

SAF-RC-030
Remaining Sites Confirmation Sampling -
Other Solid
FINAL VALIDATION PACKAGE

COMPLETE COPY OF VALIDATION PACKAGE TO:

Jeanette Duncan (2)

H9-02

mjp 03/13/06
INITIAL/DATE

COMMENTS:

SDG J00042

SAF-RC-030

Waste Site: 100-D-50:1

RECEIVED
MAR 21 2006
EDMC

Date: 2 March 2006
To: Washington Closure Hanford Inc. (technical representative)
From: TechLaw, Inc.
Project: Remaining Sites Confirmation Sampling – Other Solid – Waste Subsite
100-D-50:1
Subject: Wet Chemistry - Data Package No. J00042-ST

INTRODUCTION

This memo presents the results of data validation on Data Package No. J00042 prepared by Severn Trent (ST). 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	Date
J10VH2	1/9/06	Soil	C	See note 1

1 - Chromium VI by 7196A.

Data validation was conducted in accordance with the Washington Closure Hanford (WCH) validation statement of work and the 100 Area Remedial Action Sampling and Analysis Plan (DOE/RL-96-22, Rev. 4, February 2005). Appendices 1 through 6 provide the following information as indicated below:

- Appendix 1. Glossary of Data Reporting Qualifiers
- Appendix 2. Summary of Data Qualification
- Appendix 3. Qualified Data Summary and 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 30 days for chromium VI.

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

All holding times were acceptable.

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- **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 (Equipment) Blank

No field blanks were submitted for analysis.

- **Accuracy**

Matrix Spike and Laboratory Control Sample

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

Due to matrix spike/matrix spike duplicate recoveries outside QC limits (35%), all chromium VI 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

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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

No field duplicates were submitted for analysis.

• **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 J00042 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

Due to matrix spike/matrix spike duplicate recoveries outside QC limits (35%), all chromium VI results were qualified as estimates and flagged "J". Data flagged "J" indicates that the associated concentration is an estimate, but under the BHI 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.

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REFERENCES

WCH, Contract #20266, *Validation Statement of Work*, Washington Closure Hanford Incorporated, July 7, 2003.

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

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Appendix 1
Glossary of Data Reporting Qualifiers

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Qualifiers which may be applied by data validators in compliance with BHI 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).

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Appendix 2
Summary of Data Qualification

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WET CHEMISTRY DATA QUALIFICATION SUMMARY*

SDG: J00042				REVIEWER: [REDACTED]				Project: 100-D-5041				PAGE: 1 OF 1			
COMMENTS:															
COMPOUND				QUALIFIER				SAMPLES AFFECTED				REASON			
Chromium VI				J				All				MS/MSD recovery			

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

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Appendix 3

Qualified Data Summary and Annotated Laboratory Reports

000009

Project: WASHINGTON CLOSURE HANFORD					
Lab: ST	SDG: J00042				
Sample Number	J10VH2				
Remarks					
Sample Date	1/9/06				
Wet Chemistry	RQL	Result	Q	Result	Q
Chromium VI	0.5	0.350	UJ		

000010

FORM I

Date: 24-Jan-06

SAMPLE RESULTS

Lab Name: STL Richland

SDG: J00042

Collection Date: 1/9/2006 12:30:00 PM

Lot-Sample No.: J6A090210-1

Report No.: 31186

Received Date: 1/9/2006 2:45:00 PM

Client Sample ID: J10VH2

COC No.: RC-030-040

Matrix: SOLID

Ordered by Client Sample ID, Batch No.

Parameter	Result	Count Qual	Count Error (2 s)	Total Uncert(2 s)	MDC MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch: 6010430	7196_CR8				Work Order: HVA351AA		Report DB ID: 9HVA3510					
HEXCHROME	3.50E-01	U J		0.0E+00	3.50E-01	mg/kg	N/A	(1.)	1/10/06		2.5	
							3.50E-01	N/A			G	

No. of Results: 1

Comments:

000011

R
2/25/06

STL Richland

MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.

rptSTLRchSample
V4.14.4 A97

U Qual - Analyzed for but not detected above limiting criteria. Limit criteria is less than the Mdc/Mda or Total Uncert or not identified by gamma scan software.

Appendix 4

Laboratory Narrative and Chain-of-Custody Documentation

000012

Certificate of Analysis

Washington Closure Hanford
3190 George Washington Way
Richland, WA 99354

January 24, 2005

Attention: Joan Kessner

SAF Number	:	RC-030
Date SDG Closed	:	January 9, 2006
Number of Samples	:	One (1)
Sample Type	:	Other Solids
SDG Number	:	J00042
Data Deliverable	:	15-Day / Summary

CASE NARRATIVE

I. Introduction

On January 9, 2006, one water sample was received at STL Richland (STLR) for chemistry analysis. Upon receipt, the sample was assigned the following laboratory ID number to correspond with the Washington Closure Hanford (WCH) specific ID:

<u>WCH ID#</u>	<u>STLR ID#</u>	<u>MATRIX</u>	<u>DATE OF RECEIPT</u>
J10VH2	HVA35	OTHER SOLID	01/9/06

II. Sample Receipt

The sample was 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:

Chemical Analysis
Hexavalent Chromium by EPA method 7196A

000013

Washington Closure Hanford
January 24, 2006

IV. Quality Control

The analytical results for each analysis performed includes a minimum of one laboratory control sample (LCS), one method (reagent) blank, and one duplicate sample analysis. Any exceptions have been noted in the "Comments" section.

QC and sample results are reported in the same units.

V. Comments

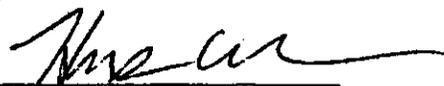
Chemical Analysis

Hexavalent Chromium by EPA method 7196A:

The sample matrix spike, matrix duplicate and post digestion spike for this analysis were all below acceptance limits indicating a possible matrix interference. Other than as noted, the LCS, batch blank, sample, sample matrix spikes (J10VH2) and sample duplicate (J10VH2) 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:



Hans Carman
Project Manager

000014

Review Item	Yes (✓)	No (✓)	N/A (✓)	2 nd Level Review (✓)
E. Other	✓			—
1. Are all nonconformances included and noted?				—
2. Is the correct date and time of analysis shown?	✓			—
3. Did the analyst sign and date the front page of the analytical run?	✓			—
4. Correct methodology used?	✓			—
5. Transcriptions checked?	✓			—
6. Calculations checked at minimum frequency?	✓			—
7. Units checked?	✓			—

Comments on any "No" response

MS & MSD below the acceptable limits
 PDMS analyzed, also below the limits
 Data reported.

Analyst: DMorris
 Second-Level Review: Thomas S. [Signature]

Date: 1/11/06
 Date: 1/12/06

Clouseau Nonconformance Memo



NCM #: 10-07309 NCM Initiated By: Debbie Manis Date Opened: 01/11/2006 Date Closed:	Classification: Anomaly Status: GLREVIEW Production Area: Classical Chemistry Tests: 7196A Lot #'s (Sample #'s): J6A090210 (1), J6A100000 (430), QC Batches: 6010430
Nonconformance: Other (describe in detail) Subcategory: Other (explanation required)	

Problem Description / Root Cause

<u>Name</u>	<u>Date</u>	<u>Description</u>
Debbie Manis	01/11/2006	MS & MSD are below the acceptable limit. Matrix interference, reducing agent present.

Corrective Action

<u>Name</u>	<u>Date</u>	<u>Corrective Action</u>
Debbie Manis	01/11/2006	A PDMS analyzed was also below the acceptable limit. Data reported.

Client Notification Summary

<u>Client</u>	<u>Project Manager</u>	<u>Notified</u>	<u>Response</u>	<u>How Notified</u>	<u>Note</u>
			<u>Response</u>		<u>Response Note</u>

Quality Assurance Verification

<u>Verified By</u>	<u>Due Date</u>	<u>Status</u>	<u>Notes</u>
			This section not yet completed by QA.

Approval History

<u>Date Approved</u>	<u>Approved By</u>	<u>Position</u>
----------------------	--------------------	-----------------

STL RICHLAND

000017

DHI 27038

Washington Closure Hanford		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				RC-030-040	Page 2 of 2	
Collector STANKOVICH/HUDSON		Company Contact Mike Stankovich		Telephone No. 531-7620		Project Coordinator KESSNER, JH		
Project Designation Remaining Sites Confirmation Sampling - Other Solid		Sampling Location 100-D-50:1		SAF No. RC-030		Price Code 9C	Data Turnaround 15 Days	
Ice Chest No.		Field Log Book No. EL-1578		COA C10DR16700		Method of Shipment Hand Delivered/Gov't Vehicle		
Shipped To Severn Trent Incorporated, Richland		Offsite Property No.				Bill of Lading/Air Bill No.		
POSSIBLE SAMPLE HAZARDS/REMARKS Possible slightly elevated RAD Special Handling and/or Storage J00042 J6A090210 4 Due 11/25/06 SES 11/21/06		Preservation	Cool 4C					
		Type of Container	G/P					
		No. of Container(s)	1					
		Volume	60mL					
SAMPLE ANALYSIS		Chromium Hex - 7196						
Sample No.	Matrix *	Sample Date	Sample Time					
J10VH2	HVA35	1-9-06	1230	X				
CHAIN OF POSSESSION				SPECIAL INSTRUCTIONS			Matrix *	
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time	10-5°C			S=Soil SE=Solids SO=Solid SL=Sludge W=Water O=Oil A=Air DS=Drum Solids DL=Drum Liquids T=Time Wt=Wipe L=Liquid V=Vegetation X=Other	
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time					
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time					
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time					
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time					
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time					
LABORATORY SECTION	Received By	Title		Date/Time				
FINAL SAMPLE DISPOSITION	Dispose Method	Disposed By		Date/Time				

BHI-EE-011 (08/29/2005)

Appendix 5
Data Validation Supporting Documentation

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GENERAL CHEMISTRY ANALYSIS DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	E
PROJECT:	100-D-50:1		DATA PACKAGE: J00042		
VALIDATOR:	TLI	LAB: ST	DATE: 2/24/08		
		SDG: J00042			
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					
J10042					
J10042					
Sdd					

1. DATA PACKAGE COMPLETENESS AND CASE NARRATIVE

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

Comments: _____

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

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

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

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

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

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

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

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

Comments: _____

GENERAL CHEMISTRY ANALYSIS DATA VALIDATION CHECKLIST

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

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

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

Spike samples analyzed? Yes No N/A
Spike recoveries acceptable? Yes No N/A
Spike standards NIST traceable? (Levels D, E) Yes No N/A
Spike standards expired? (Levels D, E) Yes No N/A
LCS/BSS samples analyzed? Yes No N/A
LCS/BSS results acceptable? Yes No N/A
Standards traceable? (Levels D, E) Yes No N/A
Standards expired? (Levels D, E) Yes No N/A
Transcription/calculation errors? (Levels D, E) Yes No N/A
Performance audit sample(s) analyzed? Yes No N/A
Performance audit sample results acceptable? Yes No N/A
Comments: MS/MSD - 35% - Tall 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: _____

GENERAL CHEMISTRY ANALYSIS DATA VALIDATION CHECKLIST

7. RESULT QUANTITATION AND DETECTION LIMITS (all levels)

Results reported for all requested analyses?.....	<input checked="" type="radio"/> Yes	<input type="radio"/> No	<input type="radio"/> N/A
Results supported in the raw data? (Levels D, E).....	<input checked="" type="radio"/> Yes	<input type="radio"/> No	<input checked="" type="radio"/> N/A
Samples properly prepared? (Levels D, E).....	<input type="radio"/> Yes	<input type="radio"/> No	<input checked="" type="radio"/> N/A
Detection limits meet RDL?.....	<input checked="" type="radio"/> Yes	<input type="radio"/> No	<input type="radio"/> N/A
Transcription/calculation errors? (Levels D, E).....	<input type="radio"/> Yes	<input type="radio"/> No	<input checked="" type="radio"/> N/A

Comments: _____

Appendix 6

Additional Documentation Requested by Client

000023

QC Results Summary
STL Richland STLRL
 Ordered by Method, Batch No, QC Type..

Date: 24-Jan-06

Report No. : 31186

SDG No.: J00042

Batch	Work Order	Parameter	Result +/- Uncertainty (2s)	Qual	Units	Yield	Recovery	Bias	MDC MDA
7196_CR6									
6010430	MATRIX SPIKE								
	HVA351AC	HEXCHROME	1.59E+01 +/- 0.0E+00		mg/kg	N/A	35%	-0.6	3.50E-01
	HVA351AD	HEXCHROME	1.56E+01 +/- 0.0E+00		mg/kg	N/A	35%	-0.7	3.50E-01
6010430	LCS								
	HVD951AC	HEXCHROME	4.12E+01 +/- 0.0E+00		mg/kg	N/A	103%	0.0	3.50E-01
6010430	BLANK QC								
	HVD951AA	HEXCHROME	3.50E-01 +/- 0.0E+00	U	mg/kg	N/A			3.50E-01
No. of Results: 4									

STL Richland

Bias - (Result/Expected)-1 as defined by ANSI N13.30.

rptSTLRichQcSummary V4.14.4 A97

U Qual - Analyzed for but not detected above limiting criteria. Limit criteria is less than the Mdc/Mda or Total Uncert or not identified by gamma scan software.

SAF-RC-030
Remaining Sites Confirmation Sampling -
Other Solid
FINAL VALIDATION PACKAGE

COMPLETE COPY OF VALIDATION PACKAGE TO:

Jeanette Duncan (2)

H9-02

MJD 03/13/06
INITIAL/DATE

COMMENTS:

SDG K0168

SAF-RC-030

Waste Site: 100-D-50:1

Date: 2 March 2006
To: Washington Closure Hanford Inc. (technical representative)
From: TechLaw, Inc.
Project: Remaining Sites Confirmation Sampling – Other Solid – Waste Site
100-D-50:1
Subject: Radiochemistry - Data Package No. K0168-EB

INTRODUCTION

This memo presents the results of data validation on Data Package No. K0168 prepared by Eberline Services (EB). 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	Date
J10VF6	1/9/06	Solid	C	See note 1

1 – Gross alpha/beta, tritium, carbon-14, nickel-63, total strontium, technetium-99, alpha spectroscopy (isotopic uranium) and gamma spectroscopy.

Data validation was conducted in accordance with the Washington Closure Hanford Incorporated (WCH) validation statement of work and the 100 Area Remedial Action Sampling and Analysis Plan (DOE/RL-96-22, February 2005). Appendices 1 through 6 provide the following information as indicated below:

- Appendix 1. Glossary of Data Reporting Qualifiers
- Appendix 2. Summary of Data Qualification
- Appendix 3. Qualified Data Summary and 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.

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- **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 blank results were acceptable.

Field (Equipment) Blank

No equipment 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 a matrix spike analysis, all tritium, carbon-14 and nickel-63 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

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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

No field duplicates were submitted for analysis.

• **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. Two analytes exceeded the RQL. Under the WCH statement of work, no qualification is required.

• **Completeness**

Data package No. K0168 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

Due to the lack of a matrix spike analysis, all tritium, carbon-14 and nickel-63 results were qualified as estimates and flagged "J". Data flagged "J" indicates that the associated concentration is an estimate, but under the BHI 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.

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

REFERENCES

WCH, Contract #20266, *Validation Statement of Work*, Washington Closure Hanford Incorporated, July 7, 2003.

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

000004

Appendix 1

Glossary of Data Reporting Qualifiers

000005

Qualifiers which may be applied by data validators in compliance with the BHI 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.

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Appendix 2
Summary of Data Qualification

000007

RADIOCHEMISTRY DATA QUALIFICATION SUMMARY*

SDG: K0168		REVIEWER: TLL	Project: 100-D-501	PAGE 1 OF 1
COMMENTS:				
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON	
Tritium Carbon-14 Nickel-63	J	All	No MS	

* - 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.

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Appendix 3

Qualified Data Summary and Annotated Laboratory Reports

000009

Project: WASHINGTON CLOSURE HANFORD						
Laboratory: EB						
Case		SDG: K0168				
Sample Number		J10VF6				
Remarks						
Sample Date		1/9/06				
Radiochemistry	RQL	Result	Q	Result	Q	
Gross alpha		6.54				
Gross beta		255				
Tritium	10	2.39	UJ			
Carbon-14	1	11.4	J			
Nickel-63	30	39.4	J			
Total Strontium	1	79.5				
Technetium-99	1	0.190	U			
Uranium-233/234	1	0.407				
Uranium-235	1	0.033	U			
Uranium-238	1	0.494				
Potassium-40		8.38				
Cobalt 60	0.05	4.55				
Cesium 137	0.05	60.6				
Radium-226		0.308				
Radium-228			U	U		
Europium 152	0.1	9.66				
Europium 154	0.1		U	U*		
Europium 155	0.1		U	U*		
Thorium-228		0.283				
Thorium-232			U	U		
Uranium-235(gea)			U	U		
Uranium-238(gea)			U	U		
Americium-241(gea)			U	U		

000010

* - RQL exceeded

Laboratory applied non-detect qualifiers "U" have been included in this table to minimize potential miss-interpretation of results. All other qualifiers shown were applied during validation.

EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP K0168

7706-001

J10VF6

DATA SHEET

SDG <u>7706</u>	Client/Case no <u>Hanford</u>	SDG <u>K0168</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>630</u>	
Lab sample id <u>R601052-01</u>	Client sample id <u>J10VF6</u>	
Dept sample id <u>7706-001</u>	Location/Matrix <u>100-D-50:1</u>	<u>SOLID</u>
Received <u>01/11/06</u>	Collected/Weight <u>01/09/06 12:30</u>	<u>572.7 g</u>
% solids <u>100.0</u>	Custody/SAF No <u>RC-030-039</u>	<u>RC-030</u>

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Gross Alpha	12587-46-1	6.54	3.9	3.4	10		93A
Gross Beta	12587-47-2	255	11	6.5	15		93B
Tritium	10028-17-8	2.39	2.2	3.5	400	U J	H
Carbon 14	14762-75-5	11.4	1.9	2.8	50	J	C
Nickel 63	13981-37-8	39.4	3.3	3.6	30	J	NI_L
Total Strontium	SR-RAD	79.5	1.9	0.36	1.0	U	SR
Technetium 99	14133-76-7	0.190	0.19	0.53	15	U U	TC
Uranium 233/234	U-233/234	0.407	0.092	0.044	1.0		U
Uranium 235	15117-96-1	0.033	0.033	0.042	1.0	U	U
Uranium 238	U-238	0.494	0.10	0.044	1.0		U
Potassium 40	13966-00-2	8.38	3.2	0.39			GAM
Cobalt 60	10198-40-0	4.55	0.10	<u>0.055</u>	0.050		GAM
Cesium 137	10045-97-3	60.6	0.26	0.10	0.10		GAM
Radium 226	13982-63-3	0.308	0.14	<u>0.15</u>	0.10		GAM
Radium 228	15262-20-1	U		<u>0.55</u>	0.20	U	GAM
Europium 152	14683-23-9	9.66	0.28	<u>0.31</u>	0.10		GAM
Europium 154	15585-10-1	U		<u>1.8</u>	0.10	U	GAM
Europium 155	14391-16-3	U		<u>0.26</u>	0.10	U	GAM
Thorium 228	14274-82-9	0.283	0.091	0.10			GAM
Thorium 232	TH-232	U		0.55		U	GAM
Uranium 235	15117-96-1	U		0.33		U	GAM
Uranium 238	U-238	U		8.7		U	GAM
Americium 241	14596-10-2	U		0.44		U	GAM

Remaining Sites Confirmation Smping

R
2/25/06

Lab id <u>EBRLNE</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DS</u>
Version <u>3.06</u>
Report date <u>02/09/06</u>

000011

Appendix 4

Laboratory Narrative and Chain-of-Custody Documentation

000012

1.0 GENERAL

Washington Closure Hanford (WCH) Sample Delivery Group K0168 was composed of one other solid sample designated under SAF No. RC-030 with a Project Designation of: Remaining Sites Confirmation Sampling – Other Solid. The Sampling Location was 100-D-50:1.

The sample was received as stated on the Chain-of-Custody document. Any discrepancies are noted on the Eberline Services Sample Receipt Checklist. The results were transmitted to WCH via e-mail on January 27, 2006 and February 9, 2006.

2.0 ANALYSIS NOTES

2.1 Gross Alpha and Gross Beta Analysis

No problems were encountered during the course of the analyses.

2.2 Tritium Analysis

No problems were encountered during the course of the analyses.

2.3 Carbon-14 Analysis

No problems were encountered during the course of the analyses.

2.4 Total Strontium Analysis

WCH requested total strontium analysis on January 30, 2006. No problems were encountered during the course of the analyses.

2.5 Nickel-63 Analysis

No problems were encountered during the course of the analyses.

2.6 Technetium-99 Analysis

No problems were encountered during the course of the analyses.

2.7 Isotopic Uranium Analysis

No problems were encountered during the course of the analyses.

2.8 Gamma Spectroscopy

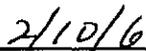
No problems were encountered during the course of the analyses.

Case Narrative Certification Statement

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



Melissa C. Mannion
Senior Program Manager



Date
000013

Washington Closure Hanford		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				RC-030-039		Page 2 of 2					
Collector STANKOVICH/HUDSON		Company Contact Mike Stankovich		Telephone No. 531-7620		Project Coordinator KESSNER, JH		Price Code 9C Data Turnaround 15 Days					
Project Designation Remaining Sites Confirmation Sampling - Other Solid		Sampling Location 100-D-50:1		K0168 (7706)		SAF No. RC-030		Air Quality <input type="checkbox"/>					
Ice Chest No. AFS-04-044		Field Logbook No. EL-1578-9		COA C10dr16700		Method of Shipment FEDEX							
Shipped To EBERLINE SERVICES LIONVILLE		Offsite Property No. A060191		Bill of Lading/Air Bill No. See ospc									
POSSIBLE SAMPLE HAZARDS/REMARKS Slightly elevated radiological < DOT limits Special Handling and/or Storage Cool 4°C				Preservation		None	None	None	Cool 4C	Cool 4C	Cool 4C		
				Type of Container		G/P	G	G/P	aG	aG	G		
				No. of Container(s)		1	1	1	1	1	1		
				Volume		500mL	60mL	60mL	60mL	60mL	250mL		
SAMPLE ANALYSIS				See item (1) in Special Instructions.	Carbon-14; Tritium - H3	See item (2) in Special Instructions.	PCBs - 8082; Pesticides - 8091; Chloro-Herbicides - EPAB151	Semi-VOA - 8170A (TCL)	TPH (Total) - 418.1				
Sample No.	Matrix *	Sample Date	Sample Time										
J10VF6	OTHER SOLID	1-9-06	1230	X	X - RH	1/9/06				13848			
CHAIN OF POSSESSION				Sign/Print Names				SPECIAL INSTRUCTIONS					
Relinquished By/Removed From Bill Hudson		Date/Time 1/9/06 1420		Received By/Stored In 3728-3C		Date/Time 1/9/06 1420		(1) Gamma Spectroscopy (TCL List) (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); Gamma Spec Add-on (Americium-241); Americium-241; Gross Alpha & Gross Beta; Nickel-63; Isotopic Plutonium; Strontium-89,90 - Total Sr; Technetium-99; Isotopic Uranium (Uranium-233/234, Uranium-235, Uranium-238); Total Uranium; Nickel-63; Technetium-99 (2) ICP Metals - 6010A (3W-846) (Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Molybdenum, Nickel, Potassium, Selenium, Silicon, Silver, Sodium, Vanadium, Zinc); Mercury - 2471 (247)					
Relinquished By/Removed From 3728-3C		Date/Time 1-10-06 1300		Received By/Stored In RZ Steffler R. Z. Steffler		Date/Time 1-10-06 1300							
Relinquished By/Removed From RZ Steffler R. Z. Steffler		Date/Time 1-10-06 1330		Received By/Stored In Fed Ex		Date/Time 1-10-06 1330							
Relinquished By/Removed From Fed Ex		Date/Time		Received By/Stored In MFUA		Date/Time 01/11/06 9:15							
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time							
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time		Matrix * S=Soil SE=Sediment SO=Solid SI=Sludge W=Water O=Oil A=Air DS=Drum Solids DL=Drum Liquids T=Tissue WI=Wipe L=Liquid V=Vegetation X=Other					
LABORATORY SECTION		Received By		Title				Date/Time					
FINAL SAMPLE DISPOSITION		Disposal Method		Disposed By				Date/Time					

000014

Appendix 5
Data Validation Supporting Documentation

000015

3. Continuing Calibration (Levels D, E)

~~X~~ 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)

~~X~~ N/A

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

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

Calculation check acceptable? Yes No N/A

Comments: _____

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

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

Method blank results acceptable? Yes No N/A

Analytes detected in method blank? Yes No N/A

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

Field blank results acceptable? Yes No N/A

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

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

Comments: NO FB

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

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

LCS/BSS recoveries acceptable? Yes No N/A

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

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

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

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

Comments: _____

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

Chemical carrier added? Yes No N/A

Chemical recovery acceptable? Yes No N/A

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

000018

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: no ms T all - C14, ni-63; 3H, ~~64S~~

3/10/19

000019

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 field QC*

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: 2 over

Appendix 6

Additional Documentation Requested by Client

000022

EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP K0168

7706-003

Method Blank

METHOD BLANK

SDG <u>7706</u>	Client/Case no <u>Hanford</u>	SDG <u>K0168</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>630</u>	
Lab sample id <u>R601052-03</u>	Client sample id <u>Method Blank</u>	
Dept sample id <u>7706-003</u>	Material/Matrix <u>SOLID</u>	
	SAF No <u>RC-030</u>	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Gross Alpha	12587-46-1	0.517	1.5	3.0	10	U	93A
Gross Beta	12587-47-2	-3.33	3.0	5.6	15	U	93B
Tritium	10028-17-8	-0.290	2.6	4.4	400	U	H
Carbon 14	14762-75-5	-0.824	2.0	3.4	50	U	C
Nickel 63	13981-37-8	0.573	1.9	3.2	30	U	NI_L
Technetium 99	14133-76-7	-0.002	0.20	0.67	15	U	TC
Uranium 233/234	U-233/234	-0.011	0.022	0.053	1.0	U	U
Uranium 235	15117-96-1	0	0.013	0.051	1.0	U	U
Uranium 238	U-238	-0.011	0.011	0.042	1.0	U	U
Potassium 40	13966-00-2	U		0.38		U	GAM
Cobalt 60	10198-40-0	U		0.045	0.050	U	GAM
Cesium 137	10045-97-3	U		0.039	0.10	U	GAM
Radium 226	13982-63-3	U		0.075	0.10	U	GAM
Radium 228	15262-20-1	U		0.18	0.20	U	GAM
Europium 152	14683-23-9	U		0.10	0.10	U	GAM
Europium 154	15585-10-1	U		0.13	0.10	U	GAM
Europium 155	14391-16-3	U		0.057	0.10	U	GAM
Thorium 228	14274-82-9	U		0.047		U	GAM
Thorium 232	TH-232	U		0.18		U	GAM
Uranium 235	15117-96-1	U		0.11		U	GAM
Uranium 238	U-238	U		4.6		U	GAM
Americium 241	14596-10-2	U		0.034		U	GAM

Remaining Sites Confirmation Smping

QC-BLANK #55723

000023

Lab id <u>EBRLNE</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DS</u>
Version <u>3.06</u>
Report date <u>02/09/06</u>

EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP K0168

7706-006

Method Blank

METHOD BLANK

SDG <u>7706</u>	Client/Case no <u>Hanford</u>	SDG <u>K0168</u>
Contact <u>Melissa C. Mannion</u>	Contract <u>No. 630</u>	
Lab sample id <u>R601052-06</u>	Client sample id <u>Method Blank</u>	
Dept sample id <u>7706-006</u>	Material/Matrix <u>SOLID</u>	
	SAF No <u>RC-030</u>	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Total Strontium	SR-RAD	-0.063	0.10	0.23	1.0	U	SR

Remaining Sites Confirmation Smping

QC-BLANK #55892

METHOD BLANKS

Page 2

SUMMARY DATA SECTION

Page 9

000024

Lab id <u>EBRINE</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DS</u>
Version <u>3.06</u>
Report date <u>02/09/06</u>

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0168

7706-002

Lab Control Sample

LAB CONTROL SAMPLE

SDG <u>7706</u> Contact <u>Melissa C. Mannion</u>	Client/Case no <u>Hanford</u> SDG <u>K0168</u> Contract <u>No. 630</u>
Lab sample id <u>R601052-02</u> Dept sample id <u>7706-002</u>	Client sample id <u>Lab Control Sample</u> Material/Matrix _____ <u>SOLID</u> SAF No <u>RC-030</u>

ANALYTE	RESULT	2σ ERR	MDA	RDL	QUALI-	ADDED	2σ ERR	REC	3σ LMTS	PROTOCOL
	pCi/g	(COUNT)	pCi/g	pCi/g	FIERS TEST	pCi/g	pCi/g	%	(TOTAL)	LIMITS
Gross Alpha	180	16	3.9	10	93A	214	8.6	84	72-128	70-130
Gross Beta	199	10	5.5	15	93B	197	7.9	101	75-125	70-130
Tritium	905	30	9.3	400	H	933	37	97	84-116	80-120
Carbon 14	2060	21	5.1	50	C	2130	85	97	84-116	80-120
Nickel 63	214	6.9	3.6	30	NI_L	224	9.0	96	84-116	80-120
Technetium 99	109	3.0	0.58	15	TC	109	4.4	100	83-117	80-120
Uranium 233/234	18.1	0.70	0.32	1.0	U	18.6	0.74	97	89-111	80-120
Uranium 235	15.5	0.63	0.028	1.0	U	15.1	0.60	103	88-112	80-120
Uranium 238	18.3	0.70	0.30	1.0	U	20.2	0.81	91	90-110	80-120
Cobalt 60	1.11	0.070	0.044	0.050	GAM	1.15	0.046	97	76-124	80-120
Cesium 137	1.04	0.057	0.041	0.10	GAM	1.02	0.041	102	75-125	80-120

Remaining Sites Confirmation Smpling

QC-LCS #55722

000025

Lab id <u>EBRLNE</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-LCS</u>
Version <u>3.06</u>
Report date <u>02/09/06</u>

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0168

7706-005

Lab Control Sample

LAB CONTROL SAMPLE

SDG <u>7706</u>	Client/Case no <u>Hanford</u>	<u>SDG K0168</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>630</u>	
Lab sample id <u>R601052-05</u>	Client sample id <u>Lab Control Sample</u>	
Dept sample id <u>7706-005</u>	Material/Matrix <u>SOLID</u>	
	SAF No <u>RC-030</u>	

ANALYTE	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST	ADDED pCi/g	2σ ERR pCi/g	REC %	3σ LMTS (TOTAL)	PROTOCOL LIMITS
Total Strontium	10.6	0.56	0.21	1.0		SR	9.86	0.39	108	81-119	80-120

Remaining Sites Confirmation Smplng

QC-LCS #55891

000026

Lab id <u>EBRLNE</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-LCS</u>
Version <u>3.06</u>
Report date <u>02/09/06</u>

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0168

7706-004

J10VP6

DUPLICATE

SDG <u>7706</u>	Client/Case no <u>Hanford</u>	SDG <u>K0168</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>630</u>	
DUPLICATE	ORIGINAL	
Lab sample id <u>R601052-04</u>	Lab sample id <u>R601052-01</u>	Client sample id <u>J10VP6</u>
Dept sample id <u>7706-004</u>	Dept sample id <u>7706-001</u>	Location/Matrix <u>100-D-50:1</u> <u>SOLID</u>
	Received <u>01/11/06</u>	Collected/Weight <u>01/09/06 12:30 572.7 g</u>
* solids <u>100.0</u>	* solids <u>100.0</u>	Custody/SAP No <u>RC-030-039</u> <u>RC-030</u>

ANALYTE	DUPLICATE	2σ ERR	MDA	RDL	QUALI-	ORIGINAL	2σ ERR	MDA	QUALI-	RPD	3σ	DER
	pCi/g	(COUNT)	pCi/g	pCi/g	FIERS TEST		pCi/g	(COUNT)	pCi/g	FIERS	%	TOT
Gross Alpha	5.85	3.9	3.7	10		93A	6.54	3.9	3.4	11	140	0.2
Gross Beta	244	11	7.9	15		93B	255	11	6.5	4	33	0.4
Tritium	1.40	2.1	3.5	400	U	H	2.39	2.2	3.5	U	-	0.6
Carbon 14	10.8	1.8	2.7	50		C	11.4	1.9	2.8	5	41	0.4
Nickel 63	40.5	3.4	3.6	30		NI_L	39.4	3.3	3.6	3	28	0.3
Technetium 99	0.118	0.18	0.56	15	U	TC	0.190	0.19	0.53	U	-	0.5
Uranium 233/234	0.464	0.085	0.027	1.0		U	0.407	0.092	0.044	13	44	0.9
Uranium 235	0.017	0.017	0.033	1.0	U	U	0.033	0.033	0.042	U	-	0.9
Uranium 238	0.570	0.093	0.027	1.0		U	0.494	0.10	0.044	14	40	1.1
Potassium 40	7.74	7.1	0.52			GAM	8.38	3.2	0.39	8	148	0.2
Cobalt 60	4.10	0.14	<u>0.075</u>	0.050		GAM	4.55	0.10	<u>0.055</u>	10	32	1.0
Cesium 137	57.5	0.35	<u>0.15</u>	0.10		GAM	60.6	0.26	0.10	5	32	0.5
Radium 226	0.358	0.33	<u>0.19</u>	0.10		GAM	0.308	0.14	<u>0.15</u>	15	165	0.3
Radium 228	U		<u>0.86</u>	0.20	U	GAM	U		<u>0.55</u>	U	-	0.6
Europium 152	9.19	0.37	<u>0.41</u>	0.10		GAM	9.66	0.28	<u>0.31</u>	5	33	0.5
Europium 154	U		<u>1.6</u>	0.10	U	GAM	U		<u>1.8</u>	U	-	0.2
Europium 155	U		<u>0.34</u>	0.10	U	GAM	U		<u>0.26</u>	U	-	0.4
Thorium 228	0.367	0.17	0.15			GAM	0.283	0.091	0.10	26	95	0.8
Thorium 232	U		0.86		U	GAM	U		0.55	U	-	0.6
Uranium 235	U		0.44		U	GAM	U		0.33	U	-	0.4
Uranium 238	U		12		U	GAM	U		8.7	U	-	0.4
Americium 241	U		0.47		U	GAM	U		0.44	U	-	0.1

Remaining Sites Confirmation Smplng

QC-DUP#1 55724

000027

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-DUP
Version 3.06
Report date 02/09/06

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0168

7706-007

J10VF6

DUPLICATE

SDG <u>7706</u>	Client/Case no <u>Hanford</u>	<u>SDG K0168</u>
Contact <u>Melissa C. Mannion</u>	Contract <u>No. 630</u>	
DUPLICATE	ORIGINAL	
Lab sample id <u>R601052-07</u>	Lab sample id <u>R601052-01</u>	Client sample id <u>J10VF6</u>
Dept sample id <u>7706-007</u>	Dept sample id <u>7706-001</u>	Location/Matrix <u>100-D-50:1</u> <u>SOLID</u>
	Received <u>01/11/06</u>	Collected/Weight <u>01/09/06 12:30</u> <u>572.7 g</u>
% solids <u>100.0</u>	% solids <u>100.0</u>	Custody/SAF No <u>RC-030-039</u> <u>RC-030</u>

ANALYTE	DUPLICATE pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST	ORIGINAL pCi/g	2σ ERR (COUNT)	MDA pCi/g	QUALI- FIERS	RPD %	3σ TOT	DER σ
Total Strontium	77.7	1.9	0.35	1.0		SR	79.5	1.9	0.36		2	22	0.3

Remaining Sites Confirmation Smping

QC-DUP#1 55893

DUPLICATES

Page 2

SUMMARY DATA SECTION

Page 13

000028

Lab id <u>EBRLNE</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DUP</u>
Version <u>3.06</u>
Report date <u>02/09/06</u>

Date: 2 March 2006
To: Washington Closure Hanford Inc. (technical representative)
From: TechLaw, Inc.
Project: Remaining Sites Confirmation Sampling - Other Solid - Waste Subsite
100-D-50:1
Subject: Inorganics - Data Package No. K0168-LLI

INTRODUCTION

This memo presents the results of data validation on Data Package No. K0168 prepared by Lionville Laboratory Inc. (LLI). 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	Date
J10VF6	1/9/06	Solid	C	See note 1

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

Data validation was conducted in accordance with the Washington Closure Hanford (WCH) validation statement of work and the 100 Area Remedial Action Sampling and Analysis Plan (DOE/RL-96-22, February 2005). Appendices 1 through 6 provide the following information as indicated below:

- Appendix 1. Glossary of Data Reporting Qualifiers
- Appendix 2. Summary of Data Qualification
- Appendix 3. Qualified Data Summary and 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.

000001

· 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 "U". Samples with concentrations of greater than five times the highest blank concentration do not require qualification.

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

All preparation blank results were acceptable.

Field (Equipment) Blank

No field blanks were submitted for analysis.

· Accuracy

Matrix Spike and Laboratory Control Sample

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

Due to an MS recovery outside QC limits (-153%), all magnesium results were qualified as estimates and flagged "J".

000002

Due to an MS recovery outside QC limits (-58%), all antimony results were qualified as estimates and flagged "J".

Due to an LCS recovery outside QC limits (-53%), all silicon results were qualified as estimates and flagged "J".

All other accuracy results were acceptable.

- **Precision**

- Laboratory Duplicate Samples

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

- Due to RPDs outside QC limits, all chromium (91%), copper (41%), iron (46%), mercury (54%), nickel (50%), lead (190%), silicon (35%) and zinc (39%) results were qualified as estimates and flagged "J".

- All other laboratory duplicate results were acceptable.

- Field Duplicate

- No field duplicates were submitted for analysis.

- **Analytical Detection Levels**

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

- **Completeness**

- Data package No. K0168 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%.

000003

MAJOR DEFICIENCIES

None found.

MINOR DEFICIENCIES

The following minor deficiencies were noted:

- Due to an MS recovery outside QC limits (-153%), all magnesium results were qualified as estimates and flagged "J".
- Due to an MS recovery outside QC limits (-58%), all antimony results were qualified as estimates and flagged "J".
- Due to an LCS recovery outside QC limits (-53%), all silicon results were qualified as estimates and flagged "J".
- Due to RPDs outside QC limits, all chromium (91%), copper (41%), iron (46%), mercury (54%), nickel (50%), lead (190%), silicon (35%) and zinc (39%) results were qualified as estimates and flagged "J".

Data flagged "J" indicates that the associated concentration is an estimate, but under the BHI 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

WCH, Contract #20266, *Validation Statement of Work*, Washington Closure Hanford Incorporated, July 7, 2003.

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

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Appendix 1
Glossary of Data Reporting Qualifiers

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Qualifiers which may be applied by data validators in compliance with BHI 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).

000006

Appendix 2

Summary of Data Qualification

000007

METALS DATA QUALIFICATION SUMMARY*

SDG/K0168		REVIEWER	Project: 160-D-504	PAGE: 1 OF 1
COMMENTS:				
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON	
Silicon	J	All	LCS recovery	
Magnesium Antimony	J	All	MS recovery	
Chromium Copper Iron Mercury Nickel Lead Silicon Zinc	J	All	RPD	

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

000008

Appendix 3

Qualified Data Summary and Annotated Laboratory Reports

000009

Project: WASHINGTON CLOSURE HANFORD							
Lab: LLI	SDG: K0168						
Sample Number	J10LF6						
Remarks							
Sample Date	1/9/06						
Inorganics	RQL	Result	Q	Result	Q	Result	Q
Silver	0.2	0.49					
Aluminum		5310					
Arsenic	10	7.4					
Boron		3.6					
Barium	2	63.5					
Beryllium		0.55					
Calcium		23100					
Cadmium	0.2	0.83					
Cobalt		7.4					
Chromium	1	66.6	J				
Copper		123	J				
Iron		37600	J				
Mercury	0.2	6.7	J				
Potassium		1070					
Magnesium		5170	J				
Manganese		306					
Molybdenum		2.3					
Sodium		434					
Nickel		39.4	J				
Lead	5	233	J				
Antimony		1.8	J				
Selenium	1	0.64					
Silicon		1660	J				
Vanadium		31.7					
Zinc	1	75.7	J				

000010

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 01/20/06

CLIENT: TNU-HANFORD RC-030 **K0168**
 WORK ORDER: 11243-606-001-9999-00

LVL LOT #: 0601L074

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	J10VP6	Silver, Total	0.49	MG/KG	0.16	1.0
		Aluminum, Total	5310	MG/KG	2.0	1.0
		Arsenic, Total	7.4	MG/KG	0.38	1.0
		Boron, Total	3.6	MG/KG	0.30	1.0
		Barium, Total	63.5	MG/KG	0.02	1.0
		Beryllium, Total	0.55	MG/KG	0.01	1.0
		Calcium, Total	22100	MG/KG	1.3	1.0
		Cadmium, Total	0.83	MG/KG	0.54	1.0
		Cobalt, Total	7.4	MG/KG	0.13	1.0
		Chromium, Total	66.6	J MG/KG	0.18	1.0
		Copper, Total	123	J MG/KG	0.13	1.0
		Iron, Total	37600	J MG/KG	3.6	1.0
		Mercury, Total	6.7	J MG/KG	0.18	10.0
		Potassium, Total	1070	MG/KG	6.1	1.0
		Magnesium, Total	5170	J MG/KG	1.5	1.0
		Manganese, Total	306	MG/KG	0.02	1.0
		Molybdenum, Total	2.3	MG/KG	0.14	1.0
		Sodium, Total	434	MG/KG	0.19	1.0
		Nickel, Total	39.4	J MG/KG	0.14	1.0
		Lead, Total	233	J MG/KG	0.34	1.0
		Antimony, Total	1.8	J MG/KG	0.44	1.0
		Selenium, Total	0.64	MG/KG	0.40	1.0
		Silicon, Total	1660	J MG/KG	0.91	1.0
		Vanadium, Total	31.7	MG/KG	0.1	1.0
		Zinc, Total	75.7	J MG/KG	0.06	1.0

Jr
 2/25/06

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Appendix 4

Laboratory Narrative and Chain-of-Custody Documentation

000012



Analytical Report

Client: TNU-HANFORD RC-030
LVL#: 0601L074
SDG/SAF#: K0168/RC-030

W.O.#: 11343-606-001-9999-00
Date Received: 01-11-06

METALS CASE NARRATIVE

1. This narrative covers the analysis of 1 solid sample.
2. The sample was prepared and analyzed in accordance with methods checked on the attached glossary. The sample was rerun with a 10-fold dilution for Mercury due to high concentration. The sample was rerun on a different instrument for Cadmium due to sample matrix.
3. All analyses were performed within the required holding times.
4. All results presented in this report are derived from samples that met LvLI's sample acceptance policy.
5. All Initial and Continuing Calibration Verifications (ICV/CCVs) were within the 90-110% control limits (80-120% for Mercury).
6. All Initial and Continuing Calibration Blanks (ICB/CCBs) were within control limits (less than the PQL).
7. All preparation/method blanks (MB) were within method criteria {less than the Practical Quantitation Limit (3X the IDL), or samples greater than 20X MB value}. Refer to the Inorganics Method Blank Data Summary.
8. All ICP Interference Check Standards were within control limits.
9. All laboratory control samples (LCS) were within the 80-120% control limits with the exception of Silicon at 53.3%. Refer to the Inorganics Laboratory Control Standards Report. Associated sample results may be biased low.
10. The matrix spike (MS) recoveries for 10 analytes were outside the 75-125% control limits. Refer to the Inorganics Accuracy Report.
11. For analytes where the ICP MS is out-of-control, a post-digestion MS (PDS) and serial dilution are performed. A serial dilution is performed for Mercury. A PDS was prepared at

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 16 pages.

000013

meaningful concentration level for the following analytes:

<u>Sample ID</u>	<u>Element</u>	<u>PDS</u> <u>Concentration (ppb)</u>	<u>PDS</u> <u>% Recovery</u>
J10VF6	Aluminum	22,000	95.1
	Calcium	22,000	108.7
	Copper	200	79.2
	Iron	42,000	95.1
	Magnesium	22,000	98.7
	Manganese	2,000	100.0
	Lead	200	113.2
	Antimony	100	97.3
	Silicon	2,100	83.3

- The duplicate analyses for 14 analytes were outside the 20% Relative Percent Difference (RPD) control limits. Refer to the Inorganics Precision Report.
- For the purposes of this report, the data has been reported to the Instrument Detection Limit (IDL). Values between the IDL and the Practical Quantitation Limit (PQL) are acquired in a region of less-certain quantification.
- LvLI is NELAP accredited by the state of Pennsylvania and holds over 20 additional state accreditations. For a complete listing of accrediting authorities and the corresponding analytes/methods, please contact your Project Manager.
- I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, 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.


Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

1/25/04
Date

jjw/m01-074



000014

00000000

Washington Closure Hanford		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			RC-030-039	Page 2 of 2
Collector STANKOVICH/HUDSON	Company Contact Mike Stankovich	Telephone No. 531-7620	Project Coordinator KRESSNER, JH		Price Code 9C	Data Turnaround 15 Days
Project Designation Remaining Sites Confirmation Sampling - Other Solid	Sampling Location 100-D-50:1	SAF No. RC-030	Air Quality <input type="checkbox"/>		15 Days	
Ice Chest No. ERC-96-002	Field Logbook No. EL-1578-9	COA C10d16700	Method of Shipment FEDEX			
Shipped To EBERLINE SERVICES (LIONVILLE)	Offsite Property No. A060207	Bill of Lading/Air Bill No. See OSPC				

POSSIBLE SAMPLE HAZARDS/REMARKS Slightly elevated radiological < DOT limits Special Handling and/or Storage Cool 40C	Preservation	None	None	None	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	
	Type of Container	G/P	G	G/P	gG	gG	G	G	gG	R27-11-06
	No. of Container(s)	2	1	1	1	1	1	1	1	1-11-06
	Volume	500mL	60mL	60mL	60mL	60mL	60mL	60mL	60mL	60mL

SAMPLE ANALYSIS	See Item (1) in Special Instructions.	Carbon-14; Tritium - H3	See Item (2) in Special Instructions.	PCBs - 8082; Pesticides - 8081; Chloro-Herbicides - EPA8151	See VOCs - 82/0A (TCL)	TBT (Total) - 418.1	SVOM	RAD shipping screen	
							8706(S)		RCF

Sample No.	Matrix *	Sample Date	Sample Time							
J10VF6	OTHER SOLID	1-9-06	1230		X	X			X	X
										13848

CHAIN OF POSSESSION				SPECIAL INSTRUCTIONS				Matrix *
Relinquished By/Removed From Bill Hudson	Date/Time 1/9/06	Received By/Stored In 372B-3B	Date/Time 1/9/06 1420	(1) Gamma Spectroscopy (TCL List) (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); Gamma Spec - Add-on (Americium-241); Americium-241; Gross Alpha & Gross Beta; Nickel-63; Isotopic Plutonium; Strontium-89,90 - Total Sr; Technetium-99; Isotopic Uranium (Uranium-233/234, Uranium-235, Uranium-238); Total Uranium (2) ICP Metals - 6010A (SW-846) (Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Molybdenum, Nickel, Potassium, Selenium, Silicon, Silver, Sodium, Vanadium, Zinc); Mercury - 7471 - (CV)	S-Soil SE-Sediment SO-Solid SP-Sponge W-Water O-Oil A-Air DS-Dry Solid DL-Dry Liquid T-Tissue WI-Wipe L-Liquid V-Vegetation X-Other			
Relinquished By/Removed From 372B-3B	Date/Time 1-10-06 1345	Received By/Stored In R2 Steffler	Date/Time 1-10-06 1345					
Relinquished By/Removed From R2 Steffler	Date/Time 1-10-06 1400	Received By/Stored In Fed Ex	Date/Time 1-10-06					
Relinquished By/Removed From Fed Ex	Date/Time 1-10-06 0910	Received By/Stored In D. Neumann	Date/Time 1-10-06 0910					
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time					

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

Appendix 5
Data Validation Supporting Documentation

000016

INORGANIC ANALYSIS DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	E
PROJECT:	100-D-SO:1		DATA PACKAGE: K0168		
VALIDATOR:	TLI	LAB:	LLI	DATE: 2/24/06	
			SDG:	K0168	
ANALYSES PERFORMED					
SW-846/ICP	SW-846/GFAA	SW-846/Hg	SW-846 Cyanide		
SAMPLES/MATRIX					
J10VFL6					
Solid					

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: no FR

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: Magnesium - 15390 Fall -MS no PAS
Antimony - 5590 " " "

Silicon - 5390 - Fall LCS

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: Chromium (91), copper (41), Iron (46), Hg (54),
Nickel (50), lead (190), Silicon (35), Zinc (39)

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

000022

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 01/20/06

CLIENT: TNU-HANFORD RC-030

LVL LOT #: 0601L074

WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK1	06L0030-MB1	Silver, Total	0.14 u	MG/KG	0.14	1.0
		Aluminum, Total	1.8 u	MG/KG	1.8	1.0
		Arsenic, Total	0.34 u	MG/KG	0.34	1.0
		Boron, Total	0.27 u	MG/KG	0.27	1.0
		Barium, Total	0.02 u	MG/KG	0.02	1.0
		Beryllium, Total	0.01 u	MG/KG	0.01	1.0
		Calcium, Total	1.8 u	MG/KG	1.2	1.0
		Cadmium, Total	0.07 u	MG/KG	0.07	1.0
		Cobalt, Total	0.12 u	MG/KG	0.12	1.0
		Chromium, Total	0.16 u	MG/KG	0.16	1.0
		Copper, Total	0.12 u	MG/KG	0.12	1.0
		Iron, Total	2.2 u	MG/KG	2.2	1.0
		Potassium, Total	5.5 u	MG/KG	5.5	1.0
		Magnesium, Total	1.4 u	MG/KG	1.4	1.0
		Manganese, Total	0.02 u	MG/KG	0.02	1.0
		Molybdenum, Total	0.13 u	MG/KG	0.13	1.0
		Sodium, Total	0.26 u	MG/KG	0.17	1.0
		Nickel, Total	0.12 u	MG/KG	0.12	1.0
		Lead, Total	0.31 u	MG/KG	0.31	1.0
		Antimony, Total	0.40 u	MG/KG	0.40	1.0
		Selenium, Total	0.36 u	MG/KG	0.36	1.0
		Silicon, Total	2.5 u	MG/KG	0.82	1.0
		Vanadium, Total	0.09 u	MG/KG	0.09	1.0
		Zinc, Total	0.05 u	MG/KG	0.05	1.0
BLANK1	06C0011-MB1	Mercury, Total	0.02 u	MG/KG	0.02	1.0

000023

000000010

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 01/20/06

CLIENT: TNU-HANFORD RC-030

LVL LOT #: 0601L074

WORK ORDR: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR (SPK)
-001	J10VF6	Silver, Total	5.9	0.49	5.5	98.3	1.0
		Aluminum, Total	6960	5310	220	752.8*	1.0
		Arsenic, Total	208	7.4	220	91.2	1.0
		Boron, Total	106	3.6	110	92.8	1.0
		Barium, Total	278	63.5	220	97.6	1.0
		Beryllium, Total	6.0	0.85	5.5	99.2	1.0
		Calcium, Total	30900	23100	2740	282.7*	1.0
		Cadmium, Total	5.8	0.83	5.5	90.4	1.0
		Cobalt, Total	56.7	7.4	54.9	89.8	1.0
		Chromium, Total	90.2	66.6	22.0	107.3	1.0
		Copper, Total	114	123	27.4	-32. *	1.0
		Iron, Total	22900	37600	110	13000. *	1.0
		Mercury, Total	6.8	6.7	0.18	1159 *	10.0
		Potassium, Total	3870	1070	2740	101.9	1.0
		Magnesium, Total	9370	5170	2740	152.8	1.0
		Manganese, Total	344	306	54.9	69.0*	1.0
		Molybdenum, Total	104	2.3	110	92.5	1.0
		Sodium, Total	3190	434	2740	100.3	1.0
		Nickel, Total	82.8	39.4	54.9	79.1	1.0
		Lead, Total	394	233	54.9	293.4*	1.0
		Antimony, Total	33.8	1.8	54.9	58.3	1.0
		Selenium, Total	202	0.64	220	91.6	1.0
		Silicon, Total	2750	1660	110	992.7*	1.0
		Vanadium, Total	87.7	31.7	54.9	102.0	1.0
		Zinc, Total	142	75.7	54.9	120.6	1.0

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Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 01/20/06

CLIENT: TNU-HANFORD RC-030
 WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0601L074

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE RPD		DILUTION FACTOR (REF)
-001REP	J10VFS	Silver, Total	0.49	0.67	30.7	1.0
		Aluminum, Total	6310	6310	17.3	1.0
		Arsenic, Total	7.4	5.8	24.2	1.0
		Boron, Total	3.6	3.3	8.7	1.0
		Barium, Total	63.5	66.8	5.1	1.0
		Beryllium, Total	0.55	0.63	14.5	1.0
		Calcium, Total	23100	22700	1.8	1.0
		Cadmium, Total	0.83	0.98	16.4	1.0
		Cobalt, Total	7.4	6.2	17.6	1.0
		Chromium, Total	66.6	178	91.1	1.0
		Copper, Total	123	186	40.7	1.0
		Iron, Total	37600	23600	45.7	1.0
		Mercury, Total	6.7	11.6	53.5	10.0
		Potassium, Total	1070	1370	24.6	1.0
		Magnesium, Total	5170	6950	29.3	1.0
		Manganese, Total	306	314	2.7	1.0
		Molybdenum, Total	2.3	2.3	0.00	1.0
		Sodium, Total	434	461	6.1	1.0
		Nickel, Total	39.4	65.4	49.6	1.0
		Lead, Total	233	8710	189.6	1.0
		Antimony, Total	1.8	0.44u		1.0
		Selenium, Total	0.64	0.40u		1.0
		Silicon, Total	1660	1170	34.7	1.0
		Vanadium, Total	31.7	26.1	13.0	1.0
		Zinc, Total	75.7	112	39.0	1.0

Handwritten notes:
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Lionville Laboratory, Inc.

INORGANICS LABORATORY CONTROL STANDARDS REPORT 01/20/06

CLIENT: TRU-HANFORD RC-030
 WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0601L074

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
LCS1	06L0030-LC1	Silver, LCS	51.1	50.0	MG/KG	102.2
		Aluminum, LCS	523	500	MG/KG	104.6
		Arsenic, LCS	982	1000	MG/KG	98.2
		Boron, LCS	498	500	MG/KG	99.5
		Barium, LCS	516	500	MG/KG	103.3
		Beryllium, LCS	26.0	25.0	MG/KG	104.0
		Calcium, LCS	2570	2500	MG/KG	102.8
		Cadmium, LCS	25.8	25.0	MG/KG	103.2
		Cobalt, LCS	260	250	MG/KG	104.1
		Chromium, LCS	53.0	50.0	MG/KG	106.0
		Copper, LCS	132	125	MG/KG	105.2
		Iron, LCS	525	500	MG/KG	105.1
		Potassium, LCS	2400	2500	MG/KG	96.1
		Magnesium, LCS	2560	2500	MG/KG	102.4
		Manganese, LCS	79.3	75.0	MG/KG	105.7
		Molybdenum, LCS	516	500	MG/KG	103.2
		Sodium, LCS	2500	2500	MG/KG	99.8
		Nickel, LCS	206	200	MG/KG	102.8
		Lead, LCS	255	250	MG/KG	102.0
		Antimony, LCS	297	300	MG/KG	98.9
		Selenium, LCS	955	1000	MG/KG	95.5
		Silicon, LCS	267	500	MG/KG	53.3
		Vanadium, LCS	261	250	MG/KG	104.5
		Zinc, LCS	102	100	MG/KG	101.6
LCS1	06C0011-LC1	Mercury, LCS	6.6	6.2	NG/KG	106.9

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000000013

Date: 2 March 2006
To: Washington Closure Hanford (technical representative)
From: TechLaw, Inc.
Project: Remaining Sites Confirmation Sampling – Other Solid – Waste Site
100-D-50:1
Subject: Pesticide/PCB - Data Package No. K0168-LLI

INTRODUCTION

This memo presents the results of data validation on Data Package No. K0168 prepared by Lionville Laboratory Inc. (LLI). 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	Date
J10VF6	1/9/06	Solid	C	See note 1

1 - PCBs by 8082 and Pesticides by 8081A

Data validation was conducted in accordance with the Washington Closure Hanford (WCH) validation statement of work and the 100 Area Remedial Action Sampling and Analysis Plan (DOE/RL-96-22, February 2005). Appendices 1 through 5 provide the following information as indicated below:

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

DATA QUALITY OBJECTIVES

• Holding Times

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

If holding times are exceeded by less 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 detected sample results are qualified as estimates and flagged "J" and all non-detects are rejected and flagged "UR".
All holding times were acceptable.

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· **Method Blank**

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

All method blank results were acceptable.

Field Blanks

No field blanks were submitted for analysis.

· **Accuracy**

Matrix Spike & Laboratory Control Sample

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

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

All other accuracy results were acceptable.

Surrogate Recovery

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

000002

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

All surrogate results were acceptable.

· **Precision**

Matrix Spike/Matrix Spike Duplicate Samples

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

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

All other precision results were acceptable.

Field Duplicate Samples

No field duplicates were submitted for analysis.

· **Analytical Detection Levels**

Reported analytical detection levels are compared against the 100 Area RQLs to ensure that laboratory detection levels meet the required criteria. All toxaphene and all PCB results exceeded the RQL. Under the WCH statement of work, no qualification is required.

Completeness

Data Package No. K0168 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

Due to the lack of a matrix spike, matrix spike duplicate and LCS analysis, all toxaphene results were qualified as estimates and flagged "J". Data flagged "J" indicates that the associated concentration is an estimate, but under the BHI 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.

All toxaphene and all PCB results exceeded the RQL. Under the WCH statement of work, no qualification is required.

REFERENCES

WCH, Contract #20266, *Validation Statement of Work*, Washington Closure Hanford Incorporated, July 7, 2003.

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

Appendix 1
Glossary of Data Reporting Qualifiers

000005

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

000007

PESTICIDE/PCB DATA QUALIFICATION SUMMARY*

SDG: K0168	REVIEWER	Project: 100-9550-1	PAGE 1 OF 1
COMMENTS:			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
Toxaphene	J	All	No MS, MSD or LCS analysis

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

000008

Appendix 3

Qualified Data Summary and Annotated Laboratory Reports

000009

Project: WASHINGTON CLOSURE HANFORD						
Laboratory: LLI		SDG: K0168				
Sample Number		J10VF6				
Remarks						
Sample Date		1/9/06				
Extraction Date		1/17/06				
Analysis Date		1/19/06				
PCB	RQL	Result	Q	Result	Q	
Aroclor-1016	100	110	U			
Aroclor-1221	100	110	U			
Aroclor-1232	100	110	U			
Aroclor-1242	100	110	U			
Aroclor-1248	100	110	U			
Aroclor-1254	100	110	U			
Aroclor-1260	100	42				
Sample Number		J10VF6				
Remarks						
Sample Date		1/9/06				
Extraction Date		1/17/06				
Analysis Date		1/19/06				
Pesticide	RQL	Result	Q	Result	Q	
Alpha-BHC	5	4.6	U			
Gamma-BHC (Lindane)	5	4.6	U			
Beta-BHC	5	4.6	U			
Heptachlor	5	4.6	U			
Delta-BHC	5	4.6	U			
Aldrin	5	4.6	U			
Heptachlor Epoxide	5	4.6	U			
Endosulfan I	5	4.6	U			
Dieldrin	5	4.6	U			
4,4'-DDE	5	4.6	U			
Endrin	5	4.6	U			
Endosulfan II	5	4.6	U			
4,4'-DDD	5	4.6	U			
Endosulfan Sulfate	5	4.6	U			
4,4'-DDT	5	4.6	U			
Methoxychlor	5	4.6	U			
Endrin Ketone	5	4.6	U			
Endrin Aldehyde	5	4.6	U			
alpha-Chlordane	5	4.6	U			
gamma-Chlordane	5	4.6	U			
Toxaphene	5	46	J			

000010

Laboratory applied non-detect qualifiers "U" have been included in this table to minimize miss-interpretation of results. All other qualifiers shown were applied during validation.

Sample Information	Cust ID:	J10VF6	J10VF6	J10VF6	PBLKAA	PBLKAA BS
	RFW#:	001	001 MS	001 MSD	06LE0044-MB1	06LE0044-MB1
	Matrix:	SOLID	SOLID	SOLID	SOIL	SOIL
	D.F.:	1.00	1.00	1.00	1.00	1.00
	Units:	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
Surrogate:	Tetrachloro-m-xylene	97 %	87 %	92 %	63 %	73 %
	Decachlorobiphenyl	90 %	83 %	87 %	61 %	63 %
		-----fl-----	-----fl-----	-----fl-----	-----fl-----	-----fl-----
Aroclor-1016		110 U	93 %	98 %	33 U	96 %
Aroclor-1221		110 U	110 U	110 U	33 U	33 U
Aroclor-1232		110 U	110 U	110 U	33 U	33 U
Aroclor-1242		110 U	110 U	110 U	33 U	33 U
Aroclor-1248		110 U	110 U	110 U	33 U	33 U
Aroclor-1254		110 U	110 U	110 U	33 U	33 U
Aroclor-1260		42 J	111 %	106 %	33 U	88 %

000011

M
2/25/06

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U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not reported. NS= Not spiked.
 % = Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. * = Outside of EPA CLP QC

Appendix 4

Laboratory Narrative and Chain-of-Custody Documentation

000013



Case Narrative

Client: TNU-HANFORD RC-030
LVL #: 0601L074
SDG/SAF # K0168 / RC-030

W.O. #: 11343-606-001-9999-00
Date Received: 01-11-2006

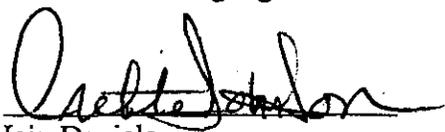
PCB

One (1) solid sample was collected on 01-09-2006.

The sample and its associated QC samples were extracted on 01-17-2006 and analyzed according to Lionville Laboratory SOPs based on SW846, 3rd Edition procedures on 01-23-2006. The extraction procedure was based on method 3540C and the extracts were analyzed based on method 8082.

The following is a summary of the QC results accompanying the sample results and a description of any problems encountered during their analyses:

1. All results presented in this report are derived from a sample that met LvLI's sample acceptance policy.
2. The sample was extracted and analyzed within required holding time.
3. The sample and its associated QC samples received Copper-Sulfur and Sulfuric Acid cleanups according to Lionville Laboratory SOPs based on SW846 methods 3660A and 3665A respectively.
4. The method blank was below the reporting limits for all target compounds.
5. All surrogate recoveries were within acceptance criteria.
6. The blank spike recoveries were within acceptance criteria.
7. All matrix spike recoveries were within acceptance criteria.
8. The initial calibrations associated with this data set were within acceptance criteria.
9. The continuing calibration standards analyzed prior to sample extracts were within acceptance criteria.
10. LvLI is NELAP accredited by the state of Pennsylvania and holds over 20 additional state accreditations. For a complete listing of accrediting authorities and the corresponding analytes/methods, please contact your Project Manager.
11. I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, 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.

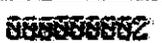

Iain Daniels

Laboratory Manager
Lionville Laboratory Incorporated

1-26-06
Date

kim\r\group\data\pest\tnu_hanford\0601-074.pcbs
The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 7 pages.

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Case Narrative

Client: TNU-HANFORD RC-030
LVL #: 0601L074
SDG/SAF # K0168/RC-030

W.O. #: 11343-606-001-9999-00
Date Received: 01-11-2006

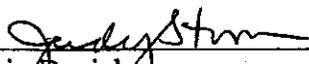
CHLORINATED PESTICIDES

One (1) solid sample was collected on 01-09-2006.

The sample and it's associated QC samples were extracted on 01-17-2006 and analyzed according to Lionville Laboratory SOPs based on SW846, 3rd Edition procedures on 01-20,21-2006. The extraction procedure was based on method 3540C and the extracts were analyzed based on method 8081A.

The following is a summary of the QC results accompanying the sample results and a description of any problems encountered during their analyses:

1. All results presented in this report are derived from samples that met LvLI's sample acceptance policy.
2. The sample was extracted and analyzed within required holding time.
3. The sample and it's associated QC samples received a Copper-Sulfur cleanup according to Lionville Laboratory SOPs based on SW846 method 3660A.
4. The method blank was below the reporting limits for all target compounds.
5. All obtainable surrogate recoveries were within acceptance criteria.
6. All blank spike recoveries were within acceptance criteria.
7. All matrix spike recoveries were within acceptance criteria.
8. All samples required a 4-fold instrument dilutions due to matrix interference.
9. The initial calibrations associated with this data set were within acceptance criteria.
10. The continuing calibration standards analyzed prior to sample extracts were within acceptance criteria.
11. LvLI is NELAP accredited by the state of Pennsylvania and holds over 20 additional state accreditations. For a complete listing of accrediting authorities and the corresponding analytes/methods, please contact your Project Manager.
12. I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, 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.


Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

1/25/06
Date

\\dm\l:\group\data\pest\tnu_hanford\0601-074.pst
The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 7 pages.

000015



Collector STANKOVICH/HUDSON	Company Contact Mike Stankovich	Telephone No. 531-7620	Project Coordinator KESSNER, JH	Price Code 9C	Data Turnaround 15 Days
Project Designation Remaining Sites Confirmation Sampling - Other Solid	Sampling Location 100-D-50:1	SAF No. RC-030	Air Quality <input type="checkbox"/>		
Ice Chest No. ERC-96-002	Field Logbook No. EL-1578-9	COA C10dri6700	Method of Shipment FEDEX		
Shipped To EBERLINE SERVICES LIONVILLE	Offsite Property No. A060207	Bill of Lading/Air Bill No. See OSPC			

POSSIBLE SAMPLE HAZARDS/REMARKS Slightly elevated radiological < DOT limits Special Handling and/or Storage Cool 40C	Preservation	None	None	None	Cool 4C	Cool 4C	Cool 4C	100L 4C	None	
	Type of Container	G/P	G	G/P	uG	uG	G	G	25	RZ-11-16
	No. of Container(s)	500	60	1	1	60	60	1	1	1-10-16
	Volume	500mL	60mL	60mL	60mL	60mL	60mL	60mL	60mL	

SAMPLE ANALYSIS	Sam Item (1) in Special Instructions	Carbon-14; Tritium - H3	See Item (2) in Special Instructions	PCBs - 8082; Pesticides - 3081; Chloro-Herbicides - EPA8151	Sam-VOA - 8270A (TCL)	TSH (Total) - 418.1	SVOM 8270(A)	RAP shipping screen	

Sample No.	Matrix *	Sample Date	Sample Time							
J10VF6	OTHER SOLID	1-9-06	1230		X	X		X	X	13848

CHAIN OF POSSESSION				SPECIAL INSTRUCTIONS				Matrix *
Relinquished By/Removed From Bill Hudson	Date/Time 1/9/06	Received By/Stored In RZ Steffler	Date/Time 1/9/06 1420	(1) Gamma Spectroscopy (TCL List) (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); Gamma Spec - Add-on (Americium-241); Americium-241; Gross Alpha & Gross Beta; Nickel-63; Isotopic Plutonium; Strontium-89,90 -- Total Sr; Technetium-99; Isotopic Uranium (Uranium-233/234, Uranium-235, Uranium-238); Total Uranium (2) ICP Metals - 6010A (SW-846) (Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Molybdenum, Nickel, Potassium, Selenium, Silicon, Silver, Sodium, Vanadium, Zinc); Mercury - 7471 - (CV)				S-Soil SS-Sediment SO-Solid SL-Sludge W-Water O-Oil A-Air DS-Drum Solids DL-Drum Liquids T-Tissue W-Wipe L-Liquid V-Vegetation X-Other
Relinquished By/Removed From 3728-3B	Date/Time 1-10-06 1345	Received By/Stored In RZ Steffler	Date/Time 1-10-06					
Relinquished By/Removed From RZ Steffler	Date/Time 1-10-06 1400	Received By/Stored In Fed Ex	Date/Time 1-10-06					
Relinquished By/Removed From Fed Ex	Date/Time 1-10-06 0910	Received By/Stored In U. Hernandez	Date/Time 1-11-06 0910					
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time					

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

Appendix 5

Data Validation Supporting Documentation

000017

PCB DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	<u>C</u>	D	E
PROJECT:	100-D-50:1		DATA PACKAGE: K0168		
VALIDATOR:	TLI	LAB:	LLI	DATE: 2/24/06	
			SDG:	K0168	
ANALYSES PERFORMED					
<u>SW-846 8081</u>	SW-846 8081 (TCLP)	<u>SW-846 8082</u>	SW-846 8081 (TCLP)		
SAMPLES/MATRIX					
J10VFG					
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 PB

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: Toxaphene - NO MS, MSD, LCS - J all

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: all PCB + toxaphene 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: _____

Date: 2 March 2006
To: Washington Closure Hanford Inc. (technical representative)
From: TechLaw, Inc.
Project: Remaining Sites Confirmation Sampling – Other Solid – Waste Site
100-D-50:1
Subject: Semivolatile - Data Package No. K0168-LLI

INTRODUCTION

This memo presents the results of data validation on Data Package No. K0168 prepared by Lionville Laboratory Inc. (LLI). 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	Date
J10VF6	1/9/06	Solid	C	See note 1

1 - Semivolatiles by 8270C.

Data validation was conducted in accordance with the Bechtel Hanford Incorporated (BHI) validation statement of work and the 100 Area Remedial Action Sampling and Analysis Plan (DOE/RL-96-22, February 2005). Appendices 1 through 5 provide the following information as indicated below:

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

DATA QUALITY OBJECTIVES

· Holding Times

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

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

000001

All holding times were met.

• **Method Blanks**

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

Due to method blank contamination, the bis(2-ethylhexyl)phthalate result was qualified as undetected, raised to the RQL and flagged "U".

All other method blank results were acceptable.

Field Blanks

No field blanks were submitted for analysis.

• **Accuracy**

Matrix Spike/Matrix Spike Duplicate & Blank Spike Recoveries

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

All accuracy results were acceptable.

000002

Surrogate Recovery

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

All surrogate results were acceptable.

• Precision

Matrix Spike/Matrix Spike Duplicate Samples

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

All precision results were acceptable.

Field Duplicate Samples

No field duplicates were submitted for analysis.

• Analytical Detection Levels

Reported analytical detection levels are compared against the required quantitation limits (RQL's) to ensure that laboratory detection levels meet the required criteria. Eight analytes exceeded the RQL. Under the BHI statement of work, no qualification is required. All other analytes met the RQL.

000003

· **Completeness**

Data package No. K0168 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

Due to method blank contamination, the bis(2-ethylhexyl)phthalate result was qualified as undetected, raised to the RQL and flagged "U".

Eight analytes exceeded the RQL. Under the BHI statement of work, no qualification is required.

REFERENCES

WCH, Contract #20266, *Validation Statement of Work*, Washington Closure Hanford Incorporated, July 7, 2003.

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

000004

Appendix 1
Glossary of Data Reporting Qualifiers

000005

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

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

000006

Appendix 2
Summary of Data Qualification

000007

SEMIVOLATILE DATA QUALIFICATION SUMMARY*

SDG: K0168	REVIEWER: [REDACTED]	Project: 700-D-50-1	PAGE 1 OF 1
COMMENTS:			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
Bis(2-ethylhexyl)phthalate	U at RQL	All	Blank contamination

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

000008

Appendix 3

Qualified Data Summary and Annotated Laboratory Reports

000009

Project: WASHINGTON CLOSURE HANFORD									
Laboratory: LLI					SDG: K0168				
Sample Number					J10VF6				
Remarks									
Sample Date					1/9/06				
Extraction Date					1/13/06				
Analysis Date					1/17/06				
Semivolatile (8270C)	RQL	Result	Q	Result	Q	Semivolatile (8270C)	RQL	Result	Q
Phenol	660	380	U			3-Nitroaniline*	660	950	U
bis(2-Chloroethyl)ether	660	380	U			Acenaphthene	660	380	U
2-Chlorophenol	660	380	U			2,4-Dinitrophenol*	660	950	U
1,3-Dichlorobenzene	660	380	U			4-Nitrophenol*	660	950	U
1,4-Dichlorobenzene	660	380	U			Dibenzofuran	660	380	U
1,2-Dichlorobenzene	660	380	U			2,4-Dinitrotoluene	660	380	U
2-Methylphenol	660	380	U			Diethylphthalate	660	380	U
2,2'-oxybis(1-chloropropane)	660	380	U			4-Chlorophenyl-phenyl ether	660	380	U
4-Methylphenol	660	380	U			Fluorene	660	380	U
N-Nitroso-di-n-propylamine	660	380	U			4-Nitroaniline*	660	950	U
Hexachloroethane	660	380	U			4,6-Dinitro-2-methylphenol*	660	950	U
Nitrobenzene	660	380	U			N-Nitrosodiphenylamine	660	380	U
Isophorone	660	380	U			4-Bromophenyl-phenyl ether	660	380	U
2-Nitrophenol	660	380	U			Hexachlorobenzene	660	380	U
2,4-Dimethylphenol	660	380	U			Pentachlorophenol*	660	950	U
bis(2-Chloroethoxy)methane	660	380	U			Phenanthrene	660	23	
2,4-Dichlorophenol	660	380	U			Anthracene	660	380	U
1,2,4-Trichlorobenzene	660	380	U			Carbazole	660	380	U
Naphthalene	660	380	U			Di-n-butylphthalate	660	51	
4-Chloroaniline	660	380	U			Fluoranthene	660	34	
Hexachlorobutadiene	660	380	U			Pyrene	660	22	
4-Chloro-3-methylphenol	660	380	U			Butylbenzylphthalate	660	380	U
2-Methylnaphthalene	660	380	U			3,3'-Dichlorobenzidine	660	380	U
Hexachlorocyclopentadiene	660	380	U			Benzo(a)anthracene	660	380	U
2,4,6-Trichlorophenol	660	380	U			Chrysene	660	380	U
2,4,5-Trichlorophenol*	660	950	U			bis(2-Ethylhexyl)phthalate	660	660	U
2-Chloronaphthalene	660	380	U			Di-n-octylphthalate	660	380	U
2-Nitroaniline*	660	950	U			Benzo(b)fluoranthene	660	380	U
Dimethylphthalate	660	380	U			Benzo(k)fluoranthene	660	380	U
Acenaphthylene	660	380	U			Benzo(a)pyrene	660	380	U
2,6-Dinitrotoluene	660	380	U			Indeno(1,2,3-cd)pyrene	660	380	U
						Dibenz(a,h)anthracene	660	380	U
						Benzo(g,h,i)perylene	660	380	U

000010

Laboratory applied non-detect qualifiers "U" have been included in this table to minimize miss-interpretation of results.

All other qualifiers shown were applied during validation.

* - RQL exceeded

Cust ID: J10VF6 J10VF6 J10VF6 SBLKSS SBLKSS BS
 RFW#: 001 001 MS 001 MSD 06LE0038-MB1 06LE0038-MB1

2-Chloronaphthalene	380	U	90	%	80	%	330	U	109	%
2-Nitroaniline	950	U	99	%	93	%	830	U	105	%
Dimethylphthalate	380	U	99	%	93	%	330	U	100	%
Acenaphthylene	380	U	90	%	80	%	330	U	104	%
2,6-Dinitrotoluene	380	U	97	%	88	%	330	U	99	%
3-Nitroaniline	950	U	104	%	98	%	830	U	103	%
Acenaphthene	380	U	87	%	80	%	330	U	101	%
2,4-Dinitrophenol	950	U	36	%	32	%	830	U	42	%
4-Nitrophenol	950	U	92	%	89	%	830	U	90	%
Dibenzofuran	380	U	95	%	87	%	330	U	104	%
2,4-Dinitrotoluene	380	U	106	%	100	%	330	U	100	%
Diethylphthalate	380	U	96	%	95	%	330	U	97	%
4-Chlorophenyl-phenylether	380	U	92	%	86	%	330	U	100	%
Fluorene	380	U	92	%	85	%	330	U	95	%
4-Nitroaniline	950	U	79	%	86	%	830	U	72	%
4,6-Dinitro-2-methylphenol	950	U	86	%	75	%	830	U	102	%
N-Nitrosodiphenylamine (1)	380	U	86	%	76	%	330	U	94	%
4-Bromophenyl-phenylether	380	U	91	%	81	%	330	U	97	%
Hexachlorobenzene	380	U	97	%	90	%	330	U	108	%
Pentachlorophenol	950	U	79	%	73	%	830	U	111	%
Phenanthrene	23	J	98	%	90	%	330	U	100	%
Anthracene	380	U	96	%	91	%	330	U	102	%
Carbazole	380	U	74	%	73	%	330	U	74	%
Di-n-butylphthalate	51	J	103	%	102	%	330	U	103	%
Fluoranthene	34	J	91	%	94	%	330	U	100	%
Pyrene	22	J	100	%	87	%	330	U	101	%
Butylbenzylphthalate	380	U	115	%	103	%	330	U	111	%
3,3'-Dichlorobenzidine	380	U	85	%	92	%	330	U	93	%
Benzo(a)anthracene	380	U	95	%	92	%	330	U	100	%
Chrysene	380	U	94	%	92	%	330	U	103	%
bis(2-Ethylhexyl)phthalate	660	56	112	%	106	%	30	J	108	%
Di-n-octyl phthalate	380	U	118	%	104	%	330	U	104	%
Benzo(b)fluoranthene	380	U	96	%	86	%	330	U	97	%
Benzo(k)fluoranthene	380	U	99	%	86	%	330	U	99	%
Benzo(a)pyrene	380	U	94	%	85	%	330	U	98	%
Indeno(1,2,3-cd)pyrene	380	U	97	%	90	%	330	U	108	%
Dibenz(a,h)anthracene	380	U	97	%	87	%	330	U	107	%
Benzo(g,h,i)perylene	380	U	93	%	87	%	330	U	106	%

(1) - Cannot be separated from Diphenylamine. * = Outside of EPA CLP QC limits.

000000007

Handwritten signature and date:
 2/25/06

Appendix 4

Laboratory Narrative and Chain-of-Custody Documentation

000013

Washington Closure Hanford		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST					RC-030-039		Page 2 of 2							
Collector STANKOVICH/HUDSON		Company Contact Mike Stankovich		Telephone No. 531-7620		Project Coordinator KESSNER, JH		Price Code 9C		Data Turnaround 15 Days						
Project Designation Remaining Sites Confirmation Sampling - Other Solid		Sampling Location 100-D-50:1		SAF No. RC-030		Air Quality <input type="checkbox"/>										
Ice Chest No. ERC-96-002		Field Logbook No. EL-1578-9		COA C10dr16700		Method of Shipment FEDEX										
Shipped To EBERLINE SERVICES <u>LIONVILLE</u>		Offsite Property No. A060207		Bill of Lading/Air Bill No. See OSPC												
POSSIBLE SAMPLE HAZARDS/REMARKS Slightly elevated radiological < DOT limits Special Handling and/or Storage Cool 40C				Preservation	None	None	None	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None				
				Type of Container	G/P	G	G/P	aG	aG	G	G	aG	R25	1-10-06		
				No. of Container(s)	Bifurcated	1	1	1	1	1	1	1	1	1		
				Volume	500mL	60mL	60mL	60mL	60mL	60mL	60mL	60mL	60mL	60mL		
SAMPLE ANALYSIS				See item (1) in Special Instructions.	Carbon-14; Tritium - H3	See item (2) in Special Instructions.	PCBs - 8082; Pesticides - 8081; Chloro-Herbicides - EPA2151	Semi-VOA - 8270A (TCL)	TTH (Total) - 418.1	SVOA 8270(A)	RAD shipping screen		RCF			
				Sample No.	Matrix *	Sample Date	Sample Time									
J10VF8	OTHER SOLID	1-9-06	1230			X	X			X	X	13848				
CHAIN OF POSSESSION				Sign/Print Names				SPECIAL INSTRUCTIONS				Matrix *				
Relinquished By/Removed From <i>B. Hudson</i>		Date/Time 1/9/06		Received By/Stored In <i>3728-3B</i>		Date/Time 1/9/06		(1) Gamma Spectroscopy (TCL List) (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); Gamma Spec - Add-on (Americium-241); Americium-241; Gross Alpha & Gross Beta; Nickel-63; Isotopic Plutonium; Strontium-89,90 - Total Sr; Technetium-99; Isotopic Uranium (Uranium-233/234, Uranium-235, Uranium-238); Total Uranium (2) ICP Metals - 6010A (SW-846) (Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Molybdenum, Nickel, Potassium, Selenium, Silicon, Silver, Sodium, Vanadium, Zinc); Mercury - 7471 - (CV)				S=Soil				
Received By/Stored In <i>RZ Steffler R.Z. Steffler</i>		Date/Time 1-10-06		Date/Time 1345		SD=Soil next										
Received By/Stored In <i>Fed Ex</i>		Date/Time 1-10-06		Date/Time 1400		Sl=Sheds										
Received By/Stored In <i>Fed Ex</i>		Date/Time 1-10-06		Date/Time 0910		W=Water										
Received By/Stored In <i>Fed Ex</i>		Date/Time 1-10-06		Date/Time 0910		O=Oil										
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time		A=Air								
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time		DS=Drum Solids								
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time		DL=Drum Liquids								
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time		T=Trace								
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time		W=Wipe								
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time		L=Liquid								
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time		V=Vegetation								
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time		X=Other								
LABORATORY SECTION	Received By		Title		Date/Time											
FINAL SAMPLE DISPOSITION	Disposal Method		Disposed By		Date/Time											

Appendix 5
Data Validation Supporting Documentation

000016

GC/MS ORGANIC DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	E
PROJECT:	100-D-50:1		DATA PACKAGE: K0168		
VALIDATOR:	TLI	LAB:	LLI	DATE: 2/24/06	
			SDG:	K0168	
ANALYSES PERFORMED					
SW-846 8260		SW-846 8260 (TCLP)	SW-846 8270		SW-846 8270 (TCLP)
SAMPLES/MATRIX					
J10VFG					
Soil					

1. DATA PACKAGE COMPLETENESS AND CASE NARRATIVE

Technical verification documentation present? Yes No N/A

Comments: _____

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

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

Initial calibrations acceptable? Yes No N/A

Continuing calibrations acceptable? Yes No N/A

Standards traceable? Yes No N/A

Standards expired? Yes No N/A

Calculation check acceptable? Yes No N/A

Comments: _____

GC/MS ORGANIC DATA VALIDATION CHECKLIST

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

Calibration blanks analyzed? (Levels D, E)..... Yes No N/A
 Calibration blank results acceptable? (Levels D, E)..... Yes No N/A
 Laboratory blanks analyzed?..... Yes No N/A
 Laboratory blank results acceptable? Yes No N/A
 Field/trip blanks analyzed? (Levels C, D, E) Yes No N/A
 Field/trip blank results acceptable? (Levels C, D, E)..... Yes No N/A
 Transcription/calculation errors? (Levels D, E)..... Yes No N/A
 Comments: bis(2-ethylhexyl)phthalate - U at RQL no FB

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

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

GC/MS ORGANIC DATA VALIDATION CHECKLIST

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

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

Comments: _____

6. SYSTEM PERFORMANCE (Levels D and E)

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

Comments: _____

7. HOLDING TIMES (all levels)

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

Comments: _____

GC/MS ORGANIC DATA VALIDATION CHECKLIST

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

Compound identification acceptable? (Levels D, E)..... Yes No N/A
Compound quantitation acceptable? (Levels D, E)..... Yes No N/A
Results reported for all requested analyses?..... Yes No N/A
Results supported in the raw data? (Levels D, E)..... Yes No N/A
Samples properly prepared? (Levels D, E)..... Yes No N/A
Laboratory properly identified and coded all TIC? (Levels D, E)..... Yes No N/A
Detection limits meet RDL?..... Yes No N/A
Transcription/calculation errors? (Levels D, E) Yes No N/A
Comments: Done

9. SAMPLE CLEANUP (Levels D and E)

GPC cleanup performed? Yes No N/A
GPC check performed? Yes No N/A
GPC check recoveries acceptable?..... Yes No N/A
GPC calibration performed?..... Yes No N/A
GPC calibration check performed? Yes No N/A
GPC calibration check retention times acceptable? Yes No N/A
Check/calibration materials traceable?..... Yes No N/A
Check/calibration materials Expired?..... Yes No N/A
Analytical batch QC given similar cleanup? Yes No N/A
Transcription/Calculation Errors? Yes No N/A
Comments: