H 1125

0054585

1.0 GENERAL

Bechtel Hanford Inc. (BHI) Sample Delivery Group H1125 was composed of three water samples designated under SAF No. C01-007 with a Project Designation of: 100 KR4 IAM (1 & 2).

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

RECEIVED
MAR 28 2001
EDMC

2.0 ANALYSIS NOTES

2.1 Gross Alpha and Gross Beta Analyses

The gross alpha and gross beta samples were batched with SDG H1123 (7551). No problems were encountered during the course of the analyses.

2.2 Tritium Analyses

The tritium samples were batched with SDG H1123 (7551). The matrix spike was associated with SDG H1123 (7551). The matrix spike recovery was 97%. No problems were encountered during the course of the analyses.

2.3 Carbon-14 Analyses

The C-14 samples were batched with SDG H1120 (7548). The LCS percent recovery (83%) was slightly below the 3σ limits (86 to 114%), but within the laboratory protocol limits (80 to 120%). The matrix spike was associated with SDGH1120 (7548). The matrix spike recovery was 86%. No other problems were encountered during the course of the analyses.

2.4 Gamma Spectroscopy Analyses

The gamma spectroscopy samples were batched with SDG H1123 (7551). No problems were encountered during the course of the analyses.

Case Narrative Certification Statement

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

Melissa Mannion
Melissa C. Mannion
Program Manager

01/03/01
~~1310~~
Date

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1125

SAMPLE SUMMARY

SDG 7553
Contact Melissa C. Mannion

Client Hanford
Contract TRC-SBB-207925
Case no SDG H1125

CLIENT SAMPLE ID	LOCATION	MATRIX	LEVEL	LAB SAMPLE ID	SAF NO	CHAIN OF CUSTODY	COLLECTED
B10J05	Hanford Site	WATER		R011068-03	C01-007	C01-007-55	11/06/00 11:55
B10J09	Hanford Site	WATER		R011068-02	C01-007	C01-007-5	11/06/00 13:06
B10J39	Hanford Site	WATER		R011068-01	C01-007	C01-007-1	11/06/00 10:49
Method Blank		WATER		R011053-13	C01-007		
Method Blank		WATER		R011056-07	C01-007		
Lab Control Sample		WATER		R011053-12	C01-007		
Lab Control Sample		WATER		R011056-06	C01-007		
Duplicate (R011068-03)	Hanford Site	WATER		R011068-04	C01-007		11/06/00 11:55

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CS
Version 3.06
Report date 01/03/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1125

QC SUMMARY

SDG 7553
Contact Melissa C. Mannion

Client Hanford
Contract TRC-SBB-207925
Case no SDG H1125

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
7548		Method Blank	WATER						R011053-13	7548-013
		Lab Control Sample	WATER						R011053-12	7548-012
7551		Method Blank	WATER						R011056-07	7551-007
		Lab Control Sample	WATER						R011056-06	7551-006
7553	C01-007-1	B10J39	WATER				11/07/00	1	R011068-01	7553-001
	C01-007-5	B10J09	WATER				11/07/00	1	R011068-02	7553-002
	C01-007-55	B10J05	WATER				11/07/00	1	R011068-03	7553-003
		Duplicate (R011068-03)	WATER				11/07/00	1	R011068-04	7553-004

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-QS
Version 3.06
Report date 01/03/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1125

PREP BATCH SUMMARY

SDG 7553
Contact Melissa C. Mannion

Client Hanford
Contract TRC-SBB-207925
Case no SDG H1125

TEST	MATRIX	METHOD	PREPARATION ERROR BATCH	2σ %	PLANCHETS ANALYZED CLIENT	MORE	RE	BLANK	LCS	DUP/ORIG	MS/ORIG	QUALIFIERS
Gas Proportional Counting												
82B	WATER	Gross Beta in Water	6962-065	15.0	3			1	1	1/1		
88A	WATER	Gross Alpha in Water	6962-065	20.0	3			1	1	1/1		
Gamma Scan												
GAM	WATER	Gamma Emitters	6962-065	15.0	3			1	1	1/1		
Liquid Scintillation Counting												
C	WATER	Carbon 14 in Water	6962-055	10.0	1			1	1	1/1		
H	WATER	Tritium in Water	6962-065	10.0	3			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 01/03/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1125

WORK SUMMARY

SDG 7553
Contact Melissa C. Mannion

Client Hanford
Contract TRC-SBB-207925
Case no SDG H1125

CLIENT SAMPLE ID / LOCATION / CUSTODY	SAF No	MATRIX	LAB SAMPLE ID / COLLECTED / RECEIVED	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
B10J05			R011068-03	7553-003	82B/82		12/30/00	01/03/01	MCM	Gross Beta in Water
Hanford Site		WATER	11/06/00	7553-003	88A/88		12/18/00	01/03/01	MCM	Gross Alpha in Water
C01-007-55	C01-007		11/07/00	7553-003	C		12/11/00	01/03/01	MCM	Carbon 14 in Water
				7553-003	GAM		12/04/00	01/03/01	MCM	Gamma Emitters
				7553-003	H		12/05/00	01/03/01	MCM	Tritium in Water
B10J09			R011068-02	7553-002	82B/82		12/19/00	01/03/01	MCM	Gross Beta in Water
Hanford Site		WATER	11/06/00	7553-002	88A/88		12/18/00	01/03/01	MCM	Gross Alpha in Water
C01-007-5	C01-007		11/07/00	7553-002	GAM		12/01/00	01/03/01	MCM	Gamma Emitters
				7553-002	H		12/05/00	01/03/01	MCM	Tritium in Water
B10J39			R011068-01	7553-001	82B/82		12/19/00	01/03/01	MCM	Gross Beta in Water
Hanford Site		WATER	11/06/00	7553-001	88A/88		12/18/00	01/03/01	MCM	Gross Alpha in Water
C01-007-1	C01-007		11/07/00	7553-001	GAM		12/01/00	01/03/01	MCM	Gamma Emitters
				7553-001	H		12/05/00	01/03/01	MCM	Tritium in Water
Method Blank			R011053-13	7548-013	C		12/10/00	12/28/00	MCM	Carbon 14 in Water
		WATER								
	C01-007									
Method Blank			R011056-07	7551-007	82B/82		12/19/00	12/30/00	MCM	Gross Beta in Water
		WATER		7551-007	88A/88		12/18/00	12/30/00	MCM	Gross Alpha in Water
	C01-007			7551-007	GAM		12/01/00	12/30/00	MCM	Gamma Emitters
				7551-007	H		12/05/00	01/03/01	MCM	Tritium in Water
Lab Control Sample			R011053-12	7548-012	C		12/10/00	12/28/00	MCM	Carbon 14 in Water
		WATER								
	C01-007									
Lab Control Sample			R011056-06	7551-006	82B/82		12/19/00	12/30/00	MCM	Gross Beta in Water
		WATER		7551-006	88A/88		12/18/00	12/30/00	MCM	Gross Alpha in Water
	C01-007			7551-006	GAM		12/01/00	12/30/00	MCM	Gamma Emitters
				7551-006	H		12/05/00	01/03/01	MCM	Tritium in Water
Duplicate (R011068-03)			R011068-04	7553-004	82B/82		12/30/00	01/03/01	MCM	Gross Beta in Water
Hanford Site		WATER	11/06/00	7553-004	88A/88		12/29/00	01/03/01	MCM	Gross Alpha in Water
	C01-007		11/07/00	7553-004	C		12/11/00	01/03/01	MCM	Carbon 14 in Water
				7553-004	GAM		12/04/00	01/03/01	MCM	Gamma Emitters
				7553-004	H		12/05/00	01/03/01	MCM	Tritium in Water

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CWS
Version 3.06
Report date 01/03/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1125

SDG 7553
Contact Melissa C. Mannion

WORK SUMMARY, cont.

Client Hanford
Contract TRC-SBB-207925
Case no SDG H1125

COUNTS OF TESTS BY SAMPLE TYPE

TEST	SAF No	METHOD	REFERENCE	CLIENT	MORE	RE	BLANK	LCS	DUP SPIKE	TOTAL
82B/82	C01-007	Gross Beta in Water	900.0_ALPHABETA_GPC	3			1	1	1	6
88A/88	C01-007	Gross Alpha in Water	900.0_ALPHABETA_GPC	3			1	1	1	6
C	C01-007	Carbon 14 in Water	C14_CHEM_LSC	1			1	1	1	4
GAM	C01-007	Gamma Emitters	GAMMA_GS	3			1	1	1	6
H	C01-007	Tritium in Water	906.0_H3_LSC	3			1	1	1	6
TOTALS				13			5	5	5	28

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CWS
Version 3.06
Report date 01/03/01

TMA/RICHMOND
SAMPLE DELIVERY GROUP H1125

R011053-13 Method Blank

METHOD BLANK

SDG	7553	Client/Case no	Hanford	SDG_H1125	
Contact	Melissa C. Mannion	Contract	TRC-SBB-207925		
Lab sample id	R011053-13	Client sample id	Method Blank		
Dept sample id	7548-013	Material/Matrix		WATER	
		SAF No	C01-007		

ANALYTE	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST
Gross Alpha	12587-46-1	N.A.			3.0		88A
Gross Beta	12587-47-2	N.A.			4.0		82B
Tritium	10028-17-8	N.A.			400		H
Carbon 14	14762-75-5	-6.33	27	45	200	U	C
Strontium 90	10098-97-2	N.A.			2.0		Y
Potassium 40	13966-00-2	N.A.					GAM
Cobalt 60	10198-40-0	N.A.			25		GAM
Cesium 137	10045-97-3	N.A.			15		GAM
Radium 226	13982-63-3	N.A.					GAM
Radium 228	15262-20-1	N.A.					GAM
Europium 152	14683-23-9	N.A.			50		GAM
Europium 154	15585-10-1	N.A.			50		GAM
Europium 155	14391-16-3	N.A.			50		GAM
Thorium 228	14274-82-9	N.A.					GAM
Thorium 232	TH-232	N.A.					GAM
Uranium 235	15117-96-1	N.A.					GAM
Uranium 238	U-238	N.A.					GAM
Americium 241	14596-10-2	N.A.					GAM

100 KR4 IAM (1 & 2)

QC-BLANK 36709

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	01/03/01

TMA/RICHMOND
SAMPLE DELIVERY GROUP H1125

R011056-07 | Method Blank

METHOD BLANK

SDG	7553	Client/Case no	Hanford	SDG_H1125	
Contact	Melissa C. Mannion	Contract	TRC-SBB-207925		
Lab sample id	R011056-07	Client sample id	Method Blank		
Dept sample id	7551-007	Material/Matrix		WATER	
		SAF No	C01-007		

ANALYTE	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST
Gross Alpha	12587-46-1	0.821	0.67	0.92	3.0	U	88A
Gross Beta	12587-47-2	0.389	1.2	2.0	4.0	U	82B
Tritium	10028-17-8	-33.0	210	370	400	U	H
Carbon 14	14762-75-5	N.A.			200		C
Strontium 90	10098-97-2	N.A.			2.0		Y
Potassium 40	13966-00-2	U		63		U	GAM
Cobalt 60	10198-40-0	U		6.0	25	U	GAM
Cesium 137	10045-97-3	U		5.0	15	U	GAM
Radium 226	13982-63-3	U		13		U	GAM
Radium 228	15262-20-1	U		20		U	GAM
Europium 152	14683-23-9	U		13	50	U	GAM
Europium 154	15585-10-1	U		16	50	U	GAM
Europium 155	14391-16-3	U		13	50	U	GAM
Thorium 228	14274-82-9	U		6.9		U	GAM
Thorium 232	TH-232	U		20		U	GAM
Uranium 235	15117-96-1	U		18		U	GAM
Uranium 238	U-238	U		640		U	GAM
Americium 241	14596-10-2	U		18		U	GAM

100 KR4 IAM (1 & 2)

QC-BLANK 36717

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	01/03/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1125

R011053-12

Lab Control Sample

LAB CONTROL SAMPLE

SDG 7553

Contact Melissa C. Mannion

Client/Case no Hanford SDG H1125

Case no TRC-SBB-207925

Lab sample id R011053-12

Dept sample id 7548-012

Client sample id Lab Control Sample

Material/Matrix WATER

SAF No C01-007

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	N.A.			3.0		88A					70-130
Gross Beta	N.A.			4.0		82B					70-130
Tritium	N.A.			400		H					80-120
Carbon 14	17600	180	63	200		C	21300	850	83	86-114	80-120
Strontium 90	N.A.			2.0		Y					80-120
Cobalt 60	N.A.			25		GAM					80-120
Cesium 137	N.A.			15		GAM					80-120

100 KR4 IAM (1 & 2)

QC-LCS 36708

Lab id TMANC

Protocol Hanford

Version Ver 1.0

Form DVD-LCS

Version 3.06

Report date 01/03/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1125

R011056-06

Lab Control Sample

LAB CONTROL SAMPLE

SDG 7553
Contact Melissa C. Mannion

Client/Case no Hanford SDG H1125
Case no TRC-SBB-207925

Lab sample id R011056-06
Dept sample id 7551-006

Client sample id Lab Control Sample
Material/Matrix WATER
SAF No C01-007

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	72.3	4.9	1.2	3.0		88A	71.7	2.9	101	67-133	70-130
Gross Beta	77.9	3.7	2.6	4.0		82B	80.7	3.2	97	76-124	70-130
Tritium	9760	480	370	400		H	9940	400	98	83-117	80-120
Carbon 14	N.A.			200		C					80-120
Strontium 90	N.A.			2.0		Y					80-120
Cobalt 60	526	25	12	25		GAM	472	19	111	73-127	80-120
Cesium 137	608	22	15	15		GAM	554	22	110	74-126	80-120

100 KR4 IAM (1 & 2)

QC-LCS 36716

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-LCS
Version 3.06
Report date 01/03/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1125

R011068-04 B10J05

DUPLICATE

SDG	7553	Client/Case no	Hanford SDG H1125
Contact	Melissa C. Mannion	Case no	TRC-SBB-207925
DUPLICATE		ORIGINAL	
Lab sample id	R011068-04	Lab sample id	R011068-03
Dept sample id	7553-004	Dept sample id	7553-003
		Received	11/07/00
Client sample id	B10J05		
Location/Matrix	Hanford Site WATER		
Collected	11/06/00 11:55		
Custody/SAF No	C01-007-55 C01-007		

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	0.417	1.1	2.0	3.0	U	88A	1.78	1.3	1.8	U	-	
Gross Beta	75.0	3.6	1.9	4.0		82B	77.1	3.6	1.9		3	33
Tritium	2170	180	180	400		H	2120	180	190		2	28
Carbon 14	5200	73	35	200		C	5150	74	37		1	21
Potassium 40	U		76		U	GAM	U		91	U	-	
Cobalt 60	U		6.5	25	U	GAM	U		8.9	U	-	
Cesium 137	U		5.8	15	U	GAM	U		8.0	U	-	
Radium 226	U		14		U	GAM	U		17	U	-	
Radium 228	U		27		U	GAM	U		34	U	-	
Europium 152	U		13	50	U	GAM	U		18	U	-	
Europium 154	U		20	50	U	GAM	U		23	U	-	
Europium 155	U		12	50	U	GAM	U		15	U	-	
Thorium 228	U		8.7		U	GAM	U		13	U	-	
Thorium 232	U		27		U	GAM	U		34	U	-	
Uranium 235	U		20		U	GAM	U		26	U	-	
Uranium 238	U		710		U	GAM	U		980	U	-	
Americium 241	U		17		U	GAM	U		22	U	-	

100 KR4 IAM (1 & 2)

QC-DUP#3 36680

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-DUP
Version 3.06
Report date 01/03/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1125

R011068-03 B10J05

DATA SHEET

SDG	7553	Client/Case no	Hanford SDG_H1125
Contact	Melissa C. Mannion	Contract	TRC-SBB-207925
Lab sample id	R011068-03	Client sample id	B10J05
Dept sample id	7553-003	Location/Matrix	Hanford Site WATER
Received	11/07/00	Collected	11/06/00 11:55
		Custody/SAF No	C01-007-55 C01-007

ANALYTE	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST
Gross Alpha	12587-46-1	1.78	1.3	1.8	3.0	U	88A
Gross Beta	12587-47-2	77.1	3.6	1.9	4.0		82B
Tritium	10028-17-8	2120	180	190	400		H
Carbon 14	14762-75-5	5150	74	37	200		C
Potassium 40	13966-00-2	U		91		U	GAM
Cobalt 60	10198-40-0	U		8.9	25	U	GAM
Cesium 137	10045-97-3	U		8.0	15	U	GAM
Radium 226	13982-63-3	U		17		U	GAM
Radium 228	15262-20-1	U		34		U	GAM
Europium 152	14683-23-9	U		18	50	U	GAM
Europium 154	15585-10-1	U		23	50	U	GAM
Europium 155	14391-16-3	U		15	50	U	GAM
Thorium 228	14274-82-9	U		13		U	GAM
Thorium 232	TH-232	U		34		U	GAM
Uranium 235	15117-96-1	U		26		U	GAM
Uranium 238	U-238	U		980		U	GAM
Americium 241	14596-10-2	U		22		U	GAM

100 KR4 IAM (1 & 2)

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	01/03/01

TMA / RICHMOND
SAMPLE DELIVERY GROUP H1125

R011068-02 B10J09

DATA SHEET

SDG	7553	Client/Case no	Hanford SDG H1125
Contact	Melissa C. Mannion	Contract	TRC-SBB-207925
Lab sample id	R011068-02	Client sample id	B10J09
Dept sample id	7553-002	Location/Matrix	Hanford Site WATER
Received	11/07/00	Collected	11/06/00 13:06
		Custody/SAF No	C01-007-5 C01-007

ANALYTE	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST
Gross Alpha	12587-46-1	2.26	1.5	2.0	3.0	J	88A
Gross Beta	12587-47-2	8.45	2.0	2.7	4.0		82B
Tritium	10028-17-8	524	130	190	400		H
Potassium 40	13966-00-2	U		110		U	GAM
Cobalt 60	10198-40-0	U		11	25	U	GAM
Cesium 137	10045-97-3	U		11	15	U	GAM
Radium 226	13982-63-3	U		20		U	GAM
Radium 228	15262-20-1	U		40		U	GAM
Europium 152	14683-23-9	U		23	50	U	GAM
Europium 154	15585-10-1	U		38	50	U	GAM
Europium 155	14391-16-3	U		15	50	U	GAM
Thorium 228	14274-82-9	U		11		U	GAM
Thorium 232	TH-232	U		40		U	GAM
Uranium 235	15117-96-1	U		25		U	GAM
Uranium 238	U-238	U		1300		U	GAM
Americium 241	14596-10-2	U		10		U	GAM

100 KR4 IAM (1 & 2)

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	01/03/01

TMA / RICHMOND

SAMPLE DELIVERY GROUP H1125

R011068-01 B10J39

DATA SHEET

SDG	7553	Client/Case no	Hanford	SDG H1125	
Contact	Melissa C. Mannion	Contract	TRC-SBB-207925		
Lab sample id	R011068-01	Client sample id	B10J39		
Dept sample id	7553-001	Location/Matrix	Hanford Site	WATER	
Received	11/07/00	Collected	11/06/00 10:49		
		Custody/SAF No	C01-007-1	C01-007	

ANALYTE	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST
Gross Alpha	12587-46-1	1.61	1.2	1.7	3.0	U	88A
Gross Beta	12587-47-2	100	4.1	2.4	4.0		82B
Tritium	10028-17-8	1060	150	180	400		H
Potassium 40	13966-00-2	U		270		U	GAM
Cobalt 60	10198-40-0	U		10	25	U	GAM
Cesium 137	10045-97-3	U		10	15	U	GAM
Radium 226	13982-63-3	U		21		U	GAM
Radium 228	15262-20-1	U		48		U	GAM
Europium 152	14683-23-9	U		23	50	U	GAM
Europium 154	15585-10-1	U		27	50	U	GAM
Europium 155	14391-16-3	U		18	50	U	GAM
Thorium 228	14274-82-9	U		12		U	GAM
Thorium 232	TH-232	U		48		U	GAM
Uranium 235	15117-96-1	U		29		U	GAM
Uranium 238	U-238	U		1200		U	GAM
Americium 241	14596-10-2	U		9.9		U	GAM

100 KR4 IAM (1 & 2)

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	01/03/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1125

Test 82B Matrix WATER
SDG 7553
Contact Melissa C. Mannion

METHOD SUMMARY

GROSS BETA IN WATER
GAS PROPORTIONAL COUNTING

Client Hanford
Contract TRC-SBB-207925
Contract SDG H1125

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 6962-065								
B10J05	R011068-03	82		7553-003	77.1			
B10J09	R011068-02	82		7553-002	8.45			
B10J39	R011068-01	82		7553-001	100			
BLK (QC ID=36717)	R011056-07	82		7551-007	U			
LCS (QC ID=36716)	R011056-06	82		7551-006	ok			
Duplicate (R011068-03)	R011068-04	82		7553-004	ok			
Nominal values and limits from method			RDLs (pCi/L)		4.0			
100 KR4 IAM (1 & 2)						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 6962-065	2σ prep error 15.0 % Reference Lab Notebook 6962 pg. 065															
B10J05	R011068-03	82		1.9	0.300			82		100			54	12/01/00	12/30	GRB-105
B10J09	R011068-02	82		2.7	0.300			75		100			43	12/01/00	12/19	GRB-114
B10J39	R011068-01	82		2.4	0.300			69		100			43	12/01/00	12/19	GRB-112
BLK (QC ID=36717)	R011056-07	82		2.0	0.300			24		100				12/01/00	12/19	GRB-115
LCS (QC ID=36716)	R011056-06	82		2.6	0.300			22		100				12/01/00	12/19	GRB-114
Duplicate (R011068-03) (QC ID=36680)	R011068-04	82		1.9	0.300			77		100			54	12/01/00	12/30	GRB-107
Nominal values and limits from method				4.0	0.300			5-250		100			180			

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

AVERAGES ± 2 SD MDA 2.2 ± 0.72
FOR 6 SAMPLES RESIDUE 58 ± 55

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 01/03/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1125

Test 88A	Matrix WATER
SDG 7553	
Contact Melissa C. Mannion	

METHOD SUMMARY

GROSS ALPHA IN WATER

GAS PROPORTIONAL COUNTING

Client Hanford	
Contract TRC-SBB-207925	
Contract SDG H1125	

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Gross Alpha	
Preparation batch 6962-065						
B10J05	R011068-03	88		7553-003	U	
B10J09	R011068-02	88		7553-002	2.26	J
B10J39	R011068-01	88		7553-001	U	
BLK (QC ID=36717)	R011056-07	88		7551-007	U	
LCS (QC ID=36716)	R011056-06	88		7551-006	ok	
Duplicate (R011068-03)	R011068-04	88		7553-004	-	U
Nominal values and limits from method 100 KR4 IAM (1 & 2)				RDLs (pCi/L)	3.0	

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MDA pCi/L	ALIQ L	PREP FAC	DILU-TION	RESID mg	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 6962-065	2σ prep error 20.0 % Reference Lab Notebook 6962 pg. 065															
B10J05	R011068-03	88		1.8	0.300			93		100			42	12/02/00	12/18	GRB-112
B10J09	R011068-02	88		2.0	0.300			101		100			42	12/02/00	12/18	GRB-111
B10J39	R011068-01	88		1.7	0.300			73		100			42	12/02/00	12/18	GRB-110
BLK (QC ID=36717)	R011056-07	88		0.92	0.300			22		100				12/02/00	12/18	GRB-116
LCS (QC ID=36716)	R011056-06	88		1.2	0.300			21		100				12/02/00	12/18	GRB-115
Duplicate (R011068-03) (QC ID=36680)	R011068-04	88		2.0	0.300			98		100			53	12/02/00	12/29	GRB-110
Nominal values and limits from method				3.0	0.300			5-250		100			180			

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

AVERAGES ± 2 SD	MDA	1.6	± 0.89
FOR 6 SAMPLES	RESIDUE	68	± 75

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-CMS
Version	3.06
Report date	01/03/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1125

Test GAM Matrix WATER
SDG 7553
Contact Melissa C. Mannion

METHOD SUMMARY

GAMMA EMITTERS
GAMMA SCAN

Client Hanford
Contract TRC-SBB-207925
Contract SDG H1125

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Cobalt 60		Cesium 137	
Preparation batch 6962-065								
B10J05	R011068-03			7553-003	U		U	
B10J09	R011068-02			7553-002	U		U	
B10J39	R011068-01			7553-001	U		U	
BLK (QC ID=36717)	R011056-07			7551-007	U		U	
LCS (QC ID=36716)	R011056-06			7551-006	ok		ok	
Duplicate (R011068-03)	R011068-04			7553-004	-	U	-	U
Nominal values and limits from method 100 KR4 IAM (1 & 2)				RDLs (pCi/L)	25		15	

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MAX 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 6962-065	2σ prep error 15.0 % Reference Lab Notebook 6962 pg. 065															
B10J05	R011068-03			8.0	0.500					301			28	12/01/00	12/04	01,04,00
B10J09	R011068-02			11	0.500					753			25	12/01/00	12/01	01,01,00
B10J39	R011068-01			10	0.500					752			25	12/01/00	12/01	MB,07,00
BLK (QC ID=36717)	R011056-07			5.0	0.500					752				12/01/00	12/01	01,04,00
LCS (QC ID=36716)	R011056-06			15	0.500					753				12/01/00	12/01	MB,05,00
Duplicate (R011068-03) (QC ID=36680)	R011068-04			5.8	0.500					533			28	12/01/00	12/04	01,04,00
Nominal values and limits from method				15	0.500					100			180			

PROCEDURES REFERENCE GAMMA_GS
CP-100 Ge(Li) Preparation for Commercial Samples, rev 2

AVERAGES ± 2 SD FOR 6 SAMPLES
MDA 9.1 ± 7.4
YIELD ____ ± ____

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 01/03/01

Test C Matrix WATER
SDG 7553
Contact Melissa C. Mannion

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1125

METHOD SUMMARY

CARBON 14 IN WATER

LIQUID SCINTILLATION COUNTING

Client Hanford
Contract TRC-SBB-207925
Contract SDG H1125

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Carbon 14
Preparation batch 6962-055					
B10J05	R011068-03			7553-003	5150
BLK (QC ID=36709)	R011053-13			7548-013	U
LCS (QC ID=36708)	R011053-12			7548-012	LOW
Duplicate (R011068-03)	R011068-04			7553-004	ok
Nominal values and limits from method 100 KR4 IAM (1 & 2)				RDLs (pCi/L)	200

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 6962-055 2σ prep error 10.0 % Reference Lab Notebook 6962 pg. 055																
B10J05	R011068-03			37	0.0300			100		100			35	12/07/00	12/11	LSC-005
BLK (QC ID=36709)	R011053-13			45	0.0300			100		100				12/07/00	12/10	LSC-004
LCS (QC ID=36708)	R011053-12			63	0.0300			100		53				12/07/00	12/10	LSC-004
Duplicate (R011068-03) (QC ID=36680)	R011068-04			35	0.0300			100		100			35	12/07/00	12/11	LSC-005
Nominal values and limits from method				200	0.0300					50			180			

PROCEDURES REFERENCE C14_CHEM_LSC
CP-241 Carbon-14 in Aqueous Samples, rev 2

AVERAGES ± 2 SD FOR 4 SAMPLES
MDA 45 ± 26
YIELD 100 ± 0

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 01/03/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1125

Test H Matrix WATER
SDG 7553
Contact Melissa C. Mannion

METHOD SUMMARY

TRITIUM IN WATER
LIQUID SCINTILLATION COUNTING

Client Hanford
Contract TRC-SBB-207925
Contract SDG H1125

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Tritium
Preparation batch 6962-065					
B10J05	R011068-03			7553-003	2120
B10J09	R011068-02			7553-002	524
B10J39	R011068-01			7553-001	1060
BLK (QC ID=36717)	R011056-07			7551-007	U
LCS (QC ID=36716)	R011056-06			7551-006	ok
Duplicate (R011068-03)	R011068-04			7553-004	ok
Nominal values and limits from method 100 KR4 IAM (1 & 2)				RDLs (pCi/L)	400

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 6962-065	2σ prep error 10.0 %				Reference Lab Notebook 6962 pg. 065											
B10J05	R011068-03			190	0.0500			20		100			29	12/05/00	12/05	LSC-005
B10J09	R011068-02			190	0.0500			20		100			29	12/05/00	12/05	LSC-005
B10J39	R011068-01			180	0.0500			20		100			29	12/05/00	12/05	LSC-005
BLK (QC ID=36717)	R011056-07			370	0.0500			10		100				12/05/00	12/05	LSC-005
LCS (QC ID=36716)	R011056-06			370	0.0500			10		100				12/05/00	12/05	LSC-005
Duplicate (R011068-03) (QC ID=36680)	R011068-04			180	0.0500			20		100			29	12/05/00	12/05	LSC-005
Nominal values and limits from method				400	0.0500					25			180			

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

AVERAGES ± 2 SD FOR 6 SAMPLES
MDA 250 ± 190
YIELD 17 ± 10

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 01/03/01

PNNL	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	C.O.C. # C01-007-1
		Page 1 of 1

Collector K. Hulse	Contact/Requester JH KESSNER H1125 (7553)	Telephone No. (509) 375-4688 MSIN FAX
SAF No. C01-007	Sampling Origin HANFORD SITE	Purchase Order/Charge Code
Project Title 100 KR4 IAM (1 & 2)	Logbook No. WM-SHWS-H37	Ice Chest No. JHL-461 Temp.
Shipped To (Lab) TMA/RECRA	Method of Shipment GOVT. VEHICLE	Bill of Lading/Air Bill No. 4235 7954 0349
Protocol CERCLA	Data Turnaround 45 Days	Offsite Property No. W0100075

POSSIBLE SAMPLE HAZARDS/REMARKS
** **

SPECIAL INSTRUCTIONS Hold Time Total Activity Exemption: Yes ☑ No ☐
Submit deliverables & invoices to JH Kessner
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
[redacted]		W	11/6/00	1049	[redacted]	[redacted]	HNO3 to pH <2
[redacted]		W			[redacted]	[redacted]	HNO3 to pH <2
[redacted]		W			[redacted]	[redacted]	Cool 4C
B10J39		W			1x20-mL P	Activity Scan	None
B10J39		W			2x1000-mL G/P	Gross Alpha	HNO3 to pH <2
B10J39		W			2x1000-mL G/P	Gross Beta	HNO3 to pH <2
B10J39		W			1x1000-mL G/P	Gamma Spectroscopy(Water)	HNO3 to pH <2
B10J39		W			1x250-mL P	Tritium - H3	None

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
K. Hulse		K. Hulse	NOV 06 2000 0852	FED EX			11/06/00
FED. EXPRESS			11/07/00 10AM	E. Pagnuro			11/07/00 10AM

Matrix *

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

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

PNNL

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. # C01-007-5

Page 1 of 1

Collector: D. R. BREWINGTON	Contact/Requester: JH KESSNER H1125 (7553)	Telephone No.: (509) 375-4688 MSIN FAX
SAF No.: C01-007	Sampling Origin: HANFORD SITE	Purchase Order/Charge Code
Project Title: 100 KR4 IAM (1 & 2)	Logbook No.: WM 3442-H37	Ice Chest No.: 461 Temp.
Shipped To (Lab): TMA/RECRA	Method of Shipment: GOVT. VEHICLE	Bill of Lading/Air Bill No.: 4235 7954 0349
Protocol: CERCLA	Data Turnaround: 45 Days	Offsite Property No.: W0100075

POSSIBLE SAMPLE HAZARDS/REMARKS
** **

SPECIAL INSTRUCTIONS Hold Time Total Activity Exemption: Yes ☑ No ☐
Submit deliverables & invoices to JH Kessner
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
B10J08 (F)		W	11/6/00	1304	1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
B10J09		W			1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
B10J09		W			1x500-mL P	IC Anions - 300.0	Cool 4C
B10J09		W			1x20-mL P	Activity Scan	None
B10J09		W			2x1000-mL G/P	Gross Alpha	HNO3 to pH <2
B10J09		W			2x1000-mL G/P	Gross Beta	HNO3 to pH <2
B10J09		W			1x1000-mL G/P	Gamma Spectroscopy(Water)	HNO3 to pH <2
B10J09		W			1x250-mL P	Tritium - H3	None

Relinquished By	Received By
Print D. R. BREWINGTON Sign D. R. Brewington Date/Time NOV 06 2000 1352	Print FED-EXPRESS Sign Date/Time 11/06/00
Relinquished By FED-EXPRESS Date/Time 11/07/00 10 AM	Received By E. Aguirre Date/Time 11/07/00 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. # C01-007-55

Collector: D. R. BREWINGTON	Contact/Requester: JH KESSNER H1125 (7553)	Telephone No.: (509) 375-4688 MSIN FAX
SAF No.: C01-007	Sampling Origin: HANFORD SITE	Purchase Order/Charge Code
Project Title: 100 KR4 IAM (1 & 2)	Logbook No.: PM-3ML-H37	Ice Chest No.: 3ML-461 Temp.
Shipped To (Lab): TMA/RECRA	Method of Shipment: GOVT. VEHICLE	Bill of Lading/Air Bill No.: 4235 7954 0349
Protocol: CERCLA	Data Turnaround: 45 Days	Offsite Property No.: W0100075

POSSIBLE SAMPLE HAZARDS/REMARKS
** **

SPECIAL INSTRUCTIONS Hold Time Total Activity Exemption: Yes ☑ No ☐
Submit deliverables & invoices to JH Kessner
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
[redacted]		W	11/6/00	1155	[redacted]	[redacted]	HNO3 to pH <2
[redacted]		W			[redacted]	[redacted]	HNO3 to pH <2
[redacted]		W			[redacted]	[redacted]	Cool 4C
B10J05		W			1x20-mL P	Activity Scan	None
B10J05		W			2x1000-mL G/P	Gross Alpha	HNO3 to pH <2
B10J05		W			2x1000-mL G/P	Gross Beta	HNO3 to pH <2
B10J05		W			1x1000-mL G/P	Carbon-14	None
B10J05		W			1x1000-mL G/P	Gamma Spectroscopy(Water)	HNO3 to pH <2
B10J05		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	NOV 06 2000	1352	Fed EX			11-06-00
Fed EXPRESS			11/07/00 10 AM	E. Pegurn			11/07/00 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:

Ice chest # or description	SML-461					
Thermometer: time in	10:20					
Thermometer: time out	11:00					
Thermometer reading	4°c					
Thermometer number	7132					
Correction factor	NONE					
Actual temperature*	—					
Custody seals on ice chest intact?	—					
Custody seals dated ?	—					
Custody seals signed?	NO					
Custody seals on samples?	Yes					
Ice chest scanned for activity?	Yes					

* Temperature is in degrees centigrade.

Technician:_____

Comments:_____

ThermoRetec
Richmond Laboratory

Analytical Services

SAMPLE RECEIPT CHECKLIST

SAMPLE RECEIPT

Client: (WMTS) BECHTEL HANFORD (PNNL) Date/Time received 11-07-00 10:Am

CoC No. C01-007-1

Container I.D. No. SML-461 Requested TAT (Days) 45 P.O. Received Yes [ ] No [✓]

INSPECTION

1. Custody seals on shipping container intact? Yes [✓] No [ ] N/A [ ]
2. Custody seals on shipping container dated & signed? Yes [✓] No [ ] N/A [ ]
3. Custody seals on sample containers intact? Yes [✓] No [ ] N/A [ ]
4. Custody seals on sample containers dated & signed? Yes [✓] No [ ] N/A [ ]
5. Cooler Temperature: _____ Packing material is: Wet [ ] Dry [✓]
6. Number of samples in shipping container: 6 samples
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: _____
13. Was P.M. notified of any anomalies? Yes [ ] No [ ] Date _____
14. Received by E. Degurr Date: 11/07/00 Time: 10:Am

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

Ion Chamber Ser. No. _____ Calibration date _____

Survey Meter Ser No. _____ Calibration date _____

Recra LabNet - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD C01-007 H1125

RFW LOT # :0011L227

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTN	DATE REC	EXT/PREP	ANALYSIS
B10J39							
BROMIDE BY IC	002	W	00LIC075	11/06/00	11/10/00	11/28/00	11/28/00
CHLORIDE BY IC	002	W	00LIC075	11/06/00	11/10/00	11/28/00	11/28/00
FLUORIDE BY IC	002	W	00LIC075	11/06/00	11/10/00	11/28/00	11/28/00
NITRITE BY IC	002	W	00LIC075	11/06/00	11/10/00	11/28/00	11/28/00
NITRATE BY IC	002	W	00LIC075	11/06/00	11/10/00	11/28/00	11/28/00
PHOSPHATE BY IC	002	W	00LIC075	11/06/00	11/10/00	11/28/00	11/28/00
SULFATE BY IC	002	W	00LIC075	11/06/00	11/10/00	11/28/00	11/28/00
B10J09							
BROMIDE BY IC	004	W	00LIC075	11/06/00	11/10/00	11/28/00	11/28/00
CHLORIDE BY IC	004	W	00LIC075	11/06/00	11/10/00	11/28/00	11/28/00
FLUORIDE BY IC	004	W	00LIC075	11/06/00	11/10/00	11/28/00	11/28/00
NITRITE BY IC	004	W	00LIC075	11/06/00	11/10/00	11/28/00	11/28/00
NITRATE BY IC	004	W	00LIC075	11/06/00	11/10/00	11/28/00	11/28/00
PHOSPHATE BY IC	004	W	00LIC075	11/06/00	11/10/00	11/28/00	11/28/00
SULFATE BY IC	004	W	00LIC075	11/06/00	11/10/00	11/28/00	11/28/00
B10J05							
BROMIDE BY IC	006	W	00LIC075	11/06/00	11/10/00	11/28/00	11/28/00
BROMIDE BY IC	006 REP	W	00LIC075	11/06/00	11/10/00	11/28/00	11/28/00
BROMIDE BY IC	006 MS	W	00LIC075	11/06/00	11/10/00	11/28/00	11/28/00
CHLORIDE BY IC	006	W	00LIC075	11/06/00	11/10/00	11/28/00	11/28/00
CHLORIDE BY IC	006 REP	W	00LIC075	11/06/00	11/10/00	11/28/00	11/28/00
CHLORIDE BY IC	006 MS	W	00LIC075	11/06/00	11/10/00	11/28/00	11/28/00
FLUORIDE BY IC	006	W	00LIC075	11/06/00	11/10/00	11/28/00	11/28/00
FLUORIDE BY IC	006 REP	W	00LIC075	11/06/00	11/10/00	11/28/00	11/28/00
FLUORIDE BY IC	006 MS	W	00LIC075	11/06/00	11/10/00	11/28/00	11/28/00
NITRITE BY IC	006	W	00LIC075	11/06/00	11/10/00	11/28/00	11/28/00
NITRITE BY IC	006 REP	W	00LIC075	11/06/00	11/10/00	11/28/00	11/28/00
NITRITE BY IC	006 MS	W	00LIC075	11/06/00	11/10/00	11/28/00	11/28/00
NITRATE BY IC	006	W	00LIC075	11/06/00	11/10/00	11/28/00	11/28/00
NITRATE BY IC	006 REP	W	00LIC075	11/06/00	11/10/00	11/28/00	11/28/00
NITRATE BY IC	006 MS	W	00LIC075	11/06/00	11/10/00	11/28/00	11/28/00
PHOSPHATE BY IC	006	W	00LIC075	11/06/00	11/10/00	11/28/00	11/28/00
PHOSPHATE BY IC	006 REP	W	00LIC075	11/06/00	11/10/00	11/28/00	11/28/00

JAN 2001 RECEIVED

Recra LabNet - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD C01-007 H1125

RFW LOT # :0011L227

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTN	DATE REC	EXT/PREP	ANALYSIS
PHOSPHATE BY IC	006 MS	W	00LIC075	11/06/00	11/10/00	11/28/00	11/28/00
SULFATE BY IC	006	W	00LIC075	11/06/00	11/10/00	11/28/00	11/28/00
SULFATE BY IC	006 REP	W	00LIC075	11/06/00	11/10/00	11/28/00	11/28/00
SULFATE BY IC	006 MS	W	00LIC075	11/06/00	11/10/00	11/28/00	11/28/00

LAB QC:

BROMIDE BY IC	MB1	W	00LIC075	N/A	N/A	11/28/00	11/28/00
BROMIDE BY IC	MB1 BS	W	00LIC075	N/A	N/A	11/28/00	11/28/00
CHLORIDE BY IC	MB1	W	00LIC075	N/A	N/A	11/28/00	11/28/00
CHLORIDE BY IC	MB1 BS	W	00LIC075	N/A	N/A	11/28/00	11/28/00
FLUORIDE BY IC	MB1	W	00LIC075	N/A	N/A	11/28/00	11/28/00
FLUORIDE BY IC	MB1 BS	W	00LIC075	N/A	N/A	11/28/00	11/28/00
NITRITE BY IC	MB1	W	00LIC075	N/A	N/A	11/28/00	11/28/00
NITRITE BY IC	MB1 BS	W	00LIC075	N/A	N/A	11/28/00	11/28/00
NITRATE BY IC	MB1	W	00LIC075	N/A	N/A	11/28/00	11/28/00
NITRATE BY IC	MB1 BS	W	00LIC075	N/A	N/A	11/28/00	11/28/00
PHOSPHATE BY IC	MB1	W	00LIC075	N/A	N/A	11/28/00	11/28/00
PHOSPHATE BY IC	MB1 BS	W	00LIC075	N/A	N/A	11/28/00	11/28/00
SULFATE BY IC	MB1	W	00LIC075	N/A	N/A	11/28/00	11/28/00
SULFATE BY IC	MB1 BS	W	00LIC075	N/A	N/A	11/28/00	11/28/00

RECRA
ENVIRONMENTAL
INC.

Chemical and Environmental Measurement Information

Recra LabNet Philadelphia
Analytical Report

C01 e osj 1/8/01

Client : TNU-HANFORD ~~C00~~-007 H1125 **W.O. # :** 10985-001-001-9999-00
RFW# : 0011L227 **Date Received:** 11-10-00

INORGANIC CASE NARRATIVE

1. This narrative covers the analyses of 3 water samples.

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

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

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

5. The method blanks were within method criteria.

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

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

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

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

J. Michael Taylor
VP, Laboratory General Manager
Lionville Laboratory

12-29-00
Date

njp\i11-227

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 14 pages.

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.

L-WI-034/D-6/99

Recra LabNet - Lionville

INORGANICS DATA SUMMARY REPORT 01/07/01

CLIENT: TNUHANFORD C01-007 H1125 RECRA LOT #: 0011L227

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-002	B10J39	Bromide by IC	0.25 u	MG/L	0.25	1.0
		Chloride by IC	8.8	MG/L	0.25	1.0
		Fluoride by IC	0.50 u	MG/L	0.50	1.0
		Nitrite by IC	0.25 u	MG/L	0.25	1.0
		Nitrate by IC	20	MG/L	1.2	5.0
		Phosphate by IC	0.34	MG/L	0.25	1.0
		Sulfate by IC	37.6	MG/L	1.2	5.0
-004	B10J09	Bromide by IC	0.50 u	MG/L	0.50	2.0
		Chloride by IC	19.9	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	57	MG/L	2.5	10
		Phosphate by IC	0.50 u	MG/L	0.50	2.0
		Sulfate by IC	27.9	MG/L	2.5	10.0
-006	B10J05	Bromide by IC	0.25 u	MG/L	0.25	1.0
		Chloride by IC	5.5	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	27	MG/L	1.2	5.0
		Phosphate by IC	0.25 u	MG/L	0.25	1.0
		Sulfate by IC	24.3	MG/L	1.2	5.0

Recra LabNet - Lionville

INORGANICS METHOD BLANK DATA SUMMARY PAGE 01/07/01

CLIENT: TNUHANFORD C01-007 H1125 RECRA LOT #: 0011L227

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK10	00LIC075-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 01/07/01

CLIENT: TNUHANFORD C01-007 H1125 RECRA LOT #: 0011L227

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-006	B10J05	Bromide by IC	4.0	0.00	5.0	80.6	1.0
		Chloride by IC	53.5	5.5	50.0	96.0	10.0
		Fluoride by IC	11.4	0.12	10.0	113.2	1.0
		Nitrite by IC	5.0	0.25u	5.0	100.3	1.0
		Nitrate by IC	78	27	50	102.2	10
		Phosphate by IC	4.8	0.25u	5.0	95.2	1.0
		Sulfate by IC	75.0	24.3	50.0	101.4	10.0
BLANK10	00LIC075-MB1	Bromide by IC	4.8	0.25u	5.0	96.8	1.0
		Chloride by IC	4.9	0.25u	5.0	98.0	1.0
		Fluoride by IC	10.7	0.50u	10.0	107.0	1.0
		Nitrite by IC	5.0	0.25u	5.0	99.2	1.0
		Nitrate by IC	4.9	0.25u	5.0	98.1	1.0
		Phosphate by IC	5.0	0.25u	5.0	99.5	1.0
		Sulfate by IC	4.8	0.25u	5.0	96.7	1.0

Recra LabNet - Lionville

INORGANICS PRECISION REPORT 01/07/01

CLIENT: TNUHANFORD C01-007 H1125 RECRA LOT #: 0011L227

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-006REP	B10J05	Bromide by IC	0.25u	0.25u	NC	1.0
		Chloride by IC	5.5	5.6	0.68	1.0
		Fluoride by IC	0.50u	0.50u	NC	1.0
		Nitrite by IC	0.25u	0.25u	NC	1.0
		Nitrate by IC	27	27	0.91	5.0
		Phosphate by IC	0.25u	0.25u	NC	1.0
		Sulfate by IC	24.3	24.6	1.4	5.0

RECRA LabNet Use Only

00111227

Custody Transfer Record/Lab Work Request

Page 1 of 1

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

RECRA LabNet

Client: TNU HANFORD C01-007

Est. Final Proj. Sampling Date:

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

Project Contact/Phone #:

RECRA Project Manager: DJ

QC: Spec Del: Std TAT: 30 day

Date Rec'd: 11-10-00 Date Due: 12-10-00

Account #:

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

ANALYSES REQUESTED →

ORGANIC				INORG		
VOA	BNA	Pest/PCB	Herb	Metal	CN	Tc Th Pu

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	2310 J 38			W	11/6/00	1049	1	
002	39					1	1	1
003	08					1306	1	
004	09					1	1	1
005	04					1155	1	
006	05					1	1	1

Special Instructions: Saf C01-007

Run Matrix QC

DATE/REVISIONS:

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

2. Mn, Ni, Na, Sb, Se, V, Zn

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

4.

5.

6.

RECRA LabNet Use Only

Samples were: ✓
1) Shipped ___ or Hand Delivered ___
Airbill # Bulow
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. 5.7 °C

Relinquished by	Received by	Date	Time
[illegible]	[illegible]	11/10/00	1005

Relinquished by	Received by	Date	Time
COMPOSITE WASTE	ORIGINAL! REWRITTEN		

Discrepancies Between Samples Labels and COC Record? Y or N

NOTES:

MPS 965 9505 1.071

PNNL

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

CHEM SDG H1125

C.O.C. # C01-007-1

Page 1 of 1

Collector K. Hulse	Contact/Requester JH KESSNER	Telephone No. (509) 375-4688 MSIN FAX
SAF No. C01-007	Sampling Origin HANFORD SITE	Purchase Order/Charge Code
Project Title 100 KR4 IAM (1 & 2)	Logbook No. WM 3HWS-H37	Ice Chest No. 3HWL-461 Temp.
Shipped To (Lab) TMA/RECRA	Method of Shipment GOVT. VEHICLE	Bill of Lading/Air Bill No. 4235 7954 0349
Protocol CERCLA	Data Turnaround 45 Days	Offsite Property No. W0100075

POSSIBLE SAMPLE HAZARDS/REMARKS
** **

SPECIAL INSTRUCTIONS Hold Time Total Activity Exemption: Yes ☑ No ☐
Submit deliverables & invoices to JH Kessner
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
[redacted]		W	11/6/00	1049	[redacted]	[redacted]	HNO3 to pH <2
[redacted]		W			[redacted]	[redacted]	HNO3 to pH <2
[redacted]		W			[redacted]	[redacted]	Cool 4C
B10J39		W			1x20-mL P	Activity Scan	None
B10J39		W			2x1000-mL G/P	Gross Alpha	HNO3 to pH <2
B10J39		W			2x1000-mL G/P	Gross Beta	HNO3 to pH <2
B10J39		W			1x1000-mL G/P	Gamma Spectroscopy(Water)	HNO3 to pH <2
B10J39		W			1x250-mL P	Tritium - H3	None

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
K. Hulse			NOV 06 2000	FED EX			11/06/00
FED. EXPRESS			11/07/00 10AM	E. Aguirre			11/07/00 10AM
JR Corso		JRCorso	11-9-00 16:00	Fed Ex			11-9-00
Fed Ex			11/10/00 1005	[illegible]			11/10/00 1005

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 H1125

C.O.C.# C01-007-5

Page 1 of 1

Collector: R. BREWINGTON	Contact/Requester: JH KESSNER	Telephone No.: (509) 375-4688 MSIN FAX
SAF No.: C01-007	Sampling Origin: HANFORD SITE	Purchase Order/Charge Code
Project Title: 100 KR4 IAM (1 & 2)	Logbook No.: WM 3442-1137	Ice Chest No.: 461 Temp.
Shipped To (Lab): TMA/RECRA	Method of Shipment: GOVT. VEHICLE	Bill of Lading/Air Bill No.: 4235 7954 0349
Protocol: CERCLA	Data Turnaround: 45 Days	Offsite Property No.: W0100075

POSSIBLE SAMPLE HAZARDS/REMARKS
** **

SPECIAL INSTRUCTIONS Hold Time Total Activity Exemption: Yes ☑ No ☐
Submit deliverables & invoices to JH Kessner
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
B10J06 (1)		W	11/6/00	1306	1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
B10J09		W			1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
B10J09		W			1x500-mL P	IC Anions - 300.0	Cool 4C
B10J09		W			1x20-mL P	Activity Scan	None
B10J09		W			2x1000-mL G/P	Gross Alpha	HNO3 to pH <2
B10J09		W			2x1000-mL G/P	Gross Beta	HNO3 to pH <2
B10J09		W			1x1000-mL G/P	Gamma Spectroscopy(Water)	HNO3 to pH <2
B10J09		W			1x250-mL P	Tritium - H3	None

Relinquished By (Print / Sign)	Date/Time	Received By (Print / Sign)	Date/Time
R. BREWINGTON / R. Brewington	NOV 06 2000 1357	FED-EXPRESS	11/06/00
FED-EXPRESS	11/07/00 10 A	E. Aguirre	11/07/00 10:AM
JR Corso / JR Corso	11-9-00 16:00	Fed Ex	11-9-00
Fed Ex	11/10/00 1005	Vicki Hernandez	11/10/00 1005

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 H1125

C.O.C. # C01-007-~~55~~ 03

Page 1 of 1

Collector: D. R. BREWINGTON	Contact/Requester: JH KESSNER	Telephone No.: (509) 375-4688 MSIN FAX
SAF No.: C01-007	Sampling Origin: HANFORD SITE	Purchase Order/Charge Code
Project Title: 100 KR4 IAM (1 & 2)	Logbook No.: ~~WM-3ML-H37~~	Ice Chest No.: 3ML-461 Temp.
Shipped To (Lab): TMA/RECRA	Method of Shipment: GOVT. VEHICLE	Bill of Lading/Air Bill No.: 4235 7954 0349
Protocol: CERCLA	Data Turnaround: 45 Days	Offsite Property No.: W0100075

POSSIBLE SAMPLE HAZARDS/REMARKS
** **

SPECIAL INSTRUCTIONS Hold Time Total Activity Exemption: Yes ☑ No ☐
Submit deliverables & invoices to JH Kessner
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
[redacted]		W	11/6/00	1155	[redacted]	[redacted]	HNO3 to pH <2
[redacted]		W			[redacted]	[redacted]	HNO3 to pH <2
[redacted]		W			[redacted]	[redacted]	Cool 4C
B10J05		W			1x20-mL P	Activity Scan	None
B10J05		W			2x1000-mL G/P	Gross Alpha	HNO3 to pH <2
B10J05		W			2x1000-mL G/P	Gross Beta	HNO3 to pH <2
B10J05		W			1x1000-mL G/P	Carbon-14	None
B10J05		W			1x1000-mL G/P	Gamma Spectroscopy(Water)	HNO3 to pH <2
B10J05		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	NOV 06 2000 1352	Fed EX			11-06-00
Relinquished By			Date/Time	Received By			Date/Time
FED EXPRESS			11/07/00 10 AM	E. Aguirre			11/07/00 10 AM
Relinquished By			Date/Time	Received By			Date/Time
JR Corso		JR Corso	11-9-00 16:00	Fed Ex			11-9-00
Relinquished By			Date/Time	Received By			Date/Time
Fed Ex			11/10/00 1010	[illegible]			11/10/00 1005

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

Thermo NUtech CHAIN OF CUSTODY ORD # R0-11-071

11/07/00 18:30:21 WORK ID: SAF C01-007 SDG H1125

RCVD: 11/07/00 DUE: 12/22/00 KEEP: 12/22/01 DISP: S

DASH	SAMPLE IDENTIFICATION	STORED	TESTS		
01A	B10J38(F)	RECRA	DISPOS	E011	
02A	B10J39	RECRA	DISPOS	E011	E260
02B	B10J39 MS	RECRA	E011	E260	
02C	B10J39 DUP	RECRA	E011	E260	
03A	B10J08(F)	RECRA	DISPOS	E011	
04A	B10J09	RECRA	DISPOS	E011	E260
05A	B10J04(F)	RECRA	DISPOS	E011	
06A	B10J05	RECRA	DISPOS	E011	E260

RELEASED BY	DATE	TRANSFERRED TO	DATE	RECEIVED BY	DATE
J P Corso	11-9-00	Fed Ex	11-9-00		

Recra LabNet - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD C01-007 H1125

RFW LOT # :0011L227

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTN	DATE REC	EXT/PREP	ANALYSIS
B10J38							
SILVER, TOTAL	001	W	99L1811	11/06/00	11/10/00	12/13/00	12/22/00
SILVER, TOTAL	001 REP	W	99L1811	11/06/00	11/10/00	12/13/00	12/22/00
SILVER, TOTAL	001 MS	W	99L1811	11/06/00	11/10/00	12/13/00	12/22/00
ALUMINUM, TOTAL	001	W	99L1811	11/06/00	11/10/00	12/13/00	12/20/00
ALUMINUM, TOTAL	001 REP	W	99L1811	11/06/00	11/10/00	12/13/00	12/20/00
ALUMINUM, TOTAL	001 MS	W	99L1811	11/06/00	11/10/00	12/13/00	12/20/00
BARIUM, TOTAL	001	W	99L1811	11/06/00	11/10/00	12/13/00	12/22/00
BARIUM, TOTAL	001 REP	W	99L1811	11/06/00	11/10/00	12/13/00	12/22/00
BARIUM, TOTAL	001 MS	W	99L1811	11/06/00	11/10/00	12/13/00	12/22/00
BERYLLIUM, TOTAL	001	W	99L1811	11/06/00	11/10/00	12/13/00	12/20/00
BERYLLIUM, TOTAL	001 REP	W	99L1811	11/06/00	11/10/00	12/13/00	12/20/00
BERYLLIUM, TOTAL	001 MS	W	99L1811	11/06/00	11/10/00	12/13/00	12/20/00
CALCIUM, TOTAL	001	W	99L1811	11/06/00	11/10/00	12/13/00	12/20/00
CALCIUM, TOTAL	001 REP	W	99L1811	11/06/00	11/10/00	12/13/00	12/20/00
CALCIUM, TOTAL	001 MS	W	99L1811	11/06/00	11/10/00	12/13/00	12/20/00
CADMIUM, TOTAL	001	W	99L1811	11/06/00	11/10/00	12/13/00	12/20/00
CADMIUM, TOTAL	001 REP	W	99L1811	11/06/00	11/10/00	12/13/00	12/20/00
CADMIUM, TOTAL	001 MS	W	99L1811	11/06/00	11/10/00	12/13/00	12/20/00
COBALT, TOTAL	001	W	99L1811	11/06/00	11/10/00	12/13/00	12/20/00
COBALT, TOTAL	001 REP	W	99L1811	11/06/00	11/10/00	12/13/00	12/20/00
COBALT, TOTAL	001 MS	W	99L1811	11/06/00	11/10/00	12/13/00	12/20/00
CHROMIUM, TOTAL	001	W	99L1811	11/06/00	11/10/00	12/13/00	12/20/00
CHROMIUM, TOTAL	001 REP	W	99L1811	11/06/00	11/10/00	12/13/00	12/20/00
CHROMIUM, TOTAL	001 MS	W	99L1811	11/06/00	11/10/00	12/13/00	12/20/00
COPPER, TOTAL	001	W	99L1811	11/06/00	11/10/00	12/13/00	12/22/00
COPPER, TOTAL	001 REP	W	99L1811	11/06/00	11/10/00	12/13/00	12/22/00
COPPER, TOTAL	001 MS	W	99L1811	11/06/00	11/10/00	12/13/00	12/22/00
IRON, TOTAL	001	W	99L1811	11/06/00	11/10/00	12/13/00	12/22/00
IRON, TOTAL	001 REP	W	99L1811	11/06/00	11/10/00	12/13/00	12/22/00
IRON, TOTAL	001 MS	W	99L1811	11/06/00	11/10/00	12/13/00	12/22/00
POTASSIUM, TOTAL	001	W	99L1811	11/06/00	11/10/00	12/13/00	12/20/00
POTASSIUM, TOTAL	001 REP	W	99L1811	11/06/00	11/10/00	12/13/00	12/20/00
POTASSIUM, TOTAL	001 MS	W	99L1811	11/06/00	11/10/00	12/13/00	12/20/00
MAGNESIUM, TOTAL	001	W	99L1811	11/06/00	11/10/00	12/13/00	12/20/00
MAGNESIUM, TOTAL	001 REP	W	99L1811	11/06/00	11/10/00	12/13/00	12/20/00
MAGNESIUM, TOTAL	001 MS	W	99L1811	11/06/00	11/10/00	12/13/00	12/20/00
MANGANESE, TOTAL	001	W	99L1811	11/06/00	11/10/00	12/13/00	12/20/00

JAN 2001
RECEIVED

Recra LabNet - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD C01-007 H1125

RFW LOT # :0011L227

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTN	DATE REC	EXT/PREP	ANALYSIS
MANGANESE, TOTAL	001 REP	W	99L1811	11/06/00	11/10/00	12/13/00	12/20/00
MANGANESE, TOTAL	001 MS	W	99L1811	11/06/00	11/10/00	12/13/00	12/20/00
SODIUM, TOTAL	001	W	99L1811	11/06/00	11/10/00	12/13/00	12/22/00
SODIUM, TOTAL	001 REP	W	99L1811	11/06/00	11/10/00	12/13/00	12/22/00
SODIUM, TOTAL	001 MS	W	99L1811	11/06/00	11/10/00	12/13/00	12/22/00
NICKEL, TOTAL	001	W	99L1811	11/06/00	11/10/00	12/13/00	12/20/00
NICKEL, TOTAL	001 REP	W	99L1811	11/06/00	11/10/00	12/13/00	12/20/00
NICKEL, TOTAL	001 MS	W	99L1811	11/06/00	11/10/00	12/13/00	12/20/00
ANTIMONY, TOTAL	001	W	99L1811	11/06/00	11/10/00	12/13/00	12/20/00
ANTIMONY, TOTAL	001 REP	W	99L1811	11/06/00	11/10/00	12/13/00	12/20/00
ANTIMONY, TOTAL	001 MS	W	99L1811	11/06/00	11/10/00	12/13/00	12/20/00
STRONTIUM, TOTAL	001	W	99L1811	11/06/00	11/10/00	12/13/00	12/21/00
STRONTIUM, TOTAL	001 REP	W	99L1811	11/06/00	11/10/00	12/13/00	12/21/00
STRONTIUM, TOTAL	001 MS	W	99L1811	11/06/00	11/10/00	12/13/00	12/21/00
VANADIUM, TOTAL	001	W	99L1811	11/06/00	11/10/00	12/13/00	12/20/00
VANADIUM, TOTAL	001 REP	W	99L1811	11/06/00	11/10/00	12/13/00	12/20/00
VANADIUM, TOTAL	001 MS	W	99L1811	11/06/00	11/10/00	12/13/00	12/20/00
ZINC, TOTAL	001	W	99L1811	11/06/00	11/10/00	12/13/00	12/20/00
ZINC, TOTAL	001 REP	W	99L1811	11/06/00	11/10/00	12/13/00	12/20/00
ZINC, TOTAL	001 MS	W	99L1811	11/06/00	11/10/00	12/13/00	12/20/00
B10J39							
SILVER, TOTAL	002	W	99L1811	11/06/00	11/10/00	12/13/00	12/22/00
ALUMINUM, TOTAL	002	W	99L1811	11/06/00	11/10/00	12/13/00	12/20/00
BARIUM, TOTAL	002	W	99L1811	11/06/00	11/10/00	12/13/00	12/22/00
BERYLLIUM, TOTAL	002	W	99L1811	11/06/00	11/10/00	12/13/00	12/20/00
CALCIUM, TOTAL	002	W	99L1811	11/06/00	11/10/00	12/13/00	12/20/00
CADMIUM, TOTAL	002	W	99L1811	11/06/00	11/10/00	12/13/00	12/20/00
COBALT, TOTAL	002	W	99L1811	11/06/00	11/10/00	12/13/00	12/20/00
CHROMIUM, TOTAL	002	W	99L1811	11/06/00	11/10/00	12/13/00	12/20/00
COPPER, TOTAL	002	W	99L1811	11/06/00	11/10/00	12/13/00	12/22/00
IRON, TOTAL	002	W	99L1811	11/06/00	11/10/00	12/13/00	12/22/00
POTASSIUM, TOTAL	002	W	99L1811	11/06/00	11/10/00	12/13/00	12/20/00
MAGNESIUM, TOTAL	002	W	99L1811	11/06/00	11/10/00	12/13/00	12/20/00
MANGANESE, TOTAL	002	W	99L1811	11/06/00	11/10/00	12/13/00	12/20/00
SODIUM, TOTAL	002	W	99L1811	11/06/00	11/10/00	12/13/00	12/22/00
NICKEL, TOTAL	002	W	99L1811	11/06/00	11/10/00	12/13/00	12/20/00
ANTIMONY, TOTAL	002	W	99L1811	11/06/00	11/10/00	12/13/00	12/20/00
STRONTIUM, TOTAL	002	W	99L1811	11/06/00	11/10/00	12/13/00	12/21/00

Recra LabNet - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD C01-007 H1125

RFW LOT # :0011L227

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTN	DATE REC	EXT/PREP	ANALYSIS
VANADIUM, TOTAL	002	W	99L1811	11/06/00	11/10/00	12/13/00	12/20/00
ZINC, TOTAL	002	W	99L1811	11/06/00	11/10/00	12/13/00	12/20/00
B10J08							
SILVER, TOTAL	003	W	99L1811	11/06/00	11/10/00	12/13/00	12/22/00
ALUMINUM, TOTAL	003	W	99L1811	11/06/00	11/10/00	12/13/00	12/20/00
BARIUM, TOTAL	003	W	99L1811	11/06/00	11/10/00	12/13/00	12/22/00
BERYLLIUM, TOTAL	003	W	99L1811	11/06/00	11/10/00	12/13/00	12/20/00
CALCIUM, TOTAL	003	W	99L1811	11/06/00	11/10/00	12/13/00	12/20/00
CADMIUM, TOTAL	003	W	99L1811	11/06/00	11/10/00	12/13/00	12/20/00
COBALT, TOTAL	003	W	99L1811	11/06/00	11/10/00	12/13/00	12/20/00
CHROMIUM, TOTAL	003	W	99L1811	11/06/00	11/10/00	12/13/00	12/20/00
COPPER, TOTAL	003	W	99L1811	11/06/00	11/10/00	12/13/00	12/22/00
IRON, TOTAL	003	W	99L1811	11/06/00	11/10/00	12/13/00	12/22/00
POTASSIUM, TOTAL	003	W	99L1811	11/06/00	11/10/00	12/13/00	12/20/00
MAGNESIUM, TOTAL	003	W	99L1811	11/06/00	11/10/00	12/13/00	12/20/00
MANGANESE, TOTAL	003	W	99L1811	11/06/00	11/10/00	12/13/00	12/20/00
SODIUM, TOTAL	003	W	99L1811	11/06/00	11/10/00	12/13/00	12/22/00
NICKEL, TOTAL	003	W	99L1811	11/06/00	11/10/00	12/13/00	12/20/00
ANTIMONY, TOTAL	003	W	99L1811	11/06/00	11/10/00	12/13/00	12/20/00
STRONTIUM, TOTAL	003	W	99L1811	11/06/00	11/10/00	12/13/00	12/21/00
VANADIUM, TOTAL	003	W	99L1811	11/06/00	11/10/00	12/13/00	12/20/00
ZINC, TOTAL	003	W	99L1811	11/06/00	11/10/00	12/13/00	12/20/00
B10J09							
SILVER, TOTAL	004	W	99L1811	11/06/00	11/10/00	12/13/00	12/22/00
ALUMINUM, TOTAL	004	W	99L1811	11/06/00	11/10/00	12/13/00	12/20/00
BARIUM, TOTAL	004	W	99L1811	11/06/00	11/10/00	12/13/00	12/22/00
BERYLLIUM, TOTAL	004	W	99L1811	11/06/00	11/10/00	12/13/00	12/20/00
CALCIUM, TOTAL	004	W	99L1811	11/06/00	11/10/00	12/13/00	12/20/00
CADMIUM, TOTAL	004	W	99L1811	11/06/00	11/10/00	12/13/00	12/20/00
COBALT, TOTAL	004	W	99L1811	11/06/00	11/10/00	12/13/00	12/20/00
CHROMIUM, TOTAL	004	W	99L1811	11/06/00	11/10/00	12/13/00	12/20/00
COPPER, TOTAL	004	W	99L1811	11/06/00	11/10/00	12/13/00	12/22/00
IRON, TOTAL	004	W	99L1811	11/06/00	11/10/00	12/13/00	12/22/00
POTASSIUM, TOTAL	004	W	99L1811	11/06/00	11/10/00	12/13/00	12/20/00
MAGNESIUM, TOTAL	004	W	99L1811	11/06/00	11/10/00	12/13/00	12/20/00
MANGANESE, TOTAL	004	W	99L1811	11/06/00	11/10/00	12/13/00	12/20/00

Recra LabNet - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD C01-007 H1125

RFW LOT # :0011L227

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTN	DATE REC	EXT/PREP	ANALYSIS
SODIUM, TOTAL	004	W	99L1811	11/06/00	11/10/00	12/13/00	12/22/00
NICKEL, TOTAL	004	W	99L1811	11/06/00	11/10/00	12/13/00	12/20/00
ANTIMONY, TOTAL	004	W	99L1811	11/06/00	11/10/00	12/13/00	12/20/00
STRONTIUM, TOTAL	004	W	99L1811	11/06/00	11/10/00	12/13/00	12/21/00
VANADIUM, TOTAL	004	W	99L1811	11/06/00	11/10/00	12/13/00	12/20/00
ZINC, TOTAL	004	W	99L1811	11/06/00	11/10/00	12/13/00	12/20/00
B10J04							
SILVER, TOTAL	005	W	99L1811	11/06/00	11/10/00	12/13/00	12/22/00
ALUMINUM, TOTAL	005	W	99L1811	11/06/00	11/10/00	12/13/00	12/20/00
BARIUM, TOTAL	005	W	99L1811	11/06/00	11/10/00	12/13/00	12/22/00
BERYLLIUM, TOTAL	005	W	99L1811	11/06/00	11/10/00	12/13/00	12/20/00
CALCIUM, TOTAL	005	W	99L1811	11/06/00	11/10/00	12/13/00	12/20/00
CADMIUM, TOTAL	005	W	99L1811	11/06/00	11/10/00	12/13/00	12/20/00
COBALT, TOTAL	005	W	99L1811	11/06/00	11/10/00	12/13/00	12/20/00
CHROMIUM, TOTAL	005	W	99L1811	11/06/00	11/10/00	12/13/00	12/20/00
COPPER, TOTAL	005	W	99L1811	11/06/00	11/10/00	12/13/00	12/22/00
IRON, TOTAL	005	W	99L1811	11/06/00	11/10/00	12/13/00	12/22/00
POTASSIUM, TOTAL	005	W	99L1811	11/06/00	11/10/00	12/13/00	12/20/00
MAGNESIUM, TOTAL	005	W	99L1811	11/06/00	11/10/00	12/13/00	12/20/00
MANGANESE, TOTAL	005	W	99L1811	11/06/00	11/10/00	12/13/00	12/20/00
SODIUM, TOTAL	005	W	99L1811	11/06/00	11/10/00	12/13/00	12/22/00
NICKEL, TOTAL	005	W	99L1811	11/06/00	11/10/00	12/13/00	12/20/00
ANTIMONY, TOTAL	005	W	99L1811	11/06/00	11/10/00	12/13/00	12/20/00
STRONTIUM, TOTAL	005	W	99L1811	11/06/00	11/10/00	12/13/00	12/21/00
VANADIUM, TOTAL	005	W	99L1811	11/06/00	11/10/00	12/13/00	12/20/00
ZINC, TOTAL	005	W	99L1811	11/06/00	11/10/00	12/13/00	12/20/00
B10J05							
SILVER, TOTAL	006	W	99L1811	11/06/00	11/10/00	12/13/00	12/22/00
ALUMINUM, TOTAL	006	W	99L1811	11/06/00	11/10/00	12/13/00	12/20/00
BARIUM, TOTAL	006	W	99L1811	11/06/00	11/10/00	12/13/00	12/22/00
BERYLLIUM, TOTAL	006	W	99L1811	11/06/00	11/10/00	12/13/00	12/20/00
CALCIUM, TOTAL	006	W	99L1811	11/06/00	11/10/00	12/13/00	12/20/00
CADMIUM, TOTAL	006	W	99L1811	11/06/00	11/10/00	12/13/00	12/20/00
COBALT, TOTAL	006	W	99L1811	11/06/00	11/10/00	12/13/00	12/20/00
CHROMIUM, TOTAL	006	W	99L1811	11/06/00	11/10/00	12/13/00	12/20/00
COPPER, TOTAL	006	W	99L1811	11/06/00	11/10/00	12/13/00	12/22/00

Recra LabNet - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD C01-007 H1125

RFW LOT # :0011L227

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTN	DATE REC	EXT/PREP	ANALYSIS
IRON, TOTAL	006	W	99L1811	11/06/00	11/10/00	12/13/00	12/22/00
POTASSIUM, TOTAL	006	W	99L1811	11/06/00	11/10/00	12/13/00	12/20/00
MAGNESIUM, TOTAL	006	W	99L1811	11/06/00	11/10/00	12/13/00	12/20/00
MANGANESE, TOTAL	006	W	99L1811	11/06/00	11/10/00	12/13/00	12/20/00
SODIUM, TOTAL	006	W	99L1811	11/06/00	11/10/00	12/13/00	12/22/00
NICKEL, TOTAL	006	W	99L1811	11/06/00	11/10/00	12/13/00	12/20/00
ANTIMONY, TOTAL	006	W	99L1811	11/06/00	11/10/00	12/13/00	12/20/00
STRONTIUM, TOTAL	006	W	99L1811	11/06/00	11/10/00	12/13/00	12/22/00
VANADIUM, TOTAL	006	W	99L1811	11/06/00	11/10/00	12/13/00	12/20/00
ZINC, TOTAL	006	W	99L1811	11/06/00	11/10/00	12/13/00	12/20/00

LAB QC:

SILVER LABORATORY	LC1 BS	W	99L1811	N/A	N/A	12/13/00	12/22/00
ALUMINUM LABORTORY	LC1 BS	W	99L1811	N/A	N/A	12/13/00	12/20/00
BARIUM LABORATORY	LC1 BS	W	99L1811	N/A	N/A	12/13/00	12/22/00
BERYLLIUM LABORATORY	LC1 BS	W	99L1811	N/A	N/A	12/13/00	12/20/00
CALCIUM LABORATORY	LC1 BS	W	99L1811	N/A	N/A	12/13/00	12/20/00
CADMIUM LABORATORY	LC1 BS	W	99L1811	N/A	N/A	12/13/00	12/20/00
COBALT LABORATORY	LC1 BS	W	99L1811	N/A	N/A	12/13/00	12/20/00
CHROMIUM LABORATORY	LC1 BS	W	99L1811	N/A	N/A	12/13/00	12/20/00
COPPER LABORATORY	LC1 BS	W	99L1811	N/A	N/A	12/13/00	12/22/00
IRON LABORATORY	LC1 BS	W	99L1811	N/A	N/A	12/13/00	12/22/00
POTASSIUM LABORATORY	LC1 BS	W	99L1811	N/A	N/A	12/13/00	12/20/00
MAGNESIUM LABORATORY	LC1 BS	W	99L1811	N/A	N/A	12/13/00	12/20/00
MANGANESE LABORATORY	LC1 BS	W	99L1811	N/A	N/A	12/13/00	12/20/00
SODIUM LABORATORY	LC1 BS	W	99L1811	N/A	N/A	12/13/00	12/22/00
NICKEL LABORATORY	LC1 BS	W	99L1811	N/A	N/A	12/13/00	12/20/00
ANTIMONY LABORATORY	LC1 BS	W	99L1811	N/A	N/A	12/13/00	12/20/00
STRONTIUM LCS STANDA	LC1 BS	W	99L1811	N/A	N/A	12/13/00	12/21/00
VANADIUM LABORATORY	LC1 BS	W	99L1811	N/A	N/A	12/13/00	12/20/00
ZINC LABORATORY	LC1 BS	W	99L1811	N/A	N/A	12/13/00	12/20/00
SILVER, TOTAL	MB1	W	99L1811	N/A	N/A	12/13/00	12/22/00
ALUMINUM, TOTAL	MB1	W	99L1811	N/A	N/A	12/13/00	12/20/00
BARIUM, TOTAL	MB1	W	99L1811	N/A	N/A	12/13/00	12/22/00
BERYLLIUM, TOTAL	MB1	W	99L1811	N/A	N/A	12/13/00	12/20/00
CALCIUM, TOTAL	MB1	W	99L1811	N/A	N/A	12/13/00	12/20/00

Recra LabNet - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD C01-007 H1125

RFW LOT # :0011L227

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTN	DATE REC	EXT/PREP	ANALYSIS
CADMIUM, TOTAL	MB1	W	99L1811	N/A	N/A	12/13/00	12/20/00
COBALT, TOTAL	MB1	W	99L1811	N/A	N/A	12/13/00	12/20/00
CHROMIUM, TOTAL	MB1	W	99L1811	N/A	N/A	12/13/00	12/20/00
COPPER, TOTAL	MB1	W	99L1811	N/A	N/A	12/13/00	12/22/00
IRON, TOTAL	MB1	W	99L1811	N/A	N/A	12/13/00	12/22/00
POTASSIUM, TOTAL	MB1	W	99L1811	N/A	N/A	12/13/00	12/20/00
MAGNESIUM, TOTAL	MB1	W	99L1811	N/A	N/A	12/13/00	12/20/00
MANGANESE, TOTAL	MB1	W	99L1811	N/A	N/A	12/13/00	12/20/00
SODIUM, TOTAL	MB1	W	99L1811	N/A	N/A	12/13/00	12/22/00
NICKEL, TOTAL	MB1	W	99L1811	N/A	N/A	12/13/00	12/20/00
ANTIMONY, TOTAL	MB1	W	99L1811	N/A	N/A	12/13/00	12/20/00
STRONTIUM, TOTAL	MB1	W	99L1811	N/A	N/A	12/13/00	12/21/00
VANADIUM, TOTAL	MB1	W	99L1811	N/A	N/A	12/13/00	12/20/00
ZINC, TOTAL	MB1	W	99L1811	N/A	N/A	12/13/00	12/20/00

RECRA
ENVIRONMENTAL
INC.

Chemical and Environmental Measurement Information

Recra LabNet Philadelphia
Analytical Report

Client: TNU-HANFORD C01-007
RFW#: 0011L227
SDG/SAF#: H1125/~~C00-007~~ C01-007 ~~C~~ 1/8/01

W.O.#: 10985-001-001-9999-00
Date Received: 11-10-00

METALS CASE NARRATIVE

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

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

   The ISB for Iron was low in file PS1220D. All samples were rerun for Iron in file PS1222A.

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

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

5. All Initial and Continuing Calibration Verifications (ICV/CCVs) were within the 90-110% control limits (80-120% for Mercury) with the exception of the CCVs for Silver, Barium, Calcium, Sodium, and Strontium in file PS1220D. All samples were rerun for these analytes in file PS1222A. The ending CCVs for Strontium were outsinde control limits in file PS1221B. All samples, except B10J05, were surrounded by CCVs in control. This sample was rerun for Strontium in file TA1222C.

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

7. All preparation/method blanks (MB) were within method criteria {less than the Practical Quantitation Limit (3X the IDL), MB value less than 5% of the RCRA limit, or samples greater than 20X MB value}. Refer to the Inorganics Method Blank Data Summary.

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

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

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 24 pages.

10. The matrix spike (MS) recovery for 1 analyte was outside the 75-125% control limits. Refer to the Inorganics Accuracy Report.

11. For analytes where the ICP MS is out-of-control, a post-digestion MS (PDS) and serial dilution are performed. A serial dilution is performed for Mercury. A PDS was prepared at meaningful concentration levels, due to high concentrations of the following analytes:

Sample ID	Element	PDS Concentration (ppb)	PDS % Recovery
B10J38	Silver	50	93.2

12. The duplicate analysis for 1 analyte was outside the 20% Relative Percent Difference (RPD) control limits. Refer to the Inorganics Precision Report.

13. 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.

14. 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

01-04-01
Date

gmb/m11-227

METALS METHOD GLOSSARY

The following methods are used as reference for the digestion and analysis of samples contained within this Recra Lot#: 0011L227

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 01/08/01

CLIENT: TNUHANFORD C01-007 H1125 RECRA LOT #: 0011L227

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	B10J38	Silver, Total	2.5	u	UG/L	2.5	1.0
		Aluminum, Total	23.1		UG/L	19.1	1.0
		Barium, Total	34.9		UG/L	3.0	1.0
		Beryllium, Total	0.60	u	UG/L	0.60	1.0
		Calcium, Total	43900		UG/L	15.4	1.0
		Cadmium, Total	3.4	u	UG/L	3.4	1.0
		Cobalt, Total	5.6	u	UG/L	5.6	1.0
		Chromium, Total	412		UG/L	4.9	1.0
		Copper, Total	2.6	u	UG/L	2.6	1.0
		Iron, Total	28.2		UG/L	3.8	1.0
		Potassium, Total	4240		UG/L	303	1.0
		Magnesium, Total	8810		UG/L	27.4	1.0
		Manganese, Total	2.3	u	UG/L	2.3	1.0
		Sodium, Total	18500		UG/L	22.9	1.0
		Nickel, Total	12.5	u	UG/L	12.5	1.0
		Antimony, Total	17.0	u	UG/L	17.0	1.0
		Strontium, Total	201		UG/L	5.5	1.0
		Vanadium, Total	4.8	u	UG/L	4.8	1.0
		Zinc, Total	7.6		UG/L	2.7	1.0

Recra LabNet - Lionville

INORGANICS DATA SUMMARY REPORT 01/08/01

CLIENT: TNUHANFORD C01-007 H1125 RECRA LOT #: 0011L227

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-002	B10J39	Silver, Total	2.5	u	UG/L	2.5	1.0
		Aluminum, Total	639		UG/L	19.1	1.0
		Barium, Total	40.4		UG/L	3.0	1.0
		Beryllium, Total	0.60	u	UG/L	0.60	1.0
		Calcium, Total	41200		UG/L	15.4	1.0
		Cadmium, Total	3.4	u	UG/L	3.4	1.0
		Cobalt, Total	5.6	u	UG/L	5.6	1.0
		Chromium, Total	382		UG/L	4.9	1.0
		Copper, Total	2.6	u	UG/L	2.6	1.0
		Iron, Total	1280		UG/L	3.8	1.0
		Potassium, Total	4310		UG/L	303	1.0
		Magnesium, Total	8360		UG/L	27.4	1.0
		Manganese, Total	24.1		UG/L	2.3	1.0
		Sodium, Total	17000		UG/L	22.9	1.0
		Nickel, Total	12.5	u	UG/L	12.5	1.0
		Antimony, Total	17.0	u	UG/L	17.0	1.0
		Strontium, Total	168		UG/L	5.5	1.0
		Vanadium, Total	6.8		UG/L	4.8	1.0
		Zinc, Total	44.8		UG/L	2.7	1.0

Recra LabNet - Lionville

INORGANICS DATA SUMMARY REPORT 01/08/01

CLIENT: TNUHANFORD C01-007 H1125 RECRA LOT #: 0011L227

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-003	B10J08	Silver, Total	2.5	u	UG/L	2.5	1.0
		Aluminum, Total	19.1	u	UG/L	19.1	1.0
		Barium, Total	30.5		UG/L	3.0	1.0
		Beryllium, Total	0.60	u	UG/L	0.60	1.0
		Calcium, Total	41900		UG/L	15.4	1.0
		Cadmium, Total	3.4	u	UG/L	3.4	1.0
		Cobalt, Total	5.6	u	UG/L	5.6	1.0
		Chromium, Total	4.9	u	UG/L	4.9	1.0
		Copper, Total	2.6	u	UG/L	2.6	1.0
		Iron, Total	15.9		UG/L	3.8	1.0
		Potassium, Total	5580		UG/L	303	1.0
		Magnesium, Total	11100		UG/L	27.4	1.0
		Manganese, Total	2.3	u	UG/L	2.3	1.0
		Sodium, Total	31300		UG/L	22.9	1.0
		Nickel, Total	12.5	u	UG/L	12.5	1.0
		Antimony, Total	17.0	u	UG/L	17.0	1.0
		Strontium, Total	219		UG/L	5.5	1.0
		Vanadium, Total	17.8		UG/L	4.8	1.0
		Zinc, Total	16.7		UG/L	2.7	1.0

Recra LabNet - Lionville

INORGANICS DATA SUMMARY REPORT 01/08/01

CLIENT: TNUHANFORD C01-007 H1125 RECRA LOT #: 0011L227

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-004	B10J09	Silver, Total	2.5	u	UG/L	2.5	1.0
		Aluminum, Total	19.1	u	UG/L	19.1	1.0
		Barium, Total	30.6		UG/L	3.0	1.0
		Beryllium, Total	0.60	u	UG/L	0.60	1.0
		Calcium, Total	42500		UG/L	15.4	1.0
		Cadmium, Total	3.4	u	UG/L	3.4	1.0
		Cobalt, Total	5.6	u	UG/L	5.6	1.0
		Chromium, Total	4.9	u	UG/L	4.9	1.0
		Copper, Total	2.6	u	UG/L	2.6	1.0
		Iron, Total	104		UG/L	3.8	1.0
		Potassium, Total	5880		UG/L	303	1.0
		Magnesium, Total	11200		UG/L	27.4	1.0
		Manganese, Total	2.3	u	UG/L	2.3	1.0
		Sodium, Total	31800		UG/L	22.9	1.0
		Nickel, Total	12.5	u	UG/L	12.5	1.0
		Antimony, Total	17.0	u	UG/L	17.0	1.0
		Strontium, Total	216		UG/L	5.5	1.0
		Vanadium, Total	21.5		UG/L	4.8	1.0
		Zinc, Total	2.7		UG/L	2.7	1.0

Recra LabNet - Lionville

INORGANICS DATA SUMMARY REPORT 01/08/01

CLIENT: TNUHANFORD C01-007 H1125 RECRA LOT #: 0011L227

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-005	B10J04	Silver, Total	2.5	u	UG/L	2.5	1.0
		Aluminum, Total	19.1	u	UG/L	19.1	1.0
		Barium, Total	27.5		UG/L	3.0	1.0
		Beryllium, Total	0.60	u	UG/L	0.60	1.0
		Calcium, Total	54600		UG/L	15.4	1.0
		Cadmium, Total	3.4	u	UG/L	3.4	1.0
		Cobalt, Total	5.6	u	UG/L	5.6	1.0
		Chromium, Total	44.4		UG/L	4.9	1.0
		Copper, Total	2.6	u	UG/L	2.6	1.0
		Iron, Total	18.8		UG/L	3.8	1.0
		Potassium, Total	3520		UG/L	303	1.0
		Magnesium, Total	9720		UG/L	27.4	1.0
		Manganese, Total	2.3	u	UG/L	2.3	1.0
		Sodium, Total	14900		UG/L	22.9	1.0
		Nickel, Total	12.5	u	UG/L	12.5	1.0
		Antimony, Total	17.0	u	UG/L	17.0	1.0
		Strontium, Total	248		UG/L	5.5	1.0
		Vanadium, Total	4.8	u	UG/L	4.8	1.0
		Zinc, Total	6.3		UG/L	2.7	1.0

Recra LabNet - Lionville

INORGANICS DATA SUMMARY REPORT 01/08/01

CLIENT: TNUHANFORD C01-007 H1125 RECRA LOT #: 0011L227

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-006	B10J05	Silver, Total	2.5	u	UG/L	2.5	1.0
		Aluminum, Total	44.2		UG/L	19.1	1.0
		Barium, Total	28.6		UG/L	3.0	1.0
		Beryllium, Total	0.60	u	UG/L	0.60	1.0
		Calcium, Total	53600		UG/L	15.4	1.0
		Cadmium, Total	3.4	u	UG/L	3.4	1.0
		Cobalt, Total	5.6	u	UG/L	5.6	1.0
		Chromium, Total	45.6		UG/L	4.9	1.0
		Copper, Total	2.6	u	UG/L	2.6	1.0
		Iron, Total	112		UG/L	3.8	1.0
		Potassium, Total	3160		UG/L	303	1.0
		Magnesium, Total	9560		UG/L	27.4	1.0
		Manganese, Total	2.3	u	UG/L	2.3	1.0
		Sodium, Total	15000		UG/L	22.9	1.0
		Nickel, Total	12.5	u	UG/L	12.5	1.0
		Antimony, Total	17.0	u	UG/L	17.0	1.0
		Strontium, Total	225		UG/L	5.5	1.0
		Vanadium, Total	4.8	u	UG/L	4.8	1.0
		Zinc, Total	23.4		UG/L	2.7	1.0

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INORGANICS METHOD BLANK DATA SUMMARY PAGE 01/08/01

CLIENT: TNUHANFORD C01-007 H1125 RECRA LOT #: 0011L227

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK1	99L1811-MB1	Silver, Total	2.5	u	UG/L	2.5	1.0
		Aluminum, Total	19.1	u	UG/L	19.1	1.0
		Barium, Total	3.0	u	UG/L	3.0	1.0
		Beryllium, Total	0.60	u	UG/L	0.60	1.0
		Calcium, Total	47.1		UG/L	15.4	1.0
		Cadmium, Total	3.4	u	UG/L	3.4	1.0
		Cobalt, Total	5.6	u	UG/L	5.6	1.0
		Chromium, Total	4.9	u	UG/L	4.9	1.0
		Copper, Total	2.6	u	UG/L	2.6	1.0
		Iron, Total	8.4		UG/L	3.8	1.0
		Potassium, Total	331		UG/L	303	1.0
		Magnesium, Total	29.3		UG/L	27.4	1.0
		Manganese, Total	2.3	u	UG/L	2.3	1.0
		Sodium, Total	107		UG/L	22.9	1.0
		Nickel, Total	12.5	u	UG/L	12.5	1.0
		Antimony, Total	17.0	u	UG/L	17.0	1.0
		Strontium, Total	5.5	u	UG/L	5.5	1.0
		Vanadium, Total	4.8	u	UG/L	4.8	1.0
		Zinc, Total	2.7	u	UG/L	2.7	1.0

Recra LabNet - Lionville

INORGANICS ACCURACY REPORT 01/08/01

CLIENT: TNUHANFORD C01-007 H1125

RECRA LOT #: 0011L227

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-001	B10J38	Silver, Total	68.1	2.5 u	50.0	136.2	1.0
		Aluminum, Total	1850	23.1	2000	91.6	1.0
		Barium, Total	2010	34.9	2000	98.6	1.0
		Beryllium, Total	45.8	0.60u	50.0	91.6	1.0
		Calcium, Total	67600	43900	25000	94.6	1.0
		Cadmium, Total	44.0	3.4 u	50.0	88.0	1.0
		Cobalt, Total	469	5.6 u	500	93.8	1.0
		Chromium, Total	592	412	200	90.0	1.0
		Copper, Total	246	2.6 u	250	98.2	1.0
		Iron, Total	1020	28.2	1000	99.1	1.0
		Potassium, Total	28100	4240	25000	95.3	1.0
		Magnesium, Total	32100	8810	25000	93.3	1.0
		Manganese, Total	462	2.3 u	500	92.4	1.0
		Sodium, Total	43000	18500	25000	97.9	1.0
		Nickel, Total	465	12.5 u	500	93.0	1.0
		Antimony, Total	488	17.0 u	500	97.7	1.0
		Strontium, Total	1180	201	1000	97.5	1.0
		Vanadium, Total	461	4.8 u	500	92.2	1.0
		Zinc, Total	476	7.6	500	93.8	1.0

Recra LabNet - Lionville

INORGANICS PRECISION REPORT 01/04/01

COI 1/8/01

CLIENT: TNUHANFORD C00-007 H1125 RECRA LOT #: 0011L227

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-001REP	B10J38	Silver, Total	2.5 u	2.5 u	NC	1.0
		Aluminum, Total	23.1	27.5	17.4	1.0
		Barium, Total	34.9	34.1	2.3	1.0
		Beryllium, Total	0.60u	0.60u	NC	1.0
		Calcium, Total	43900	43000	2.3	1.0
		Cadmium, Total	3.4 u	3.4 u	NC	1.0
		Cobalt, Total	5.6 u	5.6 u	NC	1.0
		Chromium, Total	412	401	2.5	1.0
		Copper, Total	2.6 u	2.6 u	NC	1.0
		Iron, Total	28.2	30.3	7.2	1.0
		Potassium, Total	4240	4560	7.2	1.0
		Magnesium, Total	8810	8640	2.0	1.0
		Manganese, Total	2.3 u	2.3 u	NC	1.0
		Sodium, Total	18500	18200	1.3	1.0
		Nickel, Total	12.5 u	12.5 u	NC	1.0
		Antimony, Total	17.0 u	17.0 u	NC	1.0
		Strontium, Total	201	199	0.95	1.0
		Vanadium, Total	4.8 u	5.9	~~NC~~ 200	1.0
		Zinc, Total	7.6	7.0	8.2	1.0

JM 1/4/01

Recra LabNet - Lionville

INORGANICS LABORATORY CONTROL STANDARDS REPORT 01/08/01

CLIENT: TNUHANFORD C01-007 H1125

RECRA LOT #: 0011L227

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
LCS1	99L1811-LC1	Silver, LCS	512	500	UG/L	102.4
		Aluminum, LCS	4900	5000	UG/L	98.0
		Barium, LCS	5140	5000	UG/L	102.9
		Beryllium, LCS	236	250	UG/L	94.6
		Calcium, LCS	24300	25000	UG/L	97.1
		Cadmium, LCS	245	250	UG/L	98.0
		Cobalt, LCS	2430	2500	UG/L	97.2
		Chromium, LCS	475	500	UG/L	95.0
		Copper, LCS	1290	1250	UG/L	103.0
		Iron, LCS	5230	5000	UG/L	104.5
		Potassium, LCS	24100	25000	UG/L	96.3
		Magnesium, LCS	24100	25000	UG/L	96.5
		Manganese, LCS	718	750	UG/L	95.7
		Sodium, LCS	26000	25000	UG/L	104.0
		Nickel, LCS	1920	2000	UG/L	96.1
		Antimony, LCS	2890	3000	UG/L	96.3
		Strontium, LCS	5520	5000	UG/L	110.3
		Vanadium, LCS	2380	2500	UG/L	95.3
		Zinc, LCS	967	1000	UG/L	96.7

RECRA LabNet Use Only

00111227

Custody Transfer Record/Lab Work Request

Page 1 of 1

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

RECRA LabNet

Client: TNU HANFORD C01-007

Est. Final Proj. Sampling Date:

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

Project Contact/Phone #:

RECRA Project Manager: DJ

QC: Spec Del: Std TAT: 30 day

Date Rec'd: 11-30-00 Date Due: 12-10-00

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	Metal					
RECRA LabNet Use Only		(1) Met		(1) IC					

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

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	Met	IC
001	B10 T 38			W	11/6/00	1049	1	
002	39					↓	1	1
003	08					1306	1	
004	09					↓	1	1
005	04					1155	1	
006	05			↓	↓	↓	1	1

Special Instructions: Saf C01-007

Run Matrix QC

DATE/REVISIONS:

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

↓ 2. Mn, Ni, Na, Sb, Sr, V, Zn

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

4.

5.

6.

RECRA LabNet Use Only

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

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

COC Record Present Upon Sample Rec't Y or N

Cooler Temp. 5.7 °C

Discrepancies Between Samples Labels and COC Record? Y or N

NOTES:

Relinquished by	Received by	Date	Time
[illegible]	[illegible]	11/30/00	1005

Relinquished by	Received by	Date	Time
COMPOSITE WASTE	ORIGINAL!		

MPS 965 9505 1107

PNNL

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Chem SDG H1125

C.O.C. # C01-007-1

Page 1 of 1

Collector K. Hulse	Contact/Requester JH KESSNER	Telephone No. (509) 375-4688 MSIN FAX
SAF No. C01-007	Sampling Origin HANFORD SITE	Purchase Order/Charge Code
Project Title 100 KR4 IAM (1 & 2)	Logbook No. WM 3HW5-H37	Ice Chest No. JML-461 Temp.
Shipped To (Lab) TMA/RECRA	Method of Shipment GOVT. VEHICLE	Bill of Lading/Air Bill No. 4235 7954 0349
Protocol CERCLA	Data Turnaround 45 Days	Offsite Property No. W0100075

POSSIBLE SAMPLE HAZARDS/REMARKS
** **

SPECIAL INSTRUCTIONS Hold Time Total Activity Exemption: Yes ☑ No ☐
Submit deliverables & invoices to JH Kessner
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
[redacted]		W	11/6/00	1049	[redacted]	[redacted]	HNO3 to pH <2
[redacted]		W			[redacted]	[redacted]	HNO3 to pH <2
[redacted]		W			[redacted]	[redacted]	Cool 4C
B10J39		W			1x20-mL P	Activity Scan	None
B10J39		W			2x1000-mL G/P	Gross Alpha	HNO3 to pH <2
B10J39		W			2x1000-mL G/P	Gross Beta	HNO3 to pH <2
B10J39		W			1x1000-mL G/P	Gamma Spectroscopy(Water)	HNO3 to pH <2
B10J39		W			1x250-mL P	Tritium - H3	None

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
K. Hulse		K. Hulse	NOV 06 2000	FED EX			11/06/00
FED. EXPRESS			11/07/00 10AM	E.		Aguirre	11/07/00 10AM
JR Corso		JR Corso	11-9-00 16:00	Fed Ex			11-9-00
Fed Ex			11/10/00 1005	[illegible]			11/10/00 1005

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 H1125

C.O.C. # C01-007-5

Page 1 of 1

Collector: D. R. BREWINGTON	Contact/Requester: JH KESSNER	Telephone No.: (509) 375-4688 MSIN FAX
SAF No.: C01-007	Sampling Origin: HANFORD SITE	Purchase Order/Charge Code
Project Title: 100 KR4 IAM (1 & 2)	Logbook No.: WMI 34405-1137	Ice Chest No.: SAL-461 Temp.
Shipped To (Lab): TMA/RECRA	Method of Shipment: GOVT. VEHICLE	Bill of Lading/Air Bill No.: 4235 7954 0349
Protocol: CERCLA	Data Turnaround: 45 Days	Offsite Property No.: W0100075

POSSIBLE SAMPLE HAZARDS/REMARKS
** **

SPECIAL INSTRUCTIONS Hold Time Total Activity Exemption: Yes ☑ No ☐
Submit deliverables & invoices to JH Kessner
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
B10J06 (1)		W	11/6/00	1306	1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
B10J05		W			1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
[illegible]		W			2x500-mL P	IC Anions - 300.0	Cool 4C
B10J09		W			1x20-mL P	Activity Scan	None
B10J09		W			2x1000-mL G/P	Gross Alpha	HNO3 to pH <2
B10J09		W			2x1000-mL G/P	Gross Beta	HNO3 to pH <2
B10J09		W			1x1000-mL G/P	Gamma Spectroscopy(Water)	HNO3 to pH <2
B10J09		W			1x250-mL P	Tritium - H3	None

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
D. R. BREWINGTON	D.R. Brewington for		NOV 06 2000 1357	FED-EXPRESS			11/06/00
FED-EXPRESS			11/07/00 10A		E. Dagum		11/07/00 10:Am
JR Corso	JR Corso		11-9-00 16:00	Fed Ex			11-9-00
Fed Ex			11/10/00 1005	Vicki Hernandez			11/10/00 1005

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

3

PNNL

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

CHEM SDG H1125

C.O.C. # C01-007-55

Page 1 of 1

Collector: D. R. BREWINGTON	Contact/Requester: JH KESSNER	Telephone No.: (509) 375-4688 MSIN FAX
SAF No.: C01-007	Sampling Origin: HANFORD SITE	Purchase Order/Charge Code
Project Title: 100 KR4 IAM (1 & 2)	Logbook No.: 3ML-#37	Ice Chest No.: 3ML-461 Temp.
Shipped To (Lab): TMA/RECRA	Method of Shipment: GOVT. VEHICLE	Bill of Lading/Air Bill No.: 4235 7954 0349
Protocol: CERCLA	Data Turnaround: 45 Days	Offsite Property No.: W0100075

POSSIBLE SAMPLE HAZARDS/REMARKS
** **

SPECIAL INSTRUCTIONS Hold Time Total Activity Exemption: Yes ☑ No ☐
Submit deliverables & invoices to JH Kessner
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
[redacted]		W	11/6/00	1155	[redacted]	[redacted]	HNO3 to pH <2
[redacted]		W			[redacted]	[redacted]	HNO3 to pH <2
[redacted]		W			[redacted]	[redacted]	Cool 4C
B10J85		W			1x20-mL P	Activity Scan	None
B10J05		W			2x1000-mL G/P	Gross Alpha	HNO3 to pH <2
B10J05		W			2x1000-mL G/P	Gross Beta	HNO3 to pH <2
B10J05		W			1x1000-mL G/P	Carbon-14	None
B10J05		W			1x1000-mL G/P	Gamma Spectroscopy(Water)	HNO3 to pH <2
B10J05		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		NOV 06 2000 1352	Fed EX			11-06-00
FED EXPRESS			11/07/00 10:11	E. Dagnur			11/07/00 10:11
JR. Corso	JR Corso		11-9-00 16:00	Fed Ex			11-9-00
Fed Ex			11/10/00 1010	[illegible]			11/10/00 1005

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