



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

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

Dear Mr. Trent:

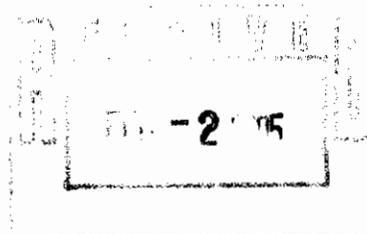
Enclosed are the hard copy analytical reports for the batch number/fraction indicated (marked X) in the following table:

LvLI Batch #	0412L505
SDG #	H2923-05 <i>Dayes 2/23/05</i>
SAF #	F04-015
Date Received	12-23-04
# Samples	1
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]*  
 Orlette S. Johnson  
 Project Manager



r:\group\pm\orlette\tnu-hanford\data\fc\_ltrs.doc

Lionville Laboratory, Inc.  
 INORGANIC ANALYTICAL DATA PACKAGE FOR  
 TNUHANFORD F04-015 ~~H2923~~ *H2905 Days 5/3/05*

DATE RECEIVED: 12/23/04

LVL LOT # :0412L505

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B19966						
% SOLIDS	001	S	04L%S206	12/20/04	12/27/04	12/28/04
% SOLIDS	001 REP	S	04L%S206	12/20/04	12/27/04	12/28/04
CHROMIUM VI	001	S	04LVI048	12/20/04	12/28/04	12/28/04
CHROMIUM VI	001 REP	S	04LVI048	12/20/04	12/28/04	12/28/04
CHROMIUM VI	001 MS	S	04LVI048	12/20/04	12/28/04	12/28/04
CHROMIUM VI	001 MSD	S	04LVI048	12/20/04	12/28/04	12/28/04
NITRATE NITRITE	001	S	05LN3B04	12/20/04	01/19/05	01/19/05
NITRATE NITRITE	001 REP	S	05LN3B04	12/20/04	01/19/05	01/19/05
NITRATE NITRITE	001 MS	S	05LN3B04	12/20/04	01/19/05	01/19/05
OIL & GREASE BY GRAV	001	S	04LOG047	12/20/04	12/30/04	12/31/04
OIL AND GREASE BY GR	001 REP	S	04LOG047	12/20/04	12/30/04	12/31/04
OIL AND GREASE BY GR	001 MS	S	04LOG047	12/20/04	12/30/04	12/31/04

## LAB QC:

CHROMIUM VI	MB1	S	04LVI048	N/A	12/28/04	12/28/04
CHROMIUM VI	MB1 BS	S	04LVI048	N/A	12/28/04	12/28/04
CHROMIUM VI	MB1 BSD	S	04LVI048	N/A	12/28/04	12/28/04
NITRATE NITRITE	MB1	S	05LN3B04	N/A	01/19/05	01/19/05
NITRATE NITRITE	MB1 BS	S	05LN3B04	N/A	01/19/05	01/19/05
OIL & GREASE BY GRAV	MB1	S	04LOG047	N/A	12/30/04	12/31/04
OIL AND GREASE BY GR	MB1 BS	S	04LOG047	N/A	12/30/04	12/31/04



### Analytical Report

Client: TNU-HANFORD F04-015 <sup>H2905</sup> ~~H2923~~ *Dayes*  
 LVL#: 0412L505 *5/3/05*

W.O.#: 11343-606-001-9999-00  
 Date Received: 12-23-04

### INORGANIC NARRATIVE

1. This narrative covers the analyses of 1 soil sample.
2. The sample was 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 LVL'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 Percent Solids and Oil and Grease were within the 20% Relative Percent Difference (RPD) control limit however replicate analyses for Chromium VI and Nitrate Nitrite were outside the control limit 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.

*fr* *Jasdy Stone*  
 Iain Daniels  
 Laboratory Manager  
 Lionville Laboratory Incorporated

*1/28/05*  
 Date

njs012-505

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 11 pages.

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## 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	
Other: Nitrate Nitrite		Method: EPA 353.2 (mod.)	
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 01/24/05

CLIENT: TNUHANFORD F04-015 ~~H2921~~ *H2905* *Dayes 5/3/05* LVL LOT #: 0412L505  
 WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
=====	=====	=====	=====	=====	=====	=====
-001	B19966	% Solids	91.2	%	0.01	1.0
		Chromium VI	0.24	MG/KG	0.22	1.0
		Nitrate Nitrite	0.94	MG/KG	0.22	1.0
		Oil & Grease Gravimetri	731	u MG/KG	731	1.0

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 01/24/05

CLIENT: TNUHANFORD F04-015 ~~H2923~~ *H2905* *Dayes* *5/3/05* LVL LOT #: 0412L505  
 WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-----	-----	-----	-----	-----	-----	-----
BLANK10	04LVI048-MB1	Chromium VI	0.20 u	MG/KG	0.20	1.0
BLANK10	05LN3B04-MB1	Nitrate Nitrite	0.20 u	MG/KG	0.20	1.0
BLANK10	04LOG047-MB1	Oil & Grease Gravimetri	667	u MG/KG	667	1.0

Lionville Laboratory, Inc.

## INORGANICS ACCURACY REPORT 01/24/05

CLIENT: TNUHANFORD P04-015 ~~H2923~~ *H2905* *Dayes 5/3/05* LVL LOT #: 0412L505  
 WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR (SPK)
-001	B19966	Soluble Chromium VI	4.7	0.24	4.4	101.7	1.0
		Insoluble Chromium VI	1400	0.24	1190	118.0	100
		Nitrate Nitrite	6.4	0.94	5.5	99.4	1.0
		Oil & Grease Gravimetr	8530	731 u	8950	95.4	1.0
BLANK10	04LVI048-MB1	Soluble Chromium VI	4.1	0.20u	4.0	101.4	1.0
		Insoluble Chromium VI	1380	0.20u	1180	117.1	100
BLANK10	05LN3B04-MB1	Nitrate Nitrite	5.1	0.20u	5.0	102.8	1.0
BLANK10	04LOG047-MB1	Oil & Grease Gravimetr	8300	667 u	8160	101.7	1.0

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 01/24/05

CLIENT: TNUHANFORD F04-015 ~~H2929~~ *H2905 Dages 5/3/05* LVL LOT #: 0412L505  
 WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	INITIAL			DILUTION FACTOR (REP)
			RESULT	REPLICATE RPD		
-001REP	B19966	% Solids	91.2	91.9	0.73	1.0
		Chromium VI	0.24	0.22u	143.0	1.0
		Nitrate Nitrite	0.94	0.46	68.6	1.0
		Oil & Grease Gravimetri	731 u	731 u	NC	1.0



FLUOR Hanford Inc.

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

COLLECTOR: Pope/Pfister/Tyra/Wilberg  
 COMPANY CONTACT: CS Cearlock  
 TELEPHONE NO.: 372-9638  
 PROJECT COORDINATOR: TRENT, SJ

SAMPLING LOCATION: 216-U-3; 127FT-129, 5FT  
 PROJECT DESIGNATION: 200-MW-1 Characterization Sampling and Analysis - Soil  
 SAF NO.: F04-015  
 AIR QUALITY:  45 Days / 45 Days

PRICE CHEST NO.: SH15-500  
 FIELD LOGBOOK NO.: HNF-N-386 1  
 COA: 11914E510  
 METHOD OF SHIPMENT: Federal Express

SHIPPER TO: *Peru*  
 OFFSITE PROPERTY NO.: *501 OR 1402*  
 BILL OF LADING/AIR BILL NO.: *501 OR 1402*

MATRIX\* POSSIBLE SAMPLE HAZARDS/ REMARKS  
 A=Air, OL=Drum, LIQUIDS, DS=Drum, SOLIDS, L=Liquid, O=Oil, S=Soil, SE=Sediment, T=Tissue, V=Vegetation, W=Water, WI=Wipe, X=Other

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	PRESERVATION	TYPE OF CONTAINER	NO. OF CONTAINER(S)	VOLUME	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	DATE/TIME
B19966	SOIL	12/20/04	0740	Cool 4C	ag	1	120mL	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	X

SPECIAL HANDLING AND/OR STORAGE: Radioactive The To: *B19966* *12/20/04*

RECEIVED BY	DATE/TIME	RECEIVED BY	DATE/TIME	TITLE	DATE/TIME
<i>David Tera</i>	<i>12/18/04 0910</i>	<i>WLO-029</i>	<i>12/23/04 1020</i>		
<i>WLO-029</i>	<i>12/23/04 1020</i>	<i>WLO-029</i>	<i>12/23/04 1020</i>		
<i>WLO-029</i>	<i>12/23/04 1020</i>	<i>WLO-029</i>	<i>12/23/04 1020</i>		
<i>WLO-029</i>	<i>12/23/04 1020</i>	<i>WLO-029</i>	<i>12/23/04 1020</i>		

REINQUISHED BY/REMOVED FROM: *David Tera* *12/18/04 0910*  
 RECEIVED BY/STORED IN: *WLO-029* *12/23/04 1020*  
 REINQUISHED BY/REMOVED FROM: *WLO-029* *12/23/04 1020*  
 RECEIVED BY/STORED IN: *WLO-029* *12/23/04 1020*  
 REINQUISHED BY/REMOVED FROM: *WLO-029* *12/23/04 1020*  
 RECEIVED BY/STORED IN: *WLO-029* *12/23/04 1020*  
 REINQUISHED BY/REMOVED FROM: *WLO-029* *12/23/04 1020*  
 RECEIVED BY/STORED IN: *WLO-029* *12/23/04 1020*

LABORATORY SECTION: RECEIVED BY: *WLO-029* DATE/TIME: *12/23/04 1020*  
 FINAL SAMPLE DISPOSITION: DISPOSAL METHOD: *WLO-029* DATE/TIME: *12/23/04 1020*

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

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

CLIENT: *TNU HANFORD*

Date: *12-23-04*

Purchase Order / Project# /

SAF# / SOW# / Release #: *F04-015*

LvLI Batch #: *0412L505*

Sample Custodian: *Vicki Hernandez*

NOTE: EXPLAIN ALL DISCREPANCIES

- |   |   |  |
|---|---|--|
| 1. Samples Hand Delivered or <u>Shipped</u>   | Carrier <i>Fed Ex</i>   | Airbill# <i>7914 2525 4585</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 <i>4.5</i> °C  | Cooler # <i>SAWS-500</i>                             |
| 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 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 checked="" type="checkbox"/> Yes <input type="checkbox"/> No | <input 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 |