H1157

0054615

JAN 2001 RECEIVED

Recra LabNet - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD C01-009 H1157

DATE RECEIVED: 12/02/00 RFW LOT # :0012L436

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B10R53						
BROMIDE BY IC	002	W	00LIC078	11/29/00	12/08/00	12/08/00
BROMIDE BY IC	002 REP	W	00LIC078	11/29/00	12/08/00	12/08/00
BROMIDE BY IC	002 MS	W	00LIC078	11/29/00	12/08/00	12/08/00
CHLORIDE BY IC	002	W	00LIC078	11/29/00	12/08/00	12/08/00
CHLORIDE BY IC	002 REP	W	00LIC078	11/29/00	12/08/00	12/08/00
CHLORIDE BY IC	002 MS	W	00LIC078	11/29/00	12/08/00	12/08/00
FLUORIDE BY IC	002	W	00LIC078	11/29/00	12/08/00	12/08/00
FLUORIDE BY IC	002 REP	W	00LIC078	11/29/00	12/08/00	12/08/00
FLUORIDE BY IC	002 MS	W	00LIC078	11/29/00	12/08/00	12/08/00
NITRITE BY IC	002	W	00LIC078	11/29/00	12/08/00	12/08/00
NITRITE BY IC	002 REP	W	00LIC078	11/29/00	12/08/00	12/08/00
NITRITE BY IC	002 MS	W	00LIC078	11/29/00	12/08/00	12/08/00
NITRATE BY IC	002	W	00LIC078	11/29/00	12/08/00	12/08/00
NITRATE BY IC	002 REP	W	00LIC078	11/29/00	12/08/00	12/08/00
NITRATE BY IC	002 MS	W	00LIC078	11/29/00	12/08/00	12/08/00
PHOSPHATE BY IC	002	W	00LIC078	11/29/00	12/08/00	12/08/00
PHOSPHATE BY IC	002 REP	W	00LIC078	11/29/00	12/08/00	12/08/00
PHOSPHATE BY IC	002 MS	W	00LIC078	11/29/00	12/08/00	12/08/00
SULFATE BY IC	002	W	00LIC078	11/29/00	12/08/00	12/08/00
SULFATE BY IC	002 REP	W	00LIC078	11/29/00	12/08/00	12/08/00
SULFATE BY IC	002 MS	W	00LIC078	11/29/00	12/08/00	12/08/00

RECEIVED MAR 28 2001 EDMC

LAB QC:

BROMIDE BY IC	MB1	W	00LIC078	N/A	12/08/00	12/08/00
BROMIDE BY IC	MB1 BS	W	00LIC078	N/A	12/08/00	12/08/00
BROMIDE BY IC	MB1 BSD	W	00LIC078	N/A	12/08/00	12/08/00
CHLORIDE BY IC	MB1	W	00LIC078	N/A	12/08/00	12/08/00
CHLORIDE BY IC	MB1 BS	W	00LIC078	N/A	12/08/00	12/08/00
CHLORIDE BY IC	MB1 BSD	W	00LIC078	N/A	12/08/00	12/08/00
FLUORIDE BY IC	MB1	W	00LIC078	N/A	12/08/00	12/08/00
FLUORIDE BY IC	MB1 BS	W	00LIC078	N/A	12/08/00	12/08/00
FLUORIDE BY IC	MB1 BSD	W	00LIC078	N/A	12/08/00	12/08/00
NITRITE BY IC	MB1	W	00LIC078	N/A	12/08/00	12/08/00
NITRITE BY IC	MB1 BS	W	00LIC078	N/A	12/08/00	12/08/00

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TNUHANFORD C01-009 H1157

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CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
NITRITE BY IC	MB1 BSD	W	00LIC078	N/A	12/08/00	12/08/00
NITRATE BY IC	MB1	W	00LIC078	N/A	12/08/00	12/08/00
NITRATE BY IC	MB1 BS	W	00LIC078	N/A	12/08/00	12/08/00
NITRATE BY IC	MB1 BSD	W	00LIC078	N/A	12/08/00	12/08/00
PHOSPHATE BY IC	MB1	W	00LIC078	N/A	12/08/00	12/08/00
PHOSPHATE BY IC	MB1 BS	W	00LIC078	N/A	12/08/00	12/08/00
PHOSPHATE BY IC	MB1 BSD	W	00LIC078	N/A	12/08/00	12/08/00
SULFATE BY IC	MB1	W	00LIC078	N/A	12/08/00	12/08/00
SULFATE BY IC	MB1 BS	W	00LIC078	N/A	12/08/00	12/08/00
SULFATE BY IC	MB1 BSD	W	00LIC078	N/A	12/08/00	12/08/00

RECRA
ENVIRONMENTAL
INC.

Chemical and Environmental Measurement Information

Recra LabNet Philadelphia
Analytical Report

Client : TNU-HANFORD C01-009 H1157
RFW# : 0012L436

W.O. # : 10985-001-001-9999-00
Date Received: 12-02-00

INORGANIC CASE NARRATIVE

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

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

3. Sample holding times as required by the method and/or contract were met with the exception of Nitrate, Nitrite and Phosphate which were received past hold.

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.

8. The replicate analyses were within the 20% Relative Percent Difference (RPD) control limit.

9. 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

01-10-01
Date

njp\i15-436

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.

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

Recra LabNet Philadelphia

WET CHEMISTRY

METHODS GLOSSARY FOR WATER SAMPLE ANALYSIS

	EPA /600	SW846	OTHER
Acidity	___ 305.1		
___Alkalinity ___Bicarbonate ___Carbonate	___ 310.1		
BOD	___ 405.1		___ 5210B (b)
Ion Chormatography:			
✓ Bromide ✓ Chloride ✓ Fluoride	✓ 300.0	___ 9056	
✓ Nitrate ✓ Nitrite ✓ Phosphate	✓ 300.0	___ 9056	
✓ Sulfate ___Formate ___Acetate ___Oxalate	✓ 300.0	___ 9056	
Chloride	___ 325.2	___ 9251	
Chorine, Residual	___ 330.5 (mod)		
Cyanide, Amenable to Chorination	___ 335.2	___ 9010B	
Cyanide, Total	___ 335.2	___ 9010B ___ 9014	___ ILMO4.0 (e)
Cyanide, Weak Acid Dissociable		___	___ 412 (a) ___ 4500CN-I (b
COD	___ 410.4(mod)		___ 5220C (b)
Color	___ 110.2		
Corrosivity by Coupon		___ 1110(mod)	
Chromium VI		___ 7196A	___ 3500Cr-D (b)
Fluoride	___ 340.2		___ 4500-FC
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 ___ Organic Nitrogen	___ 351.4		
Total___ Organic ___ Inorganic Carbon	___ 415.1	___ 9060	
Oil & Grease	___ 413.1	___ 9070	
___ pH ____ pH; paper	___ 150.1	___ 9040B ___ 9041A	
Petroleum Hydrocarbons, Total Recoverable	___ 418.1		
Phenol	___ 420.1 ___ 420.2	___ 9065 ___ 9066	
___Ortho ___Total Phosphate	___ 365.2		___ 4500-P B ___ C
Salinity			___ 210A (a) ___ 2520 (b)
Settleable Solids	___ 160.5		
Sulfide	___ 376.1 ___ 376.2	___ 9030B/9034 (acid soluble)	
Reactive ___Cyanide ___Sulfide		___ Section 7.3 (___9014___9030B)	
Silica	___ 370.1		
Sulfite	___ 377.1		
Sulfate	___ 375.4	___ 9038	
Specific Conductance	___ 120.1	___ 9050A	
Specific Gravity			___ D5057-90 ___ 213E (a)
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:**

Recra LabNet Philadelphia
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.

Recra LabNet - Lionville

INORGANICS DATA SUMMARY REPORT 12/15/00

CLIENT: TNUHANFORD C01-009 H1157 RECRA LOT #: 0012L436

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-002	B10R53	Bromide by IC	0.70	MG/L	0.50	2.0
		Chloride by IC	29.3	MG/L	2.5	10.0
		Fluoride by IC	1.0 u	MG/L	1.0	2.0
		Nitrite by IC	0.50 u	MG/L	0.50	2.0
		Nitrate by IC	9.3	MG/L	0.50	2.0
		Phosphate by IC	0.50 u	MG/L	0.50	2.0
		Sulfate by IC	211	MG/L	12.5	50.0

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INORGANICS METHOD BLANK DATA SUMMARY PAGE 12/15/00

CLIENT: TNUHANFORD C01-009 H1157 RECRA LOT #: 0012L436

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK10	00LIC078-MB1	Bromide by IC	0.25 u	MG/L	0.25	1.0
		Chloride by IC	0.25 u	MG/L	0.25	1.0
		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	0.25 u	MG/L	0.25	1.0
		Phosphate by IC	0.25 u	MG/L	0.25	1.0
		Sulfate by IC	0.25 u	MG/L	0.25	1.0

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INORGANICS DUPLICATE SPIKE REPORT 12/15/00

CLIENT: TNUHANFORD C01-009 H1157 RECRA LOT #: 0012L436

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

SAMPLE	SITE ID	ANALYTE	SPIKE#1 %RECOV	SPIKE#2 %RECOV	%DIFF
BLANK10	00LIC078-MB1	Bromide by IC	97.8	97.8	0.061
		Chloride by IC	99.2	94.2	5.1
		Fluoride by IC	107.4	101.7	5.4
		Nitrite by IC	98.2	98.7	0.47
		Nitrate by IC	97.1	97.2	0.062
		Phosphate by IC	100.6	102.4	1.7
		Sulfate by IC	96.1	95.7	0.40

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INORGANICS ACCURACY REPORT 12/15/00

CLIENT: TNUHANFORD C01-009 H1157 RECRA LOT #: 0012L436

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-002	B10R53	Bromide by IC	10.0	0.70	10.0	93.3	2.0
		Chloride by IC	76.4	29.3	50.0	94.1	10.0
		Fluoride by IC	21.7	0.21	20.0	107.6	2.0
		Nitrite by IC	50	0.50u	50	99.2	10
		Nitrate by IC	20	9.3	~~5.0~~	~~214.6~~	2.0
		Phosphate by IC	9.0	0.50u	10.0	90.5	2.0
		Sulfate by IC	468	211	250	102.9	50.0
BLANK10	00LIC078-MB1	Bromide by IC	4.9	0.25u	5.0	97.8	1.0
		Bromide by IC MSD	4.9	0.25u	5.0	97.8	1.0
		Chloride by IC	5.0	0.25u	5.0	99.2	1.0
		Chloride by IC MSD	4.7	0.25u	5.0	94.2	1.0
		Fluoride by IC	10.7	0.50u	10.0	107.4	1.0
		Fluoride by IC MSD	10.2	0.50u	10.0	101.7	1.0
		Nitrite by IC	4.9	0.25u	5.0	98.2	1.0
		Nitrite by IC MSD	4.9	0.25u	5.0	98.7	1.0
		Nitrate by IC	4.9	0.25u	5.0	97.1	1.0
		Nitrate by IC MSD	4.9	0.25u	5.0	97.2	1.0
		Phosphate by IC	5.0	0.25u	5.0	100.6	1.0
		Phosphate by IC MSD	5.1	0.25u	5.0	102.4	1.0
		Sulfate by IC	4.8	0.25u	5.0	96.1	1.0
		Sulfate by IC MSD	4.8	0.25u	5.0	95.7	1.0

Recra LabNet - Lionville

INORGANICS PRECISION REPORT 12/15/00

CLIENT: TNUHANFORD C01-009 H1157 RECRA LOT #: 0012L436

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
~002REP	B10R53	Bromide by IC	0.70	0.70	0.00	2.0
		Chloride by IC	29.3	28.4	3.1	10.0
		Fluoride by IC	1.0 u	1.0 u	NC	2.0
		Nitrite by IC	0.50u	0.50u	NC	2.0
		Nitrate by IC	9.3	9.3	0.78	2.0
		Phosphate by IC	0.50u	0.55	NC	2.0
		Sulfate by IC	211	210	0.22	50.0

RECRA LabNet Use Only
0012L436

Custody Transfer Record/Lab Work Request

Page 1 of 1

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

RECRA LabNet

Client TNU- HANFORD SAF# C01-009

Est. Final Proj. Sampling Date

Project # 10985-001-001-9999-00

Project Contact/Phone #

RECRA Project Manager OJ

QC Spec Del Std TAT 30 day

Date Rec'd 12-2-00 Date Due 1-1-01

Account #

		A	B	C
Refrigerator #		S	S	
#/Type Container	Liquid	1PL	1PL	1PL
	Solid			
Volume	Liquid	500	500	20
	Solid			
Preservatives		HNO3	–	–
ANALYSES REQUESTED		ORGANIC: VOA, BNA, Pest/PCB, Herb	INORG: Metal, CN	IC Anions, 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	Metal	IC
001	B10R52			W	11/29/00	1129	1	
002	L 53			↓	↓	↓		1

Special Instructions: Saf C01-009

Run matrix QC

DATE/REVISIONS:

Met ① 1. Al, Ag, Ba, Be, Ca, Cd, Cr, Co, Cu, Fe, K;

↓ 2. Mg, Mn, Ni, Na, Sb, V, Zn

IC ① 3. Br, Cl, Fl, NO2, NO3, PO4, SO4

4.

5.

6.

Relinquished by	Received by	Date	Time
Fed Ex	[signature]	12-2-00	1015

Relinquished by	Received by	Date	Time
COMPOSITE	ORIGINAL		

Discrepancies Between Samples Labels and COC Record? Y or N

NOTES: 8214 8983 0169

RECRA LabNet Use Only

Samples were:
1) Shipped ✓ or Hand Delivered ___ Airbill [signature]
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 NO2 NO3 PO4

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

Cooler Temp. 43 °C

PNNL

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

CHEM SDG H1157

C.O.C. # C01-009-4

Page 1 of 1

Collector D. E. PARCHEN	Contact/Requester JH KESSNER	Telephone No. (509) 375-4688 MSIN FAX
SAF No. C01-009	Sampling Origin HANFORD SITE	Purchase Order/Charge Code
Project Title ISRM GW MONITORING, NOVEMBER 2000	Logbook No. WMSAWS-1139	Ice Chest No. SMI-~~540~~ 127 RB Temp.
Shipped To (Lab) TMA/RECRA	Method of Shipment GOVT. VEHICLE	Bill of Lading/Air Bill No. 4235 7954 0853
Protocol CERCLA	Data Turnaround 45 Days	Offsite Property No.

POSSIBLE SAMPLE HAZARDS/REMARKS
** **

SPECIAL INSTRUCTIONS Hold Time Total Activity Exemption: Yes ☑ No ☐
Submit invoices & deliverables to JH Kessner, BHI.
Fax copies of TMA log-in to JH Kessner (372-9487) & DL Stewart (372-1704)

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B10R52 (F) ✓		W	11-29-00	1129	1x500-mL G/P ✓	ICP Metals - 6010A RCRA GW ✓	HNO3 to pH <2
B10R53 ✓		W	↓	↓	1x500-mL P ✓	IC Anions - 300.0 ✓	Cool 4C
B10R53 ✓		W	↓	↓	1x20-mL P ✓	Activity Scan ✓	None

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
D. E. PARCHEN	DEP	1343	NOV 29 2000	Fed Ex.			11-29-00
FED. EXPRESS			11-30-00 9:30	E. SEGURO		E A Seguro	11-30-00 9:30
Fed Ex			12-2-00 1015	Vicki Hendy			12-2-00 1015

Matrix *

S	= Soil	DS	= Drum Solid
SE	= Sediment	DL	= Drum Liqui
SO	= Solid	T	= Tissue
SL	= Sludge	WI	= Wipe
W	= Water	L	= Liquid
O	= Oil	V	= Vegetation
A	= Air	X	= Other

FINAL SAMPLE DISPOSITION — Disposal Method (e.g., Return to customer, per lab procedure, used in process) — Disposed By — Date/Time

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CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B10R52						
SILVER, TOTAL	001	W	99L1827	11/29/00	12/18/00	12/27/00
SILVER, TOTAL	001 REP	W	99L1827	11/29/00	12/18/00	12/27/00
SILVER, TOTAL	001 MS	W	99L1827	11/29/00	12/18/00	12/27/00
ALUMINUM, TOTAL	001	W	99L1827	11/29/00	12/18/00	12/27/00
ALUMINUM, TOTAL	001 REP	W	99L1827	11/29/00	12/18/00	12/27/00
ALUMINUM, TOTAL	001 MS	W	99L1827	11/29/00	12/18/00	12/27/00
BARIUM, TOTAL	001	W	99L1827	11/29/00	12/18/00	12/27/00
BARIUM, TOTAL	001 REP	W	99L1827	11/29/00	12/18/00	12/27/00
BARIUM, TOTAL	001 MS	W	99L1827	11/29/00	12/18/00	12/27/00
BERYLLIUM, TOTAL	001	W	99L1827	11/29/00	12/18/00	12/28/00
BERYLLIUM, TOTAL	001 REP	W	99L1827	11/29/00	12/18/00	12/28/00
BERYLLIUM, TOTAL	001 MS	W	99L1827	11/29/00	12/18/00	12/28/00
CALCIUM, TOTAL	001	W	99L1827	11/29/00	12/18/00	12/28/00
CALCIUM, TOTAL	001 REP	W	99L1827	11/29/00	12/18/00	12/28/00
CALCIUM, TOTAL	001 MS	W	99L1827	11/29/00	12/18/00	12/28/00
CADMIUM, TOTAL	001	W	99L1827	11/29/00	12/18/00	12/28/00
CADMIUM, TOTAL	001 REP	W	99L1827	11/29/00	12/18/00	12/28/00
CADMIUM, TOTAL	001 MS	W	99L1827	11/29/00	12/18/00	12/28/00
COBALT, TOTAL	001	W	99L1827	11/29/00	12/18/00	12/28/00
COBALT, TOTAL	001 REP	W	99L1827	11/29/00	12/18/00	12/28/00
COBALT, TOTAL	001 MS	W	99L1827	11/29/00	12/18/00	12/28/00
CHROMIUM, TOTAL	001	W	99L1827	11/29/00	12/18/00	12/28/00
CHROMIUM, TOTAL	001 REP	W	99L1827	11/29/00	12/18/00	12/28/00
CHROMIUM, TOTAL	001 MS	W	99L1827	11/29/00	12/18/00	12/28/00
COPPER, TOTAL	001	W	99L1827	11/29/00	12/18/00	12/27/00
COPPER, TOTAL	001 REP	W	99L1827	11/29/00	12/18/00	12/27/00
COPPER, TOTAL	001 MS	W	99L1827	11/29/00	12/18/00	12/27/00
IRON, TOTAL	001	W	99L1827	11/29/00	12/18/00	12/28/00
IRON, TOTAL	001 REP	W	99L1827	11/29/00	12/18/00	12/28/00
IRON, TOTAL	001 MS	W	99L1827	11/29/00	12/18/00	12/28/00
POTASSIUM, TOTAL	001	W	99L1827	11/29/00	12/18/00	12/28/00
POTASSIUM, TOTAL	001 REP	W	99L1827	11/29/00	12/18/00	12/28/00
POTASSIUM, TOTAL	001 MS	W	99L1827	11/29/00	12/18/00	12/28/00
MAGNESIUM, TOTAL	001	W	99L1827	11/29/00	12/18/00	12/28/00
MAGNESIUM, TOTAL	001 REP	W	99L1827	11/29/00	12/18/00	12/28/00

Recra LabNet - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD C01-009 H1157

DATE RECEIVED: 12/02/00 RFW LOT # :0012L436

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
MAGNESIUM, TOTAL	001 MS	W	99L1827	11/29/00	12/18/00	12/28/00
MANGANESE, TOTAL	001	W	99L1827	11/29/00	12/18/00	12/28/00
MANGANESE, TOTAL	001 REP	W	99L1827	11/29/00	12/18/00	12/28/00
MANGANESE, TOTAL	001 MS	W	99L1827	11/29/00	12/18/00	12/28/00
SODIUM, TOTAL	001	W	99L1827	11/29/00	12/18/00	12/28/00
SODIUM, TOTAL	001 REP	W	99L1827	11/29/00	12/18/00	12/28/00
SODIUM, TOTAL	001 MS	W	99L1827	11/29/00	12/18/00	12/28/00
NICKEL, TOTAL	001	W	99L1827	11/29/00	12/18/00	12/28/00
NICKEL, TOTAL	001 REP	W	99L1827	11/29/00	12/18/00	12/28/00
NICKEL, TOTAL	001 MS	W	99L1827	11/29/00	12/18/00	12/28/00
ANTIMONY, TOTAL	001	W	99L1827	11/29/00	12/18/00	12/27/00
ANTIMONY, TOTAL	001 REP	W	99L1827	11/29/00	12/18/00	12/27/00
ANTIMONY, TOTAL	001 MS	W	99L1827	11/29/00	12/18/00	12/27/00
STRONTIUM, TOTAL	001	W	99L1827	11/29/00	12/18/00	12/27/00
STRONTIUM, TOTAL	001 REP	W	99L1827	11/29/00	12/18/00	12/27/00
STRONTIUM, TOTAL	001 MS	W	99L1827	11/29/00	12/18/00	12/27/00
VANADIUM, TOTAL	001	W	99L1827	11/29/00	12/18/00	12/27/00
VANADIUM, TOTAL	001 REP	W	99L1827	11/29/00	12/18/00	12/27/00
VANADIUM, TOTAL	001 MS	W	99L1827	11/29/00	12/18/00	12/27/00
ZINC, TOTAL	001	W	99L1827	11/29/00	12/18/00	12/28/00
ZINC, TOTAL	001 REP	W	99L1827	11/29/00	12/18/00	12/28/00
ZINC, TOTAL	001 MS	W	99L1827	11/29/00	12/18/00	12/28/00

LAB QC:

SILVER LABORATORY	LC1 BS	W	99L1827	N/A	12/18/00	12/27/00
SILVER, TOTAL	MB1	W	99L1827	N/A	12/18/00	12/27/00
ALUMINUM LABORTORY	LC1 BS	W	99L1827	N/A	12/18/00	12/27/00
ALUMINUM, TOTAL	MB1	W	99L1827	N/A	12/18/00	12/27/00
BARIUM LABORATORY	LC1 BS	W	99L1827	N/A	12/18/00	12/27/00
BARIUM, TOTAL	MB1	W	99L1827	N/A	12/18/00	12/27/00
BERYLLIUM LABORATORY	LC1 BS	W	99L1827	N/A	12/18/00	12/27/00
BERYLLIUM, TOTAL	MB1	W	99L1827	N/A	12/18/00	12/27/00
CALCIUM LABORATORY	LC1 BS	W	99L1827	N/A	12/18/00	12/27/00
CALCIUM, TOTAL	MB1	W	99L1827	N/A	12/18/00	12/27/00
CADMIUM LABORATORY	LC1 BS	W	99L1827	N/A	12/18/00	12/27/00
CADMIUM, TOTAL	MB1	W	99L1827	N/A	12/18/00	12/27/00
COBALT LABORATORY	LC1 BS	W	99L1827	N/A	12/18/00	12/27/00

Recra LabNet - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD C01-009 H1157

DATE RECEIVED: 12/02/00 RFW LOT # :0012L436

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
COBALT, TOTAL	MB1	W	99L1827	N/A	12/18/00	12/27/00
CHROMIUM LABORATORY	LC1 BS	W	99L1827	N/A	12/18/00	12/27/00
CHROMIUM, TOTAL	MB1	W	99L1827	N/A	12/18/00	12/27/00
COPPER LABORATORY	LC1 BS	W	99L1827	N/A	12/18/00	12/27/00
COPPER, TOTAL	MB1	W	99L1827	N/A	12/18/00	12/27/00
IRON LABORATORY	LC1 BS	W	99L1827	N/A	12/18/00	12/27/00
IRON, TOTAL	MB1	W	99L1827	N/A	12/18/00	12/27/00
POTASSIUM LABORATORY	LC1 BS	W	99L1827	N/A	12/18/00	12/27/00
POTASSIUM, TOTAL	MB1	W	99L1827	N/A	12/18/00	12/27/00
MAGNESIUM LABORATORY	LC1 BS	W	99L1827	N/A	12/18/00	12/27/00
MAGNESIUM, TOTAL	MB1	W	99L1827	N/A	12/18/00	12/27/00
MANGANESE LABORATORY	LC1 BS	W	99L1827	N/A	12/18/00	12/27/00
MANGANESE, TOTAL	MB1	W	99L1827	N/A	12/18/00	12/27/00
SODIUM LABORATORY	LC1 BS	W	99L1827	N/A	12/18/00	12/27/00
SODIUM, TOTAL	MB1	W	99L1827	N/A	12/18/00	12/27/00
NICKEL LABORATORY	LC1 BS	W	99L1827	N/A	12/18/00	12/27/00
NICKEL, TOTAL	MB1	W	99L1827	N/A	12/18/00	12/27/00
ANTIMONY LABORATORY	LC1 BS	W	99L1827	N/A	12/18/00	12/27/00
ANTIMONY, TOTAL	MB1	W	99L1827	N/A	12/18/00	12/27/00
STRONTIUM LCS STANDA	LC1 BS	W	99L1827	N/A	12/18/00	12/27/00
STRONTIUM, TOTAL	MB1	W	99L1827	N/A	12/18/00	12/27/00
VANADIUM LABORATORY	LC1 BS	W	99L1827	N/A	12/18/00	12/27/00
VANADIUM, TOTAL	MB1	W	99L1827	N/A	12/18/00	12/27/00
ZINC LABORATORY	LC1 BS	W	99L1827	N/A	12/18/00	12/27/00
ZINC, TOTAL	MB1	W	99L1827	N/A	12/18/00	12/27/00

RECRA
ENVIRONMENTAL
INC.

Chemical and Environmental Measurement Information

Recra LabNet Philadelphia
Analytical Report

Client: TNU-HANFORD C01-009
RFW#: 0012L436
SDG/SAF#: H1157/C01-009

W.O.#: 10985-001-001-9999-00
Date Received: 12-02-00

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 the 90-110% control limits (80-120% for Mercury) with the exception of the ending CCVs for Beryllium, Calcium, Cadmium, Chromium, Iron, Magnesium, Manganese, Nickle, Potassium, Sodium, and Zinc. There is no impact to the QC samples as they were surrounded by CCVs that were in control. The samples were rerun for Beryllium, Calcium, Cadmium, Chromium, Iron, Magnesium, Manganese, Nickle, Potassium, Sodium, and Zinc in file PS1228A.

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. All matrix spike (MS) recoveries were within the 75-125% control limits. Refer to the Inorganics Accuracy 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 14 pages.

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11. The duplicate analyses for 4 analytes were outside the 20% Relative Percent Difference (RPD) control limits. Refer to the Inorganics Precision Report.

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.

Pat G

J. Michael Taylor
VP, Laboratory General Manager
Lionville Laboratory

01-09-01
Date

gmb/m12-436

METALS METHOD GLOSSARY

The following methods are used as reference for the digestion and analysis of samples contained within this Recra Lot#: 00126436

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	✓6010B		__200.7				__99
Antimony	✓6010B	__7041 [5]	__200.7	__204.2			__99
Arsenic	__6010B	__7060A [5]	__200.7	__206.2	__3113B		__99
Barium	✓6010B		__200.7				__99
Beryllium	✓6010B		__200.7				__99
Bismuth	__6010B [1]		__200.7 [1]			__1620	__99
Boron	__6010B		__200.7				__99
Cadmium	✓6010B	__7131A [5]	__200.7	__213.2			__99
Calcium	✓6010B		__200.7				__99
Chromium	✓6010B	__7191 [5]	__200.7	__218.2			__SS17
Cobalt	✓6010B		__200.7				__99
Copper	✓6010B	__7211 [5]	__200.7	__220.2			__99
Iron	✓6010B		__200.7				__99
Lead	__6010B	__7421 [5]	__200.7	__239.2	__3113B		__99
Lithium	__6010B	__7430 [4]	__200.7			__1620	__99
Magnesium	✓6010B		__200.7				__99
Manganese	✓6010B		__200.7				__99
Mercury	__7470A [3]	__7471A [3]	__245.1 [2]	__245.5 [2]			__99
Molybdenum	__6010B		__200.7				__99
Nickel	✓6010B		__200.7				__99
Potassium	✓6010B	__7610 [4]	__200.7	__258.1 [4]			__99
Rare Earths	__6010B [1]		__200.7 [1]			__1620	__99
Selenium	__6010B	__7740 [5]	__200.7	__270.2	__3113B		__99
Silicon	__6010B [1]		__200.7			__1620	__99
Silica	__6010B		__200.7			__1620	__99
Silver	✓6010B	__7761 [5]	__200.7	__272.2			__99
Sodium	✓6010B	__7770 [4]	__200.7	__273.1 [4]			__99
Strontium	✓6010B		__200.7				__99
Thallium	__6010B	__7841 [5]	__200.7	__279.2	__200.9		__99
Tin	__6010B		__200.7				__99
Titanium	__6010B		__200.7				__99
Uranium	__6010B [1]		__200.7 [1]			__1620	__99
Vanadium	✓6010B		__200.7				__99
Zinc	✓6010B		__200.7				__99
Zirconium	__6010B [1]		__200.7 [1]			__1620	__99

Other:_____ Method:_____

L-WI-033/M-11/99

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

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INORGANICS DATA SUMMARY REPORT 01/09/01

CLIENT: TNUHANFORD C01-009 H1157 RECRA LOT #: 0012L436

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	B10R52	Silver, Total	1.1	u	UG/L	1.1	1.0
		Aluminum, Total	67.3		UG/L	22.7	1.0
		Barium, Total	37.5		UG/L	0.20	1.0
		Beryllium, Total	0.60	u	UG/L	0.60	1.0
		Calcium, Total	35500		UG/L	19.2	1.0
		Cadmium, Total	3.4	u	UG/L	3.4	1.0
		Cobalt, Total	0.90	u	UG/L	0.90	1.0
		Chromium, Total	14.9		UG/L	4.9	1.0
		Copper, Total	0.90	u	UG/L	0.90	1.0
		Iron, Total	24.5		UG/L	21.8	1.0
		Potassium, Total	132000		UG/L	303	1.0
		Magnesium, Total	9380		UG/L	27.4	1.0
		Manganese, Total	109		UG/L	2.3	1.0
		Sodium, Total	37600		UG/L	22.9	1.0
		Nickel, Total	12.5	u	UG/L	12.5	1.0
		Antimony, Total	2.3	u	UG/L	2.3	1.0
		Strontium, Total	223		UG/L	0.10	1.0
		Vanadium, Total	3.1		UG/L	0.80	1.0
		Zinc, Total	5.1		UG/L	2.7	1.0

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INORGANICS METHOD BLANK DATA SUMMARY PAGE 01/09/01

CLIENT: TNUHANFORD C01-009 H1157 RECRA LOT #: 0012L436

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK1	99L1827-MB1	Silver, Total	1.1	u	UG/L	1.1	1.0
		Aluminum, Total	34.8		UG/L	22.7	1.0
		Barium, Total	0.47		UG/L	0.20	1.0
		Beryllium, Total	0.60	u	UG/L	0.60	1.0
		Calcium, Total	19.2	u	UG/L	19.2	1.0
		Cadmium, Total	3.4	u	UG/L	3.4	1.0
		Cobalt, Total	0.90	u	UG/L	0.90	1.0
		Chromium, Total	4.9	u	UG/L	4.9	1.0
		Copper, Total	0.90	u	UG/L	0.90	1.0
		Iron, Total	21.8	u	UG/L	21.8	1.0
		Potassium, Total	303	u	UG/L	303	1.0
		Magnesium, Total	27.4	u	UG/L	27.4	1.0
		Manganese, Total	2.3	u	UG/L	2.3	1.0
		Sodium, Total	44.2		UG/L	22.9	1.0
		Nickel, Total	12.5	u	UG/L	12.5	1.0
		Antimony, Total	2.3	u	UG/L	2.3	1.0
		Strontium, Total	0.17		UG/L	0.10	1.0
		Vanadium, Total	0.80	u	UG/L	0.80	1.0
		Zinc, Total	3.7		UG/L	2.7	1.0

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INORGANICS ACCURACY REPORT 01/09/01

CLIENT: TNUHANFORD C01-009 H1157 RECRA LOT #: 0012L436

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-001	B10RS2	Silver, Total	49.2	1.1 u	50.0	98.4	1.0
		Aluminum, Total	2030	67.3	2000	98.3	1.0
		Barium, Total	1930	37.5	2000	94.4	1.0
		Beryllium, Total	48.0	0.60u	50.0	96.0	1.0
		Calcium, Total	62100	35500	25000	106.4	1.0
		Cadmium, Total	47.4	3.4 u	50.0	94.8	1.0
		Cobalt, Total	482	0.90u	500	96.4	1.0
		Chromium, Total	207	14.9	200	96.1	1.0
		Copper, Total	236	0.90u	250	94.6	1.0
		Iron, Total	991	24.5	1000	96.6	1.0
		Potassium, Total	160000	132000	25000	111.8*	1.0
		Magnesium, Total	34200	9380	25000	99.3	1.0
		Manganese, Total	589	109	500	96.0	1.0
		Sodium, Total	62700	37600	25000	100.5	1.0
		Nickel, Total	483	12.5 u	500	96.6	1.0
		Antimony, Total	524	2.3 u	500	104.7	1.0
		Strontium, Total	1220	223	1000	99.7	1.0
		Vanadium, Total	508	3.1	500	101.1	1.0
		Zinc, Total	473	5.1	500	93.6	1.0

Recra LabNet - Lionville

INORGANICS PRECISION REPORT 01/09/01

CLIENT: TNUHANFORD C01-009 H1157 RECRA LOT #: 0012L436

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD		DILUTION FACTOR(REP)
-001REP	B10R52	Silver, Total	1.1 u	1.1 u	NC		1.0
		Aluminum, Total	67.3	50.2	29.1		1.0
		Barium, Total	37.5	38.4	2.4		1.0
		Beryllium, Total	0.60u	0.60u	NC		1.0
		Calcium, Total	35500	36800	3.7		1.0
		Cadmium, Total	3.4 u	3.4 u	NC		1.0
		Cobalt, Total	0.90u	0.90u	NC		1.0
		Chromium, Total	14.9	15.0	0.67		1.0
		Copper, Total	0.90u	0.90u	NC		1.0
		Iron, Total	24.5	35.0	35.3		1.0
		Potassium, Total	132000	135000	2.6		1.0
		Magnesium, Total	9380	9640	2.6		1.0
		Manganese, Total	109	111	2.4		1.0
		Sodium, Total	37600	38100	1.4		1.0
		Nickel, Total	12.5 u	14.1	NC	200	1.0
		Antimony, Total	2.3 u	2.3 u	NC		1.0
		Strontium, Total	223	226	1.4		1.0
		Vanadium, Total	3.1	2.8	10.2		1.0
		Zinc, Total	5.1	3.7	31.8		1.0

JJS 1/9/01

Recra LabNet - Lionville

INORGANICS LABORATORY CONTROL STANDARDS REPORT 01/09/01

CLIENT: TNUHANFORD C01-009 H1157 RECRA LOT #: 0012L436

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
LCS1	99L1827-LC1	Silver, LCS	503	500	UG/L	100.5
		Aluminum, LCS	5160	5000	UG/L	103.1
		Barium, LCS	4900	5000	UG/L	98.0
		Beryllium, LCS	252	250	UG/L	100.6
		Calcium, LCS	24900	25000	UG/L	99.4
		Cadmium, LCS	253	250	UG/L	101.2
		Cobalt, LCS	2530	2500	UG/L	101.2
		Chromium, LCS	503	500	UG/L	100.6
		Copper, LCS	1230	1250	UG/L	98.2
		Iron, LCS	5060	5000	UG/L	101.3
		Potassium, LCS	25700	25000	UG/L	102.7
		Magnesium, LCS	25800	25000	UG/L	103.0
		Manganese, LCS	770	750	UG/L	102.6
		Sodium, LCS	24500	25000	UG/L	98.1
		Nickel, LCS	1990	2000	UG/L	99.6
		Antimony, LCS	3010	3000	UG/L	100.4
		Strontium, LCS	4940	5000	UG/L	98.7
		Vanadium, LCS	2530	2500	UG/L	101.4
		Zinc, LCS	1010	1000	UG/L	101.2

RECRA LabNet Use Only

0012L436

Custody Transfer Record/Lab Work Request

Page 1 of 1

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

RECRA LabNet

Client: TNU- HANFORD SAF# C01-009

Est. Final Proj. Sampling Date:

Project #: 10985-001-001-9999-00

Project Contact/Phone #:

RECRA Project Manager: OJ

QC: Spec Del: Std TAT: 30 day

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

Account #:

		A	B	C
Refrigerator #		S	S	
#/Type Container	Liquid	1PL	1PL	1PL
	Solid			
Volume	Liquid	500	500	20
	Solid			
Preservatives		HNO3	—	—
ANALYSES REQUESTED	ORGANIC: VOA			
	ORGANIC: BNA			
	ORGANIC: Pest/PCB			
	ORGANIC: Herb			
	INORG: Metal		IC ANIONS	ACT-SCAN
	INORG: CN			
RECRA LabNet Use Only		Met (1)	IC (1)	

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	Met (1)	IC (1)	C
001	BIOR52			W	11/29/00	1129	1		
002	1 53			1	1	1		1	1

Special Instructions: Saf C01-009

Run matrix QC

DATE/REVISIONS:

Met (1) 1. Al, Ag, Ba, Be, Ca, Cd, Cr, Co, Cu, Fe, K,

1 2. Mg, Mn, Ni, Na, Sb, V, Zn

IC (1) 3. Br, Cl, F, NO_2, NO_3, PO_4, SO_4

4.

5.

6.

RECRA LabNet Use Only

Samples were: 1) Shipped ✓ or Hand Delivered ___ Airbill ___

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 NO_2 NO_3

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

Cooler Temp. 4.3 °C

Relinquished by	Received by	Date	Time
Fed Ex	[illegible]	12-2-00	1015

Relinquished by	Received by	Date	Time
COMPOSITE WASTE			

Discrepancies Between Samples Labels and COC Record? Y or N

NOTES: 8214 8983 0169

ORIGINAL REWRITTEN

13

PNNL

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

CHEM SDG H1157

C.O.C. # C01-009-4

Page 1 of 1

Collector D. E. PARCHEN	Contact/Requester JH KESSNER	Telephone No. (509) 375-4688 MSIN FAX
SAF No. C01-009	Sampling Origin HANFORD SITE	Purchase Order/Charge Code
Project Title ISRM GW MONITORING, NOVEMBER 2000	Logbook No. WMSAWS-1439	Ice Chest No. SMI-~~540~~ 127 RB Temp.
Shipped To (Lab) TMA/RECRA	Method of Shipment GOVT. VEHICLE	Bill of Lading/Air Bill No. 4235 7954 0853
Protocol CERCLA	Data Turnaround 45 Days	Offsite Property No.

POSSIBLE SAMPLE HAZARDS/REMARKS
** **

SPECIAL INSTRUCTIONS Hold Time Total Activity Exemption: Yes ☑ No ☐
Submit invoices & deliverables to JH Kessner, BHI.
Fax copies of TMA log-in to JH Kessner (372-9487) & DL Stewart (372-1704)

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B10R52 (F) ✓		W	11-29-00	1129	1x500-mL G/P ✓	ICP Metals - 6010A RCRA GW ✓	HNO3 to pH <2
B10R53 ✓		W	↓	↓	1x500-mL P ✓	IC Anions - 300.0 ✓	Cool 4C
B10R53 ✓		W	↓	↓	1x20-mL P ✓	Activity Scan ✓	None

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
D. E. PARCHEN	DEP	1343	NOV 29 2000	Fed Ex.			11-29-00
FED. EXPRESS			11-30-00 9:30	E. SEGURO			11-30-00 9:30
[signature]			12-2-00 1075	[signature]			12-2-00 1015

Matrix *

S	= Soil	DS	= Drum Solid
SE	= Sediment	DL	= Drum Liqui
SO	= Solid	T	= Tissue
SL	= Sludge	WI	= Wipe
W	= Water	L	= Liquid
O	= Oil	V	= Vegetation
A	= Air	X	= Other

FINAL SAMPLE DISPOSITION — Disposal Method (e.g., Return to customer, per lab procedure, used in process) — Disposed By — Date/Time