



Mr. Steve Trent  
 Fluor Hanford Inc.  
 825 Jadwin Ave.  
 Richland, WA 99352

**RECEIVED**  
 APR 18 2005

**Subject: Contract No. 630  
 Analytical Data Package**

**EDMC**

Dear Mr. Trent:

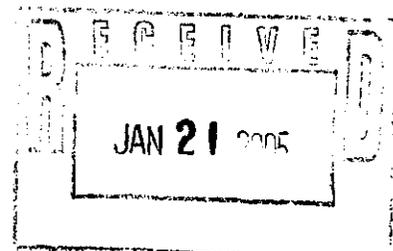
Enclosed are the hard copy analytical reports for the batch number/fraction indicated (marked X) in the following table:

LvLI Batch #	0412L376
SDG #	H2877
SAF #	F03-006
Date Received	12-7-04
# Samples	3
Matrix	Soil
Volatiles	
Semivolatiles	
Pest/PCB	
DRO/GRO/KRO	
Herbicides	
GC Alcohol	
Metals	
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

*[Signature]*  
 Orfette S. Johnson  
 Project Manager



Lionville Laboratory, Inc.  
 INORGANIC ANALYTICAL DATA PACKAGE FOR  
 TNUHANFORD F03-006 H2877

DATE RECEIVED: 12/07/04

LVL LOT # : 0412L376

CLIENT ID / ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
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B1B5D7

% SOLIDS	001	S	04L*S199	11/15/04	12/10/04	12/13/04
CHROMIUM VI	001	S	04LVI045	11/15/04	12/20/04	12/20/04
NITRATE NITRITE	001	S	04LN3B73	11/15/04	12/20/04	12/20/04
NITRATE NITRITE	001 REP	S	04LN3B73	11/15/04	12/20/04	12/20/04
NITRATE NITRITE	001 MS	S	04LN3B73	11/15/04	12/20/04	12/20/04
OIL & GREASE BY GRAV	001	S	04LOG045	11/15/04	12/23/04	12/23/04
OIL AND GREASE BY GR	001 REP	S	04LOG045	11/15/04	12/23/04	12/23/04
OIL AND GREASE BY GR	001 MS	S	04LOG045	11/15/04	12/23/04	12/23/04

B1B5D8

% SOLIDS	002	S	04L*S199	11/16/04	12/10/04	12/13/04
CHROMIUM VI	002	S	04LVI045	11/16/04	12/20/04	12/20/04
NITRATE NITRITE	002	S	04LN3B73	11/16/04	12/20/04	12/20/04
OIL & GREASE BY GRAV	002	S	04LOG045	11/16/04	12/23/04	12/23/04

B1B5D9

% SOLIDS	003	S	04L*S199	11/16/04	12/10/04	12/13/04
CHROMIUM VI	003	S	04LVI045	11/16/04	12/20/04	12/20/04
CHROMIUM VI	003 REP	S	04LVI045	11/16/04	12/20/04	12/20/04
CHROMIUM VI	003 MS	S	04LVI045	11/16/04	12/20/04	12/20/04
CHROMIUM VI	003 MSD	S	04LVI045	11/16/04	12/20/04	12/20/04
NITRATE NITRITE	003	S	04LN3B73	11/16/04	12/20/04	12/20/04
OIL & GREASE BY GRAV	003	S	04LOG045	11/16/04	12/23/04	12/23/04

LAB QC:

CHROMIUM VI	MB1	S	04LVI045	N/A	12/20/04	12/20/04
CHROMIUM VI	MB1 BS	S	04LVI045	N/A	12/20/04	12/20/04
CHROMIUM VI	MB1 BSD	S	04LVI045	N/A	12/20/04	12/20/04
NITRATE NITRITE	MB1	S	04LN3B73	N/A	12/20/04	12/20/04
NITRATE NITRITE	MB1 BS	S	04LN3B73	N/A	12/20/04	12/20/04
OIL & GREASE BY GRAV	MB1	S	04LOG045	N/A	12/23/04	12/23/04
OIL AND GREASE BY GR	MB1 BS	S	04LOG045	N/A	12/23/04	12/23/04

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Lionville Laboratory, Inc.  
INORGANIC ANALYTICAL DATA PACKAGE FOR  
TNUHANFORD F03-006 H2877

DATE RECEIVED: 12/07/04

LVL LOT # :0412L376

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
OIL AND GREASE BY GR	MB1 BSD	S	04LOG045	N/A	12/23/04	12/23/04

00000003



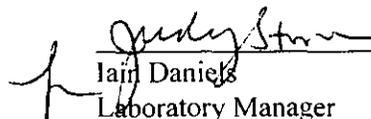
Analytical Report

Client: TNU-HANFORD F03-006 H2877  
LVL#: 04121L376

W.O.#: 11343-606-001-9999-00  
Date Received: 12-07-04

INORGANIC NARRATIVE

1. This narrative covers the analyses of 3 soil samples.
2. The samples were prepared and analyzed in accordance with the methods indicated on the attached glossary.
3. Sample holding times as required by the method and/or contract were met.
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.
7. The matrix spike recoveries for Chromium VI, Nitrate Nitrite and Oil and Grease were within the 75-125% control limits.
8. The replicate analyses Chromium VI, Nitrate Nitrite and Oil and Grease were within the 20% 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.

  
\_\_\_\_\_  
Jarr Daniels  
Laboratory Manager  
Lionville Laboratory Incorporated  
njpl12-376

1/14/05  
Date

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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	✓ ___ 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(mod.)	✓ ___ EPA 413.1(mod.)
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	
<b>Other:</b> <i>Nitrate Nitrite</i>		<b>Method:</b> <i>EPA 353.2(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 01/07/05

CLIENT: TNUHANFORD F03-006 H2877  
 WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0412L376

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-----	-----	-----	-----	-----	-----	-----
-001	B1B5D7	% Solids	90.5	%	0.01	1.0
		Chromium VI	0.22	u MG/KG	0.22	1.0
		Nitrate Nitrite	32.4	MG/KG	2.0	10.0
		Oil & Grease Gravimetri	736	u MG/KG	736	1.0
-002	B1B5D8	% Solids	95.7	%	0.01	1.0
		Chromium VI	0.21	u MG/KG	0.21	1.0
		Nitrate Nitrite	14.3	MG/KG	2.1	10.0
		Oil & Grease Gravimetri	697	u MG/KG	697	1.0
-003	B1B5D9	% Solids	95.8	%	0.01	1.0
		Chromium VI	0.21	u MG/KG	0.21	1.0
		Nitrate Nitrite	14.0	MG/KG	2.0	10.0
		Oil & Grease Gravimetri	751	MG/KG	696	1.0

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Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 01/07/05

CLIENT: TNUHANFORD F03-006 H2877  
WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0412L376

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK10	04LVI045-MB1	Chromium VI	0.20	u MG/KG	0.20	1.0
BLANK10	04LN3B73-MB1	Nitrate Nitrite	0.20	u MG/KG	0.20	1.0
BLANK10	04LOG045-MB1	Oil & Grease Gravimetri	667	u MG/KG	667	1.0

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Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 01/07/05

CLIENT: TNUHANFORD F03-006 H2877  
 WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0412L376

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR (SPK)
-001	B1B5D7	Nitrate Nitrite	138	32.4	101	104.6	20.0
		Oil & Grease Gravimetr	7600	736 u	7560	100.6	1.0
-003	B1B5D9	Soluble Chromium VI	4.2	0.21u	4.2	100.1	1.0
		Insoluble Chromium VI	1480	0.21u	1240	119.8	100
BLANK10	04LVI045-MB1	Soluble Chromium VI	3.8	0.20u	4.0	95.5	1.0
		Insoluble Chromium VI	1310	0.20u	1150	113.7	100
BLANK10	04LN3B73-MB1	Nitrate Nitrite	5.1	0.20u	5.0	101.6	1.0
BLANK10	04LOG045-MB1	Oil & Grease Gravimetr	6910	667 u	6840	101.0	1.0

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Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 01/07/05

CLIENT: TNUHANFORD F03-006 H2877  
 WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0412L376

SAMPLE	SITE ID	ANALYTE	INITIAL			DILUTION FACTOR (REP)
			RESULT	REPLICATE RPD		
-001REP	B1B5D7	Nitrate Nitrite	32.4	31.9	1.6	10.0
		Oil & Grease Gravimetri	736 u	736 u	NC	1.0
-003REP	B1B5D9	Chromium VI	0.21u	0.21u	NC	1.0

000000010



COLLECTOR Pope/Pfister/Wiberg/Tyra / <b>HUGHES</b>	COMPANY CONTACT LC Hulstrom	TELEPHONE NO. 373-3928	PROJECT COORDINATOR TRENT, SJ	PRICE CODE 8N	DATA TURNAROUND 45 Days / 45 Days
SAMPLING LOCATION 200-PW2/216-S-7, 24.0-26.5 ft	PROJECT DESIGNATION 200-PW-2/200-PW-4 OU - Borehole Soil Sampling	SAF NO. F03-006	AIR QUALITY <input type="checkbox"/>		

ICE CHEST NO. <b>GRP-04-009</b>	FIELD LOGBOOK NO. <b>HNF-N-3361</b>	COA 119153ES10	METHOD OF SHIPMENT Federal Express
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SHIPPED TO Lionville Laboratory Incorporated	OFFSITE PROPERTY NO. <b>See RSR D0079</b>	BILL OF LADING/AIRBILL NO. <b>SU RSR D0079</b>
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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  SPECIAL HANDLING AND/OR STORAGE RADIOACTIVE TIE TO: <del>B1B500</del> <b>BT 12/6/04</b> <b>B1B573</b>	PRESERVATION Cool 4C																			
		TYPE OF CONTAINER aG																			
		NO. OF CONTAINER(S) 1																			
		VOLUME 60ml																			
		SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS																		

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME																		
B1B5D7	SOIL	11-15-04	09:30	✓																	

CHAIN OF POSSESSION	SIGN/ PRINT NAMES	SPECIAL INSTRUCTIONS
RELINQUISHED BY/REMOVED FROM <i>Kevin Hughes</i>	DATE/TIME 11-15-04 / 13:00	RECEIVED BY/STORED IN S-7 Site Fridge
RELINQUISHED BY/REMOVED FROM S-7 Site Fridge	DATE/TIME 11-23-04 / 14:30	RECEIVED BY/STORED IN <i>Kevin Hughes</i>
RELINQUISHED BY/REMOVED FROM <i>Kevin Hughes</i>	DATE/TIME 11-23-04 / 15:40	RECEIVED BY/STORED IN M.A. Bunker
RELINQUISHED BY/REMOVED FROM <i>M.A. Bunker</i>	DATE/TIME 12-7-04 / 12:15	RECEIVED BY/STORED IN <i>V. Henry</i>

(1)Chromium Hex - 7196; NO2/NO3 - 353.2; Oil & Grease - 413.1;

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

<b>COLLECTOR</b> Pope/Pfister/Wiberg/Tyra	<b>COMPANY CONTACT</b> LC Hulstrom	<b>TELEPHONE NO.</b> 373-3928	<b>PROJECT COORDINATOR</b> TRENT, SJ	<b>PRICE CODE</b> 8N	<b>DATA TURNAROUND</b> 45 Days / 45 Days
<b>SAMPLING LOCATION</b> 200-PW2/216-S-7, 34.0-36.5 ft	<b>PROJECT DESIGNATION</b> 200-PW-2/200-PW-4 OU - Borehole Soil Sampling		<b>SAF NO.</b> F03-006	<b>AIR QUALITY</b> <input type="checkbox"/>	

<b>ICE CHEST NO.</b> GRP-04-009	<b>FIELD LOGBOOK NO.</b> HAN-N-336 /	<b>COA</b> 119153E510	<b>METHOD OF SHIPMENT</b> Federal Express		
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<b>SHIPPED TO</b> Lonville Laboratory Incorporated	<b>OFFSITE PROPERTY NO.</b> See PER D0079	<b>BILL OF LADING/AIR BILL NO.</b> See PER D0079
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MATRIX* A=Air DL=Drum Liquids DS=Drum Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WT=Wipe X=Other	POSSIBLE SAMPLE HAZARDS/ REMARKS	PRESERVATION	Cool 4C
		TYPE OF CONTAINER	2G
		NO. OF CONTAINER(S)	1
		VOLUME	60mL
SPECIAL HANDLING AND/OR STORAGE RADIOACTIVE TIE TO: B1B507 AT 12/4/04 B1B574 B1B575		SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME										
B1B5D8	SOIL	11-16-04	13:35	✓									
B1B5D9	SOIL	11-16-04	13:35	—									

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	(1)Chromium Hex - 7196; NO2/NO3 - 353.2; Oil & Grease - 413.1;
Kevin D. NUGES <i>[Signature]</i>	11-16-04 1500	S-7 Site fridge	11-16-04 1500	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	
S-7 Site fridge	11-23-04 14:30	Kevin D. NUGES <i>[Signature]</i>	11-23-04	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	
Kevin D. NUGES <i>[Signature]</i>	11-23-04 1540	MO-025 Site fridge	11-23-04 15:40	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	
MO-025 Site fridge	12-16-04 0806	Mt. Bachelor Mt. Bachelor	12/16/04 0805	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	
Mt. Bachelor Mt. Bachelor	12/16/04 0805	Red Ex		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	
Red Ex	12-7-04 1215	A. Secretary	12-7-04 1215	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	

<b>LABORATORY SECTION</b>	<b>RECEIVED BY</b>	<b>TITLE</b>	<b>DATE/TIME</b>
<b>FINAL SAMPLE DISPOSITION</b>	<b>DISPOSAL METHOD</b>	<b>DISPOSED BY</b>	<b>DATE/TIME</b>

000000013

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

CLIENT: *TNU-HANFORD*

Date: *12-7-04*

Purchase Order / Project# /

~~SAFE~~ SOW# / Release #: *F03-006*

LvLI Batch #:

*0412L376*

Sample Custodian: *V. Hernandez*

NOTE: EXPLAIN ALL DISCREPANCIES

- |   |   |  |
|---|---|--|
| 1. Samples Hand Delivered or <u>Shipped</u>   | Carrier <i>FedEx</i>  | Airbill# <i>8484 8369 8076</i>                       |
| 2. Custody seals on coolers or shipping container intact, signed and dated?   | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | <input type="checkbox"/> No Seals    Comments        |
| 3. Outside of coolers or shipping containers are free from damage?  | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |  |
| 4. All expected paperwork received (coc and other client specific information) sealed in plastic bag and easily accessible? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |  |
| 5. Samples received cooled or ambient?  | Temp    °C  | Cooler #   |
| 6. Custody seals on sample containers intact, signed and dated?   | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | <input type="checkbox"/> No Seals <i>GRF-04-009</i>  |
| 7. coc signed and 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? All samples received on coc?  | <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?   | <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 <input type="checkbox"/> No |  |
| 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 not within policy. See reverse side for policy)     | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |  |
| 16. Project Manager contacted concerning discrepancies? name/date (or samples outside criteria)                             | <input type="checkbox"/> Yes <input type="checkbox"/> No            | <input checked="" type="checkbox"/> No Discrepancies |