Eberline Services
W.O. No. R0-12-013-7581

Bechtel Hanford Inc.
SDG H1159

Case Narrative

1.0 GENERAL

Bechtel Hanford Inc. (BHI) Sample Delivery Group H1159 was composed of two 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

There was contamination in the gross beta method blank (5.21 pCi/L). The activity was above the RDL (4 pCi/L) for gross beta. No other 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

1/18/01
Date

RECEIVED
APR 0 2 2001
EDMC

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1159

SAMPLE SUMMARY

SDG 7581
Contact Melissa C. Mannion

Client Hanford
Contract TRC-SBB-207925
Case no SDG H1159

CLIENT SAMPLE ID	LOCATION	MATRIX	LEVEL	LAB SAMPLE ID	SAF NO	CHAIN OF CUSTODY	COLLECTED
B10L97	Hanford Site	WATER		R012013-01	C01-008	C01-008-15	12/01/00 10:30
B10LC5	Hanford Site	WATER		R012013-02	C01-008	C01-008-42	12/01/00 09:25
Method Blank		WATER		R012013-04	C01-008		
Lab Control Sample		WATER		R012013-03	C01-008		
Duplicate (R012013-01)	Hanford Site	WATER		R012013-05	C01-008		12/01/00 10:30
Spike (R012013-01)	Hanford Site	WATER		R012013-06	C01-008		12/01/00 10:30

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CS
Version 3.06
Report date 01/19/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1159

QC SUMMARY

SDG 7581
Contact Melissa C. Mannion

Client Hanford
Contract TRC-SBB-207925
Case no SDG H1159

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
7581	C01-008-15	B10L97	WATER				12/04/00	3	R012013-01	7581-001
	C01-008-42	B10LC5	WATER				12/04/00	3	R012013-02	7581-002
		Method Blank	WATER						R012013-04	7581-004
		Lab Control Sample	WATER						R012013-03	7581-003
		Duplicate (R012013-01)	WATER				12/04/00	3	R012013-05	7581-005
		Spike (R012013-01)	WATER				12/04/00	3	R012013-06	7581-006

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-QS
Version 3.06
Report date 01/19/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1159

PREP BATCH SUMMARY

SDG 7581
Contact Melissa C. Mannion

Client Hanford
Contract TRC-SBB-207925
Case no SDG H1159

TEST	MATRIX	METHOD	PREPARATION ERROR BATCH	2σ %	PLANCHETS ANALYZED CLIENT	MORE	RE	BLANK	LCS	DUP/ORIG	MS/ORIG	QUALIFIERS
Gas Proportional Counting												
82B	WATER	Gross Beta in Water	6962-163	15.0	2			1	1	1/1		
88A	WATER	Gross Alpha in Water	6962-163	20.0	2			1	1	1/1		
Liquid Scintillation Counting												
H	WATER	Tritium in Water	6962-163	10.0	2			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 01/19/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1159

WORK SUMMARY

SDG 7581
Contact Melissa C. Mannion

Client Hanford
Contract TRC-SBB-207925
Case no SDG H1159

CLIENT SAMPLE ID / LOCATION / CUSTODY	SAF No	MATRIX	LAB SAMPLE ID / COLLECTED / RECEIVED	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
B10L97			R012013-01	7581-001	82B/82		01/17/01	01/18/01	MCM	Gross Beta in Water
Hanford Site		WATER	12/01/00	7581-001	88A/88		01/15/01	01/18/01	MCM	Gross Alpha in Water
C01-008-15	C01-008		12/04/00	7581-001	H		12/30/00	01/18/01	MCM	Tritium in Water
B10LC5			R012013-02	7581-002	82B/82		01/17/01	01/18/01	MCM	Gross Beta in Water
Hanford Site		WATER	12/01/00	7581-002	88A/88		01/15/01	01/18/01	MCM	Gross Alpha in Water
C01-008-42	C01-008		12/04/00	7581-002	H		12/30/00	01/18/01	MCM	Tritium in Water
Method Blank			R012013-04	7581-004	82B/82		01/17/01	01/18/01	MCM	Gross Beta in Water
		WATER		7581-004	88A/88		01/15/01	01/18/01	MCM	Gross Alpha in Water
	C01-008			7581-004	H		12/30/00	01/18/01	MCM	Tritium in Water
Lab Control Sample			R012013-03	7581-003	82B/82		01/19/01	01/18/01	MCM	Gross Beta in Water
		WATER		7581-003	88A/88		01/15/01	01/18/01	MCM	Gross Alpha in Water
	C01-008			7581-003	H		12/30/00	01/18/01	MCM	Tritium in Water
Duplicate (R012013-01)			R012013-05	7581-005	82B/82		01/17/01	01/18/01	MCM	Gross Beta in Water
Hanford Site		WATER	12/01/00	7581-005	88A/88		01/15/01	01/18/01	MCM	Gross Alpha in Water
	C01-008		12/04/00	7581-005	H		12/30/00	01/18/01	MCM	Tritium in Water
Spike (R012013-01)			R012013-06	7581-006	H		12/30/00	01/18/01	MCM	Tritium in Water
Hanford Site		WATER	12/01/00							
	C01-008		12/04/00							

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	2			1	1	1		5
88A/88	C01-008	Gross Alpha in Water	900.0_ALPHABETA_GPC	2			1	1	1		5
H	C01-008	Tritium in Water	906.0_H3_LSC	2			1	1	1	1	6
TOTALS				6			3	3	3	1	16

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CWS
Version 3.06
Report date 01/19/01

TMA/RICHMOND
SAMPLE DELIVERY GROUP H1159

R012013-04

Method Blank

METHOD BLANK

SDG	7581	Client/Case no	Hanford	SDG_H1159	
Contact	Melissa C. Mannion	Contract	TRC-SBB-207925		
Lab sample id	R012013-04	Client sample id	Method Blank		
Dept sample id	7581-004	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	-0.336	0.55	1.3	3.0	U	88A
Gross Beta	12587-47-2	5.21	1.8	2.7	4.0		82B
Tritium	10028-17-8	61.2	230	390	400	U	H

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

QC-BLANK 36996

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	01/19/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1159

R012013-03

Lab Control Sample

LAB CONTROL SAMPLE

SDG 7581
Contact Melissa C. Mannion

Client/Case no Hanford SDG H1159
Case no TRC-SBB-207925

Lab sample id R012013-03
Dept sample id 7581-003

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	64.2	4.8	1.1	3.0		88A	71.7	2.9	90	71-129	70-130
Gross Beta	87.6	3.8	1.8	4.0	B	82B	80.7	3.2	109	74-126	70-130
Tritium	9360	450	390	400		H	9900	400	95	83-117	80-120

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

QC-LCS 36995

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-LCS
Version 3.06
Report date 01/19/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1159

R012013-05 B10L97

DUPLICATE

SDG	7581			Client/Case no	Hanford SDG H1159
Contact	Melissa C. Mannion			Case no	TRC-SBB-207925
	DUPLICATE		ORIGINAL		
Lab sample id	R012013-05	Lab sample id	R012013-01	Client sample id	B10L97
Dept sample id	7581-005	Dept sample id	7581-001	Location/Matrix	Hanford Site WATER
		Received	12/04/00	Collected	12/01/00 10:30
				Custody/SAF No	C01-008-15 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 TOT	PROT LIMIT
Gross Alpha	0.977	1.1	1.6	3.0	U	88A	0.888	1.1	1.7	U	-		
Gross Beta	2.66	1.4	2.1	4.0	JB	82B	4.19	1.3	1.9	B	45	90	
Tritium	30.9	120	200	400	U	H	36.6	120	200	U	-		

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

QC-DUP#1 36997

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DUP
Version	3.06
Report date	01/19/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1159

R012013-06 B10L97

MATRIX SPIKE

SDG	7581			Client/Case no	Hanford SDG H1159
Contact	Melissa C. Mannion			Case no	TRC-SBB-207925
MATRIX SPIKE		ORIGINAL			
Lab sample id	R012013-06	Lab sample id	R012013-01	Client sample id	B10L97
Dept sample id	7581-006	Dept sample id	7581-001	Location/Matrix	Hanford Site WATER
		Received	12/04/00	Collected	12/01/00 10:30
				Custody/SAF No	C01-008-15 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	20300	440	210	400		H	20800	830	36.6	120	97	84-116	60-140

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

QC-MS#1 36998

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-MS
Version	3.06
Report date	01/19/01

TMA / RICHMOND

SAMPLE DELIVERY GROUP H1159

R012013-01 B10L97

DATA SHEET

SDG	7581	Client/Case no	Hanford SDG H1159
Contact	Melissa C. Mannion	Contract	TRC-SBB-207925
Lab sample id	R012013-01	Client sample id	B10L97
Dept sample id	7581-001	Location/Matrix	Hanford Site WATER
Received	12/04/00	Collected	12/01/00 10:30
		Custody/SAF No	C01-008-15 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	0.888	1.1	1.7	3.0	U	88A
Gross Beta	12587-47-2	4.19	1.3	1.9	4.0	B	82B
Tritium	10028-17-8	36.6	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	01/19/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1159

R012013-02 B10LC5

DATA SHEET

SDG	7581	Client/Case no	Hanford SDG H1159
Contact	Melissa C. Mannion	Contract	TRC-SBB-207925
Lab sample id	R012013-02	Client sample id	B10LC5
Dept sample id	7581-002	Location/Matrix	Hanford Site WATER
Received	12/04/00	Collected	12/01/00 09:25
		Custody/SAF No	C01-008-42 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	0.250	0.74	1.4	3.0	U	88A
Gross Beta	12587-47-2	5.24	1.8	2.7	4.0	B	82B
Tritium	10028-17-8	41.3	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	01/19/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1159

Test 82B Matrix WATER
SDG 7581
Contact Melissa C. Mannion

METHOD SUMMARY

GROSS BETA IN WATER
GAS PROPORTIONAL COUNTING

Client Hanford
Contract TRC-SBB-207925
Contract SDG H1159

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 6962-163								
B10L97	R012013-01	82		7581-001	4.19			
B10LC5	R012013-02	82		7581-002	5.24			
BLK (QC ID=36996)	R012013-04	82		7581-004	5.21			
LCS (QC ID=36995)	R012013-03	82		7581-003	ok			
Duplicate (R012013-01)	R012013-05	82		7581-005	ok J			
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 6962-163	2σ prep error 15.0 % Reference Lab Notebook 6962 pg. 163															
B10L97	R012013-01	82		1.9	0.300			48		100			47	12/19/00	01/17	GRB-107
B10LC5	R012013-02	82		2.7	0.300			35		100			47	12/19/00	01/17	GRB-114
BLK (QC ID=36996)	R012013-04	82		2.7	0.300			29		100				12/19/00	01/17	GRB-114
LCS (QC ID=36995)	R012013-03	82		1.8	0.300			27		100				12/19/00	01/19	GRB-105
Duplicate (R012013-01) (QC ID=36997)	R012013-05	82		2.1	0.300			50		100			47	12/19/00	01/17	GRB-115
Nominal values and limits from method				4.0	0.300			5-250		100			180			

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

AVERAGES ± 2 SD FOR 5 SAMPLES
MDA 2.2 ± 0.87
RESIDUE 38 ± 21

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 01/19/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1159

Test 88A Matrix WATER
SDG 7581
Contact Melissa C. Mannion

METHOD SUMMARY

GROSS ALPHA IN WATER
GAS PROPORTIONAL COUNTING

Client Hanford
Contract TRC-SBB-207925
Contract SDG H1159

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Gross Alpha	
Preparation batch 6962-163						
B10L97	R012013-01	88		7581-001	U	
B10LC5	R012013-02	88		7581-002	U	
BLK (QC ID=36996)	R012013-04	88		7581-004	U	
LCS (QC ID=36995)	R012013-03	88		7581-003	ok	
Duplicate (R012013-01)	R012013-05	88		7581-005	-	U
Nominal values and limits from method				RDLs (pCi/L)	3.0	
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	RESID mg	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 6962-163	2σ prep error 20.0 % Reference Lab Notebook 6962 pg. 163															
B10L97	R012013-01	88		1.7	0.300			69		100			45	12/19/00	01/15	GRB-110
B10LC5	R012013-02	88		1.4	0.300			56		100			45	12/19/00	01/15	GRB-111
BLK (QC ID=36996)	R012013-04	88		1.3	0.300			29		100				12/19/00	01/15	GRB-113
LCS (QC ID=36995)	R012013-03	88		1.1	0.300			29		100				12/19/00	01/15	GRB-112
Duplicate (R012013-01) (QC ID=36997)	R012013-05	88		1.6	0.300			76		100			45	12/19/00	01/15	GRB-114
Nominal values and limits from method				3.0	0.300			5-250		100			180			

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

AVERAGES ± 2 SD FOR 5 SAMPLES
MDA 1.4 ± 0.48
RESIDUE 52 ± 44

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 01/19/01

Test H Matrix WATER
SDG 7581
Contact Melissa C. Mannion

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1159

METHOD SUMMARY

TRITIUM IN WATER

LIQUID SCINTILLATION COUNTING

Client Hanford
Contract TRC-SBB-207925
Contract SDG H1159

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Tritium	
Preparation batch 6962-163						
B10L97	R012013-01			7581-001	U	
B10LC5	R012013-02			7581-002	U	
BLK (QC ID=36996)	R012013-04			7581-004	U	
LCS (QC ID=36995)	R012013-03			7581-003	ok	
Duplicate (R012013-01)	R012013-05			7581-005	-	U
Spike (R012013-01)	R012013-06			7581-006	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 6962-163	2σ prep error 10.0 %				Reference Lab Notebook 6962 pg. 163											
B10L97	R012013-01			200	0.0500			20		100			29	12/29/00	12/30	LSC-006
B10LC5	R012013-02			200	0.0500			20		100			29	12/29/00	12/30	LSC-006
BLK (QC ID=36996)	R012013-04			390	0.0500			10		100				12/29/00	12/30	LSC-006
LCS (QC ID=36995)	R012013-03			390	0.0500			10		100				12/29/00	12/30	LSC-006
Duplicate (R012013-01) (QC ID=36997)	R012013-05			200	0.0500			20		100			29	12/29/00	12/30	LSC-006
Spike (R012013-01) (QC ID=36998)	R012013-06			210	0.0500			18		100			29	12/29/00	12/30	LSC-006
Nominal values and limits from method				400	0.0500					25			180			

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

AVERAGES ± 2 SD FOR 6 SAMPLES
MDA 260 ± 190
YIELD 16 ± 10

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 01/19/01

PNNL

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. # C01-008-42

Page 1 of 1

Collector D. E. PARCHEN	Contact/Requester JH KESSNER	Telephone No. (509) 375-4688 MSIN FAX
SAF No. C01-008	Sampling Origin HANFORD SITE H1159 (7581)	Purchase Order/Charge Code
Project Title 100HR3 IAM (1&2) GW MONITORING, NOVEMBER 2000	Logbook No. WM-SAWS- H37	Ice Chest No. SML-267 Temp.
Shipped To (Lab) TMA/RECRA	Method of Shipment GOVT VEHICLE	Bill of Lading/Air Bill No. 4235 7954 0912
Protocol CERCLA	Data Turnaround 45 Days	Offsite Property No.

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
B10LC4 (F)		W	12/1/00	0925	1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
B10LC5		W			1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
B10LC5		W			1x500-mL P	IC Anions - 300.0	Cool 4C
B10LC5 ✓		W			(1)x20-mL P	Activity Scan ✓	None
B10LC5 ✓		W			(2)x1000-mL G/P ✓	Gross Alpha ✓	HNO3 to pH <2
B10LC5 ✓		W			(2)x1000-mL G/P ✓	Gross Beta ✓	HNO3 to pH <2
B10LC5 ✓		W			(1)x250-mL P ✓	Tritium - H3 ✓	None

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
	D. E. PARCHEN	1306	DEC 01 2000	Fed Ex			DEC 01 2000
Relinquished By			Date/Time	Received By			Date/Time
FED EXPRESS			12-04-00 4:00	E. SEGURO			12-04-00 8:30 A
Relinquished By			Date/Time	Received By			Date/Time
Relinquished By			Date/Time	Received By			Date/Time

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. # C01-008-15

Collector D. E. PARCHEN	Contact/Requester JH KESSNER	Telephone No. (509) 375-4688 MSIN FAX
SAF No. C01-008	Sampling Origin HANFORD SITE H1159 (7581)	Purchase Order/Charge Code
Project Title 100HR3 IAM (1&2) GW MONITORING, NOVEMBER, 2000	Logbook No. WM-SALWS - H37	Ice Chest No. SML-267 Temp.
Shipped To (Lab) TMA/RECRA	Method of Shipment GOVT. VEHICLE	Bill of Lading/Air Bill No. 4235 7954 0912
Protocol CERCLA	Data Turnaround 45 Days	Offsite Property No.

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
B10L92 (F)		W	12/1/00	1030	1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
B10L97		W			1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
B10L97		W			1x500-mL P	IC Anions - 300.0	Cool 4C
B10L97 ✓		W			1x20-mL P ✓	Activity Scan ✓	None
B10L97 ✓		W			2x1000-mL G/P ✓	Gross Alpha ✓	HNO3 to pH <2
B10L97 ✓		W			2x1000-mL G/P ✓	Gross Beta ✓	HNO3 to pH <2
B10L97 ✓		W			1x250-mL P	Tritium - H3 ✓	None

Relinquished By	Received By
Print: D. E. PARCHEN Sign: 1306 Date/Time: DEC 0 1 2000	Print: Fed Ex Sign: Date/Time: DEC 0 1 2000
Relinquished By: FEDERAL EXPRESS Date/Time: 12-04-00 11:00	Received By: E. SEGURO Date/Time: 12-04-00 8:30 am
Relinquished By: Date/Time:	Received By: Date/Time:
Relinquished By: Date/Time:	Received By: Date/Time:

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: Bechtel Hanford (PNNL) Date: 12-2-00

Ice chest # or description	SML-267					
Thermometer: time in	12:00					
Thermometer: time out	12:40					
Thermometer reading	4.0°C					
Thermometer number	2132					
Correction factor	—					
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: [illegible]

Comments:

ThermoRetec
Richmond Laboratory

Analytical Services

SAMPLE RECEIPT CHECKLIST

SAMPLE RECEIPT

Client: Bechtel Hanford (PNNL) Date/Time received 12-2-00 11:00

CoC No. C01-008-15 AND C01-008-42.

Container I.D. No. SML-267 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: 4
7. Number of containers per sample: PLEASE CHECK (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 J Barro Date: 12-2-00 Time: 11:00

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

Ion Chamber Ser. No. _____ Calibration date _____

Survey Meter Ser No. _____ Calibration date _____

JAN 2001
RECEIVED

Recra LabNet - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD C01-008 H1159

DATE RECEIVED: 12/07/00 RFW LOT # :0012L500

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B10L92 (F)						
SILVER, TOTAL	001	W	99L1827	12/01/00	12/18/00	12/27/00
SILVER, TOTAL	001 REP	W	99L1827	12/01/00	12/18/00	12/27/00
SILVER, TOTAL	001 MS	W	99L1827	12/01/00	12/18/00	12/27/00
ALUMINUM, TOTAL	001	W	99L1827	12/01/00	12/18/00	12/27/00
ALUMINUM, TOTAL	001 REP	W	99L1827	12/01/00	12/18/00	12/27/00
ALUMINUM, TOTAL	001 MS	W	99L1827	12/01/00	12/18/00	12/27/00
BARIUM, TOTAL	001	W	99L1827	12/01/00	12/18/00	12/27/00
BARIUM, TOTAL	001 REP	W	99L1827	12/01/00	12/18/00	12/27/00
BARIUM, TOTAL	001 MS	W	99L1827	12/01/00	12/18/00	12/27/00
BERYLLIUM, TOTAL	001	W	99L1827	12/01/00	12/18/00	12/28/00
BERYLLIUM, TOTAL	001 REP	W	99L1827	12/01/00	12/18/00	12/28/00
BERYLLIUM, TOTAL	001 MS	W	99L1827	12/01/00	12/18/00	12/28/00
CALCIUM, TOTAL	001	W	99L1827	12/01/00	12/18/00	12/28/00
CALCIUM, TOTAL	001 REP	W	99L1827	12/01/00	12/18/00	12/28/00
CALCIUM, TOTAL	001 MS	W	99L1827	12/01/00	12/18/00	12/28/00
CADMIUM, TOTAL	001	W	99L1827	12/01/00	12/18/00	12/28/00
CADMIUM, TOTAL	001 REP	W	99L1827	12/01/00	12/18/00	12/28/00
CADMIUM, TOTAL	001 MS	W	99L1827	12/01/00	12/18/00	12/28/00
COBALT, TOTAL	001	W	99L1827	12/01/00	12/18/00	12/28/00
COBALT, TOTAL	001 REP	W	99L1827	12/01/00	12/18/00	12/28/00
COBALT, TOTAL	001 MS	W	99L1827	12/01/00	12/18/00	12/28/00
CHROMIUM, TOTAL	001	W	99L1827	12/01/00	12/18/00	12/28/00
CHROMIUM, TOTAL	001 REP	W	99L1827	12/01/00	12/18/00	12/28/00
CHROMIUM, TOTAL	001 MS	W	99L1827	12/01/00	12/18/00	12/28/00
COPPER, TOTAL	001	W	99L1827	12/01/00	12/18/00	12/27/00
COPPER, TOTAL	001 REP	W	99L1827	12/01/00	12/18/00	12/27/00
COPPER, TOTAL	001 MS	W	99L1827	12/01/00	12/18/00	12/27/00
IRON, TOTAL	001	W	99L1827	12/01/00	12/18/00	12/28/00
IRON, TOTAL	001 REP	W	99L1827	12/01/00	12/18/00	12/28/00
IRON, TOTAL	001 MS	W	99L1827	12/01/00	12/18/00	12/28/00
POTASSIUM, TOTAL	001	W	99L1827	12/01/00	12/18/00	12/28/00
POTASSIUM, TOTAL	001 REP	W	99L1827	12/01/00	12/18/00	12/28/00
POTASSIUM, TOTAL	001 MS	W	99L1827	12/01/00	12/18/00	12/28/00
MAGNESIUM, TOTAL	001	W	99L1827	12/01/00	12/18/00	12/28/00
MAGNESIUM, TOTAL	001 REP	W	99L1827	12/01/00	12/18/00	12/28/00

Recra LabNet - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD C01-008 H1159

DATE RECEIVED: 12/07/00 RFW LOT # :0012L500

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
MAGNESIUM, TOTAL	001 MS	W	99L1827	12/01/00	12/18/00	12/28/00
MANGANESE, TOTAL	001	W	99L1827	12/01/00	12/18/00	12/28/00
MANGANESE, TOTAL	001 REP	W	99L1827	12/01/00	12/18/00	12/28/00
MANGANESE, TOTAL	001 MS	W	99L1827	12/01/00	12/18/00	12/28/00
SODIUM, TOTAL	001	W	99L1827	12/01/00	12/18/00	12/28/00
SODIUM, TOTAL	001 REP	W	99L1827	12/01/00	12/18/00	12/28/00
SODIUM, TOTAL	001 MS	W	99L1827	12/01/00	12/18/00	12/28/00
NICKEL, TOTAL	001	W	99L1827	12/01/00	12/18/00	12/28/00
NICKEL, TOTAL	001 REP	W	99L1827	12/01/00	12/18/00	12/28/00
NICKEL, TOTAL	001 MS	W	99L1827	12/01/00	12/18/00	12/28/00
ANTIMONY, TOTAL	001	W	99L1827	12/01/00	12/18/00	12/27/00
ANTIMONY, TOTAL	001 REP	W	99L1827	12/01/00	12/18/00	12/27/00
ANTIMONY, TOTAL	001 MS	W	99L1827	12/01/00	12/18/00	12/27/00
STRONTIUM, TOTAL	001	W	99L1827	12/01/00	12/18/00	12/27/00
STRONTIUM, TOTAL	001 REP	W	99L1827	12/01/00	12/18/00	12/27/00
STRONTIUM, TOTAL	001 MS	W	99L1827	12/01/00	12/18/00	12/27/00
VANADIUM, TOTAL	001	W	99L1827	12/01/00	12/18/00	12/27/00
VANADIUM, TOTAL	001 REP	W	99L1827	12/01/00	12/18/00	12/27/00
VANADIUM, TOTAL	001 MS	W	99L1827	12/01/00	12/18/00	12/27/00
ZINC, TOTAL	001	W	99L1827	12/01/00	12/18/00	12/28/00
ZINC, TOTAL	001 REP	W	99L1827	12/01/00	12/18/00	12/28/00
ZINC, TOTAL	001 MS	W	99L1827	12/01/00	12/18/00	12/28/00
B10L97						
SILVER, TOTAL	002	W	99L1827	12/01/00	12/18/00	12/27/00
ALUMINUM, TOTAL	002	W	99L1827	12/01/00	12/18/00	12/27/00
BARIUM, TOTAL	002	W	99L1827	12/01/00	12/18/00	12/27/00
BERYLLIUM, TOTAL	002	W	99L1827	12/01/00	12/18/00	12/28/00
CALCIUM, TOTAL	002	W	99L1827	12/01/00	12/18/00	12/28/00
CADMIUM, TOTAL	002	W	99L1827	12/01/00	12/18/00	12/28/00
COBALT, TOTAL	002	W	99L1827	12/01/00	12/18/00	12/28/00
CHROMIUM, TOTAL	002	W	99L1827	12/01/00	12/18/00	12/28/00
COPPER, TOTAL	002	W	99L1827	12/01/00	12/18/00	12/27/00
IRON, TOTAL	002	W	99L1827	12/01/00	12/18/00	12/28/00
POTASSIUM, TOTAL	002	W	99L1827	12/01/00	12/18/00	12/28/00
MAGNESIUM, TOTAL	002	W	99L1827	12/01/00	12/18/00	12/28/00
MANGANESE, TOTAL	002	W	99L1827	12/01/00	12/18/00	12/28/00

Recra LabNet - Lionville Laboratory
IÑORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD C01-008 H1159

DATE RECEIVED: 12/07/00 RFW LOT # :0012L500

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
SODIUM, TOTAL	002	W	99L1827	12/01/00	12/18/00	12/28/00
NICKEL, TOTAL	002	W	99L1827	12/01/00	12/18/00	12/28/00
ANTIMONY, TOTAL	002	W	99L1827	12/01/00	12/18/00	12/27/00
STRONTIUM, TOTAL	002	W	99L1827	12/01/00	12/18/00	12/27/00
VANADIUM, TOTAL	002	W	99L1827	12/01/00	12/18/00	12/27/00
ZINC, TOTAL	002	W	99L1827	12/01/00	12/18/00	12/28/00
B10LC4 (F)						
SILVER, TOTAL	003	W	99L1827	12/01/00	12/18/00	12/27/00
ALUMINUM, TOTAL	003	W	99L1827	12/01/00	12/18/00	12/27/00
BARIUM, TOTAL	003	W	99L1827	12/01/00	12/18/00	12/27/00
BERYLLIUM, TOTAL	003	W	99L1827	12/01/00	12/18/00	12/28/00
CALCIUM, TOTAL	003	W	99L1827	12/01/00	12/18/00	12/28/00
CADMIUM, TOTAL	003	W	99L1827	12/01/00	12/18/00	12/28/00
COBALT, TOTAL	003	W	99L1827	12/01/00	12/18/00	12/28/00
CHROMIUM, TOTAL	003	W	99L1827	12/01/00	12/18/00	12/28/00
COPPER, TOTAL	003	W	99L1827	12/01/00	12/18/00	12/27/00
IRON, TOTAL	003	W	99L1827	12/01/00	12/18/00	12/28/00
POTASSIUM, TOTAL	003	W	99L1827	12/01/00	12/18/00	12/28/00
MAGNESIUM, TOTAL	003	W	99L1827	12/01/00	12/18/00	12/28/00
MANGANESE, TOTAL	003	W	99L1827	12/01/00	12/18/00	12/28/00
SODIUM, TOTAL	003	W	99L1827	12/01/00	12/18/00	12/28/00
NICKEL, TOTAL	003	W	99L1827	12/01/00	12/18/00	12/28/00
ANTIMONY, TOTAL	003	W	99L1827	12/01/00	12/18/00	12/27/00
STRONTIUM, TOTAL	003	W	99L1827	12/01/00	12/18/00	12/27/00
VANADIUM, TOTAL	003	W	99L1827	12/01/00	12/18/00	12/27/00
ZINC, TOTAL	003	W	99L1827	12/01/00	12/18/00	12/28/00
B10LC5						
SILVER, TOTAL	004	W	99L1827	12/01/00	12/18/00	12/27/00
ALUMINUM, TOTAL	004	W	99L1827	12/01/00	12/18/00	12/27/00
BARIUM, TOTAL	004	W	99L1827	12/01/00	12/18/00	12/27/00
BERYLLIUM, TOTAL	004	W	99L1827	12/01/00	12/18/00	12/28/00
CALCIUM, TOTAL	004	W	99L1827	12/01/00	12/18/00	12/28/00
CADMIUM, TOTAL	004	W	99L1827	12/01/00	12/18/00	12/28/00
COBALT, TOTAL	004	W	99L1827	12/01/00	12/18/00	12/28/00

Recra LabNet - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD C01-008 H1159

DATE RECEIVED: 12/07/00 RFW LOT # :0012L500

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
CHROMIUM, TOTAL	004	W	99L1827	12/01/00	12/18/00	12/28/00
COPPER, TOTAL	004	W	99L1827	12/01/00	12/18/00	12/27/00
IRON, TOTAL	004	W	99L1827	12/01/00	12/18/00	12/28/00
POTASSIUM, TOTAL	004	W	99L1827	12/01/00	12/18/00	12/28/00
MAGNESIUM, TOTAL	004	W	99L1827	12/01/00	12/18/00	12/28/00
MANGANESE, TOTAL	004	W	99L1827	12/01/00	12/18/00	12/28/00
SODIUM, TOTAL	004	W	99L1827	12/01/00	12/18/00	12/28/00
NICKEL, TOTAL	004	W	99L1827	12/01/00	12/18/00	12/28/00
ANTIMONY, TOTAL	004	W	99L1827	12/01/00	12/18/00	12/27/00
STRONTIUM, TOTAL	004	W	99L1827	12/01/00	12/18/00	12/27/00
VANADIUM, TOTAL	004	W	99L1827	12/01/00	12/18/00	12/27/00
ZINC, TOTAL	004	W	99L1827	12/01/00	12/18/00	12/28/00

LAB QC:

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

Recra LabNet - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD C01-008 H1159

DATE RECEIVED: 12/07/00 RFW LOT # :0012L500

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

RECRA
ENVIRONMENTAL
INC.

Chemical and Environmental Measurement Information

Recra LabNet Philadelphia
Analytical Report

Client: TNU-HANFORD C01-008
RFW#: 0012L500
SDG/SAF#: H1159/C01-008

W.O.#: 10985-001-001-9999-00
Date Received: 12-07-00

METALS CASE NARRATIVE

1. This narrative covers the analyses of 4 water samples.

2. The samples were prepared and analyzed in accordance with methods checked on the attached glossary.

3. All analyses were performed within the required holding times.

4. The cooler temperature has been recorded on the Chain of Custody.

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

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

7. The preparation/method blank for 1 analyte was outside 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.

   a.) The MB result for Zinc was greater than the Practical Quantitation Limit (PQL) {3 x the (IDL) Instrument Detection Level} and all samples read less than 20 times the MB concentration. However, no corrective action criteria for MBs were provided in SW846 method 6010B. The sample results were reported herein "uncorrected" for the levels found in the MB.

8. All ICP Interference Check Standards were within control limits.

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 18 pages.

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

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. All duplicate analyses were within the 20% Relative Percent Difference (RPD) control limits. Refer to the Inorganics Precision Report.

12. For the purposes of this report, the data has been reported to the Instrument Detection Limit (IDL). Values between the IDL and the Practical Quantitation Limit (PQL) are acquired in a region of less-certain quantification.

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

J. Michael Taylor
VP, Laboratory General Manager
Lionville Laboratory

01-09-01
Date

gmb/m12-500

METALS METHOD GLOSSARY

The following methods are used as reference for the digestion and analysis of samples contained within this Recra Lot#: 0012L500

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 01/05/01

CLIENT: TNUHANFORD C01-008 H1159 RECRA LOT #: 0012L500

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	B10L92 (F)	Silver, Total	1.1	u	UG/L	1.1	1.0
		Aluminum, Total	22.7	u	UG/L	22.7	1.0
		Barium, Total	55.3		UG/L	0.20	1.0
		Beryllium, Total	0.60	u	UG/L	0.60	1.0
		Calcium, Total	41800		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	82.5		UG/L	4.9	1.0
		Copper, Total	0.90	u	UG/L	0.90	1.0
		Iron, Total	41.2		UG/L	3.8	1.0
		Potassium, Total	3120		UG/L	303	1.0
		Magnesium, Total	12500		UG/L	27.4	1.0
		Manganese, Total	2.3	u	UG/L	2.3	1.0
		Sodium, Total	5030		UG/L	22.9	1.0
		Nickel, Total	12.5	u	UG/L	12.5	1.0
		Antimony, Total	2.3	u	UG/L	2.3	1.0
		Strontium, Total	296		UG/L	0.10	1.0
		Vanadium, Total	8.7		UG/L	0.80	1.0
		Zinc, Total	14.2		UG/L	2.7	1.0
-002	B10L97	Silver, Total	1.1	u	UG/L	1.1	1.0
		Aluminum, Total	22.7	u	UG/L	22.7	1.0
		Barium, Total	55.1		UG/L	0.20	1.0
		Beryllium, Total	0.60	u	UG/L	0.60	1.0
		Calcium, Total	41600		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	101		UG/L	4.9	1.0
		Copper, Total	0.90	u	UG/L	0.90	1.0
		Iron, Total	224		UG/L	3.8	1.0
		Potassium, Total	2750		UG/L	303	1.0
		Magnesium, Total	12300		UG/L	27.4	1.0
		Manganese, Total	2.6		UG/L	2.3	1.0
		Sodium, Total	4980		UG/L	22.9	1.0
		Nickel, Total	12.5	u	UG/L	12.5	1.0
		Antimony, Total	2.3	u	UG/L	2.3	1.0
		Strontium, Total	294		UG/L	0.10	1.0
		Vanadium, Total	9.2		UG/L	0.80	1.0
		Zinc, Total	22.0		UG/L	2.7	1.0

Recra LabNet - Lionville

INORGANICS DATA SUMMARY REPORT 01/05/01

CLIENT: TNUHANFORD C01-008 H1159 RECRA LOT #: 0012L500

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-003	B10LC4 (F)	Silver, Total	1.3		UG/L	1.1	1.0
		Aluminum, Total	22.7	u	UG/L	22.7	1.0
		Barium, Total	36.1		UG/L	0.20	1.0
		Beryllium, Total	0.60	u	UG/L	0.60	1.0
		Calcium, Total	29900		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	0.90	u	UG/L	0.90	1.0
		Iron, Total	10.4		UG/L	3.8	1.0
		Potassium, Total	2170		UG/L	303	1.0
		Magnesium, Total	7130		UG/L	27.4	1.0
		Manganese, Total	2.3	u	UG/L	2.3	1.0
		Sodium, Total	3880		UG/L	22.9	1.0
		Nickel, Total	12.5	u	UG/L	12.5	1.0
		Antimony, Total	2.3	u	UG/L	2.3	1.0
		Strontium, Total	176		UG/L	0.10	1.0
		Vanadium, Total	8.8		UG/L	0.80	1.0
		Zinc, Total	51.9		UG/L	2.7	1.0
-004	B10LC5	Silver, Total	1.1	u	UG/L	1.1	1.0
		Aluminum, Total	101		UG/L	22.7	1.0
		Barium, Total	37.0		UG/L	0.20	1.0
		Beryllium, Total	0.60	u	UG/L	0.60	1.0
		Calcium, Total	29800		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	0.90	u	UG/L	0.90	1.0
		Iron, Total	124		UG/L	3.8	1.0
		Potassium, Total	2100		UG/L	303	1.0
		Magnesium, Total	7130		UG/L	27.4	1.0
		Manganese, Total	4.4		UG/L	2.3	1.0
		Sodium, Total	3860		UG/L	22.9	1.0
		Nickel, Total	12.5	u	UG/L	12.5	1.0
		Antimony, Total	2.3	u	UG/L	2.3	1.0
		Strontium, Total	175		UG/L	0.10	1.0
		Vanadium, Total	8.4		UG/L	0.80	1.0
		Zinc, Total	53.4		UG/L	2.7	1.0

Recra LabNet - Lionville

INORGANICS METHOD BLANK DATA SUMMARY PAGE 01/05/01

CLIENT: TNUHANFORD C01-008 H1159 RECRA LOT #: 0012L500

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK1	99L1827-MB1	Silver, Total	1.1	u	UG/L	1.1	1.0
		Aluminum, Total	34.8		UG/L	22.7	1.0
		Barium, Total	0.47		UG/L	0.20	1.0
		Beryllium, Total	0.10	u	UG/L	0.10	1.0
		Calcium, Total	19.2	u	UG/L	19.2	1.0
		Cadmium, Total	0.30	u	UG/L	0.30	1.0
		Cobalt, Total	0.90	u	UG/L	0.90	1.0
		Chromium, Total	0.91		UG/L	0.60	1.0
		Copper, Total	0.90	u	UG/L	0.90	1.0
		Iron, Total	21.8	u	UG/L	21.8	1.0
		Potassium, Total	40.9		UG/L	40.9	1.0
		Magnesium, Total	14.5		UG/L	6.7	1.0
		Manganese, Total	0.20	u	UG/L	0.20	1.0
		Sodium, Total	44.2		UG/L	4.1	1.0
		Nickel, Total	0.90	u	UG/L	0.90	1.0
		Antimony, Total	2.3	u	UG/L	2.3	1.0
		Strontium, Total	0.17		UG/L	0.10	1.0
		Vanadium, Total	0.80	u	UG/L	0.80	1.0
		Zinc, Total	3.7		UG/L	0.40	1.0

Recra LabNet - Lionville

INORGANICS ACCURACY REPORT 01/05/01

CLIENT: TNUHANFORD C01-008 H1159 RECRA LOT #: 0012L500

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-001	B10L92 (F)	Silver, Total	48.6	1.1 u	50.0	97.2	1.0
		Aluminum, Total	2010	22.7 u	2000	100.5	1.0
		Barium, Total	1890	55.3	2000	91.5	1.0
		Beryllium, Total	47.5	0.60u	50.0	95.0	1.0
		Calcium, Total	67700	41800	25000	103.8	1.0
		Cadmium, Total	48.2	3.4 u	50.0	96.4	1.0
		Cobalt, Total	485	5.6 u	500	96.9	1.0
		Chromium, Total	271	82.5	200	94.4	1.0
		Copper, Total	228	0.90u	250	91.0	1.0
		Iron, Total	1010	41.2	1000	96.6	1.0
		Potassium, Total	26100	3120	25000	92.0	1.0
		Magnesium, Total	36600	12500	25000	96.3	1.0
		Manganese, Total	481	2.3 u	500	96.3	1.0
		Sodium, Total	27800	5030	25000	90.9	1.0
		Nickel, Total	493	12.5 u	500	98.6	1.0
		Antimony, Total	534	2.3 u	500	106.7	1.0
		Strontium, Total	1270	296	1000	97.9	1.0
		Vanadium, Total	534	8.7	500	105.1	1.0
		Zinc, Total	492	14.2	500	95.5	1.0

Recra LabNet - Lionville

INORGANICS PRECISION REPORT 01/05/01

CLIENT: TNUHANFORD C01-008 H1159 RECRA LOT #: 0012L500

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-001REP	B10L92 (F)	Silver, Total	1.1 u	1.1 u	NC	1.0
		Aluminum, Total	22.7 u	22.7 u	NC	1.0
		Barium, Total	55.3	55.7	0.72	1.0
		Beryllium, Total	0.60u	0.60u	NC	1.0
		Calcium, Total	41800	42600	1.9	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	82.5	82.3	0.24	1.0
		Copper, Total	0.90u	0.90u	NC	1.0
		Iron, Total	41.2	43.5	5.4	1.0
		Potassium, Total	3120	3060	2.2	1.0
		Magnesium, Total	12500	12600	0.70	1.0
		Manganese, Total	2.3 u	2.3 u	NC	1.0
		Sodium, Total	5030	5050	0.49	1.0
		Nickel, Total	12.5 u	12.5 u	NC	1.0
		Antimony, Total	2.3 u	2.3 u	NC	1.0
		Strontium, Total	296	300	1.4	1.0
		Vanadium, Total	8.7	8.3	4.7	1.0
		Zinc, Total	14.2	14.3	0.70	1.0

Recra LabNet - Lionville

INORGANICS LABORATORY CONTROL STANDARDS REPORT 01/05/01

CLIENT: TNUHANFORD C01-008 H1159 RECRA LOT #: 0012L500

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

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

RECRA LabNet Use Only
0012L500

Custody Transfer Record/Lab Work Request

Page 1 of 1

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: Spc Del: Std TAT: 30 day
Date Rec'd: 12-7-00 Date Due: 1-6-01 12-7-00
Account #:

		A	B
Refrigerator #		S	S
#/Type Container	Liquid	1P	1P
	Solid		
Volume	Liquid	500	500
	Solid		
Preservatives		HNO3	–

ANALYSES REQUESTED →

ORGANIC				INORG	
VOA	BNA	Pest/PCB	Herb	Metal	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	Metal	CN	ICD
001	B10L92 (F)			W	12-1-00	1030	✓		
002	97						✓		✓
003	CN (F)					0925	✓		
004	CS (F) TK 12-7-00						✓		✓

Special Instructions: Sas 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
ICD 3. Br, Cl, F, NO_2, NO_3, PO_4, SO_4
4.
5.
6.

RECRA LabNet Use Only

Samples were:
1) Shipped ✓ or Hand Delivered
Airbill # See broker
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. 5 °C

Relinquished by	Received by	Date	Time
Fed Ex	TKappel	12-7-00	0945

Relinquished by	Received by	Date	Time
COMPOSITE WASTE	ORIGINAL! REWRITTEN		

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

PNNL

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

CHEM SDG H1159

C.O.C. # C01-008-15

Page 1 of 1

Collector D. E. PARCHEN	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 - H37	Ice Chest No. SML-267 Temp.
Shipped To (Lab) TMA/RECRA	Method of Shipment GOVT. VEHICLE	Bill of Lading/Air Bill No. 4235 7954 0912
Protocol CERCLA	Data Turnaround 45 Days	Offsite Property No.

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
B10L92 (F)		W	12/1/00	1030	1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
B10L97		W			1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
B10L97		W			1x500-mL P	IC Anions - 300.0	Cool 4C
B10L97		W			1x20-mL P	Activity Scan	None
B10L97		W			2x1000-mL G/P	Gross Alpha	HNO3 to pH <2
B10L97		W			2x1000-mL G/P	Gross Beta	HNO3 to pH <2
B10L97		W			1x250-mL P	Tritium - H3	None

Relinquished By	Received By
Print: D. E. PARCHEN Sign: Date/Time: DEC 01 2000	Print: Sign: Date/Time: DEC 01 2000 Fed Ex
Relinquished By: FEDERAL EXPRESS Date/Time: 12-04-00 11:00	Received By: E. SEGURO Date/Time: 12-04-00 8:30 am
Relinquished By: JR Corso Date/Time: 12-5-00 16:00	Received By: Fed Ex Date/Time: 12-6-00
Relinquished By: Fed Ex Date/Time: 12-7-00 0945	Received By: Date/Time: 12-7-00 0945

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

17

PNNL

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

CHEM SDG H1159

C.O.C. # C01-008-42

Page 1 of 1

Collector D. E. PARCHEN	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-H37	Ice Chest No. SMC-267 Temp.
Shipped To (Lab) TMA/RECRA	Method of Shipment GOVT. VEHICLE	Bill of Lading/Air Bill No. 4235 7954 0912
Protocol CERCLA	Data Turnaround 45 Days	Offsite Property No.

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
B10LC4 (F)		W	12/1/00	0925	1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
B10LC5		W			1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
B10LC5		W			1x500-mL P	IC Anions - 300.0	Cool 4C
B10LC5		W			1x20-mL P	Activity Scan	None
B10LC5		W			2x1000-mL G/P	Gross Alpha	HNO3 to pH <2
B10LC5		W			2x1000-mL G/P	Gross Beta	HNO3 to pH <2
B10LC5		W			1x250-mL P	Tritium - H3	None

Relinquished By Print D. E. PARCHEN Sign	1306 DEC 01 2000 Date/Time	Received By Print Fed Ex Sign	DEC 01 2000 Date/Time
Relinquished By FED EXPRESS	Date/Time 12-04-00 11:AM	Received By E. SEGURO	Date/Time 8:30A 12-04-00
Relinquished By JR EDSON	Date/Time 12-6-00 16:00	Received By Fed Ex	Date/Time 12-6-00
Relinquished By Fed Ex 12-7-00	Date/Time 0945	Received By	Date/Time 12-7-00 0945

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

JAN 2001
RECEIVED

Recra LabNet - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD C01-008 H1159

DATE RECEIVED: 12/07/00 RFW LOT # :0012L500

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B10L97						
BROMIDE BY IC	002	W	00LIC078	12/01/00	12/08/00	12/08/00
CHLORIDE BY IC	002	W	00LIC078	12/01/00	12/08/00	12/08/00
FLUORIDE BY IC	002	W	00LIC078	12/01/00	12/08/00	12/08/00
NITRITE BY IC	002	W	00LIC078	12/01/00	12/08/00	12/08/00
NITRATE BY IC	002	W	00LIC078	12/01/00	12/08/00	12/08/00
PHOSPHATE BY IC	002	W	00LIC078	12/01/00	12/08/00	12/08/00
SULFATE BY IC	002	W	00LIC078	12/01/00	12/08/00	12/08/00
B10LC5						
BROMIDE BY IC	004	W	00LIC078	12/01/00	12/08/00	12/08/00
BROMIDE BY IC	004 REP	W	00LIC078	12/01/00	12/08/00	12/08/00
BROMIDE BY IC	004 MS	W	00LIC078	12/01/00	12/08/00	12/08/00
CHLORIDE BY IC	004	W	00LIC078	12/01/00	12/08/00	12/08/00
CHLORIDE BY IC	004 REP	W	00LIC078	12/01/00	12/08/00	12/08/00
CHLORIDE BY IC	004 MS	W	00LIC078	12/01/00	12/08/00	12/08/00
FLUORIDE BY IC	004	W	00LIC078	12/01/00	12/08/00	12/08/00
FLUORIDE BY IC	004 REP	W	00LIC078	12/01/00	12/08/00	12/08/00
FLUORIDE BY IC	004 MS	W	00LIC078	12/01/00	12/08/00	12/08/00
NITRITE BY IC	004	W	00LIC078	12/01/00	12/08/00	12/08/00
NITRITE BY IC	004 REP	W	00LIC078	12/01/00	12/08/00	12/08/00
NITRITE BY IC	004 MS	W	00LIC078	12/01/00	12/08/00	12/08/00
NITRATE BY IC	004	W	00LIC078	12/01/00	12/08/00	12/08/00
NITRATE BY IC	004 REP	W	00LIC078	12/01/00	12/08/00	12/08/00
NITRATE BY IC	004 MS	W	00LIC078	12/01/00	12/08/00	12/08/00
PHOSPHATE BY IC	004	W	00LIC078	12/01/00	12/08/00	12/08/00
PHOSPHATE BY IC	004 REP	W	00LIC078	12/01/00	12/08/00	12/08/00
PHOSPHATE BY IC	004 MS	W	00LIC078	12/01/00	12/08/00	12/08/00
SULFATE BY IC	004	W	00LIC078	12/01/00	12/08/00	12/08/00
SULFATE BY IC	004 REP	W	00LIC078	12/01/00	12/08/00	12/08/00
SULFATE BY IC	004 MS	W	00LIC078	12/01/00	12/08/00	12/08/00

LAB QC:

BROMIDE BY IC	MB1	W	00LIC078	N/A	12/08/00	12/08/00

01

~~09~~

Recra LabNet - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD C01-008 H1159

DATE RECEIVED: 12/07/00 RFW LOT # :0012L500

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

RECRA
ENVIRONMENTAL
INC.

Chemical and Environmental Measurement Information

Recra LabNet Philadelphia
Analytical Report

Client : TNU-HANFORD C01-008 H1159
RFW# : 0012L500

W.O. # : 10985-001-001-9999-00
Date Received: 12-07-00

INORGANIC CASE NARRATIVE

1. This narrative covers the analyses of 2 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. The duplicate LCS were within the 20% Relative Percent Difference (RPD) control limit.

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.

for Pat G

J. Michael Taylor
VP, Laboratory General Manager
Lionville Laboratory

01-16-01
Date

njp\i12-500

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 13 pages.

03

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:**

04

08 4/11/01

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.

05
08.1,1up

Recra LabNet - Lionville

INORGANICS DATA SUMMARY REPORT 01/16/01

CLIENT: TNUHANFORD C01-008 H1159 RECRA LOT #: 0012L500

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-002	B10L97	Bromide by IC	0.25 u	MG/L	0.25	1.0
		Chloride by IC	6.8	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	17	MG/L	1.2	5.0
		Phosphate by IC	0.25 u	MG/L	0.25	1.0
		Sulfate by IC	37.7	MG/L	1.2	5.0
-004	B10LC5	Bromide by IC	0.25 u	MG/L	0.25	1.0
		Chloride by IC	2.7	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	4.2	MG/L	0.25	1.0
		Phosphate by IC	0.25 u	MG/L	0.25	1.0
		Sulfate by IC	16.1	MG/L	1.2	5.0

06

04

Recra LabNet - Lionville

INORGANICS METHOD BLANK DATA SUMMARY PAGE 01/16/01

CLIENT: TNUHANFORD C01-008 H1159 RECRA LOT #: 0012L500

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK10	00LIC078-MB1	Bromide by IC	0.25 u	MG/L	0.25	1.0
		Chloride by IC	0.25 u	MG/L	0.25	1.0
		Fluoride by IC	0.50 u	MG/L	0.50	1.0
		Nitrite by IC	0.25 u	MG/L	0.25	1.0
		Nitrate by IC	0.25 u	MG/L	0.25	1.0
		Phosphate by IC	0.25 u	MG/L	0.25	1.0
		Sulfate by IC	0.25 u	MG/L	0.25	1.0

07
05

Recra LabNet - Lionville

INORGANICS ACCURACY REPORT 01/16/01

CLIENT: TNUHANFORD C01-008 H1159 RECRA LOT #: 0012L500

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-004	B10LC5	Bromide by IC	9.8	0.00	10.0	98.4	2.0
		Chloride by IC	12.2	2.7	10.0	95.8	2.0
		Fluoride by IC	21.8	0.012	20.0	108.7	2.0
		Nitrite by IC	10	0.25u	10	103.1	2.0
		Nitrate by IC	14	4.2	10	101.8	2.0
		Phosphate by IC	9.5	0.25u	10.0	94.7	2.0
		Sulfate by IC	41.6	16.1	25.0	102.0	5.0
BLANK10	00LIC078-MB1	Bromide by IC	4.9	0.25u	5.0	97.8	1.0
		Bromide by IC MSD	4.9	0.25u	5.0	97.8	1.0
		Chloride by IC	5.0	0.25u	5.0	99.2	1.0
		Chloride by IC MSD	4.7	0.25u	5.0	94.2	1.0
		Fluoride by IC	10.7	0.50u	10.0	107.4	1.0
		Fluoride by IC MSD	10.2	0.50u	10.0	101.7	1.0
		Nitrite by IC	4.9	0.25u	5.0	98.2	1.0
		Nitrite by IC MSD	4.9	0.25u	5.0	98.7	1.0
		Nitrate by IC	4.9	0.25u	5.0	97.1	1.0
		Nitrate by IC MSD	4.9	0.25u	5.0	97.2	1.0
		Phosphate by IC	5.0	0.25u	5.0	100.6	1.0
		Phosphate by IC MSD	5.1	0.25u	5.0	102.4	1.0
		Sulfate by IC	4.8	0.25u	5.0	96.1	1.0
		Sulfate by IC MSD	4.8	0.25u	5.0	95.7	1.0

08

06/1/01

Recra LabNet - Lionville

INORGANICS DUPLICATE SPIKE REPORT 01/16/01

CLIENT: TNUHANFORD C01-008 H1159 RECRA LOT #: 0012L500

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

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

09

Recra LabNet - Lionville

INORGANICS PRECISION REPORT 01/16/01

CLIENT: TNUHANFORD C01-008 H1159 RECRA LOT #: 0012L500

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-004REP	B10LC5	Bromide by IC	0.25u	0.25u	NC	1.0
		Chloride by IC	2.7	2.7	0.75	1.0
		Fluoride by IC	0.50u	0.50u	NC	1.0
		Nitrite by IC	0.25u	0.25u	NC	1.0
		Nitrate by IC	4.2	4.2	0.024	1.0
		Phosphate by IC	0.25u	0.25u	NC	1.0
		Sulfate by IC	16.1	16.1	0.35	5.0

RECRA LabNet Use Only
0012L500

Custody Transfer Record/Lab Work Request

Page 1 of 1

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: 12-7-00 Date Due: 1-6-01 TB 12-7-00
Account #:

		A	B
Refrigerator #		5	5
#/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		Met (1)	IC (1)

MATRIX CODES:
S - Soil
SE - Sediment
SO - Solid
SL - Sludge
W - Water
O - Oil
A - Air
DS - Drum Solids
DL - Drum Liquids
L - EP/TCLP Leachate
WI - Wipe
X - Other
F - Fish

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	Met (1)	IC (1)
001	B10L92 (F)			W	12-1-00	1030	✓	
002	97						✓	✓
003	CN (F)					0925	✓	
004	CS (F) TB 12-7-00						✓	✓

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.

Relinquished by	Received by	Date	Time
Fed Ex	TBrippel	12-7-00	0945

Relinquished by	Received by	Date	Time
COMPOSITE WASTE	ORIGINAL REWRITTEN		

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

RECRA LabNet Use Only

Samples were:
1) Shipped ✓ or Hand Delivered ___
Airbill # Sorbrkw
2) Ambient or Chilled
3) Received in Good Condition (Y) or N
4) Labels Indicate Properly Preserved (Y) or N
5) Received Within Holding Times Y or (N) NO2 NO3 PO4

COC Tape was:
1) Present on Outer Package (Y) or N
2) Unbroken on Outer Package (Y) or N
3) Present on Sample (Y) or N
4) Unbroken on Sample (Y) or N
COC Record Present Upon Sample Rec't (Y) or N
Cooler Temp. 5 °C

PNNL

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

CHEM SDG H1159

C.O.C. # C01-008-15

Page 1 of 1

Collector D. E. PARCHEN	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 - H37	Ice Chest No. SML-267 Temp.
Shipped To (Lab) TMA/RECRA	Method of Shipment GOVT. VEHICLE	Bill of Lading/Air Bill No. 4235 7954 0912
Protocol CERCLA	Data Turnaround 45 Days	Offsite Property No.

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
B10L92 (F)		W	12/1/00	1030	1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
B10L97		W			1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
B10L97		W			1x500-mL P	IC Anions - 300.0	Cool 4C
B10L97		W			1x20-mL P	Activity Scan	None
B10L97		W			2x1000-mL G/P	Gross Alpha	HNO3 to pH <2
B10L97		W			2x1000-mL G/P	Gross Beta	HNO3 to pH <2
B10L97		W			1x250-mL P	Tritium - H3	None

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
D. E. PARCHEN		1306	DEC 01 2000	Fed Ex			DEC 01 2000
FEDERAL EXPRESS			12-04-00 11:00	E. SEGURO		E. Segura	12-04-00 8:30 am
JR Corso	JR Corso		12-5-00 16:00	Fed Ex			12-6-00
Fed Ex			12-7-00 0945	T Koppel			12-7-00 0945

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 H1159

C01-008-42

Collector D. E. PARCHEN	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-H27	Ice Chest No. SMC-267 Temp.
Shipped To (Lab) TMA/RECRA	Method of Shipment GOVT VEHICLE	Bill of Lading/Air Bill No. 4235 7954 0912
Protocol CERCLA	Data Turnaround 45 Days	Offsite Property No.

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
B10LC4 (F)		W	12/1/00	0925	1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
B10LC5		W			1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
B10LC5		W			1x500-mL P	IC Anions - 300.0	Cool 4C
B10LC5		W			1x20-mL P	Activity Scan	None
B10LC5		W			2x1000-mL G/P	Gross Alpha	HNO3 to pH <2
B10LC5		W			2x1000-mL G/P	Gross Beta	HNO3 to pH <2
B10LC5		W			1x250-mL P	Tritium - H3	None

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
D. E. PARCHEN	1306		DEC 01 2000	Fed Ex			DEC 01 2000
FED EXPRESS			12-04-00 11:Am	E. SEGURO			12-04-00 8:30
JR CORSO			12-6-00 16:00	Fed Ex			12-6-00
Fed Ex			12-7-00 0945	T Trippel			12-7-00 0945

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