0049011 H0102-T/W

RECRA LabNet

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Virtual Laboratories Everywhere

OCT 1997 RECEIVED Data Log In

APR 1998 RECEIVED EDMC

Recra LabNet Philadelphia
Analytical Report

Client : TNU-HANFORD
RFW# : 9709L421
SDG# : H0102

W.O.# : 10985-001-001-[illegible]9-00
Date Received: 09-19-9[illegible]

METALS CASE NARRATIVE

1. This narrative covers the analyses of 1 water 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 control limits.

6. All Initial and Continuing Calibration Blanks (ICB/CCBs) were within control limits.

7. All preparation/method blanks were within method criteria. 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 laboratory control limits. Refer to the Inorganics Laboratory Control Standards Report.

10. All matrix spike (MS) and matrix spike duplicate (MSD) recoveries were within the 80-120% control limits. Refer to the Inorganics Accuracy Report.

11. All MSs and MSDs were within the 20% Relative Percent Difference (RPD) control limits. Refer to the Inorganics Matrix Spike Duplicate Report.

12. The duplicate analyses for 5 analytes were outside the 20% 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.

for Bruce C. Miller Unit Leader

J. Michael Taylor
Vice President and Laboratory Manager
Lionville Analytical Laboratory

10.27.97
Date

skl\m09-421

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 16 pages.

208 Welsh Pool Road • Lionville, PA 19341-1333 • (610)-280-3000 • Fax (610) 280-3041

COVER PAGE - INORGANIC ANALYSES DATA PACKAGE

SDG#: H0102
Laboratory Batch: 9709L421

W.O.#: 10985-001-001-9999-00
Collection Date: 09-17-97

SAMPLE ID	LABORATORY ID
BOLY69	9709L421-002

skl m09-421.cp

METALS METHODS GLOSSARY

The following methods are used as reference for the digestion and analysis of samples contained within this RFW Lot#: 9709L421

Leaching Procedure: __1310 __1311 __1312 __Other:_____

CLP Metals __ Digestion and __ Analysis Methods: __ILM03.0 __ILM04.0

Metals Digestion Methods: X3005A __3010A __3015 __3020A __3050A __3051 __200.7 __SS17
__Other: _____

Metals Analysis Methods

	SW846		EPA		STD MTD	EPA OSWR	USATHAMA
Aluminum	X6010A		__200.7				__99
Antimony	X6010A	__7041 [5]	__200.7	__204.2			__99
Arsenic	X6010A	__7060A [5]	__200.7	__206.2	__3113B		__99
Barium	X6010A		__200.7				__99
Beryllium	X6010A		__200.7				__99
Bismuth	__6010A [1]		__200.7 [1]			__1620	__99
Boron	__6010A [1]		__200.7				__99
Cadmium	X6010A	__7131A [5]	__200.7	__213.2			__99
Calcium	X6010A		__200.7				__99
Chromium	X6010A	__7191 [5]	__200.7	__218.2			__SS17
Cobalt	X6010A		__200.7				__99
Copper	X6010A	__7211 [5]	__200.7	__220.2			__99
Iron	X6010A		__200.7				__99
Lead	X6010A	__7421 [5]	__200.7	__239.2	__3113B		__99
Lithium	__6010A	__7430 [4]	__200.7			__1620	__99
Magnesium	X6010A		__200.7				__99
Manganese	X6010A		__200.7				__99
Mercury	X7470A [3]	__7471A [3]	__245.1 [2]	__245.5 [2]			__99
Molybdenum	__6010A		__200.7				__99
Nickel	X6010A		__200.7				__99
Potassium	X6010A	__7610 [4]	__200.7	__258.1 [4]			__99
Rare Earths	__6010A [1]		__200.7 [1]			__1620	__99
Selenium	X6010A	__7740 [5]	__200.7	__270.2	__3113B		__99
Silicon	__6010A [1]		__200.7			__1620	__99
Silica	__6010A [1]		__200.7			__1620	__99
Silver	X6010A	__7761 [5]	__200.7	__272.2			__99
Sodium	X6010A	__7770 [4]	__200.7	__273.1 [4]			__99
Strontium	__6010A		__200.7				__99
Thallium	X6010A	__7841 [5]	__200.7	__279.2	__200.9		__99
Tin	__6010A [1]		__200.7				__99
Titanium	__6010A [1]		__200.7				__99
Uranium	__6010A [1]		__200.7 [1]			__1620	__99
Vanadium	X6010A		__200.7				__99
Zinc	X6010A		__200.7				__99
Zirconium	__6010A [1]		__200.7 [1]			__1620	__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.

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 10/13/97

CLIENT: TNU-HANFORD

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

RECRA LOT #: [illegible]

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-002	BOLY69	Silver, Soluble	8.8	u	UG/L	[illegible]	1.0
		Aluminum, Soluble	24.9	u	UG/L	[illegible]	1.0
		Arsenic, Soluble	49.5	u	UG/L	[illegible]	1.0
		Barium, Soluble	25.2		UG/L	[illegible]	1.0
		Beryllium, Soluble	1.1	u	UG/L	[illegible]	1.0
		Calcium, Soluble	68800		UG/L	[illegible]	1.0
		Cadmium, Soluble	2.5	u	UG/L	[illegible]	1.0
		Cobalt, Soluble	4.8	u	UG/L	[illegible]	1.0
		Chromium, Soluble	3.8		UG/L	[illegible]	1.0
		Copper, Soluble	2.4		UG/L		1.0
		Iron, Soluble	10.5		UG/L		1.0
		Mercury, Soluble	0.10	u	UG/L	[illegible]	1.0
		Mercury, Total	0.10	u	UG/L	[illegible]	1.0
		Potassium, Soluble	1840		UG/L	[illegible]	1.0
		Magnesium, Soluble	6360		UG/L	[illegible]	1.0
		Manganese, Soluble	0.90	u	UG/L	[illegible]	1.0
		Sodium, Soluble	3190		UG/L	[illegible]	1.0
		Nickel, Soluble	11.3	u	UG/L	[illegible]	1.0
		Lead, Soluble	17.2	u	UG/L	[illegible]	1.0
		Antimony, Soluble	35.8	u	UG/L	[illegible]	1.0
		Selenium, Soluble	42.4	u	UG/L	[illegible]	1.0
		Thallium, Soluble	24.6	u	UG/L	[illegible]	1.0
		Vanadium, Soluble	8.7		UG/L	[illegible]	1.0
		Zinc, Soluble	8.9		UG/L	[illegible]	1.0

Recra LabNet Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNU-HANFORD

DATE RECEIVED: 09/19/97 RFW LOT # :9709L421

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
BOLY69						
SILVER, SOLUBLE	002	W	97L1929	09/17/97	09/24/97	10/10/97
SILVER, SOLUBLE	002 REP	W	97L1929	09/17/97	09/24/97	10/10/97
SILVER, SOLUBLE	002 MS	W	97L1929	09/17/97	09/24/97	10/10/97
SILVER, SOLUBLE	002 MSD	W	97L1929	09/17/97	09/24/97	10/10/97
ALUMINUM, SOLUBLE	002	W	97L1929	09/17/97	09/24/97	10/09/97
ALUMINUM, SOLUBLE	002 REP	W	97L1929	09/17/97	09/24/97	10/09/97
ALUMINUM, SOLUBLE	002 MS	W	97L1929	09/17/97	09/24/97	10/09/97
ALUMINUM, SOLUBLE	002 MSD	W	97L1929	09/17/97	09/24/97	10/09/97
ARSENIC, SOLUBLE	002	W	97L1929	09/17/97	09/24/97	10/09/97
ARSENIC, SOLUBLE	002 REP	W	97L1929	09/17/97	09/24/97	10/09/97
ARSENIC, SOLUBLE	002 MS	W	97L1929	09/17/97	09/24/97	10/09/97
ARSENIC, SOLUBLE	002 MSD	W	97L1929	09/17/97	09/24/97	10/09/97
BARIUM, SOLUBLE	002	W	97L1929	09/17/97	09/24/97	10/09/97
BARIUM, SOLUBLE	002 REP	W	97L1929	09/17/97	09/24/97	10/09/97
BARIUM, SOLUBLE	002 MS	W	97L1929	09/17/97	09/24/97	10/09/97
BARIUM, SOLUBLE	002 MSD	W	97L1929	09/17/97	09/24/97	10/09/97
BERYLLIUM, SOLUBLE	002	W	97L1929	09/17/97	09/24/97	10/09/97
BERYLLIUM, SOLUBLE	002 REP	W	97L1929	09/17/97	09/24/97	10/09/97
BERYLLIUM, SOLUBLE	002 MS	W	97L1929	09/17/97	09/24/97	10/09/97
BERYLLIUM, SOLUBLE	002 MSD	W	97L1929	09/17/97	09/24/97	10/09/97
CALCIUM, SOLUBLE	002	W	97L1929	09/17/97	09/24/97	10/09/97
CALCIUM, SOLUBLE	002 REP	W	97L1929	09/17/97	09/24/97	10/09/97
CALCIUM, SOLUBLE	002 MS	W	97L1929	09/17/97	09/24/97	10/09/97
CALCIUM, SOLUBLE	002 MSD	W	97L1929	09/17/97	09/24/97	10/09/97
CADMIUM, SOLUBLE	002	W	97L1929	09/17/97	09/24/97	10/10/97
CADMIUM, SOLUBLE	002 REP	W	97L1929	09/17/97	09/24/97	10/10/97
CADMIUM, SOLUBLE	002 MS	W	97L1929	09/17/97	09/24/97	10/10/97
CADMIUM, SOLUBLE	002 MSD	W	97L1929	09/17/97	09/24/97	10/10/97
COBALT, SOLUBLE	002	W	97L1929	09/17/97	09/24/97	10/09/97
COBALT, SOLUBLE	002 REP	W	97L1929	09/17/97	09/24/97	10/09/97
COBALT, SOLUBLE	002 MS	W	97L1929	09/17/97	09/24/97	10/09/97
COBALT, SOLUBLE	002 MSD	W	97L1929	09/17/97	09/24/97	10/09/97
CHROMIUM, SOLUBLE	002	W	97L1929	09/17/97	09/24/97	10/10/97
CHROMIUM, SOLUBLE	002 REP	W	97L1929	09/17/97	09/24/97	10/10/97
CHROMIUM, SOLUBLE	002 MS	W	97L1929	09/17/97	09/24/97	10/10/97

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INORGANIC ANALYTICAL DATA PACKAGE FOR
TNU-HANFORD

DATE RECEIVED: 09/19/97 RFW LOT # :9709L421

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
CHROMIUM, SOLUBLE	002 MSD	W	97L1929	09/17/97	09/24/97	10/10/97
COPPER, SOLUBLE	002	W	97L1929	09/17/97	09/24/97	10/09/97
COPPER, SOLUBLE	002 REP	W	97L1929	09/17/97	09/24/97	10/09/97
COPPER, SOLUBLE	002 MS	W	97L1929	09/17/97	09/24/97	10/09/97
COPPER, SOLUBLE	002 MSD	W	97L1929	09/17/97	09/24/97	10/09/97
IRON, SOLUBLE	002	W	97L1929	09/17/97	09/24/97	10/09/97
IRON, SOLUBLE	002 REP	W	97L1929	09/17/97	09/24/97	10/09/97
IRON, SOLUBLE	002 MS	W	97L1929	09/17/97	09/24/97	10/09/97
IRON, SOLUBLE	002 MSD	W	97L1929	09/17/97	09/24/97	10/09/97
MERCURY, SOLUBLE	002	W	97C0719	09/17/97	09/22/97	09/23/97
MERCURY, SOLUBLE	002 REP	W	97C0719	09/17/97	09/22/97	09/23/97
MERCURY, SOLUBLE	002 MS	W	97C0719	09/17/97	09/22/97	09/23/97
MERCURY, SOLUBLE	002 MSD	W	97C0719	09/17/97	09/22/97	09/23/97
MERCURY, TOTAL	002	W	97C0719	09/17/97	09/22/97	09/23/97
MERCURY, TOTAL	002 REP	W	97C0719	09/17/97	09/22/97	09/23/97
MERCURY, TOTAL	002 MS	W	97C0719	09/17/97	09/22/97	09/23/97
MERCURY, TOTAL	002 MSD	W	97C0719	09/17/97	09/22/97	09/23/97
POTASSIUM, SOLUBLE	002	W	97L1929	09/17/97	09/24/97	10/09/97
POTASSIUM, SOLUBLE	002 REP	W	97L1929	09/17/97	09/24/97	10/09/97
POTASSIUM, SOLUBLE	002 MS	W	97L1929	09/17/97	09/24/97	10/09/97
POTASSIUM, SOLUBLE	002 MSD	W	97L1929	09/17/97	09/24/97	10/09/97
MAGNESIUM, SOLUBLE	002	W	97L1929	09/17/97	09/24/97	10/09/97
MAGNESIUM, SOLUBLE	002 REP	W	97L1929	09/17/97	09/24/97	10/09/97
MAGNESIUM, SOLUBLE	002 MS	W	97L1929	09/17/97	09/24/97	10/09/97
MAGNESIUM, SOLUBLE	002 MSD	W	97L1929	09/17/97	09/24/97	10/09/97
MANGANESE, SOLUBLE	002	W	97L1929	09/17/97	09/24/97	10/10/97
MANGANESE, SOLUBLE	002 REP	W	97L1929	09/17/97	09/24/97	10/10/97
MANGANESE, SOLUBLE	002 MS	W	97L1929	09/17/97	09/24/97	10/10/97
MANGANESE, SOLUBLE	002 MSD	W	97L1929	09/17/97	09/24/97	10/10/97
SODIUM, SOLUBLE	002	W	97L1929	09/17/97	09/24/97	10/09/97
SODIUM, SOLUBLE	002 REP	W	97L1929	09/17/97	09/24/97	10/09/97
SODIUM, SOLUBLE	002 MS	W	97L1929	09/17/97	09/24/97	10/09/97
SODIUM, SOLUBLE	002 MSD	W	97L1929	09/17/97	09/24/97	10/09/97
NICKEL, SOLUBLE	002	W	97L1929	09/17/97	09/24/97	10/09/97
NICKEL, SOLUBLE	002 REP	W	97L1929	09/17/97	09/24/97	10/09/97
NICKEL, SOLUBLE	002 MS	W	97L1929	09/17/97	09/24/97	10/09/97
NICKEL, SOLUBLE	002 MSD	W	97L1929	09/17/97	09/24/97	10/09/97
LEAD, SOLUBLE	002	W	97L1929	09/17/97	09/24/97	10/09/97

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INORGANIC ANALYTICAL DATA PACKAGE FOR
TNU-HANFORD

DATE RECEIVED: 09/19/97 RFW LOT # 9709L421

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
LEAD, SOLUBLE	002 REP	W	97L1929	09/17/97	9/24/97	10/09/97
LEAD, SOLUBLE	002 MS	W	97L1929	09/17/97	9/24/97	10/09/97
LEAD, SOLUBLE	002 MSD	W	97L1929	09/17/97	9/24/97	10/09/97
ANTIMONY, SOLUBLE	002	W	97L1929	09/17/97	9/24/97	10/09/97
ANTIMONY, SOLUBLE	002 REP	W	97L1929	09/17/97	9/24/97	10/09/97
ANTIMONY, SOLUBLE	002 MS	W	97L1929	09/17/97	9/24/97	10/09/97
ANTIMONY, SOLUBLE	002 MSD	W	97L1929	09/17/97	9/24/97	10/09/97
SELENIUM, SOLUBLE	002	W	97L1929	09/17/97	9/24/97	10/10/97
SELENIUM, SOLUBLE	002 REP	W	97L1929	09/17/97	9/24/97	10/10/97
SELENIUM, SOLUBLE	002 MS	W	97L1929	09/17/97	9/24/97	10/10/97
SELENIUM, SOLUBLE	002 MSD	W	97L1929	09/17/97	9/24/97	10/10/97
THALLIUM, SOLUBLE	002	W	97L1929	09/17/97	9/24/97	10/10/97
THALLIUM, SOLUBLE	002 REP	W	97L1929	09/17/97	9/24/97	10/10/97
THALLIUM, SOLUBLE	002 MS	W	97L1929	09/17/97	9/24/97	10/10/97
THALLIUM, SOLUBLE	002 MSD	W	97L1929	09/17/97	9/24/97	10/10/97
VANADIUM, SOLUBLE	002	W	97L1929	09/17/97	9/24/97	10/09/97
VANADIUM, SOLUBLE	002 REP	W	97L1929	09/17/97	9/24/97	10/09/97
VANADIUM, SOLUBLE	002 MS	W	97L1929	09/17/97	9/24/97	10/09/97
VANADIUM, SOLUBLE	002 MSD	W	97L1929	09/17/97	9/24/97	10/09/97
ZINC, SOLUBLE	002	W	97L1929	09/17/97	9/24/97	10/10/97
ZINC, SOLUBLE	002 REP	W	97L1929	09/17/97	9/24/97	10/10/97
ZINC, SOLUBLE	002 MS	W	97L1929	09/17/97	9/24/97	10/10/97
ZINC, SOLUBLE	002 MSD	W	97L1929	09/17/97	9/24/97	10/10/97

LAB QC:

SILVER LABORATORY	LC1 BS	W	97L1929	N/A	9/24/97	10/10/97
SILVER, TOTAL	MB1	W	97L1929	N/A	9/24/97	10/10/97
ALUMINUM LABORTORY	LC1 BS	W	97L1929	N/A	9/24/97	10/09/97
ALUMINUM, TOTAL	MB1	W	97L1929	N/A	9/24/97	10/09/97
ARSENIC LABORATORY	LC1 BS	W	97L1929	N/A	9/24/97	10/09/97
ARSENIC, TOTAL	MB1	W	97L1929	N/A	9/24/97	10/09/97
BARIUM LABORATORY	LC1 BS	W	97L1929	N/A	9/24/97	10/09/97
BARIUM, TOTAL	MB1	W	97L1929	N/A	9/24/97	10/09/97
BERYLLIUM LABORATORY	LC1 BS	W	97L1929	N/A	9/24/97	10/09/97
BERYLLIUM, TOTAL	MB1	W	97L1929	N/A	9/24/97	10/09/97
CALCIUM LABORATORY	LC1 BS	W	97L1929	N/A	9/24/97	10/09/97
CALCIUM, TOTAL	MB1	W	97L1929	N/A	9/24/97	10/09/97

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DATE RECEIVED: 09/19/97 RFW LOT # :9709L421

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
CADMIUM LABORATORY	LC1 BS	W	97L1929	N/A	09/24/97	10/10/97
CADMIUM, TOTAL	MB1	W	97L1929	N/A	09/24/97	10/10/97
COBALT LABORATORY	LC1 BS	W	97L1929	N/A	09/24/97	10/09/97
COBALT, TOTAL	MB1	W	97L1929	N/A	09/24/97	10/09/97
CHROMIUM LABORATORY	LC1 BS	W	97L1929	N/A	09/24/97	10/10/97
CHROMIUM, TOTAL	MB1	W	97L1929	N/A	09/24/97	10/10/97
COPPER LABORATORY	LC1 BS	W	97L1929	N/A	09/24/97	10/09/97
COPPER, TOTAL	MB1	W	97L1929	N/A	09/24/97	10/09/97
IRON LABORATORY	LC1 BS	W	97L1929	N/A	09/24/97	10/09/97
IRON, TOTAL	MB1	W	97L1929	N/A	09/24/97	10/09/97
MERCURY LABORATORY	LC1 BS	W	97C0719	N/A	09/22/97	09/23/97
MERCURY, TOTAL	MB1	W	97C0719	N/A	09/22/97	09/23/97
POTASSIUM LABORATORY	LC1 BS	W	97L1929	N/A	09/24/97	10/09/97
POTASSIUM, TOTAL	MB1	W	97L1929	N/A	09/24/97	10/09/97
MAGNESIUM LABORATORY	LC1 BS	W	97L1929	N/A	09/24/97	10/09/97
MAGNESIUM, TOTAL	MB1	W	97L1929	N/A	09/24/97	10/09/97
MANGANESE LABORATORY	LC1 BS	W	97L1929	N/A	09/24/97	10/10/97
MANGANESE, TOTAL	MB1	W	97L1929	N/A	09/24/97	10/10/97
SODIUM LABORATORY	LC1 BS	W	97L1929	N/A	09/24/97	10/09/97
SODIUM, TOTAL	MB1	W	97L1929	N/A	09/24/97	10/09/97
NICKEL LABORATORY	LC1 BS	W	97L1929	N/A	09/24/97	10/09/97
NICKEL, TOTAL	MB1	W	97L1929	N/A	09/24/97	10/09/97
LEAD LABORATORY	LC1 BS	W	97L1929	N/A	09/24/97	10/09/97
LEAD, TOTAL	MB1	W	97L1929	N/A	09/24/97	10/09/97
ANTIMONY LABORATORY	LC1 BS	W	97L1929	N/A	09/24/97	10/09/97
ANTIMONY, TOTAL	MB1	W	97L1929	N/A	09/24/97	10/09/97
SELENIUM LABORATORY	LC1 BS	W	97L1929	N/A	09/24/97	10/10/97
SELENIUM, TOTAL	MB1	W	97L1929	N/A	09/24/97	10/10/97
THALLIUM LABORATORY	LC1 BS	W	97L1929	N/A	09/24/97	10/10/97
THALLIUM, TOTAL	MB1	W	97L1929	N/A	09/24/97	10/10/97
VANADIUM LABORATORY	LC1 BS	W	97L1929	N/A	09/24/97	10/09/97
VANADIUM, TOTAL	MB1	W	97L1929	N/A	09/24/97	10/09/97
ZINC LABORATORY	LC1 BS	W	97L1929	N/A	09/24/97	10/10/97
ZINC, TOTAL	MB1	W	97L1929	N/A	09/24/97	10/10/97

RECRA LabNet Use Only

9709L421

Custody Transfer Record/Lab Work Request

RECRA LabNet

Client: TNU - HANFORD
Est. Final Proj. Sampling Date:
Project #: 10985-001-001-9999-00
Project Contact/Phone #: [illegible] 9/19/97
RECRA Project Manager: K. B. CLAY
QC: STD Del: STD TAT: 30 DAY
Date Rec'd: 9-19-97 Date Due: 10-19-97
Account #: TNU HANFORD

Refrigerator #								2		2	2				
#/Type Container	Liquid							1P		1P	1P				
	Solid														
Volume	Liquid							STD		STD	2ml				
	Solid														
Preservatives								HNO_3		—	—				
ANALYSES REQUESTED →		ORGANIC: VOA	BNA	Pest/PCB	Herb			INORG: Metal	CN	ANI	ACT. SCAN				

RECRA LabNet Use Only

MATRIX CODES: Soil, Sediment, Solid, Sludge, Water, Oil, Air, Drum, Solids, Drum, Liquids, EP/TCLP, Leachate, Wipe, Other, Fish

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected															
001	BOLY 6B	✓	✓	W	9-17-97	1035															
2	6B	✓	✓																		

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:
ASA - CLIENT INFO
AMSC - COMP

4171415430 7.2°C

DATE/REVISIONS:
→ 1 INORG ① = ICCL, ICPL, ICNO3,
2 ICNO2, ICSO4
9/24/97 METALS CHANGED TO SOLUBLE
4 PER UNIT REVIEW REVISION
5
6

RECRA LabNet Use Only

Samples were:
1) Shipped X or Hand Delivered ___ Airbill # SEE ACROSS
2) Ambient or Chilled
3) Received in Good Condition Y or N
4) Labels Indicate Properly Preserved Y or N
5) Received Within Holding Times Y or N
[illegible] 9/19/97 NO3, NO2

COC Tape 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

Discrepancies Between Samples Lables and COC Record? Y or N
NOTES

Relinquished by	Received by	Date	Time	Relinquished by	Received by	Date	Time
FED-X	[illegible]	9-19-97	1000				

ORIGINAL REWRITTEN

016

RECRA
LabNet
a division of Recra Environmental, Inc.
Virtual Laboratories Everywhere

Recra LabNet Philadelphia
Analytical Report

Client : TNU-HANFORD
RFW# : 9709L421
SDG# : H0102

W.O. # : 10985-001-001-9999-00
Date Received: 09-19-97

INORGANIC CASE NARRATIVE

1. This narrative covers the analyses of 1 water sample.

2. The sample was prepared and analyzed in accordance with the methods checked on the attached glossary.

3. Sample holding times as required by the method and/or contract were met.

4. The cooler temperature was recorded on the chain-of-custody.

5. The method blanks were within method criteria.

6. The Laboratory Control Samples (LCS) were within the laboratory control limits.

7. The matrix spike recoveries were within the 75-125% control limits. The matrix spike duplicates were within the 20% Relative Percent Difference (RPD) control limit.

8. The replicate analyses were within the 20% RPD control limit.

Bruce C. Squillo unit leader
per J. Michael Taylor
Vice President and Laboratory Manager
Lionville Analytical Laboratory

9 30 01
Date

njp\i09-421

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 10 pages.

208 Welsh Pool Road • Lionville, PA 19341-1333 • (610)-280-3000 • Fax (610) 280-3041

WET CHEMISTRY METHODS GLOSSARY FOR ANALYSIS OF WATER SAMPLES

	EPA 600	SW846	OTHER
Acidity	__305.1		
__Alkalinity __Bicarbonate __Carbonate	__310.1		
BOD	__405.1		__5210B (b)
Ion Chromatography:			
__Bromide ✓Chloride ✓Fluoride	✓300.0	__9056	
✓Nitrite ✓Nitrate __Phosphate	✓300.0	__9056	
✓Sulfate __Formate __Acetate __Oxalate	✓300.0	__9056	
Chloride	__325.2	__9251	
Chlorine Residual	__330.5 (mod)		
Cyanide Amenable to Chlorination	__335.2	__9010A	
Cyanide (Total)	__335.2	__9010A __9012	__ILM04.0 (e)
Cyanide, Weak Acid Dissociable			__412 (a) __4500CN-I (b
COD	__410.4 (mod)		__5220 C (b)
Color	__110.2		
Corrosivity (by Coupon)		__1110 (mod)	
Chromium VI		__7196A	__3500Cr-D (b)
Fluoride	__340.2		
Hardness, Calcium	__215.2		
Hardness, Total	__130.2		
Iodide			__ASTM D19P202 (1)
Surfactant	__425.1		
__Nitrate-Nitrite __Nitrate __Nitrite	__353.2		
Ammonia	__350.3		
Total __Kjeldahl Nitrogen __Organic Nitrogen	__351.4		
Total __Organic __Inorganic Carbon	__415.1	__9060	
Oil and Grease	__413.1	__9070	
__pH __pH, Paper	__150.1	__9040A __9041A	
Petroleum Hydrocarbons, Total Recoverable	__418.1		
Phenol	__420.1 __420.2	__9065 __9066	
__Ortho Phosphate __Total Phosphate	__365.2		__4500-P B __C
Salinity			__210A (a) __2520B (b)
Settleable Solids	__160.5		
Sulfide	__376.2 __376.1	__9030A	
Reactive __Cyanide __Sulfide		__Sec 7.3	
Silica	__370.1		
Sulfite	__377.1		
Sulfate	__375.4	__9038	
Specific Conductance	__120.1	__9050	
Specific Gravity			__213E (a)
__TCLP __TCLV		__1311	
Synthetic Precipitation Leach		__1312	
Total __Dissolved __Suspended __Solids	160__.1__.2__.3		
Total Organic Halides	__450.1	__9020B	
Turbidity	__180.1		
Volatile Solids __Total __Dissolved __Suspended	__160.4		

Other:_____ Method:_____

RFW 21-21-034/A-08/95

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., (1989).

b. Standard Methods for the Examination of Water and Waste, 17 ed., (1983)

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.

Recra LabNet - Lionville

INORGANICS DATA SUMMARY REPORT 09/26/97

CLIENT: TNU-HANFORD

RECRA LOT #: 9709L421

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	BOLY68	Chloride by IC	34.2	MG/L	2.5	10.0
		Fluoride by IC	0.50 u	MG/L	0.50	1.0
		Nitrite by IC	0.25 u	MG/L	0.25	1.0
		Nitrate by IC	63	MG/L	2.5	10
		Sulfate by IC	263	MG/L	12.5	50.0

Recra LabNet - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNU-HANFORD

DATE RECEIVED: 09/19/97 RFW LOT # :9709L421

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
BOLY68						
CHLORIDE BY IC	001	W	97LIC082	09/17/97	09/19/97	09/19/97
CHLORIDE BY IC	001 REP	W	97LIC082	09/17/97	09/19/97	09/19/97
CHLORIDE BY IC	001 MS	W	97LIC082	09/17/97	09/19/97	09/19/97
CHLORIDE BY IC	001 MSD	W	97LIC082	09/17/97	09/19/97	09/19/97
FLUORIDE BY IC	001	W	97LIC082	09/17/97	09/19/97	09/19/97
FLUORIDE BY IC	001 REP	W	97LIC082	09/17/97	09/19/97	09/19/97
FLUORIDE BY IC	001 MS	W	97LIC082	09/17/97	09/19/97	09/19/97
FLUORIDE BY IC	001 MSD	W	97LIC082	09/17/97	09/19/97	09/19/97
NITRITE BY IC	001	W	97LIC082	09/17/97	09/19/97	09/19/97
NITRITE BY IC	001 REP	W	97LIC082	09/17/97	09/19/97	09/19/97
NITRITE BY IC	001 MS	W	97LIC082	09/17/97	09/19/97	09/19/97
NITRITE BY IC	001 MSD	W	97LIC082	09/17/97	09/19/97	09/19/97
NITRATE BY IC	001	W	97L33082	09/17/97	09/19/97	09/19/97
NITRATE BY IC	001 REP	W	97L33082	09/17/97	09/19/97	09/19/97
NITRATE BY IC	001 MS	W	97L33082	09/17/97	09/19/97	09/19/97
NITRATE BY IC	001 MSD	W	97L33082	09/17/97	09/19/97	09/19/97
SULFATE BY IC	001	W	97LIC082	09/17/97	09/19/97	09/19/97
SULFATE BY IC	001 REP	W	97LIC082	09/17/97	09/19/97	09/19/97
SULFATE BY IC	001 MS	W	97LIC082	09/17/97	09/19/97	09/19/97
SULFATE BY IC	001 MSD	W	97LIC082	09/17/97	09/19/97	09/19/97
SUB-OUT TEST FOR SUB	001	W		09/17/97		

LAB QC:

CHLORIDE BY IC	MB1	W	97LIC082	N/A	09/19/97	09/19/97
CHLORIDE BY IC	MB1 BS	W	97LIC082	N/A	09/19/97	09/19/97
FLUORIDE BY IC	MB1	W	97LIC082	N/A	09/19/97	09/19/97
FLUORIDE BY IC	MB1 BS	W	97LIC082	N/A	09/19/97	09/19/97
NITRITE BY IC	MB1	W	97LIC082	N/A	09/19/97	09/19/97
NITRITE BY IC	MB1 BS	W	97LIC082	N/A	09/19/97	09/19/97
NITRATE BY IC	MB1	W	97L33082	N/A	09/19/97	09/19/97
NITRATE BY IC	MB1 BS	W	97L33082	N/A	09/19/97	09/19/97
SULFATE BY IC	MB1	W	97LIC082	N/A	09/19/97	09/19/97
SULFATE BY IC	MB1 BS	W	97LIC082	N/A	09/19/97	09/19/97

RECRA LabNet Use Only

9709L421

Custody Transfer Record/Lab Work Request

RECRA LabNet

Client: TNU-HANFORD
Est. Final Proj. Sampling Date:
Project #: 10985-001-001-9999-00
Project Contact/Phone #: [illegible] 4/19/97
RECRA Project Manager: K. B. CLAY
QC: STD Del: STD TAT: 30 DAY
Date Rec'd: 9-19-97 Date Due: 10-19-97
Account #: TNU HANFORD

Refrigerator #															2		2	2					
#/Type Container	Liquid														1P		1P	1P					
	Solid																						
Volume	Liquid														500		500	20ml					
	Solid																						
Preservatives															HNO_3		—	—					
ANALYSES REQUESTED →		ORGANIC													INORG								
		VOA	BNA	Pest/PCB	Herb										Metal	CN	ANI	ACT. SCAN					

RECRA LabNet Use Only

MATRIX CODES:
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

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected									MHSLTOW		INORG ①	ISUB					
001	BOLY 6B	✓	✓	W	9-17-97	1035											X	X					
⊥2	⊥ 69	✓	✓	⊥	⊥	⊥									X								

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:
RSA-CLIENT INFO
RMSC-COMP

4171415430

Cooler temp = 7.2°C

DATE/REVISIONS:
→ 1. INORG ① = ICCL, ICPL, ICNO3,
2. ICNO2, ICSO4
3.
4.
5.
6.

Relinquished by	Received by	Date	Time	Relinquished by	Received by	Date	Time
FED-X	[signature]	9-19-97	1000				

ORIGINAL REWRITTEN

Discrepancies Between Samples Lables and COC Record? Y or (N)
NOTES

RECRA LabNet Use Only

Samples were:
1) Shipped X or Hand Delivered
Airbill # SEE ACROSS
2) Ambient or (Chilled)
3) Received in Good Condition (Y) or N
4) Labels Indicate Properly Preserved (Y) or N
5) Received Within Holding Times (Y) or (N)
[illegible] 4/19/97

COC Tape 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

NO3, NO2