

**Recra LabNet Philadelphia
Analytical Report**

Client: TNU-HANFORD B01-073

RFW#: 0012L551

SDG/SAF#: H1191/B01-073
B00 JH 1/1/01

W.O.#: 10985-001-001-9999-00

Date Received: 12-12-00

METALS CASE NARRATIVE

1. This narrative covers the analysis of 1 soil sample.
2. The sample was 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 within the 75-125% control limits. Refer to the Inorganics Accuracy Report.
11. The duplicate analysis was within the 20% Relative Percent Difference (RPD) control limits. Refer to the Inorganics Precision Report.

RECEIVED
MAR 28 2001

EDMC

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 12 pages.

H1191

Recra LabNet - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD ~~B01~~-073 H1191

300 JK 1/1/01

DATE RECEIVED: 12/12/00

RFW LOT # :0012L551

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
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B110C1

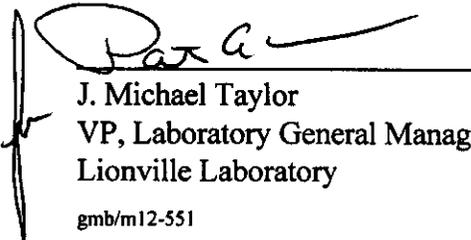
CHROMIUM, TOTAL	001	SO	99L1832	12/06/00	12/19/00	12/22/00
CHROMIUM, TOTAL	001 REP	SO	99L1832	12/06/00	12/19/00	12/22/00
CHROMIUM, TOTAL	001 MS	SO	99L1832	12/06/00	12/19/00	12/22/00

LAB QC:

CHROMIUM LABORATORY	LC1 BS	S	99L1832	N/A	12/19/00	12/22/00
CHROMIUM, TOTAL	MB1	S	99L1832	N/A	12/19/00	12/22/00



12. 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.
13. 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/m12-551

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#: 0012L551

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 7041⁵</u>	<u> 200.7 204.2</u>			<u> 99</u>
Arsenic	<u> 6010B 7060A⁵</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> 6010B¹</u>	<u> 200.7¹</u>		<u> 1620</u>	<u> 99</u>
Boron	<u> 6010B</u>	<u> 200.7</u>			<u> 99</u>
Cadmium	<u> 6010B 7131A⁵</u>	<u> 200.7 213.2</u>			<u> 99</u>
Calcium	<u> 6010B</u>	<u> 200.7</u>			<u> 99</u>
Chromium	<u> /6010B 7191⁵</u>	<u> 200.7 218.2</u>			<u> SS17</u>
Cobalt	<u> 6010B</u>	<u> 200.7</u>			<u> 99</u>
Copper	<u> 6010B 7211⁵</u>	<u> 200.7 220.2</u>			<u> 99</u>
Iron	<u> 6010B</u>	<u> 200.7</u>			<u> 99</u>
Lead	<u> 6010B 7421⁵</u>	<u> 200.7 239.2</u>	<u> 3113B</u>		<u> 99</u>
Lithium	<u> 6010B 7430⁴</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> 7470A³ 7471A³</u>	<u> 245.1² 245.5²</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 7610⁴</u>	<u> 200.7 258.1⁴</u>			<u> 99</u>
Rare Earths	<u> 6010B¹</u>	<u> 200.7¹</u>		<u> 1620</u>	<u> 99</u>
Selenium	<u> 6010B 7740⁵</u>	<u> 200.7 270.2</u>	<u> 3113B</u>		<u> 99</u>
Silicon	<u> 6010B¹</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 7761⁵</u>	<u> 200.7 272.2</u>			<u> 99</u>
Sodium	<u> 6010B 7770⁴</u>	<u> 200.7 273.1⁴</u>			<u> 99</u>
Strontium	<u> 6010B</u>	<u> 200.7</u>			<u> 99</u>
Thallium	<u> 6010B 7841⁵</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> 6010B¹</u>	<u> 200.7¹</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> 6010B¹</u>	<u> 200.7¹</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 01/02/01

CLIENT: TNUHANFORD ^{300 JH 1/11/01} B01-073 H1191
WORK ORDER: 10985-001-001-9999-00

RECRA LOT #: 0012L551

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	B110C1	Chromium, Total	31.6	MG/KG	0.06	1.0

Recra LabNet - Lionville

INORGANICS METHOD BLANK DATA SUMMARY PAGE 01/02/01

BOO JHO 11/10

CLIENT: TNUHANFORD ~~BOI~~-073 H1191

RECRA LOT #: 0012L551

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
*****	*****	*****	*****	*****	*****	*****
BLANK1	99L1832-MB1	Chromium, Total	0.06 u	MG/KG	0.06	1.0

Recra LabNet - Lionville

INORGANICS ACCURACY REPORT 01/02/01

CLIENT: TNUHANFORD ^{800 JH 11-101} 801-073 H1191
WORK ORDER: 10985-001-001-9999-00

RECRA LOT #: 0012L551

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR (SPK)
-001	B110C1	Chromium, Total	52.8	31.6	20.5	103.4	1.0

Recra LabNet - Lionville

INORGANICS PRECISION REPORT 01/02/01

CLIENT: TNUHANFORD, ^{BOO JH 1/1/01} B01-073 H1191
WORK ORDER: 10985-001-001-9999-00

RECRA LOT #: 0012L551

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR (REP)
-001REP	B110C1	Chromium, Total	31.6	30.5	3.5	1.0

Recra LabNet - Lionville

INORGANICS LABORATORY CONTROL STANDARDS REPORT 01/02/01

CLIENT: TNUHANFORD ^{BOO JP, 1.1.10} 801-073 H1191

RECRA LOT #: 0012L551

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

SAMPLE	SITE ID	ANALYTE	SPIKED	SPIKED	UNITS	%RECOV
			SAMPLE	AMOUNT		
-----	-----	-----	-----	-----	-----	-----
LCS1	99L1832-LC1	Chromium, LCS	51.8	50.0	MG/KG	103.6

RECRA LabNet Use Only
0012L551

2200
Custody Transfer Record/Lab Work Request Page 1 of 1

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS



Client: TRU - Hartford 201-073 Refrigerator # 5

Est. Final Proj. Sampling Date _____ #/Type Container 1 Liquid _____ Solid 1AG

Project # 10985-001-001-9999-00 Volume _____ Liquid _____ Solid 100

Project Contact/Phone # _____ Preservatives _____

RECRA Project Manager OS ANALYSES REQUESTED →

OC Spec Del Std TAT 21 day ORGANIC: VOA _____ BNA _____ Pest/PCB _____ Herb _____

Date Rec'd 12-12-00 Date Due 1-2-01 INORG: Metal 3

Account # _____

MATRIX CODES: S - Soil SE - Sediment SO - Solid SL - Sludge W - Water O - Oil A - Air DS - Drum Solids DL - Drum Liquids L - EP/CLP Leachate WI - Wipe X - Other F - Fish	Lab ID	Client ID/Description	Matrix QC Chosen (✓)		Matrix	Date Collected	Time Collected	RECRA LabNet Use Only													
			MS	MSD				IMCRT0													
	<u>001</u>	<u>BUUC1</u>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<u>SO</u>	<u>12/12/00</u>	<u>1310</u>	<input checked="" type="checkbox"/>													

Special Instructions: Saf 201-073

DATE/REVISIONS:
 1. ID on label reads BUUC1
 2. ID on COC reads BUUC1
 3. _____
 4. _____
 5. _____
 6. _____

RECRA LabNet Use Only

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

Airbill # See below

COC Tape was:
 1) Present on Outer Package or N
 2) Unbroken on Outer Package or N
 3) Present on Sample or N
 4) Unbroken on Sample or N
 COC Record Present Upon Sample Rec't or N
 Cooler Temp. 3.1 °C

Relinquished by	Received by	Date	Time
<u>FedEx</u>	<u>TKoppel</u>	<u>12-12-00</u>	<u>1000</u>

Relinquished by _____ Received by _____ Date _____ Time _____

COMPOSITE WASTE ORIGINAL REWRITTEN

Discrepancies Between Samples Labels and COC Record or N
 NOTES: 4235 7954 1220

011

Bechtel Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			B01-023-002	Page 1 of 3
Collector Doug Bowers	Company Contact Jason Addler	Telephone No. 531-0703	Project Coordinator TRENT, SJ		Price Code 9L	Data Turnaround 21 Days
Project Designation 105-D & 105-H Rx Isotopic & Designation Sampling - Other		Sampling Location 105D	SAF No. FT 12-11-80 B01-023 073		Air Quality <input type="checkbox"/>	
Ice Chest No. SMI-320 (1 of 1)	Field Logbook No. EFL 1133-B	COA R105DG280C	Method of Shipment Gov Vehicle / FEDEx			
Shipped To TMA/RECRA	Offsite Property No. A 010189	Bill of Lading/Air Bill No. 42357953-1220				

POSSIBLE SAMPLE HAZARDS/REMARKS	Preservation	COOL REFRIG																	
	Type of Container	4G	1G																
	No. of Container(s)	1	1																
	Volume	60mL	120mL																
Special Handling and/or Storage																			
SAMPLE ANALYSIS																			

Sample No.	Matrix *	Sample Date	Sample Time																
B110G0	OTHER SOLID																		
B110C1	OTHER SOLID	12-6-00	131G	X															
B110C2	OTHER SOLID																		
B110C3	OTHER SOLID																		
B110C4	OTHER SOLID																		

CHAIN OF POSSESSION		Sign/Print Names		SPECIAL INSTRUCTIONS				Matrix *
Relinquished By Doug Bowers	Date/Time 12-6-00 1100	Received By R. Thoren	Date/Time 12-6-00 1500	(1) ICP Metals - 6010A (Supertrace) (Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver); Mercury - 7471 - (CV) (2) Gamma Spectroscopy (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); Gamma Spec - Add-on (Barium-133); Isotopic Plutonium; Isotopic Thorium (Thorium-228, Thorium-232); Isotopic Uranium; Americium-241; Carbon-14; Nickel-63; Neptunium-237; Total Cr only				S=Soil SE=Sediment SO=Solid S=Singe W=Water O=Oil A=Air DS=Drum Solids DL=Drum Liquids T=Tissue W=Wipe L=Liquid V=Vegetation X=Other
Relinquished By R. Thoren	Date/Time 12-6-00 1515	Received By Stored in	Date/Time 12-6-00 1515					
Relinquished By R. Thoren	Date/Time 12-6-00 0815	Received By Ref. Unit 3A	Date/Time 12-6-00 3728					
Relinquished By R. Thoren	Date/Time 12-11-00 0815	Received By R. Thoren	Date/Time 12-11-00 0815					
Relinquished By R. Thoren	Date/Time 12-11-00 0815	Received By FEDEx	Date/Time					
Relinquished By FEDEx	Date/Time 12-12-00 1000	Received By Thoren	Date/Time 12-12-00 1000					

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

