

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

COMPLETE COPY OF VALIDATION PACKAGE TO:

Jeanette Duncan (2)

H9-02

mjp 03/27/06
INITIAL/DATE

COMMENTS:

SDG K0176

SAF-RC-030

Waste Site: 100-D-14

RECEIVED
APR 24 2006

EDMC

Date: 15 March 2006
 To: Washington Closure Hanford (technical representative)
 From: TechLaw, Inc.
 Project: Remaining Sites Confirmation Sampling – Other Solid – Waste Site
 100-D-14
 Subject: Pesticide/PCB - Data Package No. K0176-LLI

INTRODUCTION

This memo presents the results of data validation on Data Package No. K0176 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
J10VJ5	1/4/06	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".

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All holding times were acceptable.

• **Method Blank**

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

All method blank results were acceptable.

Field Blanks

No field blanks were submitted for analysis.

• **Accuracy**

Matrix Spike & Laboratory Control Sample

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

Due to the lack of a matrix spike, matrix spike duplicate 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

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

All surrogate results were acceptable.

• **Precision**

Matrix Spike/Matrix Spike Duplicate Samples

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

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

All other precision results were acceptable.

Field Duplicate Samples

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

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· **Completeness**

Data Package No. K0176 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 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.

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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 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).

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Appendix 2
Summary of Data Qualification

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PESTICIDE/PCB DATA QUALIFICATION SUMMARY*

SDG: K0176	REVIEWER: TU	Project: 100-D-14	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.

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Appendix 3

Qualified Data Summary and Annotated Laboratory Reports

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Project: WASHINGTON CLOSURE HANFORD										
Laboratory: LLI					SDG: K0176					
Sample Number					J10VJ5					
Remarks					Remarks					
Sample Date					1/4/06					
Extraction Date					1/11/06					
Analysis Date					1/17/06					
PCB	RQL	Result	Q				Pesticide	RQL	Result	Q
Aroclor-1016	100	210	U				Alpha-BHC	5	8.5	U
Aroclor-1221	100	210	U				Gamma-BHC (Lindane)	5	8.5	U
Aroclor-1232	100	210	U				Beta-BHC	5	8.5	U
Aroclor-1242	100	210	U				Heptachlor	5	8.5	U
Aroclor-1248	100	210	U				Delta-BHC	5	8.5	U
Aroclor-1254	100	210	U				Aldrin	5	8.5	U
Aroclor-1260	100	210	U				Heptachlor Epoxide	5	8.5	U
							Endosulfan I	5	8.5	U
							Dieldrin	5	8.5	U
							4,4'-DDE	5	8.5	U
							Endrin	5	8.5	U
							Endosulfan II	5	8.5	U
							4,4'-DDD	5	8.5	U
							Endosulfan Sulfate	5	8.5	U
							4,4'-DDT	5	8.5	U
							Methoxychlor	5	8.5	U
							Endrin Ketone	5	8.5	U
							Endrin Aldehyde	5	8.5	U
							alpha-Chlordane	5	8.5	U
							gamma-Chlordane	5	8.5	U
							Toxaphene	5	85	UJ

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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.

Lionville Laboratory, Inc.

PCBs by GC

Report Date: 01/19/06 12:04

RFW Batch Number: 0601L045

Client: TNUHANFORD RC-030 K0176

Work Order: 11343606001 Page: 1

Sample Information	Cust ID:	J10VJ5	J10VJ5	J10VJ5	PBLKZV	PBLKZV BS
	RFW#:	001	001 MS	001 MSD	06LE0030-MB1	06LE0030-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	64 %	60 %	59 %	54 %	55 %
	Decachlorobiphenyl	69 %	70 %	66 %	59 %	68 %
		fl	fl	fl	fl	fl
Aroclor-1016		210 U	93 %	97 %	33 U	90 %
Aroclor-1221		210 U	210 U	210 U	33 U	33 U
Aroclor-1232		210 U	210 U	210 U	33 U	33 U
Aroclor-1242		210 U	210 U	210 U	33 U	33 U
Aroclor-1248		210 U	210 U	210 U	33 U	33 U
Aroclor-1254		210 U	210 U	210 U	33 U	33 U
Aroclor-1260		210 U	105 %	110 %	33 U	99 %

000011

R
3/4/06

2/19/06

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

0000000000

Appendix 4

Laboratory Narrative and Chain-of-Custody Documentation

000013



Case Narrative

Client: TNU-HANFORD RC-030
LVL #: 0601L045
SDG/SAF # K0172 / RC-030

W.O. #: 11343-606-001-9999-00
Date Received: 01-05-2006

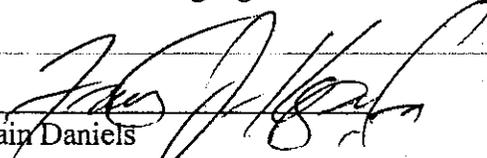
PCB

One (1) solid sample was collected on 01-04-2006.

The sample and its associated QC samples were extracted on 01-11-2006 and analyzed according to Lionville Laboratory SOPs based on SW846, 3rd Edition procedures on 01-17,18-2006. 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 LVL'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. LVL 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


Date

kim\group\data\pest\mu hanford\0601-045.pcb
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 #: 0601L045
SDG/SAF # K0176/RC-030

W.O. #: 11343-606-001-9999-00
Date Received: 01-06-2006

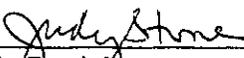
CHLORINATED PESTICIDES

One (1) solid sample was collected on 01-04-2006.

The sample and it's associated QC samples were extracted on 01-11-2006 and analyzed according to Lionville Laboratory SOPs based on SW846, 3rd Edition procedures on 01-18-2006. 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. Two (2) of forty (40) matrix spike recoveries were outside acceptance criteria. A copy of the Sample Discrepancy Report (SDR) has been enclosed.
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

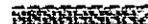
1/20/06
Date

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kim\group\data\pest\tnu hanford\0601-045.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 8 pages.

208 Welsh Pool Road • Exton, PA 19341-1313 • (610) 280-3000 • Fax (610) 280-3041



Lionville Laboratory Sample Discrepancy Report (SDR)

SDR #: 066C017

Initiator: DR
 Date: 1/20/06
 Client: TAN

Batch: 0601/045
 Samples: _____
 Method: SWB46/MCAWW/CLP1

Parameter: 060RH
 Matrix: SOIL
 Prep Batch: 06LE030

1. Reason for SDR

a. COC Discrepancy Tech Profile Error Client Request Sampler Error on C-O-C
 Transcription Error Wrong Test Code Other _____

b. General Discrepancy

Missing Sample/Extract Container Broken Wrong Sample Pulled Label ID's Illegible
 Hold Time Exceeded Insufficient Sample Preservation Wrong Received Past Hold
 Improper Bottle Type Not Amenable to Analysis

Note*: Verified by [Log-In] or [Prep Group] (circle)...signature/date: _____

c. Problem (Include all relevant specific results; attach data if necessary)

Slightly high MS/MSD 130/131 / upper limit 120% DDE recoveries out
no target compounds identified in samples -
Narrate

2. Known or Probable Causes(s)

3. Discussion and Proposed Action

Other Description: _____

Re-log
 Entire Batch
 Following Samples: _____
 Re-leach
 Re-extract
 Re-digest
 Revise EDD
 Change Test Code to _____
 Place On/Take Off Hold (circle)

Narrate
[Signature] 1/20/06

4. Project Manager Instructions...signature/date: _____

Concur with Proposed Action
 Disagree with Proposed Action; See Instruction
 Include in Case Narrative
 Client Contacted:
 Date/Person _____
 Add
 Cancel

5. Final Action...signature/date: _____

Other Explanation: _____

Verified re-[log][leach][extract][digest][analysis] (circle)
 Included in Case Narrative
 Hard Copy COC Revised
 Electronic COC Revised
 EDD Corrections Completed

When Final Action has been recorded, forward original to QA Specialist for distribution and filing.

Route Distribution of Completed SDR
 Initiator
 Lab General Manager: M. Taylor
 Project Mgr: Stone Johnson
 Data Management: Sturwell
 Sample Prep: Beegle/Kiger

Route Distribution of Completed SDR
 Metals: Beegle
 Inorganic: Perrone
 GC/LC: Kiger
 MS: Rychlak/Daley
 Log-in: Perry
 Admin: _____
 Other: _____

Washington Closure Hanford		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST					RC-030-041		Page 1 of 1											
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-14			SAF No. RC-030		Air Quality <input type="checkbox"/>													
Ice Chest No. AFS-04-017		Field Logbook No. EL-1578-9		COA C10DR16700		Method of Shipment Fed Ex														
Shipped To EBERLINE SERVICES/LIONVILLE		Offsite Property No. A060204			Bill of Lading/Air Bill No. Sec 05PC															
POSSIBLE SAMPLE HAZARDS/REMARKS < DOT limits Special Handling and/or Storage Cool 40C				Preservation		None	None	Cool 4C	Cool 4C	Cool 4C	Cool 4C									
				Type of Container		G/P	G/P	aG	G/P	aG	G	G/P								
				No. of Container(s)		1	1	1	1	1	1	1								
				Volume		60mL	60mL	60mL	60mL	60mL	60mL	60mL								
SAMPLE ANALYSIS 000017				See Item (1) in Special Instructions		See Item (2) in Special Instructions		PCBs - 8062; Pesticides - 8061; Chloro-Herbicides - EPA8167*		See Item (3) in Special Instructions		Semi-VOA - 8270A (TCL)		PH(T)P - 716		NO2/NO3 - 353.2				
				Sample No.		Matrix *		Sample Date		Sample Time										
J10VJ5		OTHER SOLID		1-4-06		1200														
3728		OTHER SOLID		1-5-06		0910														
3728		OTHER SOLID		1-5-06		0910														
3728		OTHER SOLID		1-5-06		0910														
CHAIN OF POSSESSION				Sign/Print Names				SPECIAL INSTRUCTIONS				Matrix *								
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time		(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) (3) IC Anions - 300.0 (Bromide, Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate)				E=Soil SB=Sludges SO=Solid SL=Sludge W=Water O=Oil A=Air DS=Drum Solids DL=Drum Liquids T=Time WI=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		Personnel not available to relinquish samples from 3728 Ref # 38 on 1.5.06												
LABORATORY SECTION		Received By		Title		Date/Time														
FINAL SAMPLE DISPOSITION		Disposal Method		Disposed By		Date/Time														

Appendix 5

Data Validation Supporting Documentation

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PCB DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	E
PROJECT:	100-D-14		DATA PACKAGE: K0176		
VALIDATOR:	TLD	LAB:	LLP	DATE: 3/4/06	
			SDG:	K0176	
ANALYSES PERFORMED					
SW-846 8081	SW-846 8081 (TCLP)	SW-846 8082	SW-846 8081 (TCLP)		
SAMPLES/MATRIX					
JIOVIS					
Soil					

1. DATA PACKAGE COMPLETENESS AND CASE NARRATIVE

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

Comments: _____

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

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

Comments: _____

PCB DATA VALIDATION CHECKLIST

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

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

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

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

PCB DATA VALIDATION CHECKLIST

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

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

Comments: no toxaphen MS/MSD

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 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: 15 March 2006
To: Washington Closure Hanford Inc. (technical representative)
From: TechLaw, Inc.
Project: Remaining Sites Confirmation Sampling – Other Solid – Waste Subsite
100-D-14
Subject: Inorganics - Data Package No. K0176-LLI

INTRODUCTION

This memo presents the results of data validation on Data Package No. K0176 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	Matrix	Validation	Date
J10VJ5	1/4/06	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 (64.7%), all antimony results were qualified as estimates and flagged "J".

000002

Due to an LCS recovery outside QC limits (53.3%), 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.

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 100 Area RQLs to ensure that laboratory detection levels meet the required criteria. All analytes met the RQL.

- **Completeness**

Data package No. K0176 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.

000003

MINOR DEFICIENCIES

The following minor deficiencies were noted:

- Due to an MS recovery outside QC limits (64.7%), all antimony results were qualified as estimates and flagged "J".
- Due to an LCS recovery outside QC limits (53.3%), all silicon 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.

000004

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

000007

METALS DATA QUALIFICATION SUMMARY*

SDG: K0176	REVIEWER: JL	Project: 100-D-14	PAGE 1 OF 1
COMMENTS:			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
Silicon	J	All	LCS recovery
Antimony	J	All	MS recovery

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

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Appendix 3

Qualified Data Summary and Annotated Laboratory Reports

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000010

Project: WASHINGTON CLOSURE HANFORD							
Lab: LLI		SDG: K0176					
Sample Number		J10VJ5					
Remarks							
Sample Date		1/4/06					
Inorganics	RQL	Result	Q	Result	Q	Result	Q
Silver	0.2	0.15	U				
Aluminum		5100					
Arsenic	10	2.4					
Boron		4.8					
Barium	2	61.5					
Beryllium		0.48					
Calcium		8030					
Cadmium	0.2	0.07	U				
Cobalt		5.1					
Chromium	1	9.6					
Copper		16.0					
Iron		14200					
Mercury	0.2	0.01	U				
Potassium		1680					
Magnesium		3810					
Manganese		248					
Molybdenum		0.43					
Sodium		460					
Nickel		10.1					
Lead	5	3.9					
Antimony		0.41	UJ				
Selenium	1	0.37	U				
Silicon		458	J				
Vanadium		32.3					
Zinc	1	50.5					

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.

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 01/20/06

CLIENT: TNUHANFORD RC-030 K0176
 WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0601L045

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	J10VJ5	Silver, Total	0.15	u MG/KG	0.15	1.0
		Aluminum, Total	5100	MG/KG	1.9	1.0
		Arsenic, Total	2.4	MG/KG	0.35	1.0
		Boron, Total	4.8	MG/KG	0.28	1.0
		Barium, Total	61.5	MG/KG	0.02	1.0
		Beryllium, Total	0.48	MG/KG	0.01	1.0
		Calcium, Total	8030	MG/KG	1.2	1.0
		Cadmium, Total	0.07	u MG/KG	0.07	1.0
		Cobalt, Total	5.1	MG/KG	0.12	1.0
		Chromium, Total	9.6	MG/KG	0.17	1.0
		Copper, Total	16.0	MG/KG	0.12	1.0
		Iron, Total	14200	MG/KG	3.3	1.0
		Mercury, Total	0.01	u MG/KG	0.01	1.0
		Potassium, Total	1680	MG/KG	5.7	1.0
		Magnesium, Total	3810	MG/KG	1.4	1.0
		Manganese, Total	248	MG/KG	0.02	1.0
		Molybdenum, Total	0.43	MG/KG	0.13	1.0
		Sodium, Total	460	MG/KG	0.18	1.0
		Nickel, Total	10.1	MG/KG	0.13	1.0
		Lead, Total	3.9	MG/KG	0.32	1.0
		Antimony, Total	0.41	u MG/KG	0.41	1.0
		Selenium, Total	0.37	u MG/KG	0.37	1.0
		Silicon, Total	458	MG/KG	0.85	1.0
		Vanadium, Total	32.3	MG/KG	0.09	1.0
		Zinc, Total	50.5	MG/KG	0.05	1.0

Handwritten:
 3/4/06

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Appendix 4

Laboratory Narrative and Chain-of-Custody Documentation

000012



Analytical Report

Client: TNU-HANFORD RC-030
LVL#: 0601L045
SDG/SAF#: K0176/RC-030

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

METALS CASE NARRATIVE

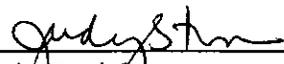
1. This narrative covers the analysis of 1 solid sample.
2. The sample was prepared and analyzed in accordance with methods checked on the attached glossary.
3. All analyses were performed within the required holding times.
4. All results presented in this report are derived from samples that met LvLI's 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 4 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 PDS was prepared at meaningful concentration level for the following analytes:

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

<u>Sample ID</u>	<u>Element</u>	<u>PDS</u> <u>Concentration (ppb)</u>	<u>PDS</u> <u>% Recovery</u>
J10VJ5	Aluminum	22,000	96.1
	Iron	42,000	103.0
	Antimony	100	101.2
	Silicon	2,100	98.0

12. The duplicate analyses for 2 analytes were outside the 20% Relative Percent Difference (RPD) control limits. Refer to the Inorganics Precision Report.
13. 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.
14. 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.
15. 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

1/25/02
 Date

jjw/m01-045



000014

00000000

Washington Closure Hanford		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST						RC-030-041		Page 1 of 1				
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-14		SAF No. RC-030		Air Quality <input type="checkbox"/>								
Ice Chest No. AFS-04-017		Field Logbook No. EL-1578-9		COA C10DR16700		Method of Shipment Fed Ex								
Shipped To EBERLINE SERVICES / LIONVILLE		Offsite Property No. A060204				Bill of Lading/Air Bill No. See 05PC								
POSSIBLE SAMPLE HAZARDS/REMARKS < DOT limits Special Handling and/or Storage Cool 40C				Preservation		None	None	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C		
				Type of Container		G/P	G/P	aG	G/P	aG	G	G/P		
				No. of Container(s)		1	1	1	1	1	1	1		
				Volume		60mL	60mL	60mL	60mL	60mL	60mL	60mL		
SAMPLE ANALYSIS 000015				See item (1) in Special Instructions		See item (2) in Special Instructions		PCBs - B012; Pesticides - B081; Chloro-Herbicides - EPA813*		See item (3) in Special Instructions				
				Semi-VOA - B270A (TCL)		NO2/NO3 - 353.2								
Sample No.	Matrix *	Sample Date	Sample Time											
J10VJ5	OTHER SOLID	1-4-06	1200		X	X	X	X		X				
010V00	OTHER SOLID													
010V01	OTHER SOLID													
010V02	OTHER SOLID													
CHAIN OF POSSESSION				SPECIAL INSTRUCTIONS				Matrix *						
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time		(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) (3) IC Anions - 300.0 (Bromide, Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate)						
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		Personnel not available to relinquish samples from 3728 Ref # 38 on 1/5/06						
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-14		DATA PACKAGE: K0176		
VALIDATOR:	TLI	LAB:	LLI	DATE: 3/4/06	
			SDG:	K0176	
ANALYSES PERFORMED					
SW-846/ICP	SW-846/GFAA	SW-846/Hg	SW-846 Cyanide		
SAMPLES/MATRIX					
J10VJS					
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 FB

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

MS/MSD samples analyzed? Yes No N/A

MS/MSD results acceptable? Yes No N/A

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

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

LCS/BSS samples analyzed? Yes No N/A

LCS/BSS results acceptable? Yes No N/A

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

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

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

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

Performance audit sample results acceptable? Yes No N/A

Comments: Antimony - 64.79% - J (MS) no P47

Silicon - 53.35% - J (LCS)

INORGANIC ANALYSIS DATA VALIDATION CHECKLIST

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

Duplicate RPD values acceptable?.....	<input checked="" type="radio"/> Yes	<input type="radio"/> No	<input type="radio"/> N/A
Duplicate results acceptable?	<input checked="" type="radio"/> Yes	<input type="radio"/> No	<input type="radio"/> N/A
MS/MSD standards NIST traceable? (Levels D, E).....	<input type="radio"/> Yes	<input type="radio"/> No	<input checked="" type="radio"/> N/A
MS/MSD standards expired? (Levels D, E).....	<input type="radio"/> Yes	<input type="radio"/> No	<input checked="" type="radio"/> N/A
Field duplicate RPD values acceptable?.....	<input type="radio"/> Yes	<input type="radio"/> No	<input checked="" type="radio"/> N/A
Field split RPD values acceptable?	<input type="radio"/> Yes	<input type="radio"/> No	<input checked="" 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: _____

6. ICP QUALITY CONTROL (Levels D and E)

ICP serial dilution samples analyzed?.....	<input type="radio"/> Yes	<input type="radio"/> No	<input checked="" type="radio"/> N/A
ICP serial dilution %D values acceptable?.....	<input type="radio"/> Yes	<input type="radio"/> No	<input checked="" type="radio"/> N/A
ICP post digestion spike required?	<input type="radio"/> Yes	<input type="radio"/> No	<input checked="" type="radio"/> N/A
ICP post digestion spike values acceptable?	<input type="radio"/> Yes	<input type="radio"/> No	<input checked="" type="radio"/> N/A
Standards traceable?	<input type="radio"/> Yes	<input type="radio"/> No	<input checked="" type="radio"/> N/A
Standards expired?	<input type="radio"/> Yes	<input type="radio"/> No	<input checked="" type="radio"/> N/A
Transcription/calculation errors?.....	<input type="radio"/> Yes	<input type="radio"/> No	<input checked="" type="radio"/> 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: TNUHANFORD RC-030 K0176
 WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0601L045

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	3.2	u MG/KG	3.2	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	0.13	u MG/KG	0.13	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: TNUHANFORD RC-030 K0176
 WORK ORDER: 11343-806-001-9999-00

LVL LOT #: 0601L045

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR (SPK)
-001	J10VJ5	Silver, Total	4.8	0.15u	5.1	94.1	1.0
		Aluminum, Total	5560	5100	205	221.9*	1.0
		Arsenic, Total	187	2.4	205	90.1	1.0
		Boron, Total	96.5	4.8	103	89.4	1.0
		Barium, Total	256	61.5	205	95.0	1.0
		Beryllium, Total	5.4	0.48	5.1	96.5	1.0
		Calcium, Total	10300	8030	2560	86.5	1.0
		Cadmium, Total	4.5	0.07u	5.1	88.2	1.0
		Cobalt, Total	52.8	5.1	51.3	93.0	1.0
		Chromium, Total	28.8	9.6	20.5	93.7	1.0
		Copper, Total	42.0	16.0	25.6	101.6	1.0
		Iron, Total	15100	14200	103	824.1*	1.0
		Mercury, Total	0.16	0.01u	0.14	107.6	1.0
		Potassium, Total	4060	1680	2560	92.6	1.0
		Magnesium, Total	6310	3810	2560	97.6	1.0
		Manganese, Total	294	246	51.3	90.8*	1.0
		Molybdenum, Total	95.0	0.43	103	92.2	1.0
		Sodium, Total	2820	460	2560	92.4	1.0
		Nickel, Total	57.3	10.1	51.3	92.0	1.0
		Lead, Total	50.5	3.9	51.3	90.8	1.0
		Antimony, Total	33.2	0.41u	51.3	64.7	1.0
		Selenium, Total	184	0.37u	205	89.5	1.0
		Silicon, Total	595	458	103	133.9*	1.0
		Vanadium, Total	83.0	32.3	51.3	98.8	1.0
		Zinc, Total	114	50.5	51.3	124.4	1.0

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Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 01/20/06

CLIENT: INUHANFORD RC-030 K0176
 WORK ORDER: 11343-606-001-9999-00.

LVL LOT #: 0601L045

SAMPLE	SITE ID	ANALYTE	INITIAL		DILUTION
			RESULT	REPLICATE RPD	
-001REP	J10VJ5	Silver, Total	0.15u	0.15u NC	1.0
		Aluminum, Total	5100	4980 2.4	1.0
		Arsenic, Total	2.4	2.9 18.9	1.0
		Boron, Total	4.8	3.4 34.1	1.0
		Barium, Total	61.5	65.1 5.7	1.0
		Beryllium, Total	0.48	0.51 6.9	1.0
		Calcium, Total	8030	9620 18.0	1.0
		Cadmium, Total	0.07u	0.07u NC	1.0
		Cobalt, Total	5.1	5.5 7.5	1.0
		Chromium, Total	9.6	9.9 3.1	1.0
		Copper, Total	16.0	18.4 14.0	1.0
		Iron, Total	14200	14800 3.8	1.0
		Mercury, Total	0.01u	0.02u NC	1.0
		Potassium, Total	1680	1730 2.9	1.0
		Magnesium, Total	3810	4040 6.0	1.0
		Manganese, Total	248	242 2.4	1.0
		Molybdenum, Total	0.43	0.50 14.5	1.0
		Sodium, Total	460	460 0.087	1.0
		Nickel, Total	10.1	11.6 13.8	1.0
		Lead, Total	3.9	4.4 12.0	1.0
		Antimony, Total	0.41u	0.41u NC	1.0
		Selenium, Total	0.37u	0.61 1.0 200	1.0
		Silicon, Total	458	421 8.4	1.0
		Vanadium, Total	32.3	34.7 7.2	1.0
		Zinc, Total	50.5	54.5 7.6	1.0

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Lionville Laboratory, Inc.

INORGANICS LABORATORY CONTROL STANDARDS REPORT 01/20/06

CLIENT: TNUHANFORD RC-030 K0176
 WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0601L045

SAMPLE	SITE ID	ANALYTE	SPIKED	SPIKED	UNITS	%RECOV
			SAMPLE	AMOUNT		
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	105.3
		Iron, LCS	528	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	MG/KG	106.9

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Date: 15 March 2006
To: Washington Closure Hanford Inc. (technical representative)
From: TechLaw, Inc.
Project: Remaining Sites Confirmation Sampling – Other Solid – Waste Site
100-D-14
Subject: Semivolatile - Data Package No. K0176-LLI

INTRODUCTION

This memo presents the results of data validation on Data Package No. K0176 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
J10VJ5	1/4/06	Solid	C	See note 1

1 – Semivolatiles by 8270C.

Data validation was conducted in accordance with the Washington Closure Hanford (WCH) validation statement of work and the 100 Area Remedial Action Sampling and Analysis Plan (DOE/RL-96-22, 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".

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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 WCH statement of work, no qualification is required. All other analytes met the RQL.

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Completeness

Data package No. K0176 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 an estimate 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.

Eight 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.

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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 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).

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Appendix 2
Summary of Data Qualification

000007

SEMIVOLATILE DATA QUALIFICATION SUMMARY*

SDG: K0176		REVIEWER: TU	Project: 100-D-14	PAGE: 1 OF 1
COMMENTS:				
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON	
Bis(2-ethylhexyl)phthalate	J	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.

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Appendix 3

Qualified Data Summary and Annotated Laboratory Reports

000009

Project: WASHINGTON CLOSURE HANFORD									
Laboratory: LLI		SDG: K0176							
Sample Number		J10VJ5							
Remarks									
Sample Date		1/4/06							
Extraction Date		1/7/06							
Analysis Date		1/21/06							
Semivolatile (8270C)	RQL	Result	Q	Result	Q	Semivolatile (8270C)	RQL	Result	Q
Phenol	660	360	U			3-Nitroaniline*	660	890	U
bis(2-Chloroethyl)ether	660	360	U			Acenaphthene	660	360	U
2-Chlorophenol	660	360	U			2,4-Dinitrophenol*	660	890	U
1,3-Dichlorobenzene	660	360	U			4-Nitrophenol*	660	890	U
1,4-Dichlorobenzene	660	360	U			Dibenzofuran	660	360	U
1,2-Dichlorobenzene	660	360	U			2,4-Dinitrotoluene	660	360	U
2-Methylphenol	660	360	U			Diethylphthalate	660	360	U
2,2'-oxybis(1-chloropropane)	660	360	U			4-Chlorophenyl-phenyl ether	660	360	U
4-Methylphenol	660	360	U			Fluorene	660	360	U
N-Nitroso-di-n-propylamine	660	360	U			4-Nitroaniline*	660	890	U
Hexachloroethane	660	360	U			4,6-Dinitro-2-methylphenol*	660	890	U
Nitrobenzene	660	360	U			N-Nitrosodiphenylamine	660	360	U
Isophorone	660	360	U			4-Bromophenyl-phenyl ether	660	360	U
2-Nitrophenol	660	360	U			Hexachlorobenzene	660	360	U
2,4-Dimethylphenol	660	360	U			Pentachlorophenol*	660	890	U
bis(2-Chloroethoxy)methane	660	360	U			Phenanthrene	660	360	U
2,4-Dichlorophenol	660	360	U			Anthracene	660	360	U
1,2,4-Trichlorobenzene	660	360	U			Carbazole	660	360	U
Naphthalene	660	360	U			Di-n-butylphthalate	660	360	U
4-Chloroaniline	660	360	U			Fluoranthene	660	360	U
Hexachlorobutadiene	660	360	U			Pyrene	660	360	U
4-Chloro-3-methylphenol	660	360	U			Butylbenzylphthalate	660	360	U
2-Methylnaphthalene	660	360	U			3,3'-Dichlorobenzidine	660	360	U
Hexachlorocyclopentadiene	660	360	U			Benzo(a)anthracene	660	360	U
2,4,6-Trichlorophenol	660	360	U			Chrysene	660	360	U
2,4,5-Trichlorophenol*	660	890	U			bis(2-Ethylhexyl)phthalate	660	220	J
2-Chloronaphthalene	660	360	U			Di-n-octylphthalate	660	360	U
2-Nitroaniline*	660	890	U			Benzo(b)fluoranthene	660	360	U
Dimethylphthalate	660	360	U			Benzo(k)fluoranthene	660	360	U
Acenaphthylene	660	360	U			Benzo(a)pyrene	660	360	U
2,6-Dinitrotoluene	660	360	U			Indeno(1,2,3-cd)pyrene	660	360	U
						Dibenz(a,h)anthracene	660	360	U
						Benzo(g,h,i)perylene	660	360	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:	J10VJ5	J10VJ5	J10VJ5	SBLKSP	SBLKSP BS
Sample Information	RFW#:	001	001 MS	001 MSD	06LE0035-MB1	06LE0035-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	Nitrobenzene-d5	59 %	53 %	62 %	78 %	83 %
Recovery	2-Fluorobiphenyl	72 %	60 %	69 %	77 %	88 %
	Terphenyl-d14	89 %	63 %	73 %	107 %	93 %
	Phenol-d5	62 %	56 %	67 %	82 %	90 %
	2-Fluorophenol	51 %	51 %	60 %	76 %	86 %
	2,4,6-Tribromophenol	75 %	62 %	72 %	68 %	96 %
=====fl=====fl=====fl=====fl=====fl=====fl=====						
	Phenol	360 U	64 %	81 %	330 U	98 %
	bis(2-Chloroethyl) ether	360 U	62 %	79 %	330 U	95 %
	2-Chlorophenol	360 U	61 %	78 %	330 U	96 %
	1,3-Dichlorobenzene	360 U	57 %	71 %	330 U	92 %
	1,4-Dichlorobenzene	360 U	56 %	71 %	330 U	91 %
	1,2-Dichlorobenzene	360 U	60 %	76 %	330 U	94 %
	2-Methylphenol	360 U	66 %	82 %	330 U	93 %
	2,2'-oxybis(1-Chloropropane)	360 U	62 %	79 %	330 U	93 %
	4-Methylphenol	360 U	65 %	81 %	330 U	95 %
	N-Nitroso-di-n-propylamine	360 U	65 %	78 %	330 U	95 %
	Hexachloroethane	360 U	53 %	65 %	330 U	88 %
	Nitrobenzene	360 U	61 %	78 %	330 U	90 %
	Isophorone	360 U	70 %	88 %	330 U	97 %
	2-Nitrophenol	360 U	61 %	79 %	330 U	90 %
	2,4-Dimethylphenol	360 U	65 %	82 %	330 U	77 %
	bis(2-Chloroethoxy)methane	360 U	67 %	85 %	330 U	94 %
	2,4-Dichlorophenol	360 U	64 %	81 %	330 U	94 %
	1,2,4-Trichlorobenzene	360 U	60 %	77 %	330 U	91 %
	Naphthalene	360 U	60 %	76 %	330 U	87 %
	4-Chloroaniline	360 U	60 %	76 %	330 U	110 %
	Hexachlorobutadiene	360 U	65 %	84 %	330 U	101 %
	4-Chloro-3-methylphenol	360 U	65 %	79 %	330 U	94 %
	2-Methylnaphthalene	360 U	66 %	81 %	330 U	93 %
	Hexachlorocyclopentadiene	360 U	48 %	53 %	330 U	100 %
	2,4,6-Trichlorophenol	360 U	67 %	83 %	330 U	95 %
	2,4,5-Trichlorophenol	890 U	68 %	84 %	830 U	102 %

000011

* = Outside of EPA CLP QC limits.

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0000000006

Cust ID: J10VJ5 J10VJ5 J10VJ5 SBLKSP SBLKSP BS

RFW#: 001 001 MS 001 MSD 06LE0035-MB1 06LE0035-MB1

2-Chloronaphthalene	360	U	69	%	86	%	330	U	96	%
2-Nitroaniline	890	U	69	%	86	%	830	U	101	%
Dimethylphthalate	360	U	72	%	87	%	330	U	100	%
Acenaphthylene	360	U	68	%	83	%	330	U	96	%
2,6-Dinitrotoluene	360	U	71	%	85	%	330	U	100	%
3-Nitroaniline	890	U	72	%	89	%	830	U	122	%
Acenaphthene	360	U	68	%	84	%	330	U	94	%
2,4-Dinitrophenol	890	U	82	%	71	%	830	U	27	%
4-Nitrophenol	890	U	64	%	83	%	830	U	99	%
Dibenzofuran	360	U	70	%	85	%	330	U	97	%
2,4-Dinitrotoluene	360	U	73	%	90	%	330	U	105	%
Diethylphthalate	360	U	73	%	90	%	330	U	100	%
4-Chlorophenyl-phenylether	360	U	70	%	85	%	330	U	98	%
Fluorene	360	U	68	%	84	%	330	U	95	%
4-Nitroaniline	890	U	74	%	93	%	830	U	109	%
4,6-Dinitro-2-methylphenol	890	U	88	%	93	%	830	U	98	%
N-Nitrosodiphenylamine (1)	360	U	63	%	73	%	330	U	85	%
4-Bromophenyl-phenylether	360	U	65	%	77	%	330	U	93	%
Hexachlorobenzene	360	U	72	%	86	%	330	U	105	%
Pentachlorophenol	890	U	83	%	99	%	830	U	114	%
Phenanthrene	360	U	70	%	85	%	330	U	99	%
Anthracene	360	U	72	%	90	%	330	U	103	%
Carbazole	360	U	72	%	95	%	330	U	104	%
Di-n-butylphthalate	360	U	66	%	85	%	330	U	104	%
Fluoranthene	360	U	71	%	98	%	330	U	109	%
Pyrene	360	U	73	%	85	%	330	U	98	%
Butylbenzylphthalate	360	U	73	%	90	%	330	U	108	%
3,3'-Dichlorobenzidine	360	U	65	%	81	%	330	U	136	%
Benzo(a)anthracene	360	U	77	%	85	%	330	U	106	%
Chrysene	360	U	70	%	86	%	330	U	103	%
bis(2-Ethylhexyl)phthalate	220	U	72	%	89	%	20	J	112	%
Di-n-octyl phthalate	360	U	69	%	86	%	330	U	121	%
Benzo(b)fluoranthene	360	U	70	%	83	%	330	U	104	%
Benzo(k)fluoranthene	360	U	69	%	87	%	330	U	107	%
Benzo(a)pyrene	360	U	68	%	85	%	330	U	106	%
Indeno(1,2,3-cd)pyrene	360	U	73	%	93	%	330	U	109	%
Dibenz(a,h)anthracene	360	U	73	%	95	%	330	U	110	%
Benzo(g,h,i)perylene	360	U	72	%	90	%	330	U	103	%

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

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K 3/4/06

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Appendix 4

Laboratory Narrative and Chain-of-Custody Documentation

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Case Narrative

Client: TNU-HANFORD RC-030
LVL #: 0601L045
SDG/SAF # K0176/RC-030

W.O. #: 11343-606-001-9999-00
Date Received: 01-06-2006

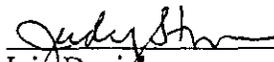
SEMIVOLATILE

One (1) solid sample was collected on 01-04-2006.

The sample and its associated QC samples were extracted according to Lionville Laboratory SOPs based on SW 846 method 3540C on 01-07-2006 and analyzed according to criteria set forth in Lionville Laboratory SOPs based on SW 846 Method 8270C for TCL Semivolatile target compounds on 01-15,21-2006.

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. Non-target compounds were detected in the sample.
4. All surrogate recoveries were within acceptance criteria.
5. All matrix spike recoveries were within acceptance criteria.
6. All blank spike recoveries were within acceptance criteria.
7. The method blank contained the common laboratory contaminant Bis (2-Ethylhexyl) phthalate at a level less than the CRQL.
8. Internal standard area and retention time criteria were met.
9. Manual integrations are performed according to SOP QA-125 to produce quality data with the utmost integrity. All manual integrations are required to be technically valid and properly documented. Appropriate technical flags are defined in the Glossary ("Technical Flags For Manual Integration").
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

1/30/06
Date

000014

som\group\data\bna\tnu-hanford\0601-045.doc

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 1 2 pages.

Washington Closure Hanford		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				RC-030-041	Page 1 of 1
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-14	SAF No. RC-030	Air Quality <input type="checkbox"/>				
Ice Chest No. AFS-04-017	Field Logbook No. EL-1578-9	COA C10DR16700	Method of Shipment Fed Ex				
Shipped To EBERLINE SERVICES / LIONVILLE	Offsite Property No. A060204	Bill of Lading/Air Bill No. See 05PC					

POSSIBLE SAMPLE HAZARDS/REMARKS Special Handling and/or Storage Cool 4°C	Preservation	None	None	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C
	Type of Container	G/P	G/P	aG	G/P	aG	G	G/P
	No. of Container(s)	1	1	1	1	1	1	1
	Volume	60mL	60mL	60mL	60mL	60mL	60mL	60mL
SAMPLE ANALYSIS	See item (1) in Special Instructions	See item (2) in Special Instructions	PCBs - 80E2; Pesticides - 80H1; Chloro-Herbicides - EPA8151*	See item (3) in Special Instructions	Semi-VOA - 8270A (TCL)	CB/TM 9-97	NO1/NO3 - 353.2	

Sample No.	Matrix *	Sample Date	Sample Time							
J10VJ5	OTHER SOLID	1-4-06	1200		X	X	X	X		X
J10VJ6	OTHER SOLID									
J10VJ7	OTHER SOLID									
J10VJ8	OTHER SOLID									

CHAIN OF POSSESSION		SPECIAL INSTRUCTIONS		Matrix * S=Soil SS=Sediment SO=Solid SI=Sludge W=Water O=Oil A=Air DS=Drum Solids DL=Drum Liquids T=Time Wl=Wipe L=Liquid V=Vegetation X=Other
Relinquished By/Removed From MT Stankovich Date/Time 1/4/06 1400	Received By/Stored In 3728/38 Date/Time 1/4/06 1400	(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		
Relinquished By/Removed From 3728/38 Date/Time 1-5-06 0910	Received By/Stored In RZ Steffler R.Z. Steffler Date/Time 1-5-06 0910	(2) JCP 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)		
Relinquished By/Removed From RZ Steffler R.Z. Steffler Date/Time 1-5-06 1015	Received By/Stored In Fed Ex Date/Time	(3) IC Anions - 300.0 (Bromide, Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate)		
Relinquished By/Removed From Fred TP Date/Time 1-6-06 0915	Received By/Stored In Date/Time 1-6-06 0915	Personnel not available to relinquish samples from 3728 Ref # 38 on 1.5.06		
Relinquished By/Removed From	Received By/Stored In			

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-14		DATA PACKAGE: K0176		
VALIDATOR:	TLE	LAB: LLI	DATE: 3/4/06		
			SDG: K0176		
ANALYSES PERFORMED					
SW-846 8260		SW-846 8260 (TCLP)	SW-846 8270		SW-846 8270 (TCLP)
SAMPLES/MATRIX					
DIOXINS					
SOFT solid 3/4/06					

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 is a blank 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: 8 over

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: _____

Date: 15 March 2006
To: Washington Closure Hanford Inc. (technical representative)
From: TechLaw, Inc.
Project: Remaining Sites Confirmation Sampling – Other Solid – Waste Site
100-D-14
Subject: Wet Chemistry - Data Package No. K0176-LLI

INTRODUCTION

This memo presents the results of data validation on Data Package No. K0176 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
J10VJ5	1/4/06	Solid	C	See note 1

1 – Anions by 300.0 and nitrate/nitrite by 353.2.

Data validation was conducted in accordance with the Washington Closure Hanford (WCH) validation statement of work and the 100 Area Remedial Action Sampling and Analysis Plan (DOE/RL-96-22, Rev. 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: 28 days for bromide, chloride, fluoride, sulfate and nitrate/nitrite; and 2 days for nitrate, nitrite and phosphate.

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

Due to the holding time being exceeded by greater than twice the limit, all nitrite results were rejected and flagged "R".

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

All other holding times were acceptable.

• **Method Blanks**

Method Blanks

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

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.

All accuracy results were acceptable.

000002

- **Precision**

Laboratory Duplicate Samples

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

All laboratory duplicate results were acceptable.

Field Duplicate

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 K0176 was submitted for validation and verified for completeness. Completeness is based on the percentage of data determined to be valid (i.e., not rejected). The completion percentage was 87%.

MAJOR DEFICIENCIES

Due to the holding time being exceeded by greater than twice the limit, all nitrite results were rejected and flagged "R". Rejected data is unusable and should not be recorded.

MINOR DEFICIENCIES

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

000003

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.

000004

Appendix 1
Glossary of Data Reporting Qualifiers

000005

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

WET CHEMISTRY DATA QUALIFICATION SUMMARY*

SDG: K0176		REVIEWER: TL	Project: 100-D-14	PAGE 1 OF 1
COMMENTS:				
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON	
Nitrite	UR	All	Holding time	
Nitrate Phosphate	J	All	Holding time	

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

000008

Appendix 3

Qualified Data Summary and Annotated Laboratory Reports

000009

Project: WASHINGTON CLOSURE HANFORD			
Lab: LLI		SDG: K0176	
Sample Number		J10VJ5	
Remarks			
Sample Date		1/4/06	
Wet Chemistry	RQL	Result	Q
Bromide		13.3	U
Chloride		60.2	
Fluoride		13.3	U
Nitrite		13.3	UR
Nitrate		4230	J
Phosphate		60.4	J
Sulfate		613	
Nitrate/Nitrite		1270	

000010

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 01/25/06

CLIENT: TNUHANFORD RC-030 K0176
 WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 06011045

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	J10VJ5	% Solids	93.7	%	0.01	1.0
		Bromide by IC	13.3	u MG/KG	13.3	5.0
		Chloride by IC	60.2	MG/KG	2.7	1.0
		Fluoride by IC	13.3	u MG/KG	13.3	5.0
		Nitrite by IC	13.3	u ^R MG/KG	13.3	5.0
		Nitrate by IC	4230	J MG/KG	266	100
		Phosphate by IC	60.4	J MG/KG	13.3	5.0
		Sulfate by IC	613	MG/KG	53.2	20.0
		Nitrate Nitrite	1270	MG/KG	42.6	200

K
 3/4/06

Appendix 4

Laboratory Narrative and Chain-of-Custody Documentation

000012



Analytical Report

Client: TNU-HANFORD RC-030 K0176
LVL#: 0601L045

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

INORGANIC NARRATIVE

1. This narrative covers the analyses of 1 solid sample.
2. The sample was prepared and analyzed in accordance with the methods indicated on the attached glossary.

LvLI is NELAP accredited by the state of Pennsylvania and holds over 20 additional state accreditations. For a complete list of accrediting authorities and the corresponding analytes/methods, please contact your Project Manager.
3. Sample holding times as required by the method and/or contract were met.
4. The results presented in this report are derived from samples that met LvLI's sample acceptance policy.
5. The method blanks were within the method criteria.
6. The Laboratory Control Samples (LCS) were within the laboratory control limits.
7. The matrix spike recoveries for Bromide, Chloride, Fluoride, Nitrite, Nitrate, Phosphate, Sulfate and Nitrate Nitrite were within the 75-125% control limits.
8. The replicate analyses for Bromide, Chloride, Fluoride, Nitrite, Nitrate, Phosphate, Sulfate and Nitrate Nitrite were within the 20% Relative Percent Difference (RPD) control limit.
9. Results for solid samples are reported on a dry weight basis.
10. 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 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

njpv01-045

The results presented in this report relate to the analytical testing and conditions of the samples upon 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 12 pages.

000013

03

Washington Closure Hanford		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				RC-030-041	Page 1 of 1
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-14	SAF No. RC-030	Air Quality <input type="checkbox"/>			
Ice Chest No. AFS-04-017	Field Logbook No. EL-1578-9	COA C10DR16700	Method of Shipment Fed Ex				
Shipped To EBERLINE SERVICES / LIONVILLE		Offsite Property No. A060204	Bill of Lading/Air Bill No. See 05PC				

POSSIBLE SAMPLE HAZARDS/REMARKS < DOT limits Special Handling and/or Storage Cool 4°C 0000014	Preservation	None	None	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C			
	Type of Container	G/P	G/P	gG	G/P	gG	G	G/P			
	No. of Container(s)		1	1	1	1		1			
	Volume		60mL	60mL	60mL	60mL		60mL			
SAMPLE ANALYSIS		See item (1) in Special Instructions	See item (2) in Special Instructions	PCBs - 9082; Pesticides - 9081; Chloro-Herbicides - 9081/37*	See item (3) in Special Instructions	Semi-VOA - E270A (TCL)	PH(T) - 9081	NO2/NO3 - 353.2			

Sample No.	Matrix *	Sample Date	Sample Time								
J10VJ5	OTHER SOLID	1-4-06	1200		X	X	X	X		X	
J10VJ6	OTHER SOLID										
J10VJ7	OTHER SOLID										
J10VJ8	OTHER SOLID										

CHAIN OF POSSESSION		Sign/Print Names		SPECIAL INSTRUCTIONS		Matrix * S=Soil SE=Soil/encl SO=Solid SL=Sludge W=Water O=Oil A=Air DS=Oven Solids DL=Drawn Liquids T=Time WI=Wipe L=Liquid V=Vegetation X=Other
Relinquished By/Removed From MT Stankovich 1/4/06	Date/Time 1400	Received By/Stored In 3728/38 1/4/06	Date/Time 1400	(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) (3) X- Anions - 300.0 (Bromide, Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate)		
Relinquished By/Removed From 3728/38 1-5-06	Date/Time 0910	Received By/Stored In RZ Steffler R.Z. Steffler 1-5-06	Date/Time 0910			
Relinquished By/Removed From RZ Steffler R.Z. Steffler 1-5-06	Date/Time 1015	Received By/Stored In Fed Ex	Date/Time			
Relinquished By/Removed From Fed Ex 1-6-06	Date/Time 0915	Received By/Stored In [Signature]	Date/Time 1-6-06 0915			
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time			
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time	Personnel not available to relinquish samples from 3728 Ref # 38 on 1/5/06		

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

Appendix 5

Data Validation Supporting Documentation

000015

GENERAL CHEMISTRY ANALYSIS DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	E
PROJECT:	100-D-4		DATA PACKAGE: K0176		
VALIDATOR:	TLI	LAB:	LLI	DATE: 3/4/06	
			SDG: K0176		
ANALYSES PERFORMED					
Anibns/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					
HLIS J10VJS					
Soil					

1. DATA PACKAGE COMPLETENESS AND CASE NARRATIVE

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

Comments: _____

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

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

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

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

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

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

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

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

Comments: _____

GENERAL CHEMISTRY ANALYSIS DATA VALIDATION CHECKLIST

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

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

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

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

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: _____
nitrite > 2x hold time - UR
nitrate + phosphate - > 2x ht - J

GENERAL CHEMISTRY ANALYSIS DATA VALIDATION CHECKLIST

7. RESULT QUANTITATION AND DETECTION LIMITS (all levels)

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

Comments: _____

Appendix 6

Additional Documentation Requested by Client

000020

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 01/25/06

CLIENT: TNUHANFORD RC-030 K0176
 WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0601L045

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK10	06LIC008-MB1	Bromide by IC	2.5	u MG/KG	2.5	1.0
		Chloride by IC	2.5	u MG/KG	2.5	1.0
		Fluoride by IC	2.5	u MG/KG	2.5	1.0
		Nitrite by IC	2.50	u MG/KG	2.50	1.0
		Nitrate by IC	2.50	u MG/KG	2.50	1.0
		Phosphate by IC	2.5	u MG/KG	2.5	1.0
		Sulfate by IC	2.5	u MG/KG	2.5	1.0
BLANK10	06LN3003-MB1	Nitrate Nitrite	0.20	u MG/KG	0.20	1.0

000021

07

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 01/25/06

CLIENT: TNUHANFORD RC-030 K0176
 WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0601L045

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RBSULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR (SPK)
-001	J10VJ5	Bromide by IC	491	0.0	532	92.4	10.0
		Chloride by IC	573	60.2	532	96.5	10.0
		Fluoride by IC	505	0.0	532	94.9	10.0
		Nitrite by IC	506	13.3 u	532	95.1	10.0
		Nitrate by IC	13100	4230	10600	82.9	200
		Phosphate by IC	530	60.4	532	88.3	10.0
		Sulfate by IC	2300	613	2130	79.1	40.0
		Nitrate Nitrite	2380	1270	1330	83.5	250
BLANK10	06LIC008-MB1	Bromide by IC	50.8	2.5 u	50.0	101.5	1.0
		Chloride by IC	48.8	2.5 u	50.0	97.5	1.0
		Fluoride by IC	50.3	2.5 u	50.0	100.6	1.0
		Nitrite by IC	50.9	2.50u	50.0	101.9	1.0
		Nitrate by IC	50.2	2.50u	50.0	100.3	1.0
		Phosphate by IC	53.0	2.5 u	50.0	105.9	1.0
		Sulfate by IC	48.9	2.5 u	50.0	97.8	1.0
BLANK10	06LN3003-MB1	Nitrate Nitrite	5.0	0.20u	5.0	100	1.0

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Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 01/25/06

CLIENT: TNUHANFORD RC-030 K0176
 WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0601L045

SAMPLE	SITE ID	ANALYTE	INITIAL			DILUTION FACTOR (REP)
			RESULT	REPLICATE	RPD	
-001REP	J10VJ5	Bromide by IC	13.3 u	13.3 u	NC	5.0
		Chloride by IC	60.2	63.0	4.7	5.0
		Fluoride by IC	13.3 u	13.3 u	NC	5.0
		Nitrite by IC	13.3 u	13.3 u	NC	5.0
		Nitrate by IC	4230	4070	3.8	100
		Phosphate by IC	60.4	50.2	18.5	5.0
		Sulfate by IC	613	611	0.25	20.0
		Nitrate Nitrite	1270	1110	13.4	200

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