H1491

0056943

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU-HANFORD B01-103
LVL#: 0109L798
SDG/SAF#: H1491/B01-103

W.O.#: 11343-606-001-9999-00
Date Received: 09-08-01

Revision

RECEIVED
APR 19 2002
EDMC

METALS CASE NARRATIVE

This report has been revised to include the addition of Arsenic.

1. This narrative covers the analyses of 2 soil samples and 2 TCLP leachate samples.

2. The samples were prepared and analyzed in accordance with methods checked on the attached glossary.

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

4. The cooler temperature has been recorded on the Chain of Custody.

5. All Initial and Continuing Calibration Verifications (ICV/CCVs) were within the 90-110% control limits with the exception of the final CCV for Tin. All samples were surrounded by CCVs in control.

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 matrix spike (MS) recoveries for 2 analytes were outside the 75-125% control limits. Refer to the Inorganics Accuracy Report.

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 20 pages.

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11. For analytes where the ICP MS is out-of-control, a post-digestion MS (PDS) and serial dilution are performed. A serial dilution is performed for Mercury. A PDS was prepared at meaningful concentration level for the following analytes:

Sample ID	Element	PDS Concentration (ppb)	PDS % Recovery
B12V25	Aluminum	20,000	106.8
	Iron	20,000	99.0

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

13. The TCLP extract from samples B12V25 for ICP analytes and B12V26 for Mercury were selected for the matrix spike (MS) for this analytical batch. The matrix spike for Silver was below 50% recovery (46.9%). The recovery in the TCLP Leachate was below 80-120% of the action level so standard addition was not required per Federal Register, Vol.57, No.227, Nov. 24, 1992, page 55117.

14. 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.

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
Deputy Laboratory Manager
Lionville Laboratory Incorporated

11-28-01
Date

gmb/m09-798r

LVLI
LIONVILLE LABORATORY INC.

Lionville Laboratory Sample Discrepancy Report (SDR)

SDR #: 01PM099

Initiator: O Johnson Batch: 0109L798 Parameter: Metals
Date: 11/16/01 Samples: All Matrix: Soil
Client: TNu Hanford Method: SW846/MCAWW/CLP/ Prep Batch: _____
H1491

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)

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:
add Arsenic, TCLP to batch

4. Project Manager Instructions...signature/date: Irene Johnson 11/16/01
__ 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: [signature] 11/26/01
__ Verified re-[log][leach][extract][digest][analysis] (circle)
✓ Included in Case Narrative [initials] 11/28/01
✓ Hard Copy COC Revised
✓ Electronic COC Revised
__ EDD Corrections Completed

Other Explanation:

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: ~~Keppel~~ 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#: 0109L798

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 [5]	__200.7	__204.2			__99
Arsenic	✓6010B	__7060A [5]	__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 [5]	__200.7	__213.2			__99
Calcium	✓6010B		__200.7				__99
Chromium	✓6010B	__7191 [5]	__200.7	__218.2			__SS17
Cobalt	__6010B		__200.7				__99
Copper	✓6010B	__7211 [5]	__200.7	__220.2			__99
Iron	✓6010B		__200.7				__99
Lead	✓6010B	__7421 [5]	__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 [5]	__200.7	__270.2	__3113B		__99
Silicon	__6010B [1]		__200.7			__1620	__99
Silica	__6010B		__200.7			__1620	__99
Silver	✓6010B	__7761 [5]	__200.7	__272.2			__99
Sodium	✓6010B	__7770 [4]	__200.7	__273.1 [4]			__99
Strontium	__6010B		__200.7				__99
Thallium	✓6010B	__7841 [5]	__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.

B = Indicates that the parameter was between the Instrument Detection Limit (IDL) and the Contract Required Detection Limit (CRDL)

Q QUALIFIERS

E = The reported value is estimated because of the presence of interference.

M = Duplicate injection precision not met.

N = Spiked sample recovery not within control limits.

S = The reported value was determined by the Method of Standard Additions (MSA).

W = Post Digestion spike for Furnace AA analysis is out of control limits (85 -115 %), while sample absorbance is less than 50% of spike absorbance.

* = Duplicate analysis not within control limits.

+ = Correlation coefficient for the MSA is less than 0.995.

ABBREVIATIONS

PB = Method or Preparation Blank.
S = Matrix Spike.
T = Matrix Spike Duplicate.
R or D = Sample Replicate

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.

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 11/28/01

CLIENT: TNUHANFORD B01-103 H1491 LVL LOT #: 0109L796

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	B12V25	Aluminum, Total	9610	MG/KG	1.6	1.0
		Bismuth, Total	0.31 u	MG/KG	0.31	1.0
		Calcium, Total	12300	MG/KG	0.77	1.0
		Copper, Total	15.8	MG/KG	0.05	1.0
		Iron, Total	23900	MG/KG	1.5	1.0
		Potassium, Total	1320	MG/KG	1.1	1.0
		Magnesium, Total	5290	MG/KG	0.79	1.0
		Manganese, Total	313	MG/KG	0.01	1.0
		Molybdenum, Total	0.69	MG/KG	0.1	1.0
		Sodium, Total	1100	MG/KG	0.16	1.0
		Tin, Total	1.7	MG/KG	0.38	1.0
-002	B12V26	Aluminum, Total	8260	MG/KG	2.1	1.0
		Bismuth, Total	0.40 u	MG/KG	0.40	1.0
		Calcium, Total	4100	MG/KG	1.0	1.0
		Copper, Total	15.4	MG/KG	0.06	1.0
		Iron, Total	20200	MG/KG	2.0	1.0
		Potassium, Total	1240	MG/KG	1.4	1.0
		Magnesium, Total	3640	MG/KG	1.0	1.0
		Manganese, Total	321	MG/KG	0.01	1.0
		Molybdenum, Total	1.9	MG/KG	0.13	1.0
		Sodium, Total	757	MG/KG	0.21	1.0
		Tin, Total	2.1	MG/KG	0.51	1.0

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INORGANICS DATA SUMMARY REPORT 11/28/01

CLIENT: TNUHANFORD B03-103 H1491 LVL LOT #: 0109L798

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-003	B12V25	Silver, TCLP Leachate	9.6	u	UG/L	9.6	1.0
		Arsenic, TCLP Leachate	52.1	u	UG/L	52.1	1.0
		Barium, TCLP Leachate	553		UG/L	5.5	1.0
		Beryllium,TCLP Leachate	0.40	u	UG/L	0.40	1.0
		Cadmium, TCLP Leachate	6.3	u	UG/L	6.3	1.0
		Chromium, TCLP Leachate	4.8	u	UG/L	4.8	1.0
		Mercury, TCLP Leachate	1.0	u	UG/L	1.0	10.0
		Nickel, TCLP Leachate	11.3	u	UG/L	11.3	1.0
		Lead, TCLP Leachate	563		UG/L	22.7	1.0
		Antimony, TCLP Leachate	132		UG/L	45.4	1.0
		Selenium, TCLP Leachate	62.1	u	UG/L	62.1	1.0
		Vanadium, TCLP Leachate	8.9	u	UG/L	8.9	1.0
		Zinc, TCLP Leachate	35.4		UG/L	2.8	1.0
-004	B12V26	Silver, TCLP Leachate	9.6	u	UG/L	9.6	1.0
		Arsenic, TCLP Leachate	52.1	u	UG/L	52.1	1.0
		Barium, TCLP Leachate	536		UG/L	5.5	1.0
		Beryllium,TCLP Leachate	0.40	u	UG/L	0.40	1.0
		Cadmium, TCLP Leachate	6.3	u	UG/L	6.3	1.0
		Chromium, TCLP Leachate	17.0		UG/L	4.8	1.0
		Mercury, TCLP Leachate	0.10	u	UG/L	0.10	1.0
		Nickel, TCLP Leachate	35.6		UG/L	11.3	1.0
		Lead, TCLP Leachate	22.7	u	UG/L	22.7	1.0
		Antimony, TCLP Leachate	45.4	u	UG/L	45.4	1.0
		Selenium, TCLP Leachate	62.1	u	UG/L	62.1	1.0
		Vanadium, TCLP Leachate	8.9	u	UG/L	8.9	1.0
		Zinc, TCLP Leachate	21.6		UG/L	2.8	1.0

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INORGANICS METHOD BLANK DATA SUMMARY PAGE 11/28/01

CLIENT: TNUHANFORD B01-103 H1491 LVL LOT #: 0109L798

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK1	01L0608-MB1	Aluminum, Total	4.9		MG/KG	1.6	1.0
		Bismuth, Total	0.31	u	MG/KG	0.31	1.0
		Calcium, Total	2.5		MG/KG	0.78	1.0
		Copper, Total	0.22		MG/KG	0.05	1.0
		Iron, Total	1.6	u	MG/KG	1.6	1.0
		Potassium, Total	5.8		MG/KG	1.1	1.0
		Magnesium, Total	1.2		MG/KG	0.80	1.0
		Manganese, Total	0.05		MG/KG	0.01	1.0
		Molybdenum, Total	0.10	u	MG/KG	0.10	1.0
		Sodium, Total	7.7		MG/KG	0.16	1.0
		Tin, Total	1.1		MG/KG	0.39	1.0
BLANK1	01L0590-MB1	Silver, TCLP Leachate	9.6	u	UG/L	9.6	1.0
		Arsenic, TCLP Leachate	52.1	u	UG/L	52.1	1.0
		Barium, TCLP Leachate	5.5	u	UG/L	5.5	1.0
		Beryllium,TCLP Leachate	0.40	u	UG/L	0.40	1.0
		Cadmium, TCLP Leachate	6.3	u	UG/L	6.3	1.0
		Chromium, TCLP Leachate	4.8	u	UG/L	4.8	1.0
		Nickel, TCLP Leachate	11.3	u	UG/L	11.3	1.0
		Lead, TCLP Leachate	22.7	u	UG/L	22.7	1.0
		Antimony, TCLP Leachate	45.4	u	UG/L	45.4	1.0
		Selenium, TCLP Leachate	62.1	u	UG/L	62.1	1.0
		Vanadium, TCLP Leachate	8.9	u	UG/L	8.9	1.0
		Zinc, TCLP Leachate	3.1		UG/L	2.8	1.0
BLANK2	01L0590-MB2	Silver, TCLP Leachate	9.6	u	UG/L	9.6	1.0
		Arsenic, TCLP Leachate	52.1	u	UG/L	52.1	1.0
		Barium, TCLP Leachate	5.5	u	UG/L	5.5	1.0
		Beryllium,TCLP Leachate	0.40	u	UG/L	0.40	1.0
		Cadmium, TCLP Leachate	6.3	u	UG/L	6.3	1.0
		Chromium, TCLP Leachate	4.8	u	UG/L	4.8	1.0
		Nickel, TCLP Leachate	11.3	u	UG/L	11.3	1.0
		Lead, TCLP Leachate	22.7	u	UG/L	22.7	1.0
		Antimony, TCLP Leachate	45.4	u	UG/L	45.4	1.0
		Selenium, TCLP Leachate	62.1	u	UG/L	62.1	1.0
		Vanadium, TCLP Leachate	8.9	u	UG/L	8.9	1.0
		Zinc, TCLP Leachate	4.3		UG/L	2.8	1.0
BLANK3	01L0590-MB3	Silver, TCLP Leachate	9.6	u	UG/L	9.6	1.0
		Arsenic, TCLP Leachate	52.1	u	UG/L	52.1	1.0

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INORGANICS METHOD BLANK DATA SUMMARY PAGE 11/28/01

CLIENT: TNUHANFORD B01-103 H1491 LVL LOT #: 0109L798

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK3	01L0590-MB3	Barium, TCLP Leachate	5.5	u	UG/L	5.5	1.0
		Beryllium,TCLP Leachate	0.40	u	UG/L	0.40	1.0
		Cadmium, TCLP Leachate	6.3	u	UG/L	6.3	1.0
		Chromium, TCLP Leachate	4.8	u	UG/L	4.8	1.0
		Nickel, TCLP Leachate	11.3	u	UG/L	11.3	1.0
		Lead, TCLP Leachate	22.7	u	UG/L	22.7	1.0
		Antimony, TCLP Leachate	45.4	u	UG/L	45.4	1.0
		Selenium, TCLP Leachate	62.1	u	UG/L	62.1	1.0
		Vanadium, TCLP Leachate	8.9	u	UG/L	8.9	1.0
		Zinc, TCLP Leachate	4.6		UG/L	2.8	1.0
BLANK1	01C0293-MB1	Mercury, Total	0.10	u	UG/L	0.10	1.0
BLANK2	01C0293-MB2	Mercury, TCLP Leachate	0.10	u	UG/L	0.10	1.0

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INORGANICS ACCURACY REPORT 11/28/01

CLIENT: TNUHANFORD B01-103 H1491

LVL LOT #: 0109L798

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-001	B12V25	Aluminum, Total	11400	9610	197	894.6*	1.0
		Bismuth, Total	492	0.31u	492	100	1.0
		Calcium, Total	15200	12300	2460	114.5*	1.0
		Copper, Total	42.7	15.8	24.6	109.4	1.0
		Iron, Total	24200	23900	98.5	296.5*	1.0
		Potassium, Total	4290	1320	2460	120.5	1.0
		Magnesium, Total	8030	5290	2460	111.6	1.0
		Manganese, Total	359	313	49.3	92.9*	1.0
		Molybdenum, Total	98.1	0.69	98.5	98.9	1.0
		Sodium, Total	3530	1100	2460	111.0	1.0
		Tin, Total	99.3	1.7	98.5	99.1	1.0
-003	B12V25	Silver, TCLP Leachate	2340	9.6 u	5000	46.9	1.0
		Arsenic, TCLP Leachate	4690	52.1 u	5000	93.7	1.0
		Barium, TCLP Leachate	90900	553	100000	90.4	1.0
		Beryllium, TCLP Leacha	816	0.40u	1000	81.6	1.0
		Cadmium, TCLP Leachate	857	6.3 u	1000	85.7	1.0
		Chromium, TCLP Leachat	4200	4.8 u	5000	84.0	1.0
		Nickel, TCLP Leachate	884	11.3 u	1000	88.4	1.0
		Lead, TCLP Leachate	5090	563	5000	90.5	1.0
		Antimony, TCLP Leachat	1020	132	1000	88.5	1.0
		Selenium, TCLP Leachat	978	62.1 u	1000	97.8	1.0
		Vanadium, TCLP Leachat	843	8.9 u	1000	84.3	1.0
		Zinc, TCLP Leachate	907	35.4	1000	87.2	1.0

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INORGANICS ACCURACY REPORT 11/28/01

CLIENT: TNUHANFORD B01-103 H1491 LVL LOT #: 0109L798

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-004	B12V26	Mercury, TCLP Leachate	172	0.10u	200	86.2	50.0

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 11/28/01

CLIENT: TNUHANFORD B01-103 H1491 LVL LOT #: 0109L798

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-001REP	B12V25	Aluminum, Total	9610	9420	2.1	1.0
		Bismuth, Total	0.31u	0.31u	NC	1.0
		Calcium, Total	12300	11700	5.0	1.0
		Copper, Total	15.8	14.8	6.5	1.0
		Iron, Total	23900	23500	1.7	1.0
		Potassium, Total	1320	1320	0.28	1.0
		Magnesium, Total	5290	5240	0.90	1.0
		Manganese, Total	313	307	2.0	1.0
		Molybdenum, Total	0.69	0.84	19.8	1.0
		Sodium, Total	1100	981	11.3	1.0
		Tin, Total	1.7	2.6	41.9	1.0
-003REP	B12V25	Silver, TCLP Leachate	9.6 u	9.6 u	NC	1.0
		Arsenic, TCLP Leachate	52.1 u	52.1 u	NC	1.0
		Barium, TCLP Leachate	553	556	0.54	1.0
		Beryllium TCLP Leachate	0.40u	0.40u	NC	1.0
		Cadmium, TCLP Leachate	6.3 u	6.3 u	NC	1.0
		Chromium, TCLP Leachate	4.8 u	4.8 u	NC	1.0
		Nickel, Leachate	11.3 u	15.2	NC 200	1.0
		Lead, TCLP Leachate	563	577	2.4	1.0
		Antimony, Leachate	132	125	5.3	1.0
		Selenium, TCLP Leachate	62.1 u	62.1 u	NC	1.0
		Vanadium, TCLP Leachate	8.9 u	8.9 u	NC	1.0
		Zinc, Leachate	35.4	35.9	1.4	1.0

11/28/01

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 11/28/01

CLIENT: TNUHANFORD B01-103 M1491 LVL LOT #: 0109L798

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-004REP	B12V26	Mercury, TCLP Leachate	0.10u	0.10u	NC	1.0

Lionville Laboratory, Inc.

INORGANICS LABORATORY CONTROL STANDARDS REPORT 11/28/01

CLIENT: TNUHANFORD B01-103 H1491 LVL LOT #: 0109L798

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
LCS1	01L0608-LC1	Aluminum, LCS	555	500	MG/KG	111.0
		Bismuth, LCS	522	500	MG/KG	104.3
		Calcium, LCS	2530	2500	MG/KG	101.3
		Copper, LCS	136	125	MG/KG	108.4
		Iron, LCS	539	500	MG/KG	107.8
		Potassium, LCS	2790	2500	MG/KG	111.5
		Magnesium, LCS	2640	2500	MG/KG	105.5
		Manganese, LCS	79.7	75.0	MG/KG	106.3
		Molybdenum, LCS	537	500	MG/KG	107.4
		Sodium, LCS	2610	2500	MG/KG	104.3
		Tin, LCS	535	500	MG/KG	107.0
LCS1	01L0590-LC1	Silver, LCS	470	500	UG/L	94.0
		Arsenic, LCS	10100	10000	UG/L	100.7
		Barium, LCS	4800	5000	UG/L	96.0
		Beryllium, LCS	240	250	UG/L	96.1
		Cadmium, LCS	238	250	UG/L	95.3
		Chromium, LCS	487	500	UG/L	97.4
		Nickel, LCS	1990	2000	UG/L	99.5
		Lead, LCS	2440	2500	UG/L	97.7
		Antimony, LCS	2900	3000	UG/L	96.5
		Selenium, LCS	10000	10000	UG/L	100.2
		Vanadium, LCS	2410	2500	UG/L	96.4
		Zinc, LCS	978	1000	UG/L	97.8
LCS1	01C0293-LC1	Mercury, LCS	4.8	5.0	UG/L	96.3

(8) Metals DIG

Lionville Laboratory Use Only: 0109L798

Custody Transfer Record/Lab Work Request

Page 1 of 1

LVLI

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client: TNU-Hanford B01-103
Est. Final Proj. Sampling Date:
Project #: 11343-6000-001-9999-00
Project Contact/Phone #:
Lionville Laboratory Project Manager: OJ
QC: Spec Del: Std TAT: 30 day
Date Rec'd: 9-8-01 Date Due: 10-8-01

		A	B	C				D		E	F	G	H		
Refrigerator #		1	6	6				6		6	6	6	6		
#/Type Container	Liquid														
	Solid	1AG	1AG	1AG				1AG		1AG	1AG	1AG	1AG		
Volume	Liquid														
	Solid	125	500	500				1L		1L	1L	125	60		
Preservatives															
ANALYSES REQUESTED →		ORGANIC: VOA	BNA	Pest/PCB	Herb			INORG: TCLP Metal	CN	TAL METALS	IC ANIONS	ALKALIS ACIDS PHENOLS	HEX Chromium		
Lionville Laboratory Use Only		OLC24H	OLC25X	OPCB			MXW(2)								
								ITCLP		Met(1)	Inorg(1)	OPRO OGRO	ICPLO		

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	OLC24H	OLC25X	OPCB		MXW(2)		ITCLP		Met(1)	Inorg(1)	OPRO OGRO	ICPLO		
001	B12V25			S	8-30-01	1130	X	X	X				X		X	X	X	X		
002	B12V26			L	8-30-01	1300	X	X	X				X		X	X	X	X		
003	1 S trip of 001			L	↓	↓					X									
004	1 6 1 002			↓	↓	↓					X									

Special Instructions: SAF B01-103
* See Idochron
Run Matrix QC
DATE / REVISION:
11-26-01 Add As to tclp Met (2)

DATE/REVISIONS:
Inorg(1) 1. ICNO2, ICNO3, INH3N, ICNTO, IPH,
2. ISED
Met(1) 3. Al, Ca, Cu, Fe, Mg, Mn, K, Na, Bi,
4. Mo, Sn
Met(2) 5. Ba, Cd, Cr, Pb, Se, Ag, Sb, Be, Ni, V, Zn,
6. Hg + As

Lionville Laboratory Use Only

Samples were:
1) Shipped ___ or Hand Delivered ___
Airbill # SEE below
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. 3.0 °C

Discrepancies Between Samples Labels and COC Record? Y or N
NOTES: 4235 7954 7148

Relinquished by	Received by	Date	Time
FED EX	Carlos Arroyo	9-8-01	10:00

Relinquished by	Received by	Date	Time
COMPOSITE WASTE	ORIGINAL REWRITTEN		