0059309

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 #	0301L462
SDG #	H2041
SAF #	B00-030
Date Received	1-10-03
# Samples	20
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

RECEIVED
MAY 13 2003
EDMC

RECEIVED
FEB 2003

r:\group\pm\orlette\tmu-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
TNUHANFORD B00-030 H2041

DATE RECEIVED: 01/10/03 LVL LOT # :0301L464

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J00FJ9						
% SOLIDS	001	S	03L%S002	01/08/03	01/13/03	01/14/03
% SOLIDS	001 REP	S	03L%S002	01/08/03	01/13/03	01/14/03
CHROMIUM VI	001	S	03LVI005	01/08/03	01/21/03	01/21/03
CHROMIUM VI	001 REP	S	03LVI005	01/08/03	01/21/03	01/21/03
CHROMIUM VI	001 MS	S	03LVI005	01/08/03	01/21/03	01/21/03
CHROMIUM VI	001 MSD	S	03LVI005	01/08/03	01/21/03	01/21/03
J00FK0						
% SOLIDS	002	S	03L%S002	01/08/03	01/13/03	01/14/03
CHROMIUM VI	002	S	03LVI005	01/08/03	01/21/03	01/21/03
J00FK1						
% SOLIDS	003	S	03L%S002	01/08/03	01/13/03	01/14/03
CHROMIUM VI	003	S	03LVI005	01/08/03	01/21/03	01/21/03
J00FK2						
% SOLIDS	004	S	03L%S002	01/08/03	01/13/03	01/14/03
CHROMIUM VI	004	S	03LVI005	01/08/03	01/21/03	01/21/03
J00FK3						
% SOLIDS	005	S	03L%S002	01/08/03	01/13/03	01/14/03
CHROMIUM VI	005	S	03LVI005	01/08/03	01/21/03	01/21/03
J00FK4						
% SOLIDS	006	S	03L%S002	01/08/03	01/13/03	01/14/03
CHROMIUM VI	006	S	03LVI005	01/08/03	01/21/03	01/21/03
J00FK5						
% SOLIDS	007	S	03L%S002	01/08/03	01/13/03	01/14/03

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B00-030 H2041

DATE RECEIVED: 01/10/03 LVL LOT # :0301L464

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
CHROMIUM VI	007	S	03LVI005	01/08/03	01/21/03	01/21/03
J00FK6						
% SOLIDS	008	S	03L%S002	01/08/03	01/13/03	01/14/03
CHROMIUM VI	008	S	03LVI005	01/08/03	01/21/03	01/21/03
J00FK7						
% SOLIDS	009	S	03L%S002	01/08/03	01/13/03	01/14/03
CHROMIUM VI	009	S	03LVI005	01/08/03	01/21/03	01/21/03
J00FK8						
% SOLIDS	010	S	03L%S002	01/08/03	01/13/03	01/14/03
CHROMIUM VI	010	S	03LVI005	01/08/03	01/21/03	01/21/03

LAB QC:

CHROMIUM VI	MB1	S	03LVI005	N/A	01/21/03	01/21/03
CHROMIUM VI	MB1 BS	S	03LVI005	N/A	01/21/03	01/21/03
CHROMIUM VI	MB1 BSD	S	03LVI005	N/A	01/21/03	01/21/03

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU-HANFORD B00-030 H2041
LVL#: 0301L464

W.O.#: 11343-606-001-9999-00
Date Received: 01-10-03

INORGANIC NARRATIVE

1. This narrative covers the analyses of 10 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 analysis for Percent Solids was within the 20% Relative Percent Difference (RPD) control limit, however replicate analysis for Chromium VI was outside the control limit that may be attributed to sample inhomogeneity; replicate results for Chromium VI were less than 10 times the reporting 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

01-27-03
Date

njp\i01-464

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 13 pages.

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

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**

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.

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 01/23/03

CLIENT: TNUHANFORD B00-030 H2041 LVL LOT #: 0301L464

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	J00FJ9	% Solids	95.3	%	0.01	1.0
		Chromium VI	2.4	MG/KG	0.42	1.0
-002	J00FK0	% Solids	90.0	%	0.01	1.0
		Chromium VI	0.44 u	MG/KG	0.44	1.0
-003	J00FK1	% Solids	85.2	%	0.01	1.0
		Chromium VI	0.47 u	MG/KG	0.47	1.0
-004	J00FK2	% Solids	96.0	%	0.01	1.0
		Chromium VI	0.42 u	MG/KG	0.42	1.0
-005	J00FK3	% Solids	89.6	%	0.01	1.0
		Chromium VI	0.48	MG/KG	0.45	1.0
-006	J00FK4	% Solids	95.0	%	0.01	1.0
		Chromium VI	0.64	MG/KG	0.42	1.0
-007	J00FK5	% Solids	90.5	%	0.01	1.0
		Chromium VI	0.44 u	MG/KG	0.44	1.0
-008	J00FK6	% Solids	90.2	%	0.01	1.0
		Chromium VI	0.44 u	MG/KG	0.44	1.0
-009	J00FK7	% Solids	93.3	%	0.01	1.0
		Chromium VI	0.43 u	MG/KG	0.43	1.0
-010	J00FK8	% Solids	93.5	%	0.01	1.0
		Chromium VI	0.43 u	MG/KG	0.43	1.0

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 01/23/03

CLIENT: TNUHANFORD B00-030 H2041 LVL LOT #: 0301L464

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK10	03LVI005-MB1	Chromium VI	0.40 u	MG/KG	0.40	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 01/23/03

CLIENT: TNUHANFORD B00-030 H2041 LVL LOT #: 0301L464

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-001	J00FJ9	Soluble Chromium VI	6.4	2.4	4.2	94.0	1.0
		Insoluble Chromium VI	1290	2.4	1220	105.9	100
BLANK10	03LVI005-MB1	Soluble Chromium VI	4.3	0.40u	4.0	107.1	1.0
		Insoluble Chromium VI	1170	0.40u	1220	95.5	100

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 01/23/03

CLIENT: TNUHANFORD B00-030 H2041 LVL LOT #: 0301L464

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-001REP	J00FJ9	% Solids	95.3	95.6	0.28	1.0
		Chromium VI	2.4	3.2	28.5	1.0

Lionville Laboratory Use Only

0301L464

Custody Transfer Record/Lab Work Request

Page 1 of 1

LVLI Lionville Laboratory Inc.

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client: TNU Hanford - B00-030

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: 21 days

Date Rec'd: 1-10-03 Date Due: 1-31-03

		A	B
Refrigerator #		5	5
#/Type Container	Liquid		
	Solid	1 jar	1 jar
Volume	Liquid		
	Solid	250	125
Preservatives		—	—

ANALYSES REQUESTED →

MATRIX CODES:	Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	ORGANIC: VOA	BNA	Pest/PCB	Herb				INORG: ICP Metal	CN	Hex Chrom				
								Lionville Laboratory Use Only							MASTO		ICR6				
S - Soil	001	J00FJ9			S	1-8-03	0921								X		X				
SE - Sediment	002	J00FK0					0928								X		X				
SO - Solid	003	J00FK1					0935								X		X				
SL - Sludge	004	J00FK2					0942								X		X				
W - Water	005	J00FK3					0949								X		X				
O - Oil	006	J00FK4					0956								X		X				
A - Air	007	J00FK5					1003								X		X				
DS - Drum Solids	008	J00FK6					1010								X		X				
DL - Drum Liquids	009	J00FK7					1017								X		X				
L - EP/TCLP Leachate	010	J00FK8					1024								X		X				
WI - Wipe																					
X - Other																					
F - Fish																					

Special Instructions:

SAF # B00-030

Run Matrix QC

DATE/REVISIONS:

1.
2.
3.
4.
5.
6.

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. 0.6 °C

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

NOTES: 7915 0808 6519 / 0.4° 7901 8039 1283

Relinquished by	Received by	Date	Time
Fed Ex	D. Johnson	1-10-03	0910

Relinquished by	Received by	Date	Time
COMPOSITE WASTE		ORIGINAL REWRITTEN	

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B00-030-085	Page 5 of 6

Collector Nielson/Stankovich	Company Contact Mike Stankovich	Telephone No. 531-7620	Project Coordinator TRENT, SJ
Project Designation 100 F Area - Full Protocol	Sampling Location 116-F-1		SAF No. B00-030
Ice Chest No. ERC 96-061.	Field Logbook No. EL-1535-8	COA R116F12600	Method of Shipment FedEx
Shipped To TMA/RECRA	Offsite Property No. A030 104		Bill of Lading/Air Bill No. SEE OSPC

Price Code 8L

Data Turnaround 21 Days

Air Quality ☐

POSSIBLE SAMPLE HAZARDS/REMARKS

Radioactive

Tie To B13DV9

Special Handling and/or Storage

Cool 4°C

Preservation	None	Cool 4C	None	None							
Type of Container	aG	aG	P	aG							
No. of Container(s)	1	1	1	1							
Volume	250mL	125mL	1000mL	60mL							
SAMPLE ANALYSIS	See item (1) in Special Instructions.	Chromium Hex - 7196	See item (2) in Special Instructions. RF 1.9.3	~~Strontium-90,99 - Total Sr, Nickel-63,~~ Carbon-14 no 1.6.3							
Sample No.	Matrix *	Sample Date	Sample Time								
J00FJ9	SOIL	1.8.3	0921	✓	✓	✓	✓				
J00FK0	SOIL	1.8.3	0928	✓	✓	✓	✓				
J00FK1	SOIL	1.8.3	0935	✓	✓	✓	✓				
J00FK2	SOIL	1.8.3	0942	✓	✓	✓	✓				
J00FK3	SOIL	1.8.3	0949	✓	✓	✓	✓				

CHAIN OF POSSESSION

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
MK Stankovich	1430 1.8.3	3B/3728	1.8.3 1430
Ref 3B 3728	1000 1.9.3	R. Fehlberg R. Fehlberg	1000 1.9.3
R. Fehlberg R. Fehlberg	1000 1.9.3	FedEx	
FedEx	1.10.03 0910	[illegible]	1.10.03 0910

SPECIAL INSTRUCTIONS

(1) ICP Metals - 6010A (Supertrace) {Arsenic, ~~Chromium, Lead~~}; ~~Mercury - 7471 - (CV)~~ no 1.6.3

(2) Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}

Personnel not available to relinquish samples from the 3728 Ref # 3B on 1/9/3

Matrix *

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

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

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

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B00-030-085	Page 6 of 6

Collector: Nielson/Stankovich	Company Contact: Mike Stankovich	Telephone No.: 531-7620	Project Coordinator: TRENT, SJ
Price Code: 8L	Data Turnaround: 21 Days	Air Quality ☐	
Project Designation: 100 F Area - Full Protocol	Sampling Location: 116-F-1		SAF No.: B00-030
Ice Chest No.: ERC 96-061	Field Logbook No.: EL-1535-8	COA: R116F12600	Method of Shipment: FedEx
Shipped To: TMA/RECRA	Offsite Property No.: A030104		Bill of Lading/Air Bill No.: SEE OSPC

POSSIBLE SAMPLE HAZARDS/REMARKS

Radioactive Tie To B13DV9

Special Handling and/or Storage

cool 4°C

Preservation	None	Cool 4C	None	None							
Type of Container	aG	aG	P	aG							
No. of Container(s)	1	1	1	1							
Volume	250mL	125mL	1000mL	60mL							
SAMPLE ANALYSIS	See item (1) in Special Instructions.	Chromium Hex - 7196	See item (2) in Special Instructions. RB 1-9-3	~~Strontium-90, Total Nickel-63~~, Carbon-14 MO 1-6-3							
Sample No.	Matrix *	Sample Date	Sample Time								
J00FK4	SOIL	1-8-3	0956	✓	—	✓	—				
J00FK5	SOIL	1-8-3	1003	✓	✓	✓	✓				
J00FK6	SOIL	1-8-3	1010	✓	—	✓	—				
J00FK7	SOIL	1-8-3	1017	✓	—	✓	—				
J00FK8	SOIL	1-8-3	1024	✓	—	✓	—				

CHAIN OF POSSESSION — **Sign/Print Names**

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
[illegible] Mst Ankouch	1-8-3 1430	3B/3728	1-8-3 1430
3B 3728	1-9-3 1000	[illegible]	1-9-3 1000
ERC [illegible]	1-9-3 1000	Fed Ex	
Fed Ex	1-10-03 0910	[illegible]	1-10-03 0910

SPECIAL INSTRUCTIONS

(1) ICP Metals - 6010A (Supertrace) {Arsenic, ~~Chromium, Lead}; Mercury - 7471 (CV)~~ MO 1-6-3
(2) Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}

Personnel not available to relinquish samples from the 3728 Ref # 3B on 1/9/3

Matrix *

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

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

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

LIONVILLE LABORATORY INCORPORATED
SAMPLE RECEIPT CHECKLIST

:LIENT: TRU Hanford

urchase Order/Project:

DATE: 1-10-03

AF# / SOW# / Release #: B00-030

aboratory SDG #: 0301L464

NOTE: 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-02-404 | 0.6°C

ERC-06-061 | 0.4°C

Laboratory Sample Custodian: D. Smith

Laboratory Project Manager:

FEB 2003

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B00-030 H2041

DATE RECEIVED: 01/10/03 LVL LOT # :0301L464

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J00FJ9						
ARSENIC, TOTAL	001	S	03L0013	01/08/03	01/13/03	01/14/03
ARSENIC, TOTAL	001 REP	S	03L0013	01/08/03	01/13/03	01/14/03
ARSENIC, TOTAL	001 MS	S	03L0013	01/08/03	01/13/03	01/14/03
ARSENIC, TOTAL	001 MSD	S	03L0013	01/08/03	01/13/03	01/14/03
J00FK0						
ARSENIC, TOTAL	002	S	03L0013	01/08/03	01/13/03	01/14/03
J00FK1						
ARSENIC, TOTAL	003	S	03L0013	01/08/03	01/13/03	01/14/03
J00FK2						
ARSENIC, TOTAL	004	S	03L0013	01/08/03	01/13/03	01/14/03
J00FK3						
ARSENIC, TOTAL	005	S	03L0013	01/08/03	01/13/03	01/14/03
J00FK4						
ARSENIC, TOTAL	006	S	03L0013	01/08/03	01/13/03	01/14/03
J00FK5						
ARSENIC, TOTAL	007	S	03L0013	01/08/03	01/13/03	01/14/03
J00FK6						
ARSENIC, TOTAL	008	S	03L0013	01/08/03	01/13/03	01/14/03
J00FK7						
ARSENIC, TOTAL	009	S	03L0013	01/08/03	01/13/03	01/14/03

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B00-030 H2041

DATE RECEIVED: 01/10/03 LVL LOT # :0301L464

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J00FK8						
ARSENIC, TOTAL	010	S	03L0013	01/08/03	01/13/03	01/14/03

LAB QC:

ARSENIC LABORATORY	LC1 BS	S	03L0013	N/A	01/13/03	01/14/03
ARSENIC, TOTAL	MB1	S	03L0013	N/A	01/13/03	01/14/03

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU-HANFORD B00-030
LVL#: 0301L464
SDG/SAF#: H2041/B00-030

W.O.#: 11343-606-001-9999-00
Date Received: 01-10-03

METALS CASE NARRATIVE

1. This narrative covers the analyses of 10 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. The preparation/method blank (MB) was 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. Refer to the Inorganics Laboratory Control Standards Report.

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

11. The MS and MSD were within the 20% Relative Percent Difference (RPD) control limits. Refer to the Inorganics Duplicate Spike Report.

12. The duplicate analysis was within the 20% Relative Percent Difference (RPD) control limits. Refer to the Inorganics Precision 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 16 pages.

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

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.

Pat G

Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

01-21-03
Date

jjw/m01-464

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#: 0301L464

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 01/21/03

CLIENT: TNUHANFORD B00-030 H2041

LVL LOT #: 0301L464

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	J00FJ9	Arsenic, Total	2.6	MG/KG	0.39	1.0
-002	J00FK0	Arsenic, Total	15.8	MG/KG	0.38	1.0
-003	J00FK1	Arsenic, Total	3.8	MG/KG	0.39	1.0
-004	J00FK2	Arsenic, Total	2.3	MG/KG	0.38	1.0
-005	J00FK3	Arsenic, Total	3.7	MG/KG	0.42	1.0
-006	J00FK4	Arsenic, Total	5.2	MG/KG	0.40	1.0
-007	J00FK5	Arsenic, Total	6.1	MG/KG	0.42	1.0
-008	J00FK6	Arsenic, Total	3.5	MG/KG	0.37	1.0
-009	J00FK7	Arsenic, Total	2.3	MG/KG	0.41	1.0
-010	J00FK8	Arsenic, Total	2.1	MG/KG	0.36	1.0

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 01/21/03

CLIENT: TNUHANFORD B00-030 H2041 LVL LOT #: 0301L464

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK1	03L0013-MB1	Arsenic, Total	0.38 u	MG/KG	0.38	1.0

8

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 01/21/03

CLIENT: TNUHANFORD B00-030 H2041

LVL LOT #: 0301L464

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-001	J00FJ9	Arsenic, Total	175	2.6	184	93.4	1.0
		Arsenic, Total MSD	189	2.6	194	95.9	1.0

Lionville Laboratory, Inc.

INORGANICS DUPLICATE SPIKE REPORT 01/21/03

CLIENT: TNUHANFORD B00-030 H2041

LVL LOT #: 0301L464

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

SAMPLE	SITE ID	ANALYTE	SPIKE#1 %RECOV	SPIKE#2 %RECOV	%DIFF
-001	J00FJ9	Arsenic, Total	93.4	95.9	2.6

10

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 01/21/03

CLIENT: TNUHANFORD B00-030 H2041

LVL LOT #: 0301L464

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-001REP	J00FJ9	Arsenic, Total	2.6	2.5	3.9	1.0

11

Lionville Laboratory, Inc.

INORGANICS LABORATORY CONTROL STANDARDS REPORT 01/21/03

CLIENT: TNUHANFORD B00-030 H2041

LVL LOT #: 0301L464

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
LCS1	03L0013-LC1	Arsenic, LCS	946	1000	MG/KG	94.6

Lionville Laboratory Use Only

0301L464

Custody Transfer Record/Lab Work Request

Page 1 of 1

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

LVLI LIONVILLE LABORATORY INC

Client: TNU Hanford - B00-030

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: 21 days

Date Rec'd: 1-10-03 Date Due: 1-31-03

		A	B
Refrigerator #		5	5
#/Type Container	Liquid		
	Solid	1aq	1aq
Volume	Liquid		
	Solid	250	125
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 ICP Metal	CN	Hex Chrome
001	J00FJ9			S	1-8-03	0921					X		X
002	J00FK0					0928					X		X
003	J00FK1					0935					X		X
004	J00FK2					0942					X		X
005	J00FK3					0949					X		X
006	J00FK4					0956					X		X
007	J00FK5					1003					X		X
008	J00FK6					1010					X		X
009	J00FK7					1017					X		X
010	J00FK8					1024					X		X

Lionville Laboratory Use Only: MASTO ICRL

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 # B00-030

Run Matrix QC

DATE/REVISIONS:

1.
2.
3.
4.
5.
6.

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. 0.6 °C

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

NOTES: 7915 0808 6519/04 — 7901 8039 1283

Relinquished by	Received by	Date	Time
Fed Ex	D. Johnson	1-10-03	0910

Relinquished by	Received by	Date	Time
COMPOSITE WASTE			

ORIGINAL REWRITTEN

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B00-030-085	Page 2

Collector: Nielson/Stankovich	Company Contact: Mike Stankovich	Telephone No.: 531-7620	Project Coordinator: TRENT, SJ
Price Code: 8L	Data Turnaro. 21 Days	Air Quality ☐	
Project Designation: 100 F Area - Full Protocol	Sampling Location: 116-F-1	SAF No.: B00-030	
Ice Chest No.: ERC 96-061	Field Logbook No.: EL-1535-8	COA: R116F12600	Method of Shipment: FedEx
Shipped To: TMA/RECRA	Offsite Property No.: A030 104	Bill of Lading/Air Bill No.: SEE OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS

Radioactive

Tie To B13DV9

Special Handling and/or Storage

Cool 4°C

Preservation	None	Cool 4C	None	None						
Type of Container	aG	aG	P	aG						
No. of Container(s)	1	1	1	1						
Volume	250mL	125mL	1000mL	60mL						
SAMPLE ANALYSIS	See item (1) in Special Instructions.	Chromium Hex - 7196	See item (2) in Special Instructions. RF 1.9.3	~~Strontium-90,99 - Total, Sr, Nickel-63,~~ Carbon-14 no 1.6.3						

Sample No.	Matrix *	Sample Date	Sample Time										
J00FJ9	SOIL	1.8.3	0921	✓	✓	✓	✓						
J00FK0	SOIL	1.8.3	0928	✓	✓	✓	✓						
J00FK1	SOIL	1.8.3	0935	✓	✓	✓	✓						
J00FK2	SOIL	1.8.3	0942	✓	✓	✓	✓						
J00FK3	SOIL	1.8.3	0949	✓	✓	✓	✓						

CHAIN OF POSSESSION — **Sign/Print Names**

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
MK Stankovich	1.8.3 1430	3B/3728	1.8.3 1430
Ref 3B 3728	1.9.3 1000	R. Fehlberg R. Fehlberg	1.9.3 1000
R. Fehlberg R. Fehlberg	1.9.3 1000	FedEx	
FedEx	1.10.03 0910	[illegible]	1.10.03 0910

SPECIAL INSTRUCTIONS

(1) ICP Metals - 6010A (Supertrace) {Arsenic, ~~Chromium, Lead~~}; ~~Mercury - 7471 - (CV)~~ no 1.6.3
(2) Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}

Personnel not available to relinquish samples from the 3728
Ref # 3B on 1/9/3

Matrix *

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

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

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

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B00-030-085 A

Collector Nielson/Stankovich	Company Contact Mike Stankovich	Telephone No. 531-7620	Project Coordinator TRENT, SJ	Price Code 8L	Data 21 L 5
Project Designation 100 F Area - Full Protocol	Sampling Location 116-F-1		SAF No. B00-030	Air Quality ☐	
Ice Chest No. ERC 96-061	Field Logbook No. EL-1535-8	COA R116F12600	Method of Shipment FedEx		
Shipped To TMA/RECRA	Offsite Property No. A030104		Bill of Lading/Air Bill No. SEE OSPC		

POSSIBLE SAMPLE HAZARDS/REMARKS

Radioactive Tie To B13DV9

Special Handling and/or Storage

cool 4°C

Preservation	None	Cool 4C	None	None							
Type of Container	aG	aG	P	aG							
No. of Container(s)	1	1	1	1							
Volume	250mL	125mL	1000mL	60mL							
SAMPLE ANALYSIS	See item (1) in Special Instructions.	Chromium Hex - 7196	See item (2) in Special Instructions.	~~Uranium-238,00 — Total, Nickel-63,~~ Carbon-14							

Sample No.	Matrix *	Sample Date	Sample Time										
J00FK4	SOIL	1-8-3	0956	✓	—	✓	—						
J00FK5	SOIL	1-8-3	1003	✓	✓	✓	✓						
J00FK6	SOIL	1-8-3	1010	✓	—	✓	—						
J00FK7	SOIL	1-8-3	1017	✓	—	✓	—						
J00FK8	SOIL	1-8-3	1024	✓	—	✓	—						

CHAIN OF POSSESSION — **Sign/Print Names**

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
[illegible] Mstankovich	1-8-3 1430	3B/3728	1-8-3 1430
3B 3728	1-9-3 1000	[illegible]	1-9-3 1000
[illegible] ERC	1-9-3 1060	Fed Ex	
[illegible]	1-10-03 0910	[illegible]	1-10-03 0910

SPECIAL INSTRUCTIONS

(1) ICP Metals - 6010A (Supertrace) {Arsenic, ~~Chromium, Lead}; Mercury 7471 (CV)~~ NO 1-6-3
(2) Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}

Personnel not available to relinquish samples from the 3728
Ref # 3B on 1/9/3

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)

LIONVILLE LABORATORY INCORPORATED
SAMPLE RECEIPT CHECKLIST

LIENT: TRU Hanford

rchase Order/Project:

DATE: 1-10-03

AF# / SOW# / Release #: B00-030

aboratory SDG #: 0301L464

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 LvL1 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-02-404 | 0.6°C

ERC-96-061 | 0.4°C

Laboratory Sample Custodian: D. Ignito

Laboratory Project Manager:

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 #	0301L464
SDG #	H2041
SAF #	B00-030
Date Received	1-10-03
# Samples	10
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

RECEIVED
FEB 2003

r:\group\pm\orlette\tmo-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
TNUHANFORD B00-030 H2041

DATE RECEIVED: 01/10/03 LVL LOT # :0301L462

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J00FF9						
% SOLIDS	001	S	03L%S003	01/07/03	01/14/03	01/15/03
% SOLIDS	001 REP	S	03L%S003	01/07/03	01/14/03	01/15/03
CHROMIUM VI	001	S	03LVI004	01/07/03	01/15/03	01/15/03
J00FH0						
% SOLIDS	002	S	03L%S003	01/07/03	01/14/03	01/15/03
CHROMIUM VI	002	S	03LVI004	01/07/03	01/15/03	01/15/03
J00FH1						
% SOLIDS	003	S	03L%S003	01/07/03	01/14/03	01/15/03
CHROMIUM VI	003	S	03LVI004	01/07/03	01/15/03	01/15/03
J00FH2						
% SOLIDS	004	S	03L%S003	01/07/03	01/14/03	01/15/03
CHROMIUM VI	004	S	03LVI004	01/07/03	01/15/03	01/15/03
J00FH3						
% SOLIDS	005	S	03L%S003	01/07/03	01/14/03	01/15/03
CHROMIUM VI	005	S	03LVI004	01/07/03	01/15/03	01/15/03
J00FH4						
% SOLIDS	006	S	03L%S003	01/07/03	01/14/03	01/15/03
CHROMIUM VI	006	S	03LVI004	01/07/03	01/15/03	01/15/03
J00FH5						
% SOLIDS	007	S	03L%S003	01/07/03	01/14/03	01/15/03
CHROMIUM VI	007	S	03LVI004	01/07/03	01/15/03	01/15/03
J00FH6						
% SOLIDS	008	S	03L%S003	01/07/03	01/14/03	01/15/03

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B00-030 H2041

DATE RECEIVED: 01/10/03 LVL LOT # :0301L462

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
CHROMIUM VI	008	S	03LVI004	01/07/03	01/15/03	01/15/03
J00FH7						
% SOLIDS	009	S	03L%S003	01/07/03	01/14/03	01/15/03
CHROMIUM VI	009	S	03LVI004	01/07/03	01/15/03	01/15/03
J00FH8						
% SOLIDS	010	S	03L%S003	01/07/03	01/14/03	01/15/03
CHROMIUM VI	010	S	03LVI004	01/07/03	01/15/03	01/15/03
J00FH9						
% SOLIDS	011	S	03L%S003	01/07/03	01/14/03	01/15/03
CHROMIUM VI	011	S	03LVI004	01/07/03	01/15/03	01/15/03
J00FJ0						
% SOLIDS	012	S	03L%S003	01/07/03	01/14/03	01/15/03
CHROMIUM VI	012	S	03LVI004	01/07/03	01/15/03	01/15/03
J00FJ1						
% SOLIDS	013	S	03L%S003	01/07/03	01/14/03	01/15/03
CHROMIUM VI	013	S	03LVI004	01/07/03	01/15/03	01/15/03
J00FJ2						
% SOLIDS	014	S	03L%S003	01/07/03	01/14/03	01/15/03
CHROMIUM VI	014	S	03LVI004	01/07/03	01/15/03	01/15/03
J00FJ3						
% SOLIDS	015	S	03L%S003	01/07/03	01/14/03	01/15/03
CHROMIUM VI	015	S	03LVI004	01/07/03	01/15/03	01/15/03
J00FJ4						
% SOLIDS	016	S	03L%S003	01/08/03	01/14/03	01/15/03

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B00-030 H2041

DATE RECEIVED: 01/10/03 LVL LOT # :0301L462

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
CHROMIUM VI	016	S	03LVI004	01/08/03	01/15/03	01/15/03
J00FJ5						
% SOLIDS	017	S	03L%S003	01/08/03	01/14/03	01/15/03
CHROMIUM VI	017	S	03LVI004	01/08/03	01/15/03	01/15/03
J00FJ6						
% SOLIDS	018	S	03L%S003	01/08/03	01/14/03	01/15/08
CHROMIUM VI	018	S	03LVI004	01/08/03	01/15/03	01/15/03
J00FJ7						
% SOLIDS	019	S	03L%S003	01/08/03	01/14/03	01/15/03
CHROMIUM VI	019	S	03LVI004	01/08/03	01/15/03	01/15/03
J00FJ8						
% SOLIDS	020	S	03L%S003	01/08/03	01/14/03	01/15/03
% SOLIDS	020 REP	S	03L%S003	01/08/03	01/14/03	01/15/03
CHROMIUM VI	020	S	03LVI004	01/08/03	01/15/03	01/15/03
CHROMIUM VI	020 REP	S	03LVI004	01/08/03	01/15/03	01/15/03
CHROMIUM VI	020 MS	S	03LVI004	01/08/03	01/15/03	01/15/03
CHROMIUM VI	020 MSD	S	03LVI004	01/08/03	01/15/03	01/15/03

LAB QC:

CHROMIUM VI	MB1	S	03LVI004	N/A	01/15/03	01/15/03
CHROMIUM VI	MB1 BS	S	03LVI004	N/A	01/15/03	01/15/03
CHROMIUM VI	MB1 BSD	S	03LVI004	N/A	01/15/03	01/15/03

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU-HANFORD B00-030 H2041
LVL#: 0301L462

W.O.#: 11343-606-001-9999-00
Date Received: 01-10-03

INORGANIC NARRATIVE

1. This narrative covers the analyses of 20 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

01-27-03
Date

njp\i01-462

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 18 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**		

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.

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 01/23/03

CLIENT: TNUHANFORD B00-030 H2041 LVL LOT #: 0301L462

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	J00FF9	% Solids	92.2	%	0.01	1.0
		Chromium VI	0.43 u	MG/KG	0.43	1.0
-002	J00FH0	% Solids	92.2	%	0.01	1.0
		Chromium VI	0.43 u	MG/KG	0.43	1.0
-003	J00FH1	% Solids	90.2	%	0.01	1.0
		Chromium VI	0.44 u	MG/KG	0.44	1.0
-004	J00FH2	% Solids	88.6	%	0.01	1.0
		Chromium VI	13.3	MG/KG	0.45	1.0
-005	J00FH3	% Solids	96.0	%	0.01	1.0
		Chromium VI	13.3	MG/KG	0.42	1.0
-006	J00FH4	% Solids	95.8	%	0.01	1.0
		Chromium VI	0.42 u	MG/KG	0.42	1.0
-007	J00FH5	% Solids	92.1	%	0.01	1.0
		Chromium VI	2.7	MG/KG	0.43	1.0
-008	J00FH6	% Solids	95.3	%	0.01	1.0
		Chromium VI	1.3	MG/KG	0.42	1.0
-009	J00FH7	% Solids	93.2	%	0.01	1.0
		Chromium VI	0.63	MG/KG	0.43	1.0
-010	J00FH8	% Solids	91.1	%	0.01	1.0
		Chromium VI	1.5	MG/KG	0.44	1.0

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 01/23/03

CLIENT: TNUHANFORD B00-030 H2041 LVL LOT #: 0301L462

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-011	J00FH9	% Solids	88.1	%	0.01	1.0
		Chromium VI	0.45 u	MG/KG	0.45	1.0
-012	J00FJ0	% Solids	87.8	%	0.01	1.0
		Chromium VI	0.46 u	MG/KG	0.46	1.0
-013	J00FJ1	% Solids	94.3	%	0.01	1.0
		Chromium VI	0.42 u	MG/KG	0.42	1.0
-014	J00FJ2	% Solids	87.8	%	0.01	1.0
		Chromium VI	1.2	MG/KG	0.46	1.0
-015	J00FJ3	% Solids	88.0	%	0.01	1.0
		Chromium VI	0.45 u	MG/KG	0.45	1.0
-016	J00FJ4	% Solids	92.3	%	0.01	1.0
		Chromium VI	0.43 u	MG/KG	0.43	1.0
-017	J00FJ5	% Solids	83.9	%	0.01	1.0
		Chromium VI	0.48 u	MG/KG	0.48	1.0
-018	J00FJ6	% Solids	86.2	%	0.01	1.0
		Chromium VI	1.2	MG/KG	0.46	1.0
-019	J00FJ7	% Solids	89.8	%	0.01	1.0
		Chromium VI	0.44 u	MG/KG	0.44	1.0
-020	J00FJ8	% Solids	86.5	%	0.01	1.0
		Chromium VI	0.46 u	MG/KG	0.46	1.0

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 01/23/03

CLIENT: TNUHANFORD B00-030 H2041

LVL LOT #: 0301L462

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK10	03LVI004-MB1	Chromium VI	0.40 u	MG/KG	0.40	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 01/23/03

CLIENT: TNUHANFORD B00-030 H2041 LVL LOT #: 0301L462

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-020	J00FJ8	Soluble Chromium VI	4.4	0.46u	4.6	93.3	1.0
		Insoluble Chromium VI	1340	0.46u	1340	100.3	100
BLANK10	03LVI004-MB1	Soluble Chromium VI	4.0	0.40u	4.0	98.8	1.0
		Insoluble Chromium VI	1270	0.40u	1370	92.9	100

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 01/23/03

CLIENT: TNUHANFORD B00-030 H2041

LVL LOT #: 0301L462

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-001REP	J00FF9	% Solids	92.2	93.0	0.97	1.0
-020REP	J00FJ8	% Solids	86.5	84.0	2.9	1.0
		Chromium VI	0.46u	0.46u	NC	1.0

Lionville Laboratory Use Only

0301L462

Custody Transfer Record/Lab Work Request

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client: TNU Hanford B00-030

Est. Final Proj. Sampling Date:

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

Project Contact/Phone #:

Lionville Laboratory Project Manager: 05

QC: SPEC Del: STD TAT: 21 days

Date Rec'd: 1-10-03 Date Due: 1-31-03

		A	B
Refrigerator #		5	5
#/Type Container	Liquid		
	Solid	1aq	1aq
Volume	Liquid		
	Solid	200	125
Preservatives		—	

ANALYSES REQUESTED →

ORGANIC				INORG		
VOA	BNA	Pest/PCB	Herb	ICP Metal	CN	Hex Chrome

Lionville Laboratory Use Only

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	MASTO	ICRL
001	J00FF9			S	1-7-03	0900	X	X
002	J00FH0					1	X	X
003	J00FH1					0915	X	X
004	J00FH2					0923	X	X
005	J00FH3					0931	X	X
006	J00FH4					0939	X	X
007	J00FH5					0947	X	X
008	J00FH6					0955	X	X
009	J00FH7					1003	X	X
010	J00FH8					1011	X	X

Special Instructions: SAF # B00-030

Run Matrix QC

DATE/REVISIONS:
1.
2.
3.
4.
5.
6.

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. 0.4 °C

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

NOTES: 7901 8039 1283 / 0.6°C 7915 0808 6519

Relinquished by	Received by	Date	Time
[illegible]	[illegible]	1-10-03	0910

Relinquished by	Received by	Date	Time
COMPOSITE WASTE	ORIGINAL REWRITTEN		

Lionville Laboratory Use Only

0301L462

Custody Transfer Record/Lab Work Request

Page 5 of 6

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

LVLI Lionville Laboratory Inc.

13

Client: TNU Hanford

Est. Final Proj. Sampling Date:

Project #: See page 1

Project Contact/Phone #:

Lionville Laboratory Project Manager: Arlette Johnson

QC: Del: TAT: 21 days

Date Rec'd: 1.10.03 Date Due:

Refrigerator #		A	B
		5	5
#/Type Container	Liquid		
	Solid	bag	bag
Volume	Liquid		
	Solid	250	125
Preservatives		—	—

ANALYSES REQUESTED →

ORGANIC				INORG		
VOA	BNA	Pest/PCB	Herb	Metal	CN	Hex Chrome

Lionville Laboratory Use Only

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	MASTO	IC26
011	J00FH9			S	1.7.03	1019	X	X
012	J00FJ0					1027	X	X
013	J00FJ1					1035	X	X
014	J00FJ2					1043	X	X
015	J00FJ3					1051	X	X
016	J00FJ4				1.8.03	0845	X	X
017	J00FJ5					0845	X	X
018	J00FJ6					0900	X	X
019	J00FJ7					0907	X	X
020	J00FJ8					0914	X	X

Special Instructions:

DATE/REVISIONS:

1.
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
Fed Ex	D. Smith	1.10.03	0910

Relinquished by	Received by	Date	Time

Discrepancies Between Samples Labels and COC Record? Y or N

NOTES:

Bechtel Hanford Inc.

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

B00-030-083

Collector: Nielson/Stankovich	Company Contact: Mike Stankovich	Telephone No.: 531-7620	Project Coordinator: TRENT, SJ
Price Code: 8L	Data Turnaround: 21 Days	Air Quality ☐	
Project Designation: 100 F Area - Full Protocol	Sampling Location: 116-F-1		SAF No.: B00-030
Ice Chest No.: ERC 02-404	Field Logbook No.: EL-1535-8	COA: R116F12600	Method of Shipment: FedEx
Shipped To: TMA/RECRA	Offsite Property No.: A030 103		Bill of Lading/Air Bill No.: 7901-8039-1283

POSSIBLE SAMPLE HAZARDS/REMARKS

Radioactive Tie To B13 DV9

Special Handling and/or Storage

Cool 4°C

Preservation	None	Cool 4C	None	None							
Type of Container	aG	aG	P	aG							
No. of Container(s)	1	1	1	1							
Volume	250mL	125mL	1000mL	60mL							
SAMPLE ANALYSIS	See item (1) in Special Instructions.	Chromium Hex - 7196	See item (2) in Special Instructions.	~~Strontium-89,90 - Total Gr, Nickel-63,~~ Carbon-14							

RO 01-08-03

MS 1-6-3

Sample No.	Matrix *	Sample Date	Sample Time										
J00FF9	SOIL	1-7-3	0900	✓	✓	✓	✓						
J00FH0	SOIL	1-7-3	0900	✓	✓	✓	✓						
J00FH1	SOIL	1-7-3	0915	✓	✓	✓	✓						
J00FH2	SOIL	1-7-3	0923	✓	✓	✓	✓						
J00FH3	SOIL	1-7-3	0931	✓	✓	✓	✓						

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
M Stankovich	1-7-3 1430	3B/3728	1-7-3 1430
3B 3728	01-08-03 1000	R Fahlberg R Fahlberg	01-08-03 1000
R Fahlberg R Fahlberg	01-08-03 1000	FedEx	
FedEx	1-10-03/0910	[illegible]	1-10-03/0910

SPECIAL INSTRUCTIONS

MS 1-6-3

(1) ICP Metals - 6010A (Supertrace) {Arsenic, ~~Chromium, Lead~~}, ~~Mercury - 7471 - (CV)~~

(2) Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}

Personnel not available to relinquish samples from the 3728 Ref # 3B on 01/08/03

Matrix *

S=Soil
SE=Sediment
SO=Solid
Sl=Sludge
W = Water
O=Oil
A=Air
DS=Drum Solids
DL=Drum Liquids
T=Tissue
Wl=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)

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B00-030-085	Page 2 of 6

Collector: Nielson/Stankovich	Company Contact: Mike Stankovich	Telephone No.: 531-7620	Project Coordinator: TRENT, SJ
Price Code: 8L	Data Turnaround: 21 Days	Air Quality ☐	
Project Designation: 100 F Area - Full Protocol	Sampling Location: 116-F-1		SAF No.: B00-030
Ice Chest No.: ERC 02.404	Field Logbook No.: EL-1535-8	COA: R116F12600	Method of Shipment: FedEx
Shipped To: TMA/RECRA	Offsite Property No.: A030 103		Bill of Lading/Air Bill No.: 7901.8039.1283

POSSIBLE SAMPLE HAZARDS/REMARKS

Radioactive

Tie To B13DV9

Special Handling and/or Storage

Cool 4°C

Preservation	None	Cool 4C	None	None							
Type of Container	aG	aG	P	aG							
No. of Container(s)	1	1	1	1							
Volume	250mL	125mL	1000mL	60mL							
SAMPLE ANALYSIS	See item (1) in Special Instructions.	Chromium Hex - 7196	See item (2) in Special Instructions.	~~Strontium-90, Total Cs, Nickel-63~~, Carbon-14 mo 1.6.3							
Sample No.	Matrix *	Sample Date	Sample Time								
J00FH4	SOIL	1.7.3	0939	✓	✓	✓	✓				
J00FH5	SOIL	1.7.3	0947	✓	✓	✓	✓				
J00FH6	SOIL	1.7.3	0955	✓	✓	✓	✓				
J00FH7	SOIL	1.7.3	1003	✓	✓	✓	✓				
J00FH8	SOIL	1.7.3	1011	✓	✓	✓	✓				

CHAIN OF POSSESSION

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
MS Stankovich	1.7.3 1430	3B/3728	1.7.3 1430
3B 3728	01.08.03 1000	R. Fabl R. Fabl	01.08.03 1000
R. Fabl R. Fabl	ERC 1.08.03 1000	Fed Ex	
Fed Ex	1.10.03 0910	[illegible]	1.10.03 0910

Sign/Print Names

SPECIAL INSTRUCTIONS

(1) ICP Metals - 6010A (Supertrace) {Arsenic, ~~Chromium, Lead~~}, ~~Mercury - 7471 - (CV)~~ mo 1.6.3
(2) Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}

Personnel not available to relinquish samples from the 3728 Ref # 3B on 01/08/03

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

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

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

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B00-030-085	Page 3 of 6

Collector Nielson/Stankovich	Company Contact Mike Stankovich	Telephone No. 531-7620	Project Coordinator TRENT, SJ
Project Designation 100 F Area - Full Protocol	Sampling Location 116-F-1		SAF No. B00-030
Ice Chest No. ERC 02 404	Field Logbook No. EL-1535-8	COA R116F12600	Method of Shipment FedEx
Shipped To TMA/RECRA	Offsite Property No. A030 103		Bill of Lading/Air Bill No. 7901 8039 1283

Price Code 8L

Air Quality ☐

Data Turnaround 21 Days

POSSIBLE SAMPLE HAZARDS/REMARKS

Radioactive

Tie To B13DV9

Special Handling and/or Storage

Cool 4°C

Preservation	None	Cool 4C	None	None							
Type of Container	aG	aG	P	aG							
No. of Container(s)	1	1	1	1							
Volume	250mL	125mL	1000mL	60mL							
SAMPLE ANALYSIS	See item (1) in Special Instructions.	Chromium Hex - 7196	See item (2) in Special Instructions.	~~Strontium 89,90 - Total Sr, Nickel-63,~~ Carbon-14							

Sample No.	Matrix *	Sample Date	Sample Time											
J00FH9	SOIL	1·7·3	1019	✓	✓	✓	✓							
J00FJ0	SOIL	1·7·3	1027	✓	✓	✓	✓							
J00FJ1	SOIL	1·7·3	1035	✓	✓	✓	✓							
J00FJ2	SOIL	1·7·3	1043	✓	✓	✓	✓							
J00FJ3	SOIL	1·7·3	1051	✓	✓	✓	✓							

1·8·3

mo 1·6·3

CHAIN OF POSSESSION	Sign/Print Names	
Relinquished By/Removed From MS mstankovich 1·7·3	Date/Time 1430	Received By/Stored In 3B/3728 1·7·3	Date/Time 1430
Relinquished By/Removed From 3B 3728 1·8·03	Date/Time 1000	Received By/Stored In R. Fahlberg R. Fahlberg 01·08·03	Date/Time 1000
Relinquished By/Removed From R. Fahlberg R. Fahlberg 01·08·03	Date/Time 1000	Received By/Stored In FedEx	Date/Time
Relinquished By/Removed From FedEx 1·10·03	Date/Time 0910	Received By/Stored In [illegible] 1·10·03	Date/Time 0910
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

mo 1·6·3

(1) ICP Metals - 6010A (Supertrace) {Arsenic, ~~Chromium, Lead), Mercury - 7471 - (CV)~~

(2) Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}

Personnel not available to relinquish samples from the 3728 Ref # 3B on 01/08/03

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)

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B00-030-085	Page 4 of 6

Collector: Nielson/Stankovich	Company Contact: Mike Stankovich — Telephone No.: 531-7620	Project Coordinator: TRENT, SJ	Price Code: 8L — Data Turnaround: 21 Days
Project Designation: 100 F Area - Full Protocol	Sampling Location: 116-F-1	SAF No.: B00-030	Air Quality ☐
Ice Chest No.: ERC 96-061	Field Logbook No.: EL-1535-8 — COA: R116F12600	Method of Shipment: FedEx	
Shipped To: TMA/RECRA	Offsite Property No.: A030 104	Bill of Lading/Air Bill No.: SEE OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS

Radioactive TiR To B13DV9

Special Handling and/or Storage

Cool 4°C

Preservation	None	Cool 4C	None	None							
Type of Container	aG	aG	P	aG							
No. of Container(s)	1	1	1	1							
Volume	250mL	125mL	1000mL	60mL							
SAMPLE ANALYSIS	See item (1) in Special Instructions.	Chromium Hex - 7196	See item (2) in Special Instructions. R 1.9.3	~~Strontium-90, 90 - Total Sr, Nickel-63~~ Carbon-14 mo 1.6.3							

Sample No.	Matrix *	Sample Date	Sample Time											
J00FJ4	SOIL	1-8-3	0845	✓	✓	✓	✓							
J00FJ5	SOIL	1-8-3	0845	✓	✓	✓	✓							
J00FJ6	SOIL	1-8-3	0900	✓	✓	✓	✓							
J00FJ7	SOIL	1-8-3	0907	✓	✓	✓	✓							
J00FJ8	SOIL	1-8-3	0914	✓	✓	✓	✓							

CHAIN OF POSSESSION	Sign/Print Names	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time 1430	Received By/Stored In	Date/Time
[signature] Stankovich	1.8.3	3B/3728	1.8.3 1430
Relinquished By/Removed From	Date/Time 1000	Received By/Stored In	Date/Time 1000
3B 3728	1.9.3	R. Fahlberg [signature]	1.9.3
Relinquished By/Removed From	Date/Time 1000	Received By/Stored In	Date/Time
R. Fahlberg [signature]	1.9.3	Fed Ex	
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Fed Ex	1.10.03 0910	[signature]	1.10.03 0910
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

mo 1.6.3

(1) ICP Metals - 6010A (Supertrace) (Arsenic, ~~Chromium, Lead~~), ~~Mercury - 7471 - (CV)~~

(2) Gamma Spectroscopy (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155)

Personnel not available to relinquish samples from the 3728 Ref # 3B on 1/9/3

Matrix *

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

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

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

LIONVILLE LABORATORY INCORPORATED
SAMPLE RECEIPT CHECKLIST

LIENT: TMU Hanford

ırchase Order/Project:

DATE: 1.10.03

AF#/SOW# / Release #: B00.030

aboratory SDG #: 0301L462

IOTE: 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 96.061 / 0.4°C

ERC 02.404 / 0.6°C

Laboratory Sample Custodian: [illegible]

Laboratory Project Manager:

FEB 2003

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B00-030 H2041

DATE RECEIVED: 01/10/03 LVL LOT # :0301L462

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J00FF9						
ARSENIC, TOTAL	001	S	03L0014	01/07/03	01/13/03	01/14/03
J00FH0						
ARSENIC, TOTAL	002	S	03L0014	01/07/03	01/13/03	01/14/03
ARSENIC, TOTAL	002 REP	S	03L0014	01/07/03	01/13/03	01/14/03
ARSENIC, TOTAL	002 MS	S	03L0014	01/07/03	01/13/03	01/14/03
ARSENIC, TOTAL	002 MSD	S	03L0014	01/07/03	01/13/03	01/14/03
J00FH1						
ARSENIC, TOTAL	003	S	03L0014	01/07/03	01/13/03	01/14/03
J00FH2						
ARSENIC, TOTAL	004	S	03L0014	01/07/03	01/13/03	01/14/03
J00FH3						
ARSENIC, TOTAL	005	S	03L0014	01/07/03	01/13/03	01/14/03
J00FH4						
ARSENIC, TOTAL	006	S	03L0014	01/07/03	01/13/03	01/14/03
J00FH5						
ARSENIC, TOTAL	007	S	03L0014	01/07/03	01/13/03	01/14/03
J00FH6						
ARSENIC, TOTAL	008	S	03L0014	01/07/03	01/13/03	01/14/03
J00FH7						
ARSENIC, TOTAL	009	S	03L0014	01/07/03	01/13/03	01/14/03

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B00-030 H2041

DATE RECEIVED: 01/10/03 LVL LOT # :0301L462

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J00FH8						
ARSENIC, TOTAL	010	S	03L0014	01/07/03	01/13/03	01/14/03
J00FH9						
ARSENIC, TOTAL	011	S	03L0014	01/07/03	01/13/03	01/14/03
J00FJ0						
ARSENIC, TOTAL	012	S	03L0014	01/07/03	01/13/03	01/14/03
J00FJ1						
ARSENIC, TOTAL	013	S	03L0014	01/07/03	01/13/03	01/14/03
J00FJ2						
ARSENIC, TOTAL	014	S	03L0014	01/07/03	01/13/03	01/14/03
J00FJ3						
ARSENIC, TOTAL	015	S	03L0014	01/07/03	01/13/03	01/14/03
J00FJ4						
ARSENIC, TOTAL	016	S	03L0014	01/08/03	01/13/03	01/14/03
J00FJ5						
ARSENIC, TOTAL	017	S	03L0014	01/08/03	01/13/03	01/14/03
J00FJ6						
ARSENIC, TOTAL	018	S	03L0014	01/08/03	01/13/03	01/14/03
J00FJ7						
ARSENIC, TOTAL	019	S	03L0014	01/08/03	01/13/03	01/14/03

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B00-030 H2041

DATE RECEIVED: 01/10/03 LVL LOT # :0301L462

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J00FJ8						
ARSENIC, TOTAL	020	S	03L0014	01/08/03	01/13/03	01/14/03

LAB QC:

ARSENIC LABORATORY	LC1 BS	S	03L0014	N/A	01/13/03	01/14/03
ARSENIC, TOTAL	MB1	S	03L0014	N/A	01/13/03	01/14/03

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU-HANFORD B00-030
LVL#: 0301L462
SDG/SAF#: H2041/B00-030

W.O.#: 11343-606-001-9999-00
Date Received: 01-10-03

METALS CASE NARRATIVE

1. This narrative covers the analyses of 20 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. The preparation/method blank (MB) was 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. The laboratory control sample (LCS) was within the 80-120% control limits. Refer to the Inorganics Laboratory Control Standards Report.

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

11. The MS and MSD were within the 20% Relative Percent Difference (RPD) control limits. Refer to the Inorganics Duplicate Spike Report.

12. The duplicate analysis was within the 20% Relative Percent Difference (RPD) control limits. Refer to the Inorganics Precision 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 21 pages.

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

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

01-21-03
Date

jjw/m01-462

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#: 0301L462

Leaching Procedure: __1310 __1311 __1312 __Other:_____

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

Metals Digestion Methods: __3005A __3010A __3015 __3020A X3050B __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	X6010B	__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

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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.

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 01/21/03

CLIENT: TNUHANFORD B00-030 H2041 LVL LOT #: 0301L462

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	J00FF9	Arsenic, Total	3.0	MG/KG	0.40	1.0
-002	J00FH0	Arsenic, Total	4.1	MG/KG	0.40	1.0
-003	J00FH1	Arsenic, Total	4.3	MG/KG	0.35	1.0
-004	J00FH2	Arsenic, Total	3.7	MG/KG	0.43	1.0
-005	J00FH3	Arsenic, Total	1.7	MG/KG	0.36	1.0
-006	J00FH4	Arsenic, Total	1.9	MG/KG	0.38	1.0
-007	J00FH5	Arsenic, Total	4.1	MG/KG	0.41	1.0
-008	J00FH6	Arsenic, Total	2.4	MG/KG	0.40	1.0
-009	J00FH7	Arsenic, Total	3.4	MG/KG	0.38	1.0
-010	J00FH8	Arsenic, Total	7.3	MG/KG	0.38	1.0

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 01/21/03

CLIENT: TNUHANFORD B00-030 H2041

LVL LOT #: 0301L462

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-011	J00FH9	Arsenic, Total	6.3	MG/KG	0.35	1.0
-012	J00FJ0	Arsenic, Total	13.4	MG/KG	0.42	1.0
-013	J00FJ1	Arsenic, Total	5.7	MG/KG	0.38	1.0
-014	J00FJ2	Arsenic, Total	3.9	MG/KG	0.37	1.0
-015	J00FJ3	Arsenic, Total	6.0	MG/KG	0.42	1.0
-016	J00FJ4	Arsenic, Total	7.7	MG/KG	0.29	1.0
-017	J00FJ5	Arsenic, Total	6.0	MG/KG	0.33	1.0
-018	J00FJ6	Arsenic, Total	5.5	MG/KG	0.43	1.0
-019	J00FJ7	Arsenic, Total	4.0	MG/KG	0.42	1.0
-020	J00FJ8	Arsenic, Total	5.7	MG/KG	0.41	1.0

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 01/21/03

CLIENT: TNUHANFORD B00-030 H2041

LVL LOT #: 0301L462

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK1	03L0014-MB1	Arsenic, Total	0.38 u	MG/KG	0.38	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 01/21/03

CLIENT: TNUHANFORD B00-030 H2041

LVL LOT #: 0301L462

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-002	J00FH0	Arsenic, Total	200	4.1	207	94.6	1.0
		Arsenic, Total MSD	202	4.1	213	93.2	1.0

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Lionville Laboratory, Inc.

INORGANICS DUPLICATE SPIKE REPORT 01/21/03

CLIENT: TNUHANFORD B00-030 H2041

LVL LOT #: 0301L462

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

SAMPLE	SITE ID	ANALYTE	SPIKE#1 %RECOV	SPIKE#2 %RECOV	%DIFF
-002	J00FH0	Arsenic, Total	94.6	93.2	1.4

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 01/21/03

CLIENT: TNUHANFORD B00-030 H2041 LVL LOT #: 0301L462

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-002REP	J00FH0	Arsenic, Total	4.1	4.4	7.1	1.0

Lionville Laboratory, Inc.

INORGANICS LABORATORY CONTROL STANDARDS REPORT 01/21/03

CLIENT: TNUHANFORD B00-030 H2041

LVL LOT #: 0301L462

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
LCS1	03L0014-LC1	Arsenic, LCS	956	1000	MG/KG	95.6

Lionville Laboratory Use Only

03011462

Custody Transfer Record/Lab Work Request

Page 1 of 2

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client: TNU Hanford B00-030

Est. Final Proj. Sampling Date:

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

Project Contact/Phone #:

Lionville Laboratory Project Manager: 05

QC: SPEC Del: STD TAT: 21 days

Date Rec'd: 1.10.03 Date Due: 1-31-03

		A	B
Refrigerator #		5	5
#/Type Container	Liquid		
	Solid	1aq	1aq
Volume	Liquid		
	Solid	200	125
Preservatives		—	
ANALYSES REQUESTED	ORGANIC: VOA, BNA, Pest/PCB, Herb	INORG: ICP Metal, CN	Hex Chrome
Lionville Laboratory Use Only		MASTO	ICRL

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	MASTO	ICRL
001	J00FF9			S	1.7.03	0900	X	X
002	J00FH0					1	X	X
003	J00FH1					0915	X	X
004	J00FH2					0923	X	X
005	J00FH3					0931	X	X
006	J00FH4					0939	X	X
007	J00FH5					0947	X	X
008	J00FH6					0955	X	X
009	J00FH7					1003	X	X
010	J00FH8					1011	X	X

Special Instructions: SAF # B00-030

Run Matrix QC

DATE/REVISIONS:
1.
2.
3.
4.
5.
6.

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. 0.4 °C

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

NOTES: 7901 8039 1283/0160 7915 0808 6519

Relinquished by	Received by	Date	Time
[illegible]	[illegible]	1.10.03	0910

Relinquished by	Received by	Date	Time
COMPOSITE WASTE	ORIGINAL REWRITTEN		

Lionville Laboratory Use Only

0301L462

Custody Transfer Record/Lab Work Request

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client: TMU Hanford

Est. Final Proj. Sampling Date:

Project #: See page 1

Project Contact/Phone #:

Lionville Laboratory Project Manager: Arlette Johnson

QC: Del: TAT: 21 days

Date Rec'd: 1.10.03 Date Due:

		A	B
Refrigerator #		5	5
#/Type Container	Liquid		
	Solid	bag	bag
Volume	Liquid		
	Solid	250	125
Preservatives		1	1

ANALYSES REQUESTED →

MATRIX CODES:	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
								Lionville Laboratory Use Only				MASTO		ICAG
	011	J00FH9			S	1.7.03	1019					X		X
	012	J00FJ0					1027					X		X
	013	J00FJ1					1035					X		X
	014	J00FJ2					1043					X		X
	015	J00FJ3					1051					X		X
	016	J00FJ4				1.8.03	0845					X		X
	017	J00FJ5					0845					X		X
	018	J00FJ6					0900					X		X
	019	J00FJ7					0907					X		X
	020	J00FJ8					0914					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:

DATE/REVISIONS:
1.
2.
3.
4.
5.
6.

Relinquished by	Received by	Date	Time
Alex Ex	[illegible]	1.10.03	0910

Relinquished by	Received by	Date	Time

Discrepancies Between Samples Labels and COC Record? Y or N

NOTES:

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

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Collector: Nielson/Stankovich	Company Contact: Mike Stankovich — Telephone No.: 531-7620	Project Coordinator: TRENT, SJ	Price Code: 8L — Data Turnaround: 21 Days
Project Designation: 100 F Area - Full Protocol	Sampling Location: 116-F-1	SAF No.: B00-030	Air Quality ☐
Ice Chest No.: ERC 02-404	Field Logbook No.: EL-1535-8 — COA: R116F12600	Method of Shipment: FedEx	
Shipped To: TMA/RECRA	Offsite Property No.: A030 103	Bill of Lading/Air Bill No.: 7901-8039-1283	

POSSIBLE SAMPLE HAZARDS/REMARKS

Radioactive Ti-Tc B13 DV9

Special Handling and/or Storage

Cool 4°C

Preservation	None	Cool 4C	None	None							
Type of Container	sG	sG	P	sG							
No. of Container(s)	1	1	1	1							
Volume	250mL	125mL	1000mL	60mL							
SAMPLE ANALYSIS	See item (1) in Special Instructions.	Chromium Hex - 7196	See item (2) in Special Instructions. RB 01-08-03	~~Strontium-90, Pu-Nickel-63,~~ Carbon-14 MS 1-6-3							

Sample No.	Matrix *	Sample Date	Sample Time										
J00FF9	SOIL	1-7-3	0900	✓	✓	✓	✓						
J00FH0	SOIL	1-7-3	0900	✓	✓	✓	✓						
J00FH1	SOIL	1-7-3	0915	✓	✓	✓	✓						
J00FH2	SOIL	1-7-3	0923	✓	✓	✓	✓						
J00FH3	SOIL	1-7-3	0931	✓	✓	✓	✓						

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
M. Stankovich	1-7-3 1430	3B/3728	1-7-3 1430
3B 3728	01-08-03 1000	R. Fahlberg R. Fahlberg	01-08-03 1000
R. Fahlberg R. Fahlberg	01-08-03 1000	FedEx	
FedEx	1-10-03/0910	N. Johnson	1-10-03/0910

SPECIAL INSTRUCTIONS

(1) ICP Metals - 6010A (Supertrace) {Arsenic, ~~Chromium, Lead~~, ~~Mercury - 7471 - (CV)~~} MS 1-6-3
(2) Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}

Personnel not available to relinquish samples from the 3728 Ref # 3B on 01-08-03

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)

Bechtel Hanford Inc.

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

B00-030-085 | Page 2

Collector: Nielson/Stankovich	Company Contact: Mike Stankovich	Telephone No.: 531-7620	Project Coordinator: TRENT, SJ
Price Code: 8L	Data Turnaround: 21 Days	Air Quality ☐	
Project Designation: 100 F Area - Full Protocol	Sampling Location: 116-F-1	SAF No.: B00-030	
Ice Chest No.: ERC 02.404	Field Logbook No.: EL-1535-8	COA: R116F12600	Method of Shipment: FedEx
Shipped To: TMA/RECRA	Offsite Property No.: A030 103	Bill of Lading/Air Bill No.: 7901.8039-1283	

POSSIBLE SAMPLE HAZARDS/REMARKS

Radioactive

Tie To B13DV9

Special Handling and/or Storage

Cool 4°C

Preservation	None	Cool 4C	None	None							
Type of Container	aG	aG	P	aG							
No. of Container(s)	1	1	1	1							
Volume	250mL	125mL	1000mL	60mL							
SAMPLE ANALYSIS	See item (1) in Special Instructions.	Chromium Hex - 7196	See item (2) in Special Instructions.	~~Americium-241, Pu-239, Pu-240, Ni-63~~ Carbon-14							

Sample No.	Matrix *	Sample Date	Sample Time											
J00FH4	SOIL	1.7.3	0939	✓	✓	✓	✓							
J00FH5	SOIL	1.7.3	0947	✓	✓	✓	✓							
J00FH6	SOIL	1.7.3	0955	✓	✓	✓	✓							
J00FH7	SOIL	1.7.3	1003	✓	✓	✓	✓							
J00FH8	SOIL	1.7.3	1011	✓	✓	✓	✓							

CHAIN OF POSSESSION — **Sign/Print Names**

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
mstankovich	1.7.3 1430	3B/3728	1.7.3 1430
3B 3728	01.08.03 1000	R.Fahlberg R.Fahlberg	01.08.03 1000
R.Fahlberg R.Fahlberg	1.08.03 1000	Fed Ex	
Fed Ex	1.10.03 0910	[illegible]	1.10.03 0910

SPECIAL INSTRUCTIONS

(1) ICP Metals - 6010A (Supertrace) {Arsenic, ~~Chromium, Lead~~}, ~~Mercury - 7471 - (CV)~~ MO 1.6.3

(2) Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}

Personnel not available to relinquish samples from the 3728 Ref # 3B on 01/08/03

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)

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

B00-030-085 | Page 2 of

Collector: Nielson/Stankovich	Company Contact: Mike Stankovich	Telephone No.: 531-7620	Project Coordinator: TRENT, SJ
Price Code: 8L	Data Turnaround: 21 Days	Air Quality ☐	
Project Designation: 100 F Area - Full Protocol	Sampling Location: 116-F-1	SAF No.: B00-030	
Ice Chest No.: ERC 02 404	Field Logbook No.: EL-1535-8	COA: R116F12600	Method of Shipment: FedEx
Shipped To: TMA/RECRA	Offsite Property No.: A030 103	Bill of Lading/Air Bill No.: 7901 8039 1283	

POSSIBLE SAMPLE HAZARDS/REMARKS

Radioactive Tie To B13DV9

Special Handling and/or Storage

Cool 4°C

Preservation	None	Cool 4C	None	None							
Type of Container	aG	aG	P	aG							
No. of Container(s)	1	1	1	1							
Volume	250mL	125mL	1000mL	60mL							
SAMPLE ANALYSIS	See item (1) in Special Instructions.	Chromium Hex - 7196	See item (2) in Special Instructions.	~~Strontium-90, Total Alpha, Nickel-63~~; Carbon-14							

1-8-3 MO 1-6-3

Sample No.	Matrix *	Sample Date	Sample Time										
J00FH9	SOIL	1-7-3	1019	✓	✓	✓	✓						
J00FJ0	SOIL	1-7-3	1027	✓	✓	✓	✓						
J00FJ1	SOIL	1-7-3	1035	✓	✓	✓	✓						
J00FJ2	SOIL	1-7-3	1043	✓	✓	✓	✓						
J00FJ3	SOIL	1-7-3	1051	✓	✓	✓	✓						

CHAIN OF POSSESSION — **Sign/Print Names**

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
[illegible]	1-7-3 1430	3B/3728	1-7-3 1430
3B 3728	1-8-03 1000	R. Fahlberg R. Fahlberg	01-08-03 1000
R. Fahlberg R. Fahlberg	01-08-03 1000	FedEx	
FedEx	1-10-03 0910	[illegible]	1-10-03 0910

SPECIAL INSTRUCTIONS

MO 1-6-3

(1) ICP Metals - 6010A (Supertrace) (Arsenic, ~~Chromium, Lead), Mercury - 7471 (CV)~~

(2) Gamma Spectroscopy (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155)

Personnel not available to relinquish samples from the 3728 Ref # 3B on 01/08/03

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)

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

B00-030-085 Page 2 of

Collector: Nielson/Stankovich	Company Contact: Mike Stankovich	Telephone No.: 531-7620	Project Coordinator: TRENT, SJ
Price Code: 8L	Data Turnaround: 21 Days	Air Quality ☐	
Project Designation: 100 F Area - Full Protocol	Sampling Location: 116-F-1		SAF No.: B00-030
Ice Chest No.: ERC 96-061	Field Logbook No.: EL-1535-8	COA: R116F12600	Method of Shipment: FedEx
Shipped To: TMA/RECRA	Offsite Property No.: A030 104		Bill of Lading/Air Bill No.: SEE OBPC

POSSIBLE SAMPLE HAZARDS/REMARKS

Radioactive TiR To B13DV9

Special Handling and/or Storage

Cool 4°C

Preservation	None	Cool 4C	None	None							
Type of Container	sG	sG	P	sG							
No. of Container(s)	1	1	1	1							
Volume	250mL	125mL	1000mL	60mL							
SAMPLE ANALYSIS	See item (1) in Special Instructions.	Chromium Hex - 7196	See item (2) in Special Instructions. R 1.9.3	~~Strontium, 89/90 — Total Gr, Nickel-63,~~ Carbon-14 MO 1.6.3							
Sample No.	Matrix *	Sample Date	Sample Time								
J00FJ4	SOIL	1-8-3	0845	—	—	—	—				
J00FJ5	SOIL	1-8-3	0845	—	—	—	—				
J00FJ6	SOIL	1-8-3	0900	—	—	—	—				
J00FJ7	SOIL	1-8-3	0907	—	—	—	—				
J00FJ8	SOIL	1-8-3	0914	—	—	—	—				

CHAIN OF POSSESSION — **Sign/Print Names**

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
[signature] Stankovich	1430 1-8-3	3B/3728	1-8-3 1430
3B 3728	1000 1-9-3	R. Fahlberg [signature]	1000 1-9-3
R. Fahlberg [signature]	1000 1-9-3	Fed Ex	
Fed Ex	1-10-03 0910	[signature]	1-10-03 0910

SPECIAL INSTRUCTIONS MO 1.6.3

(1) ICP Metals - 6010A (Supertrace) {Arsenic, ~~Chromium, Lead~~}, ~~Mercury - 7471 - (CV)~~
(2) Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}

Personnel not available to relinquish samples from the 3728 Ref # 3B on 1/9/3

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)

LIONVILLE LABORATORY INCORPORATED
SAMPLE RECEIPT CHECKLIST

LIENT: TMU Hanford

rchase Order/Project:

DATE: 1·10·03

AF#/SOW# / Release #: B00·030

aboratory SDG #: 0301L462

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 96·061 / 0.4°C

ERC 02·404 / 0.6°C

Laboratory Sample Custodian: [signature]

Laboratory Project Manager: