0054707 H1177

Recra LabNet - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD C01-008 H1177

DATE RECEIVED: 12/13/00 RFW LOT # :0012L565

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B10LP9						
BROMIDE BY IC	002	W	00LIC080	12/06/00	12/15/00	12/15/00
CHLORIDE BY IC	002	W	00LZC080	12/06/00	12/15/00	12/15/00
FLUORIDE BY IC	002	W	00LIC080	12/06/00	12/15/00	12/15/00
NITRITE BY IC	002	W	00LIC080	12/06/00	12/15/00	12/15/00
NITRATE BY IC	002	W	00LIC080	12/06/00	12/15/00	12/15/00
PHOSPHATE BY IC	002	W	00LIC080	12/06/00	12/15/00	12/15/00
SULFATE BY IC	002	W	00LIC080	12/06/00	12/15/00	12/15/00
B10LP7						
BROMIDE BY IC	004	W	00LIC080	12/06/00	12/15/00	12/15/00
CHLORIDE BY IC	004	W	00LZC080	12/06/00	12/15/00	12/15/00
FLUORIDE BY IC	004	W	00LIC080	12/06/00	12/15/00	12/15/00
NITRITE BY IC	004	W	00LIC080	12/06/00	12/15/00	12/15/00
NITRATE BY IC	004	W	00LIC080	12/06/00	12/15/00	12/15/00
PHOSPHATE BY IC	004	W	00LIC080	12/06/00	12/15/00	12/15/00
SULFATE BY IC	004	W	00LIC080	12/06/00	12/15/00	12/15/00
B10LR3						
BROMIDE BY IC	006	W	00LIC080	12/06/00	12/15/00	12/15/00
CHLORIDE BY IC	006	W	00LZC080	12/06/00	12/15/00	12/15/00
FLUORIDE BY IC	006	W	00LIC080	12/06/00	12/15/00	12/15/00
NITRITE BY IC	006	W	00LIC080	12/06/00	12/15/00	12/15/00
NITRATE BY IC	006	W	00LIC080	12/06/00	12/15/00	12/15/00
PHOSPHATE BY IC	006	W	00LIC080	12/06/00	12/15/00	12/15/00
SULFATE BY IC	006	W	00LIC080	12/06/00	12/15/00	12/15/00
B10LR1						
BROMIDE BY IC	008	W	00LIC080	12/06/00	12/15/00	12/15/00
CHLORIDE BY IC	008	W	00LZC080	12/06/00	12/15/00	12/15/00
FLUORIDE BY IC	008	W	00LIC080	12/06/00	12/15/00	12/15/00
NITRITE BY IC	008	W	00LIC080	12/06/00	12/15/00	12/15/00
NITRATE BY IC	008	W	00LIC080	12/06/00	12/15/00	12/15/00

RECEIVED
APR 0 2 2001
EDMC

Recra LabNet - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD C01-008 H1177

DATE RECEIVED: 12/13/00 RFW LOT # :0012L565

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
PHOSPHATE BY IC	008	W	00LIC080	12/06/00	12/15/00	12/15/00
SULFATE BY IC	008	W	00LIC080	12/06/00	12/15/00	12/15/00
B10LD1						
BROMIDE BY IC	010	W	00LIC080	12/06/00	12/15/00	12/15/00
CHLORIDE BY IC	010	W	00LZC080	12/06/00	12/15/00	12/15/00
FLUORIDE BY IC	010	W	00LIC080	12/06/00	12/15/00	12/15/00
NITRITE BY IC	010	W	00LIC080	12/06/00	12/15/00	12/15/00
NITRATE BY IC	010	W	00LIC080	12/06/00	12/15/00	12/15/00
PHOSPHATE BY IC	010	W	00LIC080	12/06/00	12/15/00	12/15/00
SULFATE BY IC	010	W	00LIC080	12/06/00	12/15/00	12/15/00
B10LD3						
BROMIDE BY IC	012	W	00LIC080	12/06/00	12/15/00	12/15/00
BROMIDE BY IC	012 REP	W	00LIC080	12/06/00	12/15/00	12/15/00
BROMIDE BY IC	012 MS	W	00LIC080	12/06/00	12/15/00	12/15/00
CHLORIDE BY IC	012	W	00LZC080	12/06/00	12/15/00	12/15/00
CHLORIDE BY IC	012 REP	W	00LZC080	12/06/00	12/15/00	12/15/00
CHLORIDE BY IC	012 MS	W	00LZC080	12/06/00	12/15/00	12/15/00
FLUORIDE BY IC	012	W	00LIC080	12/06/00	12/15/00	12/15/00
FLUORIDE BY IC	012 REP	W	00LIC080	12/06/00	12/15/00	12/15/00
FLUORIDE BY IC	012 MS	W	00LIC080	12/06/00	12/15/00	12/15/00
NITRITE BY IC	012	W	00LIC080	12/06/00	12/15/00	12/15/00
NITRITE BY IC	012 REP	W	00LIC080	12/06/00	12/15/00	12/15/00
NITRITE BY IC	012 MS	W	00LIC080	12/06/00	12/15/00	12/15/00
NITRATE BY IC	012	W	00LIC080	12/06/00	12/15/00	12/15/00
NITRATE BY IC	012 REP	W	00LIC080	12/06/00	12/15/00	12/15/00
NITRATE BY IC	012 MS	W	00LIC080	12/06/00	12/15/00	12/15/00
PHOSPHATE BY IC	012	W	00LIC080	12/06/00	12/15/00	12/15/00
PHOSPHATE BY IC	012 REP	W	00LIC080	12/06/00	12/15/00	12/15/00
PHOSPHATE BY IC	012 MS	W	00LIC080	12/06/00	12/15/00	12/15/00
SULFATE BY IC	012	W	00LIC080	12/06/00	12/15/00	12/15/00
SULFATE BY IC	012 REP	W	00LIC080	12/06/00	12/15/00	12/15/00
SULFATE BY IC	012 MS	W	00LIC080	12/06/00	12/15/00	12/15/00

LAB QC:

BROMIDE BY IC	MB1	W	00LIC080	N/A	12/15/00	12/15/00

10 [illegible]

Recra LabNet - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD C01-008 H1177

DATE RECEIVED: 12/13/00 RFW LOT # :0012L565

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
BROMIDE BY IC	MB1 BS	W	00LIC080	N/A	12/15/00	12/15/00
CHLORIDE BY IC	MB1	W	00LZC080	N/A	12/15/00	12/15/00
CHLORIDE BY IC	MB1 BS	W	00LZC080	N/A	12/15/00	12/15/00
FLUORIDE BY IC	MB1	W	00LIC080	N/A	12/15/00	12/15/00
FLUORIDE BY IC	MB1 BS	W	00LIC080	N/A	12/15/00	12/15/00
NITRITE BY IC	MB1	W	00LIC080	N/A	12/15/00	12/15/00
NITRITE BY IC	MB1 BS	W	00LIC080	N/A	12/15/00	12/15/00
NITRATE BY IC	MB1	W	00LIC080	N/A	12/15/00	12/15/00
NITRATE BY IC	MB1 BS	W	00LIC080	N/A	12/15/00	12/15/00
PHOSPHATE BY IC	MB1	W	00LIC080	N/A	12/15/00	12/15/00
PHOSPHATE BY IC	MB1 BS	W	00LIC080	N/A	12/15/00	12/15/00
SULFATE BY IC	MB1	W	00LIC080	N/A	12/15/00	12/15/00
SULFATE BY IC	MB1 BS	W	00LIC080	N/A	12/15/00	12/15/00

RECRA
ENVIRONMENTAL
INC.

Chemical and Environmental Measurement Information

Recra LabNet Philadelphia
Analytical Report

Client : TNU-HANFORD C01-008 H1177
RFW# : 0012L565

W.O. # : 10985-001-001-9999-00
Date Received: 12-13-00

INORGANIC CASE NARRATIVE

1. This narrative covers the analyses of 6 water samples.

2. The samples were 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 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 with the exception of LCS 00LIC080-MB1 for Fluoride which was above the 90-110% acceptance limits, however the associated sample results were less than the reporting limit and are not considered biased high.

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

01-22-01
Date

njp\i12-565

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 20 pages.

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:**

5

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 01/22/01

CLIENT: TNUHANFORD C01-008 H1177 RECRA LOT #: 0012L565

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-002	B10LP9	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
-004	B10LP7	Bromide by IC	2.5 u	MG/L	2.5	10.0
		Chloride by IC	35.1	MG/L	2.5	10.0
		Fluoride by IC	1.0 u	MG/L	1.0	2.0
		Nitrite by IC	2.5 u	MG/L	2.5	10
		Nitrate by IC	64	MG/L	2.5	10
		Phosphate by IC	0.50 u	MG/L	0.50	2.0
		Sulfate by IC	132	MG/L	5.0	20.0
-006	B10LR3	Bromide by IC	0.50 u	MG/L	0.50	2.0
		Chloride by IC	27.2	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	40	MG/L	2.5	10
		Phosphate by IC	0.50 u	MG/L	0.50	2.0
		Sulfate by IC	82.1	MG/L	2.5	10.0

Recra LabNet - Lionville

INORGANICS DATA SUMMARY REPORT 01/22/01

CLIENT: TNUHANFORD C01-008 H1177

RECRA LOT #: 0012L565

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-008	B10LR1	Bromide by IC	0.50 u	MG/L	0.50	2.0
		Chloride by IC	27.3	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	41	MG/L	2.5	10
		Phosphate by IC	0.50 u	MG/L	0.50	2.0
		Sulfate by IC	82.8	MG/L	2.5	10.0
-010	B10LD1	Bromide by IC	2.5 u	MG/L	2.5	10.0
		Chloride by IC	34.7	MG/L	2.5	10.0
		Fluoride by IC	1.0 u	MG/L	1.0	2.0
		Nitrite by IC	2.5 u	MG/L	2.5	10
		Nitrate by IC	58	MG/L	2.5	10
		Phosphate by IC	0.50 u	MG/L	0.50	2.0
		Sulfate by IC	136	MG/L	5.0	20.0
-012	B10LD3	Bromide by IC	0.50 u	MG/L	0.50	2.0
		Chloride by IC	19.3	MG/L	0.50	2.0
		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	36	MG/L	2.5	10
		Phosphate by IC	0.50 u	MG/L	0.50	2.0
		Sulfate by IC	80.0	MG/L	2.5	10.0

Recra LabNet - Lionville

INORGANICS METHOD BLANK DATA SUMMARY PAGE 01/22/01

CLIENT: TNUHANFORD C01-008 H1177 RECRA LOT #: 0012L565

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK10	00LIC080-MB1	Bromide 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
BLANK10	00LZC080-MB1	Chloride by IC	0.25 u	MG/L	0.25	1.0

Recra LabNet - Lionville

INORGANICS ACCURACY REPORT 01/22/01

CLIENT: TNUHANFORD C01-008 H1177 RECRA LOT #: 0012L565

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-012	B10LD3	Bromide by IC	8.7	0.00	10.0	87.4	2.0
		Chloride by IC	42.6	19.3	25.0	93.0	5.0
		Fluoride by IC	22.2	0.00	20.0	110.8	2.0
		Nitrite by IC	10	0.50u	10	103.2	2.0
		Nitrate by IC	140	36	100	101.2	20
		Phosphate by IC	9.5	0.50u	10.0	94.5	2.0
		Sulfate by IC	185	80.0	100	105.2	20.0
BLANK10	00LIC080-MB1	Bromide by IC	4.8	0.25u	5.0	96.7	1.0
		Fluoride by IC	11.1	0.50u	10.0	110.8	1.0
		Nitrite by IC	4.9	0.25u	5.0	98.2	1.0
		Nitrate by IC	4.8	0.25u	5.0	96.8	1.0
		Phosphate by IC	5.1	0.25u	5.0	101.6	1.0
		Sulfate by IC	4.9	0.25u	5.0	97.5	1.0
BLANK10	00LZC080-MB1	Chloride by IC	5.0	0.25u	5.0	99.7	1.0

Recra LabNet - Lionville

INORGANICS PRECISION REPORT 01/22/01

CLIENT: TNUHANFORD C01-008 H1177 RECRA LOT #: 0012L565

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-012REP	B10LD3	Bromide by IC	0.50u	0.50u	NC	2.0
		Chloride by IC	19.3	19.4	0.58	2.0
		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	36	36	1.1	10
		Phosphate by IC	0.50u	0.50u	NC	2.0
		Sulfate by IC	80.0	79.3	0.92	10.0

RECRA LabNet Use Only
0012L565

Custody Transfer Record/Lab Work Request

Page 1 of 2

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

(1) Mrt Perrand

RECRA LabNet

Client: Thu-Hanford C01-008
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: 12-15-00 Date Due: 1-12-01
Account #:

		A	B
Refrigerator #		6	6
#/Type Container	Liquid	1P	1P
	Solid		
Volume	Liquid	500	500
	Solid		
Preservatives		HNO3	-
ANALYSES REQUESTED	ORGANIC: VOA		
	ORGANIC: BNA		
	ORGANIC: Pest/PCB		
	ORGANIC: Herb		
	INORG: Metal		
	INORG: CN		
RECRA LabNet Use Only		Metal (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	Metal (1)	IC (1)
001	B10LP8 (F)			W	12-6-00	0730	✓	
002	P9					⊥	✓	✓
003	P6 (F)					0848	✓	
004	P7					⊥	✓	✓
005	B2 (F)					0929	✓	
006	B3					⊥	✓	✓
007	B0 (F)					⊥	✓	
008	B1					⊥	✓	✓
009	D0 (F)					1037	✓	
010	D1					⊥	✓	✓

Special Instructions: Sag C01-008

Run Matrix QC

DATE/REVISIONS:

Mrt (1) 1. Al, Ag, Ba, Be, Ca, Cd, Cr, Co, Cu, Fe, K, Mg,
⊥ 2. Mn, Ni, Na, Sb, Sr, V, Zn
IC (1) 3. Br, Cl, F, NO2, NO3, PO4, SO4
12-15-00 4. #001-010 Anions labeled (A)/Mrt (B)
5.
6.

Relinquished by	Received by	Date	Time
FedEx	TKappel	12-13-00	1000

Relinquished by	Received by	Date	Time
COMPOSITE WASTE	ORIGINAL REWRITTEN		

Discrepancies Between Samples Labels and COC Record? Y or (N)
NOTES:
8214 8983 1875

RECRA LabNet Use Only

Samples were:
1) Shipped ✓ or Hand Delivered ___
Airbill # See below
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'l (Y) or N
Cooler Temp. 4.1 °C

RECRA LabNet Use Only
0012L565

Custody Transfer Record/Lab Work Request

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

RECRA LabNet

Client: Tru-Hanford C01-008
Est. Final Proj. Sampling Date:
Project #:
Project Contact/Phone #: See page 1
RECRA Project Manager:
QC: Del TAT
Date Rec'd: Date Due:
Account #:

		A	B
Refrigerator #		6	6
#/Type Container	Liquid	1P	1P
	Solid		
Volume	Liquid	500	500
	Solid		
Preservatives		HNO3	-

ANALYSES REQUESTED → ORGANIC: VOA, BNA, Pest/PCB, Herb; INORG: Metal, CN

RECRA LabNet Use Only: Mrt(1) I00(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	RECRA LabNet Use Only		
011	B101D2 (F)			W	12/6/00	1139	✓		
012	⊥ D3			⊥	⊥	⊥	✓	✓	
							(B)	(A)	

Special Instructions:

DATE/REVISIONS:
1.
2.
3.
4.
5.
6.

Relinquished by	Received by	Date	Time
FedEx	T Kroppel	12/3/00	1000

Relinquished by	Received by	Date	Time

Discrepancies Between Samples Labels and COC Record? Y or N
NOTES:

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

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. ___ °C

PNNL

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

CHEM SDG H1177

C.O.C. # C01-008-9

Page 1 of 1

Collector D. P. CONNOLLY	Contact/Requester JH KESSNER	Telephone No. (509) 375-4688 MSIN FAX
SAF No. C01-008	Sampling Origin HANFORD SITE	Purchase Order/Charge Code
Project Title 100HR3 IAM (1&2) GW MONITORING, NOVEMBER 2000	Logbook No. WM-SHWS-H39	Ice Chest No. ~~SMC461~~ SMC461 Temp.
Shipped To (Lab) TMA/RECRA	Method of Shipment GOVT. VEHICLE	Bill of Lading/Air Bill No. 4235 7954 1199
Protocol CERCLA	Data Turnaround 45 Days	Offsite Property No. 06383

POSSIBLE SAMPLE HAZARDS/REMARKS
** **

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

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B10LP8 (F)		W	12-6-00	0730	1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
B10LP9		W			1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
B10LP9		W			1x500-mL P	IC Anions - 300.0	Cool 4C
B10LP9		W			1x20-mL P	Activity Scan	None
B10LP9		W			2x1000-mL G/P	Gross Alpha	HNO3 to pH <2
B10LP9		W			2x1000-mL G/P	Gross Beta	HNO3 to pH <2
B10LP9		W			1x250-mL P	Tritium - H3	None

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
D.P. CONNOLLY			12/7/00	Fed Ex			12-07-00
FED. EXPRESS			12-08-00 10 AM	G. SEGURO			12-08-00 10 AM
J.R. CORSO			12-12-00 16:00	Fed Ex			12-12-00
Fed Ex			12-13-00 1000	T Koppel			12-13-00 1000

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

PNNL

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

CHEM SDG H1177

C.O.C. # C01-008-8

Page 1 of 1

Collector: D. R. BREWINGTON	Contact/Requester: JH KESSNER	Telephone No.: (509) 375-4688 MSIN FAX
SAF No.: C01-008	Sampling Origin: HANFORD SITE	Purchase Order/Charge Code
Project Title: 100HR3 IAM (1&2) GW MONITORING, NOVEMBER, 2000	Logbook No.: WM-SHWS-0139	Ice Chest No.: SML-533 Temp.
Shipped To (Lab): TMA/RECRA	Method of Shipment: GOVT. VEHICLE	Bill of Lading/Air Bill No.: 4235 7954 1209
Protocol: CERCLA	Data Turnaround: 45 Days	Offsite Property No.: 06383

POSSIBLE SAMPLE HAZARDS/REMARKS
** **

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

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B10LP6 (F)		W	12-6-00	0848	1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
B10LP7		W			1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
B10LP7		W			1x500-mL P	IC Anions - 300.0	Cool 4C
B10LP7		W			1x20-mL P	Activity Scan	None
B10LP7		W			2x1000-mL G/P	Gross Alpha	HNO3 to pH <2
B10LP7		W			2x1000-mL G/P	Gross Beta	HNO3 to pH <2
B10LP7		W			1x250-mL P	Tritium - H3	None

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
D. R. BREWINGTON	D. R. Brewington		12/7/00 1300	FEDERAL EXPRESS			12-07-00
FED EXPRESS			12-08-00 10:AM	E. SEGURO		E Segure	12-08-00 10:AM
J.R. Corso	J.R. Corso		12-12-00 16:00	Fed Ex			12-12-00
Fed Ex			12-13-00 1000	Thippel			12-13-00 1000

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

PNNL

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

CHEM SOL H1177

C.O.C. # C01-008-7

Page 1 of 1

Collector: D. R. BREWINGTON	Contact/Requester: JH KESSNER	Telephone No.: (509) 375-4688 MSIN FAX
SAF No.: C01-008	Sampling Origin: HANFORD SITE	Purchase Order/Charge Code
Project Title: 100HR3 IAM (1&2) GW MONITORING, NOVEMBER 2000	Logbook No.: WM-SAWS-H39	Ice Chest No.: 3MC-161 Temp.
Shipped To (Lab): TMA/RECRA	Method of Shipment: GOVT VEHICLE	Bill of Lading/Air Bill No.: 4235 7954 1194
Protocol: CERCLA	Data Turnaround: 45 Days	Offsite Property No.: 06383

POSSIBLE SAMPLE HAZARDS/REMARKS
** **

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

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B10LR2 (F)		W	12-6-00	0927	1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
B10LR3		W			1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
B10LR3		W			1x500-mL P	IC Anions - 300.0	Cool 4C
B10LR3		W			1x20-mL P	Activity Scan	None
B10LR3		W			2x1000-mL G/P	Gross Alpha	HNO3 to pH <2
B10LR3		W			2x1000-mL G/P	Gross Beta	HNO3 to pH <2
B10LR3		W			1x250-mL P	Tritium - H3	None

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
D. R. BREWINGTON		D.R. Brewington	12/7/00	Fed Ex			12-07-00
Relinquished By			Date/Time	Received By			Date/Time
FED. EXPRESS			12-08-00 10 hr	E. SEGURO			12-08-00 10 hr
Relinquished By			Date/Time	Received By			Date/Time
JR Corso		JRCorso	12-12-00 16:00	Fed Ex			12-12-00
Relinquished By			Date/Time	Received By			Date/Time
Fed Ex			12-13-00 1000	Thoppil			12-13-00 1000

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

PNNL

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

CHEM SDG H1177

C.O.C. # C01-008-6

Page 1 of 1

Collector: D. R. BREWINGTON	Contact/Requester: JH KESSNER	Telephone No.: (509) 375-4688 MSIN FAX
SAF No.: C01-008	Sampling Origin: HANFORD SITE	Purchase Order/Charge Code
Project Title: 100HR3 IAM (1&2) GW MONITORING, NOVEMBER, 2000	Logbook No.: WM-SAWS-1139	Ice Chest No.: 3MC-161 Temp.
Shipped To (Lab): TMA/RECRA	Method of Shipment: GOVT. VEHICLE	Bill of Lading/Air Bill No.: 4235 7954 1194
Protocol: CERCLA	Data Turnaround: 45 Days	Offsite Property No.: 06383

POSSIBLE SAMPLE HAZARDS/REMARKS
** **

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

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B10LR0 (F)		W	12-6-00	0928	1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
B10LR1		W			1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
B10LR1		W			1x500-mL P	IC Anions - 300.0	Cool 4C
B10LR1		W			1x20-mL P	Activity Scan	None
B10LR1		W			2x1000-mL G/P	Gross Alpha	HNO3 to pH <2
B10LR1		W			2x1000-mL G/P	Gross Beta	HNO3 to pH <2
B10LR1		W			1x250-mL P	Tritium - H3	None

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
D. R. BREWINGTON	D. R. Brewington		12-7-00 1300	FedEx			12-07-00
FEDERAL EXPRESS			12-08-00 10:AM	E. SEGURO		E. Segurro	12-08-00 10:AM
JR Corso	JR Corso		12-12-00 16:00	Fed Ex			12-12-00
FedEx			12-13-00 1000	T Kappel			12-13-00 1000

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

PNNL

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

CHEM SDG 41177

C.O.C. # C01-008-5

Page 1 of 1

Collector: D. R. BREWINGTON	Contact/Requester: JH KESSNER	Telephone No.: (509) 375-4688 MSIN FAX
SAF No.: C01-008	Sampling Origin: HANFORD SITE	Purchase Order/Charge Code
Project Title: 100HR3 IAM (1&2) GW MONITORING, NOVEMBER, 2000	Logbook No.: WM-SAWS-139	Ice Chest No.: 3ML-533 Temp. L
Shipped To (Lab): TMA/RECRA	Method of Shipment: GOVT. VEHICLE	Bill of Lading/Air Bill No.: 4235 7954 1209
Protocol: CERCLA	Data Turnaround: 45 Days	Offsite Property No.: 06383

POSSIBLE SAMPLE HAZARDS/REMARKS
** **

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

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B10LD0 (F)		W	12-6-00	1037	1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
B10LD1		W			1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
B10LD1		W			1x500-mL P	IC Anions - 300.0	Cool 4C
B10LD1		W			1x20-mL P	Activity Scan	None
B10LD1		W			2x1000-mL G/P	Gross Alpha	HNO3 to pH <2
B10LD1		W			2x1000-mL G/P	Gross Beta	HNO3 to pH <2
B10LD1		W			1x250-mL P	Tritium - H3	None

Relinquished By (Print / Sign)	Date/Time	Received By (Print / Sign)	Date/Time
D. R. BREWINGTON D.R. Brewington	12/7/00 1300	FEDERAL EXPRESS	12-07-00
FEDERAL EXPRESS	12-08-00 10 Am	E. SEGURO	12-08-00 10 Am
JR Corso JRCorso	12-12-00 16:00	Fed Ex	12-12-00
FedEx	12-13-00 1000	Thippel	12-13-00 1000

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

PNNL

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

CHEM SDG #1177

C.O.C. # C01-008-4

Page 1 of 1

Collector: D. R. BREWINGTON	Contact/Requester: JH KESSNER	Telephone No.: (509) 375-4688 MSIN FAX
SAF No.: C01-008	Sampling Origin: HANFORD SITE	Purchase Order/Charge Code
Project Title: 100HR3 IAM (1&2) GW MONITORING, NOVEMBER, 2000	Logbook No.: WM-SAWS-139	Ice Chest No.: SMC-533 Temp.
Shipped To (Lab): TMA/RECRA	Method of Shipment: GOVT. VEHICLE	Bill of Lading/Air Bill No.: 4235 7954 1209
Protocol: CERCLA	Data Turnaround: 45 Days	Offsite Property No.: 06383

POSSIBLE SAMPLE HAZARDS/REMARKS
** **

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

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B10LD2 (F)		W	12-6-00	1139	1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
B10LD3		W			1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
B10LD3		W			1x500-mL P	IC Anions - 300.0	Cool 4C
B10LD3		W			1x20-mL P	Activity Scan	None
B10LD3		W			2x1000-mL G/P	Gross Alpha	HNO3 to pH <2
B10LD3		W			2x1000-mL G/P	Gross Beta	HNO3 to pH <2
B10LD3		W			1x250-mL P	Tritium - H3	None

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
D. R. BREWINGTON		D.R. Brewington	12/7/00 1300	FEDERAL EXPRESS			12-07-00
FEDERAL EXPRESS			12-08-00 10AM	E. SEGURO		E. Segura	12-08-00 10AM
JR Corso		JR Corso	12-12-00 16:00	Fed Ex			12-12-00
Fed Ex			12-13-00 1000	Thappel			12-13-00 1000

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

PAGE 1 Thermo NUtech CHAIN OF CUSTODY ORD # R0-12-057

12/08/00 20:05:30 WORK ID: SAF C01-008 SDG H1177

RCVD: 12/08/00 DUE: 01/22/01 KEEP: 01/22/02 DISP: S

DASH	SAMPLE IDENTIFICATION	STORED	TESTS		
01A	B10LD2(F)	RECRA	DISPOS	E011	
02A	B10LD3	RECRA	DISPOS	E011	E260
02B	B10LD3 MS	RECRA	E011	E260	
02C	B10LD3 DUP	RECRA	E011	E260	
03A	B10LD0(F)	RECRA	DISPOS	E011	
04A	B10LD1	RECRA	DISPOS	E011	E260
05A	B10LR0(F)	RECRA	DISPOS	E011	
06A	B10LR1	RECRA	DISPOS	E011	E260
07A	B10LR2(F)	RECRA	DISPOS	E011	
08A	B10LR3	RECRA	DISPOS	E011	E260
09A	B10LP6(F)	RECRA	DISPOS	E011	
10A	B10LP7	RECRA	DISPOS	E011	E260
11A	B10LP8(F)	RECRA	DISPOS	E011	
12A	B10LP9	RECRA	DISPOS	E011	E260

RELEASED BY	DATE	TRANSFERRED TO	DATE	RECEIVED BY	DATE
JRCoran	12-12-00	Fed Ex	12-12-00		
FedEx	12-13-00	Recra	12-13-00	Thrappel	12-13-00

Recra LabNet - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD C01-008 H1177

DATE RECEIVED: 12/13/00 RFW LOT # :0012L565

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B10LP8 (F)						
SILVER, TOTAL	001	W	99L1846	12/06/00	12/21/00	12/28/00
SILVER, TOTAL	001 REP	W	99L1846	12/06/00	12/21/00	12/28/00
SILVER, TOTAL	001 MS	W	99L1846	12/06/00	12/21/00	12/28/00
ALUMINUM, TOTAL	001	W	99L1846	12/06/00	12/21/00	12/28/00
ALUMINUM, TOTAL	001 REP	W	99L1846	12/06/00	12/21/00	12/28/00
ALUMINUM, TOTAL	001 MS	W	99L1846	12/06/00	12/21/00	12/28/00
BARIUM, TOTAL	001	W	99L1846	12/06/00	12/21/00	12/28/00
BARIUM, TOTAL	001 REP	W	99L1846	12/06/00	12/21/00	12/28/00
BARIUM, TOTAL	001 MS	W	99L1846	12/06/00	12/21/00	12/28/00
BERYLLIUM, TOTAL	001	W	99L1846	12/06/00	12/21/00	12/28/00
BERYLLIUM, TOTAL	001 REP	W	99L1846	12/06/00	12/21/00	12/28/00
BERYLLIUM, TOTAL	001 MS	W	99L1846	12/06/00	12/21/00	12/28/00
CALCIUM, TOTAL	001	W	99L1846	12/06/00	12/21/00	12/28/00
CALCIUM, TOTAL	001 REP	W	99L1846	12/06/00	12/21/00	12/28/00
CALCIUM, TOTAL	001 MS	W	99L1846	12/06/00	12/21/00	12/28/00
CADMIUM, TOTAL	001	W	99L1846	12/06/00	12/21/00	12/28/00
CADMIUM, TOTAL	001 REP	W	99L1846	12/06/00	12/21/00	12/28/00
CADMIUM, TOTAL	001 MS	W	99L1846	12/06/00	12/21/00	12/28/00
COBALT, TOTAL	001	W	99L1846	12/06/00	12/21/00	12/28/00
COBALT, TOTAL	001 REP	W	99L1846	12/06/00	12/21/00	12/28/00
COBALT, TOTAL	001 MS	W	99L1846	12/06/00	12/21/00	12/28/00
CHROMIUM, TOTAL	001	W	99L1846	12/06/00	12/21/00	12/28/00
CHROMIUM, TOTAL	001 REP	W	99L1846	12/06/00	12/21/00	12/28/00
CHROMIUM, TOTAL	001 MS	W	99L1846	12/06/00	12/21/00	12/28/00
COPPER, TOTAL	001	W	99L1846	12/06/00	12/21/00	12/28/00
COPPER, TOTAL	001 REP	W	99L1846	12/06/00	12/21/00	12/28/00
COPPER, TOTAL	001 MS	W	99L1846	12/06/00	12/21/00	12/28/00
IRON, TOTAL	001	W	99L1846	12/06/00	12/21/00	12/29/00
IRON, TOTAL	001 REP	W	99L1846	12/06/00	12/21/00	12/29/00
IRON, TOTAL	001 MS	W	99L1846	12/06/00	12/21/00	12/29/00
POTASSIUM, TOTAL	001	W	99L1846	12/06/00	12/21/00	12/28/00
POTASSIUM, TOTAL	001 REP	W	99L1846	12/06/00	12/21/00	12/28/00
POTASSIUM, TOTAL	001 MS	W	99L1846	12/06/00	12/21/00	12/28/00
MAGNESIUM, TOTAL	001	W	99L1846	12/06/00	12/21/00	12/28/00
MAGNESIUM, TOTAL	001 REP	W	99L1846	12/06/00	12/21/00	12/28/00

Recra LabNet - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD C01-008 H1177

DATE RECEIVED: 12/13/00 RFW LOT # :0012L565

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
MAGNESIUM, TOTAL	001 MS	W	99L1846	12/06/00	12/21/00	12/28/00
MANGANESE, TOTAL	001	W	99L1846	12/06/00	12/21/00	12/29/00
MANGANESE, TOTAL	001 REP	W	99L1846	12/06/00	12/21/00	12/29/00
MANGANESE, TOTAL	001 MS	W	99L1846	12/06/00	12/21/00	12/29/00
SODIUM, TOTAL	001	W	99L1846	12/06/00	12/21/00	12/28/00
SODIUM, TOTAL	001 REP	W	99L1846	12/06/00	12/21/00	12/28/00
SODIUM, TOTAL	001 MS	W	99L1846	12/06/00	12/21/00	12/28/00
NICKEL, TOTAL	001	W	99L1846	12/06/00	12/21/00	12/28/00
NICKEL, TOTAL	001 REP	W	99L1846	12/06/00	12/21/00	12/28/00
NICKEL, TOTAL	001 MS	W	99L1846	12/06/00	12/21/00	12/28/00
ANTIMONY, TOTAL	001	W	99L1846	12/06/00	12/21/00	12/28/00
ANTIMONY, TOTAL	001 REP	W	99L1846	12/06/00	12/21/00	12/28/00
ANTIMONY, TOTAL	001 MS	W	99L1846	12/06/00	12/21/00	12/28/00
STRONTIUM, TOTAL	001	W	99L1846	12/06/00	12/21/00	12/28/00
STRONTIUM, TOTAL	001 REP	W	99L1846	12/06/00	12/21/00	12/29/00
STRONTIUM, TOTAL	001 MS	W	99L1846	12/06/00	12/21/00	12/29/00
VANADIUM, TOTAL	001	W	99L1846	12/06/00	12/21/00	12/28/00
VANADIUM, TOTAL	001 REP	W	99L1846	12/06/00	12/21/00	12/28/00
VANADIUM, TOTAL	001 MS	W	99L1846	12/06/00	12/21/00	12/28/00
ZINC, TOTAL	001	W	99L1846	12/06/00	12/21/00	12/28/00
ZINC, TOTAL	001 REP	W	99L1846	12/06/00	12/21/00	12/28/00
ZINC, TOTAL	001 MS	W	99L1846	12/06/00	12/21/00	12/28/00
B10LP9						
SILVER, TOTAL	002	W	99L1846	12/06/00	12/21/00	12/28/00
ALUMINUM, TOTAL	002	W	99L1846	12/06/00	12/21/00	12/28/00
BARIUM, TOTAL	002	W	99L1846	12/06/00	12/21/00	12/28/00
BERYLLIUM, TOTAL	002	W	99L1846	12/06/00	12/21/00	12/28/00
CALCIUM, TOTAL	002	W	99L1846	12/06/00	12/21/00	12/28/00
CADMIUM, TOTAL	002	W	99L1846	12/06/00	12/21/00	12/28/00
COBALT, TOTAL	002	W	99L1846	12/06/00	12/21/00	12/28/00
CHROMIUM, TOTAL	002	W	99L1846	12/06/00	12/21/00	12/28/00
COPPER, TOTAL	002	W	99L1846	12/06/00	12/21/00	12/28/00
IRON, TOTAL	002	W	99L1846	12/06/00	12/21/00	12/28/00
POTASSIUM, TOTAL	002	W	99L1846	12/06/00	12/21/00	12/28/00
MAGNESIUM, TOTAL	002	W	99L1846	12/06/00	12/21/00	12/28/00
MANGANESE, TOTAL	002	W	99L1846	12/06/00	12/21/00	12/28/00

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INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD C01-008 H1177

DATE RECEIVED: 12/13/00 RFW LOT # :0012L565

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
SODIUM, TOTAL	002	W	99L1846	12/06/00	12/21/00	12/28/00
NICKEL, TOTAL	002	W	99L1846	12/06/00	12/21/00	12/28/00
ANTIMONY, TOTAL	002	W	99L1846	12/06/00	12/21/00	12/28/00
STRONTIUM, TOTAL	002	W	99L1846	12/06/00	12/21/00	12/29/00
VANADIUM, TOTAL	002	W	99L1846	12/06/00	12/21/00	12/28/00
ZINC, TOTAL	002	W	99L1846	12/06/00	12/21/00	12/28/00
B10LP6 (F)						
SILVER, TOTAL	003	W	99L1846	12/06/00	12/21/00	12/28/00
ALUMINUM, TOTAL	003	W	99L1846	12/06/00	12/21/00	12/28/00
BARIUM, TOTAL	003	W	99L1846	12/06/00	12/21/00	12/28/00
BERYLLIUM, TOTAL	003	W	99L1846	12/06/00	12/21/00	12/28/00
CALCIUM, TOTAL	003	W	99L1846	12/06/00	12/21/00	12/28/00
CADMIUM, TOTAL	003	W	99L1846	12/06/00	12/21/00	12/28/00
COBALT, TOTAL	003	W	99L1846	12/06/00	12/21/00	12/28/00
CHROMIUM, TOTAL	003	W	99L1846	12/06/00	12/21/00	12/28/00
COPPER, TOTAL	003	W	99L1846	12/06/00	12/21/00	12/28/00
IRON, TOTAL	003	W	99L1846	12/06/00	12/21/00	12/28/00
POTASSIUM, TOTAL	003	W	99L1846	12/06/00	12/21/00	12/28/00
MAGNESIUM, TOTAL	003	W	99L1846	12/06/00	12/21/00	12/28/00
MANGANESE, TOTAL	003	W	99L1846	12/06/00	12/21/00	12/28/00
SODIUM, TOTAL	003	W	99L1846	12/06/00	12/21/00	12/28/00
NICKEL, TOTAL	003	W	99L1846	12/06/00	12/21/00	12/28/00
ANTIMONY, TOTAL	003	W	99L1846	12/06/00	12/21/00	12/28/00
STRONTIUM, TOTAL	003	W	99L1846	12/06/00	12/21/00	12/29/00
VANADIUM, TOTAL	003	W	99L1846	12/06/00	12/21/00	12/28/00
ZINC, TOTAL	003	W	99L1846	12/06/00	12/21/00	12/28/00
B10LP7						
SILVER, TOTAL	004	W	99L1846	12/06/00	12/21/00	12/28/00
ALUMINUM, TOTAL	004	W	99L1846	12/06/00	12/21/00	12/28/00
BARIUM, TOTAL	004	W	99L1846	12/06/00	12/21/00	12/28/00
BERYLLIUM, TOTAL	004	W	99L1846	12/06/00	12/21/00	12/28/00
CALCIUM, TOTAL	004	W	99L1846	12/06/00	12/21/00	12/28/00
CADMIUM, TOTAL	004	W	99L1846	12/06/00	12/21/00	12/28/00
COBALT, TOTAL	004	W	99L1846	12/06/00	12/21/00	12/28/00

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INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD C01-008 H1177

DATE RECEIVED: 12/13/00 RFW LOT # :0012L565

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
CHROMIUM, TOTAL	004	W	99L1846	12/06/00	12/21/00	12/28/00
COPPER, TOTAL	004	W	99L1846	12/06/00	12/21/00	12/28/00
IRON, TOTAL	004	W	99L1846	12/06/00	12/21/00	12/28/00
POTASSIUM, TOTAL	004	W	99L1846	12/06/00	12/21/00	12/28/00
MAGNESIUM, TOTAL	004	W	99L1846	12/06/00	12/21/00	12/28/00
MANGANESE, TOTAL	004	W	99L1846	12/06/00	12/21/00	12/28/00
SODIUM, TOTAL	004	W	99L1846	12/06/00	12/21/00	12/28/00
NICKEL, TOTAL	004	W	99L1846	12/06/00	12/21/00	12/28/00
ANTIMONY, TOTAL	004	W	99L1846	12/06/00	12/21/00	12/28/00
STRONTIUM, TOTAL	004	W	99L1846	12/06/00	12/21/00	12/29/00
VANADIUM, TOTAL	004	W	99L1846	12/06/00	12/21/00	12/28/00
ZINC, TOTAL	004	W	99L1846	12/06/00	12/21/00	12/28/00
B10LR2 (F)						
SILVER, TOTAL	005	W	99L1846	12/06/00	12/21/00	12/28/00
ALUMINUM, TOTAL	005	W	99L1846	12/06/00	12/21/00	12/28/00
BARIUM, TOTAL	005	W	99L1846	12/06/00	12/21/00	12/28/00
BERYLLIUM, TOTAL	005	W	99L1846	12/06/00	12/21/00	12/28/00
CALCIUM, TOTAL	005	W	99L1846	12/06/00	12/21/00	12/28/00
CADMIUM, TOTAL	005	W	99L1846	12/06/00	12/21/00	12/28/00
COBALT, TOTAL	005	W	99L1846	12/06/00	12/21/00	12/28/00
CHROMIUM, TOTAL	005	W	99L1846	12/06/00	12/21/00	12/28/00
COPPER, TOTAL	005	W	99L1846	12/06/00	12/21/00	12/28/00
IRON, TOTAL	005	W	99L1846	12/06/00	12/21/00	12/28/00
POTASSIUM, TOTAL	005	W	99L1846	12/06/00	12/21/00	12/28/00
MAGNESIUM, TOTAL	005	W	99L1846	12/06/00	12/21/00	12/28/00
MANGANESE, TOTAL	005	W	99L1846	12/06/00	12/21/00	12/28/00
SODIUM, TOTAL	005	W	99L1846	12/06/00	12/21/00	12/28/00
NICKEL, TOTAL	005	W	99L1846	12/06/00	12/21/00	12/28/00
ANTIMONY, TOTAL	005	W	99L1846	12/06/00	12/21/00	12/28/00
STRONTIUM, TOTAL	005	W	99L1846	12/06/00	12/21/00	12/29/00
VANADIUM, TOTAL	005	W	99L1846	12/06/00	12/21/00	12/28/00
ZINC, TOTAL	005	W	99L1846	12/06/00	12/21/00	12/28/00
B10LR3						
SILVER, TOTAL	006	W	99L1846	12/06/00	12/21/00	12/28/00

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INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD C01-008 H1177

DATE RECEIVED: 12/13/00 RFW LOT # :0012L565

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
ALUMINUM, TOTAL	006	W	99L1846	12/06/00	12/21/00	12/28/00
BARIUM, TOTAL	006	W	99L1846	12/06/00	12/21/00	12/28/00
BERYLLIUM, TOTAL	006	W	99L1846	12/06/00	12/21/00	12/28/00
CALCIUM, TOTAL	006	W	99L1846	12/06/00	12/21/00	12/28/00
CADMIUM, TOTAL	006	W	99L1846	12/06/00	12/21/00	12/28/00
COBALT, TOTAL	006	W	99L1846	12/06/00	12/21/00	12/28/00
CHROMIUM, TOTAL	006	W	99L1846	12/06/00	12/21/00	12/28/00
COPPER, TOTAL	006	W	99L1846	12/06/00	12/21/00	12/28/00
IRON, TOTAL	006	W	99L1846	12/06/00	12/21/00	12/28/00
POTASSIUM, TOTAL	006	W	99L1846	12/06/00	12/21/00	12/28/00
MAGNESIUM, TOTAL	006	W	99L1846	12/06/00	12/21/00	12/28/00
MANGANESE, TOTAL	006	W	99L1846	12/06/00	12/21/00	12/28/00
SODIUM, TOTAL	006	W	99L1846	12/06/00	12/21/00	12/28/00
NICKEL, TOTAL	006	W	99L1846	12/06/00	12/21/00	12/28/00
ANTIMONY, TOTAL	006	W	99L1846	12/06/00	12/21/00	12/28/00
STRONTIUM, TOTAL	006	W	99L1846	12/06/00	12/21/00	12/29/00
VANADIUM, TOTAL	006	W	99L1846	12/06/00	12/21/00	12/28/00
ZINC, TOTAL	006	W	99L1846	12/06/00	12/21/00	12/28/00
B10LR0 (F)						
SILVER, TOTAL	007	W	99L1846	12/06/00	12/21/00	12/28/00
ALUMINUM, TOTAL	007	W	99L1846	12/06/00	12/21/00	12/28/00
BARIUM, TOTAL	007	W	99L1846	12/06/00	12/21/00	12/28/00
BERYLLIUM, TOTAL	007	W	99L1846	12/06/00	12/21/00	12/28/00
CALCIUM, TOTAL	007	W	99L1846	12/06/00	12/21/00	12/28/00
CADMIUM, TOTAL	007	W	99L1846	12/06/00	12/21/00	12/28/00
COBALT, TOTAL	007	W	99L1846	12/06/00	12/21/00	12/28/00
CHROMIUM, TOTAL	007	W	99L1846	12/06/00	12/21/00	12/28/00
COPPER, TOTAL	007	W	99L1846	12/06/00	12/21/00	12/28/00
IRON, TOTAL	007	W	99L1846	12/06/00	12/21/00	12/28/00
POTASSIUM, TOTAL	007	W	99L1846	12/06/00	12/21/00	12/28/00
MAGNESIUM, TOTAL	007	W	99L1846	12/06/00	12/21/00	12/28/00
MANGANESE, TOTAL	007	W	99L1846	12/06/00	12/21/00	12/28/00
SODIUM, TOTAL	007	W	99L1846	12/06/00	12/21/00	12/28/00
NICKEL, TOTAL	007	W	99L1846	12/06/00	12/21/00	12/28/00
ANTIMONY, TOTAL	007	W	99L1846	12/06/00	12/21/00	12/28/00
STRONTIUM, TOTAL	007	W	99L1846	12/06/00	12/21/00	12/29/00

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INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD C01-008 H1177

DATE RECEIVED: 12/13/00 RFW LOT # :0012L565

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
VANADIUM, TOTAL	007	W	99L1846	12/06/00	12/21/00	12/28/00
ZINC, TOTAL	007	W	99L1846	12/06/00	12/21/00	12/28/00
B10LR1						
SILVER, TOTAL	008	W	99L1846	12/06/00	12/21/00	12/28/00
ALUMINUM, TOTAL	008	W	99L1846	12/06/00	12/21/00	12/28/00
BARIUM, TOTAL	008	W	99L1846	12/06/00	12/21/00	12/28/00
BERYLLIUM, TOTAL	008	W	99L1846	12/06/00	12/21/00	12/28/00
CALCIUM, TOTAL	008	W	99L1846	12/06/00	12/21/00	12/28/00
CADMIUM, TOTAL	008	W	99L1846	12/06/00	12/21/00	12/28/00
COBALT, TOTAL	008	W	99L1846	12/06/00	12/21/00	12/28/00
CHROMIUM, TOTAL	008	W	99L1846	12/06/00	12/21/00	12/28/00
COPPER, TOTAL	008	W	99L1846	12/06/00	12/21/00	12/28/00
IRON, TOTAL	008	W	99L1846	12/06/00	12/21/00	12/28/00
POTASSIUM, TOTAL	008	W	99L1846	12/06/00	12/21/00	12/28/00
MAGNESIUM, TOTAL	008	W	99L1846	12/06/00	12/21/00	12/28/00
MANGANESE, TOTAL	008	W	99L1846	12/06/00	12/21/00	12/28/00
SODIUM, TOTAL	008	W	99L1846	12/06/00	12/21/00	12/28/00
NICKEL, TOTAL	008	W	99L1846	12/06/00	12/21/00	12/28/00
ANTIMONY, TOTAL	008	W	99L1846	12/06/00	12/21/00	12/28/00
STRONTIUM, TOTAL	008	W	99L1846	12/06/00	12/21/00	12/29/00
VANADIUM, TOTAL	008	W	99L1846	12/06/00	12/21/00	12/28/00
ZINC, TOTAL	008	W	99L1846	12/06/00	12/21/00	12/28/00
B10LD0 (F)						
SILVER, TOTAL	009	W	99L1846	12/06/00	12/21/00	12/28/00
ALUMINUM, TOTAL	009	W	99L1846	12/06/00	12/21/00	12/28/00
BARIUM, TOTAL	009	W	99L1846	12/06/00	12/21/00	12/28/00
BERYLLIUM, TOTAL	009	W	99L1846	12/06/00	12/21/00	12/28/00
CALCIUM, TOTAL	009	W	99L1846	12/06/00	12/21/00	12/28/00
CADMIUM, TOTAL	009	W	99L1846	12/06/00	12/21/00	12/28/00
COBALT, TOTAL	009	W	99L1846	12/06/00	12/21/00	12/28/00
CHROMIUM, TOTAL	009	W	99L1846	12/06/00	12/21/00	12/28/00
COPPER, TOTAL	009	W	99L1846	12/06/00	12/21/00	12/28/00
IRON, TOTAL	009	W	99L1846	12/06/00	12/21/00	12/28/00
POTASSIUM, TOTAL	009	W	99L1846	12/06/00	12/21/00	12/28/00

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INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD C01-008 H1177

DATE RECEIVED: 12/13/00 RFW LOT # :0012L565

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
MAGNESIUM, TOTAL	009	W	99L1846	12/06/00	12/21/00	12/28/00
MANGANESE, TOTAL	009	W	99L1846	12/06/00	12/21/00	12/28/00
SODIUM, TOTAL	009	W	99L1846	12/06/00	12/21/00	12/28/00
NICKEL, TOTAL	009	W	99L1846	12/06/00	12/21/00	12/28/00
ANTIMONY, TOTAL	009	W	99L1846	12/06/00	12/21/00	12/28/00
STRONTIUM, TOTAL	009	W	99L1846	12/06/00	12/21/00	12/29/00
VANADIUM, TOTAL	009	W	99L1846	12/06/00	12/21/00	12/28/00
ZINC, TOTAL	009	W	99L1846	12/06/00	12/21/00	12/28/00
B10LD1						
SILVER, TOTAL	010	W	99L1846	12/06/00	12/21/00	12/28/00
ALUMINUM, TOTAL	010	W	99L1846	12/06/00	12/21/00	12/28/00
BARIUM, TOTAL	010	W	99L1846	12/06/00	12/21/00	12/28/00
BERYLLIUM, TOTAL	010	W	99L1846	12/06/00	12/21/00	12/28/00
CALCIUM, TOTAL	010	W	99L1846	12/06/00	12/21/00	12/28/00
CADMIUM, TOTAL	010	W	99L1846	12/06/00	12/21/00	12/28/00
COBALT, TOTAL	010	W	99L1846	12/06/00	12/21/00	12/28/00
CHROMIUM, TOTAL	010	W	99L1846	12/06/00	12/21/00	12/28/00
COPPER, TOTAL	010	W	99L1846	12/06/00	12/21/00	12/28/00
IRON, TOTAL	010	W	99L1846	12/06/00	12/21/00	12/28/00
POTASSIUM, TOTAL	010	W	99L1846	12/06/00	12/21/00	12/28/00
MAGNESIUM, TOTAL	010	W	99L1846	12/06/00	12/21/00	12/28/00
MANGANESE, TOTAL	010	W	99L1846	12/06/00	12/21/00	12/28/00
SODIUM, TOTAL	010	W	99L1846	12/06/00	12/21/00	12/28/00
NICKEL, TOTAL	010	W	99L1846	12/06/00	12/21/00	12/28/00
ANTIMONY, TOTAL	010	W	99L1846	12/06/00	12/21/00	12/28/00
STRONTIUM, TOTAL	010	W	99L1846	12/06/00	12/21/00	12/29/00
VANADIUM, TOTAL	010	W	99L1846	12/06/00	12/21/00	12/28/00
ZINC, TOTAL	010	W	99L1846	12/06/00	12/21/00	12/28/00
B10LD2 (F)						
SILVER, TOTAL	011	W	99L1846	12/06/00	12/21/00	12/28/00
ALUMINUM, TOTAL	011	W	99L1846	12/06/00	12/21/00	12/28/00
BARIUM, TOTAL	011	W	99L1846	12/06/00	12/21/00	12/28/00
BERYLLIUM, TOTAL	011	W	99L1846	12/06/00	12/21/00	12/28/00
CALCIUM, TOTAL	011	W	99L1846	12/06/00	12/21/00	12/28/00

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INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD C01-008 H1177

DATE RECEIVED: 12/13/00 RFW LOT # :0012L565

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
CADMIUM, TOTAL	011	W	99L1846	12/06/00	12/21/00	12/28/00
COBALT, TOTAL	011	W	99L1846	12/06/00	12/21/00	12/28/00
CHROMIUM, TOTAL	011	W	99L1846	12/06/00	12/21/00	12/28/00
COPPER, TOTAL	011	W	99L1846	12/06/00	12/21/00	12/28/00
IRON, TOTAL	011	W	99L1846	12/06/00	12/21/00	12/28/00
POTASSIUM, TOTAL	011	W	99L1846	12/06/00	12/21/00	12/28/00
MAGNESIUM, TOTAL	011	W	99L1846	12/06/00	12/21/00	12/28/00
MANGANESE, TOTAL	011	W	99L1846	12/06/00	12/21/00	12/28/00
SODIUM, TOTAL	011	W	99L1846	12/06/00	12/21/00	12/28/00
NICKEL, TOTAL	011	W	99L1846	12/06/00	12/21/00	12/28/00
ANTIMONY, TOTAL	011	W	99L1846	12/06/00	12/21/00	12/28/00
STRONTIUM, TOTAL	011	W	99L1846	12/06/00	12/21/00	12/29/00
VANADIUM, TOTAL	011	W	99L1846	12/06/00	12/21/00	12/28/00
ZINC, TOTAL	011	W	99L1846	12/06/00	12/21/00	12/28/00
B10LD3						
SILVER, TOTAL	012	W	99L1846	12/06/00	12/21/00	12/28/00
ALUMINUM, TOTAL	012	W	99L1846	12/06/00	12/21/00	12/28/00
BARIUM, TOTAL	012	W	99L1846	12/06/00	12/21/00	12/28/00
BERYLLIUM, TOTAL	012	W	99L1846	12/06/00	12/21/00	12/28/00
CALCIUM, TOTAL	012	W	99L1846	12/06/00	12/21/00	12/28/00
CADMIUM, TOTAL	012	W	99L1846	12/06/00	12/21/00	12/28/00
COBALT, TOTAL	012	W	99L1846	12/06/00	12/21/00	12/28/00
CHROMIUM, TOTAL	012	W	99L1846	12/06/00	12/21/00	12/28/00
COPPER, TOTAL	012	W	99L1846	12/06/00	12/21/00	12/28/00
IRON, TOTAL	012	W	99L1846	12/06/00	12/21/00	12/28/00
POTASSIUM, TOTAL	012	W	99L1846	12/06/00	12/21/00	12/28/00
MAGNESIUM, TOTAL	012	W	99L1846	12/06/00	12/21/00	12/28/00
MANGANESE, TOTAL	012	W	99L1846	12/06/00	12/21/00	12/28/00
SODIUM, TOTAL	012	W	99L1846	12/06/00	12/21/00	12/28/00
NICKEL, TOTAL	012	W	99L1846	12/06/00	12/21/00	12/28/00
ANTIMONY, TOTAL	012	W	99L1846	12/06/00	12/21/00	12/28/00
STRONTIUM, TOTAL	012	W	99L1846	12/06/00	12/21/00	12/29/00
VANADIUM, TOTAL	012	W	99L1846	12/06/00	12/21/00	12/28/00
ZINC, TOTAL	012	W	99L1846	12/06/00	12/21/00	12/28/00

LAB QC:

SILVER LABORATORY	LC1 BS	W	99L1846	N/A	12/21/00	12/28/00

Recra LabNet - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD C01-008 H1177

DATE RECEIVED: 12/13/00 RFW LOT # :0012L565

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
SILVER, TOTAL	MB1	W	99L1846	N/A	12/21/00	12/28/00
ALUMINUM LABORTORY	LC1 BS	W	99L1846	N/A	12/21/00	12/28/00
ALUMINUM, TOTAL	MB1	W	99L1846	N/A	12/21/00	12/28/00
BARIUM LABORATORY	LC1 BS	W	99L1846	N/A	12/21/00	12/28/00
BARIUM, TOTAL	MB1	W	99L1846	N/A	12/21/00	12/28/00
BERYLLIUM LABORATORY	LC1 BS	W	99L1846	N/A	12/21/00	12/28/00
BERYLLIUM, TOTAL	MB1	W	99L1846	N/A	12/21/00	12/28/00
CALCIUM LABORATORY	LC1 BS	W	99L1846	N/A	12/21/00	12/28/00
CALCIUM, TOTAL	MB1	W	99L1846	N/A	12/21/00	12/28/00
CADMIUM LABORATORY	LC1 BS	W	99L1846	N/A	12/21/00	12/28/00
CADMIUM, TOTAL	MB1	W	99L1846	N/A	12/21/00	12/28/00
COBALT LABORATORY	LC1 BS	W	99L1846	N/A	12/21/00	12/28/00
COBALT, TOTAL	MB1	W	99L1846	N/A	12/21/00	12/28/00
CHROMIUM LABORATORY	LC1 BS	W	99L1846	N/A	12/21/00	12/28/00
CHROMIUM, TOTAL	MB1	W	99L1846	N/A	12/21/00	12/28/00
COPPER LABORATORY	LC1 BS	W	99L1846	N/A	12/21/00	12/28/00
COPPER, TOTAL	MB1	W	99L1846	N/A	12/21/00	12/28/00
IRON LABORATORY	LC1 BS	W	99L1846	N/A	12/21/00	12/28/00
IRON, TOTAL	MB1	W	99L1846	N/A	12/21/00	12/28/00
POTASSIUM LABORATORY	LC1 BS	W	99L1846	N/A	12/21/00	12/28/00
POTASSIUM, TOTAL	MB1	W	99L1846	N/A	12/21/00	12/28/00
MAGNESIUM LABORATORY	LC1 BS	W	99L1846	N/A	12/21/00	12/28/00
MAGNESIUM, TOTAL	MB1	W	99L1846	N/A	12/21/00	12/28/00
MANGANESE LABORATORY	LC1 BS	W	99L1846	N/A	12/21/00	12/28/00
MANGANESE, TOTAL	MB1	W	99L1846	N/A	12/21/00	12/28/00
SODIUM LABORATORY	LC1 BS	W	99L1846	N/A	12/21/00	12/28/00
SODIUM, TOTAL	MB1	W	99L1846	N/A	12/21/00	12/28/00
NICKEL LABORATORY	LC1 BS	W	99L1846	N/A	12/21/00	12/28/00
NICKEL, TOTAL	MB1	W	99L1846	N/A	12/21/00	12/28/00
ANTIMONY LABORATORY	LC1 BS	W	99L1846	N/A	12/21/00	12/28/00
ANTIMONY, TOTAL	MB1	W	99L1846	N/A	12/21/00	12/28/00
STRONTIUM LCS STANDA	LC1 BS	W	99L1846	N/A	12/21/00	12/28/00
STRONTIUM, TOTAL	MB1	W	99L1846	N/A	12/21/00	12/28/00
VANADIUM LABORATORY	LC1 BS	W	99L1846	N/A	12/21/00	12/28/00
VANADIUM, TOTAL	MB1	W	99L1846	N/A	12/21/00	12/28/00
ZINC LABORATORY	LC1 BS	W	99L1846	N/A	12/21/00	12/28/00
ZINC, TOTAL	MB1	W	99L1846	N/A	12/21/00	12/28/00

RECRA
ENVIRONMENTAL
INC.
Chemical and Environmental Measurement Information

Recra LabNet Philadelphia
Analytical Report

Client: TNU-HANFORD C01-008
RFW#: 0012L565
SDG/SAF#: H1177/C01-008

W.O.#: 10985-001-001-9999-00
Date Received: 12-13-00

METALS CASE NARRATIVE

1. This narrative covers the analyses of 12 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).

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.

11. The duplicate analyses for 7 analytes were outside 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 37 pages.

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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/m12-565

01-17-01
Date

METALS METHOD GLOSSARY

The following methods are used as reference for the digestion and analysis of samples contained within this Recra Lot#: 0012 L5e5

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

Recra LabNet - Lionville

INORGANICS DATA SUMMARY REPORT 01/17/01

CLIENT: TNUHANFORD C01-008 H1177

RECRA LOT #: 0012L565

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	B10LP8 (F)	Silver, Total	2.5	u	UG/L	2.5	1.0
		Aluminum, Total	122		UG/L	19.1	1.0
		Barium, Total	3.0	u	UG/L	3.0	1.0
		Beryllium, Total	0.60	u	UG/L	0.60	1.0
		Calcium, Total	43.8		UG/L	15.4	1.0
		Cadmium, Total	3.4	u	UG/L	3.4	1.0
		Cobalt, Total	5.6	u	UG/L	5.6	1.0
		Chromium, Total	4.9	u	UG/L	4.9	1.0
		Copper, Total	2.6	u	UG/L	2.6	1.0
		Iron, Total	64.9		UG/L	3.8	1.0
		Potassium, Total	303	u	UG/L	303	1.0
		Magnesium, Total	27.9		UG/L	27.4	1.0
		Manganese, Total	2.3	u	UG/L	2.3	1.0
		Sodium, Total	368		UG/L	22.9	1.0
		Nickel, Total	12.5	u	UG/L	12.5	1.0
		Antimony, Total	17.0	u	UG/L	17.0	1.0
		Strontium, Total	5.5	u	UG/L	5.5	1.0
		Vanadium, Total	4.8	u	UG/L	4.8	1.0
		Zinc, Total	3.6		UG/L	2.7	1.0

Recra LabNet - Lionville

INORGANICS DATA SUMMARY REPORT 01/17/01

CLIENT: TNUHANFORD C01-008 H1177 RECRA LOT #: 0012L565

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-002	B10LP9	Silver, Total	2.5	u	UG/L	2.5	1.0
		Aluminum, Total	125		UG/L	19.1	1.0
		Barium, Total	3.0	u	UG/L	3.0	1.0
		Beryllium, Total	0.60	u	UG/L	0.60	1.0
		Calcium, Total	32.4		UG/L	15.4	1.0
		Cadmium, Total	3.4	u	UG/L	3.4	1.0
		Cobalt, Total	5.6	u	UG/L	5.6	1.0
		Chromium, Total	4.9	u	UG/L	4.9	1.0
		Copper, Total	2.6	u	UG/L	2.6	1.0
		Iron, Total	128		UG/L	3.8	1.0
		Potassium, Total	303	u	UG/L	303	1.0
		Magnesium, Total	39.9		UG/L	27.4	1.0
		Manganese, Total	2.3	u	UG/L	2.3	1.0
		Sodium, Total	114		UG/L	22.9	1.0
		Nickel, Total	12.5	u	UG/L	12.5	1.0
		Antimony, Total	17.0	u	UG/L	17.0	1.0
		Strontium, Total	5.5	u	UG/L	5.5	1.0
		Vanadium, Total	4.8	u	UG/L	4.8	1.0
		Zinc, Total	2.7	u	UG/L	2.7	1.0

Recra LabNet - Lionville

INORGANICS DATA SUMMARY REPORT 01/17/01

CLIENT: TNUHANFORD C01-008 H1177 RECRA LOT #: 0012LS65

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-003	B10LP6 (F)	Silver, Total	2.5	u	UG/L	2.5	1.0
		Aluminum, Total	26.8		UG/L	19.1	1.0
		Barium, Total	78.7		UG/L	3.0	1.0
		Beryllium, Total	0.60	u	UG/L	0.60	1.0
		Calcium, Total	93900		UG/L	15.4	1.0
		Cadmium, Total	3.4	u	UG/L	3.4	1.0
		Cobalt, Total	5.6	u	UG/L	5.6	1.0
		Chromium, Total	197		UG/L	4.9	1.0
		Copper, Total	4.3		UG/L	2.6	1.0
		Iron, Total	9.2		UG/L	3.8	1.0
		Potassium, Total	4870		UG/L	303	1.0
		Magnesium, Total	19100		UG/L	27.4	1.0
		Manganese, Total	22.6		UG/L	2.3	1.0
		Sodium, Total	11200		UG/L	22.9	1.0
		Nickel, Total	12.5	u	UG/L	12.5	1.0
		Antimony, Total	17.0	u	UG/L	17.0	1.0
		Strontium, Total	527		UG/L	5.5	1.0
		Vanadium, Total	8.2		UG/L	4.8	1.0
		Zinc, Total	29.4		UG/L	2.7	1.0

Recra LabNet - Lionville

INORGANICS DATA SUMMARY REPORT 01/17/01

CLIENT: TNUHANFORD C01-008 H1177 RECRA LOT #: 0012L565

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-004	B10LP7	Silver, Total	2.5	u	UG/L	2.5	1.0
		Aluminum, Total	85.9		UG/L	19.1	1.0
		Barium, Total	75.8		UG/L	3.0	1.0
		Beryllium, Total	0.60	u	UG/L	0.60	1.0
		Calcium, Total	91300		UG/L	15.4	1.0
		Cadmium, Total	3.4	u	UG/L	3.4	1.0
		Cobalt, Total	5.6	u	UG/L	5.6	1.0
		Chromium, Total	195		UG/L	4.9	1.0
		Copper, Total	5.9		UG/L	2.6	1.0
		Iron, Total	113		UG/L	3.8	1.0
		Potassium, Total	4640		UG/L	303	1.0
		Magnesium, Total	18400		UG/L	27.4	1.0
		Manganese, Total	17.8		UG/L	2.3	1.0
		Sodium, Total	10800		UG/L	22.9	1.0
		Nickel, Total	12.5	u	UG/L	12.5	1.0
		Antimony, Total	17.0	u	UG/L	17.0	1.0
		Strontium, Total	504		UG/L	5.5	1.0
		Vanadium, Total	6.1		UG/L	4.8	1.0
		Zinc, Total	30.1		UG/L	2.7	1.0

Recra LabNet - Lionville

INORGANICS DATA SUMMARY REPORT 01/17/01

CLIENT: TNUHANFORD C01-008 H1177 RECRA LOT #: 0012L565

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-005	B10LR2 (F)	Silver, Total	2.5	u	UG/L	2.5	1.0
		Aluminum, Total	100		UG/L	19.1	1.0
		Barium, Total	46.4		UG/L	3.0	1.0
		Beryllium, Total	0.60	u	UG/L	0.60	1.0
		Calcium, Total	72700		UG/L	15.4	1.0
		Cadmium, Total	3.4	u	UG/L	3.4	1.0
		Cobalt, Total	5.6	u	UG/L	5.6	1.0
		Chromium, Total	446		UG/L	4.9	1.0
		Copper, Total	2.6	u	UG/L	2.6	1.0
		Iron, Total	110		UG/L	3.8	1.0
		Potassium, Total	2700		UG/L	303	1.0
		Magnesium, Total	12200		UG/L	27.4	1.0
		Manganese, Total	2.3	u	UG/L	2.3	1.0
		Sodium, Total	9430		UG/L	22.9	1.0
		Nickel, Total	12.5	u	UG/L	12.5	1.0
		Antimony, Total	24.6		UG/L	17.0	1.0
		Strontium, Total	316		UG/L	5.5	1.0
		Vanadium, Total	6.6		UG/L	4.8	1.0
		Zinc, Total	19.6		UG/L	2.7	1.0

Recra LabNet - Lionville

INORGANICS DATA SUMMARY REPORT 01/17/01

CLIENT: TNUHANFORD C01-008 H1177

RECRA LOT #: 0012L565

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-006	B10LR3	Silver, Total	2.5	u	UG/L	2.5	1.0
		Aluminum, Total	74.0		UG/L	19.1	1.0
		Barium, Total	44.4		UG/L	3.0	1.0
		Beryllium, Total	0.60	u	UG/L	0.60	1.0
		Calcium, Total	73100		UG/L	15.4	1.0
		Cadmium, Total	3.4	u	UG/L	3.4	1.0
		Cobalt, Total	5.6	u	UG/L	5.6	1.0
		Chromium, Total	448		UG/L	4.9	1.0
		Copper, Total	2.6	u	UG/L	2.6	1.0
		Iron, Total	96.9		UG/L	3.8	1.0
		Potassium, Total	2870		UG/L	303	1.0
		Magnesium, Total	12200		UG/L	27.4	1.0
		Manganese, Total	2.3	u	UG/L	2.3	1.0
		Sodium, Total	9370		UG/L	22.9	1.0
		Nickel, Total	12.5	u	UG/L	12.5	1.0
		Antimony, Total	17.0	u	UG/L	17.0	1.0
		Strontium, Total	336		UG/L	5.5	1.0
		Vanadium, Total	4.8	u	UG/L	4.8	1.0
		Zinc, Total	23.3		UG/L	2.7	1.0

Recra LabNet - Lionville

INORGANICS DATA SUMMARY REPORT 01/17/01

CLIENT: TNUHANFORD C01-008 H1177 RECRA LOT #: 0012L565

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-007	B10LR0 (F)	Silver, Total	2.5	u	UG/L	2.5	1.0
		Aluminum, Total	79.2		UG/L	19.1	1.0
		Barium, Total	45.3		UG/L	3.0	1.0
		Beryllium, Total	0.60	u	UG/L	0.60	1.0
		Calcium, Total	72700		UG/L	15.4	1.0
		Cadmium, Total	3.4	u	UG/L	3.4	1.0
		Cobalt, Total	5.6	u	UG/L	5.6	1.0
		Chromium, Total	442		UG/L	4.9	1.0
		Copper, Total	2.6	u	UG/L	2.6	1.0
		Iron, Total	71.8		UG/L	3.8	1.0
		Potassium, Total	2660		UG/L	303	1.0
		Magnesium, Total	12100		UG/L	27.4	1.0
		Manganese, Total	2.3	u	UG/L	2.3	1.0
		Sodium, Total	9290		UG/L	22.9	1.0
		Nickel, Total	12.5	u	UG/L	12.5	1.0
		Antimony, Total	17.0	u	UG/L	17.0	1.0
		Strontium, Total	305		UG/L	5.5	1.0
		Vanadium, Total	4.8	u	UG/L	4.8	1.0
		Zinc, Total	26.8		UG/L	2.7	1.0

Recra LabNet - Lionville

INORGANICS DATA SUMMARY REPORT 01/17/01

CLIENT: TNUHANFORD C01-008 H1177 RECRA LOT #: 0012L565

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-008	B10LR1	Silver, Total	2.5	u	UG/L	2.5	1.0
		Aluminum, Total	28.2		UG/L	19.1	1.0
		Barium, Total	42.0		UG/L	3.0	1.0
		Beryllium, Total	0.60	u	UG/L	0.60	1.0
		Calcium, Total	70900		UG/L	15.4	1.0
		Cadmium, Total	3.4	u	UG/L	3.4	1.0
		Cobalt, Total	5.6	u	UG/L	5.6	1.0
		Chromium, Total	432		UG/L	4.9	1.0
		Copper, Total	2.6	u	UG/L	2.6	1.0
		Iron, Total	34.5		UG/L	3.8	1.0
		Potassium, Total	2720		UG/L	303	1.0
		Magnesium, Total	11700		UG/L	27.4	1.0
		Manganese, Total	2.3	u	UG/L	2.3	1.0
		Sodium, Total	8840		UG/L	22.9	1.0
		Nickel, Total	12.5	u	UG/L	12.5	1.0
		Antimony, Total	28.8		UG/L	17.0	1.0
		Strontium, Total	328		UG/L	5.5	1.0
		Vanadium, Total	4.8	u	UG/L	4.8	1.0
		Zinc, Total	22.6		UG/L	2.7	1.0

Recra LabNet - Lionville

INORGANICS DATA SUMMARY REPORT 01/17/01

CLIENT: TNUHANFORD C01-008 H1177 RECRA LOT #: 0012L565

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-009	B10LD0 (F)	Silver, Total	2.5	u	UG/L	2.5	1.0
		Aluminum, Total	19.1	u	UG/L	19.1	1.0
		Barium, Total	76.5		UG/L	3.0	1.0
		Beryllium, Total	0.60	u	UG/L	0.60	1.0
		Calcium, Total	96800		UG/L	15.4	1.0
		Cadmium, Total	3.4	u	UG/L	3.4	1.0
		Cobalt, Total	5.6	u	UG/L	5.6	1.0
		Chromium, Total	1720		UG/L	4.9	1.0
		Copper, Total	2.6	u	UG/L	2.6	1.0
		Iron, Total	7.7		UG/L	3.8	1.0
		Potassium, Total	4700		UG/L	303	1.0
		Magnesium, Total	20500		UG/L	27.4	1.0
		Manganese, Total	2.3	u	UG/L	2.3	1.0
		Sodium, Total	9510		UG/L	22.9	1.0
		Nickel, Total	12.5	u	UG/L	12.5	1.0
		Antimony, Total	20.4		UG/L	17.0	1.0
		Strontium, Total	554		UG/L	5.5	1.0
		Vanadium, Total	8.6		UG/L	4.8	1.0
		Zinc, Total	145		UG/L	2.7	1.0

Recra LabNet - Lionville

INORGANICS DATA SUMMARY REPORT 01/17/01

CLIENT: TNUHANFORD C01-008 H1177 RECRA LOT #: 0012L565

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-010	B10LD1	Silver, Total	2.5	u	UG/L	2.5	1.0
		Aluminum, Total	37.8		UG/L	19.1	1.0
		Barium, Total	80.6		UG/L	3.0	1.0
		Beryllium, Total	0.60	u	UG/L	0.60	1.0
		Calcium, Total	94500		UG/L	15.4	1.0
		Cadmium, Total	3.4	u	UG/L	3.4	1.0
		Cobalt, Total	5.6	u	UG/L	5.6	1.0
		Chromium, Total	1730		UG/L	4.9	1.0
		Copper, Total	2.6	u	UG/L	2.6	1.0
		Iron, Total	225		UG/L	3.8	1.0
		Potassium, Total	4600		UG/L	303	1.0
		Magnesium, Total	20500		UG/L	27.4	1.0
		Manganese, Total	2.3	u	UG/L	2.3	1.0
		Sodium, Total	9820		UG/L	22.9	1.0
		Nickel, Total	12.5	u	UG/L	12.5	1.0
		Antimony, Total	17.0	u	UG/L	17.0	1.0
		Strontium, Total	539		UG/L	5.5	1.0
		Vanadium, Total	5.2		UG/L	4.8	1.0
		Zinc, Total	173		UG/L	2.7	1.0

Recra LabNet - Lionville

INORGANICS DATA SUMMARY REPORT 01/17/01

CLIENT: TNUHANFORD C01-008 H1177 RECRA LOT #: 0012L565

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-011	B10LD2 (F)	Silver, Total	2.5	u	UG/L	2.5	1.0
		Aluminum, Total	522		UG/L	19.1	1.0
		Barium, Total	67.1		UG/L	3.0	1.0
		Beryllium, Total	0.60	u	UG/L	0.60	1.0
		Calcium, Total	66500		UG/L	15.4	1.0
		Cadmium, Total	3.4	u	UG/L	3.4	1.0
		Cobalt, Total	5.6	u	UG/L	5.6	1.0
		Chromium, Total	759		UG/L	4.9	1.0
		Copper, Total	2.6	u	UG/L	2.6	1.0
		Iron, Total	123		UG/L	3.8	1.0
		Potassium, Total	3830		UG/L	303	1.0
		Magnesium, Total	15000		UG/L	27.4	1.0
		Manganese, Total	2.3		UG/L	2.3	1.0
		Sodium, Total	6980		UG/L	22.9	1.0
		Nickel, Total	12.5	u	UG/L	12.5	1.0
		Antimony, Total	17.0	u	UG/L	17.0	1.0
		Strontium, Total	330		UG/L	5.5	1.0
		Vanadium, Total	6.1		UG/L	4.8	1.0
		Zinc, Total	257		UG/L	2.7	1.0

Recra LabNet - Lionville

INORGANICS DATA SUMMARY REPORT 01/17/01

CLIENT: TNUHANFORD C01-008 H1177 RECRA LOT #: 0012L565

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-012	B10LD3	Silver, Total	2.5	u	UG/L	2.5	1.0
		Aluminum, Total	145		UG/L	19.1	1.0
		Barium, Total	65.0		UG/L	3.0	1.0
		Beryllium, Total	0.60	u	UG/L	0.60	1.0
		Calcium, Total	64000		UG/L	15.4	1.0
		Cadmium, Total	3.4	u	UG/L	3.4	1.0
		Cobalt, Total	5.6	u	UG/L	5.6	1.0
		Chromium, Total	754		UG/L	4.9	1.0
		Copper, Total	2.6	u	UG/L	2.6	1.0
		Iron, Total	214		UG/L	3.8	1.0
		Potassium, Total	3420		UG/L	303	1.0
		Magnesium, Total	14600		UG/L	27.4	1.0
		Manganese, Total	2.3	u	UG/L	2.3	1.0
		Sodium, Total	6770		UG/L	22.9	1.0
		Nickel, Total	12.5	u	UG/L	12.5	1.0
		Antimony, Total	17.0	u	UG/L	17.0	1.0
		Strontium, Total	337		UG/L	5.5	1.0
		Vanadium, Total	5.6		UG/L	4.8	1.0
		Zinc, Total	288		UG/L	2.7	1.0

Recra LabNet - Lionville

INORGANICS METHOD BLANK DATA SUMMARY PAGE 01/17/01

CLIENT: TNUHANFORD C01-008 H1177

RECRA LOT #: 0012L565

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK1	99L1846-MB1	Silver, Total	2.5	u	UG/L	2.5	1.0
		Aluminum, Total	19.1	u	UG/L	19.1	1.0
		Barium, Total	3.0	u	UG/L	3.0	1.0
		Beryllium, Total	0.60	u	UG/L	0.60	1.0
		Calcium, Total	32.7		UG/L	15.4	1.0
		Cadmium, Total	3.4	u	UG/L	3.4	1.0
		Cobalt, Total	5.6	u	UG/L	5.6	1.0
		Chromium, Total	4.9	u	UG/L	4.9	1.0
		Copper, Total	2.6	u	UG/L	2.6	1.0
		Iron, Total	3.8	u	UG/L	3.8	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	58.8		UG/L	22.9	1.0
		Nickel, Total	12.5	u	UG/L	12.5	1.0
		Antimony, Total	17.0	u	UG/L	17.0	1.0
		Strontium, Total	5.5	u	UG/L	5.5	1.0
		Vanadium, Total	4.8	u	UG/L	4.8	1.0
		Zinc, Total	2.7	u	UG/L	2.7	1.0

Recra LabNet - Lionville

INORGANICS ACCURACY REPORT 01/17/01

CLIENT: TNUHANFORD C01-008 H1177 RECRA LOT #: 0012L565

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-001	B10LP8 (F)	Silver, Total	46.5	2.5 u	50.0	93.0	1.0
		Aluminum, Total	2020	122	2000	95.1	1.0
		Barium, Total	1800	3.0 u	2000	90.0	1.0
		Beryllium, Total	46.5	0.60u	50.0	93.0	1.0
		Calcium, Total	25500	43.8	25000	101.6	1.0
		Cadmium, Total	48.5	3.4 u	50.0	97.0	1.0
		Cobalt, Total	493	5.6 u	500	98.6	1.0
		Chromium, Total	197	4.9 u	200	98.4	1.0
		Copper, Total	228	2.6 u	250	91.2	1.0
		Iron, Total	1050	64.9	1000	98.2	1.0
		Potassium, Total	23300	303 u	25000	93.3	1.0
		Magnesium, Total	24200	27.9	25000	96.5	1.0
		Manganese, Total	486	2.3 u	500	97.1	1.0
		Sodium, Total	23200	368	25000	91.5	1.0
		Nickel, Total	500	12.5 u	500	99.9	1.0
		Antimony, Total	508	17.0 u	500	101.5	1.0
		Strontium, Total	992	5.5 u	1000	99.2	1.0
		Vanadium, Total	468	4.8 u	500	93.7	1.0
		Zinc, Total	488	3.6	500	97.0	1.0

Recra LabNet - Lionville

INORGANICS PRECISION REPORT 01/17/01

CLIENT: TNUHANFORD C01-008 H1177

RECRA LOT #: 0012L565

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-001REP	B10LP8 (F)	Silver, Total	2.5 u	2.5 u	NC	1.0
		Aluminum, Total	122	19.1 u	NC 200	1.0
		Barium, Total	3.0 u	3.0 u	NC	1.0
		Beryllium, Total	0.60u	0.60u	NC	1.0
		Calcium, Total	43.8	21.9	66.7	1.0
		Cadmium, Total	3.4 u	3.4 u	NC	1.0
		Cobalt, Total	5.6 u	5.6 u	NC	1.0
		Chromium, Total	4.9 u	4.9 u	NC	1.0
		Copper, Total	2.6 u	2.6 u	NC	1.0
		Iron, Total	64.9	6.1	165.6	1.0
		Potassium, Total	303 u	303 u	NC	1.0
		Magnesium, Total	27.9	27.4 u	NC 200	1.0
		Manganese, Total	2.3 u	2.3 u	NC	1.0
		Sodium, Total	368	89.8	121.5	1.0
		Nickel, Total	12.5 u	12.5 u	NC	1.0
		Antimony, Total	17.0 u	20.1	NC 200	1.0
		Strontium, Total	5.5 u	5.5 u	NC	1.0
		Vanadium, Total	4.8 u	4.8 u	NC	1.0
		Zinc, Total	3.6	2.7 u	NC 200	1.0

MP 1/17/01

Recra LabNet - Lionville

INORGANICS LABORATORY CONTROL STANDARDS REPORT 01/17/01

CLIENT: TNUHANFORD C01-008 H1177 RECRA LOT #: 0012L565

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
LCS1	99L1846-LC1	Silver, LCS	487	500	UG/L	97.4
		Aluminum, LCS	5030	5000	UG/L	100.6
		Barium, LCS	4950	5000	UG/L	99.1
		Beryllium, LCS	246	250	UG/L	98.4
		Calcium, LCS	24800	25000	UG/L	99.4
		Cadmium, LCS	236	250	UG/L	94.2
		Cobalt, LCS	2490	2500	UG/L	99.8
		Chromium, LCS	497	500	UG/L	99.4
		Copper, LCS	1240	1250	UG/L	98.8
		Iron, LCS	5010	5000	UG/L	100.3
		Potassium, LCS	24700	25000	UG/L	98.8
		Magnesium, LCS	24700	25000	UG/L	98.6
		Manganese, LCS	742	750	UG/L	98.9
		Sodium, LCS	24900	25000	UG/L	99.7
		Nickel, LCS	1990	2000	UG/L	99.5
		Antimony, LCS	2990	3000	UG/L	99.6
		Strontium, LCS	5040	5000	UG/L	100.7
		Vanadium, LCS	2500	2500	UG/L	99.9
		Zinc, LCS	981	1000	UG/L	98.1

RECRA LabNet Use Only: 0012L565

Custody Transfer Record/Lab Work Request

Page 1 of 2

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

RECRA LabNet

Client: TNU-Hanford C01-008
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: 12-13-00 Date Due: 1-12-01
Account #:

		A	B
Refrigerator #		L6	L6
#/Type Container	Liquid	1P	1P
	Solid		
Volume	Liquid	500	500
	Solid		
Preservatives		HNO3	-
ANALYSES REQUESTED	ORGANIC: VOA		
	ORGANIC: BNA		
	ORGANIC: Pest/PCB		
	ORGANIC: Herb		
	INORG: Metal		
	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
001	B10LP8 (F)			W	12-6-00	0730
002	P9					⊥
003	P10 (F)					0848
004	P7					⊥
005	B2 (F)					0929
006	B3					⊥
007	B0 (F)					⊥
008	B1					⊥
009	D0 (F)					1037
010	D1					⊥

Special Instructions: Saf C01-008

Run Matrix QC

DATE/REVISIONS:
Met (1) 1. Al, Ag, Ba, Be, Ca, Cd, Cr, Co, Cu, Fe, K, Mg,
⊥ 2. Mn, Ni, Na, Sb, Sr, V, Zn
IC (1) 3. Br, Cl, F, NO2, NO3, PO4, SO4
4.
5.
6.

RECRA LabNet Use Only

Samples were: 1) Shipped ✓ or Hand Delivered
Airbill # Scribbled
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

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. 4.1 °C

Discrepancies Between Samples Labels and COC Record? Y or (N)
NOTES: 8214 8983 1875

Relinquished by	Received by	Date	Time
FedEx	TKappel	12-13-00	1000

Relinquished by	Received by	Date	Time
COMPOSITE WASTE	ORIGINAL REWRITTEN		

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RECRA LabNet Use Only

0012L565

Custody Transfer Record/Lab Work Request

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

RECRA LabNet

Client: Tru - Hanford C01-008

Est. Final Proj. Sampling Date:

Project #:

Project Contact/Phone #: See

RECRA Project Manager:

QC: Del TAT

Date Rec'd: Date Due:

Account #:

		A	B
Refrigerator #		6	6
#/Type Container	Liquid	1P	1P
	Solid		
Volume	Liquid	500	500
	Solid		
Preservatives		HNO3	-
ANALYSES REQUESTED → ORGANIC: VOA			
ORGANIC: BNA			
ORGANIC: Pest/PCB			
ORGANIC: Herb			
INORG: Metal		Mg(1)	Ca(1)
INORG: CN			

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	RECRA LabNet Use Only A	RECRA LabNet Use Only B
011	B101D2 (F)			W	12/6/00	1139	✓	✓
012	↓ D3			↓	↓	↓	✓	✓

Special Instructions:

DATE/REVISIONS:

1.
2.
3.
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

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'd Y or N

Cooler Temp. ___ °C

Discrepancies Between Samples Labels and COC Record? Y or N
NOTES:

Relinquished by	Received by	Date	Time
FedEx	TKroppel	12/13/00	1000

Relinquished by	Received by	Date	Time

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PNNL

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

CHEM SDG H1177

C.O.C. # C01-008-9

Page 1 of 1

Collector D.P. CONNOLLY	Contact/Requester JH KESSNER	Telephone No. (509) 375-4688 MSIN FAX
SAF No. C01-008	Sampling Origin HANFORD SITE	Purchase Order/Charge Code
Project Title 100HR3 IAM (1&2) GW MONITORING, NOVEMBER, 2000	Logbook No. WM-54WS-H39	Ice Chest No. 2MC161 2MC461 Temp.
Shipped To (Lab) TMA/RECRA	Method of Shipment GOVT. VEHICLE	Bill of Lading/Air Bill No. 4235 7954 1199
Protocol CERCLA	Data Turnaround 45 Days	Offsite Property No. 06383

POSSIBLE SAMPLE HAZARDS/REMARKS
** **

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

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B10LP8 (F)		W	12-6-00	0730	1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
B10LP9		W			1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
B10LP9		W			1x500-mL P	IC Anions - 300.0	Cool 4C
B10LP9		W			1x20-mL P	Activity Scan	None
B10LP9		W			2x1000-mL G/P	Gross Alpha	HNO3 to pH <2
B10LP9		W			2x1000-mL G/P	Gross Beta	HNO3 to pH <2
B10LP9		W			1x250-mL P	Tritium - H3	None

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
D.P. CONNOLLY			12/7/00 8:00	Fed Ex			12-07-00
FED. EXPRESS			12-08-00 10 AM	E. SEGURO		E Segura	12-08-00 10 AM
J.R. Corso	J.R. Corso		12-12-00 16:00	Fed Ex			12-12-00
Fed Ex			12-13-00 1000	T Keppel			12-13-00 1000

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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PNNL

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

CHEM SDG H1177

C01-008-8

Collector: D. R. BREWINGTON	Contact/Requester: JH KESSNER	Telephone No.: (509) 375-4688 MSIN FAX
SAF No.: C01-008	Sampling Origin: HANFORD SITE	Purchase Order/Charge Code
Project Title: 100HR3 IAM (1&2) GW MONITORING, NOVEMBER, 2000	Logbook No.: WM-54WS-H39	Ice Chest No.: SHL-533 Temp.
Shipped To (Lab): TMA/RECRA	Method of Shipment: GOVT. VEHICLE	Bill of Lading/Air Bill No.: 4235 7954 1209
Protocol: CERCLA	Data Turnaround: 45 Days	Offsite Property No.: 06383

POSSIBLE SAMPLE HAZARDS/REMARKS
** **

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

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B10LP8 (F)		W	12-6-00	0848	1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
B10LP7		W			1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
B10LP7		W			1x500-mL P	IC Anions - 300.0	Cool 4C
B10LP7		W			1x20-mL P	Activity Scan	None
B10LP7		W			2x1000-mL G/P	Gross Alpha	HNO3 to pH <2
B10LP7		W			2x1000-mL G/P	Gross Beta	HNO3 to pH <2
B10LP7		W			1x250-mL P	Tritium - H3	None

Relinquished By (Print / Sign)	Date/Time	Received By (Print / Sign)	Date/Time
D. R. BREWINGTON D.R. Brewington	12/7/00 1300	FEDERAL EXPRESS	12-07-00
FED EXPRESS	12-08-00 10:00	E. SEGURO	12-08-00 18:00
J.R. Corso J.R. Corso	12-12-00 16:00	Fed Ex	12-12-00
Fed Ex	12-13-00 1000	Tippel	12-13-00 1000

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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PNNL

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

CHEM SOG H1177

C.O.C.# C01-008-7

Page 1 of 1

Collector: D. R. BREWINGTON	Contact/Requester: JH KESSNER	Telephone No.: (509) 375-4688 MSIN FAX
SAF No.: C01-008	Sampling Origin: HANFORD SITE	Purchase Order/Charge Code
Project Title: 100HR3 IAM (1&2) GW MONITORING, NOVEMBER, 2000	Logbook No.: WM-SAWS-H39	Ice Chest No.: 3006-161 Temp.
Shipped To (Lab): TMA/RECRA	Method of Shipment: GOVT. VEHICLE	Bill of Lading/Air Bill No.: 4235 7959 1194
Protocol: CERCLA	Data Turnaround: 45 Days	Offsite Property No.: 06383

POSSIBLE SAMPLE HAZARDS/REMARKS
** **

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

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B10LR2 (F) ✓		W	12-6-00	0929	1x500-mL G/P ✓	ICP Metals - 6010A RCRA GW ✓	HNO3 to pH <2
B10LR3 ✓		W			1x500-mL G/P ✓	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
B10LR3 ✓		W			1x500-mL P ✓	IC Anions - 300.0 ✓	Cool 4C
B10LR3 ✓		W			1x20-mL P ✓	Activity Scan ✓	None
B10LR3 ✓		W			2x1000-mL G/P ✓	Gross Alpha ✓	HNO3 to pH <2
B10LR3 ✓		W			2x1000-mL G/P ✓	Gross Beta ✓	HNO3 to pH <2
B10LR3 ✓		W			1x250-mL P	Tritium - H3 ✓	None

Relinquished By (Print / Sign)	Date/Time	Received By (Print / Sign)	Date/Time
D. R. BREWINGTON D.R. Brewington for	1300 12/7/00	Fred Ey	12-07-00
Fed. EXPRESS	10 AM 12-08-00	E. SEGURO	10 AM 12-08-00
J.R. Corso J.R. Corso	12-12-00 16:00	Fed Ex	12-12-00
Fed Ex	12-13-00 1000	Thappel	12-13-00 1000

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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PNNL

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

CHEM SDG H1177

C.O.C. # C01-008-6

Page 1 of 1

Collector: D. R. BREWINGTON	Contact/Requester: JH KESSNER	Telephone No.: (509) 375-4688 MSIN FAX
SAF No.: C01-008	Sampling Origin: HANFORD SITE	Purchase Order/Charge Code
Project Title: 100HR3 IAM (1&2) GW MONITORING, NOVEMBER 2000	Logbook No.: WM-SAWS-1139	Ice Chest No.: 3MC-161 Temp.
Shipped To (Lab): TMA/RECRA	Method of Shipment: GOVT VEHICLE	Bill of Lading/Air Bill No.: 4235 7954 1194
Protocol: CERCLA	Data Turnaround: 45 Days	Offsite Property No.: 06383

POSSIBLE SAMPLE HAZARDS/REMARKS
** **

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

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B10LR0 (F)		W	12-6-00	0928	1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
B10LR1		W			1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
B10LR1		W			1x500-mL P	IC Anions - 300.0	Cool 4C
B10LR1		W			1x20-mL P	Activity Scan	None
B10LR1		W			2x1000-mL G/P	Gross Alpha	HNO3 to pH <2
B10LR1		W			2x1000-mL G/P	Gross Beta	HNO3 to pH <2
B10LR1		W			1x250-mL P	Tritium - H3	None

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
D. R. BREWINGTON	D. R. Brewington		12/7/00 1300	FedEx			12-07-00
FEDERAL EXPRESS			12-08-00 1040	E. SEGURO		E Segurro	12-08/00 10:04
JR Corso	JR Corso		12-12-00 16:00	Fed Ex			12-12-00
FedEx			12-13-00 1000	T Kappel			12-13-00 1000

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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PNNL

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

CHEM SDG 41177

C.O.C. # C01-008-5

Page 1 of 1

Collector: D.R. BREWINGTON	Contact/Requester: JH KESSNER	Telephone No.: (509) 375-4688 MSIN FAX
SAF No.: C01-008	Sampling Origin: HANFORD SITE	Purchase Order/Charge Code
Project Title: 100HR3 IAM (1&2) GW MONITORING, NOVEMBER, 2000	Logbook No.: WM-SAWS-139	Ice Chest No.: 3MC-533 Temp.: L
Shipped To (Lab): TMA/RECRA	Method of Shipment: GOVT. VEHICLE	Bill of Lading/Air Bill No.: 4235 7954 1209
Protocol: CERCLA	Data Turnaround: 45 Days	Offsite Property No.: 06383

POSSIBLE SAMPLE HAZARDS/REMARKS
** **

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

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B10ED0 (F) ✓		W	12-6-00	1037	1x500-mL G/P ✓	ICP Metals - 6010A RCRA GW ✓	HNO3 to pH <2
B10LD1 ✓		W			1x500-mL G/P ✓	ICP Metals - 6010A RCRA GW ✓	HNO3 to pH <2
B10LD1 ✓		W			1x500-mL P ✓	IC Anions - 300.0 ✓	Cool 4C
B10LD1 ✓		W			1x20-mL P ✓	Activity Scan ✓	None
B10LD1 ✓		W			2x1000-mL G/P ✓	Gross Alpha ✓	HNO3 to pH <2
B10LD1 ✓		W			2x1000-mL G/P ✓	Gross Beta ✓	HNO3 to pH <2
B10LD1 ✓		W			1x250-mL P ✓	Tritium - H3 ✓	None

Relinquished By (Print / Sign)	Date/Time	Received By (Print / Sign)	Date/Time
D. R. BREWINGTON D.R. Brewington	12/7/00 1300	FEDERAL EXPRESS	12-07-00
FEDERAL EXPRESS	12-08-00 10:Am	E. SEGURO	12-08-00 10:Am
J.R. Corso	12-12-00 16:00	Fed Ex	12-12-00
FedEx	12-13-00 1000	Thrppel	12-13-00 1000

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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PNNL

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

CHEM SDG #1177

C.O.C. # C01-008-4

Page 1 of 1

Collector: D.R. BREWINGTON	Contact/Requester: JH KESSNER	Telephone No.: (509) 375-4688 MSIN FAX
SAF No.: C01-008	Sampling Origin: HANFORD SITE	Purchase Order/Charge Code
Project Title: 100HR3 IAM (1&2) GW MONITORING, NOVEMBER, 2000	Logbook No.: WM-SAWS-439	Ice Chest No.: SMC-533 Temp.
Shipped To (Lab): TMA/RECRA	Method of Shipment: GOVT. VEHICLE	Bill of Lading/Air Bill No.: 4235 7954 1209
Protocol: CERCLA	Data Turnaround: 45 Days	Offsite Property No.: 06383

POSSIBLE SAMPLE HAZARDS/REMARKS
** **

SPECIAL INSTRUCTIONS Hold Time
Fax TMA log-in to JH Kessner (372-9487) & DL Stewart (372-1704).

Total Activity Exemption: Yes ☑ No ☐

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B10LD2 (F) ✓		W	12-6-00	1139 ✓	1x500-mL G/P ✓	ICP Metals - 6010A RCRA GW ✓	HNO3 to pH <2
B10LD3 ✓		W			1x500-mL G/P ✓	ICP Metals - 6010A RCRA GW ✓	HNO3 to pH <2
B10LD3 ✓		W			1x500-mL P ✓	IC Anions - 300.0 ✓	Cool 4C
B10LD3 ✓		W			1x20-mL P ✓	Activity Scan ✓	None
B10LD3 ✓		W			2x1000-mL G/P ✓	Gross Alpha ✓	HNO3 to pH <2
B10LD3 ✓		W			2x1000-mL G/P ✓	Gross Beta ✓	HNO3 to pH <2
B10LD3 ✓		W			1x250-mL P	Tritium - H3 ✓	None

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
D. R. BREWINGTON		D.R. Brewington	12/7/00 1300	FEDERAL EXPRESS			12-07-00
FEDERAL EXPRESS			12-08-00 10AM	E. SEGURO		E. Segura	12-08-00 10AM
J R Corso		J R Corso	12-12-00 16:20	Fed Ex			12-12-00
FedEx			12-13-00 1000	Thippel			12-13-00 1000

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

1.0 GENERAL

Bechtel Hanford Inc. (BHI) Sample Delivery Group H1177 was composed of six water samples designated under SAF No. C01-008 with a Project Designation of: 100HR3 IAM (1 & 2) GW Monitoring, November 2000.

The samples were received as stated on the Chain-of-Custody documents. Any discrepancies are noted on the Eberline Services Sample Receipt Checklist.

2.0 ANALYSIS NOTES

2.1 Gross Alpha and Gross Beta Analyses

No problems were encountered during the course of the analyses.

2.2 Tritium Analyses

No problems were encountered during the course of the analyses.

Case Narrative Certification Statement

"I certify that this data package is in compliance with the SOW, both technically and for completeness, for other than the conditions detailed above. Release of the data obtained in this hard copy data package has been authorized by the Laboratory Manager or a designee, as verified by the following signature."

Melissa Mannion
Melissa C. Mannion
Program Manager

1/24/01
Date

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1177

SAMPLE SUMMARY

SDG 7592
Contact Melissa C. Mannion

Client Hanford
Contract TRC-SBB-207925
Case no SDG H1177

CLIENT SAMPLE ID	LOCATION	MATRIX	LEVEL	LAB SAMPLE ID	SAF NO	CHAIN OF CUSTODY	COLLECTED
B10LD1	Hanford Site	WATER		R012050-01	C01-008	C01-008-5	12/06/00 10:37
B10LD3	Hanford Site	WATER		R012050-02	C01-008	C01-008-4	12/06/00 11:39
B10LP7	Hanford Site	WATER		R012050-03	C01-008	C01-008-8	12/06/00 08:48
B10LP9	Hanford Site	WATER		R012050-04	C01-008	C01-008-9	12/06/00 07:30
B10LR1	Hanford Site	WATER		R012050-05	C01-008	C01-008-6	12/06/00 09:29
B10LR3	Hanford Site	WATER		R012050-06	C01-008	C01-008-7	12/06/00 09:29
Method Blank		WATER		R012050-08	C01-008		
Lab Control Sample		WATER		R012050-07	C01-008		
Duplicate (R012050-01)	Hanford Site	WATER		R012050-09	C01-008		12/06/00 10:37
Spike (R012050-01)	Hanford Site	WATER		R012050-10	C01-008		12/06/00 10:37

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CS
Version 3.06
Report date 01/24/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1177

QC SUMMARY

SDG 7592
Contact Melissa C. Mannion

Client Hanford
Contract TRC-SBB-207925
Case no SDG H1177

QC BATCH	CHAIN OF CUSTODY	CLIENT SAMPLE ID	MATRIX	% SOLIDS	SAMPLE AMOUNT	BASIS AMOUNT	DAYS SINCE RECEIVED	DAYS SINCE COLL	LAB SAMPLE ID	DEPARTMENT SAMPLE ID
7592	C01-008-4	B10LD3	WATER				12/08/00	2	R012050-02	7592-002
	C01-008-5	B10LD1	WATER				12/08/00	2	R012050-01	7592-001
	C01-008-6	B10LR1	WATER				12/08/00	2	R012050-05	7592-005
	C01-008-7	B10LR3	WATER				12/08/00	2	R012050-06	7592-006
	C01-008-8	B10LP7	WATER				12/08/00	2	R012050-03	7592-003
	C01-008-9	B10LP9	WATER				12/08/00	2	R012050-04	7592-004
		Method Blank	WATER						R012050-08	7592-008
		Lab Control Sample	WATER						R012050-07	7592-007
		Duplicate (R012050-01)	WATER				12/08/00	2	R012050-09	7592-009
		Spike (R012050-01)	WATER				12/08/00	2	R012050-10	7592-010

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-QS
Version 3.06
Report date 01/24/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1177

SDG 7592
Contact Melissa C. Mannion

PREP BATCH SUMMARY

Client Hanford
Contract TRC-SBB-207925
Case no SDG H1177

TEST	MATRIX	METHOD	PREPARATION BATCH	ERROR 2σ %	PLANCHETS ANALYZED CLIENT	MORE	RE	BLANK	LCS	DUP/ORIG	MS/ORIG	QUALIFIERS
Gas Proportional Counting												
82B	WATER	Gross Beta in Water	6962-202	15.0	6			1	1	1/1		
88A	WATER	Gross Alpha in Water	6962-202	20.0	6			1	1	1/1		
Liquid Scintillation Counting												
H	WATER	Tritium in Water	6962-202	10.0	6			1	1	1/1	1/1	

Duplicates and Matrix Spikes are those with original (Client) sample in this Sample Delivery Group.
Blank and LCS planchets are those in the same preparation batch as some Client, Duplicate or Spike sample.

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-PBS
Version 3.06
Report date 01/24/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1177

WORK SUMMARY

SDG 7592
Contact Melissa C. Mannion

Client Hanford
Contract TRC-SBB-207925
Case no SDG H1177

CLIENT SAMPLE ID / LOCATION / CUSTODY	SAF No	MATRIX	LAB SAMPLE ID / COLLECTED / RECEIVED	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
B10LD1			R012050-01	7592-001	82B/82		01/19/01	01/24/01	MCM	Gross Beta in Water
Hanford Site		WATER	12/06/00	7592-001	88A/88		01/23/01	01/24/01	MCM	Gross Alpha in Water
C01-008-5	C01-008		12/08/00	7592-001	H		01/04/01	01/24/01	MCM	Tritium in Water
B10LD3			R012050-02	7592-002	82B/82		01/19/01	01/24/01	MCM	Gross Beta in Water
Hanford Site		WATER	12/06/00	7592-002	88A/88		01/23/01	01/24/01	MCM	Gross Alpha in Water
C01-008-4	C01-008		12/08/00	7592-002	H		01/04/01	01/24/01	MCM	Tritium in Water
B10LP7			R012050-03	7592-003	82B/82		01/19/01	01/24/01	MCM	Gross Beta in Water
Hanford Site		WATER	12/06/00	7592-003	88A/88		01/16/01	01/24/01	MCM	Gross Alpha in Water
C01-008-8	C01-008		12/08/00	7592-003	H		01/04/01	01/24/01	MCM	Tritium in Water
B10LP9			R012050-04	7592-004	82B/82		01/19/01	01/24/01	MCM	Gross Beta in Water
Hanford Site		WATER	12/06/00	7592-004	88A/88		01/16/01	01/24/01	MCM	Gross Alpha in Water
C01-008-9	C01-008		12/08/00	7592-004	H		01/05/01	01/24/01	MCM	Tritium in Water
B10LR1			R012050-05	7592-005	82B/82		01/22/01	01/24/01	MCM	Gross Beta in Water
Hanford Site		WATER	12/06/00	7592-005	88A/88		01/16/01	01/24/01	MCM	Gross Alpha in Water
C01-008-6	C01-008		12/08/00	7592-005	H		01/05/01	01/24/01	MCM	Tritium in Water
B10LR3			R012050-06	7592-006	82B/82		01/22/01	01/24/01	MCM	Gross Beta in Water
Hanford Site		WATER	12/06/00	7592-006	88A/88		01/23/01	01/24/01	MCM	Gross Alpha in Water
C01-008-7	C01-008		12/08/00	7592-006	H		01/05/01	01/24/01	MCM	Tritium in Water
Method Blank			R012050-08	7592-008	82B/82		01/22/01	01/24/01	MCM	Gross Beta in Water
		WATER		7592-008	88A/88		01/23/01	01/24/01	MCM	Gross Alpha in Water
	C01-008			7592-008	H		01/05/01	01/24/01	MCM	Tritium in Water
Lab Control Sample			R012050-07	7592-007	82B/82		01/22/01	01/24/01	MCM	Gross Beta in Water
		WATER		7592-007	88A/88		01/23/01	01/24/01	MCM	Gross Alpha in Water
	C01-008			7592-007	H		01/05/01	01/24/01	MCM	Tritium in Water
Duplicate (R012050-01)			R012050-09	7592-009	82B/82		01/22/01	01/24/01	MCM	Gross Beta in Water
Hanford Site		WATER	12/06/00	7592-009	88A/88		01/23/01	01/24/01	MCM	Gross Alpha in Water
	C01-008		12/08/00	7592-009	H		01/05/01	01/24/01	MCM	Tritium in Water
Spike (R012050-01)			R012050-10	7592-010	H		01/05/01	01/24/01	MCM	Tritium in Water
Hanford Site		WATER	12/06/00							
	C01-008		12/08/00							

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CWS
Version 3.06
Report date 01/24/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1177

SDG 7592
Contact Melissa C. Mannion

WORK SUMMARY, cont.

Client Hanford
Contract TRC-SBB-207925
Case no SDG H1177

COUNTS OF TESTS BY SAMPLE TYPE

TEST	SAF No	METHOD	REFERENCE	CLIENT	MORE	RE	BLANK	LCS	DUP	SPIKE	TOTAL
82B/82	C01-008	Gross Beta in Water	900.0_ALPHABETA_GPC	6			1	1	1		9
88A/88	C01-008	Gross Alpha in Water	900.0_ALPHABETA_GPC	6			1	1	1		9
H	C01-008	Tritium in Water	906.0_H3_LSC	6			1	1	1	1	10
TOTALS				18			3	3	3	1	28

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CWS
Version 3.06
Report date 01/24/01

TMA / RICHMOND

SAMPLE DELIVERY GROUP H1177

R012050-08 **Method Blank**

METHOD BLANK

SDG	7592	Client/Case no	Hanford	SDG H1177	
Contact	Melissa C. Mannion	Contract	TRC-SBB-207925		
Lab sample id	R012050-08	Client sample id	Method Blank		
Dept sample id	7592-008	Material/Matrix		WATER	
		SAF No	C01-008		

ANALYTE	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST
Gross Alpha	12587-46-1	0.271	0.63	1.2	3.0	U	88A
Gross Beta	12587-47-2	-0.647	1.0	1.8	4.0	U	82B
Tritium	10028-17-8	20.9	240	400	400	U	H

100HR3 IAM (1&2) GW Mon.-Nov. 2000

QC-BLANK 37116

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	01/24/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1177

R012050-07

Lab Control Sample

LAB CONTROL SAMPLE

SDG 7592
Contact Melissa C. Mannion

Client/Case no Hanford SDG H1177
Case no TRC-SBB-207925

Lab sample id R012050-07
Dept sample id 7592-007

Client sample id Lab Control Sample
Material/Matrix WATER
SAF No C01-008

ANALYTE	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST	ADDED pCi/L	2σ ERR pCi/L	REC %	3σ LMTS (TOTAL)	PROTOCOL LIMITS
Gross Alpha	69.1	4.9	1.1	3.0		88A	71.7	2.9	96	69-131	70-130
Gross Beta	84.2	3.7	1.8	4.0		82B	80.7	3.2	104	75-125	70-130
Tritium	9070	450	390	400		H	9900	400	92	84-116	80-120

100HR3 IAM (1&2) GW Mon.-Nov. 2000

QC-LCS 37115

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-LCS
Version 3.06
Report date 01/24/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1177

R012050-09 B10LD1

DUPLICATE

SDG 7592		Client/Case no Hanford	SDG H1177
Contact Melissa C. Mannion		Case no TRC-SBB-207925	
DUPLICATE	ORIGINAL		
Lab sample id R012050-09	Lab sample id R012050-01	Client sample id B10LD1	
Dept sample id 7592-009	Dept sample id 7592-001	Location/Matrix Hanford Site	WATER
	Received 12/08/00	Collected 12/06/00 10:37	
		Custody/SAF No C01-008-5	C01-008

ANALYTE	DUPLICATE pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST	ORIGINAL pCi/L	2σ ERR (COUNT)	MDA pCi/L	QUALI-FIERS	RPD %	3σ PROT TOT LIMIT
Gross Alpha	1.72	1.4	2.0	3.0	U	88A	0.144	1.3	2.3	U	-	
Gross Beta	6.56	1.8	2.5	4.0		82B	6.23	1.5	2.0		5	63
Tritium	649	140	200	400		H	596	140	200		9	52

100HR3 IAM (1&2) GW Mon.-Nov. 2000

QC-DUP#1 37117

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-DUP
Version 3.06
Report date 01/24/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1177

R012050-10

B10LD1

MATRIX SPIKE

SDG 7592
Contact Melissa C. Mannion

MATRIX SPIKE
Lab sample id R012050-10
Dept sample id 7592-010

ORIGINAL
Lab sample id R012050-01
Dept sample id 7592-001
Received 12/08/00

Client/Case no Hanford SDG H1177
Case no TRC-SBB-207925

Client sample id B10LD1
Location/Matrix Hanford Site WATER
Collected 12/06/00 10:37
Custody/SAF No C01-008-5 C01-008

ANALYTE	SPIKE pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST	ADDED pCi/L	2σ ERR pCi/L	ORIGINAL pCi/L	2σ ERR (COUNT)	REC %	3σ LMTS (TOTAL)	PROTOCOL LIMITS
Tritium	19800	450	220	400		H	20800	830	596	140	92	84-116	60-140

100HR3 IAM (1&2) GW Mon.-Nov. 2000

QC-MS#1 37118

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-MS
Version 3.06
Report date 01/24/01

TMA / RICHMOND

SAMPLE DELIVERY GROUP H1177

R012050-01 B10LD1

DATA SHEET

SDG	7592	Client/Case no	Hanford	SDG_H1177	
Contact	Melissa C. Mannion	Contract	TRC-SBB-207925		
Lab sample id	R012050-01	Client sample id	B10LD1		
Dept sample id	7592-001	Location/Matrix	Hanford Site	WATER	
Received	12/08/00	Collected	12/06/00 10:37		
		Custody/SAF No	C01-008-5	C01-008	

ANALYTE	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST
Gross Alpha	12587-46-1	0.144	1.3	2.3	3.0	U	88A
Gross Beta	12587-47-2	6.23	1.5	2.0	4.0		82B
Tritium	10028-17-8	596	140	200	400		H

100HR3 IAM (1&2) GW Mon.-Nov. 2000

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	01/24/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1177

R012050-02 B10LD3

DATA SHEET

SDG	7592	Client/Case no	Hanford SDG H1177
Contact	Melissa C. Mannion	Contract	TRC-SBB-207925
Lab sample id	R012050-02	Client sample id	B10LD3
Dept sample id	7592-002	Location/Matrix	Hanford Site WATER
Received	12/08/00	Collected	12/06/00 11:39
		Custody/SAF No	C01-008-4 C01-008

ANALYTE	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST
Gross Alpha	12587-46-1	0.076	0.71	1.4	3.0	U	88A
Gross Beta	12587-47-2	4.58	1.4	1.9	4.0		82B
Tritium	10028-17-8	22.4	120	200	400	U	H

100HR3 IAM (1&2) GW Mon.-Nov. 2000

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	01/24/01

TMA / RICHMOND

SAMPLE DELIVERY GROUP H1177

R012050-03 B10LP7

DATA SHEET

SDG	7592	Client/Case no	Hanford	SDG H1177	
Contact	Melissa C. Mannion	Contract	TRC-SBB-207925		
Lab sample id	R012050-03	Client sample id	B10LP7		
Dept sample id	7592-003	Location/Matrix	Hanford Site	WATER	
Received	12/08/00	Collected	12/06/00 08:48		
		Custody/SAF No	C01-008-8	C01-008	

ANALYTE	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST
Gross Alpha	12587-46-1	0.020	1.2	2.3	3.0	U	88A
Gross Beta	12587-47-2	4.73	1.8	2.6	4.0		82B
Tritium	10028-17-8	18600	410	200	400		H

100HR3 IAM (1&2) GW Mon.-Nov. 2000

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	01/24/01

TMA / RICHMOND

SAMPLE DELIVERY GROUP H1177

R012050-04 B10LP9

DATA SHEET

SDG	7592	Client/Case no	Hanford SDG H1177
Contact	Melissa C. Mannion	Contract	TRC-SBB-207925
Lab sample id	R012050-04	Client sample id	B10LP9
Dept sample id	7592-004	Location/Matrix	Hanford Site WATER
Received	12/08/00	Collected	12/06/00 07:30
		Custody/SAF No	C01-008-9 C01-008

ANALYTE	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST
Gross Alpha	12587-46-1	-0.215	0.42	0.98	3.0	U	88A
Gross Beta	12587-47-2	0.071	1.0	1.8	4.0	U	82B
Tritium	10028-17-8	148	120	200	400	U	H

100HR3 IAM (1&2) GW Mon.-Nov. 2000

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	01/24/01

TMA / RICHMOND

SAMPLE DELIVERY GROUP H1177

R012050-05 B10LR1

DATA SHEET

SDG	7592	Client/Case no	Hanford	SDG H1177	
Contact	Melissa C. Mannion	Contract	TRC-SBB-207925		
Lab sample id	R012050-05	Client sample id	B10LR1		
Dept sample id	7592-005	Location/Matrix	Hanford Site	WATER	
Received	12/08/00	Collected	12/06/00 09:29		
		Custody/SAF No	C01-008-6	C01-008	

ANALYTE	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST
Gross Alpha	12587-46-1	0.212	1.1	2.1	3.0	U	88A
Gross Beta	12587-47-2	4.35	1.4	1.9	4.0		82B
Tritium	10028-17-8	18200	410	210	400		H

100HR3 IAM (1&2) GW Mon.-Nov. 2000

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	01/24/01

TMA / RICHMOND

SAMPLE DELIVERY GROUP H1177

R012050-06 B10LR3

DATA SHEET

SDG	7592	Client/Case no	Hanford	SDG H1177	
Contact	Melissa C. Mannion	Contract	TRC-SBB-207925		
Lab sample id	R012050-06	Client sample id	B10LR3		
Dept sample id	7592-006	Location/Matrix	Hanford Site	WATER	
Received	12/08/00	Collected	12/06/00 09:29		
		Custody/SAF No	C01-008-7	C01-008	

ANALYTE	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST
Gross Alpha	12587-46-1	0.948	1.1	1.6	3.0	U	88A
Gross Beta	12587-47-2	4.50	1.7	2.5	4.0		82B
Tritium	10028-17-8	17900	410	210	400		H

100HR3 IAM (1&2) GW Mon.-Nov. 2000

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	01/24/01

Test 82B Matrix WATER
SDG 7592
Contact Melissa C. Mannion

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1177

METHOD SUMMARY

GROSS BETA IN WATER
GAS PROPORTIONAL COUNTING

Client Hanford
Contract TRC-SBB-207925
Contract SDG H1177

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	1: Gross Beta	2: Sum, Beta Emitters	RESULT RATIO (%) 2÷1	2σ
Preparation batch 6962-202								
B10LD1	R012050-01	82		7592-001	6.23			
B10LD3	R012050-02	82		7592-002	4.58			
B10LP7	R012050-03	82		7592-003	4.73			
B10LP9	R012050-04	82		7592-004	U			
B10LR1	R012050-05	82		7592-005	4.35			
B10LR3	R012050-06	82		7592-006	4.50			
BLK (QC ID=37116)	R012050-08	82		7592-008	U			
LCS (QC ID=37115)	R012050-07	82		7592-007	ok			
Duplicate (R012050-01)	R012050-09	82		7592-009	ok			
Nominal values and limits from method				RDLs (pCi/L)	4.0			
100HR3 IAM (1&2) GW Mon.-Nov. 2000						Average		

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MDA pCi/L	ALIQ L	PREP FAC	DILU-TION	RESID mg	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 6962-202	2σ prep error 15.0 % Reference Lab Notebook 6962 pg. 202															
B10LD1	R012050-01	82		2.0	0.300			122		100			44	01/02/01	01/19	GRB-107
B10LD3	R012050-02	82		1.9	0.300			80		100			44	01/02/01	01/19	GRB-105
B10LP7	R012050-03	82		2.6	0.300			146		100			44	01/02/01	01/19	GRB-106
B10LP9	R012050-04	82		1.8	0.300			0		100			44	01/02/01	01/19	GRB-107
B10LR1	R012050-05	82		1.9	0.300			103		100			47	01/02/01	01/22	GRB-105
B10LR3	R012050-06	82		2.5	0.300			106		100			47	01/02/01	01/22	GRB-106
BLK (QC ID=37116)	R012050-08	82		1.8	0.300			24		100				01/02/01	01/22	GRB-105
LCS (QC ID=37115)	R012050-07	82		1.8	0.300			25		100				01/02/01	01/22	GRB-107
Duplicate (R012050-01) (QC ID=37117)	R012050-09	82		2.5	0.300			118		100			47	01/02/01	01/22	GRB-106
Nominal values and limits from method				4.0	0.300			5-250		100			180			

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 01/24/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1177

METHOD SUMMARY, cont.

GROSS BETA IN WATER

GAS PROPORTIONAL COUNTING

Test 82B	Matrix WATER
SDG 7592	
Contact Melissa C. Mannion	

Client Hanford	
Contract TRC-SBB-207925	
Contract SDG H1177	

PROCEDURES	REFERENCE	900.0_ALPHABETA_GPC
	CP-120	Gross Alpha and Gross Beta in Water, rev 3

AVERAGES ± 2 SD	MDA	2.1	±	0.68
FOR 9 SAMPLES	RESIDUE	80	±	103

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-CMS
Version	3.06
Report date	01/24/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1177

METHOD SUMMARY

GROSS ALPHA IN WATER

GAS PROPORTIONAL COUNTING

Test 88A Matrix WATER
SDG 7592
Contact Melissa C. Mannion

Client Hanford
Contract TRC-SBB-207925
Contract SDG H1177

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Gross Alpha	
Preparation batch 6962-202						
B10LD1	R012050-01	88		7592-001	U	
B10LD3	R012050-02	88		7592-002	U	
B10LP7	R012050-03	88		7592-003	U	
B10LP9	R012050-04	88		7592-004	U	
B10LR1	R012050-05	88		7592-005	U	
B10LR3	R012050-06	88		7592-006	U	
BLK (QC ID=37116)	R012050-08	88		7592-008	U	
LCS (QC ID=37115)	R012050-07	88		7592-007	ok	
Duplicate (R012050-01)	R012050-09	88		7592-009	-	U
Nominal values and limits from method 100HR3 IAM (1&2) GW Mon.-Nov. 2000				RDLs (pCi/L)	3.0	

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MDA pCi/L	ALIQ L	PREP FAC	DILU-TION	RESID mg	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 6962-202	2σ prep error 20.0 %				Reference Lab Notebook 6962 pg. 202											
B10LD1	R012050-01	88		2.3	0.300			130		100			48	01/03/01	01/23	GRB-106
B10LD3	R012050-02	88		1.4	0.300			85		100			48	01/03/01	01/23	GRB-107
B10LP7	R012050-03	88		2.3	0.300			124		100			41	01/03/01	01/16	GRB-107
B10LP9	R012050-04	88		0.98	0.300			1		100			41	01/03/01	01/16	GRB-114
B10LR1	R012050-05	88		2.1	0.300			90		100			41	01/03/01	01/16	GRB-115
B10LR3	R012050-06	88		1.6	0.300			92		100			48	01/03/01	01/23	GRB-108
BLK (QC ID=37116)	R012050-08	88		1.2	0.300			22		100				01/03/01	01/23	GRB-111
LCS (QC ID=37115)	R012050-07	88		1.1	0.300			26		100				01/03/01	01/23	GRB-110
Duplicate (R012050-01) (QC ID=37117)	R012050-09	88		2.0	0.300			117		100			48	01/03/01	01/23	GRB-112
Nominal values and limits from method				3.0	0.300			5-250		100			180			

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 01/24/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1177

Test 88A	Matrix WATER
SDG 7592	
Contact Melissa C. Mannion	

METHOD SUMMARY, cont.

GROSS ALPHA IN WATER

GAS PROPORTIONAL COUNTING

Client Hanford	
Contract TRC-SBB-207925	
Contract SDG H1177	

PROCEDURES	REFERENCE	900.0_ALPHABETA_GPC
	CP-120	Gross Alpha and Gross Beta in Water, rev 3

AVERAGES ± 2 SD	MDA	1.7	±	1.0
FOR 9 SAMPLES	RESIDUE	76	±	96

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-CMS
Version	3.06
Report date	01/24/01

Test H Matrix WATER
SDG 7592
Contact Melissa C. Mannion

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1177

METHOD SUMMARY

TRITIUM IN WATER
LIQUID SCINTILLATION COUNTING

Client Hanford
Contract TRC-SBB-207925
Contract SDG H1177

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Tritium
Preparation batch 6962-202					
B10LD1	R012050-01			7592-001	596
B10LD3	R012050-02			7592-002	U
B10LP7	R012050-03			7592-003	18600
B10LP9	R012050-04			7592-004	U
B10LR1	R012050-05			7592-005	18200
B10LR3	R012050-06			7592-006	17900
BLK (QC ID=37116)	R012050-08			7592-008	U
LCS (QC ID=37115)	R012050-07			7592-007	ok
Duplicate (R012050-01)	R012050-09			7592-009	ok
Spike (R012050-01)	R012050-10			7592-010	ok
Nominal values and limits from method				RDLs (pCi/L)	400

100HR3 IAM (1&2) GW Mon.-Nov. 2000

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MDA pCi/L	ALIQ L	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 6962-202	2σ prep error 10.0 % Reference Lab Notebook 6962 pg. 202															
B10LD1	R012050-01			200	0.0500			20		100			29	01/04/01	01/04	LSC-006
B10LD3	R012050-02			200	0.0500			20		100			29	01/04/01	01/04	LSC-006
B10LP7	R012050-03			200	0.0500			20		100			29	01/04/01	01/04	LSC-006
B10LP9	R012050-04			200	0.0500			20		100			30	01/04/01	01/05	LSC-006
B10LR1	R012050-05			210	0.0500			20		100			30	01/04/01	01/05	LSC-006
B10LR3	R012050-06			210	0.0500			20		100			30	01/04/01	01/05	LSC-006
BLK (QC ID=37116)	R012050-08			400	0.0500			10		100				01/04/01	01/05	LSC-006
LCS (QC ID=37115)	R012050-07			390	0.0500			10		100				01/04/01	01/05	LSC-006
Duplicate (R012050-01) (QC ID=37117)	R012050-09			200	0.0500			20		100			30	01/04/01	01/05	LSC-006
Spike (R012050-01) (QC ID=37118)	R012050-10			220	0.0500			18		100			30	01/04/01	01/05	LSC-006
Nominal values and limits from method				400	0.0500					25			180			

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 01/24/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1177

Test H	Matrix WATER
SDG 7592	
Contact Melissa C. Mannion	

METHOD SUMMARY, cont.

TRITIUM IN WATER

LIQUID SCINTILLATION COUNTING

Client Hanford	
Contract TRC-SBB-207925	
Contract SDG H1177	

PROCEDURES	REFERENCE	906.0_H3_LSC
	CP-210	Tritium in Water Samples by Distillation, rev 3

AVERAGES ± 2 SD	MDA	240	±	160
FOR 10 SAMPLES	YIELD	18	±	8

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-CMS
Version	3.06
Report date	01/24/01

PNNL

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. # C01-008-5

Page 1 of 1

Collector D.R. BREWINGTON	Contact/Requester JH KESSNER H1177 (7592)	Telephone No. (509) 375-4688 MSIN FAX
SAF No. C01-008	Sampling Origin HANFORD SITE	Purchase Order/Charge Code
Project Title 100HR3 IAM (1&2) GW MONITORING, NOVEMBER, 2000	Logbook No. WM-5AWS-H39	Ice Chest No. 3ML-533 Temp. L
Shipped To (Lab) TMA/RECRA	Method of Shipment GOVT. VEHICLE	Bill of Lading/Air Bill No. 4235 7954 1209
Protocol CERCLA	Data Turnaround 45 Days	Offsite Property No. 06383

POSSIBLE SAMPLE HAZARDS/REMARKS
** **

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

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B10LD0 (F) ✓		W	12-6-00	1037	1x500-mL G/P ✓	ICP Metals - 6010A RCRA GW ✓	HNO3 to pH <2
B10LD1 ✓		W			1x500-mL G/P ✓	ICP Metals - 6010A RCRA GW ✓	HNO3 to pH <2
B10LD1 ✓		W			1x500-mL P ✓	IC Anions - 300.0 ✓	Cool 4C
B10LD1 ✓		W			1x20-mL P ✓	Activity Scan ✓	None
B10LD1 ✓		W			2x1000-mL G/P ✓	Gross Alpha ✓	HNO3 to pH <2
B10LD1 ✓		W			2x1000-mL G/P ✓	Gross Beta ✓	HNO3 to pH <2
B10LD1 ✓		W			1x250-mL P ✓	Tritium - H3 ✓	None

Relinquished By (Print / Sign)	Date/Time	Received By (Print / Sign)	Date/Time
D. R. BREWINGTON D.R. Brewington	12/7/00 1300	FEDERAL EXPRESS	12-07-00
FEDERAL EXPRESS	12-08-00 10 AM	E. SEGURO	12-08-00 10 AM

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

PNNL

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. # C01-008-4

Collector: D. R. BREWINGTON	Contact/Requester: JH KESSNER	Telephone No.: (509) 375-4688 MSIN FAX
SAF No.: C01-008	Sampling Origin: HANFORD SITE H1177 (7592)	Purchase Order/Charge Code
Project Title: 100HR3 IAM (1&2) GW MONITORING, NOVEMBER, 2000	Logbook No.: WM-SAWS-H39	Ice Chest No.: SML-533 Temp.
Shipped To (Lab): TMA/RECRA	Method of Shipment: GOVT. VEHICLE	Bill of Lading/Air Bill No.: 4235 7954 1209
Protocol: CERCLA	Data Turnaround: 45 Days	Offsite Property No.: 06383

POSSIBLE SAMPLE HAZARDS/REMARKS
** **

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

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B10LD2 (F) ✓		W	12-6-00	1139 ✓	1x500-mL G/P ✓	ICP Metals - 6010A RCRA GW ✓	HNO3 to pH <2
B10LD3 ✓		W			1x500-mL G/P ✓	ICP Metals - 6010A RCRA GW ✓	HNO3 to pH <2
B10LD3 ✓		W			1x500-mL P ✓	IC Anions - 300.0 ✓	Cool 4C
B10LD3 ✓		W			1x20-mL P ✓	Activity Scan ✓	None
B10LD3 ✓		W			2x1000-mL G/P ✓	Gross Alpha ✓	HNO3 to pH <2
B10LD3 ✓		W			2x1000-mL G/P ✓	Gross Beta ✓	HNO3 to pH <2
B10LD3 ✓		W			1x250-mL P	Tritium - H3 ✓	None

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
D. R. BREWINGTON	D. R. Brewington		12/7/00 1300	FEDERAL EXPRESS			12-07-00
FEDERAL EXPRESS			12-08-00 10AM	E. SEGURO		E. Segura	12-08-00 10AM

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

PNNL

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. # C01-008-8

Page 1 of 1

Collector: D. R. BREWINGTON	Contact/Requester: JH KESSNER	Telephone No.: (509) 375-4688 MSIN FAX
SAF No.: C01-008	Sampling Origin: HANFORD SITE H1177 (7592)	Purchase Order/Charge Code
Project Title: 100HR3 IAM (1&2) GW MONITORING, NOVEMBER, 2000	Logbook No.: WM-54WS-139	Ice Chest No.: SML-533 Temp.
Shipped To (Lab): TMA/RECRA	Method of Shipment: GOVT. VEHICLE	Bill of Lading/Air Bill No.: 4235 7954 1209
Protocol: CERCLA	Data Turnaround: 45 Days	Offsite Property No.: 06383

POSSIBLE SAMPLE HAZARDS/REMARKS
** **

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

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B10LP6 (F) ✓		W	12-6-00	0848	1x500-mL G/P ✓	ICP Metals - 6010A RCRA GW ✓	HNO3 to pH <2
B10LP7 ✓		W			1x500-mL G/P ✓	ICP Metals - 6010A RCRA GW ✓	HNO3 to pH <2
B10LP7 ✓		W			1x500-mL P ✓	IC Anions - 300.0 ✓	Cool 4C
B10LP7 ✓		W			1x20-mL P ✓	Activity Scan ✓	None
B10LP7 ✓		W			2x1000-mL G/P ✓	Gross Alpha ✓	HNO3 to pH <2
B10LP7 ✓		W			2x1000-mL G/P ✓	Gross Beta ✓	HNO3 to pH <2
B10LP7 ✓		W			1x250-mL P ✓	Tritium - H3 ✓	None

Relinquished By (Print / Sign)	Date/Time	Received By (Print / Sign)	Date/Time
D. R. BREWINGTON D.R. Brewington	12/7/00 1300	FEDERAL EXPRESS	12-07-00
FED EXPRESS	12-08-00 10:00	E. SEGURO E Segura	12-08-00 10:00

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

PNNL

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. # C01-008-9

Page 1 of 1

Collector D.P.CONNOLLY	Contact/Requester JH KESSNER	Telephone No. (509) 375-4688 MSIN FAX
SAF No. C01-008	Sampling Origin HANFORD SITE H1177 (7592)	Purchase Order/Charge Code
Project Title 100HR3 IAM (1&2) GW MONITORING, NOVEMBER, 2000	Logbook No. WM-SAWS-H39	Ice Chest No. SMC161 SMC461 Temp.
Shipped To (Lab) TMA/RECRA	Method of Shipment GOVT. VEHICLE	Bill of Lading/Air Bill No. 4235 7954 1199
Protocol CERCLA	Data Turnaround 45 Days	Offsite Property No. 06383

POSSIBLE SAMPLE HAZARDS/REMARKS
** **

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

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B10LP8 (F)		W	12-6-00	0730	1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
B10LP9		W			1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
B10LP9		W			1x500-mL P	IC Anions - 300.0	Cool 4C
B10LP9		W			1x20-mL P	Activity Scan	None
B10LP9		W			2x1000-mL G/P	Gross Alpha	HNO3 to pH <2
B10LP9		W			2x1000-mL G/P	Gross Beta	HNO3 to pH <2
B10LP9		W			1x250-mL P	Tritium - H3	None

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
D.P.CONNOLLY			12/7/00	Fed Ex			12-07-00
FED. EXPRESS			12-08-00 10 AM	E. SEGURO			12-08-00 10 AM

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

PNNL

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. # C01-008-6

Page 1 of 1

Collector: D. R. BREWINGTON	Contact/Requester: JH KESSNER	Telephone No.: (509) 375-4688 MSIN FAX
SAF No.: C01-008	Sampling Origin: HANFORD SITE H1177 (7592)	Purchase Order/Charge Code
Project Title: 100HR3 IAM (1&2) GW MONITORING, NOVEMBER, 2000	Logbook No.: WM-SAWS-1439	Ice Chest No.: 3ML-161 Temp.
Shipped To (Lab): TMA/RECRA	Method of Shipment: GOVT. VEHICLE	Bill of Lading/Air Bill No.: 4235 7954 1194
Protocol: CERCLA	Data Turnaround: 45 Days	Offsite Property No.: 06383

POSSIBLE SAMPLE HAZARDS/REMARKS
** **

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

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B10LR0 (F) ✓		W	12-6-0	0928 ✓	1x500-mL G/P ✓	ICP Metals - 6010A RCRA GW ✓	HNO3 to pH <2
B10LR1 ✓		W	↓	↓	1x500-mL G/P ✓	ICP Metals - 6010A RCRA GW ✓	HNO3 to pH <2
B10LR1 ✓		W			1x500-mL P ✓	IC Anions - 300.0 ✓	Cool 4C
B10LR1 ✓		W			1x20-mL P ✓	Activity Scan ✓	None
B10LR1 ✓		W			2x1000-mL G/P ✓	Gross Alpha ✓	HNO3 to pH <2
B10LR1 ✓		W			2x1000-mL G/P ✓	Gross Beta ✓	HNO3 to pH <2
B10LR1 ✓		W			1x250-mL P ✓	Tritium - H3 ✓	None

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
D. R. BREWINGTON	D. R. Brewington		12-6-00 1300	FedEx			12-07-00
FEDERAL EXPRESS			12-08-00 10:00	E. SEGURO		Segurro	12-08-00 10:00

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

PNNL

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. # C01-008-7

Page 1 of 1

Collector: D. R. BREWINGTON	Contact/Requester: JH KESSNER	Telephone No.: (509) 375-4688 MSIN FAX
SAF No.: C01-008	Sampling Origin: HANFORD SITE H1177 (7592)	Purchase Order/Charge Code
Project Title: 100HR3 JAM (1&2) GW MONITORING NOVEMBER 2000	Logbook No.: NM-SAWS-H39	Ice Chest No.: SAL-161 Temp.
Shipped To (Lab): TMA/RECRA	Method of Shipment: GOVT. VEHICLE	Bill of Lading/Air Bill No.: 4235 7854 1194
Protocol: CERCLA	Data Turnaround: 45 Days	Offsite Property No.: 06383

POSSIBLE SAMPLE HAZARDS/REMARKS
** **

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

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B10LR2 (F) ✓		W	12-6-00	0959	1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
B10LR3 ✓		W			1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
B10LR3 ✓		W			1x500-mL P	IC Anions - 300.0	Cool 4C
B10LR3 ✓		W			1x20-mL P	Activity Scan	None
B10LR3 ✓		W			2x1000-mL G/P	Gross Alpha	HNO3 to pH <2
B10LR3 ✓		W			2x1000-mL G/P	Gross Beta	HNO3 to pH <2
B10LR3 ✓		W			1x250-mL P	Tritium - H3	None

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
D. R. BREWINGTON		D.R. Brewington	1300 12/7/00				12-07-00
Fed. Express			10 am 12-08-00		E. SEGURO		10 am 12-08-00

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

ThermoRetec
Richmond Laboratory

Analytical Services

ICE CHEST RECEIPT LOG

Use one form per shipment. Refer to Thermometer Correction Log for correction factor.

Customer: (WMTS) BECHTEL HANFORD (PNNL) Date: 12-08-00 10:AM

Ice chest # or description	SML-533					
Thermometer: time in	11:15					
Thermometer: time out	12:00					
Thermometer reading	4°C					
Thermometer number	6536					
Correction factor	NONE					
Actual temperature*	—					
Custody seals on ice chest intact?	Yes					
Custody seals dated ?	Yes					
Custody seals signed?	Yes					
Custody seals on samples?	Yes					
Ice chest scanned for activity?	Yes					

* Temperature is in degrees centigrade.

Technician: E. Delgado

Comments: SAMPLES ARE IN GOOD condition.

Richmond Laboratory

SAMPLE RECEIPT CHECKLIST

SAMPLE RECEIPT

Client: (WMTS) BECHTEL HANFORD (PNNL) Date/Time received 12-08-00 10:Am

CoC No. C01-008-4, 5, 6, 7, 8, AND 9.

Container I.D. No. SML-5339, SML-161. Requested TAT (Days) 45 P.O. Received Yes [ ] No [✓]

INSPECTION

1. Custody seals on shipping container intact? Yes [✓] No [ ] N/A [ ]
2. Custody seals on shipping container dated & signed? Yes [✓] No [ ] N/A [ ]
3. Custody seals on sample containers intact? Yes [✓] No [ ] N/A [ ]
4. Custody seals on sample containers dated & signed? Yes [✓] No [ ] N/A [ ]
5. Cooler Temperature: _____ Packing material is: Wet [ ] Dry [✓]
6. Number of samples in shipping container: 12
7. Number of containers per sample: Check on (Or see CoC ✓)
8. Paperwork agrees with samples? Yes [✓] No [ ]
9. Samples have: Tape [ ] Hazard labels [ ] Rad labels [ ] Appropriate sample labels [✓]
10. Samples are: In good condition [✓] Leaking [ ] Broken Container [ ] Missing [ ]
11. Describe any anomalies: _____
13. Was P.M. notified of any anomalies? Yes [ ] No [ ] Date _____
14. Received by E. SEGURO Date: 12-08-00 Time: 10:Am

Customer Sample No.	cpm	mr/hr	Customer Sample No.	Cpm	mr/hr

Ion Chamber Ser. No. _____ Calibration date _____

Survey Meter Ser No. _____ Calibration date _____