

RECEIVED
JAN 09 2000

H1082

0051267

EDMC

Recra LabNet - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B00-056 H1082

DATE RECEIVED: 10/07/00

RFW LOT # :0010L908

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

B10F59

BARIUM, SOLUBLE	001	W	99L1629	10/04/00	10/16/00	10/17/00
BARIUM, SOLUBLE	001 REP	W	99L1629	10/04/00	10/16/00	10/17/00
BARIUM, SOLUBLE	001 MS	W	99L1629	10/04/00	10/16/00	10/17/00

B10F60

BARIUM, SOLUBLE	002	W	99L1629	10/04/00	10/16/00	10/17/00
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B10F61

BARIUM, SOLUBLE	003	W	99L1629	10/04/00	10/16/00	10/17/00
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LAB QC:

BARIUM LABORATORY	LC1 BS	W	99L1629	N/A	10/16/00	10/17/00
BARIUM, TOTAL	MB1	W	99L1629	N/A	10/16/00	10/17/00

PRIORITY
TMS 12-11-00

12345678910111213141516171819202122232425262728293031
DEC 2000
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**Recra LabNet Philadelphia
Analytical Report**

Client: TNU-HANFORD B00-056
RFW#: 0010L908
SDG/SAF#: H1082/B00-056

W.O.#: 10985-001-001-9999-00
Date Received: 10-07-00

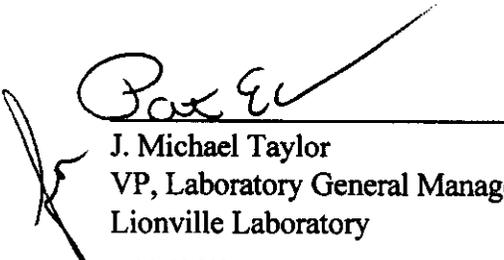
METALS CASE NARRATIVE

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1. This narrative covers the analyses of 2 water 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) with the exception of the final CCV for Barium. All samples were surrounded by CCVs in control.
6. All Initial and Continuing Calibration Blanks (ICB/CCBs) were within control limits (less than the PQL).
7. All preparation/method blanks (MB) were 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. All laboratory control samples (LCS) were 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.

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.

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/m10-908

12-6-00
Date

PRIORITY

JMT 12-11-00



METALS METHOD GLOSSARY

The following methods are used as reference for the digestion and analysis of samples contained within this Recra Lot#: 0010L908

Leaching Procedure: 1310 1311 1312 Other:_____

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

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.

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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

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INORGANICS DATA SUMMARY REPORT 12/06/00

CLIENT: TNUHANFORD B00-056 H1082
WORK ORDER: 10985-001-001-9999-00

RECRA LOT #: 0010L908

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	B10F59	Barium, Soluble	2.5	u UG/L	2.5	1.0
-002	B10F60	Barium, Soluble	10600	UG/L	2.5	1.0
-003	B10F61	Barium, Soluble	10600	UG/L	2.5	1.0

PRIORITY
TNT 12-11-00

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INORGANICS METHOD BLANK DATA SUMMARY PAGE 12/06/00

CLIENT: TNUHANFORD B00-056 H1082
WORK ORDER: 10985-001-001-9999-00

RECRA LOT #: 0010L908

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK1	99L1629-MB1	Barium, Total	2.5	u UG/L	2.5	1.0

~~PRIORITY~~
TNTJ 12-11-00

Recra LabNet - Lionville

INORGANICS ACCURACY REPORT 12/06/00

CLIENT: TNUHANFORD B00-056 H1082
WORK ORDER: 10985-001-001-9999-00

RECRA LOT #: 0010L908

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR (SPK)
-001	B10F59	Barium, Soluble	2000	2.5 u	2000	100.1	1.0

PRIORITY
TMS 12-11-00

Recra LabNet - Lionville

INORGANICS PRECISION REPORT 12/06/00

CLIENT: TNUHANFORD B00-056 H1082

RECRA LOT #: 0010L908

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

SAMPLE	SITE ID	ANALYTE	INITIAL			DILUTION FACTOR (REP)
			RESULT	REPLICATE	RPD	
-----	-----	-----	-----	-----	-----	
-001REP	B10F59	Barium, Soluble	2.5 u	2.5 u	NC	1.0

~~PRIORITY~~
TMJ 12-11-00

Recra LabNet - Lionville

INORGANICS LABORATORY CONTROL STANDARDS REPORT 12/06/00

CLIENT: TNUHANFORD B00-056 H1082
WORK ORDER: 10985-001-001-9999-00

RECRA LOT #: 0010L908

SAMPLE	SITE ID	ANALYTE	SPIKED	SPIKED	UNITS	%RECOV
			SAMPLE	AMOUNT		
-----	-----	-----	-----	-----	-----	-----
LCS1	99L1629-LC1	Barium, LCS	4880	5000	UG/L	97.6

Collector R.B. Kerkow / D. SHEA Company Contact J. D. Fancher Telephone No. 373-9123 Project Coordinator TRENT, SJ Price Code 25 Date Turnaround

Project Designation 100-NR-1 TSD Sites R. A. Sampling - Water Sampling Location 120-N-2 pond SAF No. B00-056 Air Quality 7 days

Ice Chest No. ERC 94-043 (10F1) Field Logbook No. EL-1524 COA R120N22600 Method of Shipment Fed Ex

Shipped To FMA/RECRA 12K 10/4/00 Offsite Property No. A000348 Bill of Lading/Air Bill No. 42357953-9702

POSSIBLE SAMPLE HAZARDS/REMARKS NONE	Preservation	None # N/A																	
	Type of Container	G																	
	No. of Container(s)	1																	
	Special Handling and/or Storage	Volume 500mL																	

SAMPLE ANALYSIS See item (1) in Special Instructions. Samples stored in Ref. # 2A at the 3728 Shipping Facility on 10/4/00. Collector not available to relinquish sample on 10/6/00 for shipment. R 10/

Sample No.	Matrix *	Sample Date	Sample Time																
B10F59	WATER	10-4-00	1045	X															
B10F60	WATER	10-4-00	1045	X															
B10F61	WATER	10-4-00	1045	X															

CHAIN OF POSSESSION				SPECIAL INSTRUCTIONS				Matrix *				
Relinquished By	Date/Time	Received By	Date/Time	Lab COA: R120N2-2F00	*BARUM ONLY RL 10/4/00 (1) ICP Metals - 6010A (TAL) (Barium, Cadmium, Chromium, Silver); ICP Metals - 6010A (Add-on) (Arsenic, Lead, Selenium); Mercury - 3498 (EA) RL 10/4/00				S-Soil SS-Sediment S-Sludge W-Water O-Oil A-Air DS-Dry Solids DL-Dry Liquid T-Tissue WI-Wipe L-Liquid V-Vegetation X-Other			
DWSHEA	10/4/00 1505	Fridge 2A	10/4/00 1505									
Relinquished By	Date/Time	Received By	Date/Time	NOTE: THESE SAMPLES WERE COLLECTED FROM A NON-RAO CONTROLLED AREA (<2000 pCi/g) NO TOTAL ACTIVITY REQUIRED. RL 10/4/00				* SAMPLES HAVE NOT BEEN PRESERVED SAMPLES HAVE NOT BEEN FILTERED RL 10/4/00				
Removed from	10/6/00 0830	R. Thoren	10/6/00 0830									
Relinquished By	Date/Time	Received By	Date/Time	* SAMPLES HAVE NOT BEEN PRESERVED SAMPLES HAVE NOT BEEN FILTERED RL 10/4/00								
R. Thoren	10/6/00 0830	FED EX	10/7/00 0950									
Relinquished By	Date/Time	Received By	Date/Time									
FED EX	10-7-00 0950	Thoppel	10-7-00 0950									
Relinquished By	Date/Time	Received By	Date/Time									

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

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