H1141

0054603

1.0 GENERAL

Bechtel Hanford Inc. (BHI) Sample Delivery Group H1141 was composed of ten 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 (2.44 pCi/L). The activity was below 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.

2.3 Strontium-90 Analyses (By Yttrium Analysis)

No problems were encountered during the course of the analyses.

2.4 Total Uranium Analyses

No problems were encountered during the course of the analyses.

2.5 Gamma Spectroscopy Analyses

No problems were encountered during the course of the analyses.

RECEIVED
MAR 28 2001
EDMC

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

1/9/01
Date

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1141

SAMPLE SUMMARY

SDG 7565
Contact Melissa C. Mannion

Client Hanford
Contract TRC-SBB-207925
Case no SDG H1141

CLIENT SAMPLE ID	LOCATION	MATRIX	LEVEL	LAB SAMPLE ID	SAF NO	CHAIN OF CUSTODY	COLLECTED
B10LB2	Hanford Site	WATER		R011116-07	C01-008	C01-008-136	11/14/00 10:16
B10LC9	Hanford Site	WATER		R011116-01	C01-008	C01-008-66	11/13/00 11:56
B10LF5	Hanford Site	WATER		R011116-04	C01-008	C01-008-106	11/13/00 11:05
B10LJ1	Hanford Site	WATER		R011116-05	C01-008	C01-008-120	11/14/00 11:59
B10LM3	Hanford Site	WATER		R011116-06	C01-008	C01-008-148	11/14/00 09:21
B10LR7	Hanford Site	WATER		R011116-02	C01-008	C01-008-80	11/14/00 11:11
B10LT1	Hanford Site	WATER		R011116-03	C01-008	C01-008-84	11/13/00 09:51
Method Blank		WATER		R011116-09	C01-008		
Lab Control Sample		WATER		R011116-08	C01-008		
Duplicate (R011116-07)	Hanford Site	WATER		R011116-10	C01-008		11/14/00 10:16
Spike (R011116-07)	Hanford Site	WATER		R011116-11	C01-008		11/14/00 10:16

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CS
Version 3.06
Report date 01/09/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1141

QC SUMMARY

SDG 7565
Contact Melissa C. Mannion

Client Hanford
Contract TRC-SBB-207925
Case no SDG H1141

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
7565	C01-008-106	B10LF5	WATER				11/15/00	2	R011116-04	7565-004
	C01-008-120	B10LJ1	WATER				11/15/00	1	R011116-05	7565-005
	C01-008-136	B10LB2	WATER				11/15/00	1	R011116-07	7565-007
	C01-008-148	B10LM3	WATER				11/15/00	1	R011116-06	7565-006
	C01-008-66	B10LC9	WATER				11/15/00	2	R011116-01	7565-001
	C01-008-80	B10LR7	WATER				11/15/00	1	R011116-02	7565-002
	C01-008-84	B10LT1	WATER				11/15/00	2	R011116-03	7565-003
		Method Blank	WATER						R011116-09	7565-009
		Lab Control Sample	WATER						R011116-08	7565-008
		Duplicate (R011116-07)	WATER				11/15/00	1	R011116-10	7565-010
		Spike (R011116-07)	WATER				11/15/00	1	R011116-11	7565-011

Lab id TMANC
Protocol Hanford
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Form DVD-QS
Version 3.06
Report date 01/09/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1141

PREP BATCH SUMMARY

SDG 7565
Contact Melissa C. Mannion

Client Hanford
Contract TRC-SBB-207925
Case no SDG H1141

TEST	MATRIX	METHOD	PREPARATION ERROR BATCH	2σ %	PLANCHETS ANALYZED CLIENT	MORE	RE	BLANK	LCS	DUP/ORIG	MS/ORIG	QUALIFIERS
Beta Counting												
TC	WATER	Technetium 99 in Water	6962-110	10.0	1			1	1	1/1		
Y	WATER	Strontium 90 in Water	6962-110	10.0	1			1	1	1/1		
Gas Proportional Counting												
82B	WATER	Gross Beta in Water	6962-110	15.0	7			1	1	1/1		
88A	WATER	Gross Alpha in Water	6962-110	20.0	7			1	1	1/1		
Kinetic Phosphorimetry												
U_T	WATER	Uranium, Total in Water	6962-110	9.0	1			1	1	1/1		X
Liquid Scintillation Counting												
H	WATER	Tritium in Water	6962-110	10.0	7			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 01/09/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1141

WORK SUMMARY

SDG 7565
Contact Melissa C. Mannion

Client Hanford
Contract TRC-SBB-207925
Case no SDG H1141

CLIENT SAMPLE ID / LOCATION / CUSTODY	SAF No	MATRIX	LAB SAMPLE ID / COLLECTED / RECEIVED	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
B10LB2			R011116-07	7565-007	82B/82		01/03/01	01/08/01	MCM	Gross Beta in Water
Hanford Site		WATER	11/14/00	7565-007	88A/88		01/05/01	01/08/01	MCM	Gross Alpha in Water
C01-008-136	C01-008		11/15/00	7565-007	H		12/15/00	01/08/01	MCM	Tritium in Water
				7565-007	TC		12/27/00	01/08/01	MCM	Technetium 99 in Water
				7565-007	U_T		12/11/00	01/08/01	MCM	Uranium, Total in Water
				7565-007	Y		12/15/00	01/08/01	MCM	Strontium 90 in Water
B10LC9			R011116-01	7565-001	82B/82		01/03/01	01/08/01	MCM	Gross Beta in Water
Hanford Site		WATER	11/13/00	7565-001	88A/88		01/04/01	01/08/01	MCM	Gross Alpha in Water
C01-008-66	C01-008		11/15/00	7565-001	H		12/14/00	01/08/01	MCM	Tritium in Water
B10LF5			R011116-04	7565-004	82B/82		01/03/01	01/08/01	MCM	Gross Beta in Water
Hanford Site		WATER	11/13/00	7565-004	88A/88		01/08/01	01/09/01	MCM	Gross Alpha in Water
C01-008-106	C01-008		11/15/00	7565-004	H		12/14/00	01/08/01	MCM	Tritium in Water
B10LJ1			R011116-05	7565-005	82B/82		01/03/01	01/08/01	MCM	Gross Beta in Water
Hanford Site		WATER	11/14/00	7565-005	88A/88		01/04/01	01/08/01	MCM	Gross Alpha in Water
C01-008-120	C01-008		11/15/00	7565-005	H		12/14/00	01/08/01	MCM	Tritium in Water
B10LM3			R011116-06	7565-006	82B/82		01/03/01	01/08/01	MCM	Gross Beta in Water
Hanford Site		WATER	11/14/00	7565-006	88A/88		01/09/01	01/09/01	MCM	Gross Alpha in Water
C01-008-148	C01-008		11/15/00	7565-006	H		12/15/00	01/08/01	MCM	Tritium in Water
B10LR7			R011116-02	7565-002	82B/82		01/03/01	01/08/01	MCM	Gross Beta in Water
Hanford Site		WATER	11/14/00	7565-002	88A/88		01/04/01	01/08/01	MCM	Gross Alpha in Water
C01-008-80	C01-008		11/15/00	7565-002	H		12/14/00	01/08/01	MCM	Tritium in Water
B10LT1			R011116-03	7565-003	82B/82		01/03/01	01/08/01	MCM	Gross Beta in Water
Hanford Site		WATER	11/13/00	7565-003	88A/88		01/04/01	01/08/01	MCM	Gross Alpha in Water
C01-008-84	C01-008		11/15/00	7565-003	H		12/14/00	01/08/01	MCM	Tritium in Water
Method Blank			R011116-09	7565-009	82B/82		01/03/01	01/08/01	MCM	Gross Beta in Water
		WATER		7565-009	88A/88		01/05/01	01/08/01	MCM	Gross Alpha in Water
	C01-008			7565-009	H		12/15/00	01/08/01	MCM	Tritium in Water
				7565-009	TC		12/28/00	01/08/01	MCM	Technetium 99 in Water
				7565-009	U_T		12/11/00	01/08/01	MCM	Uranium, Total in Water
				7565-009	Y		12/15/00	01/08/01	MCM	Strontium 90 in Water

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CWS
Version 3.06
Report date 01/09/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1141

SDG 7565
Contact Melissa C. Mannion

WORK SUMMARY, cont.

Client Hanford
Contract TRC-SBB-207925
Case no SDG H1141

CLIENT SAMPLE ID / LOCATION / CUSTODY	SAF No	MATRIX	LAB SAMPLE ID / COLLECTED / RECEIVED	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
Lab Control Sample			R011116-08	7565-008	82B/82		01/03/01	01/08/01	MCM	Gross Beta in Water
		WATER		7565-008	88A/88		01/08/01	01/09/01	MCM	Gross Alpha in Water
	C01-008			7565-008	H		12/15/00	01/08/01	MCM	Tritium in Water
				7565-008	TC		12/27/00	01/08/01	MCM	Technetium 99 in Water
				7565-008	U_T		12/11/00	01/08/01	MCM	Uranium, Total in Water
				7565-008	Y		12/15/00	01/08/01	MCM	Strontium 90 in Water
Duplicate (R011116-07)			R011116-10	7565-010	82B/82		01/03/01	01/08/01	MCM	Gross Beta in Water
Hanford Site		WATER	11/14/00	7565-010	88A/88		01/05/01	01/08/01	MCM	Gross Alpha in Water
	C01-008		11/15/00	7565-010	H		12/15/00	01/08/01	MCM	Tritium in Water
				7565-010	TC		12/27/00	01/08/01	MCM	Technetium 99 in Water
				7565-010	U_T		12/11/00	01/08/01	MCM	Uranium, Total in Water
				7565-010	Y		12/15/00	01/08/01	MCM	Strontium 90 in Water
Spike (R011116-07)			R011116-11	7565-011	H		12/15/00	01/08/01	MCM	Tritium in Water
Hanford Site		WATER	11/14/00							
	C01-008		11/15/00							

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	7			1	1	1		10
88A/88	C01-008	Gross Alpha in Water	900.0_ALPHABETA_GPC	7			1	1	1		10
H	C01-008	Tritium in Water	906.0_H3_LSC	7			1	1	1	1	11
TC	C01-008	Technetium 99 in Water	TC99_TR_SEP_LSC	1			1	1	1		4
U_T	C01-008	Uranium, Total in Water	UTOT_KPA	1			1	1	1		4
Y	C01-008	Strontium 90 in Water	SRISO_SEP_PRECIP_GPC	1			1	1	1		4
TOTALS				24			6	6	6	1	43

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CWS
Version 3.06
Report date 01/09/01

TMA / RICHMOND

SAMPLE DELIVERY GROUP H1141

R011116-09 **Method Blank**

METHOD BLANK

SDG	7565	Client/Case no	Hanford	SDG H1141	
Contact	Melissa C. Mannion	Contract	TRC-SBB-207925		
Lab sample id	R011116-09	Client sample id	Method Blank		
Dept sample id	7565-009	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	-0.366	0.57	1.3	3.0	U	88A
Gross Beta	12587-47-2	2.44	1.2	1.8	4.0	J	82B
Tritium	10028-17-8	18.1	180	300	400	U	H
Strontium 90	10098-97-2	0.266	0.46	1.1	2.0	U	Y
Technetium 99	14133-76-7	-0.609	4.4	15	15	U	TC
Total Uranium (ug/L)	7440-61-1	0	0.006	0.013	0.10	U	U_T

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

QC-BLANK 36822

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	01/09/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1141

R011116-08

Lab Control Sample

LAB CONTROL SAMPLE

SDG 7565
Contact Melissa C. Mannion

Client/Case no Hanford SDG H1141
Case no TRC-SBB-207925

Lab sample id R011116-08
Dept sample id 7565-008

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	72.9	5.4	1.3	3.0		88A	71.7	2.9	102	67-133	70-130
Gross Beta	82.5	3.7	2.0	4.0	B	82B	80.7	3.2	102	75-125	70-130
Tritium	9470	420	320	400		H	9920	400	95	83-117	80-120
Strontium 90	40.8	4.5	0.97	2.0		Y	46.2	1.8	88	79-121	80-120
Technetium 99	2650	84	14	15		TC	2620	100	101	83-117	80-120
Total Uranium (ug/L)	85.5	9.9	0.13	0.10	X	U_T	82.0	3.3	104	76-124	80-120

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

QC-LCS 36821

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-LCS
Version 3.06
Report date 01/09/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1141

R011116-10 B10LB2

DUPLICATE

SDG	7565	Client/Case no	Hanford SDG H1141
Contact	Melissa C. Mannion	Case no	TRC-SBB-207925
DUPLICATE		ORIGINAL	
Lab sample id	R011116-10	Lab sample id	R011116-07
Dept sample id	7565-010	Dept sample id	7565-007
		Received	11/15/00
Client sample id	B10LB2		
Location/Matrix	Hanford Site WATER		
Collected	11/14/00 10:16		
Custody/SAF No	C01-008-136 C01-008		

ANALYTE	DUPLICATE pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST	ORIGINAL pCi/L	2σ ERR (COUNT)	MDA pCi/L	QUALI-FIERS	RPD %	3σ PROT TOT LIMIT
Gross Alpha	1.41	1.7	2.7	3.0	U	88A	1.22	1.5	2.4	U	-	
Gross Beta	82.8	3.8	1.9	4.0	B	82B	86.3	4.0	2.8		4	33
Tritium	2990	170	150	400		H	3020	170	150		1	24
Strontium 90	41.2	3.7	1.0	2.0		Y	38.0	3.3	0.95		8	28
Technetium 99	1.23	3.8	12	15	U	TC	6.14	5.8	16	U	-	
Total Uranium (ug/L)	5.09	0.56	0	0.10		U_T	4.82	0.53	0.013		5	30

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

QC-DUP#7 36823

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-DUP
Version 3.06
Report date 01/09/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1141

R011116-11 B10LB2

MATRIX SPIKE

SDG	7565			Client/Case no	Hanford SDG H1141
Contact	Melissa C. Mannion			Case no	TRC-SBB-207925
	MATRIX SPIKE		ORIGINAL		
Lab sample id	R011116-11	Lab sample id	R011116-07	Client sample id	B10LB2
Dept sample id	7565-011	Dept sample id	7565-007	Location/Matrix	Hanford Site WATER
		Received	11/15/00	Collected	11/14/00 10:16
				Custody/SAF No	C01-008-136 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	22900	440	170	400		H	21000	840	3020	170	95	82-118	60-140

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

QC-MS#7 36824

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-MS
Version 3.06
Report date 01/09/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1141

R011116-07 B10LB2

DATA SHEET

SDG	7565	Client/Case no	Hanford	SDG_H1141	
Contact	Melissa C. Mannion	Contract	TRC-SBB-207925		
Lab sample id	R011116-07	Client sample id	B10LB2		
Dept sample id	7565-007	Location/Matrix	Hanford Site	WATER	
Received	11/15/00	Collected	11/14/00 10:16		
		Custody/SAF No	C01-008-136	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	1.22	1.5	2.4	3.0	U	88A
Gross Beta	12587-47-2	86.3	4.0	2.8	4.0		82B
Tritium	10028-17-8	3020	170	150	400		H
Strontium 90	10098-97-2	38.0	3.3	0.95	2.0		Y
Technetium 99	14133-76-7	6.14	5.8	16	15	U	TC
Total Uranium (ug/L)	7440-61-1	4.82	0.53	0.013	0.10		U_T

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	01/09/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1141

R011116-01 **B10LC9**

DATA SHEET

SDG	7565	Client/Case no	Hanford	SDG H1141	
Contact	Melissa C. Mannion	Contract	TRC-SBB-207925		
Lab sample id	R011116-01	Client sample id	B10LC9		
Dept sample id	7565-001	Location/Matrix	Hanford Site	WATER	
Received	11/15/00	Collected	11/13/00 11:56		
		Custody/SAF No	C01-008-66	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	0.256	1.1	2.0	3.0	U	88A
Gross Beta	12587-47-2	5.26	1.4	1.9	4.0	B	82B
Tritium	10028-17-8	3300	180	160	400		H

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

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	01/09/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1141

R011116-04 **B10LF5**

DATA SHEET

SDG	7565	Client/Case no	Hanford SDG H1141
Contact	Melissa C. Mannion	Contract	TRC-SBB-207925
Lab sample id	R011116-04	Client sample id	B10LF5
Dept sample id	7565-004	Location/Matrix	Hanford Site WATER
Received	11/15/00	Collected	11/13/00 11:05
		Custody/SAF No	C01-008-106 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	33.1	5.5	2.8	3.0		88A
Gross Beta	12587-47-2	181	5.6	2.2	4.0	B	82B
Tritium	10028-17-8	3390	180	150	400		H

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

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	01/09/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1141

R011116-05 **B10LJ1**

DATA SHEET

SDG	7565	Client/Case no	Hanford	SDG_H1141	
Contact	Melissa C. Mannion	Contract	TRC-SBB-207925		
Lab sample id	R011116-05	Client sample id	B10LJ1		
Dept sample id	7565-005	Location/Matrix	Hanford Site	WATER	
Received	11/15/00	Collected	11/14/00 11:59		
		Custody/SAF No	C01-008-120	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	0.157	1.1	2.2	3.0	U	88A
Gross Beta	12587-47-2	12.1	1.8	1.9	4.0	B	82B
Tritium	10028-17-8	3940	190	150	400		H

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

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	01/09/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1141

R011116-06 B10LM3

DATA SHEET

SDG	7565	Client/Case no	Hanford	SDG H1141	
Contact	Melissa C. Mannion	Contract	TRC-SBB-207925		
Lab sample id	R011116-06	Client sample id	B10LM3		
Dept sample id	7565-006	Location/Matrix	Hanford Site	WATER	
Received	11/15/00	Collected	11/14/00 09:21		
		Custody/SAF No	C01-008-148	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	1.40	1.6	2.2	3.0	U	88A
Gross Beta	12587-47-2	23.0	2.2	1.9	4.0	B	82B
Tritium	10028-17-8	5740	220	150	400		H

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

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	01/09/01

TMA / RICHMOND

SAMPLE DELIVERY GROUP H1141

R011116-02 **B10LR7**

DATA SHEET

SDG	7565	Client/Case no	Hanford SDG H1141
Contact	Melissa C. Mannion	Contract	TRC-SBB-207925
Lab sample id	R011116-02	Client sample id	B10LR7
Dept sample id	7565-002	Location/Matrix	Hanford Site WATER
Received	11/15/00	Collected	11/14/00 11:11
		Custody/SAF No	C01-008-80 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	1.99	1.8	2.7	3.0	U	88A
Gross Beta	12587-47-2	83.6	3.8	1.9	4.0	B	82B
Tritium	10028-17-8	3610	190	150	400		H

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

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	01/09/01

TMA / RICHMOND

SAMPLE DELIVERY GROUP H1141

R011116-03 B10LT1

DATA SHEET

SDG	7565	Client/Case no	Hanford SDG H1141
Contact	Melissa C. Mannion	Contract	TRC-SBB-207925
Lab sample id	R011116-03	Client sample id	B10LT1
Dept sample id	7565-003	Location/Matrix	Hanford Site WATER
Received	11/15/00	Collected	11/13/00 09:51
		Custody/SAF No	C01-008-84 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	0.465	1.2	2.2	3.0	U	88A
Gross Beta	12587-47-2	7.72	2.0	2.8	4.0		82B
Tritium	10028-17-8	3590	180	150	400		H

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

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	01/09/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1141

Test TC Matrix WATER
SDG 7565
Contact Melissa C. Mannion

METHOD SUMMARY

TECHNETIUM 99 IN WATER
BETA COUNTING

Client Hanford
Contract TRC-SBB-207925
Contract SDG H1141

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Technetium 99	
Preparation batch 6962-110						
B10LB2	R011116-07			7565-007	U	
BLK (QC ID=36822)	R011116-09			7565-009	U	
LCS (QC ID=36821)	R011116-08			7565-008	ok	
Duplicate (R011116-07)	R011116-10			7565-010	-	U
Nominal values and limits from method				RDLs (pCi/L)	15	
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 6962-110	2σ prep error 10.0 %			Reference Lab Notebook 6962 pg. 110												
B10LB2	R011116-07			16	0.0500			63		50			43	12/12/00	12/27	GRB-230
BLK (QC ID=36822)	R011116-09			15	0.0500			66		50				12/12/00	12/28	GRB-230
LCS (QC ID=36821)	R011116-08			14	0.0500			79		50				12/12/00	12/27	GRB-231
Duplicate (R011116-07) (QC ID=36823)	R011116-10			12	0.0500			87		50			43	12/12/00	12/27	GRB-207
Nominal values and limits from method				15	0.0500			20-105		50			180			

PROCEDURES	REFERENCE	TC99_TR_SEP_LSC
	CP-021	Preparation of Tc-99m Tracer, rev 0
	CP-002	Q.C. Preparation, rev 2
	CP-003	Tracing, rev 2
	CP-541	Technetium-99 Purification (Water) by Extraction Chromatography, rev 0
	CP-008	Heavy Element Electroplating, rev 3

AVERAGES ± 2 SD	MDA 14 ± 3.4
FOR 4 SAMPLES	YIELD 74 ± 22

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 01/09/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1141

Test Y Matrix WATER
SDG 7565
Contact Melissa C. Mannion

METHOD SUMMARY

STRONTIUM 90 IN WATER
BETA COUNTING

Client Hanford
Contract TRC-SBB-207925
Contract SDG H1141

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Strontium 90
Preparation batch 6962-110					
B10LB2	R011116-07			7565-007	38.0
BLK (QC ID=36822)	R011116-09			7565-009	U
LCS (QC ID=36821)	R011116-08			7565-008	ok
Duplicate (R011116-07)	R011116-10			7565-010	ok
Nominal values and limits from method				RDLs (pCi/L)	2.0
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	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 6962-110 2σ prep error 10.0 % Reference Lab Notebook 6962 pg. 110																
B10LB2	R011116-07			0.95	0.500			79		100			31	12/15/00	12/15	GRB-224
BLK (QC ID=36822)	R011116-09			1.1	0.500			74		100				12/15/00	12/15	GRB-208
LCS (QC ID=36821)	R011116-08			0.97	0.500			80		100				12/15/00	12/15	GRB-229
Duplicate (R011116-07) (QC ID=36823)	R011116-10			1.0	0.500			74		100			31	12/15/00	12/15	GRB-221
Nominal values and limits from method				2.0	0.500			20-105		100			180			

PROCEDURES	REFERENCE	SRISO_SEP_PRECIP_GPC
	CP-040	Environmental Water Dissolution, rev 3
	CP-520	Yttrium Purification, rev 2

AVERAGES ± 2 SD FOR 4 SAMPLES
MDA 1.0 ± 0.13
YIELD 77 ± 6

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 01/09/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1141

Test 82B Matrix WATER
SDG 7565
Contact Melissa C. Mannion

METHOD SUMMARY

GROSS BETA IN WATER
GAS PROPORTIONAL COUNTING

Client Hanford
Contract TRC-SBB-207925
Contract SDG H1141

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 6962-110								
B10LB2	R011116-07	82		7565-007	86.3			
B10LC9	R011116-01	82		7565-001	5.26			
B10LF5	R011116-04	82		7565-004	181			
B10LJ1	R011116-05	82		7565-005	12.1			
B10LM3	R011116-06	82		7565-006	23.0			
B10LR7	R011116-02	82		7565-002	83.6			
B10LT1	R011116-03	82		7565-003	7.72			
BLK (QC ID=36822)	R011116-09	82		7565-009	2.44 J			
LCS (QC ID=36821)	R011116-08	82		7565-008	ok			
Duplicate (R011116-07)	R011116-10	82		7565-010	ok			
Nominal values and limits from method				RDLs (pCi/L)	4.0			
100HR3 IAM (1&2) GW Mon.-Nov. 2000						Average		

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MDA pCi/L	ALIQ L	PREP FAC	DILU-TION	RESID mg	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 6962-110 2σ prep error 15.0 % Reference Lab Notebook 6962 pg. 110																
B10LB2	R011116-07	82		2.8	0.300			90		100			50	12/06/00	01/03	GRB-114
B10LC9	R011116-01	82		1.9	0.300			87		100			51	12/06/00	01/03	GRB-105
B10LF5	R011116-04	82		2.2	0.300			160		100			51	12/06/00	01/03	GRB-115
B10LJ1	R011116-05	82		1.9	0.300			100		100			50	12/06/00	01/03	GRB-105
B10LM3	R011116-06	82		1.9	0.300			126		100			50	12/06/00	01/03	GRB-107
B10LR7	R011116-02	82		1.9	0.300			99		100			50	12/06/00	01/03	GRB-107
B10LT1	R011116-03	82		2.8	0.300			101		100			51	12/06/00	01/03	GRB-114
BLK (QC ID=36822)	R011116-09	82		1.8	0.300			27		100				12/06/00	01/03	GRB-105
LCS (QC ID=36821)	R011116-08	82		2.0	0.300			28		100				12/06/00	01/03	GRB-115
Duplicate (R011116-07) (QC ID=36823)	R011116-10	82		1.9	0.300			94		100			50	12/06/00	01/03	GRB-107
Nominal values and limits from method				4.0	0.300			5-250		100			180			

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 01/09/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1141

Test 82B	Matrix WATER
SDG 7565	
Contact Melissa C. Mannion	

METHOD SUMMARY, cont.

GROSS BETA IN WATER

GAS PROPORTIONAL COUNTING

Client Hanford	
Contract TRC-SBB-207925	
Contract SDG H1141	

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

AVERAGES ± 2 SD	MDA	2.1	±	0.76
FOR 10 SAMPLES	RESIDUE	91	±	80

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-CMS
Version	3.06
Report date	01/09/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1141

Test 88A Matrix WATER
SDG 7565
Contact Melissa C. Mannion

METHOD SUMMARY

GROSS ALPHA IN WATER
GAS PROPORTIONAL COUNTING

Client Hanford
Contract TRC-SBB-207925
Contract SDG H1141

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Gross Alpha	
Preparation batch 6962-110						
B10LB2	R011116-07	88		7565-007	U	
B10LC9	R011116-01	88		7565-001	U	
B10LF5	R011116-04	88		7565-004	33.1	
B10LJ1	R011116-05	88		7565-005	U	
B10LM3	R011116-06	88		7565-006	U	
B10LR7	R011116-02	88		7565-002	U	
B10LT1	R011116-03	88		7565-003	U	
BLK (QC ID=36822)	R011116-09	88		7565-009	U	
LCS (QC ID=36821)	R011116-08	88		7565-008	ok	
Duplicate (R011116-07)	R011116-10	88		7565-010	-	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 6962-110	2σ prep error 20.0 % Reference Lab Notebook 6962 pg. 110															
B10LB2	R011116-07	88		2.4	0.300			107		100			52	12/06/00	01/05	GRB-112
B10LC9	R011116-01	88		2.0	0.300			91		100			52	12/06/00	01/04	GRB-112
B10LF5	R011116-04	88		2.8	0.300			159		100			56	12/06/00	01/08	GRB-110
B10LJ1	R011116-05	88		2.2	0.300			106		100			51	12/06/00	01/04	GRB-116
B10LM3	R011116-06	88		2.2	0.300			137		100			56	12/06/00	01/09	GRB-105
B10LR7	R011116-02	88		2.7	0.300			104		100			51	12/06/00	01/04	GRB-113
B10LT1	R011116-03	88		2.2	0.300			101		100			52	12/06/00	01/04	GRB-114
BLK (QC ID=36822)	R011116-09	88		1.3	0.300			29		100				12/06/00	01/05	GRB-114
LCS (QC ID=36821)	R011116-08	88		1.3	0.300			29		100				12/06/00	01/08	GRB-108
Duplicate (R011116-07) (QC ID=36823)	R011116-10	88		2.7	0.300			106		100			52	12/06/00	01/05	GRB-115
Nominal values and limits from method				3.0	0.300			5-250		100			180			

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 01/09/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1141

Test 88A	Matrix WATER
SDG 7565	
Contact Melissa C. Mannion	

METHOD SUMMARY, cont.

GROSS ALPHA IN WATER

GAS PROPORTIONAL COUNTING

Client Hanford	
Contract TRC-SBB-207925	
Contract SDG H1141	

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

AVERAGES ± 2 SD	MDA	2.2	±	1.1
FOR 10 SAMPLES	RESIDUE	97	±	82

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-CMS
Version	3.06
Report date	01/09/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1141

Test U T	Matrix WATER
SDG 7565	
Contact Melissa C. Mannion	

METHOD SUMMARY

URANIUM, TOTAL IN WATER

KINETIC PHOSPHORIMETRY

Client Hanford	
Contract TRC-SBB-207925	
Contract SDG H1141	

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Total Uranium (ug/L)	
Preparation batch 6962-110						
B10LB2	R011116-07			7565-007	4.82	
BLK (QC ID=36822)	R011116-09			7565-009	U	
LCS (QC ID=36821)	R011116-08			7565-008	ok	X
Duplicate (R011116-07)	R011116-10			7565-010	ok	
Nominal values and limits from method				RDLs (ug/L)	0.10	
100HR3 IAM (1&2) GW Mon.-Nov. 2000						

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MDA ug/L	ALIQ L	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 6962-110	2σ prep error 9.0 %			Reference Lab Notebook 6962 pg. 110												
B10LB2	R011116-07			0.013	0.0200								27	12/08/00	12/11	KPA-001
BLK (QC ID=36822)	R011116-09			0.013	0.0200									12/08/00	12/11	KPA-001
LCS (QC ID=36821)	R011116-08			0.13	0.0200									12/08/00	12/11	KPA-001
Duplicate (R011116-07) (QC ID=36823)	R011116-10			0	0.0200								27	12/08/00	12/11	KPA-001
Nominal values and limits from method				0.10	0.0200								180			

PROCEDURES	REFERENCE	UTOT_KPA
	CP-040	Environmental Water Dissolution, rev 3
	CP-044	Sample Preparation for Total Uranium by Kinetic Phosphorimetry, rev 2
	CP-928	Total Uranium by Kinetic Phosphorimetry, rev 2

AVERAGES ± 2 SD	MDA 0.039	± 0.12
FOR 4 SAMPLES	YIELD	±

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-CMS
Version	3.06
Report date	01/09/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1141

Test H Matrix WATER
SDG 7565
Contact Melissa C. Mannion

METHOD SUMMARY

TRITIUM IN WATER

LIQUID SCINTILLATION COUNTING

Client Hanford
Contract TRC-SBB-207925
Contract SDG H1141

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Tritium
Preparation batch 6962-110					
B10LB2	R011116-07			7565-007	3020
B10LC9	R011116-01			7565-001	3300
B10LF5	R011116-04			7565-004	3390
B10LJ1	R011116-05			7565-005	3940
B10LM3	R011116-06			7565-006	5740
B10LR7	R011116-02			7565-002	3610
B10LT1	R011116-03			7565-003	3590
BLK (QC ID=36822)	R011116-09			7565-009	U
LCS (QC ID=36821)	R011116-08			7565-008	ok
Duplicate (R011116-07)	R011116-10			7565-010	ok
Spike (R011116-07)	R011116-11			7565-011	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 6962-110	2σ prep error 10.0 % Reference Lab Notebook 6962 pg. 110															
B10LB2	R011116-07			150	0.0500			20		100			31	12/14/00	12/15	LSC-007
B10LC9	R011116-01			160	0.0500			20		100			31	12/14/00	12/14	LSC-007
B10LF5	R011116-04			150	0.0500			20		100			31	12/14/00	12/14	LSC-007
B10LJ1	R011116-05			150	0.0500			20		100			30	12/14/00	12/14	LSC-007
B10LM3	R011116-06			150	0.0500			20		100			31	12/14/00	12/15	LSC-007
B10LR7	R011116-02			150	0.0500			20		100			30	12/14/00	12/14	LSC-007
B10LT1	R011116-03			150	0.0500			20		100			31	12/14/00	12/14	LSC-007
BLK (QC ID=36822)	R011116-09			300	0.0500			10		100				12/14/00	12/15	LSC-007
LCS (QC ID=36821)	R011116-08			320	0.0500			10		100				12/14/00	12/15	LSC-007
Duplicate (R011116-07) (QC ID=36823)	R011116-10			150	0.0500			20		100			31	12/14/00	12/15	LSC-007
Spike (R011116-07) (QC ID=36824)	R011116-11			170	0.0500			18		100			31	12/14/00	12/15	LSC-007
Nominal values and limits from method				400	0.0500					25			180			

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 01/09/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1141

Test H	Matrix WATER
SDG 7565	
Contact Melissa C. Mannion	

METHOD SUMMARY, cont.

TRITIUM IN WATER

LIQUID SCINTILLATION COUNTING

Client Hanford	
Contract TRC-SBB-207925	
Contract SDG H1141	

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

AVERAGES ± 2 SD	MDA	180	±	130
FOR 11 SAMPLES	YIELD	18	±	8

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-CMS
Version	3.06
Report date	01/09/01

PNNL

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. # C01-008-66

Page 1 of 1

Collector: K.J. YOUNG	Contact/Requester: JH KESSNER	Telephone No.: (509) 375-4688 MSIN FAX
SAF No.: C01-008	Sampling Origin: HANFORD SITE H1141 (7565)	Purchase Order/Charge Code
Project Title: 100HR3 IAM (1&2) GW MONITORING, NOVEMBER, 2000	Logbook No.: WM-SAWS-139	Ice Chest No.: SWS-115 Temp.
Shipped To (Lab): TMA/RECRA	Method of Shipment: GOVT. VEHICLE	Bill of Lading/Air Bill No.: 4235 7954 0571
Protocol: CERCLA	Data Turnaround: 45 Days	Offsite Property No.: W0100034

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
B10LC8 (F)		W	11/13/00	1156	1x500-mL G/P	ICP Metals - 6010A RCRA GW ✓	HNO3 to pH <2
B10LC9		W			1x500-mL G/P	ICP Metals - 6010A RCRA GW ✓	HNO3 to pH <2
B10LC9		W			1x500-mL P	IC Anions - 300.0 ✓	Cool 4C
B10LC9 ✓		W			1x20-mL P	Activity Scan ✓	None
B10LC9 ✓		W			2x1000-mL G/P	Gross Alpha ✓	HNO3 to pH <2
B10LC9 ✓		W			2x1000-mL G/P (1)	Gross Beta → received only one (1)	HNO3 to pH <2
B10LC9 ✓		W			1x250-mL P	Tritium - H3 ✓	None

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
	K.J. YOUNG	Ken Young	11/13/00 1430	Fed. Ex.			11/13/00
Relinquished By			Date/Time	Received By			Date/Time
FED. EXPRESS			11/14/00	E. Segura			11/15/00 8:20
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. # C01-008-80

Page 1 of 1

Collector: D. P. CONNOLLY	Contact/Requester: JH KESSNER	Telephone No.: (509) 375-4688 MSIN FAX
SAF No.: C01-008	Sampling Origin: HANFORD SITE H1141 (7565)	Purchase Order/Charge Code
Project Title: 100HR3 IAM (1&2) GW MONITORING, NOVEMBER 2000	Logbook No.: WM-SMWS-438	Ice Chest No.: 62 0696 Temp.
Shipped To (Lab): TMA/RECRA	Method of Shipment: GOVT. VEHICLE	Bill of Lading/Air Bill No.: 4235 7954 0599
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
B10LR6 (F) ✓		W	11-14-00	1111 ✓	1x500-mL G/P ✓	ICP Metals - 6010A RCRA GW ✓	HNO3 to pH <2
B10LR7 ✓		W			1x500-mL G/P ✓	ICP Metals - 6010A RCRA GW ✓	HNO3 to pH <2
B10LR7 ✓		W			1x500-mL P ✓	IC Anions - 300.0 ✓	Cool 4C
B10LR7 ✓		W			1x20-mL P ✓	Activity Scan ✓	None
B10LR7 ✓		W			2x1000-mL G/P ✓	Gross Alpha ✓	HNO3 to pH <2
B10LR7 ✓		W			2x1000-mL G/P	Gross Beta ✓	HNO3 to pH <2
B10LR7 ✓		W			1x250-mL P	Tritium - H3 ✓	None

Relinquished By (Print / Sign)	Date/Time	Received By (Print / Sign)	Date/Time
D. P. CONNOLLY [signature]	NOV 14 2000 1430	Fed Ex	11/14/00
FED-EXPRESS	11/15/00 10 AM	E. Segura	11/15/00 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. # C01-008-84

Page 1 of 1

Collector D.R. BREWINGTON	Contact/Requester JH KESSNER	Telephone No. (509) 375-4688 MSIN FAX
SAF No. C01-008	Sampling Origin HANFORD SITE H1141 (7565)	Purchase Order/Charge Code
Project Title 100HR3 IAM (1&2) GW MONITORING NOVEMBER 2000	Logbook No. WM-SAWS-H37 pg 47	Ice Chest No. GWS-115 Temp.
Shipped To (Lab) TMA/RECRA	Method of Shipment GOVT. VEHICLE / FEDX	Bill of Lading/Air Bill No. 4235 7954 0571
Protocol CERCLA	Data Turnaround 45 Days	Offsite Property No. W01000034

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
B10LT0 (F)		W	11-13-00	0951	1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
B10LT1		W			1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
B10LT1		W			1x500-mL P	IC Anions - 300.0	Cool 4C
B10LT1		W			1x20-mL P	Activity Scan	None
B10LT1		W			2x1000-mL G/P	Gross Alpha	HNO3 to pH <2
B10LT1		W			2x1000-mL G/P	Gross Beta	HNO3 to pH <2
B10LT1		W			1x250-mL P	Tritium - H3	None

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
D.R. BREWINGTON	D.R. Brewington		11/13/00 1430	FEDX			11/13/00
FED-EXPRESS			11/14/00 16:30	E. SEGURO			11/15/00 8:30

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. # C01-008-106

Page 1 of 1

Collector: D. R. BREWINGTON	Contact/Requester: JH KESSNER	Telephone No.: (509) 375-4688 MSIN FAX
SAF No.: C01-008	Sampling Origin: HANFORD SITE H11A1 (7565)	Purchase Order/Charge Code
Project Title: 100HR3 IAM (1&2) GW MONITORING, NOVEMBER, 2000	Logbook No.: KIM-SAWS-H37 pg 47	Ice Chest No.: GWS-115 Temp.
Shipped To (Lab): TMA/RECRA	Method of Shipment: GOVT. VEHICLE	Bill of Lading/Air Bill No.: 42357954 0511
Protocol: CERCLA	Data Turnaround: 45 Days	Offsite Property No.: W0100034

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
B10LF4 (F)		W	11-13-00	1105	1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
B10LF5		W			1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
B10LF5		W			1x500-mL P	IC Anions - 300.0	Cool 4C
B10LF5		W			1x20-mL P	Activity Scan	None
B10LF5		W			2x1000-mL G/P	Gross Alpha	HNO3 to pH <2
B10LF5		W			2x1000-mL G/P	Gross Beta	HNO3 to pH <2
B10LF5		W			1x250-mL P	Tritium - H3	None

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
	D. R. BREWINGTON	D.R. Brewington	11/13/00 1430		FEDX	E. SEGURO	11/13/00
FED. EXPRESS			11/14/00 1630	(FED. EXPRESS)			11/15/00 8:30 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. # C01-008-120

Page 1 of 1

Collector D. P. CONNOLLY	Contact/Requester JH KESSNER	Telephone No. (509) 375-4688 MSIN FAX
SAF No. C01-008	Sampling Origin HANFORD SITE H11A1 (7565)	Purchase Order/Charge Code
Project Title 100HR3 IAM (1&2) GW MONITORING, NOVEMBER, 2000	Logbook No. 41117-5-1W5-1475	Ice Chest No. 62 0696 Temp.
Shipped To (Lab) TMA/RECRA	Method of Shipment GOVT. VEHICLE	Bill of Lading/Air Bill No. 4235 7954 0599
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
B10LJ0 (F)		W	11-14-00	1159	1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
B10LJ1		W			1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
B10LJ1		W			1x500-mL P	IC Anions - 300.0	Cool 4C
B10LJ1		W			1x20-mL P	Activity Scan	None
B10LJ1		W			2x1000-mL G/P	Gross Alpha	HNO3 to pH <2
B10LJ1		W			2x1000-mL G/P	Gross Beta	HNO3 to pH <2
B10LJ1		W			1x250-mL P	Tritium - H3	None

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
	D. P. CONNOLLY	D Conn	NOV 14 2000 1430		Fed Ex		11/14/00
Relinquished By			Date/Time	Received By			Date/Time
FED EXPRESS			11/15/00	E. Degner			11/15/00 10: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

PNNL

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. # C01-008-148

Page 1 of 1

Collector: D. P. CONNOLLY	Contact/Requester: JH KESSNER	Telephone No.: (509) 375-4688 MSIN FAX
SAF No.: C01-008	Sampling Origin: HANFORD SITE H1141 (7565)	Purchase Order/Charge Code
Project Title: 100HR3 IAM (1&2) GW MONITORING, NOVEMBER 2000	Logbook No.: WIM-SAWS-H38	Ice Chest No.: 67 SIML 554 Temp.
Shipped To (Lab): TMA/RECRA	Method of Shipment: GOVT. VEHICLE	Bill of Lading/Air Bill No.: 4235 7954 0603
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
B10LM2 (F)		W	11-14-00	0921	1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
B10LM3		W			1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
B10LM3		W			1x500-mL P	IC Anions - 300.0	Cool 4C
B10LM3		W			1x20-mL P	Activity Scan	None
B10LM3		W			2x1000-mL G/P	Gross Alpha	HNO3 to pH <2
B10LM3		W			2x1000-mL G/P	Gross Beta	HNO3 to pH <2
B10LM3		W			1x250-mL P	Tritium - H3	None

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
	D. P. CONNOLLY	D. Connolly	NOV 14 2000 1430		Fed Ex		11/14/00
Relinquished By			Date/Time	Received By			Date/Time
FED-EXPRESS			11/15/00 10:21		E. Pegum		11/15/00 10:[illegible]
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. # C01-008-136

Collector: D. P. CONNOLLY	Contact/Requester: JH KESSNER	Telephone No.: (509) 375-4688 MSIN FAX
SAF No.: C01-008	Sampling Origin: HANFORD SITE H1141 (7565)	Purchase Order/Charge Code
Project Title: 100HR3 JAM (1&2) GW MONITORING, NOVEMBER, 2000	Logbook No.: WM SAWS-438	Ice Chest No.: 67 SMZ 554 Temp.
Shipped To (Lab): TMA/RECRA	Method of Shipment: GOVT. VEHICLE	Bill of Lading/Air Bill No.: 4235 7954 0603
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
B10LB1 (F)		W	11-14-00	1016	1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
B10LB2		W			1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
B10LB2		W			1x500-mL P	IC Anions - 300.0	Cool 4C
B10LB2		W			1x20-mL P	Activity Scan	None
B10LB2		W			2x1000-mL G/P	Gross Alpha	HNO3 to pH <2
B10LB2		W			2x1000-mL G/P	Gross Beta	HNO3 to pH <2
B10LB2		W			2x1000-mL G/P	Strontium-89,90 -- Sr-90	HNO3 to pH <2
B10LB2		W			1x1000-mL G/P	Technetium-99	HCl to pH <2
B10LB2		W			1x250-mL P	Tritium - H3	None
B10LB2		W			1x100-mL G/P	Total Uranium	HNO3 to pH <2

Relinquished By (Print / Sign)	Date/Time	Received By (Print / Sign)	Date/Time
D. P. CONNOLLY	NOV 14 2000	Fed Ex	11/14/00
FED-EXPRESS	11/15/00 10:AM	E. Segura	11/15/00 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: (WMTS) BECHTEL HANFORD (PNNL) Date: 11/15/00 10:AM

Ice chest # or description	0696					
Thermometer: time in	10:25					
Thermometer: time out	12:05					
Thermometer reading	4°C					
Thermometer number	6536					
Correction factor	NONE					
Actual temperature*						
Custody seals on ice chest intact?						
Custody seals dated ?						
Custody seals signed?						
Custody seals on samples?						
Ice chest scanned for activity?						

* Temperature is in degrees centigrade.

Technician:_____

Comments:_____

ThermoRetec
Richmond Laboratory

Analytical Services

ICE CHEST RECEIPT LOG

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

Customer: (WMTS) BECHTEL HANFORD (PNNL) Date: 11/15/00 10: AM

Ice chest # or description	SML 554					
Thermometer: time in	10:30					
Thermometer: time out	12:00 PM					
Thermometer reading	4°C					
Thermometer number	2132					
Correction factor						
Actual temperature*						
Custody seals on ice chest intact?						
Custody seals dated ?						
Custody seals signed?						
Custody seals on samples?						
Ice chest scanned for activity?						

* Temperature is in degrees centigrade.

Technician:_____

Comments:_____

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: 11-14-00

Ice chest # or description	GW3 115					
Thermometer: time in	16:45					
Thermometer: time out	17:10					
Thermometer reading	4.0°C					
Thermometer number	6536					
Correction factor	—					
Actual temperature*	—					
Custody seals on ice chest intact?						
Custody seals dated ?						
Custody seals signed?						
Custody seals on samples?						
Ice chest scanned for activity?						

* Temperature is in degrees centigrade.

Technician: JA Cerro

Comments:

Thermo NUtech - Richmond

SAMPLE RECEIPT CHECKLIST

SAMPLE RECEIPT

Client: (WMTS) BECHTEL HANFORD (PNNL) Date/Time received 11/15/07 10:AM

CoC No. C01-008-66, C01-008-80, C01-008-84, C01-008-106, C01-008-120 C01-008-136, AND C01-008-146

Container I.D. No. _____ Requested TAT (Days) 45 P.O. Received Yes [ ] No [✓]

Cont - GW-115, 0696, SML 554.

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: 14
7. Number of containers per sample: PLEASE (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: ON COC, C01-008-66, SAMPLE BOTTLE B1DLC9 received only (one) instead of (2) on GROSS Beta.

13. Was P.M. notified of any anomalies? Yes [ ] No [ ] Date _____
14. Received by E. Segura Date: 11/15/07 Time: 10:AM

LOGIN

TNU W.O. No. _____ Group No. _____ Client W.O. No. _____

PROGRAM MANAGER

Sample holding times exceeded? Yes [ ] No [ ]

Client Notified: Name _____ Date/time _____

ORIGINAL Daynes

SDR # B01-005
Revision #: 0
Date Initiated: 11/16/00

SAMPLE DISPOSITION RECORD

SAF: C01-008
OU: 100-HR-3
Project ID: HR3NOV00
Task ID: 1
Sampling Event: HR3NOV00

Laboratory: TMA/RECRA

Task Manager: J.V. Borghese

Sampling Information:
Number of Samples: 1
ID Numbers: B10LC9
Matrix: WATER
Collection Date: 09/20/00

Issue Background:

Class: ☒ Project Data Use ☐ General Laboratory Direction ☐ Validation Direction ☐ Sample Management Direction

Type: Insufficient Sample Volume

Description: Incorrect Number of Bottles Collected For Gross Beta Analysis

Disposition:

Description: The sample volume requirement for Gross Beta analysis on water requires two full 1000 mL bottles for a full QC analysis. Although the chain of custody for the listed sample indicates two 1000 mL bottles had been collected for Gross Beta analysis, only one 1000 mL bottle was received by the laboratory. The laboratory indicated that the required detection limit for Gross Beta could probably be achieved with the 1000 mL of sample provided.

Justification: Sample volume requirements need to be achieved whenever possible to ensure that the laboratories have enough material to achieve the required detection limits and perform the necessary QC analyses.

Approval Signatures:

S. J. Trent — 11/28/00
Project Coordinator (Print/Sign Name) — Date

J.V. Borghese — 11/30/00
Task Manager (Print/Sign Name) — Date

BHI-EE-109 (02/99)

JAN 2001
RECEIVED

Recra LabNet - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD C01-008 H1141

DATE RECEIVED: 11/17/00 RFW LOT # :0011L314

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B10LC9						
BROMIDE BY IC	002	W	00LIC076	11/13/00	11/29/00	11/29/00
CHLORIDE BY IC	002	W	00LIC076	11/13/00	11/29/00	11/29/00
FLUORIDE BY IC	002	W	00LIC076	11/13/00	11/29/00	11/29/00
NITRITE BY IC	002	W	00LIC076	11/13/00	11/29/00	11/29/00
NITRATE BY IC	002	W	00LIC076	11/13/00	11/29/00	11/29/00
PHOSPHATE BY IC	002	W	00LIC076	11/13/00	11/29/00	11/29/00
SULFATE BY IC	002	W	00LIC076	11/13/00	11/29/00	11/29/00
B10LR7						
BROMIDE BY IC	004	W	00LIC076	11/14/00	11/29/00	11/29/00
CHLORIDE BY IC	004	W	00LIC076	11/14/00	11/29/00	11/29/00
FLUORIDE BY IC	004	W	00LIC076	11/14/00	11/29/00	11/29/00
NITRITE BY IC	004	W	00LIC076	11/14/00	11/29/00	11/29/00
NITRATE BY IC	004	W	00LIC076	11/14/00	11/29/00	11/29/00
PHOSPHATE BY IC	004	W	00LIC076	11/14/00	11/29/00	11/29/00
SULFATE BY IC	004	W	00LIC076	11/14/00	11/29/00	11/29/00
B10LT1						
BROMIDE BY IC	006	W	00LIC076	11/13/00	11/29/00	11/29/00
CHLORIDE BY IC	006	W	00LIC076	11/13/00	11/29/00	11/29/00
FLUORIDE BY IC	006	W	00LIC076	11/13/00	11/29/00	11/29/00
NITRITE BY IC	006	W	00LIC076	11/13/00	11/29/00	11/29/00
NITRATE BY IC	006	W	00LIC076	11/13/00	11/29/00	11/29/00
PHOSPHATE BY IC	006	W	00LIC076	11/13/00	11/29/00	11/29/00
SULFATE BY IC	006	W	00LIC076	11/13/00	11/29/00	11/29/00
B10LF5						
BROMIDE BY IC	008	W	00LIC076	11/13/00	11/29/00	11/29/00
CHLORIDE BY IC	008	W	00LIC076	11/13/00	11/29/00	11/29/00
FLUORIDE BY IC	008	W	00LIC076	11/13/00	11/29/00	11/29/00
NITRITE BY IC	008	W	00LIC076	11/13/00	11/29/00	11/29/00
NITRATE BY IC	008	W	00LIC076	11/13/00	11/29/00	11/29/00

Recra LabNet - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD C01-008 H1141

DATE RECEIVED:- 11/17/00 RFW LOT # :0011L314

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
PHOSPHATE BY IC	008	W	00LIC076	11/13/00	11/29/00	11/29/00
SULFATE BY IC	008	W	00LIC076	11/13/00	11/29/00	11/29/00
B10LJ1						
BROMIDE BY IC	010	W	00LIC076	11/14/00	11/29/00	11/29/00
CHLORIDE BY IC	010	W	00LIC076	11/14/00	11/29/00	11/29/00
FLUORIDE BY IC	010	W	00LIC076	11/14/00	11/29/00	11/29/00
NITRITE BY IC	010	W	00LIC076	11/14/00	11/29/00	11/29/00
NITRATE BY IC	010	W	00LIC076	11/14/00	11/29/00	11/29/00
PHOSPHATE BY IC	010	W	00LIC076	11/14/00	11/29/00	11/29/00
SULFATE BY IC	010	W	00LIC076	11/14/00	11/29/00	11/29/00
B10LB2						
BROMIDE BY IC	012	W	00LIC076	11/14/00	11/29/00	11/29/00
CHLORIDE BY IC	012	W	00LIC076	11/14/00	11/29/00	11/29/00
FLUORIDE BY IC	012	W	00LIC076	11/14/00	11/29/00	11/29/00
NITRITE BY IC	012	W	00LIC076	11/14/00	11/29/00	11/29/00
NITRATE BY IC	012	W	00LIC076	11/14/00	11/29/00	11/29/00
PHOSPHATE BY IC	012	W	00LIC076	11/14/00	11/29/00	11/29/00
SULFATE BY IC	012	W	00LIC076	11/14/00	11/29/00	11/29/00
B10LM3						
BROMIDE BY IC	014	W	00LIC076	11/14/00	11/29/00	11/29/00
BROMIDE BY IC	014 REP	W	00LIC076	11/14/00	11/29/00	11/29/00
BROMIDE BY IC	014 MS	W	00LIC076	11/14/00	11/29/00	11/29/00
CHLORIDE BY IC	014	W	00LIC076	11/14/00	11/29/00	11/29/00
CHLORIDE BY IC	014 REP	W	00LIC076	11/14/00	11/29/00	11/29/00
CHLORIDE BY IC	014 MS	W	00LIC076	11/14/00	11/29/00	11/29/00
FLUORIDE BY IC	014	W	00LIC076	11/14/00	11/29/00	11/29/00
FLUORIDE BY IC	014 REP	W	00LIC076	11/14/00	11/29/00	11/29/00
FLUORIDE BY IC	014 MS	W	00LIC076	11/14/00	11/29/00	11/29/00
NITRITE BY IC	014	W	00LIC076	11/14/00	11/29/00	11/29/00
NITRITE BY IC	014 REP	W	00LIC076	11/14/00	11/29/00	11/29/00
NITRITE BY IC	014 MS	W	00LIC076	11/14/00	11/29/00	11/29/00
NITRATE BY IC	014	W	00LIC076	11/14/00	11/29/00	11/29/00

Recra LabNet - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD C01-008 H1141

DATE RECEIVED: 11/17/00 RFW LOT # :0011L314

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
NITRATE BY IC	014 REP	W	00LIC076	11/14/00	11/29/00	11/29/00
NITRATE BY IC	014 MS	W	00LIC076	11/14/00	11/29/00	11/29/00
PHOSPHATE BY IC	014	W	00LIC076	11/14/00	11/29/00	11/29/00
PHOSPHATE BY IC	014 REP	W	00LIC076	11/14/00	11/29/00	11/29/00
PHOSPHATE BY IC	014 MS	W	00LIC076	11/14/00	11/29/00	11/29/00
SULFATE BY IC	014	W	00LIC076	11/14/00	11/29/00	11/29/00
SULFATE BY IC	014 REP	W	00LIC076	11/14/00	11/29/00	11/29/00
SULFATE BY IC	014 MS	W	00LIC076	11/14/00	11/29/00	11/29/00

LAB QC:

BROMIDE BY IC	MB1	W	00LIC076	N/A	11/29/00	11/29/00
BROMIDE BY IC	MB1 BS	W	00LIC076	N/A	11/29/00	11/29/00
CHLORIDE BY IC	MB1	W	00LIC076	N/A	11/29/00	11/29/00
CHLORIDE BY IC	MB1 BS	W	00LIC076	N/A	11/29/00	11/29/00
FLUORIDE BY IC	MB1	W	00LIC076	N/A	11/29/00	11/29/00
FLUORIDE BY IC	MB1 BS	W	00LIC076	N/A	11/29/00	11/29/00
NITRITE BY IC	MB1	W	00LIC076	N/A	11/29/00	11/29/00
NITRITE BY IC	MB1 BS	W	00LIC076	N/A	11/29/00	11/29/00
NITRATE BY IC	MB1	W	00LIC076	N/A	11/29/00	11/29/00
NITRATE BY IC	MB1 BS	W	00LIC076	N/A	11/29/00	11/29/00
PHOSPHATE BY IC	MB1	W	00LIC076	N/A	11/29/00	11/29/00
PHOSPHATE BY IC	MB1 BS	W	00LIC076	N/A	11/29/00	11/29/00
SULFATE BY IC	MB1	W	00LIC076	N/A	11/29/00	11/29/00
SULFATE BY IC	MB1 BS	W	00LIC076	N/A	11/29/00	11/29/00

RECRA
ENVIRONMENTAL
INC.

Chemical and Environmental Measurement Information

Recra LabNet Philadelphia
Analytical Report

Client : TNU-HANFORD C01-008 H1141
RFW# : 0011L314

W.O. # : 10985-001-001-9999-00
Date Received: 11-17-00

INORGANIC CASE NARRATIVE

1. This narrative covers the analyses of 7 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.

for Pat G

J. Michael Taylor
VP, Laboratory General Manager
Lionville Laboratory

01-05-01
Date

njp\i11-314

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 20 pages.

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 12/06/00

CLIENT: TNUHANFORD C01-008 H1141 RECRA LOT #: 0011L314

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-002	B10LC9	Bromide by IC	0.50 u	MG/L	0.50	2.0
		Chloride by IC	22.9	MG/L	2.5	10.0
		Fluoride by IC	1.0 u	MG/L	1.0	2.0
		Nitrite by IC	0.50 u	MG/L	0.50	2.0
		Nitrate by IC	33	MG/L	2.5	10
		Phosphate by IC	0.50 u	MG/L	0.50	2.0
		Sulfate by IC	52.5	MG/L	2.5	10.0
-004	B10LR7	Bromide by IC	0.50 u	MG/L	0.50	2.0
		Chloride by IC	22.8	MG/L	2.5	10.0
		Fluoride by IC	1.0 u	MG/L	1.0	2.0
		Nitrite by IC	0.50 u	MG/L	0.50	2.0
		Nitrate by IC	39	MG/L	2.5	10
		Phosphate by IC	0.50 u	MG/L	0.50	2.0
		Sulfate by IC	47.1	MG/L	2.5	10.0
-006	B10LT1	Bromide by IC	0.50 u	MG/L	0.50	2.0
		Chloride by IC	20.6	MG/L	2.5	10.0
		Fluoride by IC	1.0 u	MG/L	1.0	2.0
		Nitrite by IC	0.50 u	MG/L	0.50	2.0
		Nitrate by IC	35	MG/L	2.5	10
		Phosphate by IC	0.50 u	MG/L	0.50	2.0
		Sulfate by IC	55.4	MG/L	2.5	10.0
-008	B10LF5	Bromide by IC	1.2 u	MG/L	1.2	5.0
		Chloride by IC	18.8	MG/L	1.2	5.0
		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	120	MG/L	5.0	20
		Phosphate by IC	0.25 u	MG/L	0.25	1.0
		Sulfate by IC	64.6	MG/L	5.0	20.0
-010	B10LJ1	Bromide by IC	0.50 u	MG/L	0.50	2.0
		Chloride by IC	21.2	MG/L	2.5	10.0
		Fluoride by IC	1.0 u	MG/L	1.0	2.0
		Nitrite by IC	0.50 u	MG/L	0.50	2.0
		Nitrate by IC	37	MG/L	2.5	10
		Phosphate by IC	0.50 u	MG/L	0.50	2.0
		Sulfate by IC	52.3	MG/L	2.5	10.0
-012	B10LB2	Bromide by IC	0.50 u	MG/L	0.50	2.0

Recra LabNet - Lionville

INORGANICS DATA SUMMARY REPORT 12/06/00

CLIENT: TNUHANFORD C01-008 H1141 RECRA LOT #: 0011L314

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-012	B10LB2	Chloride by IC	16.8	MG/L	0.50	2.0
		Fluoride by IC	1.0 u	MG/L	1.0	2.0
		Nitrite by IC	0.50 u	MG/L	0.50	2.0
		Nitrate by IC	37	MG/L	2.5	10
		Phosphate by IC	0.50 u	MG/L	0.50	2.0
		Sulfate by IC	47.6	MG/L	2.5	10.0
-014	B10LM3	Bromide by IC	0.50 u	MG/L	0.50	2.0
		Chloride by IC	19.7	MG/L	2.5	10.0
		Fluoride by IC	1.0 u	MG/L	1.0	2.0
		Nitrite by IC	0.50 u	MG/L	0.50	2.0
		Nitrate by IC	58	MG/L	2.5	10
		Phosphate by IC	0.50 u	MG/L	0.50	2.0
		Sulfate by IC	77.5	MG/L	2.5	10.0

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INORGANICS METHOD BLANK DATA SUMMARY PAGE 12/06/00

CLIENT: TNUHANFORD C01-008 H1141 RECRA LOT #: 0011L314

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK10	00LIC076-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 12/06/00

CLIENT: TNUHANFORD C01-008 H1141 RECRA LOT #: 0011L314

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-014	B10LM3	Bromide by IC	22.8	0.00	25.0	91.2	5.0
		Chloride by IC	117	19.7	100	97.7	20.0
		Fluoride by IC	51.6	0.00	50.0	103.2	5.0
		Nitrite by IC	25	0.50u	25	101.6	5.0
		Nitrate by IC	160	58	100	102.1	20
		Phosphate by IC	23.4	0.50u	25.0	93.5	5.0
		Sulfate by IC	180	77.5	100	102.6	20.0
BLANK10	00LIC076-MB1	Bromide by IC	4.9	0.25u	5.0	98.1	1.0
		Chloride by IC	5.0	0.25u	5.0	99.9	1.0
		Fluoride by IC	10.8	0.50u	10.0	108.0	1.0
		Nitrite by IC	5.0	0.25u	5.0	100.3	1.0
		Nitrate by IC	4.9	0.25u	5.0	98.5	1.0
		Phosphate by IC	5.0	0.25u	5.0	99.5	1.0
		Sulfate by IC	4.8	0.25u	5.0	96.9	1.0

Recra LabNet - Lionville

INORGANICS PRECISION REPORT 12/06/00

CLIENT: TNUHANFORD C01-008 H1141

RECRA LOT #: 0011L314

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-014REP	B10LM3	Bromide by IC	0.50u	0.50u	NC	2.0
		Chloride by IC	19.7	20.0	1.4	10.0
		Fluoride by IC	1.0 u	1.0 u	NC	2.0
		Nitrite by IC	0.50u	0.50u	NC	2.0
		Nitrate by IC	58	59	0.96	10
		Phosphate by IC	0.50u	0.50u	NC	2.0
		Sulfate by IC	77.5	78.0	0.67	10.0

RECRA LabNet Use Only

00111L314

Custody Transfer Record/Lab Work Request

Page 1 of 2

RECRA LabNet

mu- HANFORD COI-008

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client ~~B-4 SAF COI-008~~ HANFORD

Est. Final Proj. Sampling Date

Project # 10985-001-001-9999-0U

Project Contact/Phone #

RECRA Project Manager

QC Spec Del Std TAT 30 day

Date Rec'd 11-17-00 Date Due 12-17-00

Account #

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

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

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 (1)	IC (1)
001	B10LC8			W	11/13/00	1156	1	
002	19				⊥	⊥	1	1
003	LR6				11/14/00	1111	1	
004	17				⊥	⊥	1	1
005	LT0				11/13/00	0957	1	
006	11					⊥	1	1
007	LF4					1105	1	
008	15				⊥	⊥	1	1
009	LT0				11/14/00	1159	1	
010	11				⊥	⊥	1	1

Special instructions: Saf COI-008

Run Matrix QC

DATE/REVISIONS:

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

⊥ 2. Mg, Mn, Ni, Na, Sb, Sr, V, Zn

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

4.

5.

6.

RECRA LabNet Use Only

Samples were: 1) Shipped ✓ or Hand Delivered

Airbill # 2U 6.W

2) Ambient or Chilled

3) Received in Good Condition (Y) or N

4) Labels Indicate Properly Preserved (Y) or N

5) Received Within Holding Times (Y) or N

COC Tape was: 1) Present on Outer Package (Y) or N; 2) Unbroken on Outer Package (Y) or N; 3) Present on Sample (Y) or N; 4) Unbroken on Sample (Y) or N

COC Record Present Upon Sample Rec't (Y) or N

Cooler Temp. 3.0 °C

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

NOTES: ~~4235 9154 0603~~ 11-17-00 NO2 1-5-00 NO3 PO4 rec'd past hold

Relinquished by	Received by	Date	Time
Fed Ex	[signature]	11/17/00	0915

Relinquished by	Received by	Date	Time
COMPOSITE WASTE	ORIGINAL! REMAINS		

13

RECRA LabNet Use Only
00116314

Custody Transfer Record/Lab Work Request

Page 2 of 2

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

RECRA LabNet

Client: ~~EPA~~ ~~[illegible]~~ TRU-Hanford Co1008

Est. Final Proj. Sampling Date:

Project #:

Project Contact/Phone #:

RECRA Project Manager:

QC: Del: TAT:

Date Rec'd: Date Due:

Account #:

		A	B
Refrigerator #		S	S
#/Type Container	Liquid	1PC	1PC
	Solid		
Volume	Liquid	500	500
	Solid		
Preservatives		HNO3	—

ANALYSES REQUESTED →

ORGANIC				INORG		
VOA	BNA	Pest/PCB	Herb	Metal	CN	IC Anions

RECRA LabNet Use Only

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

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	Metal	IC
011	B10LB1			W	11/9/00	1016	1	
012	12						1	1
013	LM2					0921	1	
014	13						1	1

Special Instructions:

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

RECRA LabNet Use Only

Samples were:
1) Shipped ____ or Hand Delivered ____
Airbill #
2) Ambient or Chilled
3) Received in Good Condition Y or N
4) Labels Indicate Properly Preserved Y or N
5) Received Within Holding Times Y or N

COC Tape was:
1) Present on Outer Package Y or N
2) Unbroken on Outer Package Y or N
3) Present on Sample Y or N
4) Unbroken on Sample Y or N

COC Record Present Upon Sample Rec't Y or N

Cooler Temp. ____ °C

Relinquished by	Received by	Date	Time
[illegible]	[illegible]	11/14/00	0930

Relinquished by	Received by	Date	Time

Discrepancies Between Samples Labels and COC Record? Y or N

NOTES:

PNNL

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

CHPM SOG 41141

C.O.C. # C01-008-66

Collector: K.J. YOUNG	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-1439	Ice Chest No.: SWS-115 Temp.
Shipped To (Lab): TMA/RECRA	Method of Shipment: GOVT VEHICLE	Bill of Lading/Air Bill No.: 4235 7954 0511
Protocol: CERCLA	Data Turnaround: 45 Days	Offsite Property No.: W0100034

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
1	B10LC8 (F)		W	11/13/00	1156	1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
2	B10LC9		W			1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
	B10LC9		W			1x500-mL P	IC Anions - 300.0	Cool 4C
	B10LC9		W			1x20-mL P	Activity Scan	None
	B10LC9		W			2x1000-mL G/P	Gross Alpha	HNO3 to pH <2
	B10LC9		W			2x1000-mL G/P (1)	Gross Beta → received only one (1)	HNO3 to pH <2
	B10LC9		W			1x250-mL P	Tritium - H3	None

Relinquished By (Print / Sign)	Date/Time	Received By (Print / Sign)	Date/Time
K.J. YOUNG	11/13/00 1430	Fed. Ex	11/13/00
FED. EXPRESS	11/14/00	E. Seguro	11/15/00
E. SEGURO	11-16-00 1600	FED. EXPRESS	11/16/00
Fed Ex	11/17/00 0930		11/17/00 0930

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

(HEM SOG H114)

C.O.C. # C01-008-80

Page 1 of 1

Collector: D. P. CONNOLLY	Contact/Requester: JH KESSNER	Telephone No.: (509) 375-4688 MSIN FAX
SAF No.: C01-008	Sampling Origin: HANFORD SITE	Purchase Order/Charge Code
Project Title: 100HR3 JAM (1&2) GW MONITORING NOVEMBER 2000	Logbook No.: WMS-SAWS-478	Ice Chest No.: 62 0696 Temp.
Shipped To (Lab): TMA/RECRA	Method of Shipment: GOVT. VEHICLE	Bill of Lading/Air Bill No.: 4235 7954 0599
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
B10LR6 (F)		W	11-14-00	1111	1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
B10LR7		W			1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
B10LR7		W			1x500-mL P	IC Anions - 300.0	Cool 4C
B10LR7		W			1x20-mL P	Activity Scan	None
B10LR7		W			2x1000-mL G/P	Gross Alpha	HNO3 to pH <2
B10LR7		W			2x1000-mL G/P	Gross Beta	HNO3 to pH <2
B10LR7		W			1x250-mL P	Tritium - H3	None

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
	D. P. CONNOLLY		NOV 14 2000 1430		Fed Ex		11/14/00
FED-EXPRESS			11/15/00 10:AM	E. Segura			11/15/00 10:AM
E. SEGURO			11/16/00 16:00	FED. EXPRESS			11/16/00
Fed Ex			11/17/00 0930				11/17/00 0930

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 SDL H1141

C.O.C. # C01-008-84

Page 1 of 1

Collector D. R. BREWINGTON	Contact/Requester JH KESSNER	Telephone No. (509) 375-4688 MSIN FAX
SAF No. C01-008	Sampling Origin HANFORD SITE	Purchase Order/Charge Code
Project Title 100HR3 IAM (1&2) GW MONITORING, NOVEMBER, 2000	Logbook No. WM-SAWS-H37 pg 47	Ice Chest No. GWS-115 Temp.
Shipped To (Lab) TMA/RECRA	Method of Shipment GOVT. VEHICLE / FEDX	Bill of Lading/Air Bill No. 4235 7954 0571
Protocol CERCLA	Data Turnaround 45 Days	Offsite Property No. W01000 34

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
1	B10LT0 (F)		W	11-13-00	0951	1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
5	B10LT1		W			1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
	B10LT1		W			1x500-mL P	IC Anions - 300.0	Cool 4C
	B10LT1		W			1x20-mL P	Activity Scan	None
	B10LT1		W			2x1000-mL G/P	Gross Alpha	HNO3 to pH <2
	B10LT1		W			2x1000-mL G/P	Gross Beta	HNO3 to pH <2
	B10LT1		W			1x250-mL P	Tritium - H3	None

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
D. R. BREWINGTON	D.R. Brewington		11/13/00 1430	FED X			11/13/00
FED-EXPRESS			11/14/00 16:30	E. SEGURO			11/15/00 8:30
E. SEGURO			11/16/00 16:00	FED. EXPRESS			11/16/00
Fed Ex			11/17/00 0930	[illegible]			11/17/00 0930

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 SOC H1141

C.O.C. # C01-008-106

Page 1 of 17

Collector: D. R. BREWINGTON	Contact/Requester: JH KESSNER	Telephone No.: (509) 375-4688 MSIN FAX
SAF No.: C01-008	Sampling Origin: HANFORD SITE	Purchase Order/Charge Code
Project Title: 100HR3 IAM (1&2) GW MONITORING, NOVEMBER, 2000	Logbook No.: WMI-SAWS-H37 pg 47	Ice Chest No.: GWS-115 Temp.
Shipped To (Lab): TMA/RECRA	Method of Shipment: GOVT. VEHICLE	Bill of Lading/Air Bill No.: 42357954 0511
Protocol: CERCLA	Data Turnaround: 45 Days	Offsite Property No.: W0100034

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
B10LF4 (F)		W	11-13-00	1105	1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
B10LF5		W			1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
B10LF5		W			1x500-mL P	IC Anions - 300.0	Cool 4C
B10LF5		W			1x20-mL P	Activity Scan	None
B10LF5		W			2x1000-mL G/P	Gross Alpha	HNO3 to pH <2
B10LF5		W			2x1000-mL G/P	Gross Beta	HNO3 to pH <2
B10LF5		W			1x250-mL P	Tritium - H3	None

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
D. R. BREWINGTON	D. R. Brewington		11/13/00 1130	FEDX	E. SEGURO		11/13/00
FED. EXPRESS			11/14/00 1630	(FED. EXPRESS)			11/15/00 8:30 AM
E. SEGURO	E. Seguro		11/16/00 1600	FED. EXPRESS			11/16/00
Fed Ex			11/17/00 0930	[illegible]			11/17/00 0930

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 H1141

C.O.C. # C01-008-120 00

Page 1 of 1

Collector D. P. CONNOLLY	Contact/Requester JH KESSNER	Telephone No. (509) 375-4688 MSIN FAX
SAF No. C01-008	Sampling Origin HANFORD SITE	Purchase Order/Charge Code
Project Title 100HR3 IAM (1&2) GW MONITORING, NOVEMBER, 2000	Logbook No. LL117-5176W5-1475	Ice Chest No. 62 0696 Temp.
Shipped To (Lab) TMA/RECRA	Method of Shipment GOVT. VEHICLE	Bill of Lading/Air Bill No. 4235 7954 0599
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
B10LJ0 (F) ✓		W	11-14-00	1159	1x500-mL G/P ✓	ICP Metals - 6010A RCRA GW ✓	HNO3 to pH <2
B10LJ1 ✓		W			1x500-mL G/P ✓	ICP Metals - 6010A RCRA GW ✓	HNO3 to pH <2
B10LJ1 ✓		W			1x500-mL P ✓	IC Anions - 300.0 ✓	Cool 4C
B10LJ1 ✓		W			1x20-mL P ✓	Activity Scan ✓	None
B10LJ1 ✓		W			2x1000-mL G/P ✓	Gross Alpha ✓	HNO3 to pH <2
B10LJ1 ✓		W			2x1000-mL G/P ✓	Gross Beta ✓	HNO3 to pH <2
B10LJ1 ✓		W			1x250-mL P ✓	Tritium - H3 ✓	None

Relinquished By	Received By	Date/Time
D. P. CONNOLLY (Print) (Sign)	Fed Ex (Print) (Sign)	NOV 14 2000 / 1430 / 11/14/00
FED. EXPRESS	E. Segura	11/15/00 / 10:AM / 11/15/00
E. SEGURO	FED. EXPRESS	11/16/00 / 11/16/00
Fed Ex		11/17/00 0930

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 41141

C.O.C. # C01-008-136

Page 1 of 1

Collector: D. P. CONNOLLY	Contact/Requester: JH KESSNER	Telephone No.: (509) 375-4688 MSIN FAX
SAF No.: C01-008	Sampling Origin: HANFORD SITE	Purchase Order/Charge Code
Project Title: 100HR3 JAM (1&2) GW MONITORING NOVEMBER 2000	Logbook No.: WM SAWS-438	Ice Chest No.: 67 SAL 554 Temp.
Shipped To (Lab): TMA/RECRA	Method of Shipment: GOVT. VEHICLE	Bill of Lading/Air Bill No.: 4235 7954 0603
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
B10LB1 (F)		W	11-14-00	1016	1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
B10LB2		W			1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
B10LB2		W			1x500-mL P	IC Anions - 300.0	Cool 4C
B10LB2		W			1x20-mL P	Activity Scan	None
B10LB2		W			2x1000-mL G/P	Gross Alpha	HNO3 to pH <2
B10LB2		W			2x1000-mL G/P	Gross Beta	HNO3 to pH <2
B10LB2		W			2x1000-mL G/P	Strontium-89,90 -- Sr-90	HNO3 to pH <2
B10LB2		W			1x1000-mL G/P	Technetium-99	HCl to pH <2
B10LB2		W			1x250-mL P	Tritium - H3	None
B10LB2		W			1x100-mL G/P	Total Uranium	HNO3 to pH <2

Relinquished By (Print / Sign)	Date/Time	Received By (Print / Sign)	Date/Time
D. P. CONNOLLY	NOV 14 2000 1430	Fed EX	11/14/00
FED. EXPRESS	11/15/00 10:AM	E. Segura	11/15/00 10:AM
E. SEGURO	11/16/00 1600	FED. EXPRESS	11/16/00
Fed Ex	11/17/00 0930		11/17/00 0930

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 41141

C.O.C. # C01-008-148

Page 1 of 1

Collector: D. P. CONNOLLY	Contact/Requester: JH KESSNER	Telephone No.: (509) 375-4688 MSIN FAX
SAF No.: C01-008	Sampling Origin: HANFORD SITE	Purchase Order/Charge Code
Project Title: 100HR3 IAM (1&2) GW MONITORING NOVEMBER 2000	Logbook No.: WIM-SAWS-1138	Ice Chest No.: 67 SML 554 Temp.
Shipped To (Lab): TMA/RECRA	Method of Shipment: GOVT. VEHICLE	Bill of Lading/Air Bill No.: 4235 7954 0603
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
3 B10LM2 (F)		W	11-14-00	0921	1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
4 B10LM3		W	↓	↓	1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
B10LM3		W	↓	↓	1x500-mL P	IC Anions - 300.0	Cool 4C
B10LM3		W	↓	↓	1x20-mL P	Activity Scan	None
B10LM3		W	↓	↓	2x1000-mL G/P	Gross Alpha	HNO3 to pH <2
B10LM3		W	↓	↓	2x1000-mL G/P	Gross Beta	HNO3 to pH <2
B10LM3		W	↓	↓	1x250-mL P	Tritium - H3	None

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
	D. P. CONNOLLY	D. Connolly	NOV 14 2000 1430		Fed Ex		11/14/00
Relinquished By			Date/Time	Received By			Date/Time
FED-EXPRESS			11/15/00 10:AM	E. Segura			11/15/00 10:AM
Relinquished By			Date/Time	Received By			Date/Time
E. SEGURO		E. Segura	11/16/00 16:00	FED-EXPRESS			11/16/00
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

JAN 2001
RECEIVED

Recra LabNet - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD C01-008 H1141

DATE RECEIVED: 11/17/00 RFW LOT # :0011L314

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B10LC8						
SILVER, TOTAL	001	W	99L1826	11/13/00	12/15/00	12/21/00
SILVER, TOTAL	001 REP	W	99L1826	11/13/00	12/15/00	12/21/00
SILVER, TOTAL	001 MS	W	99L1826	11/13/00	12/15/00	12/21/00
ALUMINUM, TOTAL	001	W	99L1826	11/13/00	12/15/00	12/21/00
ALUMINUM, TOTAL	001 REP	W	99L1826	11/13/00	12/15/00	12/21/00
ALUMINUM, TOTAL	001 MS	W	99L1826	11/13/00	12/15/00	12/21/00
BARIUM, TOTAL	001	W	99L1826	11/13/00	12/15/00	12/21/00
BARIUM, TOTAL	001 REP	W	99L1826	11/13/00	12/15/00	12/21/00
BARIUM, TOTAL	001 MS	W	99L1826	11/13/00	12/15/00	12/21/00
BERYLLIUM, TOTAL	001	W	99L1826	11/13/00	12/15/00	12/21/00
BERYLLIUM, TOTAL	001 REP	W	99L1826	11/13/00	12/15/00	12/21/00
BERYLLIUM, TOTAL	001 MS	W	99L1826	11/13/00	12/15/00	12/21/00
CALCIUM, TOTAL	001	W	99L1826	11/13/00	12/15/00	12/21/00
CALCIUM, TOTAL	001 REP	W	99L1826	11/13/00	12/15/00	12/21/00
CALCIUM, TOTAL	001 MS	W	99L1826	11/13/00	12/15/00	12/21/00
CADMIUM, TOTAL	001	W	99L1826	11/13/00	12/15/00	12/21/00
CADMIUM, TOTAL	001 REP	W	99L1826	11/13/00	12/15/00	12/21/00
CADMIUM, TOTAL	001 MS	W	99L1826	11/13/00	12/15/00	12/21/00
COBALT, TOTAL	001	W	99L1826	11/13/00	12/15/00	12/21/00
COBALT, TOTAL	001 REP	W	99L1826	11/13/00	12/15/00	12/21/00
COBALT, TOTAL	001 MS	W	99L1826	11/13/00	12/15/00	12/21/00
CHROMIUM, TOTAL	001	W	99L1826	11/13/00	12/15/00	12/21/00
CHROMIUM, TOTAL	001 REP	W	99L1826	11/13/00	12/15/00	12/21/00
CHROMIUM, TOTAL	001 MS	W	99L1826	11/13/00	12/15/00	12/21/00
COPPER, TOTAL	001	W	99L1826	11/13/00	12/15/00	12/21/00
COPPER, TOTAL	001 REP	W	99L1826	11/13/00	12/15/00	12/21/00
COPPER, TOTAL	001 MS	W	99L1826	11/13/00	12/15/00	12/21/00
IRON, TOTAL	001	W	99L1826	11/13/00	12/15/00	12/21/00
IRON, TOTAL	001 REP	W	99L1826	11/13/00	12/15/00	12/21/00
IRON, TOTAL	001 MS	W	99L1826	11/13/00	12/15/00	12/21/00
POTASSIUM, TOTAL	001	W	99L1826	11/13/00	12/15/00	12/21/00
POTASSIUM, TOTAL	001 REP	W	99L1826	11/13/00	12/15/00	12/21/00
POTASSIUM, TOTAL	001 MS	W	99L1826	11/13/00	12/15/00	12/21/00
MAGNESIUM, TOTAL	001	W	99L1826	11/13/00	12/15/00	12/21/00
MAGNESIUM, TOTAL	001 REP	W	99L1826	11/13/00	12/15/00	12/21/00

Recra LabNet - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD C01-008 H1141

DATE RECEIVED: 11/17/00 RFW LOT # :0011L314

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
MAGNESIUM, TOTAL	001 MS	W	99L1826	11/13/00	12/15/00	12/21/00
MANGANESE, TOTAL	001	W	99L1826	11/13/00	12/15/00	12/21/00
MANGANESE, TOTAL	001 REP	W	99L1826	11/13/00	12/15/00	12/21/00
MANGANESE, TOTAL	001 MS	W	99L1826	11/13/00	12/15/00	12/21/00
SODIUM, TOTAL	001	W	99L1826	11/13/00	12/15/00	12/21/00
SODIUM, TOTAL	001 REP	W	99L1826	11/13/00	12/15/00	12/21/00
SODIUM, TOTAL	001 MS	W	99L1826	11/13/00	12/15/00	12/21/00
NICKEL, TOTAL	001	W	99L1826	11/13/00	12/15/00	12/21/00
NICKEL, TOTAL	001 REP	W	99L1826	11/13/00	12/15/00	12/21/00
NICKEL, TOTAL	001 MS	W	99L1826	11/13/00	12/15/00	12/21/00
ANTIMONY, TOTAL	001	W	99L1826	11/13/00	12/15/00	12/21/00
ANTIMONY, TOTAL	001 REP	W	99L1826	11/13/00	12/15/00	12/21/00
ANTIMONY, TOTAL	001 MS	W	99L1826	11/13/00	12/15/00	12/21/00
STRONTIUM, TOTAL	001	W	99L1826	11/13/00	12/15/00	12/21/00
STRONTIUM, TOTAL	001 REP	W	99L1826	11/13/00	12/15/00	12/21/00
STRONTIUM, TOTAL	001 MS	W	99L1826	11/13/00	12/15/00	12/21/00
VANADIUM, TOTAL	001	W	99L1826	11/13/00	12/15/00	12/21/00
VANADIUM, TOTAL	001 REP	W	99L1826	11/13/00	12/15/00	12/21/00
VANADIUM, TOTAL	001 MS	W	99L1826	11/13/00	12/15/00	12/21/00
ZINC, TOTAL	001	W	99L1826	11/13/00	12/15/00	12/21/00
ZINC, TOTAL	001 REP	W	99L1826	11/13/00	12/15/00	12/21/00
ZINC, TOTAL	001 MS	W	99L1826	11/13/00	12/15/00	12/21/00
B10LC9						
SILVER, TOTAL	002	W	99L1826	11/13/00	12/15/00	12/21/00
ALUMINUM, TOTAL	002	W	99L1826	11/13/00	12/15/00	12/21/00
BARIUM, TOTAL	002	W	99L1826	11/13/00	12/15/00	12/21/00
BERYLLIUM, TOTAL	002	W	99L1826	11/13/00	12/15/00	12/21/00
CALCIUM, TOTAL	002	W	99L1826	11/13/00	12/15/00	12/21/00
CADMIUM, TOTAL	002	W	99L1826	11/13/00	12/15/00	12/21/00
COBALT, TOTAL	002	W	99L1826	11/13/00	12/15/00	12/21/00
CHROMIUM, TOTAL	002	W	99L1826	11/13/00	12/15/00	12/21/00
COPPER, TOTAL	002	W	99L1826	11/13/00	12/15/00	12/21/00
IRON, TOTAL	002	W	99L1826	11/13/00	12/15/00	12/21/00
POTASSIUM, TOTAL	002	W	99L1826	11/13/00	12/15/00	12/21/00
MAGNESIUM, TOTAL	002	W	99L1826	11/13/00	12/15/00	12/21/00
MANGANESE, TOTAL	002	W	99L1826	11/13/00	12/15/00	12/21/00

Recra LabNet - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD C01-008 H1141

DATE RECEIVED: 11/17/00 RFW LOT # :0011L314

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
SODIUM, TOTAL	002	W	99L1826	11/13/00	12/15/00	12/21/00
NICKEL, TOTAL	002	W	99L1826	11/13/00	12/15/00	12/21/00
ANTIMONY, TOTAL	002	W	99L1826	11/13/00	12/15/00	12/21/00
STRONTIUM, TOTAL	002	W	99L1826	11/13/00	12/15/00	12/21/00
VANADIUM, TOTAL	002	W	99L1826	11/13/00	12/15/00	12/21/00
ZINC, TOTAL	002	W	99L1826	11/13/00	12/15/00	12/21/00
B10LR6						
SILVER, TOTAL	003	W	99L1826	11/14/00	12/15/00	12/21/00
ALUMINUM, TOTAL	003	W	99L1826	11/14/00	12/15/00	12/21/00
BARIUM, TOTAL	003	W	99L1826	11/14/00	12/15/00	12/21/00
BERYLLIUM, TOTAL	003	W	99L1826	11/14/00	12/15/00	12/21/00
CALCIUM, TOTAL	003	W	99L1826	11/14/00	12/15/00	12/21/00
CADMIUM, TOTAL	003	W	99L1826	11/14/00	12/15/00	12/21/00
COBALT, TOTAL	003	W	99L1826	11/14/00	12/15/00	12/21/00
CHROMIUM, TOTAL	003	W	99L1826	11/14/00	12/15/00	12/21/00
COPPER, TOTAL	003	W	99L1826	11/14/00	12/15/00	12/21/00
IRON, TOTAL	003	W	99L1826	11/14/00	12/15/00	12/21/00
POTASSIUM, TOTAL	003	W	99L1826	11/14/00	12/15/00	12/21/00
MAGNESIUM, TOTAL	003	W	99L1826	11/14/00	12/15/00	12/21/00
MANGANESE, TOTAL	003	W	99L1826	11/14/00	12/15/00	12/21/00
SODIUM, TOTAL	003	W	99L1826	11/14/00	12/15/00	12/21/00
NICKEL, TOTAL	003	W	99L1826	11/14/00	12/15/00	12/21/00
ANTIMONY, TOTAL	003	W	99L1826	11/14/00	12/15/00	12/21/00
STRONTIUM, TOTAL	003	W	99L1826	11/14/00	12/15/00	12/21/00
VANADIUM, TOTAL	003	W	99L1826	11/14/00	12/15/00	12/21/00
ZINC, TOTAL	003	W	99L1826	11/14/00	12/15/00	12/21/00
B10LR7						
SILVER, TOTAL	004	W	99L1826	11/14/00	12/15/00	12/21/00
ALUMINUM, TOTAL	004	W	99L1826	11/14/00	12/15/00	12/21/00
BARIUM, TOTAL	004	W	99L1826	11/14/00	12/15/00	12/21/00
BERYLLIUM, TOTAL	004	W	99L1826	11/14/00	12/15/00	12/21/00
CALCIUM, TOTAL	004	W	99L1826	11/14/00	12/15/00	12/21/00
CADMIUM, TOTAL	004	W	99L1826	11/14/00	12/15/00	12/21/00
COBALT, TOTAL	004	W	99L1826	11/14/00	12/15/00	12/21/00

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INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD C01-008 H1141

DATE RECEIVED: 11/17/00 RFW LOT # :0011L314

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
CHROMIUM, TOTAL	004	W	99L1826	11/14/00	12/15/00	12/21/00
COPPER, TOTAL	004	W	99L1826	11/14/00	12/15/00	12/21/00
IRON, TOTAL	004	W	99L1826	11/14/00	12/15/00	12/21/00
POTASSIUM, TOTAL	004	W	99L1826	11/14/00	12/15/00	12/21/00
MAGNESIUM, TOTAL	004	W	99L1826	11/14/00	12/15/00	12/21/00
MANGANESE, TOTAL	004	W	99L1826	11/14/00	12/15/00	12/21/00
SODIUM, TOTAL	004	W	99L1826	11/14/00	12/15/00	12/21/00
NICKEL, TOTAL	004	W	99L1826	11/14/00	12/15/00	12/21/00
ANTIMONY, TOTAL	004	W	99L1826	11/14/00	12/15/00	12/21/00
STRONTIUM, TOTAL	004	W	99L1826	11/14/00	12/15/00	12/21/00
VANADIUM, TOTAL	004	W	99L1826	11/14/00	12/15/00	12/21/00
ZINC, TOTAL	004	W	99L1826	11/14/00	12/15/00	12/21/00
B10LT0						
SILVER, TOTAL	005	W	99L1826	11/13/00	12/15/00	12/21/00
ALUMINUM, TOTAL	005	W	99L1826	11/13/00	12/15/00	12/21/00
BARIUM, TOTAL	005	W	99L1826	11/13/00	12/15/00	12/21/00
BERYLLIUM, TOTAL	005	W	99L1826	11/13/00	12/15/00	12/21/00
CALCIUM, TOTAL	005	W	99L1826	11/13/00	12/15/00	12/21/00
CADMIUM, TOTAL	005	W	99L1826	11/13/00	12/15/00	12/21/00
COBALT, TOTAL	005	W	99L1826	11/13/00	12/15/00	12/21/00
CHROMIUM, TOTAL	005	W	99L1826	11/13/00	12/15/00	12/21/00
COPPER, TOTAL	005	W	99L1826	11/13/00	12/15/00	12/21/00
IRON, TOTAL	005	W	99L1826	11/13/00	12/15/00	12/21/00
POTASSIUM, TOTAL	005	W	99L1826	11/13/00	12/15/00	12/21/00
MAGNESIUM, TOTAL	005	W	99L1826	11/13/00	12/15/00	12/21/00
MANGANESE, TOTAL	005	W	99L1826	11/13/00	12/15/00	12/21/00
SODIUM, TOTAL	005	W	99L1826	11/13/00	12/15/00	12/21/00
NICKEL, TOTAL	005	W	99L1826	11/13/00	12/15/00	12/21/00
ANTIMONY, TOTAL	005	W	99L1826	11/13/00	12/15/00	12/21/00
STRONTIUM, TOTAL	005	W	99L1826	11/13/00	12/15/00	12/21/00
VANADIUM, TOTAL	005	W	99L1826	11/13/00	12/15/00	12/21/00
ZINC, TOTAL	005	W	99L1826	11/13/00	12/15/00	12/21/00
B10LT1						
SILVER, TOTAL	006	W	99L1826	11/13/00	12/15/00	12/21/00

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INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD C01-008 H1141

DATE RECEIVED: 11/17/00 RFW LOT # :0011L314

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
ALUMINUM, TOTAL	006	W	99L1826	11/13/00	12/15/00	12/21/00
BARIUM, TOTAL	006	W	99L1826	11/13/00	12/15/00	12/21/00
BERYLLIUM, TOTAL	006	W	99L1826	11/13/00	12/15/00	12/21/00
CALCIUM, TOTAL	006	W	99L1826	11/13/00	12/15/00	12/21/00
CADMIUM, TOTAL	006	W	99L1826	11/13/00	12/15/00	12/21/00
COBALT, TOTAL	006	W	99L1826	11/13/00	12/15/00	12/21/00
CHROMIUM, TOTAL	006	W	99L1826	11/13/00	12/15/00	12/21/00
COPPER, TOTAL	006	W	99L1826	11/13/00	12/15/00	12/21/00
IRON, TOTAL	006	W	99L1826	11/13/00	12/15/00	12/21/00
POTASSIUM, TOTAL	006	W	99L1826	11/13/00	12/15/00	12/21/00
MAGNESIUM, TOTAL	006	W	99L1826	11/13/00	12/15/00	12/21/00
MANGANESE, TOTAL	006	W	99L1826	11/13/00	12/15/00	12/21/00
SODIUM, TOTAL	006	W	99L1826	11/13/00	12/15/00	12/21/00
NICKEL, TOTAL	006	W	99L1826	11/13/00	12/15/00	12/21/00
ANTIMONY, TOTAL	006	W	99L1826	11/13/00	12/15/00	12/21/00
STRONTIUM, TOTAL	006	W	99L1826	11/13/00	12/15/00	12/21/00
VANADIUM, TOTAL	006	W	99L1826	11/13/00	12/15/00	12/21/00
ZINC, TOTAL	006	W	99L1826	11/13/00	12/15/00	12/21/00
B10LF4						
SILVER, TOTAL	007	W	99L1826	11/13/00	12/15/00	12/21/00
ALUMINUM, TOTAL	007	W	99L1826	11/13/00	12/15/00	12/21/00
BARIUM, TOTAL	007	W	99L1826	11/13/00	12/15/00	12/21/00
BERYLLIUM, TOTAL	007	W	99L1826	11/13/00	12/15/00	12/21/00
CALCIUM, TOTAL	007	W	99L1826	11/13/00	12/15/00	12/21/00
CADMIUM, TOTAL	007	W	99L1826	11/13/00	12/15/00	12/21/00
COBALT, TOTAL	007	W	99L1826	11/13/00	12/15/00	12/21/00
CHROMIUM, TOTAL	007	W	99L1826	11/13/00	12/15/00	12/21/00
COPPER, TOTAL	007	W	99L1826	11/13/00	12/15/00	12/21/00
IRON, TOTAL	007	W	99L1826	11/13/00	12/15/00	12/21/00
POTASSIUM, TOTAL	007	W	99L1826	11/13/00	12/15/00	12/21/00
MAGNESIUM, TOTAL	007	W	99L1826	11/13/00	12/15/00	12/21/00
MANGANESE, TOTAL	007	W	99L1826	11/13/00	12/15/00	12/21/00
SODIUM, TOTAL	007	W	99L1826	11/13/00	12/15/00	12/21/00
NICKEL, TOTAL	007	W	99L1826	11/13/00	12/15/00	12/21/00
ANTIMONY, TOTAL	007	W	99L1826	11/13/00	12/15/00	12/21/00
STRONTIUM, TOTAL	007	W	99L1826	11/13/00	12/15/00	12/21/00

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INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD C01-008 H1141

DATE RECEIVED: 11/17/00 RFW LOT # :0011L314

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
VANADIUM, TOTAL	007	W	99L1826	11/13/00	12/15/00	12/21/00
ZINC, TOTAL	007	W	99L1826	11/13/00	12/15/00	12/21/00
B10LF5						
SILVER, TOTAL	008	W	99L1826	11/13/00	12/15/00	12/21/00
ALUMINUM, TOTAL	008	W	99L1826	11/13/00	12/15/00	12/21/00
BARIUM, TOTAL	008	W	99L1826	11/13/00	12/15/00	12/21/00
BERYLLIUM, TOTAL	008	W	99L1826	11/13/00	12/15/00	12/21/00
CALCIUM, TOTAL	008	W	99L1826	11/13/00	12/15/00	12/21/00
CADMIUM, TOTAL	008	W	99L1826	11/13/00	12/15/00	12/21/00
COBALT, TOTAL	008	W	99L1826	11/13/00	12/15/00	12/21/00
CHROMIUM, TOTAL	008	W	99L1826	11/13/00	12/15/00	12/21/00
COPPER, TOTAL	008	W	99L1826	11/13/00	12/15/00	12/21/00
IRON, TOTAL	008	W	99L1826	11/13/00	12/15/00	12/21/00
POTASSIUM, TOTAL	008	W	99L1826	11/13/00	12/15/00	12/21/00
MAGNESIUM, TOTAL	008	W	99L1826	11/13/00	12/15/00	12/21/00
MANGANESE, TOTAL	008	W	99L1826	11/13/00	12/15/00	12/21/00
SODIUM, TOTAL	008	W	99L1826	11/13/00	12/15/00	12/21/00
NICKEL, TOTAL	008	W	99L1826	11/13/00	12/15/00	12/21/00
ANTIMONY, TOTAL	008	W	99L1826	11/13/00	12/15/00	12/21/00
STRONTIUM, TOTAL	008	W	99L1826	11/13/00	12/15/00	12/21/00
VANADIUM, TOTAL	008	W	99L1826	11/13/00	12/15/00	12/21/00
ZINC, TOTAL	008	W	99L1826	11/13/00	12/15/00	12/21/00
B10LJ0						
SILVER, TOTAL	009	W	99L1826	11/14/00	12/15/00	12/21/00
ALUMINUM, TOTAL	009	W	99L1826	11/14/00	12/15/00	12/21/00
BARIUM, TOTAL	009	W	99L1826	11/14/00	12/15/00	12/21/00
BERYLLIUM, TOTAL	009	W	99L1826	11/14/00	12/15/00	12/21/00
CALCIUM, TOTAL	009	W	99L1826	11/14/00	12/15/00	12/21/00
CADMIUM, TOTAL	009	W	99L1826	11/14/00	12/15/00	12/21/00
COBALT, TOTAL	009	W	99L1826	11/14/00	12/15/00	12/21/00
CHROMIUM, TOTAL	009	W	99L1826	11/14/00	12/15/00	12/21/00
COPPER, TOTAL	009	W	99L1826	11/14/00	12/15/00	12/21/00
IRON, TOTAL	009	W	99L1826	11/14/00	12/15/00	12/21/00
POTASSIUM, TOTAL	009	W	99L1826	11/14/00	12/15/00	12/21/00

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INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD C01-008 H1141

DATE RECEIVED: 11/17/00 RFW LOT # :0011L314

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
MAGNESIUM, TOTAL	009	W	99L1826	11/14/00	12/15/00	12/21/00
MANGANESE, TOTAL	009	W	99L1826	11/14/00	12/15/00	12/21/00
SODIUM, TOTAL	009	W	99L1826	11/14/00	12/15/00	12/21/00
NICKEL, TOTAL	009	W	99L1826	11/14/00	12/15/00	12/21/00
ANTIMONY, TOTAL	009	W	99L1826	11/14/00	12/15/00	12/21/00
STRONTIUM, TOTAL	009	W	99L1826	11/14/00	12/15/00	12/21/00
VANADIUM, TOTAL	009	W	99L1826	11/14/00	12/15/00	12/21/00
ZINC, TOTAL	009	W	99L1826	11/14/00	12/15/00	12/21/00
B10LJ1						
SILVER, TOTAL	010	W	99L1826	11/14/00	12/15/00	12/21/00
ALUMINUM, TOTAL	010	W	99L1826	11/14/00	12/15/00	12/21/00
BARIUM, TOTAL	010	W	99L1826	11/14/00	12/15/00	12/21/00
BERYLLIUM, TOTAL	010	W	99L1826	11/14/00	12/15/00	12/21/00
CALCIUM, TOTAL	010	W	99L1826	11/14/00	12/15/00	12/21/00
CADMIUM, TOTAL	010	W	99L1826	11/14/00	12/15/00	12/21/00
COBALT, TOTAL	010	W	99L1826	11/14/00	12/15/00	12/21/00
CHROMIUM, TOTAL	010	W	99L1826	11/14/00	12/15/00	12/21/00
COPPER, TOTAL	010	W	99L1826	11/14/00	12/15/00	12/21/00
IRON, TOTAL	010	W	99L1826	11/14/00	12/15/00	12/21/00
POTASSIUM, TOTAL	010	W	99L1826	11/14/00	12/15/00	12/21/00
MAGNESIUM, TOTAL	010	W	99L1826	11/14/00	12/15/00	12/21/00
MANGANESE, TOTAL	010	W	99L1826	11/14/00	12/15/00	12/21/00
SODIUM, TOTAL	010	W	99L1826	11/14/00	12/15/00	12/21/00
NICKEL, TOTAL	010	W	99L1826	11/14/00	12/15/00	12/21/00
ANTIMONY, TOTAL	010	W	99L1826	11/14/00	12/15/00	12/21/00
STRONTIUM, TOTAL	010	W	99L1826	11/14/00	12/15/00	12/21/00
VANADIUM, TOTAL	010	W	99L1826	11/14/00	12/15/00	12/21/00
ZINC, TOTAL	010	W	99L1826	11/14/00	12/15/00	12/21/00
B10LB1						
SILVER, TOTAL	011	W	99L1826	11/14/00	12/15/00	12/21/00
ALUMINUM, TOTAL	011	W	99L1826	11/14/00	12/15/00	12/21/00
BARIUM, TOTAL	011	W	99L1826	11/14/00	12/15/00	12/21/00
BERYLLIUM, TOTAL	011	W	99L1826	11/14/00	12/15/00	12/21/00
CALCIUM, TOTAL	011	W	99L1826	11/14/00	12/15/00	12/21/00

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INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD C01-008 H1141

DATE RECEIVED: 11/17/00 RFW LOT # :0011L314

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
CADMIUM, TOTAL	011	W	99L1826	11/14/00	12/15/00	12/21/00
COBALT, TOTAL	011	W	99L1826	11/14/00	12/15/00	12/21/00
CHROMIUM, TOTAL	011	W	99L1826	11/14/00	12/15/00	12/21/00
COPPER, TOTAL	011	W	99L1826	11/14/00	12/15/00	12/21/00
IRON, TOTAL	011	W	99L1826	11/14/00	12/15/00	12/21/00
POTASSIUM, TOTAL	011	W	99L1826	11/14/00	12/15/00	12/21/00
MAGNESIUM, TOTAL	011	W	99L1826	11/14/00	12/15/00	12/21/00
MANGANESE, TOTAL	011	W	99L1826	11/14/00	12/15/00	12/21/00
SODIUM, TOTAL	011	W	99L1826	11/14/00	12/15/00	12/21/00
NICKEL, TOTAL	011	W	99L1826	11/14/00	12/15/00	12/21/00
ANTIMONY, TOTAL	011	W	99L1826	11/14/00	12/15/00	12/21/00
STRONTIUM, TOTAL	011	W	99L1826	11/14/00	12/15/00	12/21/00
VANADIUM, TOTAL	011	W	99L1826	11/14/00	12/15/00	12/21/00
ZINC, TOTAL	011	W	99L1826	11/14/00	12/15/00	12/21/00
B10LB2						
SILVER, TOTAL	012	W	99L1826	11/14/00	12/15/00	12/21/00
ALUMINUM, TOTAL	012	W	99L1826	11/14/00	12/15/00	12/21/00
BARIUM, TOTAL	012	W	99L1826	11/14/00	12/15/00	12/21/00
BERYLLIUM, TOTAL	012	W	99L1826	11/14/00	12/15/00	12/21/00
CALCIUM, TOTAL	012	W	99L1826	11/14/00	12/15/00	12/21/00
CADMIUM, TOTAL	012	W	99L1826	11/14/00	12/15/00	12/21/00
COBALT, TOTAL	012	W	99L1826	11/14/00	12/15/00	12/21/00
CHROMIUM, TOTAL	012	W	99L1826	11/14/00	12/15/00	12/21/00
COPPER, TOTAL	012	W	99L1826	11/14/00	12/15/00	12/21/00
IRON, TOTAL	012	W	99L1826	11/14/00	12/15/00	12/21/00
POTASSIUM, TOTAL	012	W	99L1826	11/14/00	12/15/00	12/21/00
MAGNESIUM, TOTAL	012	W	99L1826	11/14/00	12/15/00	12/21/00
MANGANESE, TOTAL	012	W	99L1826	11/14/00	12/15/00	12/21/00
SODIUM, TOTAL	012	W	99L1826	11/14/00	12/15/00	12/21/00
NICKEL, TOTAL	012	W	99L1826	11/14/00	12/15/00	12/21/00
ANTIMONY, TOTAL	012	W	99L1826	11/14/00	12/15/00	12/21/00
STRONTIUM, TOTAL	012	W	99L1826	11/14/00	12/15/00	12/21/00
VANADIUM, TOTAL	012	W	99L1826	11/14/00	12/15/00	12/21/00
ZINC, TOTAL	012	W	99L1826	11/14/00	12/15/00	12/21/00
B10LM2						
SILVER, TOTAL	013	W	99L1826	11/14/00	12/15/00	12/21/00

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INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD C01-008 H1141

DATE RECEIVED: 11/17/00 RFW LOT # :0011L314

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
ALUMINUM, TOTAL	013	W	99L1826	11/14/00	12/15/00	12/21/00
BARIUM, TOTAL	013	W	99L1826	11/14/00	12/15/00	12/21/00
BERYLLIUM, TOTAL	013	W	99L1826	11/14/00	12/15/00	12/21/00
CALCIUM, TOTAL	013	W	99L1826	11/14/00	12/15/00	12/21/00
CADMIUM, TOTAL	013	W	99L1826	11/14/00	12/15/00	12/21/00
COBALT, TOTAL	013	W	99L1826	11/14/00	12/15/00	12/21/00
CHROMIUM, TOTAL	013	W	99L1826	11/14/00	12/15/00	12/21/00
COPPER, TOTAL	013	W	99L1826	11/14/00	12/15/00	12/21/00
IRON, TOTAL	013	W	99L1826	11/14/00	12/15/00	12/21/00
POTASSIUM, TOTAL	013	W	99L1826	11/14/00	12/15/00	12/21/00
MAGNESIUM, TOTAL	013	W	99L1826	11/14/00	12/15/00	12/21/00
MANGANESE, TOTAL	013	W	99L1826	11/14/00	12/15/00	12/21/00
SODIUM, TOTAL	013	W	99L1826	11/14/00	12/15/00	12/21/00
NICKEL, TOTAL	013	W	99L1826	11/14/00	12/15/00	12/21/00
ANTIMONY, TOTAL	013	W	99L1826	11/14/00	12/15/00	12/21/00
STRONTIUM, TOTAL	013	W	99L1826	11/14/00	12/15/00	12/21/00
VANADIUM, TOTAL	013	W	99L1826	11/14/00	12/15/00	12/21/00
ZINC, TOTAL	013	W	99L1826	11/14/00	12/15/00	12/21/00
B10LM3						
SILVER, TOTAL	014	W	99L1826	11/14/00	12/15/00	12/21/00
ALUMINUM, TOTAL	014	W	99L1826	11/14/00	12/15/00	12/21/00
BARIUM, TOTAL	014	W	99L1826	11/14/00	12/15/00	12/21/00
BERYLLIUM, TOTAL	014	W	99L1826	11/14/00	12/15/00	12/21/00
CALCIUM, TOTAL	014	W	99L1826	11/14/00	12/15/00	12/21/00
CADMIUM, TOTAL	014	W	99L1826	11/14/00	12/15/00	12/21/00
COBALT, TOTAL	014	W	99L1826	11/14/00	12/15/00	12/21/00
CHROMIUM, TOTAL	014	W	99L1826	11/14/00	12/15/00	12/21/00
COPPER, TOTAL	014	W	99L1826	11/14/00	12/15/00	12/21/00
IRON, TOTAL	014	W	99L1826	11/14/00	12/15/00	12/21/00
POTASSIUM, TOTAL	014	W	99L1826	11/14/00	12/15/00	12/21/00
MAGNESIUM, TOTAL	014	W	99L1826	11/14/00	12/15/00	12/21/00
MANGANESE, TOTAL	014	W	99L1826	11/14/00	12/15/00	12/21/00
SODIUM, TOTAL	014	W	99L1826	11/14/00	12/15/00	12/21/00
NICKEL, TOTAL	014	W	99L1826	11/14/00	12/15/00	12/21/00
ANTIMONY, TOTAL	014	W	99L1826	11/14/00	12/15/00	12/21/00
STRONTIUM, TOTAL	014	W	99L1826	11/14/00	12/15/00	12/21/00

Recra LabNet - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD C01-008 H1141

DATE RECEIVED: 11/17/00 RFW LOT # :0011L314

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
VANADIUM, TOTAL	014	W	99L1826	11/14/00	12/15/00	12/21/00
ZINC, TOTAL	014	W	99L1826	11/14/00	12/15/00	12/21/00

LAB QC:

SILVER LABORATORY	LC1 BS	W	99L1826	N/A	12/15/00	12/21/00
SILVER, TOTAL	MB1	W	99L1826	N/A	12/15/00	12/21/00
ALUMINUM LABORTORY	LC1 BS	W	99L1826	N/A	12/15/00	12/21/00
ALUMINUM, TOTAL	MB1	W	99L1826	N/A	12/15/00	12/21/00
BARIUM LABORATORY	LC1 BS	W	99L1826	N/A	12/15/00	12/21/00
BARIUM, TOTAL	MB1	W	99L1826	N/A	12/15/00	12/21/00
BERYLLIUM LABORATORY	LC1 BS	W	99L1826	N/A	12/15/00	12/21/00
BERYLLIUM, TOTAL	MB1	W	99L1826	N/A	12/15/00	12/21/00
CALCIUM LABORATORY	LC1 BS	W	99L1826	N/A	12/15/00	12/21/00
CALCIUM, TOTAL	MB1	W	99L1826	N/A	12/15/00	12/21/00
CADMIUM LABORATORY	LC1 BS	W	99L1826	N/A	12/15/00	12/21/00
CADMIUM, TOTAL	MB1	W	99L1826	N/A	12/15/00	12/21/00
COBALT LABORATORY	LC1 BS	W	99L1826	N/A	12/15/00	12/21/00
COBALT, TOTAL	MB1	W	99L1826	N/A	12/15/00	12/21/00
CHROMIUM LABORATORY	LC1 BS	W	99L1826	N/A	12/15/00	12/21/00
CHROMIUM, TOTAL	MB1	W	99L1826	N/A	12/15/00	12/21/00
COPPER LABORATORY	LC1 BS	W	99L1826	N/A	12/15/00	12/21/00
COPPER, TOTAL	MB1	W	99L1826	N/A	12/15/00	12/21/00
IRON LABORATORY	LC1 BS	W	99L1826	N/A	12/15/00	12/21/00
IRON, TOTAL	MB1	W	99L1826	N/A	12/15/00	12/21/00
POTASSIUM LABORATORY	LC1 BS	W	99L1826	N/A	12/15/00	12/21/00
POTASSIUM, TOTAL	MB1	W	99L1826	N/A	12/15/00	12/21/00
MAGNESIUM LABORATORY	LC1 BS	W	99L1826	N/A	12/15/00	12/21/00
MAGNESIUM, TOTAL	MB1	W	99L1826	N/A	12/15/00	12/21/00
MANGANESE LABORATORY	LC1 BS	W	99L1826	N/A	12/15/00	12/21/00
MANGANESE, TOTAL	MB1	W	99L1826	N/A	12/15/00	12/21/00
SODIUM LABORATORY	LC1 BS	W	99L1826	N/A	12/15/00	12/21/00
SODIUM, TOTAL	MB1	W	99L1826	N/A	12/15/00	12/21/00
NICKEL LABORATORY	LC1 BS	W	99L1826	N/A	12/15/00	12/21/00
NICKEL, TOTAL	MB1	W	99L1826	N/A	12/15/00	12/21/00
ANTIMONY LABORATORY	LC1 BS	W	99L1826	N/A	12/15/00	12/21/00
ANTIMONY, TOTAL	MB1	W	99L1826	N/A	12/15/00	12/21/00
STRONTIUM LCS STANDA	LC1 BS	W	99L1826	N/A	12/15/00	12/21/00

Recra LabNet - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD C01-008 H1141

DATE RECEIVED: 11/17/00 RFW LOT # :0011L314

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
STRONTIUM, TOTAL	MB1	W	99L1826	N/A	12/15/00	12/21/00
VANADIUM LABORATORY	LC1 BS	W	99L1826	N/A	12/15/00	12/21/00
VANADIUM, TOTAL	MB1	W	99L1826	N/A	12/15/00	12/21/00
ZINC LABORATORY	LC1 BS	W	99L1826	N/A	12/15/00	12/21/00
ZINC, TOTAL	MB1	W	99L1826	N/A	12/15/00	12/21/00

Recra LabNet Philadelphia
Analytical Report

Client: TNU-HANFORD C01-008
RFW#: 0011L314
SDG/SAF#: H1141/C01-008

W.O.#: 10985-001-001-9999-00
Date Received: 11-17-00

METALS CASE NARRATIVE

1. This narrative covers the analyses of 14 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 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.

9. All laboratory control samples (LCS) were within the 80-120% control limits. Refer to form 7.

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 42 pages.

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

11. The duplicate analyses for 5 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.

J. Michael Taylor
VP, Laboratory General Manager
Lionville Laboratory

01-05-01
Date

gmb/m11-314

METALS METHOD GLOSSARY

The following methods are used as reference for the digestion and analysis of samples contained within this Recra Lot#: 0011L314

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 01/04/01

CLIENT: TNUHANFORD C01-008 H1141 RECRA LOT #: 0011L314

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	B10LC8	Silver, Total	1.1	u	UG/L	1.1	1.0
		Aluminum, Total	22.7	u	UG/L	22.7	1.0
		Barium, Total	30.9		UG/L	0.20	1.0
		Beryllium, Total	0.10	u	UG/L	0.10	1.0
		Calcium, Total	50500		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	8.6		UG/L	0.60	1.0
		Copper, Total	3.4		UG/L	0.90	1.0
		Iron, Total	21.8	u	UG/L	21.8	1.0
		Potassium, Total	5520		UG/L	40.9	1.0
		Magnesium, Total	12200		UG/L	6.7	1.0
		Manganese, Total	0.62		UG/L	0.20	1.0
		Sodium, Total	17100		UG/L	4.1	1.0
		Nickel, Total	0.93		UG/L	0.90	1.0
		Antimony, Total	2.3	u	UG/L	2.3	1.0
		Strontium, Total	278		UG/L	0.10	1.0
		Vanadium, Total	7.3		UG/L	0.80	1.0
		Zinc, Total	7.1		UG/L	0.40	1.0

Recra LabNet - Lionville

INORGANICS DATA SUMMARY REPORT 01/04/01

CLIENT: TNUHANFORD C01-008 H1141 RECRA LOT #: 0011L314

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-002	B10LC9	Silver, Total	1.1	u	UG/L	1.1	1.0
		Aluminum, Total	22.7	u	UG/L	22.7	1.0
		Barium, Total	30.1		UG/L	0.20	1.0
		Beryllium, Total	0.10	u	UG/L	0.10	1.0
		Calcium, Total	51600		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	8.9		UG/L	0.60	1.0
		Copper, Total	2.0		UG/L	0.90	1.0
		Iron, Total	28.0		UG/L	21.8	1.0
		Potassium, Total	5440		UG/L	40.9	1.0
		Magnesium, Total	12200		UG/L	6.7	1.0
		Manganese, Total	0.20	u	UG/L	0.20	1.0
		Sodium, Total	16600		UG/L	4.1	1.0
		Nickel, Total	1.1		UG/L	0.90	1.0
		Antimony, Total	2.3	u	UG/L	2.3	1.0
		Strontium, Total	276		UG/L	0.10	1.0
		Vanadium, Total	7.4		UG/L	0.80	1.0
		Zinc, Total	4.8		UG/L	0.40	1.0

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INORGANICS DATA SUMMARY REPORT 01/04/01

CLIENT: TNUHANFORD C01-008 H1141 RECRA LOT #: 0011L314

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-003	B10LR6	Silver, Total	1.1	u	UG/L	1.1	1.0
		Aluminum, Total	22.7	u	UG/L	22.7	1.0
		Barium, Total	36.9		UG/L	0.20	1.0
		Beryllium, Total	0.10	u	UG/L	0.10	1.0
		Calcium, Total	72300		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	25.0		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	2870		UG/L	40.9	1.0
		Magnesium, Total	12300		UG/L	6.7	1.0
		Manganese, Total	0.20	u	UG/L	0.20	1.0
		Sodium, Total	8590		UG/L	4.1	1.0
		Nickel, Total	1.4		UG/L	0.90	1.0
		Antimony, Total	2.3	u	UG/L	2.3	1.0
		Strontium, Total	316		UG/L	0.10	1.0
		Vanadium, Total	3.3		UG/L	0.80	1.0
		Zinc, Total	2.0		UG/L	0.40	1.0

Recra LabNet - Lionville

INORGANICS DATA SUMMARY REPORT 01/04/01

CLIENT: TNUHANFORD C01-008 H1141 RECRA LOT #: 0011L314

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-004	B10LR7	Silver, Total	1.1	u	UG/L	1.1	1.0
		Aluminum, Total	22.7	u	UG/L	22.7	1.0
		Barium, Total	36.9		UG/L	0.20	1.0
		Beryllium, Total	0.10	u	UG/L	0.10	1.0
		Calcium, Total	72100		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	26.2		UG/L	0.60	1.0
		Copper, Total	0.90	u	UG/L	0.90	1.0
		Iron, Total	34.8		UG/L	21.8	1.0
		Potassium, Total	2860		UG/L	40.9	1.0
		Magnesium, Total	12200		UG/L	6.7	1.0
		Manganese, Total	0.47		UG/L	0.20	1.0
		Sodium, Total	8590		UG/L	4.1	1.0
		Nickel, Total	2.7		UG/L	0.90	1.0
		Antimony, Total	2.3	u	UG/L	2.3	1.0
		Strontium, Total	315		UG/L	0.10	1.0
		Vanadium, Total	2.6		UG/L	0.80	1.0
		Zinc, Total	1.8		UG/L	0.40	1.0

Recra LabNet - Lionville

INORGANICS DATA SUMMARY REPORT 01/04/01

CLIENT: TNUHANFORD C01-008 H1141 RECRA LOT #: 0011L314

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-005	B10LT0	Silver, Total	1.1	u	UG/L	1.1	1.0
		Aluminum, Total	22.7	u	UG/L	22.7	1.0
		Barium, Total	33.5		UG/L	0.20	1.0
		Beryllium, Total	0.10	u	UG/L	0.10	1.0
		Calcium, Total	63700		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	84.4		UG/L	0.60	1.0
		Copper, Total	0.97		UG/L	0.90	1.0
		Iron, Total	41.3		UG/L	21.8	1.0
		Potassium, Total	5630		UG/L	40.9	1.0
		Magnesium, Total	12400		UG/L	6.7	1.0
		Manganese, Total	1.0		UG/L	0.20	1.0
		Sodium, Total	12900		UG/L	4.1	1.0
		Nickel, Total	2.6		UG/L	0.90	1.0
		Antimony, Total	2.3	u	UG/L	2.3	1.0
		Strontium, Total	317		UG/L	0.10	1.0
		Vanadium, Total	5.6		UG/L	0.80	1.0
		Zinc, Total	2.7		UG/L	0.40	1.0

Recra LabNet - Lionville

INORGANICS DATA SUMMARY REPORT 01/04/01

CLIENT: TNUHANFORD C01-008 H1141 RECRA LOT #: 0011L314

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-006	B10LT1	Silver, Total	1.1 u	UG/L	1.1	1.0
		Aluminum, Total	625	UG/L	22.7	1.0
		Barium, Total	37.3	UG/L	0.20	1.0
		Beryllium, Total	0.10 u	UG/L	0.10	1.0
		Calcium, Total	59600	UG/L	19.2	1.0
		Cadmium, Total	0.30 u	UG/L	0.30	1.0
		Cobalt, Total	1.0	UG/L	0.90	1.0
		Chromium, Total	153	UG/L	0.60	1.0
		Copper, Total	4.6	UG/L	0.90	1.0
		Iron, Total	1190	UG/L	21.8	1.0
		Potassium, Total	5320	UG/L	40.9	1.0
		Magnesium, Total	11700	UG/L	6.7	1.0
		Manganese, Total	23.1	UG/L	0.20	1.0
		Sodium, Total	12200	UG/L	4.1	1.0
		Nickel, Total	38.0	UG/L	0.90	1.0
		Antimony, Total	2.3 u	UG/L	2.3	1.0
		Strontium, Total	296	UG/L	0.10	1.0
		Vanadium, Total	7.3	UG/L	0.80	1.0
		Zinc, Total	18.1	UG/L	0.40	1.0

Recra LabNet - Lionville

INORGANICS DATA SUMMARY REPORT 01/04/01

CLIENT: TNUHANFORD C01-008 H1141 RECRA LOT #: 0011L314

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-007	B10LF4	Silver, Total	1.1 u	UG/L	1.1	1.0
		Aluminum, Total	67.8	UG/L	22.7	1.0
		Barium, Total	40.9	UG/L	0.20	1.0
		Beryllium, Total	0.10 u	UG/L	0.10	1.0
		Calcium, Total	43800	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	110	UG/L	0.60	1.0
		Copper, Total	1.9	UG/L	0.90	1.0
		Iron, Total	69.0	UG/L	21.8	1.0
		Potassium, Total	5950	UG/L	40.9	1.0
		Magnesium, Total	7660	UG/L	6.7	1.0
		Manganese, Total	3.4	UG/L	0.20	1.0
		Sodium, Total	75700	UG/L	4.1	1.0
		Nickel, Total	6.0	UG/L	0.90	1.0
		Antimony, Total	2.3 u	UG/L	2.3	1.0
		Strontium, Total	218	UG/L	0.10	1.0
		Vanadium, Total	4.6	UG/L	0.80	1.0
		Zinc, Total	6.6	UG/L	0.40	1.0

Recra LabNet - Lionville

INORGANICS DATA SUMMARY REPORT 01/04/01

CLIENT: TNUHANFORD C01-008 H1141 RECRA LOT #: 0011L314

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-008	B10LF5	Silver, Total	1.1 u	UG/L	1.1	1.0
		Aluminum, Total	39.0	UG/L	22.7	1.0
		Barium, Total	42.8	UG/L	0.20	1.0
		Beryllium, Total	0.10 u	UG/L	0.10	1.0
		Calcium, Total	46700	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	131	UG/L	0.60	1.0
		Copper, Total	2.8	UG/L	0.90	1.0
		Iron, Total	313	UG/L	21.8	1.0
		Potassium, Total	6270	UG/L	40.9	1.0
		Magnesium, Total	8100	UG/L	6.7	1.0
		Manganese, Total	11.2	UG/L	0.20	1.0
		Sodium, Total	79200	UG/L	4.1	1.0
		Nickel, Total	11.0	UG/L	0.90	1.0
		Antimony, Total	2.3 u	UG/L	2.3	1.0
		Strontium, Total	233	UG/L	0.10	1.0
		Vanadium, Total	4.7	UG/L	0.80	1.0
		Zinc, Total	8.6	UG/L	0.40	1.0

Recra LabNet - Lionville

INORGANICS DATA SUMMARY REPORT 01/04/01

CLIENT: TNUHANFORD C01-008 H1141 RECRA LOT #: 0011L314

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-009	B10LJ0	Silver, Total	1.1	u	UG/L	1.1	1.0
		Aluminum, Total	22.7	u	UG/L	22.7	1.0
		Barium, Total	36.4		UG/L	0.20	1.0
		Beryllium, Total	0.10	u	UG/L	0.10	1.0
		Calcium, Total	57100		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	10.5		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	5870		UG/L	40.9	1.0
		Magnesium, Total	12100		UG/L	6.7	1.0
		Manganese, Total	0.31		UG/L	0.20	1.0
		Sodium, Total	21200		UG/L	4.1	1.0
		Nickel, Total	2.5		UG/L	0.90	1.0
		Antimony, Total	2.3	u	UG/L	2.3	1.0
		Strontium, Total	354		UG/L	0.10	1.0
		Vanadium, Total	6.9		UG/L	0.80	1.0
		Zinc, Total	3.4		UG/L	0.40	1.0

Recra LabNet - Lionville

INORGANICS DATA SUMMARY REPORT 01/04/01

CLIENT: TNUHANFORD C01-008 H1141 RECRA LOT #: 0011L314

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-010	B10LJ1	Silver, Total	1.1	u	UG/L	1.1	1.0
		Aluminum, Total	22.7	u	UG/L	22.7	1.0
		Barium, Total	36.3		UG/L	0.20	1.0
		Beryllium, Total	0.10	u	UG/L	0.10	1.0
		Calcium, Total	57400		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	11.7		UG/L	0.60	1.0
		Copper, Total	0.90	u	UG/L	0.90	1.0
		Iron, Total	47.9		UG/L	21.8	1.0
		Potassium, Total	5850		UG/L	40.9	1.0
		Magnesium, Total	12100		UG/L	6.7	1.0
		Manganese, Total	0.79		UG/L	0.20	1.0
		Sodium, Total	20900		UG/L	4.1	1.0
		Nickel, Total	3.4		UG/L	0.90	1.0
		Antimony, Total	2.3	u	UG/L	2.3	1.0
		Strontium, Total	356		UG/L	0.10	1.0
		Vanadium, Total	6.8		UG/L	0.80	1.0
		Zinc, Total	1.9		UG/L	0.40	1.0

Recra LabNet - Lionville

INORGANICS DATA SUMMARY REPORT 01/04/01

CLIENT: TNUHANFORD C01-008 H1141 RECRA LOT #: 0011L314

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-011	B10LB1	Silver, Total	1.1 u	UG/L	1.1	1.0
		Aluminum, Total	45.1	UG/L	22.7	1.0
		Barium, Total	53.9	UG/L	0.20	1.0
		Beryllium, Total	0.10 u	UG/L	0.10	1.0
		Calcium, Total	67500	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	56.8	UG/L	0.60	1.0
		Copper, Total	1.2	UG/L	0.90	1.0
		Iron, Total	39.3	UG/L	21.8	1.0
		Potassium, Total	2930	UG/L	40.9	1.0
		Magnesium, Total	11700	UG/L	6.7	1.0
		Manganese, Total	0.20 u	UG/L	0.20	1.0
		Sodium, Total	8040	UG/L	4.1	1.0
		Nickel, Total	2.8	UG/L	0.90	1.0
		Antimony, Total	2.3 u	UG/L	2.3	1.0
		Strontium, Total	309	UG/L	0.10	1.0
		Vanadium, Total	6.6	UG/L	0.80	1.0
		Zinc, Total	65.4	UG/L	0.40	1.0

Recra LabNet - Lionville

INORGANICS DATA SUMMARY REPORT 01/04/01

CLIENT: TNUHANFORD C01-008 H1141 RECRA LOT #: 0011L314

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-012	B10LB2	Silver, Total	1.1 u	UG/L	1.1	1.0
		Aluminum, Total	22.7 u	UG/L	22.7	1.0
		Barium, Total	53.4	UG/L	0.20	1.0
		Beryllium, Total	0.10 u	UG/L	0.10	1.0
		Calcium, Total	67500	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	55.9	UG/L	0.60	1.0
		Copper, Total	0.90 u	UG/L	0.90	1.0
		Iron, Total	36.3	UG/L	21.8	1.0
		Potassium, Total	2900	UG/L	40.9	1.0
		Magnesium, Total	11700	UG/L	6.7	1.0
		Manganese, Total	0.20 u	UG/L	0.20	1.0
		Sodium, Total	8030	UG/L	4.1	1.0
		Nickel, Total	0.95	UG/L	0.90	1.0
		Antimony, Total	3.9	UG/L	2.3	1.0
		Strontium, Total	307	UG/L	0.10	1.0
		Vanadium, Total	7.3	UG/L	0.80	1.0
		Zinc, Total	64.4	UG/L	0.40	1.0

Recra LabNet - Lionville

INORGANICS DATA SUMMARY REPORT 01/04/01

CLIENT: TNUHANFORD C01-008 H1141 RECRA LOT #: 0011L314

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-013	B10LM2	Silver, Total	1.1	u	UG/L	1.1	1.0
		Aluminum, Total	22.7	u	UG/L	22.7	1.0
		Barium, Total	47.7		UG/L	0.20	1.0
		Beryllium, Total	0.10	u	UG/L	0.10	1.0
		Calcium, Total	82400		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	37.7		UG/L	0.60	1.0
		Copper, Total	1.7		UG/L	0.90	1.0
		Iron, Total	53.2		UG/L	21.8	1.0
		Potassium, Total	5190		UG/L	40.9	1.0
		Magnesium, Total	12100		UG/L	6.7	1.0
		Manganese, Total	0.62		UG/L	0.20	1.0
		Sodium, Total	16000		UG/L	4.1	1.0
		Nickel, Total	5.4		UG/L	0.90	1.0
		Antimony, Total	2.3	u	UG/L	2.3	1.0
		Strontium, Total	434		UG/L	0.10	1.0
		Vanadium, Total	3.9		UG/L	0.80	1.0
		Zinc, Total	7.6		UG/L	0.40	1.0

Recra LabNet - Lionville

INORGANICS DATA SUMMARY REPORT 01/04/01

CLIENT: TNUHANFORD C01-008 H1141 RECRA LOT #: 0011L314

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-014	B10LM3	Silver, Total	1.1 u	UG/L	1.1	1.0
		Aluminum, Total	79.6	UG/L	22.7	1.0
		Barium, Total	50.5	UG/L	0.20	1.0
		Beryllium, Total	0.10 u	UG/L	0.10	1.0
		Calcium, Total	85300	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	43.5	UG/L	0.60	1.0
		Copper, Total	1.6	UG/L	0.90	1.0
		Iron, Total	176	UG/L	21.8	1.0
		Potassium, Total	5410	UG/L	40.9	1.0
		Magnesium, Total	12600	UG/L	6.7	1.0
		Manganese, Total	2.8	UG/L	0.20	1.0
		Sodium, Total	16500	UG/L	4.1	1.0
		Nickel, Total	6.7	UG/L	0.90	1.0
		Antimony, Total	2.3 u	UG/L	2.3	1.0
		Strontium, Total	450	UG/L	0.10	1.0
		Vanadium, Total	4.0	UG/L	0.80	1.0
		Zinc, Total	6.6	UG/L	0.40	1.0

Recra LabNet - Lionville

INORGANICS METHOD BLANK DATA SUMMARY PAGE 01/04/01

CLIENT: TNUHANFORD C01-008 H1141 RECRA LOT #: 0011L314

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK1	99L1826-MB1	Silver, Total	1.1	u	UG/L	1.1	1.0
		Aluminum, Total	22.7	u	UG/L	22.7	1.0
		Barium, Total	0.42		UG/L	0.20	1.0
		Beryllium, Total	0.10	u	UG/L	0.10	1.0
		Calcium, Total	20.2		UG/L	19.2	1.0
		Cadmium, Total	0.30	u	UG/L	0.30	1.0
		Cobalt, Total	0.91		UG/L	0.90	1.0
		Chromium, Total	0.90		UG/L	0.60	1.0
		Copper, Total	1.3		UG/L	0.90	1.0
		Iron, Total	21.8	u	UG/L	21.8	1.0
		Potassium, Total	43.7		UG/L	40.9	1.0
		Magnesium, Total	6.7	u	UG/L	6.7	1.0
		Manganese, Total	0.28		UG/L	0.20	1.0
		Sodium, Total	47.6		UG/L	4.1	1.0
		Nickel, Total	1.8		UG/L	0.90	1.0
		Antimony, Total	2.3	u	UG/L	2.3	1.0
		Strontium, Total	0.18		UG/L	0.10	1.0
		Vanadium, Total	0.80	u	UG/L	0.80	1.0
		Zinc, Total	5.3		UG/L	0.40	1.0

Recra LabNet - Lionville

INORGANICS ACCURACY REPORT 01/04/01

CLIENT: TNUHANFORD C01-008 H1141 RECRA LOT #: 0011L314

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-001	B10LC8	Silver, Total	50.8	1.1 u	50.0	101.6	1.0
		Aluminum, Total	2060	22.7 u	2000	103.2	1.0
		Barium, Total	2040	30.9	2000	100.5	1.0
		Beryllium, Total	50.8	0.10u	50.0	101.6	1.0
		Calcium, Total	78500	50500	25000	112.1	1.0
		Cadmium, Total	51.6	0.30u	50.0	103.2	1.0
		Cobalt, Total	505	0.90u	500	101.0	1.0
		Chromium, Total	212	8.6	200	101.6	1.0
		Copper, Total	253	3.4	250	99.9	1.0
		Iron, Total	1050	21.8 u	1000	104.7	1.0
		Potassium, Total	32400	5520	25000	107.5	1.0
		Magnesium, Total	38700	12200	25000	106.2	1.0
		Manganese, Total	522	0.62	500	104.3	1.0
		Sodium, Total	41800	17100	25000	98.7	1.0
		Nickel, Total	492	0.93	500	98.3	1.0
		Antimony, Total	528	2.3 u	500	105.7	1.0
		Strontium, Total	1310	278	1000	103.4	1.0
		Vanadium, Total	526	7.3	500	103.8	1.0
		Zinc, Total	508	7.1	500	100.3	1.0

Recra LabNet - Lionville

INORGANICS PRECISION REPORT 01/04/01

CLIENT: TNUHANFORD C01-008 H1141 RECRA LOT #: 0011L314

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-001REP	B10LC8	Silver, Total	1.1 u	1.1 u	NC	1.0
		Aluminum, Total	22.7 u	27.4	NC 200	1.0
		Barium, Total	30.9	31.1	0.65	1.0
		Beryllium, Total	0.10u	0.10u	NC	1.0
		Calcium, Total	50500	52000	3.0	1.0
		Cadmium, Total	0.30u	0.30u	NC	1.0
		Cobalt, Total	0.90u	0.90u	NC	1.0
		Chromium, Total	8.6	9.6	11.0	1.0
		Copper, Total	3.4	3.6	5.7	1.0
		Iron, Total	21.8 u	30.5	NC 200	1.0
		Potassium, Total	5520	5510	0.056	1.0
		Magnesium, Total	12200	12400	1.6	1.0
		Manganese, Total	0.62	1.8	97.5	1.0
		Sodium, Total	17100	17100	0.074	1.0
		Nickel, Total	0.93	1.4	40.3	1.0
		Antimony, Total	2.3 u	2.3 u	NC	1.0
		Strontium, Total	278	278	0.32	1.0
		Vanadium, Total	7.3	7.3	0.00	1.0
		Zinc, Total	7.1	18.6	89.5	1.0

WJB 1/4/01

Recra LabNet - Lionville

INORGANICS LABORATORY CONTROL STANDARDS REPORT 01/04/01

CLIENT: TNUHANFORD C01-008 H1141 RECRA LOT #: 0011L314

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
LCS1	99L1826-LC1	Silver, LCS	504	500	UG/L	100.9
		Aluminum, LCS	5110	5000	UG/L	102.1
		Barium, LCS	4940	5000	UG/L	98.8
		Beryllium, LCS	247	250	UG/L	98.8
		Calcium, LCS	24500	25000	UG/L	98.1
		Cadmium, LCS	246	250	UG/L	98.6
		Cobalt, LCS	2480	2500	UG/L	99.3
		Chromium, LCS	496	500	UG/L	99.3
		Copper, LCS	1240	1250	UG/L	99.1
		Iron, LCS	5000	5000	UG/L	100.0
		Potassium, LCS	26000	25000	UG/L	103.8
		Magnesium, LCS	25500	25000	UG/L	101.9
		Manganese, LCS	768	750	UG/L	102.4
		Sodium, LCS	24900	25000	UG/L	99.8
		Nickel, LCS	1970	2000	UG/L	98.7
		Antimony, LCS	3020	3000	UG/L	100.7
		Strontium, LCS	4950	5000	UG/L	99.0
		Vanadium, LCS	2540	2500	UG/L	101.7
		Zinc, LCS	994	1000	UG/L	99.4

RECRA LabNet Use Only

0011L314

Custody Transfer Record/Lab Work Request

Page 1 of 2

RECRA LabNet

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

TMU- HANFORD C01-008

Client: ~~RCA SAF C01-008~~ HANFORD

Est. Final Proj. Sampling Date

Project # 10985-001-001-9999-00

Project Contact/Phone #

RECRA Project Manager

QC Spec Del Std TAT 30day

Date Rec'd 11-17-00 Date Due 12-17-00

Account #

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

ANALYSES REQUESTED →

ORGANIC: VOA, BNA, Pest/PCB, Herb

INORG: Metal, CN, TC, Ni, ORG

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	Met①	IC①
001	B10LC8			W	11/13/00	1156	1	
002	19				1	1	1	1
003	LR6				11/14/00	1111	1	
004	L7				1	1	1	1
005	LT0				11/13/00	0957	1	
006	11					1	1	1
007	LF4					1105	1	
008	15				1	1	1	1
009	LT0				11/14/00	1159	1	
010	11				1	1	1	1

Special Instructions: SAF C01-008

Run Matrix QC

DATE/REVISIONS:

Met① 1. Al, Ag, Ba, Be, Ca, Cd, Cr, Co, Cu, Fe, K,

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

IC① 3. Cl, Br, Fl, NO_2, NO_3, PO_4, SO_4

4.

5.

6.

RECRA LabNet Use Only

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

COC Tape was:
1) Present on Outer Package (Y) or N
2) Unbroken on Outer Package (Y) or N
3) Present on Sample (Y) or N
4) Unbroken on Sample (Y) or N

COC Record Present Upon Sample Rec't (Y) or N

Cooler Temp. 3° °C

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

NOTES: ~~4235~~ 7540603 11/17/00

Relinquished by	Received by	Date	Time
Fed Ex	[signature]	11/17/00	0915

Relinquished by	Received by	Date	Time
COMPOSITE WASTE			

ORIGINAL! REWRITTEN

34

RECRA LabNet Use Only
00116314

Custody Transfer Record/Lab Work Request

Page 2 of 2

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

RECRA LabNet

Client: ~~[illegible]~~ TPU-Hanford C0100B

Est. Final Proj. Sampling Date:

Project #:

Project Contact/Phone #:

RECRA Project Manager:

QC: Del: TAT:

Date Rec'd: Date Due:

Account #:

		A	B
Refrigerator #		S	S
#/Type Container	Liquid	1PC	1PC
	Solid		
Volume	Liquid	500	500
	Solid		
Preservatives		HNO3	—
ANALYSES REQUESTED	ORGANIC: VOA		
	ORGANIC: BNA		
	ORGANIC: Pest/PCB		
	ORGANIC: Herb		
	INORG: Metal		
	INORG: CN		
	INORG: IC Anions		
RECRA LabNet Use Only		1	1

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

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	Metal	IC
011	B10LB1			W	11/9/00	1016	1	
012	12						1	1
013	LM2					0921	1	
014	13						1	1

Special Instructions:

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

Relinquished by	Received by	Date	Time
[illegible]	[illegible]	11/14/00	0930

Relinquished by	Received by	Date	Time

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

RECRA LabNet Use Only

Samples were:
1) Shipped ____ or Hand Delivered
Airbill #
2) Ambient or Chilled
3) Received in Good Condition Y or N
4) Labels Indicate Properly Preserved Y or N
5) Received Within Holding Times Y or N

COC Tape was:
1) Present on Outer Package Y or N
2) Unbroken on Outer Package Y or N
3) Present on Sample Y or N
4) Unbroken on Sample Y or N

COC Record Present Upon Sample Rec't Y or N

Cooler Temp. ____ °C

PNNL

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

CHEM SOG H114

C.O.C. # C01-008-66

Page 1 of 1

Collector: K.J. YOUNG	Contact/Requester: JH KESSNER	Telephone No.: (509) 375-4688 MSIN FAX
SAF No.: C01-008	Sampling Origin: HANFORD SITE	Purchase Order/Charge Code
Project Title: 100HR3 IAM (1&2) GW MONITORING, NOVEMBER, 2000	Logbook No.: WM-SAWS-139	Ice Chest No.: GWS-115 Temp.
Shipped To (Lab): TMA/RECRA	Method of Shipment: GOVT. VEHICLE	Bill of Lading/Air Bill No.: 4235 2954 0511
Protocol: CERCLA	Data Turnaround: 45 Days	Offsite Property No.: W01000034

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
1	B10LC8 (F)		W	11/13/00	1156	1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
2	B10LC9		W			1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
	B10LC9		W			1x500-mL P	IC Anions - 300.0	Cool 4C
	B10LC9		W			1x20-mL P	Activity Scan	None
	B10LC9		W			2x1000-mL G/P	Gross Alpha	HNO3 to pH <2
	B10LC9		W			2x1000-mL G/P (1)	Gross Beta → received only one (1)	HNO3 to pH <2
	B10LC9		W			1x250-mL P	Tritium - H3	None

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
K.J. YOUNG			11/13/00 1430	Fed. Ex.			11/13/00
FED. EXPRESS			11/14/00	E. Segura			11/15/00 8:30
E. SEGURO			11-16-00 1600	FED. EXPRESS			11/16/00
Fed Ex.			11/17/00 0930				11/17/00 0930

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 SOG H114

C.O.C. # C01-008-80

Page 1 of 1

Collector: D. P. CONNOLLY	Contact/Requester: JH KESSNER	Telephone No.: (509) 375-4688 MSIN FAX
SAF No.: C01-008	Sampling Origin: HANFORD SITE	Purchase Order/Charge Code
Project Title: 100HR3 IAM (1&2) GW MONITORING NOVEMBER 2000	Logbook No.: WM-5 MWS-478	Ice Chest No.: 62 0696 Temp.
Shipped To (Lab): TMA/RECRA	Method of Shipment: GOVT VEHICLE	Bill of Lading/Air Bill No.: 4235 7954 0599
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
B10LR6 (F)		W	11-14-00	1111	1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
B10LR7		W			1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
B10LR7		W			1x500-mL P	IC Anions - 300.0	Cool 4C
B10LR7		W			1x20-mL P	Activity Scan	None
B10LR7		W			2x1000-mL G/P	Gross Alpha	HNO3 to pH <2
B10LR7		W			2x1000-mL G/P	Gross Beta	HNO3 to pH <2
B10LR7		W			1x250-mL P	Tritium - H3	None

Relinquished By (Print / Sign)	Date/Time	Received By (Print / Sign)	Date/Time
D. P. CONNOLLY	NOV 14 2000 1430	Fed Ex	11/14/00
FED-EXPRESS	11/15/00 10:AM	E. Segura	11/15/00 10:AM
E. SEGURO	11/16/00 16:00	FED. EXPRESS	11/16/00
Fed Ex	11/17/00 0930	[illegible]	11/17/00 0930

Matrix *

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

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

PNNL

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

CHEM SOL H1141

C.O.C. # C01-008-84

Page 1 of 1

Collector: D.R. BREWINGTON	Contact/Requester: JH KESSNER	Telephone No.: (509) 375-4688 MSIN FAX
SAF No.: C01-008	Sampling Origin: HANFORD SITE	Purchase Order/Charge Code
Project Title: 100HR3 IAM (1&2) GW MONITORING, NOVEMBER, 2000	Logbook No.: WM-SAWS-H37 pg 47	Ice Chest No.: GWS-115 Temp.
Shipped To (Lab): TMA/RECRA	Method of Shipment: GOVT VEHICLE / FEDX	Bill of Lading/Air Bill No.: 4235 7954 0571
Protocol: CERCLA	Data Turnaround: 45 Days	Offsite Property No.: W01000034

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
5	B10LT0 (F)		W	11-13-00	0951	1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
6	B10LT1		W			1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
	B10LT1		W			1x500-mL P	IC Anions - 300.0	Cool 4C
	B10LT1		W			1x20-mL P	Activity Scan	None
	B10LT1		W			2x1000-mL G/P	Gross Alpha	HNO3 to pH <2
	B10LT1		W			2x1000-mL G/P	Gross Beta	HNO3 to pH <2
	B10LT1		W			1x250-mL P	Tritium - H3	None

Relinquished By (Print / Sign)	Date/Time	Received By (Print / Sign)	Date/Time
D.R. BREWINGTON D.R. Brewington	11/13/00 1430	FEDX	11/13/00
FED-EXPRESS	11/14/00 16:30	E. SEGURO	11/15/00 8:30 1130
E. SEGURO	11/16/00 16:00	FED. EXPRESS	11/16/00
Fed Ex	11/17/00 0930	[illegible]	11/17/00 0930

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 H1141

C.O.C. # C01-008-106

Page 1 of 1

Collector: D. R. BREWINGTON	Contact/Requester: JH KESSNER	Telephone No.: (509) 375-4688 MSIN FAX
SAF No.: C01-008	Sampling Origin: HANFORD SITE	Purchase Order/Charge Code
Project Title: 100HR3 IAM (1&2) GW MONITORING, NOVEMBER, 2000	Logbook No.: KIM-SAWS-H37 pg 47	Ice Chest No.: GWS-115 Temp.
Shipped To (Lab): TMA/RECRA	Method of Shipment: GOVT. VEHICLE	Bill of Lading/Air Bill No.: 42357954 0511
Protocol: CERCLA	Data Turnaround: 45 Days	Offsite Property No.: W0100034

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
B10LF4 (F)		W	11-13-00	1105	1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
B10LF5		W			1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
B10LF5		W			1x500-mL P	IC Anions - 300.0	Cool 4C
B10LF5		W			1x20-mL P	Activity Scan	None
B10LF5		W			2x1000-mL G/P	Gross Alpha	HNO3 to pH <2
B10LF5		W			2x1000-mL G/P	Gross Beta	HNO3 to pH <2
B10LF5		W			1x250-mL P	Tritium - H3	None

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
D. R. BREWINGTON	D.R. Brewington		11/13/00 1430	FEDX	E. SEGURO		11/13/00
FED. EXPRESS			11/14/00 1630	(FED. EXPRESS)			11/15/00 8:30 AM
E. SEGURO	E. Seguro		11/16/00 1600	FED. EXPRESS			11/16/00
Fed Ex			11/17/00 0930				11/17/00 0930

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 H114

C.O.C. # C01-008-120

Page 1 of 1

Collector D. P. CONNOLLY	Contact/Requester JH KESSNER	Telephone No. (509) 375-4688 MSIN FAX
SAF No. C01-008	Sampling Origin HANFORD SITE	Purchase Order/Charge Code
Project Title 100HR3 IAM (1&2) GW MONITORING NOVEMBER 2000	Logbook No. WMP-51745-1475	Ice Chest No. 62 0646 Temp.
Shipped To (Lab) TMA/RECRA	Method of Shipment GOVT. VEHICLE	Bill of Lading/Air Bill No. 4235 7954 0599
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
B10LJ0 (F) ✓		W	11-14-00	1159	1x500-mL G/P ✓	ICP Metals - 6010A RCRA GW ✓	HNO3 to pH <2
B10LJ1 ✓		W			1x500-mL G/P ✓	ICP Metals - 6010A RCRA GW ✓	HNO3 to pH <2
B10LJ1 ✓		W			1x500-mL P ✓	IC Anions - 300.0 ✓	Cool 4C
B10LJ1 ✓		W			1x20-mL P ✓	Activity Scan ✓	None
B10LJ1 ✓		W			2x1000-mL G/P ✓	Gross Alpha ✓	HNO3 to pH <2
B10LJ1 ✓		W			2x1000-mL G/P ✓	Gross Beta ✓	HNO3 to pH <2
B10LJ1 ✓		W			1x250-mL P ✓	Tritium - H3 ✓	None

Relinquished By (Print / Sign)	Date/Time	Received By (Print / Sign)	Date/Time
D. P. CONNOLLY [signature]	1430 NOV 14 2000	Fed Ex	11/14/00
FED. EXPRESS	11/15/00	E. Segura	10:AM 11/15/00
E. SEGURO [signature]	11/16/00	FED. EXPRESS	11/16/00
Fed Ex	11/17/00 0930	[signature]	11/17/00 0930

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 H1141

C.O.C. # C01-008-136

Page 1 of 1

Collector D. P. CONNOLLY	Contact/Requester JH KESSNER	Telephone No. (509) 375-4688 MSIN FAX
SAF No. C01-008	Sampling Origin HANFORD SITE	Purchase Order/Charge Code
Project Title 100HR3 IAM (1&2) GW MONITORING NOVEMBER 2000	Logbook No. LWM SAMS-H38	Ice Chest No. 67 SAL 554 Temp.
Shipped To (Lab) TMA/RECRA	Method of Shipment GOVT. VEHICLE	Bill of Lading/Air Bill No. 4235 7954 0603
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
1	B10LB1 (F)		W	11-14-00	1016	1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
2	B10LB2		W			1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
	B10LB2		W			1x500-mL P	IC Anions - 300.0	Cool 4C
	B10LB2		W			1x20-mL P	Activity Scan	None
	B10LB2		W			2x1000-mL G/P	Gross Alpha	HNO3 to pH <2
	B10LB2		W			2x1000-mL G/P	Gross Beta	HNO3 to pH <2
	B10LB2		W			2x1000-mL G/P	Strontium-89,90 – Sr-90	HNO3 to pH <2
	B10LB2		W			1x1000-mL G/P	Technetium-99	HCl to pH <2
	B10LB2		W			1x250-mL P	Tritium - H3	None
	B10LB2		W			1x100-mL G/P	Total Uranium	HNO3 to pH <2

Relinquished By (Print / Sign)	Date/Time	Received By (Print / Sign)	Date/Time
D. P. CONNOLLY	NOV 14 2000 1430	Fed EX	11/14/00
FED. EXPRESS	11/15/00 10:AM	E. Segura	11/15/00 10:AM
E. SEGURO	11/16/00 1600	FED. EXPRESS	11/16/00
Fed Ex	11/17/00 0930		11/17/00 0930

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 41141

C.O.C. # C01-008-148

Page 1 of 1

Collector: D. P. CONNOLLY	Contact/Requester: JH KESSNER	Telephone No.: (509) 375-4688 MSIN FAX
SAF No.: C01-008	Sampling Origin: HANFORD SITE	Purchase Order/Charge Code
Project Title: 100HR3 IAM (1&2) GW MONITORING NOVEMBER 2000	Logbook No.: WIM-SAWS-1138	Ice Chest No.: 67 SIML 554 Temp.
Shipped To (Lab): TMA/RECRA	Method of Shipment: GOVT. VEHICLE	Bill of Lading/Air Bill No.: 4235 7954 0603
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
3	B10LM2 (F)		W	11-14-00	0921	1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
4	B10LM3		W			1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
	B10LM3		W			1x500-mL P	IC Anions - 300.0	Cool 4C
	B10LM3		W			1x20-mL P	Activity Scan	None
	B10LM3		W			2x1000-mL G/P	Gross Alpha	HNO3 to pH <2
	B10LM3		W			2x1000-mL G/P	Gross Beta	HNO3 to pH <2
	B10LM3		W			1x250-mL P	Tritium - H3	None

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
	D. P. CONNOLLY		NOV 14 2000 1430		Fed Ex		11/14/00
Relinquished By	FED-EXPRESS		Date/Time 11/15/00 10:AM	Received By	E. Segura		Date/Time 11/15/00 10:AM
Relinquished By	E. SEGURO		Date/Time 11/16/00 16:00	Received By	FED-EXPRESS		Date/Time 11/16/00
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