H1120

0054560

DEC 2000 RECEIVED

1.0 GENERAL

Bechtel Hanford Inc. (BHI) Sample Delivery Group H1120 was composed of eleven water samples designated under SAF No. C01-007 with a Project Designation of: 100 KR4 IAM (1 & 2).

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

RECEIVED
MAR 2 8 2001
EDMC

2.0 ANALYSIS NOTES

2.1 Gross Alpha and Gross Beta Analyses

No problems were encountered during the course of the analyses.

2.2 Tritium Analyses

No problems were encountered during the course of the analyses.

2.3 Carbon-14 Analyses

The LCS percent recovery (83%) was slightly below the 3σ limits (86 to 114%), but within the laboratory protocol limits (80 to 120%). No other problems were encountered during the course of the analyses.

2.4 Strontium-90 Analyses (By Yttrium Analysis)

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.

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

12/28/00
Date

RECEIVED
MAR 2 8 2001
EDMC

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1120

SAMPLE SUMMARY

SDG 7548
Contact Melissa C. Mannion

Client Hanford
Contract TRC-SBB-207925
Case no SDG H1120

CLIENT SAMPLE ID	LOCATION	MATRIX	LEVEL	LAB SAMPLE ID	SAF NO	CHAIN OF CUSTODY	COLLECTED
B10HX3	Hanford Site	WATER		R011053-03	C01-007	C01-007-19	11/02/00 12:22
B10HX9	Hanford Site	WATER		R011053-04	C01-007	C01-007-23	11/02/00 12:45
B10HY0	Hanford Site	WATER		R011053-06	C01-007	C01-007-24	11/02/00 12:45
B10HY4	Hanford Site	WATER		R011053-02	C01-007	C01-007-15	11/02/00 10:32
B10HY9	Hanford Site	WATER		R011053-08	C01-007	C01-007-33	11/02/00 10:09
B10J15	Hanford Site	WATER		R011053-10	C01-007	C01-007-45	11/01/00 09:22
B10J17	Hanford Site	WATER		R011053-11	C01-007	C01-007-46	11/01/00 07:30
B10J27	Hanford Site	WATER		R011053-09	C01-007	C01-007-33	11/02/00 10:09
B10J31	Hanford Site	WATER		R011053-05	C01-007	C01-007-23	11/02/00 12:45
B10J33	Hanford Site	WATER		R011053-07	C01-007	C01-007-24	11/02/00 12:45
B10J35	Hanford Site	WATER		R011053-01	C01-007	C01-007-7	11/02/00 13:30
Method Blank		WATER		R011053-13	C01-007		
Lab Control Sample		WATER		R011053-12	C01-007		
Duplicate (R011053-11)	Hanford Site	WATER		R011053-14	C01-007		11/01/00 07:30
Spike (R011053-11)	Hanford Site	WATER		R011053-15	C01-007		11/01/00 07:30

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CS
Version 3.06
Report date 12/28/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1120

QC SUMMARY

SDG 7548
Contact Melissa C. Mannion

Client Hanford
Contract TRC-SBB-207925
Case no SDG H1120

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	C01-007-15	B10HY4	WATER				11/03/00	1	R011053-02	7548-002
	C01-007-19	B10HX3	WATER				11/03/00	1	R011053-03	7548-003
	C01-007-23	B10HX9	WATER				11/03/00	1	R011053-04	7548-004
		B10J31	WATER				11/03/00	1	R011053-05	7548-005
	C01-007-24	B10HY0	WATER				11/03/00	1	R011053-06	7548-006
		B10J33	WATER				11/03/00	1	R011053-07	7548-007
	C01-007-33	B10HY9	WATER				11/03/00	1	R011053-08	7548-008
		B10J27	WATER				11/03/00	1	R011053-09	7548-009
	C01-007-45	B10J15	WATER				11/03/00	2	R011053-10	7548-010
	C01-007-46	B10J17	WATER				11/03/00	2	R011053-11	7548-011
	C01-007-7	B10J35	WATER				11/03/00	1	R011053-01	7548-001
		Method Blank	WATER						R011053-13	7548-013
		Lab Control Sample	WATER						R011053-12	7548-012
		Duplicate (R011053-11)	WATER				11/03/00	2	R011053-14	7548-014
		Spike (R011053-11)	WATER				11/03/00	2	R011053-15	7548-015

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-QS
Version 3.06
Report date 12/28/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1120

PREP BATCH SUMMARY

SDG 7548
Contact Melissa C. Mannion

Client Hanford
Contract TRC-SBB-207925
Case no SDG H1120

TEST	MATRIX	METHOD	PREPARATION ERROR BATCH	2σ %	PLANCHETS ANALYZED CLIENT	MORE	RE	BLANK	LCS	DUP/ORIG	MS/ORIG	QUALIFIERS
Beta Counting												
Y	WATER	Strontium 90 in Water	6962-055	10.0	7			1	1	1/1		
Gas Proportional Counting												
82B	WATER	Gross Beta in Water	6962-055	15.0	6			1	1	1/1		
88A	WATER	Gross Alpha in Water	6962-055	20.0	6			1	1	1/1		
Gamma Scan												
GAM	WATER	Gamma Emitters	6962-055	15.0	6			1	1	1/1		
Liquid Scintillation Counting												
C	WATER	Carbon 14 in Water	6962-055	10.0	3			1	1	1/1	1/1	X
H	WATER	Tritium in Water	6962-055	10.0	11			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 12/28/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1120

WORK SUMMARY

SDG 7548
Contact Melissa C. Mannion

Client Hanford
Contract TRC-SBB-207925
Case no SDG H1120

CLIENT SAMPLE ID / LOCATION / CUSTODY	SAF No	MATRIX	LAB SAMPLE ID / COLLECTED / RECEIVED	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
B10HX3			R011053-03	7548-003	H		12/04/00	12/28/00	MCM	Tritium in Water
Hanford Site		WATER	11/02/00	7548-003	Y		12/04/00	12/28/00	MCM	Strontium 90 in Water
C01-007-19	C01-007		11/03/00							
B10HX9			R011053-04	7548-004	H		12/04/00	12/28/00	MCM	Tritium in Water
Hanford Site		WATER	11/02/00	7548-004	Y		12/04/00	12/28/00	MCM	Strontium 90 in Water
C01-007-23	C01-007		11/03/00							
B10HY0			R011053-06	7548-006	H		12/04/00	12/28/00	MCM	Tritium in Water
Hanford Site		WATER	11/02/00	7548-006	Y		12/04/00	12/28/00	MCM	Strontium 90 in Water
C01-007-24	C01-007		11/03/00							
B10HY4			R011053-02	7548-002	H		12/04/00	12/28/00	MCM	Tritium in Water
Hanford Site		WATER	11/02/00	7548-002	Y		12/04/00	12/28/00	MCM	Strontium 90 in Water
C01-007-15	C01-007		11/03/00							
B10HY9			R011053-08	7548-008	H		12/04/00	12/28/00	MCM	Tritium in Water
Hanford Site		WATER	11/02/00	7548-008	Y		12/04/00	12/28/00	MCM	Strontium 90 in Water
C01-007-33	C01-007		11/03/00							
B10J15			R011053-10	7548-010	82B/82		11/28/00	12/28/00	MCM	Gross Beta in Water
Hanford Site		WATER	11/01/00	7548-010	88A/88		12/15/00	12/28/00	MCM	Gross Alpha in Water
C01-007-45	C01-007		11/03/00	7548-010	C		12/10/00	12/28/00	MCM	Carbon 14 in Water
				7548-010	GAM		11/29/00	12/28/00	MCM	Gamma Emitters
				7548-010	H		12/04/00	12/28/00	MCM	Tritium in Water
				7548-010	Y		12/04/00	12/28/00	MCM	Strontium 90 in Water
B10J17			R011053-11	7548-011	82B/82		11/29/00	12/28/00	MCM	Gross Beta in Water
Hanford Site		WATER	11/01/00	7548-011	88A/88		12/15/00	12/28/00	MCM	Gross Alpha in Water
C01-007-46	C01-007		11/03/00	7548-011	C		12/10/00	12/28/00	MCM	Carbon 14 in Water
				7548-011	GAM		11/29/00	12/28/00	MCM	Gamma Emitters
				7548-011	H		12/04/00	12/28/00	MCM	Tritium in Water
				7548-011	Y		12/04/00	12/28/00	MCM	Strontium 90 in Water
B10J27			R011053-09	7548-009	82B/82		11/28/00	12/28/00	MCM	Gross Beta in Water
Hanford Site		WATER	11/02/00	7548-009	88A/88		12/15/00	12/28/00	MCM	Gross Alpha in Water
C01-007-33	C01-007		11/03/00	7548-009	GAM		11/29/00	12/28/00	MCM	Gamma Emitters
				7548-009	H		12/04/00	12/28/00	MCM	Tritium in Water

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CWS
Version 3.06
Report date 12/28/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1120

SDG 7548
Contact Melissa C. Mannion

WORK SUMMARY, cont.

Client Hanford
Contract TRC-SBB-207925
Case no SDG H1120

CLIENT SAMPLE ID / LOCATION / CUSTODY	SAF No	MATRIX	LAB SAMPLE ID / COLLECTED / RECEIVED	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
B10J31			R011053-05	7548-005	82B/82		11/28/00	12/28/00	MCM	Gross Beta in Water
Hanford Site		WATER	11/02/00	7548-005	88A/88		12/15/00	12/28/00	MCM	Gross Alpha in Water
C01-007-23	C01-007		11/03/00	7548-005	GAM		11/29/00	12/28/00	MCM	Gamma Emitters
				7548-005	H		12/04/00	12/28/00	MCM	Tritium in Water
B10J33			R011053-07	7548-007	82B/82		11/28/00	12/28/00	MCM	Gross Beta in Water
Hanford Site		WATER	11/02/00	7548-007	88A/88		12/15/00	12/28/00	MCM	Gross Alpha in Water
C01-007-24	C01-007		11/03/00	7548-007	GAM		11/29/00	12/28/00	MCM	Gamma Emitters
				7548-007	H		12/04/00	12/28/00	MCM	Tritium in Water
B10J35			R011053-01	7548-001	82B/82		12/11/00	12/28/00	MCM	Gross Beta in Water
Hanford Site		WATER	11/02/00	7548-001	88A/88		12/15/00	12/28/00	MCM	Gross Alpha in Water
C01-007-7	C01-007		11/03/00	7548-001	C		12/10/00	12/28/00	MCM	Carbon 14 in Water
				7548-001	GAM		11/28/00	12/28/00	MCM	Gamma Emitters
				7548-001	H		12/04/00	12/28/00	MCM	Tritium in Water
Method Blank			R011053-13	7548-013	82B/82		11/28/00	12/28/00	MCM	Gross Beta in Water
		WATER		7548-013	88A/88		12/15/00	12/28/00	MCM	Gross Alpha in Water
	C01-007			7548-013	C		12/10/00	12/28/00	MCM	Carbon 14 in Water
				7548-013	GAM		11/29/00	12/28/00	MCM	Gamma Emitters
				7548-013	H		12/05/00	12/28/00	MCM	Tritium in Water
				7548-013	Y		12/05/00	12/28/00	MCM	Strontium 90 in Water
Lab Control Sample			R011053-12	7548-012	82B/82		11/28/00	12/28/00	MCM	Gross Beta in Water
		WATER		7548-012	88A/88		12/15/00	12/28/00	MCM	Gross Alpha in Water
	C01-007			7548-012	C		12/10/00	12/28/00	MCM	Carbon 14 in Water
				7548-012	GAM		11/29/00	12/28/00	MCM	Gamma Emitters
				7548-012	H		12/05/00	12/28/00	MCM	Tritium in Water
				7548-012	Y		12/04/00	12/28/00	MCM	Strontium 90 in Water
Duplicate (R011053-11)			R011053-14	7548-014	82B/82		12/11/00	12/28/00	MCM	Gross Beta in Water
Hanford Site		WATER	11/01/00	7548-014	88A/88		12/18/00	12/28/00	MCM	Gross Alpha in Water
	C01-007		11/03/00	7548-014	C		12/10/00	12/28/00	MCM	Carbon 14 in Water
				7548-014	GAM		11/29/00	12/28/00	MCM	Gamma Emitters
				7548-014	H		12/05/00	12/28/00	MCM	Tritium in Water
				7548-014	Y		12/05/00	12/28/00	MCM	Strontium 90 in Water

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CWS
Version 3.06
Report date 12/28/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1120

SDG 7548
Contact Melissa C. Mannion

WORK SUMMARY, cont.

Client Hanford
Contract TRC-SBB-207925
Case no SDG H1120

CLIENT SAMPLE ID / LOCATION / CUSTODY	SAF No	MATRIX	LAB SAMPLE ID / COLLECTED / RECEIVED	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
Spike (R011053-11)			R011053-15	7548-015	C		12/10/00	12/28/00	MCM	Carbon 14 in Water
Hanford Site		WATER	11/01/00	7548-015	H		12/05/00	12/28/00	MCM	Tritium in Water
	C01-007		11/03/00							

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	6			1	1	1		9
88A/88	C01-007	Gross Alpha in Water	900.0_ALPHABETA_GPC	6			1	1	1		9
C	C01-007	Carbon 14 in Water	C14_CHEM_LSC	3			1	1	1	1	7
GAM	C01-007	Gamma Emitters	GAMMA_GS	6			1	1	1		9
H	C01-007	Tritium in Water	906.0_H3_LSC	11			1	1	1	1	15
Y	C01-007	Strontium 90 in Water	SRISO_SEP_PRECIP_GPC	7			1	1	1		10
TOTALS				39			6	6	6	2	59

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CWS
Version 3.06
Report date 12/28/00

TMA / RICHMOND

SAMPLE DELIVERY GROUP H1120

R011053-13 **Method Blank**

METHOD BLANK

SDG	7548	Client/Case no	Hanford	SDG H1120	
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	0.085	0.51	1.0	3.0	U	88A
Gross Beta	12587-47-2	0.104	1.4	2.4	4.0	U	82B
Tritium	10028-17-8	-143	1100	1900	400	U	H
Carbon 14	14762-75-5	-6.33	27	45	200	U	C
Strontium 90	10098-97-2	-0.496	1.6	1.2	2.0	U	Y
Potassium 40	13966-00-2	U		420		U	GAM
Cobalt 60	10198-40-0	U		15	25	U	GAM
Cesium 137	10045-97-3	U		16	15	U	GAM
Radium 226	13982-63-3	U		29		U	GAM
Radium 228	15262-20-1	U		70		U	GAM
Europium 152	14683-23-9	U		36	50	U	GAM
Europium 154	15585-10-1	U		45	50	U	GAM
Europium 155	14391-16-3	U		27	50	U	GAM
Thorium 228	14274-82-9	U		18		U	GAM
Thorium 232	TH-232	U		70		U	GAM
Uranium 235	15117-96-1	U		48		U	GAM
Uranium 238	U-238	U		1800		U	GAM
Americium 241	14596-10-2	U		15		U	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	12/28/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1120

R011053-12

Lab Control Sample

LAB CONTROL SAMPLE

SDG 7548

Contact Melissa C. Mannion

Client/Case no Hanford SDG H1120

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	71.7	5.0	1.1	3.0		88A	71.7	2.9	100	68-132	70-130
Gross Beta	84.1	3.7	2.3	4.0		82B	80.7	3.2	104	75-125	70-130
Tritium	46300	2300	1900	400		H	49700	2000	93	83-117	80-120
Carbon 14	17600	180	63	200		C	21300	850	83	86-114	80-120
Strontium 90	46.7	7.6	0.91	2.0		Y	46.2	1.8	101	70-130	80-120
Cobalt 60	484	39	19	25		GAM	472	19	102	73-127	80-120
Cesium 137	596	34	24	15		GAM	554	22	108	73-127	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 12/28/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1120

R011053-14 B10J17

DUPLICATE

SDG	7548			Client/Case no	Hanford SDG H1120
Contact	Melissa C. Mannion			Case no	TRC-SBB-207925
	DUPLICATE		ORIGINAL		
Lab sample id	R011053-14	Lab sample id	R011053-11	Client sample id	B10J17
Dept sample id	7548-014	Dept sample id	7548-011	Location/Matrix	Hanford Site WATER
		Received	11/03/00	Collected	11/01/00 07:30
				Custody/SAF No	C01-007-46 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	-0.217	0.36	0.91	3.0	U	88A	-0.020	0.34	0.77	U	-	
Gross Beta	-0.718	1.3	2.3	4.0	U	82B	0.818	1.1	1.9	U	-	
Tritium	315	590	980	400	U	H	1010	640	1000		105	198
Carbon 14	6.43	27	45	200	U	C	-15.2	26	44	U	-	
Strontium 90	-0.125	1.5	1.1	2.0	U	Y	-0.881	0.96	0.42	U	-	
Potassium 40	U		100		U	GAM	U		83	U	-	
Cobalt 60	U		8.6	25	U	GAM	U		7.7	U	-	
Cesium 137	U		7.4	15	U	GAM	U		7.1	U	-	
Radium 226	U		15		U	GAM	U		15	U	-	
Radium 228	U		34		U	GAM	U		34	U	-	
Europium 152	U		19	50	U	GAM	U		19	U	-	
Europium 154	U		24	50	U	GAM	U		24	U	-	
Europium 155	U		20	50	U	GAM	U		20	U	-	
Thorium 228	U		11		U	GAM	U		11	U	-	
Thorium 232	U		34		U	GAM	U		34	U	-	
Uranium 235	U		29		U	GAM	U		29	U	-	
Uranium 238	U		1100		U	GAM	U		1000	U	-	
Americium 241	U		28		U	GAM	U		29	U	-	

100 KR4 IAM (1 & 2)

QC-DUP#11 36710

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-DUP
Version 3.06
Report date 12/28/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1120

R011053-15 B10J17

MATRIX SPIKE

SDG 7548		Client/Case no Hanford	SDG H1120
Contact Melissa C. Mannion		Case no TRC-SBB-207925	
MATRIX SPIKE	ORIGINAL		
Lab sample id R011053-15	Lab sample id R011053-11	Client sample id B10J17	
Dept sample id 7548-015	Dept sample id 7548-011	Location/Matrix Hanford Site	WATER
	Received 11/03/00	Collected 11/01/00 07:30	
		Custody/SAF No C01-007-46	C01-007

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	102000	2200	1100	400		H	105000	4200	1010	640	96	84-116	60-140
Carbon 14	54700	550	140	200	X	C	63500	2500	-15.2	26	86	86-114	60-140

100 KR4 IAM (1 & 2)

QC-MS#11 36711

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-MS
Version	3.06
Report date	12/28/00

TMA / RICHMOND
SAMPLE DELIVERY GROUP H1120

R011053-03 B10HX3

DATA SHEET

SDG	7548	Client/Case no	Hanford	SDG H1120	
Contact	Melissa C. Mannion	Contract	TRC-SBB-207925		
Lab sample id	R011053-03	Client sample id	B10HX3		
Dept sample id	7548-003	Location/Matrix	Hanford Site	WATER	
Received	11/03/00	Collected	11/02/00 12:22		
		Custody/SAF No	C01-007-19	C01-007	

ANALYTE	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST
Tritium	10028-17-8	36200	1400	980	400		H
Strontium 90	10098-97-2	-0.786	2.0	0.50	2.0	U	Y

100 KR4 IAM (1 & 2)

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	12/28/00

TMA/RICHMOND
SAMPLE DELIVERY GROUP H1120

R011053-04 B10HX9

DATA SHEET

SDG	7548	Client/Case no	Hanford	SDG H1120	
Contact	Melissa C. Mannion	Contract	TRC-SBB-207925		
Lab sample id	R011053-04	Client sample id	B10HX9		
Dept sample id	7548-004	Location/Matrix	Hanford Site	WATER	
Received	11/03/00	Collected	11/02/00 12:45		
		Custody/SAF No	C01-007-23	C01-007	

ANALYTE	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST
Tritium	10028-17-8	177000	2700	950	400		H
Strontium 90	10098-97-2	-0.433	0.96	0.41	2.0	U	Y

100 KR4 IAM (1 & 2)

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	12/28/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1120

R011053-06 B10HY0

DATA SHEET

SDG	7548	Client/Case no	Hanford	SDG H1120	
Contact	Melissa C. Mannion	Contract	TRC-SBB-207925		
Lab sample id	R011053-06	Client sample id	B10HY0		
Dept sample id	7548-006	Location/Matrix	Hanford Site	WATER	
Received	11/03/00	Collected	11/02/00 12:45		
		Custody/SAF No	C01-007-24	C01-007	

ANALYTE	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST
Tritium	10028-17-8	184000	2800	980	400		H
Strontium 90	10098-97-2	0.066	0.22	0.45	2.0	U	Y

100 KR4 IAM (1 & 2)

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	12/28/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1120

R011053-02 **B10HY4**

DATA SHEET

SDG	7548	Client/Case no	Hanford	SDG H1120	
Contact	Melissa C. Mannion	Contract	TRC-SBB-207925		
Lab sample id	R011053-02	Client sample id	B10HY4		
Dept sample id	7548-002	Location/Matrix	Hanford Site	WATER	
Received	11/03/00	Collected	11/02/00 10:32		
		Custody/SAF No	C01-007-15	C01-007	

ANALYTE	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST
Tritium	10028-17-8	345	590	980	400	U	H
Strontium 90	10098-97-2	2.04	0.78	0.43	2.0		Y

100 KR4 IAM (1 & 2)

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	12/28/00

TMA/RICHMOND
SAMPLE DELIVERY GROUP H1120

R011053-08 B10HY9

DATA SHEET

SDG	7548	Client/Case no	Hanford SDG H1120
Contact	Melissa C. Mannion	Contract	TRC-SBB-207925
Lab sample id	R011053-08	Client sample id	B10HY9
Dept sample id	7548-008	Location/Matrix	Hanford Site WATER
Received	11/03/00	Collected	11/02/00 10:09
		Custody/SAF No	C01-007-33 C01-007

ANALYTE	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST
Tritium	10028-17-8	917	610	990	400	U	H
Strontium 90	10098-97-2	8.62	0.51	0.45	2.0		Y

100 KR4 IAM (1 & 2)

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	12/28/00

TMA/RICHMOND
SAMPLE DELIVERY GROUP H1120

R011053-10 B10J15

DATA SHEET

SDG	7548	Client/Case no	Hanford SDG H1120
Contact	Melissa C. Mannion	Contract	TRC-SBB-207925
Lab sample id	R011053-10	Client sample id	B10J15
Dept sample id	7548-010	Location/Matrix	Hanford Site WATER
Received	11/03/00	Collected	11/01/00 09:22
		Custody/SAF No	C01-007-45 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	2.57	1.8	2.4	3.0	J	88A
Gross Beta	12587-47-2	8.07	1.9	2.6	4.0		82B
Tritium	10028-17-8	8740000	19000	1000	400		H
Carbon 14	14762-75-5	16300	170	61	200		C
Strontium 90	10098-97-2	-0.121	0.98	0.47	2.0	U	Y
Potassium 40	13966-00-2	U		380		U	GAM
Cobalt 60	10198-40-0	U		14	25	U	GAM
Cesium 137	10045-97-3	U		13	15	U	GAM
Radium 226	13982-63-3	U		27		U	GAM
Radium 228	15262-20-1	U		61		U	GAM
Europium 152	14683-23-9	U		29	50	U	GAM
Europium 154	15585-10-1	U		37	50	U	GAM
Europium 155	14391-16-3	U		23	50	U	GAM
Thorium 228	14274-82-9	U		16		U	GAM
Thorium 232	TH-232	U		61		U	GAM
Uranium 235	15117-96-1	U		40		U	GAM
Uranium 238	U-238	U		1600		U	GAM
Americium 241	14596-10-2	U		13		U	GAM

100 KR4 IAM (1 & 2)

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	12/28/00

TMA / RICHMOND

SAMPLE DELIVERY GROUP H1120

R011053-11 B10J17

DATA SHEET

SDG	7548	Client/Case no	Hanford	SDG H1120	
Contact	Melissa C. Mannion	Contract	TRC-SBB-207925		
Lab sample id	R011053-11	Client sample id	B10J17		
Dept sample id	7548-011	Location/Matrix	Hanford Site	WATER	
Received	11/03/00	Collected	11/01/00 07:30		
		Custody/SAF No	C01-007-46	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	-0.020	0.34	0.77	3.0	U	88A
Gross Beta	12587-47-2	0.818	1.1	1.9	4.0	U	82B
Tritium	10028-17-8	1010	640	1000	400		H
Carbon 14	14762-75-5	-15.2	26	44	200	U	C
Strontium 90	10098-97-2	-0.881	0.96	0.42	2.0	U	Y
Potassium 40	13966-00-2	U		83		U	GAM
Cobalt 60	10198-40-0	U		7.7	25	U	GAM
Cesium 137	10045-97-3	U		7.1	15	U	GAM
Radium 226	13982-63-3	U		15		U	GAM
Radium 228	15262-20-1	U		34		U	GAM
Europium 152	14683-23-9	U		19	50	U	GAM
Europium 154	15585-10-1	U		24	50	U	GAM
Europium 155	14391-16-3	U		20	50	U	GAM
Thorium 228	14274-82-9	U		11		U	GAM
Thorium 232	TH-232	U		34		U	GAM
Uranium 235	15117-96-1	U		29		U	GAM
Uranium 238	U-238	U		1000		U	GAM
Americium 241	14596-10-2	U		29		U	GAM

100 KR4 IAM (1 & 2)

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	12/28/00

TMA / RICHMOND
SAMPLE DELIVERY GROUP H1120

R011053-09 B10J27

DATA SHEET

SDG	7548	Client/Case no	Hanford SDG H1120
Contact	Melissa C. Mannion	Contract	TRC-SBB-207925
Lab sample id	R011053-09	Client sample id	B10J27
Dept sample id	7548-009	Location/Matrix	Hanford Site WATER
Received	11/03/00	Collected	11/02/00 10:09
		Custody/SAF No	C01-007-33 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	0.952	0.90	1.3	3.0	U	88A
Gross Beta	12587-47-2	21.6	2.3	2.4	4.0		82B
Tritium	10028-17-8	1120	600	960	400		H
Potassium 40	13966-00-2	U		220		U	GAM
Cobalt 60	10198-40-0	U		12	25	U	GAM
Cesium 137	10045-97-3	U		11	15	U	GAM
Radium 226	13982-63-3	U		21		U	GAM
Radium 228	15262-20-1	58.6	51	45			GAM
Europium 152	14683-23-9	U		29	50	U	GAM
Europium 154	15585-10-1	U		37	50	U	GAM
Europium 155	14391-16-3	U		38	50	U	GAM
Thorium 228	14274-82-9	24.7	18	20			GAM
Thorium 232	TH-232	58.6	51	45			GAM
Uranium 235	15117-96-1	U		43		U	GAM
Uranium 238	U-238	U		1400		U	GAM
Americium 241	14596-10-2	U		86		U	GAM

100 KR4 IAM (1 & 2)

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	12/28/00

TMA / RICHMOND

SAMPLE DELIVERY GROUP H1120

R011053-05 B10J31

DATA SHEET

SDG	7548	Client/Case no	Hanford	SDG H1120	
Contact	Melissa C. Mannion	Contract	TRC-SBB-207925		
Lab sample id	R011053-05	Client sample id	B10J31		
Dept sample id	7548-005	Location/Matrix	Hanford Site	WATER	
Received	11/03/00	Collected	11/02/00 12:45		
		Custody/SAF No	C01-007-23	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	-0.317	0.78	1.9	3.0	U	88A
Gross Beta	12587-47-2	4.53	1.5	2.2	4.0		82B
Tritium	10028-17-8	181000	2800	970	400		H
Potassium 40	13966-00-2	U		280		U	GAM
Cobalt 60	10198-40-0	U		11	25	U	GAM
Cesium 137	10045-97-3	U		13	15	U	GAM
Radium 226	13982-63-3	U		27		U	GAM
Radium 228	15262-20-1	U		58		U	GAM
Europium 152	14683-23-9	U		37	50	U	GAM
Europium 154	15585-10-1	U		39	50	U	GAM
Europium 155	14391-16-3	U		35	50	U	GAM
Thorium 228	14274-82-9	U		29		U	GAM
Thorium 232	TH-232	U		58		U	GAM
Uranium 235	15117-96-1	U		52		U	GAM
Uranium 238	U-238	U		1800		U	GAM
Americium 241	14596-10-2	U		46		U	GAM

100 KR4 IAM (1 & 2)

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	12/28/00

TMA / RICHMOND

SAMPLE DELIVERY GROUP H1120

R011053-07 B10J33

DATA SHEET

SDG	7548	Client/Case no	Hanford SDG H1120
Contact	Melissa C. Mannion	Contract	TRC-SBB-207925
Lab sample id	R011053-07	Client sample id	B10J33
Dept sample id	7548-007	Location/Matrix	Hanford Site WATER
Received	11/03/00	Collected	11/02/00 12:45
		Custody/SAF No	C01-007-24 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	-0.678	1.1	2.5	3.0	U	88A
Gross Beta	12587-47-2	3.49	1.4	2.0	4.0	J	82B
Tritium	10028-17-8	188000	2900	980	400		H
Potassium 40	13966-00-2	U		74		U	GAM
Cobalt 60	10198-40-0	U		7.1	25	U	GAM
Cesium 137	10045-97-3	U		6.2	15	U	GAM
Radium 226	13982-63-3	14.9	14	14			GAM
Radium 228	15262-20-1	U		27		U	GAM
Europium 152	14683-23-9	U		16	50	U	GAM
Europium 154	15585-10-1	U		22	50	U	GAM
Europium 155	14391-16-3	U		16	50	U	GAM
Thorium 228	14274-82-9	U		9.1		U	GAM
Thorium 232	TH-232	U		27		U	GAM
Uranium 235	15117-96-1	U		25		U	GAM
Uranium 238	U-238	U		820		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	12/28/00

TMA/RICHMOND
SAMPLE DELIVERY GROUP H1120

R011053-01 B10J35

DATA SHEET

SDG	7548	Client/Case no	Hanford	SDG H1120	
Contact	Melissa C. Mannion	Contract	TRC-SBB-207925		
Lab sample id	R011053-01	Client sample id	B10J35		
Dept sample id	7548-001	Location/Matrix	Hanford Site	WATER	
Received	11/03/00	Collected	11/02/00 13:30		
		Custody/SAF No	C01-007-7	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	2.25	1.4	1.7	3.0	J	88A
Gross Beta	12587-47-2	7.99	1.8	2.5	4.0		82B
Tritium	10028-17-8	125000	2400	970	400		H
Carbon 14	14762-75-5	180	32	48	200	J	C
Potassium 40	13966-00-2	U		440		U	GAM
Cobalt 60	10198-40-0	U		15	25	U	GAM
Cesium 137	10045-97-3	U		15	15	U	GAM
Radium 226	13982-63-3	U		31		U	GAM
Radium 228	15262-20-1	U		70		U	GAM
Europium 152	14683-23-9	U		34	50	U	GAM
Europium 154	15585-10-1	U		45	50	U	GAM
Europium 155	14391-16-3	U		28	50	U	GAM
Thorium 228	14274-82-9	U		19		U	GAM
Thorium 232	TH-232	U		70		U	GAM
Uranium 235	15117-96-1	U		47		U	GAM
Uranium 238	U-238	U		1900		U	GAM
Americium 241	14596-10-2	U		15		U	GAM

100 KR4 IAM (1 & 2)

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	12/28/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1120

Test Y Matrix WATER
SDG 7548
Contact Melissa C. Mannion

METHOD SUMMARY

STRONTIUM 90 IN WATER

BETA COUNTING

Client Hanford
Contract TRC-SBB-207925
Contract SDG H1120

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Strontium 90
Preparation batch 6962-055					
B10HX3	R011053-03			7548-003	U
B10HX9	R011053-04			7548-004	U
B10HY0	R011053-06			7548-006	U
B10HY4	R011053-02			7548-002	2.04
B10HY9	R011053-08			7548-008	8.62
B10J15	R011053-10			7548-010	U
B10J17	R011053-11			7548-011	U
BLK (QC ID=36709)	R011053-13			7548-013	U
LCS (QC ID=36708)	R011053-12			7548-012	ok
Duplicate (R011053-11)	R011053-14			7548-014	- U
Nominal values and limits from method 100 KR4 IAM (1 & 2)		RDLs (pCi/L)			2.0

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																
B10HX3	R011053-03			0.50	0.500			59		400			32	12/04/00	12/04	GRB-219
B10HX9	R011053-04			0.41	0.500			69		400			32	12/04/00	12/04	GRB-220
B10HY0	R011053-06			0.45	0.500			67		400			32	12/04/00	12/04	GRB-223
B10HY4	R011053-02			0.43	0.500			68		400			32	12/04/00	12/04	GRB-218
B10HY9	R011053-08			0.45	0.500			66		400			32	12/04/00	12/04	GRB-224
B10J15	R011053-10			0.47	0.500			66		400			33	12/04/00	12/04	GRB-231
B10J17	R011053-11			0.42	0.500			68		400			33	12/04/00	12/04	GRB-232
BLK (QC ID=36709)	R011053-13			1.2	0.500			61		100				12/04/00	12/05	GRB-204
LCS (QC ID=36708)	R011053-12			0.91	0.500			32		400				12/04/00	12/04	GRB-230
Duplicate (R011053-11) (QC ID=36710)	R011053-14			1.1	0.500			61		100			34	12/04/00	12/05	GRB-207
Nominal values and limits from method				2.0	0.500			20-105		100			180			

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 12/28/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1120

Test Y	Matrix WATER
SDG 7548	
Contact Melissa C. Mannion	

METHOD SUMMARY, cont.

STRONTIUM 90 IN WATER

BETA COUNTING

Client Hanford	
Contract TRC-SBB-207925	
Contract SDG H1120	

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

AVERAGES ± 2 SD FOR 10 SAMPLES				
	MDA	0.63	±	0.62
	YIELD	62	±	22

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-CMS
Version	3.06
Report date	12/28/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1120

Test 828 Matrix WATER
SDG 7548
Contact Melissa C. Mannion

METHOD SUMMARY

GROSS BETA IN WATER
GAS PROPORTIONAL COUNTING

Client Hanford
Contract TRC-SBB-207925
Contract SDG H1120

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 6962-055									
B10J15	R011053-10	82		7548-010	8.07				
B10J17	R011053-11	82		7548-011	U				
B10J27	R011053-09	82		7548-009	21.6		142	657	368
B10J31	R011053-05	82		7548-005	4.53				
B10J33	R011053-07	82		7548-007	3.49	J	14.9	427	441
B10J35	R011053-01	82		7548-001	7.99				
BLK (QC ID=36709)	R011053-13	82		7548-013	U				
LCS (QC ID=36708)	R011053-12	82		7548-012	ok				
Duplicate (R011053-11)	R011053-14	82		7548-014	-	U			
Nominal values and limits from method				RDLs (pCi/L)	4.0				
100 KR4 IAM (1 & 2)							Average 542		

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 6962-055	2σ prep error 15.0 % Reference Lab Notebook 6962 pg. 055															
B10J15	R011053-10	82		2.6	0.300			126		100			27	11/28/00	11/28	GRB-110
B10J17	R011053-11	82		1.9	0.300			0		100			28	11/28/00	11/29	GRB-113
B10J27	R011053-09	82		2.4	0.300			51		100			26	11/28/00	11/28	GRB-116
B10J31	R011053-05	82		2.2	0.300			83		100			26	11/28/00	11/28	GRB-114
B10J33	R011053-07	82		2.0	0.300			100		100			26	11/28/00	11/28	GRB-115
B10J35	R011053-01	82		2.5	0.300			87		100			39	11/28/00	12/11	GRB-116
BLK (QC ID=36709)	R011053-13	82		2.4	0.300			25		100				11/28/00	11/28	GRB-110
LCS (QC ID=36708)	R011053-12	82		2.3	0.300			28		100				11/28/00	11/28	GRB-112
Duplicate (R011053-11) (QC ID=36710)	R011053-14	82		2.3	0.300			1		100			40	11/28/00	12/11	GRB-110
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 12/28/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1120

Test 82B	Matrix WATER
SDG 7548	
Contact Melissa C. Mannion	

METHOD SUMMARY, cont.

GROSS BETA IN WATER

GAS PROPORTIONAL COUNTING

Client Hanford	
Contract TRC-SBB-207925	
Contract SDG H1120	

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

AVERAGES ± 2 SD	MDA	2.3	±	0.45
FOR 9 SAMPLES	RESIDUE	56	±	91

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-CMS
Version	3.06
Report date	12/28/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1120

Test 88A Matrix WATER
SDG 7548
Contact Melissa C. Mannion

METHOD SUMMARY

GROSS ALPHA IN WATER
GAS PROPORTIONAL COUNTING

Client Hanford
Contract TRC-SBB-207925
Contract SDG H1120

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Gross Alpha	
Preparation batch 6962-055						
B10J15	R011053-10	88		7548-010	2.57	J
B10J17	R011053-11	88		7548-011	U	
B10J27	R011053-09	88		7548-009	U	
B10J31	R011053-05	88		7548-005	U	
B10J33	R011053-07	88		7548-007	U	
B10J35	R011053-01	88		7548-001	2.25	J
BLK (QC ID=36709)	R011053-13	88		7548-013	U	
LCS (QC ID=36708)	R011053-12	88		7548-012	ok	
Duplicate (R011053-11)	R011053-14	88		7548-014	-	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 6962-055 2σ prep error 20.0 % Reference Lab Notebook 6962 pg. 055																
B10J15	R011053-10	88		2.4	0.300			136		100			44	11/28/00	12/15	GRB-115
B10J17	R011053-11	88		0.77	0.300			0		100			44	11/28/00	12/15	GRB-116
B10J27	R011053-09	88		1.3	0.300			52		100			43	11/28/00	12/15	GRB-114
B10J31	R011053-05	88		1.9	0.300			107		100			43	11/28/00	12/15	GRB-112
B10J33	R011053-07	88		2.5	0.300			102		100			43	11/28/00	12/15	GRB-113
B10J35	R011053-01	88		1.7	0.300			89		100			43	11/28/00	12/15	GRB-111
BLK (QC ID=36709)	R011053-13	88		1.0	0.300			25		100				11/28/00	12/15	GRB-112
LCS (QC ID=36708)	R011053-12	88		1.1	0.300			29		100				11/28/00	12/15	GRB-110
Duplicate (R011053-11) (QC ID=36710)	R011053-14	88		0.91	0.300			0		100			47	11/28/00	12/18	GRB-110
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 12/28/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1120

Test 88A	Matrix WATER
SDG 7548	
Contact Melissa C. Mannion	

METHOD SUMMARY, cont.

GROSS ALPHA IN WATER

GAS PROPORTIONAL COUNTING

Client Hanford	
Contract TRC-SBB-207925	
Contract SDG H1120	

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

AVERAGES ± 2 SD	MDA	1.5	±	1.3
FOR 9 SAMPLES	RESIDUE	60	±	100

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-CMS
Version	3.06
Report date	12/28/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1120

Test GAM Matrix WATER
SDG 7548
Contact Melissa C. Mannion

METHOD SUMMARY

GAMMA EMITTERS
GAMMA SCAN

Client Hanford
Contract TRC-SBB-207925
Contract SDG H1120

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Cobalt 60		Cesium 137	
Preparation batch 6962-055								
B10J15	R011053-10			7548-010	U		U	
B10J17	R011053-11			7548-011	U		U	
B10J27	R011053-09			7548-009	U		U	
B10J31	R011053-05			7548-005	U		U	
B10J33	R011053-07			7548-007	U		U	
B10J35	R011053-01			7548-001	U		U	
BLK (QC ID=36709)	R011053-13			7548-013	U		U	
LCS (QC ID=36708)	R011053-12			7548-012	ok		ok	
Duplicate (R011053-11)	R011053-14			7548-014	-	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 6962-055 2σ prep error 15.0 % Reference Lab Notebook 6962 pg. 055																
B10J15	R011053-10			13	0.500					467			28	11/28/00	11/29	MB,07,00
B10J17	R011053-11			7.1	0.500					323			28	11/28/00	11/29	01,04,00
B10J27	R011053-09			11	0.500					468			27	11/28/00	11/29	MB,05,00
B10J31	R011053-05			13	0.500					468			27	11/28/00	11/29	01,03,00
B10J33	R011053-07			6.2	0.500					468			27	11/28/00	11/29	01,04,00
B10J35	R011053-01			15	0.500					331			26	11/28/00	11/28	MB,07,00
BLK (QC ID=36709)	R011053-13			16	0.500					323				11/28/00	11/29	MB,07,00
LCS (QC ID=36708)	R011053-12			24	0.500					323				11/28/00	11/29	MB,05,00
Duplicate (R011053-11) (QC ID=36710)	R011053-14			7.4	0.500					322			28	11/28/00	11/29	01,04,00
Nominal values and limits from method				15	0.500					100			180			

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 12/28/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1120

METHOD SUMMARY, cont.

GAMMA EMITTERS

GAMMA SCAN

Test	GAM
Matrix	WATER
SDG	7548
Contact	Melissa C. Mannion

Client	Hanford
Contract	TRC-SBB-207925
Contract	SDG H1120

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

AVERAGES ± 2 SD	MDA	13	±	11
FOR 9 SAMPLES	YIELD		±	

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-CMS
Version	3.06
Report date	12/28/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1120

Test C Matrix WATER
SDG 7548
Contact Melissa C. Mannion

METHOD SUMMARY

CARBON 14 IN WATER

LIQUID SCINTILLATION COUNTING

Client Hanford
Contract TRC-SBB-207925
Contract SDG H1120

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Carbon 14	
Preparation batch 6962-055						
B10J15	R011053-10			7548-010	16300	
B10J17	R011053-11			7548-011	U	
B10J35	R011053-01			7548-001	180	J
BLK (QC ID=36709)	R011053-13			7548-013	U	
LCS (QC ID=36708)	R011053-12			7548-012	LOW	
Duplicate (R011053-11)	R011053-14			7548-014	-	U
Spike (R011053-11)	R011053-15			7548-015	ok	X
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											
B10J15	R011053-10			61	0.0300			100		58			39	12/07/00	12/10	LSC-004
B10J17	R011053-11			44	0.0300			100		100			39	12/07/00	12/10	LSC-004
B10J35	R011053-01			48	0.0300			100		100			38	12/07/00	12/10	LSC-004
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 (R011053-11) (QC ID=36710)	R011053-14			45	0.0300			100		100			39	12/07/00	12/10	LSC-004
Spike (R011053-11) (QC ID=36711)	R011053-15			140	0.0200			100		25			39	12/07/00	12/10	LSC-004
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 7 SAMPLES
MDA 64 ± 69
YIELD 100 ± 0

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 12/28/00

Test H Matrix WATER
SDG 7548
Contact Melissa C. Mannion

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1120

METHOD SUMMARY

TRITIUM IN WATER

LIQUID SCINTILLATION COUNTING

Client Hanford
Contract TRC-SBB-207925
Contract SDG H1120

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Tritium	
Preparation batch 6962-055						
B10HX3	R011053-03			7548-003	36200	
B10HX9	R011053-04			7548-004	177000	
B10HY0	R011053-06			7548-006	184000	
B10HY4	R011053-02			7548-002	U	
B10HY9	R011053-08			7548-008	917	U
B10J15	R011053-10			7548-010	8740000	
B10J17	R011053-11			7548-011	1010	
B10J27	R011053-09			7548-009	1120	
B10J31	R011053-05			7548-005	181000	
B10J33	R011053-07			7548-007	188000	
B10J35	R011053-01			7548-001	125000	
BLK (QC ID=36709)	R011053-13			7548-013	U	
LCS (QC ID=36708)	R011053-12			7548-012	ok	
Duplicate (R011053-11)	R011053-14			7548-014	ok	U
Spike (R011053-11)	R011053-15			7548-015	ok	

Nominal values and limits from method 100 KR4 IAM (1 & 2) RDLs (pCi/L) 400

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 12/28/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1120

Test H Matrix WATER
SDG 7548
Contact Melissa C. Mannion

METHOD SUMMARY

TRITIUM IN WATER
LIQUID SCINTILLATION COUNTING

Client Hanford
Contract TRC-SBB-207925
Contract SDG H1120

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																
B10HX3	R011053-03			980	0.0100			20		100			32	12/04/00	12/04	LSC-004
B10HX9	R011053-04			950	0.0100			20		100			32	12/04/00	12/04	LSC-004
B10HY0	R011053-06			980	0.0100			20		100			32	12/04/00	12/04	LSC-004
B10HY4	R011053-02			980	0.0100			20		100			32	12/04/00	12/04	LSC-004
B10HY9	R011053-08			990	0.0100			20		100			32	12/04/00	12/04	LSC-004
B10J15	R011053-10			1000	0.0100			20		100			33	12/04/00	12/04	LSC-004
B10J17	R011053-11			1000	0.0100			20		100			33	12/04/00	12/04	LSC-004
B10J27	R011053-09			960	0.0100			20		100			32	12/04/00	12/04	LSC-004
B10J31	R011053-05			970	0.0100			20		100			32	12/04/00	12/04	LSC-004
B10J33	R011053-07			980	0.0100			20		100			32	12/04/00	12/04	LSC-004
B10J35	R011053-01			970	0.0100			20		100			32	12/04/00	12/04	LSC-004
BLK (QC ID=36709)	R011053-13			1900	0.0100			10		100				12/04/00	12/05	LSC-004
LCS (QC ID=36708)	R011053-12			1900	0.0100			10		100				12/04/00	12/05	LSC-004
Duplicate (R011053-11) (QC ID=36710)	R011053-14			980	0.0100			20		100			34	12/04/00	12/05	LSC-004
Spike (R011053-11) (QC ID=36711)	R011053-15			1100	0.0100			18		100			34	12/04/00	12/05	LSC-004
Nominal values and limits from method				400	0.0100					25			180			

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

AVERAGES ± 2 SD FOR 15 SAMPLES
MDA 1100 ± 650
YIELD 19 ± 7

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 12/28/00

PNNL

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. # C01-007-7

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 H1120 (1548)	Purchase Order/Charge Code
Project Title: 100 KR4 IAM (1 & 2)	Logbook No.: WM-SAWS-H37	Ice Chest No.: SMC562 Temp.
Shipped To (Lab): TMA/RECRA	Method of Shipment: GOVT. VEHICLE	Bill of Lading/Air Bill No.: 4235795402 57
Protocol: CERCLA	Data Turnaround: 45 Days	Offsite Property No.

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
B10J34 (F)		W	11/2/00	1330	1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
B10J35		W			1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
B10J35		W			1x500-mL P	IC Anions - 300.0	Cool 4C
B10J35		W			1x20-mL P	Activity Scan	None
B10J35		W			2x1000-mL G/P	Gross Alpha	HNO3 to pH <2
B10J35		W			2x1000-mL G/P	Gross Beta	HNO3 to pH <2
B10J35		W			1x1000-mL G/P	Carbon-14	None
B10J35		W			1x1000-mL G/P	Gamma Spectroscopy(Water)	HNO3 to pH <2
B10J35		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		11/2/00	FedEx			11/02/00
FED. EXPRESS			11/03/00 9:30	E. Reguro			11-03-00 9:30

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. # C01-007-15

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 H1120 (7548)	Purchase Order/Charge Code
Project Title: 100 KR4 IAM (1 & 2)	Logbook No.: WM-5 AWS-H37	Ice Chest No.: SMC562 Temp.
Shipped To (Lab): TMA/RECRA	Method of Shipment: GOVT. VEHICLE	Bill of Lading/Air Bill No.: 4235795402 57
Protocol: CERCLA	Data Turnaround: 45 Days	Offsite Property No.

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
B10HY4		W	11/2/00	1032	1x20-mL P	Activity Scan	None
B10HY4		W		1032	2x1000-mL G/P	Strontium-89,90 -- Sr-90	HNO3 to pH <2
B10HY4		W		1032	1x250-mL P	Tritium - H3	None

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
D. R. BREWINGTON		D. R. Brewington	11/2/00 1413	FedEx			11/02/00
FED. Express			11/03/00 930	E. Arguro			11/03/00 9:30

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. # C01-007-19

Page 1 of 1

Collector: RR FOX (RFS)	Contact/Requester: JH KESSNER	Telephone No.: (509) 375-4688 MSIN FAX
SAF No.: C01-007	Sampling Origin: HANFORD SITE H1120 (7548)	Purchase Order/Charge Code
Project Title: 100 KR4 IAM (1 & 2)	Logbook No.: WM-SAWS-478	Ice Chest No.: ERL 96-039 Temp.
Shipped To (Lab): TMA/RECRA	Method of Shipment: GOVT. VEHICLE	Bill of Lading/Air Bill No.: 4235795402 35
Protocol: CERCLA	Data Turnaround: 45 Days	Offsite Property No.

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
B10HX3		W	11-2-00	1222	1x20-mL P	Activity Scan	None
B10HX3		W			2x1000-mL G/P	Strontium-89,90 – Sr-90	HNO3 to pH <2
B10HX3		W			1x250-mL P	Tritium - H3	None

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
RR FOX (RFS)			1430 11-2-00	Fed Ex			11/02/00
FED-Express			9:30 11/03/00	E. Segura			9:30 11/03/00

Matrix *

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

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

PNNL

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. # C01-007-23

Page 1 of 1

Collector: KB HULSE	Contact/Requester: JH KESSNER	Telephone No.: (509) 375-4688 MSIN FAX
SAF No.: C01-007	Sampling Origin: HANFORD SITE H1120 (7548)	Purchase Order/Charge Code
Project Title: 100 KR4 IAM (1 & 2)	Logbook No.: WM-SAWS-139	Ice Chest No.: JML533 Temp.
Shipped To (Lab): TMA/RECRA	Method of Shipment: GOVT. VEHICLE	Bill of Lading/Air Bill No.: 4235795 40246
Protocol: CERCLA	Data Turnaround: 45 Days	Offsite Property No.

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
B10HX9		W	11-2-00	1235	1x20-mL P	Activity Scan	None
B10HX9		W		11-2-00	2x1000-mL G/P	Strontium-89,90 – Sr-90	HNO3 to pH <2
B10HX9		W			1x250-mL P	Tritium - H3	None
B10J30 (F)		W			1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
B10J31		W			1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
B10J31		W			1x500-mL P	IC Anions - 300.0	Cool 4C
B10J31		W			2x1000-mL G/P	Gross Alpha	HNO3 to pH <2
B10J31		W			2x1000-mL G/P	Gross Beta	HNO3 to pH <2
B10J31		W			1x1000-mL G/P	Gamma Spectroscopy(Water)	HNO3 to pH <2
B10J31		W			1x250-mL P	Tritium - H3	None

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
KB HULSE			11-2-00 1430	FEDX			11/02/00
FED. EXPRESS			11-03-00 9:30		E.	Jeffers	11-03 9:30

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. # C01-007-24

Collector KB HULSE	Contact/Requester JH KESSNER	Telephone No. (509) 375-4688 MSIN FAX
SAF No. C01-007	Sampling Origin HANFORD SITE H1120 (7548)	Purchase Order/Charge Code
Project Title 100 KR4 IAM (1 & 2)	Logbook No. WM-SHWS-H39	Ice Chest No. SMC533 Temp.
Shipped To (Lab) TMA/RECRA	Method of Shipment GOVT. VEHICLE	Bill of Lading/Air Bill No. 4235795 40246
Protocol CERCLA	Data Turnaround 45 Days	Offsite Property No.

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
B10HY0 ✓		W	11-2-00	1235	1x20-mL P	Activity Scan ✓	None
B10HY0 ✓		W		11-2-00	2x1000-mL G/P	Strontium-89,90 -- Sr-90 ✓	HNO3 to pH <2
B10HY0 ✓		W			1x250-mL P	Tritium - H3 ✓	None
B10J32 (F) ✓		W			1x500-mL G/P	ICP Metals - 6010A RCRA GW ✓	HNO3 to pH <2
B10J33 ✓		W			1x500-mL G/P	ICP Metals - 6010A RCRA GW ✓	HNO3 to pH <2
B10J33 ✓		W			1x500-mL P	IC Anions - 300.0 ✓	Cool 4C
B10J33 ✓		W			2x1000-mL G/P	Gross Alpha ✓	HNO3 to pH <2
B10J33 ✓		W			2x1000-mL G/P	Gross Beta ✓	HNO3 to pH <2
B10J33 ✓		W			1x1000-mL G/P	Gamma Spectroscopy(Water) ✓	HNO3 to pH <2
B10J33 ✓		W			1x250-mL P	Tritium - H3 ✓	None

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
KB HULSE		KB Hulse	11-2-00 1450	FED X			11/02/00
FED. EXPRESS			11/02/00	FED. EXPRESS			11/03/00 9:30

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. # C01-007-33
		Page 1 of 1

Collector KB HULSE	Contact/Requester JH KESSNER	Telephone No. (509) 375-4688 MSIN FAX
SAF No. C01-007	Sampling Origin HANFORD SITE H1120 (7548)	Purchase Order/Charge Code
Project Title 100 KR4 IAM (1 & 2)	Logbook No. WM-SAWS-H39	Ice Chest No. SME-562 Temp.
Shipped To (Lab) TMA/RECRA	Method of Shipment GOVT. VEHICLE	Bill of Lading/Air Bill No. 4235795402 57
Protocol CERCLA	Data Turnaround 45 Days	Offsite Property No.

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
B10HY9 ✓		W	11-2-00	1009	1x20-mL P	Activity Scan	None
B10HY9 ✓		W			2x1000-mL G/P	Strontium-89,90 -- Sr-90 ✓	HNO3 to pH <2
B10HY9 ✓		W			1x250-mL P	Tritium - H3 ✓	None
B10J26 (F) ✓		W			1x500-mL G/P	ICP Metals - 6010A RCRA GW ✓	HNO3 to pH <2
B10J27 ✓		W			1x500-mL G/P	ICP Metals - 6010A RCRA GW ✓	HNO3 to pH <2
B10J27 ✓		W			1x500-mL P	IC Anions - 300.0 ✓	Cool 4C
B10J27 ✓		W			2x1000-mL G/P	Gross Alpha ✓	HNO3 to pH <2
B10J27 ✓		W			2x1000-mL G/P	Gross Beta ✓	HNO3 to pH <2
B10J27 ✓		W			1x1000-mL G/P	Gamma Spectroscopy(Water) ✓	HNO3 to pH <2
B10J27 ✓		W			1x250-mL P	Tritium - H3 ✓	None

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
KB HULSE		KB Hulse	11-2-00 1430	Fed Ex			11/02/00
FED. EXPRESS			11-03-00 9:30	E. Deguro			11/03/00 9:30

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. # C01-007-45

Page 1 of 1

Collector: RR FOX (RFS)	Contact/Requester: JH KESSNER	Telephone No.: (509) 375-4688 MSIN FAX
SAF No.: C01-007	Sampling Origin: HANFORD SITE H1120 (7548)	Purchase Order/Charge Code
Project Title: 100 KR4 IAM (1 & 2)	Logbook No.: WM-SAWS-H 38	Ice Chest No.: ERC-96-039 Temp.
Shipped To (Lab): TMA/RECRA	Method of Shipment: GOVT. VEHICLE	Bill of Lading/Air Bill No.: 4235795402 35
Protocol: CERCLA	Data Turnaround: 45 Days	Offsite Property No.

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
B10J14 (F) ✓		W	11-1-00	0922	1x500-mL G/P ✓	ICP Metals - 6010A RCRA GW ✓	HNO3 to pH <2
B10J15 ✓		W			1x500-mL G/P ✓	ICP Metals - 6010A RCRA GW ✓	HNO3 to pH <2
B10J15 ✓		W			1x500-mL P	IC Anions - 300.0 ✓	Cool 4C
B10J15 ✓		W			1x20-mL P ✓	Activity Scan ✓	None
B10J15 ✓		W			2x1000-mL G/P ✓	Gross Alpha ✓	HNO3 to pH <2
B10J15 ✓		W			2x1000-mL G/P	Gross Beta ✓	HNO3 to pH <2
B10J15 ✓		W			1x1000-mL G/P	Carbon-14 ✓	None
B10J15 ✓		W			1x1000-mL G/P	Gamma Spectroscopy(Water) ✓	HNO3 to pH <2
B10J15 ✓		W			2x1000-mL G/P	Strontium-89,90 – Sr-90 ✓	HNO3 to pH <2
B10J15 ✓		W			1x250-mL P	Tritium - H3 ✓	None

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
RR FOX (RFS)			1430 11-2-00	Fed Ex			11/03/00
FED-EXPRESS			11/03/00 9:30	L. Segura			11/03/00 9:30

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. # C01-007-46
		Page 1 of 1

Collector: RR FOX (RF8)	Contact/Requester: JH KESSNER	Telephone No.: (509) 375-4688 MSIN FAX
SAF No.: C01-007	Sampling Origin: HANFORD SITE H1120 (7548)	Purchase Order/Charge Code
Project Title: 100 KR4 IAM (1 & 2)	Logbook No.: WM-5AW5-H	Ice Chest No.: FRC 96-039 Temp.
Shipped To (Lab): TMA/RECRA	Method of Shipment: GOVT. VEHICLE	Bill of Lading/Air Bill No.: 4235795402 35
Protocol: CERCLA	Data Turnaround: 45 Days	Offsite Property No.

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
B10J16 (F)		W	11-02-00	0730	1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
B10J17		W			1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
B10J17		W			1x500-mL P	IC Anions - 300.0	Cool 4C
B10J17		W			1x20-mL P	Activity Scan	None
B10J17		W			2x1000-mL G/P	Gross Alpha	HNO3 to pH <2
B10J17		W			2x1000-mL G/P	Gross Beta	HNO3 to pH <2
B10J17		W			1x1000-mL G/P	Carbon-14	None
B10J17		W			1x1000-mL G/P	Gamma Spectroscopy(Water)	HNO3 to pH <2
B10J17		W			2x1000-mL G/P	Strontium-89,90 – Sr-90	HNO3 to pH <2
B10J17		W			1x250-mL P	Tritium - H3	None

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
RR FOX (RF8)			11-2-00 1450	Fed Ex			11/02/00
FED-Express			11/03/00	E-Argun			11/03/00 9:30

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

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: 11/03/00

Ice chest # or description	ERC-96039					
Thermometer: time in	10:45					
Thermometer: time out	11:25					
Thermometer reading	4°c					
Thermometer number	6536					
Correction factor						
Actual temperature*						
Custody seals on ice chest intact?	NO					
Custody seals dated ?	—					
Custody seals signed?	—					
Custody seals on samples?	Yes					
Ice chest scanned for activity?	Yes					

* 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: Battelle Hanford Date: 11-9-00

Ice chest # or description	SML-562					
Thermometer: time in	12:50					
Thermometer: time out	14:00					
Thermometer reading	3°C					
Thermometer number	6536					
Correction factor	—					
Actual temperature*	—					
Custody seals on ice chest intact?	Yes					
Custody seals dated ?	[illegible]					
Custody seals signed?	Yes					
Custody seals on samples?	Yes					
Ice chest scanned for activity?	Yes					

* Temperature is in degrees centigrade.

Technician: [illegible]

Comments:

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

"50 years of quality nuclear services"

ThermoRetec
Richmond Laboratory

Analytical Services

ICE CHEST RECEIPT LOG

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

Customer: Berkitel Hanford Date: 11-3-00

Ice chest # or description	SML-533					
Thermometer: time in	12:45					
Thermometer: time out	14:00					
Thermometer reading	2.°C					
Thermometer number	2132					
Correction factor	—					
Actual temperature*	—					
Custody seals on ice chest intact?	yes					
Custody seals dated ?	yes					
Custody seals signed?	yes					
Custody seals on samples?	yes					
Ice chest scanned for activity?	yes					

* Temperature is in degrees centigrade.

Technician:_____

Comments:_____

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

"50 years of quality nuclear services"

ThermoRetec
Richmond Laboratory

Analytical Services

SAMPLE RECEIPT CHECKLIST

SAMPLE RECEIPT

Client (WMTS) BECHTEL HANFORD (PNNL) Date/Time received 11-03-00 9:30 AM

CoC No. C01-007-7, 15, 19, 23, 24, 33, 45, 46,

Container I.D. No. _____ 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: 17
7. Number of containers per sample: PLEASE REFER (Or see CoC _____)
8. Paperwork agrees with samples? Yes [✓] No [ ]
9. Samples have: Tape [ ] Hazard labels [ ] Rad labels [ ] Appropriate sample labels [✓]
10. Samples are: In good condition [✓] Leaking [ ] Broken Container [ ] Missing [ ]
11. Describe any anomalies: _____
13. Was P.M. notified of any anomalies? Yes [ ] No [ ] Date _____
14. Received by E. Segura Date: 11-03-00 Time: 9:30 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 _____

JAN 2001
RECEIVED

Recra LabNet - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD C01-007 H1120

DATE RECEIVED: 11/09/00 RFW LOT # :0011L199

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B10J34						
SILVER, TOTAL	001	W	99L1809	11/02/00	12/13/00	12/16/00
ALUMINUM, TOTAL	001	W	99L1809	11/02/00	12/13/00	12/16/00
BARIUM, TOTAL	001	W	99L1809	11/02/00	12/13/00	12/16/00
BERYLLIUM, TOTAL	001	W	99L1809	11/02/00	12/13/00	12/16/00
CALCIUM, TOTAL	001	W	99L1809	11/02/00	12/13/00	12/16/00
CADMIUM, TOTAL	001	W	99L1809	11/02/00	12/13/00	12/16/00
COBALT, TOTAL	001	W	99L1809	11/02/00	12/13/00	12/16/00
CHROMIUM, TOTAL	001	W	99L1809	11/02/00	12/13/00	12/16/00
COPPER, TOTAL	001	W	99L1809	11/02/00	12/13/00	12/16/00
IRON, TOTAL	001	W	99L1809	11/02/00	12/13/00	12/16/00
POTASSIUM, TOTAL	001	W	99L1809	11/02/00	12/13/00	12/16/00
MAGNESIUM, TOTAL	001	W	99L1809	11/02/00	12/13/00	12/16/00
MANGANESE, TOTAL	001	W	99L1809	11/02/00	12/13/00	12/16/00
SODIUM, TOTAL	001	W	99L1809	11/02/00	12/13/00	12/16/00
NICKEL, TOTAL	001	W	99L1809	11/02/00	12/13/00	12/16/00
ANTIMONY, TOTAL	001	W	99L1809	11/02/00	12/13/00	12/16/00
STRONTIUM, TOTAL	001	W	99L1809	11/02/00	12/13/00	12/16/00
VANADIUM, TOTAL	001	W	99L1809	11/02/00	12/13/00	12/16/00
ZINC, TOTAL	001	W	99L1809	11/02/00	12/13/00	12/16/00
B10J35						
SILVER, TOTAL	002	W	99L1809	11/02/00	12/13/00	12/16/00
SILVER, TOTAL	002 REP	W	99L1809	11/02/00	12/13/00	12/16/00
SILVER, TOTAL	002 MS	W	99L1809	11/02/00	12/13/00	12/16/00
ALUMINUM, TOTAL	002	W	99L1809	11/02/00	12/13/00	12/16/00
ALUMINUM, TOTAL	002 REP	W	99L1809	11/02/00	12/13/00	12/16/00
ALUMINUM, TOTAL	002 MS	W	99L1809	11/02/00	12/13/00	12/16/00
BARIUM, TOTAL	002	W	99L1809	11/02/00	12/13/00	12/16/00
BARIUM, TOTAL	002 REP	W	99L1809	11/02/00	12/13/00	12/16/00
BARIUM, TOTAL	002 MS	W	99L1809	11/02/00	12/13/00	12/16/00
BERYLLIUM, TOTAL	002	W	99L1809	11/02/00	12/13/00	12/16/00
BERYLLIUM, TOTAL	002 REP	W	99L1809	11/02/00	12/13/00	12/16/00
BERYLLIUM, TOTAL	002 MS	W	99L1809	11/02/00	12/13/00	12/16/00
CALCIUM, TOTAL	002	W	99L1809	11/02/00	12/13/00	12/16/00

Recra LabNet - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD C01-007 H1120

DATE RECEIVED: 11/09/00 RFW LOT # :0011L199

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
CALCIUM, TOTAL	002 REP	W	99L1809	11/02/00	12/13/00	12/16/00
CALCIUM, TOTAL	002 MS	W	99L1809	11/02/00	12/13/00	12/16/00
CADMIUM, TOTAL	002	W	99L1809	11/02/00	12/13/00	12/16/00
CADMIUM, TOTAL	002 REP	W	99L1809	11/02/00	12/13/00	12/16/00
CADMIUM, TOTAL	002 MS	W	99L1809	11/02/00	12/13/00	12/16/00
COBALT, TOTAL	002	W	99L1809	11/02/00	12/13/00	12/16/00
COBALT, TOTAL	002 REP	W	99L1809	11/02/00	12/13/00	12/16/00
COBALT, TOTAL	002 MS	W	99L1809	11/02/00	12/13/00	12/16/00
CHROMIUM, TOTAL	002	W	99L1809	11/02/00	12/13/00	12/16/00
CHROMIUM, TOTAL	002 REP	W	99L1809	11/02/00	12/13/00	12/16/00
CHROMIUM, TOTAL	002 MS	W	99L1809	11/02/00	12/13/00	12/16/00
COPPER, TOTAL	002	W	99L1809	11/02/00	12/13/00	12/16/00
COPPER, TOTAL	002 REP	W	99L1809	11/02/00	12/13/00	12/16/00
COPPER, TOTAL	002 MS	W	99L1809	11/02/00	12/13/00	12/16/00
IRON, TOTAL	002	W	99L1809	11/02/00	12/13/00	12/16/00
IRON, TOTAL	002 REP	W	99L1809	11/02/00	12/13/00	12/16/00
IRON, TOTAL	002 MS	W	99L1809	11/02/00	12/13/00	12/16/00
POTASSIUM, TOTAL	002	W	99L1809	11/02/00	12/13/00	12/16/00
POTASSIUM, TOTAL	002 REP	W	99L1809	11/02/00	12/13/00	12/16/00
POTASSIUM, TOTAL	002 MS	W	99L1809	11/02/00	12/13/00	12/16/00
MAGNESIUM, TOTAL	002	W	99L1809	11/02/00	12/13/00	12/16/00
MAGNESIUM, TOTAL	002 REP	W	99L1809	11/02/00	12/13/00	12/16/00
MAGNESIUM, TOTAL	002 MS	W	99L1809	11/02/00	12/13/00	12/16/00
MANGANESE, TOTAL	002	W	99L1809	11/02/00	12/13/00	12/16/00
MANGANESE, TOTAL	002 REP	W	99L1809	11/02/00	12/13/00	12/16/00
MANGANESE, TOTAL	002 MS	W	99L1809	11/02/00	12/13/00	12/16/00
SODIUM, TOTAL	002	W	99L1809	11/02/00	12/13/00	12/16/00
SODIUM, TOTAL	002 REP	W	99L1809	11/02/00	12/13/00	12/16/00
SODIUM, TOTAL	002 MS	W	99L1809	11/02/00	12/13/00	12/16/00
NICKEL, TOTAL	002	W	99L1809	11/02/00	12/13/00	12/16/00
NICKEL, TOTAL	002 REP	W	99L1809	11/02/00	12/13/00	12/16/00
NICKEL, TOTAL	002 MS	W	99L1809	11/02/00	12/13/00	12/16/00
ANTIMONY, TOTAL	002	W	99L1809	11/02/00	12/13/00	12/16/00
ANTIMONY, TOTAL	002 REP	W	99L1809	11/02/00	12/13/00	12/16/00
ANTIMONY, TOTAL	002 MS	W	99L1809	11/02/00	12/13/00	12/16/00
STRONTIUM, TOTAL	002	W	99L1809	11/02/00	12/13/00	12/16/00
STRONTIUM, TOTAL	002 REP	W	99L1809	11/02/00	12/13/00	12/16/00
STRONTIUM, TOTAL	002 MS	W	99L1809	11/02/00	12/13/00	12/16/00

Recra LabNet - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD C01-007 H1120

DATE RECEIVED: 11/09/00 RFW LOT # :0011L199

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
VANADIUM, TOTAL	002	W	99L1809	11/02/00	12/13/00	12/16/00
VANADIUM, TOTAL	002 REP	W	99L1809	11/02/00	12/13/00	12/16/00
VANADIUM, TOTAL	002 MS	W	99L1809	11/02/00	12/13/00	12/16/00
ZINC, TOTAL	002	W	99L1809	11/02/00	12/13/00	12/16/00
ZINC, TOTAL	002 REP	W	99L1809	11/02/00	12/13/00	12/16/00
ZINC, TOTAL	002 MS	W	99L1809	11/02/00	12/13/00	12/16/00
B10J30						
SILVER, TOTAL	003	W	99L1809	11/02/00	12/13/00	12/16/00
ALUMINUM, TOTAL	003	W	99L1809	11/02/00	12/13/00	12/16/00
BARIUM, TOTAL	003	W	99L1809	11/02/00	12/13/00	12/16/00
BERYLLIUM, TOTAL	003	W	99L1809	11/02/00	12/13/00	12/16/00
CALCIUM, TOTAL	003	W	99L1809	11/02/00	12/13/00	12/16/00
CADMIUM, TOTAL	003	W	99L1809	11/02/00	12/13/00	12/16/00
COBALT, TOTAL	003	W	99L1809	11/02/00	12/13/00	12/16/00
CHROMIUM, TOTAL	003	W	99L1809	11/02/00	12/13/00	12/16/00
COPPER, TOTAL	003	W	99L1809	11/02/00	12/13/00	12/16/00
IRON, TOTAL	003	W	99L1809	11/02/00	12/13/00	12/16/00
POTASSIUM, TOTAL	003	W	99L1809	11/02/00	12/13/00	12/16/00
MAGNESIUM, TOTAL	003	W	99L1809	11/02/00	12/13/00	12/16/00
MANGANESE, TOTAL	003	W	99L1809	11/02/00	12/13/00	12/16/00
SODIUM, TOTAL	003	W	99L1809	11/02/00	12/13/00	12/16/00
NICKEL, TOTAL	003	W	99L1809	11/02/00	12/13/00	12/16/00
ANTIMONY, TOTAL	003	W	99L1809	11/02/00	12/13/00	12/16/00
STRONTIUM, TOTAL	003	W	99L1809	11/02/00	12/13/00	12/16/00
VANADIUM, TOTAL	003	W	99L1809	11/02/00	12/13/00	12/16/00
ZINC, TOTAL	003	W	99L1809	11/02/00	12/13/00	12/16/00
B10J31						
SILVER, TOTAL	004	W	99L1809	11/02/00	12/13/00	12/16/00
ALUMINUM, TOTAL	004	W	99L1809	11/02/00	12/13/00	12/16/00
BARIUM, TOTAL	004	W	99L1809	11/02/00	12/13/00	12/16/00
BERYLLIUM, TOTAL	004	W	99L1809	11/02/00	12/13/00	12/16/00
CALCIUM, TOTAL	004	W	99L1809	11/02/00	12/13/00	12/16/00
CADMIUM, TOTAL	004	W	99L1809	11/02/00	12/13/00	12/16/00
COBALT, TOTAL	004	W	99L1809	11/02/00	12/13/00	12/16/00

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INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD C01-007 H1120

DATE RECEIVED: 11/09/00 RFW LOT # :0011L199

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
CHROMIUM, TOTAL	004	W	99L1809	11/02/00	12/13/00	12/16/00
COPPER, TOTAL	004	W	99L1809	11/02/00	12/13/00	12/16/00
IRON, TOTAL	004	W	99L1809	11/02/00	12/13/00	12/16/00
POTASSIUM, TOTAL	004	W	99L1809	11/02/00	12/13/00	12/16/00
MAGNESIUM, TOTAL	004	W	99L1809	11/02/00	12/13/00	12/16/00
MANGANESE, TOTAL	004	W	99L1809	11/02/00	12/13/00	12/16/00
SODIUM, TOTAL	004	W	99L1809	11/02/00	12/13/00	12/16/00
NICKEL, TOTAL	004	W	99L1809	11/02/00	12/13/00	12/16/00
ANTIMONY, TOTAL	004	W	99L1809	11/02/00	12/13/00	12/16/00
STRONTIUM, TOTAL	004	W	99L1809	11/02/00	12/13/00	12/16/00
VANADIUM, TOTAL	004	W	99L1809	11/02/00	12/13/00	12/16/00
ZINC, TOTAL	004	W	99L1809	11/02/00	12/13/00	12/16/00
B10J32						
SILVER, TOTAL	005	W	99L1809	11/02/00	12/13/00	12/16/00
ALUMINUM, TOTAL	005	W	99L1809	11/02/00	12/13/00	12/16/00
BARIUM, TOTAL	005	W	99L1809	11/02/00	12/13/00	12/16/00
BERYLLIUM, TOTAL	005	W	99L1809	11/02/00	12/13/00	12/16/00
CALCIUM, TOTAL	005	W	99L1809	11/02/00	12/13/00	12/16/00
CADMIUM, TOTAL	005	W	99L1809	11/02/00	12/13/00	12/16/00
COBALT, TOTAL	005	W	99L1809	11/02/00	12/13/00	12/16/00
CHROMIUM, TOTAL	005	W	99L1809	11/02/00	12/13/00	12/16/00
COPPER, TOTAL	005	W	99L1809	11/02/00	12/13/00	12/16/00
IRON, TOTAL	005	W	99L1809	11/02/00	12/13/00	12/16/00
POTASSIUM, TOTAL	005	W	99L1809	11/02/00	12/13/00	12/16/00
MAGNESIUM, TOTAL	005	W	99L1809	11/02/00	12/13/00	12/16/00
MANGANESE, TOTAL	005	W	99L1809	11/02/00	12/13/00	12/16/00
SODIUM, TOTAL	005	W	99L1809	11/02/00	12/13/00	12/16/00
NICKEL, TOTAL	005	W	99L1809	11/02/00	12/13/00	12/16/00
ANTIMONY, TOTAL	005	W	99L1809	11/02/00	12/13/00	12/16/00
STRONTIUM, TOTAL	005	W	99L1809	11/02/00	12/13/00	12/18/00
VANADIUM, TOTAL	005	W	99L1809	11/02/00	12/13/00	12/16/00
ZINC, TOTAL	005	W	99L1809	11/02/00	12/13/00	12/16/00
B10J33						
SILVER, TOTAL	006	W	99L1809	11/02/00	12/13/00	12/16/00

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INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD C01-007 H1120

DATE RECEIVED: 11/09/00 RFW LOT # :0011L199

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
ALUMINUM, TOTAL	006	W	99L1809	11/02/00	12/13/00	12/16/00
BARIUM, TOTAL	006	W	99L1809	11/02/00	12/13/00	12/16/00
BERYLLIUM, TOTAL	006	W	99L1809	11/02/00	12/13/00	12/16/00
CALCIUM, TOTAL	006	W	99L1809	11/02/00	12/13/00	12/16/00
CADMIUM, TOTAL	006	W	99L1809	11/02/00	12/13/00	12/16/00
COBALT, TOTAL	006	W	99L1809	11/02/00	12/13/00	12/16/00
CHROMIUM, TOTAL	006	W	99L1809	11/02/00	12/13/00	12/16/00
COPPER, TOTAL	006	W	99L1809	11/02/00	12/13/00	12/16/00
IRON, TOTAL	006	W	99L1809	11/02/00	12/13/00	12/16/00
POTASSIUM, TOTAL	006	W	99L1809	11/02/00	12/13/00	12/16/00
MAGNESIUM, TOTAL	006	W	99L1809	11/02/00	12/13/00	12/16/00
MANGANESE, TOTAL	006	W	99L1809	11/02/00	12/13/00	12/16/00
SODIUM, TOTAL	006	W	99L1809	11/02/00	12/13/00	12/16/00
NICKEL, TOTAL	006	W	99L1809	11/02/00	12/13/00	12/16/00
ANTIMONY, TOTAL	006	W	99L1809	11/02/00	12/13/00	12/16/00
STRONTIUM, TOTAL	006	W	99L1809	11/02/00	12/13/00	12/18/00
VANADIUM, TOTAL	006	W	99L1809	11/02/00	12/13/00	12/16/00
ZINC, TOTAL	006	W	99L1809	11/02/00	12/13/00	12/16/00
B10J26						
SILVER, TOTAL	007	W	99L1809	11/02/00	12/13/00	12/16/00
ALUMINUM, TOTAL	007	W	99L1809	11/02/00	12/13/00	12/16/00
BARIUM, TOTAL	007	W	99L1809	11/02/00	12/13/00	12/16/00
BERYLLIUM, TOTAL	007	W	99L1809	11/02/00	12/13/00	12/16/00
CALCIUM, TOTAL	007	W	99L1809	11/02/00	12/13/00	12/16/00
CADMIUM, TOTAL	007	W	99L1809	11/02/00	12/13/00	12/16/00
COBALT, TOTAL	007	W	99L1809	11/02/00	12/13/00	12/16/00
CHROMIUM, TOTAL	007	W	99L1809	11/02/00	12/13/00	12/16/00
COPPER, TOTAL	007	W	99L1809	11/02/00	12/13/00	12/16/00
IRON, TOTAL	007	W	99L1809	11/02/00	12/13/00	12/16/00
POTASSIUM, TOTAL	007	W	99L1809	11/02/00	12/13/00	12/16/00
MAGNESIUM, TOTAL	007	W	99L1809	11/02/00	12/13/00	12/16/00
MANGANESE, TOTAL	007	W	99L1809	11/02/00	12/13/00	12/16/00
SODIUM, TOTAL	007	W	99L1809	11/02/00	12/13/00	12/16/00
NICKEL, TOTAL	007	W	99L1809	11/02/00	12/13/00	12/16/00
ANTIMONY, TOTAL	007	W	99L1809	11/02/00	12/13/00	12/16/00
STRONTIUM, TOTAL	007	W	99L1809	11/02/00	12/13/00	12/18/00

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INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD C01-007 H1120

DATE RECEIVED: 11/09/00 RFW LOT # :0011L199

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
VANADIUM, TOTAL	007	W	99L1809	11/02/00	12/13/00	12/16/00
ZINC, TOTAL	007	W	99L1809	11/02/00	12/13/00	12/16/00
B10J27						
SILVER, TOTAL	008	W	99L1809	11/02/00	12/13/00	12/16/00
ALUMINUM, TOTAL	008	W	99L1809	11/02/00	12/13/00	12/16/00
BARIUM, TOTAL	008	W	99L1809	11/02/00	12/13/00	12/16/00
BERYLLIUM, TOTAL	008	W	99L1809	11/02/00	12/13/00	12/16/00
CALCIUM, TOTAL	008	W	99L1809	11/02/00	12/13/00	12/16/00
CADMIUM, TOTAL	008	W	99L1809	11/02/00	12/13/00	12/16/00
COBALT, TOTAL	008	W	99L1809	11/02/00	12/13/00	12/16/00
CHROMIUM, TOTAL	008	W	99L1809	11/02/00	12/13/00	12/16/00
COPPER, TOTAL	008	W	99L1809	11/02/00	12/13/00	12/16/00
IRON, TOTAL	008	W	99L1809	11/02/00	12/13/00	12/16/00
POTASSIUM, TOTAL	008	W	99L1809	11/02/00	12/13/00	12/16/00
MAGNESIUM, TOTAL	008	W	99L1809	11/02/00	12/13/00	12/16/00
MANGANESE, TOTAL	008	W	99L1809	11/02/00	12/13/00	12/16/00
SODIUM, TOTAL	008	W	99L1809	11/02/00	12/13/00	12/16/00
NICKEL, TOTAL	008	W	99L1809	11/02/00	12/13/00	12/16/00
ANTIMONY, TOTAL	008	W	99L1809	11/02/00	12/13/00	12/16/00
STRONTIUM, TOTAL	008	W	99L1809	11/02/00	12/13/00	12/18/00
VANADIUM, TOTAL	008	W	99L1809	11/02/00	12/13/00	12/16/00
ZINC, TOTAL	008	W	99L1809	11/02/00	12/13/00	12/16/00
B10J14						
SILVER, TOTAL	009	W	99L1809	11/01/00	12/13/00	12/16/00
ALUMINUM, TOTAL	009	W	99L1809	11/01/00	12/13/00	12/16/00
BARIUM, TOTAL	009	W	99L1809	11/01/00	12/13/00	12/16/00
BERYLLIUM, TOTAL	009	W	99L1809	11/01/00	12/13/00	12/16/00
CALCIUM, TOTAL	009	W	99L1809	11/01/00	12/13/00	12/16/00
CADMIUM, TOTAL	009	W	99L1809	11/01/00	12/13/00	12/16/00
COBALT, TOTAL	009	W	99L1809	11/01/00	12/13/00	12/16/00
CHROMIUM, TOTAL	009	W	99L1809	11/01/00	12/13/00	12/16/00
COPPER, TOTAL	009	W	99L1809	11/01/00	12/13/00	12/16/00
IRON, TOTAL	009	W	99L1809	11/01/00	12/13/00	12/16/00
POTASSIUM, TOTAL	009	W	99L1809	11/01/00	12/13/00	12/16/00

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INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD C01-007 H1120

DATE RECEIVED: 11/09/00 RFW LOT # :0011L199

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
MAGNESIUM, TOTAL	009	W	99L1809	11/01/00	12/13/00	12/16/00
MANGANESE, TOTAL	009	W	99L1809	11/01/00	12/13/00	12/16/00
SODIUM, TOTAL	009	W	99L1809	11/01/00	12/13/00	12/16/00
NICKEL, TOTAL	009	W	99L1809	11/01/00	12/13/00	12/16/00
ANTIMONY, TOTAL	009	W	99L1809	11/01/00	12/13/00	12/16/00
STRONTIUM, TOTAL	009	W	99L1809	11/01/00	12/13/00	12/18/00
VANADIUM, TOTAL	009	W	99L1809	11/01/00	12/13/00	12/16/00
ZINC, TOTAL	009	W	99L1809	11/01/00	12/13/00	12/16/00
B10J15						
SILVER, TOTAL	010	W	99L1809	11/01/00	12/13/00	12/16/00
ALUMINUM, TOTAL	010	W	99L1809	11/01/00	12/13/00	12/16/00
BARIUM, TOTAL	010	W	99L1809	11/01/00	12/13/00	12/16/00
BERYLLIUM, TOTAL	010	W	99L1809	11/01/00	12/13/00	12/16/00
CALCIUM, TOTAL	010	W	99L1809	11/01/00	12/13/00	12/16/00
CADMIUM, TOTAL	010	W	99L1809	11/01/00	12/13/00	12/16/00
COBALT, TOTAL	010	W	99L1809	11/01/00	12/13/00	12/16/00
CHROMIUM, TOTAL	010	W	99L1809	11/01/00	12/13/00	12/16/00
COPPER, TOTAL	010	W	99L1809	11/01/00	12/13/00	12/16/00
IRON, TOTAL	010	W	99L1809	11/01/00	12/13/00	12/16/00
POTASSIUM, TOTAL	010	W	99L1809	11/01/00	12/13/00	12/16/00
MAGNESIUM, TOTAL	010	W	99L1809	11/01/00	12/13/00	12/16/00
MANGANESE, TOTAL	010	W	99L1809	11/01/00	12/13/00	12/16/00
SODIUM, TOTAL	010	W	99L1809	11/01/00	12/13/00	12/16/00
NICKEL, TOTAL	010	W	99L1809	11/01/00	12/13/00	12/16/00
ANTIMONY, TOTAL	010	W	99L1809	11/01/00	12/13/00	12/16/00
STRONTIUM, TOTAL	010	W	99L1809	11/01/00	12/13/00	12/18/00
VANADIUM, TOTAL	010	W	99L1809	11/01/00	12/13/00	12/16/00
ZINC, TOTAL	010	W	99L1809	11/01/00	12/13/00	12/16/00
B10J16						
SILVER, TOTAL	011	W	99L1809	11/01/00	12/13/00	12/16/00
ALUMINUM, TOTAL	011	W	99L1809	11/01/00	12/13/00	12/16/00
BARIUM, TOTAL	011	W	99L1809	11/01/00	12/13/00	12/16/00
BERYLLIUM, TOTAL	011	W	99L1809	11/01/00	12/13/00	12/16/00
CALCIUM, TOTAL	011	W	99L1809	11/01/00	12/13/00	12/16/00

Recra LabNet - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD C01-007 H1120

DATE RECEIVED: 11/09/00 RFW LOT # :0011L199

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
CADMIUM, TOTAL	011	W	99L1809	11/01/00	12/13/00	12/16/00
COBALT, TOTAL	011	W	99L1809	11/01/00	12/13/00	12/16/00
CHROMIUM, TOTAL	011	W	99L1809	11/01/00	12/13/00	12/16/00
COPPER, TOTAL	011	W	99L1809	11/01/00	12/13/00	12/16/00
IRON, TOTAL	011	W	99L1809	11/01/00	12/13/00	12/16/00
POTASSIUM, TOTAL	011	W	99L1809	11/01/00	12/13/00	12/16/00
MAGNESIUM, TOTAL	011	W	99L1809	11/01/00	12/13/00	12/16/00
MANGANESE, TOTAL	011	W	99L1809	11/01/00	12/13/00	12/16/00
SODIUM, TOTAL	011	W	99L1809	11/01/00	12/13/00	12/16/00
NICKEL, TOTAL	011	W	99L1809	11/01/00	12/13/00	12/16/00
ANTIMONY, TOTAL	011	W	99L1809	11/01/00	12/13/00	12/16/00
STRONTIUM, TOTAL	011	W	99L1809	11/01/00	12/13/00	12/18/00
VANADIUM, TOTAL	011	W	99L1809	11/01/00	12/13/00	12/16/00
ZINC, TOTAL	011	W	99L1809	11/01/00	12/13/00	12/16/00
B10J17						
SILVER, TOTAL	012	W	99L1809	11/01/00	12/13/00	12/16/00
ALUMINUM, TOTAL	012	W	99L1809	11/01/00	12/13/00	12/16/00
BARIUM, TOTAL	012	W	99L1809	11/01/00	12/13/00	12/16/00
BERYLLIUM, TOTAL	012	W	99L1809	11/01/00	12/13/00	12/16/00
CALCIUM, TOTAL	012	W	99L1809	11/01/00	12/13/00	12/16/00
CADMIUM, TOTAL	012	W	99L1809	11/01/00	12/13/00	12/16/00
COBALT, TOTAL	012	W	99L1809	11/01/00	12/13/00	12/16/00
CHROMIUM, TOTAL	012	W	99L1809	11/01/00	12/13/00	12/16/00
COPPER, TOTAL	012	W	99L1809	11/01/00	12/13/00	12/16/00
IRON, TOTAL	012	W	99L1809	11/01/00	12/13/00	12/16/00
POTASSIUM, TOTAL	012	W	99L1809	11/01/00	12/13/00	12/16/00
MAGNESIUM, TOTAL	012	W	99L1809	11/01/00	12/13/00	12/16/00
MANGANESE, TOTAL	012	W	99L1809	11/01/00	12/13/00	12/16/00
SODIUM, TOTAL	012	W	99L1809	11/01/00	12/13/00	12/16/00
NICKEL, TOTAL	012	W	99L1809	11/01/00	12/13/00	12/16/00
ANTIMONY, TOTAL	012	W	99L1809	11/01/00	12/13/00	12/16/00
STRONTIUM, TOTAL	012	W	99L1809	11/01/00	12/13/00	12/18/00
VANADIUM, TOTAL	012	W	99L1809	11/01/00	12/13/00	12/16/00
ZINC, TOTAL	012	W	99L1809	11/01/00	12/13/00	12/16/00

LAB QC:

SILVER LABORATORY	LC1 BS	W	99L1809	N/A	12/13/00	12/16/00

Recra LabNet - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD C01-007 H1120

DATE RECEIVED: 11/09/00 RFW LOT # :0011L199

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
SILVER, TOTAL	MB1	W	99L1809	N/A	12/13/00	12/16/00
ALUMINUM LABORTORY	LC1 BS	W	99L1809	N/A	12/13/00	12/16/00
ALUMINUM, TOTAL	MB1	W	99L1809	N/A	12/13/00	12/16/00
BARIUM LABORATORY	LC1 BS	W	99L1809	N/A	12/13/00	12/16/00
BARIUM, TOTAL	MB1	W	99L1809	N/A	12/13/00	12/16/00
BERYLLIUM LABORATORY	LC1 BS	W	99L1809	N/A	12/13/00	12/16/00
BERYLLIUM, TOTAL	MB1	W	99L1809	N/A	12/13/00	12/16/00
CALCIUM LABORATORY	LC1 BS	W	99L1809	N/A	12/13/00	12/16/00
CALCIUM, TOTAL	MB1	W	99L1809	N/A	12/13/00	12/16/00
CADMIUM LABORATORY	LC1 BS	W	99L1809	N/A	12/13/00	12/16/00
CADMIUM, TOTAL	MB1	W	99L1809	N/A	12/13/00	12/16/00
COBALT LABORATORY	LC1 BS	W	99L1809	N/A	12/13/00	12/16/00
COBALT, TOTAL	MB1	W	99L1809	N/A	12/13/00	12/16/00
CHROMIUM LABORATORY	LC1 BS	W	99L1809	N/A	12/13/00	12/16/00
CHROMIUM, TOTAL	MB1	W	99L1809	N/A	12/13/00	12/16/00
COPPER LABORATORY	LC1 BS	W	99L1809	N/A	12/13/00	12/16/00
COPPER, TOTAL	MB1	W	99L1809	N/A	12/13/00	12/16/00
IRON LABORATORY	LC1 BS	W	99L1809	N/A	12/13/00	12/16/00
IRON, TOTAL	MB1	W	99L1809	N/A	12/13/00	12/16/00
POTASSIUM LABORATORY	LC1 BS	W	99L1809	N/A	12/13/00	12/16/00
POTASSIUM, TOTAL	MB1	W	99L1809	N/A	12/13/00	12/16/00
MAGNESIUM LABORATORY	LC1 BS	W	99L1809	N/A	12/13/00	12/16/00
MAGNESIUM, TOTAL	MB1	W	99L1809	N/A	12/13/00	12/16/00
MANGANESE LABORATORY	LC1 BS	W	99L1809	N/A	12/13/00	12/16/00
MANGANESE, TOTAL	MB1	W	99L1809	N/A	12/13/00	12/16/00
SODIUM LABORATORY	LC1 BS	W	99L1809	N/A	12/13/00	12/16/00
SODIUM, TOTAL	MB1	W	99L1809	N/A	12/13/00	12/16/00
NICKEL LABORATORY	LC1 BS	W	99L1809	N/A	12/13/00	12/16/00
NICKEL, TOTAL	MB1	W	99L1809	N/A	12/13/00	12/16/00
ANTIMONY LABORATORY	LC1 BS	W	99L1809	N/A	12/13/00	12/16/00
ANTIMONY, TOTAL	MB1	W	99L1809	N/A	12/13/00	12/16/00
STRONTIUM LCS STANDA	LC1 BS	W	99L1809	N/A	12/13/00	12/16/00
STRONTIUM, TOTAL	MB1	W	99L1809	N/A	12/13/00	12/16/00
VANADIUM LABORATORY	LC1 BS	W	99L1809	N/A	12/13/00	12/16/00
VANADIUM, TOTAL	MB1	W	99L1809	N/A	12/13/00	12/16/00
ZINC LABORATORY	LC1 BS	W	99L1809	N/A	12/13/00	12/16/00
ZINC, TOTAL	MB1	W	99L1809	N/A	12/13/00	12/16/00

RECRA
ENVIRONMENTAL
INC.

Chemical and Environmental Measurement Information

Recra LabNet Philadelphia
Analytical Report

Client: TNU-HANFORD C01-007
RFW#: 0011L199
SDG/SAF#: H1120/C01-007

W.O.#: 10985-001-001-9999-00
Date Received: 11-09-00

METALS CASE NARRATIVE

1. This narrative covers the analyses of 12 water samples.

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

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

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

5. All Initial and Continuing Calibration Verifications (ICV/CCVs) were within the 90-110% control limits (80-120% for Mercury). The ending CCVs for Strontium were outside control limits in file PS1216C. Samples B10J34, B10J35, B10J30, and B10J31 were surrounded by CCVs within control and were reported from this file. All other samples were rerun for Stontium file PS1218C.

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

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

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

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

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

11. The duplicate analyses for 2 analytes were outside the 20% Relative Percent Difference (RPD) control limits. Refer to the Inorganics Precision Report.

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 39 pages.

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

12-22-00
Date

gmb/m11-199

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

METALS METHOD GLOSSARY

The following methods are used as reference for the digestion and analysis of samples contained within this Recra Lot#: 00.1L199

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 12/19/00

CLIENT: TNUHANFORD C01-007 H1120 RECRA LOT #: 0011L199

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	B10J34	Silver, Total	2.5	u	UG/L	2.5	1.0
		Aluminum, Total	24.6		UG/L	19.1	1.0
		Barium, Total	39.8		UG/L	3.0	1.0
		Beryllium, Total	0.60	u	UG/L	0.60	1.0
		Calcium, Total	54300		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	14.4		UG/L	4.9	1.0
		Copper, Total	2.6	u	UG/L	2.6	1.0
		Iron, Total	18.6		UG/L	3.8	1.0
		Potassium, Total	5980		UG/L	303	1.0
		Magnesium, Total	11600		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	302		UG/L	5.5	1.0
		Vanadium, Total	8.9		UG/L	4.8	1.0
		Zinc, Total	2.7	u	UG/L	2.7	1.0

Recra LabNet - Lionville

INORGANICS DATA SUMMARY REPORT 12/19/00

CLIENT: TNUHANFORD C01-007 H1120 RECRA LOT #: 0011L199

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-002	B10J35	Silver, Total	2.5	u	UG/L	2.5	1.0
		Aluminum, Total	691		UG/L	19.1	1.0
		Barium, Total	40.9		UG/L	3.0	1.0
		Beryllium, Total	0.60	u	UG/L	0.60	1.0
		Calcium, Total	51600		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	17.2		UG/L	4.9	1.0
		Copper, Total	2.6	u	UG/L	2.6	1.0
		Iron, Total	1050		UG/L	3.8	1.0
		Potassium, Total	5470		UG/L	303	1.0
		Magnesium, Total	11100		UG/L	27.4	1.0
		Manganese, Total	19.6		UG/L	2.3	1.0
		Sodium, Total	13900		UG/L	22.9	1.0
		Nickel, Total	12.9		UG/L	12.5	1.0
		Antimony, Total	17.0	u	UG/L	17.0	1.0
		Strontium, Total	295		UG/L	5.5	1.0
		Vanadium, Total	8.7		UG/L	4.8	1.0
		Zinc, Total	12.2		UG/L	2.7	1.0

Recra LabNet - Lionville

INORGANICS DATA SUMMARY REPORT 12/19/00

CLIENT: TNUHANFORD C01-007 H1120 RECRA LOT #: 0011L199

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-003	B10J30	Silver, Total	2.5	u	UG/L	2.5	1.0
		Aluminum, Total	19.1	u	UG/L	19.1	1.0
		Barium, Total	36.5		UG/L	3.0	1.0
		Beryllium, Total	0.60	u	UG/L	0.60	1.0
		Calcium, Total	76300		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	76.3		UG/L	4.9	1.0
		Copper, Total	2.6	u	UG/L	2.6	1.0
		Iron, Total	14.5		UG/L	3.8	1.0
		Potassium, Total	4020		UG/L	303	1.0
		Magnesium, Total	11600		UG/L	27.4	1.0
		Manganese, Total	2.3	u	UG/L	2.3	1.0
		Sodium, Total	4560		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	317		UG/L	5.5	1.0
		Vanadium, Total	4.8	u	UG/L	4.8	1.0
		Zinc, Total	14.0		UG/L	2.7	1.0

Recra LabNet - Lionville

INORGANICS DATA SUMMARY REPORT 12/19/00

CLIENT: TNUHANFORD C01-007 H1120 RECRA LOT #: 0011L199

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-004	B10J31	Silver, Total	2.5	u	UG/L	2.5	1.0
		Aluminum, Total	200		UG/L	19.1	1.0
		Barium, Total	38.6		UG/L	3.0	1.0
		Beryllium, Total	0.60	u	UG/L	0.60	1.0
		Calcium, Total	78100		UG/L	15.4	1.0
		Cadmium, Total	3.5		UG/L	3.4	1.0
		Cobalt, Total	5.6	u	UG/L	5.6	1.0
		Chromium, Total	80.4		UG/L	4.9	1.0
		Copper, Total	2.6	u	UG/L	2.6	1.0
		Iron, Total	493		UG/L	3.8	1.0
		Potassium, Total	3960		UG/L	303	1.0
		Magnesium, Total	11900		UG/L	27.4	1.0
		Manganese, Total	13.2		UG/L	2.3	1.0
		Sodium, Total	4660		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	343		UG/L	5.5	1.0
		Vanadium, Total	11.9		UG/L	4.8	1.0
		Zinc, Total	24.8		UG/L	2.7	1.0

Recra LabNet - Lionville

INORGANICS DATA SUMMARY REPORT 12/19/00

CLIENT: TNUHANFORD C01-007 H1120 RECRA LOT #: 0011L199

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-005	B10J32	Silver, Total	2.5	u	UG/L	2.5	1.0
		Aluminum, Total	19.1	u	UG/L	19.1	1.0
		Barium, Total	37.3		UG/L	3.0	1.0
		Beryllium, Total	0.60	u	UG/L	0.60	1.0
		Calcium, Total	80900		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	78.5		UG/L	4.9	1.0
		Copper, Total	2.6	u	UG/L	2.6	1.0
		Iron, Total	18.0		UG/L	3.8	1.0
		Potassium, Total	4030		UG/L	303	1.0
		Magnesium, Total	12300		UG/L	27.4	1.0
		Manganese, Total	2.3	u	UG/L	2.3	1.0
		Sodium, Total	4760		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	335		UG/L	5.5	1.0
		Vanadium, Total	7.3		UG/L	4.8	1.0
		Zinc, Total	18.5		UG/L	2.7	1.0

Recra LabNet - Lionville

INORGANICS DATA SUMMARY REPORT 12/19/00

CLIENT: TNUHANFORD C01-007 H1120 RECRA LOT #: 0011L199

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-006	B10J33	Silver, Total	2.5	u	UG/L	2.5	1.0
		Aluminum, Total	219		UG/L	19.1	1.0
		Barium, Total	37.8		UG/L	3.0	1.0
		Beryllium, Total	0.60	u	UG/L	0.60	1.0
		Calcium, Total	78100		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	75.3		UG/L	4.9	1.0
		Copper, Total	2.6	u	UG/L	2.6	1.0
		Iron, Total	626		UG/L	3.8	1.0
		Potassium, Total	3760		UG/L	303	1.0
		Magnesium, Total	11900		UG/L	27.4	1.0
		Manganese, Total	16.0		UG/L	2.3	1.0
		Sodium, Total	4830		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	321		UG/L	5.5	1.0
		Vanadium, Total	8.4		UG/L	4.8	1.0
		Zinc, Total	45.9		UG/L	2.7	1.0

Recra LabNet - Lionville

INORGANICS DATA SUMMARY REPORT 12/19/00

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SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-007	B10J26	Silver, Total	2.5	u	UG/L	2.5	1.0
		Aluminum, Total	19.1	u	UG/L	19.1	1.0
		Barium, Total	21.3		UG/L	3.0	1.0
		Beryllium, Total	0.60	u	UG/L	0.60	1.0
		Calcium, Total	45700		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	104		UG/L	4.9	1.0
		Copper, Total	2.6	u	UG/L	2.6	1.0
		Iron, Total	21.6		UG/L	3.8	1.0
		Potassium, Total	3910		UG/L	303	1.0
		Magnesium, Total	8890		UG/L	27.4	1.0
		Manganese, Total	7.6		UG/L	2.3	1.0
		Sodium, Total	6090		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	220		UG/L	5.5	1.0
		Vanadium, Total	4.8	u	UG/L	4.8	1.0
		Zinc, Total	7.2		UG/L	2.7	1.0

Recra LabNet - Lionville

INORGANICS DATA SUMMARY REPORT 12/19/00

CLIENT: TNUHANFORD C01-007 H1120 RECRA LOT #: 0011L199

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-008	B10J27	Silver, Total	2.5	u	UG/L	2.5	1.0
		Aluminum, Total	19.1	u	UG/L	19.1	1.0
		Barium, Total	22.6		UG/L	3.0	1.0
		Beryllium, Total	0.60	u	UG/L	0.60	1.0
		Calcium, Total	46600		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	121		UG/L	4.9	1.0
		Copper, Total	2.6	u	UG/L	2.6	1.0
		Iron, Total	2540		UG/L	3.8	1.0
		Potassium, Total	3530		UG/L	303	1.0
		Magnesium, Total	8920		UG/L	27.4	1.0
		Manganese, Total	43.1		UG/L	2.3	1.0
		Sodium, Total	5590		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	239		UG/L	5.5	1.0
		Vanadium, Total	7.3		UG/L	4.8	1.0
		Zinc, Total	6.0		UG/L	2.7	1.0

Recra LabNet - Lionville

INORGANICS DATA SUMMARY REPORT 12/19/00

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SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-009	B10J14	Silver, Total	2.5	u	UG/L	2.5	1.0
		Aluminum, Total	19.1	u	UG/L	19.1	1.0
		Barium, Total	39.7		UG/L	3.0	1.0
		Beryllium, Total	0.60	u	UG/L	0.60	1.0
		Calcium, Total	88500		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		UG/L	4.9	1.0
		Copper, Total	2.6	u	UG/L	2.6	1.0
		Iron, Total	13.2		UG/L	3.8	1.0
		Potassium, Total	6270		UG/L	303	1.0
		Magnesium, Total	18000		UG/L	27.4	1.0
		Manganese, Total	2.3	u	UG/L	2.3	1.0
		Sodium, Total	13000		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	413		UG/L	5.5	1.0
		Vanadium, Total	4.8	u	UG/L	4.8	1.0
		Zinc, Total	14.4		UG/L	2.7	1.0

Recra LabNet - Lionville

INORGANICS DATA SUMMARY REPORT 12/19/00

CLIENT: TNUHANFORD C01-007 H1120 RECRA LOT #: 0011L199

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-010	B10J15	Silver, Total	2.5	u	UG/L	2.5	1.0
		Aluminum, Total	19.1	u	UG/L	19.1	1.0
		Barium, Total	39.8		UG/L	3.0	1.0
		Beryllium, Total	0.60	u	UG/L	0.60	1.0
		Calcium, Total	89000		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	6.2		UG/L	4.9	1.0
		Copper, Total	2.6	u	UG/L	2.6	1.0
		Iron, Total	31.8		UG/L	3.8	1.0
		Potassium, Total	6210		UG/L	303	1.0
		Magnesium, Total	18000		UG/L	27.4	1.0
		Manganese, Total	2.3	u	UG/L	2.3	1.0
		Sodium, Total	13200		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	392		UG/L	5.5	1.0
		Vanadium, Total	4.8	u	UG/L	4.8	1.0
		Zinc, Total	13.4		UG/L	2.7	1.0

Recra LabNet - Lionville

INORGANICS DATA SUMMARY REPORT 12/19/00

CLIENT: TNUHANFORD C01-007 H1120 RECRA LOT #: 0011L199

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-011	B10J16	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	37.3		UG/L	15.4	1.0
		Cadmium, Total	3.4	u	UG/L	3.4	1.0
		Cobalt, Total	5.6	u	UG/L	5.6	1.0
		Chromium, Total	4.9	u	UG/L	4.9	1.0
		Copper, Total	2.6	u	UG/L	2.6	1.0
		Iron, Total	3.8	u	UG/L	3.8	1.0
		Potassium, Total	303	u	UG/L	303	1.0
		Magnesium, Total	27.4	u	UG/L	27.4	1.0
		Manganese, Total	2.3	u	UG/L	2.3	1.0
		Sodium, Total	164		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	7.7		UG/L	2.7	1.0

Recra LabNet - Lionville

INORGANICS DATA SUMMARY REPORT 12/19/00

CLIENT: TNUHANFORD C01-007 H1120 RECRA LOT #: 0011L199

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-012	B10J17	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	28.4		UG/L	15.4	1.0
		Cadmium, Total	3.4	u	UG/L	3.4	1.0
		Cobalt, Total	5.6	u	UG/L	5.6	1.0
		Chromium, Total	4.9	u	UG/L	4.9	1.0
		Copper, Total	2.6	u	UG/L	2.6	1.0
		Iron, Total	11.8		UG/L	3.8	1.0
		Potassium, Total	303	u	UG/L	303	1.0
		Magnesium, Total	27.4	u	UG/L	27.4	1.0
		Manganese, Total	2.3	u	UG/L	2.3	1.0
		Sodium, Total	168		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		UG/L	2.7	1.0

Recra LabNet - Lionville

INORGANICS METHOD BLANK DATA SUMMARY PAGE 12/19/00

CLIENT: TNUHANFORD C01-007 H1120 RECRA LOT #: 0011L199

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK1	99L1809-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	26.6		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	4.3		UG/L	3.8	1.0
		Potassium, Total	303	u	UG/L	303	1.0
		Magnesium, Total	27.4	u	UG/L	27.4	1.0
		Manganese, Total	2.3	u	UG/L	2.3	1.0
		Sodium, Total	55.4		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 12/19/00

CLIENT: TNUHANFORD C01-007 H1120 RECRA LOT #: 0011L199

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-002	B10J35	Silver, Total	45.9	2.5 u	50.0	91.8	1.0
		Aluminum, Total	2710	691	2000	100.9	1.0
		Barium, Total	1790	40.9	2000	87.4	1.0
		Beryllium, Total	46.2	0.60u	50.0	92.4	1.0
		Calcium, Total	76100	51600	25000	97.8	1.0
		Cadmium, Total	45.2	3.4 u	50.0	90.4	1.0
		Cobalt, Total	467	5.6 u	500	93.5	1.0
		Chromium, Total	205	17.2	200	93.7	1.0
		Copper, Total	222	2.6 u	250	89.0	1.0
		Iron, Total	2040	1050	1000	99.0	1.0
		Potassium, Total	28600	5470	25000	92.3	1.0
		Magnesium, Total	34300	11100	25000	92.9	1.0
		Manganese, Total	481	19.6	500	92.4	1.0
		Sodium, Total	35800	13900	25000	87.6	1.0
		Nickel, Total	473	12.9	500	92.1	1.0
		Antimony, Total	501	17.0 u	500	100.1	1.0
		Strontium, Total	1080	295	1000	78.4	1.0
		Vanadium, Total	456	8.7	500	89.5	1.0
		Zinc, Total	477	12.2	500	93.0	1.0

Recra LabNet - Lionville

INORGANICS PRECISION REPORT 12/19/00

CLIENT: TNUHANFORD C01-007 H1120 RECRA LOT #: 0011L199

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-002REP	B10J35	Silver, Total	2.5 u	2.5 u	NC	1.0
		Aluminum, Total	691	702	1.5	1.0
		Barium, Total	40.9	42.1	2.9	1.0
		Beryllium, Total	0.60u	0.60u	NC	1.0
		Calcium, Total	51600	52700	2.1	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	17.2	18.5	7.3	1.0
		Copper, Total	2.6 u	2.6 u	NC	1.0
		Iron, Total	1050	1070	1.6	1.0
		Potassium, Total	5470	5590	2.2	1.0
		Magnesium, Total	11100	11200	1.2	1.0
		Manganese, Total	19.6	19.6	0.00	1.0
		Sodium, Total	13900	13900	0.10	1.0
		Nickel, Total	12.9	12.5 u	~~NC~~ 200	1.0
		Antimony, Total	17.0 u	17.0 u	NC	1.0
		Strontium, Total	295	310	5.1	1.0
		Vanadium, Total	8.7	8.1	7.1	1.0
		Zinc, Total	12.2	20.4	50.3	1.0

MT 12/20/00

Recra LabNet - Lionville

INORGANICS LABORATORY CONTROL STANDARDS REPORT 12/19/00

CLIENT: TNUHANFORD C01-007 H1120 RECRA LOT #: 0011L199

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
LCS1	99L1809-LC1	Silver, LCS	500	500	UG/L	99.9
		Aluminum, LCS	5140	5000	UG/L	102.9
		Barium, LCS	5070	5000	UG/L	101.5
		Beryllium, LCS	250	250	UG/L	100.1
		Calcium, LCS	25200	25000	UG/L	101.0
		Cadmium, LCS	248	250	UG/L	99.2
		Cobalt, LCS	2540	2500	UG/L	101.6
		Chromium, LCS	499	500	UG/L	99.8
		Copper, LCS	1250	1250	UG/L	100.1
		Iron, LCS	5080	5000	UG/L	101.6
		Potassium, LCS	24900	25000	UG/L	99.6
		Magnesium, LCS	25200	25000	UG/L	101.0
		Manganese, LCS	753	750	UG/L	100.4
		Sodium, LCS	25300	25000	UG/L	101.2
		Nickel, LCS	2050	2000	UG/L	102.4
		Antimony, LCS	3000	3000	UG/L	100
		Strontium, LCS	4500	5000	UG/L	89.9
		Vanadium, LCS	2510	2500	UG/L	100.3
		Zinc, LCS	995	1000	UG/L	99.5

RECRA LabNet Use Only

00111199

Custody Transfer Record/Lab Work Request

Page 1 of 2

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

RECRA LabNet

Client TNU HANFORD C01-007 C001-007

Est. Final Proj. Sampling Date

Project # 10985-001-001-9999-00

Project Contact/Phone #

RECRA Project Manager OS

QC Spec Del Std TAT 30 day

Date Rec'd 11-9-00 Date Due 12-9-00

Account #

		A	B
Refrigerator #		S	S
#Type Container	Liquid	1PL	1PL
	Solid		
Volume	Liquid	500	500
	Solid		
Preservatives		HNO3	—
ANALYSES REQUESTED	ORGANIC: VOA		
	ORGANIC: BNA		
	ORGANIC: Pest/PCB		
	ORGANIC: Herb		
	INORG: Metal	Met ①	
	INORG: CN		
	INORG: TC ANY		IC ①

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	MS	MSD	Matrix	Date Collected	Time Collected	A Met ①	B IC ①
001	B10J34			W	11/9/00	1330	1	
002	35					1	1	1
003	30					1245	1	
004	31					1	1	1
005	32					1245	1	
006	33					1	1	1
007	26					1009	1	
008	27					1	1	1
009	14				11/9/00	0922	1	
010	15				1	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,
1 2. Mn, Ni, Na, Sb, Sr, V, Zn
IC ① 3. Cl, F, Br, NO2, NO3, PO4, SO4
4.
5.
6.

RECRA LabNet Use Only

Samples were: ✓
1) Shipped ___ or Hand Delivered ___
Airbill Left 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'd (Y) or N
Cooler Temp. 6.5 °C

Relinquished by	Received by	Date	Time
[signature]	[signature]	11/9/00	1020

Relinquished by	Received by	Date	Time

COMPOSITE

ORIGINAL

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

NOTES: 8214 8983 0570

RECRA LabNet Use Only

00116199

Custody Transfer Record/Lab Work Request

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

RECRA LabNet

Client ~~HANFORD~~ TRU-Hanford C01007
TC1119-00
Est. Final Proj. Sampling Date
Project #
Project Contact/Phone #
RECRA Project Manager
QC Del TAT
Date Rec'd Date Due
Account #

Refrigerator #											A S			B S			
#/Type Container	Liquid										1PL			1PL			
	Solid																
Volume	Liquid										500			500			
	Solid																
Preservatives											NaOH			—			
ANALYSES REQUESTED →		ORGANIC									INORG						
		VOA	BNA	Pest/PCB	Herb						Metal	CN		IC Anions			
		RECRA LabNet Use Only															
											(1) Metals			(1) DI			

MATRIX CODES:	Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected														
S - Soil	011	BIO I 16			W	11/1/00	0730							1							
SE - Sediment	012	17			⊥	⊥	⊥							1			1				
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																					

Special Instructions:

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

RECRA LabNet Use Only

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

COC Tape was:
1) Present on Outer Package Y or N
2) Unbroken on Outer Package Y or N
3) Present on Sample Y or N
4) Unbroken on Sample Y or N
COC Record Present Upon Sample Rec'd Y or N
Cooler Temp C

Relinquished by	Received by	Date	Time
[illegible]	[illegible]	11/9/00	1030

Relinquished by	Received by	Date	Time

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

PNNL

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

CHEM SDG H1120

C.O.C. # C01-007-7

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-SAWS-H37	Ice Chest No.: SMC562 Temp.
Shipped To (Lab): TMA/RECRA	Method of Shipment: GOVT. VEHICLE	Bill of Lading/Air Bill No.: 4235795402 57
Protocol: CERCLA	Data Turnaround: 45 Days	Offsite Property No.

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
B10J34 (F)		W	11/2/00	1330	1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
B10J35		W			1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
B10J35		W			1x500-mL P	IC Anions - 300.0	Cool 4C
B10J35		W			1x20-mL P	Activity Scan	None
B10J35		W			2x1000-mL G/P	Gross Alpha	HNO3 to pH <2
B10J35		W			2x1000-mL G/P	Gross Beta	HNO3 to pH <2
B10J35		W			1x1000-mL G/P	Carbon-14	None
B10J35		W			1x1000-mL G/P	Gamma Spectroscopy(Water)	HNO3 to pH <2
B10J35		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		11/02/00	FedEx			11/02/00
FED. EXPRESS			11/03/00 9:30		E. Pegues		11-03-00 9:30
JR Corso	JRCorso		11-8-00 11:00	Fed Ex			11-8-00
Fed Ex			11/9/00 1020		Veit Hermann		11/9/00 1020

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 H1120

C.O.C. # C01-007-15

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-SAWS-H37	Ice Chest No.: SMC562 Temp.
Shipped To (Lab): TMA/RECRA	Method of Shipment: GOVT VEHICLE	Bill of Lading/Air Bill No.: 4235795402 57
Protocol: CERCLA	Data Turnaround: 45 Days	Offsite Property No.

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
B10HY4		W	11/2/00	1032	1x20-mL P	Activity Scan	None
B10HY4		W		1032	2x1000-mL G/P	Strontium-89,90 -- Sr-90	HNO3 to pH <2
B10HY4		W		1032	1x250-mL P	Tritium - H3	None

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
D. R. BREWINGTON		D.R. Brewington	11/2/00 1413	Fed Ex			11/02/00
Fed Express			11/03/00 930				11/03/00 9:30
JR Corso		JR Corso	11-8-00 16:00	Fed Ex			11-8-00
Fed Ex			11/9/00 1020	CC		V. Hussain	11/9/00 1020

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 H1120

C.O.C. # C01-007-19

Page 1 of 1

Collector: RR FOX (RFS)	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-SPWS-478	Ice Chest No.: ERL 96-039 Temp.
Shipped To (Lab): TMA/RECRA	Method of Shipment: GOVT. VEHICLE	Bill of Lading/Air Bill No.: 4235795402 35
Protocol: CERCLA	Data Turnaround: 45 Days	Offsite Property No.

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
B10HX3		W	11-2-00	1222	1x20-mL P	Activity Scan	None
B10HX3		W			2x1000-mL G/P	Strontium-89,90 – Sr-90	HNO3 to pH <2
B10HX3		W			1x250-mL P	Tritium - H3	None

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
RR FOX (RFS)			1430 11-2-00	Fed Ex			11/02/00
FED-Express			9:30 11/03/00	E. Segura			9:30 11/03/00
JR Porso	JR Porso		11-8-00 16:00	Fed Ex			11-8-00
Fed Ex			11/9/00 1020	C&C Vitor Hernandez			11/9/00 1020

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

CHPM SDL H1120

C.O.C. # C01-007-2

Page 1 of 1

Collector: KB 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-SAWS-139	Ice Chest No.: 3ML533 Temp.
Shipped To (Lab): TMA/RECRA	Method of Shipment: GOVT. VEHICLE	Bill of Lading/Air Bill No.: 4235795402 4
Protocol: CERCLA	Data Turnaround: 45 Days	Offsite Property No.

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
B10HX9		W	11-2-00	12:35	1x20-mL P	Activity Scan	None
B10HX9		W		11-2-00	2x1000-mL G/P	Strontium-89,90 – Sr-90	HNO3 to pH <2
B10HX9		W			1x250-mL P	Tritium - H3	None
B10J30 (F)		W			1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
B10J31		W			1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
B10J31		W			1x500-mL P	IC Anions - 300.0	Cool 4C
B10J31		W			2x1000-mL G/P	Gross Alpha	HNO3 to pH <2
B10J31		W			2x1000-mL G/P	Gross Beta	HNO3 to pH <2
B10J31		W			1x1000-mL G/P	Gamma Spectroscopy(Water)	HNO3 to pH <2
B10J31		W			1x250-mL P	Tritium - H3	None

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
KB HULSE			11-2-00 14:30	FEDX			11/02/00
FED-EX	EXPRESS		11-03-00 9:30	B. Degnan			11-03-00 9:20
JR Corso	JR Corso		11-8-00 16:00	Fed Ex			11-8-00
Fed Ex			11/9/00 1020	J. Hernandez			11/9/00 1020

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

35

PNNL

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

CHEM SDG 41120

C.O.C. # C01-007-24

Page 1 of 1

Collector KB 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-SHWS-139	Ice Chest No. SMC533 Temp.
Shipped To (Lab) TMA/RECRA	Method of Shipment GOVT. VEHICLE	Bill of Lading/Air Bill No. 4235795402 46
Protocol CERCLA	Data Turnaround 45 Days	Offsite Property No.

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
B10HY0		W	11-2-00	1235	1x20-mL P	Activity Scan	None
B10HY0		W		11-2-00	2x1000-mL G/P	Strontium-89,90 -- Sr-90	HNO3 to pH <2
B10HY0		W			1x250-mL P	Tritium - H3	None
B10J32 (F)		W			1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
B10J33		W			1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
B10J33		W			1x500-mL P	IC Anions - 300.0	Cool 4C
B10J33		W			2x1000-mL G/P	Gross Alpha	HNO3 to pH <2
B10J33		W			2x1000-mL G/P	Gross Beta	HNO3 to pH <2
B10J33		W			1x1000-mL G/P	Gamma Spectroscopy(Water)	HNO3 to pH <2
B10J33		W			1x250-mL P	Tritium - H3	None

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
KB HULSE		KB Hulse	11-2-00 1450	FEDX			11/02/00
FED. EXPRESS			11/02/00	FED. EXPRESS			11/03/00 9:20
JR Porco		JR Porco	11-8-00 16:00	Fed Ex			11-8-00
Fed Ex			11/9/00 1020	C Hernandez			11/9/00 1020

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 41120

C.O.C. # C01-007-3

Page 1 of 1

Collector: KB 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-SAWS-H39	Ice Chest No.: SMC-562 Temp.
Shipped To (Lab): TMA/RECRA	Method of Shipment: GOVT VEHICLE	Bill of Lading/Air Bill No.: 4235795402 57
Protocol: CERCLA	Data Turnaround: 45 Days	Offsite Property No.

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
B10HY9		W	11-2-00	1009	1x20-mL P	Activity Scan	None
B10HY9		W			2x1000-mL G/P	Strontium-89,90 -- Sr-90	HNO3 to pH <2
B10HY9		W			1x250-mL P	Tritium - H3	None
B10J28 (F)		W			1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
B10J27		W			1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
B10J27		W			1x500-mL P	IC Anions - 300.0	Cool 4C
B10J27		W			2x1000-mL G/P	Gross Alpha	HNO3 to pH <2
B10J27		W			2x1000-mL G/P	Gross Beta	HNO3 to pH <2
B10J27		W			1x1000-mL G/P	Gamma Spectroscopy(Water)	HNO3 to pH <2
B10J27		W			1x250-mL P	Tritium - H3	None

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
KB HULSE		KB Hulse	11-2-00 1430	Fed Ex			11/02/00
FED EXPRESS			11-03-00 9:30	E. Segura			11/03/00 9:30
JR Corso		JR Corso	11-8-00 10:00	Fed Ex			11-8-00
Fed Ex			11/8/00 1020	Keith Hunter			11/8/00 1020

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

37

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CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

CHEM SDG H1120

C.O.C. # C01-007-4

Page 1 of 1

Collector: RR FOX (RFS)	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-SAWS-H 38	Ice Chest No.: FRC 96-039 Temp.
Shipped To (Lab): TMA/RECRA	Method of Shipment: GOVT. VEHICLE	Bill of Lading/Air Bill No.: 4235795 40235
Protocol: CERCLA	Data Turnaround: 45 Days	Offsite Property No.

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
B10J14 (F)		W	11-1-00	0922	1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
B10J15		W			1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
B10J15		W			1x500-mL P	IC Anions - 300.0	Cool 4C
B10J15		W			1x20-mL P	Activity Scan	None
B10J15		W			2x1000-mL G/P	Gross Alpha	HNO3 to pH <2
B10J15		W			2x1000-mL G/P	Gross Beta	HNO3 to pH <2
B10J15		W			1x1000-mL G/P	Carbon-14	None
B10J15		W			1x1000-mL G/P	Gamma Spectroscopy(Water)	HNO3 to pH <2
B10J15		W			2x1000-mL G/P	Strontium-89,90 -- Sr-90	HNO3 to pH <2
B10J15		W			1x250-mL P	Tritium - H3	None

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
RR FOX (RFS)			1430 11-2-00	Fed Ex			11/03/00
FED-EXPRESS			11/03/00 9:30	L. Segura			11/03/00 9:30
JR Corso	JRCorso		11-8-00 16:00	Fed Ex			11-8-00
Fed Ex			11/9/00 1020	V. Hernandez			11/9/00 1020

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 41120

C.O.C. # C01-007-46

Page 1 of 1

Collector: RR FOX (RFS)	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.: WHS-SAMS-N	Ice Chest No.: FRC 96-039 Temp.
Shipped To (Lab): TMA/RECRA	Method of Shipment: GOVT. VEHICLE	Bill of Lading/Air Bill No.: 4235795 40235
Protocol: CERCLA	Data Turnaround: 45 Days	Offsite Property No.

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
B10J16 (F)		W	11-01-00	0730	1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
B10J17		W			1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
B10J17		W			1x500-mL P	IC Anions - 300.0	Cool 4C
B10J17		W			1x20-mL P	Activity Scan	None
B10J17		W			2x1000-mL G/P	Gross Alpha	HNO3 to pH <2
B10J17		W			2x1000-mL G/P	Gross Beta	HNO3 to pH <2
B10J17		W			1x1000-mL G/P	Carbon-14	None
B10J17		W			1x1000-mL G/P	Gamma Spectroscopy(Water)	HNO3 to pH <2
B10J17		W			2x1000-mL G/P	Strontium-89,90 – Sr-90	HNO3 to pH <2
B10J17		W			1x250-mL P	Tritium - H3	None

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
RR FOX (RFS)			11-2-00 1430	Fed Ex			11/02/00
FED-Express			11/03/00 9:30	B. Argus			11/03/00 9:30
JR Corso			11-8-00 16:00	Fed Ex			11-8-00
Fed Ex			11/9/00 1020				11/9/00 1020

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

39

Recra LabNet - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD C01-007 H1120

JAN 2001 RECEIVED

DATE RECEIVED: 11/09/00 RFW LOT # :0011L19

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B10J35						
BROMIDE BY IC	002	W	00LIC072	11/02/00	11/16/00	11/16/00
BROMIDE BY IC	002 REP	W	00LIC072	11/02/00	11/16/00	11/16/00
BROMIDE BY IC	002 MS	W	00LIC072	11/02/00	11/16/00	11/16/00
CHLORIDE BY IC	002	W	00LIC072	11/02/00	11/16/00	11/16/00
CHLORIDE BY IC	002 REP	W	00LIC072	11/02/00	11/16/00	11/16/00
CHLORIDE BY IC	002 MS	W	00LIC072	11/02/00	11/16/00	11/16/00
FLUORIDE BY IC	002	W	00LIC072	11/02/00	11/16/00	11/16/00
FLUORIDE BY IC	002 REP	W	00LIC072	11/02/00	11/16/00	11/16/00
FLUORIDE BY IC	002 MS	W	00LIC072	11/02/00	11/16/00	11/16/00
NITRITE BY IC	002	W	00LIC072	11/02/00	11/16/00	11/16/00
NITRITE BY IC	002 REP	W	00LIC072	11/02/00	11/16/00	11/16/00
NITRITE BY IC	002 MS	W	00LIC072	11/02/00	11/16/00	11/16/00
NITRATE BY IC	002	W	00LIC072	11/02/00	11/16/00	11/16/00
NITRATE BY IC	002 REP	W	00LIC072	11/02/00	11/16/00	11/16/00
NITRATE BY IC	002 MS	W	00LIC072	11/02/00	11/16/00	11/16/00
PHOSPHATE BY IC	002	W	00LIC072	11/02/00	11/16/00	11/16/00
PHOSPHATE BY IC	002 REP	W	00LIC072	11/02/00	11/16/00	11/16/00
PHOSPHATE BY IC	002 MS	W	00LIC072	11/02/00	11/16/00	11/16/00
SULFATE BY IC	002	W	00LIC072	11/02/00	11/16/00	11/16/00
SULFATE BY IC	002 REP	W	00LIC072	11/02/00	11/16/00	11/16/00
SULFATE BY IC	002 MS	W	00LIC072	11/02/00	11/16/00	11/16/00
B10J31						
BROMIDE BY IC	004	W	00LIC072	11/02/00	11/16/00	11/16/00
CHLORIDE BY IC	004	W	00LIC072	11/02/00	11/16/00	11/16/00
FLUORIDE BY IC	004	W	00LIC072	11/02/00	11/16/00	11/16/00
NITRITE BY IC	004	W	00LIC072	11/02/00	11/16/00	11/16/00
NITRATE BY IC	004	W	00LIC072	11/02/00	11/16/00	11/16/00
PHOSPHATE BY IC	004	W	00LIC072	11/02/00	11/16/00	11/16/00
SULFATE BY IC	004	W	00LIC072	11/02/00	11/16/00	11/16/00
B10J33						
BROMIDE BY IC	006	W	00LIC072	11/02/00	11/16/00	11/16/00

Recra LabNet - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD C01-007 H1120

DATE RECEIVED: 11/09/00 RFW LOT # :0011L199

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
CHLORIDE BY IC	006	W	00LIC072	11/02/00	11/16/00	11/16/00
FLUORIDE BY IC	006	W	00LIC072	11/02/00	11/16/00	11/16/00
NITRITE BY IC	006	W	00LIC072	11/02/00	11/16/00	11/16/00
NITRATE BY IC	006	W	00LIC072	11/02/00	11/16/00	11/16/00
PHOSPHATE BY IC	006	W	00LIC072	11/02/00	11/16/00	11/16/00
SULFATE BY IC	006	W	00LIC072	11/02/00	11/16/00	11/16/00
B10J27						
BROMIDE BY IC	008	W	00LIC072	11/02/00	11/16/00	11/16/00
CHLORIDE BY IC	008	W	00LIC072	11/02/00	11/16/00	11/16/00
FLUORIDE BY IC	008	W	00LIC072	11/02/00	11/16/00	11/16/00
NITRITE BY IC	008	W	00LIC072	11/02/00	11/16/00	11/16/00
NITRATE BY IC	008	W	00LIC072	11/02/00	11/16/00	11/16/00
PHOSPHATE BY IC	008	W	00LIC072	11/02/00	11/16/00	11/16/00
SULFATE BY IC	008	W	00LIC072	11/02/00	11/16/00	11/16/00
B10J15						
BROMIDE BY IC	010	W	00LIC072	11/01/00	11/16/00	11/16/00
CHLORIDE BY IC	010	W	00LIC072	11/01/00	11/16/00	11/16/00
FLUORIDE BY IC	010	W	00LIC072	11/01/00	11/16/00	11/16/00
NITRITE BY IC	010	W	00LIC072	11/01/00	11/16/00	11/16/00
NITRATE BY IC	010	W	00LIC072	11/01/00	11/16/00	11/16/00
PHOSPHATE BY IC	010	W	00LIC072	11/01/00	11/16/00	11/16/00
SULFATE BY IC	010	W	00LIC072	11/01/00	11/16/00	11/16/00
B10J17						
BROMIDE BY IC	012	W	00LIC072	11/01/00	11/16/00	11/16/00
CHLORIDE BY IC	012	W	00LIC072	11/01/00	11/16/00	11/16/00
FLUORIDE BY IC	012	W	00LIC072	11/01/00	11/16/00	11/16/00
NITRITE BY IC	012	W	00LIC072	11/01/00	11/16/00	11/16/00
NITRATE BY IC	012	W	00LIC072	11/01/00	11/16/00	11/16/00
PHOSPHATE BY IC	012	W	00LIC072	11/01/00	11/16/00	11/16/00
SULFATE BY IC	012	W	00LIC072	11/01/00	11/16/00	11/16/00

LAB QC:

BROMIDE BY IC	MB1	W	00LIC072	N/A	11/16/00	11/16/00

Recra LabNet - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD C01-007 H1120

DATE RECEIVED: 11/09/00 RFW LOT # :0011L199

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
BROMIDE BY IC	MB1 BS	W	00LIC072	N/A	11/16/00	11/16/00
CHLORIDE BY IC	MB1	W	00LIC072	N/A	11/16/00	11/16/00
CHLORIDE BY IC	MB1 BS	W	00LIC072	N/A	11/16/00	11/16/00
FLUORIDE BY IC	MB1	W	00LIC072	N/A	11/16/00	11/16/00
FLUORIDE BY IC	MB1 BS	W	00LIC072	N/A	11/16/00	11/16/00
NITRITE BY IC	MB1	W	00LIC072	N/A	11/16/00	11/16/00
NITRITE BY IC	MB1 BS	W	00LIC072	N/A	11/16/00	11/16/00
NITRATE BY IC	MB1	W	00LIC072	N/A	11/16/00	11/16/00
NITRATE BY IC	MB1 BS	W	00LIC072	N/A	11/16/00	11/16/00
PHOSPHATE BY IC	MB1	W	00LIC072	N/A	11/16/00	11/16/00
PHOSPHATE BY IC	MB1 BS	W	00LIC072	N/A	11/16/00	11/16/00
SULFATE BY IC	MB1	W	00LIC072	N/A	11/16/00	11/16/00
SULFATE BY IC	MB1 BS	W	00LIC072	N/A	11/16/00	11/16/00

RECRA
ENVIRONMENTAL
INC.

Chemical and Environmental Measurement Information

Recra LabNet Philadelphia
Analytical Report

Client : TNU-HANFORD C01-007 H1120
RFW# : 0011L199

W.O. # : 10985-001-001-9999-00
Date Received: 11-09-00

INORGANIC CASE NARRATIVE

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

2. The samples were prepared and analyzed in accordance with the 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 J. Michael Taylor
VP, Laboratory General Manager
Lionville Laboratory

12-25-00
Date

njp\i11-199

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 22 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:	

L-WI-034/A-02/00

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 C01-007 H1120 RECRA LOT #: 0011L199

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-002	B10J35	Bromide by IC	2.5 u	MG/L	2.5	10.0
		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	66	MG/L	2.5	10
		Phosphate by IC	0.25 u	MG/L	0.25	1.0
		Sulfate by IC	34.3	MG/L	2.5	10.0
-004	B10J31	Bromide by IC	1.2 u	MG/L	1.2	5.0
		Chloride by IC	29.0	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	86	MG/L	5.0	20
		Phosphate by IC	0.25 u	MG/L	0.25	1.0
		Sulfate by IC	101	MG/L	5.0	20.0
-006	B10J33	Bromide by IC	1.2 u	MG/L	1.2	5.0
		Chloride by IC	28.8	MG/L	1.2	5.0
		Fluoride by IC	0.50 u	MG/L	0.50	1.0
		Nitrite by IC	1.2 u	MG/L	1.2	5.0
		Nitrate by IC	85	MG/L	5.0	20
		Phosphate by IC	0.25 u	MG/L	0.25	1.0
		Sulfate by IC	98.6	MG/L	5.0	20.0
-008	B10J27	Bromide by IC	0.25 u	MG/L	0.25	1.0
		Chloride by IC	6.5	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	13	MG/L	1.2	5.0
		Phosphate by IC	0.25 u	MG/L	0.25	1.0
		Sulfate by IC	49.3	MG/L	1.2	5.0
-010	B10J15	Bromide by IC	5.0 u	MG/L	5.0	20.0
		Chloride by IC	14.4	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	160	MG/L	5.0	20
		Phosphate by IC	0.25 u	MG/L	0.25	1.0
		Sulfate by IC	47.7	MG/L	1.2	5.0
-012	B10J17	Bromide by IC	0.25 u	MG/L	0.25	1.0

Recra LabNet - Lionville

INORGANICS DATA SUMMARY REPORT 12/06/00

CLIENT: TNUHANFORD C01-007 H1120 RECRA LOT #: 0011L199

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-012	B10J17	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	0.29	MG/L	0.25	1.0

Recra LabNet - Lionville

INORGANICS METHOD BLANK DATA SUMMARY PAGE 12/06/00

CLIENT: TNUHANFORD C01-007 H1120 RECRA LOT #: 0011L199

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK10	00LIC072-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 C01-007 H1120 RECRA LOT #: 0011L199

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-002	B10J35	Bromide by IC	51.0	0.00	50.0	102.0	10.0
		Chloride by IC	58.8	5.5	50.0	106.7	10.0
		Fluoride by IC	11.7	0.28	10.0	114.4	1.0
		Nitrite by IC	5.3	0.25u	5.0	106.4	1.0
		Nitrate by IC	170	66	100	107.7	20
		Phosphate by IC	4.8	0.25u	5.0	96.9	1.0
		Sulfate by IC	90.3	34.3	50.0	111.9	10.0
BLANK10	00LIC072-MB1	Bromide by IC	4.8	0.25u	5.0	96.7	1.0
		Chloride by IC	4.8	0.25u	5.0	95.5	1.0
		Fluoride by IC	10.6	0.50u	10.0	106.1	1.0
		Nitrite by IC	5.0	0.25u	5.0	99.8	1.0
		Nitrate by IC	4.9	0.25u	5.0	97.7	1.0
		Phosphate by IC	4.9	0.25u	5.0	98.7	1.0
		Sulfate by IC	4.8	0.25u	5.0	95.7	1.0

Recra LabNet - Lionville

INORGANICS PRECISION REPORT 12/06/00

CLIENT: TNUHANFORD C01-007 H1120 RECRA LOT #: 0011L199

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-002REP	B10J35	Bromide by IC	2.5 u	2.5 u	NC	10.0
		Chloride by IC	5.5	5.4	0.96	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	66	65	1.7	10
		Phosphate by IC	0.25u	0.25u	NC	1.0
		Sulfate by IC	34.3	34.5	0.36	10.0

RECRA LabNet Use Only

00111199

Custody Transfer Record/Lab Work Request

Page 1 of 2

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

RECRA LabNet

Client TNU HANFORD C01-007 ~~C004-007~~ TCW-8-00

Est. Final Proj. Sampling Date

Project # 10985-001-001-9999-00

Project Contact/Phone #

RECRA Project Manager OJ

QC Spec Del Std TAT 30 day

Date Rec'd 11-9-00 Date Due 12-9-00

Account #

		A	B	C
Refrigerator #		S	S	
#/Type Container	Liquid	1PL	1PL	
	Solid			
Volume	Liquid	500	500	
	Solid			
Preservatives		HNO3	—	
ANALYSES REQUESTED	ORGANIC: VOA			
	ORGANIC: BNA			
	ORGANIC: Pest/PCB			
	ORGANIC: Herb			
	INORG: Metal	Mtl		
	INORG: CN			
			IC AN & Alk	
RECRA LabNet Use Only		Mtl	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	A	B	C
001	B10T34			W	11/2/00	1330	1		
002	35					⊥	1	1	
003	30					1245	1		
004	31					⊥	1	1	
005	32					1245	1		
006	33					⊥	1	1	
007	26					1009	1		
008	27					⊥	1	1	
009	14				11/1/00	0922	1		
010	15				⊥	⊥	1	1	

Special Instructions: SAF C01-007

Run Matrix QC

DATE/REVISIONS:

Mtl (1) 1. Al, Ag, Ba, Be, Ca, Cd, Cr, Co, Cu, Fe, K, Mg, Mn, Mo, Na, Sb, Sr, V, Zn

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

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

4.

5.

6.

RECRA LabNet Use Only

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

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 6.5

Relinquished by	Received by	Date	Time
[illegible]	[illegible]	11/1/00	1020

Relinquished by	Received by	Date	Time
COMPOSITE	ORIGINAL		

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

NOTES: 8214 8983 0570

NO2, NO3, PO4 rec'd 12-11-00

RECRA LabNet Use Only

00116199

Custody Transfer Record/Lab Work Request

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

RECRA LabNet

Client: ~~Hanford~~ TRU-Hanford C01007

Est. Final Proj. Sampling Date: 11-9-00

Project #:

Project Contact/Phone #:

RECRA Project Manager:

QC: Del TAT:

Date Rec'd: Date Due:

Account #:

		A	B	C
Refrigerator #		S	S	
#/Type Container	Liquid	1PL	1PL	
	Solid			
Volume	Liquid	500	500	
	Solid			
Preservatives		NaOH	—	
ANALYSES REQUESTED	ORGANIC: VOA			
	ORGANIC: BNA			
	ORGANIC: Pest/PCB			
	ORGANIC: Herb			
	INORG: Metal		TC	
	INORG: CN		Amt	
RECRA LabNet Use Only		DIW	DI	

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	A	B	C
011	B10 I 16			W	11/1/00	0730	1		
012	17			⊥	⊥	⊥	1	1	

Special Instructions:

DATE/REVISIONS:

1.
2.
3.
4.
5.
6.

Relinquished by	Received by	Date	Time
Bob Eo	V. Henry	11/9/00	1080

Relinquished by	Received by	Date	Time

RECRA LabNet Use Only

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

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

COC Record Present Upon Sample Rec'd Y or N

Cooler Temp C

Discrepancies Between Samples Labels and COC Record? Y or N

NOTES:

PNNL

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

CHEM SDG H1120

C.O.C. # C01-007-7

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-SAWS-H37	Ice Chest No.: 5MC562 Temp.:
Shipped To (Lab): TMA/RECRA	Method of Shipment: GOVT. VEHICLE	Bill of Lading/Air Bill No.: 4235795402 57
Protocol: CERCLA	Data Turnaround: 45 Days	Offsite Property No.:

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
B10J34 (F)		W	11/2/00	1330	1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
B10J35		W			1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
B10J35		W			1x500-mL P	IC Anions - 300.0	Cool 4C
B10J35		W			1x20-mL P	Activity Scan	None
B10J35		W			2x1000-mL G/P	Gross Alpha	HNO3 to pH <2 **
B10J35		W			2x1000-mL G/P	Gross Beta	HNO3 to pH <2
B10J35		W			1x1000-mL G/P	Carbon-14	None
B10J35		W			1x1000-mL G/P	Gamma Spectroscopy(Water)	HNO3 to pH <2
B10J35		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	11/2/00 1113	FedEx			11/02/00
FED. EXPRESS			11/03/00 9.71				11-03-00 9.71
JR Corso		JRCorso	11-8-00 16:00	Fed Ex			11-8-00
Fed Ex			11/9/00 1020				11/9/00 1020

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 H1120

C.O.C. # C01-007-15

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-SAWS-H37	Ice Chest No.: SMC 562 Temp.
Shipped To (Lab): TMA/RECRA	Method of Shipment: GOVT VEHICLE	Bill of Lading/Air Bill No.: 4235795 40257
Protocol: CERCLA	Data Turnaround: 45 Days	Offsite Property No.

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
B10HY4		W	11/2/00	1032	1x20-mL P	Activity Scan	None
B10HY4		W		1032	2x1000-mL G/P	Strontium-89,90 -- Sr-90	HNO3 to pH <2
B10HY4		W		1032	1x250-mL P	Tritium - H3	None

Relinquished By (Print / Sign)	Date/Time	Received By (Print / Sign)	Date/Time
D. R. BREWINGTON D.R. Brewington	11/3	FedEx	11/02/00
FED. Express	11/03/00 9:32	E. Argumo	11/03/00 9:32
JR Cerso JRCerso	11-13-00 16:00	Fed Ex	11-8-00
Fed Ex	11/9/00 1020	CCC V. Hernandez	11/9/00 1020

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 H1120	C.O.C. # C01-007-19 Page 1 of 1

Collector: RR FOX (RFS)	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-SAWS-H38	Ice Chest No.: ERL 96-039 Temp.
Shipped To (Lab): TMA/RECRA	Method of Shipment: GOVT. VEHICLE	Bill of Lading/Air Bill No.: 4235795402 35
Protocol: CERCLA	Data Turnaround: 45 Days	Offsite Property No.

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
B10HX3		W	11-2-00	1222	1x20-mL P	Activity Scan	None
B10HX3		W			2x1000-mL G/P	Strontium-89,90 -- Sr-90	HNO3 to pH <2
B10HX3		W			1x250-mL P	Tritium - H3	None

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
RR FOX (RFS)			11-2-00 1430	Fed Ex			11/02/00
FED-Express			11/03/00 9:30	E. Segura			11/03/00 9:30
JR Porso	JR Porso		11-8-00 16:00	Fed Ex			11-8-00
Fed Ex			11/9/00 1020	COC Victor Hernandez			11/9/00 1020

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

CHPM SDL H1120

C.O.C. # C01-007-2

Page 1 of 1

Collector: KB 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-SAWS-139	Ice Chest No.: 3ML533 Temp.
Shipped To (Lab): TMA/RECRA	Method of Shipment: GOVT. VEHICLE	Bill of Lading/Air Bill No.: 4235795402 4
Protocol: CERCLA	Data Turnaround: 45 Days	Offsite Property No.

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
B10HX9		W	11-2-00	12:35	1x20-mL P	Activity Scan	None
B10HX9		W		11-2-00	2x1000-mL G/P	Strontium-89,90 – Sr-90	HNO3 to pH <2
B10HX9		W			1x250-mL P	Tritium - H3	None
B10J30 (F)		W			1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
B10J31		W			1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
B10J31		W			1x500-mL P	IC Anions - 300.0	Cool 4C
B10J31		W			2x1000-mL G/P	Gross Alpha	HNO3 to pH <2
B10J31		W			2x1000-mL G/P	Gross Beta	HNO3 to pH <2
B10J31		W			1x1000-mL G/P	Gamma Spectroscopy(Water)	HNO3 to pH <2
B10J31		W			1x250-mL P	Tritium - H3	None

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
KB HULSE			11-2-00 14:30	FEDX			11/02/00
FED EXPRESS			11-03-00 9:30	E. Segura			11-03- 9:30
JR Corso			11-8-00 16:00	Fed Ex			11-8-00
Fed Ex			11/9/00 1020	[illegible]			11/9/00 1020

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

CHPM SDG H1120

C.O.C. # C01-007-24

Page 1 of 1

Collector KB 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-SHWS-H39	Ice Chest No. SMC533 Temp.
Shipped To (Lab) TMA/RECRA	Method of Shipment GOVT. VEHICLE	Bill of Lading/Air Bill No. 4235795 40246
Protocol CERCLA	Data Turnaround 45 Days	Offsite Property No.

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
B10HY0		W	11-2-00	1235	1x20-mL P	Activity Scan	None
B10HY0		W		11-2-00	2x1000-mL G/P	Strontium-89,90 -- Sr-90	HNO3 to pH <2
B10HY0		W			1x250-mL P	Tritium - H3	None
B10J32 (F)		W			1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
B10J33		W			1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
B10J33		W			1x500-mL P	IC Anions - 300.0	Cool 4C
B10J33		W			2x1000-mL G/P	Gross Alpha	HNO3 to pH <2
B10J33		W			2x1000-mL G/P	Gross Beta	HNO3 to pH <2
B10J33		W			1x1000-mL G/P	Gamma Spectroscopy(Water)	HNO3 to pH <2
B10J33		W			1x250-mL P	Tritium - H3	None

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
KB HULSE		KB Hulse	11-2-00 1480	FEDX			11/02/00
FED. EXPRESS			11/02/00	FED. EXPRESS			11/03/00 9:30
JR Porco		JR Porco	11-8-00 16:00	Fed Ex			11-8-00
Fed Ex			11/9/00 1020	C Hernandez			11/9/00 1020

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 41120

C.O.C. # C01-007-33

Collector: KB 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-SAWS-A39	Ice Chest No.: SML-562 Temp.
Shipped To (Lab): TMA/RECRA	Method of Shipment: GOVT. VEHICLE	Bill of Lading/Air Bill No.: 4235795402 57
Protocol: CERCLA	Data Turnaround: 45 Days	Offsite Property No.

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
B10HY9		W	11-2-00	1009	1x20-mL P	Activity Scan	None
B10HY9		W			2x1000-mL G/P	Strontium-89,90 -- Sr-90	HNO3 to pH <2
B10HY9		W			1x250-mL P	Tritium - H3	None
B10J26 (F)		W			1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
B10J27		W			1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
B10J27		W			1x500-mL P	IC Anions - 300.0	Cool 4C
B10J27		W			2x1000-mL G/P	Gross Alpha	HNO3 to pH <2
B10J27		W			2x1000-mL G/P	Gross Beta	HNO3 to pH <2
B10J27		W			1x1000-mL G/P	Gamma Spectroscopy(Water)	HNO3 to pH <2
B10J27		W			1x250-mL P	Tritium - H3	None

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
KB HULSE		KB Hulse	11-2-00 1430	Fed Ex			11/02/00
FED. EXPRESS			11-03-00 9:30	E. Deguro			11/03/00 9:30
JR Corso		JR Corso	11-8-00 10:00	Fed Ex			11-8-00
Fed Ex			11/8/00 1020	Keith Hunnell			11/8/00 1020

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 SDC H1120

C.O.C. # C01-007-4

Page 1 of 1

Collector: RR FOX (RFS)	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.: WIM-SPWS-H 38	Ice Chest No.: FRC 96-039 Temp.
Shipped To (Lab): TMA/RECRA	Method of Shipment: GOVT. VEHICLE	Bill of Lading/Air Bill No.: 4235795402 35
Protocol: CERCLA	Data Turnaround: 45 Days	Offsite Property No.

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
B10J14 (F)		W	11-1-00	0922	1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
B10J15		W			1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
B10J15		W			1x500-mL P	IC Anions - 300.0	Cool 4C
B10J15		W			1x20-mL P	Activity Scan	None
B10J15		W			2x1000-mL G/P	Gross Alpha	HNO3 to pH <2
B10J15		W			2x1000-mL G/P	Gross Beta	HNO3 to pH <2
B10J15		W			1x1000-mL G/P	Carbon-14	None
B10J15		W			1x1000-mL G/P	Gamma Spectroscopy(Water)	HNO3 to pH <2
B10J15		W			2x1000-mL G/P	Strontium-89,90 -- Sr-90	HNO3 to pH <2
B10J15		W			1x250-mL P	Tritium - H3	None

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
RR FOX (RFS)			1430 11-2-00	Fed Ex			11/02/00
FED-EXPRESS			11/03/00 9:30	L. Segura			11/03/00 9:30
JR Corso	JRCorso		11-8-00 16:00	Fed Ex			11-8-00
Fed Ex			11/9/00 1020	V. Hernandez			11/9/00 1020

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 41120

C.O.C. # C01-007-46

Collector: RR FOX (RFS)	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-5HW5-H	Ice Chest No.: FRC 96-039 Temp.
Shipped To (Lab): TMA/RECRA	Method of Shipment: GOVT. VEHICLE	Bill of Lading/Air Bill No.: 4235795 40235
Protocol: CERCLA	Data Turnaround: 45 Days	Offsite Property No.

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
B10J16 (F)		W	11-01-00	0730	1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
B10J17		W			1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
B10J17		W			1x500-mL P	IC Anions - 300.0	Cool 4C
B10J17		W			1x20-mL P	Activity Scan	None
B10J17		W			2x1000-mL G/P	Gross Alpha	HNO3 to pH <2
B10J17		W			2x1000-mL G/P	Gross Beta	HNO3 to pH <2
B10J17		W			1x1000-mL G/P	Carbon-14	None
B10J17		W			1x1000-mL G/P	Gamma Spectroscopy(Water)	HNO3 to pH <2
B10J17		W			2x1000-mL G/P	Strontium-89,90 -- Sr-90	HNO3 to pH <2
B10J17		W			1x250-mL P	Tritium - H3	None

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
RR FOX (RFS)			11-2-00 1430	Fed Ex			11/02/00
FED-Express			11/03/00 9:30	E. Arguin			11/03/00 9:30
JR Cobbo			11-8-00 16:00	Fed Ex			11-8-00
Fed Ex			11/9/00 1020	Bill Hernandez			11/9/00 1020

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

11/07/00 18:28:06

ORD # R0-11-069

WORK ID: SAF C01-007 SDG H1120

RCVD: 11/03/00 DUE: 12/18/00

KEEP: 12/18/01 DISP: S

DASH	SAMPLE IDENTIFICATION	STORED	TESTS		
01A	B10J34(F)	RECRA	DISPOS	E011	
02A	B10J35	RECRA	DISPOS	E011	E260
02B	B10J35 MS	RECRA	E011	E260	
02C	B10J35 DUP	RECRA	E011	E260	
03A	B10J30(F)	RECRA	DISPOS	E011	
04A	B10J31	RECRA	DISPOS	E011	E260
05A	B10J32(F)	RECRA	DISPOS	E011	
06A	B10J33	RECRA	DISPOS	E011	E260
07A	B10J26(F)	RECRA	DISPOS	E011	
08A	B10J27	RECRA	DISPOS	E011	E260
09A	B10J14(F)	RECRA	DISPOS	E011	
10A	B10J15	RECRA	DISPOS	E011	E260
11A	B10J16(F)	RECRA	DISPOS	E011	
12A	B10J17	RECRA	DISPOS	E011	E260

RELEASED BY	DATE	TRANSFERRED TO	DATE	RECEIVED BY	DATE
DRTorao	11-8-0	Fed Ex	11-8-0		