H1571

0056903

LIONVILLE LABORATORY INC.

4 February 2002

FEB 2002 RECEIVED

Joan Kessner
Bechtel-Hanford, Inc.
3190 Washington Way
MSIN H9-03
Richland, WA 99352

Subject: Contract No. 630
Analytical Data Package

Dear Ms. Kessner:

Enclosed are the hard copy analytical reports for the batch number/fraction indicated (marked X) in the following table:

LvLI Batch #	0201L841
SDG #	H1571 addon
SAF #	B02-008
Date Relogged	1-11-02
# Samples	1
Matrix	Soil
Volatiles	
Semivolatiles	
Pest/PCB	
DRO/GRO	
GC Scan	
Metals	X
Inorganics	

The electronic data deliverable (EDD) will be emailed shortly. If you have any questions, please don't hesitate to contact me at (610) 280-3012.

Sincerely,
Lionville Laboratory Incorporated

Orlette S. Johnson
Project Manager

r:\group\pm\orlette\tnu-hanford\data\bc_ltr.doc

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FEB 2002
RECEIVED

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B02-008 H1571

DATE RECEIVED: 01/24/02 LVL LOT # :0201L841

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B13CK9						
TCLP	001	S	02LTO170	10/31/01	01/29/02	01/30/02
CADMIUM, TCLP LEACHA	002	W	02L0044	01/30/02	01/31/02	01/31/02
CADMIUM, TCLP LEACHA	002 REP	W	02L0044	01/30/02	01/31/02	01/31/02
CADMIUM, TCLP LEACHA	002 MS	W	02L0044	01/30/02	01/31/02	01/31/02
MERCURY, TCLP LEACHA	002	W	02C0037	01/30/02	01/30/02	01/31/02
MERCURY, TCLP LEACHA	002 REP	W	02C0037	01/30/02	01/30/02	01/31/02
MERCURY, TCLP LEACHA	002 MS	W	02C0037	01/30/02	01/30/02	01/31/02
LEAD, TCLP LEACHATE	002	W	02L0044	01/30/02	01/31/02	01/31/02
LEAD, TCLP LEACHATE	002 REP	W	02L0044	01/30/02	01/31/02	01/31/02
LEAD, TCLP LEACHATE	002 MS	W	02L0044	01/30/02	01/31/02	01/31/02

LAB QC:

CADMIUM LABORATORY	LC1 BS	W	02L0044	N/A	01/31/02	01/31/02
CADMIUM, TCLP LEACHA	MB1	W	02L0044	N/A	01/31/02	01/31/02
CADMIUM, TCLP LEACHA	MB2	W	02L0044	N/A	01/31/02	01/31/02
MERCURY LABORATORY	LC1 BS	W	02C0037	N/A	01/30/02	01/31/02
MERCURY, TOTAL	MB1	W	02C0037	N/A	01/30/02	01/31/02
MERCURY, TCLP LEACHA	MB2	W	02C0037	N/A	01/30/02	01/31/02
LEAD LABORATORY	LC1 BS	W	02L0044	N/A	01/31/02	01/31/02
LEAD, TCLP LEACHATE	MB1	W	02L0044	N/A	01/31/02	01/31/02
LEAD, TCLP LEACHATE	MB2	W	02L0044	N/A	01/31/02	01/31/02

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU-HANFORD B02-008
LVL#: 0201L841
SDG/SAF#: H1571/B02-008

W.O.#: 11343-606-001-9999-00
Date Received: 01-24-02

METALS CASE NARRATIVE

1. This narrative covers the analysis of 1 TCLP leachate sample.

2. The sample was prepared and analyzed in accordance with methods checked on the attached glossary. The sample was reported with a six fold dilution due to sample matrix.

   This is a relog of LVL batch# 0112L256-002 per SDR# 02PM004.

3. All analyses were performed within the required holding times.

4. All cooler temperatures have been recorded on the Chain of Custody.

5. All Initial and Continuing Calibration Verifications (ICV/CCVs) were within the 90-110% control limits.

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), MB value less than 5% of the RCRA limit, 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. Refer to the Inorganics Laboratory Control Standards Report.

10. The duplicate analysis for 1 analyte was outside the 20% Relative Percent Difference (RPD) control limits. Refer to the Inorganics Precision Report.

11. The TCLP extract from sample B13CK9 was selected for the matrix spike (MS) for this analytical batch. All MS recoveries were greater than 50% as per method criteria.

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 12 pages.

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12. 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.

13. 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

02-01-02
Date

gmb/m01-841

LVLI
LIONVILLE LABORATORY INC.

Lionville Laboratory Sample Discrepancy Report (SDR)

SDR #: 02PM004

Initiator: D Johnson
Date: 1/24/02
Client: TNu Hanford H7571

Batch: 0111L256
Samples: -002
Method: SW846/MCAWW/CLP/

Parameter: metals
Matrix: soil
Prep Batch:

1. Reason for SDR

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

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

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

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

2. Known or Probable Causes(s)

3. Discussion and Proposed Action
✓ Re-log
__ Entire Batch
__ Following Samples:
__ Re-leach
__ Re-extract
__ Re-digest
__ Revise EDD
__ Change Test Code to
__ Place On/Take Off Hold (circle)

Other Description:
TCLP cd, pb, Hg
7day TAT

4. Project Manager Instructions...signature/date: Estelle Johnson 1/24/02
__ 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: J.M. 1-24-02
✓ Verified [re-log][leach][extract][digest][analysis] (circle)
__ Included in Case Narrative
__ Hard Copy COC Revised
__ Electronic COC Revised
__ EDD Corrections Completed

Other Explanation:
Relogged to 0201L841

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

Route	Distribution of Completed SDR	Route	Distribution of Completed SDR
__	X Initiator	2	__ Metals: Beegle
__	X Lab General Manager: M. Taylor	__	__ Inorganic: Perrone
__	X Project Mgr: Stone/Johnson/Haslett	__	__ GC/LC: Kiger
__	X Technical Mgr: Wesson/Daniels	__	__ MS: Rychlak/Layman
__	X QA (file): Alberts	1	✓ Log-in: Melnic
__	__ Data Management: Feldman	__	__ Admin: Soos
__	__ Sample Prep: Beegle/Kiger	__	__ Other:

QA-105-A-0801

METALS METHOD GLOSSARY

The following methods are used as reference for the digestion and analysis of samples contained within this Lot#: 02011841

Leaching Procedure: __1310 ✓1311 __1312 __Other:_____

CLP Metals __ Digestion and __ Analysis Methods: __ILM03.0 __ILM04.0

Metals Digestion Methods: __3005A ✓3010A __3015 __3020A __3050B __3051 __200.7 __SS17
__Other: _____

Metals Analysis Methods

	SW846		EPA		STD MTD	EPA OSWR	USATHAMA
Aluminum	__6010B		__200.7				__99
Antimony	__6010B	__7041 [6]	__200.7	__204.2			__99
Arsenic	__6010B	__7060A [6]	__200.7	__206.2	__3113B		__99
Barium	__6010B		__200.7				__99
Beryllium	__6010B		__200.7				__99
Bismuth	__6010B [1]		__200.7 [1]			__1620	__99
Boron	__6010B		__200.7				__99
Cadmium	✓6010B	__7131A [6]	__200.7	__213.2			__99
Calcium	__6010B		__200.7				__99
Chromium	__6010B	__7191 [6]	__200.7	__218.2			__SS17
Cobalt	__6010B		__200.7				__99
Copper	__6010B	__7211 [6]	__200.7	__220.2			__99
Iron	__6010B		__200.7				__99
Lead	✓6010B	__7421 [6]	__200.7	__239.2	__3113B		__99
Lithium	__6010B	__7430 [4]	__200.7			__1620	__99
Magnesium	__6010B		__200.7				__99
Manganese	__6010B		__200.7				__99
Mercury	✓7470A [3]	__7471A [3]	__245.1 [2]	__245.5 [2]			__99
Molybdenum	__6010B		__200.7				__99
Nickel	__6010B		__200.7				__99
Potassium	__6010B	__7610 [4]	__200.7	__258.1 [4]			__99
Rare Earths	__6010B [1]		__200.7 [1]			__1620	__99
Selenium	__6010B	__7740 [6]	__200.7	__270.2	__3113B		__99
Silicon	__6010B [1]		__200.7			__1620	__99
Silica	__6010B		__200.7			__1620	__99
Silver	__6010B	__7761 [6]	__200.7	__272.2			__99
Sodium	__6010B	__7770 [4]	__200.7	__273.1 [4]			__99
Strontium	__6010B		__200.7				__99
Thallium	__6010B	__7841 [6]	__200.7	__279.2__200.9			__99
Tin	__6010B		__200.7				__99
Titanium	__6010B		__200.7				__99
Uranium	__6010B [1]		__200.7 [1]			__1620	__99
Vanadium	__6010B		__200.7				__99
Zinc	__6010B		__200.7				__99
Zirconium	__6010B [1]		__200.7 [1]			__1620	__99

Other:_____ Method:_____

L-WI-033/M-03/01

METHOD REFERENCES AND DATA QUALIFIERS

DATA QUALIFIERS

U = Indicates that the parameter was not detected at or above the reported limit. The associated numerical value is the sample detection limit.

* = Indicates that the original sample result is greater than 4x the spike amount added.

ABBREVIATIONS

MB = Method or Preparation Blank.
MS = Matrix Spike.
MSD = Matrix Spike Duplicate.
REP = Sample Replicate
LCS = Laboratory Control Sample.
NC = Not calculated.

ANALYTICAL METAL METHODS

1. Not included in the method element list.

2. Modified Hg: Hg1 and Hg2 require less total volume of digestate due to the autosampler analysis. Sample volumes and reagents for mercury determinations in water and soil have been proportionately scaled down to adapt to this semi-automated technique. The sample volume used for water analysis is 33 mL. For soils, 0.1 grams of sample is taken to a final volume of 50 mL (including all reagents).

3. Modified Hg: Hg1 and Hg2 require less total volume of digestate due to the autosampler analysis. Sample volumes and reagents for mercury determinations in water and soil have been proportionately scaled down to adapt to this semi-automated technique. The sample volume used for water analysis is 33 mL. For soils, three 0.1 gram of sample is taken to a final volume of 50 mL (including all reagents).

4. Flame AA.

5. Graphite Furnace AA.

RFW 21-21L-033/N-10/96

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 02/01/02

CLIENT: TNUHANFORD B02-008 M1571 LVL LOT #: 0201L841

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-002	B13CK9	Cadmium, TCLP Leachate	449	UG/L	1.8	6.0
		Mercury, TCLP Leachate	0.10 u	UG/L	0.10	1.0
		Lead, TCLP Leachate	22.9	UG/L	13.2	6.0

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 02/01/02

CLIENT: TNUHANFORD B02-008 H1571 LVL LOT #: 0201L841

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK1	02L0044-MB1	Cadmium, TCLP Leachate	0.30	u	UG/L	0.30	1.0
		Lead, TCLP Leachate	2.2	u	UG/L	2.2	1.0
BLANK2	02L0044-MB2	Cadmium, TCLP Leachate	1.8	u	UG/L	1.8	6.0
		Lead, TCLP Leachate	13.2	u	UG/L	13.2	6.0
BLANK1	02C0037-MB1	Mercury, Total	0.10	u	UG/L	0.10	1.0
BLANK2	02C0037-MB2	Mercury, TCLP Leachate	0.10	u	UG/L	0.10	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 02/01/02

CLIENT: TNUHANFORD B02-008 M1571

LVL LOT #: 0201L041

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-002	B13CK9	Cadmium, TCLP Leachate	1460	449	1000	101.1	6.0
		Mercury, TCLP Leachate	180	0.10u	200	89.8	50.0
		Lead, TCLP Leachate	5060	22.9	5000	100.7	6.0

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 02/01/02

CLIENT: TNUHANFORD B02-008 H1571 LVL LOT #: 0201L841

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-002REP	B13CK9	Cadmium, TCLP Leachate	449	459	2.2	6.0
		Mercury, TCLP Leachate	0.10u	0.10u	NC	1.0
		Lead, TCLP Leachate	22.9	14.8	43.0	6.0

Lionville Laboratory, Inc.

INORGANICS LABORATORY CONTROL STANDARDS REPORT 02/01/02

CLIENT: TNUHANFORD B02-008 H1571 LVL LOT #: 0201L041

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
LCS1	02L0044-LC1	Cadmium, LCS	242	250	UG/L	96.8
		Lead, LCS	2430	2500	UG/L	97.3
LCS1	02C0027-LC1	Mercury, LCS	5.3	5.0	UG/L	105.8

Lionville Laboratory Use Only

0201L841

Custody Transfer Record/Lab Work Request

Page 1 of 1

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

LVLI

Client: TNU - Hanford B02-008

Est. Final Proj. Sampling Date:

Project #: 11343-606-001-9999-00

Project Contact/Phone #:

Lionville Laboratory Project Manager: OS

QC: SPEC Del: STD TAT: 7 day

Date Rec'd: 1-24-02 Date Due: 1-31-02

Refrigerator #								3	LEACHATE												
#/Type Container	Liquid																				
	Solid							1AG													
Volume	Liquid																				
	Solid							500													
Preservatives								—													
ANALYSES REQUESTED →		ORGANIC							INORG												
		VOA	BNA	Pest/PCB	Herb				Metal	CN											
		Lionville Laboratory Use Only																			
								ITCLP	MOD TC MPB TC MHG TC												

MATRIX CODES:
S - Soil
SE - Sediment
SO - Solid
SL - Sludge
W - Water
O - Oil
A - Air
DS - Drum Solids
DL - Drum Liquids
L - EP/TCLP Leachate
WI - Wipe
X - Other
F - Fish

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	ITCLP	MOD TC MPB TC MHG TC
001	B13CK9	✓	✓	S	10-31-01	0730	✓	
002	B13CK9 tclp of 001			L	*			✓

Special Instructions: SAF # B02-008

Relog of 0111L256-002
For TCLP Cd, Pb, Hg

DATE/REVISIONS:

* 1. See labchron
2.
3.
4.
5.
6.

Lionville Laboratory Use Only

Samples were:
1) Shipped ____ or Hand Delivered ____
Airbill # ____
2) Ambient or Chilled
3) Received in Good Condition Y or N
4) Samples Properly Preserved Y or N
5) Received Within Holding Times Y or N

Tamper Resistant Seal was:
1) Present on Outer Package Y or N
2) Unbroken on Outer Package Y or N
3) Present on Sample Y or N
4) Unbroken on Sample Y or N
COC Record Present Upon Sample Rec't Y or N
Cooler Temp. ____ °C

Relinquished by	Received by	Date	Time
TO RELOG			

Relinquished by	Received by	Date	Time
COMPOSITE WASTE	ORIGINAL REWRITTEN		

Discrepancies Between Samples Labels and COC Record? Y or N

NOTES:

M1571

ORIGINAL
Dayes

SDR # B02-049
Revision #: 0
Date Initiated: 01/09/02

SAMPLE DISPOSITION RECORD

SAF: B02-008
OU: 200-CS-1
Project ID: 200-CS-1
Task ID: 1
Sampling Event: 200 Area Source Characterization 200-CS-1 Operable Unit

Laboratory: TMA/RECRA

Task Manager: C. S. Cearlock

Sampling Information:
Number of Samples: 1
ID Numbers: B13CK9
Matrix: Soil
Collection Date: 10/31/01

Issue Background:
Class: ☐ Project Data Use ☒ General Laboratory Direction ☐ Validation Direction ☐ Sample Management Direction

Type: Addition of Analyses

Description: Addition of Toxic Characteristic Leach Procedure For Cadmium, Lead, and Mercury

Disposition:

Description: The Groundwater/Vadose Zone Integration project requested that the listed sample be analyzed for cadmium, lead, and mercury using the Toxic Characteristic Leach Procedure (TCLP). The request was made after the laboratory had received the samples.

Justification: TCLP data for cadmium, lead, and mercury are needed by the project to satisfy waste designation requirements.

Approval Signatures:

S. J. Trent — 1/11/02
Project Coordinator (Print/Sign Name) — Date

C. S. Cearlock — 1/11/02
Task Manager (Print/Sign Name) — Date