 07/17/2014 0910

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	280-235622	Instrument ID:	SMS_G6
Prep Method:	3550C	Prep Batch:	280-235127	Lab File ID:	G6_14105.D
Dilution:	1.0			Initial Weight/Volume:	32.8 g
Analysis Date:	07/23/2014 1513			Final Weight/Volume:	1 mL
Prep Date:	07/21/2014 1130			Injection Volume:	0.5 uL

8/6/14

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

Cas Number	Analyte	RT	Est. Result (ug/Kg)	Qualifier
141-79-7	3-Penten-2-one, 4-methyl-	2.66	130	N J
123-42-2	2-Pentanone, 4-hydroxy-4-methyl-	3.06	4900	N J
10233-13-3	Dodecanoic acid, 1-methylethyl ester	8.00	210	N J
301-02-0	9-Octadecenamide, (Z)-	15.40	210	N J

Client: Washington Closure Hanford

Job Number: 280-57846-1
Sdg Number: JP0833

Client Sample ID: **J1TW96**

Lab Sample ID: 280-57846-3
Client Matrix: Solid
% Moisture: 1.0

Date Sampled: 07/16/2014 0800
Date Received: 07/17/2014 0910

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	280-235622	Instrument ID:	SMS_G6
Prep Method:	3550C	Prep Batch:	280-235127	Lab File ID:	G6_14106.D
Dilution:	1.0			Initial Weight/Volume:	31.5 g
Analysis Date:	07/23/2014 1539			Final Weight/Volume:	1 mL
Prep Date:	07/21/2014 1130			Injection Volume:	0.5 uL

8/6/14

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Acenaphthene		9.9	U	9.9	320
Acenaphthylene		16	U	16	320
Anthracene		16	U	16	320
Benzo[a]anthracene		19	U	19	320
Benzo[a]pyrene		19	U	19	320
Benzo[b]fluoranthene		25	U	25	320
Benzo[ghi]perylene		15	U	15	320
Benzo[k]fluoranthene		38	U	38	320
Bis(2-chloroethoxy)methane		22	U	22	320
Bis(2-chloroethyl)ether		16	U	16	320
bis (2-chloroisopropyl) ether		22	U	22	320
Bis(2-ethylhexyl) phthalate		44	U	44	320
4-Bromophenyl phenyl ether		18	U	18	320
Butyl benzyl phthalate		41	U	41	320
Carbazole		35	U	35	320
4-Chloroaniline		79	U	79	320
4-Chloro-3-methylphenol		63	U	63	320
2-Chloronaphthalene		9.6	U	9.6	320
2-Chlorophenol		20	U	20	320
4-Chlorophenyl phenyl ether		20	U	20	320
Chrysene		26	U	26	320
Dibenz(a,h)anthracene		18	U	18	320
Dibenzofuran		19	U	19	320
1,2-Dichlorobenzene		21	U	21	320
1,3-Dichlorobenzene		12	U	12	320
1,4-Dichlorobenzene		13	U	13	320
3,3'-Dichlorobenzidine		87	U	87	630
2,4-Dichlorophenol		9.6	U	9.6	320
Diethyl phthalate		25	U	25	320
2,4-Dimethylphenol		63	U	63	320
Dimethyl phthalate		22	U	22	320
Di-n-butyl phthalate		28	U	28	320
4,6-Dinitro-2-methylphenol		320	U	320	630
2,4-Dinitrophenol		320	U J	320	790
2,4-Dinitrotoluene		63	U	63	320
2,6-Dinitrotoluene		27	U	27	320
Di-n-octyl phthalate		14	U	14	320
Fluoranthene		35	U	35	320
Fluorene		17	U	17	320
Hexachlorobenzene		28	U	28	320
Hexachlorobutadiene		9.6	U	9.6	320
Hexachlorocyclopentadiene		48	U	48	320
Hexachloroethane		20	U	20	320
Indeno[1,2,3-cd]pyrene		21	U	21	320
Isophorone		16	U	16	320
2-Methylnaphthalene		18	U	18	320

Client: Washington Closure Hanford

Job Number: 280-57846-1
Sdg Number: JP0833

Client Sample ID: **J1TW96**

Lab Sample ID: 280-57846-3
Client Matrix: Solid
% Moisture: 1.0

Date Sampled: 07/16/2014 0800
Date Received: 07/17/2014 0910

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	280-235622	Instrument ID:	SMS_G6
Prep Method:	3550C	Prep Batch:	280-235127	Lab File ID:	G6_14106.D
Dilution:	1.0			Initial Weight/Volume:	31.5 g
Analysis Date:	07/23/2014 1539			Final Weight/Volume:	1 mL
Prep Date:	07/21/2014 1130			Injection Volume:	0.5 uL

4/6/14

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
2-Methylphenol		13	U	13	320
3 & 4 Methylphenol		32	U	32	320
Naphthalene		30	U	30	320
2-Nitroaniline		48	U	48	320
3-Nitroaniline		70	U	70	320
4-Nitroaniline		70	U	70	320
Nitrobenzene		21	U	21	320
2-Nitrophenol		9.6	U	9.6	320
4-Nitrophenol		93	U	93	630
N-Nitrosodi-n-propylamine		30	U	30	320
N-Nitrosodiphenylamine		20	U	20	320
Pentachlorophenol		320	U	320	630
Phenanthrene		16	U	16	320
Phenol		17	U	17	320
Pyrene		12	U	12	320
1,2,4-Trichlorobenzene		27	U	27	320
2,4,5-Trichlorophenol		9.6	U	9.6	320
2,4,6-Trichlorophenol		9.6	U	9.6	320

Surrogate	%Rec	Qualifier	Acceptance Limits
2-Fluorobiphenyl	78		50 - 120
2-Fluorophenol	73		53 - 120
Nitrobenzene-d5	72		50 - 120
Phenol-d5	71		52 - 120
Terphenyl-d14	98		55 - 120
2,4,6-Tribromophenol	73		51 - 120

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-57846-1
Sdg Number: JP0833

Client Sample ID: **J1TW96**

Lab Sample ID: 280-57846-3
Client Matrix: Solid

% Moisture: 1.0

Date Sampled: 07/16/2014 0800
Date Received: 07/17/2014 0910

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	280-235622	Instrument ID:	SMS_G6
Prep Method:	3550C	Prep Batch:	280-235127	Lab File ID:	G6_14106.D
Dilution:	1.0			Initial Weight/Volume:	31.5 g
Analysis Date:	07/23/2014 1539			Final Weight/Volume:	1 mL
Prep Date:	07/21/2014 1130			Injection Volume:	0.5 uL

✓ 8/6/14

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

Cas Number	Analyte	RT	Est. Result (ug/Kg)	Qualifier
141-79-7	3-Penten-2-one, 4-methyl-	2.66	160	N J
123-42-2	2-Pentanone, 4-hydroxy-4-methyl-	3.06	5900	N J
638-58-4	Tetradecanamide	15.40	190	N J

Client: Washington Closure Hanford

Job Number: 280-57846-1
Sdg Number: JP0833

Client Sample ID: **J1TW97**

Lab Sample ID: 280-57846-4
Client Matrix: Solid
% Moisture: 1.1

Date Sampled: 07/16/2014 0751
Date Received: 07/17/2014 0910

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	280-235622	Instrument ID:	SMS_G6
Prep Method:	3550C	Prep Batch:	280-235127	Lab File ID:	G6_14107.D
Dilution:	1.0			Initial Weight/Volume:	31.01 g
Analysis Date:	07/23/2014 1606			Final Weight/Volume:	1 mL
Prep Date:	07/21/2014 1130			Injection Volume:	0.5 uL

8/6/14

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Acenaphthene		10	U	10	320
Acenaphthylene		17	U	17	320
Anthracene		17	U	17	320
Benzo[a]anthracene		20	U	20	320
Benzo[a]pyrene		20	U	20	320
Benzo[b]fluoranthene		26	U	26	320
Benzo[ghi]perylene		16	U	16	320
Benzo[k]fluoranthene		39	U	39	320
Bis(2-chloroethoxy)methane		23	U	23	320
Bis(2-chloroethyl)ether		16	U	16	320
bis (2-chloroisopropyl) ether		23	U	23	320
Bis(2-ethylhexyl) phthalate		45	U	45	320
4-Bromophenyl phenyl ether		19	U	19	320
Butyl benzyl phthalate		42	U	42	320
Carbazole		35	U	35	320
4-Chloroaniline		80	U	80	320
4-Chloro-3-methylphenol		65	U	65	320
2-Chloronaphthalene		9.8	U	9.8	320
2-Chlorophenol		21	U	21	320
4-Chlorophenyl phenyl ether		21	U	21	320
Chrysene		26	U	26	320
Dibenz(a,h)anthracene		19	U	19	320
Dibenzofuran		20	U	20	320
1,2-Dichlorobenzene		22	U	22	320
1,3-Dichlorobenzene		12	U	12	320
1,4-Dichlorobenzene		13	U	13	320
3,3'-Dichlorobenzidine		88	U	88	650
2,4-Dichlorophenol		9.8	U	9.8	320
Diethyl phthalate		25	U	25	320
2,4-Dimethylphenol		65	U	65	320
Dimethyl phthalate		23	U	23	320
Di-n-butyl phthalate		28	U	28	320
4,6-Dinitro-2-methylphenol		320	U	320	650
2,4-Dinitrophenol		330	U T J	330	810
2,4-Dinitrotoluene		65	U	65	320
2,6-Dinitrotoluene		27	U	27	320
Di-n-octyl phthalate		14	U	14	320
Fluoranthene		35	U	35	320
Fluorene		18	U	18	320
Hexachlorobenzene		28	U	28	320
Hexachlorobutadiene		9.8	U	9.8	320
Hexachlorocyclopentadiene		49	U	49	320
Hexachloroethane		21	U	21	320
Indeno[1,2,3-cd]pyrene		22	U	22	320
Isophorone		17	U	17	320
2-Methylnaphthalene		19	U	19	320

Client: Washington Closure Hanford

Job Number: 280-57846-1
Sdg Number: JP0833

Client Sample ID: **J1TW97**

Lab Sample ID: 280-57846-4
Client Matrix: Solid
% Moisture: 1.1

Date Sampled: 07/16/2014 0751
Date Received: 07/17/2014 0910

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	280-235622	Instrument ID:	SMS_G6
Prep Method:	3550C	Prep Batch:	280-235127	Lab File ID:	G6_14107.D
Dilution:	1.0			Initial Weight/Volume:	31.01 g
Analysis Date:	07/23/2014 1606			Final Weight/Volume:	1 mL
Prep Date:	07/21/2014 1130			Injection Volume:	0.5 uL

8/6/14

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
2-Methylphenol		13	U	13	320
3 & 4 Methylphenol		32	U	32	320
Naphthalene		30	U	30	320
2-Nitroaniline		49	U	49	320
3-Nitroaniline		71	U	71	320
4-Nitroaniline		71	U	71	320
Nitrobenzene		22	U	22	320
2-Nitrophenol		9.8	U	9.8	320
4-Nitrophenol		95	U	95	650
N-Nitrosodi-n-propylamine		30	U	30	320
N-Nitrosodiphenylamine		21	U	21	320
Pentachlorophenol		320	U	320	650
Phenanthrene		17	U	17	320
Phenol		18	U	18	320
Pyrene		12	U	12	320
1,2,4-Trichlorobenzene		27	U	27	320
2,4,5-Trichlorophenol		9.8	U	9.8	320
2,4,6-Trichlorophenol		9.8	U	9.8	320

Surrogate	%Rec	Qualifier	Acceptance Limits
2-Fluorobiphenyl	81		50 - 120
2-Fluorophenol	74		53 - 120
Nitrobenzene-d5	73		50 - 120
Phenol-d5	75		52 - 120
Terphenyl-d14	94		55 - 120
2,4,6-Tribromophenol	68		51 - 120

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-57846-1
Sdg Number: JP0833

Client Sample ID: **J1TW97**

Lab Sample ID: 280-57846-4
Client Matrix: Solid
% Moisture: 1.1

Date Sampled: 07/16/2014 0751
Date Received: 07/17/2014 0910

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	280-235622	Instrument ID:	SMS_G6
Prep Method:	3550C	Prep Batch:	280-235127	Lab File ID:	G6_14107.D
Dilution:	1.0			Initial Weight/Volume:	31.01 g
Analysis Date:	07/23/2014 1606			Final Weight/Volume:	1 mL
Prep Date:	07/21/2014 1130			Injection Volume:	0.5 uL

4/6/14

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

Cas Number	Analyte	RT	Est. Result (ug/Kg)	Qualifier
141-79-7	3-Penten-2-one, 4-methyl-	2.67	130	N J
123-42-2	2-Pentanone, 4-hydroxy-4-methyl-	3.06	5100	N J
301-02-0	9-Octadecenamide, (Z)-	15.40	270	N J

Client: Washington Closure Hanford

Job Number: 280-57846-1
Sdg Number: JP0833

Client Sample ID: **J1TW98**

Lab Sample ID: 280-57846-5
Client Matrix: Solid
% Moisture: 1.2

Date Sampled: 07/16/2014 0820
Date Received: 07/17/2014 0910

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	280-235622	Instrument ID:	SMS_G6
Prep Method:	3550C	Prep Batch:	280-235127	Lab File ID:	G6_14110.D
Dilution:	1.0			Initial Weight/Volume:	31.2 g
Analysis Date:	07/23/2014 1727			Final Weight/Volume:	1 mL
Prep Date:	07/21/2014 1130			Injection Volume:	0.5 uL

N 8/6/14

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Acenaphthene		10	U	10	320
Acenaphthylene		17	U	17	320
Anthracene		17	U	17	320
Benzo[a]anthracene		19	U	19	320
Benzo[a]pyrene		19	U	19	320
Benzo[b]fluoranthene		26	U	26	320
Benzo[ghi]perylene		16	U	16	320
Benzo[k]fluoranthene		39	U	39	320
Bis(2-chloroethoxy)methane		22	U	22	320
Bis(2-chloroethyl)ether		16	U	16	320
bis (2-chloroisopropyl) ether		22	U	22	320
Bis(2-ethylhexyl) phthalate		45	U	45	320
4-Bromophenyl phenyl ether		18	U	18	320
Butyl benzyl phthalate		42	U	42	320
Carbazole		35	U	35	320
4-Chloroaniline		80	U	80	320
4-Chloro-3-methylphenol		64	U	64	320
2-Chloronaphthalene		9.7	U	9.7	320
2-Chlorophenol		20	U	20	320
4-Chlorophenyl phenyl ether		20	U	20	320
Chrysene		26	U	26	320
Dibenz(a,h)anthracene		18	U	18	320
Dibenzofuran		19	U	19	320
1,2-Dichlorobenzene		21	U	21	320
1,3-Dichlorobenzene		12	U	12	320
1,4-Dichlorobenzene		13	U	13	320
3,3'-Dichlorobenzidine		88	U	88	640
2,4-Dichlorophenol		9.7	U	9.7	320
Diethyl phthalate		25	U	25	320
2,4-Dimethylphenol		64	U	64	320
Dimethyl phthalate		22	U	22	320
Di-n-butyl phthalate		28	U	28	320
4,6-Dinitro-2-methylphenol		320	U	320	640
2,4-Dinitrophenol		320	U J	320	800
2,4-Dinitrotoluene		64	U	64	320
2,6-Dinitrotoluene		27	U	27	320
Di-n-octyl phthalate		14	U	14	320
Fluoranthene		35	U	35	320
Fluorene		18	U	18	320
Hexachlorobenzene		28	U	28	320
Hexachlorobutadiene		9.7	U	9.7	320
Hexachlorocyclopentadiene		49	U	49	320
Hexachloroethane		21	U	21	320
Indeno[1,2,3-cd]pyrene		21	U	21	320
Isophorone		17	U	17	320
2-Methylnaphthalene		18	U	18	320

Client: Washington Closure Hanford

Job Number: 280-57846-1
Sdg Number: JP0833

Client Sample ID: **J1TW98**

Lab Sample ID: 280-57846-5
Client Matrix: Solid
% Moisture: 1.2

Date Sampled: 07/16/2014 0820
Date Received: 07/17/2014 0910

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	280-235622	Instrument ID:	SMS_G6
Prep Method:	3550C	Prep Batch:	280-235127	Lab File ID:	G6_14110.D
Dilution:	1.0			Initial Weight/Volume:	31.2 g
Analysis Date:	07/23/2014 1727			Final Weight/Volume:	1 mL
Prep Date:	07/21/2014 1130			Injection Volume:	0.5 uL

8/6/14

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
2-Methylphenol		13	U	13	320
3 & 4 Methylphenol		32	U	32	320
Naphthalene		30	U	30	320
2-Nitroaniline		49	U	49	320
3-Nitroaniline		71	U	71	320
4-Nitroaniline		71	U	71	320
Nitrobenzene		21	U	21	320
2-Nitrophenol		9.7	U	9.7	320
4-Nitrophenol		94	U	94	640
N-Nitrosodi-n-propylamine		30	U	30	320
N-Nitrosodiphenylamine		20	U	20	320
Pentachlorophenol		320	U	320	640
Phenanthrene		17	U	17	320
Phenol		18	U	18	320
Pyrene		12	U	12	320
1,2,4-Trichlorobenzene		27	U	27	320
2,4,5-Trichlorophenol		9.7	U	9.7	320
2,4,6-Trichlorophenol		9.7	U	9.7	320

Surrogate	%Rec	Qualifier	Acceptance Limits
2-Fluorobiphenyl	82		50 - 120
2-Fluorophenol	79		53 - 120
Nitrobenzene-d5	76		50 - 120
Phenol-d5	77		52 - 120
Terphenyl-d14	97		55 - 120
2,4,6-Tribromophenol	72		51 - 120

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-57846-1
Sdg Number: JP0833

Client Sample ID: **J1TW98**

Lab Sample ID: 280-57846-5
Client Matrix: Solid

% Moisture: 1.2

Date Sampled: 07/16/2014 0820
Date Received: 07/17/2014 0910

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	280-235622	Instrument ID:	SMS_G6
Prep Method:	3550C	Prep Batch:	280-235127	Lab File ID:	G6_14110.D
Dilution:	1.0			Initial Weight/Volume:	31.2 g
Analysis Date:	07/23/2014 1727			Final Weight/Volume:	1 mL
Prep Date:	07/21/2014 1130			Injection Volume:	0.5 uL

8/6/14

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

Cas Number	Analyte	RT	Est. Result (ug/Kg)	Qualifier
141-79-7	3-Penten-2-one, 4-methyl-	2.66	150	N J
123-42-2	2-Pentanone, 4-hydroxy-4-methyl-	3.06	5500	N J
638-58-4	Tetradecanamide	15.40	140	N J

Client: Washington Closure Hanford

Job Number: 280-57846-1
Sdg Number: JP0833

Client Sample ID: **J1TW99**

Lab Sample ID: 280-57846-6
Client Matrix: Solid
% Moisture: 1.0

Date Sampled: 07/16/2014 0830
Date Received: 07/17/2014 0910

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	280-235622	Instrument ID:	SMS_G6
Prep Method:	3550C	Prep Batch:	280-235127	Lab File ID:	G6_14111.D
Dilution:	1.0			Initial Weight/Volume:	31.2 g
Analysis Date:	07/23/2014 1754			Final Weight/Volume:	1 mL
Prep Date:	07/21/2014 1130			Injection Volume:	0.5 uL

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

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-57846-1
Sdg Number: JP0833

Client Sample ID: **J1TW99**

Lab Sample ID: 280-57846-6
Client Matrix: Solid
% Moisture: 1.0

Date Sampled: 07/16/2014 0830
Date Received: 07/17/2014 0910

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	280-235622	Instrument ID:	SMS_G6
Prep Method:	3550C	Prep Batch:	280-235127	Lab File ID:	G6_14111.D
Dilution:	1.0			Initial Weight/Volume:	31.2 g
Analysis Date:	07/23/2014 1754			Final Weight/Volume:	1 mL
Prep Date:	07/21/2014 1130			Injection Volume:	0.5 uL

8/6/14

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

Surrogate	%Rec	Qualifier	Acceptance Limits
2-Fluorobiphenyl	81		50 - 120
2-Fluorophenol	75		53 - 120
Nitrobenzene-d5	74		50 - 120
Phenol-d5	75		52 - 120
Terphenyl-d14	92		55 - 120
2,4,6-Tribromophenol	68		51 - 120

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-57846-1
Sdg Number: JP0833

Client Sample ID: **J1TW99**

Lab Sample ID: 280-57846-6
Client Matrix: Solid
% Moisture: 1.0

Date Sampled: 07/16/2014 0830
Date Received: 07/17/2014 0910

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	280-235622	Instrument ID:	SMS_G6
Prep Method:	3550C	Prep Batch:	280-235127	Lab File ID:	G6_14111.D
Dilution:	1.0			Initial Weight/Volume:	31.2 g
Analysis Date:	07/23/2014 1754			Final Weight/Volume:	1 mL
Prep Date:	07/21/2014 1130			Injection Volume:	0.5 uL

8/4/14

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

Cas Number	Analyte	RT	Est. Result (ug/Kg)	Qualifier
994-05-8	Butane, 2-methoxy-2-methyl-	1.64	130	N J
123-42-2	2-Pentanone, 4-hydroxy-4-methyl-	3.06	5000	N J

Client: Washington Closure Hanford

Job Number: 280-57846-1
Sdg Number: JP0833

Client Sample ID: **J1TWC0**

Lab Sample ID: 280-57846-7
Client Matrix: Solid
% Moisture: 0.9

Date Sampled: 07/16/2014 0841
Date Received: 07/17/2014 0910

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	280-235622	Instrument ID:	SMS_G6
Prep Method:	3550C	Prep Batch:	280-235127	Lab File ID:	G6_14112.D
Dilution:	1.0			Initial Weight/Volume:	32.9 g
Analysis Date:	07/23/2014 1821			Final Weight/Volume:	1 mL
Prep Date:	07/21/2014 1130			Injection Volume:	0.5 uL

8/6/14

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Acenaphthene		9.5	U	9.5	300
Acenaphthylene		16	U	16	300
Anthracene		16	U	16	300
Benzo[a]anthracene		18	U	18	300
Benzo[a]pyrene		18	U	18	300
Benzo[b]fluoranthene		24	U	24	300
Benzo[ghi]perylene		15	U	15	300
Benzo[k]fluoranthene		37	U	37	300
Bis(2-chloroethoxy)methane		21	U	21	300
Bis(2-chloroethyl)ether		15	U	15	300
bis (2-chloroisopropyl) ether		21	U	21	300
Bis(2-ethylhexyl) phthalate		42	U	42	300
4-Bromophenyl phenyl ether		17	U	17	300
Butyl benzyl phthalate		40	U	40	300
Carbazole		33	U	33	300
4-Chloroaniline		75	U	75	300
4-Chloro-3-methylphenol		61	U	61	300
2-Chloronaphthalene		9.2	U	9.2	300
2-Chlorophenol		19	U	19	300
4-Chlorophenyl phenyl ether		19	U	19	300
Chrysene		25	U	25	300
Dibenz(a,h)anthracene		17	U	17	300
Dibenzofuran		18	U	18	300
1,2-Dichlorobenzene		20	U	20	300
1,3-Dichlorobenzene		11	U	11	300
1,4-Dichlorobenzene		13	U	13	300
3,3'-Dichlorobenzidine		83	U	83	610
2,4-Dichlorophenol		9.2	U	9.2	300
Diethyl phthalate		24	U	24	300
2,4-Dimethylphenol		61	U	61	300
Dimethyl phthalate		21	U	21	300
Di-n-butyl phthalate		27	U	27	300
4,6-Dinitro-2-methylphenol		300	U	300	610
2,4-Dinitrophenol		310	U J	310	760
2,4-Dinitrotoluene		61	U	61	300
2,6-Dinitrotoluene		26	U	26	300
Di-n-octyl phthalate		13	U	13	300
Fluoranthene		33	U	33	300
Fluorene		17	U	17	300
Hexachlorobenzene		27	U	27	300
Hexachlorobutadiene		9.2	U	9.2	300
Hexachlorocyclopentadiene		46	U	46	300
Hexachloroethane		20	U	20	300
Indeno[1,2,3-cd]pyrene		20	U	20	300
Isophorone		16	U	16	300
2-Methylnaphthalene		17	U	17	300

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-57846-1
Sdg Number: JP0833

Client Sample ID: **J1TWC0**

Lab Sample ID: 280-57846-7
Client Matrix: Solid
% Moisture: 0.9

Date Sampled: 07/16/2014 0841
Date Received: 07/17/2014 0910

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	280-235622	Instrument ID:	SMS_G6
Prep Method:	3550C	Prep Batch:	280-235127	Lab File ID:	G6_14112.D
Dilution:	1.0			Initial Weight/Volume:	32.9 g
Analysis Date:	07/23/2014 1821			Final Weight/Volume:	1 mL
Prep Date:	07/21/2014 1130			Injection Volume:	0.5 uL

VL 6/4/14

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
2-Methylphenol		12	U	12	300
3 & 4 Methylphenol		30	U	30	300
Naphthalene		29	U	29	300
2-Nitroaniline		46	U	46	300
3-Nitroaniline		67	U	67	300
4-Nitroaniline		67	U	67	300
Nitrobenzene		20	U	20	300
2-Nitrophenol		9.2	U	9.2	300
4-Nitrophenol		89	U	89	610
N-Nitrosodi-n-propylamine		29	U	29	300
N-Nitrosodiphenylamine		19	U	19	300
Pentachlorophenol		300	U	300	610
Phenanthrene		16	U	16	300
Phenol		17	U	17	300
Pyrene		11	U	11	300
1,2,4-Trichlorobenzene		26	U	26	300
2,4,5-Trichlorophenol		9.2	U	9.2	300
2,4,6-Trichlorophenol		9.2	U	9.2	300

Surrogate	%Rec	Qualifier	Acceptance Limits
2-Fluorobiphenyl	81		50 - 120
2-Fluorophenol	76		53 - 120
Nitrobenzene-d5	72		50 - 120
Phenol-d5	75		52 - 120
Terphenyl-d14	93		55 - 120
2,4,6-Tribromophenol	68		51 - 120

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-57846-1
Sdg Number: JP0833

Client Sample ID: **J1TWC0**

Lab Sample ID: 280-57846-7
Client Matrix: Solid

% Moisture: 0.9

Date Sampled: 07/16/2014 0841
Date Received: 07/17/2014 0910

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	280-235822	Instrument ID:	SMS_G6
Prep Method:	3550C	Prep Batch:	280-235127	Lab File ID:	G6_14112.D
Dilution:	1.0			Initial Weight/Volume:	32.9 g
Analysis Date:	07/23/2014 1821			Final Weight/Volume:	1 mL
Prep Date:	07/21/2014 1130			Injection Volume:	0.5 uL

8/6/14

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

Cas Number	Analyte	RT	Est. Result (ug/Kg)	Qualifier
994-05-8	Butane, 2-methoxy-2-methyl-	1.64	250	N J
141-79-7	3-Penten-2-one, 4-methyl-	2.66	130	N J
123-42-2	2-Pentanone, 4-hydroxy-4-methyl-	3.06	4900	N J
112-84-5	Erucylamide	15.39	190	N J

Client: Washington Closure Hanford

Job Number: 280-57846-1
Sdg Number: JP0833

Client Sample ID: **J1TWC1**

Lab Sample ID: 280-57846-8
Client Matrix: Solid
% Moisture: 1.0

Date Sampled: 07/16/2014 0900
Date Received: 07/17/2014 0910

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	280-235622	Instrument ID:	SMS_G6
Prep Method:	3550C	Prep Batch:	280-235127	Lab File ID:	G6_14113.D
Dilution:	1.0			Initial Weight/Volume:	30.5 g
Analysis Date:	07/23/2014 1848			Final Weight/Volume:	1 mL
Prep Date:	07/21/2014 1130			Injection Volume:	0.5 uL

8/6/14

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Acenaphthene		10	U	10	330
Acenaphthylene		17	U	17	330
Anthracene		17	U	17	330
Benzo[a]anthracene		20	U	20	330
Benzo[a]pyrene		20	U	20	330
Benzo[b]fluoranthene		26	U	26	330
Benzo[ghi]perylene		16	U	16	330
Benzo[k]fluoranthene		40	U	40	330
Bis(2-chloroethoxy)methane		23	U	23	330
Bis(2-chloroethyl)ether		16	U	16	330
bis (2-chloroisopropyl) ether		23	U	23	330
Bis(2-ethylhexyl) phthalate		46	U	46	330
4-Bromophenyl phenyl ether		19	U	19	330
Butyl benzyl phthalate		43	U	43	330
Carbazole		36	U	36	330
4-Chloroaniline		81	U	81	330
4-Chloro-3-methylphenol		66	U	66	330
2-Chloronaphthalene		9.9	U	9.9	330
2-Chlorophenol		21	U	21	330
4-Chlorophenyl phenyl ether		21	U	21	330
Chrysene		27	U	27	330
Dibenz(a,h)anthracene		19	U	19	330
Dibenzofuran		20	U	20	330
1,2-Dichlorobenzene		22	U	22	330
1,3-Dichlorobenzene		12	U	12	330
1,4-Dichlorobenzene		14	U	14	330
3,3'-Dichlorobenzidine		89	U	89	660
2,4-Dichlorophenol		9.9	U	9.9	330
Diethyl phthalate		26	U	26	330
2,4-Dimethylphenol		66	U	66	330
Dimethyl phthalate		23	U	23	330
Di-n-butyl phthalate		29	U	29	330
4,6-Dinitro-2-methylphenol		330	U	330	660
2,4-Dinitrophenol		330	U J	330	820
2,4-Dinitrotoluene		66	U	66	330
2,6-Dinitrotoluene		28	U	28	330
Di-n-octyl phthalate		14	U	14	330
Fluoranthene		36	U	36	330
Fluorene		18	U	18	330
Hexachlorobenzene		29	U	29	330
Hexachlorobutadiene		9.9	U	9.9	330
Hexachlorocyclopentadiene		50	U	50	330
Hexachloroethane		21	U	21	330
Indeno[1,2,3-cd]pyrene		22	U	22	330
Isophorone		17	U	17	330
2-Methylnaphthalene		19	U	19	330

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-57846-1
Sdg Number: JP0833

Client Sample ID: **J1TWC1**

Lab Sample ID: 280-57846-8
Client Matrix: Solid
% Moisture: 1.0

Date Sampled: 07/16/2014 0900
Date Received: 07/17/2014 0910

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	280-235622	Instrument ID:	SMS_G6
Prep Method:	3550C	Prep Batch:	280-235127	Lab File ID:	G6_14113.D
Dilution:	1.0			Initial Weight/Volume:	30.5 g
Analysis Date:	07/23/2014 1848			Final Weight/Volume:	1 mL
Prep Date:	07/21/2014 1130			Injection Volume:	0.5 uL

8/6/14

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
2-Methylphenol		13	U	13	330
3 & 4 Methylphenol		33	U	33	330
Naphthalene		31	U	31	330
2-Nitroaniline		50	U	50	330
3-Nitroaniline		72	U	72	330
4-Nitroaniline		72	U	72	330
Nitrobenzene		22	U	22	330
2-Nitrophenol		9.9	U	9.9	330
4-Nitrophenol		96	U	96	660
N-Nitrosodi-n-propylamine		31	U	31	330
N-Nitrosodiphenylamine		21	U	21	330
Pentachlorophenol		330	U	330	660
Phenanthrene		17	U	17	330
Phenol		18	U	18	330
Pyrene		12	U	12	330
1,2,4-Trichlorobenzene		28	U	28	330
2,4,5-Trichlorophenol		9.9	U	9.9	330
2,4,6-Trichlorophenol		9.9	U	9.9	330

Surrogate	%Rec	Qualifier	Acceptance Limits
2-Fluorobiphenyl	77		50 - 120
2-Fluorophenol	70		53 - 120
Nitrobenzene-d5	69		50 - 120
Phenol-d5	70		52 - 120
Terphenyl-d14	88		55 - 120
2,4,6-Tribromophenol	65		51 - 120

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-57846-1
Sdg Number: JP0833

Client Sample ID: **J1TWC1**

Lab Sample ID: 280-57846-8
Client Matrix: Solid
% Moisture: 1.0

Date Sampled: 07/16/2014 0900
Date Received: 07/17/2014 0910

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	280-235622	Instrument ID:	SMS_G6
Prep Method:	3550C	Prep Batch:	280-235127	Lab File ID:	G6_14113.D
Dilution:	1.0			Initial Weight/Volume:	30.5 g
Analysis Date:	07/23/2014 1848			Final Weight/Volume:	1 mL
Prep Date:	07/21/2014 1130			Injection Volume:	0.5 uL

8/6/14

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

Cas Number	Analyte	RT	Est. Result (ug/Kg)	Qualifier
994-05-8	Butane, 2-methoxy-2-methyl-	1.64	250	N J
141-79-7	3-Penten-2-one, 4-methyl-	2.66	130	N J
123-42-2	2-Pentanone, 4-hydroxy-4-methyl-	3.06	5500	N J

Client: Washington Closure Hanford

Job Number: 280-57846-1
Sdg Number: JP0833

Client Sample ID: **J1TWC2**

Lab Sample ID: 280-57846-9
Client Matrix: Solid
% Moisture: 0.9

Date Sampled: 07/16/2014 0907
Date Received: 07/17/2014 0910

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	280-235622	Instrument ID:	SMS_G6
Prep Method:	3550C	Prep Batch:	280-235127	Lab File ID:	G6_14114.D
Dilution:	1.0			Initial Weight/Volume:	30.8 g
Analysis Date:	07/23/2014 1915			Final Weight/Volume:	1 mL
Prep Date:	07/21/2014 1130			Injection Volume:	0.5 uL

8/6/14

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Acenaphthene		10	U	10	320
Acenaphthylene		17	U	17	320
Anthracene		17	U	17	320
Benzo[a]anthracene		20	U	20	320
Benzo[a]pyrene		20	U	20	320
Benzo[b]fluoranthene		26	U	26	320
Benzo[ghi]perylene		16	U	16	320
Benzo[k]fluoranthene		39	U	39	320
Bis(2-chloroethoxy)methane		23	U	23	320
Bis(2-chloroethyl)ether		16	U	16	320
bis (2-chloroisopropyl) ether		23	U	23	320
Bis(2-ethylhexyl) phthalate		45	U	45	320
4-Bromophenyl phenyl ether		19	U	19	320
Butyl benzyl phthalate		42	U	42	320
Carbazole		35	U	35	320
4-Chloroaniline		80	U	80	320
4-Chloro-3-methylphenol		65	U	65	320
2-Chloronaphthalene		9.8	U	9.8	320
2-Chlorophenol		21	U	21	320
4-Chlorophenyl phenyl ether		21	U	21	320
Chrysene		27	U	27	320
Dibenz(a,h)anthracene		19	U	19	320
Dibenzofuran		20	U	20	320
1,2-Dichlorobenzene		22	U	22	320
1,3-Dichlorobenzene		12	U	12	320
1,4-Dichlorobenzene		13	U	13	320
3,3'-Dichlorobenzidine		88	U	88	650
2,4-Dichlorophenol		9.8	U	9.8	320
Diethyl phthalate		26	U	26	320
2,4-Dimethylphenol		65	U	65	320
Dimethyl phthalate		23	U	23	320
Di-n-butyl phthalate		29	U	29	320
4,6-Dinitro-2-methylphenol		320	U	320	650
2,4-Dinitrophenol		330	U J	330	810
2,4-Dinitrotoluene		65	U	65	320
2,6-Dinitrotoluene		28	U	28	320
Di-n-octyl phthalate		14	U	14	320
Fluoranthene		35	U	35	320
Fluorene		18	U	18	320
Hexachlorobenzene		29	U	29	320
Hexachlorobutadiene		9.8	U	9.8	320
Hexachlorocyclopentadiene		49	U	49	320
Hexachloroethane		21	U	21	320
Indeno[1,2,3-cd]pyrene		22	U	22	320
Isophorone		17	U	17	320
2-Methylnaphthalene		19	U	19	320

Client: Washington Closure Hanford

Job Number: 280-57846-1
Sdg Number: JP0833

Client Sample ID: **J1TWC2**

Lab Sample ID: 280-57846-9
Client Matrix: Solid
% Moisture: 0.9

Date Sampled: 07/16/2014 0907
Date Received: 07/17/2014 0910

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	280-235622	Instrument ID:	SMS_G6
Prep Method:	3550C	Prep Batch:	280-235127	Lab File ID:	G6_14114.D
Dilution:	1.0			Initial Weight/Volume:	30.8 g
Analysis Date:	07/23/2014 1915			Final Weight/Volume:	1 mL
Prep Date:	07/21/2014 1130			Injection Volume:	0.5 uL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
2-Methylphenol		13	U	13	320
3 & 4 Methylphenol		32	U	32	320
Naphthalene		30	U	30	320
2-Nitroaniline		49	U	49	320
3-Nitroaniline		72	U	72	320
4-Nitroaniline		71	U	71	320
Nitrobenzene		22	U	22	320
2-Nitrophenol		9.8	U	9.8	320
4-Nitrophenol		95	U	95	650
N-Nitrosodi-n-propylamine		30	U	30	320
N-Nitrosodiphenylamine		21	U	21	320
Pentachlorophenol		320	U	320	650
Phenanthrene		17	U	17	320
Phenol		18	U	18	320
Pyrene		12	U	12	320
1,2,4-Trichlorobenzene		28	U	28	320
2,4,5-Trichlorophenol		9.8	U	9.8	320
2,4,6-Trichlorophenol		9.8	U	9.8	320

Surrogate	%Rec	Qualifier	Acceptance Limits
2-Fluorobiphenyl	81		50 - 120
2-Fluorophenol	76		53 - 120
Nitrobenzene-d5	73		50 - 120
Phenol-d5	75		52 - 120
Terphenyl-d14	94		55 - 120
2,4,6-Tribromophenol	66		51 - 120

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-57846-1
Sdg Number: JP0833

Client Sample ID: **J1TWC2**

Lab Sample ID: 280-57846-9
Client Matrix: Solid
% Moisture: 0.9

Date Sampled: 07/16/2014 0907
Date Received: 07/17/2014 0910

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	280-235622	Instrument ID:	SMS_G6
Prep Method:	3550C	Prep Batch:	280-235127	Lab File ID:	G6_14114.D
Dilution:	1.0			Initial Weight/Volume:	30.8 g
Analysis Date:	07/23/2014 1915			Final Weight/Volume:	1 mL
Prep Date:	07/21/2014 1130			Injection Volume:	0.5 uL

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

Cas Number	Analyte	RT	Est. Result (ug/Kg)	Qualifier
994-05-8	Butane, 2-methoxy-2-methyl-	1.64	220	N J
141-79-7	3-Penten-2-one, 4-methyl-	2.66	150	N J
123-42-2	2-Pentanone, 4-hydroxy-4-methyl-	3.06	6100	N J
61338-98-5	Benzeneethanamine, 2-fluoro-.beta.,3,4-t	15.39	150	N J

Client: Washington Closure Hanford

Job Number: 280-57846-1
Sdg Number: JP0833

Client Sample ID: **J1TWC3**

Lab Sample ID: 280-57846-10
Client Matrix: Solid
% Moisture: 1.9

Date Sampled: 07/16/2014 0915
Date Received: 07/17/2014 0910

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	280-235622	Instrument ID:	SMS_G6
Prep Method:	3550C	Prep Batch:	280-235127	Lab File ID:	G6_14115.D
Dilution:	1.0			Initial Weight/Volume:	30.3 g
Analysis Date:	07/23/2014 1942			Final Weight/Volume:	1 mL
Prep Date:	07/21/2014 1130			Injection Volume:	0.5 uL

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

Client: Washington Closure Hanford

Job Number: 280-57846-1
Sdg Number: JP0833

Client Sample ID: **J1TWC3**

Lab Sample ID: 280-57846-10
Client Matrix: Solid
% Moisture: 1.9

Date Sampled: 07/16/2014 0915
Date Received: 07/17/2014 0910

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	280-235622	Instrument ID:	SMS_G6
Prep Method:	3550C	Prep Batch:	280-235127	Lab File ID:	G6_14115.D
Dilution:	1.0			Initial Weight/Volume:	30.3 g
Analysis Date:	07/23/2014 1942			Final Weight/Volume:	1 mL
Prep Date:	07/21/2014 1130			Injection Volume:	0.5 uL

8/6/14

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

Surrogate	%Rec	Qualifier	Acceptance Limits
2-Fluorobiphenyl	77		50 - 120
2-Fluorophenol	72		53 - 120
Nitrobenzene-d5	70		50 - 120
Phenol-d5	71		52 - 120
Terphenyl-d14	95		55 - 120
2,4,6-Tribromophenol	69		51 - 120

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-57846-1
Sdg Number: JP0833

Client Sample ID: **J1TWC3**

Lab Sample ID: 280-57846-10
Client Matrix: Solid
% Moisture: 1.9

Date Sampled: 07/16/2014 0915
Date Received: 07/17/2014 0910

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	280-235622	Instrument ID:	SMS_G6
Prep Method:	3550C	Prep Batch:	280-235127	Lab File ID:	G6_14115.D
Dilution:	1.0			Initial Weight/Volume:	30.3 g
Analysis Date:	07/23/2014 1942			Final Weight/Volume:	1 mL
Prep Date:	07/21/2014 1130			Injection Volume:	0.5 uL

VR 8/6/14

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

Cas Number	Analyte	RT	Est. Result (ug/Kg)	Qualifier
994-05-8	Butane, 2-methoxy-2-methyl-	1.64	240	N J
141-79-7	3-Penten-2-one, 4-methyl-	2.66	140	N J
123-42-2	2-Pentanone, 4-hydroxy-4-methyl-	3.06	5600	N J

Client: Washington Closure Hanford

Job Number: 280-57846-1
Sdg Number: JP0833

Client Sample ID: **J1TWC4**

Lab Sample ID: 280-57846-11
Client Matrix: Solid
% Moisture: 1.5

Date Sampled: 07/16/2014 0927
Date Received: 07/17/2014 0910

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	280-235622	Instrument ID:	SMS_G6
Prep Method:	3550C	Prep Batch:	280-235127	Lab File ID:	G6_14116.D
Dilution:	1.0			Initial Weight/Volume:	31.7 g
Analysis Date:	07/23/2014 2008			Final Weight/Volume:	1 mL
Prep Date:	07/21/2014 1130			Injection Volume:	0.5 uL

8/6/14

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

Client: Washington Closure Hanford

Job Number: 280-57846-1
Sdg Number: JP0833

Client Sample ID: **J1TWC4**

Lab Sample ID: 280-57846-11
Client Matrix: Solid
% Moisture: 1.5

Date Sampled: 07/16/2014 0927
Date Received: 07/17/2014 0910

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	280-235622	Instrument ID:	SMS_G6
Prep Method:	3550C	Prep Batch:	280-235127	Lab File ID:	G6_14116.D
Dilution:	1.0			Initial Weight/Volume:	31.7 g
Analysis Date:	07/23/2014 2008			Final Weight/Volume:	1 mL
Prep Date:	07/21/2014 1130			Injection Volume:	0.5 uL

8/6/14

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

Surrogate	%Rec	Qualifier	Acceptance Limits
2-Fluorobiphenyl	79		50 - 120
2-Fluorophenol	75		53 - 120
Nitrobenzene-d5	73		50 - 120
Phenol-d5	73		52 - 120
Terphenyl-d14	93		55 - 120
2,4,6-Tribromophenol	68		51 - 120

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-57846-1
Sdg Number: JP0833

Client Sample ID: **J1TWC4**

Lab Sample ID: 280-57846-11
Client Matrix: Solid
% Moisture: 1.5

Date Sampled: 07/16/2014 0927
Date Received: 07/17/2014 0910

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	280-235622	Instrument ID:	SMS_G6
Prep Method:	3550C	Prep Batch:	280-235127	Lab File ID:	G6_14116.D
Dilution:	1.0			Initial Weight/Volume:	31.7 g
Analysis Date:	07/23/2014 2008			Final Weight/Volume:	1 mL
Prep Date:	07/21/2014 1130			Injection Volume:	0.5 uL

4/6/14

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

Cas Number	Analyte	RT	Est. Result (ug/Kg)	Qualifier
994-05-8	Butane, 2-methoxy-2-methyl-	1.65	260	N J
141-79-7	3-Penten-2-one, 4-methyl-	2.67	140	N J
123-42-2	2-Pentanone, 4-hydroxy-4-methyl-	3.06	5300	N J

Client: Washington Closure Hanford

Job Number: 280-57846-1
Sdg Number: JP0833

Client Sample ID: **J1TWC5**

Lab Sample ID: 280-57846-12
Client Matrix: Solid
% Moisture: 0.7

Date Sampled: 07/16/2014 0937
Date Received: 07/17/2014 0910

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	280-235622	Instrument ID:	SMS_G6
Prep Method:	3550C	Prep Batch:	280-235127	Lab File ID:	G6_14117.D
Dilution:	1.0			Initial Weight/Volume:	30.5 g
Analysis Date:	07/23/2014 2035			Final Weight/Volume:	1 mL
Prep Date:	07/21/2014 1130			Injection Volume:	0.5 uL

8/6/14

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

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-57846-1
Sdg Number: JP0833

Client Sample ID: **J1TWC5**

Lab Sample ID: 280-57846-12
Client Matrix: Solid

% Moisture: 0.7

Date Sampled: 07/16/2014 0937
Date Received: 07/17/2014 0910

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	280-235622	Instrument ID:	SMS_G6
Prep Method:	3550C	Prep Batch:	280-235127	Lab File ID:	G6_14117.D
Dilution:	1.0			Initial Weight/Volume:	30.5 g
Analysis Date:	07/23/2014 2035			Final Weight/Volume:	1 mL
Prep Date:	07/21/2014 1130			Injection Volume:	0.5 uL

8/6/14

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

Surrogate	%Rec	Qualifier	Acceptance Limits
2-Fluorobiphenyl	78		50 - 120
2-Fluorophenol	73		53 - 120
Nitrobenzene-d5	71		50 - 120
Phenol-d5	71		52 - 120
Terphenyl-d14	89		55 - 120
2,4,6-Tribromophenol	66		51 - 120

Client: Washington Closure Hanford

Job Number: 280-57846-1
Sdg Number: JP0833

Client Sample ID: **J1TWC5**

Lab Sample ID: 280-57846-12
Client Matrix: Solid
% Moisture: 0.7

Date Sampled: 07/16/2014 0937
Date Received: 07/17/2014 0910

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	280-235622	Instrument ID:	SMS_G6
Prep Method:	3550C	Prep Batch:	280-235127	Lab File ID:	G6_14117.D
Dilution:	1.0			Initial Weight/Volume:	30.5 g
Analysis Date:	07/23/2014 2035			Final Weight/Volume:	1 mL
Prep Date:	07/21/2014 1130			Injection Volume:	0.5 uL

8/6/14

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

Cas Number	Analyte	RT	Est. Result (ug/Kg)	Qualifier
994-05-8	Butane, 2-methoxy-2-methyl-	1.64	280	N J
123-42-2	2-Pentanone, 4-hydroxy-4-methyl-	3.06	4800	N J

Client: Washington Closure Hanford

Job Number: 280-57846-1
Sdg Number: JP0833

Client Sample ID: **J1TWC6**

Lab Sample ID: 280-57846-13
Client Matrix: Solid
% Moisture: 1.0

Date Sampled: 07/16/2014 0841
Date Received: 07/17/2014 0910

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	280-235622	Instrument ID:	SMS_G6
Prep Method:	3550C	Prep Batch:	280-235127	Lab File ID:	G6_14118.D
Dilution:	1.0			Initial Weight/Volume:	32.1 g
Analysis Date:	07/23/2014 2102			Final Weight/Volume:	1 mL
Prep Date:	07/21/2014 1130			Injection Volume:	0.5 uL

8/6/14

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Acenaphthene		9.7	U	9.7	310
Acenaphthylene		16	U	16	310
Anthracene		16	U	16	310
Benzo[a]anthracene		19	U	19	310
Benzo[a]pyrene		19	U	19	310
Benzo[b]fluoranthene		25	U	25	310
Benzo[ghi]perylene		15	U	15	310
Benzo[k]fluoranthene		38	U	38	310
Bis(2-chloroethoxy)methane		22	U	22	310
Bis(2-chloroethyl)ether		16	U	16	310
bis (2-chloroisopropyl) ether		22	U	22	310
Bis(2-ethylhexyl) phthalate		43	U	43	310
4-Bromophenyl phenyl ether		18	U	18	310
Butyl benzyl phthalate		41	U	41	310
Carbazole		34	U	34	310
4-Chloroaniline		77	U	77	310
4-Chloro-3-methylphenol		62	U	62	310
2-Chloronaphthalene		9.4	U	9.4	310
2-Chlorophenol		20	U	20	310
4-Chlorophenyl phenyl ether		20	U	20	310
Chrysene		25	U	25	310
Dibenz(a,h)anthracene		18	U	18	310
Dibenzofuran		19	U	19	310
1,2-Dichlorobenzene		21	U	21	310
1,3-Dichlorobenzene		11	U	11	310
1,4-Dichlorobenzene		13	U	13	310
3,3'-Dichlorobenzidine		85	U	85	620
2,4-Dichlorophenol		9.4	U	9.4	310
Diethyl phthalate		25	U	25	310
2,4-Dimethylphenol		62	U	62	310
Dimethyl phthalate		22	U	22	310
Di-n-butyl phthalate		27	U	27	310
4,6-Dinitro-2-methylphenol		310	U	310	620
2,4-Dinitrophenol		310	U J	310	780
2,4-Dinitrotoluene		62	U	62	310
2,6-Dinitrotoluene		26	U	26	310
Di-n-octyl phthalate		14	U	14	310
Fluoranthene		34	U	34	310
Fluorene		17	U	17	310
Hexachlorobenzene		27	U	27	310
Hexachlorobutadiene		9.4	U	9.4	310
Hexachlorocyclopentadiene		47	U	47	310
Hexachloroethane		20	U	20	310
Indeno[1,2,3-cd]pyrene		21	U	21	310
Isophorone		16	U	16	310
2-Methylnaphthalene		18	U	18	310

Client: Washington Closure Hanford

Job Number: 280-57846-1
Sdg Number: JP0833

Client Sample ID: **J1TWC6**

Lab Sample ID: 280-57846-13
Client Matrix: Solid
% Moisture: 1.0

Date Sampled: 07/16/2014 0841
Date Received: 07/17/2014 0910

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	280-235622	Instrument ID:	SMS_G6
Prep Method:	3550C	Prep Batch:	280-235127	Lab File ID:	G6_14118.D
Dilution:	1.0			Initial Weight/Volume:	32.1 g
Analysis Date:	07/23/2014 2102			Final Weight/Volume:	1 mL
Prep Date:	07/21/2014 1130			Injection Volume:	0.5 uL

8/6/14

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
2-Methylphenol		12	U	12	310
3 & 4 Methylphenol		31	U	31	310
Naphthalene		29	U	29	310
2-Nitroaniline		47	U	47	310
3-Nitroaniline		69	U	69	310
4-Nitroaniline		68	U	68	310
Nitrobenzene		21	U	21	310
2-Nitrophenol		9.4	U	9.4	310
4-Nitrophenol		92	U	92	620
N-Nitrosodi-n-propylamine		29	U	29	310
N-Nitrosodiphenylamine		20	U	20	310
Pentachlorophenol		310	U	310	620
Phenanthrene		16	U	16	310
Phenol		17	U	17	310
Pyrene		11	U	11	310
1,2,4-Trichlorobenzene		26	U	26	310
2,4,5-Trichlorophenol		9.4	U	9.4	310
2,4,6-Trichlorophenol		9.4	U	9.4	310

Surrogate	%Rec	Qualifier	Acceptance Limits
2-Fluorobiphenyl	85		50 - 120
2-Fluorophenol	78		53 - 120
Nitrobenzene-d5	77		50 - 120
Phenol-d5	77		52 - 120
Terphenyl-d14	96		55 - 120
2,4,6-Tribromophenol	68		51 - 120

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-57846-1
Sdg Number: JP0833

Client Sample ID: **J1TWC6**

Lab Sample ID: 280-57846-13
Client Matrix: Solid

% Moisture: 1.0

Date Sampled: 07/16/2014 0841
Date Received: 07/17/2014 0910

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	280-235622	Instrument ID:	SMS_G6
Prep Method:	3550C	Prep Batch:	280-235127	Lab File ID:	G6_14118.D
Dilution:	1.0			Initial Weight/Volume:	32.1 g
Analysis Date:	07/23/2014 2102			Final Weight/Volume:	1 mL
Prep Date:	07/21/2014 1130			Injection Volume:	0.5 uL

4/6/4

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

Cas Number	Analyte	RT	Est. Result (ug/Kg)	Qualifier
994-05-8	Butane, 2-methoxy-2-methyl-	1.64	220	N J
141-79-7	3-Penten-2-one, 4-methyl-	2.66	130	N J
123-42-2	2-Pentanone, 4-hydroxy-4-methyl-	3.06	5100	N J

Client: Washington Closure Hanford

Job Number: 280-57846-1
Sdg Number: JP0833

Client Sample ID: **J1TWC7**

Lab Sample ID: 280-57846-14
Client Matrix: Solid
% Moisture: 0.0

Date Sampled: 07/16/2014 0735
Date Received: 07/17/2014 0910

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	280-235622	Instrument ID:	SMS_G6
Prep Method:	3550C	Prep Batch:	280-235127	Lab File ID:	G6_14119.D
Dilution:	1.0			Initial Weight/Volume:	31.4 g
Analysis Date:	07/23/2014 2129			Final Weight/Volume:	1 mL
Prep Date:	07/21/2014 1130			Injection Volume:	0.5 uL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Acenaphthene		9.8	U	9.8	320
Acenaphthylene		16	U	16	320
Anthracene		16	U	16	320
Benzo[a]anthracene		19	U	19	320
Benzo[a]pyrene		19	U	19	320
Benzo[b]fluoranthene		25	U	25	320
Benzo[ghi]perylene		15	U	15	320
Benzo[k]fluoranthene		38	U	38	320
Bis(2-chloroethoxy)methane		22	U	22	320
Bis(2-chloroethyl)ether		16	U	16	320
bis (2-chloroisopropyl) ether		22	U	22	320
Bis(2-ethylhexyl) phthalate		44	U	44	320
4-Bromophenyl phenyl ether		18	U	18	320
Butyl benzyl phthalate		41	U	41	320
Carbazole		34	U	34	320
4-Chloroaniline		78	U	78	320
4-Chloro-3-methylphenol		63	U	63	320
2-Chloronaphthalene		9.6	U	9.6	320
2-Chlorophenol		20	U	20	320
4-Chlorophenyl phenyl ether		20	U	20	320
Chrysene		26	U	26	320
Dibenz(a,h)anthracene		18	U	18	320
Dibenzofuran		19	U	19	320
1,2-Dichlorobenzene		21	U	21	320
1,3-Dichlorobenzene		11	U	11	320
1,4-Dichlorobenzene		13	U	13	320
3,3'-Dichlorobenzidine		86	U	86	630
2,4-Dichlorophenol		9.6	U	9.6	320
Diethyl phthalate		25	U	25	320
2,4-Dimethylphenol		63	U	63	320
Dimethyl phthalate		22	U	22	320
Di-n-butyl phthalate		28	U	28	320
4,6-Dinitro-2-methylphenol		320	U	320	630
2,4-Dinitrophenol		320	U J	320	790
2,4-Dinitrotoluene		63	U	63	320
2,6-Dinitrotoluene		27	U	27	320
Di-n-octyl phthalate		14	U	14	320
Fluoranthene		34	U	34	320
Fluorene		17	U	17	320
Hexachlorobenzene		28	U	28	320
Hexachlorobutadiene		9.6	U	9.6	320
Hexachlorocyclopentadiene		48	U	48	320
Hexachloroethane		20	U	20	320
Indeno[1,2,3-cd]pyrene		21	U	21	320
Isophorone		16	U	16	320
2-Methylnaphthalene		18	U	18	320

Client: Washington Closure Hanford

Job Number: 280-57846-1
Sdg Number: JP0833

Client Sample ID: **J1TWC7**

Lab Sample ID: 280-57846-14
Client Matrix: Solid
% Moisture: 0.0

Date Sampled: 07/16/2014 0735
Date Received: 07/17/2014 0910

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	280-235622	Instrument ID:	SMS_G6
Prep Method:	3550C	Prep Batch:	280-235127	Lab File ID:	G6_14119.D
Dilution:	1.0			Initial Weight/Volume:	31.4 g
Analysis Date:	07/23/2014 2129			Final Weight/Volume:	1 mL
Prep Date:	07/21/2014 1130			Injection Volume:	0.5 uL

8/6/14

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

Surrogate	%Rec	Qualifier	Acceptance Limits
2-Fluorobiphenyl	75		50 - 120
2-Fluorophenol	71		53 - 120
Nitrobenzene-d5	69		50 - 120
Phenol-d5	70		52 - 120
Terphenyl-d14	87		55 - 120
2,4,6-Tribromophenol	60		51 - 120

Client: Washington Closure Hanford

Job Number: 280-57846-1
Sdg Number: JP0833

Client Sample ID: **J1TWC7**

Lab Sample ID: 280-57846-14
Client Matrix: Solid
% Moisture: 0.0

Date Sampled: 07/16/2014 0735
Date Received: 07/17/2014 0910

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	280-235622	Instrument ID:	SMS_G6
Prep Method:	3550C	Prep Batch:	280-235127	Lab File ID:	G6_14119.D
Dilution:	1.0			Initial Weight/Volume:	31.4 g
Analysis Date:	07/23/2014 2129			Final Weight/Volume:	1 mL
Prep Date:	07/21/2014 1130			Injection Volume:	0.5 uL

8/6/14

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

Cas Number	Analyte	RT	Est. Result (ug/Kg)	Qualifier
994-05-8	Butane, 2-methoxy-2-methyl-	1.65	130	N J
123-42-2	2-Pentanone, 4-hydroxy-4-methyl-	3.06	4300	N J

Appendix 4

Laboratory Narrative and Chain-of-Custody Documentation

CASE NARRATIVE

Client: Washington Closure Hanford

Project: WASHINGTON CLOSURE HANFORD

Report Number: 280-57846-1

SDG #: JP0833
SAF#: RC-075

Date SDG Closed: July 17, 2014
Data Deliverable: 7 Day / Summary

CLIENT ID	LAB ID	ANALYSES REQUESTED	ANALYSES PERFORMED
J1TW94	280-57846-1	6010/7471/9056M/353.2/8270A/8310/8082/8081	6010B/7471A/9056M/353.2/8270C/8310/8082/8081A
J1TW95	280-57846-2	6010/7471/9056M/353.2/8270A/8310/8082/8081	6010B/7471A/9056M/353.2/8270C/8310/8082/8081A
J1TW96	280-57846-3	6010/7471/9056M/353.2/8270A/8310/8082/8081	6010B/7471A/9056M/353.2/8270C/8310/8082/8081A
J1TW97	280-57846-4	6010/7471/9056M/353.2/8270A/8310/8082/8081	6010B/7471A/9056M/353.2/8270C/8310/8082/8081A
J1TW98	280-57846-5	6010/7471/9056M/353.2/8270A/8310/8082/8081	6010B/7471A/9056M/353.2/8270C/8310/8082/8081A
J1TW99	280-57846-6	6010/7471/9056M/353.2/8270A/8310/8082/8081	6010B/7471A/9056M/353.2/8270C/8310/8082/8081A
J1TWC0	280-57846-7	6010/7471/9056M/353.2/8270A/8310/8082/8081	6010B/7471A/9056M/353.2/8270C/8310/8082/8081A
J1TWC1	280-57846-8	6010/7471/9056M/353.2/8270A/8310/8082/8081	6010B/7471A/9056M/353.2/8270C/8310/8082/8081A
J1TWC2	280-57846-9	6010/7471/9056M/353.2/8270A/8310/8082/8081	6010B/7471A/9056M/353.2/8270C/8310/8082/8081A
J1TWC3	280-57846-10	6010/7471/9056M/353.2/8270A/8310/8082/8081	6010B/7471A/9056M/353.2/8270C/8310/8082/8081A
J1TWC4	280-57846-11	6010/7471/9056M/353.2/8270A/8310/8082/8081	6010B/7471A/9056M/353.2/8270C/8310/8082/8081A
J1TWC5	280-57846-12	6010/7471/9056M/353.2/8270A/8310/8082/8081	6010B/7471A/9056M/353.2/8270C/8310/8082/8081A
J1TWC6	280-57846-13	6010/7471/9056M/353.2/8270A/8310/8082/8081	6010B/7471A/9056M/353.2/8270C/8310/8082/8081A
J1TWC7	280-57846-14	6010/7471/8270A	6010B/7471A/8270C

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

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

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

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

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

RECEIPT
The samples were received on 7/17/2014 9:10 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 3 coolers at receipt time were 0.7° C, 2.6° C and 3.7° C.

GC/MS SEMIVOLATILES - SW846 8270C
The MS/MSD performed on sample J1TW97 exhibited percent recoveries outside the control limits for 2,4-Dinitrophenol, and the associated sample result has been flagged "T". The acceptable LCS analysis data indicated that the analytical system was operating within control; therefore, corrective action is deemed unnecessary.

No other anomalies were encountered.

GC SEMIVOLATILES - SW846 8081A - Pesticides
No anomalies were encountered.

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

HPLC - SW846 8310 - PAHs
The MS aliquot of the MS/MSD performed on sample J1TW95 exhibited a percent recovery outside the control limits for Benzo[b]fluoranthene, and the associated sample result has been flagged "N". The acceptable LCS analysis data indicated that the analytical system was operating within control; therefore, corrective action is deemed unnecessary.

No other anomalies were encountered.

TOTAL METALS - SW846 6010B/7471A
Serial dilution of a digestate in batch 280-234933 indicates that physical and chemical interferences are present for several elements. Results have been flagged with an "X".

Each sample is analyzed to achieve the lowest possible reporting limits within the constraints of the methods. Samples J1TW94 and J1TW98 required a 5X dilution prior to the analysis of Antimony, Beryllium, Cobalt, Copper, Lead and Vanadium to minimize the interference caused by Titanium concentrations greater than the linear range. The reporting limits have been adjusted relative to the dilution required.

Low levels of Chromium, Copper and Zinc are present in the method blank associated with batch 280-234933. Because the concentrations in the method blank are not present at levels greater than half the reporting limit, corrective action is deemed unnecessary.

It can be noted that the sample amount was greater than four times the spike amount for Aluminum, Iron and Manganese in the Matrix Spike performed on sample J1TW94; therefore, control limits are not applicable.

The Matrix Spike performed on sample J1TW94 exhibited percent recoveries outside the control limits for Silicon and Beryllium, and the associated sample results have 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.

The duplicate analysis of sample J1TW94 exhibited RPD data outside the control limits for Molybdenum, and the associated sample result has been flagged "M". There is no indication that the analytical system was operating out of control, and method accuracy has been verified by the acceptable LCS analysis data; therefore, corrective action is deemed unnecessary.

No other anomalies were encountered.

GENERAL CHEMISTRY - MCAWW 353.2 - NITRATE NITRITE as N
The Matrix Spike performed on sample J1TW99 exhibited the percent recovery outside the control limits, 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 - SW846 9056M - ANIONS
Sulfate and Chloride are present in the method blank associated with batch 280-235280 at 6.77 mg/kg and 7.12 mg/kg, respectively, which is greater than half the project specific reporting limit (PSRL) of 5 mg/kg. TestAmerica's practical quantitation limit (PQL) for Sulfate is 50 mg/kg and Chloride is 30 mg/kg. The laboratory cannot maintain system cleanliness at this low level; therefore, corrective action is not initiated. It can be noted that the concentrations found in the method blank are less than half of the laboratory standard PQLs.

The Matrix Spike performed on sample J1TW94 exhibited the percent recovery outside the control limits for Fluoride, 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.

The duplicate analysis of sample J1TW94 exhibited RPD data outside the control limits for Chloride and Sulfate, and the associated sample results have been flagged "M". There is no indication that the analytical system was operating out of control, and method accuracy has been verified by the acceptable LCS analysis data; therefore, corrective action is deemed unnecessary.

No other anomalies were encountered.

Washington Closure Hanford

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

RC-075-438

Collector: H. Weber	Company Contact: Joan Kessner	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Price Code:	Data Turnaround: 7days		
Project Designation: 100-D/DR Field Remediation	Sampling Location: 100-D-106, Verification, stockpile area		SAF No.: RC-075
Ice Chest No.: RCC-07-011, -009, -006	Field Logbook No.: EL-1662-02	COA: 01D1062000	Method of Shipment: Commercial Carrier / FED EX
Shipped To: TestAmerica Denver	Offsite Property No.: A131165		Bill of Lading/Air Bill No.: See OSPC
Other Labs Shipped To: TestAmerica Richland			

POSSIBLE SAMPLE HAZARDS/REMARKS

None

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C					
Type of Container	G/P	G/P	aG	aG	aG	aG					
No. of Container(s)	1	1	1	1	1	1					
Volume	250mL	250mL	250mL	250mL	250mL	250mL					
Sample Analysis	See Item (1) in Special Instructions	IC Anions - 9056 Modified; NO2/NO3 - 353.2	Semi-VOA - 8270A (TCL)	PAHs - 8310	PCBs - 8082	Pesticides - 8081					
Sample No.	Matrix	Sample Date	Sample Time								
J1TW94	SOIL	7/16/14	0745	✓	✓	✓	✓	✓	✓		
J1TW95	SOIL	7/16/14	0807	✓	✓	✓	✓	✓	✓		
J1TW96	SOIL	7/16/14	0820	✓	✓	✓	✓	✓	✓		
J1TW97	SOIL	7/16/14	0757	✓	✓	✓	✓	✓	✓		
J1TW98	SOIL	7/16/14	0820	✓	✓	✓	✓	✓	✓		

Page 1 of 5

CHAIN OF POSSESSION	Sign/Print Names	
Relinquished By/Removed From: Heather Weber / [signature]	Date/Time: 07/16/14 0949	Received By/Stored In: [signature] / [signature]
Relinquished By/Removed From: [signature] / [signature]	Date/Time: 7-16-14 1115	Received By/Stored In: Fed Ex
Relinquished By/Removed From: [signature]	Date/Time: 0910 7/17/14	Received By/Stored In: Fed Ex
Relinquished By/Removed From: [signature]	Date/Time:	Received By/Stored In: [signature]
Relinquished By/Removed From:	Date/Time:	Received By/Stored In:
Relinquished By/Removed From:	Date/Time:	Received By/Stored In:
Relinquished By/Removed From:	Date/Time:	Received By/Stored In:
FINAL SAMPLE DISPOSITION	Disposal Method:	Disposed By: Date/Time:

SPECIAL INSTRUCTIONS

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

REVIEWED BY K. Woodside email DATE 7/16/14

JP0833

WCH-EE-011

2.3, 0.4, 3.4 IR4 +3 MS 7-17-14

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-075-438	Page 2 of 3

Collector: W. Weber	Company Contact: Joan Kessner	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Price Code:	Data Turnaround: 7days		
Project Designation: 100-D/DR Field Remediation	Sampling Location: 100-D-106, Verification, stockpile area		SAF No.: RC-075
Ice Chest No.: RCC-07-011, -009, -006	Field Logbook No.: EL-1662-02	COA: 01D1062000	Method of Shipment: Commercial Carrier / FED Ex
Shipped To: TestAmerica Denver	Offsite Property No.: A131165		Bill of Lading/Air Bill No.: See OSPC
Other Labs Shipped To: TestAmerica Richland			

POSSIBLE SAMPLE HAZARDS/REMARKS

None

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C					
Type of Container	G/P	G/P	aG	aG	aG	aG					
No. of Container(s)	1	1	1	1	1	1					
Volume	250mL	250mL	250mL	250mL	250mL	250mL					
Sample Analysis	See Item (1) in Special Instructions	IC Anions - 9056 Modified; NO2/NO3 - 353.2	Semi-VOA - 8270A (TCL)	PAHs - 8310	PCBs - 8082	Pesticides - 8081					
Sample No.	Matrix	Sample Date	Sample Time								
J1TW99	SOIL	7/16/14	0830	✓	✓	✓	✓	✓	✓		
J1TWC0	SOIL	7/16/14	0841	✓	✓	✓	✓	✓	✓		
J1TWC1	SOIL	7/16/14	0900	✓	✓	✓	✓	✓	✓		
J1TWC2	SOIL	7/16/14	0907	✓	✓	✓	✓	✓	✓		
J1TWC3	SOIL	7/16/14	0915	✓	✓	✓	✓	✓	✓		

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Heather Weber / [signature]	07/16/14 0949	R. Fehlber / R. Fehlber	0949 7-16-14
R. Fehlber / R. Fehlber	1115 7-16-14	Fed Ex	
[signature]	7/17/14 0910	FedEx	
[signature]	0910 7/17/14		

FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

SPECIAL INSTRUCTIONS

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

REVIEWED BY [signature] DATE 7/16/14

JP0833

WCH-EE-011

Washington Closure Hanford

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

RC-075-438

Collector: N. Weber	Company Contact: Joan Kessner	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Price Code:	Data Turnaround: 7 days		
Project Designation: 100-D/DR Field Remediation	Sampling Location: 100-D-106, Verification, stockpile area		SAF No.: RC-075
Ice Chest No.: RCL-07-011, -009, -006	Field Logbook No.: EL-1662-02	COA: 01D1062000	Method of Shipment: Commercial Carrier / FED Ex
Shipped To: TestAmerica Denver	Offsite Property No.: A131165		Bill of Lading/Air Bill No.: See OSPC
Other Labs Shipped To: TestAmerica Richland			

POSSIBLE SAMPLE HAZARDS/REMARKS

None

Special Handling and/or Storage

Preservation			Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C				
Type of Container			G/P	G/P	aG	aG	aG	aG				
No. of Container(s)			1	1	1	1	1	1				
Volume			250mL	250mL	250mL	250mL	250mL	250mL				
Sample Analysis			See item (1) in Special Instructions	IC Anions - 9056 Modified; NO2/NO3 - 353.2	Semi-VOA - 8270A (TCL)	PAHs - 8310	PCBs - 8082	Pesticides - 8081				
Sample No.	Matrix	Sample Date	Sample Time									
J1TWC4	SOIL	7/16/14	0927	✓	✓	✓	✓	✓	✓			
J1TWC5	SOIL	7/16/14	0932	✓	✓	✓	✓	✓	✓			
J1TWC6	SOIL	7/16/14	0941	✓	✓	✓	✓	✓	✓			
J1TWC7	SOIL	7/16/14	0735	✓		✓						

Page 175 of 178

CHAIN OF POSSESSION

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Heather Weber / [signature]	07/16/14 0949	R. Fehlberg / R. Fehlberg	0949 7-16-14
R. Fehlberg / R. Fehlberg	7-16-14 1115	Fed Ex	
[signature]	0910 7/17/14	Fed Ex	
(RZ)		[signature]	0910 7/17/14

Sign/Print Names

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

SPECIAL INSTRUCTIONS

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

REVIEWED BY K. Vonderveen DATE 7/16/14

JP0833

WCH-EE-011

Appendix 5

Data Validation Supporting Documentation

GC/MS ORGANIC DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	E
PROJECT: 100-D-105			DATA PACKAGE: JP0833		
VALIDATOR: ELR		LAB:		DATE: 8/4/15	
			SDG: JP0833		
ANALYSES PERFORMED					
SW-846 8260		SW-846 8260 (TCLP)	SW-846 8270		SW-846 8270 (TCLP)
SAMPLES/MATRIX					
J1TW94	J1TW95	J1TW96	J1TW97		
J1TW98	J1TW99	J1TW10	J1TW01		
J1TW02	J1TW03	J1TW04	J1TW05		
J1TW06	J1TW07				
					Soil

1. DATA PACKAGE COMPLETENESS AND CASE NARRATIVE

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

Comments:

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

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

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

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

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

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

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

Comments:

GC/MS ORGANIC DATA VALIDATION CHECKLIST

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

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

Comments:

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

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

Comments: LCS - ok
MS/MSD - 2,4-dinitro - ↓ all

[illegible]

GC/MS ORGANIC DATA VALIDATION CHECKLIST

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

MS/MSD samples analyzed? ..... Yes No N/A

MS/MSD RPD values acceptable? ..... Yes No N/A

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

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

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

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

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

Comments: _____

CO/CU

6. SYSTEM PERFORMANCE (Levels D and E)

Internal standards analyzed? ..... Yes No N/A

Iinternal standard areas acceptable? ..... Yes No N/A

Internal standard retention times acceptable? ..... Yes No N/A

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

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

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

Comments: _____

7. HOLDING TIMES (all levels)

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

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

Comments: _____

GC/MS ORGANIC DATA VALIDATION CHECKLIST

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

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

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

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

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

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

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

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

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

Comments:

9. SAMPLE CLEANUP (Levels D and E)

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

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

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

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

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

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

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

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

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

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

Comments:

Appendix 6

Additional Documentation Requested by Client

Client: Washington Closure Hanford

Job Number: 280-57846-1
Sdg Number: JP0833

Method Blank - Batch: 280-235127

Method: 8270C
Preparation: 3550C

Lab Sample ID:	MB 280-235127/1-A	Analysis Batch:	280-235622	Instrument ID:	SMS_G6
Client Matrix:	Solid	Prep Batch:	280-235127	Lab File ID:	G6_14102.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	30.7 g
Analysis Date:	07/23/2014 1352	Units:	ug/Kg	Final Weight/Volume:	1 mL
Prep Date:	07/21/2014 1130			Injection Volume:	0.5 uL
Leach Date:	N/A				

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

Client: Washington Closure Hanford

Job Number: 280-57846-1
Sdg Number: JP0833

Method Blank - Batch: 280-235127

Method: 8270C
Preparation: 3550C

Lab Sample ID:	MB 280-235127/1-A	Analysis Batch:	280-235622	Instrument ID:	SMS_G6
Client Matrix:	Solid	Prep Batch:	280-235127	Lab File ID:	G6_14102.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	30.7 g
Analysis Date:	07/23/2014 1352	Units:	ug/Kg	Final Weight/Volume:	1 mL
Prep Date:	07/21/2014 1130			Injection Volume:	0.5 uL
Leach Date:	N/A				

Analyte	Result	Qual	MDL	RL
2-Methylnaphthalene	19	U	19	320
2-Methylphenol	13	U	13	320
3 & 4 Methylphenol	32	U	32	320
Naphthalene	30	U	30	320
2-Nitroaniline	49	U	49	320
3-Nitroaniline	71	U	71	320
4-Nitroaniline	71	U	71	320
Nitrobenzene	21	U	21	320
2-Nitrophenol	9.8	U	9.8	320
4-Nitrophenol	95	U	95	640
N-Nitrosodi-n-propylamine	30	U	30	320
N-Nitrosodiphenylamine	21	U	21	320
Pentachlorophenol	320	U	320	640
Phenanthrene	17	U	17	320
Phenol	18	U	18	320
Pyrene	12	U	12	320
1,2,4-Trichlorobenzene	27	U	27	320
2,4,5-Trichlorophenol	9.8	U	9.8	320
2,4,6-Trichlorophenol	9.8	U	9.8	320

Surrogate	% Rec	Acceptance Limits
2-Fluorobiphenyl	95	50 - 120
2-Fluorophenol	89	53 - 120
Nitrobenzene-d5	89	50 - 120
Phenol-d5	87	52 - 120
Terphenyl-d14	106	55 - 120
2,4,6-Tribromophenol	82	51 - 120

Method Blank TICs- Batch: 280-235127

Cas Number	Analyte	RT	Est. Result (ug/K	Qual
	Tentatively Identified Compound		None	

Client: Washington Closure Hanford

Job Number: 280-57846-1
Sdg Number: JP0833

Lab Control Sample - Batch: 280-235127

Method: 8270C
Preparation: 3550C

Lab Sample ID:	LCS 280-235127/2-A	Analysis Batch:	280-235622	Instrument ID:	SMS_G6
Client Matrix:	Solid	Prep Batch:	280-235127	Lab File ID:	G6_14103.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	31.4 g
Analysis Date:	07/23/2014 1419	Units:	ug/Kg	Final Weight/Volume:	1 mL
Prep Date:	07/21/2014 1130			Injection Volume:	0.5 uL
Leach Date:	N/A				

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Acenaphthene	2550	2180	86	60 - 120	
Acenaphthylene	2550	2170	85	64 - 120	
Anthracene	2550	2320	91	63 - 120	
Benzo[a]anthracene	2550	2420	95	65 - 120	
Benzo[a]pyrene	2550	2450	96	59 - 120	
Benzo[b]fluoranthene	2550	2600	102	47 - 129	
Benzo[ghi]perylene	2550	2480	97	55 - 126	
Benzo[k]fluoranthene	2550	2490	98	48 - 130	
Bis(2-chloroethoxy)methane	2550	1990	78	56 - 120	
Bis(2-chloroethyl)ether	2550	2040	80	51 - 120	
bis (2-chloroisopropyl) ether	2550	1710	67	49 - 120	
Bis(2-ethylhexyl) phthalate	2550	2760	108	65 - 120	
4-Bromophenyl phenyl ether	2550	2230	88	64 - 120	
Butyl benzyl phthalate	2550	2740	108	65 - 120	
Carbazole	2550	2380	94	64 - 120	
4-Chloroaniline	2550	1560	61	28 - 120	
4-Chloro-3-methylphenol	2550	2100	82	63 - 120	
2-Chloronaphthalene	2550	2130	84	59 - 120	
2-Chlorophenol	2550	1990	78	57 - 120	
4-Chlorophenyl phenyl ether	2550	2130	83	64 - 120	
Chrysene	2550	2480	97	64 - 120	
Dibenz(a,h)anthracene	2550	2510	99	50 - 133	
Dibenzofuran	2550	2210	87	61 - 120	
1,2-Dichlorobenzene	2550	1910	75	53 - 120	
1,3-Dichlorobenzene	2550	1890	74	52 - 120	
1,4-Dichlorobenzene	2550	1920	75	52 - 120	
3,3'-Dichlorobenzidine	2550	1690	66	30 - 120	
2,4-Dichlorophenol	2550	2120	83	60 - 120	
Diethyl phthalate	2550	2390	94	66 - 120	
2,4-Dimethylphenol	2550	1940	76	54 - 120	
Dimethyl phthalate	2550	2280	89	65 - 120	
Di-n-butyl phthalate	2550	2470	97	67 - 120	
4,6-Dinitro-2-methylphenol	5100	4960	97	57 - 120	
2,4-Dinitrophenol	5100	4430	87	46 - 120	
2,4-Dinitrotoluene	2550	2440	96	68 - 120	
2,6-Dinitrotoluene	2550	2390	94	64 - 120	
Di-n-octyl phthalate	2550	2670	105	66 - 120	
Fluoranthene	2550	2350	92	66 - 120	
Fluorene	2550	2250	88	64 - 120	
Hexachlorobenzene	2550	2120	83	62 - 120	
Hexachlorobutadiene	2550	1860	73	53 - 120	
Hexachlorocyclopentadiene	2550	1650	65	47 - 120	
Hexachloroethane	2550	1940	76	51 - 120	
Indeno[1,2,3-cd]pyrene	2550	2530	99	63 - 120	
Isophorone	2550	1770	69	56 - 120	
2-Methylnaphthalene	2550	2040	80	57 - 120	

Client: Washington Closure Hanford

Job Number: 280-57846-1
Sdg Number: JP0833

Lab Control Sample - Batch: 280-235127

Method: 8270C
Preparation: 3550C

Lab Sample ID:	LCS 280-235127/2-A	Analysis Batch:	280-235622	Instrument ID:	SMS_G6
Client Matrix:	Solid	Prep Batch:	280-235127	Lab File ID:	G6_14103.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	31.4 g
Analysis Date:	07/23/2014 1419	Units:	ug/Kg	Final Weight/Volume:	1 mL
Prep Date:	07/21/2014 1130			Injection Volume:	0.5 uL
Leach Date:	N/A				

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
2-Methylphenol	2550	1790	70	56 - 120	
3 & 4 Methylphenol	2550	1880	74	53 - 120	
Naphthalene	2550	1930	76	57 - 120	
2-Nitroaniline	2550	2210	87	63 - 120	
3-Nitroaniline	2550	1950	77	47 - 120	
4-Nitroaniline	2550	2220	87	64 - 120	
Nitrobenzene	2550	1910	75	54 - 120	
2-Nitrophenol	2550	2140	84	56 - 120	
4-Nitrophenol	5100	4740	93	63 - 121	
N-Nitrosodi-n-propylamine	2550	1910	75	51 - 120	
N-Nitrosodiphenylamine	2550	2310	91	61 - 120	
Pentachlorophenol	5100	4770	94	56 - 120	
Phenanthrene	2550	2360	92	64 - 120	
Phenol	2550	1880	74	56 - 120	
Pyrene	2550	2530	99	64 - 120	
1,2,4-Trichlorobenzene	2550	1990	78	52 - 120	
2,4,5-Trichlorophenol	2550	2360	93	64 - 120	
2,4,6-Trichlorophenol	2550	2340	92	61 - 120	

Surrogate	% Rec	Acceptance Limits
2-Fluorobiphenyl	82	50 - 120
2-Fluorophenol	76	53 - 120
Nitrobenzene-d5	75	50 - 120
Phenol-d5	74	52 - 120
Terphenyl-d14	96	55 - 120
2,4,6-Tribromophenol	80	51 - 120

Client: Washington Closure Hanford

Job Number: 280-57846-1
Sdg Number: JP0833

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-235127

Method: 8270C
Preparation: 3550C

MS Lab Sample ID:	280-57846-4	Analysis Batch:	280-235622	Instrument ID:	SMS_G6
Client Matrix:	Solid	Prep Batch:	280-235127	Lab File ID:	G6_14108.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	30.5 g
Analysis Date:	07/23/2014 1633			Final Weight/Volume:	1 mL
Prep Date:	07/21/2014 1130			Injection Volume:	0.5 uL
Leach Date:	N/A				

MSD Lab Sample ID:	280-57846-4	Analysis Batch:	280-235622	Instrument ID:	SMS_G6
Client Matrix:	Solid	Prep Batch:	280-235127	Lab File ID:	G6_14109.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	31.6 g
Analysis Date:	07/23/2014 1700			Final Weight/Volume:	1 mL
Prep Date:	07/21/2014 1130			Injection Volume:	0.5 uL
Leach Date:	N/A				

Analyte	% Rec. MS	% Rec. MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
Acenaphthene	90	82	60 - 120	13	30		
Acenaphthylene	88	81	64 - 120	12	30		
Anthracene	95	87	63 - 120	12	30		
Benzo[a]anthracene	97	89	65 - 120	11	30		
Benzo[a]pyrene	98	90	59 - 120	11	30		
Benzo[b]fluoranthene	102	93	47 - 129	13	44		
Benzo[ghi]perylene	97	89	55 - 126	11	31		
Benzo[k]fluoranthene	98	91	48 - 130	11	30		
Bis(2-chloroethoxy)methane	84	73	56 - 120	18	30		
Bis(2-chloroethyl)ether	84	72	51 - 120	19	30		
bis (2-chloroisopropyl) ether	72	60	49 - 120	21	30		
Bis(2-ethylhexyl) phthalate	109	100	65 - 120	12	30		
4-Bromophenyl phenyl ether	91	85	64 - 120	10	30		
Butyl benzyl phthalate	106	98	65 - 120	12	30		
Carbazole	96	90	64 - 120	10	30		
4-Chloroaniline	69	67	28 - 120	6	30		
4-Chloro-3-methylphenol	84	78	63 - 120	11	30		
2-Chloronaphthalene	89	80	59 - 120	14	30		
2-Chlorophenol	82	69	57 - 120	21	30		
4-Chlorophenyl phenyl ether	88	82	64 - 120	11	30		
Chrysene	98	90	64 - 120	12	35		
Dibenz(a,h)anthracene	98	90	50 - 133	12	30		
Dibenzofuran	90	84	61 - 120	11	30		
1,2-Dichlorobenzene	76	64	53 - 120	21	30		
1,3-Dichlorobenzene	76	63	52 - 120	22	32		
1,4-Dichlorobenzene	76	64	52 - 120	21	30		
3,3'-Dichlorobenzidine	76	74	30 - 120	6	30		
2,4-Dichlorophenol	90	80	60 - 120	16	30		
Diethyl phthalate	94	89	66 - 120	10	30		
2,4-Dimethylphenol	82	71	54 - 120	18	30		
Dimethyl phthalate	91	84	65 - 120	10	30		
Di-n-butyl phthalate	99	92	67 - 120	10	30		
4,6-Dinitro-2-methylphenol	67	63	57 - 120	9	30		

Client: Washington Closure Hanford

Job Number: 280-57846-1
Sdg Number: JP0833

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-235127

Method: 8270C
Preparation: 3550C

MS Lab Sample ID:	280-57846-4	Analysis Batch:	280-235622	Instrument ID:	SMS_G6
Client Matrix:	Solid	Prep Batch:	280-235127	Lab File ID:	G6_14108.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	30.5 g
Analysis Date:	07/23/2014 1633			Final Weight/Volume:	1 mL
Prep Date:	07/21/2014 1130			Injection Volume:	0.5 uL
Leach Date:	N/A				

MSD Lab Sample ID:	280-57846-4	Analysis Batch:	280-235622	Instrument ID:	SMS_G6
Client Matrix:	Solid	Prep Batch:	280-235127	Lab File ID:	G6_14109.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	31.6 g
Analysis Date:	07/23/2014 1700			Final Weight/Volume:	1 mL
Prep Date:	07/21/2014 1130			Injection Volume:	0.5 uL
Leach Date:	N/A				

Analyte	% Rec. MS	% Rec. MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
2,4-Dinitrophenol	30	30	46 - 120	3	34	T	T
2,4-Dinitrotoluene	96	90	68 - 120	9	30		
2,6-Dinitrotoluene	95	89	64 - 120	10	30		
Di-n-octyl phthalate	101	92	66 - 120	13	30		
Fluoranthene	94	88	66 - 120	11	30		
Fluorene	92	85	64 - 120	11	30		
Hexachlorobenzene	86	78	62 - 120	13	30		
Hexachlorobutadiene	75	63	53 - 120	20	30		
Hexachlorocyclopentadiene	61	50	47 - 120	24	30		
Hexachloroethane	77	66	51 - 120	20	30		
Indeno[1,2,3-cd]pyrene	97	84	63 - 120	17	30		
Isophorone	72	65	56 - 120	15	30		
2-Methylnaphthalene	84	74	57 - 120	16	30		
2-Methylphenol	77	67	56 - 120	18	30		
3 & 4 Methylphenol	82	71	53 - 120	18	30		
Naphthalene	79	67	57 - 120	20	30		
2-Nitroaniline	87	82	63 - 120	9	30		
3-Nitroaniline	83	81	47 - 120	6	30		
4-Nitroaniline	90	86	64 - 120	8	30		
Nitrobenzene	77	66	54 - 120	19	30		
2-Nitrophenol	84	73	56 - 120	17	30		
4-Nitrophenol	89	85	63 - 121	8	30		
N-Nitrosodi-n-propylamine	79	68	51 - 120	19	30		
N-Nitrosodiphenylamine	93	88	61 - 120	10	36		
Pentachlorophenol	86	78	56 - 120	14	30		
Phenanthrene	97	91	64 - 120	10	30		
Phenol	79	67	56 - 120	20	30		
Pyrene	100	93	64 - 120	11	38		
1,2,4-Trichlorobenzene	81	68	52 - 120	21	30		
2,4,5-Trichlorophenol	94	86	64 - 120	12	30		
2,4,6-Trichlorophenol	94	89	61 - 120	10	30		

Surrogate	MS % Rec	MSD % Rec	Acceptance Limits
2-Fluorobiphenyl	87	78	50 - 120

Quality Control Results

Client: Washington Closure Hanford

Job Number: 280-57846-1
Sdg Number: JP0833

Surrogate	MS % Rec	MSD % Rec	Acceptance Limits
2-Fluorophenol	77	65	53 - 120
Nitrobenzene-d5	77	65	50 - 120
Phenol-d5	78	67	52 - 120
Terphenyl-d14	96	89	55 - 120
2,4,6-Tribromophenol	78	74	51 - 120

Client: Washington Closure Hanford

Job Number: 280-57846-1
Sdg Number: JP0833

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-235127

Method: 8270C
Preparation: 3550C

MS Lab Sample ID:	280-57846-4	Units: ug/Kg	
Client Matrix:	Solid		
Dilution:	1.0		
Analysis Date:	07/23/2014 1633		
Prep Date:	07/21/2014 1130		
Leach Date:	N/A		

MSD Lab Sample ID:	280-57846-4
Client Matrix:	Solid
Dilution:	1.0
Analysis Date:	07/23/2014 1700
Prep Date:	07/21/2014 1130
Leach Date:	N/A

Analyte	Sample Result/Qual		MS Spike Amount	MSD Spike Amount	MS Result/Qual		MSD Result/Qual	
Acenaphthene	10	U	2650	2560	2390		2110	
Acenaphthylene	17	U	2650	2560	2340		2070	
Anthracene	17	U	2650	2560	2510		2230	
Benzo[a]anthracene	20	U	2650	2560	2560		2290	
Benzo[a]pyrene	20	U	2650	2560	2590		2320	
Benzo[b]fluoranthene	26	U	2650	2560	2710		2390	
Benzo[ghi]perylene	16	U	2650	2560	2570		2290	
Benzo[k]fluoranthene	39	U	2650	2560	2610		2330	
Bis(2-chloroethoxy)methane	23	U	2650	2560	2220		1860	
Bis(2-chloroethyl)ether	16	U	2650	2560	2220		1840	
bis (2-chloroisopropyl) ether	23	U	2650	2560	1900		1540	
Bis(2-ethylhexyl) phthalate	45	U	2650	2560	2880		2560	
4-Bromophenyl phenyl ether	19	U	2650	2560	2400		2170	
Butyl benzyl phthalate	42	U	2650	2560	2820		2500	
Carbazole	35	U	2650	2560	2540		2300	
4-Chloroaniline	80	U	2650	2560	1830		1710	
4-Chloro-3-methylphenol	65	U	2650	2560	2230		2010	
2-Chloronaphthalene	9.8	U	2650	2560	2370		2050	
2-Chlorophenol	21	U	2650	2560	2180		1780	
4-Chlorophenyl phenyl ether	21	U	2650	2560	2350		2100	
Chrysene	26	U	2650	2560	2590		2290	
Dibenz(a,h)anthracene	19	U	2650	2560	2610		2310	
Dibenzofuran	20	U	2650	2560	2380		2140	
1,2-Dichlorobenzene	22	U	2650	2560	2010		1640	
1,3-Dichlorobenzene	12	U	2650	2560	2010		1620	
1,4-Dichlorobenzene	13	U	2650	2560	2010		1630	
3,3'-Dichlorobenzidine	88	U	2650	2560	2010		1890	
2,4-Dichlorophenol	9.8	U	2650	2560	2380		2040	
Diethyl phthalate	25	U	2650	2560	2500		2270	
2,4-Dimethylphenol	65	U	2650	2560	2180		1820	
Dimethyl phthalate	23	U	2650	2560	2400		2160	
Di-n-butyl phthalate	28	U	2650	2560	2620		2370	
4,6-Dinitro-2-methylphenol	320	U	5310	5120	3530		3220	
2,4-Dinitrophenol	330	U	5310	5120	1600	T	1550	T
2,4-Dinitrotoluene	65	U	2650	2560	2550		2320	
2,6-Dinitrotoluene	27	U	2650	2560	2520		2280	
Di-n-octyl phthalate	14	U	2650	2560	2690		2370	
Fluoranthene	35	U	2650	2560	2500		2240	
Fluorene	18	U	2650	2560	2430		2170	
Hexachlorobenzene	28	U	2650	2560	2290		2000	
Hexachlorobutadiene	9.8	U	2650	2560	1990		1620	
Hexachlorocyclopentadiene	49	U	2650	2560	1630		1280	
Hexachloroethane	21	U	2650	2560	2040		1680	

Client: Washington Closure Hanford

Job Number: 280-57846-1
Sdg Number: JP0833

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-235127

Method: 8270C
Preparation: 3550C

MS Lab Sample ID:	280-57846-4	Units: ug/Kg	
Client Matrix:	Solid		
Dilution:	1.0		
Analysis Date:	07/23/2014 1633		
Prep Date:	07/21/2014 1130		
Leach Date:	N/A		

MSD Lab Sample ID:	280-57846-4
Client Matrix:	Solid
Dilution:	1.0
Analysis Date:	07/23/2014 1700
Prep Date:	07/21/2014 1130
Leach Date:	N/A

Analyte	Sample Result/Qual		MS Spike Amount	MSD Spike Amount	MS Result/Qual	MSD Result/Qual
Indeno[1,2,3-cd]pyrene	22	U	2650	2560	2560	2150
Isophorone	17	U	2650	2560	1920	1660
2-Methylnaphthalene	19	U	2650	2560	2240	1900
2-Methylphenol	13	U	2650	2560	2050	1710
3 & 4 Methylphenol	32	U	2650	2560	2180	1830
Naphthalene	30	U	2650	2560	2100	1730
2-Nitroaniline	49	U	2650	2560	2300	2110
3-Nitroaniline	71	U	2650	2560	2190	2080
4-Nitroaniline	71	U	2650	2560	2390	2200
Nitrobenzene	22	U	2650	2560	2040	1690
2-Nitrophenol	9.8	U	2650	2560	2220	1870
4-Nitrophenol	95	U	5310	5120	4730	4350
N-Nitrosodi-n-propylamine	30	U	2650	2560	2110	1750
N-Nitrosodiphenylamine	21	U	2650	2560	2470	2240
Pentachlorophenol	320	U	5310	5120	4570	3980
Phenanthrene	17	U	2650	2560	2580	2330
Phenol	18	U	2650	2560	2110	1720
Pyrene	12	U	2650	2560	2660	2390
1,2,4-Trichlorobenzene	27	U	2650	2560	2150	1740
2,4,5-Trichlorophenol	9.8	U	2650	2560	2500	2210
2,4,6-Trichlorophenol	9.8	U	2650	2560	2500	2270

Date: 6 August 2014
To: Washington Closure Hanford Inc. (technical representative)
From: ELR Consulting
Project: 100-D/DR Burial Grounds & Remaining Sites – Soil Full Protocol - Waste Site 100-D-106
Subject: Inorganic - Data Package No. JP0833-TAL

INTRODUCTION

This memo presents the results of data validation on Data Package No. JP0833 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
J1TW94	7/16/14	Soil	C	See note 1
J1TW95	7/16/14	Soil	C	See note 1
J1TW96	7/16/14	Soil	C	See note 1
J1TW97	7/16/14	Soil	C	See note 1
J1TW98	7/16/14	Soil	C	See note 1
J1TW99	7/16/14	Soil	C	See note 1
J1TWC0	7/16/14	Soil	C	See note 1
J1TWC1	7/16/14	Soil	C	See note 1
J1TWC2	7/16/14	Soil	C	See note 1
J1TWC3	7/16/14	Soil	C	See note 1
J1TWC4	7/16/14	Soil	C	See note 1
J1TWC5	7/16/14	Soil	C	See note 1
J1TWC6	7/16/14	Soil	C	See note 1
J1TWC7	7/16/14	Soil	C	See note 1

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

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

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

DATA QUALITY PARAMETERS

- **Holding Times**

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

All holding times were acceptable.

- **Preparation (Method) Blanks**

Preparation Blanks

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

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

Due to method blank contamination, the chromium, copper and zinc results in sample J1TWC7 were qualified as undetected and flagged "UJ".

All other preparation blank results were acceptable.

Field (Equipment) Blank

One field blank (J1TWC7) was submitted for analysis. Twelve analytes were detected in the field blank. Under the WCH statement of work, no qualification is required.

- **Accuracy**

Matrix Spike and Laboratory Control Sample

Matrix spike (MS) and laboratory control sample (LCS) analyses are used to assess the analytical accuracy of the reported data. The matrix spike is used to assess the effect of the matrix on the ability to accurately quantify sample concentrations. Recoveries must fall within the range of 75% to 125%. Samples with a recovery of less than 30% and a sample result below the IDL are rejected and flagged "UR". Samples with a recovery of 30% to 74% and a sample result less than the IDL are qualified "UJ". Samples with a recovery of greater than 125% or less than 74% and a sample result greater than the IDL are qualified as estimates and flagged "J". Finally, for samples with a recovery greater than 125% and a sample result less than the IDL, no qualification is required.

Due to matrix spike recoveries outside QC limits, all antimony (54%), beryllium (64%) and silicon (14%) results were qualified as estimates and flagged "J".

Due to an LCS recovery outside QC limits (10%), all silicon results were qualified as estimates and flagged "J".

All other accuracy results were acceptable

- **Precision**

Laboratory Duplicate Samples

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

Due to an RPD outside QC limits, all silicon (34%) results were qualified as estimates and flagged "J".

All other laboratory duplicate results were acceptable.

Field Duplicate

One set of field duplicates (J1TWC0/J1TWC6) was submitted for analysis. Field duplicates are compared using the same criteria as for laboratory duplicates. All field duplicate results were acceptable.

- **Analytical Detection Levels**

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

- **Completeness**

Data package No. JP0833 was submitted for validation and verified for completeness. Completeness is based on the percentage of data determined to be valid (i.e., not rejected). The completion percentage was 100%.

MAJOR DEFICIENCIES

None found.

MINOR DEFICIENCIES

The following minor deficiencies were noted:

- Due to method blank contamination, the chromium, copper and zinc results in sample J1TWC7 were qualified as undetected and flagged "UJ".
- Due to matrix spike recoveries outside QC limits, all antimony (54%), beryllium (64%) and silicon (14%) results were qualified as estimates and flagged "J".
- Due to an LCS recovery outside QC limits (10%), all silicon results were qualified as estimates and flagged "J".
- Due to an RPD outside QC limits, all silicon (34%) results were qualified as estimates and flagged "J".

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

REFERENCES

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

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

Appendix 1

Glossary of Data Reporting Qualifiers

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

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

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

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

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

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

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

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

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

Appendix 2

Summary of Data Qualification

INORGANIC DATA QUALIFICATION SUMMARY*

SDG: JP0833	**REVIEWER: ELR**	**Project: 100-D-106**	**PAGE_1_OF_1**
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
Chromium Copper Zinc	UJ	J1TWC7	Method blank contamination
Antimony Beryllium Silicon	J	All	MS recovery
Silicon	J	All	LCS recovery
Silicon	J	All	RPD

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

Appendix 3

Annotated Laboratory Reports

Client: Washington Closure Hanford

Job Number: 280-57846-1
Sdg Number: JP0833

Client Sample ID: **J1TW94**

Lab Sample ID: 280-57846-1
Client Matrix: Solid
% Moisture: 1.2

Date Sampled: 07/16/2014 0745
Date Received: 07/17/2014 0910

6010B Metals (ICP)

Analysis Method:	6010B	Analysis Batch:	280-235162	Instrument ID:	MT_026
Prep Method:	3050B	Prep Batch:	280-234933	Lab File ID:	26a071914d.asc
Dilution:	1.0			Initial Weight/Volume:	1.16 g
Analysis Date:	07/20/2014 0118			Final Weight/Volume:	100 mL
Prep Date:	07/18/2014 1450				

8/6/14

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Aluminum		6000	X	1.4	4.4
Arsenic		3.2		0.58	0.87
Barium		53.0	X	0.066	0.44
Boron		0.87	B	0.86	1.7
Cadmium		0.036	U	0.036	0.17
Calcium		8130	X	12.3	43.6
Chromium		5.0	X	0.051	0.17
Iron		25600	X	3.3	4.4
Magnesium		4590	X	3.2	17.5
Manganese		306	X	0.087	0.87
Molybdenum		0.68	B M	0.23	1.7
Nickel		8.3	X	0.11	3.5
Potassium		880		35.8	262
Selenium		0.75	U	0.75	0.87
Silicon		196	N J	4.9	8.7
Silver		0.14	U	0.14	0.17
Sodium		528		51.5	105
Zinc		48.0	X	0.35	0.87

Analysis Method:	6010B	Analysis Batch:	280-235381	Instrument ID:	MT_026
Prep Method:	3050B	Prep Batch:	280-234933	Lab File ID:	26A072114E.asc
Dilution:	5.0			Initial Weight/Volume:	1.16 g
Analysis Date:	07/21/2014 2231			Final Weight/Volume:	100 mL
Prep Date:	07/18/2014 1450				

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Antimony		1.7	U J	1.7	2.6
Beryllium		0.14	U N J	0.14	0.87
Cobalt		11.9		0.44	4.4
Copper		17.2		0.95	4.4
Lead		6.0		1.2	2.2
Vanadium		72.3		0.41	8.7

7471A Mercury (CVAA)

Analysis Method:	7471A	Analysis Batch:	280-235010	Instrument ID:	MT_033
Prep Method:	7471A	Prep Batch:	280-234874	Lab File ID:	140718ab.txt
Dilution:	1.0			Initial Weight/Volume:	0.61 g
Analysis Date:	07/18/2014 1337			Final Weight/Volume:	50 mL
Prep Date:	07/18/2014 1000				

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Mercury		0.0080	B	0.0055	0.017

Client: Washington Closure Hanford

Job Number: 280-57846-1
Sdg Number: JP0833

Client Sample ID: **J1TW95**

Lab Sample ID: 280-57846-2
Client Matrix: Solid
% Moisture: 1.1

Date Sampled: 07/16/2014 0807
Date Received: 07/17/2014 0910

6010B Metals (ICP)

Analysis Method:	6010B	Analysis Batch:	280-235162	Instrument ID:	MT_026
Prep Method:	3050B	Prep Batch:	280-234933	Lab File ID:	26a071914d.asc
Dilution:	1.0			Initial Weight/Volume:	1.04 g
Analysis Date:	07/20/2014 0129			Final Weight/Volume:	100 mL
Prep Date:	07/18/2014 1450				

R 8/6/14

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Aluminum		6080	X J	1.5	4.9
Antimony		0.73		0.37	0.58
Arsenic		3.3		0.64	0.97
Barium		77.2	X	0.074	0.49
Beryllium		0.14	B J	0.032	0.19
Boron		0.95	U	0.95	1.9
Cadmium		0.040	U	0.040	0.19
Calcium		7680	X	13.7	48.6
Chromium		5.4	X	0.056	0.19
Cobalt		11.0		0.097	0.97
Copper		15.0		0.21	0.97
Iron		28300	X	3.7	4.9
Lead		5.9		0.26	0.49
Magnesium		5370	X	3.6	19.5
Manganese		358	X	0.097	0.97
Molybdenum		0.78	B	0.25	1.9
Nickel		9.4	X	0.12	3.9
Potassium		933		39.9	292
Silicon		138	J	5.5	9.7
Silver		0.16	U	0.16	0.19
Sodium		544		57.4	117
Vanadium		69.4		0.091	1.9
Zinc		48.4	X	0.39	0.97

Analysis Method:	6010B	Analysis Batch:	280-235792	Instrument ID:	MT_026
Prep Method:	3050B	Prep Batch:	280-234933	Lab File ID:	26a072314d.asc
Dilution:	1.0			Initial Weight/Volume:	1.04 g
Analysis Date:	07/24/2014 0707			Final Weight/Volume:	100 mL
Prep Date:	07/18/2014 1450				

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Selenium		0.84	U	0.84	0.97

7471A Mercury (CVAA)

Analysis Method:	7471A	Analysis Batch:	280-235010	Instrument ID:	MT_033
Prep Method:	7471A	Prep Batch:	280-234874	Lab File ID:	140718ab.txt
Dilution:	1.0			Initial Weight/Volume:	0.63 g
Analysis Date:	07/18/2014 1344			Final Weight/Volume:	50 mL
Prep Date:	07/18/2014 1000				

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Mercury		0.0069	B	0.0053	0.016

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-57846-1
Sdg Number: JP0833

Client Sample ID: **J1TW96**

Lab Sample ID: 280-57846-3
Client Matrix: Solid
% Moisture: 1.0

Date Sampled: 07/16/2014 0800
Date Received: 07/17/2014 0910

6010B Metals (ICP)

Analysis Method:	6010B	Analysis Batch:	280-235162	Instrument ID:	MT_026
Prep Method:	3050B	Prep Batch:	280-234933	Lab File ID:	26a071914d.asc
Dilution:	1.0			Initial Weight/Volume:	1.14 g
Analysis Date:	07/20/2014 0132			Final Weight/Volume:	100 mL
Prep Date:	07/18/2014 1450				

JK 8/6/14

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Aluminum		5380	X J	1.4	4.4
Antimony		0.75		0.34	0.53
Arsenic		2.7		0.58	0.89
Barium		46.7	X	0.067	0.44
Beryllium		0.13	B J	0.029	0.18
Boron		0.87	U	0.87	1.8
Cadmium		0.036	U	0.036	0.18
Calcium		7550	X	12.5	44.3
Chromium		5.5	X	0.051	0.18
Cobalt		9.2		0.089	0.89
Copper		13.3		0.19	0.89
Iron		24400	X	3.4	4.4
Lead		3.9		0.24	0.44
Magnesium		4540	X	3.3	17.7
Manganese		309	X	0.089	0.89
Molybdenum		0.30	B	0.23	1.8
Nickel		8.0	X	0.11	3.5
Potassium		839		36.3	266
Selenium		0.76	U J	0.76	0.89
Silicon		114		5.0	8.9
Silver		0.14	U	0.14	0.18
Sodium		373		52.3	106.
Vanadium		62.4		0.083	1.8
Zinc		43.3	X	0.35	0.89

7471A Mercury (CVAA)

Analysis Method:	7471A	Analysis Batch:	280-235010	Instrument ID:	MT_033
Prep Method:	7471A	Prep Batch:	280-234874	Lab File ID:	140718ab.txt
Dilution:	1.0			Initial Weight/Volume:	0.63 g
Analysis Date:	07/18/2014 1346			Final Weight/Volume:	50 mL
Prep Date:	07/18/2014 1000				

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Mercury		0.0076	B	0.0053	0.016

Client: Washington Closure Hanford

Job Number: 280-57846-1
Sdg Number: JP0833

Client Sample ID: **J1TW97**

Lab Sample ID: 280-57846-4
Client Matrix: Solid
% Moisture: 1.1

Date Sampled: 07/16/2014 0751
Date Received: 07/17/2014 0910

6010B Metals (ICP)

Analysis Method:	6010B	Analysis Batch:	280-235162	Instrument ID:	MT_026
Prep Method:	3050B	Prep Batch:	280-234933	Lab File ID:	26a071914d.asc
Dilution:	1.0			Initial Weight/Volume:	1.04 g
Analysis Date:	07/20/2014 0134			Final Weight/Volume:	100 mL
Prep Date:	07/18/2014 1450				

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Aluminum		5670	X	1.5	4.9
Antimony		0.76	J	0.37	0.58
Arsenic		3.4		0.64	0.97
Barium		53.5	X	0.074	0.49
Beryllium		0.15	B J	0.032	0.19
Boron		0.95	U	0.95	1.9
Cadmium		0.040	U	0.040	0.19
Calcium		7820	X	13.7	48.6
Chromium		6.3	X	0.056	0.19
Cobalt		9.2		0.097	0.97
Copper		15.3		0.21	0.97
Iron		23800	X	3.7	4.9
Lead		3.9		0.26	0.49
Magnesium		4850	X	3.6	19.5
Manganese		305	X	0.097	0.97
Molybdenum		0.25	U	0.25	1.9
Nickel		8.4	X	0.12	3.9
Potassium		923		39.9	292
Selenium		0.84	U J	0.84	0.97
Silicon		159		5.5	9.7
Silver		0.16	U	0.16	0.19
Sodium		356		57.4	117
Vanadium		56.9		0.091	1.9
Zinc		44.1	X	0.39	0.97

7471A Mercury (CVAA)

Analysis Method:	7471A	Analysis Batch:	280-235010	Instrument ID:	MT_033
Prep Method:	7471A	Prep Batch:	280-234874	Lab File ID:	140718ab.txt
Dilution:	1.0			Initial Weight/Volume:	0.65 g
Analysis Date:	07/18/2014 1349			Final Weight/Volume:	50 mL
Prep Date:	07/18/2014 1000				

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Mercury		0.0076	B	0.0052	0.016

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-57846-1
Sdg Number: JP0833

Client Sample ID: **J1TW98**

Lab Sample ID: 280-57846-5
Client Matrix: Solid

% Moisture: 1.2

Date Sampled: 07/16/2014 0820
Date Received: 07/17/2014 0910

6010B Metals (ICP)

Analysis Method: 6010B
Prep Method: 3050B
Dilution: 1.0
Analysis Date: 07/20/2014 0137
Prep Date: 07/18/2014 1450

Analysis Batch: 280-235162
Prep Batch: 280-234933

Instrument ID: MT_026
Lab File ID: 26a071914d.asc
Initial Weight/Volume: 1.11 g
Final Weight/Volume: 100 mL

8/6/14

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Aluminum		5530	X	1.4	4.6
Arsenic		2.8		0.60	0.91
Barium		48.1	X	0.069	0.46
Boron		0.89	U	0.89	1.8
Cadmium		0.037	U	0.037	0.18
Calcium		7260	X	12.9	45.6
Chromium		5.9	X	0.053	0.18
Iron		26800	X	3.5	4.6
Magnesium		5020	X	3.4	18.2
Manganese		345	X	0.091	0.91
Molybdenum		0.24	U	0.24	1.8
Nickel		8.6	X	0.11	3.6
Potassium		871		37.4	274
Selenium		0.78	U J	0.78	0.91
Silicon		119		5.2	9.1
Silver		0.15	U	0.15	0.18
Sodium		345		53.8	109
Zinc		47.6	X	0.36	0.91

Analysis Method: 6010B
Prep Method: 3050B
Dilution: 5.0
Analysis Date: 07/21/2014 2241
Prep Date: 07/18/2014 1450

Analysis Batch: 280-235381
Prep Batch: 280-234933

Instrument ID: MT_026
Lab File ID: 26A072114E.asc
Initial Weight/Volume: 1.11 g
Final Weight/Volume: 100 mL

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Antimony		1.7	U J	1.7	2.7
Beryllium		0.15	U J	0.15	0.91
Cobalt		12.3		0.46	4.6
Copper		15.9		0.99	4.6
Lead		6.4		1.2	2.3
Vanadium		74.4		0.43	9.1

7471A Mercury (CVAA)

Analysis Method: 7471A
Prep Method: 7471A
Dilution: 1.0
Analysis Date: 07/18/2014 1351
Prep Date: 07/18/2014 1000

Analysis Batch: 280-235010
Prep Batch: 280-234874

Instrument ID: MT_033
Lab File ID: 140718ab.txt
Initial Weight/Volume: 0.61 g
Final Weight/Volume: 50 mL

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Mercury		0.0075	B	0.0055	0.017

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-57846-1
Sdg Number: JP0833

Client Sample ID: **J1TW99**

Lab Sample ID: 280-57846-6
Client Matrix: Solid

% Moisture: 1.0

Date Sampled: 07/16/2014 0830
Date Received: 07/17/2014 0910

6010B Metals (ICP)

Analysis Method:	6010B	Analysis Batch:	280-235162	Instrument ID:	MT_026
Prep Method:	3050B	Prep Batch:	280-234933	Lab File ID:	26a071914d.asc
Dilution:	1.0			Initial Weight/Volume:	1.15 g
Analysis Date:	07/20/2014 0150			Final Weight/Volume:	100 mL
Prep Date:	07/18/2014 1450				

8/6/14

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Aluminum		4670	X	1.4	4.4
Antimony		0.54	J	0.33	0.53
Arsenic		2.7		0.58	0.88
Barium		49.0	X	0.067	0.44
Beryllium		0.12	B J	0.029	0.18
Boron		0.86	U	0.86	1.8
Cadmium		0.036	U	0.036	0.18
Calcium		6890	X	12.4	43.9
Chromium		5.1	X	0.051	0.18
Cobalt		9.5		0.088	0.88
Copper		12.7		0.19	0.88
Iron		25200	X	3.3	4.4
Lead		3.4		0.24	0.44
Magnesium		4660	X	3.2	17.6
Manganese		304	X	0.088	0.88
Molybdenum		0.23	U	0.23	1.8
Nickel		8.2	X	0.11	3.5
Potassium		738		36.0	263
Selenium		0.76	U	0.76	0.88
Silicon		114	J	5.0	8.8
Silver		0.14	U	0.14	0.18
Sodium		372		51.8	105
Vanadium		60.3		0.083	1.8
Zinc		44.0	X	0.35	0.88

7471A Mercury (CVAA)

Analysis Method:	7471A	Analysis Batch:	280-235010	Instrument ID:	MT_033
Prep Method:	7471A	Prep Batch:	280-234874	Lab File ID:	140718ab.txt
Dilution:	1.0			Initial Weight/Volume:	0.64 g
Analysis Date:	07/18/2014 1358			Final Weight/Volume:	50 mL
Prep Date:	07/18/2014 1000				

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Mercury		0.0067	B	0.0052	0.016

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-57846-1
Sdg Number: JP0833

Client Sample ID: **J1TWC0**

Lab Sample ID: 280-57846-7
Client Matrix: Solid
% Moisture: 0.9

Date Sampled: 07/16/2014 0841
Date Received: 07/17/2014 0910

6010B Metals (ICP)

Analysis Method:	6010B	Analysis Batch:	280-235162	Instrument ID:	MT_026
Prep Method:	3050B	Prep Batch:	280-234933	Lab File ID:	26a071914d.asc
Dilution:	1.0			Initial Weight/Volume:	1.01 g
Analysis Date:	07/20/2014 0153			Final Weight/Volume:	100 mL
Prep Date:	07/18/2014 1450				

8/6/14

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Aluminum		4880	X	1.5	5.0
Antimony		0.82	J	0.38	0.60
Arsenic		2.6		0.66	1.0
Barium		50.2	X	0.076	0.50
Beryllium		0.11	B J	0.033	0.20
Boron		0.98	U	0.98	2.0
Cadmium		0.041	U	0.041	0.20
Calcium		7320	X	14.1	50.0
Chromium		4.5	X	0.058	0.20
Cobalt		10.1		0.10	1.0
Copper		14.2		0.22	1.0
Iron		26200	X	3.8	5.0
Lead		3.7		0.27	0.50
Magnesium		4560	X	3.7	20.0
Manganese		314	X	0.10	1.0
Molybdenum		0.26	U	0.26	2.0
Nickel		7.5	X	0.12	4.0
Potassium		745		41.0	300
Selenium		0.86	U	0.86	1.0
Silicon		114	J	5.7	10
Silver		0.16	U	0.16	0.20
Sodium		376		59.0	120
Vanadium		66.0		0.094	2.0
Zinc		47.5	X	0.40	1.0

7471A Mercury (CVAA)

Analysis Method:	7471A	Analysis Batch:	280-235010	Instrument ID:	MT_033
Prep Method:	7471A	Prep Batch:	280-234874	Lab File ID:	140718ab.txt
Dilution:	1.0			Initial Weight/Volume:	0.61 g
Analysis Date:	07/18/2014 1400			Final Weight/Volume:	50 mL
Prep Date:	07/18/2014 1000				

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Mercury		0.0085	B	0.0055	0.017

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-57846-1
Sdg Number: JP0833

Client Sample ID: **J1TWC1**

Lab Sample ID: 280-57846-8
Client Matrix: Solid
% Moisture: 1.0

Date Sampled: 07/16/2014 0900
Date Received: 07/17/2014 0910

6010B Metals (ICP)

Analysis Method:	6010B	Analysis Batch:	280-235162	Instrument ID:	MT_026
Prep Method:	3050B	Prep Batch:	280-234933	Lab File ID:	26a071914d.asc
Dilution:	1.0			Initial Weight/Volume:	1.17 g
Analysis Date:	07/20/2014 0155			Final Weight/Volume:	100 mL
Prep Date:	07/18/2014 1450				

4/6/14

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Aluminum		6080	X	1.3	4.3
Antimony		0.51	B J	0.33	0.52
Arsenic		2.7		0.57	0.86
Barium		54.0	X	0.066	0.43
Beryllium		0.17	J	0.028	0.17
Boron		0.85	U	0.85	1.7
Cadmium		0.035	U	0.035	0.17
Calcium		7870	X	12.2	43.1
Chromium		6.0	X	0.050	0.17
Cobalt		10.2		0.086	0.86
Copper		14.6		0.19	0.86
Iron		26000	X	3.3	4.3
Lead		4.4		0.23	0.43
Magnesium		4980	X	3.2	17.3
Manganese		336	X	0.086	0.86
Molybdenum		0.22	U	0.22	1.7
Nickel		8.7	X	0.11	3.5
Potassium		990		35.4	259
Selenium		0.74	U	0.74	0.86
Silicon		126	J	4.9	8.6
Silver		0.14	U	0.14	0.17
Sodium		343		50.9	104
Vanadium		63.8		0.081	1.7
Zinc		46.7	X	0.34	0.86

7471A Mercury (CVAA)

Analysis Method:	7471A	Analysis Batch:	280-235010	Instrument ID:	MT_033
Prep Method:	7471A	Prep Batch:	280-234874	Lab File ID:	140718ab.txt
Dilution:	1.0			Initial Weight/Volume:	0.61 g
Analysis Date:	07/18/2014 1403			Final Weight/Volume:	50 mL
Prep Date:	07/18/2014 1000				

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Mercury		0.0079	B	0.0055	0.017

Client: Washington Closure Hanford

Job Number: 280-57846-1
Sdg Number: JP0833

Client Sample ID: **J1TWC2**

Lab Sample ID: 280-57846-9
Client Matrix: Solid
% Moisture: 0.9

Date Sampled: 07/16/2014 0907
Date Received: 07/17/2014 0910

6010B Metals (ICP)

Analysis Method:	6010B	Analysis Batch:	280-235162	Instrument ID:	MT_026
Prep Method:	3050B	Prep Batch:	280-234933	Lab File ID:	26a071914d.asc
Dilution:	1.0			Initial Weight/Volume:	1.15 g
Analysis Date:	07/20/2014 0158			Final Weight/Volume:	100 mL
Prep Date:	07/18/2014 1450				

8/6/14

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Aluminum		5780	X	1.4	4.4
Antimony		0.50	B J	0.33	0.53
Arsenic		3.2		0.58	0.88
Barium		52.8	X	0.067	0.44
Beryllium		0.15	B J	0.029	0.18
Boron		0.86	U	0.86	1.8
Cadmium		0.036	U	0.036	0.18
Calcium		7210	X	12.4	43.9
Chromium		6.0	X	0.051	0.18
Cobalt		9.5		0.088	0.88
Copper		14.1		0.19	0.88
Iron		24200	X	3.3	4.4
Lead		3.8		0.24	0.44
Magnesium		4820	X	3.2	17.5
Manganese		307	X	0.088	0.88
Molybdenum		0.23	U	0.23	1.8
Nickel		9.4	X	0.11	3.5
Potassium		925		36.0	263
Selenium		0.75	U	0.75	0.88
Silicon		172	J	5.0	8.8
Silver		0.14	U	0.14	0.18
Sodium		358		51.8	105
Vanadium		57.7		0.082	1.8
Zinc		43.7	X	0.35	0.88

7471A Mercury (CVAA)

Analysis Method:	7471A	Analysis Batch:	280-235010	Instrument ID:	MT_033
Prep Method:	7471A	Prep Batch:	280-234874	Lab File ID:	140718ab.txt
Dilution:	1.0			Initial Weight/Volume:	0.67 g
Analysis Date:	07/18/2014 1405			Final Weight/Volume:	50 mL
Prep Date:	07/18/2014 1000				

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Mercury		0.0072	B	0.0050	0.015

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-57846-1
Sdg Number: JP0833

Client Sample ID: J1TWC3

Lab Sample ID: 280-57846-10
Client Matrix: Solid

% Moisture: 1.9

Date Sampled: 07/16/2014 0915
Date Received: 07/17/2014 0910

6010B Metals (ICP)

Analysis Method: 6010B
Prep Method: 3050B
Dilution: 1.0
Analysis Date: 07/20/2014 0201
Prep Date: 07/18/2014 1450

Analysis Batch: 280-235162
Prep Batch: 280-234933

Instrument ID: MT_026
Lab File ID: 26a071914d.asc
Initial Weight/Volume: 1.10 g
Final Weight/Volume: 100 mL

8/6/14

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Aluminum		5070	X J	1.4	4.6
Antimony		0.48	B J	0.35	0.56
Arsenic		2.6		0.61	0.93
Barium		50.8	X J	0.070	0.46
Beryllium		0.13	B J	0.031	0.19
Boron		0.91	U	0.91	1.9
Cadmium		0.038	U	0.038	0.19
Calcium		6440	X	13.1	46.3
Chromium		5.2	X	0.054	0.19
Cobalt		9.2		0.093	0.93
Copper		13.1		0.20	0.93
Iron		24000	X	3.5	4.6
Lead		3.9		0.25	0.46
Magnesium		4370	X	3.4	18.5
Manganese		304	X	0.093	0.93
Molybdenum		0.24	U	0.24	1.9
Nickel		7.3	X	0.11	3.7
Potassium		854		38.0	278
Selenium		0.80	U J	0.80	0.93
Silicon		122		5.2	9.3
Silver		0.15	U	0.15	0.19
Sodium		370		54.7	111
Vanadium		59.7		0.087	1.9
Zinc		43.7	X	0.37	0.93

7471A Mercury (CVAA)

Analysis Method: 7471A
Prep Method: 7471A
Dilution: 1.0
Analysis Date: 07/18/2014 1407
Prep Date: 07/18/2014 1000

Analysis Batch: 280-235010
Prep Batch: 280-234874

Instrument ID: MT_033
Lab File ID: 140718ab.txt
Initial Weight/Volume: 0.65 g
Final Weight/Volume: 50 mL

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Mercury		0.0067	B	0.0052	0.016

Client: Washington Closure Hanford

Job Number: 280-57846-1
Sdg Number: JP0833

Client Sample ID: **J1TWC4**

Lab Sample ID: 280-57846-11
Client Matrix: Solid
% Moisture: 1.5

Date Sampled: 07/16/2014 0927
Date Received: 07/17/2014 0910

6010B Metals (ICP)

Analysis Method:	6010B	Analysis Batch:	280-235162	Instrument ID:	MT_026
Prep Method:	3050B	Prep Batch:	280-234933	Lab File ID:	26a071914d.asc
Dilution:	1.0			Initial Weight/Volume:	1.15 g
Analysis Date:	07/20/2014 0204			Final Weight/Volume:	100 mL
Prep Date:	07/18/2014 1450				

8/6/14

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Aluminum		5340	X J	1.4	4.4
Antimony		0.56	J	0.34	0.53
Arsenic		2.8		0.58	0.88
Barium		48.0	X	0.067	0.44
Beryllium		0.14	B J	0.029	0.18
Boron		0.86	U	0.86	1.8
Cadmium		0.036	U	0.036	0.18
Calcium		6940	X	12.4	44.1
Chromium		5.2	X	0.051	0.18
Cobalt		9.6		0.088	0.88
Copper		13.2		0.19	0.88
Iron		24900	X	3.4	4.4
Lead		3.7		0.24	0.44
Magnesium		4580	X	3.3	17.6
Manganese		314	X	0.088	0.88
Molybdenum		0.23	U	0.23	1.8
Nickel		7.8	X	0.11	3.5
Potassium		876		36.2	265
Selenium		0.76	U J	0.76	0.88
Silicon		134	J	5.0	8.8
Silver		0.14	U	0.14	0.18
Sodium		389		52.1	106
Vanadium		60.0		0.083	1.8
Zinc		43.0	X	0.35	0.88

7471A Mercury (CVAA)

Analysis Method:	7471A	Analysis Batch:	280-235010	Instrument ID:	MT_033
Prep Method:	7471A	Prep Batch:	280-234874	Lab File ID:	140718ab.txt
Dilution:	1.0			Initial Weight/Volume:	0.67 g
Analysis Date:	07/18/2014 1410			Final Weight/Volume:	50 mL
Prep Date:	07/18/2014 1000				

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Mercury		0.0064	B	0.0050	0.015

Client: Washington Closure Hanford

Job Number: 280-57846-1
Sdg Number: JP0833

Client Sample ID: **J1TWC5**

Lab Sample ID: 280-57846-12
Client Matrix: Solid
% Moisture: 0.7

Date Sampled: 07/16/2014 0937
Date Received: 07/17/2014 0910

6010B Metals (ICP)

Analysis Method:	6010B	Analysis Batch:	280-235162	Instrument ID:	MT_026
Prep Method:	3050B	Prep Batch:	280-234933	Lab File ID:	26a071914d.asc
Dilution:	1.0			Initial Weight/Volume:	1.08 g
Analysis Date:	07/20/2014 0207			Final Weight/Volume:	100 mL
Prep Date:	07/18/2014 1450				

V 8/6/14

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Aluminum		4960	X	1.4	4.7
Antimony		0.38	B J	0.35	0.56
Arsenic		2.4		0.62	0.93
Barium		46.7	X	0.071	0.47
Beryllium		0.12	B J	0.031	0.19
Boron		0.91	U	0.91	1.9
Cadmium		0.038	U	0.038	0.19
Calcium		7140	X	13.1	46.6
Chromium		3.8	X	0.054	0.19
Cobalt		9.0		0.093	0.93
Copper		14.1		0.20	0.93
Iron		22200	X	3.5	4.7
Lead		3.3		0.25	0.47
Magnesium		3750	X	3.5	18.7
Manganese		258	X	0.093	0.93
Molybdenum		0.24	U	0.24	1.9
Nickel		6.7	X	0.11	3.7
Potassium		731		38.2	280
Selenium		0.80	U	0.80	0.93
Silicon		83.8	J	5.3	9.3
Silver		0.15	U	0.15	0.19
Sodium		448		55.0	112
Vanadium		54.9		0.088	1.9
Zinc		41.1	X	0.37	0.93

7471A Mercury (CVAA)

Analysis Method:	7471A	Analysis Batch:	280-235010	Instrument ID:	MT_033
Prep Method:	7471A	Prep Batch:	280-234874	Lab File ID:	140718ab.txt
Dilution:	1.0			Initial Weight/Volume:	0.67 g
Analysis Date:	07/18/2014 1412			Final Weight/Volume:	50 mL
Prep Date:	07/18/2014 1000				

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Mercury		0.0068	B	0.0050	0.015

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-57846-1
Sdg Number: JP0833

Client Sample ID: **J1TWC6**

Lab Sample ID: 280-57846-13
Client Matrix: Solid

% Moisture: 1.0

Date Sampled: 07/16/2014 0841
Date Received: 07/17/2014 0910

6010B Metals (ICP)

Analysis Method:	6010B	Analysis Batch:	280-235162	Instrument ID:	MT_026
Prep Method:	3050B	Prep Batch:	280-234933	Lab File ID:	26a071914d.asc
Dilution:	1.0			Initial Weight/Volume:	1.01 g
Analysis Date:	07/20/2014 0209			Final Weight/Volume:	100 mL
Prep Date:	07/18/2014 1450				

8/6/14

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Aluminum		5420	X J	1.6	5.0
Antimony		0.66		0.38	0.60
Arsenic		2.4		0.66	1.0
Barium		61.1	X	0.076	0.50
Beryllium		0.15	B J	0.033	0.20
Boron		0.98	U	0.98	2.0
Cadmium		0.041	U	0.041	0.20
Calcium		7460	X	14.1	50.0
Chromium		5.4	X	0.058	0.20
Cobalt		10		0.10	1.0
Copper		13.8		0.22	1.0
Iron		25500	X	3.8	5.0
Lead		3.7		0.27	0.50
Magnesium		4880	X	3.7	20.0
Manganese		337	X	0.10	1.0
Molybdenum		0.26	U	0.26	2.0
Nickel		8.9	X	0.12	4.0
Potassium		822		41.0	300
Selenium		0.86	U	0.86	1.0
Silicon		160	J	5.7	10.0
Silver		0.16	U	0.16	0.20
Sodium		380		59.0	120
Vanadium		61.0		0.094	2.0
Zinc		45.4	X	0.40	1.0

7471A Mercury (CVAA)

Analysis Method:	7471A	Analysis Batch:	280-235010	Instrument ID:	MT_033
Prep Method:	7471A	Prep Batch:	280-234874	Lab File ID:	140718ab.txt
Dilution:	1.0			Initial Weight/Volume:	0.63 g
Analysis Date:	07/18/2014 1414			Final Weight/Volume:	50 mL
Prep Date:	07/18/2014 1000				

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

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-57846-1
Sdg Number: JP0833

Client Sample ID: **J1TWC7**

Lab Sample ID: 280-57846-14
Client Matrix: Solid

% Moisture: 0.0

Date Sampled: 07/16/2014 0735
Date Received: 07/17/2014 0910

6010B Metals (ICP)

Analysis Method:	6010B	Analysis Batch:	280-235162	Instrument ID:	MT_026
Prep Method:	3050B	Prep Batch:	280-234933	Lab File ID:	26a071914d.asc
Dilution:	1.0			Initial Weight/Volume:	1.17 g
Analysis Date:	07/20/2014 0212			Final Weight/Volume:	100 mL
Prep Date:	07/18/2014 1450				

✓ 8/6/14

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Aluminum		121	X	1.3	4.3
Antimony		0.32	U J	0.32	0.51
Arsenic		0.56	U	0.56	0.85
Barium		1.3	X	0.065	0.43
Beryllium		0.031	B J	0.028	0.17
Boron		0.84	U	0.84	1.7
Cadmium		0.035	U	0.035	0.17
Calcium		27.7	B X	12.1	42.7
Chromium		0.18	C X UJ	0.050	0.17
Cobalt		0.24	B	0.085	0.85
Copper		0.29	B C UJ	0.19	0.85
Iron		1010	X	3.2	4.3
Lead		0.38	B	0.23	0.43
Magnesium		14.9	B X	3.2	17.1
Manganese		15.3	X	0.085	0.85
Molybdenum		0.22	U	0.22	1.7
Nickel		0.26	B X	0.11	3.4
Potassium		35.0	U	35.0	256
Selenium		0.74	U	0.74	0.85
Silicon		56.6	J	4.8	8.5
Silver		0.14	U	0.14	0.17
Sodium		50.4	U	50.4	103
Vanadium		0.26	B	0.080	1.7
Zinc		1.2	C X UJ	0.34	0.85

7471A Mercury (CVAA)

Analysis Method:	7471A	Analysis Batch:	280-235010	Instrument ID:	MT_033
Prep Method:	7471A	Prep Batch:	280-234874	Lab File ID:	140718ab.txt
Dilution:	1.0			Initial Weight/Volume:	0.64 g
Analysis Date:	07/18/2014 1416			Final Weight/Volume:	50 mL
Prep Date:	07/18/2014 1000				

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

Appendix 4

Laboratory Narrative and Chain-of-Custody Documentation

CASE NARRATIVE

Client: Washington Closure Hanford

Project: WASHINGTON CLOSURE HANFORD

Report Number: 280-57846-1

SDG #: JP0833
SAF#: RC-075

Date SDG Closed: July 17, 2014
Data Deliverable: 7 Day / Summary

CLIENT ID	LAB ID	ANALYSES REQUESTED	ANALYSES PERFORMED
J1TW94	280-57846-1	6010/7471/9056M/353.2/8270A/8310/8082/8081	6010B/7471A/9056M/353.2/8270C/8310/8082/8081A
J1TW95	280-57846-2	6010/7471/9056M/353.2/8270A/8310/8082/8081	6010B/7471A/9056M/353.2/8270C/8310/8082/8081A
J1TW96	280-57846-3	6010/7471/9056M/353.2/8270A/8310/8082/8081	6010B/7471A/9056M/353.2/8270C/8310/8082/8081A
J1TW97	280-57846-4	6010/7471/9056M/353.2/8270A/8310/8082/8081	6010B/7471A/9056M/353.2/8270C/8310/8082/8081A
J1TW98	280-57846-5	6010/7471/9056M/353.2/8270A/8310/8082/8081	6010B/7471A/9056M/353.2/8270C/8310/8082/8081A
J1TW99	280-57846-6	6010/7471/9056M/353.2/8270A/8310/8082/8081	6010B/7471A/9056M/353.2/8270C/8310/8082/8081A
J1TWC0	280-57846-7	6010/7471/9056M/353.2/8270A/8310/8082/8081	6010B/7471A/9056M/353.2/8270C/8310/8082/8081A
J1TWC1	280-57846-8	6010/7471/9056M/353.2/8270A/8310/8082/8081	6010B/7471A/9056M/353.2/8270C/8310/8082/8081A
J1TWC2	280-57846-9	6010/7471/9056M/353.2/8270A/8310/8082/8081	6010B/7471A/9056M/353.2/8270C/8310/8082/8081A
J1TWC3	280-57846-10	6010/7471/9056M/353.2/8270A/8310/8082/8081	6010B/7471A/9056M/353.2/8270C/8310/8082/8081A
J1TWC4	280-57846-11	6010/7471/9056M/353.2/8270A/8310/8082/8081	6010B/7471A/9056M/353.2/8270C/8310/8082/8081A
J1TWC5	280-57846-12	6010/7471/9056M/353.2/8270A/8310/8082/8081	6010B/7471A/9056M/353.2/8270C/8310/8082/8081A
J1TWC6	280-57846-13	6010/7471/9056M/353.2/8270A/8310/8082/8081	6010B/7471A/9056M/353.2/8270C/8310/8082/8081A
J1TWC7	280-57846-14	6010/7471/8270A	6010B/7471A/8270C

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

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

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

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

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

RECEIPT
The samples were received on 7/17/2014 9:10 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 3 coolers at receipt time were 0.7° C, 2.6° C and 3.7° C.

GC/MS SEMIVOLATILES - SW846 8270C
The MS/MSD performed on sample J1TW97 exhibited percent recoveries outside the control limits for 2,4-Dinitrophenol, and the associated sample result has been flagged "T". The acceptable LCS analysis data indicated that the analytical system was operating within control; therefore, corrective action is deemed unnecessary.

No other anomalies were encountered.

GC SEMIVOLATILES - SW846 8081A - Pesticides
No anomalies were encountered.

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

HPLC - SW846 8310 - PAHs
The MS aliquot of the MS/MSD performed on sample J1TW95 exhibited a percent recovery outside the control limits for Benzo[b]fluoranthene, and the associated sample result has been flagged "N". The acceptable LCS analysis data indicated that the analytical system was operating within control; therefore, corrective action is deemed unnecessary.

No other anomalies were encountered.

TOTAL METALS - SW846 6010B/7471A
Serial dilution of a digestate in batch 280-234933 indicates that physical and chemical interferences are present for several elements. Results have been flagged with an "X".

Each sample is analyzed to achieve the lowest possible reporting limits within the constraints of the methods. Samples J1TW94 and J1TW98 required a 5X dilution prior to the analysis of Antimony, Beryllium, Cobalt, Copper, Lead and Vanadium to minimize the interference caused by Titanium concentrations greater than the linear range. The reporting limits have been adjusted relative to the dilution required.

Low levels of Chromium, Copper and Zinc are present in the method blank associated with batch 280-234933. Because the concentrations in the method blank are not present at levels greater than half the reporting limit, corrective action is deemed unnecessary.

It can be noted that the sample amount was greater than four times the spike amount for Aluminum, Iron and Manganese in the Matrix Spike performed on sample J1TW94; therefore, control limits are not applicable.

The Matrix Spike performed on sample J1TW94 exhibited percent recoveries outside the control limits for Silicon and Beryllium, and the associated sample results have 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.

The duplicate analysis of sample J1TW94 exhibited RPD data outside the control limits for Molybdenum, and the associated sample result has been flagged "M". There is no indication that the analytical system was operating out of control, and method accuracy has been verified by the acceptable LCS analysis data; therefore, corrective action is deemed unnecessary.

No other anomalies were encountered.

GENERAL CHEMISTRY - MCAWW 353.2 - NITRATE NITRITE as N
The Matrix Spike performed on sample J1TW99 exhibited the percent recovery outside the control limits, 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 - SW846 9056M - ANIONS
Sulfate and Chloride are present in the method blank associated with batch 280-235280 at 6.77 mg/kg and 7.12 mg/kg, respectively, which is greater than half the project specific reporting limit (PSRL) of 5 mg/kg. TestAmerica's practical quantitation limit (PQL) for Sulfate is 50 mg/kg and Chloride is 30 mg/kg. The laboratory cannot maintain system cleanliness at this low level; therefore, corrective action is not initiated. It can be noted that the concentrations found in the method blank are less than half of the laboratory standard PQLs.

The Matrix Spike performed on sample J1TW94 exhibited the percent recovery outside the control limits for Fluoride, 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.

The duplicate analysis of sample J1TW94 exhibited RPD data outside the control limits for Chloride and Sulfate, and the associated sample results have been flagged "M". There is no indication that the analytical system was operating out of control, and method accuracy has been verified by the acceptable LCS analysis data; therefore, corrective action is deemed unnecessary.

No other anomalies were encountered.

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-075-438	Page 1 of 3

Collector: H. Weber	Company Contact: Joan Kessner	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Price Code	Data Turnaround: 7days		
Project Designation: 100-D/DR Field Remediation	Sampling Location: 100-D-106, Verification, stockpile area		SAF No.: RC-075
Ice Chest No.: RCC-07-011, -009, -006	Field Logbook No.: EL-1662-02	COA: 01D1062000	Method of Shipment: Commercial Carrier / FED EX
Shipped To: TestAmerica Denver	Offsite Property No.: A131165		Bill of Lading/Air Bill No.: See OSPC

Other Labs Shipped To: TestAmerica Richland

POSSIBLE SAMPLE HAZARDS/REMARKS

None

Special Handling and/or Storage

Sample No.	Matrix	Sample Date	Sample Time	Preservation: Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C				
				Type of Container: G/P	G/P	aG	aG	aG	aG				
				No. of Container(s): 1	1	1	1	1	1				
				Volume: 250mL	250mL	250mL	250mL	250mL	250mL				
				Sample Analysis: See item (1) in Special Instructions	IC Anions - 9056 Modified; NO2/NO3 - 353.2	Semi-VOA - 8270A (TCL)	PAHs - 8310	PCBs - 8082	Pesticides - 8081				
J1TW94	SOIL	7/16/14	0745	✓	✓	✓	✓	✓	✓				
J1TW95	SOIL	7/16/14	0807	✓	✓	✓	✓	✓	✓				
J1TW96	SOIL	7/16/14	0820	✓	✓	✓	✓	✓	✓				
J1TW97	SOIL	7/16/14	0757	✓	✓	✓	✓	✓	✓				
J1TW98	SOIL	7/16/14	0820	✓	✓	✓	✓	✓	✓				

Page 1 of 5

CHAIN OF POSSESSION	Sign/Print Names
Relinquished By/Removed From: Heather Weber / [signature] 07/16/14 0949	Received By/Stored In: R. Fahlberg / R. Fahlberg 7-16-14 0949
Relinquished By/Removed From: R. Fahlberg / R. Fahlberg 7-16-14 1115	Received By/Stored In: Fed Ex
Relinquished By/Removed From: [signature] 0910 7/17/14	Received By/Stored In: Fed Ex
Relinquished By/Removed From:	Received By/Stored In: [signature] 0910 7/17/14
Relinquished By/Removed From:	Received By/Stored In:
Relinquished By/Removed From:	Received By/Stored In:
Relinquished By/Removed From:	Received By/Stored In:

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

SPECIAL INSTRUCTIONS

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

REVIEWED BY K. Woodyard email DATE 7/16/14

JP0833

WCH-EE-011

2.3, 0.4, 3.4 IR4 +3 MS 7-17-14

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-075-438	Page 2 of 3

Collector: W. Weber	Company Contact: Joan Kessner	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Price Code:	Data Turnaround: 7 days		
Project Designation: 100-D/DR Field Remediation	Sampling Location: 100-D-106, Verification, stockpile area		SAF No.: RC-075
Ice Chest No.: RCC-07-011, -009, -006	Field Logbook No.: EL-1662-02	COA: 01D1062000	Method of Shipment: Commercial Carrier / FED Ex
Shipped To: TestAmerica Denver	Offsite Property No.: A131165		Bill of Lading/Air Bill No.: See OSPC
Other Labs Shipped To: TestAmerica Richland			

POSSIBLE SAMPLE HAZARDS/REMARKS

None

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C					
Type of Container	G/P	G/P	aG	aG	aG	aG					
No. of Container(s)	1	1	1	1	1	1					
Volume	250mL	250mL	250mL	250mL	250mL	250mL					
Sample Analysis	See Item (1) in Special Instructions	IC Anions - 9056 Modified; NO2/NO3 - 353.2	Semi-VOA - 8270A (TCL)	PAHs - 8310	PCBs - 8082	Pesticides - 8081					
Sample No.	Matrix	Sample Date	Sample Time								
99TW99	SOIL	7/16/14	0830	✓	✓	✓	✓	✓	✓		
J1TWC0	SOIL	7/16/14	0841	✓	✓	✓	✓	✓	✓		
J1TWC1	SOIL	7/16/14	0900	✓	✓	✓	✓	✓	✓		
J1TWC2	SOIL	7/16/14	0907	✓	✓	✓	✓	✓	✓		
J1TWC3	SOIL	7/16/14	0915	✓	✓	✓	✓	✓	✓		

Page 17 of 119

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Heather Weber / [signature]	07/16/14 0949	R. Fehlber / R. Fehlber	0949 7-16-14
R. Fehlber / R. Fehlber	7-16-14 1115	Fed Ex	
[signature]	7/17/14 0910	FedEx	
FC		[signature]	0910 7/17/14

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

SPECIAL INSTRUCTIONS

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

REVIEWED BY K. Wood via email DATE 7/16/14

JP0833

WCH-EE-011

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-075-438	Page 3 of 3

Collector: N. Weber	Company Contact: Joan Kessner	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Price Code:	Data Turnaround: 7 days		
Project Designation: 100-D/DR Field Remediation	Sampling Location: 100-D-106, Verification, stockpile area		SAF No.: RC-075
Ice Chest No.: RCL-07-011, -009, -006	Field Logbook No.: EL-1662-02	COA: 01D1062000	Method of Shipment: Commercial Carrier / Fed Ex
Shipped To: TestAmerica Denver	Offsite Property No.: A131165		Bill of Lading/Air Bill No.: See OSPC

Other Labs Shipped To: TestAmerica Richland

POSSIBLE SAMPLE HAZARDS/REMARKS

None

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C					
Type of Container	G/P	G/P	aG	aG	aG	aG					
No. of Container(s)	1	1	1	1	1	1					
Volume	250mL	250mL	250mL	250mL	250mL	250mL					
Sample Analysis	See item (1) in Special Instructions	IC Anions - 9056 Modified; NO2/NO3 - 353.2	Semi-VOA - 8270A (TCL)	PAHs - 8310	PCBs - 8082	Pesticides - 8081					
Sample No.	Matrix	Sample Date	Sample Time								
J1TWC4	SOIL	7/16/14	0927	✓	✓	✓	✓	✓	✓		
J1TWC5	SOIL	7/16/14	0932	✓	✓	✓	✓	✓	✓		
J1TWC6	SOIL	7/16/14	0941	✓	✓	✓	✓	✓	✓		
J1TWC7	SOIL	7/16/14	0735	✓		✓					

Page 1 of 1

CHAIN OF POSSESSION	Sign/Print Names	
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Heather Weber/Sign	07/16/14 0949	R. Fehlberg/R. Fehlberg	0949 7-16-14
R. Fehlberg/R. Fehlberg	1115 7-16-14	Fed Ex	
0910	7/17/14	Fed Ex	
RC		0910	7/17/14

FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

SPECIAL INSTRUCTIONS

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

REVIEWED BY K. Wood/K. Wood
DATE 7/16/14

JP0833

WCH-EE-011

Appendix 5

Data Validation Supporting Documentation

INORGANIC ANALYSIS DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	E
PROJECT: 100-D-16C			DATA PACKAGE: JP0833		
VALIDATOR: ELR		LAB: TAL		DATE: 8/4/14	
			SDG: JP0833		

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

SAMPLES/MATRIX			
J1TW94	J1TW95	J1TW96	J1TW97
J1TW98	J1TW99	J1TWC0	J1TWC1
J1TWC2	J1TWC3	J1TWC4	J1TWC5
J1TWC6	J1TWC7		
			soil

1. DATA PACKAGE COMPLETENESS AND CASE NARRATIVE

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

Comments:

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

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

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

ICP interference checks acceptable? ..... Yes No N/A

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

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

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

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

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

Comments:

INORGANIC ANALYSIS DATA VALIDATION CHECKLIST

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

ICB and CCB checks performed for all applicable analyses? (Levels D, E) ..... Yes No N/A

ICB and CCB results acceptable? (Levels D, E) ..... Yes No N/A

Laboratory blanks analyzed? ..... Yes No N/A

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

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

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

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

Comments: C7 - chromium, copper zinc - UJ

FB - 12 detects

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

MS/MSD samples analyzed? ..... Yes No N/A

MS/MSD results acceptable? ..... Yes No N/A

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

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

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

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

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

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

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

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

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

Comments: LCS - silicon (10%) - J all

MS - silicon (14%) antimony (54%) - J all

no PAS

INORGANIC ANALYSIS DATA VALIDATION CHECKLIST

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

Duplicate RPD values acceptable? ..... Yes No N/A

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

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

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

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

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

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

Comments: Silica (34%) - Jal

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: 280-57846-1
Sdg Number: JP0833

Method Blank - Batch: 280-234933

Method: 6010B
Preparation: 3050B

Lab Sample ID:	MB 280-234933/1-A	Analysis Batch:	280-235162	Instrument ID:	MT_026
Client Matrix:	Solid	Prep Batch:	280-234933	Lab File ID:	26a071914d.asc
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1 g
Analysis Date:	07/20/2014 0113	Units:	mg/Kg	Final Weight/Volume:	100 mL
Prep Date:	07/18/2014 1450				
Leach Date:	N/A				

Analyte	Result	Qual	MDL	RL
Aluminum	1.6	U	1.6	5.0
Antimony	0.38	U	0.38	0.60
Arsenic	0.66	U	0.66	1.0
Barium	0.076	U	0.076	0.50
Beryllium	0.033	U	0.033	0.20
Boron	0.98	U	0.98	2.0
Cadmium	0.041	U	0.041	0.20
Calcium	14.1	U	14.1	50.0
Chromium	0.0610	B	0.058	0.20
Cobalt	0.10	U	0.10	1.0
Copper	0.477	B	0.22	1.0
Iron	3.8	U	3.8	5.0
Lead	0.27	U	0.27	0.50
Magnesium	3.7	U	3.7	20.0
Manganese	0.10	U	0.10	1.0
Molybdenum	0.26	U	0.26	2.0
Nickel	0.12	U	0.12	4.0
Potassium	41.0	U	41.0	300
Selenium	0.86	U	0.86	1.0
Silicon	5.7	U	5.7	10.0
Silver	0.16	U	0.16	0.20
Sodium	59.0	U	59.0	120
Vanadium	0.094	U	0.094	2.0
Zinc	0.491	B	0.40	1.0

Quality Control Results

Client: Washington Closure Hanford

Job Number: 280-57846-1
Sdg Number: JP0833

Lab Control Sample - Batch: 280-234933

Method: 6010B
Preparation: 3050B

Lab Sample ID:	LCS 280-234933/2-A	Analysis Batch:	280-235162	Instrument ID:	MT_026
Client Matrix:	Solid	Prep Batch:	280-234933	Lab File ID:	26a071914d.asc
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1 g
Analysis Date:	07/20/2014 0116	Units:	mg/Kg	Final Weight/Volume:	100 mL
Prep Date:	07/18/2014 1450				
Leach Date:	N/A				

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Aluminum	200	194.2	97	82 - 116	
Antimony	50.0	53.21	106	82 - 110	
Arsenic	100	103.3	103	85 - 110	
Barium	200	199.4	100	87 - 112	
Beryllium	5.00	4.89	98	84 - 114	
Boron	100	100.7	101	80 - 120	
Cadmium	10.0	10.33	103	87 - 110	
Calcium	5000	4837	97	82 - 114	
Chromium	20.0	20.19	101	84 - 114	
Cobalt	50.0	49.80	100	87 - 110	
Copper	25.0	25.25	101	88 - 110	
Iron	100	94.99	95	87 - 120	
Lead	50.0	51.02	102	86 - 110	
Magnesium	5000	4885	98	90 - 110	
Manganese	50.0	47.87	96	88 - 110	
Molybdenum	100	101.5	101	86 - 110	
Nickel	50.0	49.49	99	87 - 110	
Potassium	5000	5081	102	89 - 110	
Selenium	200	202.3	101	83 - 110	
Silicon	1000	101.5	10	10 - 70	
Silver	5.00	4.86	97	87 - 114	
Sodium	5000	5499	110	90 - 112	
Vanadium	50.0	48.41	97	88 - 110	
Zinc	50.0	48.56	97	76 - 114	

Client: Washington Closure Hanford

Job Number: 280-57846-1
Sdg Number: JP0833

Matrix Spike - Batch: 280-234933

Method: 6010B
Preparation: 3050B

Lab Sample ID:	280-57846-1	Analysis Batch:	280-235162	Instrument ID:	MT_026
Client Matrix:	Solid	Prep Batch:	280-234933	Lab File ID:	26a071914d.asc
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1.00 g
Analysis Date:	07/20/2014 0126	Units:	mg/Kg	Final Weight/Volume:	100 mL
Prep Date:	07/18/2014 1450				
Leach Date:	N/A				

Analyte	Sample Result/Qual		Spike Amount	Result	% Rec.	Limit	Qual
Aluminum	6000		203	7473	726	50 - 200	4
Arsenic	3.2		101	83.37	79	76 - 111	
Barium	53.0		203	222.4	84	52 - 159	
Boron	0.87	B	101	84.04	82	80 - 120	
Cadmium	0.036	U	10.1	8.62	85	40 - 130	
Calcium	8130		5060	13820	112	43 - 165	
Chromium	5.0		20.3	24.80	98	70 - 200	
Iron	25600		101	26510	911	70 - 200	4
Magnesium	4590		5060	9331	94	64 - 145	
Manganese	306		50.6	409.6	205	40 - 200	4
Molybdenum	0.68	B	101	84.30	83	75 - 103	
Nickel	8.3		50.6	49.24	81	61 - 126	
Potassium	880		5060	5281	87	56 - 172	
Selenium	0.75	U	203	163.3	81	76 - 104	
Silicon	196		1010	341.3	14	20 - 200	N
Silver	0.14	U	5.06	3.95	78	75 - 141	
Sodium	528		5060	5446	97	78 - 111	
Zinc	48.0		50.6	86.34	76	70 - 200	

Matrix Spike - Batch: 280-234933

Method: 6010B
Preparation: 3050B

Lab Sample ID:	280-57846-1	Analysis Batch:	280-235381	Instrument ID:	MT_026
Client Matrix:	Solid	Prep Batch:	280-234933	Lab File ID:	26A072114E.asc
Dilution:	5.0	Leach Batch:	N/A	Initial Weight/Volume:	1.00 g
Analysis Date:	07/21/2014 2239	Units:	mg/Kg	Final Weight/Volume:	100 mL
Prep Date:	07/18/2014 1450				
Leach Date:	N/A				

Analyte	Sample Result/Qual		Spike Amount	Result	% Rec.	Limit	Qual
Antimony	1.7	U	50.6	27.23	54	20 - 200	
Beryllium	0.14	U	5.06	3.22	64	72 - 105	N
Cobalt	11.9		50.6	57.01	89	72 - 106	
Copper	17.2		25.3	39.49	88	37 - 187	
Lead	6.0		50.6	51.59	90	70 - 200	
Vanadium	72.3		50.6	119.1	92	50 - 169	

Client: Washington Closure Hanford

Job Number: 280-57846-1
Sdg Number: JP0833

Duplicate - Batch: 280-234933

Method: 6010B
Preparation: 3050B

Lab Sample ID:	280-57846-1	Analysis Batch:	280-235162	Instrument ID:	MT_026
Client Matrix:	Solid	Prep Batch:	280-234933	Lab File ID:	26a071914d.asc
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1.06 g
Analysis Date:	07/20/2014 0124	Units:	mg/Kg	Final Weight/Volume:	100 mL
Prep Date:	07/18/2014 1450				
Leach Date:	N/A				

Analyte	Sample Result/Qual		Result	RPD	Limit	Qual
Aluminum	6000		5575	7	40	
Arsenic	3.2		2.97	6	30	
Barium	53.0		52.37	1	30	
Boron	0.87	B	0.94	NC	30	U
Cadmium	0.036	U	0.039	NC	30	U
Calcium	8130		7851	4	30	
Chromium	5.0		5.33	7	40	
Iron	25600		24590	4	40	
Magnesium	4590		4491	2	30	
Manganese	306		293.9	4	40	
Molybdenum	0.68	B	0.296	78	30	B M
Nickel	8.3		8.05	3	30	
Potassium	880		892.8	1	40	
Selenium	0.75	U	0.82	NC	30	U
Silicon	196		138.8	34	40	
Silver	0.14	U	0.15	NC	30	U
Sodium	528		430.7	20	30	
Zinc	48.0		44.78	7	40	

Duplicate - Batch: 280-234933

Method: 6010B
Preparation: 3050B

Lab Sample ID:	280-57846-1	Analysis Batch:	280-235381	Instrument ID:	MT_026
Client Matrix:	Solid	Prep Batch:	280-234933	Lab File ID:	26A072114E.asc
Dilution:	5.0	Leach Batch:	N/A	Initial Weight/Volume:	1.06 g
Analysis Date:	07/21/2014 2236	Units:	mg/Kg	Final Weight/Volume:	100 mL
Prep Date:	07/18/2014 1450				
Leach Date:	N/A				

Analyte	Sample Result/Qual		Result	RPD	Limit	Qual
Antimony	1.7	U	1.8	NC	40	U
Beryllium	0.14	U	0.16	NC	30	U
Cobalt	11.9		10.93	8	30	
Copper	17.2		15.97	7	30	
Lead	6.0		6.39	5	40	
Vanadium	72.3		67.96	6	30	

Client: Washington Closure Hanford

Job Number: 280-57846-1
Sdg Number: JP0833

Method Blank - Batch: 280-234874

Method: 7471A
Preparation: 7471A

Lab Sample ID:	MB 280-234874/1-A	Analysis Batch:	280-235010	Instrument ID:	MT_033
Client Matrix:	Solid	Prep Batch:	280-234874	Lab File ID:	140718ab.txt
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	0.60 g
Analysis Date:	07/18/2014 1333	Units:	mg/Kg	Final Weight/Volume:	50 mL
Prep Date:	07/18/2014 1000				
Leach Date:	N/A				

Analyte	Result	Qual	MDL	RL
Mercury	0.0055	U	0.0055	0.017

Lab Control Sample - Batch: 280-234874

Method: 7471A
Preparation: 7471A

Lab Sample ID:	LCS 280-234874/2-A	Analysis Batch:	280-235010	Instrument ID:	MT_033
Client Matrix:	Solid	Prep Batch:	280-234874	Lab File ID:	140718ab.txt
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	0.60 g
Analysis Date:	07/18/2014 1335	Units:	mg/Kg	Final Weight/Volume:	50 mL
Prep Date:	07/18/2014 1000				
Leach Date:	N/A				

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Mercury	0.417	0.384	92	87 - 111	

Matrix Spike - Batch: 280-234874

Method: 7471A
Preparation: 7471A

Lab Sample ID:	280-57846-1	Analysis Batch:	280-235010	Instrument ID:	MT_033
Client Matrix:	Solid	Prep Batch:	280-234874	Lab File ID:	140718ab.txt
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	0.60 g
Analysis Date:	07/18/2014 1340	Units:	mg/Kg	Final Weight/Volume:	50 mL
Prep Date:	07/18/2014 1000				
Leach Date:	N/A				

Analyte	Sample Result/Qual		Spike Amount	Result	% Rec.	Limit	Qual
Mercury	0.0080	B	0.422	0.387	90	87 - 111	

Quality Control Results

Client: Washington Closure Hanford

Job Number: 280-57846-1
Sdg Number: JP0833

Duplicate - Batch: 280-234874

Method: 7471A
Preparation: 7471A

Lab Sample ID:	280-57846-1	Analysis Batch:	280-235010	Instrument ID:	MT_033
Client Matrix:	Solid	Prep Batch:	280-234874	Lab File ID:	140718ab.txt
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	0.64 g
Analysis Date:	07/18/2014 1342	Units:	mg/Kg	Final Weight/Volume:	50 mL
Prep Date:	07/18/2014 1000				
Leach Date:	N/A				

Analyte	Sample Result/Qual		Result	RPD	Limit	Qual
Mercury	0.0080	B	0.00799	0.3	20	B

Date: 6 August 2014
To: Washington Closure Hanford Inc. (technical representative)
From: ELR Consulting
Project: 100-D/DR Burial Grounds & Remaining Sites – Soil Full Protocol - Waste Site 100-D-106
Subject: Pesticide/PCB - Data Package No. JP0833-TAL

INTRODUCTION

This memo presents the results of data validation on Data Package No. JP0833 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
J1TW94	7/16/14	Soil	C	See note 1
J1TW95	7/16/14	Soil	C	See note 1
J1TW96	7/16/14	Soil	C	See note 1
J1TW97	7/16/14	Soil	C	See note 1
J1TW98	7/16/14	Soil	C	See note 1
J1TW99	7/16/14	Soil	C	See note 1
J1TWC0	7/16/14	Soil	C	See note 1
J1TWC1	7/16/14	Soil	C	See note 1
J1TWC2	7/16/14	Soil	C	See note 1
J1TWC3	7/16/14	Soil	C	See note 1
J1TWC4	7/16/14	Soil	C	See note 1
J1TWC5	7/16/14	Soil	C	See note 1
J1TWC6	7/16/14	Soil	C	See note 1

1 – Pesticides by 8081B and PCBs by 8082.

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

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

DATA QUALITY OBJECTIVES

- **Holding Times**

Analytical holding times were assessed to ascertain whether the holding time requirements were met by the laboratory. The holding time requirements are as follows: Samples must be extracted within 14 days of the date of sample collection and analyzed within 40 days from the date of extraction. Holding times are not applicable for PCB analysis.

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

All holding times were acceptable.

- **Method Blank**

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

All method blank results were acceptable.

Field Blanks

No field blanks were submitted for analysis.

- **Accuracy**

Matrix Spike & Laboratory Control Sample

Matrix spike (MS) and laboratory control sample (LCS) analyses are used to assess the analytical accuracy of the reported data. The matrix spike is used to assess the effect of the matrix on the ability to accurately quantify sample concentrations. Recoveries must fall within the range of 70% to 130%. If spike recoveries are outside control limits, detected sample results less than five times the spike concentration are qualified as

estimates and flagged "J". Non-detected sample results with spike recoveries outside control limits are qualified as estimates and flagged "UJ". Sample results greater than five times the spike concentration require no qualification.

Due to the lack of a matrix spike, matrix spike duplicate or LCS analysis, all toxaphene results were qualified as estimates and flagged "J".

All other accuracy results were acceptable.

Surrogate Recovery

The analysis of surrogate compounds provides a measure of performance for individual samples. Matrix-specific surrogate compound recovery control windows have been established by the laboratory. When a surrogate compound recovery is outside the control window, all positively identified target compounds associated with the unacceptable surrogate recoveries are qualified as estimates and flagged "J". Non-detected compounds with surrogate recoveries less than the lower control limit are qualified as having an estimated detection limit and flagged "UJ". Non-detected compounds with surrogate recoveries above the upper control limit require no qualification.

All surrogate results were acceptable.

Precision

Matrix Spike/Matrix Spike Duplicate Samples

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

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

All other precision results were acceptable.

Field Duplicate Samples

One set of field duplicates (J1TWC0/J1TWC6) 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. JP0833 was submitted for validation and verified for completeness. Completeness is based on the percentage of data determined to be valid (i.e., not rejected). The completion percentage was 100%.

MAJOR DEFICIENCIES

None found.

MINOR DEFICIENCIES

The following minor deficiencies were noted:

- Due to the lack of a matrix spike, matrix spike duplicate or LCS analysis, all toxaphene results were qualified as estimates and flagged "J".

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

REFERENCES

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

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

Appendix 1

Glossary of Data Reporting Qualifiers

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

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

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

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

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

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

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

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

Appendix 2

Summary of Data Qualification

PESTICIDE/PCB DATA QUALIFICATION SUMMARY*

SDG: JP0833	**REVIEWER: ELR**	**Project: 100-D-106**	**PAGE_1_OF_1**
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
Toxaphene	J	All	No MS, MSD or LCS analysis

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

Appendix 3

Annotated Laboratory Reports

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-57846-1
Sdg Number: JP0833

Client Sample ID: **J1TW94**

Lab Sample ID: 280-57846-1
Client Matrix: Solid
% Moisture: 1.2

Date Sampled: 07/16/2014 0745
Date Received: 07/17/2014 0910

8082 Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analysis Method:	8082	Analysis Batch:	280-235269	Instrument ID:	SGC_W
Prep Method:	3550C	Prep Batch:	280-234968	Initial Weight/Volume:	32.8 g
Dilution:	1.0			Final Weight/Volume:	5 mL
Analysis Date:	07/22/2014 1110			Injection Volume:	1 uL
Prep Date:	07/18/2014 1620			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	84		59 - 130
Tetrachloro-m-xylene	84		53 - 128

4/6/14

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-57846-1
Sdg Number: JP0833

Client Sample ID: **J1TW95**

Lab Sample ID: 280-57846-2
Client Matrix: Solid
% Moisture: 1.1

Date Sampled: 07/16/2014 0807
Date Received: 07/17/2014 0910

8082 Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analysis Method:	8082	Analysis Batch:	280-235269	Instrument ID:	SGC_W
Prep Method:	3550C	Prep Batch:	280-234968	Initial Weight/Volume:	32.2 g
Dilution:	1.0			Final Weight/Volume:	5 mL
Analysis Date:	07/22/2014 1221			Injection Volume:	1 uL
Prep Date:	07/18/2014 1620			Result Type:	PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Aroclor 1016		2.6	U	2.6	9.4
Aroclor 1221		7.6	U	7.6	16
Aroclor 1232		1.9	U	1.9	9.4
Aroclor 1242		4.4	U	4.4	9.4
Aroclor 1248		4.4	U	4.4	9.4
Aroclor 1254		2.5	U	2.5	9.4
Aroclor 1260		2.5	U	2.5	9.4

Surrogate	%Rec	Qualifier	Acceptance Limits
Decachlorobiphenyl	89		59 - 130
Tetrachloro-m-xylene	79		53 - 128

8/6/14

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-57846-1
Sdg Number: JP0833

Client Sample ID: **J1TW96**

Lab Sample ID: 280-57846-3
Client Matrix: Solid
% Moisture: 1.0

Date Sampled: 07/16/2014 0800
Date Received: 07/17/2014 0910

8082 Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analysis Method:	8082	Analysis Batch:	280-235269	Instrument ID:	SGC_W
Prep Method:	3550C	Prep Batch:	280-234968	Initial Weight/Volume:	32.4 g
Dilution:	1.0			Final Weight/Volume:	5 mL
Analysis Date:	07/22/2014 1245			Injection Volume:	1 uL
Prep Date:	07/18/2014 1620			Result Type:	PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Aroclor 1016		2.6	U	2.6	9.4
Aroclor 1221		7.5	U	7.5	15
Aroclor 1232		1.9	U	1.9	9.4
Aroclor 1242		4.4	U	4.4	9.4
Aroclor 1248		4.4	U	4.4	9.4
Aroclor 1254		2.4	U	2.4	9.4
Aroclor 1260		2.4	U	2.4	9.4

Surrogate	%Rec	Qualifier	Acceptance Limits
Decachlorobiphenyl	85		59 - 130
Tetrachloro-m-xylene	82		53 - 128

8/6/14

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-57846-1
Sdg Number: JP0833

Client Sample ID: **J1TW97**

Lab Sample ID: 280-57846-4
Client Matrix: Solid
% Moisture: 1.1

Date Sampled: 07/16/2014 0751
Date Received: 07/17/2014 0910

8082 Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analysis Method:	8082	Analysis Batch:	280-235269	Instrument ID:	SGC_W
Prep Method:	3550C	Prep Batch:	280-234968	Initial Weight/Volume:	30.4 g
Dilution:	1.0			Final Weight/Volume:	5 mL
Analysis Date:	07/22/2014 1308			Injection Volume:	1 uL
Prep Date:	07/18/2014 1620			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	89		59 - 130
Tetrachloro-m-xylene	83		53 - 128

8/6/14

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-57846-1
Sdg Number: JP0833

Client Sample ID: **J1TW98**

Lab Sample ID: 280-57846-5
Client Matrix: Solid

% Moisture: 1.2

Date Sampled: 07/16/2014 0820
Date Received: 07/17/2014 0910

8082 Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analysis Method:	8082	Analysis Batch:	280-235269	Instrument ID:	SGC_W
Prep Method:	3550C	Prep Batch:	280-234968	Initial Weight/Volume:	31.0 g
Dilution:	1.0			Final Weight/Volume:	5 mL
Analysis Date:	07/22/2014 1332			Injection Volume:	1 uL
Prep Date:	07/18/2014 1620			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		2.5	U	2.5	9.8
Aroclor 1260		2.5	U	2.5	9.8

Surrogate	%Rec	Qualifier	Acceptance Limits
Decachlorobiphenyl	86		59 - 130
Tetrachloro-m-xylene	79		53 - 128

8/6/14

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-57846-1
Sdg Number: JP0833

Client Sample ID: **J1TW99**

Lab Sample ID: 280-57846-6
Client Matrix: Solid
% Moisture: 1.0

Date Sampled: 07/16/2014 0830
Date Received: 07/17/2014 0910

8082 Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analysis Method:	8082	Analysis Batch:	280-235269	Instrument ID:	SGC_W
Prep Method:	3550C	Prep Batch:	280-234968	Initial Weight/Volume:	31.0 g
Dilution:	1.0			Final Weight/Volume:	5 mL
Analysis Date:	07/22/2014 1419			Injection Volume:	1 uL
Prep Date:	07/18/2014 1620			Result Type:	PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Aroclor 1016		2.7	U	2.7	9.8
Aroclor 1221		7.8	U	7.8	16
Aroclor 1232		2.0	U	2.0	9.8
Aroclor 1242		4.6	U	4.6	9.8
Aroclor 1248		4.6	U	4.6	9.8
Aroclor 1254		2.5	U	2.5	9.8
Aroclor 1260		2.5	U	2.5	9.8

Surrogate	%Rec	Qualifier	Acceptance Limits
Decachlorobiphenyl	89		59 - 130
Tetrachloro-m-xylene	81		53 - 128

8/6/14

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-57846-1
Sdg Number: JP0833

Client Sample ID: **J1TWC0**

Lab Sample ID: 280-57846-7
Client Matrix: Solid

% Moisture: 0.9

Date Sampled: 07/16/2014 0841
Date Received: 07/17/2014 0910

8082 Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analysis Method:	8082	Analysis Batch:	280-235269	Instrument ID:	SGC_W
Prep Method:	3550C	Prep Batch:	280-234968	Initial Weight/Volume:	32.5 g
Dilution:	1.0			Final Weight/Volume:	5 mL
Analysis Date:	07/22/2014 1443			Injection Volume:	1 uL
Prep Date:	07/18/2014 1620			Result Type:	PRIMARY

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

Surrogate	%Rec	Qualifier	Acceptance Limits
Decachlorobiphenyl	91		59 - 130
Tetrachloro-m-xylene	82		53 - 128

4/6/14

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-57846-1
Sdg Number: JP0833

Client Sample ID: **J1TWC1**

Lab Sample ID: 280-57846-8
Client Matrix: Solid
% Moisture: 1.0

Date Sampled: 07/16/2014 0900
Date Received: 07/17/2014 0910

8082 Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analysis Method:	8082	Analysis Batch:	280-235269	Instrument ID:	SGC_W
Prep Method:	3550C	Prep Batch:	280-234968	Initial Weight/Volume:	31.8 g
Dilution:	1.0			Final Weight/Volume:	5 mL
Analysis Date:	07/22/2014 1507			Injection Volume:	1 uL
Prep Date:	07/18/2014 1620			Result Type:	PRIMARY

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

Surrogate	%Rec	Qualifier	Acceptance Limits
Decachlorobiphenyl	92		59 - 130
Tetrachloro-m-xylene	85		53 - 128

8/6/14

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-57846-1
Sdg Number: JP0833

Client Sample ID: **J1TWC2**

Lab Sample ID: 280-57846-9
Client Matrix: Solid
% Moisture: 0.9

Date Sampled: 07/16/2014 0907
Date Received: 07/17/2014 0910

8082 Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analysis Method:	8082	Analysis Batch:	280-235269	Instrument ID:	SGC_W
Prep Method:	3550C	Prep Batch:	280-234968	Initial Weight/Volume:	30.7 g
Dilution:	1.0			Final Weight/Volume:	5 mL
Analysis Date:	07/22/2014 1531			Injection Volume:	1 uL
Prep Date:	07/18/2014 1620			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	93		59 - 130
Tetrachloro-m-xylene	85		53 - 128

8/6/14

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-57846-1
Sdg Number: JP0833

Client Sample ID: **J1TWC3**

Lab Sample ID: 280-57846-10
Client Matrix: Solid

% Moisture: 1.9

Date Sampled: 07/16/2014 0915
Date Received: 07/17/2014 0910

8082 Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analysis Method:	8082	Analysis Batch:	280-235269	Instrument ID:	SGC_W
Prep Method:	3550C	Prep Batch:	280-234968	Initial Weight/Volume:	31.5 g
Dilution:	1.0			Final Weight/Volume:	5 mL
Analysis Date:	07/22/2014 1554			Injection Volume:	1 uL
Prep Date:	07/18/2014 1620			Result Type:	PRIMARY

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

Surrogate	%Rec	Qualifier	Acceptance Limits
Decachlorobiphenyl	89		59 - 130
Tetrachloro-m-xylene	86		53 - 128

6/6/14

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-57846-1
Sdg Number: JP0833

Client Sample ID: **J1TWC4**

Lab Sample ID: 280-57846-11
Client Matrix: Solid
% Moisture: 1.5

Date Sampled: 07/16/2014 0927
Date Received: 07/17/2014 0910

8082 Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analysis Method:	8082	Analysis Batch:	280-235269	Instrument ID:	SGC_W
Prep Method:	3550C	Prep Batch:	280-234968	Initial Weight/Volume:	30.7 g
Dilution:	1.0			Final Weight/Volume:	5 mL
Analysis Date:	07/22/2014 1618			Injection Volume:	1 uL
Prep Date:	07/18/2014 1620			Result Type:	PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Aroclor 1016		2.7	U	2.7	9.9
Aroclor 1221		8.0	U	8.0	16
Aroclor 1232		2.0	U	2.0	9.9
Aroclor 1242		4.6	U	4.6	9.9
Aroclor 1248		4.6	U	4.6	9.9
Aroclor 1254		2.6	U	2.6	9.9
Aroclor 1260		2.6	U	2.6	9.9

Surrogate	%Rec	Qualifier	Acceptance Limits
Decachlorobiphenyl	94		59 - 130
Tetrachloro-m-xylene	87		53 - 128

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-57846-1
Sdg Number: JP0833

Client Sample ID: **J1TWC5**

Lab Sample ID: 280-57846-12
Client Matrix: Solid

% Moisture: 0.7

Date Sampled: 07/16/2014 0937
Date Received: 07/17/2014 0910

8082 Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analysis Method:	8082	Analysis Batch:	280-235269	Instrument ID:	SGC_W
Prep Method:	3550C	Prep Batch:	280-234968	Initial Weight/Volume:	30.7 g
Dilution:	1.0			Final Weight/Volume:	5 mL
Analysis Date:	07/22/2014 1642			Injection Volume:	1 uL
Prep Date:	07/18/2014 1620			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	92		59 - 130
Tetrachloro-m-xylene	88		53 - 128

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-57846-1
Sdg Number: JP0833

Client Sample ID: **J1TWC6**

Lab Sample ID: 280-57846-13
Client Matrix: Solid
% Moisture: 1.0

Date Sampled: 07/16/2014 0841
Date Received: 07/17/2014 0910

8082 Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analysis Method:	8082	Analysis Batch:	280-235269	Instrument ID:	SGC_W
Prep Method:	3550C	Prep Batch:	280-234968	Initial Weight/Volume:	32.5 g
Dilution:	1.0			Final Weight/Volume:	5 mL
Analysis Date:	07/22/2014 1705			Injection Volume:	1 uL
Prep Date:	07/18/2014 1620			Result Type:	PRIMARY

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

Surrogate	%Rec	Qualifier	Acceptance Limits
Decachlorobiphenyl	92		59 - 130
Tetrachloro-m-xylene	87		53 - 128

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-57846-1
Sdg Number: JP0833

Client Sample ID: **J1TW94**

Lab Sample ID: 280-57846-1
Client Matrix: Solid
% Moisture: 1.2

Date Sampled: 07/16/2014 0745
Date Received: 07/17/2014 0910

8081A Organochlorine Pesticides (GC)

Analysis Method:	8081A	Analysis Batch:	280-235616	Instrument ID:	SGC_P1
Prep Method:	3550C	Prep Batch:	280-235113	Initial Weight/Volume:	31.9 g
Dilution:	1.0			Final Weight/Volume:	10 mL
Analysis Date:	07/23/2014 2327			Injection Volume:	1 uL
Prep Date:	07/21/2014 1100			Result Type:	PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
4,4'-DDD		0.52	U	0.52	1.6
4,4'-DDE		0.23	U	0.23	1.6
4,4'-DDT		0.56	U	0.56	1.6
Aldrin		0.24	U	0.24	1.6
alpha-BHC		0.20	U	0.20	1.6
beta-BHC		0.63	U	0.63	1.6
delta-BHC		0.38	U	0.38	1.6
gamma-BHC (Lindane)		0.44	U	0.44	1.6
Heptachlor		0.20	U	0.20	1.6
Heptachlor epoxide		0.41	U	0.41	1.6
Endosulfan I		0.17	U	0.17	1.6
Endosulfan II		0.27	U	0.27	1.6
Endosulfan sulfate		0.26	U	0.26	1.6
Endrin		0.29	U	0.29	1.6
Endrin aldehyde		0.16	U	0.16	1.6
Endrin ketone		0.47	U	0.47	1.6
gamma-Chlordane		0.25	U	0.25	1.6
Methoxychlor		0.43	U	0.43	3.1
alpha-Chlordane		0.31	U	0.31	1.6
Dieldrin		0.20	U	0.20	1.6
Toxaphene		15	U J	15	160

Surrogate	%Rec	Qualifier	Acceptance Limits
Tetrachloro-m-xylene	99		59 - 115
Decachlorobiphenyl	94		63 - 124

8/6/14

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-57846-1
Sdg Number: JP0833

Client Sample ID: **J1TW95**

Lab Sample ID: 280-57846-2
Client Matrix: Solid
% Moisture: 1.1

Date Sampled: 07/16/2014 0807
Date Received: 07/17/2014 0910

8081A Organochlorine Pesticides (GC)

Analysis Method:	8081A	Analysis Batch:	280-235616	Instrument ID:	SGC_P1
Prep Method:	3550C	Prep Batch:	280-235113	Initial Weight/Volume:	30.6 g
Dilution:	1.0			Final Weight/Volume:	10 mL
Analysis Date:	07/23/2014 2345			Injection Volume:	1 uL
Prep Date:	07/21/2014 1100			Result Type:	PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
4,4'-DDD		0.54	U	0.54	1.7
4,4'-DDE		0.24	U	0.24	1.7
4,4'-DDT		0.59	U	0.59	1.7
Aldrin		0.25	U	0.25	1.6
alpha-BHC		0.21	U	0.21	1.6
beta-BHC		0.66	U	0.66	1.6
delta-BHC		0.40	U	0.40	1.6
gamma-BHC (Lindane)		0.46	U	0.46	1.6
Heptachlor		0.21	U	0.21	1.6
Heptachlor epoxide		0.42	U	0.42	1.6
Endosulfan I		0.17	U	0.17	1.6
Endosulfan II		0.28	U	0.28	1.7
Endosulfan sulfate		0.27	U	0.27	1.7
Endrin		0.30	U	0.30	1.7
Endrin aldehyde		0.17	U	0.17	1.7
Endrin ketone		0.48	U	0.48	1.7
gamma-Chlordane		0.26	U	0.26	1.7
Methoxychlor		0.45	U	0.45	3.3
alpha-Chlordane		0.32	U	0.32	1.7
Dieldrin		0.21	U	0.21	1.7
Toxaphene		16	U J	16	160

Surrogate	%Rec	Qualifier	Acceptance Limits
Tetrachloro-m-xylene	102		59 - 115
Decachlorobiphenyl	100		63 - 124

4/6/14

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-57846-1
Sdg Number: JP0833

Client Sample ID: **J1TW96**

Lab Sample ID: 280-57846-3
Client Matrix: Solid
% Moisture: 1.0

Date Sampled: 07/16/2014 0800
Date Received: 07/17/2014 0910

8081A Organochlorine Pesticides (GC)

Analysis Method:	8081A	Analysis Batch:	280-235616	Instrument ID:	SGC_P1
Prep Method:	3550C	Prep Batch:	280-235113	Initial Weight/Volume:	31.2 g
Dilution:	1.0			Final Weight/Volume:	10 mL
Analysis Date:	07/24/2014 0002			Injection Volume:	1 uL
Prep Date:	07/21/2014 1100			Result Type:	PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
4,4'-DDD		0.53	U	0.53	1.7
4,4'-DDE		0.23	U	0.23	1.7
4,4'-DDT		0.57	U	0.57	1.7
Aldrin		0.24	U	0.24	1.6
alpha-BHC		0.21	U	0.21	1.6
beta-BHC		0.64	U	0.64	1.6
delta-BHC		0.39	U	0.39	1.6
gamma-BHC (Lindane)		0.45	U	0.45	1.6
Heptachlor		0.21	U	0.21	1.6
Heptachlor epoxide		0.41	U	0.41	1.6
Endosulfan I		0.17	U	0.17	1.6
Endosulfan II		0.28	U	0.28	1.7
Endosulfan sulfate		0.27	U	0.27	1.7
Endrin		0.30	U	0.30	1.7
Endrin aldehyde		0.17	U	0.17	1.7
Endrin ketone		0.47	U	0.47	1.7
gamma-Chlordane		0.26	U	0.26	1.7
Methoxychlor		0.44	U	0.44	3.2
alpha-Chlordane		0.31	U	0.31	1.7
Dieldrin		0.20	U	0.20	1.7
Toxaphene		15	U J	15	160

Surrogate	%Rec	Qualifier	Acceptance Limits
Tetrachloro-m-xylene	101		59 - 115
Decachlorobiphenyl	91		63 - 124

4/6/14

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-57846-1
Sdg Number: JP0833

Client Sample ID: **J1TW97**

Lab Sample ID: 280-57846-4
Client Matrix: Solid

% Moisture: 1.1

Date Sampled: 07/16/2014 0751
Date Received: 07/17/2014 0910

8081A Organochlorine Pesticides (GC)

Analysis Method:	8081A	Analysis Batch:	280-235616	Instrument ID:	SGC_P1
Prep Method:	3550C	Prep Batch:	280-235113	Initial Weight/Volume:	33.0 g
Dilution:	1.0			Final Weight/Volume:	10 mL
Analysis Date:	07/24/2014 0054			Injection Volume:	1 uL
Prep Date:	07/21/2014 1100			Result Type:	PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
4,4'-DDD		0.50	U	0.50	1.6
4,4'-DDE		0.22	U	0.22	1.6
4,4'-DDT		0.54	U	0.54	1.6
Aldrin		0.23	U	0.23	1.5
alpha-BHC		0.20	U	0.20	1.5
beta-BHC		0.61	U	0.61	1.5
delta-BHC		0.37	U	0.37	1.5
gamma-BHC (Lindane)		0.43	U	0.43	1.5
Heptachlor		0.20	U	0.20	1.5
Heptachlor epoxide		0.39	U	0.39	1.5
Endosulfan I		0.16	U	0.16	1.5
Endosulfan II		0.26	U	0.26	1.6
Endosulfan sulfate		0.25	U	0.25	1.6
Endrin		0.28	U	0.28	1.6
Endrin aldehyde		0.16	U	0.16	1.6
Endrin ketone		0.45	U	0.45	1.6
gamma-Chlordane		0.24	U	0.24	1.6
Methoxychlor		0.41	U	0.41	3.0
alpha-Chlordane		0.30	U	0.30	1.6
Dieldrin		0.19	U	0.19	1.6
Toxaphene		15	U J	15	150

Surrogate	%Rec	Qualifier	Acceptance Limits
Tetrachloro-m-xylene	94		59 - 115
Decachlorobiphenyl	85		63 - 124

8/6/14

Client: Washington Closure Hanford

Job Number: 280-57846-1
Sdg Number: JP0833

Client Sample ID: **J1TW98**

Lab Sample ID: 280-57846-5
Client Matrix: Solid
% Moisture: 1.2

Date Sampled: 07/16/2014 0820
Date Received: 07/17/2014 0910

8081A Organochlorine Pesticides (GC)

Analysis Method:	8081A	Analysis Batch:	280-235616	Instrument ID:	SGC_P1
Prep Method:	3550C	Prep Batch:	280-235113	Initial Weight/Volume:	32.4 g
Dilution:	1.0			Final Weight/Volume:	10 mL
Analysis Date:	07/24/2014 0111			Injection Volume:	1 uL
Prep Date:	07/21/2014 1100			Result Type:	PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
4,4'-DDD		0.51	U	0.51	1.6
4,4'-DDE		0.22	U	0.22	1.6
4,4'-DDT		0.55	U	0.55	1.6
Aldrin		0.24	U	0.24	1.5
alpha-BHC		0.20	U	0.20	1.5
beta-BHC		0.62	U	0.62	1.5
delta-BHC		0.38	U	0.38	1.5
gamma-BHC (Lindane)		0.43	U	0.43	1.5
Heptachlor		0.20	U	0.20	1.5
Heptachlor epoxide		0.40	U	0.40	1.5
Endosulfan I		0.16	U	0.16	1.5
Endosulfan II		0.27	U	0.27	1.6
Endosulfan sulfate		0.26	U	0.26	1.6
Endrin		0.29	U	0.29	1.6
Endrin aldehyde		0.16	U	0.16	1.6
Endrin ketone		0.46	U	0.46	1.6
gamma-Chlordane		0.25	U	0.25	1.6
Methoxychlor		0.42	U	0.42	3.1
alpha-Chlordane		0.30	U	0.30	1.6
Dieldrin		0.20	U	0.20	1.6
Toxaphene		15	U J	15	150

Surrogate	%Rec	Qualifier	Acceptance Limits
Tetrachloro-m-xylene	93		59 - 115
Decachlorobiphenyl	83		63 - 124

K 8/6/14

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-57846-1
Sdg Number: JP0833

Client Sample ID: **J1TW99**

Lab Sample ID: 280-57846-6
Client Matrix: Solid
% Moisture: 1.0

Date Sampled: 07/16/2014 0830
Date Received: 07/17/2014 0910

8081A Organochlorine Pesticides (GC)

Analysis Method:	8081A	Analysis Batch:	280-235763	Instrument ID:	SGC_P1
Prep Method:	3550C	Prep Batch:	280-235113	Initial Weight/Volume:	31.3 g
Dilution:	1.0			Final Weight/Volume:	10 mL
Analysis Date:	07/24/2014 2126			Injection Volume:	1 uL
Prep Date:	07/21/2014 1100			Result Type:	PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
4,4'-DDD		0.53	U	0.53	1.6
4,4'-DDE		0.23	U	0.23	1.6
4,4'-DDT		0.57	U	0.57	1.6
Aldrin		0.24	U	0.24	1.6
alpha-BHC		0.21	U	0.21	1.6
beta-BHC		0.64	U	0.64	1.6
delta-BHC		0.39	U	0.39	1.6
gamma-BHC (Lindane)		0.45	U	0.45	1.6
Heptachlor		0.21	U	0.21	1.6
Heptachlor epoxide		0.41	U	0.41	1.6
Endosulfan I		0.17	U	0.17	1.6
Endosulfan II		0.28	U	0.28	1.6
Endosulfan sulfate		0.27	U	0.27	1.6
Endrin		0.30	U	0.30	1.6
Endrin aldehyde		0.17	U	0.17	1.6
Endrin ketone		0.47	U	0.47	1.6
gamma-Chlordane		0.26	U	0.26	1.6
Methoxychlor		0.44	U	0.44	3.2
alpha-Chlordane		0.31	U	0.31	1.6
Dieldrin		0.20	U	0.20	1.6
Toxaphene		15	U J	15	160

Surrogate	%Rec	Qualifier	Acceptance Limits
Tetrachloro-m-xylene	95		59 - 115
Decachlorobiphenyl	97		63 - 124

8/6/14

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-57846-1
Sdg Number: JP0833

Client Sample ID: **J1TWC0**

Lab Sample ID: 280-57846-7
Client Matrix: Solid

% Moisture: 0.9

Date Sampled: 07/16/2014 0841
Date Received: 07/17/2014 0910

8081A Organochlorine Pesticides (GC)

Analysis Method:	8081A	Analysis Batch:	280-235763	Instrument ID:	SGC_P1
Prep Method:	3550C	Prep Batch:	280-235113	Initial Weight/Volume:	32.1 g
Dilution:	1.0			Final Weight/Volume:	10 mL
Analysis Date:	07/24/2014 2144			Injection Volume:	1 uL
Prep Date:	07/21/2014 1100			Result Type:	PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
4,4'-DDD		0.52	U	0.52	1.6
4,4'-DDE		0.22	U	0.22	1.6
4,4'-DDT		0.56	U	0.56	1.6
Aldrin		0.24	U	0.24	1.6
alpha-BHC		0.20	U	0.20	1.6
beta-BHC		0.63	U	0.63	1.6
delta-BHC		0.38	U	0.38	1.6
gamma-BHC (Lindane)		0.44	U	0.44	1.6
Heptachlor		0.20	U	0.20	1.6
Heptachlor epoxide		0.40	U	0.40	1.6
Endosulfan I		0.17	U	0.17	1.6
Endosulfan II		0.27	U	0.27	1.6
Endosulfan sulfate		0.26	U	0.26	1.6
Endrin		0.29	U	0.29	1.6
Endrin aldehyde		0.16	U	0.16	1.6
Endrin ketone		0.46	U	0.46	1.6
gamma-Chlordane		0.25	U	0.25	1.6
Methoxychlor		0.42	U	0.42	3.1
alpha-Chlordane		0.30	U	0.30	1.6
Dieldrin		0.20	U	0.20	1.6
Toxaphene		15	U J	15	160

Surrogate	%Rec	Qualifier	Acceptance Limits
Tetrachloro-m-xylene	94		59 - 115
Decachlorobiphenyl	95		63 - 124

8/4/14

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-57846-1
Sdg Number: JP0833

Client Sample ID: **J1TWC1**

Lab Sample ID: 280-57846-8
Client Matrix: Solid

% Moisture: 1.0

Date Sampled: 07/16/2014 0900
Date Received: 07/17/2014 0910

8081A Organochlorine Pesticides (GC)

Analysis Method:	8081A	Analysis Batch:	280-235763	Instrument ID:	SGC_P1
Prep Method:	3550C	Prep Batch:	280-235113	Initial Weight/Volume:	30.0 g
Dilution:	1.0			Final Weight/Volume:	10 mL
Analysis Date:	07/24/2014 2201			Injection Volume:	1 uL
Prep Date:	07/21/2014 1100			Result Type:	PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
4,4'-DDD		0.55	U	0.55	1.7
4,4'-DDE		0.24	U	0.24	1.7
4,4'-DDT		0.60	U	0.60	1.7
Aldrin		0.25	U	0.25	1.7
alpha-BHC		0.22	U	0.22	1.7
beta-BHC		0.67	U	0.67	1.7
delta-BHC		0.40	U	0.40	1.7
gamma-BHC (Lindane)		0.47	U	0.47	1.7
Heptachlor		0.22	U	0.22	1.7
Heptachlor epoxide		0.43	U	0.43	1.7
Endosulfan I		0.18	U	0.18	1.7
Endosulfan II		0.29	U	0.29	1.7
Endosulfan sulfate		0.28	U	0.28	1.7
Endrin		0.31	U	0.31	1.7
Endrin aldehyde		0.17	U	0.17	1.7
Endrin ketone		0.49	U	0.49	1.7
gamma-Chlordane		0.27	U	0.27	1.7
Methoxychlor		0.45	U	0.45	3.3
alpha-Chlordane		0.33	U	0.33	1.7
Dieldrin		0.21	U	0.21	1.7
Toxaphene		16	U J	16	170

Surrogate	%Rec	Qualifier	Acceptance Limits
Tetrachloro-m-xylene	94		59 - 115
Decachlorobiphenyl	93		63 - 124

K 8/6/14

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-57846-1
Sdg Number: JP0833

Client Sample ID: **J1TWC2**

Lab Sample ID: 280-57846-9
Client Matrix: Solid
% Moisture: 0.9

Date Sampled: 07/16/2014 0907
Date Received: 07/17/2014 0910

8081A Organochlorine Pesticides (GC)

Analysis Method:	8081A	Analysis Batch:	280-235763	Instrument ID:	SGC_P1
Prep Method:	3550C	Prep Batch:	280-235113	Initial Weight/Volume:	31.1 g
Dilution:	1.0			Final Weight/Volume:	10 mL
Analysis Date:	07/24/2014 2219			Injection Volume:	1 uL
Prep Date:	07/21/2014 1100			Result Type:	PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
4,4'-DDD		0.53	U	0.53	1.7
4,4'-DDE		0.23	U	0.23	1.7
4,4'-DDT		0.57	U	0.57	1.7
Aldrin		0.24	U	0.24	1.6
alpha-BHC		0.21	U	0.21	1.6
beta-BHC		0.65	U	0.65	1.6
delta-BHC		0.39	U	0.39	1.6
gamma-BHC (Lindane)		0.45	U	0.45	1.6
Heptachlor		0.21	U	0.21	1.6
Heptachlor epoxide		0.41	U	0.41	1.6
Endosulfan I		0.17	U	0.17	1.6
Endosulfan II		0.28	U	0.28	1.7
Endosulfan sulfate		0.27	U	0.27	1.7
Endrin		0.30	U	0.30	1.7
Endrin aldehyde		0.17	U	0.17	1.7
Endrin ketone		0.48	U	0.48	1.7
gamma-Chlordane		0.26	U	0.26	1.7
Methoxychlor		0.44	U	0.44	3.2
alpha-Chlordane		0.31	U	0.31	1.7
Dieldrin		0.20	U	0.20	1.7
Toxaphene		15	U J	15	160

Surrogate	%Rec	Qualifier	Acceptance Limits
Tetrachloro-m-xylene	92		59 - 115
Decachlorobiphenyl	96		63 - 124

8/6/14

Client: Washington Closure Hanford

Job Number: 280-57846-1
Sdg Number: JP0833

Client Sample ID: **J1TWC3**

Lab Sample ID: 280-57846-10
Client Matrix: Solid
% Moisture: 1.9

Date Sampled: 07/16/2014 0915
Date Received: 07/17/2014 0910

8081A Organochlorine Pesticides (GC)

Analysis Method:	8081A	Analysis Batch:	280-235763	Instrument ID:	SGC_P1
Prep Method:	3550C	Prep Batch:	280-235113	Initial Weight/Volume:	32.4 g
Dilution:	1.0			Final Weight/Volume:	10 mL
Analysis Date:	07/24/2014 2236			Injection Volume:	1 uL
Prep Date:	07/21/2014 1100			Result Type:	PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
4,4'-DDD		0.52	U	0.52	1.6
4,4'-DDE		0.22	U	0.22	1.6
4,4'-DDT		0.56	U	0.56	1.6
Aldrin		0.24	U	0.24	1.6
alpha-BHC		0.20	U	0.20	1.6
beta-BHC		0.63	U	0.63	1.6
delta-BHC		0.38	U	0.38	1.6
gamma-BHC (Lindane)		0.44	U	0.44	1.6
Heptachlor		0.20	U	0.20	1.6
Heptachlor epoxide		0.40	U	0.40	1.6
Endosulfan I		0.17	U	0.17	1.6
Endosulfan II		0.27	U	0.27	1.6
Endosulfan sulfate		0.26	U	0.26	1.6
Endrin		0.29	U	0.29	1.6
Endrin aldehyde		0.16	U	0.16	1.6
Endrin ketone		0.46	U	0.46	1.6
gamma-Chlordane		0.25	U	0.25	1.6
Methoxychlor		0.42	U	0.42	3.1
alpha-Chlordane		0.30	U	0.30	1.6
Dieldrin		0.20	U	0.20	1.6
Toxaphene		15	U J	15	160

Surrogate	%Rec	Qualifier	Acceptance Limits
Tetrachloro-m-xylene	92		59 - 115
Decachlorobiphenyl	93		63 - 124

8/6/14

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-57846-1
Sdg Number: JP0833

Client Sample ID: **J1TWC4**

Lab Sample ID: 280-57846-11
Client Matrix: Solid
% Moisture: 1.5

Date Sampled: 07/16/2014 0927
Date Received: 07/17/2014 0910

8081A Organochlorine Pesticides (GC)

Analysis Method:	8081A	Analysis Batch:	280-235763	Instrument ID:	SGC_P1
Prep Method:	3550C	Prep Batch:	280-235113	Initial Weight/Volume:	31.2 g
Dilution:	1.0			Final Weight/Volume:	10 mL
Analysis Date:	07/24/2014 2254			Injection Volume:	1 uL
Prep Date:	07/21/2014 1100			Result Type:	PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
4,4'-DDD		0.53	U	0.53	1.7
4,4'-DDE		0.23	U	0.23	1.7
4,4'-DDT		0.58	U	0.58	1.7
Aldrin		0.24	U	0.24	1.6
alpha-BHC		0.21	U	0.21	1.6
beta-BHC		0.65	U	0.65	1.6
delta-BHC		0.39	U	0.39	1.6
gamma-BHC (Lindane)		0.45	U	0.45	1.6
Heptachlor		0.21	U	0.21	1.6
Heptachlor epoxide		0.42	U	0.42	1.6
Endosulfan I		0.17	U	0.17	1.6
Endosulfan II		0.28	U	0.28	1.7
Endosulfan sulfate		0.27	U	0.27	1.7
Endrin		0.30	U	0.30	1.7
Endrin aldehyde		0.17	U	0.17	1.7
Endrin ketone		0.48	U	0.48	1.7
gamma-Chlordane		0.26	U	0.26	1.7
Methoxychlor		0.44	U	0.44	3.2
alpha-Chlordane		0.32	U	0.32	1.7
Dieldrin		0.20	U	0.20	1.7
Toxaphene		15	U J	15	160

Surrogate	%Rec	Qualifier	Acceptance Limits
Tetrachloro-m-xylene	90		59 - 115
Decachlorobiphenyl	93		63 - 124

8/6/14

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-57846-1
Sdg Number: JP0833

Client Sample ID: **J1TWC5**

Lab Sample ID: 280-57846-12
Client Matrix: Solid

% Moisture: 0.7

Date Sampled: 07/16/2014 0937
Date Received: 07/17/2014 0910

8081A Organochlorine Pesticides (GC)

Analysis Method:	8081A	Analysis Batch:	280-235763	Instrument ID:	SGC_P1
Prep Method:	3550C	Prep Batch:	280-235113	Initial Weight/Volume:	31.5 g
Dilution:	1.0			Final Weight/Volume:	10 mL
Analysis Date:	07/24/2014 2311			Injection Volume:	1 uL
Prep Date:	07/21/2014 1100			Result Type:	PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
4,4'-DDD		0.52	U	0.52	1.6
4,4'-DDE		0.23	U	0.23	1.6
4,4'-DDT		0.57	U	0.57	1.6
Aldrin		0.24	U	0.24	1.6
alpha-BHC		0.21	U	0.21	1.6
beta-BHC		0.64	U	0.64	1.6
delta-BHC		0.38	U	0.38	1.6
gamma-BHC (Lindane)		0.45	U	0.45	1.6
Heptachlor		0.21	U	0.21	1.6
Heptachlor epoxide		0.41	U	0.41	1.6
Endosulfan I		0.17	U	0.17	1.6
Endosulfan II		0.28	U	0.28	1.6
Endosulfan sulfate		0.26	U	0.26	1.6
Endrin		0.29	U	0.29	1.6
Endrin aldehyde		0.16	U	0.16	1.6
Endrin ketone		0.47	U	0.47	1.6
gamma-Chlordane		0.26	U	0.26	1.6
Methoxychlor		0.43	U	0.43	3.2
alpha-Chlordane		0.31	U	0.31	1.6
Dieldrin		0.20	U	0.20	1.6
Toxaphene		15	U J	15	160

Surrogate	%Rec	Qualifier	Acceptance Limits
Tetrachloro-m-xylene	81		59 - 115
Decachlorobiphenyl	82		63 - 124

K 8/6/14

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-57846-1
Sdg Number: JP0833

Client Sample ID: **J1TWC6**

Lab Sample ID: 280-57846-13
Client Matrix: Solid

% Moisture: 1.0

Date Sampled: 07/16/2014 0841
Date Received: 07/17/2014 0910

8081A Organochlorine Pesticides (GC)

Analysis Method:	8081A	Analysis Batch:	280-235763	Instrument ID:	SGC_P1
Prep Method:	3550C	Prep Batch:	280-235113	Initial Weight/Volume:	31.3 g
Dilution:	1.0			Final Weight/Volume:	10 mL
Analysis Date:	07/24/2014 2329			Injection Volume:	1 uL
Prep Date:	07/21/2014 1100			Result Type:	PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
4,4'-DDD		0.53	U	0.53	1.6
4,4'-DDE		0.23	U	0.23	1.6
4,4'-DDT		0.57	U	0.57	1.6
Aldrin		0.24	U	0.24	1.6
alpha-BHC		0.21	U	0.21	1.6
beta-BHC		0.64	U	0.64	1.6
delta-BHC		0.39	U	0.39	1.6
gamma-BHC (Lindane)		0.45	U	0.45	1.6
Heptachlor		0.21	U	0.21	1.6
Heptachlor epoxide		0.41	U	0.41	1.6
Endosulfan I		0.17	U	0.17	1.6
Endosulfan II		0.28	U	0.28	1.6
Endosulfan sulfate		0.27	U	0.27	1.6
Endrin		0.30	U	0.30	1.6
Endrin aldehyde		0.17	U	0.17	1.6
Endrin ketone		0.47	U	0.47	1.6
gamma-Chlordane		0.26	U	0.26	1.6
Methoxychlor		0.44	U	0.44	3.2
alpha-Chlordane		0.31	U	0.31	1.6
Dieldrin		0.20	U	0.20	1.6
Toxaphene		15	U J	15	160

Surrogate	%Rec	Qualifier	Acceptance Limits
Tetrachloro-m-xylene	90		59 - 115
Decachlorobiphenyl	85		63 - 124

8/6/14

Appendix 4

Laboratory Narrative and Chain-of-Custody Documentation

CASE NARRATIVE

Client: Washington Closure Hanford

Project: WASHINGTON CLOSURE HANFORD

Report Number: 280-57846-1

SDG #: JP0833
SAF#: RC-075

Date SDG Closed: July 17, 2014
Data Deliverable: 7 Day / Summary

CLIENT ID	LAB ID	ANALYSES REQUESTED	ANALYSES PERFORMED
J1TW94	280-57846-1	6010/7471/9056M/353.2/8270A/8310/8082/8081	6010B/7471A/9056M/353.2/8270C/8310/8082/8081A
J1TW95	280-57846-2	6010/7471/9056M/353.2/8270A/8310/8082/8081	6010B/7471A/9056M/353.2/8270C/8310/8082/8081A
J1TW96	280-57846-3	6010/7471/9056M/353.2/8270A/8310/8082/8081	6010B/7471A/9056M/353.2/8270C/8310/8082/8081A
J1TW97	280-57846-4	6010/7471/9056M/353.2/8270A/8310/8082/8081	6010B/7471A/9056M/353.2/8270C/8310/8082/8081A
J1TW98	280-57846-5	6010/7471/9056M/353.2/8270A/8310/8082/8081	6010B/7471A/9056M/353.2/8270C/8310/8082/8081A
J1TW99	280-57846-6	6010/7471/9056M/353.2/8270A/8310/8082/8081	6010B/7471A/9056M/353.2/8270C/8310/8082/8081A
J1TWC0	280-57846-7	6010/7471/9056M/353.2/8270A/8310/8082/8081	6010B/7471A/9056M/353.2/8270C/8310/8082/8081A
J1TWC1	280-57846-8	6010/7471/9056M/353.2/8270A/8310/8082/8081	6010B/7471A/9056M/353.2/8270C/8310/8082/8081A
J1TWC2	280-57846-9	6010/7471/9056M/353.2/8270A/8310/8082/8081	6010B/7471A/9056M/353.2/8270C/8310/8082/8081A
J1TWC3	280-57846-10	6010/7471/9056M/353.2/8270A/8310/8082/8081	6010B/7471A/9056M/353.2/8270C/8310/8082/8081A
J1TWC4	280-57846-11	6010/7471/9056M/353.2/8270A/8310/8082/8081	6010B/7471A/9056M/353.2/8270C/8310/8082/8081A
J1TWC5	280-57846-12	6010/7471/9056M/353.2/8270A/8310/8082/8081	6010B/7471A/9056M/353.2/8270C/8310/8082/8081A
J1TWC6	280-57846-13	6010/7471/9056M/353.2/8270A/8310/8082/8081	6010B/7471A/9056M/353.2/8270C/8310/8082/8081A
J1TWC7	280-57846-14	6010/7471/8270A	6010B/7471A/8270C

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

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

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

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

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

RECEIPT
The samples were received on 7/17/2014 9:10 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 3 coolers at receipt time were 0.7° C, 2.6° C and 3.7° C.

GC/MS SEMIVOLATILES - SW846 8270C
The MS/MSD performed on sample J1TW97 exhibited percent recoveries outside the control limits for 2,4-Dinitrophenol, and the associated sample result has been flagged "T". The acceptable LCS analysis data indicated that the analytical system was operating within control; therefore, corrective action is deemed unnecessary.

No other anomalies were encountered.

GC SEMIVOLATILES - SW846 8081A - Pesticides
No anomalies were encountered.

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

HPLC - SW846 8310 - PAHs
The MS aliquot of the MS/MSD performed on sample J1TW95 exhibited a percent recovery outside the control limits for Benzo[b]fluoranthene, and the associated sample result has been flagged "N". The acceptable LCS analysis data indicated that the analytical system was operating within control; therefore, corrective action is deemed unnecessary.

No other anomalies were encountered.

TOTAL METALS - SW846 6010B/7471A
Serial dilution of a digestate in batch 280-234933 indicates that physical and chemical interferences are present for several elements. Results have been flagged with an "X".

Each sample is analyzed to achieve the lowest possible reporting limits within the constraints of the methods. Samples J1TW94 and J1TW98 required a 5X dilution prior to the analysis of Antimony, Beryllium, Cobalt, Copper, Lead and Vanadium to minimize the interference caused by Titanium concentrations greater than the linear range. The reporting limits have been adjusted relative to the dilution required.

Low levels of Chromium, Copper and Zinc are present in the method blank associated with batch 280-234933. Because the concentrations in the method blank are not present at levels greater than half the reporting limit, corrective action is deemed unnecessary.

It can be noted that the sample amount was greater than four times the spike amount for Aluminum, Iron and Manganese in the Matrix Spike performed on sample J1TW94; therefore, control limits are not applicable.

The Matrix Spike performed on sample J1TW94 exhibited percent recoveries outside the control limits for Silicon and Beryllium, and the associated sample results have 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.

The duplicate analysis of sample J1TW94 exhibited RPD data outside the control limits for Molybdenum, and the associated sample result has been flagged "M". There is no indication that the analytical system was operating out of control, and method accuracy has been verified by the acceptable LCS analysis data; therefore, corrective action is deemed unnecessary.

No other anomalies were encountered.

GENERAL CHEMISTRY - MCAWW 353.2 - NITRATE NITRITE as N
The Matrix Spike performed on sample J1TW99 exhibited the percent recovery outside the control limits, 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 - SW846 9056M - ANIONS
Sulfate and Chloride are present in the method blank associated with batch 280-235280 at 6.77 mg/kg and 7.12 mg/kg, respectively, which is greater than half the project specific reporting limit (PSRL) of 5 mg/kg. TestAmerica's practical quantitation limit (PQL) for Sulfate is 50 mg/kg and Chloride is 30 mg/kg. The laboratory cannot maintain system cleanliness at this low level; therefore, corrective action is not initiated. It can be noted that the concentrations found in the method blank are less than half of the laboratory standard PQLs.

The Matrix Spike performed on sample J1TW94 exhibited the percent recovery outside the control limits for Fluoride, 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.

The duplicate analysis of sample J1TW94 exhibited RPD data outside the control limits for Chloride and Sulfate, and the associated sample results have been flagged "M". There is no indication that the analytical system was operating out of control, and method accuracy has been verified by the acceptable LCS analysis data; therefore, corrective action is deemed unnecessary.

No other anomalies were encountered.

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-075-438	Page 1 of 3

Collector: H. Weber	Company Contact: Joan Kessner	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Price Code	Data Turnaround: 7days		
Project Designation: 100-D/DR Field Remediation	Sampling Location: 100-D-106, Verification, stockpile area		SAF No.: RC-075
Ice Chest No.: RCC-07-011, -009, -006	Field Logbook No.: EL-1662-02	COA: 01D1062000	Method of Shipment: Commercial Carrier / FED Ex
Shipped To: TestAmerica Denver	Offsite Property No.: A131165		Bill of Lading/Air Bill No.: See OSPC
Other Labs Shipped To: TestAmerica Richland			

POSSIBLE SAMPLE HAZARDS/REMARKS
None

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C				
Type of Container	G/P	G/P	aG	aG	aG	aG				
No. of Container(s)	1	1	1	1	1	1				
Volume	250mL	250mL	250mL	250mL	250mL	250mL				
Sample Analysis	See Item (1) in Special Instructions	IC Anions - 9056 Modified; NO2/NO3 - 353.2	Semi-VOA - 8270A (TCL)	PAHs - 8310	PCBs - 8082	Pesticides - 8081				

Sample No.	Matrix	Sample Date	Sample Time										
J1TW94	SOIL	7/16/14	0745	✓	✓	✓	✓	✓	✓				
J1TW95	SOIL	7/16/14	0807	✓	✓	✓	✓	✓	✓				
J1TW96	SOIL	7/16/14	0800	✓	✓	✓	✓	✓	✓				
J1TW97	SOIL	7/16/14	0757	✓	✓	✓	✓	✓	✓				
J1TW98	SOIL	7/16/14	0820	✓	✓	✓	✓	✓	✓				

Page 173 of 195

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Heather Weber / [signature]	07/16/14 0949	R. Fahlberg / R. Fahlberg	0949 7-16-14
R. Fahlberg / R. Fahlberg	1115 7-16-14	Fed Ex	
[signature]	0910 7/17/14	Fed Ex	
[signature]		[signature]	0910 7/17/14

FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

WCH-EE-011

SPECIAL INSTRUCTIONS

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

REVIEWED BY K. Woodson via email
DATE 7/16/14

JP0833

2.3, 0.4, 3.4 IR4 +3 MS 7-17-14

Washington Closure Hanford

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

RC-075-438

Collector: W. Weber	Company Contact: Joan Kessner	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Price Code:	Data Turnaround: 7days		
Project Designation: 100-D/DR Field Remediation	Sampling Location: 100-D-106, Verification, stockpile area		SAF No.: RC-075
Ice Chest No.: RCC-07-011, -009, -006	Field Logbook No.: EL-1662-02	COA: 01D1062000	Method of Shipment: Commercial Carrier / FED Ex
Shipped To: TestAmerica Denver	Offsite Property No.: A131165		Bill of Lading/Air Bill No.: See OSPC
Other Labs Shipped To: TestAmerica Richland			

POSSIBLE SAMPLE HAZARDS/REMARKS

None

Special Handling and/or Storage

Sample No.	Matrix	Sample Date	Sample Time	Preservation: Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C				
				Type of Container: G/P	G/P	aG	aG	aG	aG				
				No. of Container(s): 1	1	1	1	1	1				
				Volume: 250mL	250mL	250mL	250mL	250mL	250mL				
				Sample Analysis: See item (1) in Special Instructions	IC Anions - 9056 Modified; NO2/NO3 - 353.2	Semi-VOA - 8270A (TCL)	PAHs - 8310	PCBs - 8082	Pesticides - 8081				
J1TW99	SOIL	7/16/14	0830	✓	✓	✓	✓	✓	✓				
J1TWC0	SOIL	7/16/14	0841	✓	✓	✓	✓	✓	✓				
J1TWC1	SOIL	7/16/14	0900	✓	✓	✓	✓	✓	✓				
J1TWC2	SOIL	7/16/14	0907	✓	✓	✓	✓	✓	✓				
J1TWC3	SOIL	7/16/14	0915	✓	✓	✓	✓	✓	✓				

Page 1 of 1

CHAIN OF POSSESSION

Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Heather Weber / [signature]	07/16/14 0949	R. Fehlber / R. Felder	0949 7-16-14
R. Fehlber / R. Felder	1115 7-16-14	Fed Ex	
[signature]	7/17/14 0910	FedEx	
[signature]	0910 7/17/14		

FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

SPECIAL INSTRUCTIONS

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

REVIEWED BY K. Wood via email DATE 7/16/14

JP0833

WCH-EE-011

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-075-438	Page 3 of 3

Collector: N. Weber	Company Contact: Joan Kessner	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Price Code	Data Turnaround: 7 days		
Project Designation: 100-D/DR Field Remediation	Sampling Location: 100-D-106, Verification, stockpile area		SAF No.: RC-075
Ice Chest No.: RCC-07-011, -009, -006	Field Logbook No.: EL-1662-02	COA: 01D1062000	Method of Shipment: Commercial Carrier / FedEx
Shipped To: TestAmerica Denver	Offsite Property No.: A131165		Bill of Lading/Air Bill No.: See OSPC
Other Labs Shipped To: TestAmerica Richland			

POSSIBLE SAMPLE HAZARDS/REMARKS
None

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C				
Type of Container	G/P	G/P	aG	aG	aG	aG				
No. of Container(s)	1	1	1	1	1	1				
Volume	250mL	250mL	250mL	250mL	250mL	250mL				
Sample Analysis	See item (1) in Special Instructions	IC Anions - 9056 Modified; NO2/NO3 - 353.2	Semi-VOA - 8270A (TCL)	PAHs - 8310	PCBs - 8082	Pesticides - 8081				

Sample No.	Matrix	Sample Date	Sample Time										
J1TWC4	SOIL	7/16/14	0927	✓	✓	✓	✓	✓	✓				
J1TWC5	SOIL	7/16/14	0937	✓	✓	✓	✓	✓	✓				
J1TWC6	SOIL	7/16/14	0941	✓	✓	✓	✓	✓	✓				
J1TWC7	SOIL	7/16/14	0735	✓		✓							

CHAIN OF POSSESSION	Date/Time	Sign/Print Names: Received By/Stored In	Date/Time
Relinquished By/Removed From: Heather Weber	07/16/14 0949	R. Fehlberg	0949 7-16-14
Relinquished By/Removed From: R. Fehlberg	1115 7-16-14	Received By/Stored In: Fed Ex	
Relinquished By/Removed From:	0910 7/17/14	Received By/Stored In: Fed Ex	
Relinquished By/Removed From: (RC)		Received By/Stored In:	0910 7/17/14
Relinquished By/Removed From		Received By/Stored In	
Relinquished By/Removed From		Received By/Stored In	
Relinquished By/Removed From		Received By/Stored In	

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

SPECIAL INSTRUCTIONS

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

REVIEWED BY K. Wood/VK email
DATE 7/16/14

JP0833

WCH-EE-011

Page 1 of 1

Appendix 5

Data Validation Supporting Documentation

PCB DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	E
PROJECT: 100-D-106			DATA PACKAGE: JP0833		
VALIDATOR: ELR		LAB: TAL		DATE: 8/4/13	
			SDG: JP0833		
ANALYSES PERFORMED					
SW-846 8081	SW-846 8081 (TCLP)	SW-846 8082	SW-846 8081 (TCLP)		
SAMPLES/MATRIX					
J1TW94	J1TW95	J1TW96	J1TW97		
J1TW98	J1TW99	J1TW00	J1TW01		
J1TW02	J1TW03	J1TW04	J1TW05		
J1TW06					
				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: toxaph - NO MS/MSD/LCS - J all

no PAs

PCB DATA VALIDATION CHECKLIST

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

Duplicate RPD values acceptable? ..... Yes No N/A

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

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

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

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

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

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

Comments: _____

6. SYSTEM PERFORMANCE (Levels D and E)

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

Positive results resolved acceptably? ..... Yes No N/A

Comments: _____

7. HOLDING TIMES (all levels)

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

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

Comments: _____

PCB DATA VALIDATION CHECKLIST

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

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

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

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

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

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

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

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

Comments:

9. SAMPLE CLEANUP (Levels D and E)

Fluoricil ® (or other absorbent) cleanup performed? ..... Yes No N/A

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

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

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

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

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

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

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

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

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

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

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

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

Comments:

Appendix 6

Additional Documentation Requested by Client

Client: Washington Closure Hanford

Job Number: 280-57846-1
Sdg Number: JP0833

Method Blank - Batch: 280-234968

Method: 8082
Preparation: 3550C

Lab Sample ID:	MB 280-234968/1-A	Analysis Batch:	280-235269	Instrument ID:	SGC_W
Client Matrix:	Solid	Prep Batch:	280-234968	Lab File ID:	07221404.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	31.6 g
Analysis Date:	07/22/2014 1022	Units:	ug/Kg	Final Weight/Volume:	5 mL
Prep Date:	07/18/2014 1620			Injection Volume:	1 uL
Leach Date:	N/A			Column ID:	PRIMARY

Analyte	Result	Qual	MDL	RL
Aroclor 1016	2.6	U	2.6	9.5
Aroclor 1221	7.6	U	7.6	16
Aroclor 1232	1.9	U	1.9	9.5
Aroclor 1242	4.4	U	4.4	9.5
Aroclor 1248	4.4	U	4.4	9.5
Aroclor 1254	2.5	U	2.5	9.5
Aroclor 1260	2.5	U	2.5	9.5

Surrogate	% Rec	Acceptance Limits
Decachlorobiphenyl	85	59 - 130
Tetrachloro-m-xylene	73	53 - 128

Lab Control Sample - Batch: 280-234968

Method: 8082
Preparation: 3550C

Lab Sample ID:	LCS 280-234968/2-A	Analysis Batch:	280-235269	Instrument ID:	SGC_W
Client Matrix:	Solid	Prep Batch:	280-234968	Lab File ID:	07221405.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	32.4 g
Analysis Date:	07/22/2014 1046	Units:	ug/Kg	Final Weight/Volume:	5 mL
Prep Date:	07/18/2014 1620			Injection Volume:	1 uL
Leach Date:	N/A			Column ID:	PRIMARY

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Aroclor 1016	30.9	27.3	88	54 - 132	
Aroclor 1260	30.9	29.0	94	62 - 129	

Surrogate	% Rec	Acceptance Limits
Decachlorobiphenyl	86	59 - 130
Tetrachloro-m-xylene	80	53 - 128

Client: Washington Closure Hanford

Job Number: 280-57846-1
Sdg Number: JP0833

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-234968

Method: 8082
Preparation: 3550C

MS Lab Sample ID:	280-57846-1	Analysis Batch:	280-235269	Instrument ID:	SGC_W
Client Matrix:	Solid	Prep Batch:	280-234968	Lab File ID:	07221407.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	30.7 g
Analysis Date:	07/22/2014 1133			Final Weight/Volume:	5 mL
Prep Date:	07/18/2014 1620			Injection Volume:	1 uL
Leach Date:	N/A			Column ID:	PRIMARY

MSD Lab Sample ID:	280-57846-1	Analysis Batch:	280-235269	Instrument ID:	SGC_W
Client Matrix:	Solid	Prep Batch:	280-234968	Lab File ID:	07221408.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	30.9 g
Analysis Date:	07/22/2014 1157			Final Weight/Volume:	5 mL
Prep Date:	07/18/2014 1620			Injection Volume:	1 uL
Leach Date:	N/A			Column ID:	PRIMARY

Analyte	% Rec. MS	% Rec. MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
Aroclor 1016	96	97	54 - 132	0	26		
Aroclor 1260	100	105	62 - 129	4	26		

Surrogate	MS % Rec	MSD % Rec	Acceptance Limits
Decachlorobiphenyl	84	85	59 - 130
Tetrachloro-m-xylene	86	85	53 - 128

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-234968

Method: 8082
Preparation: 3550C

MS Lab Sample ID:	280-57846-1	Units:	ug/Kg	MSD Lab Sample ID:	280-57846-1
Client Matrix:	Solid			Client Matrix:	Solid
Dilution:	1.0			Dilution:	1.0
Analysis Date:	07/22/2014 1133			Analysis Date:	07/22/2014 1157
Prep Date:	07/18/2014 1620			Prep Date:	07/18/2014 1620
Leach Date:	N/A			Leach Date:	N/A

Analyte	Sample Result/Qual		MS Spike Amount	MSD Spike Amount	MS Result/Qual	MSD Result/Qual
Aroclor 1016	2.6	U	33.0	32.8	31.6	31.8
Aroclor 1260	2.4	U	33.0	32.8	33.0	34.3

Quality Control Results

Client: Washington Closure Hanford

Job Number: 280-57846-1
Sdg Number: JP0833

Method Blank - Batch: 280-235113

Method: 8081A
Preparation: 3550C

Lab Sample ID:	MB 280-235113/1-A	Analysis Batch:	280-235616	Instrument ID:	SGC_P1
Client Matrix:	Solid	Prep Batch:	280-235113	Lab File ID:	07230038.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	30.5 g
Analysis Date:	07/23/2014 2253	Units:	ug/Kg	Final Weight/Volume:	10 mL
Prep Date:	07/21/2014 1100			Injection Volume:	1 uL
Leach Date:	N/A			Column ID:	PRIMARY

Analyte	Result	Qual	MDL	RL
4,4'-DDD	0.54	U	0.54	1.7
4,4'-DDE	0.23	U	0.23	1.7
4,4'-DDT	0.58	U	0.58	1.7
Aldrin	0.25	U	0.25	1.6
alpha-BHC	0.21	U	0.21	1.6
beta-BHC	0.65	U	0.65	1.6
delta-BHC	0.39	U	0.39	1.6
gamma-BHC (Lindane)	0.46	U	0.46	1.6
Heptachlor	0.21	U	0.21	1.6
Heptachlor epoxide	0.42	U	0.42	1.6
Endosulfan I	0.17	U	0.17	1.6
Endosulfan II	0.28	U	0.28	1.7
Endosulfan sulfate	0.27	U	0.27	1.7
Endrin	0.30	U	0.30	1.7
Endrin aldehyde	0.17	U	0.17	1.7
Endrin ketone	0.48	U	0.48	1.7
gamma-Chlordane	0.26	U	0.26	1.7
Methoxychlor	0.44	U	0.44	3.2
alpha-Chlordane	0.32	U	0.32	1.7
Dieldrin	0.21	U	0.21	1.7
Toxaphene	16	U	16	160

Surrogate	% Rec	Acceptance Limits
Tetrachloro-m-xylene	91	59 - 115
Decachlorobiphenyl	108	63 - 124

Client: Washington Closure Hanford

Job Number: 280-57846-1
Sdg Number: JP0833

Lab Control Sample - Batch: 280-235113

Method: 8081A
Preparation: 3550C

Lab Sample ID:	LCS 280-235113/2-A	Analysis Batch:	280-235616	Instrument ID:	SGC_P1
Client Matrix:	Solid	Prep Batch:	280-235113	Lab File ID:	07230039.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	31.1 g
Analysis Date:	07/23/2014 2310	Units:	ug/Kg	Final Weight/Volume:	10 mL
Prep Date:	07/21/2014 1100			Injection Volume:	1 uL
Leach Date:	N/A			Column ID:	PRIMARY

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
4,4'-DDD	16.1	16.1	100	69 - 126	
4,4'-DDE	16.1	15.9	99	71 - 116	
4,4'-DDT	16.1	15.2	95	67 - 132	
Aldrin	16.1	15.2	94	69 - 116	
alpha-BHC	16.1	15.0	93	65 - 122	
beta-BHC	16.1	12.8	80	62 - 121	
delta-BHC	16.1	14.9	93	67 - 122	
gamma-BHC (Lindane)	16.1	14.6	91	66 - 120	
Heptachlor	16.1	14.4	90	61 - 126	
Heptachlor epoxide	16.1	15.6	97	71 - 119	
Endosulfan I	16.1	14.8	92	67 - 115	
Endosulfan II	16.1	15.5	97	69 - 120	
Endosulfan sulfate	16.1	16.6	103	69 - 126	
Endrin	16.1	14.1	88	69 - 129	
Endrin aldehyde	16.1	14.1	88	41 - 128	
Endrin ketone	16.1	16.0	99	70 - 125	
gamma-Chlordane	16.1	15.4	96	69 - 122	
Methoxychlor	16.1	14.7	92	65 - 139	
alpha-Chlordane	16.1	15.5	97	71 - 118	
Dieldrin	16.1	15.8	98	71 - 120	

Surrogate	% Rec	Acceptance Limits
Tetrachloro-m-xylene	87	59 - 115
Decachlorobiphenyl	102	63 - 124

Client: Washington Closure Hanford

Job Number: 280-57846-1
Sdg Number: JP0833

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-235113

Method: 8081A
Preparation: 3550C

MS Lab Sample ID:	280-57846-3	Analysis Batch:	280-235616	Instrument ID:	SGC_P1
Client Matrix:	Solid	Prep Batch:	280-235113	Lab File ID:	07230043.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	30.7 g
Analysis Date:	07/24/2014 0019			Final Weight/Volume:	10 mL
Prep Date:	07/21/2014 1100			Injection Volume:	1 uL
Leach Date:	N/A			Column ID:	PRIMARY

MSD Lab Sample ID:	280-57846-3	Analysis Batch:	280-235616	Instrument ID:	SGC_P1
Client Matrix:	Solid	Prep Batch:	280-235113	Lab File ID:	07230044.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	30.1 g
Analysis Date:	07/24/2014 0036			Final Weight/Volume:	10 mL
Prep Date:	07/21/2014 1100			Injection Volume:	1 uL
Leach Date:	N/A			Column ID:	PRIMARY

Analyte	% Rec. MS	% Rec. MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
4,4'-DDD	107	111	69 - 126	6	20		
4,4'-DDE	101	103	71 - 116	4	15		
4,4'-DDT	92	94	67 - 132	4	29		
Aldrin	98	102	69 - 116	6	50		
alpha-BHC	98	101	65 - 122	6	17		
beta-BHC	83	86	62 - 121	5	17		
delta-BHC	98	100	67 - 122	5	19		
gamma-BHC (Lindane)	96	99	66 - 120	6	24		
Heptachlor	92	95	61 - 126	5	18		
Heptachlor epoxide	100	103	71 - 119	5	18		
Endosulfan I	95	97	67 - 115	5	26		
Endosulfan II	95	98	69 - 120	5	20		
Endosulfan sulfate	105	108	69 - 126	5	22		
Endrin	96	99	69 - 129	5	30		
Endrin aldehyde	92	95	41 - 128	5	29		
Endrin ketone	98	101	70 - 125	4	20		
gamma-Chlordane	101	103	69 - 122	4	21		
Methoxychlor	87	89	65 - 139	4	23		
alpha-Chlordane	99	101	71 - 118	4	18		
Dieldrin	101	104	71 - 120	5	25		

Surrogate	MS % Rec	MSD % Rec	Acceptance Limits
Tetrachloro-m-xylene	96	101	59 - 115
Decachlorobiphenyl	90	93	63 - 124

Client: Washington Closure Hanford

Job Number: 280-57846-1
Sdg Number: JP0833

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-235113

Method: 8081A
Preparation: 3550C

MS Lab Sample ID:	280-57846-3	Units: ug/Kg	
Client Matrix:	Solid		
Dilution:	1.0		
Analysis Date:	07/24/2014 0019		
Prep Date:	07/21/2014 1100		
Leach Date:	N/A		

MSD Lab Sample ID:	280-57846-3
Client Matrix:	Solid
Dilution:	1.0
Analysis Date:	07/24/2014 0036
Prep Date:	07/21/2014 1100
Leach Date:	N/A

Analyte	Sample Result/Qual		MS Spike Amount	MSD Spike Amount	MS Result/Qual	MSD Result/Qual
4,4'-DDD	0.53	U	16.5	16.8	17.6	18.7
4,4'-DDE	0.23	U	16.5	16.8	16.5	17.3
4,4'-DDT	0.57	U	16.5	16.8	15.2	15.8
Aldrin	0.24	U	16.5	16.8	16.2	17.1
alpha-BHC	0.21	U	16.5	16.8	16.1	17.0
beta-BHC	0.64	U	16.5	16.8	13.7	14.4
delta-BHC	0.39	U	16.5	16.8	16.0	16.9
gamma-BHC (Lindane)	0.45	U	16.5	16.8	15.7	16.7
Heptachlor	0.21	U	16.5	16.8	15.2	16.0
Heptachlor epoxide	0.41	U	16.5	16.8	16.4	17.3
Endosulfan I	0.17	U	16.5	16.8	15.6	16.4
Endosulfan II	0.28	U	16.5	16.8	15.6	16.4
Endosulfan sulfate	0.27	U	16.5	16.8	17.3	18.2
Endrin	0.30	U	16.5	16.8	15.8	16.6
Endrin aldehyde	0.17	U	16.5	16.8	15.1	15.9
Endrin ketone	0.47	U	16.5	16.8	16.2	16.9
gamma-Chlordane	0.26	U	16.5	16.8	16.6	17.3
Methoxychlor	0.44	U	16.5	16.8	14.3	14.9
alpha-Chlordane	0.31	U	16.5	16.8	16.3	17.0
Dieldrin	0.20	U	16.5	16.8	16.6	17.4

Date: 6 August 2014
To: Washington Closure Hanford Inc. (technical representative)
From: ELR Consulting
Project: 100-D/DR Burial Grounds & Remaining Sites – Soil Full Protocol - Waste Site 100-D-106
Subject: Polyromatic Hydrocarbon - Data Package No. JP0833-TAL

INTRODUCTION

This memo presents the results of data validation on Data Package No. JP0833 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
J1TW94	7/16/14	Soil	C	See note 1
J1TW95	7/16/14	Soil	C	See note 1
J1TW96	7/16/14	Soil	C	See note 1
J1TW97	7/16/14	Soil	C	See note 1
J1TW98	7/16/14	Soil	C	See note 1
J1TW99	7/16/14	Soil	C	See note 1
J1TWC0	7/16/14	Soil	C	See note 1
J1TWC1	7/16/14	Soil	C	See note 1
J1TWC2	7/16/14	Soil	C	See note 1
J1TWC3	7/16/14	Soil	C	See note 1
J1TWC4	7/16/14	Soil	C	See note 1
J1TWC5	7/16/14	Soil	C	See note 1
J1TWC6	7/16/14	Soil	C	See note 1

1 – Polyaromatic hydrocarbons by 8310.

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

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

DATA QUALITY OBJECTIVES

· Holding Times

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

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

All holding times were acceptable.

· Method Blanks

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

All method blank results were acceptable.

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

No field blanks were submitted for analysis.

· Accuracy

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

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

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

All accuracy results were acceptable.

Surrogate Recovery

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

All surrogate results were acceptable.

- **Precision**

Matrix Spike/Matrix Spike Duplicate Samples

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

All laboratory results were acceptable.

Field Duplicate Samples

One set of field duplicates (J1TWC0/J1TWC6) were submitted for analysis. Field duplicates are compared using the same criteria as for laboratory duplicates. All field

duplicate results were acceptable.

- **Analytical Detection Levels**

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

- **Completeness**

Data package No. JP0833 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: JP0833	REVIEWER: ELR	Project: 100-D-106	PAGE 1 OF 1
COMMENTS: No qualifiers assigned			

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

Appendix 3

Annotated Laboratory Reports

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-57846-1
Sdg Number: JP0833

Client Sample ID: **J1TW94**

Lab Sample ID: 280-57846-1
Client Matrix: Solid

% Moisture: 1.2

Date Sampled: 07/16/2014 0745
Date Received: 07/17/2014 0910

8310 PAHs (HPLC)

Analysis Method:	8310	Analysis Batch:	280-235349	Instrument ID:	CHHPLC_G
Prep Method:	3550C	Prep Batch:	280-235110	Initial Weight/Volume:	32.5 g
Dilution:	1.0			Final Weight/Volume:	4 mL
Analysis Date:	07/22/2014 1549			Injection Volume:	20 uL
Prep Date:	07/21/2014 1435			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		2.9	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		6.7	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)	77		72 - 115

8/6/14

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-57846-1
Sdg Number: JP0833

Client Sample ID: **J1TW95**

Lab Sample ID: 280-57846-2
Client Matrix: Solid

% Moisture: 1.1

Date Sampled: 07/16/2014 0807
Date Received: 07/17/2014 0910

8310 PAHs (HPLC)

Analysis Method:	8310	Analysis Batch:	280-235349	Instrument ID:	CHHPLC_G
Prep Method:	3550C	Prep Batch:	280-235110	Initial Weight/Volume:	31.7 g
Dilution:	1.0			Final Weight/Volume:	4 mL
Analysis Date:	07/22/2014 1620			Injection Volume:	20 uL
Prep Date:	07/21/2014 1435			Result Type:	PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Acenaphthene		9.6	U	9.6	96
Acenaphthylene		8.6	U	8.6	96
Anthracene		2.9	U	2.9	19
Benzo[a]anthracene		3.1	U	3.1	14
Benzo[a]pyrene		6.1	U	6.1	14
Benzo[b]fluoranthene		4.0	U N	4.0	14
Benzo[g,h,i]perylene		6.9	U	6.9	29
Benzo[k]fluoranthene		3.8	U	3.8	14
Chrysene		4.6	U	4.6	38
Dibenzo(a,h)anthracene		11	U	11	29
Fluoranthene		12	U	12	38
Fluorene		5.1	U	5.1	29
Indeno[1,2,3-cd]pyrene		11	U	11	29
Naphthalene		11	U	11	96
Phenanthrene		11	U	11	38
Pyrene		11	U	11	38

Surrogate	%Rec	Qualifier	Acceptance Limits
Terphenyl-d14 (SUR)	76		72 - 115

8/6/14

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-57846-1
Sdg Number: JP0833

Client Sample ID: **J1TW96**

Lab Sample ID: 280-57846-3
Client Matrix: Solid

% Moisture: 1.0

Date Sampled: 07/16/2014 0800
Date Received: 07/17/2014 0910

8310 PAHs (HPLC)

Analysis Method:	8310	Analysis Batch:	280-235349	Instrument ID:	CHHPLC_G
Prep Method:	3550C	Prep Batch:	280-235110	Initial Weight/Volume:	32.1 g
Dilution:	1.0			Final Weight/Volume:	4 mL
Analysis Date:	07/22/2014 1752			Injection Volume:	20 uL
Prep Date:	07/21/2014 1435			Result Type:	PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Acenaphthene		9.4	U	9.4	94
Acenaphthylene		8.5	U	8.5	94
Anthracene		2.9	U	2.9	19
Benzo[a]anthracene		3.0	U	3.0	14
Benzo[a]pyrene		6.1	U	6.1	14
Benzo[b]fluoranthene		4.0	U	4.0	14
Benzo[g,h,i]perylene		6.8	U	6.8	28
Benzo[k]fluoranthene		3.7	U	3.7	14
Chrysene		4.6	U	4.6	38
Dibenzo(a,h)anthracene		10	U	10	28
Fluoranthene		12	U	12	38
Fluorene		5.0	U	5.0	28
Indeno[1,2,3-cd]pyrene		11	U	11	28
Naphthalene		11	U	11	94
Phenanthrene		11	U	11	38
Pyrene		11	U	11	38

Surrogate	%Rec	Qualifier	Acceptance Limits
Terphenyl-d14 (SUR)	76		72 - 115

8/6/14

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-57846-1
Sdg Number: JP0833

Client Sample ID: **J1TW97**

Lab Sample ID: 280-57846-4
Client Matrix: Solid

% Moisture: 1.1

Date Sampled: 07/16/2014 0751
Date Received: 07/17/2014 0910

8310 PAHs (HPLC)

Analysis Method:	8310	Analysis Batch:	280-235349	Instrument ID:	CHHPLC_G
Prep Method:	3550C	Prep Batch:	280-235110	Initial Weight/Volume:	31.6 g
Dilution:	1.0			Final Weight/Volume:	4 mL
Analysis Date:	07/22/2014 1822			Injection Volume:	20 uL
Prep Date:	07/21/2014 1435			Result Type:	PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Acenaphthene		9.6	U	9.6	96
Acenaphthylene		8.6	U	8.6	96
Anthracene		2.9	U	2.9	19
Benzo[a]anthracene		3.1	U	3.1	14
Benzo[a]pyrene		6.2	U	6.2	14
Benzo[b]fluoranthene		4.0	U	4.0	14
Benzo[g,h,i]perylene		6.9	U	6.9	29
Benzo[k]fluoranthene		3.8	U	3.8	14
Chrysene		4.6	U	4.6	38
Dibenzo(a,h)anthracene		11	U	11	29
Fluoranthene		12	U	12	38
Fluorene		5.1	U	5.1	29
Indeno[1,2,3-cd]pyrene		12	U	12	29
Naphthalene		12	U	12	96
Phenanthrene		12	U	12	38
Pyrene		12	U	12	38

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

8/6/14

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-57846-1
Sdg Number: JP0833

Client Sample ID: **J1TW98**

Lab Sample ID: 280-57846-5
Client Matrix: Solid
% Moisture: 1.2

Date Sampled: 07/16/2014 0820
Date Received: 07/17/2014 0910

8310 PAHs (HPLC)

Analysis Method:	8310	Analysis Batch:	280-235349	Instrument ID:	CHHPLC_G
Prep Method:	3550C	Prep Batch:	280-235110	Initial Weight/Volume:	31.4 g
Dilution:	1.0			Final Weight/Volume:	4 mL
Analysis Date:	07/22/2014 1853			Injection Volume:	20 uL
Prep Date:	07/21/2014 1435			Result Type:	PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Acenaphthene		9.7	U	9.7	97
Acenaphthylene		8.7	U	8.7	97
Anthracene		2.9	U	2.9	19
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	97
Phenanthrene		12	U	12	39
Pyrene		12	U	12	39

Surrogate	%Rec	Qualifier	Acceptance Limits
Terphenyl-d14 (SUR)	75		72 - 115

8/6/14

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-57846-1
Sdg Number: JP0833

Client Sample ID: **J1TW99**

Lab Sample ID: 280-57846-6
Client Matrix: Solid

% Moisture: 1.0

Date Sampled: 07/16/2014 0830
Date Received: 07/17/2014 0910

8310 PAHs (HPLC)

Analysis Method:	8310	Analysis Batch:	280-235349	Instrument ID:	CHHPLC_G
Prep Method:	3550C	Prep Batch:	280-235110	Initial Weight/Volume:	32.4 g
Dilution:	1.0			Final Weight/Volume:	4 mL
Analysis Date:	07/22/2014 1923			Injection Volume:	20 uL
Prep Date:	07/21/2014 1435			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		2.9	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		6.7	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)	75		72 - 115

8/6/14

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-57846-1
Sdg Number: JP0833

Client Sample ID: **J1TWC0**

Lab Sample ID: 280-57846-7
Client Matrix: Solid

% Moisture: 0.9

Date Sampled: 07/16/2014 0841
Date Received: 07/17/2014 0910

8310 PAHs (HPLC)

Analysis Method:	8310	Analysis Batch:	280-235349	Instrument ID:	CHHPLC_G
Prep Method:	3550C	Prep Batch:	280-235110	Initial Weight/Volume:	32.1 g
Dilution:	1.0			Final Weight/Volume:	4 mL
Analysis Date:	07/22/2014 2024			Injection Volume:	20 uL
Prep Date:	07/21/2014 1435			Result Type:	PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Acenaphthene		9.4	U	9.4	94
Acenaphthylene		8.5	U	8.5	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		4.0	U	4.0	14
Benzo[g,h,i]perylene		6.8	U	6.8	28
Benzo[k]fluoranthene		3.7	U	3.7	14
Chrysene		4.6	U	4.6	38
Dibenzo(a,h)anthracene		10	U	10	28
Fluoranthene		12	U	12	38
Fluorene		5.0	U	5.0	28
Indeno[1,2,3-cd]pyrene		11	U	11	28
Naphthalene		11	U	11	94
Phenanthrene		11	U	11	38
Pyrene		11	U	11	38

Surrogate	%Rec	Qualifier	Acceptance Limits
Terphenyl-d14 (SUR)	73		72 - 115

4/6/14

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-57846-1
Sdg Number: JP0833

Client Sample ID: **J1TWC1**

Lab Sample ID: 280-57846-8
Client Matrix: Solid

% Moisture: 1.0

Date Sampled: 07/16/2014 0900
Date Received: 07/17/2014 0910

8310 PAHs (HPLC)

Analysis Method:	8310	Analysis Batch:	280-235349	Instrument ID:	CHHPLC_G
Prep Method:	3550C	Prep Batch:	280-235110	Initial Weight/Volume:	31.3 g
Dilution:	1.0			Final Weight/Volume:	4 mL
Analysis Date:	07/22/2014 2055			Injection Volume:	20 uL
Prep Date:	07/21/2014 1435			Result Type:	PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Acenaphthene		9.7	U	9.7	97
Acenaphthylene		8.7	U	8.7	97
Anthracene		3.0	U	3.0	19
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	97
Phenanthrene		12	U	12	39
Pyrene		12	U	12	39

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

8/6/14

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-57846-1
Sdg Number: JP0833

Client Sample ID: **J1TWC2**

Lab Sample ID: 280-57846-9
Client Matrix: Solid
% Moisture: 0.9

Date Sampled: 07/16/2014 0907
Date Received: 07/17/2014 0910

8310 PAHs (HPLC)

Analysis Method:	8310	Analysis Batch:	280-235349	Instrument ID:	CHHPLC_G
Prep Method:	3550C	Prep Batch:	280-235110	Initial Weight/Volume:	30.0 g
Dilution:	1.0			Final Weight/Volume:	4 mL
Analysis Date:	07/22/2014 2126			Injection Volume:	20 uL
Prep Date:	07/21/2014 1435			Result Type:	PRIMARY

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

Surrogate	%Rec	Qualifier	Acceptance Limits
Terphenyl-d14 (SUR)	77		72 - 115

7/6/14

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-57846-1
Sdg Number: JP0833

Client Sample ID: **J1TWC3**

Lab Sample ID: 280-57846-10
Client Matrix: Solid
% Moisture: 1.9

Date Sampled: 07/16/2014 0915
Date Received: 07/17/2014 0910

8310 PAHs (HPLC)

Analysis Method:	8310	Analysis Batch:	280-235349	Instrument ID:	CHHPLC_G
Prep Method:	3550C	Prep Batch:	280-235110	Initial Weight/Volume:	31.2 g
Dilution:	1.0			Final Weight/Volume:	4 mL
Analysis Date:	07/22/2014 2156			Injection Volume:	20 uL
Prep Date:	07/21/2014 1435			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		4.7	U	4.7	39
Dibenzo(a,h)anthracene		11	U	11	29
Fluoranthene		13	U	13	39
Fluorene		5.2	U	5.2	29
Indeno[1,2,3-cd]pyrene		12	U	12	29
Naphthalene		12	U	12	98
Phenanthrene		12	U	12	39
Pyrene		12	U	12	39

Surrogate	%Rec	Qualifier	Acceptance Limits
Terphenyl-d14 (SUR)	76		72 - 115

4/6/14

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-57846-1
Sdg Number: JP0833

Client Sample ID: **J1TWC4**

Lab Sample ID: 280-57846-11
Client Matrix: Solid
% Moisture: 1.5

Date Sampled: 07/16/2014 0927
Date Received: 07/17/2014 0910

8310 PAHs (HPLC)

Analysis Method:	8310	Analysis Batch:	280-235349	Instrument ID:	CHHPLC_G
Prep Method:	3550C	Prep Batch:	280-235110	Initial Weight/Volume:	32.1 g
Dilution:	1.0			Final Weight/Volume:	4 mL
Analysis Date:	07/22/2014 2227			Injection Volume:	20 uL
Prep Date:	07/21/2014 1435			Result Type:	PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Acenaphthene		9.5	U	9.5	95
Acenaphthylene		8.5	U	8.5	95
Anthracene		2.9	U	2.9	19
Benzo[a]anthracene		3.0	U	3.0	14
Benzo[a]pyrene		6.1	U	6.1	14
Benzo[b]fluoranthene		4.0	U	4.0	14
Benzo[g,h,i]perylene		6.8	U	6.8	28
Benzo[k]fluoranthene		3.7	U	3.7	14
Chrysene		4.6	U	4.6	38
Dibenzo(a,h)anthracene		10	U	10	28
Fluoranthene		12	U	12	38
Fluorene		5.0	U	5.0	28
Indeno[1,2,3-cd]pyrene		11	U	11	28
Naphthalene		11	U	11	95
Phenanthrene		11	U	11	38
Pyrene		11	U	11	38

Surrogate	%Rec	Qualifier	Acceptance Limits
Terphenyl-d14 (SUR)	76		72 - 115

7/21/14

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-57846-1
Sdg Number: JP0833

Client Sample ID: **J1TWC5**

Lab Sample ID: 280-57846-12
Client Matrix: Solid

% Moisture: 0.7

Date Sampled: 07/16/2014 0937
Date Received: 07/17/2014 0910

8310 PAHs (HPLC)

Analysis Method:	8310	Analysis Batch:	280-235349	Instrument ID:	CHHPLC_G
Prep Method:	3550C	Prep Batch:	280-235110	Initial Weight/Volume:	32.0 g
Dilution:	1.0			Final Weight/Volume:	4 mL
Analysis Date:	07/22/2014 2257			Injection Volume:	20 uL
Prep Date:	07/21/2014 1435			Result Type:	PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Acenaphthene		9.4	U	9.4	94
Acenaphthylene		8.5	U	8.5	94
Anthracene		2.9	U	2.9	19
Benzo[a]anthracene		3.0	U	3.0	14
Benzo[a]pyrene		6.1	U	6.1	14
Benzo[b]fluoranthene		4.0	U	4.0	14
Benzo[g,h,i]perylene		6.8	U	6.8	28
Benzo[k]fluoranthene		3.7	U	3.7	14
Chrysene		4.6	U	4.6	38
Dibenzo(a,h)anthracene		10	U	10	28
Fluoranthene		12	U	12	38
Fluorene		5.0	U	5.0	28
Indeno[1,2,3-cd]pyrene		11	U	11	28
Naphthalene		11	U	11	94
Phenanthrene		11	U	11	38
Pyrene		11	U	11	38

Surrogate	%Rec	Qualifier	Acceptance Limits
Terphenyl-d14 (SUR)	76		72 - 115

8/6/14

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-57846-1
Sdg Number: JP0833

Client Sample ID: **J1TWC6**

Lab Sample ID: 280-57846-13
Client Matrix: Solid
% Moisture: 1.0

Date Sampled: 07/16/2014 0841
Date Received: 07/17/2014 0910

8310 PAHs (HPLC)

Analysis Method:	8310	Analysis Batch:	280-235349	Instrument ID:	CHHPLC_G
Prep Method:	3550C	Prep Batch:	280-235110	Initial Weight/Volume:	31.6 g
Dilution:	1.0			Final Weight/Volume:	4 mL
Analysis Date:	07/22/2014 2328			Injection Volume:	20 uL
Prep Date:	07/21/2014 1435			Result Type:	PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Acenaphthene		9.6	U	9.6	96
Acenaphthylene		8.6	U	8.6	96
Anthracene		2.9	U	2.9	19
Benzo[a]anthracene		3.1	U	3.1	14
Benzo[a]pyrene		6.1	U	6.1	14
Benzo[b]fluoranthene		4.0	U	4.0	14
Benzo[g,h,i]perylene		6.9	U	6.9	29
Benzo[k]fluoranthene		3.8	U	3.8	14
Chrysene		4.6	U	4.6	38
Dibenzo(a,h)anthracene		11	U	11	29
Fluoranthene		12	U	12	38
Fluorene		5.1	U	5.1	29
Indeno[1,2,3-cd]pyrene		12	U	12	29
Naphthalene		12	U	12	96
Phenanthrene		12	U	12	38
Pyrene		12	U	12	38

Surrogate	%Rec	Qualifier	Acceptance Limits
Terphenyl-d14 (SUR)	79		72 - 115

8/6/14

Appendix 4

Laboratory Narrative and Chain-of-Custody Documentation

CASE NARRATIVE

Client: Washington Closure Hanford

Project: WASHINGTON CLOSURE HANFORD

Report Number: 280-57846-1

SDG #: JP0833
SAF#: RC-075

Date SDG Closed: July 17, 2014
Data Deliverable: 7 Day / Summary

CLIENT ID	LAB ID	ANALYSES REQUESTED	ANALYSES PERFORMED
J1TW94	280-57846-1	6010/7471/9056M/353.2/8270A/8310/8082/8081	6010B/7471A/9056M/353.2/8270C/8310/8082/8081A
J1TW95	280-57846-2	6010/7471/9056M/353.2/8270A/8310/8082/8081	6010B/7471A/9056M/353.2/8270C/8310/8082/8081A
J1TW96	280-57846-3	6010/7471/9056M/353.2/8270A/8310/8082/8081	6010B/7471A/9056M/353.2/8270C/8310/8082/8081A
J1TW97	280-57846-4	6010/7471/9056M/353.2/8270A/8310/8082/8081	6010B/7471A/9056M/353.2/8270C/8310/8082/8081A
J1TW98	280-57846-5	6010/7471/9056M/353.2/8270A/8310/8082/8081	6010B/7471A/9056M/353.2/8270C/8310/8082/8081A
J1TW99	*280-57846-6*	*6010/7471/9056M/353.2/8270A/8310/8082/8081*	*6010B/7471A/9056M/353.2/8270C/8310/8082/8081A*
J1TWC0	280-57846-7	6010/7471/9056M/353.2/8270A/8310/8082/8081	6010B/7471A/9056M/353.2/8270C/8310/8082/8081A
J1TWC1	280-57846-8	6010/7471/9056M/353.2/8270A/8310/8082/8081	6010B/7471A/9056M/353.2/8270C/8310/8082/8081A
J1TWC2	280-57846-9	6010/7471/9056M/353.2/8270A/8310/8082/8081	6010B/7471A/9056M/353.2/8270C/8310/8082/8081A
J1TWC3	280-57846-10	6010/7471/9056M/353.2/8270A/8310/8082/8081	6010B/7471A/9056M/353.2/8270C/8310/8082/8081A
J1TWC4	280-57846-11	6010/7471/9056M/353.2/8270A/8310/8082/8081	6010B/7471A/9056M/353.2/8270C/8310/8082/8081A
J1TWC5	280-57846-12	6010/7471/9056M/353.2/8270A/8310/8082/8081	6010B/7471A/9056M/353.2/8270C/8310/8082/8081A
J1TWC6	280-57846-13	6010/7471/9056M/353.2/8270A/8310/8082/8081	6010B/7471A/9056M/353.2/8270C/8310/8082/8081A
J1TWC7	280-57846-14	6010/7471/8270A	6010B/7471A/8270C

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

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

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

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

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

RECEIPT
The samples were received on 7/17/2014 9:10 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 3 coolers at receipt time were 0.7° C, 2.6° C and 3.7° C.

GC/MS SEMIVOLATILES - SW846 8270C
The MS/MSD performed on sample J1TW97 exhibited percent recoveries outside the control limits for 2,4-Dinitrophenol, and the associated sample result has been flagged "T". The acceptable LCS analysis data indicated that the analytical system was operating within control; therefore, corrective action is deemed unnecessary.

No other anomalies were encountered.

GC SEMIVOLATILES - SW846 8081A - Pesticides
No anomalies were encountered.

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

HPLC - SW846 8310 - PAHs
The MS aliquot of the MS/MSD performed on sample J1TW95 exhibited a percent recovery outside the control limits for Benzo[b]fluoranthene, and the associated sample result has been flagged "N". The acceptable LCS analysis data indicated that the analytical system was operating within control; therefore, corrective action is deemed unnecessary.

No other anomalies were encountered.

TOTAL METALS - SW846 6010B/7471A
Serial dilution of a digestate in batch 280-234933 indicates that physical and chemical interferences are present for several elements. Results have been flagged with an "X".

Each sample is analyzed to achieve the lowest possible reporting limits within the constraints of the methods. Samples J1TW94 and J1TW98 required a 5X dilution prior to the analysis of Antimony, Beryllium, Cobalt, Copper, Lead and Vanadium to minimize the interference caused by Titanium concentrations greater than the linear range. The reporting limits have been adjusted relative to the dilution required.

Low levels of Chromium, Copper and Zinc are present in the method blank associated with batch 280-234933. Because the concentrations in the method blank are not present at levels greater than half the reporting limit, corrective action is deemed unnecessary.

It can be noted that the sample amount was greater than four times the spike amount for Aluminum, Iron and Manganese in the Matrix Spike performed on sample J1TW94; therefore, control limits are not applicable.

The Matrix Spike performed on sample J1TW94 exhibited percent recoveries outside the control limits for Silicon and Beryllium, and the associated sample results have 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.

The duplicate analysis of sample J1TW94 exhibited RPD data outside the control limits for Molybdenum, and the associated sample result has been flagged "M". There is no indication that the analytical system was operating out of control, and method accuracy has been verified by the acceptable LCS analysis data; therefore, corrective action is deemed unnecessary.

No other anomalies were encountered.

GENERAL CHEMISTRY - MCAWW 353.2 - NITRATE NITRITE as N
The Matrix Spike performed on sample J1TW99 exhibited the percent recovery outside the control limits, 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 - SW846 9056M - ANIONS
Sulfate and Chloride are present in the method blank associated with batch 280-235280 at 6.77 mg/kg and 7.12 mg/kg, respectively, which is greater than half the project specific reporting limit (PSRL) of 5 mg/kg. TestAmerica's practical quantitation limit (PQL) for Sulfate is 50 mg/kg and Chloride is 30 mg/kg. The laboratory cannot maintain system cleanliness at this low level; therefore, corrective action is not initiated. It can be noted that the concentrations found in the method blank are less than half of the laboratory standard PQLs.

The Matrix Spike performed on sample J1TW94 exhibited the percent recovery outside the control limits for Fluoride, 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.

The duplicate analysis of sample J1TW94 exhibited RPD data outside the control limits for Chloride and Sulfate, and the associated sample results have been flagged "M". There is no indication that the analytical system was operating out of control, and method accuracy has been verified by the acceptable LCS analysis data; therefore, corrective action is deemed unnecessary.

No other anomalies were encountered.

Washington Closure Hanford

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

RC-075-438

Collector: H. Weber	Company Contact: Joan Kessner	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Price Code:	Data Turnaround: 7days		
Project Designation: 100-D/DR Field Remediation	Sampling Location: 100-D-106, Verification, stockpile area		SAF No.: RC-075
Ice Chest No.: RCC-07-011, -009, -006	Field Logbook No.: EL-1662-02	COA: 01D1062000	Method of Shipment: Commercial Carrier / FED EX
Shipped To: TestAmerica Denver	Offsite Property No.: A131165		Bill of Lading/Air Bill No.: See OSPC
Other Labs Shipped To: TestAmerica Richland			

POSSIBLE SAMPLE HAZARDS/REMARKS

None

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C					
Type of Container	G/P	G/P	aG	aG	aG	aG					
No. of Container(s)	1	1	1	1	1	1					
Volume	250mL	250mL	250mL	250mL	250mL	250mL					
Sample Analysis	See item (1) in Special Instructions	IC Anions - 9056 Modified; NO2/NO3 - 353.2	Semi-VOA - 8270A (TCL)	PAHs - 8310	PCBs - 8082	Pesticides - 8081					
Sample No.	Matrix	Sample Date	Sample Time								
J1TW94	SOIL	7/16/14	0745	✓	✓	✓	✓	✓	✓		
J1TW95	SOIL	7/16/14	0807	✓	✓	✓	✓	✓	✓		
J1TW96	SOIL	7/16/14	0800	✓	✓	✓	✓	✓	✓		
J1TW97	SOIL	7/16/14	0751	✓	✓	✓	✓	✓	✓		
J1TW98	SOIL	7/16/14	0823	✓	✓	✓	✓	✓	✓		

Page 173 of 196

CHAIN OF POSSESSION

Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Heather Weber / [signature]	07/16/14 0949	R. Fahlberg / R. Fahlberg	0949 7-16-14
R. Fahlberg / R. Fahlberg	1115 7-16-14	Fed Ex	
[signature]	0910 7/17/14	Fed Ex	
		[signature]	0910 7/17/14

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

SPECIAL INSTRUCTIONS

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

REVIEWED BY K. Woodvis email DATE 7/16/14

JP0833

WCH-EE-011

2.3, 0.4, 3.4 IR4 +3 MS 7-17-14

Washington Closure Hanford

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

RC-075-438

Collector: W. Weber	Company Contact: Joan Kessner	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Price Code:	Data Turnaround: 7 days		
Project Designation: 100-D/DR Field Remediation	Sampling Location: 100-D-106, Verification, stockpile area		SAF No.: RC-075
Ice Chest No.: RCC-07-011, -009, -006	Field Logbook No.: EL-1662-02	COA: 01D1062000	Method of Shipment: Commercial Carrier / FED Ex
Shipped To: TestAmerica Denver	Offsite Property No.: A1311165		Bill of Lading/Air Bill No.: See OSPC
Other Labs Shipped To: TestAmerica Richland			

POSSIBLE SAMPLE HAZARDS/REMARKS

None

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C					
Type of Container	G/P	G/P	aG	aG	aG	aG					
No. of Container(s)	1	1	1	1	1	1					
Volume	250mL	250mL	250mL	250mL	250mL	250mL					
Sample Analysis	See item (1) in Special Instructions	IC Anions - 9056 Modified; NO2/NO3 - 353.2	Semi-VOA - 8270A (TCL)	PAHs - 8310	PCBs - 8082	Pesticides - 8081					
Sample No.	Matrix	Sample Date	Sample Time								
J1TW99	SOIL	7/16/14	0830	✓	✓	✓	✓	✓	✓		
J1TWC0	SOIL	7/16/14	0841	✓	✓	✓	✓	✓	✓		
J1TWC1	SOIL	7/16/14	0900	✓	✓	✓	✓	✓	✓		
J1TWC2	SOIL	7/16/14	0907	✓	✓	✓	✓	✓	✓		
J1TWC3	SOIL	7/16/14	0915	✓	✓	✓	✓	✓	✓		

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Heather Weber / [signature]	07/16/14 0949	R. Fehlber / R. Fehlber	7-16-14 0949
R. Fehlber / R. Fehlber	7-16-14 1115	Fed Ex	
~~[signature]~~	7/17/14 0910	FedEx	
~~[signature]~~		~~[signature]~~	0910 7/17/14

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

SPECIAL INSTRUCTIONS

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

REVIEWED BY [signature] DATE 7/16/14

JP0833

WCH-EE-011

Washington Closure Hanford

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

RC-075-438

Collector: N. Weber	Company Contact: Joan Kessner	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Price Code	Data Turnaround: 7 days		
Project Designation: 100-D/DR Field Remediation	Sampling Location: 100-D-106, Verification, stockpile area		SAF No.: RC-075
Ice Chest No.: RCC-07-011, -009, -006	Field Logbook No.: EL-1662-02	COA: 01D1062000	Method of Shipment: Commercial Carrier / FedEx
Shipped To: TestAmerica Denver	Offsite Property No.: A131165		Bill of Lading/Air Bill No.: See OSPC
Other Labs Shipped To: TestAmerica Richland			

POSSIBLE SAMPLE HAZARDS/REMARKS

None

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C						
Type of Container	G/P	G/P	aG	aG	aG	aG						
No. of Container(s)	1	1	1	1	1	1						
Volume	250mL	250mL	250mL	250mL	250mL	250mL						
Sample Analysis	See item (1) in Special Instructions	IC Anions - 9056 Modified; NO2/NO3 - 353.2	Semi-VOA - 8270A (TCL)	PAHs - 8310	PCBs - 8082	Pesticides - 8081						
Sample No.	Matrix	Sample Date	Sample Time									
J1TWC4	SOIL	7/16/14	0927	✓	✓	✓	✓	✓	✓			
J1TWC5	SOIL	7/16/14	0932	✓	✓	✓	✓	✓	✓			
J1TWC6	SOIL	7/16/14	0941	✓	✓	✓	✓	✓	✓			
J1TWC7	SOIL	7/16/14	0735	✓		✓						

Page 175 of 178

CHAIN OF POSSESSION

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Heather Weber	07/16/14 0949	R. Fahlberg	0949 7-16-14
R. Fahlberg	1115 7-16-14	Fed Ex	
~~[illegible]~~	0910 7/17/14	Fed Ex	
(RC)		~~[illegible]~~	0910 7/17/14

Sign/Print Names

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

SPECIAL INSTRUCTIONS

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

REVIEWED BY K. Dow/VR email
DATE 7/16/14

JP0833

WCH-EE-011

Appendix 5

Data Validation Supporting Documentation

GENERAL ORGANIC DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	E
PROJECT: 100-D-106			DATA PACKAGE: JP0833		
VALIDATOR: ELR		LAB: TAL		DATE: 8/4/19	
			SDG: JP0833		

ANALYSES PERFORMED					
8015	8021	8141	8151	8315	8310
		WTPH-HCID	WTPH-G	WTPH-D	

SAMPLES/MATRIX:			
J1TW94	J1TW95	J1TW96	J1TW97
J1TW98	J1TW99	J1TWC0	J1TWC1
J1TWC2	J1TWC3	J1TWC4	J1TWC5
J1TWC6			
			Soil

1. DATA PACKAGE COMPLETENESS AND CASE NARRATIVE

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

Comments:

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

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

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

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

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

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

Comments:

GENERAL ORGANIC DATA VALIDATION CHECKLIST

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

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

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

Laboratory blanks analyzed? ..... Yes No N/A

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

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

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

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

Comments:

no FB

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

Surrogates/system monitoring compounds analyzed? ..... Yes No N/A

Surrogate/system monitoring compound recoveries acceptable? ..... Yes No N/A

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

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

MS/MSD samples analyzed? ..... Yes No N/A

MS/MSD results acceptable? ..... Yes No N/A

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

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

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

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

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

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

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

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

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

Comments:

no PAS

GENERAL ORGANIC DATA VALIDATION CHECKLIST

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

Duplicate RPD values acceptable? ..... Yes No N/A

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

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

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

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

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

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

Comments: _____

6. HOLDING TIMES (all levels)

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

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

Comments: _____

GENERAL ORGANIC DATA VALIDATION CHECKLIST

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

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

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

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

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

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

Comments: _____

9. SAMPLE CLEANUP (Levels D and E)

Fluoricil ® (or other aborbant) cleanup performed? ..... Yes No N/A

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

Check recoveries aceptable? ..... Yes No N/A

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

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

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

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

Comments: _____

Appendix 6

Additional Documentation Requested by Client

Client: Washington Closure Hanford

Job Number: 280-57846-1
Sdg Number: JP0833

Method Blank - Batch: 280-235110

Method: 8310
Preparation: 3550C

Lab Sample ID:	MB 280-235110/1-A	Analysis Batch:	280-235349	Instrument ID:	CHHPLC_G
Client Matrix:	Solid	Prep Batch:	280-235110	Lab File ID:	G0722008.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	30.2 g
Analysis Date:	07/22/2014 1448	Units:	ug/Kg	Final Weight/Volume:	4 mL
Prep Date:	07/21/2014 1435			Injection Volume:	20 uL
Leach Date:	N/A			Column ID:	PRIMARY

Analyte	Result	Qual	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	7.2	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	5.2	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	Acceptance Limits
Terphenyl-d14 (SUR)	81	72 - 115

Quality Control Results

Client: Washington Closure Hanford

Job Number: 280-57846-1
Sdg Number: JP0833

Lab Control Sample - Batch: 280-235110

Method: 8310
Preparation: 3550C

Lab Sample ID:	LCS 280-235110/2-A	Analysis Batch:	280-235349	Instrument ID:	CHHPLC_G
Client Matrix:	Solid	Prep Batch:	280-235110	Lab File ID:	G0722009.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	31.2 g
Analysis Date:	07/22/2014 1519	Units:	ug/Kg	Final Weight/Volume:	4 mL
Prep Date:	07/21/2014 1435			Injection Volume:	20 uL
Leach Date:	N/A			Column ID:	PRIMARY

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Acenaphthene	1920	1560	81	78 - 116	
Acenaphthylene	1920	1470	77	76 - 115	
Anthracene	1920	1450	75	74 - 115	
Benzo[a]anthracene	1920	1760	91	85 - 120	
Benzo[a]pyrene	1920	1680	88	74 - 121	
Benzo[b]fluoranthene	1920	1660	87	85 - 115	
Benzo[g,h,i]perylene	1920	1780	92	85 - 120	
Benzo[k]fluoranthene	1920	1750	91	85 - 115	
Chrysene	1920	1730	90	83 - 115	
Dibenzo(a,h)anthracene	1920	1710	89	83 - 115	
Fluoranthene	1920	1660	86	83 - 115	
Fluorene	1920	1610	84	80 - 115	
Indeno[1,2,3-cd]pyrene	1920	1800	93	85 - 123	
Naphthalene	1920	1530	80	80 - 121	
Phenanthrene	1920	1600	83	80 - 115	
Pyrene	1920	1680	87	75 - 116	

Surrogate	% Rec	Acceptance Limits
Terphenyl-d14 (SUR)	81	72 - 115

Client: Washington Closure Hanford

Job Number: 280-57846-1
Sdg Number: JP0833

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-235110

Method: 8310
Preparation: 3550C

MS Lab Sample ID:	280-57846-2	Analysis Batch:	280-235349	Instrument ID:	CHHPLC_G
Client Matrix:	Solid	Prep Batch:	280-235110	Lab File ID:	G0722012.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	31.5 g
Analysis Date:	07/22/2014 1651			Final Weight/Volume:	4 mL
Prep Date:	07/21/2014 1435			Injection Volume:	20 uL
Leach Date:	N/A			Column ID:	PRIMARY

MSD Lab Sample ID:	280-57846-2	Analysis Batch:	280-235349	Instrument ID:	CHHPLC_G
Client Matrix:	Solid	Prep Batch:	280-235110	Lab File ID:	G0722013.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	30.4 g
Analysis Date:	07/22/2014 1721			Final Weight/Volume:	4 mL
Prep Date:	07/21/2014 1435			Injection Volume:	20 uL
Leach Date:	N/A			Column ID:	PRIMARY

Analyte	% Rec. MS	% Rec. MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
Acenaphthene	80	79	78 - 116	2	20		
Acenaphthylene	78	77	76 - 115	2	21		
Anthracene	75	75	74 - 115	7	20		
Benzo[a]anthracene	89	90	85 - 120	4	20		
Benzo[a]pyrene	86	86	74 - 121	4	20		
Benzo[b]fluoranthene	84	85	85 - 115	4	20	N	
Benzo[g,h,i]perylene	91	91	85 - 120	4	20		
Benzo[k]fluoranthene	89	89	85 - 115	4	20		
Chrysene	87	88	83 - 115	4	20		
Dibenzo(a,h)anthracene	87	87	83 - 115	4	20		
Fluoranthene	85	85	83 - 115	4	20		
Fluorene	85	85	80 - 115	3	20		
Indeno[1,2,3-cd]pyrene	92	92	85 - 123	4	20		
Naphthalene	81	80	80 - 121	3	20		
Phenanthrene	83	83	80 - 115	3	20		
Pyrene	85	85	75 - 116	4	20		

Surrogate	MS % Rec	MSD % Rec	Acceptance Limits
Terphenyl-d14 (SUR)	77	77	72 - 115

Client: Washington Closure Hanford

Job Number: 280-57846-1
Sdg Number: JP0833

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-235110

Method: 8310
Preparation: 3550C

MS Lab Sample ID:	280-57846-2	Units:	ug/Kg
Client Matrix:	Solid		
Dilution:	1.0		
Analysis Date:	07/22/2014 1651		
Prep Date:	07/21/2014 1435		
Leach Date:	N/A		

MSD Lab Sample ID:	280-57846-2
Client Matrix:	Solid
Dilution:	1.0
Analysis Date:	07/22/2014 1721
Prep Date:	07/21/2014 1435
Leach Date:	N/A

Analyte	Sample Result/Qual		MS Spike Amount	MSD Spike Amount	MS Result/Qual		MSD Result/Qual
Acenaphthene	9.6	U	1930	2000	1540		1580
Acenaphthylene	8.6	U	1930	2000	1510		1540
Anthracene	2.9	U	1930	2000	1450		1500
Benzo[a]anthracene	3.1	U	1930	2000	1720		1790
Benzo[a]pyrene	6.1	U	1930	2000	1660		1720
Benzo[b]fluoranthene	4.0	U	1930	2000	1630	N	1700
Benzo[g,h,i]perylene	6.9	U	1930	2000	1740		1810
Benzo[k]fluoranthene	3.8	U	1930	2000	1710		1780
Chrysene	4.6	U	1930	2000	1680		1750
Dibenzo(a,h)anthracene	11	U	1930	2000	1670		1740
Fluoranthene	12	U	1930	2000	1630		1690
Fluorene	5.1	U	1930	2000	1640		1690
Indeno[1,2,3-cd]pyrene	11	U	1930	2000	1760		1840
Naphthalene	11	U	1930	2000	1560		1600
Phenanthrene	11	U	1930	2000	1600		1660
Pyrene	11	U	1930	2000	1630		1690

Date: 6 August 2014
To: Washington Closure Hanford Inc. (technical representative)
From: ELR Consulting
Project: 100-D/DR Burial Grounds & Remaining Sites – Soil Full Protocol - Waste Site 100-D-106
Subject: Wet Chemistry - Data Package No. JP0833-TAL

INTRODUCTION

This memo presents the results of data validation on Data Package No. JP0833 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
J1TW94	7/16/14	Soil	C	See note 1
J1TW95	7/16/14	Soil	C	See note 1
J1TW96	7/16/14	Soil	C	See note 1
J1TW97	7/16/14	Soil	C	See note 1
J1TW98	7/16/14	Soil	C	See note 1
J1TW99	7/16/14	Soil	C	See note 1
J1TWC0	7/16/14	Soil	C	See note 1
J1TWC1	7/16/14	Soil	C	See note 1
J1TWC2	7/16/14	Soil	C	See note 1
J1TWC3	7/16/14	Soil	C	See note 1
J1TWC4	7/16/14	Soil	C	See note 1
J1TWC5	7/16/14	Soil	C	See note 1
J1TWC6	7/16/14	Soil	C	See note 1

1 – IC anions by 300.0, nitrate/nitrite by 353.2 and chromium VI by 7196.

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

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

DATA QUALITY PARAMETERS

Holding Times

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

are as follows: 30 days for chromium VI; 28 days for nitrate/nitrite, chloride, fluoride, bromide, sulfate; 48 hours for nitrate, nitrite and orthophosphate.

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

Due to the holding time being exceeded by greater than twice the limit, all nitrite results were qualified as rejected and flagged "UR".

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

All other holding times were acceptable.

- **Method Blanks**

Method Blanks

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

Due to method blank contamination, the sulfate results in samples J1TW98, J1TWC0, J1TWC1, J1TWC2 and J1TWC6 were qualified as undetected and flagged "U".

All other method blank results were acceptable.

Field Blanks

No field blanks were submitted for analysis.

- **Accuracy**

Matrix Spike and Laboratory Control Sample

Matrix spike (MS) and laboratory control sample (LCS) analyses are used to assess the analytical accuracy of the reported data. The matrix spike is used to assess the effect of the matrix on the ability to accurately quantify sample concentrations. Recoveries must fall within the range of 70% to 130%. Samples with a recovery of less than 30% and a sample result below the IDL are rejected and flagged "UR". Samples with a

recovery of 30% to 69% and a sample result less than the IDL are qualified "UJ". Samples with a recovery of greater than 130% or less than 70% and a sample result greater than the IDL are qualified as estimates and flagged "J". Finally, for samples with a recovery greater than 130% and a sample result less than the IDL, no qualification is required.

Due to matrix spike recoveries outside QC limits (69%), all fluoride 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 (J1TWC0/J1TWC6) were submitted for analysis. Field duplicates are compared using the same criteria as for laboratory duplicates. All field duplicate results were acceptable.

- **Analytical Detection Levels**

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

- **Completeness**

Data package JP0833 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 87.5%.

MAJOR DEFICIENCIES

None found.

MINOR DEFICIENCIES

The following minor deficiencies were noted:

- Due to the holding time being exceeded by less than twice the limit, all nitrate and orthophosphate results were qualified as estimates and flagged "J".
- Due to method blank contamination, the sulfate results in samples J1TW98, J1TWC0, J1TWC1, J1TWC2 and J1TWC6 were qualified as undetected and flagged "U".
- Due to matrix spike recoveries outside QC limits (69%), all fluoride results were qualified as estimates and flagged "J".

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

REFERENCES

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

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

Appendix 1

Glossary of Data Reporting Qualifiers

Qualifiers which may be applied by data validators in compliance with 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: JP0833	**REVIEWER: ELR**	**Project: 100-D-106**	**PAGE_1_OF_1**
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
Nitrate Orthophosphate	J	All	Hold time
Nitrite	UR	All	Hold time
Sulfate	U	J1TW98, J1TWC0 J1TWC1, J1TWC2 J1TWC6	Method blank contamination
Fluoride	J	All	MS recovery

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

Appendix 3

Annotated Laboratory Reports

Client: Washington Closure Hanford

Job Number: 280-57846-1
Sdg Number: JP0833

General Chemistry

Client Sample ID: **J1TW94**

Lab Sample ID: 280-57846-1
Client Matrix: *Solid* *% Moisture:* *1.2*

Date Sampled: 07/16/2014 0745
Date Received: 07/17/2014 0910

Analyte	Result	Qual	Units	MDL	RL	Dil	Method
Nitrate Nitrite as N-Soluble	15.6		mg/Kg	0.36	0.76	1.0	353.2
Analysis Batch: 280-234865	Analysis Date: 07/17/2014 2053						DryWt Corrected: Y
Chloride-Soluble	101	M	mg/Kg	2.0	4.9	1.0	9056M
Analysis Batch: 280-235280	Analysis Date: 07/22/2014 1357						DryWt Corrected: Y
Nitrate as N-Soluble	10.8	J	mg/Kg	0.31	2.5	1.0	9056M
Analysis Batch: 280-235279	Analysis Date: 07/22/2014 1357						DryWt Corrected: Y
Bromide-Soluble	0.38	U	mg/Kg	0.38	2.0	1.0	9056M
Analysis Batch: 280-235280	Analysis Date: 07/22/2014 1357						DryWt Corrected: Y
Nitrite as N-Soluble	0.33	U R	mg/Kg	0.33	2.5	1.0	9056M
Analysis Batch: 280-235279	Analysis Date: 07/22/2014 1357						DryWt Corrected: Y
Orthophosphate as P-Soluble	2.1	B J	mg/Kg	1.2	4.9	1.0	9056M
Analysis Batch: 280-235279	Analysis Date: 07/22/2014 1357						DryWt Corrected: Y
Sulfate-Soluble	58.4	M	mg/Kg	1.7	4.9	1.0	9056M
Analysis Batch: 280-235280	Analysis Date: 07/22/2014 1357						DryWt Corrected: Y
Fluoride-Soluble	3.3	B N J	mg/Kg	0.81	4.9	1.0	9056M
Analysis Batch: 280-235280	Analysis Date: 07/22/2014 1357						DryWt Corrected: Y

Analyte	Result	Qual	Units	RL	RL	Dil	Method
Percent Moisture	1.2		%	0.10	0.10	1.0	D-2216
Analysis Batch: 280-234955	Analysis Date: 07/18/2014 1101						DryWt Corrected: N

R 8/6/14

Client: Washington Closure Hanford

Job Number: 280-57846-1
Sdg Number: JP0833

General Chemistry

Client Sample ID: **J1TW95**

Lab Sample ID: 280-57846-2
Client Matrix: *Solid* *% Moisture:* *1.1*

Date Sampled: 07/16/2014 0807
Date Received: 07/17/2014 0910

Analyte	Result	Qual	Units	MDL	RL	Dil	Method
Nitrate Nitrite as N-Soluble	4.6		mg/Kg	0.36	0.76	1.0	353.2
Analysis Batch: 280-234865	Analysis Date: 07/17/2014 2121						DryWt Corrected: Y
Chloride-Soluble	80.0		mg/Kg	2.0	5.0	1.0	9056M
Analysis Batch: 280-235280	Analysis Date: 07/22/2014 1457						DryWt Corrected: Y
Nitrate as N-Soluble	7.7	J	mg/Kg	0.31	2.5	1.0	9056M
Analysis Batch: 280-235279	Analysis Date: 07/22/2014 1457						DryWt Corrected: Y
Bromide-Soluble	0.39	U	mg/Kg	0.39	2.0	1.0	9056M
Analysis Batch: 280-235280	Analysis Date: 07/22/2014 1457						DryWt Corrected: Y
Nitrite as N-Soluble	0.34	U R	mg/Kg	0.34	2.5	1.0	9056M
Analysis Batch: 280-235279	Analysis Date: 07/22/2014 1457						DryWt Corrected: Y
Orthophosphate as P-Soluble	2.6	B J	mg/Kg	1.2	5.0	1.0	9056M
Analysis Batch: 280-235279	Analysis Date: 07/22/2014 1457						DryWt Corrected: Y
Sulfate-Soluble	211		mg/Kg	1.7	5.0	1.0	9056M
Analysis Batch: 280-235280	Analysis Date: 07/22/2014 1457						DryWt Corrected: Y
Fluoride-Soluble	4.3	B J	mg/Kg	0.82	5.0	1.0	9056M
Analysis Batch: 280-235280	Analysis Date: 07/22/2014 1457						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: 280-234955	Analysis Date: 07/18/2014 1101						DryWt Corrected: N

8/6/14

Client: Washington Closure Hanford

Job Number: 280-57846-1
Sdg Number: JP0833

General Chemistry

Client Sample ID: **J1TW96**

Lab Sample ID: 280-57846-3
Client Matrix: Solid
% Moisture: 1.0

Date Sampled: 07/16/2014 0800
Date Received: 07/17/2014 0910

Analyte	Result	Qual	Units	MDL	RL	Dil	Method
Nitrate Nitrite as N-Soluble	9.7		mg/Kg	0.36	0.76	1.0	353.2
Analysis Batch: 280-234865	Analysis Date: 07/17/2014 2044						DryWt Corrected: Y
Chloride-Soluble	72.7		mg/Kg	2.0	4.9	1.0	9056M
Analysis Batch: 280-235280	Analysis Date: 07/22/2014 1517						DryWt Corrected: Y
Nitrate as N-Soluble	12.5	J	mg/Kg	0.31	2.5	1.0	9056M
Analysis Batch: 280-235279	Analysis Date: 07/22/2014 1517						DryWt Corrected: Y
Bromide-Soluble	0.39	U	mg/Kg	0.39	2.0	1.0	9056M
Analysis Batch: 280-235280	Analysis Date: 07/22/2014 1517						DryWt Corrected: Y
Nitrite as N-Soluble	0.33	U R	mg/Kg	0.33	2.5	1.0	9056M
Analysis Batch: 280-235279	Analysis Date: 07/22/2014 1517						DryWt Corrected: Y
Orthophosphate as P-Soluble	2.9	B J	mg/Kg	1.2	4.9	1.0	9056M
Analysis Batch: 280-235279	Analysis Date: 07/22/2014 1517						DryWt Corrected: Y
Sulfate-Soluble	69.4		mg/Kg	1.7	4.9	1.0	9056M
Analysis Batch: 280-235280	Analysis Date: 07/22/2014 1517						DryWt Corrected: Y
Fluoride-Soluble	4.2	B J	mg/Kg	0.81	4.9	1.0	9056M
Analysis Batch: 280-235280	Analysis Date: 07/22/2014 1517						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: 280-234955	Analysis Date: 07/18/2014 1101						DryWt Corrected: N

r 8/6/14

Client: Washington Closure Hanford

Job Number: 280-57846-1
Sdg Number: JP0833

General Chemistry

Client Sample ID: **J1TW97**

Lab Sample ID: 280-57846-4
Client Matrix: *Solid*

% Moisture: 1.1

Date Sampled: 07/16/2014 0751
Date Received: 07/17/2014 0910

Analyte	Result	Qual	Units	MDL	RL	Dil	Method
Nitrate Nitrite as N-Soluble	13.5		mg/Kg	0.36	0.76	1.0	353.2
Analysis Batch: 280-234865	Analysis Date: 07/17/2014 2056						DryWt Corrected: Y
Chloride-Soluble	89.8		mg/Kg	2.0	5.0	1.0	9056M
Analysis Batch: 280-235280	Analysis Date: 07/22/2014 1537						DryWt Corrected: Y
Nitrate as N-Soluble	16.9	J	mg/Kg	0.32	2.5	1.0	9056M
Analysis Batch: 280-235279	Analysis Date: 07/22/2014 1537						DryWt Corrected: Y
Bromide-Soluble	0.39	U	mg/Kg	0.39	2.0	1.0	9056M
Analysis Batch: 280-235280	Analysis Date: 07/22/2014 1537						DryWt Corrected: Y
Nitrite as N-Soluble	0.34	U R	mg/Kg	0.34	2.5	1.0	9056M
Analysis Batch: 280-235279	Analysis Date: 07/22/2014 1537						DryWt Corrected: Y
Orthophosphate as P-Soluble	2.8	B J	mg/Kg	1.2	5.0	1.0	9056M
Analysis Batch: 280-235279	Analysis Date: 07/22/2014 1537						DryWt Corrected: Y
Sulfate-Soluble	99.8		mg/Kg	1.7	5.0	1.0	9056M
Analysis Batch: 280-235280	Analysis Date: 07/22/2014 1537						DryWt Corrected: Y
Fluoride-Soluble	4.1	B J	mg/Kg	0.82	5.0	1.0	9056M
Analysis Batch: 280-235280	Analysis Date: 07/22/2014 1537						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: 280-234955	Analysis Date: 07/18/2014 1101						DryWt Corrected: N

8/6/14

Client: Washington Closure Hanford

Job Number: 280-57846-1
Sdg Number: JP0833

General Chemistry

Client Sample ID: **J1TW98**

Lab Sample ID: 280-57846-5
Client Matrix: Solid
% Moisture: 1.2

Date Sampled: 07/16/2014 0820
Date Received: 07/17/2014 0910

Analyte	Result	Qual	Units	MDL	RL	Dil	Method
Nitrate Nitrite as N-Soluble	2.2		mg/Kg	0.36	0.76	1.0	353.2
Analysis Batch: 280-234865	Analysis Date: 07/17/2014 2116						DryWt Corrected: Y
Chloride-Soluble	*66.3*		mg/Kg	*2.0*	*5.0*	*1.0*	*9056M*
Analysis Batch: 280-235280	Analysis Date: 07/22/2014 1557						DryWt Corrected: Y
Nitrate as N-Soluble	4.1	J	mg/Kg	0.31	2.5	1.0	9056M
Analysis Batch: 280-235279	Analysis Date: 07/22/2014 1557						DryWt Corrected: Y
Bromide-Soluble	0.39	U	mg/Kg	0.39	2.0	1.0	9056M
Analysis Batch: 280-235280	Analysis Date: 07/22/2014 1557						DryWt Corrected: Y
Nitrite as N-Soluble	0.34	U R	mg/Kg	0.34	2.5	1.0	9056M
Analysis Batch: 280-235279	Analysis Date: 07/22/2014 1557						DryWt Corrected: Y
Orthophosphate as P-Soluble	2.9	B J	mg/Kg	1.2	5.0	1.0	9056M
Analysis Batch: 280-235279	Analysis Date: 07/22/2014 1557						DryWt Corrected: Y
Sulfate-Soluble	*16.0*	C V	mg/Kg	*1.7*	*5.0*	*1.0*	*9056M*
Analysis Batch: 280-235280	Analysis Date: 07/22/2014 1557						DryWt Corrected: Y
Fluoride-Soluble	4.3	B J	mg/Kg	0.82	5.0	1.0	9056M
Analysis Batch: 280-235280	Analysis Date: 07/22/2014 1557						DryWt Corrected: Y

Analyte	Result	Qual	Units	RL	RL	Dil	Method
Percent Moisture	1.2		%	0.10	0.10	1.0	D-2216
Analysis Batch: 280-234955	Analysis Date: 07/18/2014 1101						DryWt Corrected: N

4/6/14

Client: Washington Closure Hanford

Job Number: 280-57846-1
Sdg Number: JP0833

General Chemistry

Client Sample ID: **J1TW99**

Lab Sample ID: 280-57846-6
Client Matrix: Solid
% Moisture: 1.0

Date Sampled: 07/16/2014 0830
Date Received: 07/17/2014 0910

Analyte	Result	Qual	Units	MDL	RL	Dil	Method
Nitrate Nitrite as N-Soluble	4.6	N	mg/Kg	0.36	0.76	1.0	353.2
Analysis Batch: 280-234865	Analysis Date: 07/17/2014 2111						DryWt Corrected: Y
Chloride-Soluble	*68.9*		*mg/Kg*	*2.0*	*5.0*	*1.0*	*9056M*
Analysis Batch: 280-235280	Analysis Date: 07/22/2014 1617						DryWt Corrected: Y
Nitrate as N-Soluble	8.0	J	mg/Kg	0.31	2.5	1.0	9056M
Analysis Batch: 280-235279	Analysis Date: 07/22/2014 1617						DryWt Corrected: Y
Bromide-Soluble	0.39	U	mg/Kg	0.39	2.0	1.0	9056M
Analysis Batch: 280-235280	Analysis Date: 07/22/2014 1617						DryWt Corrected: Y
Nitrite as N-Soluble	0.34	U R	mg/Kg	0.34	2.5	1.0	9056M
Analysis Batch: 280-235279	Analysis Date: 07/22/2014 1617						DryWt Corrected: Y
Orthophosphate as P-Soluble	2.7	B J	mg/Kg	1.2	5.0	1.0	9056M
Analysis Batch: 280-235279	Analysis Date: 07/22/2014 1617						DryWt Corrected: Y
Sulfate-Soluble	*42.4*		*mg/Kg*	*1.7*	*5.0*	*1.0*	*9056M*
Analysis Batch: 280-235280	Analysis Date: 07/22/2014 1617						DryWt Corrected: Y
Fluoride-Soluble	3.9	B J	mg/Kg	0.82	5.0	1.0	9056M
Analysis Batch: 280-235280	Analysis Date: 07/22/2014 1617						DryWt Corrected: Y

Analyte	Result	Qual	Units	RL	RL	Dil	Method
Percent Moisture	0.96		%	0.10	0.10	1.0	D-2216
Analysis Batch: 280-234955	Analysis Date: 07/18/2014 1101						DryWt Corrected: N

R 8/6/14

Client: Washington Closure Hanford

Job Number: 280-57846-1
Sdg Number: JP0833

General Chemistry

Client Sample ID: **J1TWC0**

Lab Sample ID: 280-57846-7
Client Matrix: *Solid*

% Moisture: *0.9*

Date Sampled: 07/16/2014 0841
Date Received: *07/17/2014 0910*

Analyte	Result	Qual	Units	MDL	RL	Dil	Method
Nitrate Nitrite as N-Soluble	5.6		mg/Kg	0.36	0.76	1.0	353.2
Analysis Batch: 280-234865	Analysis Date: 07/17/2014 2109						DryWt Corrected: Y
Chloride-Soluble	58.2		mg/Kg	2.0	5.0	1.0	9056M
Analysis Batch: 280-235280	Analysis Date: 07/22/2014 1716						DryWt Corrected: Y
Nitrate as N-Soluble	7.7	J	mg/Kg	0.32	2.5	1.0	9056M
Analysis Batch: 280-235279	Analysis Date: 07/22/2014 1716						DryWt Corrected: Y
Bromide-Soluble	0.39	U	mg/Kg	0.39	2.0	1.0	9056M
Analysis Batch: 280-235280	Analysis Date: 07/22/2014 1716						DryWt Corrected: Y
Nitrite as N-Soluble	0.34	U R	mg/Kg	0.34	2.5	1.0	9056M
Analysis Batch: 280-235279	Analysis Date: 07/22/2014 1716						DryWt Corrected: Y
Orthophosphate as P-Soluble	2.7	B J	mg/Kg	1.2	5.0	1.0	9056M
Analysis Batch: 280-235279	Analysis Date: 07/22/2014 1716						DryWt Corrected: Y
Sulfate-Soluble	30.4	C U	mg/Kg	1.7	5.0	1.0	9056M
Analysis Batch: 280-235280	Analysis Date: 07/22/2014 1716						DryWt Corrected: Y
Fluoride-Soluble	3.8	B J	mg/Kg	0.82	5.0	1.0	9056M
Analysis Batch: 280-235280	Analysis Date: 07/22/2014 1716						DryWt Corrected: Y

Analyte	Result	Qual	Units	RL	RL	Dil	Method
Percent Moisture	0.93		%	0.10	0.10	1.0	D-2216
Analysis Batch: 280-234955	Analysis Date: 07/18/2014 1101						DryWt Corrected: N

8/6/14

Client: Washington Closure Hanford

Job Number: 280-57846-1
Sdg Number: JP0833

General Chemistry

Client Sample ID: **J1TWC1**

Lab Sample ID: 280-57846-8
Client Matrix: *Solid* *% Moisture:* *1.0*

Date Sampled: 07/16/2014 0900
Date Received: 07/17/2014 0910

Analyte	Result	Qual	Units	MDL	RL	Dil	Method
Nitrate Nitrite as N-Soluble	7.0		mg/Kg	0.36	0.76	1.0	353.2
Analysis Batch: 280-234865	Analysis Date: 07/17/2014 2051						DryWt Corrected: Y
Chloride-Soluble	66.6		mg/Kg	2.0	5.0	1.0	9056M
Analysis Batch: 280-235280	Analysis Date: 07/22/2014 1736						DryWt Corrected: Y
Nitrate as N-Soluble	8.9	J	mg/Kg	0.31	2.5	1.0	9056M
Analysis Batch: 280-235279	Analysis Date: 07/22/2014 1736						DryWt Corrected: Y
Bromide-Soluble	0.39	U	mg/Kg	0.39	2.0	1.0	9056M
Analysis Batch: 280-235280	Analysis Date: 07/22/2014 1736						DryWt Corrected: Y
Nitrite as N-Soluble	0.33	U R	mg/Kg	0.33	2.5	1.0	9056M
Analysis Batch: 280-235279	Analysis Date: 07/22/2014 1736						DryWt Corrected: Y
Orthophosphate as P-Soluble	2.5	B J	mg/Kg	1.2	5.0	1.0	9056M
Analysis Batch: 280-235279	Analysis Date: 07/22/2014 1736						DryWt Corrected: Y
Sulfate-Soluble	28.4	C U	mg/Kg	1.7	5.0	1.0	9056M
Analysis Batch: 280-235280	Analysis Date: 07/22/2014 1736						DryWt Corrected: Y
Fluoride-Soluble	4.2	B J	mg/Kg	0.81	5.0	1.0	9056M
Analysis Batch: 280-235280	Analysis Date: 07/22/2014 1736						DryWt Corrected: Y

Analyte	Result	Qual	Units	RL	RL	Dil	Method
Percent Moisture	0.95		%	0.10	0.10	1.0	D-2216
Analysis Batch: 280-234955	Analysis Date: 07/18/2014 1101						DryWt Corrected: N

8/6/14

Client: Washington Closure Hanford

Job Number: 280-57846-1
Sdg Number: JP0833

General Chemistry

Client Sample ID: **J1TWC2**

Lab Sample ID: 280-57846-9
Client Matrix: *Solid* *% Moisture:* *0.9*

Date Sampled: 07/16/2014 0907
Date Received: 07/17/2014 0910

Analyte	Result	Qual	Units	MDL	RL	Dil	Method
Nitrate Nitrite as N-Soluble	1.6		mg/Kg	0.36	0.76	1.0	353.2
Analysis Batch: 280-234865	Analysis Date: 07/17/2014 2118						DryWt Corrected: Y
Chloride-Soluble	58.0		mg/Kg	2.0	4.9	1.0	9056M
Analysis Batch: 280-235280	Analysis Date: 07/22/2014 1756						DryWt Corrected: Y
Nitrate as N-Soluble	3.9	J	mg/Kg	0.31	2.5	1.0	9056M
Analysis Batch: 280-235279	Analysis Date: 07/22/2014 1756						DryWt Corrected: Y
Bromide-Soluble	0.39	U	mg/Kg	0.39	2.0	1.0	9056M
Analysis Batch: 280-235280	Analysis Date: 07/22/2014 1756						DryWt Corrected: Y
Nitrite as N-Soluble	0.33	U R	mg/Kg	0.33	2.5	1.0	9056M
Analysis Batch: 280-235279	Analysis Date: 07/22/2014 1756						DryWt Corrected: Y
Orthophosphate as P-Soluble	2.6	B J	mg/Kg	1.2	4.9	1.0	9056M
Analysis Batch: 280-235279	Analysis Date: 07/22/2014 1756						DryWt Corrected: Y
Sulfate-Soluble	24.6	C U	mg/Kg	1.7	4.9	1.0	9056M
Analysis Batch: 280-235280	Analysis Date: 07/22/2014 1756						DryWt Corrected: Y
Fluoride-Soluble	4.3	B J	mg/Kg	0.81	4.9	1.0	9056M
Analysis Batch: 280-235280	Analysis Date: 07/22/2014 1756						DryWt Corrected: Y

Analyte	Result	Qual	Units	RL	RL	Dil	Method
Percent Moisture	0.90		%	0.10	0.10	1.0	D-2216
Analysis Batch: 280-234955	Analysis Date: 07/18/2014 1101						DryWt Corrected: N

8/6/14

Client: Washington Closure Hanford

Job Number: 280-57846-1
Sdg Number: JP0833

General Chemistry

Client Sample ID: **J1TWC3**

Lab Sample ID: 280-57846-10
Client Matrix: *Solid* *% Moisture:* *1.9*

Date Sampled: 07/16/2014 0915
Date Received: 07/17/2014 0910

Analyte	Result	Qual	Units	MDL	RL	Dil	Method
Nitrate Nitrite as N-Soluble	12.5		mg/Kg	0.36	0.76	1.0	353.2
Analysis Batch: 280-234865	Analysis Date: 07/17/2014 2054						DryWt Corrected: Y
Chloride-Soluble	104		mg/Kg	2.0	5.0	1.0	9056M
Analysis Batch: 280-235280	Analysis Date: 07/22/2014 1816						DryWt Corrected: Y
Nitrate as N-Soluble	14.8	J	mg/Kg	0.32	2.5	1.0	9056M
Analysis Batch: 280-235279	Analysis Date: 07/22/2014 1816						DryWt Corrected: Y
Bromide-Soluble	0.39	U	mg/Kg	0.39	2.0	1.0	9056M
Analysis Batch: 280-235280	Analysis Date: 07/22/2014 1816						DryWt Corrected: Y
Nitrite as N-Soluble	0.34	U R	mg/Kg	0.34	2.5	1.0	9056M
Analysis Batch: 280-235279	Analysis Date: 07/22/2014 1816						DryWt Corrected: Y
Orthophosphate as P-Soluble	2.9	B J	mg/Kg	1.3	5.0	1.0	9056M
Analysis Batch: 280-235279	Analysis Date: 07/22/2014 1816						DryWt Corrected: Y
Sulfate-Soluble	40.2		mg/Kg	1.7	5.0	1.0	9056M
Analysis Batch: 280-235280	Analysis Date: 07/22/2014 1816						DryWt Corrected: Y
Fluoride-Soluble	3.7	B J	mg/Kg	0.83	5.0	1.0	9056M
Analysis Batch: 280-235280	Analysis Date: 07/22/2014 1816						DryWt Corrected: Y

Analyte	Result	Qual	Units	RL	RL	Dil	Method
Percent Moisture	1.9		%	0.10	0.10	1.0	D-2216
Analysis Batch: 280-234955	Analysis Date: 07/18/2014 1101						DryWt Corrected: N

8/6/14

Client: Washington Closure Hanford

Job Number: 280-57846-1
Sdg Number: JP0833

General Chemistry

Client Sample ID: **J1TWC4**

Lab Sample ID: 280-57846-11
Client Matrix: Solid
% Moisture: 1.5

Date Sampled: 07/16/2014 0927
Date Received: 07/17/2014 0910

Analyte	Result	Qual	Units	MDL	RL	Dil	Method
Nitrate Nitrite as N-Soluble	11.5		mg/Kg	0.36	0.76	1.0	353.2
Analysis Batch: 280-235640	Analysis Date: 07/22/2014 2204						DryWt Corrected: Y
Chloride-Soluble	110		mg/Kg	2.0	5.0	1.0	9056M
Analysis Batch: 280-235280	Analysis Date: 07/22/2014 1836						DryWt Corrected: Y
Nitrate as N-Soluble	14.5	J	mg/Kg	0.32	2.5	1.0	9056M
Analysis Batch: 280-235279	Analysis Date: 07/22/2014 1836						DryWt Corrected: Y
Bromide-Soluble	0.39	U	mg/Kg	0.39	2.0	1.0	9056M
Analysis Batch: 280-235280	Analysis Date: 07/22/2014 1836						DryWt Corrected: Y
Nitrite as N-Soluble	0.34	U R	mg/Kg	0.34	2.5	1.0	9056M
Analysis Batch: 280-235279	Analysis Date: 07/22/2014 1836						DryWt Corrected: Y
Orthophosphate as P-Soluble	2.7	B J	mg/Kg	1.2	5.0	1.0	9056M
Analysis Batch: 280-235279	Analysis Date: 07/22/2014 1836						DryWt Corrected: Y
Sulfate-Soluble	40.5		mg/Kg	1.7	5.0	1.0	9056M
Analysis Batch: 280-235280	Analysis Date: 07/22/2014 1836						DryWt Corrected: Y
Fluoride-Soluble	3.9	B J	mg/Kg	0.82	5.0	1.0	9056M
Analysis Batch: 280-235280	Analysis Date: 07/22/2014 1836						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: 280-234955	Analysis Date: 07/18/2014 1101						DryWt Corrected: N

8/6/14

Client: Washington Closure Hanford

Job Number: 280-57846-1
Sdg Number: JP0833

General Chemistry

Client Sample ID: **J1TWC5**

Lab Sample ID: 280-57846-12
Client Matrix: *Solid* *% Moisture:* 0.7

Date Sampled: 07/16/2014 0937
Date Received: 07/17/2014 0910

Analyte	Result	Qual	Units	MDL	RL	Dil	Method
Nitrate Nitrite as N-Soluble	5.9		mg/Kg	0.36	0.76	1.0	353.2
Analysis Batch: 280-234865	Analysis Date: 07/17/2014 2049						DryWt Corrected: Y
Chloride-Soluble	87.7		mg/Kg	2.0	5.0	1.0	9056M
Analysis Batch: 280-235280	Analysis Date: 07/22/2014 1856						DryWt Corrected: Y
Nitrate as N-Soluble	7.6	J	mg/Kg	0.31	2.5	1.0	9056M
Analysis Batch: 280-235279	Analysis Date: 07/22/2014 1856						DryWt Corrected: Y
Bromide-Soluble	0.39	U	mg/Kg	0.39	2.0	1.0	9056M
Analysis Batch: 280-235280	*Analysis Date: 07/22/2014 1856*						*DryWt Corrected: Y*
Nitrite as N-Soluble	0.34	U R	mg/Kg	0.34	2.5	1.0	9056M
Analysis Batch: 280-235279	Analysis Date: 07/22/2014 1856						DryWt Corrected: Y
Orthophosphate as P-Soluble	4.3	B J	mg/Kg	1.2	5.0	1.0	9056M
Analysis Batch: 280-235279	Analysis Date: 07/22/2014 1856						DryWt Corrected: Y
Sulfate-Soluble	36.5		mg/Kg	1.7	5.0	1.0	9056M
Analysis Batch: 280-235280	Analysis Date: 07/22/2014 1856						DryWt Corrected: Y
Fluoride-Soluble	4.0	B J	mg/Kg	0.82	5.0	1.0	9056M
Analysis Batch: 280-235280	Analysis Date: 07/22/2014 1856						DryWt Corrected: Y

Analyte	Result	Qual	Units	RL	RL	Dil	Method
Percent Moisture	0.71		%	0.10	0.10	1.0	D-2216
Analysis Batch: 280-234955	Analysis Date: 07/18/2014 1101						DryWt Corrected: N

8/6/14

Client: Washington Closure Hanford

Job Number: 280-57846-1
Sdg Number: JP0833

General Chemistry

Client Sample ID: **J1TWC6**

Lab Sample ID: 280-57846-13
Client Matrix: *Solid*
% Moisture: *1.0*

Date Sampled: 07/16/2014 0841
Date Received: 07/17/2014 0910

Analyte	Result	Qual	Units	MDL	RL	Dil	Method
Nitrate Nitrite as N-Soluble	6.0		mg/Kg	0.36	0.76	1.0	353.2
Analysis Batch: 280-234865	Analysis Date: 07/17/2014 2119						DryWt Corrected: Y
Chloride-Soluble	72.2		mg/Kg	2.0	5.0	1.0	9056M
Analysis Batch: 280-235280	Analysis Date: 07/22/2014 1916						DryWt Corrected: Y
Nitrate as N-Soluble	8.4	J	mg/Kg	0.31	2.5	1.0	9056M
Analysis Batch: 280-235279	Analysis Date: 07/22/2014 1916						DryWt Corrected: Y
Bromide-Soluble	0.39	U	mg/Kg	0.39	2.0	1.0	9056M
Analysis Batch: 280-235280	Analysis Date: 07/22/2014 1916						DryWt Corrected: Y
Nitrite as N-Soluble	0.34	U R	mg/Kg	0.34	2.5	1.0	9056M
Analysis Batch: 280-235279	Analysis Date: 07/22/2014 1916						DryWt Corrected: Y
Orthophosphate as P-Soluble	2.7	B J	mg/Kg	1.2	5.0	1.0	9056M
Analysis Batch: 280-235279	Analysis Date: 07/22/2014 1916						DryWt Corrected: Y
Sulfate-Soluble	31.4	C U	mg/Kg	1.7	5.0	1.0	9056M
Analysis Batch: 280-235280	Analysis Date: 07/22/2014 1916						DryWt Corrected: Y
Fluoride-Soluble	4.5	B J	mg/Kg	0.82	5.0	1.0	9056M
Analysis Batch: 280-235280	Analysis Date: 07/22/2014 1916						DryWt Corrected: Y

Analyte	Result	Qual	Units	RL	RL	Dil	Method
Percent Moisture	0.99		%	0.10	0.10	1.0	D-2216
Analysis Batch: 280-234955	Analysis Date: 07/18/2014 1101						DryWt Corrected: N

4/6/14

Sample Results Summary

Date: 23-Jul-14

TestAmerica Inc TARL

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

Report No. : 61379

SDG No: JP0833

Batch	Client Id Work Order	Parameter	Result +- Uncertainty (2s)	Qual	Units	Tracer Yield	MDL	CRDL	RPD
4198020	7196_CR6								
	J1TW94								
	M4C3L1AA	HEXCHROME	1.55E-01 +- 0.0E+00	U	mg/kg	N/A	1.55E-01	1.55E-01	
	M4C3L1AE	HEXCHROME	1.55E-01 +- 0.0E+00	U	mg/kg	N/A	1.55E-01	1.55E-01	0.0
	J1TW95								
	M4C3P1AA	HEXCHROME	3.16E-01 +- 0.0E+00		mg/kg	N/A	1.55E-01	1.55E-01	
	J1TW96								
	M4C3Q1AA	HEXCHROME	3.56E-01 +- 0.0E+00		mg/kg	N/A	1.55E-01	1.55E-01	
	J1TW97								
	M4C3T1AA	HEXCHROME	3.15E-01 +- 0.0E+00		mg/kg	N/A	1.55E-01	1.55E-01	
	J1TW98								
	M4C3W1AA	HEXCHROME	2.94E-01 +- 0.0E+00		mg/kg	N/A	1.55E-01	1.55E-01	
	J1TW99								
	M4C3X1AA	HEXCHROME	3.16E-01 +- 0.0E+00		mg/kg	N/A	1.55E-01	1.55E-01	
	J1TWC0								
	M4C301AA	HEXCHROME	3.97E-01 +- 0.0E+00		mg/kg	N/A	1.55E-01	1.55E-01	
	J1TWC1								
	M4C311AA	HEXCHROME	3.36E-01 +- 0.0E+00		mg/kg	N/A	1.55E-01	1.55E-01	
	J1TWC2								
	M4C321AA	HEXCHROME	3.36E-01 +- 0.0E+00		mg/kg	N/A	1.55E-01	1.55E-01	
	J1TWC3								
	M4C331AA	HEXCHROME	1.55E-01 +- 0.0E+00	U	mg/kg	N/A	1.55E-01	1.55E-01	
	J1TWC4								
	M4C341AA	HEXCHROME	3.16E-01 +- 0.0E+00		mg/kg	N/A	1.55E-01	1.55E-01	
	J1TWC5								
	M4C351AA	HEXCHROME	1.55E-01 +- 0.0E+00	U	mg/kg	N/A	1.55E-01	1.55E-01	
	J1TWC6								
	M4C361AA	HEXCHROME	3.55E-01 +- 0.0E+00		mg/kg	N/A	1.55E-01	1.55E-01	

No. of Results: 14

8/6/14

TestAmerica Inc

rptTALRchSaSummary2 V5.3.3
A2002

RPD - Relative Percent Difference.

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

Appendix 4

Laboratory Narrative and Chain-of-Custody Documentation

CASE NARRATIVE

Client: Washington Closure Hanford

Project: WASHINGTON CLOSURE HANFORD

Report Number: 280-57846-1

SDG #: JP0833
SAF#: RC-075

Date SDG Closed: July 17, 2014
Data Deliverable: 7 Day / Summary

CLIENT ID	LAB ID	ANALYSES REQUESTED	ANALYSES PERFORMED
J1TW94	280-57846-1	6010/7471/9056M/353.2/8270A/8310/8082/8081	6010B/7471A/9056M/353.2/8270C/8310/8082/8081A
J1TW95	280-57846-2	6010/7471/9056M/353.2/8270A/8310/8082/8081	6010B/7471A/9056M/353.2/8270C/8310/8082/8081A
J1TW96	280-57846-3	6010/7471/9056M/353.2/8270A/8310/8082/8081	6010B/7471A/9056M/353.2/8270C/8310/8082/8081A
J1TW97	280-57846-4	6010/7471/9056M/353.2/8270A/8310/8082/8081	6010B/7471A/9056M/353.2/8270C/8310/8082/8081A
J1TW98	280-57846-5	6010/7471/9056M/353.2/8270A/8310/8082/8081	6010B/7471A/9056M/353.2/8270C/8310/8082/8081A
J1TW99	280-57846-6	6010/7471/9056M/353.2/8270A/8310/8082/8081	6010B/7471A/9056M/353.2/8270C/8310/8082/8081A
J1TWC0	280-57846-7	6010/7471/9056M/353.2/8270A/8310/8082/8081	6010B/7471A/9056M/353.2/8270C/8310/8082/8081A
J1TWC1	280-57846-8	6010/7471/9056M/353.2/8270A/8310/8082/8081	6010B/7471A/9056M/353.2/8270C/8310/8082/8081A
J1TWC2	280-57846-9	6010/7471/9056M/353.2/8270A/8310/8082/8081	6010B/7471A/9056M/353.2/8270C/8310/8082/8081A
J1TWC3	280-57846-10	6010/7471/9056M/353.2/8270A/8310/8082/8081	6010B/7471A/9056M/353.2/8270C/8310/8082/8081A
J1TWC4	280-57846-11	6010/7471/9056M/353.2/8270A/8310/8082/8081	6010B/7471A/9056M/353.2/8270C/8310/8082/8081A
J1TWC5	280-57846-12	6010/7471/9056M/353.2/8270A/8310/8082/8081	6010B/7471A/9056M/353.2/8270C/8310/8082/8081A
J1TWC6	280-57846-13	6010/7471/9056M/353.2/8270A/8310/8082/8081	6010B/7471A/9056M/353.2/8270C/8310/8082/8081A
J1TWC7	280-57846-14	6010/7471/8270A	6010B/7471A/8270C

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

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

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

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

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

RECEIPT
The samples were received on 7/17/2014 9:10 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 3 coolers at receipt time were 0.7° C, 2.6° C and 3.7° C.

GC/MS SEMIVOLATILES - SW846 8270C
The MS/MSD performed on sample J1TW97 exhibited percent recoveries outside the control limits for 2,4-Dinitrophenol, and the associated sample result has been flagged "T". The acceptable LCS analysis data indicated that the analytical system was operating within control; therefore, corrective action is deemed unnecessary.

No other anomalies were encountered.

GC SEMIVOLATILES - SW846 8081A - Pesticides
No anomalies were encountered.

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

HPLC - SW846 8310 - PAHs
The MS aliquot of the MS/MSD performed on sample J1TW95 exhibited a percent recovery outside the control limits for Benzo[b]fluoranthene, and the associated sample result has been flagged "N". The acceptable LCS analysis data indicated that the analytical system was operating within control; therefore, corrective action is deemed unnecessary.

No other anomalies were encountered.

TOTAL METALS - SW846 6010B/7471A
Serial dilution of a digestate in batch 280-234933 indicates that physical and chemical interferences are present for several elements. Results have been flagged with an "X".

Each sample is analyzed to achieve the lowest possible reporting limits within the constraints of the methods. Samples J1TW94 and J1TW98 required a 5X dilution prior to the analysis of Antimony, Beryllium, Cobalt, Copper, Lead and Vanadium to minimize the interference caused by Titanium concentrations greater than the linear range. The reporting limits have been adjusted relative to the dilution required.

Low levels of Chromium, Copper and Zinc are present in the method blank associated with batch 280-234933. Because the *concentrations in the method blank are not present at levels greater than half the reporting limit, corrective action is deemed* unnecessary.

It can be noted that the sample amount was greater than four times the spike amount for Aluminum, Iron and Manganese in the Matrix Spike performed on sample J1TW94; therefore, control limits are not applicable.

The Matrix Spike performed on sample J1TW94 exhibited percent recoveries outside the control limits for Silicon and Beryllium, and the associated sample results have 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.

The duplicate analysis of sample J1TW94 exhibited RPD data outside the control limits for Molybdenum, and the associated sample result has been flagged "M". There is no indication that the analytical system was operating out of control, and method accuracy has been verified by the acceptable LCS analysis data; therefore, corrective action is deemed unnecessary.

No other anomalies were encountered.

GENERAL CHEMISTRY - MCAWW 353.2 - NITRATE NITRITE as N
The Matrix Spike performed on sample J1TW99 exhibited the percent recovery outside the control limits, 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 - SW846 9056M - ANIONS
Sulfate and Chloride are present in the method blank associated with batch 280-235280 at 6.77 mg/kg and 7.12 mg/kg, respectively, which is greater than half the project specific reporting limit (PSRL) of 5 mg/kg. TestAmerica's practical quantitation limit (PQL) for Sulfate is 50 mg/kg and Chloride is 30 mg/kg. The laboratory cannot maintain system cleanliness at this low level; therefore, corrective action is not initiated. It can be noted that the concentrations found in the method blank are less than half of the laboratory standard PQLs.

The Matrix Spike performed on sample J1TW94 exhibited the percent recovery outside the control limits for Fluoride, 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.

The duplicate analysis of sample J1TW94 exhibited RPD data outside the control limits for Chloride and Sulfate, and the associated sample results have been flagged "M". There is no indication that the analytical system was operating out of control, and method accuracy has been verified by the acceptable LCS analysis data; therefore, corrective action is deemed unnecessary.

No other anomalies were encountered.

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-075-438	Page 1 of 3

Collector: H. Weber	Company Contact: Joan Kessner	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Price Code	Data Turnaround: 7days		
Project Designation: 100-D/DR Field Remediation	Sampling Location: 100-D-106, Verification, stockpile area		SAF No.: RC-075
Ice Chest No.: RCC-07-011, -009, -006	Field Logbook No.: EL-1662-02	COA: 01D1062000	Method of Shipment: Commercial Carrier / FED EX
Shipped To: TestAmerica Denver	Offsite Property No.: A131165		Bill of Lading/Air Bill No.: See OSPC

Other Labs Shipped To: TestAmerica Richland

POSSIBLE SAMPLE HAZARDS/REMARKS
None

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C				
Type of Container	G/P	G/P	aG	aG	aG	aG				
No. of Container(s)	1	1	1	1	1	1				
Volume	250mL	250mL	250mL	250mL	250mL	250mL				
Sample Analysis	See Item (1) in Special Instructions	IC Anions - 9056 Modified; NO2/NO3 - 353.2	Semi-VOA - 8270A (TCL)	PAHs - 8310	PCBs - 8082	Pesticides - 8081				
Sample No.	Matrix	Sample Date	Sample Time								
J1TW94	SOIL	7/16/14	0745	✓	✓	✓	✓	✓	✓		
J1TW95	SOIL	7/16/14	0807	✓	✓	✓	✓	✓	✓		
J1TW96	SOIL	7/16/14	0800	✓	✓	✓	✓	✓	✓		
J1TW97	SOIL	7/16/14	0757	✓	✓	✓	✓	✓	✓		
J1TW98	SOIL	7/16/14	0820	✓	✓	✓	✓	✓	✓		

Page 1 of 1

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Heather Weber / [signature]	07/16/14 0949	R. Fahlberg / R. Fahlberg	0949 7-16-14
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
R. Fahlberg / R. Fahlberg	1115 7-16-14	Fed Ex	
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
[signature]	0910 7/17/14	Fed Ex	
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
		[signature]	0910 7/17/14
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

SPECIAL INSTRUCTIONS

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

REVIEWED BY K. Woodvie email
DATE 7/16/14

JP0833

WCH-EE-011

2.3, 0.4, 3.4 IR4 +3 MS 7-17-14

Washington Closure Hanford

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

RC-075-438

Collector: W. Weber	Company Contact: Joan Kessner	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Price Code:	Data Turnaround: 7 days		
Project Designation: 100-D/DR Field Remediation	Sampling Location: 100-D-106, Verification, stockpile area		SAF No.: RC-075
Ice Chest No.: RCC-07-011, -009, -006	Field Logbook No.: EL-1662-02	COA: 01D1062000	Method of Shipment: Commercial Carrier / FED Ex
Shipped To: TestAmerica Denver	Offsite Property No.: A131165		Bill of Lading/Air Bill No.: See OSPC
Other Labs Shipped To: TestAmerica Richland			

POSSIBLE SAMPLE HAZARDS/REMARKS

None

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C					
Type of Container	G/P	G/P	aG	aG	aG	aG					
No. of Container(s)	1	1	1	1	1	1					
Volume	250mL	250mL	250mL	250mL	250mL	250mL					
Sample Analysis	See Item (1) in Special Instructions	IC Anions - 9056 Modified, NO2/NO3 - 353.2	Semi-VOA - 8270A (TCL)	PAHs - 8310	PCBs - 8082	Pesticides - 8081					
Sample No.	Matrix	Sample Date	Sample Time								
J1TW99	SOIL	7/16/14	0830	✓	✓	✓	✓	✓	✓		
J1TWC0	SOIL	7/16/14	0841	✓	✓	✓	✓	✓	✓		
J1TWC1	SOIL	7/16/14	0900	✓	✓	✓	✓	✓	✓		
J1TWC2	SOIL	7/16/14	0907	✓	✓	✓	✓	✓	✓		
J1TWC3	SOIL	7/16/14	0915	✓	✓	✓	✓	✓	✓		

CHAIN OF POSSESSION

Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Heather Weber / [signature]	07/16/14 0949	R. Fehlberg / R. Fehlberg	7-16-14 0949
R. Fehlberg / R. Fehlberg	7-16-14 1115	Fed Ex	
[signature]	7/17/14 0910	FedEx	
FC		[signature]	0910 7/17/14

FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

SPECIAL INSTRUCTIONS

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

REVIEWED BY K. Wood via email DATE 7/16/14

JP0833

WCH-EE-011

Washington Closure Hanford

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

RC-075-438

Collector: N. Weber	Company Contact: Joan Kessner	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Price Code:	Data Turnaround: 7 days		
Project Designation: 100-D/DR Field Remediation	Sampling Location: 100-D-106, Verification, stockpile area		SAF No.: RC-075
Ice Chest No.: RCC-07-011, -009, -006	Field Logbook No.: EL-1662-02	COA: 01D1062000	Method of Shipment: Commercial Carrier / FED Ex
Shipped To: TestAmerica Denver	Offsite Property No.: A131165		Bill of Lading/Air Bill No.: See OSPC
Other Labs Shipped To: TestAmerica Richland			

POSSIBLE SAMPLE HAZARDS/REMARKS

None

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C					
Type of Container	G/P	G/P	aG	aG	aG	aG					
No. of Container(s)	1	1	1	1	1	1					
Volume	250mL	250mL	250mL	250mL	250mL	250mL					
Sample Analysis	See item (1) in Special Instructions	IC Anions - 9056 Modified, NO2/NO3 - 353.2	Semi-VOA - 8270A (TCL)	PAHs - 8310	PCBs - 8082	Pesticides - 8081					
Sample No.	Matrix	Sample Date	Sample Time								
J1TWC4	SOIL	7/16/14	0927	✓	✓	✓	✓	✓	✓		
J1TWC5	SOIL	7/16/14	0932	✓	✓	✓	✓	✓	✓		
J1TWC6	SOIL	7/16/14	0941	✓	✓	✓	✓	✓	✓		
J1TWC7	SOIL	7/16/14	0735	✓		✓					

Page 1 of 1

CHAIN OF POSSESSION

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Heather Weber / [signature]	07/16/14 0949	R. Fahlberg / R. Fahlberg	0949 7-16-14
R. Fahlberg / R. Fahlberg	1115 7-16-14	Fed Ex	
[signature]	0910 7/17/14	Fed Ex	
(RZ)		[signature]	0910 7/17/14

Sign/Print Names

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

SPECIAL INSTRUCTIONS

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

REVIEWED BY K. Wood / K. Wood DATE 7/16/14

JP0833

WCH-EE-011

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Certificate of Analysis

Washington Hanford Closure
2620 Fermi Avenue
Richland, WA 99354

July 23, 2014

Attention: Joan Kessner

SAF Number	:	RC-075
Date SDG Closed	:	July 16, 2014
Number of Samples	:	Thirteen (13)
Sample Type	:	Soil
SDG Number	:	JP0833
Data Deliverable	:	7-Day / Summary

CASE NARRATIVE

I. Introduction

On July 16, 2014, thirteen soil samples were received at TestAmerica for chemistry analysis. Upon receipt, the samples were assigned the following laboratory ID numbers to correspond with the Washington Closure Hanford (WCH) specific ID:

WCH ID#	TARL ID#	MATRIX	DATE OF RECEIPT
J1TW94	M4C3L	SOIL	7/16/14
J1TW95	M4C3P	SOIL	7/16/14
J1TW96	M4C3Q	SOIL	7/16/14
J1TW97	M4C3T	SOIL	7/16/14
J1TW98	M4C3W	SOIL	7/16/14
J1TW99	M4C3X	SOIL	7/16/14
J1TWC0	M4C30	SOIL	7/16/14
J1TWC1	M4C31	SOIL	7/16/14
J1TWC2	M4C32	SOIL	7/16/14
J1TWC3	M4C33	SOIL	7/16/14
J1TWC4	M4C34	SOIL	7/16/14
J1TWC5	M4C35	SOIL	7/16/14
J1TWC6	M4C36	SOIL	7/16/14

II. Sample Receipt

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

III. Analytical Results/Methodology

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

The requested analysis was:

Chemical Analysis
Hexavalent Chromium by EPA method 7196A

IV. Quality Control

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

QC and sample results are reported in the same units.

V. Comments

Chemical Analysis
Hexavalent Chromium by EPA method 7196A:
The LCS, batch blank, samples, sample duplicate (J1TW94) and sample matrix spike (J1TW94) results are within contractual requirements.

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

Reviewed and approved:

Rhonda Wagar
Project Manager

TestAmerica Laboratories, Inc.

32
28

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-075-438	Page 1 of 3

Collector: H. Weber	Company Contact: Joan Kessner	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Price Code:	Data Turnaround: 7days		
Project Designation: 100-D/DR Field Remediation	Sampling Location: 100-D-106, Verification, stockpile area		SAF No.: RC-075
Ice Chest No.: WCH-12-11-7	Field Logbook No.: EL-1662-02	COA: 01D1062000	Method of Shipment: Local Delivery
Shipped To: TestAmerica Richland	Offsite Property No.: NA		Bill of Lading/Air Bill No.: NA

Other Labs Shipped To: TestAmerica Denver

POSSIBLE SAMPLE HAZARDS/REMARKS
None

Special Handling and/or Storage

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

Sample No.	Matrix	Sample Date	Sample Time								
J1TW94 M4C3L	SOIL	7/16/14	0745	✓							
J1TW95 M4C3P	SOIL	7/16/14	0807	✓							
J1TW96 ~~M3~~ M4C3Q	SOIL	7/16/14	0800	✓							
J1TW97 M4C3T	SOIL	7/16/14	0751	✓							
J1TW98 M4C3W	SOIL	7/16/14	0820	✓							

CHAIN OF POSSESSION	Sign/Print Names	
Relinquished By/Removed From: Heather Weber	Date/Time: 07/16/14 0949	Received By/Stored In: R. Fahlberg	Date/Time: 0949 7-16-14
Relinquished By/Removed From: R. Fahlberg	Date/Time: 1115 7-16-14	Received By/Stored In: Sam Sexton	Date/Time: 1115 7/16/14
Relinquished By/Removed From: Sam Sexton	Date/Time: 1430 7/16/14	Received By/Stored In: J. Bock TALL	Date/Time: 7-16-14 1430
Relinquished By/Removed From:	Date/Time:	Received By/Stored In:	Date/Time:
Relinquished By/Removed From:	Date/Time:	Received By/Stored In:	Date/Time:
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

WCH-EE-011

SPECIAL INSTRUCTIONS

J4G160422
Due 7-23-14

SDG:
JP0833

REVIEWED BY K. Wood via email
DATE 7/16/14

J4G160422

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-075-438	Page 2 of 3
Collector: N. Weber	Company Contact: Joan Kessner; Telephone No.: 375-4688	Project Coordinator: KESSNER, JH	Price Code: Data Turnaround: 7days
Project Designation: 100-D/DR Field Remediation	Sampling Location: 100-D-106, Verification, stockpile area	SAF No.: RC-075	
Ice Chest No.: WCH-12-11-7	Field Logbook No.: EL-1662-02; COA: 01D1062000	Method of Shipment: Local Delivery	
Shipped To: TestAmerica Richland	Offsite Property No.: NA	Bill of Lading/Air Bill No.: NA	
Other Labs Shipped To: TestAmerica Denver			

POSSIBLE SAMPLE HAZARDS/REMARKS
None

Special Handling and/or Storage

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

Sample No.	Matrix	Sample Date	Sample Time									
J1TW99 m4C30	SOIL	7/16/14	0830	✓								
J1TWC0 m4C30	SOIL	7/16/14	0841	✓								
J1TWC1 m4C31	SOIL	7/16/14	0900	✓								
J1TWC2 m4C32	SOIL	7/16/14	0907	✓								
J1TWC3 m4C33	SOIL	7/16/14	0915	✓								

CHAIN OF POSSESSION	Date/Time	Sign/Print Names	Date/Time
Relinquished By/Removed From: Heather Weber/Heather	07/16/14 0949	Received By/Stored In: R. Fehlberg R. Fehlberg	0949 7-16-14
Relinquished By/Removed From: R. Fehlberg R. Fehlberg	1115 7-16-14	Received By/Stored In: SM Sexton	1115 7/16/14
Relinquished By/Removed From: SM Sexton	1430 7/16/14	Received By/Stored In: J. Bock	7-16-14 1430
Relinquished By/Removed From		Received By/Stored In	
Relinquished By/Removed From		Received By/Stored In	
Relinquished By/Removed From		Received By/Stored In	
Relinquished By/Removed From		Received By/Stored In	
FINAL SAMPLE DISPOSITION: Disposal Method		Disposed By	Date/Time

SPECIAL INSTRUCTIONS

J46160432
Due 7-23-14

REVIEWED BY K. Wooldridge
DATE 7/16/14

JP0833

WCH-EE-011

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-075-438	Page 3 of 3

Collector: H. Weber	Company Contact: Joan Kessner	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Price Code	Data Turnaround: 7 days		
Project Designation: 100-D/DR Field Remediation	Sampling Location: 100-D-106, Verification, stockpile area		SAF No.: RC-075
Ice Chest No.: WCH-12-11-7	Field Logbook No.: EL-1662-02	COA: 01D1062000	Method of Shipment: Local Delivery
Shipped To: TestAmerica Richland	Offsite Property No.: NA		Bill of Lading/Air Bill No.: NA
Other Labs Shipped To: TestAmerica Denver			

POSSIBLE SAMPLE HAZARDS/REMARKS

None

Special Handling and/or Storage

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

Sample No.	Matrix	Sample Date	Sample Time									
J1TWC4 MUC34	SOIL	7/16/14	0927	✓								
J1TWC5 MUC35	SOIL	7/16/14	0937	✓								
J1TWC6 MUC36	SOIL	7/16/14	0841	✓								

CHAIN OF POSSESSION		Sign/Print Names	
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Heather Weber / [signature]	07/16/14 0949	R. Fahlberg / R. Fahlberg	0948 7-16-14
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
R. Fahlberg / R. Fahlberg	1115 7-16-14	Sam Sextral / [signature]	1115 7/16/14
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Sam Sextral / [signature]	1430 7/16/14	J. Bock / Bock-TALR	7-16-14 1430
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

SPECIAL INSTRUCTIONS

J46160432
Due 7-23-14

JP0833

REVIEWED BY K. Wood via email DATE 7/16/14

WCH-EE-011

Appendix 5

Data Validation Supporting Documentation

GENERAL CHEMISTRY ANALYSIS DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	E
PROJECT:	100-D-106		DATA PACKAGE:	JP0833	
VALIDATOR:	ELR	LAB:	TAL	DATE:	8/4/14
			SDG:	JP0833	

ANALYSES PERFORMED

Anions/IC	TOC	TOX	TPH-418.1	Oil and Grease	Alkalinity
Ammonia	BOD/COD	Chloride	Chromium-VI	pH	NO_3/NO_2
Sulfate	TDS	TKN	Phosphate		

SAMPLES/MATRIX

J1TW94	J1TW95	J1TW96	J1TW97
J1TW98	J1TW99	J1TWC0	J1TWC1
J1TWC2	J1TWC3	J1TWC4	J1TW65
J1TWC6			
			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: Sulfate – ttt – U Bottom

no F

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

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

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

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

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

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

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

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

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

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

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

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

Comments: MS – fluoride – 69% – Jal

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: nitrate, nitrite ortho - J/UR all

GENERAL CHEMISTRY ANALYSIS DATA VALIDATION CHECKLIST

7. RESULT QUANTITATION AND DETECTION LIMITS (all levels)

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

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

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

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

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

Comments:

Appendix 6

Additional Documentation Requested by Client

Client: Washington Closure Hanford

Job Number: 280-57846-1
Sdg Number: JP0833

Method Blank - Batch: 280-234865

Method: 353.2
Preparation: N/A

Lab Sample ID:	MB 280-234855/1-A	Analysis Batch:	280-234865	Instrument ID:	WC_Alp 2
Client Matrix:	Solid	Prep Batch:	N/A	Lab File ID:	C:\FLOW_4\0717NXNQ.R!
Dilution:	1.0	Leach Batch:	280-234855	Initial Weight/Volume:	
Analysis Date:	07/17/2014 2041	Units:	mg/Kg	Final Weight/Volume:	
Prep Date:	N/A				
Leach Date:	07/17/2014 1804				

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

Method Reporting Limit Check - Batch: 280-234865

Method: 353.2
Preparation: N/A

Lab Sample ID:	*MRL 280-234865/18*	*Analysis Batch:*	*280-234865*	*Instrument ID:*	*WC_Alp 2*
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	C:\FLOW_4\0717NXNQ.R!
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	100 mL
Analysis Date:	07/17/2014 1805	Units:	mg/L	Final Weight/Volume:	100 mL
Prep Date:	N/A				
Leach Date:	N/A				

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Nitrate Nitrite as N-Soluble	0.100	0.0850	85	50 - 150	B

Lab Control Sample - Batch: 280-234865

Method: 353.2
Preparation: N/A

Lab Sample ID:	LCS 280-234855/2-A	Analysis Batch:	280-234865	Instrument ID:	WC_Alp 2
Client Matrix:	Solid	Prep Batch:	N/A	Lab File ID:	C:\FLOW_4\0717NXNQ.R!
Dilution:	1.0	Leach Batch:	280-234855	Initial Weight/Volume:	
Analysis Date:	07/17/2014 2043	Units:	mg/Kg	Final Weight/Volume:	
Prep Date:	N/A				
Leach Date:	07/17/2014 1804				

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Nitrate Nitrite as N-Soluble	50.0	51.82	104	90 - 110	

Client: Washington Closure Hanford

Job Number: 280-57846-1
Sdg Number: JP0833

Matrix Spike - Batch: 280-234865

Method: 353.2
Preparation: N/A

Lab Sample ID:	280-57846-3	Analysis Batch:	280-234865	Instrument ID:	WC_Alp 2
Client Matrix:	Solid	Prep Batch:	N/A	Lab File ID:	C:\FLOW_4\0717NXNQ.R!
Dilution:	1.0	Leach Batch:	280-234855	Initial Weight/Volume:	
Analysis Date:	07/17/2014 2048	Units:	mg/Kg	Final Weight/Volume:	
Prep Date:	N/A				
Leach Date:	07/17/2014 1804				

Analyte	Sample Result/Qual	Spike Amount	Result	% Rec.	Limit	Qual
Nitrate Nitrite as N-Soluble	9.7	40.4	54.29	110	90 - 110	

Matrix Spike - Batch: 280-234865

Method: 353.2
Preparation: N/A

Lab Sample ID:	280-57846-6	Analysis Batch:	280-234865	Instrument ID:	WC_Alp 2
Client Matrix:	Solid	Prep Batch:	N/A	Lab File ID:	C:\FLOW_4\0717NXNQ.R!
Dilution:	1.0	Leach Batch:	280-234855	Initial Weight/Volume:	
Analysis Date:	07/17/2014 2114	Units:	mg/Kg	Final Weight/Volume:	
Prep Date:	N/A				
Leach Date:	07/17/2014 1804				

Analyte	Sample Result/Qual	Spike Amount	Result	% Rec.	Limit	Qual
Nitrate Nitrite as N-Soluble	4.6	40.4	49.66	112	90 - 110	N

Client: Washington Closure Hanford

Job Number: 280-57846-1
Sdg Number: JP0833

Duplicate - Batch: 280-234865

Method: 353.2
Preparation: N/A

Lab Sample ID:	280-57846-3	Analysis Batch:	280-234865	Instrument ID:	WC_Alp 2
Client Matrix:	Solid	Prep Batch:	N/A	Lab File ID:	C:\FLOW_4\0717NXNQ.R!
Dilution:	1.0	Leach Batch:	280-234855	Initial Weight/Volume:	
Analysis Date:	07/17/2014 2046	Units:	mg/Kg	Final Weight/Volume:	
Prep Date:	N/A				
Leach Date:	07/17/2014 1804				

Analyte	Sample Result/Qual	Result	RPD	Limit	Qual
Nitrate Nitrite as N-Soluble	9.7	9.74	0.6	10	

Duplicate - Batch: 280-234865

Method: 353.2
Preparation: N/A

Lab Sample ID:	280-57846-6	Analysis Batch:	280-234865	Instrument ID:	WC_Alp 2
Client Matrix:	Solid	Prep Batch:	N/A	Lab File ID:	C:\FLOW_4\0717NXNQ.R!
Dilution:	1.0	Leach Batch:	280-234855	Initial Weight/Volume:	
Analysis Date:	07/17/2014 2113	Units:	mg/Kg	Final Weight/Volume:	
Prep Date:	N/A				
Leach Date:	07/17/2014 1804				

Analyte	Sample Result/Qual	Result	RPD	Limit	Qual
Nitrate Nitrite as N-Soluble	4.6	4.62	0.4	10	

Client: Washington Closure Hanford

Job Number: 280-57846-1
Sdg Number: JP0833

Method Blank - Batch: 280-235640

Method: 353.2
Preparation: N/A

Lab Sample ID:	MB 280-235468/2-A	Analysis Batch:	280-235640	Instrument ID:	WC_Alp 2
Client Matrix:	Solid	Prep Batch:	N/A	Lab File ID:	C:\FLOW_4\0722NXNQ.R!
Dilution:	1.0	Leach Batch:	280-235468	Initial Weight/Volume:	
Analysis Date:	07/22/2014 2201	Units:	mg/Kg	Final Weight/Volume:	
Prep Date:	N/A				
Leach Date:	07/22/2014 2027				

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

Method Reporting Limit Check - Batch: 280-235640

Method: 353.2
Preparation: N/A

Lab Sample ID:	*MRL 280-235640/18*	*Analysis Batch:*	*280-235640*	*Instrument ID:*	*WC_Alp 2*
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	C:\FLOW_4\0722NXNQ.R!
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	100 mL
Analysis Date:	07/22/2014 2042	Units:	mg/L	Final Weight/Volume:	100 mL
Prep Date:	N/A				
Leach Date:	N/A				

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Nitrate Nitrite as N-Soluble	0.100	0.0995	99	50 - 150	B

Lab Control Sample - Batch: 280-235640

Method: 353.2
Preparation: N/A

Lab Sample ID:	LCS 280-235468/1-A	Analysis Batch:	280-235640	Instrument ID:	WC_Alp 2
Client Matrix:	Solid	Prep Batch:	N/A	Lab File ID:	C:\FLOW_4\0722NXNQ.R!
Dilution:	1.0	Leach Batch:	280-235468	Initial Weight/Volume:	
Analysis Date:	07/22/2014 2202	Units:	mg/Kg	Final Weight/Volume:	
Prep Date:	N/A				
Leach Date:	07/22/2014 2027				

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Nitrate Nitrite as N-Soluble	50.0	50.07	100	90 - 110	

Client: Washington Closure Hanford

Job Number: 280-57846-1
Sdg Number: JP0833

Matrix Spike - Batch: 280-235640

Method: 353.2
Preparation: N/A

Lab Sample ID:	280-57846-11	Analysis Batch:	280-235640	Instrument ID:	WC_Alp 2
Client Matrix:	Solid	Prep Batch:	N/A	Lab File ID:	C:\FLOW_4\0722NXNQ.R!
Dilution:	1.0	Leach Batch:	280-235468	Initial Weight/Volume:	
Analysis Date:	07/22/2014 2207	Units:	mg/Kg	Final Weight/Volume:	
Prep Date:	N/A				
Leach Date:	07/22/2014 2027				

Analyte	Sample Result/Qual	Spike Amount	Result	% Rec.	Limit	Qual
Nitrate Nitrite as N-Soluble	11.5	40.6	50.07	95	90 - 110	

Duplicate - Batch: 280-235640

Method: 353.2
Preparation: N/A

Lab Sample ID:	280-57846-11	Analysis Batch:	280-235640	Instrument ID:	WC_Alp 2
Client Matrix:	Solid	Prep Batch:	N/A	Lab File ID:	C:\FLOW_4\0722NXNQ.R!
Dilution:	1.0	Leach Batch:	280-235468	Initial Weight/Volume:	
Analysis Date:	07/22/2014 2206	Units:	mg/Kg	Final Weight/Volume:	
Prep Date:	N/A				
Leach Date:	07/22/2014 2027				

Analyte	Sample Result/Qual	Result	RPD	Limit	Qual
Nitrate Nitrite as N-Soluble	11.5	11.56	0.8	10	

Client: Washington Closure Hanford

Job Number: 280-57846-1
Sdg Number: JP0833

Method Blank - Batch: 280-235279

Method: 9056M
Preparation: N/A

Lab Sample ID:	MB 280-235340/2-A	Analysis Batch:	280-235279	Instrument ID:	WC_IonChrom11
Client Matrix:	Solid	Prep Batch:	N/A	Lab File ID:	0016.d
Dilution:	1.0	Leach Batch:	280-235340	Initial Weight/Volume:	5 mL
Analysis Date:	07/22/2014 1337	Units:	mg/Kg	Final Weight/Volume:	5 mL
Prep Date:	N/A				
Leach Date:	07/22/2014 0943				

Analyte	Result	Qual	MDL	RL
Nitrate as N-Soluble	0.31	U	0.31	2.5
Nitrite as N-Soluble	0.34	U	0.34	2.5
Orthophosphate as P-Soluble	1.2	U	1.2	5.0

Method Reporting Limit Check - Batch: 280-235279

Method: 9056M
Preparation: N/A

Lab Sample ID:	MRL 280-235279/10	Analysis Batch:	280-235279	Instrument ID:	WC_IonChrom11
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	0011.d
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	5 mL
Analysis Date:	07/22/2014 1151	Units:	mg/L	Final Weight/Volume:	5 mL
Prep Date:	N/A				
Leach Date:	N/A				

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Nitrate as N-Soluble	0.200	0.239	120	50 - 150	B
Nitrite as N-Soluble	0.200	0.246	123	50 - 150	B
Orthophosphate as P-Soluble	0.200	0.269	134	50 - 150	B

Lab Control Sample - Batch: 280-235279

Method: 9056M
Preparation: N/A

Lab Sample ID:	LCS 280-235340/1-A	Analysis Batch:	280-235279	Instrument ID:	WC_IonChrom11
Client Matrix:	Solid	Prep Batch:	N/A	Lab File ID:	0015.d
Dilution:	1.0	Leach Batch:	280-235340	Initial Weight/Volume:	5 mL
Analysis Date:	07/22/2014 1318	Units:	mg/Kg	Final Weight/Volume:	5 mL
Prep Date:	N/A				
Leach Date:	07/22/2014 0943				

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Nitrate as N-Soluble	50.0	48.28	97	90 - 110	
Nitrite as N-Soluble	50.0	49.92	100	90 - 110	
Orthophosphate as P-Soluble	50.0	52.97	106	90 - 110	

Client: Washington Closure Hanford

Job Number: 280-57846-1
Sdg Number: JP0833

Matrix Spike - Batch: 280-235279

Method: 9056M
Preparation: N/A

Lab Sample ID:	280-57846-1	Analysis Batch:	280-235279	Instrument ID:	WC_IonChrom11
Client Matrix:	Solid	Prep Batch:	N/A	Lab File ID:	0019.d
Dilution:	1.0	Leach Batch:	280-235340	Initial Weight/Volume:	5 mL
Analysis Date:	07/22/2014 1437	Units:	mg/Kg	Final Weight/Volume:	5 mL
Prep Date:	N/A				25 uL
Leach Date:	07/22/2014 0943				

Analyte	Sample Result/Qual		Spike Amount	Result	% Rec.	Limit	Qual
Nitrate as N-Soluble	10.8		50.3	61.18	100	80 - 120	
Nitrite as N-Soluble	0.33	U	50.3	41.12	82	80 - 120	
Orthophosphate as P-Soluble	2.1	B	50.3	49.51	94	80 - 120	

Matrix Spike - Batch: 280-235279

Method: 9056M
Preparation: N/A

Lab Sample ID:	280-57846-13	Analysis Batch:	280-235279	Instrument ID:	WC_IonChrom11
Client Matrix:	Solid	Prep Batch:	N/A	Lab File ID:	0035.d
Dilution:	1.0	Leach Batch:	280-235340	Initial Weight/Volume:	5 mL
Analysis Date:	07/22/2014 1956	Units:	mg/Kg	Final Weight/Volume:	5 mL
Prep Date:	N/A				25 uL
Leach Date:	07/22/2014 0943				

Analyte	Sample Result/Qual		Spike Amount	Result	% Rec.	Limit	Qual
Nitrate as N-Soluble	8.4		50.1	57.26	97	80 - 120	
Nitrite as N-Soluble	0.34	U	50.1	46.77	93	80 - 120	
Orthophosphate as P-Soluble	2.7	B	50.1	47.64	90	80 - 120	

Client: Washington Closure Hanford

Job Number: 280-57846-1
Sdg Number: JP0833

Duplicate - Batch: 280-235279

Method: 9056M
Preparation: N/A

Lab Sample ID:	280-57846-1	Analysis Batch:	280-235279	Instrument ID:	WC_IonChrom11
Client Matrix:	Solid	Prep Batch:	N/A	Lab File ID:	0018.d
Dilution:	1.0	Leach Batch:	280-235340	Initial Weight/Volume:	5 mL
Analysis Date:	07/22/2014 1417	Units:	mg/Kg	Final Weight/Volume:	5 mL
Prep Date:	N/A				25 uL
Leach Date:	07/22/2014 0943				

Analyte	Sample Result/Qual		Result	RPD	Limit	Qual
Nitrate as N-Soluble	10.8		9.28	15	15	
Nitrite as N-Soluble	0.33	U	0.34	NC	15	U
Orthophosphate as P-Soluble	2.1	B	2.17	3	15	B

Duplicate - Batch: 280-235279

Method: 9056M
Preparation: N/A

Lab Sample ID:	280-57846-13	Analysis Batch:	280-235279	Instrument ID:	WC_IonChrom11
Client Matrix:	Solid	Prep Batch:	N/A	Lab File ID:	0034.d
Dilution:	1.0	Leach Batch:	280-235340	Initial Weight/Volume:	5 mL
Analysis Date:	07/22/2014 1936	Units:	mg/Kg	Final Weight/Volume:	5 mL
Prep Date:	N/A				25 uL
Leach Date:	07/22/2014 0943				

Analyte	Sample Result/Qual		Result	RPD	Limit	Qual
Nitrate as N-Soluble	8.4		7.78	8	15	
Nitrite as N-Soluble	0.34	U	0.33	NC	15	U
Orthophosphate as P-Soluble	2.7	B	2.87	5	15	B

Client: Washington Closure Hanford

Job Number: 280-57846-1
Sdg Number: JP0833

Method Blank - Batch: 280-235280

Method: 9056M
Preparation: N/A

Lab Sample ID:	MB 280-235340/2-A	Analysis Batch:	280-235280	Instrument ID:	WC_IonChrom11
Client Matrix:	Solid	Prep Batch:	N/A	Lab File ID:	0016.d
Dilution:	1.0	Leach Batch:	280-235340	Initial Weight/Volume:	5 mL
Analysis Date:	07/22/2014 1337	Units:	mg/Kg	Final Weight/Volume:	5 mL
Prep Date:	N/A				
Leach Date:	07/22/2014 0943				

Analyte	Result	Qual	MDL	RL
Chloride-Soluble	7.12		2.0	5.0
Bromide-Soluble	0.39	U	0.39	2.0
Sulfate-Soluble	6.77		1.7	5.0
Fluoride-Soluble	0.82	U	0.82	5.0

Method Reporting Limit Check - Batch: 280-235280

Method: 9056M
Preparation: N/A

Lab Sample ID:	MRL 280-235280/10	Analysis Batch:	280-235280	Instrument ID:	WC_IonChrom11
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	0011.d
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	5 mL
Analysis Date:	07/22/2014 1151	Units:	mg/L	Final Weight/Volume:	5 mL
Prep Date:	N/A				
Leach Date:	N/A				

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Chloride-Soluble	2.50	2.33	93	50 - 150	B
Bromide-Soluble	0.200	0.217	108	50 - 150	
Sulfate-Soluble	2.50	2.46	99	50 - 150	B
Fluoride-Soluble	0.200	0.249	124	50 - 150	B

Lab Control Sample - Batch: 280-235280

Method: 9056M
Preparation: N/A

Lab Sample ID:	LCS 280-235340/1-A	Analysis Batch:	280-235280	Instrument ID:	WC_IonChrom11
Client Matrix:	Solid	Prep Batch:	N/A	Lab File ID:	0015.d
Dilution:	1.0	Leach Batch:	280-235340	Initial Weight/Volume:	5 mL
Analysis Date:	07/22/2014 1318	Units:	mg/Kg	Final Weight/Volume:	5 mL
Prep Date:	N/A				
Leach Date:	07/22/2014 0943				

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Chloride-Soluble	1000	977.6	98	90 - 110	
Bromide-Soluble	50.0	50.01	100	90 - 110	
Sulfate-Soluble	1000	950.8	95	90 - 110	
Fluoride-Soluble	50.0	51.69	103	90 - 110	

Client: Washington Closure Hanford

Job Number: 280-57846-1
Sdg Number: JP0833

Matrix Spike - Batch: 280-235280

Method: 9056M
Preparation: N/A

Lab Sample ID:	280-57846-1	Analysis Batch:	280-235280	Instrument ID:	WC_IonChrom11
Client Matrix:	Solid	Prep Batch:	N/A	Lab File ID:	0019.d
Dilution:	1.0	Leach Batch:	280-235340	Initial Weight/Volume:	5 mL
Analysis Date:	07/22/2014 1437	Units:	mg/Kg	Final Weight/Volume:	5 mL
Prep Date:	N/A				25 uL
Leach Date:	07/22/2014 0943				

Analyte	Sample Result/Qual		Spike Amount	Result	% Rec.	Limit	Qual
Chloride-Soluble	101		252	326.7	90	80 - 120	
Bromide-Soluble	0.38	U	50.3	42.22	84	80 - 120	
Sulfate-Soluble	58.4		252	279.0	88	80 - 120	
Fluoride-Soluble	3.3	B	50.3	38.31	69	80 - 120	N

Matrix Spike - Batch: 280-235280

Method: 9056M
Preparation: N/A

Lab Sample ID:	280-57846-13	Analysis Batch:	280-235280	Instrument ID:	WC_IonChrom11
Client Matrix:	Solid	Prep Batch:	N/A	Lab File ID:	0035.d
Dilution:	1.0	Leach Batch:	280-235340	Initial Weight/Volume:	5 mL
Analysis Date:	07/22/2014 1956	Units:	mg/Kg	Final Weight/Volume:	5 mL
Prep Date:	N/A				25 uL
Leach Date:	07/22/2014 0943				

Analyte	Sample Result/Qual		Spike Amount	Result	% Rec.	Limit	Qual
Chloride-Soluble	72.2		250	296.4	89	80 - 120	
Bromide-Soluble	0.39	U	50.1	48.53	97	80 - 120	
Sulfate-Soluble	31.4		251	239.1	83	80 - 120	
Fluoride-Soluble	4.5	B	50.1	47.44	86	80 - 120	

Client: Washington Closure Hanford

Job Number: 280-57846-1
Sdg Number: JP0833

Duplicate - Batch: 280-235280

Method: 9056M
Preparation: N/A

Lab Sample ID:	280-57846-1	Analysis Batch:	280-235280	Instrument ID:	WC_IonChrom11
Client Matrix:	Solid	Prep Batch:	N/A	Lab File ID:	0018.d
Dilution:	1.0	Leach Batch:	280-235340	Initial Weight/Volume:	5 mL
Analysis Date:	07/22/2014 1417	Units:	mg/Kg	Final Weight/Volume:	5 mL
Prep Date:	N/A				25 uL
Leach Date:	07/22/2014 0943				

Analyte	Sample Result/Qual		Result	RPD	Limit	Qual
Chloride-Soluble	101		89.17	12	10	M
Bromide-Soluble	0.38	U	0.39	NC	10	U
Sulfate-Soluble	58.4		52.15	11	10	M
Fluoride-Soluble	3.3	B	3.09	8	10	B

Duplicate - Batch: 280-235280

Method: 9056M
Preparation: N/A

Lab Sample ID:	280-57846-13	Analysis Batch:	280-235280	Instrument ID:	WC_IonChrom11
Client Matrix:	Solid	Prep Batch:	N/A	Lab File ID:	0034.d
Dilution:	1.0	Leach Batch:	280-235340	Initial Weight/Volume:	5 mL
Analysis Date:	07/22/2014 1936	Units:	mg/Kg	Final Weight/Volume:	5 mL
Prep Date:	N/A				25 uL
Leach Date:	07/22/2014 0943				

Analyte	Sample Result/Qual		Result	RPD	Limit	Qual
Chloride-Soluble	72.2		72.38	0.2	10	
Bromide-Soluble	0.39	U	0.39	NC	10	U
Sulfate-Soluble	31.4		31.09	1	10	
Fluoride-Soluble	4.5	B	4.28	4	10	B

QC Results Summary

Date: 23-Jul-14

TestAmerica Inc TARL

Ordered by Method, Batch No, QC Type,.

Report No. : 61379

SDG No.: JP0833

Batch Work Order	Parameter	Result +- Uncertainty (2s)	Qual	Units	Tracer Yield	LCS Recovery	Bias	MDL
7196_CR6								
4198020 MATRIX SPIKE, J1TW94								
M4C3L1AC	HEXCHROME	2.37E+01 +- 0.0E+00		mg/kg	N/A	78%	-0.2	1.55E-01
4198020 LCS,								
M4C521AC	HEXCHROME	1.89E+01 +- 0.0E+00		mg/kg	N/A	94%	-0.1	1.55E-01
4198020 BLANK QC,								
M4C521AA	HEXCHROME	1.55E-01 +- 0.0E+00	U	mg/kg	N/A			1.55E-01

No. of Results: 3

TestAmerica Inc

rptSTLRchQcSummary V5.3.3 A2002

Bias - (Result/Expected)-1 as defined by ANSI N13.30.

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