

RECEIVED MAY 21, 2008

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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

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## Analytical Report

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

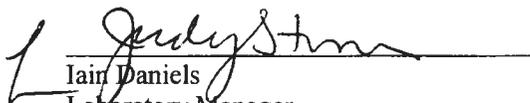
**W.O.#:** 11343-606-001-9999-00  
**Date Received:** 03-20-08

### 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

njpl03-781

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

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INORGANICS ACCURACY REPORT 04/29/08

CLIENT: TNUHANFORD F08-043 H3667

LVL LOT #: 0803L781

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

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

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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 RESULT	REPLICATE	RPD	DILUTION FACTOR (REP)
-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

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Fluor Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				F08-043-153	PAGE 1 OF 1	
COLLECTOR NCO Sampler <i>Fulton</i>	COMPANY CONTACT TRENT, SJ	TELEPHONE NO. 373-5869	PROJECT COORDINATOR WIDRIG, DL		PRICE CODE 8N	DATA TURNAROUND 45 Days / 45 Days		
SAMPLING LOCATION C5941, 1-001	PROJECT DESIGNATION 216-A-30 Crib Sampling		SAF NO. F08-043		AIR QUALITY <input type="checkbox"/>			
ICE CHEST NO. <i>GRP-07-008</i>	FIELD LOGBOOK NO.	ACTUAL SAMPLE DEPTH <i>2.3-4.8'</i>	COA 123215ES20		METHOD OF SHIPMENT FEDERAL EXPRESS			
SHIPPED TO Lonville Laboratory Incorporated	OFFSITE PROPERTY NO. SEE PTR		BILL OF LADING/AIR BILL NO. SEE PTR <i>7967 6474 0407</i>					
MATRIX* A=Air DL=Drum L=Liquids DS=Drum S=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)		PRESERVATION Cool-4C					
			TYPE OF CONTAINER G					
			NO. OF CONTAINER(S) 1					
			VOLUME 120mL					
	SPECIAL HANDLING AND/OR STORAGE Radioactive tie to B1TDB4		SAMPLE ANALYSIS Chromium Hex - 7196; Sulfides - 9030 (Sulfide)					
SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME					
B1TH27	SOIL	<i>3-4-08</i>	<i>1350</i>	<i>✓</i>				
			<i>LOT# 024875</i>					
CHAIN OF POSSESSION		SIGN/ PRINT NAMES			SPECIAL INSTRUCTIONS			
RELINQUISHED BY/REMOVED FROM <i>Chris Fulton</i>	DATE/TIME <i>3-4-08 1500</i>	RECEIVED BY/STORED IN <i>MOSOS</i>	DATE/TIME <i>3-4-08 1500</i>	** The 200 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF.				
RELINQUISHED BY/REMOVED FROM <i>MOSOS</i>	DATE/TIME <i>3/17/08 1235</i>	RECEIVED BY/STORED IN <i>Kevin Patterson</i>	DATE/TIME <i>3/17/08 1235</i>					
RELINQUISHED BY/REMOVED FROM <i>Kevin Patterson</i>	DATE/TIME <i>3/17/08 1500</i>	RECEIVED BY/STORED IN <i>Fluor Hanford</i>	DATE/TIME <i>3/17/08 1500</i>					
RELINQUISHED BY/REMOVED FROM <i>Fluor Hanford</i>	DATE/TIME <i>3-19-08 1000</i>	RECEIVED BY/STORED IN <i>Fluor Hanford</i>	DATE/TIME <i>3-19-08 1000</i>					
RELINQUISHED BY/REMOVED FROM <i>D. E. PARCHEN</i>	DATE/TIME <i>3-19-08 1400</i>	RECEIVED BY/STORED IN <i>FEDEX</i>	DATE/TIME <i>3-20-08 0940</i>					
RELINQUISHED BY/REMOVED FROM <i>FEDEX</i>	DATE/TIME <i>3-20-08 0940</i>	RECEIVED BY/STORED IN <i>J. J. Smith</i>	DATE/TIME <i>3-20-08 0940</i>					
LABORATORY SECTION	RECEIVED BY	TITLE		DATE/TIME				
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY		DATE/TIME				

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Fluor Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				F08-043-154	PAGE 1 OF 1
COLLECTOR NCO Sampler <i>POPE</i>	COMPANY CONTACT TRENT, SJ	TELEPHONE NO. 373-5869	PROJECT COORDINATOR WIDRIG, DL		PRICE CODE 8N	DATA TURNAROUND 45 Days / 45 Days	
SAMPLING LOCATION C5941, I-002	PROJECT DESIGNATION 216-A-30 Crib Sampling		SAF NO. F08-043		AIR QUALITY <input type="checkbox"/>		
ICE CHEST NO. <i>GRP-07-008</i>	FIELD LOGBOOK NO.	ACTUAL SAMPLE DEPTH <i>4.8'-6.3'</i>	COA 123215ES20		METHOD OF SHIPMENT FEDERAL EXPRESS		
SHIPPED TO Lionville Laboratory Incorporated	OFFSITE PROPERTY NO. SEE PTR		BILL OF LADING/AIR BILL NO. SEE PTR <i>7909 6474 0407</i>				
MATRIX* A=Air DL=Drum L=Liquids DS=Drum S=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)	PRESERVATION Cool~4C					
		TYPE OF CONTAINER G					
		NO. OF CONTAINER(S) 1					
		VOLUME 120mL					
	SPECIAL HANDLING AND/OR STORAGE Radioactive tie to B1TDB5	SAMPLE ANALYSIS Chromium Hex - 7196; Sulfides - 9030 (Sulfide)					
SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME				
B1TH28	SOIL	<i>3-5-08</i>	<i>1020</i>	<i>X</i>			
			<i>Lot# 024875</i>				
CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS			
RELINQUISHED BY/REMOVED FROM <i>J.S. POPE</i>	DATE/TIME <i>3-5-08 1142</i>	RECEIVED BY/STORED IN <i>Site Room Bridge</i>	DATE/TIME <i>3-5-08 1142</i>	** The 200 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF.			
RELINQUISHED BY/REMOVED FROM <i>M0505</i>	DATE/TIME <i>3/7/08 1230</i>	RECEIVED BY/STORED IN <i>[Signature]</i>	DATE/TIME <i>3/7/08 1230</i>				
RELINQUISHED BY/REMOVED FROM <i>[Signature]</i>	DATE/TIME <i>3/7/08 1500</i>	RECEIVED BY/STORED IN <i>M0745-REF #1</i>	DATE/TIME <i>3/7/08 1500</i>				
RELINQUISHED BY/REMOVED FROM <i>MD 745 Ref #1</i>	DATE/TIME <i>3-19-08 1000</i>	RECEIVED BY/STORED IN <i>Fluor Hanford</i>	DATE/TIME <i>3-19-08 1000</i>				
RELINQUISHED BY/REMOVED FROM <i>D. E. PARCHEN</i>	DATE/TIME <i>3-19-08 0600</i>	RECEIVED BY/STORED IN <i>D. E. PARCHEN</i>	DATE/TIME <i>3-19-08 0600</i>				
RELINQUISHED BY/REMOVED FROM <i>[Signature]</i>	DATE/TIME <i>3-19-08 0600</i>	RECEIVED BY/STORED IN <i>Feed EX</i>	DATE/TIME <i>3-19-08 0600</i>				
RELINQUISHED BY/REMOVED FROM <i>[Signature]</i>	DATE/TIME <i>3-20-08 0940</i>	RECEIVED BY/STORED IN <i>[Signature]</i>	DATE/TIME <i>3-20-08 0940</i>				
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME				
LABORATORY SECTION	RECEIVED BY	TITLE		DATE/TIME			
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY		DATE/TIME			

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**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>Fed 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>GR105-009</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<br><input type="checkbox"/> Yes  | <input checked="" type="checkbox"/> No Did not receive sample 003 (BITH29)<br><input checked="" type="checkbox"/> No Rec'd sample #004 (BITH03) not on C.O.C.s. |
| 10. All sample label information matches COC?   | <input 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?<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 <input type="checkbox"/> N/A                                | Date <u>3.20.08</u>   |

