

RECEIVED JUNE 24, 2008

Lionville Laboratory, Inc.  
INORGANIC ANALYTICAL DATA PACKAGE FOR  
TNUHANFORD F08-066 H3703

DATE RECEIVED: 04/30/08

LVL LOT # :0804L025

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B1TFD2						
CHROMIUM VI	001	S	08LVI042	04/16/08	05/02/08	05/02/08
SULFIDE	001	S	08LSD033	04/16/08	05/02/08	05/03/08
SPECIFIC CONDUCTANCE	001	S	08LSP009	04/16/08	05/02/08	05/02/08

B1TFD9

% SOLIDS	002	S	08L%S044	04/17/08	05/02/08	05/03/08
% SOLIDS	002 REP	S	08L%S044	04/17/08	05/02/08	05/03/08
CHROMIUM VI	002	S	08LVI042	04/17/08	05/02/08	05/02/08
CHROMIUM VI	002 REP	S	08LVI042	04/17/08	05/02/08	05/02/08
CHROMIUM VI	002 MS	S	08LVI042	04/17/08	05/02/08	05/02/08
CHROMIUM VI	002 MSD	S	08LVI042	04/17/08	05/02/08	05/02/08
SULFIDE	002	S	08LSD033	04/17/08	05/02/08	05/03/08
SULFIDE	002 REP	S	08LSD033	04/17/08	05/02/08	05/03/08
SULFIDE	002 MS	S	08LSD033	04/17/08	05/02/08	05/03/08
SPECIFIC CONDUCTANCE	002	S	08LSP009	04/17/08	05/02/08	05/02/08
SPECIFIC CONDUCTANCE	002 REP	S	08LSP009	04/17/08	05/02/08	05/02/08

LAB QC:

CHROMIUM VI	MB1	S	08LVI042	N/A	05/02/08	05/02/08
CHROMIUM VI	MB1 BS	S	08LVI042	N/A	05/02/08	05/02/08
CHROMIUM VI	MB1 BSD	S	08LVI042	N/A	05/02/08	05/02/08
SULFIDE	MB1	S	08LSD033	N/A	05/02/08	05/03/08
SULFIDE	MB1 BS	S	08LSD033	N/A	05/02/08	05/03/08
SULFIDE	MB1 BSD	S	08LSD033	N/A	05/02/08	05/03/08
SPECIFIC CONDUCTANCE	MB1	W	08LSP009	N/A	05/02/08	05/02/08
SPECIFIC CONDUCTANCE	MB1 BS	W	08LSP009	N/A	05/02/08	05/02/08

000000001



**Analytical Report**

**Client:** TNU-HANFORD F08-066 H3703  
**LVL#:** 0804L025

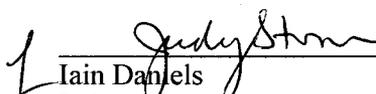
**W.O.#:** 11343-606-001-9999-00  
**Date Received:** 04-30-08

**INORGANIC NARRATIVE**

1. This narrative covers the analyses of 2 soil samples.
2. The samples were prepared and analyzed in accordance with the methods indicated on the attached glossary.

LvLI is NELAP accredited by the State of Pennsylvania. For a complete list of accrediting authorities and the corresponding analytes/methods, please contact your Project Manager. LvLI certifies that all test results meet the requirements of NELAC with any exception noted in the following statements.

3. Sample holding times as required by the method and/or contract were met with the exception of Sulfide that was received past hold (see the sample chronology summary for analyses times for short hold samples).
4. The results presented in this report are derived from samples that met LvLI's sample acceptance policy with the exception of Sulfide as noted on the Sample Receipt Checklist.
5. The method blanks were within the method criteria.
6. The Laboratory Control Samples (LCS) were within the laboratory control limits. The duplicate LCS for Sulfide was within the 20% Relative Percent Difference (RPD) control limit.
7. The matrix spike recoveries were within the 75-125% control limits.
8. The replicate analyses were within the 20% RPD control limit with the exception of Sulfide at 22.5%.
9. Results for soil sample B1TFD9 is reported on a dry weight basis and sample B1TDF2 was reported on as "as-received" 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

5/27/08  
Date

njpl04-025  
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.

# Lionville Laboratory Incorporated

## WET CHEMISTRY

### METHODS GLOSSARY FOR SOIL/SOLIDS SAMPLE ANALYSIS

	<u>ASTM</u>	<u>SW846</u>	<u>OTHER</u>
% Ash	___ D2216-80		
% Moisture	___ D2216-80		___ ILMO4.0 (e)
% Solids	<input checked="" type="checkbox"/> D2216-80		___ ILMO4.0 (e)
% Volatile Solids	___ D2216-80		
ASTM Extraction in Water	___ D3987-81/85		
BTU	___ D240-87		
CEC		___ 9081	___ c
Chromium VI		<input checked="" type="checkbox"/> 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		<input checked="" type="checkbox"/> 9030B(mod) / 9034	
Specific Gravity	___ D1429-76C/	___ D5057-90	
Sulfur, Total		___ 9056	
Synthetic Preparation Leach		___ 1312	
Paint Filter		___ 9095A	
<b>Other:</b> <i>Specific Conductance</i>	<b>Method:</b> <i>SW 9050(mod.)</i>		
<b>Other:</b>	<b>Method</b>		

# 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 05/08/08

CLIENT: TNUHANFORD F08-066 H3703  
 WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0804L025

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
=====	=====	=====	=====	=====	=====	=====
-001	B1TFD2	Chromium VI	0.20	u MG/KG	0.20	1.0
		Sulfide	38.7	MG/KG	22.1	1.0
		Specific Conductance	44.7	UMHOS/C	1.0	1.0
-002	B1TFD9	% Solids	92.4	%	0.01	1.0
		Chromium VI	0.22	u MG/KG	0.22	1.0
		Sulfide	34.6	MG/KG	22.3	1.0
		Specific Conductance	54.3	UMHOS/C	1.0	1.0

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 05/08/08

CLIENT: TNUHANFORD F08-066 H3703  
 WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0804L025

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
=====	=====	=====	=====	=====	=====	=====
BLANK10	08LVI042-MB1	Chromium VI	0.20	u MG/KG	0.20	1.0
BLANK10	08LSD033-MB1	Sulfide	20.6	u MG/KG	20.6	1.0
BLANK10	08LSP009-MB1	Specific Conductance	1.0	u UMHOS/C	1.0	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 05/08/08

CLIENT: TNUHANFORD F08-066 H3703  
 WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0804L025

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR (SPK)
=====	=====	=====	=====	=====	=====	=====	=====
-002	B1TFD9	Soluble Chromium VI	4.3	0.20u	4.3	99.4	1.0
		Insoluble Chromium VI	1240	0.20u	1200	103.2	100
		Sulfide	265	34.6	276	83.2	1.0
BLANK10	08LVI042-MB1	Soluble Chromium VI	4.0	0.20u	4.0	100.2	1.0
		Insoluble Chromium VI	1230	0.20u	1200	102.3	100
BLANK10	08LSD033-MB1	Sulfide	223	20.6 u	257	87.0	1.0
		Sulfide MSD	246	20.6 u	259	95.0	1.0
BLANK10	08LSP009-MB1	Specific Conductance	716	1.0 u	718	99.8	1.0

Lionville Laboratory, Inc.

INORGANICS DUPLICATE SPIKE REPORT 05/08/08

CLIENT: TNUHANFORD F08-066 H3703  
WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0804L025

SAMPLE	SITE ID	ANALYTE	SPIKE#1	SPIKE#2	%DIFF
			%RECOV	%RECOV	
BLANK10	08LSD033-MB1	Sulfide	87.0	95.0	8.7

000000000

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 05/08/08

CLIENT: TNUHANFORD F08-066 H3703  
 WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0804L025

SAMPLE	SITE ID	ANALYTE	INITIAL			DILUTION FACTOR (REP)
			RESULT	REPLICATE RPD		
-002REP	B1TFD9	% Solids	92.4	92.6	0.14	1.0
		Chromium VI	0.22u	0.22u	NC	1.0
		Sulfide	34.6	27.6	22.5	1.0
		Specific Conductance	54.3	54.6	0.68	1.0



COLLECTOR *Conrad My Kosanoff*

COMPANY CONTACT  
TRENT, SJ

TELEPHONE NO.  
373-5869

PROJECT COORDINATOR  
WDRIG, DL

PRICE CODE  
8N

DATA  
TURNAROUND  
45 Days / 45 Days

SAMPLING LOCATION  
CG174, 1-004

PROJECT DESIGNATION  
216-S-6 Crib Sampling - Soil

ACTUAL SAMPLE DEPTH  
22.7' - 25.2'

AIR QUALITY

METHOD OF SHIPMENT  
FEDERAL EXPRESS

ICE CHEST NO.  
*GA-08*

FIELD LOGBOOK NO.  
*HDF-W-585-5*

OFFSITE PROPERTY NO.  
*M 86*

COA  
123210E520

BILL OF LADING/AIR BILL NO.  
*40031000*

SHIPPED TO  
Lionville Laboratory, Incorporated

See PTR

See PTR

MATRIX\*  
A=Air  
DL=Drum  
Liquids  
DS=Drum  
Solids  
L=Liquid  
O=Oil  
S=Soil  
SE=Sediment  
T=Tissue  
V=Vegetation  
W=Water  
WI=Wipe  
X=Other

PRESERVATION  
Cool-dC

PROJECT COORDINATOR  
WDRIG, DL

PRICE CODE  
8N

DATA  
TURNAROUND  
45 Days / 45 Days

POSSIBLE SAMPLE HAZARDS/ REMARKS  
Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR but are not releasable per DOE Order 5400.5 (1990/1993)

TYPE OF CONTAINER  
G

PROJECT COORDINATOR  
WDRIG, DL

PRICE CODE  
8N

DATA  
TURNAROUND  
45 Days / 45 Days

SPECIAL HANDLING AND/OR STORAGE  
Radioactive Tie To: BITFB2

NO. OF CONTAINERS(S)  
1

PROJECT COORDINATOR  
WDRIG, DL

PRICE CODE  
8N

DATA  
TURNAROUND  
45 Days / 45 Days

SAMPLE ANALYSIS  
Chromium Hex - 7196; Sulfoxes - 9030 (Sulfide)

VOLUME  
120ml

PROJECT COORDINATOR  
WDRIG, DL

PRICE CODE  
8N

DATA  
TURNAROUND  
45 Days / 45 Days

SAMPLE NO. BITFD2

SAMPLE DATE  
4-16-08

PROJECT COORDINATOR  
WDRIG, DL

PRICE CODE  
8N

DATA  
TURNAROUND  
45 Days / 45 Days

CHAIN OF POSSESSION

SIGN/ PRINT NAMES

PROJECT COORDINATOR  
WDRIG, DL

PRICE CODE  
8N

DATA  
TURNAROUND  
45 Days / 45 Days

RELINQUISHED BY/REMOVED FROM  
*Larry Kosanoff*

RECEIVED BY/STORED IN  
*ON site Ref*

PROJECT COORDINATOR  
WDRIG, DL

PRICE CODE  
8N

DATA  
TURNAROUND  
45 Days / 45 Days

RELINQUISHED BY/REMOVED FROM  
*ON site Ref*

RECEIVED BY/STORED IN  
*Ed Kruse*

PROJECT COORDINATOR  
WDRIG, DL

PRICE CODE  
8N

DATA  
TURNAROUND  
45 Days / 45 Days

RELINQUISHED BY/REMOVED FROM  
*no 745 Ref #3*

RECEIVED BY/STORED IN  
*D. Harkel*

PROJECT COORDINATOR  
WDRIG, DL

PRICE CODE  
8N

DATA  
TURNAROUND  
45 Days / 45 Days

RELINQUISHED BY/REMOVED FROM  
*D. Harkel*

RECEIVED BY/STORED IN  
*Fed Ex*

PROJECT COORDINATOR  
WDRIG, DL

PRICE CODE  
8N

DATA  
TURNAROUND  
45 Days / 45 Days

RELINQUISHED BY/REMOVED FROM  
*no 745 Ref #3*

RECEIVED BY/STORED IN  
*D. Harkel*

PROJECT COORDINATOR  
WDRIG, DL

PRICE CODE  
8N

DATA  
TURNAROUND  
45 Days / 45 Days

RELINQUISHED BY/REMOVED FROM  
*no 745 Ref #3*

RECEIVED BY/STORED IN  
*D. Harkel*

PROJECT COORDINATOR  
WDRIG, DL

PRICE CODE  
8N

DATA  
TURNAROUND  
45 Days / 45 Days

SPECIAL INSTRUCTIONS  
\*\* The 200 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF.  
\*\* Analytical batch QC must be run on a sample associated with this SAF.

Fluor Hanford Inc.

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

F08-066-063 PAGE 1 OF 1

COLLECTOR *Dennolly*

COMPANY CONTACT  
TRENT, SJ

TELEPHONE NO.  
373-5869

PROJECT COORDINATOR  
WDRIG, DL

PRICE CODE 8N

DATA  
TURNAROUND  
45 Days / 45 Days

SAMPLING LOCATION

PROJECT DESIGNATION  
216-S-6 Crib Sampling - Soil

ACTUAL SAMPLE DEPTH  
29.2' - 31.7'

SAF NO.  
F08-066

AIR QUALITY

METHOD OF SHIPMENT  
FEDERAL EXPRESS

ICE CHEST NO.  
*GA-08*

FIELD LOGBOOK NO.  
*NO. 585-5 p. 27*

OFFSITE PROPERTY NO.  
*29.2' - 31.7'*

COA  
123210E520

BILL OF LADING/AIR BILL NO.  
*A 0031000*

SHIPPED TO  
Lionville Laboratory/ Incorporated

See PTR

See PTR

MATRIX\*  
A=Air  
DL=Drum  
Liquids  
DS=Drum  
Solids  
L=Liquid  
O=Oil  
S=Soil  
SE=Sediment  
T=Tissue  
V=Vegetation  
W=Water  
WI=Wipe  
X=Other

PRESERVATION  
Cool-4C

See PTR

POSSIBLE SAMPLE HAZARDS/ REMARKS  
Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR but are not releasable per DOE Order 5400.5 (1990/1993)

TYPE OF CONTAINER  
G

NO. OF CONTAINER(S)  
1

VOLUME  
120ml

SAMPLE ANALYSIS  
Chromium Hex-  
7196; Sulfides-  
9030 (Sulfide)

SPECIAL HANDLING AND/OR STORAGE  
Radioactive Tie To: B1TFB3

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	DATE/TIME	DATE/TIME	DATE/TIME	DATE/TIME	DATE/TIME	DATE/TIME
B1TFD9	SOIL	4-17-8	0915	4-17-8	1100	4-17-8	1100	4-17-8	1100

CHAIN OF POSSESSION

SIGN/ PRINT NAMES

*528775*

SPECIAL INSTRUCTIONS

RELINQUISHED BY/REMOVED FROM  
*Dennolly*  
DATE/TIME  
*4-17-8 1100*  
RECEIVED BY/STORED IN  
*on site Ref*  
DATE/TIME  
*4-17-8 1100*

RELINQUISHED BY/REMOVED FROM  
*0134 ref*  
DATE/TIME  
*4-28-08*  
RECEIVED BY/STORED IN  
*D. Parker*  
DATE/TIME  
*4-28-08*

RELINQUISHED BY/REMOVED FROM  
*D. Parker*  
DATE/TIME  
*4-28-08*  
RECEIVED BY/STORED IN  
*MO 775 REF #1*  
DATE/TIME  
*4-28-08*

RELINQUISHED BY/REMOVED FROM  
*MO 775 Ref #1*  
DATE/TIME  
*4-29-08*  
RECEIVED BY/STORED IN  
*D. Parker*  
DATE/TIME  
*4-29-08*

RELINQUISHED BY/REMOVED FROM  
*D. Parker*  
DATE/TIME  
*4-29-08*  
RECEIVED BY/STORED IN  
*Ref EX*  
DATE/TIME  
*4-30-08/0950*

RELINQUISHED BY/REMOVED FROM  
*Ref EX*  
DATE/TIME  
*4-30-08/0950*  
RECEIVED BY/STORED IN  
*Ref EX*  
DATE/TIME  
*4-30-08/0950*

RELINQUISHED BY/REMOVED FROM  
*Ref EX*  
DATE/TIME  
*4-30-08/0950*  
RECEIVED BY/STORED IN  
*Ref EX*  
DATE/TIME  
*4-30-08/0950*

LABORATORY SECTION RECEIVED BY

FINAL SAMPLE DISPOSITION DISPOSAL METHOD

TITLE DATE/TIME

DISPOSED BY DATE/TIME

Lionville Laboratory Incorporated  
**SAMPLE RECEIPT CHECKLIST (SRC)**

CLIENT: TNU Hanford  
 Project/SAF/SOW/Release #: F08-066

Date: 4-30-08

LvLI Batch #: 08042025

Sample Custodian: D. Smith

NOTE: EXPLAIN ALL DISCREPANCIES

- |   |  |  |
|---|--|--|
| 1. Samples Hand Delivered or <u>Shipped</u> ?   | Carrier <u>FedEx</u>   | Airbill # <u>7900 0339 9467</u>  |
| 2. Custody Seals on coolers or shipping containers intact, signed & dated?  | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No  | <input type="checkbox"/> No Seals  |
| 3. Outside of coolers or shipping containers are free from damage?  | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No  | Comments:  |
| 4. All expected paperwork received (coc & other client specific information) sealed in plastic bag and easily accessible?                   | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No  |  |
| 5. Samples received <u>cooled</u> or ambient?   | Temp <u>4.3</u> °C   | Cooler # <u>GA-08</u>  |
| How was the temperature taken?  | <input checked="" type="checkbox"/> IR <input type="checkbox"/> Temp. Blank  | <input type="checkbox"/> Other (Specify):  |
| Is the Temp. Criteria met for these samples? (Hg in soils @ 4°C)  | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No  |  |
| 6. Custody seals on sample containers intact, signed and dated?   | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No  | <input type="checkbox"/> No Seals  |
| 7. COC (Client & LvLI) signed & dated?  | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No  |  |
| 8. Sample containers are intact?  | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No  |  |
| 9. All samples on COC received?<br>All samples received on COC?   | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No<br><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |  |
| 10. All sample label information matches COC?   | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No  |  |
| 11. Samples properly preserved? (If #5 is no, then this is no.)   | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No  |  |
| 12. Samples received within hold times? Short holds taken to wet lab?   | <input checked="" type="checkbox"/> Yes <u>MRP 5-21-08</u> <input checked="" type="checkbox"/> No  | <input checked="" type="checkbox"/> <u>Sulfide past hold</u><br><input type="checkbox"/> N/A |
| 13. VOA, TOC, TOX free of headspace?  | <input type="checkbox"/> Yes <input type="checkbox"/> No   | <input checked="" type="checkbox"/> N/A  |
| 14. QC stickers placed on bottles designated by client?   | <input type="checkbox"/> Yes <input type="checkbox"/> No   | <input checked="" type="checkbox"/> N/A  |
| 15. Shipment meets LvLI Sample Acceptance Policy? (Identify all bottles that do not meet the policy, which is on the reverse of this page.) | <input checked="" type="checkbox"/> Yes <u>MRP 5-21-08</u> <input checked="" type="checkbox"/> No  | <input checked="" type="checkbox"/> <u>see #12</u>   |
| 16. Project Manager contacted concerning any discrepancies?<br>Person Contacted _____   | <input type="checkbox"/> Yes <input type="checkbox"/> No   | <input checked="" type="checkbox"/> N/A<br>Date _____  |

