

41171

0054610

Recra LabNet - Lionville Laboratory  
INORGANIC ANALYTICAL DATA PACKAGE FOR  
TNUHANFORD B00-073 H1171

DATE RECEIVED: 12/01/00

RFW LOT # :0012L420

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
---------------------	-------	-----	--------	------------	-----------	----------

B111B8

CHROMIUM, TOTAL	001		SO 99L1770	11/28/00	12/06/00	12/07/00
CHROMIUM, TOTAL	001 REP		SO 99L1770	11/28/00	12/06/00	12/07/00
CHROMIUM, TOTAL	001 MS		SO 99L1770	11/28/00	12/06/00	12/07/00

B111B9

CHROMIUM, TOTAL	002		SO 99L1770	11/28/00	12/06/00	12/07/00
-----------------	-----	--	------------	----------	----------	----------

B111C0

CHROMIUM, TOTAL	003		SO 99L1770	11/28/00	12/06/00	12/07/00
-----------------	-----	--	------------	----------	----------	----------

LAB QC:

CHROMIUM LABORATORY	LC1 BS		S 99L1770	N/A	12/06/00	12/07/00
CHROMIUM, TOTAL	MB1		S 99L1770	N/A	12/06/00	12/07/00

RECEIVED  
MAR 28 2001

EDMC



**Recra LabNet Philadelphia  
Analytical Report**

**Client:** TNU-HANFORD B00-073  
**RFW#:** 0012L420  
**SDG/SAF#:** H1171/B00-073

**W.O.#:** 10985-001-001-9999-00  
**Date Received:** 12-01-00

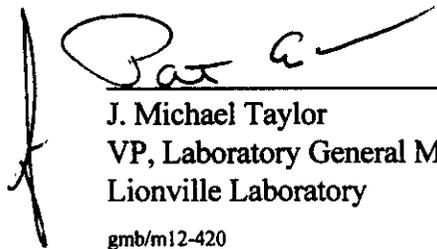
**METALS CASE NARRATIVE**

1. This narrative covers the analyses of 3 soil samples.
2. The samples were prepared and analyzed in accordance with methods checked on the attached glossary.
3. All analyses were performed within the required holding times.
4. The cooler temperature has been recorded on the Chain of Custody.
5. All Initial and Continuing Calibration Verifications (ICV/CCVs) were within the 90-110% control limits (80-120% for Mercury).
6. All Initial and Continuing Calibration Blanks (ICB/CCBs) were within control limits (less than the PQL).
7. The preparation/method blank (MB) was within method criteria {less than the Practical Quantitation Limit (3X the IDL), MB value less than 5% of the RCRA limit, or samples greater than 20X MB value}. Refer to the Inorganics Method Blank Data Summary.
8. All ICP Interference Check Standards were within control limits.
9. The laboratory control sample (LCS) was within the 80-120% control limits. Refer to form 7.
10. The matrix spike (MS) recovery was outside the 75-125% control limits. Refer to the Inorganics Accuracy Report.
11. For analytes where the ICP MS is out-of-control, a post-digestion MS (PDS) and serial dilution are performed. A serial dilution is performed for Mercury. A PDS was prepared at meaningful concentration levels, due to high concentrations of the following analytes:

The results presented in this report relate only to the analytical testing and conditions of the samples at 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.

<u>Sample ID</u>	<u>Element</u>	<u>PDS Concentration (ppb)</u>	<u>PDS % Recovery</u>
B111B8	Chromium	200	101.2

12. The duplicate analysis was within the 20% Relative Percent Difference (RPD) control limits. Refer to the Inorganics Precision Report.
13. For the purposes of this report, the data has been reported to the Instrument Detection Limit (IDL). Values between the IDL and the Practical Quantitation Limit (PQL) are acquired in a region of less-certain quantification.
14. 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 data package has been authorized by the Laboratory Manager or a designee, as verified by the following signature.

  
 \_\_\_\_\_  
 J. Michael Taylor  
 VP, Laboratory General Manager  
 Lionville Laboratory  
 gmb/m12-420

01-09-01  
 \_\_\_\_\_  
 Date



# METALS METHOD GLOSSARY

The following methods are used as reference for the digestion and analysis of samples contained within this

Recra Lot#: 0012 L42.0

Leaching Procedure:   1310  1311  1312  Other: \_\_\_\_\_

CLP Metals    Digestion and    Analysis Methods:   ILM03.0  ILM04.0

Metals Digestion Methods:   3005A  3010A  3015  3020A  ✓3050B  3051  200.7  SS17  
  Other: \_\_\_\_\_

## Metals Analysis Methods

	SW846	EPA	STD MTD	EPA OSWR	USATHAMA
Aluminum	<u>  6010B</u>	<u>  200.7</u>			<u>  99</u>
Antimony	<u>  6010B  7041<sup>5</sup></u>	<u>  200.7  204.2</u>			<u>  99</u>
Arsenic	<u>  6010B  7060A<sup>5</sup></u>	<u>  200.7  206.2</u>	<u>  3113B</u>		<u>  99</u>
Barium	<u>  6010B</u>	<u>  200.7</u>			<u>  99</u>
Beryllium	<u>  6010B</u>	<u>  200.7</u>			<u>  99</u>
Bismuth	<u>  6010B<sup>1</sup></u>	<u>  200.7<sup>1</sup></u>		<u>  1620</u>	<u>  99</u>
Boron	<u>  6010B</u>	<u>  200.7</u>			<u>  99</u>
Cadmium	<u>  6010B  7131A<sup>5</sup></u>	<u>  200.7  213.2</u>			<u>  99</u>
Calcium	<u>  6010B</u>	<u>  200.7</u>			<u>  99</u>
Chromium	<u>  6010B  7191<sup>5</sup></u>	<u>  200.7  218.2</u>			<u>  SS17</u>
Cobalt	<u>  6010B</u>	<u>  200.7</u>			<u>  99</u>
Copper	<u>  6010B  7211<sup>5</sup></u>	<u>  200.7  220.2</u>			<u>  99</u>
Iron	<u>  6010B</u>	<u>  200.7</u>			<u>  99</u>
Lead	<u>  6010B  7421<sup>5</sup></u>	<u>  200.7  239.2</u>	<u>  3113B</u>		<u>  99</u>
Lithium	<u>  6010B  7430<sup>4</sup></u>	<u>  200.7</u>		<u>  1620</u>	<u>  99</u>
Magnesium	<u>  6010B</u>	<u>  200.7</u>			<u>  99</u>
Manganese	<u>  6010B</u>	<u>  200.7</u>			<u>  99</u>
Mercury	<u>  7470A<sup>3</sup>  7471A<sup>3</sup></u>	<u>  245.1<sup>2</sup>  245.5<sup>2</sup></u>			<u>  99</u>
Molybdenum	<u>  6010B</u>	<u>  200.7</u>			<u>  99</u>
Nickel	<u>  6010B</u>	<u>  200.7</u>			<u>  99</u>
Potassium	<u>  6010B  7610<sup>4</sup></u>	<u>  200.7  258.1<sup>4</sup></u>			<u>  99</u>
Rare Earths	<u>  6010B<sup>1</sup></u>	<u>  200.7<sup>1</sup></u>		<u>  1620</u>	<u>  99</u>
Selenium	<u>  6010B  7740<sup>5</sup></u>	<u>  200.7  270.2</u>	<u>  3113B</u>		<u>  99</u>
Silicon	<u>  6010B<sup>1</sup></u>	<u>  200.7</u>		<u>  1620</u>	<u>  99</u>
Silica	<u>  6010B</u>	<u>  200.7</u>		<u>  1620</u>	<u>  99</u>
Silver	<u>  6010B  7761<sup>5</sup></u>	<u>  200.7  272.2</u>			<u>  99</u>
Sodium	<u>  6010B  7770<sup>4</sup></u>	<u>  200.7  273.1<sup>4</sup></u>			<u>  99</u>
Strontium	<u>  6010B</u>	<u>  200.7</u>			<u>  99</u>
Thallium	<u>  6010B  7841<sup>5</sup></u>	<u>  200.7  279.2  200.9</u>			<u>  99</u>
Tin	<u>  6010B</u>	<u>  200.7</u>			<u>  99</u>
Titanium	<u>  6010B</u>	<u>  200.7</u>			<u>  99</u>
Uranium	<u>  6010B<sup>1</sup></u>	<u>  200.7<sup>1</sup></u>		<u>  1620</u>	<u>  99</u>
Vanadium	<u>  6010B</u>	<u>  200.7</u>			<u>  99</u>
Zinc	<u>  6010B</u>	<u>  200.7</u>			<u>  99</u>
Zirconium	<u>  6010B<sup>1</sup></u>	<u>  200.7<sup>1</sup></u>		<u>  1620</u>	<u>  99</u>

Other: \_\_\_\_\_

Method: \_\_\_\_\_

# 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  
LCS = Laboratory Control Sample.  
NC = Not calculated.

## ANALYTICAL METAL METHODS

1. Not included in the method element list.
2. Modified Hg: Hg1 and Hg2 require less total volume of digestate due to the autosampler analysis. Sample volumes and reagents for mercury determinations in water and soil have been proportionately scaled down to adapt to this semi-automated technique. The sample volume used for water analysis is 33 mL. For soils, 0.1 grams of sample is taken to a final volume of 50 mL (including all reagents).
3. Modified Hg: Hg1 and Hg2 require less total volume of digestate due to the autosampler analysis. Sample volumes and reagents for mercury determinations in water and soil have been proportionately scaled down to adapt to this semi-automated technique. The sample volume used for water analysis is 33 mL. For soils, three 0.1 gram of sample is taken to a final volume of 50 mL (including all reagents).
4. Flame AA.
5. Graphite Furnace AA.

RFW 21-21L-033/N-10/96

Recra LabNet - Lionville

INORGANICS DATA SUMMARY REPORT 12/21/00

CLIENT: TNUHANFORD B00-073 H1171  
WORK ORDER: 10985-001-001-9999-00

RECRA LOT #: 0012L420

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	B111B8	Chromium, Total	20.0	MG/KG	0.08	1.0
-002	B111B9	Chromium, Total	17.8	MG/KG	0.07	1.0
-003	B111C0	Chromium, Total	28.1	MG/KG	0.07	1.0

Recra LabNet - Lionville

INORGANICS METHOD BLANK DATA SUMMARY PAGE 12/21/00

CLIENT: TNUHANFORD B00-073 H1171  
WORK ORDER: 10985-001-001-9999-00

RECRA LOT #: 0012L420

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
*****	*****	*****	*****	*****	*****	*****
BLANK1	99L1770-MB1	Chromium, Total	0.10	MG/KG	0.06	1.0

Recre LabNet - Lionville

INORGANICS ACCURACY REPORT 12/21/00

CLIENT: TNUHANFORD B00-073 H1171  
 WORK ORDER: 10985-001-001-9999-00

RECRA LOT #: 0012L420

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR (SPK)
-001	B11188	Chromium, Total	35.2	20.0	26.6	57.1	1.0

Recra LabNet - Lionville

INORGANICS PRECISION REPORT 12/21/00

CLIENT: TNUHANFORD B00-073 H1171

RECRA LOT #: 0012L420

WORK ORDER: 10985-001-001-9999-00

SAMPLE	SITE ID	ANALYTE	INITIAL			DILUTION FACTOR (REP)
			RESULT	REPLICATE	RPD	
-001REP	B111B8	Chromium, Total	20.0	20.8	3.9	1.0

Recra LabNet - Lionville

INORGANICS LABORATORY CONTROL STANDARDS REPORT 12/21/00

CLIENT: TNUHANFORD B00-073 H1171  
WORK ORDER: 10985-001-001-9999-00

RECRA LOT #: 0012L420

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
*****	*****	*****	*****	*****	*****	*****
LCS1	99L1770-LC1	Chromium, LCS	49.1	50.0	MG/KG	98.2



Bechtel Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			B00-073-005	Page 1 of 2	
Collector Doug Bowers	Company Contact Jason Addler	Telephone No. 531-0703	Project Coordinator TRENT, SJ	Price Code 9L	Data Turnaround 21 Days		
Project Designation 100-D & 100-H Rx Waste Sampling - Other Solids	Sampling Location 100 D reactor	SAF No. B00-073	Air Quality <input type="checkbox"/>				
Ice Chest No. ERC99-068 (10fi)	Field Logbook No. EFL 1133-8	COA R105DG280C	Method of Shipment Fed Ex				
Shipped To TMA/RECRA	Offsite Property No. A010039	Bill of Lading/Air Bill No. 42357953 0875					
POSSIBLE SAMPLE HAZARDS/REMARKS	Preservation	None					
	Type of Container	aG					
	No. of Container(s)	1					
Special Handling and/or Storage	Volume	60mL					
SAMPLE ANALYSIS		ICP Metals - 6010A (Supertrace) Aluminum Zn (CV) 620 11-28-00	← TOTAL Chrome only				
Sample No.	Matrix *	Sample Date	Sample Time				
B111B7 <del>570</del> 11-28-00	OTHER SOLID						
B111B8	OTHER SOLID	11-28-00	1340	X		B111C3	
B111B9	OTHER SOLID	11-28-00	1350	X		B111C4	
B111C0	OTHER SOLID	11-28-00	1410	X		B111C5	
B111C1 <del>620</del> 11-28-00	OTHER SOLID						
CHAIN OF POSSESSION			SPECIAL INSTRUCTIONS			Matrix *	
Relinquished By: Doug Bowers Date/Time: 11-28-00/1130			Received By: Stored in Date/Time: 11-28-00/1130			ICP Supertrace metals report Total Cr only.  Samples stored in Ref. # 22 at the 3728 Shipping Facility on 11/28/00 Collector not available to relinquish samples on 11/30/00 for shipment. RT 11/30/00	S - Soil SE - Sediment ST - Solid S - Sludge W - Water O - Oil A - Air DS - Drum Solids DL - Drum Liquids T - Trace WI - Wipe L - Liquid V - Vegetation X - Other
Relinquished By: R. Thoren Date/Time: 11/30/00			Received By: R. Thoren Date/Time: 11/30/00				
Relinquished By: R. Thoren Date/Time: 11/30/00			Received By: FED EX Date/Time: 11/30/00				
Relinquished By: Fed Ex Date/Time: 12-1-00 0945			Received By: Thoren Date/Time: 12-1-00 0945				
Relinquished By:			Received By:				
Relinquished By:			Received By:				
LABORATORY SECTION	Received By:	Title				Date/Time	
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By				Date/Time	