

RECEIVED MAY 21, 2008

Lionville Laboratory, Inc.  
INORGANIC ANALYTICAL DATA PACKAGE FOR  
TNUHANFORD F08-043 H3667

DATE RECEIVED: 03/20/08

LVL LOT # :0803L781

CLIENT ID /ANALYSIS    LVL #            MTX    PREP #    COLLECTION    EXTR/PREP            ANALYSIS

B1TH27

% SOLIDS	001	S	08L%S035	03/04/08	03/20/08	03/20/08
CHROMIUM VI	001	S	08LVI036	03/04/08	04/17/08	04/17/08
CHROMIUM VI	001 REP	S	08LVI036	03/04/08	04/17/08	04/17/08
CHROMIUM VI	001 MS	S	08LVI036	03/04/08	04/17/08	04/17/08
CHROMIUM VI	001 MSD	S	08LVI036	03/04/08	04/17/08	04/17/08
SULFIDE	001	S	08LSD027	03/04/08	04/17/08	04/17/08

B1TH28

% SOLIDS	002	S	08L%S035	03/05/08	03/20/08	03/20/08
CHROMIUM VI	002	S	08LVI036	03/05/08	04/17/08	04/17/08
SULFIDE	002	S	08LSD027	03/05/08	04/17/08	04/17/08

B1TH03

% SOLIDS	004	S	08L%S035	03/05/08	03/20/08	03/20/08
% SOLIDS	004 REP	S	08L%S035	03/05/08	03/20/08	03/20/08
CHROMIUM VI	004	S	08LVI036	03/05/08	04/17/08	04/17/08
SULFIDE	004	S	08LSD027	03/05/08	04/17/08	04/17/08
SULFIDE	004 REP	S	08LSD027	03/05/08	04/17/08	04/17/08
SULFIDE	004 MS	S	08LSD027	03/05/08	04/17/08	04/17/08

LAB QC:

CHROMIUM VI	MB1	S	08LVI036	N/A	04/17/08	04/17/08
CHROMIUM VI	MB1 BS	S	08LVI036	N/A	04/17/08	04/17/08
CHROMIUM VI	MB1 BSD	S	08LVI036	N/A	04/17/08	04/17/08
SULFIDE	MB1	S	08LSD027	N/A	04/17/08	04/17/08
SULFIDE	MB1 BS	S	08LSD027	N/A	04/17/08	04/17/08
SULFIDE	MB1 BSD	S	08LSD027	N/A	04/17/08	04/17/08

000000001



## Analytical Report

**Client:** TNU-HANFORD F08-043 H3667  
**LVL#:** 0803L781

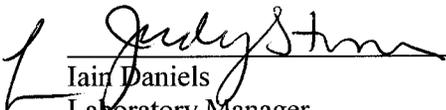
**W.O.#:** 11343-606-001-9999-00  
**Date Received:** 03-20-08

### INORGANIC NARRATIVE

1. This narrative covers the analyses of 3 soil samples.
2. The samples were prepared and analyzed in accordance with the methods checked on the attached glossary.

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 not met as the samples were not released for analyses until after the holding times were exceeded.
4. The results presented in this report are derived from samples that met LvLI's sample acceptance policy.
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 Chromium VI that was outside the control limits that may be attributed to sample inhomogeneity.
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

4/30/08  
Date

njp/v03-781

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 15 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	✓ 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) 19034	
Specific Gravity	___ D1429-76C/	___ D5057-90	
Sulfur, Total		___ 9056	
Synthetic Preparation Leach		___ 1312	
Paint Filter		___ 9095A	
<b>Other:</b>	<b>Method:</b>		
<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 04/29/08

CLIENT: TNUHANFORD F08-043 H3667  
 WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0803L781

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
=====	=====	=====	=====	=====	=====	=====
-001	B1TH27	% Solids	95.3	%	0.01	1.0
		Chromium VI	0.21	u MG/KG	0.21	1.0
		Sulfide	21.6	u MG/KG	21.6	1.0
-002	B1TH28	% Solids	90.8	%	0.01	1.0
		Chromium VI	0.22	u MG/KG	0.22	1.0
		Sulfide	22.4	u MG/KG	22.4	1.0
-004	B1TH03	% Solids	91.2	%	0.01	1.0
		Chromium VI	0.22	u MG/KG	0.22	1.0
		Sulfide	22.8	u MG/KG	22.8	1.0

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 04/29/08

CLIENT: TNUHANFORD F08-043 H3667  
WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0803L781

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK10	08LVI036-MB1	Chromium VI	0.20 u	MG/KG	0.20	1.0
BLANK10	08LSD027-MB1	Sulfide	20.8 u	MG/KG	20.8	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 04/29/08

CLIENT: TNUHANFORD F08-043 H3667  
 WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0803L781

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR (SPK)
-001	B1TH27	Soluble Chromium VI	4.2	0.21u	4.2	99.9	1.0
		Insoluble Chromium VI	1170	0.21u	1190	98.5	100
-004	B1TH03	Sulfide	296	11.4	314	90.7	1.0
BLANK10	08LVI036-MB1	Soluble Chromium VI	3.9	0.20u	4.0	98.0	1.0
		Insoluble Chromium VI	1230	0.20u	1200	102.5	100
BLANK10	08LSD027-MB1	Sulfide	265	20.8 u	281	94.4	1.0
		Sulfide MSD	252	20.8 u	265	95.1	1.0

Lionville Laboratory, Inc.

INORGANICS DUPLICATE SPIKE REPORT 04/29/08

CLIENT: TNUHANFORD F08-043 H3667  
WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0803L781

SAMPLE	SITE ID	ANALYTE	SPIKE#1 SPIKE#2		%DIFF
			%RECOV	%RECOV	
BLANK10	08LSD027-MB1	Sulfide	94.4	95.1	0.81

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Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 04/29/08

CLIENT: TNUHANFORD F08-043 H3667  
 WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0803L781

SAMPLE	SITE ID	ANALYTE	INITIAL			DILUTION
			RESULT	REPLICATE	RPD	
-001REP	B1TH27	Chromium VI	0.21u	0.21	143.0	1.0
-004REP	B1TH03	% Solids	91.2	92.0	0.95	1.0
		Sulfide	22.8 u	22.5 u	NC	1.0





COLLECTOR: NCO Sampler  
 COMPANY CONTACT: TRENT, SJ  
 TELEPHONE NO.: 373-5869  
 PROJECT COORDINATOR: WIDRIG, DL  
 PRICE CODE: 8N  
 DATA TURNAROUND: 45 Days / 45 Days

SAMPLING LOCATION: FULTON  
 PROJECT DESIGNATION: 216-A-30 Chb Sampling  
 FIELD LOGBOOK NO.:  
 ACTUAL SAMPLE DEPTH: 23-4.8  
 SAF NO.: F08-043  
 AIR QUALITY:

ICE CHEST NO.: GRP-07-068  
 COA: 123215ES20  
 METHOD OF SHIPMENT: FEDERAL EXPRESS

SHIPPED TO: Lionville Laboratory Incorporated  
 OFFSITE PROPERTY NO.: SEE PTR  
 BILL OF LADING/AIR BILL NO.: 7967 6474 0467

MATRIX\*: POSSIBLE SAMPLE HAZARDS/REMARKS  
 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  
 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)  
 SPECIAL HANDLING AND/OR STORAGE: Radioactive file to B1TD84

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	PRESERVATION	TYPE OF CONTAINER	NO. OF CONTAINER(S)	VOLUME	SAMPLE ANALYSIS	SIGN/PRINT NAMES	RECEIVED BY/STORED IN	DATE/TIME	SPECIAL INSTRUCTIONS
B1TH27	SOIL	3-4-08	1350	Cool-d/c	G	1	120ml	Chromium Hex-7196, Sulfides-9030 (Sulfide)	Lot # 024825	NO 205 MO 509 Eagle	3-4-08 1500	** The 200 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF.

CHAIN OF POSSESSION	RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	Fluor Hanford	3-4-08 1500	NO 205 MO 509 Eagle	3-4-08 1500	RELINQUISHED BY/REMOVED FROM	Fluor Hanford	NO 205 MO 509 Eagle	3-4-08 1500
RELINQUISHED BY/REMOVED FROM	Fluor Hanford	3-17-08 1235	Fluor Hanford	3-17-08 1235	RELINQUISHED BY/REMOVED FROM	Fluor Hanford	NO 2745 REF 41	3-17-08 1588
RELINQUISHED BY/REMOVED FROM	Fluor Hanford	3-19-08 1000	Fluor Hanford	3-19-08 1000	RELINQUISHED BY/REMOVED FROM	Fluor Hanford	NO 2745 REF 41	3-19-08 1000
RELINQUISHED BY/REMOVED FROM	Fluor Hanford	3-19-08 1400	Fluor Hanford	3-19-08 1400	RELINQUISHED BY/REMOVED FROM	Fluor Hanford	NO 2745 REF 41	3-19-08 1400
RELINQUISHED BY/REMOVED FROM	Fluor Hanford	3-20-08 0940	Fluor Hanford	3-20-08 0940	RELINQUISHED BY/REMOVED FROM	Fluor Hanford	NO 2745 REF 41	3-20-08 0940

LABORATORY SECTION: RECEIVED BY: DATE/TIME: TITLE: DISPOSED BY: DATE/TIME:



Fluor Hanford Inc.

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

F08-043-155

PAGE 1 OF 1

COLLECTOR  
NCO Sampler  
PAPZ

COMPANY CONTACT  
TRENT SJ

TELEPHONE NO.  
373-5869

PROJECT COORDINATOR  
WDRIG, DL

PRICE CODE  
8N

DATA  
TURNAROUND  
45 Days / 45 Days

SAMPLING LOCATION  
CS941, 1-002-D

PROJECT DESIGNATION  
216-A-30 Chb Sampling

ACTUAL SAMPLE DEPTH  
4.8'-2.3'

SAF NO.  
F08-043

AIR QUALITY

METHOD OF SHIPMENT  
FEDERAL EXPRESS

ICE CHEST NO.  
GRP-07-008

FIELD LOGBOOK NO.

COA  
123215ES20

BILL OF LADING/AIR BILL NO.  
SEE PTR

7909 6474 0407

SHIPPED TO  
Lionville Laboratory Incorporated

OFFSITE PROPERTY NO.  
SEE PTR

PRESERVATION  
Cool-4C

TYPE OF CONTAINER  
G

NO. OF CONTAINER(S)  
1

VOLUME  
120ml

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

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)

SPECIAL HANDLING AND/OR STORAGE  
Radioactive tie to BITDBS

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

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME							
B1H-29	SOIL	3-5-08	1020	X						

CHAIN OF POSSESSION  
SIGN/ PRINT NAMES

RECEIVED BY/STORED IN  
STK Anna Rida

DATE/TIME  
3-5-08 1152

RECEIVED BY/STORED IN  
Kevin Patterson

DATE/TIME  
3/17/08 1230

DATE/TIME  
3-19-08

REINQUISHED BY/REMOVED FROM  
3-5-08/1152

RECEIVED BY/STORED IN  
Kevin Patterson

DATE/TIME  
3/17/08 1230

RECEIVED BY/STORED IN  
Kevin Patterson

DATE/TIME  
3-19-08

DATE/TIME  
3-20-08 0940

REINQUISHED BY/REMOVED FROM  
3-5-08/1152

RECEIVED BY/STORED IN  
Kevin Patterson

DATE/TIME  
3/17/08 1230

RECEIVED BY/STORED IN  
Kevin Patterson

DATE/TIME  
3-19-08

DATE/TIME  
3-20-08 0940

REINQUISHED BY/REMOVED FROM  
3-5-08/1152

RECEIVED BY/STORED IN  
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3-19-08

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3-5-08/1152

RECEIVED BY/STORED IN  
Kevin Patterson

DATE/TIME  
3/17/08 1230

RECEIVED BY/STORED IN  
Kevin Patterson

DATE/TIME  
3-19-08

DATE/TIME  
3-20-08 0940

LABORATORY SECTION  
RECEIVED BY

DISPOSAL METHOD

TITLE

DISPOSED BY

DATE/TIME

DATE/TIME

FINAL SAMPLE DISPOSITION

RECEIVED BY

DATE/TIME

DISPOSED BY

DATE/TIME

DATE/TIME

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

CLIENT: TNU Hanford F08-043  
Project/SAF/SOW/Release #:

Date: 3.20.08

LvLI Batch #: 0803L781

Sample Custodian: [Signature]

NOTE: EXPLAIN ALL DISCREPANCIES

- |   |  |   |
|---|--|---|
| 1. Samples Hand Delivered or <u>Shipped?</u>  | Carrier <u>Yes Ex</u>  | Airbill # <u>7909 6474 0407</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>5.7</u> °C   | Cooler # <u>GRP05-009</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 type="checkbox"/> Yes <input checked="" type="checkbox"/> No<br><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | <u>Did not receive sample 003 (BITH29)<br/>Rec'd sample #004 (BITH03) not<br/>on C.O.C.s.</u> |
| 10. All sample label information matches COC?   | <input type="checkbox"/> Yes <input checked="" 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?<br>Short holds taken to wet lab?  | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No<br><input type="checkbox"/> Yes <input type="checkbox"/> No            | <input checked="" 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 type="checkbox"/> Yes <input checked="" type="checkbox"/> No  | <u>See above</u>  |
| 16. Project Manager contacted concerning any discrepancies?<br>Person Contacted _____   | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No  | Date <u>3.20.08</u>   |

