0065597

LIONVILLE LABORATORY INC.

24 October 2004

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

RECEIVED
JUN 20 2005
EDMC

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 #	0408L459
SDG #	H2700 → changed to H2690 Daynes 11/12/04
SAF #	F03-018
Date Received	8-26-04
# 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

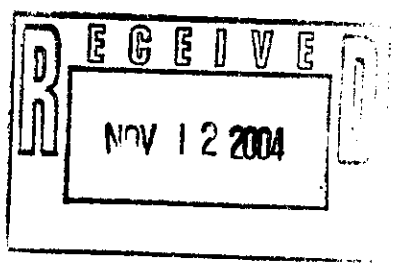
Orlette S. Johnson
Project Manager

208 Welsh Pool Road • Exton, PA 19341- 1313 • (610) 280-3000 • Fax (610) 280-3041

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD F03-018 H2700 H2690 OS 11/11/04

DATE RECEIVED: 08/26/04 LVL LOT # :0408L459

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B17N69						
% SOLIDS	001	S	04L%S149	08/23/04	08/28/04	08/28/04
% SOLIDS	001 REP	S	04L%S149	08/23/04	08/28/04	08/28/04
CATION EXCHANGE CAPA	001	S	04LCE003	08/23/04	09/12/04	09/20/04
CATION EXCHANGE CAPA	001 REP	S	04LCE003	08/23/04	09/12/04	09/20/04
CHROMIUM VI	001	S	04LVI028	08/23/04	09/14/04	09/14/04
CHROMIUM VI	001 REP	S	04LVI028	08/23/04	09/14/04	09/14/04
CHROMIUM VI	001 MS	S	04LVI028	08/23/04	09/14/04	09/14/04
CHROMIUM VI	001 MSD	S	04LVI028	08/23/04	09/14/04	09/14/04
NITRATE NITRITE	001	S	04LN3054	08/23/04	09/23/04	09/24/04
NITRATE NITRITE	001 REP	S	04LN3054	08/23/04	09/23/04	09/24/04
NITRATE NITRITE	001 MS	S	04LN3054	08/23/04	09/23/04	09/24/04
TOTAL ORGANIC CARBON	001	S	04LTZ013	08/23/04	09/10/04	09/10/04
TOTAL ORGANIC CARBON	001 REP	S	04LTZ013	08/23/04	09/10/04	09/10/04
TOTAL ORGANIC CARBON	001 MS	S	04LTZ013	08/23/04	09/10/04	09/10/04
OIL & GREASE BY GRAV	001	S	04LOG024	08/23/04	09/03/04	09/04/04
OIL AND GREASE BY GR	001 REP	S	04LOG024	08/23/04	09/03/04	09/04/04
OIL AND GREASE BY GR	001 MS	S	04LOG024	08/23/04	09/03/04	09/04/04
SULFIDE	001	S	04LSDA46	08/23/04	08/30/04	08/30/04
SULFIDE	001 REP	S	04LSDA46	08/23/04	08/30/04	08/30/04
SULFIDE	001 MS	S	04LSDA46	08/23/04	08/30/04	08/30/04
TOTAL INORGANIC CARB	001	S	04LTZA13	08/23/04	09/10/04	09/10/04
TOTAL INORGANIC CARB	001 REP	S	04LTZA13	08/23/04	09/10/04	09/10/04
LAB QC:						
CATION EXCHANGE CAPA	MB1	S	04LCE003	N/A	09/12/04	09/20/04
CHROMIUM VI	MB1	S	04LVI028	N/A	09/14/04	09/14/04
CHROMIUM VI	MB1 BS	S	04LVI028	N/A	09/14/04	09/14/04
CHROMIUM VI	MB1 BSD	S	04LVI028	N/A	09/14/04	09/14/04
NITRATE NITRITE	MB1	S	04LN3054	N/A	09/23/04	09/24/04
NITRATE NITRITE	MB1 BS	S	04LN3054	N/A	09/23/04	09/24/04
TOTAL ORGANIC CARBON	MB1	S	04LTZ013	N/A	09/10/04	09/10/04
TOTAL ORGANIC CARBON	MB1 BS	S	04LTZ013	N/A	09/10/04	09/10/04
OIL & GREASE BY GRAV	MB1	S	04LOG024	N/A	09/03/04	09/04/04
OIL AND GREASE BY GR	MB1 BS	S	04LOG024	N/A	09/03/04	09/04/04



Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD F03-018 H2760 H2690 11/11/04

DATE RECEIVED: 08/26/04 LVL LOT # :0408L459

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
SULFIDE	MB1	S	04LSDA46	N/A	08/30/04	08/30/04
SULFIDE	MB1 BS	S	04LSDA46	N/A	08/30/04	08/30/04
SULFIDE	MB1 BSD	S	04LSDA46	N/A	08/30/04	08/30/04
TOTAL INORGANIC CARB	MB1	S	04LTZA13	N/A	09/10/04	09/10/04

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU-HANFORD F03-018 H2700 H2690 05 11/11/04
LVL#: 0409L459

W.O.#: 11343-606-001-9999-00
Date Received: 08-26-04

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. The result for Total Inorganic Carbon (TIC) is based on the difference between the measured values for Total Carbon and Total Organic Carbon (TOC).

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. The duplicate LCS for Sulfide was within the 20% Relative Percent Difference (RPD) control limit.

7. The matrix spike recoveries for Chromium VI, Nitrate Nitrite, TOC, Oil and Grease and Sulfide were within the 75-125% control limits.

8. The replicate analyses for Percent Solids, Nitrate Nitrite, Oil ands Grease and Sulfide were within the 20% RPD control limit, however replicate analyses for Cation Exchange Capacity, Chromium VI, TOC and TIC were outside the control limit that may be attributed to sample inhomogeneity.

9. Results for solid samples are reported on a dry weight basis with the exception of TOC and TIC that are dried prior to analysis.

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

10/1/04
Date

njp\i08-459

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.

03

Lionville Laboratory Incorporated

WET CHEMISTRY

METHODS GLOSSARY FOR SOIL/SOLIDS SAMPLE ANALYSIS

	ASTM	SW846	OTHER
% 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	✓ 413.1 (mod.)
Carbon, Total Organic and Inorganic		✓ 9060 (mod)	✓ Lloyd Kahn (mod) and EPA 415.2 (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)/9034	
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 09/30/04

CLIENT: TNUHANFORD F03-018 H2700 H2690 OK 11/11/04 LVL LOT #: 0408L459
WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	B17N69	% Solids	96.8	%	0.01	1.0
		Cation Exchange Capacit	7.4	MEQ/100	1.4	6.0
		Chromium VI	0.21 u	MG/KG	0.21	1.0
		Nitrate Nitrite	21.2	MG/KG	0.82	10.0
		Total Organic Carbon	76.5	MG/KG	31.5	1.0
		Oil & Grease Gravimetri	689 u	MG/KG	689	1.0
		Sulfide	69.3	MG/KG	43.2	1.0
		Total Inorganic Carbon	60.3 u	MG/KG	60.3	1.0

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 09/30/04

CLIENT: TNUHANFORD F03-018 H2700 e H2690 cz 11/11/04 LVL LOT #: 0408L459
WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK10	04LCE003-MB1	Cation Exchange Capacit	1.3 u	MEQ/100	1.3	6.0
BLANK10	04LVI028-MB1	Chromium VI	0.20 u	MG/KG	0.20	1.0
BLANK10	04LN3054-MB1	Nitrate Nitrite	0.08 u	MG/KG	0.08	1.0
BLANK10	04LTZ013-MB1	Total Organic Carbon	4.7 u	MG/KG	4.7	1.0
BLANK10	04LOG024-MB1	Oil & Grease Gravimetri	667 u	MG/KG	667	1.0
BLANK10	04LSDA46-MB1	Sulfide	40.0 u	MG/KG	40.0	1.0
BLANK10	04LTZA13-MB1	Total Inorganic Carbon	4.7 u	MG/KG	4.7	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 09/30/04

CLIENT: TNUHANFORD F03-018 H2700 H2690 BG 11/11/04 LVL LOT #: 0408I459
WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-001	B17N69	Soluble Chromium VI	4.2	0.21u	4.1	100.8	1.0
		Insoluble Chromium VI	1320	0.21u	1240	106.9	100
		Nitrate Nitrite	56.8	21.2	41.0	86.8	20.0
		Total Organic Carbon	3610	76.5	3570	98.8	1.0
		Oil & Grease Gravimetr	5800	689 u	6950	83.5	1.0
		Sulfide	427	69.3	464	77.2	1.0
BLANK10	04LVI028-MB1	Soluble Chromium VI	4.0	0.20u	4.0	100	1.0
		Insoluble Chromium VI	1170	0.20u	1180	99.0	100
BLANK10	04LN3054-MB1	Nitrate Nitrite	2.0	0.08u	2.0	97.8	1.0
BLANK10	04LTZ013-MB1	Total Organic Carbon	412	4.7 u	400	103.0	1.0
BLANK10	04LOG024-MB1	Oil & Grease Gravimetr	6000	667 u	6840	87.7	1.0
BLANK10	04LSDA46-MB1	Sulfide	326	40.0 u	372	87.8	1.0
		Sulfide MSD	342	40.0 u	372	92.1	1.0

Lionville Laboratory, Inc.

INORGANICS DUPLICATE SPIKE REPORT 09/30/04

CLIENT: TNUHANFORD F03-018 H2700 H2690 EG 11/11/04 LVL LOT #: 0408L459
WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	SPIKE#1 %RECOV	SPIKE#2 %RECOV	%DIFF
BLANK10	04LSDA46-MB1	Sulfide	87.8	92.1	4.8

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 09/30/04

CLIENT: TNUHANFORD F03-018 H2200 42690 CS 11/11/04 LVL LOT #: 0408L459
WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-001REP	B17N69	% Solids	96.8	96.4	0.48	1.0
		Cation Exchange Capacit	7.4	16.9	78.0	1.0
		Chromium VI	0.21u	0.22	87.6	1.0
		Nitrate Nitrite	21.2	21.4	0.58	10.0
		Total Organic Carbon	76.5	46.5 u	200.0	1.0
		Oil & Grease Gravimetri	689 u	689 u	NC	1.0
		Sulfide	69.3	61.3	12.1	1.0
		Total Inorganic Carbon	60.3 u	162	200.0	1.0

Lionville Laboratory Use Only
0408L459

Custody Transfer Record/Lab Work Request

Page 1 of 1

LVLI LIONVILLE LABORATORY INC.

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client TNU Hanford F03-018
Est. Final Proj. Sampling Date
Project # 11343-606-001-9999-00
Project Contact/Phone #
Lionville Laboratory Project Manager OJ
QC Spec Del Std TAT 30 Days

Date Rec'd 8/26/04 Date Due 9/25/04

		A							B							
Refrigerator #						6					1					
#/Type Container	Liquid															
	Solid					1AGL					1AGL					
Volume	Liquid															
	Solid					120					60					
Preservatives																

ANALYSES REQUESTED →

ORGANIC							INORG									
VOA	BNA	Pest/PCB	Herb	NO3/NO2 SCEC	SFDS CRC	CIT Gluc	Metal	CN	TOC IC							

MATRIX CODES:	Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	Lionville Laboratory Use Only: IN3N2 ICEC	ISFD ICR6	IOCGR	TOCT ITIC
S - Soil, SE - Sediment, SO - Solid, SL - Sludge, W - Water, O - Oil, A - Air, DS - Drum Solids, DL - Drum Liquids, L - EP/TCLP Leachate, WI - Wipe, X - Other, F - Fish	001	B17N69	✓	✓	S	8/23/04	1309	1	✓	✓	1

Special Instructions:

DATE/REVISIONS:

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____

Relinquished by	Received by	Date	Time
FedEx	Ilene	8/26/04	0955

Relinquished by	Received by	Date	Time
"COMPOSITE WASTE"	ORIGINAL REWRITTEN		

Lionville Laboratory Use Only

Samples were:
1) Shipped ___ or Hand Delivered ___
Airbill # _____
2) Ambient or Chilled
3) Received in Good Condition Y or N
4) Samples Properly Preserved Y or N
5) Received Within Holding Times Y or N

Discrepancies Between Samples Labels and COC Record? Y or N
NOTES:

Tamper Resistant Seal was:
1) Present on Outer Package Y or N
2) Unbroken on Outer Package Y or N
3) Present on Sample Y or N
4) Unbroken on Sample Y or N

COC Record Present Upon Sample Rec't Y or N

Cooler Temp. _____ °C

11

FLUOR Hanford Inc.	CENTRAL PLATEAU CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-018-020	Page 1 of 1
Collector Pope/Pfister/Hughes	Company Contact Steve Trent Telephone No. 373-5869	Project Coordinator TRENT, SJ	Price Code 8N Data Turnaround 45 Days Air Quality ☐
Project Designation 216-Z-9 Trench Characterization Borehole - Soil	Sampling Location 216-Z-9/C3426 - Interval 174'-176.5'	SAF No. F03-018	
Ice Chest No. GRP-04-010	Field Logbook No. HNF-N ~~5301~~ 360-1 4/14/04 COA 119152ES10	Method of Shipment Federal Express	
Shipped To RCRA ~~EBERLINE SERVICES (Formerly TMA)~~ 8/25/04 JT	Offsite Property No. See PTR 14004	Bill of Lading/Air Bill No. See PTR 14004	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

RADIOACTIVE TIE TO: B17NN7 (222-S)

Preservation	Cool 4C	Cool 4C	None								
Type of Container	aG	aG	aG								
No. of Container(s)	1	1	1								
Volume	120mL	60mL	60mL								
SAMPLE ANALYSIS	See item (1) in Special Instructions.	TOC - 415.1; TIC - 415.1M	Tritium - 906.0 JT 8/25/04								
Sample No.	Matrix *	Sample Date	Sample Time								
B17N69	SOIL	8/23/04	1309	X	X	X					

CHAIN OF POSSESSION — **Sign/Print Names**

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Dana Ashley Dana Ashley	8/23/04 1450	SITE Frige #1	8/23/04 1450
Site Frige #1	8/25/04 1140	Greg Thomas Greg Thomas	8/25/04 1140
Greg Thomas Greg Thomas	8/25/04 1140	Fed Ex	
Fed Ex		JP Hunt	8/26/04 0955
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

(1) NO2/NO3 - 353.2; Soil Cation Exchange Capacity - 9080; Sulfides - 9030; Chromium Hex - 7196; Oil & Grease - 413.1

~~To Radiologic~~ JT 8/25/04

Matrix *
S=Soil
SE=Sediment
SO=Solid
SI=Sludge
W = Water
O=Oil
A=Air
DS=Drum Solids
DL=Drum Liquids
T=Tissue
WI=Wipe
L=Liquid
V=Vegetation
X=Other

LABORATORY SECTION	Received By	Title	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

A-6003-618(03/03)

12

Lionville Laboratory Incorporated
SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: TNU Hanford **Date:** 8/26/04

Purchase Order / Project# /
SAF# / SOW# / Release #:

LvLI Batch # : 0408L459 **Sample Custodian:** JPerry

NOTE: EXPLAIN ALL DISCREPANCIES

1.	Samples Hand Delivered or Shipped	Carrier FedEx		Airbill# 791323706180	
2.	Custody seals on coolers or shipping container intact, signed and dated?	☑ Yes	☐ No	☐ No Seals	Comments
3.	Outside of coolers or shipping containers are free from damage?	☑ Yes	☐ No		
4.	All expected paperwork received (coc and other client specific information) sealed in plastic bag and easily accessible?	☑ Yes	☐ No		
5.	Samples received cooled or ambient?	Temp 3 °C		Cooler #GRP-04-010	
6.	Custody seals on sample containers intact, signed and dated?	☑ Yes	☐ No	☐ No Seals	
7.	coc signed and dated?	☑ Yes	☐ No		
8.	Sample containers are intact?	☑ Yes	☐ No		
9.	All samples on coc received? All samples received on coc?	☑ Yes	☐ No		
10.	All sample label information matches coc?	☑ Yes	☐ No		
11.	Samples properly preserved?	☑ Yes	☐ No		
12.	Samples received within hold times? Short holds taken to wet lab?	☑ Yes	☐ No		
13.	VOA, TOC, TOX free of headspace?	☑ Yes	☐ No	☐ N/A	
14.	QC stickers placed on bottles designated by client?	☑ Yes	☐ No	☐ N/A	
15.	Shipment meets LvLI Sample Acceptance Policy? (Identify all bottles not within policy. See reverse side for policy)	☑ Yes	☐ No		
16.	Project Manager contacted concerning discrepancies? name/date (or samples outside criteria)	☐ Yes	☐ No	☑ No Discrepancies	

SR-002-B