0059232

SAF-B01-052

100 B/C Area Effluent Pipeline & Proximity Site Remediation Activities - Quick Turn

FINAL DATA PACKAGE

FAX RESULTS TO:

Dave Shea	373-1395	N/A INITIAL/DATE
Dean Strom	373-1395	N/A INITIAL/DATE

VERIFICATION OF CLIENT RECEIPT:

Phone or CC:Mail to Dave Shea	N/A INITIAL/DATE
Phone or CC:Mail to Dean Strom	N/A INITIAL/DATE

COMPLETE COPY OF DATA PACKAGE TO:

Dave Shea	X3-40	BS 2/6/03 INITIAL/DATE
Dean Strom	X3-40	2/6/03 INITIAL/DATE

COMMENTS: (PLEASE INCLUDE THE FOLLOWING ON THE FAX COVER SHEET)

SDG H2054 SAF-B01-052

X Rad only Chem only Rad & Chem

X Complete Partial

RECEIVED
APR 28 2003
EDMC

LIONVILLE LABORATORY INC.

29 January 2003

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 #	0301L548
SDG #	H2054
SAF #	B01-052
Date Received	1-22-03
# Samples	3
Matrix	Soil
Volatiles	
Semivolatiles	
Pest/PCB	
DRO	
GRO	
Metals	X
Inorganics	X

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

FEB 2003

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

208 Welsh Pool Road • Lionville, PA 19341-1333 • (610) 280-3000 • Fax (610) 280-3041

FEB 2003

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNU-HANFORD B01-052

H 2054

DATE RECEIVED: 01/22/03 LVL LOT # :0301L548

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J00FY1						
CHROMIUM, TOTAL	001	S	03L0038	01/16/03	01/22/03	01/22/03
CHROMIUM, TOTAL	001 REP	S	03L0038	01/16/03	01/22/03	01/22/03
CHROMIUM, TOTAL	001 MS	S	03L0038	01/16/03	01/22/03	01/22/03
CHROMIUM, TOTAL	001 MSD	S	03L0038	01/16/03	01/22/03	01/22/03
MERCURY, TOTAL	001	S	03C0012	01/16/03	01/23/03	01/24/03
MERCURY, TOTAL	001 REP	S	03C0012	01/16/03	01/23/03	01/24/03
MERCURY, TOTAL	001 MS	S	03C0012	01/16/03	01/23/03	01/24/03
LEAD, TOTAL	001	S	03L0038	01/16/03	01/22/03	01/22/03
LEAD, TOTAL	001 REP	S	03L0038	01/16/03	01/22/03	01/22/03
LEAD, TOTAL	001 MS	S	03L0038	01/16/03	01/22/03	01/22/03
LEAD, TOTAL	001 MSD	S	03L0038	01/16/03	01/22/03	01/22/03
J00FY2						
CHROMIUM, TOTAL	002	S	03L0038	01/16/03	01/22/03	01/22/03
MERCURY, TOTAL	002	S	03C0012	01/16/03	01/23/03	01/24/03
LEAD, TOTAL	002	S	03L0038	01/16/03	01/22/03	01/22/03
J00FY3						
CHROMIUM, TOTAL	003	S	03L0038	01/16/03	01/22/03	01/22/03
MERCURY, TOTAL	003	S	03C0012	01/16/03	01/23/03	01/24/03
LEAD, TOTAL	003	S	03L0038	01/16/03	01/22/03	01/22/03

LAB QC:

CHROMIUM LABORATORY	LC1 BS	S	03L0038	N/A	01/22/03	01/22/03
CHROMIUM, TOTAL	MB1	S	03L0038	N/A	01/22/03	01/22/03
MERCURY LABORATORY	LC1 BS	S	03C0012	N/A	01/23/03	01/24/03
MERCURY, TOTAL	MB1	S	03C0012	N/A	01/23/03	01/24/03
LEAD LABORATORY	LC1 BS	S	03L0038	N/A	01/22/03	01/22/03
LEAD, TOTAL	MB1	S	03L0038	N/A	01/22/03	01/22/03

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU-HANFORD B01-052
LVL#: 0301L548
SDG/SAF#: H2054/B01-052

W.O.#: 11343-606-001-9999-00
Date Received: 01-22-03

METALS CASE NARRATIVE

1. This narrative covers the analyses of 3 soil 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. 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.

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. All matrix spike (MS) and matrix spike duplicate (MSD) recoveries were outside the 75-125% control limits. Refer to the Inorganics Accuracy Report.

11. For analytes where the ICP MS is out-of-control, a post-digestion MS (PDS) and serial dilution are performed. A serial dilution is performed for Mercury. A PDS was prepared at 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 13 pages.

Sample ID	Element	PDS Concentration (ppb)	PDS % Recovery
J00FY1	Chromium	1000	91.4
	Lead	1000	95.0

12. The duplicate analysis for 1 analyte was 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. 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

01-29-03
Date

gmb/m01-548

LVLI
LIONVILLE LABORATORY INC.

METALS METHOD GLOSSARY

The following methods are used as reference for the digestion and analysis of samples contained within this Lot#: 03 01 L548

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:_____

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 01/24/03

CLIENT: TNU-HANFORD B01-052 LVL LOT #: 0301L548

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	J00FY1	Chromium, Total	448	MG/KG	0.11	1.0
		Mercury, Total	2.7	MG/KG	0.05	3.0
		Lead, Total	73.5	MG/KG	0.27	1.0
-002	J00FY2	Chromium, Total	1260	MG/KG	0.10	1.0
		Mercury, Total	13.6	MG/KG	0.17	10.0
		Lead, Total	335	MG/KG	0.25	1.0
-003	J00FY3	Chromium, Total	319	MG/KG	0.11	1.0
		Mercury, Total	2.3	MG/KG	0.05	3.0
		Lead, Total	9.4	MG/KG	0.27	1.0

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 01/24/03

CLIENT: TNU-HANFORD B01-052 LVL LOT #: 0301L548

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK1	03L0038-MB1	Chromium, Total	0.12	MG/KG	0.10	1.0
		Lead, Total	0.24 u	MG/KG	0.24	1.0
BLANK1	03C0012-MB1	Mercury, Total	0.02 u	MG/KG	0.02	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 01/24/03

CLIENT: TNU-HANFORD B01-052

LVL LOT #: 0301L548

WORK ORDER: 11243-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-001	J00FY1	Chromium, Total	432	448	22.3	-73. *	1.0
		Chromium, Total MSD	451	448	22.1	12.7*	1.0
		Mercury, Total	2.7	2.7	0.50	0.4*	3.0
		Lead, Total	106	73.5	55.8	58.1	1.0
		Lead, Total MSD	112	73.5	55.2	69.2	1.0

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 01/24/03

CLIENT: TNU-HANFORD B01-052

LVL LOT #: 0301L548

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-001REP	J00FY1	Chromium, Total	448	461	2.7	1.0
		Mercury, Total	2.7	3.2	18.6	3.0
		Lead, Total	73.5	56.1	26.9	1.0

Lionville Laboratory, Inc.

INORGANICS LABORATORY CONTROL STANDARDS REPORT 01/24/03

CLIENT: TNU-HANFORD B01-052 LVL LOT #: 0301L548

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
LCS1	03L0038-LC1	Chromium, LCS	51.2	50.0	MG/KG	102.4
		Lead, LCS	248	250	MG/KG	99.2
LCS1	03C0012-LC1	Mercury, LCS	2.4	2.5	MG/KG	96.5

Lionville Laboratory Use Only
0301L548

Custody Transfer Record/Lab Work Request

Page 1 of 1

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

LVLI

Client: TNU Hanford B01-052

Est. Final Proj. Sampling Date:

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

Project Contact/Phone #:

Lionville Laboratory Project Manager: Arlette Johnson

QC: SPEC Del: STD TAT: 2 days

Date Rec'd: 1-22-03 Date Due: 1-24-03

		A
Refrigerator #		5
#/Type Container	Liquid	
	Solid	1 qg
Volume	Liquid	
	Solid	60
Preservatives		—

ANALYSES REQUESTED →

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	ORGANIC VOA	BNA	Pest/PCB	Herb	INORG Metal	CN	Hex Chrom
											MET ①		ICR6
001	JOOFY1			S	1-16-03	1421					X		X
002	JOOFY2			↓	↓	↓					X		X
003	JOOFY3			↓	↓	↓					X		X

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

Special Instructions: SAF # B01-052

Run Matrix QC

DATE/REVISIONS:
MET ① 1. Cr, Pb, Hg
2.
3.
4.
5.
6.

Lionville Laboratory Use Only

Samples were:
1) Shipped ✓ or Hand Delivered ___
Airbill # 7915 1580 9845
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. 0.8 °C

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

Relinquished by	Received by	Date	Time
Fed Ex	D Smith	1-22-03	1015

Relinquished by	Received by	Date	Time
COMPOSITE WASTE		ORIGINAL REWRITTEN	

11

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B01-052-137	Page 1 of 1

Collector: D. Shea	Company Contact: Dave Shea	Telephone No.: 373-6425	Project Coordinator: KESSNER, JH
Price Code	Data Turnaround		
Project Designation: 100 B/C Area Effluent Pipeline & Proximity Site Remediatio	Sampling Location: 100 BC pipeline 25/26	SAF No.: B01-052	Air Quality ☐
Ice Chest No.: ERC 99-069	Field Logbook No.: EL-1548-3	COA: R100BC2600	Method of Shipment: Fed Ex
Shipped To: TMA/RECRA	Offsite Property No.: A030 109	Bill of Lading/Air Bill No.: 7915 1580 5845	

POSSIBLE SAMPLE HAZARDS/REMARKS

Potentially radiologically contaminated

Tie TO B15285

Special Handling and/or Storage

Cool 4°C

Preservation	Cool 4C	Cool 4C									
Type of Container	G/P	G									
No. of Container(s)	1	1									
Volume	60mL	60mL									

SAMPLE ANALYSIS

Sample No.	Matrix *	Sample Date	Sample Time	ICP Metals - 6010A (Add-on) (Chromium, Lead); Mercury - 7471 - (CV)	Chromium Hex - 7196
J00FY1	SOIL	1/16/03	1421	✓	✓
J00FY2	SOIL	↓	1421	✓	✓
J00FY3	SOIL	↓	1421	✓	✓

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
DWShea DWShea	1/16/03 1505	100BC Sample Rmst	1/16/03 1505
100BC Sample Rmst	1/17/03 1543	DWShea DWShea	1/17/03 1543
DWShea DWShea	1/17/03 1632	Fedex IA	1/17/03 1632
IA 3728	1-21-03 1000	RFahlberg RFahlberg	1-21-03 1000
RFahlberg RFahlberg	1-21-03 1000	Fed Ex	
Fed Ex	1-22-03 1015	D. Smith	1-22-03 1015

SPECIAL INSTRUCTIONS

Personnel not available to relinquish samples from the 3728
Ref # IA on 1/21/03

Matrix *

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

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

BHI-EE-011 (03/01/2002)

12

LIONVILLE LABORATORY INCORPORATED
SAMPLE RECEIPT CHECKLIST

LIENT: TNU Hanford

rchase Order/Project:

DATE: 1-22-03

AF# / SOW# / Release #: B01-052

aboratory SDG #: 0301L548

OTE: ALL ENTRIES MARKED "NO" MUST BE EXPLAINED IN THE COMMENT SECTION

1. Custody seals on coolers or shipping container intact, signed and dated?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
2. Outside of coolers or shipping containers are free from damage?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
3. Airbill # recorded?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
4. All expected paperwork received (coc and other client specific: historical data, alpha/beta or other screening data as applicable)? (paperwork sealed in plastic bag and taped to inside lid)	☑ Yes	☐ No	☐ N/A	☐ see Comment #
5. Sample containers are intact?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
6. Custody seals on sample containers intact, signed and dated?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
7. All samples on coc received?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
8. All sample label information matches coc?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
9. Laboratory QC samples designated on coc? (QC stickers placed on bottles?)	☐ Yes	☐ No	☑ N/A	☐ see Comment #
10. Shipment meets LvLI Sample Acceptance Policy? (identify all bottles not within policy. See reverse side for policy)	☑ Yes	☐ No	☐ N/A	☐ see Comment #
11. Where applicable, bar code labels are affixed to coc?	☐ Yes	☐ No	☑ N/A	☐ see Comment #
12. coc signed and dated?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
13. coc will be faxed or emailed to client?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
14. Project Manager/Client contacted concerning discrepancies? (name/date)	☐ Yes	☐ No	☐ N/A	☐ see Comment #

Cooler # / temp (°C) and Comments:

ERC 99-069 / 0.8°C

Laboratory Sample Custodian: [illegible]

Laboratory Project Manager:

RECEIVED
FEB 2003

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B01-052 H2054

DATE RECEIVED: 01/22/03 LVL LOT # :0301L548

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J00FY1						
% SOLIDS	001	S	03L%S007	01/16/03	01/22/03	01/23/03
% SOLIDS	001 REP	S	03L%S007	01/16/03	01/22/03	01/23/03
CHROMIUM VI	001	S	03LVI006	01/16/03	01/22/03	01/23/03
J00FY2						
% SOLIDS	002	S	03L%S007	01/16/03	01/22/03	01/23/03
CHROMIUM VI	002	S	03LVI006	01/16/03	01/22/03	01/23/03
J00FY3						
% SOLIDS	003	S	03L%S007	01/16/03	01/22/03	01/23/03
CHROMIUM VI	003	S	03LVI006	01/16/03	01/22/03	01/23/03
CHROMIUM VI	003 REP	S	03LVI006	01/16/03	01/22/03	01/23/03
CHROMIUM VI	003 MS	S	03LVI006	01/16/03	01/22/03	01/23/03
CHROMIUM VI	003 MSD	S	03LVI006	01/16/03	01/22/03	01/23/03

LAB QC:

CHROMIUM VI	MB1	S	03LVI006	N/A	01/22/03	01/23/03
CHROMIUM VI	MB1 BS	S	03LVI006	N/A	01/22/03	01/23/03
CHROMIUM VI	MB1 BSD	S	03LVI006	N/A	01/22/03	01/23/03

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU-HANFORD B01-052 H2054
LVL#: 0301L548

W.O.#: 11343-606-001-9999-00
Date Received: 01-22-03

INORGANIC NARRATIVE

1. This narrative covers the analyses of 3 soil samples.

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

3. Sample holding times as required by the method and/or contract.

4. The results presented in this report are derived from samples that met LvLI's sample acceptance policy.

5. The method blank for Chromium VI was within the method criteria.

6. The Laboratory Control Samples (LCS) for Chromium VI were within the laboratory control limits.

7. The matrix spike recoveries for Chromium VI were within the 75-125% control limits.

8. The replicate analyses for Percent Solids and Chromium VI 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

01-29-03
Date

njp\i01-548

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.

Lionville Laboratory Incorporated

WET CHEMISTRY

METHODS GLOSSARY FOR SOIL/SOLIDS SAMPLE ANALYSIS

	ASTM	SW846	OTHER
% Ash	__ D2216-80		
% Moisture	__ D2216-80		__ ILMO4.0 (e)
% Solids	✓ D2216-80		__ ILMO4.0 (e)
% Volatile Solids	__ D2216-80		
ASTM Extraction in Water	__ D3987-81/85		
BTU	__ D240-87		
CEC		__ 9081	__ c
Chromium VI		✓ 3060A/7196A	
Corrosivity ___ by coupon ___ by pH		__ 1110(mod) __ 9045C	
Cyanide, Total		__ 9010B	__ ILMO4.0 (e)
Cyanide, Reactive		__ Section 7.3/9014	
Halides, Extractable Organic		__ 9020B	__ EPA 600/4/84-008
Halides, Total		__ 9020B	__ EPA 600/4/84-008
EP Toxicity		__ 1310A	
Flash Point		__ 1010	
Ignitability		__ 1010	
Oil & Grease		__ 9071A	
Carbon, Total Organic		__ 9060	__ Lloyd Kahn (mod)
Oxygen Bomb Prep for Anions	__ D240-87(mod)	__ 5050	
Petroleum Hydrocarbons, Total Recoverable		__ 9071	__ EPA 418.1
pH, Soil		__ 9045C	
Sulfide, Reactive		__ Section 7.3/9030B	
Sulfide		__ 9030B(mod)	
Specific Gravity	__ D1429-76C/	__ D5057-90	
Sulfur, Total		__ 9056	
Synthetic Preparation Leach		__ 1312	
Paint Filter		__ 9095A	

Other: **Method:**

Other: **Method**

L-WI-034/B-01/01

Lionville Laboratory Incorporated

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
LC = Laboratory Control Sample.
NC = Not calculated.

A suffix of -R, -S, or -T following these codes indicate a replicate, spike or sample duplicate analysis respectively.

ANALYTICAL WET CHEMISTRY METHODS

1. ASTM Standard Methods.

2. USEPA Methods for Chemical Analysis of Water and Wastes (USEPA 600/4-79-020).

3. Test Methods for Evaluating Solid Waste (USEPA SW-846).

a. Standard Methods for the Examination of Water and Waste, 16 ed, (1983).

b. Standard Methods for the Examination of Water and Waste, 17 ed, (1989)/18ed (1992).

c. Method of Soil Analysis, Part 1, Physical and Mineralogical Methods, 2nd ed, (1986).

d. Method of Soil Analysis, Part 2, Chemical and Microbiological Properties, Am. Soc. Agron., Madison, WI (1965).

e. USEPA Contract Laboratory Program, Statement of Work for Inorganic Analysis.

f. Code of Federal Regulations.

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INORGANICS DATA SUMMARY REPORT 01/27/03

CLIENT: TNU-HANFORD B01-052 M2054 LVL LOT #: 0301L548

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	J00FY1	% Solids	88.7	%	0.01	1.0
		Chromium VI	4.4	MG/KG	0.45	1.0
-002	J00FY2	% Solids	84.4	%	0.01	1.0
		Chromium VI	13.5	MG/KG	0.47	1.0
-003	J00FY3	% Solids	89.5	%	0.01	1.0
		Chromium VI	5.0	MG/KG	0.45	1.0

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 01/27/03

CLIENT: TNU-HANFORD B01-052 H2054 LVL LOT #: 0301L548

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK10	03LVI006-MB1	Chromium VI	0.40 u	MG/KG	0.40	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 01/27/03

CLIENT: TNU-HANFORD B01-052 H2054

LVL LOT #: 0301LS48

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-003	J00FY3	Soluble Chromium VI	9.6	5.0	4.8	103.0	1.0
		Insoluble Chromium VI	1390	5.0	1400	98.6	100
BLANK10	03LVI006-MB1	Soluble Chromium VI	4.0	0.40u	4.0	98.8	1.0
		Insoluble Chromium VI	815	0.40u	850	95.9	100

Lionville Laboratory, Inc.

INORGANICS DUPLICATE SPIKE REPORT 01/27/03

CLIENT: TNU-HANFORD B01-052 H2054 LVL LOT #: 0301L548

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

SAMPLE	SITE ID	ANALYTE	SPIKE#1 %RECOV	SPIKE#2 %RECOV	%DIFF
-003	J00FY3	Chromium VI	103.0	98.6	4.4
BLANK10	03LVI006-MB1	Chromium VI	98.8	95.9	3.0

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 01/27/03

CLIENT: TNU-HANFORD B01-052 H2054
WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0301L548

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-001REP	J00FY1	% Solids	88.7	88.3	0.36	1.0
-003REP	J00FY3	Chromium VI	5.0	4.8	3.3	1.0

Lionville Laboratory Use Only
0301L548

Custody Transfer Record/Lab Work Request

Page 1 of 1

LVLP

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client: TNLL Hanford B01-052
Est. Final Proj. Sampling Date:
Project #: 11343-606-001-9999-00
Project Contact/Phone #:
Lionville Laboratory Project Manager: Arlette Johnson
QC: SPEC Del: STD TAT: 2 days

Date Rec'd: 1-22-03 Date Due: 1-24-03

Refrigerator #		A													
								5							
#/Type Container	Liquid														
	Solid							1qg	1						
Volume	Liquid														
	Solid							1qt	1						
Preservatives								—							
ANALYSES REQUESTED →		ORGANIC						INORG							
		VOA	BNA	Pest/PCB	Herb			Metal	CN	Hex Chrom					
		Lionville Laboratory Use Only													
								MET ①		ICP6					

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														
001	J00FY1			S	1-16-03	1421							X		X					
002	J00FY2												X		X					
003	J00FY3												X		X					

Special Instructions: SAF # B01-052

Run Matrix QC

DATE/REVISIONS:
MET ① 1. Cr, Pb, Hg
2.
3.
4.
5.
6.

Relinquished by	Received by	Date	Time
Fed Ex	D. Smith	1-22-03	1015

Relinquished by	Received by	Date	Time
COMPOSITE WASTE		ORIGINAL REWRITTEN	

Discrepancies Between Samples Labels and COC Record? Y or (N)
NOTES:

Lionville Laboratory Use Only

Samples were:
1) Shipped ✓ or Hand Delivered ___
Airbill # 7915 1580 9845
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. 0.8 °C

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		B01-052-137	Page 1 of 1
Collector D. Shea	Company Contact Dave Shea	Telephone No. 373-6425	Project Coordinator KESSNER, JH	Price Code / Data Turnaround
Project Designation 100 B/C Area Effluent Pipeline & Proximity Site Remediatio	Sampling Location 100 BC pipeline 25/26		SAF No. B01-052	Air Quality ☐
Ice Chest No. ERC 99-069	Field Logbook No. EL-1548-3	COA R100BC2600	Method of Shipment Fed Ex	
Shipped To TMA/RECRA	Offsite Property No. A030 109		Bill of Lading/Air Bill No. 7915 1580 9845	

POSSIBLE SAMPLE HAZARDS/REMARKS

Potentially radiologically contaminated

Tra To B15285

Special Handling and/or Storage

Cool 4 oc

Preservation	Cool 4C	Cool 4C									
Type of Container	G/P	G									
No. of Container(s)	1	1									
Volume	60mL	60mL									
SAMPLE ANALYSIS	ICP Metals - 6010A (Add-on) (Chromium, Lead); Mercury - 7471 - (CV)	Chromium Hex - 7196									

Sample No.	Matrix *	Sample Date	Sample Time										
J00FY1	SOIL	1/16/03	1421	✓	✓								
J00FY2	SOIL		1421	✓	✓								
J00FY3	SOIL		1421	✓	✓								

CHAIN OF POSSESSION	Sign/Print Names	SPECIAL INSTRUCTIONS	Matrix *
Relinquished By/Removed From: DWShea DWShea 1/16/03 1505	Received By/Stored In: 100BC Sample Rmsft 1/16/03 1505	Personnel not available to relinquish samples from the 3728 Ref # 1A on 1/21/03	S=Soil SE=Sediment SO=Solid SL=Sludge W = Water O=Oil A=Air DS=Drum Solids DL=Drum Liquids T=Tissue WI=Wipe L=Liquid V=Vegetation X=Other
Relinquished By/Removed From: 100BC sample Rmsft 1/17/03 1543	Received By/Stored In: DWShea DWSHEA 1/17/03 1543		
Relinquished By/Removed From: DWShea DWShea 1/17/03 1632	Received By/Stored In: Fridge 1A 1/17/03 1632		
Relinquished By/Removed From: 1A 3728 1-21-03 1000	Received By/Stored In: R. Fahlberg R. Fahlberg 1-21-03 1000		
Relinquished By/Removed From: ERC R. Fahlberg R. Fahlberg 1-21-03 1000	Received By/Stored In: Fed Ex		
Relinquished By/Removed From: Fed Ex 1-22-03 1015	Received By/Stored In: D. Smith 1-22-03 1015		

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

BHI-EE-011 (03/01/2002)

LIONVILLE LABORATORY INCORPORATED
SAMPLE RECEIPT CHECKLIST

ENT: TNU Hanford

chase Order/Project:

DATE: 1-22-03

F# / SOW# / Release #: B01-052

boratory SDG #: 0301L548

OTE: ALL ENTRIES MARKED "NO" MUST BE EXPLAINED IN THE COMMENT SECTION

1. Custody seals on coolers or shipping container intact, signed and dated?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
2. Outside of coolers or shipping containers are free from damage?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
3. Airbill # recorded?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
4. All expected paperwork received (coc and other client specific: historical data, alpha/beta or other screening data as applicable)? (paperwork sealed in plastic bag and taped to inside lid)	☑ Yes	☐ No	☐ N/A	☐ see Comment #
5. Sample containers are intact?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
6. Custody seals on sample containers intact, signed and dated?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
7. All samples on coc received?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
8. All sample label information matches coc?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
9. Laboratory QC samples designated on coc? (QC stickers placed on bottles?)	☐ Yes	☐ No	☑ N/A	☐ see Comment #
10. Shipment meets LvLI Sample Acceptance Policy? (identify all bottles not within policy. See reverse side for policy)	☑ Yes	☐ No	☐ N/A	☐ see Comment #
11. Where applicable, bar code labels are affixed to coc?	☐ Yes	☐ No	☑ N/A	☐ see Comment #
12. coc signed and dated?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
13. coc will be faxed or emailed to client?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
14. Project Manager/Client contacted concerning discrepancies? (name/date)	☐ Yes	☐ No	☐ N/A	☐ see Comment #

Cooler # / temp (°C) and Comments:

ERC 99-069 / 0.8°C

Laboratory Sample Custodian: [signature]

Laboratory Project Manager: