Eberline Services
W.O. No. R0-12-096-7595

Bechtel Hanford Inc.
SDG H1184

Case Narrative

1.0 GENERAL

Bechtel Hanford Inc. (BHI) Sample Delivery Group H1184 was composed of four 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

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EDMC

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1184

SAMPLE SUMMARY

SDG 7595
Contact Melissa C. Mannion

Client Hanford
Contract TRC-SBB-207925
Case no SDG H1184

CLIENT SAMPLE ID	LOCATION	MATRIX	LEVEL	LAB SAMPLE ID	SAF NO	CHAIN OF CUSTODY	COLLECTED
B10LJ9	Hanford Site	WATER		R012096-04	C01-008	C01-008-32	12/13/00 11:48
B10LK1	Hanford Site	WATER		R012096-02	C01-008	C01-008-30	12/13/00 09:59
B10LK3	Hanford Site	WATER		R012096-03	C01-008	C01-008-31	12/13/00 08:00
B10LK5	Hanford Site	WATER		R012096-01	C01-008	C01-008-28	12/13/00 10:39
Method Blank		WATER		R012096-06	C01-008		
Lab Control Sample		WATER		R012096-05	C01-008		
Duplicate (R012096-02)	Hanford Site	WATER		R012096-07	C01-008		12/13/00 09:59
Spike (R012096-02)	Hanford Site	WATER		R012096-08	C01-008		12/13/00 09:59

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 H1184

QC SUMMARY

SDG 7595
Contact Melissa C. Mannion

Client Hanford
Contract TRC-SBB-207925
Case no SDG H1184

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
7595	C01-008-28	B10LK5	WATER				12/14/00	1	R012096-01	7595-001
	C01-008-30	B10LK1	WATER				12/14/00	1	R012096-02	7595-002
	C01-008-31	B10LK3	WATER				12/14/00	1	R012096-03	7595-003
	C01-008-32	B10LJ9	WATER				12/14/00	1	R012096-04	7595-004
		Method Blank	WATER						R012096-06	7595-006
		Lab Control Sample	WATER						R012096-05	7595-005
		Duplicate (R012096-02)	WATER				12/14/00	1	R012096-07	7595-007
		Spike (R012096-02)	WATER				12/14/00	1	R012096-08	7595-008

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 H1184

PREP BATCH SUMMARY

SDG 7595
Contact Melissa C. Mannion

Client Hanford
Contract TRC-SBB-207925
Case no SDG H1184

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	6963-013	15.0	4			1	1	1/1		
88A	WATER	Gross Alpha in Water	6963-013	20.0	4			1	1	1/1		
Liquid Scintillation Counting												
H	WATER	Tritium in Water	6963-013	10.0	4			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 H1184

WORK SUMMARY

SDG 7595
Contact Melissa C. Mannion

Client Hanford
Contract TRC-SBB-207925
Case no SDG H1184

CLIENT SAMPLE ID / LOCATION / CUSTODY	SAF No	MATRIX	LAB SAMPLE ID / COLLECTED / RECEIVED	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
B10LJ9			R012096-04	7595-004	82B/82		01/23/01	01/24/01	MCM	Gross Beta in Water
Hanford Site		WATER	12/13/00	7595-004	88A/88		01/20/01	01/24/01	MCM	Gross Alpha in Water
C01-008-32	C01-008		12/14/00	7595-004	H		01/07/01	01/24/01	MCM	Tritium in Water
B10LK1			R012096-02	7595-002	82B/82		01/23/01	01/24/01	MCM	Gross Beta in Water
Hanford Site		WATER	12/13/00	7595-002	88A/88		01/20/01	01/24/01	MCM	Gross Alpha in Water
C01-008-30	C01-008		12/14/00	7595-002	H		01/07/01	01/24/01	MCM	Tritium in Water
B10LK3			R012096-03	7595-003	82B/82		01/23/01	01/24/01	MCM	Gross Beta in Water
Hanford Site		WATER	12/13/00	7595-003	88A/88		01/20/01	01/24/01	MCM	Gross Alpha in Water
C01-008-31	C01-008		12/14/00	7595-003	H		01/07/01	01/24/01	MCM	Tritium in Water
B10LK5			R012096-01	7595-001	82B/82		01/23/01	01/24/01	MCM	Gross Beta in Water
Hanford Site		WATER	12/13/00	7595-001	88A/88		01/20/01	01/24/01	MCM	Gross Alpha in Water
C01-008-28	C01-008		12/14/00	7595-001	H		01/07/01	01/24/01	MCM	Tritium in Water
Method Blank			R012096-06	7595-006	82B/82		01/23/01	01/24/01	MCM	Gross Beta in Water
		WATER		7595-006	88A/88		01/23/01	01/24/01	MCM	Gross Alpha in Water
	C01-008			7595-006	H		01/07/01	01/24/01	MCM	Tritium in Water
Lab Control Sample			R012096-05	7595-005	82B/82		01/23/01	01/24/01	MCM	Gross Beta in Water
		WATER		7595-005	88A/88		01/20/01	01/24/01	MCM	Gross Alpha in Water
	C01-008			7595-005	H		01/07/01	01/24/01	MCM	Tritium in Water
Duplicate (R012096-02)			R012096-07	7595-007	82B/82		01/23/01	01/24/01	MCM	Gross Beta in Water
Hanford Site		WATER	12/13/00	7595-007	88A/88		01/23/01	01/24/01	MCM	Gross Alpha in Water
	C01-008		12/14/00	7595-007	H		01/07/01	01/24/01	MCM	Tritium in Water
Spike (R012096-02)			R012096-08	7595-008	H		01/08/01	01/24/01	MCM	Tritium in Water
Hanford Site		WATER	12/13/00							
	C01-008		12/14/00							

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 H1184

SDG 7595
Contact Melissa C. Mannion

WORK SUMMARY, cont.

Client Hanford
Contract TRC-SBB-207925
Case no SDG H1184

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	4			1	1	1		7
88A/88	C01-008	Gross Alpha in Water	900.0_ALPHABETA_GPC	4			1	1	1		7
H	C01-008	Tritium in Water	906.0_H3_LSC	4			1	1	1	1	8
TOTALS				12			3	3	3	1	22

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 H1184

R012096-06

Method Blank

METHOD BLANK

SDG	7595	Client/Case no	Hanford	SDG H1184	
Contact	Melissa C. Mannion	Contract	TRC-SBB-207925		
Lab sample id	R012096-06	Client sample id	Method Blank		
Dept sample id	7595-006	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	-0.214	0.48	1.1	3.0	U	88A
Gross Beta	12587-47-2	1.18	1.6	2.7	4.0	U	82B
Tritium	10028-17-8	-139	210	370	400	U	H

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

QC-BLANK #37139

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 H1184

R012096-05

Lab Control Sample

LAB CONTROL SAMPLE

SDG 7595
Contact Melissa C. Mannion

Client/Case no Hanford SDG H1184
Case no TRC-SBB-207925

Lab sample id R012096-05
Dept sample id 7595-005

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	61.4	4.6	1.4	3.0		88A	67.0	2.7	92	70-130	70-130
Gross Beta	62.4	3.2	1.8	4.0		82B	73.3	2.9	85	79-121	70-130
Tritium	8950	420	350	400		H	9880	400	91	84-116	80-120

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

QC-LCS #37138

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 H1184

R012096-07

B10LK1

DUPLICATE

SDG	7595	Client/Case no	Hanford SDG H1184
Contact	Melissa C. Mannion	Case no	TRC-SBB-207925
DUPLICATE		ORIGINAL	
Lab sample id	R012096-07	Lab sample id	R012096-02
Dept sample id	7595-007	Dept sample id	7595-002
		Received	12/14/00
Client sample id	B10LK1		
Location/Matrix	Hanford Site WATER		
Collected	12/13/00 09:59		
Custody/SAF No	C01-008-30 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	0.670	1.0	1.5	3.0	U	88A	1.14	1.3	1.9	U	-		
Gross Beta	4.19	1.5	2.1	4.0		82B	4.67	1.5	2.1		11	79	
Tritium	16.3	110	190	400	U	H	22.4	110	190	U	-		

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

QC-DUP#2 37140

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 H1184

R012096-08 B10LK1

MATRIX SPIKE

SDG 7595		Client/Case no Hanford	SDG H1184
Contact Melissa C. Mannion		Case no TRC-SBB-207925	
MATRIX SPIKE	ORIGINAL		
Lab sample id R012096-08	Lab sample id R012096-02	Client sample id B1DLK1	
Dept sample id 7595-008	Dept sample id 7595-002	Location/Matrix Hanford Site	WATER
	Received 12/14/00	Collected 12/13/00 09:59	
		Custody/SAF No C01-008-30	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	19900	430	200	400		H	20800	830	22.4	110	96	84-116	60-140

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

QC-MS#2 37141

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 H1184

R012096-04 B10LJ9

DATA SHEET

SDG	7595	Client/Case no	Hanford	SDG H1184	
Contact	Melissa C. Mannion	Contract	TRC-SBB-207925		
Lab sample id	R012096-04	Client sample id	B10LJ9		
Dept sample id	7595-004	Location/Matrix	Hanford Site	WATER	
Received	12/14/00	Collected	12/13/00 11:48		
		Custody/SAF No	C01-008-32	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	0	2.3	3.0	U	88A
Gross Beta	12587-47-2	10.2	1.9	2.4	4.0		82B
Tritium	10028-17-8	207	120	190	400	J	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 H1184

R012096-02 B10LK1

DATA SHEET

SDG	7595	Client/Case no	Hanford	SDG H1184	
Contact	Melissa C. Mannion	Contract	TRC-SBB-207925		
Lab sample id	R012096-02	Client sample id	B10LK1		
Dept sample id	7595-002	Location/Matrix	Hanford Site	WATER	
Received	12/14/00	Collected	12/13/00 09:59		
		Custody/SAF No	C01-008-30	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	1.14	1.3	1.9	3.0	U	88A
Gross Beta	12587-47-2	4.67	1.5	2.1	4.0		82B
Tritium	10028-17-8	22.4	110	190	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 H1184

R012096-03 B10LK3

DATA SHEET

SDG	7595	Client/Case no	Hanford	SDG H1184	
Contact	Melissa C. Mannion	Contract	TRC-SBB-207925		
Lab sample id	R012096-03	Client sample id	B10LK3		
Dept sample id	7595-003	Location/Matrix	Hanford Site	WATER	
Received	12/14/00	Collected	12/13/00 08:00		
		Custody/SAF No	C01-008-31	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	-0.406	0.41	0.99	3.0	U	88A
Gross Beta	12587-47-2	0.117	1.0	1.8	4.0	U	82B
Tritium	10028-17-8	156	120	190	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 H1184

R012096-01 B10LK5

DATA SHEET

SDG	7595	Client/Case no	Hanford	SDG H1184	
Contact	Melissa C. Mannion	Contract	TRC-SBB-207925		
Lab sample id	R012096-01	Client sample id	B10LK5		
Dept sample id	7595-001	Location/Matrix	Hanford Site	WATER	
Received	12/14/00	Collected	12/13/00 10:39		
		Custody/SAF No	C01-008-28	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	0.382	0.77	1.2	3.0	U	88A
Gross Beta	12587-47-2	2.35	1.7	2.7	4.0	U	82B
Tritium	10028-17-8	-22.4	110	190	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

Test 82B Matrix WATER
SDG 7595
Contact Melissa C. Mannion

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1184

METHOD SUMMARY

GROSS BETA IN WATER
GAS PROPORTIONAL COUNTING

Client Hanford
Contract TRC-SBB-207925
Contract SDG H1184

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 6963-013								
B10LJ9	R012096-04	82		7595-004	10.2			
B10LK1	R012096-02	82		7595-002	4.67			
B10LK3	R012096-03	82		7595-003	U			
B10LK5	R012096-01	82		7595-001	U			
BLK (QC ID=37139)	R012096-06	82		7595-006	U			
LCS (QC ID=37138)	R012096-05	82		7595-005	ok			
Duplicate (R012096-02)	R012096-07	82		7595-007	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 6963-013	2σ prep error 15.0 % Reference Lab Notebook 6963 pg. 013															
B10LJ9	R012096-04	82		2.4	0.300			86		100			41	01/09/01	01/23	GRB-106
B10LK1	R012096-02	82		2.1	0.300			51		100			41	01/09/01	01/23	GRB-115
B10LK3	R012096-03	82		1.8	0.300			1		100			41	01/09/01	01/23	GRB-105
B10LK5	R012096-01	82		2.7	0.300			36		100			41	01/09/01	01/23	GRB-114
BLK (QC ID=37139)	R012096-06	82		2.7	0.300			25		100				01/09/01	01/23	GRB-114
LCS (QC ID=37138)	R012096-05	82		1.8	0.300			21		100				01/09/01	01/23	GRB-107
Duplicate (R012096-02) (QC ID=37140)	R012096-07	82		2.1	0.300			64		100			41	01/09/01	01/23	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 7 SAMPLES
MDA 2.2 ± 0.76
RESIDUE 41 ± 57

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

Test 88A Matrix WATER
SDG 7595
Contact Melissa C. Mannion

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1184

METHOD SUMMARY

GROSS ALPHA IN WATER
GAS PROPORTIONAL COUNTING

Client Hanford
Contract TRC-SBB-207925
Contract SDG H1184

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Gross Alpha	
Preparation batch 6963-013						
B10LJ9	R012096-04	88		7595-004	U	
B10LK1	R012096-02	88		7595-002	U	
B10LK3	R012096-03	88		7595-003	U	
B10LK5	R012096-01	88		7595-001	U	
BLK (QC ID=37139)	R012096-06	88		7595-006	U	
LCS (QC ID=37138)	R012096-05	88		7595-005	ok	
Duplicate (R012096-02)	R012096-07	88		7595-007	-	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 6963-013	2σ prep error 20.0 % Reference Lab Notebook 6963 pg. 013															
B10LJ9	R012096-04	88		2.3	0.300			95		100			38	01/09/01	01/20	GRB-114
B10LK1	R012096-02	88		1.9	0.300			61		100			38	01/09/01	01/20	GRB-106
B10LK3	R012096-03	88		0.99	0.300			2		100			38	01/09/01	01/20	GRB-107
B10LK5	R012096-01	88		1.2	0.300			41		100			38	01/09/01	01/20	GRB-105
BLK (QC ID=37139)	R012096-06	88		1.1	0.300			27		100				01/09/01	01/23	GRB-105
LCS (QC ID=37138)	R012096-05	88		1.4	0.300			22		100				01/09/01	01/20	GRB-115
Duplicate (R012096-02) (QC ID=37140)	R012096-07	88		1.5	0.300			72		100			41	01/09/01	01/23	GRB-105
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	MDA	1.5	± 0.94
FOR 7 SAMPLES	RESIDUE	46	± 64

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 H1184

Test H	Matrix WATER
SDG 7595	
Contact Melissa C. Mannion	

METHOD SUMMARY

TRITIUM IN WATER

LIQUID SCINTILLATION COUNTING

Client Hanford	
Contract TRC-SBB-207925	
Contract SDG H1184	

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Tritium	
Preparation batch 6963-013						
B10LJ9	R012096-04			7595-004	207	J
B10LK1	R012096-02			7595-002	U	
B10LK3	R012096-03			7595-003	U	
B10LK5	R012096-01			7595-001	U	
BLK (QC ID=37139)	R012096-06			7595-006	U	
LCS (QC ID=37138)	R012096-05			7595-005	ok	
Duplicate (R012096-02)	R012096-07			7595-007	-	U
Spike (R012096-02)	R012096-08			7595-008	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 6963-013	2σ prep error 10.0 %				Reference Lab Notebook 6963 pg. 013											
B10LJ9	R012096-04			190	0.0500			20		100			25	01/05/01	01/07	LSC-004
B10LK1	R012096-02			190	0.0500			20		100			25	01/05/01	01/07	LSC-004
B10LK3	R012096-03			190	0.0500			20		100			25	01/05/01	01/07	LSC-004
B10LK5	R012096-01			190	0.0500			20		100			25	01/05/01	01/07	LSC-004
BLK (QC ID=37139)	R012096-06			370	0.0500			10		100				01/05/01	01/07	LSC-004
LCS (QC ID=37138)	R012096-05			350	0.0500			10		100				01/05/01	01/07	LSC-004
Duplicate (R012096-02) (QC ID=37140)	R012096-07			190	0.0500			20		100			25	01/05/01	01/07	LSC-004
Spike (R012096-02) (QC ID=37141)	R012096-08			200	0.0500			18		100			26	01/05/01	01/08	LSC-004
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 8 SAMPLES	MDA 230	± 160	
	YIELD 17	± 9	

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. # C01-008-28

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 H1184 (7595)	Purchase Order/Charge Code
Project Title 100HR3 JAM (1&2) GW MONITORING NOVEMBER 2000	Logbook No. WIM-SAWS H 38	Ice Chest No. SHL 580 Temp.
Shipped To (Lab) TMA/RECRA	Method of Shipment GOVT. VEHICLE	Bill of Lading/Air Bill No. 4235 7954 1297
Protocol CERCLA	Data Turnaround 45 Days	Offsite Property No. 6409

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
B10LK4 (F) ✓		W	12-13-00	1039	1x500-mL G/P	ICP Metals - 6010A RCRA GW ✓		HNO3 to pH <2
B10LK5 ✓		W			1x500-mL G/P	ICP Metals - 6010A RCRA GW ✓		HNO3 to pH <2
B10LK5 ✓		W			1x500-mL P	IC Anions - 300.0 ✓		Cool 4C
B10LK5 ✓		W			1x20-mL P ✓	Activity Scan ✓		None
B10LK5 ✓		W			2x1000-mL G/P	Gross Alpha ✓		HNO3 to pH <2
B10LK5 ✓		W			2x1000-mL G/P	Gross Beta ✓		HNO3 to pH <2
B10LK5 ✓		W			1x250-mL P ✓	Tritium - H3 ✓		None

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
	D. E. PARCHEN	D E Parchen	12/13/00 1330	Fed. Ex.			12-13-00
Relinquished By			Date/Time	Received By			Date/Time
FED. EXPRESS			12-14-00 10 AM	E. SEGURO		E. Segura	12-14-00
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. # C01-008-30

Collector: D. E. PARCHEN	Contact/Requester: JH KESSNER	Telephone No.: (509) 375-4688 MSIN FAX
SAF No.: C01-008	Sampling Origin: HANFORD SITE H1184 (7595)	Purchase Order/Charge Code
Project Title: 100HR3 IAM (1&2) GW MONITORING, NOVEMBER, 2000	Logbook No.: WMSHWS-1438	Ice Chest No.: SIM 454 Temp.
Shipped To (Lab): TMA/RECRA	Method of Shipment: GOVT. VEHICLE	Bill of Lading/Air Bill No.: 61 4235 7954 1301
Protocol: CERCLA	Data Turnaround: 45 Days	Offsite Property No.

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
B10LK0 (F)		W	12-13-00	0959	1x500-mL G/P	ICP Metals - 6010A RCRA GW		HNO3 to pH <2
B10LK1		W			1x500-mL G/P	ICP Metals - 6010A RCRA GW		HNO3 to pH <2
B10LK1		W			1x500-mL P	IC Anions - 300.0		Cool 4C
B10LK1		W			1x20-mL P	Activity Scan		None
B10LK1		W			2x1000-mL G/P	Gross Alpha		HNO3 to pH <2
B10LK1		W			2x1000-mL G/P	Gross Beta		HNO3 to pH <2
B10LK1		W			1x250-mL P	Tritium - H3		None

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
	D. E. PARCHEN	D E Parchen	12/13/00 1330	Fed Ex			12-13-00
FEDERAL EXPRESS			12-14-00 10:14	E. SEGURO		E. Seguro	12-14-00 10:14

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. # C01-008-31

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 H118H (7595)	Purchase Order/Charge Code
Project Title: 100HR3 IAM (1&2) GW MONITORING NOVEMBER, 2000	Logbook No.: WM-SAWS-H 38	Ice Chest No.: SMI459 Temp.
Shipped To (Lab): TMA/RECRA	Method of Shipment: GOVT. VEHICLE	Bill of Lading/Air Bill No.: 61 4235 7954 1301
Protocol: CERCLA	Data Turnaround: 45 Days	Offsite Property No.: 6409

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
B10LK2 (F) ✓		W	12 13 00	0800	1x500-mL G/P ✓	ICP Metals - 6010A RCRA GW ✓	HNO3 to pH <2
B10LK3 ✓		W			1x500-mL G/P ✓	ICP Metals - 6010A RCRA GW ✓	HNO3 to pH <2
B10LK3 ✓		W			1x500-mL P ✓	IC Anions - 300.0 ✓	Cool 4C
B10LK3 ✓		W			1x20-mL P ✓	Activity Scan ✓	None
B10LK3 ✓		W			2x1000-mL G/P	Gross Alpha ✓	HNO3 to pH <2
B10LK3 ✓		W			2x1000-mL G/P	Gross Beta ✓	HNO3 to pH <2
B10LK3 ✓		W			1x250-mL P ✓	Tritium - H3 ✓	None

Relinquished By (Print / Sign)	Date/Time	Received By (Print / Sign)	Date/Time
D. E. PARCHEN [signature]	12/13/00 1130	Fed. Ex.	12-13-00
FEDERAL EXPRESS	12-14-00 10 AM	E. Segura	12-14-00 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. # C01-008-32

Collector: D. E. PARCHEN	Contact/Requester: JH KESSNER	Telephone No.: (509) 375-4688	MSIN / FAX
SAF No.: C01-008	Sampling Origin: HANFORD SITE H1184 (7595)	Purchase Order/Charge Code	
Project Title: 100HR3 IAM (1&2) GW MONITORING, NOVEMBER, 2000	Logbook No.: WIM-SAWSH 38	Ice Chest No.: SMLS80	Temp.
Shipped To (Lab): TMA/RECRA	Method of Shipment: GOVT. VEHICLE	Bill of Lading/Air Bill No.: 56 4235 7954 1297	
Protocol: CERCLA	Data Turnaround: 45 Days	Offsite Property No.: 6409	

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
B10LJ8 (F) ✓		W	12-13-00	1148	1x500-mL G/P ✓	ICP Metals - 6010A RCRA GW ✓		HNO3 to pH <2
B10LJ9 ✓		W			1x500-mL G/P ✓	ICP Metals - 6010A RCRA GW ✓		HNO3 to pH <2
B10LJ9 ✓		W			1x500-mL P ✓	IC Anions - 300.0 ✓		Cool 4C
B10LJ9 ✓		W			1x20-mL P	Activity Scan ✓		None
B10LJ9 ✓		W			2x1000-mL G/P ✓	Gross Alpha ✓		HNO3 to pH <2
B10LJ9 ✓		W			2x1000-mL G/P ✓	Gross Beta ✓		HNO3 to pH <2
B10LJ9		W			1x250-mL P ✓	Tritium - H3 ✓		None

Relinquished By (Print / Sign)	Date/Time	Received By (Print / Sign)	Date/Time
D. E. PARCHEN D E Parchen	12/13/00 1330	Fed. Ex.	12-13-00
PED- EXPRESS	12-14-00 10 AM	E. SEGURO E. Segura	12-14-00 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

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: 12-14-00

Ice chest # or description	SML 580					
Thermometer: time in	12:15					
Thermometer: time out	13:00					
Thermometer reading	3°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:

Form SCP-01.1, 09-25-00
Previous editions of this form may be used.

"50 years of quality nuclear services"

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: 12-14-00

Ice chest # or description	SML 459					
Thermometer: time in	12:15					
Thermometer: time out	13:00					
Thermometer reading	3°C					
Thermometer number	6536					
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: (WMTS) BECHTEL HANFORD (PNNL) Date/Time received 12-14-00 10:AM

CoC No. C01-008-28, C01-008-30, C01-008-31, C01-008-32

Container I.D. No. _____ Requested TAT (Days) _____ 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: 8
7. Number of containers per sample: PLS REFER (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. Segura Date: 12-14-00 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 _____

FEB 2001
RECEIVED

Lionville Laboratory Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD C01-008 H1184

DATE RECEIVED: 12/16/00 RFW LOT # :0012L604

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B10LK4 (F)						
SILVER, TOTAL	001	W	99L1842	12/13/00	12/20/00	12/27/00
SILVER, TOTAL	001 REP	W	99L1842	12/13/00	12/20/00	12/27/00
SILVER, TOTAL	001 MS	W	99L1842	12/13/00	12/20/00	12/27/00
ALUMINUM, TOTAL	001	W	99L1842	12/13/00	12/20/00	12/27/00
ALUMINUM, TOTAL	001 REP	W	99L1842	12/13/00	12/20/00	12/27/00
ALUMINUM, TOTAL	001 MS	W	99L1842	12/13/00	12/20/00	12/27/00
BARIUM, TOTAL	001	W	99L1842	12/13/00	12/20/00	12/27/00
BARIUM, TOTAL	001 REP	W	99L1842	12/13/00	12/20/00	12/27/00
BARIUM, TOTAL	001 MS	W	99L1842	12/13/00	12/20/00	12/27/00
BERYLLIUM, TOTAL	001	W	99L1842	12/13/00	12/20/00	12/27/00
BERYLLIUM, TOTAL	001 REP	W	99L1842	12/13/00	12/20/00	12/27/00
BERYLLIUM, TOTAL	001 MS	W	99L1842	12/13/00	12/20/00	12/27/00
CALCIUM, TOTAL	001	W	99L1842	12/13/00	12/20/00	12/27/00
CALCIUM, TOTAL	001 REP	W	99L1842	12/13/00	12/20/00	12/27/00
CALCIUM, TOTAL	001 MS	W	99L1842	12/13/00	12/20/00	12/27/00
CADMIUM, TOTAL	001	W	99L1842	12/13/00	12/20/00	12/27/00
CADMIUM, TOTAL	001 REP	W	99L1842	12/13/00	12/20/00	12/27/00
CADMIUM, TOTAL	001 MS	W	99L1842	12/13/00	12/20/00	12/27/00
COBALT, TOTAL	001	W	99L1842	12/13/00	12/20/00	12/27/00
COBALT, TOTAL	001 REP	W	99L1842	12/13/00	12/20/00	12/27/00
COBALT, TOTAL	001 MS	W	99L1842	12/13/00	12/20/00	12/27/00
CHROMIUM, TOTAL	001	W	99L1842	12/13/00	12/20/00	12/27/00
CHROMIUM, TOTAL	001 REP	W	99L1842	12/13/00	12/20/00	12/27/00
CHROMIUM, TOTAL	001 MS	W	99L1842	12/13/00	12/20/00	12/27/00
COPPER, TOTAL	001	W	99L1842	12/13/00	12/20/00	12/27/00
COPPER, TOTAL	001 REP	W	99L1842	12/13/00	12/20/00	12/27/00
COPPER, TOTAL	001 MS	W	99L1842	12/13/00	12/20/00	12/27/00
IRON, TOTAL	001	W	99L1842	12/13/00	12/20/00	12/27/00
IRON, TOTAL	001 REP	W	99L1842	12/13/00	12/20/00	12/27/00
IRON, TOTAL	001 MS	W	99L1842	12/13/00	12/20/00	12/27/00
POTASSIUM, TOTAL	001	W	99L1842	12/13/00	12/20/00	12/27/00
POTASSIUM, TOTAL	001 REP	W	99L1842	12/13/00	12/20/00	12/27/00
POTASSIUM, TOTAL	001 MS	W	99L1842	12/13/00	12/20/00	12/27/00
MAGNESIUM, TOTAL	001	W	99L1842	12/13/00	12/20/00	12/27/00
MAGNESIUM, TOTAL	001 REP	W	99L1842	12/13/00	12/20/00	12/27/00

Lionville Laboratory Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD C01-008 H1184

DATE RECEIVED: 12/16/00 RFW LOT # :0012L604

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
MAGNESIUM, TOTAL	001 MS	W	99L1842	12/13/00	12/20/00	12/27/00
MANGANESE, TOTAL	001	W	99L1842	12/13/00	12/20/00	12/27/00
MANGANESE, TOTAL	001 REP	W	99L1842	12/13/00	12/20/00	12/27/00
MANGANESE, TOTAL	001 MS	W	99L1842	12/13/00	12/20/00	12/27/00
SODIUM, TOTAL	001	W	99L1842	12/13/00	12/20/00	12/27/00
SODIUM, TOTAL	001 REP	W	99L1842	12/13/00	12/20/00	12/27/00
SODIUM, TOTAL	001 MS	W	99L1842	12/13/00	12/20/00	12/27/00
NICKEL, TOTAL	001	W	99L1842	12/13/00	12/20/00	12/27/00
NICKEL, TOTAL	001 REP	W	99L1842	12/13/00	12/20/00	12/27/00
NICKEL, TOTAL	001 MS	W	99L1842	12/13/00	12/20/00	12/27/00
ANTIMONY, TOTAL	001	W	99L1842	12/13/00	12/20/00	12/27/00
ANTIMONY, TOTAL	001 REP	W	99L1842	12/13/00	12/20/00	12/27/00
ANTIMONY, TOTAL	001 MS	W	99L1842	12/13/00	12/20/00	12/27/00
STRONTIUM, TOTAL	001	W	99L1842	12/13/00	12/20/00	12/27/00
STRONTIUM, TOTAL	001 REP	W	99L1842	12/13/00	12/20/00	12/27/00
STRONTIUM, TOTAL	001 MS	W	99L1842	12/13/00	12/20/00	12/27/00
VANADIUM, TOTAL	001	W	99L1842	12/13/00	12/20/00	12/27/00
VANADIUM, TOTAL	001 REP	W	99L1842	12/13/00	12/20/00	12/27/00
VANADIUM, TOTAL	001 MS	W	99L1842	12/13/00	12/20/00	12/27/00
ZINC, TOTAL	001	W	99L1842	12/13/00	12/20/00	12/27/00
ZINC, TOTAL	001 REP	W	99L1842	12/13/00	12/20/00	12/27/00
ZINC, TOTAL	001 MS	W	99L1842	12/13/00	12/20/00	12/27/00
B10LK5						
SILVER, TOTAL	002	W	99L1842	12/13/00	12/20/00	12/27/00
ALUMINUM, TOTAL	002	W	99L1842	12/13/00	12/20/00	12/27/00
BARIUM, TOTAL	002	W	99L1842	12/13/00	12/20/00	12/27/00
BERYLLIUM, TOTAL	002	W	99L1842	12/13/00	12/20/00	12/27/00
CALCIUM, TOTAL	002	W	99L1842	12/13/00	12/20/00	12/27/00
CADMIUM, TOTAL	002	W	99L1842	12/13/00	12/20/00	12/27/00
COBALT, TOTAL	002	W	99L1842	12/13/00	12/20/00	12/27/00
CHROMIUM, TOTAL	002	W	99L1842	12/13/00	12/20/00	12/27/00
COPPER, TOTAL	002	W	99L1842	12/13/00	12/20/00	12/27/00
IRON, TOTAL	002	W	99L1842	12/13/00	12/20/00	12/27/00
POTASSIUM, TOTAL	002	W	99L1842	12/13/00	12/20/00	12/27/00
MAGNESIUM, TOTAL	002	W	99L1842	12/13/00	12/20/00	12/27/00
MANGANESE, TOTAL	002	W	99L1842	12/13/00	12/20/00	12/27/00

Lionville Laboratory Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD C01-008 H1184

DATE RECEIVED: 12/16/00 RFW LOT # :0012L604

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
SODIUM, TOTAL	002	W	99L1842	12/13/00	12/20/00	12/27/00
NICKEL, TOTAL	002	W	99L1842	12/13/00	12/20/00	12/27/00
ANTIMONY, TOTAL	002	W	99L1842	12/13/00	12/20/00	12/27/00
STRONTIUM, TOTAL	002	W	99L1842	12/13/00	12/20/00	12/27/00
VANADIUM, TOTAL	002	W	99L1842	12/13/00	12/20/00	12/27/00
ZINC, TOTAL	002	W	99L1842	12/13/00	12/20/00	12/27/00
B10LK0 (F)						
SILVER, TOTAL	003	W	99L1842	12/13/00	12/20/00	12/27/00
ALUMINUM, TOTAL	003	W	99L1842	12/13/00	12/20/00	12/27/00
BARIUM, TOTAL	003	W	99L1842	12/13/00	12/20/00	12/27/00
BERYLLIUM, TOTAL	003	W	99L1842	12/13/00	12/20/00	12/27/00
CALCIUM, TOTAL	003	W	99L1842	12/13/00	12/20/00	12/27/00
CADMIUM, TOTAL	003	W	99L1842	12/13/00	12/20/00	12/27/00
COBALT, TOTAL	003	W	99L1842	12/13/00	12/20/00	12/27/00
CHROMIUM, TOTAL	003	W	99L1842	12/13/00	12/20/00	12/27/00
COPPER, TOTAL	003	W	99L1842	12/13/00	12/20/00	12/27/00
IRON, TOTAL	003	W	99L1842	12/13/00	12/20/00	12/27/00
POTASSIUM, TOTAL	003	W	99L1842	12/13/00	12/20/00	12/27/00
MAGNESIUM, TOTAL	003	W	99L1842	12/13/00	12/20/00	12/27/00
MANGANESE, TOTAL	003	W	99L1842	12/13/00	12/20/00	12/27/00
SODIUM, TOTAL	003	W	99L1842	12/13/00	12/20/00	12/27/00
NICKEL, TOTAL	003	W	99L1842	12/13/00	12/20/00	12/27/00
ANTIMONY, TOTAL	003	W	99L1842	12/13/00	12/20/00	12/27/00
STRONTIUM, TOTAL	003	W	99L1842	12/13/00	12/20/00	12/27/00
VANADIUM, TOTAL	003	W	99L1842	12/13/00	12/20/00	12/27/00
ZINC, TOTAL	003	W	99L1842	12/13/00	12/20/00	12/27/00
B10LK1						
SILVER, TOTAL	004	W	99L1842	12/13/00	12/20/00	12/27/00
ALUMINUM, TOTAL	004	W	99L1842	12/13/00	12/20/00	12/27/00
BARIUM, TOTAL	004	W	99L1842	12/13/00	12/20/00	12/27/00
BERYLLIUM, TOTAL	004	W	99L1842	12/13/00	12/20/00	12/27/00
CALCIUM, TOTAL	004	W	99L1842	12/13/00	12/20/00	12/27/00
CADMIUM, TOTAL	004	W	99L1842	12/13/00	12/20/00	12/27/00
COBALT, TOTAL	004	W	99L1842	12/13/00	12/20/00	12/27/00

Lionville Laboratory Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD C01-008 H1184

DATE RECEIVED: 12/16/00 RFW LOT # :0012L604

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
CHROMIUM, TOTAL	004	W	99L1842	12/13/00	12/20/00	12/27/00
COPPER, TOTAL	004	W	99L1842	12/13/00	12/20/00	12/27/00
IRON, TOTAL	004	W	99L1842	12/13/00	12/20/00	12/27/00
POTASSIUM, TOTAL	004	W	99L1842	12/13/00	12/20/00	12/27/00
MAGNESIUM, TOTAL	004	W	99L1842	12/13/00	12/20/00	12/27/00
MANGANESE, TOTAL	004	W	99L1842	12/13/00	12/20/00	12/27/00
SODIUM, TOTAL	004	W	99L1842	12/13/00	12/20/00	12/27/00
NICKEL, TOTAL	004	W	99L1842	12/13/00	12/20/00	12/27/00
ANTIMONY, TOTAL	004	W	99L1842	12/13/00	12/20/00	12/27/00
STRONTIUM, TOTAL	004	W	99L1842	12/13/00	12/20/00	12/27/00
VANADIUM, TOTAL	004	W	99L1842	12/13/00	12/20/00	12/27/00
ZINC, TOTAL	004	W	99L1842	12/13/00	12/20/00	12/27/00
B10LK2 (F)						
SILVER, TOTAL	005	W	99L1842	12/13/00	12/20/00	12/27/00
ALUMINUM, TOTAL	005	W	99L1842	12/13/00	12/20/00	12/27/00
BARIUM, TOTAL	005	W	99L1842	12/13/00	12/20/00	12/27/00
BERYLLIUM, TOTAL	005	W	99L1842	12/13/00	12/20/00	12/27/00
CALCIUM, TOTAL	005	W	99L1842	12/13/00	12/20/00	12/27/00
CADMIUM, TOTAL	005	W	99L1842	12/13/00	12/20/00	12/27/00
COBALT, TOTAL	005	W	99L1842	12/13/00	12/20/00	12/27/00
CHROMIUM, TOTAL	005	W	99L1842	12/13/00	12/20/00	12/27/00
COPPER, TOTAL	005	W	99L1842	12/13/00	12/20/00	12/27/00
IRON, TOTAL	005	W	99L1842	12/13/00	12/20/00	12/27/00
POTASSIUM, TOTAL	005	W	99L1842	12/13/00	12/20/00	12/27/00
MAGNESIUM, TOTAL	005	W	99L1842	12/13/00	12/20/00	12/27/00
MANGANESE, TOTAL	005	W	99L1842	12/13/00	12/20/00	12/27/00
SODIUM, TOTAL	005	W	99L1842	12/13/00	12/20/00	12/27/00
NICKEL, TOTAL	005	W	99L1842	12/13/00	12/20/00	12/27/00
ANTIMONY, TOTAL	005	W	99L1842	12/13/00	12/20/00	12/27/00
STRONTIUM, TOTAL	005	W	99L1842	12/13/00	12/20/00	12/27/00
VANADIUM, TOTAL	005	W	99L1842	12/13/00	12/20/00	12/27/00
ZINC, TOTAL	005	W	99L1842	12/13/00	12/20/00	12/27/00
B10LK3						
SILVER, TOTAL	006	W	99L1842	12/13/00	12/20/00	12/27/00

Lionville Laboratory Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD C01-008 H1184

DATE RECEIVED: 12/16/00 RFW LOT # :0012L604

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
ALUMINUM, TOTAL	006	W	99L1842	12/13/00	12/20/00	12/27/00
BARIUM, TOTAL	006	W	99L1842	12/13/00	12/20/00	12/27/00
BERYLLIUM, TOTAL	006	W	99L1842	12/13/00	12/20/00	12/27/00
CALCIUM, TOTAL	006	W	99L1842	12/13/00	12/20/00	12/27/00
CADMIUM, TOTAL	006	W	99L1842	12/13/00	12/20/00	12/27/00
COBALT, TOTAL	006	W	99L1842	12/13/00	12/20/00	12/27/00
CHROMIUM, TOTAL	006	W	99L1842	12/13/00	12/20/00	12/27/00
COPPER, TOTAL	006	W	99L1842	12/13/00	12/20/00	12/27/00
IRON, TOTAL	006	W	99L1842	12/13/00	12/20/00	12/27/00
POTASSIUM, TOTAL	006	W	99L1842	12/13/00	12/20/00	12/27/00
MAGNESIUM, TOTAL	006	W	99L1842	12/13/00	12/20/00	12/27/00
MANGANESE, TOTAL	006	W	99L1842	12/13/00	12/20/00	12/27/00
SODIUM, TOTAL	006	W	99L1842	12/13/00	12/20/00	12/27/00
NICKEL, TOTAL	006	W	99L1842	12/13/00	12/20/00	12/27/00
ANTIMONY, TOTAL	006	W	99L1842	12/13/00	12/20/00	12/27/00
STRONTIUM, TOTAL	006	W	99L1842	12/13/00	12/20/00	12/27/00
VANADIUM, TOTAL	006	W	99L1842	12/13/00	12/20/00	12/27/00
ZINC, TOTAL	006	W	99L1842	12/13/00	12/20/00	12/27/00
B10LJ8 (F)						
SILVER, TOTAL	007	W	99L1842	12/13/00	12/20/00	12/27/00
ALUMINUM, TOTAL	007	W	99L1842	12/13/00	12/20/00	12/27/00
BARIUM, TOTAL	007	W	99L1842	12/13/00	12/20/00	12/27/00
BERYLLIUM, TOTAL	007	W	99L1842	12/13/00	12/20/00	12/27/00
CALCIUM, TOTAL	007	W	99L1842	12/13/00	12/20/00	12/27/00
CADMIUM, TOTAL	007	W	99L1842	12/13/00	12/20/00	12/27/00
COBALT, TOTAL	007	W	99L1842	12/13/00	12/20/00	12/27/00
CHROMIUM, TOTAL	007	W	99L1842	12/13/00	12/20/00	12/27/00
COPPER, TOTAL	007	W	99L1842	12/13/00	12/20/00	12/27/00
IRON, TOTAL	007	W	99L1842	12/13/00	12/20/00	12/27/00
POTASSIUM, TOTAL	007	W	99L1842	12/13/00	12/20/00	12/27/00
MAGNESIUM, TOTAL	007	W	99L1842	12/13/00	12/20/00	12/27/00
MANGANESE, TOTAL	007	W	99L1842	12/13/00	12/20/00	12/27/00
SODIUM, TOTAL	007	W	99L1842	12/13/00	12/20/00	12/27/00
NICKEL, TOTAL	007	W	99L1842	12/13/00	12/20/00	12/27/00
ANTIMONY, TOTAL	007	W	99L1842	12/13/00	12/20/00	12/27/00
STRONTIUM, TOTAL	007	W	99L1842	12/13/00	12/20/00	12/27/00

Lionville Laboratory Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD C01-008 H1184

DATE RECEIVED: 12/16/00 RFW LOT # :0012L604

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
VANADIUM, TOTAL	007	W	99L1842	12/13/00	12/20/00	12/27/00
ZINC, TOTAL	007	W	99L1842	12/13/00	12/20/00	12/27/00
B10LJ9						
SILVER, TOTAL	008	W	99L1842	12/13/00	12/20/00	12/27/00
ALUMINUM, TOTAL	008	W	99L1842	12/13/00	12/20/00	12/27/00
BARIUM, TOTAL	008	W	99L1842	12/13/00	12/20/00	12/27/00
BERYLLIUM, TOTAL	008	W	99L1842	12/13/00	12/20/00	12/27/00
CALCIUM, TOTAL	008	W	99L1842	12/13/00	12/20/00	12/27/00
CADMIUM, TOTAL	008	W	99L1842	12/13/00	12/20/00	12/27/00
COBALT, TOTAL	008	W	99L1842	12/13/00	12/20/00	12/27/00
CHROMIUM, TOTAL	008	W	99L1842	12/13/00	12/20/00	12/27/00
COPPER, TOTAL	008	W	99L1842	12/13/00	12/20/00	12/27/00
IRON, TOTAL	008	W	99L1842	12/13/00	12/20/00	12/27/00
POTASSIUM, TOTAL	008	W	99L1842	12/13/00	12/20/00	12/27/00
MAGNESIUM, TOTAL	008	W	99L1842	12/13/00	12/20/00	12/27/00
MANGANESE, TOTAL	008	W	99L1842	12/13/00	12/20/00	12/27/00
SODIUM, TOTAL	008	W	99L1842	12/13/00	12/20/00	12/27/00
NICKEL, TOTAL	008	W	99L1842	12/13/00	12/20/00	12/27/00
ANTIMONY, TOTAL	008	W	99L1842	12/13/00	12/20/00	12/27/00
STRONTIUM, TOTAL	008	W	99L1842	12/13/00	12/20/00	12/27/00
VANADIUM, TOTAL	008	W	99L1842	12/13/00	12/20/00	12/27/00
ZINC, TOTAL	008	W	99L1842	12/13/00	12/20/00	12/27/00

LAB QC:

SILVER LABORATORY	LC1 BS	W	99L1842	N/A	12/20/00	12/27/00
SILVER, TOTAL	MB1	W	99L1842	N/A	12/20/00	12/27/00
ALUMINUM LABORTORY	LC1 BS	W	99L1842	N/A	12/20/00	12/27/00
ALUMINUM, TOTAL	MB1	W	99L1842	N/A	12/20/00	12/27/00
BARIUM LABORATORY	LC1 BS	W	99L1842	N/A	12/20/00	12/27/00
BARIUM, TOTAL	MB1	W	99L1842	N/A	12/20/00	12/27/00
BERYLLIUM LABORATORY	LC1 BS	W	99L1842	N/A	12/20/00	12/27/00
BERYLLIUM, TOTAL	MB1	W	99L1842	N/A	12/20/00	12/27/00
CALCIUM LABORATORY	LC1 BS	W	99L1842	N/A	12/20/00	12/27/00
CALCIUM, TOTAL	MB1	W	99L1842	N/A	12/20/00	12/27/00
CADMIUM LABORATORY	LC1 BS	W	99L1842	N/A	12/20/00	12/27/00

Lionville Laboratory Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD C01-008 H1184

DATE RECEIVED: 12/16/00 RFW LOT # :0012L604

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
CADMIUM, TOTAL	MB1	W	99L1842	N/A	12/20/00	12/27/00
COBALT LABORATORY	LC1 BS	W	99L1842	N/A	12/20/00	12/27/00
COBALT, TOTAL	MB1	W	99L1842	N/A	12/20/00	12/27/00
CHROMIUM LABORATORY	LC1 BS	W	99L1842	N/A	12/20/00	12/27/00
CHROMIUM, TOTAL	MB1	W	99L1842	N/A	12/20/00	12/27/00
COPPER LABORATORY	LC1 BS	W	99L1842	N/A	12/20/00	12/27/00
COPPER, TOTAL	MB1	W	99L1842	N/A	12/20/00	12/27/00
IRON LABORATORY	LC1 BS	W	99L1842	N/A	12/20/00	12/27/00
IRON, TOTAL	MB1	W	99L1842	N/A	12/20/00	12/27/00
POTASSIUM LABORATORY	LC1 BS	W	99L1842	N/A	12/20/00	12/27/00
POTASSIUM, TOTAL	MB1	W	99L1842	N/A	12/20/00	12/27/00
MAGNESIUM LABORATORY	LC1 BS	W	99L1842	N/A	12/20/00	12/27/00
MAGNESIUM, TOTAL	MB1	W	99L1842	N/A	12/20/00	12/27/00
MANGANESE LABORATORY	LC1 BS	W	99L1842	N/A	12/20/00	12/27/00
MANGANESE, TOTAL	MB1	W	99L1842	N/A	12/20/00	12/27/00
SODIUM LABORATORY	LC1 BS	W	99L1842	N/A	12/20/00	12/27/00
SODIUM, TOTAL	MB1	W	99L1842	N/A	12/20/00	12/27/00
NICKEL LABORATORY	LC1 BS	W	99L1842	N/A	12/20/00	12/27/00
NICKEL, TOTAL	MB1	W	99L1842	N/A	12/20/00	12/27/00
ANTIMONY LABORATORY	LC1 BS	W	99L1842	N/A	12/20/00	12/27/00
ANTIMONY, TOTAL	MB1	W	99L1842	N/A	12/20/00	12/27/00
STRONTIUM LCS STANDA	LC1 BS	W	99L1842	N/A	12/20/00	12/27/00
STRONTIUM, TOTAL	MB1	W	99L1842	N/A	12/20/00	12/27/00
VANADIUM LABORATORY	LC1 BS	W	99L1842	N/A	12/20/00	12/27/00
VANADIUM, TOTAL	MB1	W	99L1842	N/A	12/20/00	12/27/00
ZINC LABORATORY	LC1 BS	W	99L1842	N/A	12/20/00	12/27/00
ZINC, TOTAL	MB1	W	99L1842	N/A	12/20/00	12/27/00

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU-HANFORD C01-008
RFW#: 0012L604
SDG/SAF#: H1184/C01-008

W.O.#: 10985-001-001-9999-00
Date Received: 12-16-00

METALS CASE NARRATIVE

1. This narrative covers the analyses of 8 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. The preparation/method blanks for 2 analytes were outside method criteria. {less than the Practical Quantitation Limit (3X the IDL), or samples greater than 20X MB value}. Refer to the Inorganics Method Blank Data Summary.

   a.) The MB results for Iron were 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.

   b.) The MB results for Sodium were greater than the Practical Quantitation Limit (PQL) {3 x the (IDL) Instrument Detection Level} and samples B10LK2 and B10LK3 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 28 pages.

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9. All laboratory control samples (LCS) were within the 80-120% control limits. Refer to the Inorganics Laboratory Control Standards Report.

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

11. The duplicate analyses for 3 analytes were outside the 20% Relative Percent Difference (RPD) control limits. Refer to the Inorganics Precision Report.

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

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

14. As of January 27, 2001, Recra LabNet Philadelphia became Lionville Laboratory Inc. Some forms may still reference Recra LabNet Philadelphia.

J. Michael Taylor
President
Lionville Laboratory, Inc.

02-01-01
Date

jjw/m12-604

METALS METHOD GLOSSARY

The following methods are used as reference for the digestion and analysis of samples contained within this Recra Lot#: 0012604

Leaching Procedure: __1310 __1311 __1312 __Other:_____

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

Metals Digestion Methods: X3005A __3010A __3015 __3020A __3050B __3051 __200.7 __SS17
__Other: _____

Metals Analysis Methods

	SW846		EPA		STD MTD	EPA OSWR	USATHAMA
Aluminum	X 6010B		__200.7				__99
Antimony	X 6010B	__7041 [5]	__200.7	__204.2			__99
Arsenic	__6010B	__7060A [5]	__200.7	__206.2	__3113B		__99
Barium	X 6010B		__200.7				__99
Beryllium	X 6010B		__200.7				__99
Bismuth	__6010B [1]		__200.7 [1]			__1620	__99
Boron	__6010B		__200.7				__99
Cadmium	X 6010B	__7131A [5]	__200.7	__213.2			__99
Calcium	X 6010B		__200.7				__99
Chromium	X 6010B	__7191 [5]	__200.7	__218.2			__SS17
Cobalt	X 6010B		__200.7				__99
Copper	X 6010B	__7211 [5]	__200.7	__220.2			__99
Iron	X 6010B		__200.7				__99
Lead	__6010B	__7421 [5]	__200.7	__239.2	__3113B		__99
Lithium	__6010B	__7430 [4]	__200.7			__1620	__99
Magnesium	X 6010B		__200.7				__99
Manganese	X 6010B		__200.7				__99
Mercury	__7470A [3]	__7471A [3]	__245.1 [2]	__245.5 [2]			__99
Molybdenum	__6010B		__200.7				__99
Nickel	X 6010B		__200.7				__99
Potassium	X 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	X 6010B	__7761 [5]	__200.7	__272.2			__99
Sodium	X 6010B	__7770 [4]	__200.7	__273.1 [4]			__99
Strontium	X 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	X 6010B		__200.7				__99
Zinc	X 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

Lionville Laborator

INORGANICS DATA SUMMARY REPORT 01/30/01

CLIENT: TNUHANFORD C01-008 H1184 RECRA LOT #: 0012L604

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	B10LK4 (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	30.6		UG/L	3.0	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	4.8		UG/L	2.6	1.0
		Iron, Total	96.1		UG/L	3.8	1.0
		Potassium, Total	2500		UG/L	303	1.0
		Magnesium, Total	6900		UG/L	27.4	1.0
		Manganese, Total	2.3	u	UG/L	2.3	1.0
		Sodium, Total	4930		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	162		UG/L	5.5	1.0
		Vanadium, Total	8.5		UG/L	4.8	1.0
		Zinc, Total	45.9		UG/L	2.7	1.0

Lionville Laborator

INORGANICS DATA SUMMARY REPORT 01/30/01

CLIENT: TNUHANFORD C01-008 H1184 RECRA LOT #: 0012L604

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-002	B10LK5	Silver, Total	2.5	u	UG/L	2.5	1.0
		Aluminum, Total	26.6		UG/L	19.1	1.0
		Barium, Total	29.6		UG/L	3.0	1.0
		Beryllium, Total	0.60	u	UG/L	0.60	1.0
		Calcium, Total	30300		UG/L	15.4	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	58.0		UG/L	3.8	1.0
		Potassium, Total	2240		UG/L	303	1.0
		Magnesium, Total	6940		UG/L	27.4	1.0
		Manganese, Total	3.1		UG/L	2.3	1.0
		Sodium, Total	4880		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	165		UG/L	5.5	1.0
		Vanadium, Total	7.6		UG/L	4.8	1.0
		Zinc, Total	47.8		UG/L	2.7	1.0

Lionville Laborator

INORGANICS DATA SUMMARY REPORT 01/30/01

CLIENT: TNUHANFORD C01-008 H1184 RECRA LOT #: 0012L604

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-003	B10LK0 (F)	Silver, Total	2.5	u	UG/L	2.5	1.0
		Aluminum, Total	25.9		UG/L	19.1	1.0
		Barium, Total	62.9		UG/L	3.0	1.0
		Beryllium, Total	0.60	u	UG/L	0.60	1.0
		Calcium, Total	41700		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	115		UG/L	4.9	1.0
		Copper, Total	2.6		UG/L	2.6	1.0
		Iron, Total	5.5		UG/L	3.8	1.0
		Potassium, Total	3490		UG/L	303	1.0
		Magnesium, Total	12000		UG/L	27.4	1.0
		Manganese, Total	11.0		UG/L	2.3	1.0
		Sodium, Total	5200		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	273		UG/L	5.5	1.0
		Vanadium, Total	7.3		UG/L	4.8	1.0
		Zinc, Total	55.7		UG/L	2.7	1.0

Lionville Laborator

INORGANICS DATA SUMMARY REPORT 01/30/01

CLIENT: TNUHANFORD C01-008 H1184 RECRA LOT #: 0012L604

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-004	B10LK1	Silver, Total	2.5	u	UG/L	2.5	1.0
		Aluminum, Total	248		UG/L	19.1	1.0
		Barium, Total	63.2		UG/L	3.0	1.0
		Beryllium, Total	0.60	u	UG/L	0.60	1.0
		Calcium, Total	40300		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	109		UG/L	4.9	1.0
		Copper, Total	2.6		UG/L	2.6	1.0
		Iron, Total	253		UG/L	3.8	1.0
		Potassium, Total	3160		UG/L	303	1.0
		Magnesium, Total	11600		UG/L	27.4	1.0
		Manganese, Total	22.1		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	17.0	u	UG/L	17.0	1.0
		Strontium, Total	264		UG/L	5.5	1.0
		Vanadium, Total	7.6		UG/L	4.8	1.0
		Zinc, Total	58.1		UG/L	2.7	1.0

Lionville Laborator

INORGANICS DATA SUMMARY REPORT 01/30/01

CLIENT: TNUHANFORD C01-008 H1184 RECRA LOT #: 0012L604

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-005	B10LK2 (F)	Silver, Total	2.5	u	UG/L	2.5	1.0
		Aluminum, Total	22.1		UG/L	19.1	1.0
		Barium, Total	3.7		UG/L	3.0	1.0
		Beryllium, Total	0.60	u	UG/L	0.60	1.0
		Calcium, Total	21.2		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	15.4		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	91.5		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	5.4		UG/L	2.7	1.0

Lionville Laborator

INORGANICS DATA SUMMARY REPORT 01/30/01

CLIENT: TNUHANFORD C01-008 H1184 RECRA LOT #: 0012L604

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-006	B10LK3	Silver, Total	2.5	u	UG/L	2.5	1.0
		Aluminum, Total	47.0		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	38.1		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	15.1		UG/L	3.8	1.0
		Potassium, Total	303	u	UG/L	303	1.0
		Magnesium, Total	35.9		UG/L	27.4	1.0
		Manganese, Total	2.3	u	UG/L	2.3	1.0
		Sodium, Total	86.7		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

Lionville Laborator

INORGANICS DATA SUMMARY REPORT 01/30/01

CLIENT: TNUHANFORD C01-008 H1184 RECRA LOT #: 0012L604

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-007	B10LJ8 (F)	Silver, Total	2.5	u	UG/L	2.5	1.0
		Aluminum, Total	33.9		UG/L	19.1	1.0
		Barium, Total	76.7		UG/L	3.0	1.0
		Beryllium, Total	0.60	u	UG/L	0.60	1.0
		Calcium, Total	75000		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	1140		UG/L	4.9	1.0
		Copper, Total	2.6	u	UG/L	2.6	1.0
		Iron, Total	81.4		UG/L	3.8	1.0
		Potassium, Total	3930		UG/L	303	1.0
		Magnesium, Total	16800		UG/L	27.4	1.0
		Manganese, Total	7.8		UG/L	2.3	1.0
		Sodium, Total	7420		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	381		UG/L	5.5	1.0
		Vanadium, Total	5.8		UG/L	4.8	1.0
		Zinc, Total	59.9		UG/L	2.7	1.0

Lionville Laborator

INORGANICS DATA SUMMARY REPORT 01/30/01

CLIENT: TNUHANFORD C01-008 H1184 RECRA LOT #: 0012L604

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-008	B10LJ9	Silver, Total	2.5	u	UG/L	2.5	1.0
		Aluminum, Total	37.6		UG/L	19.1	1.0
		Barium, Total	75.5		UG/L	3.0	1.0
		Beryllium, Total	0.60	u	UG/L	0.60	1.0
		Calcium, Total	73900		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	1130		UG/L	4.9	1.0
		Copper, Total	2.6	u	UG/L	2.6	1.0
		Iron, Total	201		UG/L	3.8	1.0
		Potassium, Total	3610		UG/L	303	1.0
		Magnesium, Total	16600		UG/L	27.4	1.0
		Manganese, Total	18.7		UG/L	2.3	1.0
		Sodium, Total	7380		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	397		UG/L	5.5	1.0
		Vanadium, Total	4.8		UG/L	4.8	1.0
		Zinc, Total	55.4		UG/L	2.7	1.0

Lionville Laborator

INORGANICS METHOD BLANK DATA SUMMARY PAGE 01/30/01

CLIENT: TNUHANFORD C01-008 H1184 RECRA LOT #: 0012L604

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK1	99L1842-MB1	Silver, Total	2.5	u	UG/L	2.5	1.0
		Aluminum, Total	40.4		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	17.8		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	39.0		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	117		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	4.7		UG/L	2.7	1.0

Lionville Laborator

INORGANICS ACCURACY REPORT 01/30/01

CLIENT: TNUHANFORD C01-008 H1184 RECRA LOT #: 0012L604

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-001	B10LK4 (F)	Silver, Total	47.6	2.5 u	50.0	95.2	1.0
		Aluminum, Total	1930	19.1 u	2000	96.3	1.0
		Barium, Total	1890	30.6	2000	93.1	1.0
		Beryllium, Total	48.2	0.60u	50.0	96.4	1.0
		Calcium, Total	55300	29900	25000	101.7	1.0
		Cadmium, Total	45.0	3.4 u	50.0	90.0	1.0
		Cobalt, Total	485	5.6 u	500	97.0	1.0
		Chromium, Total	194	4.9 u	200	97.2	1.0
		Copper, Total	237	4.8	250	92.9	1.0
		Iron, Total	978	96.1	1000	88.2	1.0
		Potassium, Total	26000	2500	25000	94.0	1.0
		Magnesium, Total	31100	6900	25000	97.0	1.0
		Manganese, Total	482	2.3 u	500	96.4	1.0
		Sodium, Total	29200	4930	25000	97.0	1.0
		Nickel, Total	484	12.5 u	500	96.7	1.0
		Antimony, Total	515	17.0 u	500	103.0	1.0
		Strontium, Total	1040	162	1000	88.0	1.0
		Vanadium, Total	484	8.5	500	95.2	1.0
		Zinc, Total	528	45.9	500	96.4	1.0

Lionville Laborator

INORGANICS PRECISION REPORT 01/30/01

CLIENT: TNUHANFORD C01-008 H1184 RECRA LOT #: 0012L604

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-001REP	B10LK4 (F)	Silver, Total	2.5 u	2.5 u	NC	1.0
		Aluminum, Total	19.1 u	23.7	~~NC~~ 20.5	1.0
		Barium, Total	30.6	29.9	2.3	1.0
		Beryllium, Total	0.60u	0.60u	NC	1.0
		Calcium, Total	29900	30000	0.48	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	4.8	2.9	49.4	1.0
		Iron, Total	96.1	18.3	136.0	1.0
		Potassium, Total	2500	2320	7.8	1.0
		Magnesium, Total	6900	6840	0.93	1.0
		Manganese, Total	2.3 u	2.3 u	NC	1.0
		Sodium, Total	4930	4870	1.1	1.0
		Nickel, Total	12.5 u	12.5 u	NC	1.0
		Antimony, Total	17.0 u	17.0 u	NC	1.0
		Strontium, Total	162	159	1.7	1.0
		Vanadium, Total	8.5	7.8	8.6	1.0
		Zinc, Total	45.9	45.0	2.0	1.0

MJ 2/1/01

Lionville Laborator

INORGANICS LABORATORY CONTROL STANDARDS REPORT 01/30/01

CLIENT: TNUHANFORD C01-008 H1184 RECRA LOT #: 0012L604

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
LCS1	99L1842-LC1	Silver, LCS	493	500	UG/L	98.6
		Aluminum, LCS	5100	5000	UG/L	102.1
		Barium, LCS	4980	5000	UG/L	99.5
		Beryllium, LCS	249	250	UG/L	99.7
		Calcium, LCS	24800	25000	UG/L	99.2
		Cadmium, LCS	225	250	UG/L	90.0
		Cobalt, LCS	2510	2500	UG/L	100.3
		Chromium, LCS	496	500	UG/L	99.1
		Copper, LCS	1240	1250	UG/L	99.2
		Iron, LCS	5030	5000	UG/L	100.5
		Potassium, LCS	24800	25000	UG/L	99.3
		Magnesium, LCS	24800	25000	UG/L	99.4
		Manganese, LCS	747	750	UG/L	99.6
		Sodium, LCS	25300	25000	UG/L	101.2
		Nickel, LCS	2010	2000	UG/L	100.7
		Antimony, LCS	2990	3000	UG/L	99.6
		Strontium, LCS	4820	5000	UG/L	96.3
		Vanadium, LCS	2500	2500	UG/L	100.1
		Zinc, LCS	995	1000	UG/L	99.5

RECRA LabNet Use Only
0012L604

Custody Transfer Record/Lab Work Request

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FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

RECRA LabNet

Client: TMU-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: 12-11-00 Date Due: 1-15-01
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		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	B10LK4 (F)			W	12-13-00	1039	✓	
002	K5					↓	✓	✓
003	K0 (F)					0959	✓	
004	K1					↓	✓	✓
005	K2 (F)					0800	✓	
006	K3					↓	✓	✓
007	J8 (F)					1148	✓	
008	J9			↓	↓	↓	✓	✓

Special Instructions: SAS C01-008

Run Matrix QC

DATE/REVISIONS:
Met (1) 1. Al, Ag, Ba, Be, Ca, Cd, Cr, Co, Cu, Fe, K,
↓ 2. Mg, Mn, Ni, Na, Sb, Sr, V, Zn
IC (1) 3. Br, Cl, F, NO_2, NO_3, PO_4, SO_4
4.
5.
6.

Relinquished by	Received by	Date	Time
[illegible]	[illegible]	12-14-00	1030

Relinquished by	Received by	Date	Time
	ORIGINAL SUBMITTED		

RECRA LabNet Use Only

Samples were:
1) Shipped ✓ or Hand Delivered
Airbill # Sockeye
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'd Y or N
Cooler Temp. 3.0

Discrepancies Between Samples Labels and COC Record? Y or N
NOTES:
0012N-8983PR10

PNNL 604

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

SDG-H1184

C.O.C. # C01-008-28

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. WIM-SAWS-H 38	Ice Chest No. SAL 580 Temp.
Shipped To (Lab) TMA/RECRA	Method of Shipment GOVT. VEHICLE	Bill of Lading/Air Bill No. 4235 7954 1297
Protocol CERCLA	Data Turnaround 45 Days	Offsite Property No. 6409

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
B10LK4 (F) ✓		W	12-13-00	1039	1x500-mL G/P	ICP Metals - 6010A RCRA GW ✓	HNO3 to pH <2
B10LK5 ✓		W			1x500-mL G/P	ICP Metals - 6010A RCRA GW ✓	HNO3 to pH <2
B10LK5 ✓		W			1x500-mL P	IC Anions - 300.0 ✓	Cool 4C
B10LK5 ✓		W			1x20-mL P ✓	Activity Scan ✓	None
B10LK5 ✓		W			2x1000-mL G/P	Gross Alpha ✓	HNO3 to pH <2
B10LK5 ✓		W			2x1000-mL G/P	Gross Beta ✓	HNO3 to pH <2
B10LK5 ✓		W			1x250-mL P ✓	Tritium - H3 ✓	None

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
D. E. PARCHEN		DEParchen	12/13/00 1330	Fed. Ex.			12-13-00
FED. EXPRESS			12-14-00 10 AM	E. SEGURO		E. Segura	12-14-00
JR Corso		JRCorso	12-15-00 16:00	Fed Ex			12-15-00
FedEx			12-16-00 10:30	Thrapp			12-16-00 10:30

Matrix *

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

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

25

PNNL

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

SOG 1184

C.O.C. # C01-008-30

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.: WMSHWS-1438	Ice Chest No.: 5IPL454 Temp.
Shipped To (Lab): TMA/RECRA	Method of Shipment: GOVT. VEHICLE	Bill of Lading/Air Bill No.: 61 4235 7954 1901
Protocol: CERCLA	Data Turnaround: 45 Days	Offsite Property No.

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
B10LK0 (F)		W	12-13-00	0959	1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
B10LK1		W			1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
B10LK1		W			1x500-mL P	IC Anions - 300.0	Cool 4C
B10LK1		W			1x20-mL P	Activity Scan	None
B10LK1		W			2x1000-mL G/P	Gross Alpha	HNO3 to pH <2
B10LK1		W			2x1000-mL G/P	Gross Beta	HNO3 to pH <2
B10LK1		W			1x250-mL P	Tritium - H3	None

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
D. E. PARCHEN		DEParchen	12/13/00 1530	Fed Ex			12-13-00
FEDERAL EXPRESS			12-14-00 10:00	E. SEGURO		E. Segura	12-14-00 10:00
JA Corso		JA Corso	12-15-00 16:00	Fed Ex			12-15-00
Fed Ex			12-16-00 1030				12-16-00 1030

Matrix *

S = Soil		DS = Drum Soli	
SE = Sediment		DL = Drum Liq	
SO = Solid		T = Tissue	
SL = Sludge		WI = Wipe	
W = Water		L = Liquid	
O = Oil		V = Vegetatio	
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

SDG 1184

C01-008-31

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-H 38	Ice Chest No.: SMX459 Temp.
Shipped To (Lab): TMA/RECRA	Method of Shipment: GOVT. VEHICLE	Bill of Lading/Air Bill No.: 61 4235 7954 139
Protocol: CERCLA	Data Turnaround: 45 Days	Offsite Property No.: 6409

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
B10LK2 (F)		W	12 13 00	0800	1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
B10LK3		W			1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
B10LK3		W			1x500-mL P	IC Anions - 300.0	Cool 4C
B10LK3		W			1x20-mL P	Activity Scan	None
B10LK3		W			2x1000-mL G/P	Gross Alpha	HNO3 to pH <2
B10LK3		W			2x1000-mL G/P	Gross Beta	HNO3 to pH <2
B10LK3		W			1x250-mL P	Tritium - H3	None

Relinquished By (Print / Sign)	Date/Time	Received By (Print / Sign)	Date/Time
D. E. PARCHEN	12/13/00 1800	Fed. Ex.	12-13-00
FEDERAL EXPRESS	12-14-00 10 AM	E. Segura	12-14-00 10 AM
J R Corse for Como	12-15-00 16:00	Fed Ex	12-15-00
Fed Ex	12-16-00 1030	T Koppel	12-16-00 1030

Matrix *

S	= Soil	DS	= Drum Sol
SE	= Sediment	DL	= Drum Liq
SO	= Solid	T	= Tissue
SL	= Sludge	WI	= Wipe
W	= Water	L	= Liquid
O	= Oil	V	= Vegetatic
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

SOG H1184

C.O.C. # C01-008-3

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.: WIM-SMWS-H 38	Ice Chest No.: SMLS80 Temp.
Shipped To (Lab): TMA/RECRA	Method of Shipment: GOVT. VEHICLE	Bill of Lading/Air Bill No.: 56 4235 7954 1297
Protocol: CERCLA	Data Turnaround: 45 Days	Offsite Property No.: 6409

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
B10LJ8 (F)		W	12-13-00	1148	1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
B10LJ9		W			1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
B10LJ9		W			1x500-mL P	IC Anions - 300.0	Cool 4C
B10LJ9		W			1x20-mL P	Activity Scan	None
B10LJ9		W			2x1000-mL G/P	Gross Alpha	HNO3 to pH <2
B10LJ9		W			2x1000-mL G/P	Gross Beta	HNO3 to pH <2
B10LJ9		W			1x250-mL P	Tritium - H3	None

Relinquished By (Print / Sign)	Date/Time	Received By (Print / Sign)	Date/Time
D. E. PARCHEN	12/13/00 1530	Fed. Ex.	12-13-00
FED-EXPRESS	12-14-00 10 AM	E. SEGURO	12-14-00 10:AM
JR Corso	12-15-00 16:00	Fed Ex	12-15-00
Fed Ex	12-16-00 1030		12-16-00 1030

Matrix *

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

FINAL SAMPLE DISPOSITION

Disposal Method (e.g., Return to customer, per lab procedure, used in process)

Disposed By

Date/Time

Recra LabNet - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD C01-008 H1184

DATE RECEIVED: 12/16/00 RFW LOT # :0012L604

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B10LK5						
BROMIDE BY IC	002	W	00LICA81	12/13/00	12/20/00	12/20/00
BROMIDE BY IC	002 REP	W	00LICA81	12/13/00	12/20/00	12/20/00
BROMIDE BY IC	002 MS	W	00LICA81	12/13/00	12/20/00	12/20/00
CHLORIDE BY IC	002	W	00LICA81	12/13/00	12/20/00	12/20/00
CHLORIDE BY IC	002 REP	W	00LICA81	12/13/00	12/20/00	12/20/00
CHLORIDE BY IC	002 MS	W	00LICA81	12/13/00	12/20/00	12/20/00
FLUORIDE BY IC	002	W	00LICA81	12/13/00	12/20/00	12/20/00
FLUORIDE BY IC	002 REP	W	00LICA81	12/13/00	12/20/00	12/20/00
FLUORIDE BY IC	002 MS	W	00LICA81	12/13/00	12/20/00	12/20/00
NITRITE BY IC	002	W	00LICA81	12/13/00	12/20/00	12/20/00
NITRITE BY IC	002 REP	W	00LICA81	12/13/00	12/20/00	12/20/00
NITRITE BY IC	002 MS	W	00LICA81	12/13/00	12/20/00	12/20/00
NITRATE BY IC	002	W	00LICA81	12/13/00	12/20/00	12/20/00
NITRATE BY IC	002 REP	W	00LICA81	12/13/00	12/20/00	12/20/00
NITRATE BY IC	002 MS	W	00LICA81	12/13/00	12/20/00	12/20/00
PHOSPHATE BY IC	002	W	00LICA81	12/13/00	12/20/00	12/20/00
PHOSPHATE BY IC	002 REP	W	00LICA81	12/13/00	12/20/00	12/20/00
PHOSPHATE BY IC	002 MS	W	00LICA81	12/13/00	12/20/00	12/20/00
SULFATE BY IC	002	W	00LICA81	12/13/00	12/20/00	12/20/00
SULFATE BY IC	002 REP	W	00LICA81	12/13/00	12/20/00	12/20/00
SULFATE BY IC	002 MS	W	00LICA81	12/13/00	12/20/00	12/20/00
B10LK1						
BROMIDE BY IC	004	W	00LICA81	12/13/00	12/20/00	12/20/00
CHLORIDE BY IC	004	W	00LICA81	12/13/00	12/20/00	12/20/00
FLUORIDE BY IC	004	W	00LICA81	12/13/00	12/20/00	12/20/00
NITRITE BY IC	004	W	00LICA81	12/13/00	12/20/00	12/20/00
NITRATE BY IC	004	W	00LICA81	12/13/00	12/20/00	12/20/00
PHOSPHATE BY IC	004	W	00LICA81	12/13/00	12/20/00	12/20/00
SULFATE BY IC	004	W	00LICA81	12/13/00	12/20/00	12/20/00
B10LK3						
BROMIDE BY IC	006	W	00LICA81	12/13/00	12/20/00	12/20/00

FEB 2001
RECEIVED

Recra LabNet - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD C01-008 H1184

DATE RECEIVED: 12/16/00 RFW LOT # :0012L604

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
CHLORIDE BY IC	006	W	00LICA81	12/13/00	12/20/00	12/20/00
~~FLUORIDE BY IC~~	~~006~~	~~W~~	~~00LICA81~~	~~12/13/00~~	~~12/20/00~~	~~12/20/00~~
NITRITE BY IC	006	W	00LICA81	12/13/00	12/20/00	12/20/00
NITRATE BY IC	006	W	00LICA81	12/13/00	12/20/00	12/20/00
PHOSPHATE BY IC	006	W	00LICA81	12/13/00	12/20/00	12/20/00
SULFATE BY IC	006	W	00LICA81	12/13/00	12/20/00	12/20/00
B10LJ9						
BROMIDE BY IC	008	W	00LICA81	12/13/00	12/20/00	12/20/00
CHLORIDE BY IC	008	W	00LICA81	12/13/00	12/20/00	12/20/00
FLUORIDE BY IC	008	W	00LICA81	12/13/00	12/20/00	12/20/00
NITRITE BY IC	008	W	00LICA81	12/13/00	12/20/00	12/20/00
NITRATE BY IC	008	W	00LICA81	12/13/00	12/20/00	12/20/00
PHOSPHATE BY IC	008	W	00LICA81	12/13/00	12/20/00	12/20/00
SULFATE BY IC	008	W	00LICA81	12/13/00	12/20/00	12/20/00

LAB QC:

BROMIDE BY IC	MB1	W	00LICA81	N/A	12/20/00	12/20/00
BROMIDE BY IC	MB1 BS	W	00LICA81	N/A	12/20/00	12/20/00
CHLORIDE BY IC	MB1	W	00LICA81	N/A	12/20/00	12/20/00
CHLORIDE BY IC	MB1 BS	W	00LICA81	N/A	12/20/00	12/20/00
FLUORIDE BY IC	MB1	W	00LICA81	N/A	12/20/00	12/20/00
FLUORIDE BY IC	MB1 BS	W	00LICA81	N/A	12/20/00	12/20/00
NITRITE BY IC	MB1	W	00LICA81	N/A	12/20/00	12/20/00
NITRITE BY IC	MB1 BS	W	00LICA81	N/A	12/20/00	12/20/00
NITRATE BY IC	MB1	W	00LICA81	N/A	12/20/00	12/20/00
NITRATE BY IC	MB1 BS	W	00LICA81	N/A	12/20/00	12/20/00
PHOSPHATE BY IC	MB1	W	00LICA81	N/A	12/20/00	12/20/00
PHOSPHATE BY IC	MB1 BS	W	00LICA81	N/A	12/20/00	12/20/00
SULFATE BY IC	MB1	W	00LICA81	N/A	12/20/00	12/20/00
SULFATE BY IC	MB1 BS	W	00LICA81	N/A	12/20/00	12/20/00

LIONVILLE LABORATORY INC.

Analytical Report

Client : TNU-HANFORD C01-008 H1184
RFW# : 0012L604

W.O. # : 10985-001-001-9999-00
Date Received: 12-16-00

INORGANIC CASE NARRATIVE

As of 27 January 2001, Recra LabNet Philadelphia became Lionville Laboratory Inc. Some forms may still reference Recra LabNet Philadelphia.

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

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

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

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

5. The method blanks were within method criteria.

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

7. The matrix spike recoveries were within the 75-125% control limits.

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

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

J. Michael Taylor
VP, Laboratory General Manager
Lionville Laboratory

01-30-01
Date

njp\i12-604

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 15 pages.

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

Recra LabNet Philadelphia

WET CHEMISTRY

METHODS GLOSSARY FOR WATER SAMPLE ANALYSIS

	EPA /600	SW846	OTHER
Acidity	___ 305.1		
___Alkalinity ___Bicarbonate ___Carbonate	___ 310.1		
BOD	___ 405.1		___ 5210B (b)
Ion Chormatography:			
✓ Bromide ✓ Chloride ✓ Fluoride	✓ 300.0	___ 9056	
✓ Nitrate ✓ Nitrite ✓ Phosphate	✓ 300.0	___ 9056	
✓ Sulfate ___Formate ___Acetate ___Oxalate	✓ 300.0	___ 9056	
Chloride	___ 325.2	___ 9251	
Chorine, Residual	___ 330.5 (mod)		
Cyanide, Amenable to Chorination	___ 335.2	___ 9010B	
Cyanide, Total	___ 335.2	___ 9010B ___ 9014	___ ILMO4.0 (e)
Cyanide, Weak Acid Dissociable		___	___ 412 (a) ___ 4500CN-I (b
COD	___ 410.4(mod)		___ 5220C (b)
Color	___ 110.2		
Corrosivity by Coupon		___ 1110(mod)	
Chromium VI		___ 7196A	___ 3500Cr-D (b)
Fluoride	___ 340.2		___ 4500-FC
Hardness, Calcium	___ 215.2		
Hardness, Total	___ 130.2		
Iodide			___ ASTM D19P202 (1)
Surfactant	___ 425.1		
___Nitrate-Nitrite ___Nitrate ___Nitrite	___ 353.2		
Ammonia	___ 350.3		
Total___ Kjeldahl ___ Organic Nitrogen	___ 351.4		
Total___ Organic ___ Inorganic Carbon	___ 415.1	___ 9060	
Oil & Grease	___ 413.1	___ 9070	
___ pH ____ pH; paper	___ 150.1	___ 9040B ___ 9041A	
Petroleum Hydrocarbons, Total Recoverable	___ 418.1		
Phenol	___ 420.1 ___ 420.2	___ 9065 ___ 9066	
___Ortho ___Total Phosphate	___ 365.2		___ 4500-P B ___ C
Salinity			___ 210A (a) ___ 2520 (b)
Settleable Solids	___ 160.5		
Sulfide	___ 376.1 ___ 376.2	___ 9030B/9034 (acid soluble)	
Reactive ___Cyanide ___Sulfide		___ Section 7.3 (__9014__9030B)	
Silica	___ 370.1		
Sulfite	___ 377.1		
Sulfate	___ 375.4	___ 9038	
Specific Conductance	___ 120.1	___ 9050A	
Specific Gravity			___ D5057-90 ___ 213E (a)
Synthetic Precipitation Leach		___ 1312	
Total ___Dissolved __Suspended ___Solids	160 ___.1	___.2 ___.3	
Total Organic Halides	___ 450.1	___ 9020B	
Turbidity	___ 180.1		
Volatile Solids:			
__Total __Dissolved __Suspended	___ 160.4		

Other: **Method:**

Recra LabNet Philadelphia
METHOD REFERENCES AND DATA QUALIFIERS

DATA QUALIFIERS

U = Indicates that the parameter was not detected at or above the reported limit. The associated numerical value is the sample detection limit.

* = Indicates that the original sample result is greater than 4x the spike amount added.

ABBREVIATIONS

MB = Method or Preparation Blank.
MS = Matrix Spike.
MSD = Matrix Spike Duplicate.
REP = Sample Replicate
LC = Laboratory Control Sample.
NC = Not calculated.

A suffix of -R, -S, or -T following these codes indicate a replicate, spike or sample duplicate analysis respectively.

ANALYTICAL WET CHEMISTRY METHODS

1. ASTM Standard Methods.

2. USEPA Methods for Chemical Analysis of Water and Wastes (USEPA 600/4-79-020).

3. Test Methods for Evaluating Solid Waste (USEPA SW-846).

a. Standard Methods for the Examination of Water and Waste, 16 ed, (1983).

b. Standard Methods for the Examination of Water and Waste, 17 ed, (1989)/18ed (1992).

c. Method of Soil Analysis, Part 1, Physical and Mineralogical Methods, 2nd ed, (1986).

d. Method of Soil Analysis, Part 2, Chemical and Microbiological Properties, Am. Soc. Agron., Madison, WI (1965).

e. USEPA Contract Laboratory Program, Statement of Work for Inorganic Analysis.

f. Code of Federal Regulations.

Recra LabNet - Lionville

INORGANICS DATA SUMMARY REPORT 12/29/00

CLIENT: TNUHANFORD C01-008 H1184 RECRA LOT #: 0012L604

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-002	B10LK5	Bromide by IC	0.25 u	MG/L	0.25	1.0
		Chloride by IC	3.1	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	4.7	MG/L	0.25	1.0
		Phosphate by IC	0.25 u	MG/L	0.25	1.0
		Sulfate by IC	16.8	MG/L	0.50	2.0
-004	B10LK1	Bromide by IC	0.25 u	MG/L	0.25	1.0
		Chloride by IC	7.8	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	14	MG/L	1.2	5.0
		Phosphate by IC	0.25 u	MG/L	0.25	1.0
		Sulfate by IC	32.9	MG/L	1.2	5.0
-006	B10LK3	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
-008	B10LJ9	Bromide by IC	0.25 u	MG/L	0.25	1.0
		Chloride by IC	21.7	MG/L	0.50	2.0
		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	43	MG/L	2.5	10
		Phosphate by IC	0.25 u	MG/L	0.25	1.0
		Sulfate by IC	95.4	MG/L	5.0	20.0

Recra LabNet - Lionville

INORGANICS METHOD BLANK DATA SUMMARY PAGE 12/29/00

CLIENT: TNUHANFORD C01-008 H1184 RECRA LOT #: 0012L604

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK10	00LICA81-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

Recra LabNet - Lionville

INORGANICS ACCURACY REPORT 12/29/00

CLIENT: TNUHANFORD C01-008 H1184 RECRA LOT #: 0012L604

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-002	B10LK5	Bromide by IC	9.6	0.00	10.0	96.3	2.0
		Chloride by IC	12.9	3.1	10.0	97.9	2.0
		Fluoride by IC	21.7	0.023	20.0	108.2	2.0
		Nitrite by IC	10	0.25u	10	102.5	2.0
		Nitrate by IC	15	4.7	10	101.2	2.0
		Phosphate by IC	9.4	0.25u	10.0	94.4	2.0
		Sulfate by IC	41.6	16.8	25.0	99.1	5.0
BLANK10	00LICA81-MB1	Bromide by IC	4.9	0.25u	5.0	98.0	1.0
		Chloride by IC	4.8	0.25u	5.0	96.5	1.0
		Fluoride by IC	10.8	0.50u	10.0	108.3	1.0
		Nitrite by IC	4.8	0.25u	5.0	95.7	1.0
		Nitrate by IC	4.9	0.25u	5.0	97.0	1.0
		Phosphate by IC	5.0	0.25u	5.0	99.9	1.0
		Sulfate by IC	4.8	0.25u	5.0	96.4	1.0

Recra LabNet - Lionville

INORGANICS PRECISION REPORT 12/29/00

CLIENT: TNUHANFORD C01-008 H1184 RECRA LOT #: 0012L604

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR (REP)
-002REP	B10LK5	Bromide by IC	0.25u	0.25u	NC	1.0
		Chloride by IC	3.1	3.1	0.54	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	4.7	4.7	0.66	1.0
		Phosphate by IC	0.25u	0.25u	NC	1.0
		Sulfate by IC	16.8	16.8	0.036	2.0

RECRA LabNet Use Only: 0012L604

Custody Transfer Record/Lab Work Request

Page 1 of 1

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

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: 12-16-00 Date Due: 1-15-01
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: 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	B10LK4 (F)			W	12-13-00	1039	✓	
002	K5					↓	✓	✓
003	K0 (F)					0959	✓	
004	K1					↓	✓	✓
005	K2 (F)					0800	✓	
006	K3					↓	✓	✓
007	J8 (F)					1148	✓	
008	J9			↓	↓	↓	✓	✓

Special Instructions: Saf C01-008

Run Matrix QC

DATE/REVISIONS:

Met (1) 1. Al, Ag, Ba, Be, Ca, Cd, Cr, Co, Cu, Fe, K,
↓ 2. Mg, Mn, Ni, Na, Sb, 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 # Sockeye
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'd Y or N

Cooler Temp. 3.0 °C

Relinquished by	Received by	Date	Time
FedEx	TBoppel	12-16-00	1030

Relinquished by	Received by	Date	Time
	ORIGINAL		
COMPOSITE	REWRITTEN		

Discrepancies Between Samples Labels and COC Record? Y or N

NOTES: 8914-8983PR8L0

PNNL 604

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

SDG-H1184

C.O.C. # C01-008-28

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. WIM-SAWS-H 38	Ice Chest No. SHIL 580 Temp.
Shipped To (Lab) TMA/RECRA	Method of Shipment GOVT. VEHICLE	Bill of Lading/Air Bill No. 4235 7954 1297
Protocol CERCLA	Data Turnaround 45 Days	Offsite Property No. 6409

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
B10LK4 (F)		W	12-13-00	1034	1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
B10LK5		W			1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
B10LK5		W			1x500-mL P	IC Anions - 300.0	Cool 4C
B10LK5		W			1x20-mL P	Activity Scan	None
B10LK5		W			2x1000-mL G/P	Gross Alpha	HNO3 to pH <2
B10LK5		W			2x1000-mL G/P	Gross Beta	HNO3 to pH <2
B10LK5		W			1x250-mL P	Tritium - H3	None

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
D. E. PARCHEN		DEParchen	12/13/00 1330	Fed Ex			12-13-00
FED EXPRESS			12-14-00 10AM	E. SEGURO		E. Segura	12-14-00
JR Corso		JRCorso	12-15-00 1610	Fed Ex			12-15-00
FedEx			12-16-00 1030	TRappe			12-16-00 1030

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

SDG 1184

C.O.C. # C01-008-30

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. WMSHWS-1438	Ice Chest No. SIML 454 Temp.
Shipped To (Lab) TMA/RECRA	Method of Shipment GOVT VEHICLE	Bill of Lading/Air Bill No. 61 42357954 (301
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
B10LK0 (F)		W	12-13-00	0959	1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
B10LK1		W			1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
B10LK1		W			1x500-mL P	IC Anions - 300.0	Cool 4C
B10LK1		W			1x20-mL P	Activity Scan	None
B10LK1		W			2x1000-mL G/P	Gross Alpha	HNO3 to pH <2
B10LK1		W			2x1000-mL G/P	Gross Beta	HNO3 to pH <2
B10LK1		W			1x250-mL P	Tritium - H3	None

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
D. E. PARCHEN			12/13/00 1530	Fed Ex			12-13-00
FEDERAL EXPRESS			12-14-00 10:11	E. SEGURO		E. Segura	12-14-00 10 AM
JR Porco		JR Porco	12-15-00 1600	Fed Ex			12-15-00
Fed Ex			12-16-00 1030				12-16-00 1030

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

SOG 1184

C.O.C. # C01-008-31

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-H 38	Ice Chest No. SMI459 Temp.
Shipped To (Lab) TMA/RECRA	Method of Shipment GOVT VEHICLE	Bill of Lading/Air Bill No. 61 4235 7954 1391
Protocol CERCLA	Data Turnaround 45 Days	Offsite Property No. 6409

POSSIBLE SAMPLE HAZARDS/REMARKS
** **

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

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B10LK2 (F)		W	12 13 00	0800	1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
B10LK3		W			1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
B10LK3		W			1x500-mL P	IC Anions - 300.0	Cool 4C
B10LK3		W			1x20-mL P	Activity Scan	None
B10LK3		W			2x1000-mL G/P	Gross Alpha	HNO3 to pH <2
B10LK3		W			2x1000-mL G/P	Gross Beta	HNO3 to pH <2
B10LK3		W			1x250-mL P	Tritium - H3	None

Relinquished By (Print / Sign)	Date/Time	Received By (Print / Sign)	Date/Time
D. E. PARCHEN	12/13/00 1800	Fed. Ex.	12-13-00
FEDERAL EXPRESS	12-14-00 10 AM	E. Segura	12-14-00 10:AM
JR Corse	12-15-00 16:00	Fed Ex	12-15-00
Fed Ex	12-16-00 1030	T Koppel	12-16-00 1030

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

SOW H1184

C.O.C. # C01-008-32

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-5MWSH 38	Ice Chest No.: 5MLS80 Temp.
Shipped To (Lab): TMA/RECRA	Method of Shipment: GOVT. VEHICLE	Bill of Lading/Air Bill No.: 56 4235 7954 1297
Protocol: CERCLA	Data Turnaround: 45 Days	Offsite Property No.: 6409

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
B10LJ8 (F)		W	12-13-00	1148	1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
B10LJ9		W			1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
B10LJ9		W			1x500-mL P	IC Anions - 300.0	Cool 4C
B10LJ9		W			1x20-mL P	Activity Scan	None
B10LJ9		W			2x1000-mL G/P	Gross Alpha	HNO3 to pH <2
B10LJ9		W			2x1000-mL G/P	Gross Beta	HNO3 to pH <2
B10LJ9		W			1x250-mL P	Tritium - H3	None

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
D. E. PARCHEN			12/13/00 1330	Fed. Ex.			12-13-00
FED-EXPRESS			12-14-00 10 AM	E. SEGURO		E. Segura	12-14-00 10:AM
JR Porsio			12-15-00 16:00	Fed Ex			12-15-00
Fed Ex			12-16-00 1030				12-16-00 1030

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 # R0-12-099

12/14/00 15:54:00 WORK ID: SAF C01-008 SDG H1184

RCVD: 12/14/00 DUE: 01/28/01 KEEP: 01/28/02 DISP: S

DASH	SAMPLE IDENTIFICATION	STORED	TESTS		
01A	B10LK4(F)	RECRA	DISPOS	E011	
02A	B10LK5	RECRA	DISPOS	E011	E260
02B	B10LK5 MS	RECRA	E011	E260	
02C	B10LK5 DUP	RECRA	E011	E260	
03A	B10LK0(F)	RECRA	DISPOS	E011	
04A	B10LK1	RECRA	DISPOS	E011	E260
05A	B10LK2(F)	RECRA	DISPOS	E011	
06A	B10LK3	RECRA	DISPOS	E011	E260
07A	B10LJ8(F)	RECRA	DISPOS	E011	
08A	B10LJ9	RECRA	DISPOS	E011	E260

RELEASED BY	DATE	TRANSFERRED TO	DATE	RECEIVED BY	DATE
[illegible]	12-15-00	[illegible]	12-15-00		
FEDEX	12-16-00	RECRA	12-16-00	[illegible]	12-16-00