0097965

SAF-RC-148
300 Area Field Remediation – Soil Full Protocol
FINAL VALIDATION PACKAGE

COMPLETE COPY OF FINAL VALIDATION PACKAGE TO:

Kathy Wendt H4-21

COMMENTS:

SDG J01133 SAF-RC-148

Sample Location/Waste Site: 300-258

RECEIVED
AUG 08 2011
EDMC

Date: 25 July 2011
To: Washington Closure Hanford Inc. (technical representative)
From: ELR Consulting
Project: 300 Area Field Remediation – Soil Full Protocol – Waste Site 300-258
Subject: Wet Chemistry - Data Package No. J01133-TAL

INTRODUCTION

This memo presents the results of data validation on Data Package No. J01133 prepared by TestAmerica Inc. (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
J1JF93	6/9/11	Soil	C	See note 1
J1JF94	6/9/11	Soil	C	See note 1
J1JF95	6/9/11	Soil	C	See note 1
J1JF96	6/9/11	Soil	C	See note 1

1 – IC anions by 300.0 and nitrate/nitrite by 353.2.

Data validation was conducted in accordance with the Washington Closure Hanford Incorporated (WCH) validation statement of work and the 300 Area Remedial Action Sampling and Analysis Plan (DOE/RL-2001-48, Rev. 3). Appendices 1 through 6 provide the following information as indicated below:

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

DATA QUALITY PARAMETERS

Holding Times

Analytical holding times for metals are assessed to ascertain whether the holding time requirements were met by the laboratory. The holding time requirements are as follows: Soil samples must be analyzed within 28 days for nitrate/nitrite, chloride, fluoride, bromide, sulfate; and 48 hours for nitrate, nitrite and orthophosphate.

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

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

Due to the holding time being exceeded by greater than twice the limit, all undetected nitrate, nitrite and orthophosphate results were qualified as rejected and flagged "UR".

All other holding times were acceptable.

- **Method Blanks**

Method Blanks

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

All method blank results were acceptable.

Field Blanks

No field blanks were submitted for analysis.

- **Accuracy**

Matrix Spike and Laboratory Control Sample

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

All accuracy results were acceptable.

- **Precision**

Laboratory Duplicate Samples

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

All laboratory duplicate results were acceptable.

Field Duplicate

One set of field duplicates (J1JF93/J1JF96) 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 J01133 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 72%.

MAJOR DEFICIENCIES

The following major deficiency was noted:

- Due to the holding time being exceeded by greater than twice the limit, all undetected nitrate, nitrite and orthophosphate results were qualified as rejected and flagged "UR".

Rejected data is unusable and should not be reported.

MINOR DEFICIENCIES

The following minor deficiency was noted:

- Due to the holding time being exceeded by greater than twice the limit, all detected nitrate, nitrite and orthophosphate 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-2001-48, Rev. 3, *300 Area Remedial Action Sampling and Analysis Plan*, U.S. Department of Energy, May 2004.

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: J01133	**REVIEWER: ELR**	**Project: 300-258**	**PAGE_1_OF_1**
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
Nitrate	J	J1JF93, J1JF94 J1JF95	Hold time
Nitrate	UR	J1JF96	Hold time
Nitrite Orthophosphate	UR	All	Hold time

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

Appendix 3

Annotated Laboratory Reports

General Chemistry

Client Sample ID: J1JF93

Lab Sample ID: 280-16917-1
Client Matrix: Solid

% Moisture: 3.9

Date Sampled: 06/09/2011 1418
Date Received: 06/14/2011 0930

Analyte	Result	Qual	Units	MDL	RL	Dil	Method
Nitrate Nitrite as N-Soluble	0.31	U	mg/Kg	0.31	0.78	1.0	353.2
Analysis Batch: 280-73641		Analysis Date: 06/23/2011 1527					DryWt Corrected: Y
Chloride-Soluble	20.7		mg/Kg	2.1	5.2	1.0	9056M
Analysis Batch: 280-73195		Analysis Date: 06/20/2011 2141					DryWt Corrected: Y
Nitrate as N-Soluble	0.37	B J	mg/Kg	0.33	2.6	1.0	9056M
Analysis Batch: 280-73196		Analysis Date: 06/20/2011 2141					DryWt Corrected: Y
Bromide-Soluble	0.40	U	mg/Kg	0.40	2.1	1.0	9056M
Analysis Batch: 280-73195		Analysis Date: 06/20/2011 2141					DryWt Corrected: Y
Nitrite as N-Soluble	0.35	U R	mg/Kg	0.35	2.6	1.0	9056M
Analysis Batch: 280-73196		Analysis Date: 06/20/2011 2141					DryWt Corrected: Y
Orthophosphate as P-Soluble	1.3	U R	mg/Kg	1.3	5.2	1.0	9056M
Analysis Batch: 280-73196		Analysis Date: 06/20/2011 2141					DryWt Corrected: Y
Sulfate-Soluble	2.0	B	mg/Kg	1.8	5.2	1.0	9056M
Analysis Batch: 280-73195		Analysis Date: 06/20/2011 2141					DryWt Corrected: Y
Fluoride-Soluble	0.86	U	mg/Kg	0.86	5.2	1.0	9056M
Analysis Batch: 280-73195		Analysis Date: 06/20/2011 2141					DryWt Corrected: Y

Analyte	Result	Qual	Units	RL	RL	Dil	Method
Percent Moisture	3.9		%	0.10	0.10	1.0	D-2216
Analysis Batch: 280-72332		Analysis Date: 06/16/2011 1327					DryWt Corrected: N

Client: Washington Closure Hanford

Job Number: 280-16917-1
Sdg Number: J01133

General Chemistry

Client Sample ID: **J1JF94**

Lab Sample ID: 280-16917-2
Client Matrix: Solid

% Moisture: 4.4

Date Sampled: 06/09/2011 1427
Date Received: 06/14/2011 0930

Analyte	Result	Qual	Units	MDL	RL	Dil	Method
Nitrate Nitrite as N-Soluble	0.43	B	mg/Kg	0.31	0.78	1.0	353.2
Analysis Batch: 280-73641		Analysis Date: 06/23/2011 1529					DryWt Corrected: Y
Chloride-Soluble	31.1		mg/Kg	2.1	5.2	1.0	9056M
Analysis Batch: 280-73195		Analysis Date: 06/20/2011 2305					DryWt Corrected: Y
Nitrate as N-Soluble	0.61	B J	mg/Kg	0.33	2.6	1.0	9056M
Analysis Batch: 280-73196		Analysis Date: 06/20/2011 2305					DryWt Corrected: Y
Bromide-Soluble	0.41	U	mg/Kg	0.41	2.1	1.0	9056M
Analysis Batch: 280-73195		Analysis Date: 06/20/2011 2305					DryWt Corrected: Y
Nitrite as N-Soluble	0.35	U R	mg/Kg	0.35	2.6	1.0	9056M
Analysis Batch: 280-73196		Analysis Date: 06/20/2011 2305					DryWt Corrected: Y
Orthophosphate as P-Soluble	1.3	U R	mg/Kg	1.3	5.2	1.0	9056M
Analysis Batch: 280-73196		Analysis Date: 06/20/2011 2305					DryWt Corrected: Y
Sulfate-Soluble	2.8	B	mg/Kg	1.6	5.2	1.0	9056M
Analysis Batch: 280-73195		Analysis Date: 06/20/2011 2305					DryWt Corrected: Y
Fluoride-Soluble	0.86	U	mg/Kg	0.86	5.2	1.0	9056M
Analysis Batch: 280-73195		Analysis Date: 06/20/2011 2305					DryWt Corrected: Y

Analyte	Result	Qual	Units	RL	RL	Dil	Method
Percent Moisture	4.4		%	0.10	0.10	1.0	D-2216
Analysis Batch: 280-72332		Analysis Date: 06/16/2011 1327					DryWt Corrected: N

011

Client: Washington Closure Hanford

Job Number: 280-16917-1
Sdg Number: J01133

General Chemistry

Client Sample ID: J1JF96

Lab Sample ID: 280-16917-3
Client Matrix: Solid

% Moisture: 5.8

7/23/11

Date Sampled: 06/09/2011 1433
Date Received: 06/14/2011 0930

Analyte	Result	Qual	Units	MDL	RL	Dil	Method
Nitrate Nitrite as N-Soluble	0.32	U	mg/Kg	0.32	0.80	1.0	353.2
Analysis Batch: 280-73641		Analysis Date: 06/23/2011 1530					DryWt Corrected: Y
Chloride-Soluble	37.4		mg/Kg	2.1	5.3	1.0	9056M
Analysis Batch: 280-73195		Analysis Date: 06/20/2011 2322					DryWt Corrected: Y
Nitrate as N-Soluble	0.52	B J	mg/Kg	0.33	2.7	1.0	9056M
Analysis Batch: 280-73196		Analysis Date: 06/20/2011 2322					DryWt Corrected: Y
Bromide-Soluble	0.41	U	mg/Kg	0.41	2.1	1.0	9056M
Analysis Batch: 280-73195		Analysis Date: 06/20/2011 2322					DryWt Corrected: Y
Nitrite as N-Soluble	0.36	U R	mg/Kg	0.36	2.7	1.0	9056M
Analysis Batch: 280-73196		Analysis Date: 06/20/2011 2322					DryWt Corrected: Y
Orthophosphate as P-Soluble	1.3	U R	mg/Kg	1.3	5.3	1.0	9056M
Analysis Batch: 280-73196		Analysis Date: 06/20/2011 2322					DryWt Corrected: Y
Sulfate-Soluble	3.3	B	mg/Kg	1.8	5.3	1.0	9056M
Analysis Batch: 280-73195		Analysis Date: 06/20/2011 2322					DryWt Corrected: Y
Fluoride-Soluble	0.87	U	mg/Kg	0.87	5.3	1.0	9056M
Analysis Batch: 280-73195		Analysis Date: 06/20/2011 2322					DryWt Corrected: Y

Analyte	Result	Qual	Units	RL	RL	Dil	Method
Percent Moisture	5.8		%	0.10	0.10	1.0	D-2216
Analysis Batch: 280-72332		Analysis Date: 06/16/2011 1327					DryWt Corrected: N

012

Client: Washington Closure Hanford

Job Number: 280-16917-1
Sdg Number: J01133

General Chemistry

Client Sample ID: J1JF98

7/23/11

Lab Sample ID: 280-16917-4
Client Matrix: Solid

% Moisture: 3.9

Date Sampled: 06/09/2011 1418
Date Received: 06/14/2011 0930

Analyte	Result	Qual	Units	MDL	RL	Dil	Method
Nitrate Nitrite as N-Soluble	0.31	U	mg/Kg	0.31	0.78	1.0	353.2
Analysis Batch: 280-73641	Analysis Date: 06/23/2011 1532						DryWt Corrected: Y
Chloride-Soluble	19.1		mg/Kg	2.0	5.2	1.0	9056M
Analysis Batch: 280-73195	Analysis Date: 06/20/2011 2339						DryWt Corrected: Y
Nitrate as N-Soluble	0.33	U R	mg/Kg	0.33	2.6	1.0	9056M
Analysis Batch: 280-73196	Analysis Date: 06/20/2011 2339						DryWt Corrected: Y
Bromide-Soluble	0.40	U	mg/Kg	0.40	2.1	1.0	9056M
Analysis Batch: 280-73195	Analysis Date: 06/20/2011 2339						DryWt Corrected: Y
Nitrite as N-Soluble	0.35	U R	mg/Kg	0.35	2.6	1.0	9056M
Analysis Batch: 280-73196	Analysis Date: 06/20/2011 2339						DryWt Corrected: Y
Orthophosphate as P-Soluble	1.3	U R	mg/Kg	1.3	5.2	1.0	9056M
Analysis Batch: 280-73196	Analysis Date: 06/20/2011 2339						DryWt Corrected: Y
Sulfate-Soluble	1.9	B	mg/Kg	1.8	5.2	1.0	9056M
Analysis Batch: 280-73195	Analysis Date: 06/20/2011 2339						DryWt Corrected: Y
Fluoride-Soluble	0.86	U	mg/Kg	0.86	5.2	1.0	9056M
Analysis Batch: 280-73195	Analysis Date: 06/20/2011 2339						DryWt Corrected: Y

Analyte	Result	Qual	Units	RL	RL	Dil	Method
Percent Moisture	3.9		%	0.10	0.10	1.0	D-2216
Analysis Batch: 280-72332	Analysis Date: 06/16/2011 1327						DryWt Corrected: N

Appendix 4

Laboratory Narrative and Chain-of-Custody Documentation

CASE NARRATIVE

Client: Washington Closure Hanford

Project: WASHINGTON CLOSURE HANFORD

Report Number: 280-16917-1

SDG #: J01133
SAF#: RC-148

Date SDG Closed: June 14, 2011
Data Deliverable: 21 Day / Summary

CLIENT ID	LAB ID	ANALYSES REQUESTED	ANALYSES PERFORMED
J1J4F93	280-16917-1	6010/7471/9056M/353.2/8082	6010B/7471A/9056M/353.2/8082
J1J4F94	280-16917-2	6010/7471/9056M/353.2/8082	6010B/7471A/9056M/353.2/8082
J1J4F95	280-16917-3	6010/7471/9056M/353.2/8082	6010B/7471A/9056M/353.2/8082
J1J4F96	280-16917-4	6010/7471/9056M/353.2/8082	6010B/7471A/9056M/353.2/8082
J1J4F97	280-16917-5	6010/7471/9056M/353.2/8082	6010B/7471A/9056M/353.2/8082

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 6/14/2011; the samples arrived in good condition, properly preserved and on ice. The temperature of the cooler at receipt was 4.4 C.

GC SEMIVOLATILES - SW846 8082 - PCBs
The laboratory noted that sample J1JF94 contained more than one Aroclor component. Results should be considered estimated due to shared peaks.

Each sample is analyzed to achieve the lowest possible reporting limits within the constraints of the method. Due to matrix interference and/or high constituent concentration, sample J1JF95 had to be analyzed at a dilution, and the associated results have been flagged with a "D". The reporting limits have been adjusted relative to the dilution required.

Surrogate recoveries were not calculated for sample J1JF95, because the extract was diluted beyond the ability to reliably quantitate recoveries. The recoveries have been flagged with a "D".

The RPD between the primary and confirmation columns exceeded 25% for Aroclor 1260 and Aroclor 1254 in samples J1JF94 and J1JF95, respectively. The results have been flagged with a "P".

No other anomalies were encountered.

TOTAL METALS - SW846 6010B/7471A
Serial dilution of a digestate in batch 280-72350 indicates that physical and chemical interferences are present for Aluminum, Barium, Calcium, Chromium, Cobalt, Magnesium, Manganese, Nickel, Vanadium and Zinc. Results have been flagged with an "X".

Low levels of Aluminum and Nickel are present in the method blank associated with batch 280-72350. Because the concentrations in the method blank are not present at levels greater than the reporting limits, corrective action is deemed unnecessary.

Low levels of Uranium are present in the method blank associated with batch 280-72351. Because the concentration in the method blank is not present at a level greater than 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, Manganese and Iron in the Matrix Spike performed on sample J1JF93; therefore, control limits are not applicable.

The duplicate analysis of sample J1JF93 exhibited RPD data outside the control limits for Cadmium, 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
No anomalies were encountered.

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

4.4 ~~AS~~ CMB FP

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-148-025	Page 1 of 1

Collector ~~S. Clark~~ Q. STOWE DPB 6/9/11	Company Contact Joan Kessner	Telephone No. 509-375-4688	Project Coordinator KESSNER, JH	Price Code 8L	Data Turnaround 21 Days
Project Designation 300 Area Field Remediation - Soil Full Protocol	Sampling Location 300-258 Verification		SAF No. RC-148		
Ice Chest No. ~~N/A~~ AJ 6-9-11 RCC-08-023	Field Logbook No. EL-1395-18	COA R302582000	Method of Shipment ~~Hand Deliver/Government Vehicle~~ dP 6/9/11 Fed Ex		
Shipped To TestAmerica Incorporated, ~~Richland~~ Denver dP 6/9/11	Offsite Property No. N/A		Bill of Lading/Air Bill No. ~~N/A~~ dP 6/9/11 7971 9824 2120		

POSSIBLE SAMPLE HAZARDS/REMARKS

~~Potential Radioactive~~ ∠ DDT Limits AJ 6-13-11

Special Handling and/or Storage

Cool 4 degrees C

Preservation	Cool 4C	Cool 4C	Cool 4C	None	None	None					
Type of Container	G/P	G/P	aG	G/P	G/P	G/P					
No. of Container(s)	1	1	1	1	1	1					
Volume	60mL	60mL	120mL	60mL	60mL	60g					
SAMPLE ANALYSIS	See item (1) in Special Instructions.	IC Anions - 300.0; NO2/NO3 - 353.2	PCBs - 8082	Isotopic Uranium	Strontium-89,90 -- Total Sr	Radiochemical Screen					

017

Sample No.	Matrix *	Sample Date	Sample Time										
J1JF93	SOIL	6/9/11	1418	X	X	X	X	X	X				28728
J1JF94	SOIL	6/9/11	1427	X	X	X	X	X	X				28729
J1JF95	SOIL	6/9/11	1433	X	X	X	X	X	X				28730
J1JF96	SOIL	6/9/11	1418	X	X	X	X	X	X				28731
J1JF97	SOIL	6/9/11	1408	X									

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Quincy Stowe	6/9/11 1500	DAVID BECKER	6/9/11 1500
DAVID BECKER	6/9/11 1605	1060, 81 A. Freier	6-9-11 1605
A Freier 1060, 81	WCH 6-13-11 1125	Fed Ex	
			6/14/11 9:30

SPECIAL INSTRUCTIONS

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

REVIEWED BY CMB DATE 6/13/11

SDG# J01133

Matrix *: S=Soil; Sd=Sediment; SO=Solid; Sl=Sludge; W=Water; O=Oil; A=Air; DS=Drum Solids; DL=Drum Liquids; T=Tissue; Wi=Wipe; Li=Liquid; V=Vegetation; X=Other

LABORATORY SECTION	Received By	Title	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

WCH-EE-011

Appendix 5

Data Validation Supporting Documentation

GENERAL CHEMISTRY ANALYSIS DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	E
PROJECT: 300-258			DATA PACKAGE: J01133		
VALIDATOR: ELR		LAB: TAL		DATE: 7/23/11	
			SDG: J01133		

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

J1JF93	J1JF94	J1JF95	J1JF96
			Soil

1. DATA PACKAGE COMPLETENESS AND CASE NARRATIVE

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

Comments:

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

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

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

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

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

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

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

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

Comments:

GENERAL CHEMISTRY ANALYSIS DATA VALIDATION CHECKLIST

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

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

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

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

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

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

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

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

Comments: no FB

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

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

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

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

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

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

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

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

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

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

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

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

Comments: no PAS

GENERAL CHEMISTRY ANALYSIS DATA VALIDATION CHECKLIST

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

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

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

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

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

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

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

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

Comments:

6. HOLDING TIMES (all levels)

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

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

Comments: >2X nitrate, nitrite & ortho J/UR

GENERAL CHEMISTRY ANALYSIS DATA VALIDATION CHECKLIST

7. RESULT QUANTITATION AND DETECTION LIMITS (all levels)

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

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

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

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

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

Comments:

Appendix 6

Additional Documentation Requested by Client

Client: Washington Closure Hanford

Job Number: 280-16917-1
Sdg Number: J01133

Method Blank - Batch: 280-73641

Method: 353.2
Preparation: N/A

Lab Sample ID:	MB 280-73532/1-A	Analysis Batch:	280-73641	Instrument ID:	WC_Alp 2
Client Matrix:	Solid	Prep Batch:	N/A	Lab File ID:	C:\FLOW_4\062311B.R
Dilution:	1.0	Leach Batch:	280-73532	Initial Weight/Volume:	1.0 mL
Analysis Date:	06/23/2011 1524	Units:	mg/Kg	Final Weight/Volume:	1.0 mL
Prep Date:	N/A				
Leach Date:	06/23/2011 1109				

Analyte	Result	Qual	MDL	RL
Nitrate Nitrite as N-Soluble	0.30	U	0.30	0.75

Method Reporting Limit Check - Batch: 280-73641

Method: 353.2
Preparation: N/A

Lab Sample ID:	MRL 280-73641/18	Analysis Batch:	280-73641	Instrument ID:	WC_Alp 2
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	C:\FLOW_4\062311B.R
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	100 mL
Analysis Date:	06/23/2011 1353	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	0.111	111	50 - 150	

Lab Control Sample - Batch: 280-73641

Method: 353.2
Preparation: N/A

Lab Sample ID:	LCS 280-73532/2-A	Analysis Batch:	280-73641	Instrument ID:	WC_Alp 2
Client Matrix:	Solid	Prep Batch:	N/A	Lab File ID:	C:\FLOW_4\062311B.R
Dilution:	1.0	Leach Batch:	280-73532	Initial Weight/Volume:	1.0 mL
Analysis Date:	06/23/2011 1526	Units:	mg/Kg	Final Weight/Volume:	1.0 mL
Prep Date:	N/A				
Leach Date:	06/23/2011 1109				

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Nitrate Nitrite as N-Soluble	50.0	48.64	97	90 - 110	

Client: Washington Closure Hanford

Job Number: 280-16917-1
Sdg Number: J01133

Matrix Spike - Batch: 280-73641

Method: 353.2
Preparation: N/A

Lab Sample ID:	280-16917-4	Analysis Batch:	280-73641	Instrument ID:	WC_Alp 2
Client Matrix:	Solid	Prep Batch:	N/A	Lab File ID:	C:\FLOW_4\062311B.R
Dilution:	1.0	Leach Batch:	280-73532	Initial Weight/Volume:	1.0 mL
Analysis Date:	06/23/2011 1535	Units:	mg/Kg	Final Weight/Volume:	1.0 mL
Prep Date:	N/A				
Leach Date:	06/23/2011 1109				

Analyte	Sample Result/Qual		Spike Amount	Result	% Rec.	Limit	Qual
Nitrate Nitrite as N-Soluble	0.31	U	51.5	47.74	93	90 - 110	

Duplicate - Batch: 280-73641

Method: 353.2
Preparation: N/A

Lab Sample ID:	280-16917-4	Analysis Batch:	280-73641	Instrument ID:	WC_Alp 2
Client Matrix:	Solid	Prep Batch:	N/A	Lab File ID:	C:\FLOW_4\062311B.R
Dilution:	1.0	Leach Batch:	280-73532	Initial Weight/Volume:	1.0 mL
Analysis Date:	06/23/2011 1533	Units:	mg/Kg	Final Weight/Volume:	1.0 mL
Prep Date:	N/A				
Leach Date:	06/23/2011 1109				

Analyte	Sample Result/Qual		Result	RPD	Limit	Qual
Nitrate Nitrite as N-Soluble	0.31	U	0.31	NC	10	U

Client: Washington Closure Hanford

Job Number: 280-16917-1
Sdg Number: J01133

Method Blank - Batch: 280-73195

Method: 9056M
Preparation: N/A

Lab Sample ID:	MB 280-72944/2-A	Analysis Batch:	280-73195	Instrument ID:	WC_IC8
Client Matrix:	Solid	Prep Batch:	N/A	Lab File ID:	133.TXT
Dilution:	1.0	Leach Batch:	280-72944	Initial Weight/Volume:	1.0 mL
Analysis Date:	06/20/2011 2124	Units:	mg/Kg	Final Weight/Volume:	1.0 mL
Prep Date:	N/A				
Leach Date:	06/20/2011 1519				

Analyte	Result	Qual	MDL	RL
Chloride-Soluble	2.0	U	2.0	5.0
Bromide-Soluble	0.39	U	0.39	2.0
Sulfate-Soluble	1.7	U	1.7	5.0
Fluoride-Soluble	0.82	U	0.82	5.0

Method Reporting Limit Check - Batch: 280-73195

Method: 9056M
Preparation: N/A

Lab Sample ID:	MRL 280-73195/11	Analysis Batch:	280-73195	Instrument ID:	WC_IC8
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	110.TXT
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1.0 mL
Analysis Date:	06/20/2011 1456	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	1.00	1.03	103	50 - 150	B
Bromide-Soluble	0.200	0.201	101	50 - 150	B
Sulfate-Soluble	1.00	1.05	105	50 - 150	B
Fluoride-Soluble	0.200	0.200	100	50 - 150	B

Lab Control Sample - Batch: 280-73195

Method: 9056M
Preparation: N/A

Lab Sample ID:	LCS 280-72944/1-A	Analysis Batch:	280-73195	Instrument ID:	WC_IC8
Client Matrix:	Solid	Prep Batch:	N/A	Lab File ID:	132.TXT
Dilution:	1.0	Leach Batch:	280-72944	Initial Weight/Volume:	1.0 mL
Analysis Date:	06/20/2011 2107	Units:	mg/Kg	Final Weight/Volume:	1.0 mL
Prep Date:	N/A				
Leach Date:	06/20/2011 1519				

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Chloride-Soluble	250	251.5	101	90 - 110	
Bromide-Soluble	50.0	50.68	101	90 - 110	
Sulfate-Soluble	250	254.1	102	90 - 110	
Fluoride-Soluble	50.0	50.87	102	90 - 110	

Client: Washington Closure Hanford

Job Number: 280-16917-1
Sdg Number: J01133

Matrix Spike - Batch: 280-73195

Method: 9056M
Preparation: N/A

Lab Sample ID:	280-16917-1	Analysis Batch:	280-73195	Instrument ID:	WC_IC8
Client Matrix:	Solid	Prep Batch:	N/A	Lab File ID:	138.TXT
Dilution:	1.0	Leach Batch:	280-72944	Initial Weight/Volume:	1.0 mL
Analysis Date:	06/20/2011 2248	Units:	mg/Kg	Final Weight/Volume:	1.0 mL
Prep Date:	N/A				
Leach Date:	06/20/2011 1519				

Analyte	Sample Result/Qual		Spike Amount	Result	% Rec.	Limit	Qual
Chloride-Soluble	20.7		260	279.3	99	80 - 120	
Bromide-Soluble	0.40	U	52.0	52.43	101	80 - 120	
Sulfate-Soluble	2.0	B	260	260.3	99	80 - 120	
Fluoride-Soluble	0.86	U	52.0	47.24	91	80 - 120	

Duplicate - Batch: 280-73195

Method: 9056M
Preparation: N/A

Lab Sample ID:	280-16917-1	Analysis Batch:	280-73195	Instrument ID:	WC_IC8
Client Matrix:	Solid	Prep Batch:	N/A	Lab File ID:	135.TXT
Dilution:	1.0	Leach Batch:	280-72944	Initial Weight/Volume:	1.0 mL
Analysis Date:	06/20/2011 2157	Units:	mg/Kg	Final Weight/Volume:	1.0 mL
Prep Date:	N/A				
Leach Date:	06/20/2011 1519				

Analyte	Sample Result/Qual		Result	RPD	Limit	Qual
Chloride-Soluble	20.7		20.84	0.7	15	
Bromide-Soluble	0.40	U	0.40	NC	15	U
Sulfate-Soluble	2.0	B	2.06	2	15	B
Fluoride-Soluble	0.86	U	0.86	NC	15	U

Client: Washington Closure Hanford

Job Number: 280-16917-1
Sdg Number: J01133

Method Blank - Batch: 280-73196

Method: 9056M
Preparation: N/A

Lab Sample ID:	MB 280-72944/2-A	Analysis Batch:	280-73196	Instrument ID:	WC_IC8
Client Matrix:	Solid	Prep Batch:	N/A	Lab File ID:	133.TXT
Dilution:	1.0	Leach Batch:	280-72944	Initial Weight/Volume:	1.0 mL
Analysis Date:	06/20/2011 2124	Units:	mg/Kg	Final Weight/Volume:	1.0 mL
Prep Date:	N/A				
Leach Date:	06/20/2011 1519				

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: 280-73196

Method: 9056M
Preparation: N/A

Lab Sample ID:	MRL 280-73196/11	Analysis Batch:	280-73196	Instrument ID:	WC_IC8
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	110.TXT
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1.0 mL
Analysis Date:	06/20/2011 1456	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	0.204	102	50 - 150	B
Nitrite as N-Soluble	0.200	0.202	101	50 - 150	B
Orthophosphate as P-Soluble	0.200	0.19	71	50 - 150	U

Lab Control Sample - Batch: 280-73196

Method: 9056M
Preparation: N/A

Lab Sample ID:	LCS 280-72944/1-A	Analysis Batch:	280-73196	Instrument ID:	WC_IC8
Client Matrix:	Solid	Prep Batch:	N/A	Lab File ID:	132.TXT
Dilution:	1.0	Leach Batch:	280-72944	Initial Weight/Volume:	1.0 mL
Analysis Date:	06/20/2011 2107	Units:	mg/Kg	Final Weight/Volume:	1.0 mL
Prep Date:	N/A				
Leach Date:	06/20/2011 1519				

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Nitrate as N-Soluble	50.0	50.50	101	90 - 110	
Nitrite as N-Soluble	50.0	51.20	102	90 - 110	
Orthophosphate as P-Soluble	50.0	49.83	100	90 - 110	

Client: Washington Closure Hanford

Job Number: 280-16917-1
Sdg Number: J01133

Matrix Spike - Batch: 280-73196

Method: 9056M
Preparation: N/A

Lab Sample ID:	280-16917-1	Analysis Batch:	280-73196	Instrument ID:	WC_IC8
Client Matrix:	Solid	Prep Batch:	N/A	Lab File ID:	138.TXT
Dilution:	1.0	Leach Batch:	280-72944	Initial Weight/Volume:	1.0 mL
Analysis Date:	06/20/2011 2248	Units:	mg/Kg	Final Weight/Volume:	1.0 mL
Prep Date:	N/A				
Leach Date:	06/20/2011 1519				

Analyte	Sample Result/Qual		Spike Amount	Result	% Rec.	Limit	Qual
Nitrate as N-Soluble	0.37	B	52.0	50.94	97	80 - 120	
Nitrite as N-Soluble	0.35	U	52.0	52.95	102	80 - 120	
Orthophosphate as P-Soluble	1.3	U	52.0	52.60	101	80 - 120	

Duplicate - Batch: 280-73196

Method: 9056M
Preparation: N/A

Lab Sample ID:	280-16917-1	Analysis Batch:	280-73196	Instrument ID:	WC_IC8
Client Matrix:	Solid	Prep Batch:	N/A	Lab File ID:	135.TXT
Dilution:	1.0	Leach Batch:	280-72944	Initial Weight/Volume:	1.0 mL
Analysis Date:	06/20/2011 2157	Units:	mg/Kg	Final Weight/Volume:	1.0 mL
Prep Date:	N/A				
Leach Date:	06/20/2011 1519				

Analyte	Sample Result/Qual		Result	RPD	Limit	Qual
Nitrate as N-Soluble	0.37	B	0.375	0	15	B
Nitrite as N-Soluble	0.35	U	0.35	NC	15	U
Orthophosphate as P-Soluble	1.3	U	1.3	NC	15	U

Date: 25 July 2011
To: Washington Closure Hanford Inc. (technical representative)
From: ELR Consulting
Project: 300 Area Field Remediation – Soil Full Protocol – Waste Site 300-258
Subject: Radiochemistry - Data Package No. J01133-TAL

INTRODUCTION

This memo presents the results of data validation on Data Package No. J01133 prepared by TestAmerica Inc. (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
J1JF93	6/9/11	Soil	C	See note 1
J1JF94	6/9/11	Soil	C	See note 1
J1JF95	6/9/11	Soil	C	See note 1
J1JF96	6/9/11	Soil	C	See note 1

1 – Alpha spectroscopy (isotopic uranium) and total strontium.

Data validation was conducted in accordance with the Washington Closure Hanford Incorporated (WCH) validation statement of work and the 300 Area Remedial Action Sampling and Analysis Plan (DOE/RL-2001-48, Rev. 3). Appendices 1 through 6 provide the following information as indicated below:

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

DATA QUALITY PARAMETERS

- **Holding Times**

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

All holding times were acceptable.

- **Preparation (Method) Blanks**

Laboratory Blanks

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

All laboratory blank results were acceptable.

Field (Equipment) Blank

No field blanks were submitted for analysis.

- **Accuracy**

Accuracy is evaluated from laboratory control sample (LCS) or blank spike sample (BSS) batch samples and spiked samples from the analytical batch. Measured activities are compared to the known added amounts. The acceptable LCS or BSS and matrix spike (MS) recovery range is 70-130%. In addition, samples may be spiked with a radiochemical tracer to assist in isolating the radioisotope of interest with the yield of the tracer being used in calculating sample activity. The acceptable range for tracer recovery is 20% to 105%. Spike sample results outside the above ranges result in associated sample results being qualified as estimates, or not qualified, depending on the activity of the individual sample. Results are rejected for LCS/BSS recoveries of less than 30% and tracer recoveries of less than 20%, and tracer recoveries of greater than 115% for detected results.

Due to the lack of an LCS analysis, all uranium-235 (aspec) results were qualified as estimates and flagged "J"

All other accuracy results were acceptable.

- **Laboratory Duplicates**

Analytical precision is expressed by the relative percent differences (RPD) between the recoveries of duplicate matrix spike analyses performed on a sample in the analytical batch. Precision may alternatively be assessed using unspiked duplicate analyses performed on a sample in the analytical batch. If both sample and replicate activities (concentrations) are greater than five times the contract required detection limit (CRDL) and the RPD is less than 30%, no qualification is required. If either activity

(concentration) is less than five times the CRDL, the RPD control limit is less than or equal to two times the CRDL. If the RPD is outside the applicable control limit, associated results are qualified as estimated detects or estimated non-detects.

All duplicate results were acceptable.

Field Duplicates

One set of field duplicates (J1JF93/J1JF96) were submitted for analysis. Field duplicates are compared using the same criteria as for laboratory duplicates. All field duplicate results were acceptable.

- **Detection Levels**

Reported analytical detection levels for undetected analytes are compared against the remaining waste sites RQLs to ensure that laboratory detection levels meet the required criteria. All analytes met the RQL.

- **Completeness**

Data package No. J01133 was submitted for validation and verified for completeness. Completeness is based on the percentage of data determined to be valid (i.e., not rejected). The completion percentage was 100%.

MAJOR DEFICIENCIES

None found.

MINOR DEFICIENCIES

The following minor deficiency was noted:

- Due to the lack of an LCS analysis, all uranium-235 (aspec) 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-2001-48, Rev. 3, *300 Area Remedial Action Sampling and Analysis Plan*, U.S. Department of Energy, May 2004.

Appendix 1

Glossary of Data Reporting Qualifiers

Qualifiers which may be applied by data validators in compliance with the WCH statement of work are as follows:

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

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

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

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

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

Appendix 2

Summary of Data Qualification

RADIOCHEMISTRY DATA QUALIFICATION SUMMARY*

SDG: J01133	REVIEWER: ELR	Project: 300-258	PAGE 1 OF 1
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
Uranium-235 (aspec)	J	All	No 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

Sample Results Summary

TestAmerica TARL

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

Date: 29-Jun-11

Report No. : 47179

7/23/11

SDG No: J01133

Batch	Client Id Work Order	Parameter	Result +- Uncertainty (2s)	Qual	Units	Tracer Yield	MDC or MDA	CRDL	RPD
1165211	UISO_IE_PLATE_AEA								
	J1JF93								
	MJ7XJ1AA	U-234	2.96E-01 +- 2.0E-01		pCi/g	78%	1.25E-01	1.00E+00	
		U-235	0.00E+00 +- 6.0E-02	U J	pCi/g	78%	1.12E-01	1.00E+00	
		U-238	2.08E-01 +- 1.6E-01		pCi/g	78%	1.12E-01	1.00E+00	
	J1JF93 DUP								
	MJ7XJ1AE	U-234	3.31E-01 +- 2.2E-01		pCi/g	68%	1.24E-01	1.00E+00	11.1
		U-235	-1.66E-03 +- 6.6E-02	U	pCi/g	68%	1.24E-01	1.00E+00	-200.0
		U-238	3.31E-01 +- 2.2E-01		pCi/g	68%	1.24E-01	1.00E+00	45.7
	J1JF94								
	MJ7X31AA	U-234	3.30E+00 +- 9.4E-01		pCi/g	82%	1.13E-01	1.00E+00	
		U-235	1.77E-01 +- 1.5E-01	J	pCi/g	82%	1.26E-01	1.00E+00	
		U-238	2.85E+00 +- 8.4E-01		pCi/g	82%	1.13E-01	1.00E+00	
	J1JF95								
	MJ7X51AA	U-234	8.17E+00 +- 1.8E+00		pCi/g	98%	8.40E-02	1.00E+00	
		U-235	3.34E-01 +- 1.9E-01	J	pCi/g	98%	9.36E-02	1.00E+00	
		U-238	4.85E+00 +- 1.2E+00		pCi/g	98%	1.07E-01	1.00E+00	
	J1JF96								
	MJ7X71AA	U-234	8.88E-01 +- 3.3E-01		pCi/g	73%	1.17E-01	1.00E+00	
		U-235	2.98E-02 +- 6.3E-02	U J	pCi/g	73%	1.17E-01	1.00E+00	
		U-238	9.40E-02 +- 1.1E-01	U	pCi/g	73%	1.17E-01	1.00E+00	
1165212	SRTOT_SEP_PRECIP_GPC								
	J1JF93								
	MJ7XJ1AD	STRONTIUM	1.14E-02 +- 7.1E-02	U	pCi/g	66%	1.67E-01		
	J1JF94								
	MJ7X31AC	STRONTIUM	-9.75E-04 +- 7.7E-02	U	pCi/g	57%	1.83E-01		
	J1JF94 DUP								
	MJ7X31AD	STRONTIUM	5.74E-02 +- 8.3E-02	U	pCi/g	60%	1.78E-01		206.9
	J1JF95								
	MJ7X51AC	STRONTIUM	2.47E-02 +- 8.2E-02	U	pCi/g	62%	1.88E-01		
	J1JF96								
	MJ7X71AC	STRONTIUM	-2.91E-02 +- 7.1E-02	U	pCi/g	64%	1.77E-01		

No. of Results: 20

TestAmerica

rptSTLRchSaSummary2 V5.2.15 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.

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Appendix 4

Laboratory Narrative and Chain-of-Custody Documentation

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Certificate of Analysis

Washington Hanford Closure
2620 Fermi Avenue
Richland, WA 99354

TestAmerica Laboratories, Inc.

June 29, 2011

Attention: Joan Kessner

SAF Number	:	RC-148
Date SDG Closed	:	June 13, 2011
Number of Samples	:	Four (4)
Sample Type	:	Soil
SDG Number	:	J01133
Data Deliverable	:	21– Day / Summary

CASE NARRATIVE

I. Introduction

On June 13, 2011 four soil samples were received at TestAmerica for radiochemical analysis. Upon receipt, the samples were assigned the following laboratory ID number to correspond with the Washington Closure Hanford (WCH) specific ID:

WCH ID#	TARL ID#	MATRIX	DATE OF RECEIPT
J1JF93	MJ7XJ	SOIL	6/13/11
J1JF94	MJ7X3	SOIL	6/13/11
J1JF95	MJ7X5	SOIL	6/13/11
J1JF96	MJ7X7	SOIL	6/13/11

II. Sample Receipt

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

III. Analytical Results/Methodology

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

The requested analyses were:

Alpha Spectroscopy
Uranium 234, 235 and 238 by method RL-ALP-015
Gas Proportional Counting
Strontium-90 by method RL-GPC-003

012

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

Alpha Spectroscopy
Uranium 234, 235 and 238 by method RL-ALP-015:
The LCS, batch blank, samples and sample duplicate (J1JF93) results are within contractual requirements.

Gas Proportional Counting
Strontium-90 by method RL-GPC-003:
The LCS, batch blank, samples and sample duplicate (J1JF94) 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

013

TestAmerica Laboratories, Inc.

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-148-025	Page 1 of 1

Collector ~~S. Clark~~ Q. STOWE	Company Contact Joan Kessner	Telephone No. 509-375-4688	Project Coordinator KESSNER, JH
Price Code 8L	Data Turnaround 21 Days		
Project Designation 300 Area Field Remediation - Soil Full Protocol	Sampling Location 300-258 Verification		SAF No. RC-148
Ice Chest No. ~~N/A~~ A4	Field Logbook No. EL-1395-18	COA R302582000	Method of Shipment Hand Deliver/~~Government Vehicle~~
Shipped To TestAmerica Incorporated, Richland	Offsite Property No. N/A		Bill of Lading/Air Bill No. N/A

POSSIBLE SAMPLE HAZARDS/REMARKS
Potential Radioactive < DOT limits

Special Handling and/or Storage
~~Cool 4 degrees C~~ NONE

J1F140462

SAMPLE ANALYSIS

Preservation	Cool 4C	Cool 4C	Cool 4C	None	None	None				
Type of Container	G/P	G/P	aG	G/P	G/P	G/P				
No. of Container(s)	1	1	1	1	1	1				
Volume	60mL	60mL	120mL	60mL	60mL	60g				
	See item (1) in Special Instructions.	IC Anions - 300.0; NO2/NO3 - 353.2	PCBs - 8082	Isotopic Uranium	Strontium-89,90 – Total Sr	Rad Screen				

Sample No.	Matrix *	Sample Date	Sample Time										Rec
J1JF93 MJ7XW	SOIL	6/9/11	1418	X	X	X	X	X	X				28728
J1JF94 MJ7X3	SOIL	6/9/11	1427	X	X	X	X	X	X				28729
J1JF95 MJ7X5	SOIL	6/9/11	1433	X	X	X	X	X	X				28730
J1JF96 MJ7X7	SOIL	6/9/11	1418	X	X	X	X	X	X				28731
~~J1JF97~~	~~SOIL~~	6/9/11	1408	X									

CHAIN OF POSSESSION	Date/Time	Sign/Print Names: Received By/Stored In	Date/Time
Relinquished By/Removed From: Quincy Stowe	6/9/11 1500	Received By/Stored In: DAVID BECKER	6/9/11 1500
Relinquished By/Removed From: DAVID BECKER	6/9/11 1605	Received By/Stored In: A. Freier 1060, 61	6-9-11 1605
Relinquished By/Removed From: A. Freier 1060, 61	6/13/11 1155	Received By/Stored In: TALR RYAN	6/13/11 1155
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

SPECIAL INSTRUCTIONS

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

Quote # 27086
SDG #J01133
LOT #J1F140462
Report: 7/8/11
WCT

SDG J01133

REVIEWED BY CMB DATE 6/13/11

Matrix *
S=Soil
SE=Sediment
SO=Solid
Sl=Sludge
W = Water
O=Oil
A=Air
DS=Drum Solids
DL=Drum Liquids
T=Tissue
Wi=Wipe
L=Liquid
Ve=Vegetation
X=Other

LABORATORY SECTION	Received By	Title	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

WCH-EE-011

20 014

Appendix 5

Data Validation Supporting Documentation

APPENDIX A

RADIOCHEMICAL DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	E
PROJECT:	300-238		DATA PACKAGE:	J01133	
VALIDATOR:		LAB: 300-238 PAL		DATE: 7/23/11	
			SDG:	J01133	

ANALYSES PERFORMED					
☐ Gross Alpha/Beta	☒ Strontium-90	☐ Technetium-99	☒ Alpha Spectroscopy	☐ Gamma Spectroscopy	
☐ Total Uranium	☐ Radium-22	☐ Tritium			

SAMPLES/MATRIX				
J1JF93	J1JF94	J1JF95	J1JF96	
				Soil

1. Completeness ..... ☐ N/A

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

Comments: _____

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

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

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

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

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

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

Comments: _____

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

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

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

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

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

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

Comments: _____

_____

_____

_____

_____

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

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

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

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

Comments: _____

_____

_____

_____

_____

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

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

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

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

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

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

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

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

Comments: no FB

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

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

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

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

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

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

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

Comments: no U-235 LCS - Jal

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

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

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

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

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

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

Comments: _____

_____

_____

_____

_____

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

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

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

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

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

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

Comments: _____

_____

_____

_____

_____

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

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

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

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

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

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

Comments: _____

_____

_____

_____

_____

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

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

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

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

Comments: _____

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

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

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

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

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

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

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

Comments: no PAS or FS

12. Holding Times (All levels)

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

Comments: _____

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

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

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

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

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

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

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

Comments:

Appendix 6

Additional Documentation Requested by Client

QC Results Summary

TestAmerica TARL

Ordered by Method, Batch No, QC Type,.

Date: 29-Jun-11

Report No. : 47179

SDG No.: J01133

Batch Work Order	Parameter	Result +- Uncertainty (2s)	Qual	Units	Tracer Yield	LCS Recovery	Bias	MDC|MDA
UISO_IE_PLATE_AEA								
1165211 BLANK QC,								
MJ73X1AA	U-234	1.34E-01 +- 2.0E-01	U	pCi/g	34%			2.81E-01
	U-235	-1.40E-03 +- 1.4E-01	U	pCi/g	34%			2.35E-01
	U-238	-2.80E-03 +- 1.4E-01	U	pCi/g	34%			2.55E-01
1165211 LCS,								
MJ73X1AC	U-234	3.94E+00 +- 1.1E+00		pCi/g	88%	118%	0.2	1.34E-01
	U-238	3.42E+00 +- 1.0E+00		pCi/g	88%	98%	0.0	1.60E-01
SRTOT_SEP_PRECIP_GPC								
1165212 BLANK QC,								
MJ7301AA	STRONTIUM	-8.11E-03 +- 5.6E-02	U	pCi/g	91%			1.36E-01
1165212 LCS,								
MJ7301AC	STRONTIUM	1.06E+00 +- 3.0E-01		pCi/g	92%	93%	-0.1	1.23E-01

No. of Results: 7

TestAmerica

rptSTLRchQcSummary V5.2.15 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.

023

Date: 25 July 2011
To: Washington Closure Hanford Inc. (technical representative)
From: ELR Consulting
Project: 300 Area Field Remediation – Soil Full Protocol – Waste Site 300-258
Subject: PCB - Data Package No. J01133-TAL

INTRODUCTION

This memo presents the results of data validation on Data Package No. J01133 prepared by TestAmerica Laboratory Inc. (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
J1JF93	6/9/11	Soil	C	See note 1
J1JF94	6/9/11	Soil	C	See note 1
J1JF95	6/9/11	Soil	C	See note 1
J1JF96	6/9/11	Soil	C	See note 1

1 – PCBs by 8082.

Data validation was conducted in accordance with the Washington Closure Hanford (WCH) validation statement of work and the 300 Area Remedial Action Sampling and Analysis Plan (DOE/RL-2001-48, Rev. 3). 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

Holding times are not applicable for PCB analysis.

Method Blank

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

times the blank concentration are qualified as undetected and flagged "U". If the sample result is less than five times the blank concentration and less than RQL, the result is qualified as undetected and elevated to the RQL.

All method blank results were acceptable.

Field Blanks

No field blanks were submitted for analysis.

Accuracy

Matrix Spike & Laboratory Control Sample

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

All accuracy results were acceptable.

Surrogate Recovery

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

All surrogate results were acceptable.

- **Precision**

Matrix Spike/Matrix Spike Duplicate Samples

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

All field duplicate results were acceptable.

Field Duplicate Samples

One set of field duplicates (J1JF93/J1JF96) 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 300 Area RQLs to ensure that laboratory detection levels meet the required criteria. Three analytes exceeded the RQL. Under the WCH statement of work, no qualification is required. All other results met the RQL.

- **Completeness**

Data Package No. J01133 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

Three exceeded the RQL. Under the WCH statement of work, no qualification is required.

REFERENCES

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

DOE/RL-2001-48, Rev. 3, *300 Area Remedial Action Sampling and Analysis Plan*, U.S. Department of Energy, May 2004.

Appendix 1

Glossary of Data Reporting Qualifiers

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

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

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

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

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

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

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

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

Appendix 2

Summary of Data Qualification

PCB DATA QUALIFICATION SUMMARY*

SDG: J01133	**REVIEWER: ELR**	**Project: 300-258**	**PAGE 1 OF 1**
COMMENTS: No qualifiers assigned			

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

Appendix 3

Annotated Laboratory Reports

Client: Washington Closure Hanford

Job Number: 280-16917-1
Sdg Number: J01133

7/23/11

Client Sample ID: J1JF93

Lab Sample ID: 280-16917-1
Client Matrix: Solid

% Moisture: 3.9

Date Sampled: 06/09/2011 1418
Date Received: 06/14/2011 0930

8082 Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analysis Method:	8082	Analysis Batch:	280-73731	Instrument ID:	GCS_P3
Prep Method:	3550C	Prep Batch:	280-72648	Initial Weight/Volume:	31.0 g
Dilution:	1.0			Final Weight/Volume:	5000 uL
Analysis Date:	06/23/2011 0815			Injection Volume:	1 uL
Prep Date:	06/17/2011 2315			Result Type:	PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Aroclor 1016		2.8	U	2.8	10
Aroclor 1221		8.1	U	8.1	17
Aroclor 1232		2.0	U	2.0	10
Aroclor 1242		4.7	U	4.7	10
Aroclor 1248		4.7	U	4.7	10
Aroclor 1254		2.6	U	2.6	10
Aroclor 1260		2.6	U	2.6	10

Surrogate	%Rec	Qualifier	Acceptance Limits
Decachlorobiphenyl	78		59 - 130
Tetrachloro-m-xylene	76		53 - 128

Client: Washington Closure Hanford

7/23/11

Job Number: 280-16917-1
Sdg Number: J01133

Client Sample ID: J1JF94

Lab Sample ID: 280-16917-2
Client Matrix: Solid

% Moisture: 4.4

Date Sampled: 06/09/2011 1427
Date Received: 06/14/2011 0930

8082 Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analysis Method:	8082	Analysis Batch:	280-73735	Instrument ID:	GCS_P3
Prep Method:	3550C	Prep Batch:	280-72648	Initial Weight/Volume:	32.8 g
Dilution:	1.0			Final Weight/Volume:	5000 uL
Analysis Date:	06/23/2011 0908			Injection Volume:	1 uL
Prep Date:	06/17/2011 2315			Result Type:	PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Aroclor 1016		2.7	U	2.7	9.6
Aroclor 1221		7.7	U	7.7	16
Aroclor 1232		1.9	U	1.9	9.6
Aroclor 1242		4.5	U	4.5	9.6
Aroclor 1248		4.5	U	4.5	9.6
Aroclor 1254		8.6	J	2.5	9.6
Aroclor 1260		3.5	J P	2.5	9.6

Surrogate	%Rec	Qualifier	Acceptance Limits
Decachlorobiphenyl	91		59 - 130
Tetrachloro-m-xylene	97		53 - 128

Client: Washington Closure Hanford

7/23/11

Job Number: 280-16917-1
Sdg Number: J01133

Client Sample ID: J1JF95

Lab Sample ID: 280-16917-3
Client Matrix: Solid

% Moisture: 5.8

Date Sampled: 06/09/2011 1433
Date Received: 06/14/2011 0930

8082 Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analysis Method:	8082	Analysis Batch:	280-73731	Instrument ID:	GCS_P3
Prep Method:	3550C	Prep Batch:	280-72648	Initial Weight/Volume:	32.7 g
Dilution:	5.0			Final Weight/Volume:	5000 uL
Analysis Date:	06/23/2011 1149			Injection Volume:	1 uL
Prep Date:	06/17/2011 2315			Result Type:	PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Aroclor 1016		13	U D	13	49
Aroclor 1221		39	U D	39	80
Aroclor 1232		9.7	U D	9.7	49
Aroclor 1242		23	U D	23	49
Aroclor 1248		23	U D	23	49
Aroclor 1254		230	D P	13	49
Aroclor 1260		13	U D	13	49

Surrogate	%Rec	Qualifier	Acceptance Limits
Decachlorobiphenyl	71	D	59 - 130
Tetrachloro-m-xylene	65	D	53 - 128

Client: Washington Closure Hanford

7/23/11

Job Number: 280-16917-1
Sdg Number: J01133

Client Sample ID: J1JF96

Lab Sample ID: 280-16917-4
Client Matrix: Solid
% Moisture: 3.9

Date Sampled: 06/09/2011 1418
Date Received: 06/14/2011 0930

8082 Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analysis Method:	8082	Analysis Batch:	280-73731	Instrument ID:	GCS_P3
Prep Method:	3550C	Prep Batch:	280-72648	Initial Weight/Volume:	31.7 g
Dilution:	1.0			Final Weight/Volume:	5000 uL
Analysis Date:	06/23/2011 0929			Injection Volume:	1 uL
Prep Date:	06/17/2011 2315			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	79		59 - 130
Tetrachloro-m-xylene	77		53 - 128

Appendix 4

Laboratory Narrative and Chain-of-Custody Documentation

CASE NARRATIVE

Client: Washington Closure Hanford

Project: WASHINGTON CLOSURE HANFORD

Report Number: 280-16917-1

SDG #: J01133
SAF#: RC-148

Date SDG Closed: June 14, 2011
Data Deliverable: 21 Day / Summary

CLIENT ID	LAB ID	ANALYSES REQUESTED	ANALYSES PERFORMED
J1J4F93	280-16917-1	6010/7471/9056M/353.2/8082	6010B/7471A/9056M/353.2/8082
J1J4F94	280-16917-2	6010/7471/9056M/353.2/8082	6010B/7471A/9056M/353.2/8082
J1J4F95	280-16917-3	6010/7471/9056M/353.2/8082	6010B/7471A/9056M/353.2/8082
J1J4F96	280-16917-4	6010/7471/9056M/353.2/8082	6010B/7471A/9056M/353.2/8082
J1J4F97	280-16917-5	6010/7471/9056M/353.2/8082	6010B/7471A/9056M/353.2/8082

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 6/14/2011; the samples arrived in good condition, properly preserved and on ice. The temperature of the cooler at receipt was 4.4 C.

GC SEMIVOLATILES - SW846 8082 - PCBs
The laboratory noted that sample J1JF94 contained more than one Aroclor component. Results should be considered estimated due to shared peaks.

Each sample is analyzed to achieve the lowest possible reporting limits within the constraints of the method. Due to matrix interference and/or high constituent concentration, sample J1JF95 had to be analyzed at a dilution, and the associated results have been flagged with a "D". The reporting limits have been adjusted relative to the dilution required.

Surrogate recoveries were not calculated for sample J1JF95, because the extract was diluted beyond the ability to reliably quantitate recoveries. The recoveries have been flagged with a "D".

The RPD between the primary and confirmation columns exceeded 25% for Aroclor 1260 and Aroclor 1254 in samples J1JF94 and J1JF95, respectively. The results have been flagged with a "P".

No other anomalies were encountered.

TOTAL METALS - SW846 6010B/7471A
Serial dilution of a digestate in batch 280-72350 indicates that physical and chemical interferences are present for Aluminum, Barium, Calcium, Chromium, Cobalt, Magnesium, Manganese, Nickel, Vanadium and Zinc. Results have been flagged with an "X".

Low levels of Aluminum and Nickel are present in the method blank associated with batch 280-72350. Because the concentrations in the method blank are not present at levels greater than the reporting limits, corrective action is deemed unnecessary.

Low levels of Uranium are present in the method blank associated with batch 280-72351. Because the concentration in the method blank is not present at a level greater than 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, Manganese and Iron in the Matrix Spike performed on sample J1JF93; therefore, control limits are not applicable.

The duplicate analysis of sample J1JF93 exhibited RPD data outside the control limits for Cadmium, 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
No anomalies were encountered.

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

4.4 ~~to~~ CMB FP

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-148-025	Page 1 of 1

Collector ~~S. Clark~~ Q. STOWE DJB 6/9/11	Company Contact Joan Kessner	Telephone No. 509-375-4688	Project Coordinator KESSNER, JH
Price Code 8L	Data Turnaround 21 Days		
Project Designation 300 Area Field Remediation - Soil Full Protocol	Sampling Location 300-258 Verification		SAF No. RC-148
Ice Chest No. ~~N/A~~ AJ 6-9-11 RCC-08-023	Field Logbook No. EL-1395-18	COA R302582000	Method of Shipment ~~Hand Deliver/Government Vehicle~~ AJ 6/9/11 Fed Ex
Shipped To TestAmerica Incorporated, ~~Richland~~ Denver AJ 6/9/11	Offsite Property No. N/A		Bill of Lading/Air Bill No. ~~N/A~~ AJ 6/9/11 7971 9824 2120

POSSIBLE SAMPLE HAZARDS/REMARKS

~~Potential~~ Radioactive < DDT Limits AJ 6-13-11

Special Handling and/or Storage

Cool 4 degrees C

Preservation	Cool 4C	Cool 4C	Cool 4C	None	None	None					
Type of Container	G/P	G/P	aG	G/P	G/P	G/P					
No. of Container(s)	1	1	1	1	1	1					
Volume	60mL	60mL	120mL	60mL	60mL	60g					
SAMPLE ANALYSIS	See item (1) in Special Instructions.	IC Anions - 300.0; NO2/NO3 - 353.2	PCBs - 8082	Isotopic Uranium	Strontium-90 – Total Sr	Rad Shipping Screen					

017

Sample No.	Matrix *	Sample Date	Sample Time											
J1JF93	SOIL	6/9/11	1418	X	X	X	X	X	X					28728
J1JF94	SOIL	6/9/11	1427	X	X	X	X	X	X					28729
J1JF95	SOIL	6/9/11	1433	X	X	X	X	X	X					28730
J1JF96	SOIL	6/9/11	1418	X	X	X	X	X	X					28731
J1JF97	SOIL	6/9/11	1408	X										

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Quincy Stowe	6/9/11 1500	David Becker	6/9/11 1500
David Becker	6/9/11 1605	A. Freier 1060, #1	6-9-11 1605
A Freier 1060, #1	WCH 6-13-11 1125	Fed Ex	
			6/14/11 9:30

SPECIAL INSTRUCTIONS

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

REVIEWED BY CMB DATE 6/13/11

SDG# J01133

Matrix *: S=Soil; SE=Sediment; SO=Solid; Sl=Sludge; W=Water; O=Oil; A=Air; DS=Drum Solids; DL=Drum Liquids; T=Tissue; Ws=Wipe; L=Liquid; V=Vegetation; X=Other

LABORATORY SECTION	Received By	Title	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

WCH-EE-011

Appendix 5

Data Validation Supporting Documentation

PCB DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	E
PROJECT: 300-258			DATA PACKAGE: J01133		
VALIDATOR: ELR		LAB: JAL		DATE: 7/23/11	
			SDG: J01133		
ANALYSES PERFORMED					
SW-846 8081	SW-846 8081 (TCLP)	SW-846 8082	SW-846 8081 (TCLP)		
SAMPLES/MATRIX					
J1JF93	J1JF94	J1JF95	J1JF96		
					soil

1. DATA PACKAGE COMPLETENESS AND CASE NARRATIVE

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

Comments:

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

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

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

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

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

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

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

Comments:

PCB DATA VALIDATION CHECKLIST

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

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

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

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

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

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

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

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

Comments: no FB

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Comments: no 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: 3 over

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: 280-16917-1
Sdg Number: J01133

Method Blank - Batch: 280-72648

Method: 8082
Preparation: 3550C

Lab Sample ID:	MB 280-72648/1-A	Analysis Batch:	280-73731	Instrument ID:	GCS_P3
Client Matrix:	Solid	Prep Batch:	280-72648	Lab File ID:	039F3901.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	31.0 g
Analysis Date:	06/23/2011 0416	Units:	ug/Kg	Final Weight/Volume:	5000 uL
Prep Date:	06/17/2011 2315			Injection Volume:	1 uL
Leach Date:	N/A			Column ID:	PRIMARY

Analyte	Result	Qual	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	Acceptance Limits
Decachlorobiphenyl	79	59 - 130
Tetrachloro-m-xylene	73	53 - 128

Lab Control Sample - Batch: 280-72648

Method: 8082
Preparation: 3550C

Lab Sample ID:	LCS 280-72648/2-A	Analysis Batch:	280-73731	Instrument ID:	GCS_P3
Client Matrix:	Solid	Prep Batch:	280-72648	Lab File ID:	040F4001.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	32.1 g
Analysis Date:	06/23/2011 0753	Units:	ug/Kg	Final Weight/Volume:	5000 uL
Prep Date:	06/17/2011 2315			Injection Volume:	1 uL
Leach Date:	N/A			Column ID:	PRIMARY

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Aroclor 1016	31.2	22.4	72	54 - 132	
Aroclor 1260	31.2	24.6	79	62 - 129	

Surrogate	% Rec	Acceptance Limits
Decachlorobiphenyl	71	59 - 130
Tetrachloro-m-xylene	71	53 - 128

Client: Washington Closure Hanford

Job Number: 280-16917-1
Sdg Number: J01133

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-72648

Method: 8082
Preparation: 3550C

MS Lab Sample ID:	280-16917-4	Analysis Batch:	280-73731	Instrument ID:	GCS_P3
Client Matrix:	Solid	Prep Batch:	280-72648	Lab File ID:	045F4501.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	31.1 g
Analysis Date:	06/23/2011 0951			Final Weight/Volume:	5000 uL
Prep Date:	06/17/2011 2315			Injection Volume:	1 uL
Leach Date:	N/A			Column ID:	PRIMARY

MSD Lab Sample ID:	280-16917-4	Analysis Batch:	280-73731	Instrument ID:	GCS_P3
Client Matrix:	Solid	Prep Batch:	280-72648	Lab File ID:	046F4601.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	31.7 g
Analysis Date:	06/23/2011 1012			Final Weight/Volume:	5000 uL
Prep Date:	06/17/2011 2315			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	86	85	54 - 132	4	26		
Aroclor 1260	89	89	62 - 129	2	26		

Surrogate	MS % Rec	MSD % Rec	Acceptance Limits
Decachlorobiphenyl	85	87	59 - 130
Tetrachloro-m-xylene	82	84	53 - 128

Date: 25 July 2011
To: Washington Closure Hanford Inc. (technical representative)
From: ELR Consulting
Project: 300 Area Field Remediation – Soil Full Protocol – Waste Site 300-258
Subject: Inorganics - Data Package No. J01133-TAL

INTRODUCTION

This memo presents the results of data validation on Data Package No. J01133 prepared by TestAmerica Laboratory Inc. (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
J1JF93	6/9/11	Soil	C	See note 1
J1JF94	6/9/11	Soil	C	See note 1
J1JF95	6/9/11	Soil	C	See note 1
J1JF96	6/9/11	Soil	C	See note 1
J1JF97	6/9/11	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 300 Area Remedial Action Sampling and Analysis Plan (DOE/RL-2001-48, Rev. 3). 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 nickel result in sample J1JF97 was qualified as undetected and flagged "UJ".

All other preparation blank results were acceptable.

Field (Equipment) Blank

One field (equipment) blank (J1KF97) was submitted for analysis. Aluminum, barium, calcium, chromium, cobalt, iron, lead, magnesium, manganese, potassium, silicon, vanadium, zinc, uranium and zirconium were detected in the equipment blank. Under the WCH statement of work, no qualification is required.

Accuracy

Matrix Spike and Laboratory Control Sample

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

required.

Due to a matrix spike recovery outside QC limits, all antimony (53%) and silicon (25%) results were qualified as estimates and flagged "J".

Due to an LCS recovery outside QC limits, all silicon (20%) 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 (J1JF93/J1JF96) were submitted for analysis. Field duplicates are compared using the same criteria as for laboratory duplicates. The RPDs for calcium (31%) and iron (30.3%) were outside QC limits. Under the WCH statement of work, no qualification is required. All other field duplicate results were acceptable.

- **Analytical Detection Levels**

Reported analytical detection levels are compared against the 300 Area RQLs to ensure that laboratory detection levels meet the required criteria. All results met the RQL.

- **Completeness**

Data package No. J01133 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 nickel result in sample J1JF97 was qualified as undetected and flagged "UJ".
- Due to a matrix spike recovery outside QC limits, all antimony (53%) and silicon (25%) results were qualified as estimates and flagged "J".
- Due to an LCS recovery outside QC limits, all silicon (20%) 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-2001-48, Rev. 3, *300 Area Remedial Action Sampling and Analysis Plan*, U.S. Department of Energy, May 2004.

Appendix 1

Glossary of Data Reporting Qualifiers

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

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

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

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

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

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

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

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

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

Appendix 2

Summary of Data Qualification

METALS DATA QUALIFICATION SUMMARY*

SDG: J01133	REVIEWER: ELR	Project: 300-258	PAGE_1_OF_1
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
Nickel	UJ	J1JF97	Method blank contamination
Antimony Silicon	J	All	MS recovery
Silicon	J	All	LCS recovery

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

Appendix 3

Annotated Laboratory Reports

Client: Washington Closure Hanford

Job Number: 280-16917-1
Sdg Number: J01133

Client Sample ID: J1JF93

Lab Sample ID: 280-16917-1
Client Matrix: Solid

% Moisture: 3.9

7/23/11

Date Sampled: 06/09/2011 1418
Date Received: 06/14/2011 0930

6010B Metals (ICP)

Analysis Method:	6010B	Analysis Batch:	280-73689	Instrument ID:	MT_025
Prep Method:	3050B	Prep Batch:	280-72350	Lab File ID:	25b062311.asc
Dilution:	1.0			Initial Weight/Volume:	1.15 g
Analysis Date:	06/23/2011 1939			Final Weight/Volume:	100 mL
Prep Date:	06/23/2011 0800				

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Aluminum		5490	X	1.4	4.5
Antimony		0.34	U J	0.34	0.54
Barium		70.8	X	0.069	0.45
Beryllium		0.10	B	0.030	0.18
Boron		0.89	U	0.89	1.8
Cadmium		0.045	B M	0.037	0.18
Calcium		6120	X	12.8	45.3
Chromium		7.5	X	0.052	0.18
Cobalt		5.5	X	0.091	0.91
Lithium		6.2		0.27	2.3
Magnesium		3810	X	3.3	18.1
Manganese		267	X	0.091	0.91
Molybdenum		0.24	U	0.24	1.8
Nickel		9.4	X	0.11	3.6
Potassium		946		37.1	272
Selenium		0.78	U	0.78	0.91
Silicon		222	J	5.1	9.1
Silver		0.14	U	0.14	0.18
Sodium		184		53.4	109
Vanadium		45.4	X	0.085	1.8
Zinc		31.5	X	0.36	0.91
Zirconium		14.1		0.32	2.3

Analysis Method:	6010B	Analysis Batch:	280-73956	Instrument ID:	MT_025
Prep Method:	3050B	Prep Batch:	280-72350	Lab File ID:	25e062411.asc
Dilution:	1.0			Initial Weight/Volume:	1.15 g
Analysis Date:	06/24/2011 2155			Final Weight/Volume:	100 mL
Prep Date:	06/23/2011 0800				

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Arsenic		2.7		0.60	0.91
Copper		9.2		0.20	0.91
Iron		17100		3.4	4.5
Lead		2.5		0.24	0.45

6020 Metals (ICP/MS)

Analysis Method:	6020	Analysis Batch:	280-73711	Instrument ID:	MT_024
Prep Method:	3050B	Prep Batch:	280-72351	Lab File ID:	032AREF.D
Dilution:	1.0			Initial Weight/Volume:	1.13 g
Analysis Date:	06/23/2011 2105			Final Weight/Volume:	100 mL
Prep Date:	06/23/2011 0800				

010

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL

Client: Washington Closure Hanford

Job Number: 280-16917-1
Sdg Number: J01133

7/22/11

Client Sample ID: J1JF93

Lab Sample ID: 280-16917-1
Client Matrix: Solid

% Moisture: 3.9

Date Sampled: 06/09/2011 1418
Date Received: 06/14/2011 0930

6020 Metals (ICP/MS)

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Uranium		0.86		0.0014	0.092

7471A Mercury (CVAA)

Analysis Method:	7471A	Analysis Batch:	280-74195	Instrument ID:	MT_033
Prep Method:	7471A	Prep Batch:	280-72060	Lab File ID:	110627AA.txt
Dilution:	1.0			Initial Weight/Volume:	0.66 g
Analysis Date:	06/27/2011 2149			Final Weight/Volume:	50 mL
Prep Date:	06/27/2011 1325				

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

011

Client: Washington Closure Hanford

Job Number: 280-16917-1
Sdg Number: J01133

Client Sample ID: J1JF94

7/22/11

Lab Sample ID: 280-16917-2
Client Matrix: Solid
% Moisture: 4.4

Date Sampled: 06/09/2011 1427
Date Received: 06/14/2011 0930

6010B Metals (ICP)

Analysis Method:	6010B	Analysis Batch:	280-73689	Instrument ID:	MT_025
Prep Method:	3050B	Prep Batch:	280-72350	Lab File ID:	25b062311.asc
Dilution:	1.0			Initial Weight/Volume:	1.16 g
Analysis Date:	06/23/2011 1948			Final Weight/Volume:	100 mL
Prep Date:	06/23/2011 0800				

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Aluminum		6650	X	1.4	4.5
Antimony		0.34	U J	0.34	0.54
Barium		82.0	X	0.069	0.45
Beryllium		0.13	B	0.030	0.18
Boron		0.88	U	0.88	1.8
Cadmium		0.051	B	0.037	0.18
Calcium		3420	X	12.7	45.1
Chromium		9.1	X	0.052	0.18
Cobalt		6.6	X	0.090	0.90
Iron		19400		3.4	4.5
Lithium		7.4		0.27	2.3
Magnesium		3940	X	3.3	18.0
Manganese		353	X	0.090	0.90
Molybdenum		0.23	U	0.23	1.8
Nickel		9.0	X	0.11	3.6
Potassium		1480		37.0	271
Selenium		0.78	U	0.78	0.90
Silicon		264	J	5.1	9.0
Silver		0.14	U	0.14	0.18
Sodium		198		53.2	108
Vanadium		49.2	X	0.085	1.8
Zinc		38.4	X	0.36	0.90
Zirconium		16.8		0.32	2.3

Analysis Method:	6010B	Analysis Batch:	280-73956	Instrument ID:	MT_025
Prep Method:	3050B	Prep Batch:	280-72350	Lab File ID:	25e062411.asc
Dilution:	1.0			Initial Weight/Volume:	1.16 g
Analysis Date:	06/24/2011 2205			Final Weight/Volume:	100 mL
Prep Date:	06/23/2011 0800				

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Arsenic		2.5		0.60	0.90
Copper		11.3		0.20	0.90
Lead		3.3		0.24	0.45

6020 Metals (ICP/MS)

Analysis Method:	6020	Analysis Batch:	280-73711	Instrument ID:	MT_024
Prep Method:	3050B	Prep Batch:	280-72351	Lab File ID:	039SMPL.D
Dilution:	1.0			Initial Weight/Volume:	1.09 g
Analysis Date:	06/23/2011 2124			Final Weight/Volume:	100 mL
Prep Date:	06/23/2011 0800				

012

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL

Analytical Data

Client: Washington Closure Hanford

Job Number: 280-16917-1
Sdg Number: J01133

7/22/11

Client Sample ID: J1JF94

Lab Sample ID: 280-16917-2
Client Matrix: Solid

% Moisture: 4.4

Date Sampled: 06/09/2011 1427
Date Received: 06/14/2011 0930

6020 Metals (ICP/MS)

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Uranium		3.2		0.0015	0.096

7471A Mercury (CVAA)

Analysis Method:	7471A	Analysis Batch:	280-74195	Instrument ID:	MT_033
Prep Method:	7471A	Prep Batch:	280-72060	Lab File ID:	110627AA.txt
Dilution:	1.0			Initial Weight/Volume:	0.60 g
Analysis Date:	06/27/2011 2156			Final Weight/Volume:	50 mL
Prep Date:	06/27/2011 1325				

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

013

Client: Washington Closure Hanford

Job Number: 280-16917-1
Sdg Number: J01133

V 7/22/11

Client Sample ID: J1JF95

Lab Sample ID: 280-16917-3
Client Matrix: Solid
% Moisture: 5.8

Date Sampled: 06/09/2011 1433
Date Received: 06/14/2011 0930

6010B Metals (ICP)

Analysis Method:	6010B	Analysis Batch:	280-73689	Instrument ID:	MT_025
Prep Method:	3050B	Prep Batch:	280-72350	Lab File ID:	25b062311.asc
Dilution:	1.0			Initial Weight/Volume:	1.01 g
Analysis Date:	06/23/2011 1951			Final Weight/Volume:	100 mL
Prep Date:	06/23/2011 0800				

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Aluminum		6980	X	1.6	5.3
Antimony		0.40	U J	0.40	0.63
Barium		77.9	X	0.080	0.53
Beryllium		0.15	B	0.035	0.21
Boron		1.0	B	1.0	2.1
Cadmium		0.11	B	0.043	0.21
Calcium		4760	X	14.8	52.6
Chromium		9.6	X	0.061	0.21
Cobalt		7.5	X	0.11	1.1
Iron		22000		4.0	5.3
Lithium		6.9		0.32	2.6
Magnesium		3970	X	3.9	21.0
Manganese		325	X	0.11	1.1
Molybdenum		0.27	U	0.27	2.1
Nickel		10.4	X	0.13	4.2
Potassium		1160		43.1	315
Selenium		0.90	U	0.90	1.1
Silicon		252	J	6.0	10.5
Silver		0.17	U	0.17	0.21
Sodium		250		62.0	126
Vanadium		58.8	X	0.099	2.1
Zinc		53.8	X	0.42	1.1
Zirconium		22.4		0.37	2.6

Analysis Method:	6010B	Analysis Batch:	280-73956	Instrument ID:	MT_025
Prep Method:	3050B	Prep Batch:	280-72350	Lab File ID:	25e062411.asc
Dilution:	1.0			Initial Weight/Volume:	1.01 g
Analysis Date:	06/24/2011 2208			Final Weight/Volume:	100 mL
Prep Date:	06/23/2011 0800				

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Arsenic		2.8		0.69	1.1
Copper		18.1		0.23	1.1
Lead		4.4		0.28	0.53

6020 Metals (ICP/MS)

Analysis Method:	6020	Analysis Batch:	280-73711	Instrument ID:	MT_024
Prep Method:	3050B	Prep Batch:	280-72351	Lab File ID:	040SMPL.D
Dilution:	1.0			Initial Weight/Volume:	1.11 g
Analysis Date:	06/23/2011 2126			Final Weight/Volume:	100 mL
Prep Date:	06/23/2011 0800				

014

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL

Client: Washington Closure Hanford

Job Number: 280-16917-1
Sdg Number: J01133

7/22/11

Client Sample ID: **J1JF95**

Lab Sample ID: 280-16917-3
Client Matrix: Solid

% Moisture: 5.8

Date Sampled: 06/09/2011 1433
Date Received: 06/14/2011 0930

6020 Metals (ICP/MS)

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Uranium		10.1		0.0015	0.096

7471A Mercury (CVAA)

Analysis Method:	7471A	Analysis Batch:	280-74195	Instrument ID:	MT_033
Prep Method:	7471A	Prep Batch:	280-72060	Lab File ID:	110627AA.txt
Dilution:	1.0			Initial Weight/Volume:	0.62 g
Analysis Date:	06/27/2011 2158			Final Weight/Volume:	50 mL
Prep Date:	06/27/2011 1325				

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Mercury		0.021		0.0057	0.017

015

Client: Washington Closure Hanford

Job Number: 280-16917-1
Sdg Number: J01133

Client Sample ID: J1JF96

Lab Sample ID: 280-16917-4
Client Matrix: Solid
% Moisture: 3.9

7/22/11

Date Sampled: 06/09/2011 1418
Date Received: 06/14/2011 0930

6010B Metals (ICP)

Analysis Method:	6010B	Analysis Batch:	280-73689	Instrument ID:	MT_025
Prep Method:	3050B	Prep Batch:	280-72350	Lab File ID:	25b062311.asc
Dilution:	1.0			Initial Weight/Volume:	1.09 g
Analysis Date:	06/23/2011 1953			Final Weight/Volume:	100 mL
Prep Date:	06/23/2011 0800				

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Aluminum		4110	X	1.5	4.8
Antimony		0.36	U J	0.36	0.57
Barium		51.2	X	0.073	0.48
Beryllium		0.085	B	0.031	0.19
Boron		0.94	U	0.94	1.9
Cadmium		0.039	U	0.039	0.19
Calcium		4450	X	13.5	47.7
Chromium		6.1	X	0.055	0.19
Cobalt		4.5	X	0.095	0.95
Iron		12600		3.6	4.8
Lithium		4.7		0.29	2.4
Magnesium		2710	X	3.5	19.1
Manganese		228	X	0.095	0.95
Molybdenum		0.25	U	0.25	1.9
Nickel		6.6	X	0.12	3.8
Potassium		690		39.1	286
Selenium		0.82	U	0.82	0.95
Silicon		166	J	5.4	9.5
Silver		0.15	U	0.15	0.19
Sodium		160		56.3	115
Vanadium		33.9	X	0.090	1.9
Zinc		24.3	X	0.38	0.95
Zirconium		10.6		0.34	2.4

Analysis Method:	6010B	Analysis Batch:	280-73956	Instrument ID:	MT_025
Prep Method:	3050B	Prep Batch:	280-72350	Lab File ID:	25e062411.asc
Dilution:	1.0			Initial Weight/Volume:	1.09 g
Analysis Date:	06/24/2011 2210			Final Weight/Volume:	100 mL
Prep Date:	06/23/2011 0800				

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Arsenic		2.7		0.63	0.95
Copper		9.6		0.21	0.95
Lead		2.5		0.26	0.48

6020 Metals (ICP/MS)

Analysis Method:	6020	Analysis Batch:	280-73711	Instrument ID:	MT_024
Prep Method:	3050B	Prep Batch:	280-72351	Lab File ID:	041SMPL.D
Dilution:	1.0			Initial Weight/Volume:	1.11 g
Analysis Date:	06/23/2011 2129			Final Weight/Volume:	100 mL
Prep Date:	06/23/2011 0800				

016

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL

Client: Washington Closure Hanford

Job Number: 280-16917-1
Sdg Number: J01133

7/22/11

Client Sample ID: J1JF96

Lab Sample ID: 280-16917-4
Client Matrix: Solid
% Moisture: 3.9

Date Sampled: 06/09/2011 1418
Date Received: 06/14/2011 0930

6020 Metals (ICP/MS)

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Uranium		0.72		0.0015	0.094

7471A Mercury (CVAA)

Analysis Method:	7471A	Analysis Batch:	280-74195	Instrument ID:	MT_033
Prep Method:	7471A	Prep Batch:	280-72060	Lab File ID:	110627AA.txt
Dilution:	1.0			Initial Weight/Volume:	0.62 g
Analysis Date:	06/27/2011 2201			Final Weight/Volume:	50 mL
Prep Date:	06/27/2011 1325				

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Mercury		0.0056	U	0.0056	0.017

017

Client: Washington Closure Hanford

Job Number: 280-16917-1
Sdg Number: J01133

Client Sample ID: J1JF97

Lab Sample ID: 280-16917-5
Client Matrix: Solid

% Moisture: 0.0

7/22/11

Date Sampled: 06/09/2011 1408
Date Received: 06/14/2011 0930

6010B Metals (ICP)

Analysis Method:	6010B	Analysis Batch:	280-73689	Instrument ID:	MT_025
Prep Method:	3050B	Prep Batch:	280-72350	Lab File ID:	25b062311.asc
Dilution:	1.0			Initial Weight/Volume:	1.05 g
Analysis Date:	06/23/2011 1955			Final Weight/Volume:	100 mL
Prep Date:	06/23/2011 0800				

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Aluminum		185	X	1.5	4.8
Antimony		0.36	U J	0.36	0.57
Barium		2.0	X	0.072	0.48
Beryllium		0.031	U	0.031	0.19
Boron		0.93	U	0.93	1.9
Cadmium		0.039	U	0.039	0.19
Calcium		41.7	B X	13.4	47.6
Chromium		0.14	B X	0.055	0.19
Cobalt		0.10	B X	0.095	0.95
Lithium		0.29	U	0.29	2.4
Magnesium		23.6	X	3.5	19.0
Manganese		6.5	X	0.095	0.95
Molybdenum		0.25	U	0.25	1.9
Nickel		0.34	B X C UJ	0.12	3.8
Potassium		54.1	B	39.0	286
Selenium		0.82	U	0.82	0.95
Silicon		105	J	5.4	9.5
Silver		0.15	U	0.15	0.19
Sodium		56.2	U	56.2	114
Vanadium		0.31	B X	0.090	1.9
Zinc		1.7	X	0.38	0.95
Zirconium		0.57	B	0.34	2.4

Analysis Method:	6010B	Analysis Batch:	280-73956	Instrument ID:	MT_025
Prep Method:	3050B	Prep Batch:	280-72350	Lab File ID:	25e062411.asc
Dilution:	1.0			Initial Weight/Volume:	1.05 g
Analysis Date:	06/24/2011 2213			Final Weight/Volume:	100 mL
Prep Date:	06/23/2011 0800				

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Arsenic		0.63	U	0.63	0.95
Copper		0.21	U	0.21	0.95
Iron		253		3.6	4.8
Lead		0.33	B	0.26	0.48

6020 Metals (ICP/MS)

Analysis Method:	6020	Analysis Batch:	280-73711	Instrument ID:	MT_024
Prep Method:	3050B	Prep Batch:	280-72351	Lab File ID:	042SMPL.D
Dilution:	1.0			Initial Weight/Volume:	1.15 g
Analysis Date:	06/23/2011 2132			Final Weight/Volume:	100 mL
Prep Date:	06/23/2011 0800				

018

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL

Client: Washington Closure Hanford

Job Number: 280-16917-1
Sdg Number: J01133

7/22/11

Client Sample ID: J1JF97

Lab Sample ID: 280-16917-5
Client Matrix: Solid
% Moisture: 0.0

Date Sampled: 06/09/2011 1408
Date Received: 06/14/2011 0930

6020 Metals (ICP/MS)

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Uranium		0.12		0.0014	0.087

7471A Mercury (CVAA)

Analysis Method:	7471A	Analysis Batch:	280-74195	Instrument ID:	MT_033
Prep Method:	7471A	Prep Batch:	280-72060	Lab File ID:	110627AA.txt
Dilution:	1.0			Initial Weight/Volume:	0.64 g
Analysis Date:	06/27/2011 2207			Final Weight/Volume:	50 mL
Prep Date:	06/27/2011 1325				

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

019

Appendix 4

Laboratory Narrative and Chain-of-Custody Documentation

CASE NARRATIVE

Client: Washington Closure Hanford

Project: WASHINGTON CLOSURE HANFORD

Report Number: 280-16917-1

SDG #: J01133
SAF#: RC-148

Date SDG Closed: June 14, 2011
Data Deliverable: 21 Day / Summary

CLIENT ID	LAB ID	ANALYSES REQUESTED	ANALYSES PERFORMED
J1J4F93	280-16917-1	6010/7471/9056M/353.2/8082	6010B/7471A/9056M/353.2/8082
J1J4F94	280-16917-2	6010/7471/9056M/353.2/8082	6010B/7471A/9056M/353.2/8082
J1J4F95	280-16917-3	6010/7471/9056M/353.2/8082	6010B/7471A/9056M/353.2/8082
J1J4F96	280-16917-4	6010/7471/9056M/353.2/8082	6010B/7471A/9056M/353.2/8082
J1J4F97	280-16917-5	6010/7471/9056M/353.2/8082	6010B/7471A/9056M/353.2/8082

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 6/14/2011; the samples arrived in good condition, properly preserved and on ice. The temperature of the cooler at receipt was 4.4 C.

GC SEMIVOLATILES - SW846 8082 - PCBs
The laboratory noted that sample J1JF94 contained more than one Aroclor component. Results should be considered estimated due to shared peaks.

Each sample is analyzed to achieve the lowest possible reporting limits within the constraints of the method. Due to matrix interference and/or high constituent concentration, sample J1JF95 had to be analyzed at a dilution, and the associated results have been flagged with a "D". The reporting limits have been adjusted relative to the dilution required.

Surrogate recoveries were not calculated for sample J1JF95, because the extract was diluted beyond the ability to reliably quantitate recoveries. The recoveries have been flagged with a "D".

The RPD between the primary and confirmation columns exceeded 25% for Aroclor 1260 and Aroclor 1254 in samples J1JF94 and J1JF95, respectively. The results have been flagged with a "P".

No other anomalies were encountered.

021

TOTAL METALS - SW846 6010B/7471A
Serial dilution of a digestate in batch 280-72350 indicates that physical and chemical interferences are present for Aluminum, Barium, Calcium, Chromium, Cobalt, Magnesium, Manganese, Nickel, Vanadium and Zinc. Results have been flagged with an "X".

Low levels of Aluminum and Nickel are present in the method blank associated with batch 280-72350. Because the concentrations in the method blank are not present at levels greater than the reporting limits, corrective action is deemed unnecessary.

Low levels of Uranium are present in the method blank associated with batch 280-72351. Because the concentration in the method blank is not present at a level greater than 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, Manganese and Iron in the Matrix Spike performed on sample J1JF93; therefore, control limits are not applicable.

The duplicate analysis of sample J1JF93 exhibited RPD data outside the control limits for Cadmium, 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
No anomalies were encountered.

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

022

4.4 ~~to~~ CMB FP

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-148-025	Page 1 of 1

Collector ~~Sr. Clark~~ Q. STOWE DP 6/9/11	Company Contact Joan Kessner	Telephone No. 509-375-4688	Project Coordinator KESSNER, JH	Price Code 8L	Data Turnaround 21 Days
Project Designation 300 Area Field Remediation - Soil Full Protocol	Sampling Location 300-258 Verification		SAF No. RC-148		
Ice Chest No. ~~N/A~~ AJ 6-9-11 RCC-08-023	Field Logbook No. EL-1395-18	COA R302582000	Method of Shipment ~~Hand Deliver/Government Vehicle~~ JP 6/9/11 Fed Ex		
Shipped To TestAmerica Incorporated, ~~Richland~~ JP 6/9/11 Denver	Offsite Property No. N/A		Bill of Lading/Air Bill No. ~~N/A~~ JP 6/9/11 7971982421 20		

POSSIBLE SAMPLE HAZARDS/REMARKS

~~Potential~~ Radioactive L DDT Limits AJ 6-13-11

Special Handling and/or Storage

Cool 4 degrees C

Preservation	Cool 4C	Cool 4C	Cool 4C	None	None	None				
Type of Container	G/P	G/P	aG	G/P	G/P	G/P				
No. of Container(s)	1	1	1	1	1	1				
Volume	60mL	60mL	120mL	60mL	60mL	60g				
SAMPLE ANALYSIS	See item (1) in Special Instructions.	IC Anions - 300.0; NO2/NO3 - 353.2	PCBs - 8082	Isotopic Uranium	Strontium-89,90 – Total Sr	Resource Stockpile Screen				

023

Sample No.	Matrix *	Sample Date	Sample Time										
J1JF93	SOIL	6/9/11	1418	X	X	X	X	X	X				28728
J1JF94	SOIL	6/9/11	1427	X	X	X	X	X	X				28729
J1JF95	SOIL	6/9/11	1433	X	X	X	X	X	X				28730
J1JF96	SOIL	6/9/11	1418	X	X	X	X	X	X				28731
J1JF97	SOIL	6/9/11	1408	X									

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Quincy Stowe	6/9/11 1500	David Becker	6/9/11 1500
David Becker	6/9/11 1605	A. Freier 1060, #1	6-9-11 1605
A Freier 1060, #1 WCH	6-13-11 1125	Fed Ex	
			6/14/11 930

SPECIAL INSTRUCTIONS

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

REVIEWED BY CMB DATE 6/13/11

SDG# J01133

Matrix *: S=Soil; SE=Sediment; SO=Solid; Sl=Sludge; W=Water; O=Oil; A=Air; DS=Drum Solids; DL=Drum Liquids; Tu=Tissue; Wi=Wipe; Li=Liquid; Ve=Vegetation; X=Other

LABORATORY SECTION	Received By	Title	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

WCH-EE-011

Appendix 5

Data Validation Supporting Documentation

INORGANIC ANALYSIS DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	E
PROJECT: 300-258			DATA PACKAGE: J01133		
VALIDATOR: ELR		LAB: TAL		DATE: 7/23/11	
			SDG: J01133		
ANALYSES PERFORMED					
SW-846/ICP	SW-846/GFAA	SW-846/Hg	SW-846 Cyanide		
SAMPLES/MATRIX					
J1JF93	J1JF94	J1JF95	J1JF96		
J1JF97					
					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: 97 - nickel - UJ

FB - 15 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 20% - J all

MS - antimony (53%) silicon (25%) - 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: Calcium (31%) + Iron (30.38) - FD

6. ICP QUALITY CONTROL (Levels D and E)

ICP serial dilution samples analyzed? ..... Yes No N/A

ICP serial dilution %D values acceptable? ..... Yes No N/A

ICP post digestion spike required? ..... Yes No N/A

ICP post digestion spike values acceptable? ..... Yes No N/A

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

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

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

Comments:

INORGANIC ANALYSIS DATA VALIDATION CHECKLIST

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

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

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

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

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

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

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

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

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

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

Comments: _____

8. HOLDING TIMES (all levels)

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

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

Comments: _____

INORGANIC ANALYSIS DATA VALIDATION CHECKLIST

9. RESULT QUANTITATION AND DETECTION LIMITS (all levels)

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

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

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

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

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

Comments: _____

Appendix 6

Additional Documentation Requested by Client

Client: Washington Closure Hanford

Job Number: 280-16917-1
Sdg Number: J01133

Method Blank - Batch: 280-72350

Method: 6010B
Preparation: 3050B

Lab Sample ID:	MB 280-72350/1-A	Analysis Batch:	280-73689	Instrument ID:	MT_025
Client Matrix:	Solid	Prep Batch:	280-72350	Lab File ID:	25b062311.asc
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1 g
Analysis Date:	06/23/2011 1934	Units:	mg/Kg	Final Weight/Volume:	100 mL
Prep Date:	06/23/2011 0800				
Leach Date:	N/A				

Analyte	Result	Qual	MDL	RL
Aluminum	2.43	B	1.6	5.0
Antimony	0.38	U	0.38	0.60
Barium	0.076	U	0.076	0.50
Beryllium	0.033	U	0.033	0.20
Boron	0.98	U	0.98	2.0
Cadmium	0.041	U	0.041	0.20
Calcium	14.1	U	14.1	50.0
Chromium	0.058	U	0.058	0.20
Cobalt	0.10	U	0.10	1.0
Lithium	0.30	U	0.30	2.5
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	0.179	B	0.12	4.0
Potassium	41.0	U	41.0	300
Selenium	0.86	U	0.86	1.0
Silicon	5.7	U	5.7	10.0
Silver	0.16	U	0.16	0.20
Sodium	59.0	U	59.0	120
Vanadium	0.094	U	0.094	2.0
Zinc	0.40	U	0.40	1.0
Zirconium	0.35	U	0.35	2.5

Method Blank - Batch: 280-72350

Method: 6010B
Preparation: 3050B

Lab Sample ID:	MB 280-72350/1-A	Analysis Batch:	280-73958	Instrument ID:	MT_025
Client Matrix:	Solid	Prep Batch:	280-72350	Lab File ID:	25e062411.asc
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1 g
Analysis Date:	06/24/2011 2150	Units:	mg/Kg	Final Weight/Volume:	100 mL
Prep Date:	06/23/2011 0800				
Leach Date:	N/A				

Analyte	Result	Qual	MDL	RL
Arsenic	0.66	U	0.66	1.0
Copper	0.22	U	0.22	1.0
Iron	3.8	U	3.8	5.0
Lead	0.27	U	0.27	0.50

Client: Washington Closure Hanford

Job Number: 280-16917-1
Sdg Number: J01133

Lab Control Sample - Batch: 280-72350

Method: 6010B
Preparation: 3050B

Lab Sample ID:	LCS 280-72350/2-A	Analysis Batch:	280-73689	Instrument ID:	MT_025
Client Matrix:	Solid	Prep Batch:	280-72350	Lab File ID:	25b062311.asc
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1 g
Analysis Date:	06/23/2011 1936	Units:	mg/Kg	Final Weight/Volume:	100 mL
Prep Date:	06/23/2011 0800				
Leach Date:	N/A				

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Aluminum	200	177.3	89	82 - 116	
Antimony	50.0	46.29	93	82 - 110	
Barium	200	206.0	103	87 - 112	
Beryllium	5.00	4.80	96	84 - 114	
Boron	100	90.61	91	81 - 110	
Cadmium	10.0	10.10	101	87 - 110	
Calcium	5000	4833	97	82 - 114	
Chromium	20.0	20.11	101	84 - 114	
Cobalt	50.0	48.28	97	87 - 110	
Lithium	100	99.76	100	90 - 110	
Magnesium	5000	4978	100	90 - 110	
Manganese	50.0	53.03	106	88 - 110	
Molybdenum	100	99.37	99	86 - 110	
Nickel	50.0	49.00	98	87 - 110	
Potassium	5000	5109	102	89 - 110	
Selenium	200	203.7	102	83 - 110	
Silicon	1000	196.4	20	10 - 70	
Silver	5.00	5.51	110	87 - 114	
Sodium	5000	5234	105	90 - 112	
Vanadium	50.0	53.48	107	88 - 110	
Zinc	50.0	49.22	98	76 - 114	
Zirconium	50.0	50.61	101	90 - 110	

Lab Control Sample - Batch: 280-72350

Method: 6010B
Preparation: 3050B

Lab Sample ID:	LCS 280-72350/2-A	Analysis Batch:	280-73956	Instrument ID:	MT_025
Client Matrix:	Solid	Prep Batch:	280-72350	Lab File ID:	25e062411.asc
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1 g
Analysis Date:	06/24/2011 2153	Units:	mg/Kg	Final Weight/Volume:	100 mL
Prep Date:	06/23/2011 0800				
Leach Date:	N/A				

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Arsenic	100	93.43	93	85 - 110	
Copper	25.0	26.41	106	88 - 110	
Iron	100	105.8	106	87 - 120	
Lead	50.0	50.03	100	86 - 110	

032

Client: Washington Closure Hanford

Job Number: 280-16917-1
Sdg Number: J01133

Matrix Spike - Batch: 280-72350

Method: 6010B
Preparation: 3050B

Lab Sample ID:	280-16917-1	Analysis Batch:	280-73689	Instrument ID:	MT_025
Client Matrix:	Solid	Prep Batch:	280-72350	Lab File ID:	25b062311.asc
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1.11 g
Analysis Date:	06/23/2011 1946	Units:	mg/Kg	Final Weight/Volume:	100 mL
Prep Date:	06/23/2011 0800				
Leach Date:	N/A				

Analyte	Sample Result/Qual		Spike Amount	Result	% Rec.	Limit	Qual
Aluminum	5490		188	7312	973	50 - 200	4
Antimony	0.34	U	46.9	24.70	53	20 - 200	
Barium	70.8		188	247.6	94	52 - 159	
Beryllium	0.10	B	4.69	4.10	85	72 - 105	
Boron	0.89	U	93.8	72.80	78	75 - 107	
Cadmium	0.045	B	9.38	8.47	90	40 - 130	
Calcium	6120		4690	11060	105	43 - 165	
Chromium	7.5		18.8	25.32	95	70 - 200	
Cobalt	5.5		46.9	45.35	85	72 - 106	
Lithium	6.2		93.8	91.51	91	84 - 109	
Magnesium	3810		4690	8221	94	64 - 145	
Manganese	267		46.9	345.7	167	40 - 200	4
Molybdenum	0.24	U	93.8	79.84	85	75 - 103	
Nickel	9.4		46.9	48.13	83	61 - 126	
Potassium	946		4690	5433	96	56 - 172	
Selenium	0.78	U	188	166.8	89	76 - 104	
Silicon	222		938	454.7	25	20 - 200	
Silver	0.14	U	4.69	4.53	97	75 - 141	
Sodium	184		4690	4763	98	78 - 111	
Vanadium	45.4		46.9	92.80	101	50 - 169	
Zinc	31.5		46.9	72.76	88	70 - 200	
Zirconium	14.1		46.9	60.37	99	75 - 125	

Matrix Spike - Batch: 280-72350

Method: 6010B
Preparation: 3050B

Lab Sample ID:	280-16917-1	Analysis Batch:	280-73956	Instrument ID:	MT_025
Client Matrix:	Solid	Prep Batch:	280-72350	Lab File ID:	25e062411.asc
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1.11 g
Analysis Date:	06/24/2011 2202	Units:	mg/Kg	Final Weight/Volume:	100 mL
Prep Date:	06/23/2011 0800				
Leach Date:	N/A				

Analyte	Sample Result/Qual	Spike Amount	Result	% Rec.	Limit	Qual
Arsenic	2.7	93.8	82.50	85	76 - 111	
Copper	9.2	23.4	31.84	97	37 - 187	
Iron	17100	93.8	18500	1446	70 - 200	4
Lead	2.5	46.9	44.26	89	70 - 200	

Client: Washington Closure Hanford

Job Number: 280-16917-1
Sdg Number: J01133

Duplicate - Batch: 280-72350

Method: 6010B
Preparation: 3050B

Lab Sample ID:	280-16917-1	Analysis Batch:	280-73689	Instrument ID:	MT_025
Client Matrix:	Solid	Prep Batch:	280-72350	Lab File ID:	25b062311.asc
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1.20 g
Analysis Date:	06/23/2011 1943	Units:	mg/Kg	Final Weight/Volume:	100 mL
Prep Date:	06/23/2011 0800				
Leach Date:	N/A				

Analyte	Sample Result/Qual		Result	RPD	Limit	Qual
Aluminum	5490		5676	3	40	
Antimony	0.34	U	0.33	NC	40	U
Barium	70.8		54.16	27	30	
Beryllium	0.10	B	0.115	9	30	B
Boron	0.89	U	0.85	NC	30	U
Cadmium	0.045	B	0.0694	42	30	B M
Calcium	6120		5901	4	30	
Chromium	7.5		7.34	3	40	
Cobalt	5.5		5.64	3	30	
Lithium	6.2		6.43	3	30	
Magnesium	3810		3566	7	30	
Manganese	267		262.9	2	40	
Molybdenum	0.24	U	0.297	NC	30	B
Nickel	9.4		7.44	24	30	
Potassium	946		933.6	1	40	
Selenium	0.78	U	0.75	NC	30	U
Silicon	222		250.4	12	40	
Silver	0.14	U	0.185	NC	30	
Sodium	184		188.0	2	30	
Vanadium	45.4		45.73	0.7	30	
Zinc	31.5		31.83	1	40	
Zirconium	14.1		14.71	4	30	

Duplicate - Batch: 280-72350

Method: 6010B
Preparation: 3050B

Lab Sample ID:	280-16917-1	Analysis Batch:	280-73956	Instrument ID:	MT_025
Client Matrix:	Solid	Prep Batch:	280-72350	Lab File ID:	25e062411.asc
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1.20 g
Analysis Date:	06/24/2011 2200	Units:	mg/Kg	Final Weight/Volume:	100 mL
Prep Date:	06/23/2011 0800				
Leach Date:	N/A				

Analyte	Sample Result/Qual	Result	RPD	Limit	Qual
Arsenic	2.7	3.14	15	30	
Copper	9.2	8.90	3	30	
Iron	17100	17280	0.8	40	
Lead	2.5	3.05	20	40	

Client: Washington Closure Hanford

Job Number: 280-16917-1
Sdg Number: J01133

Method Blank - Batch: 280-72351

Method: 6020
Preparation: 3050B

Lab Sample ID:	MB 280-72351/1-A	Analysis Batch:	280-73711	Instrument ID:	MT_024
Client Matrix:	Solid	Prep Batch:	280-72351	Lab File ID:	030_BLK.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1 g
Analysis Date:	06/23/2011 2059	Units:	mg/Kg	Final Weight/Volume:	100 mL
Prep Date:	06/23/2011 0800				
Leach Date:	N/A				

Analyte	Result	Qual	MDL	RL
Uranium	0.00318	B	0.0016	0.10

Lab Control Sample - Batch: 280-72351

Method: 6020
Preparation: 3050B

Lab Sample ID:	LCS 280-72351/2-A	Analysis Batch:	280-73711	Instrument ID:	MT_024
Client Matrix:	Solid	Prep Batch:	280-72351	Lab File ID:	031_LCS.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1 g
Analysis Date:	06/23/2011 2102	Units:	mg/Kg	Final Weight/Volume:	100 mL
Prep Date:	06/23/2011 0800				
Leach Date:	N/A				

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Uranium	20.0	20.83	104	85 - 123	

Matrix Spike - Batch: 280-72351

Method: 6020
Preparation: 3050B

Lab Sample ID:	280-16917-1	Analysis Batch:	280-73711	Instrument ID:	MT_024
Client Matrix:	Solid	Prep Batch:	280-72351	Lab File ID:	036_MS.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1.14 g
Analysis Date:	06/23/2011 2115	Units:	mg/Kg	Final Weight/Volume:	100 mL
Prep Date:	06/23/2011 0800				
Leach Date:	N/A				

Analyte	Sample Result/Qual	Spike Amount	Result	% Rec.	Limit	Qual
Uranium	0.86	18.3	19.91	104	85 - 123	

Client: Washington Closure Hanford

Job Number: 280-16917-1
Sdg Number: J01133

Duplicate - Batch: 280-72351

Method: 6020
Preparation: 3050B

Lab Sample ID:	280-16917-1	Analysis Batch:	280-73711	Instrument ID:	MT_024
Client Matrix:	Solid	Prep Batch:	280-72351	Lab File ID:	035_DU.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1.17 g
Analysis Date:	06/23/2011 2113	Units:	mg/Kg	Final Weight/Volume:	100 mL
Prep Date:	06/23/2011 0800				
Leach Date:	N/A				

Analyte	Sample Result/Qual	Result	RPD	Limit	Qual
Uranium	0.86	0.709	19	20	

036

Client: Washington Closure Hanford

Job Number: 280-16917-1
Sdg Number: J01133

Method Blank - Batch: 280-72060

Method: 7471A
Preparation: 7471A

Lab Sample ID:	MB 280-72060/1-A	Analysis Batch:	280-74195	Instrument ID:	MT_033
Client Matrix:	Solid	Prep Batch:	280-72060	Lab File ID:	110627AA.txt
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	0.60 g
Analysis Date:	06/27/2011 2144	Units:	mg/Kg	Final Weight/Volume:	50 mL
Prep Date:	06/27/2011 1325				
Leach Date:	N/A				

Analyte	Result	Qual	MDL	RL
Mercury	0.0055	U	0.0055	0.017

Lab Control Sample - Batch: 280-72060

Method: 7471A
Preparation: 7471A

Lab Sample ID:	LCS 280-72060/2-A	Analysis Batch:	280-74195	Instrument ID:	MT_033
Client Matrix:	Solid	Prep Batch:	280-72060	Lab File ID:	110627AA.txt
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	0.60 g
Analysis Date:	06/27/2011 2147	Units:	mg/Kg	Final Weight/Volume:	50 mL
Prep Date:	06/27/2011 1325				
Leach Date:	N/A				

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Mercury	0.417	0.407	98	87 - 111	

Matrix Spike - Batch: 280-72060

Method: 7471A
Preparation: 7471A

Lab Sample ID:	280-16917-1	Analysis Batch:	280-74195	Instrument ID:	MT_033
Client Matrix:	Solid	Prep Batch:	280-72060	Lab File ID:	110627AA.txt
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	0.62 g
Analysis Date:	06/27/2011 2154	Units:	mg/Kg	Final Weight/Volume:	50 mL
Prep Date:	06/27/2011 1325				
Leach Date:	N/A				

Analyte	Sample Result/Qual		Spike Amount	Result	% Rec.	Limit	Qual
Mercury	0.0052	U	0.420	0.410	98	87 - 111	

037

Client: Washington Closure Hanford

Job Number: 280-16917-1
Sdg Number: J01133

Duplicate - Batch: 280-72060

Method: 7471A
Preparation: 7471A

Lab Sample ID:	280-16917-1	Analysis Batch:	280-74195	Instrument ID:	MT_033
Client Matrix:	Solid	Prep Batch:	280-72060	Lab File ID:	110627AA.txt
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	0.65 g
Analysis Date:	06/27/2011 2151	Units:	mg/Kg	Final Weight/Volume:	50 mL
Prep Date:	06/27/2011 1325				
Leach Date:	N/A				

Analyte	Sample Result/Qual		Result	RPD	Limit	Qual
Mercury	0.0052	U	0.0053	NC	20	U