H0638- TMA/RECRA

0052731

Case Narrative

1.0 GENERAL

Bechtel Hanford Inc. Sample Delivery Group H0638 was composed of an eight liquid (water) samples designated under SAF No. C00-005 with a Project Designation of: 100-HR3-IAM (1&2) GW Monitoring, November 1999.

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

2.0 ANALYSIS NOTES

2.1 Gross Alpha and Gross Beta Analyses

No problems were encountered during the course of the analyses.

2.2 Tritium Analyses

No problems were encountered during the course of the analyses.

2.3 Strontium-90 Analyses

No problems were encountered during the course of the analyses.

RECEIVED
MAR 20 2000
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TMA/RICHMOND

SAMPLE DELIVERY GROUP H0638

SAMPLE SUMMARY

SDG 7291
Contact Melissa C. Mannion

Client Hanford
Contract TRB-SBB-207925
Case no SDG H0638

CLIENT SAMPLE ID	LOCATION	MATRIX	LEVEL	LAB SAMPLE ID	SAF NO	CHAIN OF CUSTODY	COLLECTED
B0WPY3	Hanford Site	WATER		N911163-02	C00-005	C00-005-3	11/15/99 10:07
B0WPY5	Hanford Site	WATER		N911163-03	C00-005	C00-005-4	11/15/99 08:15
B0WR01	Hanford Site	WATER		N911163-01	C00-005	C00-005-1	11/15/99 09:10
B0WR39	Hanford Site	WATER		N911163-04	C00-005	C00-005-39	11/15/99 11:33
B0WR41	Hanford Site	WATER		N911163-05	C00-005	C00-005-37	11/15/99 12:15
B0WR90	Hanford Site	WATER		N911163-06	C00-005	C00-005-63	11/15/99 10:06
B0WR91	Hanford Site	WATER		N911163-07	C00-005	C00-005-63	11/15/99 10:06
B0WR93	Hanford Site	WATER		N911163-08	C00-005	C00-005-63	11/15/99 12:30
Method Blank		WATER		N911163-10	C00-005		
Lab Control Sample		WATER		N911163-09	C00-005		
Duplicate (N911163-01)	Hanford Site	WATER		N911163-11	C00-005		11/15/99 09:10
Duplicate (N911163-06)	Hanford Site	WATER		N911163-12	C00-005		11/15/99 10:06
Spike (N911163-02)	Hanford Site	WATER		N911163-13	C00-005		11/15/99 10:07

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CS
Version 3.06
Report date 02/03/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0638

SDG 7291
Contact Melissa C. Mannion

QC SUMMARY

Client Hanford
Contract TRB-SBB-207925
Case no SDG H0638

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
7291	C00-005-1	B0WR01	WATER				11/16/99	1	N911163-01	7291-001
	C00-005-3	B0WPY3	WATER				11/16/99	1	N911163-02	7291-002
	C00-005-37	B0WR41	WATER				11/16/99	1	N911163-05	7291-005
	C00-005-39	B0WR39	WATER				11/16/99	1	N911163-04	7291-004
	C00-005-4	B0WPY5	WATER				11/16/99	1	N911163-03	7291-003
	C00-005-63	B0WR90	WATER				11/16/99	1	N911163-06	7291-006
		B0WR91	WATER				11/16/99	1	N911163-07	7291-007
		B0WR93	WATER				11/16/99	1	N911163-08	7291-008
		Method Blank	WATER						N911163-10	7291-010
		Lab Control Sample	WATER						N911163-09	7291-009
		Duplicate (N911163-01)	WATER				11/16/99	1	N911163-11	7291-011
		Duplicate (N911163-06)	WATER				11/16/99	1	N911163-12	7291-012
		Spike (N911163-02)	WATER				11/16/99	1	N911163-13	7291-013

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-QS
Version 3.06
Report date 02/03/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0638

SDG 7291
Contact Melissa C. Mannion

PREP BATCH SUMMARY

Client Hanford
Contract TRB-SBB-207925
Case no SDG H0638

TEST	MATRIX	METHOD	PREPARATION BATCH	ERROR 2σ %	PLANCHETS ANALYZED CLIENT	MORE	RE	BLANK	LCS	DUP/ORIG	MS/ORIG	QUALIFIERS
Beta Counting												
Y	WATER	Strontium 90 in Water	6909-093	10.0	3			1	1	1/1		
Gas Proportional Counting												
82B	WATER	Gross Beta in Water	6909-093	15.0	5			1	1	1/1		
88A	WATER	Gross Alpha in Water	6909-093	20.0	5			1	1	1/1		
Liquid Scintillation Counting												
H	WATER	Tritium in Water	6909-093	10.0	8			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 02/03/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0638

WORK SUMMARY

SDG 7291
Contact Melissa C. Mannion

Client Hanford
Contract TRB-SBB-207925
Case no SDG H0638

CLIENT SAMPLE ID / LOCATION / CUSTODY	SAF No	MATRIX	LAB SAMPLE ID / COLLECTED / RECEIVED	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
B0WPY3			N911163-02	7291-002	82B/82		12/20/99	02/03/00	MCM	Gross Beta in Water
Hanford Site		WATER	11/15/99	7291-002	88A/88		12/20/99	02/03/00	MCM	Gross Alpha in Water
C00-005-3	C00-005		11/16/99	7291-002	H		12/20/99	02/03/00	MCM	Tritium in Water
B0WPY5			N911163-03	7291-003	82B/82		12/20/99	02/03/00	MCM	Gross Beta in Water
Hanford Site		WATER	11/15/99	7291-003	88A/88		12/20/99	02/03/00	MCM	Gross Alpha in Water
C00-005-4	C00-005		11/16/99	7291-003	H		12/20/99	02/03/00	MCM	Tritium in Water
B0WR01			N911163-01	7291-001	82B/82		12/20/99	02/03/00	MCM	Gross Beta in Water
Hanford Site		WATER	11/15/99	7291-001	88A/88		12/20/99	02/03/00	MCM	Gross Alpha in Water
C00-005-1	C00-005		11/16/99	7291-001	H		12/20/99	02/03/00	MCM	Tritium in Water
B0WR39			N911163-04	7291-004	82B/82		12/20/99	02/03/00	MCM	Gross Beta in Water
Hanford Site		WATER	11/15/99	7291-004	88A/88		12/20/99	02/03/00	MCM	Gross Alpha in Water
C00-005-39	C00-005		11/16/99	7291-004	H		12/20/99	02/03/00	MCM	Tritium in Water
B0WR41			N911163-05	7291-005	82B/82		12/20/99	02/03/00	MCM	Gross Beta in Water
Hanford Site		WATER	11/15/99	7291-005	88A/88		12/20/99	02/03/00	MCM	Gross Alpha in Water
C00-005-37	C00-005		11/16/99	7291-005	H		12/20/99	02/03/00	MCM	Tritium in Water
B0WR90			N911163-06	7291-006	H		12/20/99	02/03/00	MCM	Tritium in Water
Hanford Site		WATER	11/15/99	7291-006	Y		01/26/00	02/03/00	MCM	Strontium 90 in Water
C00-005-63	C00-005		11/16/99							
B0WR91			N911163-07	7291-007	H		12/20/99	02/03/00	MCM	Tritium in Water
Hanford Site		WATER	11/15/99	7291-007	Y		01/26/00	02/03/00	MCM	Strontium 90 in Water
C00-005-63	C00-005		11/16/99							
B0WR93			N911163-08	7291-008	H		12/21/99	02/03/00	MCM	Tritium in Water
Hanford Site		WATER	11/15/99	7291-008	Y		01/26/00	02/03/00	MCM	Strontium 90 in Water
C00-005-63	C00-005		11/16/99							
Method Blank			N911163-10	7291-010	82B/82		12/20/99	02/03/00	MCM	Gross Beta in Water
		WATER		7291-010	88A/88		12/21/99	02/03/00	MCM	Gross Alpha in Water
	C00-005			7291-010	H		12/21/99	02/03/00	MCM	Tritium in Water
				7291-010	Y		01/26/00	02/03/00	MCM	Strontium 90 in Water

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CWS
Version 3.06
Report date 02/03/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0638

SDG 7291
Contact Melissa C. Mannion

WORK SUMMARY, cont.

Client Hanford
Contract TRB-SBB-207925
Case no SDG H0638

CLIENT SAMPLE ID / LOCATION / CUSTODY	SAF No	MATRIX	LAB SAMPLE ID / COLLECTED / RECEIVED	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
Lab Control Sample			N911163-09	7291-009	82B/82		12/20/99	02/03/00	MCM	Gross Beta in Water
		WATER		7291-009	88A/88		12/20/99	02/03/00	MCM	Gross Alpha in Water
	C00-005			7291-009	H		12/21/99	02/03/00	MCM	Tritium in Water
				7291-009	Y		01/26/00	02/03/00	MCM	Strontium 90 in Water
Duplicate (N911163-01)			N911163-11	7291-011	82B/82		12/20/99	02/03/00	MCM	Gross Beta in Water
Hanford Site		WATER	11/15/99	7291-011	88A/88		12/21/99	02/03/00	MCM	Gross Alpha in Water
	C00-005		11/16/99	7291-011	H		12/21/99	02/03/00	MCM	Tritium in Water
Duplicate (N911163-06)			N911163-12	7291-012	Y		01/26/00	02/03/00	MCM	Strontium 90 in Water
Hanford Site		WATER	11/15/99							
	C00-005		11/16/99							
Spike (N911163-02)			N911163-13	7291-013	H		12/21/99	02/03/00	MCM	Tritium in Water
Hanford Site		WATER	11/15/99							
	C00-005		11/16/99							

COUNTS OF TESTS BY SAMPLE TYPE

TEST	SAF No	METHOD	REFERENCE	CLIENT	MORE	RE	BLANK	LCS	DUP	SPIKE	TOTAL
82B/82	C00-005	Gross Beta in Water	EPA900.0	5			1	1	1		8
88A/88	C00-005	Gross Alpha in Water	EPA900.0	5			1	1	1		8
H	C00-005	Tritium in Water	EPA906.0	8			1	1	1	1	12
Y	C00-005	Strontium 90 in Water	SR90Y90	3			1	1	1		6
TOTALS				21			4	4	4	1	34

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CWS
Version 3.06
Report date 02/03/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0638

N911163-10 Method Blank

METHOD BLANK

SDG	7291	Client/Case no	Hanford	SDG H0638	
Contact	Melissa C. Mannion	Contract	TRB-SBB-207925		
Lab sample id	N911163-10	Client sample id	Method Blank		
Dept sample id	7291-010	Material/Matrix		WATER	
		SAF No	C00-005		

ANALYTE	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST
Gross Alpha	12587-46-1	-0.182	0.34	0.92	3.0	U	88A
Gross Beta	12587-47-2	-0.378	1.2	2.1	4.0	U	82B
Tritium	10028-17-8	-24.1	92	160	400	U	H
Strontium 90	10098-97-2	-0.011	0.28	0.58	2.0	U	Y

100-HR3-IAM (1&2) GW Mon., Nov. 1999

QC-BLANK 32781

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	02/03/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0638

N911163-09 Lab Control Sample

LAB CONTROL SAMPLE

SDG 7291 Client/Case no Hanford SDG H0638
Contact Melissa C. Mannion Case no TRB-SBB-207925

Lab sample id N911163-09 Client sample id Lab Control Sample
Dept sample id 7291-009 Material/Matrix WATER
SAF No C00-005

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	56.9	4.4	1.2	3.0		88A	67.0	2.7	85	72-128	70-130
Gross Beta	74.7	3.5	1.9	4.0		82B	75.0	3.0	100	76-124	70-130
Tritium	7040	240	160	400		H	6980	280	101	83-117	80-120
Strontium 90	22.4	0.85	0.64	2.0		Y	22.4	0.90	100	83-117	80-120

100-HR3-IAM (1&2) GW Mon., Nov. 1999

QC-LCS 32780

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-LCS
Version 3.06
Report date 02/03/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0638

N911163-11 B0WR01

DUPLICATE

SDG	7291			Client/Case no	Hanford SDG H0638
Contact	Melissa C. Mannion			Case no	TRB-SBB-207925
DUPLICATE		ORIGINAL			
Lab sample id	N911163-11	Lab sample id	N911163-01	Client sample id	B0WR01
Dept sample id	7291-011	Dept sample id	7291-001	Location/Matrix	Hanford Site WATER
		Received	11/16/99	Collected	11/15/99 09:10
				Custody/SAF No	C00-005-1 C00-005

ANALYTE	DUPLICATE pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST	ORIGINAL pCi/L	2σ ERR (COUNT)	MDA pCi/L	QUALI-FIERS	RPD %	3σ TOT	PROT LIMIT
Gross Alpha	2.40	1.6	2.0	3.0	J	88A	0.917	1.3	2.2	U	89	192	
Gross Beta	7.51	1.6	2.0	4.0		82B	6.46	1.7	2.3		15	59	
Tritium	7450	250	160	400		H	7330	240	160		2	22	

100-HR3-IAM (1&2) GW Mon., Nov. 1999

QC-DUP#1 32782

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DUP
Version	3.06
Report date	02/03/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0638

N911163-12 B0WR90

DUPLICATE

SDG	7291			Client/Case no	Hanford SDG H0638
Contact	Melissa C. Mannion			Case no	TRB-SBB-207925
	DUPLICATE		ORIGINAL		
Lab sample id	N911163-12	Lab sample id	N911163-06	Client sample id	B0WR90
Dept sample id	7291-012	Dept sample id	7291-006	Location/Matrix	Hanford Site WATER
		Received	11/16/99	Collected	11/15/99 10:06
				Custody/SAF No	C00-005-63 C00-005

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
Strontium 90	8.97	0.43	0.56	2.0		Y	8.47	0.41	0.53		6	24

100-HR3-IAM (1&2) GW Mon., Nov. 1999

QC-DUP#6 32783

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DUP
Version	3.06
Report date	02/03/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0638

N911163-13 B0WPY3

MATRIX SPIKE

SDG	7291			Client/Case no	Hanford SDG H0638
Contact	Melissa C. Mannion			Case no	TRB-SBB-207925
	MATRIX SPIKE		ORIGINAL		
Lab sample id	N911163-13	Lab sample id	N911163-02	Client sample id	B0WPY3
Dept sample id	7291-013	Dept sample id	7291-002	Location/Matrix	Hanford Site WATER
		Received	11/16/99	Collected	11/15/99 10:07
				Custody/SAF No	C00-005-3 C00-005

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	4790	210	160	400		H	3830	150	1100	130	96	78-122	60-140

100-HR3-IAM (1&2) GW Mon., Nov. 1999

QC-MS#2 32784

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-MS
Version	3.06
Report date	02/03/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0638

N911163-02 B0WPY3

DATA SHEET

SDG	7291	Client/Case no	Hanford SDG H0638
Contact	Melissa C. Mannion	Contract	TRB-SBB-207925
Lab sample id	N911163-02	Client sample id	B0WPY3
Dept sample id	7291-002	Location/Matrix	Hanford Site WATER
Received	11/16/99	Collected	11/15/99 10:07
		Custody/SAF No	C00-005-3 C00-005

ANALYTE	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST
Gross Alpha	12587-46-1	1.69	1.6	2.3	3.0	U	88A
Gross Beta	12587-47-2	5.36	1.5	2.0	4.0		82B
Tritium	10028-17-8	1100	130	160	400		H

100-HR3-IAM (1&2) GW Mon., Nov. 1999

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	02/03/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0638

N911163-03 B0WPY5

DATA SHEET

SDG	7291	Client/Case no	Hanford	SDG H0638	
Contact	Melissa C. Mannion	Contract	TRB-SBB-207925		
Lab sample id	N911163-03	Client sample id	B0WPY5		
Dept sample id	7291-003	Location/Matrix	Hanford Site	WATER	
Received	11/16/99	Collected	11/15/99 08:15		
		Custody/SAF No	C00-005-4	C00-005	

ANALYTE	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST
Gross Alpha	12587-46-1	0.122	0.39	0.76	3.0	U	88A
Gross Beta	12587-47-2	-0.001	1.4	2.4	4.0	U	82B
Tritium	10028-17-8	144	100	160	400	U	H

100-HR3-IAM (1&2) GW Mon., Nov. 1999

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	02/03/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0638

N911163-01 B0WR01

DATA SHEET

SDG	7291	Client/Case no	Hanford	SDG H0638	
Contact	Melissa C. Mannion	Contract	TRB-SBB-207925		
Lab sample id	N911163-01	Client sample id	B0WR01		
Dept sample id	7291-001	Location/Matrix	Hanford Site	WATER	
Received	11/16/99	Collected	11/15/99 09:10		
		Custody/SAF No	C00-005-1	C00-005	

ANALYTE	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST
Gross Alpha	12587-46-1	0.917	1.3	2.2	3.0	U	88A
Gross Beta	12587-47-2	6.46	1.7	2.3	4.0		82B
Tritium	10028-17-8	7330	240	160	400		H

100-HR3-IAM (1&2) GW Mon., Nov. 1999

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	02/03/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0638

N911163-04 B0WR39

DATA SHEET

SDG	7291	Client/Case no	Hanford	SDG H0638	
Contact	Melissa C. Mannion	Contract	TRB-SBB-207925		
Lab sample id	N911163-04	Client sample id	B0WR39		
Dept sample id	7291-004	Location/Matrix	Hanford Site	WATER	
Received	11/16/99	Collected	11/15/99 11:33		
		Custody/SAF No	C00-005-39	C00-005	

ANALYTE	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST
Gross Alpha	12587-46-1	0.623	0.80	1.3	3.0	U	88A
Gross Beta	12587-47-2	3.23	1.4	2.1	4.0	J	82B
Tritium	10028-17-8	50.1	95	160	400	U	H

100-HR3-IAM (1&2) GW Mon., Nov. 1999

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	02/03/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0638

N911163-05 B0WR41

DATA SHEET

SDG	7291	Client/Case no	Hanford	SDG H0638	
Contact	Melissa C. Mannion	Contract	TRB-SBB-207925		
Lab sample id	N911163-05	Client sample id	B0WR41		
Dept sample id	7291-005	Location/Matrix	Hanford Site	WATER	
Received	11/16/99	Collected	11/15/99 12:15		
		Custody/SAF No	C00-005-37	C00-005	

ANALYTE	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST
Gross Alpha	12587-46-1	1.08	0.91	1.3	3.0	U	88A
Gross Beta	12587-47-2	4.62	1.6	2.4	4.0		82B
Tritium	10028-17-8	-29.7	94	160	400	U	H

100-HR3-IAM (1&2) GW Mon., Nov. 1999

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	02/03/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0638

N911163-06 B0WR90

DATA SHEET

SDG	7291	Client/Case no	Hanford SDG H0638
Contact	Melissa C. Mannion	Contract	TRB-SBB-207925
Lab sample id	N911163-06	Client sample id	B0WR90
Dept sample id	7291-006	Location/Matrix	Hanford Site WATER
Received	11/16/99	Collected	11/15/99 10:06
		Custody/SAF No	C00-005-63 C00-005

ANALYTE	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST
Tritium	10028-17-8	4890	210	160	400		H
Strontium 90	10098-97-2	8.47	0.41	0.53	2.0		Y

100-HR3-IAM (1&2) GW Mon., Nov. 1999

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	02/03/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0638

N911163-07 B0WR91

DATA SHEET

SDG	7291	Client/Case no	Hanford	SDG H0638	
Contact	Melissa C. Mannion	Contract	TRB-SBB-207925		
Lab sample id	N911163-07	Client sample id	B0WR91		
Dept sample id	7291-007	Location/Matrix	Hanford Site	WATER	
Received	11/16/99	Collected	11/15/99 10:06		
		Custody/SAF No	C00-005-63	C00-005	

ANALYTE	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST
Tritium	10028-17-8	4880	210	160	400		H
Strontium 90	10098-97-2	8.29	0.42	0.53	2.0		Y

100-HR3-IAM (1&2) GW Mon., Nov. 1999

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	02/03/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0638

N911163-08 B0WR93

DATA SHEET

SDG	7291	Client/Case no	Hanford SDG H0638
Contact	Melissa C. Mannion	Contract	TRB-SBB-207925
Lab sample id	N911163-08	Client sample id	B0WR93
Dept sample id	7291-008	Location/Matrix	Hanford Site WATER
Received	11/16/99	Collected	11/15/99 12:30
		Custody/SAF No	C00-005-63 C00-005

ANALYTE	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST
Tritium	10028-17-8	3750	190	160	400		H
Strontium 90	10098-97-2	0.744	0.21	0.54	2.0	J	Y

100-HR3-IAM (1&2) GW Mon., Nov. 1999

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	02/03/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0638

Test Y	Matrix WATER
SDG 7291	
Contact Melissa C. Mannion	

METHOD SUMMARY

STRONTIUM 90 IN WATER

BETA COUNTING

Client Hanford	
Contract TRB-SBB-207925	
Case no SDG H0638	

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Strontium 90
Preparation batch 6909-093					
B0WR90	N911163-06			7291-006	8.47
B0WR91	N911163-07			7291-007	8.29
B0WR93	N911163-08			7291-008	0.744 J
BLK (QC ID=32781)	N911163-10			7291-010	U
LCS (QC ID=32780)	N911163-09			7291-009	ok
Duplicate (N911163-06)	N911163-12			7291-012	ok

Nominal values and limits from method RDLs (pCi/L) 2.0

100-HR3-IAM (1&2) GW Mon., Nov. 1999

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 6909-093	2σ prep error 10.0 % Reference Lab Notebook 6909 pg. 093															
B0WR90	N911163-06			0.53	0.500			92		200			72	01/25/00	01/26	GRB-218
B0WR91	N911163-07			0.53	0.500			93		200			72	01/25/00	01/26	GRB-219
B0WR93	N911163-08			0.54	0.500			89		200			72	01/25/00	01/26	GRB-220
BLK (QC ID=32781)	N911163-10			0.58	0.500			82		200				01/25/00	01/26	GRB-222
LCS (QC ID=32780)	N911163-09			0.64	0.500			78		200				01/25/00	01/26	GRB-221
Duplicate (N911163-06) (QC ID=32783)	N911163-12			0.56	0.500			90		200			72	01/25/00	01/26	GRB-223
Nominal values and limits from method				2.0	0.500			20-105		25			180			

PROCEDURES	REFERENCE	SR90Y90
	EP-040	Environmental Water Dissolution, rev 1
	EP-520	Yttrium Purification for Strontium-90 Analysis, rev 0

AVERAGES ± 2 SD FOR 6 SAMPLES	MDA	0.56	±	0.085
	YIELD	87	±	12

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-CMS
Version	3.06
Report date	02/03/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0638

Test 82B Matrix WATER
SDG 7291
Contact Melissa C. Mannion

METHOD SUMMARY

GROSS BETA IN WATER

GAS PROPORTIONAL COUNTING

Client Hanford
Contract TRB-SBB-207925
Case no SDG H0638

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 6909-093								
B0WPY3	N911163-02	82		7291-002	5.36			
B0WPY5	N911163-03	82		7291-003	U			
B0WR01	N911163-01	82		7291-001	6.46			
B0WR39	N911163-04	82		7291-004	3.23 J			
B0WR41	N911163-05	82		7291-005	4.62			
BLK (QC ID=32781)	N911163-10	82		7291-010	U			
LCS (QC ID=32780)	N911163-09	82		7291-009	ok			
Duplicate (N911163-01)	N911163-11	82		7291-011	ok			
Nominal values and limits from method 100-HR3-IAM (1&2) GW Mon., Nov. 1999				RDLs (pCi/L)	4.0		Average	

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MDA pCi/L	ALIQ L	PREP FAC	DILU-TION	RESID mg	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 6909-093 2σ prep error 15.0 % Reference Lab Notebook 6909 pg. 093																
B0WPY3	N911163-02	82		2.0	0.300			140		100			35	12/18/99	12/20	GRB-115
B0WPY5	N911163-03	82		2.4	0.300			0		100			35	12/18/99	12/20	GRB-110
B0WR01	N911163-01	82		2.3	0.300			134		100			35	12/18/99	12/20	GRB-114
B0WR39	N911163-04	82		2.1	0.300			59		100			35	12/18/99	12/20	GRB-111
B0WR41	N911163-05	82		2.4	0.300			74		100			35	12/18/99	12/20	GRB-112
BLK (QC ID=32781)	N911163-10	82		2.1	0.300			21		100				12/18/99	12/20	GRB-114
LCS (QC ID=32780)	N911163-09	82		1.9	0.300			22		100				12/18/99	12/20	GRB-113
Duplicate (N911163-01) (QC ID=32782)	N911163-11	82		2.0	0.300			135		100			35	12/18/99	12/20	GRB-115
Nominal values and limits from method				4.0	0.300			5-250		100			180			

PROCEDURES REFERENCE EPA900.0
EP-120 Gross Alpha and Gross Beta in Environmental Water, rev 2

AVERAGES ± 2 SD FOR 8 SAMPLES
MDA 2.2 ± 0.39
RESIDUE 73 ± 114

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 02/03/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0638

Test 88A Matrix WATER
SDG 7291
Contact Melissa C. Mannion

METHOD SUMMARY

GROSS ALPHA IN WATER

GAS PROPORTIONAL COUNTING

Client Hanford
Contract TRB-SBB-207925
Case no SDG H0638

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Gross Alpha	
Preparation batch 6909-093						
B0WPY3	N911163-02	88		7291-002	U	
B0WPY5	N911163-03	88		7291-003	U	
B0WR01	N911163-01	88		7291-001	U	
B0WR39	N911163-04	88		7291-004	U	
B0WR41	N911163-05	88		7291-005	U	
BLK (QC ID=32781)	N911163-10	88		7291-010	U	
LCS (QC ID=32780)	N911163-09	88		7291-009	ok	
Duplicate (N911163-01)	N911163-11	88		7291-011	ok	J

Nominal values and limits from method RDLs (pCi/L) 3.0
100-HR3-IAM (1&2) GW Mon., Nov. 1999

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 6909-093	2σ prep error 20.0 % Reference Lab Notebook 6909 pg. 093															
B0WPY3	N911163-02	88		2.3	0.300			136		100			35	12/18/99	12/20	GRB-111
B0WPY5	N911163-03	88		0.76	0.300			0		100			35	12/18/99	12/20	GRB-112
B0WR01	N911163-01	88		2.2	0.300			130		100			35	12/18/99	12/20	GRB-110
B0WR39	N911163-04	88		1.3	0.300			59		100			35	12/18/99	12/20	GRB-113
B0WR41	N911163-05	88		1.3	0.300			51		100			35	12/18/99	12/20	GRB-114
BLK (QC ID=32781)	N911163-10	88		0.92	0.300			22		100				12/18/99	12/21	GRB-110
LCS (QC ID=32780)	N911163-09	88		1.2	0.300			21		100				12/18/99	12/20	GRB-115
Duplicate (N911163-01) (QC ID=32782)	N911163-11	88		2.0	0.300			133		100			36	12/18/99	12/21	GRB-111
Nominal values and limits from method				3.0	0.300			5-250		100			180			

PROCEDURES REFERENCE EPA900.0
EP-120 Gross Alpha and Gross Beta in Environmental Water, rev 2

AVERAGES ± 2 SD FOR 8 SAMPLES
MDA 1.5 ± 1.2
RESIDUE 69 ± 112

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 02/03/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0638

Test H Matrix WATER
SDG 7291
Contact Melissa C. Mannion

METHOD SUMMARY

TRITIUM IN WATER

LIQUID SCINTILLATION COUNTING

Client Hanford
Contract TRB-SBB-207925
Case no SDG H0638

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Tritium
Preparation batch 6909-093					
B0WPY3	N911163-02			7291-002	1100
B0WPY5	N911163-03			7291-003	U
B0WR01	N911163-01			7291-001	7330
B0WR39	N911163-04			7291-004	U
B0WR41	N911163-05			7291-005	U
B0WR90	N911163-06			7291-006	4890
B0WR91	N911163-07			7291-007	4880
B0WR93	N911163-08			7291-008	3750
BLK (QC ID=32781)	N911163-10			7291-010	U
LCS (QC ID=32780)	N911163-09			7291-009	ok
Duplicate (N911163-01)	N911163-11			7291-011	ok
Spike (N911163-02)	N911163-13			7291-013	ok

Nominal values and limits from method RDLs (pCi/L) 400
100-HR3-IAM (1&2) GW Mon., Nov. 1999

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 02/03/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0638

Test H Matrix WATER
SDG 7291
Contact Melissa C. Mannion

METHOD SUMMARY

TRITIUM IN WATER

LIQUID SCINTILLATION COUNTING

Client Hanford
Contract TRB-SBB-207925
Case no SDG H0638

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 6909-093	2σ prep error 10.0 %				Reference Lab Notebook 6909 pg. 093											
B0WPY3	N911163-02			160	0.0100			100		100			35	12/18/99	12/20	LSC-007
B0WPY5	N911163-03			160	0.0100			100		100			35	12/18/99	12/20	LSC-007
B0WR01	N911163-01			160	0.0100			100		100			35	12/18/99	12/20	LSC-007
B0WR39	N911163-04			160	0.0100			100		100			35	12/18/99	12/20	LSC-007
B0WR41	N911163-05			160	0.0100			100		100			35	12/18/99	12/20	LSC-007
B0WR90	N911163-06			160	0.0100			100		100			35	12/18/99	12/20	LSC-007
B0WR91	N911163-07			160	0.0100			100		100			35	12/18/99	12/20	LSC-007
B0WR93	N911163-08			160	0.0100			100		100			36	12/18/99	12/21	LSC-007
BLK (QC ID=32781)	N911163-10			160	0.0100			100		100				12/18/99	12/21	LSC-007
LCS (QC ID=32780)	N911163-09			160	0.0100			100		100				12/18/99	12/21	LSC-007
Duplicate (N911163-01) (QC ID=32782)	N911163-11			160	0.0100			100		100			36	12/18/99	12/21	LSC-007
Spike (N911163-02) (QC ID=32784)	N911163-13			160	0.0100			100		100			36	12/18/99	12/21	LSC-007
Nominal values and limits from method				400	0.0100					25			180			

PROCEDURES REFERENCE EPA906.0
EP-210 Tritium in Water by Distillation, rev 0

AVERAGES ± 2 SD FOR 12 SAMPLES
MDA 160 ± 0
YIELD 100 ± 0

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 02/03/00

PNNL

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. # C00-005-1

Page 1 of 1

Collector D.R. BREWINGTON	Contact/Requester JH KESSNER	Telephone No. (509) 375-4688 MSIN FAX
SAF No. C00-005	Sampling Origin HANFORD SITE	Purchase Order/Charge Code
Project Title 100-HR3-IAM (1 & 2) GW MONITORING, NOVEMBER 1999	Logbook No. WIMSML-1475	Ice Chest No. SML452 Temp.
Shipped To (Lab) TMA/RECRA	Method of Shipment GOVT. VEHICLE	Bill of Lading/Air Bill No. 4235 7953 1750
Protocol CERCLA	Data Turnaround 45 Days	Offsite Property No. W00-0-0034

POSSIBLE SAMPLE HAZARDS/REMARKS
** **

SPECIAL INSTRUCTIONS Hold Time Total Activity Exemption: Yes ☑ No ☐
SUBMIT INVOICES AND DELIVERABLES TO JH KESSNER, BHI
FAX COPIES OF QES & TMA LOG-IN TO DL STEWART (376-1704) AND JH KESSNER (372-9487)

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B0WR00 (F)		W	11-15-99	0910	1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
B0WR01		W			1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
B0WR01		W			1x500-mL P	IC Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Sulfate)	Cool 4C
B0WR01		W			1x20-mL P	Activity Scan F	None
B0WR01		W			2x1000-mL G/P	Gross Alpha A, B	HNO3 to pH <2
B0WR01		W			2x1000-mL G/P	Gross Beta C, D	HNO3 to pH <2
B0WR01		W			1x250-mL P	Tritium - H3 E	None

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
D.R. BREWINGTON	D.R. Brewington		1430	Fed. Ex		11-15-99	
Relinquished By			Date/Time	Received By			Date/Time
FedEx		11-16-99	10:00	TNV M. Goldenberg			11-16-99 10:00
Relinquished By			Date/Time	Received By			Date/Time
Relinquished By			Date/Time	Received By			Date/Time

Matrix *

S	= Soil	DS	= Drum Solid
SB	= Sediment	DL	= Drum Liqui
SO	= Solid	T	= Tissue
SL	= Sludge	WI	= Wine
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. # C00-005-3

Page 1 of 1

Collector D.R. BREWINGTON	Contact/Requester JH KESSNER	Telephone No. (509) 375-4688 MSIN FAX
SAF No. C00-005	Sampling Origin HANFORD SITE	Purchase Order/Charge Code
Project Title 100-HR3-IAM (1 & 2) GW MONITORING, NOVEMBER 1999	Logbook No. WM-SML-1125	Ice Chest No. SML452 Temp.
Shipped To (Lab) TMA/RECRA	Method of Shipment GOVT. VEHICLE	Bill of Lading/Air Bill No. 4235 7953 1790
Protocol CERCLA	Data Turnaround 45 Days	Offsite Property No. W00-0-0034

POSSIBLE SAMPLE HAZARDS/REMARKS
** **

SPECIAL INSTRUCTIONS Hold Time Total Activity Exemption: Yes ☑ No ☐
SUBMIT INVOICES AND DELIVERABLES TO JH KESSNER, BHI
FAX COPIES OF QES & TMA LOG-IN TO DL STEWART (376-1704) AND JH KESSNER (372-9487)

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B0WPY2 (F)		W	11-15-99	1007	1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
B0WPY3		W			1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
B0WPY3		W			1x500-mL P	IC Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Sulfate)	Cool 4C
B0WPY3		W			1x20-mL P	Activity Scan F	None
B0WPY3		W			2x1000-mL G/P	Gross Alpha A, B	HNO3 to pH <2
B0WPY3		W			2x1000-mL G/P	Gross Beta GP	HNO3 to pH <2
B0WPY3		W			1x250-mL P	Tritium - H3 E	None

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
D.R. BREWINGTON	D.R. Brewington		1430	Fedex		11-15-99	
Relinquished By			Date/Time	Received By			Date/Time
FedEx			11-16-99 10:00	TNW M. Goldenberg			11-16-99 10:00
Relinquished By			Date/Time	Received By			Date/Time
Relinquished By			Date/Time	Received By			Date/Time

Matrix *

S	= Soil	DS	= Drum Solid
SE	= Sediment	DL	= Drum Liqui
SO	= Solid	T	= Tissue
SL	= Sludge	WI	= Wine
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. # C00-005-4

Page 1 of 1

Collector: D.R. BREWINGTON	Contact/Requester: JH KESSNER	Telephone No.: (509) 375-4688 MSIN FAX
SAF No.: C00-005	Sampling Origin: HANFORD SITE	Purchase Order/Charge Code
Project Title: 100-HR3-JAM (1 & 2) GW MONITORING, NOVEMBER 1999	Logbook No.: WIN-SINL-H25	Ice Chest No.: SIN1452 Temp.
Shipped To (Lab): TMA/RECRA	Method of Shipment: GOVT. VEHICLE	Bill of Lading/Air Bill No.: 423 7953 1790
Protocol: CERCLA	Data Turnaround: 45 Days	Offsite Property No.: W00-0-0034

POSSIBLE SAMPLE HAZARDS/REMARKS
** **

SPECIAL INSTRUCTIONS Hold Time Total Activity Exemption: Yes ☑ No ☐
SUBMIT INVOICES AND DELIVERABLES TO JH KESSNER, BHI
FAX COPIES OF QES & TMA LOG-IN TO DL STEWART (376-1704) AND JH KESSNER (372-9487)

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B0WPY4 (F)		W	11-15-99	0815	1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
B0WPY5		W			1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
B0WPY5		W			1x500-mL P	IC Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Sulfate)	Cool 4C
B0WPY5		W			1x20-mL P	Activity Scan F	None
B0WPY5		W			2x1000-mL G/P	Gross Alpha A, B	HNO3 to pH <2
B0WPY5		W			2x1000-mL G/P	Gross Beta C, D	HNO3 to pH <2
B0WPY5		W			1x250-mL P	Tritium - H3 E	None

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
D.R. BREWINGTON	D.R. Brewington		1430	Fed Ex			11-15-99
Relinquished By: FedEx			11-16-99 10:00	Received By: TNU	M. Goldenberg		11-16-99 10:00
Relinquished By			Date/Time	Received By			Date/Time
Relinquished By			Date/Time	Received By			Date/Time

Matrix *

S = Soil		DS = Drum Solid	
SE = Sediment		DL = Drum Liqui	
SO = Solid		T = Tissue	
SL = Sludge		WI = Wine	
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. # C00-005-39

Collector: D.R. BREWINGTON	Contact/Requester: JH KESSNER	Telephone No.: (509) 375-4688 MSIN FAX
SAF No.: C00-005	Sampling Origin: HANFORD SITE	Purchase Order/Charge Code
Project Title: 100-HR3-IAM (1 & 2) GW MONITORING NOVEMBER 1999	Logbook No.: WMSML-1425	Ice Chest No.: SML 418 Temp.
Shipped To (Lab): TMA/RECRA	Method of Shipment: GOVT. VEHICLE	Bill of Lading/Air Bill No.: 42357953-1804
Protocol: CERCLA	Data Turnaround: 45 Days	Offsite Property No.: W00-0-0034

POSSIBLE SAMPLE HAZARDS/REMARKS
** **

SPECIAL INSTRUCTIONS Hold Time Total Activity Exemption: Yes ☑ No ☐
SUBMIT INVOICES AND DELIVERABLES TO JH KESSNER, BHI
FAX COPIES OF QES & TMA LOG-IN TO DL STEWART (376-1704) AND JH KESSNER (372-9487)

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B0WR38 (F)		W	11-15-99	1133	1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
B0WR39		W	↓	↓	1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
B0WR39		W			1x500-mL P	IC Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Sulfate)	Cool 4C
B0WR39		W			1x20-mL P	Activity Scan F	None
B0WR39		W			2x1000-mL G/P	Gross Alpha A, B	HNO3 to pH <2
B0WR39		W			2x1000-mL G/P	Gross Beta C, D	HNO3 to pH <2
B0WR39		W	↓	↓	1x250-mL P	Tritium - H3 E	None

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
D.R. BREWINGTON	D.R. Brewington		11/15/99 1430	Fed Ex		11-15-99	
Relinquished By			Date/Time	Received By			Date/Time
Fed Ex			11-16-99 10:00	TNU McGoldenberg			11-16-99 10:00
Relinquished By			Date/Time	Received By			Date/Time
Relinquished By			Date/Time	Received By			Date/Time

Matrix *

S	= Soil	DS	= Drum Solid
SE	= Sediment	DL	= Drum Liqui
SO	= Solid	T	= Tissue
SL	= Sludge	WI	= Wine
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. # C00-005-37

Collector D.R. BREWINGTON	Contact/Requester JH KESSNER	Telephone No. (509) 375-4688 MSIN FAX
SAF No. C00-005	Sampling Origin HANFORD SITE	Purchase Order/Charge Code
Project Title 100-HR3-IAM (1 & 2) GW MONITORING, NOVEMBER 1999	Logbook No. WM-SML-H25	Ice Chest No. SML 418 Temp.
Shipped To (Lab) TMA/RECRA	Method of Shipment GOVT. VEHICLE	Bill of Lading/Air Bill No. 4235795 3 1804
Protocol CERCLA	Data Turnaround 45 Days	Offsite Property No. W00-0-0034

POSSIBLE SAMPLE HAZARDS/REMARKS
** **

SPECIAL INSTRUCTIONS Hold Time Total Activity Exemption: Yes ☑ No ☐
SUBMIT INVOICES AND DELIVERABLES TO JH KESSNER, BHI
FAX COPIES OF QES & TMA LOG-IN TO DL STEWART (376-1704) AND JH KESSNER (372-9487)

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B0WR40 (F)		W	11-15-99	1215	1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
B0WR41		W			1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
B0WR41		W			1x500-mL P	IC Anions - 300.0 {Chloride, Fluoride, Nitrate, Nitrite, Sulfate}	Cool 4C
B0WR41		W			1x20-mL P	Activity Scan F	None
B0WR41		W			2x1000-mL G/P	Gross Alpha A1B	HNO3 to pH <2
B0WR41		W			2x1000-mL G/P	Gross Beta C1D	HNO3 to pH <2
B0WR41		W			1x250-mL P	Tritium - H3 E	None

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
D.R. BREWINGTON	D.R. Brewington		11/15/99 1430	FedEx.		11-15-99	
Relinquished By			Date/Time	Received By			Date/Time
FedEx 11-16-99 10:00				TNV M. Goldenberg 11-16-99 10:00			
Relinquished By			Date/Time	Received By			Date/Time
Relinquished By			Date/Time	Received By			Date/Time

Matrix *

S	= Soil	DS	= Drum Solid
SE	= Sediment	DL	= Drum Liqui
SO	= Solid	T	= Tissue
SL	= Sludge	WI	= Wine
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. # C00-005-63

Page 1 of 1

Collector: K.J. YOUNG	Contact/Requester: JH KESSNER	Telephone No.: (509) 375-4688 MSIN FAX
SAF No.: C00-005	Sampling Origin: HANFORD SITE	Purchase Order/Charge Code
Project Title: 100-HR3-JAM (1 & 2) GW MONITORING, NOVEMBER 1999	Logbook No.: VVM-SML-H30	Ice Chest No.: SML-550 Temp.
Shipped To (Lab): TMA/RECRA	Method of Shipment: GOVT. VEHICLE	Bill of Lading/Air Bill No.: 4235 7953 1789
Protocol: CERCLA	Data Turnaround: 45 Days	Offsite Property No.: W00-0-0034

POSSIBLE SAMPLE HAZARDS/REMARKS
** **

SPECIAL INSTRUCTIONS Hold Time Total Activity Exemption: Yes ☑ No ☐
SUBMIT INVOICES AND DELIVERABLES TO JH KESSNER, BHI
FAX COPIES OF QES & TMA LOG-IN TO DL STEWART (376-1704) AND JH KESSNER (372-9487)

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B0WR90		W	11-15-99	1006	1x20-mL P	Activity Scan D	None
B0WR90		W	/	/	2x1000-mL G/P	Strontium-89,90 -- Sr-90 A, B	HNO3 to pH <2
B0WR90		W	/	/	1x250-mL P	Tritium - H3 C	None

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
K.J. YOUNG		[signature]	11/15/99 1340	Fed Ex		F.	11-15-99
FedEx			11-16-99 10:00	TNW McGoldrick			11-16-99 10:00

Matrix *

S = Soil		DS = Drum Solid	
SE = Sediment		DL = Drum Liquid	
SO = Solid		T = Tissue	
SL = Sludge		WI = Wine	
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. # C00-005-64

Collector: K.J. YOUNG	Contact/Requester: JH KESSNER	Telephone No.: (509) 375-4688 MSIN FAX
SAF No.: C00-005	Sampling Origin: HANFORD SITE	Purchase Order/Charge Code
Project Title: 100-HR3-IAM (1 & 2) GW MONITORING NOVEMBER 1999	Logbook No.: VVM-SML-1430	Ice Chest No.: SML-580 Temp.
Shipped To (Lab): TMA/RECRA	Method of Shipment: GOVT. VEHICLE	Bill of Lading/Air Bill No.: 423-7953-189
Protocol: CERCLA	Data Turnaround: 45 Days	Offsite Property No.: W00-0-0034

POSSIBLE SAMPLE HAZARDS/REMARKS
** **

SPECIAL INSTRUCTIONS Hold Time Total Activity Exemption: Yes ☑ No ☐
SUBMIT INVOICES AND DELIVERABLES TO JH KESSNER, BHI
FAX COPIES OF QES & TMA LOG-IN TO DL STEWART (376-1704) AND JH KESSNER (372-9487)

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B0WR91		W	11-15-99	1006	1x20-mL P	Activity Scan D	None
B0WR91		W			2x1000-mL G/P	Strontium-89,90 -- Sr-90 A, B	HNO3 to pH <2
B0WR91		W			1x250-mL P	Tritium - H3 C	None

Relinquished By (Print / Sign)	Date/Time	Received By (Print / Sign)	Date/Time
K.J. YOUNG [signature]	11/15/99 1340	Fed Ex	11-15-99
Fed Ex	11-16-99 10:00	TNV M. Goldenberg	11-16-99 10:00

Matrix *

S = Soil		DS = Drum Solid	
SE = Sediment		DL = Drum Liqui	
SO = Solid		T = Tissue	
SL = Sludge		WI = Wine	
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. # C00-005-67

Page 1 of 1

Collector K.J. YOUNG	Contact/Requester JH KESSNER	Telephone No. (509) 375-4688 MSIN FAX
SAF No. C00-005	Sampling Origin HANFORD SITE	Purchase Order/Charge Code
Project Title 100-HR3-IAM (1 & 2) GW MONITORING, NOVEMBER 1999	Logbook No. WM-SML-H30	Ice Chest No. SML-580 Temp.
Shipped To (Lab) TMA/RECRA	Method of Shipment GOVT. VEHICLE	Bill of Lading/Air Bill No. 4235 7953 1789
Protocol CERCLA	Data Turnaround 45 Days	Offsite Property No. W00-0-0034

POSSIBLE SAMPLE HAZARDS/REMARKS
** **

SPECIAL INSTRUCTIONS Hold Time Total Activity Exemption: Yes ☑ No ☐
SUBMIT INVOICES AND DELIVERABLES TO JH KESSNER, BHI
FAX COPIES OF QES & TMA LOG-IN TO DL STEWART (376-1704) AND JH KESSNER (372-9487)

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B0WR93		W	11-15-99	1230	1x20-mL P	Activity Scan D	None
B0WR93		W	1	1	2x1000-mL G/P	Strontium-89,90 -- Sr-90 A, B	HNO3 to pH <2
B0WR93		W	1	1	1x250-mL P	Tritium - H3 C	None

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
K.J. YOUNG			11/15/99 1340	Fed Ex			11-15-99
Relinquished By			Date/Time	Received By			Date/Time
Fed EX			11-16-99 10:00	TNV McGoldenberg			11-16-99 10:00
Relinquished By			Date/Time	Received By			Date/Time
Relinquished By			Date/Time	Received By			Date/Time

Matrix *

S = Soil		DS = Drum Solid	
SB = Sediment		DL = Drum Liqui	
SO = Solid		T = Tissue	
SL = Sludge		WI = Wine	
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 - Richmond

SAMPLE RECEIPT CHECKLIST

SAMPLE RECEIPT

Client: Bechtel Hanford Inc Date/Time received 11-16-99 16:00

CoC No. C00-005-1, 4, 3, 37, 39, 63, 64, 67

Container I.D. No. SML #30, 25 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: 44
7. Number of containers per sample: _____ (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 M. Goldenberg Date: 11-16-99 Time: 16:00

LOGIN

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

PROGRAM MANAGER

Sample holding times exceeded? Yes [ ] No [ ]

Client Notified: Name _____ Date/time _____

RECRA
ENVIRONMENTAL
INC.

Chemical and Environmental Measurement Information

Recra LabNet Philadelphia
Analytical Report

Client : TNU-HANFORD C00-005
RFW# : 9911L759
SDG/SAF# : H0638/C00-005

W.O.# : 10985-001-001-9999-001
Date Received: 11-18-99

FEB 2000
RECEIVED
Data
Log In

METALS CASE NARRATIVE

1. This narrative covers the analyses of 10 water samples.

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

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

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

5. All Initial and Continuing Calibration Verifications (ICV/CCVs) were within the 90-110% control limits (80-120% for Mercury).

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

7. The preparation/method blank for 1 analyte was outside method criteria. {less than the Practical Quantitation Limit (3X the IDL) or samples greater than 20X MB value}. Refer to the Inorganics Method Blank Data Summary.

   a.) The MB result for Sodium was greater than the Practical Quantitation Limit (PQL) {3x the (IDL) Instrument Detection Level} and samples B0WPY4 and B0WPY5 read less than 20 times the MB concentration. However, no corrective action criteria for MBs were provided in SW846 method 6010B. The sample results were reported herein "uncorrected" for the levels found in the MB.

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

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

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

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 33 pages.

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

11. The duplicate analyses for 4 analytes were outside the 20% Relative Percent Difference (RPD) control limits. Refer to the Inorganics Precision Report.

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

J. Michael Taylor
Vice President
Philadelphia Analytical Laboratory

1-31-00
Date

jjw/m11-759

FEB 2000
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Data
Log In

METALS METHOD GLOSSARY

The following methods are used as reference for the digestion and analysis of samples contained within this Recra Lot#: 9911L759

Leaching Procedure: __1310 __1311 __1312 __Other:_____

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

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

Metals Analysis Methods

	SW846		EPA		STD MTD	EPA OSWR	USATHAMA
Aluminum	X 6010B		__200.7				__99
Antimony	X 6010B	__7041 [5]	__200.7	__204.2			__99
Arsenic	__6010B	__7060A [5]	__200.7	__206.2	__3113B		__99
Barium	X 6010B		__200.7				__99
Beryllium	X 6010B		__200.7				__99
Bismuth	__6010B [1]		__200.7 [1]			__1620	__99
Boron	__6010B		__200.7				__99
Cadmium	X 6010B	__7131A [5]	__200.7	__213.2			__99
Calcium	X 6010B		__200.7				__99
Chromium	X 6010B	__7191 [5]	__200.7	__218.2			__SS17
Cobalt	X 6010B		__200.7				__99
Copper	X 6010B	__7211 [5]	__200.7	__220.2			__99
Iron	X 6010B		__200.7				__99
Lead	X 6010B	__7421 [5]	__200.7	__239.2	__3113B		__99
Lithium	__6010B	__7430 [4]	__200.7			__1620	__99
Magnesium	X 6010B		__200.7				__99
Manganese	X 6010B		__200.7				__99
Mercury	__7470A [3]	__7471A [3]	__245.1 [2]	__245.5 [2]			__99
Molybdenum	__6010B		__200.7				__99
Nickel	X 6010B		__200.7				__99
Potassium	X 6010B	__7610 [4]	__200.7	__258.1 [4]			__99
Rare Earths	__6010B [1]		__200.7 [1]			__1620	__99
Selenium	__6010B	__7740 [5]	__200.7	__270.2	__3113B		__99
Silicon	__6010B [1]		__200.7			__1620	__99
Silica	__6010B		__200.7			__1620	__99
Silver	X 6010B	__7761 [5]	__200.7	__272.2			__99
Sodium	X 6010B	__7770 [4]	__200.7	__273.1 [4]			__99
Strontium	X 6010B		__200.7				__99
Thallium	__6010B	__7841 [5]	__200.7	__279.2	__200.9		__99
Tin	X 6010B		__200.7				__99
Titanium	__6010B		__200.7				__99
Uranium	__6010B [1]		__200.7 [1]			__1620	__99
Vanadium	X 6010B		__200.7				__99
Zinc	X 6010B		__200.7				__99
Zirconium	__6010B [1]		__200.7 [1]			__1620	__99

FEB 2000
RECEIVED
Data
Log In

Other:_____ Method:_____

L-WI-033/M-11/99

METHOD REFERENCES AND DATA QUALIFIERS

DATA QUALIFIERS

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

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

ABBREVIATIONS

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

ANALYTICAL METAL METHODS

1. Not included in the method element list.

2. Modified Hg: Hg1 and Hg2 require less total volume of digestate due to the autosampler analysis. Sample volumes and reagents for mercury determinations in water and soil have been proportionately scaled down to adapt to this semi-automated technique. The sample volume used for water analysis is 33 mL. For soils, 0.1 grams of sample is taken to a final volume of 50 mL (including all reagents).

3. Modified Hg: Hg1 and Hg2 require less total volume of digestate due to the autosampler analysis. Sample volumes and reagents for mercury determinations in water and soil have been proportionately scaled down to adapt to this semi-automated technique. The sample volume used for water analysis is 33 mL. For soils, three 0.1 gram of sample is taken to a final volume of 50 mL (including all reagents).

4. Flame AA.

5. Graphite Furnace AA.

RFW 21-21L-033/N-10/96

Recra LabNet - Lionville

INORGANICS DATA SUMMARY REPORT 01/28/00

CLIENT: TNU-HANFORD C00-005

RECRA LOT #: 9911L759

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	B0WR00	Silver, Total	0.80 u	UG/L	0.80	1.0
		Aluminum, Total	10.1 u	UG/L	10.1	1.0
		Barium, Total	77.6	UG/L	0.20	1.0
		Beryllium, Total	0.10 u	UG/L	0.10	1.0
		Calcium, Total	111000	UG/L	8.6	1.0
		Cadmium, Total	0.40 u	UG/L	0.40	1.0
		Cobalt, Total	0.93	UG/L	0.70	1.0
		Chromium, Total	130	UG/L	0.70	1.0
		Copper, Total	1.8	UG/L	0.50	1.0
		Iron, Total	38.1	UG/L	13.6	1.0
		Potassium, Total	5910	UG/L	17.8	1.0
		Magnesium, Total	24900	UG/L	6.3	1.0
		Manganese, Total	1.2	UG/L	0.20	1.0
		Sodium, Total	14400	UG/L	4.8	1.0
		Nickel, Total	4.1	UG/L	1.0	1.0
		Lead, Total	2.1 u	UG/L	2.1	1.0
		Antimony, Total	2.1 u	UG/L	2.1	1.0
		Tin, Total	2.6 u	UG/L	2.6	1.0
		Strontium, Total	566	UG/L	0.10	1.0
		Vanadium, Total	9.8	UG/L	0.60	1.0
		Zinc, Total	1.3	UG/L	0.50	1.0

Recra LabNet - Lionville

INORGANICS DATA SUMMARY REPORT 01/28/00

CLIENT: TNU-HANFORD C00-005 RECRA LOT #: 9911L759

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-002	B0WR01	Silver, Total	0.80 u	UG/L	0.80	1.0
		Aluminum, Total	27.6	UG/L	10.1	1.0
		Barium, Total	77.2	UG/L	0.20	1.0
		Beryllium, Total	0.10 u	UG/L	0.10	1.0
		Calcium, Total	110000	UG/L	8.6	1.0
		Cadmium, Total	0.40 u	UG/L	0.40	1.0
		Cobalt, Total	0.70 u	UG/L	0.70	1.0
		Chromium, Total	167	UG/L	0.70	1.0
		Copper, Total	1.8	UG/L	0.50	1.0
		Iron, Total	640	UG/L	13.6	1.0
		Potassium, Total	5740	UG/L	17.8	1.0
		Magnesium, Total	24500	UG/L	6.3	1.0
		Manganese, Total	10.8	UG/L	0.20	1.0
		Sodium, Total	14300	UG/L	4.8	1.0
		Nickel, Total	14.1	UG/L	1.0	1.0
		Lead, Total	2.1 u	UG/L	2.1	1.0
		Antimony, Total	2.1 u	UG/L	2.1	1.0
		Tin, Total	2.6 u	UG/L	2.6	1.0
		Strontium, Total	558	UG/L	0.10	1.0
		Vanadium, Total	10.2	UG/L	0.60	1.0
		Zinc, Total	2.9	UG/L	0.50	1.0

Recra LabNet - Lionville

INORGANICS DATA SUMMARY REPORT 01/28/00

CLIENT: TNU-HANFORD C00-005 RECRA LOT #: 9911L759

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-003	B0WPY4	Silver, Total	0.80 u	UG/L	0.80	1.0
		Aluminum, Total	11.9	UG/L	10.1	1.0
		Barium, Total	0.36	UG/L	0.20	1.0
		Beryllium, Total	0.10 u	UG/L	0.10	1.0
		Calcium, Total	25.7	UG/L	8.6	1.0
		Cadmium, Total	0.40 u	UG/L	0.40	1.0
		Cobalt, Total	0.86	UG/L	0.70	1.0
		Chromium, Total	0.70 u	UG/L	0.70	1.0
		Copper, Total	1.5	UG/L	0.50	1.0
		Iron, Total	13.6 u	UG/L	13.6	1.0
		Potassium, Total	19.6	UG/L	17.8	1.0
		Magnesium, Total	6.3 u	UG/L	6.3	1.0
		Manganese, Total	0.20 u	UG/L	0.20	1.0
		Sodium, Total	128	UG/L	4.8	1.0
		Nickel, Total	1.0	UG/L	1.0	1.0
		Lead, Total	2.1 u	UG/L	2.1	1.0
		Antimony, Total	2.1 u	UG/L	2.1	1.0
		Tin, Total	2.6	UG/L	2.6	1.0
		Strontium, Total	0.15	UG/L	0.10	1.0
		Vanadium, Total	1.4	UG/L	0.60	1.0
		Zinc, Total	1.3	UG/L	0.50	1.0

Recra LabNet - Lionville

INORGANICS DATA SUMMARY REPORT 01/28/00

CLIENT: TNU-HANFORD C00-005

RECRA LOT #: 9911L759

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-004	B0WPY5	Silver, Total	0.80 u	UG/L	0.80	1.0
		Aluminum, Total	13.9	UG/L	10.1	1.0
		Barium, Total	6.8	UG/L	0.20	1.0
		Beryllium, Total	0.10 u	UG/L	0.10	1.0
		Calcium, Total	15.6	UG/L	8.6	1.0
		Cadmium, Total	0.40 u	UG/L	0.40	1.0
		Cobalt, Total	0.70 u	UG/L	0.70	1.0
		Chromium, Total	0.96	UG/L	0.70	1.0
		Copper, Total	0.55	UG/L	0.50	1.0
		Iron, Total	13.6 u	UG/L	13.6	1.0
		Potassium, Total	50.9	UG/L	17.8	1.0
		Magnesium, Total	7.3	UG/L	6.3	1.0
		Manganese, Total	0.20 u	UG/L	0.20	1.0
		Sodium, Total	154	UG/L	4.8	1.0
		Nickel, Total	1.0 u	UG/L	1.0	1.0
		Lead, Total	2.1 u	UG/L	2.1	1.0
		Antimony, Total	2.1 u	UG/L	2.1	1.0
		Tin, Total	2.9	UG/L	2.6	1.0
		Strontium, Total	0.10 u	UG/L	0.10	1.0
		Vanadium, Total	0.60 u	UG/L	0.60	1.0
		Zinc, Total	1.1	UG/L	0.50	1.0

Recra LabNet - Lionville

INORGANICS DATA SUMMARY REPORT 01/28/00

CLIENT: TNU-HANFORD C00-005 RECRA LOT #: 9911L759

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-005	B0WPY2	Silver, Total	0.80 u	UG/L	0.80	1.0
		Aluminum, Total	30.7	UG/L	10.1	1.0
		Barium, Total	77.3	UG/L	0.20	1.0
		Beryllium, Total	0.10 u	UG/L	0.10	1.0
		Calcium, Total	117000	UG/L	8.6	1.0
		Cadmium, Total	0.40 u	UG/L	0.40	1.0
		Cobalt, Total	6.0	UG/L	0.70	1.0
		Chromium, Total	495	UG/L	0.70	1.0
		Copper, Total	5.1	UG/L	0.50	1.0
		Iron, Total	22.7	UG/L	13.6	1.0
		Potassium, Total	5180	UG/L	17.8	1.0
		Magnesium, Total	25900	UG/L	6.3	1.0
		Manganese, Total	4.2	UG/L	0.20	1.0
		Sodium, Total	11500	UG/L	4.8	1.0
		Nickel, Total	7.6	UG/L	1.0	1.0
		Lead, Total	2.1 u	UG/L	2.1	1.0
		Antimony, Total	2.2	UG/L	2.1	1.0
		Tin, Total	2.6 u	UG/L	2.6	1.0
		Strontium, Total	694	UG/L	0.10	1.0
		Vanadium, Total	5.6	UG/L	0.60	1.0
		Zinc, Total	454	UG/L	0.50	1.0

Recra LabNet - Lionville

INORGANICS DATA SUMMARY REPORT 01/28/00

CLIENT: TNU-HANFORD C00-005

RECRA LOT #: 9911L759

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-006	B0WPY3	Silver, Total	0.80 u	UG/L	0.80	1.0
		Aluminum, Total	15.2	UG/L	10.1	1.0
		Barium, Total	81.1	UG/L	0.20	1.0
		Beryllium, Total	0.10 u	UG/L	0.10	1.0
		Calcium, Total	118000	UG/L	8.6	1.0
		Cadmium, Total	0.40 u	UG/L	0.40	1.0
		Cobalt, Total	6.6	UG/L	0.70	1.0
		Chromium, Total	540	UG/L	0.70	1.0
		Copper, Total	6.1	UG/L	0.50	1.0
		Iron, Total	930	UG/L	13.6	1.0
		Potassium, Total	5310	UG/L	17.8	1.0
		Magnesium, Total	26000	UG/L	6.3	1.0
		Manganese, Total	5.9	UG/L	0.20	1.0
		Sodium, Total	11600	UG/L	4.8	1.0
		Nickel, Total	7.8	UG/L	1.0	1.0
		Lead, Total	2.1 u	UG/L	2.1	1.0
		Antimony, Total	2.3	UG/L	2.1	1.0
		Tin, Total	2.6 u	UG/L	2.6	1.0
		Strontium, Total	714	UG/L	0.10	1.0
		Vanadium, Total	7.3	UG/L	0.60	1.0
		Zinc, Total	577	UG/L	0.50	1.0

Recra LabNet - Lionville

INORGANICS DATA SUMMARY REPORT 01/28/00

CLIENT: TNU-HANFORD C00-005

RECRA LOT #: 9911L759

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-007	B0WR40	Silver, Total	0.80 u	UG/L	0.80	1.0
		Aluminum, Total	10.1 u	UG/L	10.1	1.0
		Barium, Total	71.2	UG/L	0.20	1.0
		Beryllium, Total	0.10 u	UG/L	0.10	1.0
		Calcium, Total	61300	UG/L	8.6	1.0
		Cadmium, Total	0.40 u	UG/L	0.40	1.0
		Cobalt, Total	0.70 u	UG/L	0.70	1.0
		Chromium, Total	381	UG/L	0.70	1.0
		Copper, Total	1.9	UG/L	0.50	1.0
		Iron, Total	13.6 u	UG/L	13.6	1.0
		Potassium, Total	3880	UG/L	17.8	1.0
		Magnesium, Total	15200	UG/L	6.3	1.0
		Manganese, Total	256	UG/L	0.20	1.0
		Sodium, Total	7220	UG/L	4.8	1.0
		Nickel, Total	1.7	UG/L	1.0	1.0
		Lead, Total	3.2	UG/L	2.1	1.0
		Antimony, Total	2.9	UG/L	2.1	1.0
		Tin, Total	2.6 u	UG/L	2.6	1.0
		Strontium, Total	382	UG/L	0.10	1.0
		Vanadium, Total	4.1	UG/L	0.60	1.0
		Zinc, Total	39.8	UG/L	0.50	1.0

Recra LabNet - Lionville

INORGANICS DATA SUMMARY REPORT 01/28/00

CLIENT: TNU-HANFORD C00-005

RECRA LOT #: 9911L759

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-008	B0WR41	Silver, Total	0.80 u	UG/L	0.80	1.0
		Aluminum, Total	21.4	UG/L	10.1	1.0
		Barium, Total	72.0	UG/L	0.20	1.0
		Beryllium, Total	0.10 u	UG/L	0.10	1.0
		Calcium, Total	62900	UG/L	8.6	1.0
		Cadmium, Total	0.40 u	UG/L	0.40	1.0
		Cobalt, Total	0.70 u	UG/L	0.70	1.0
		Chromium, Total	372	UG/L	0.70	1.0
		Copper, Total	2.3	UG/L	0.50	1.0
		Iron, Total	14.1	UG/L	13.6	1.0
		Potassium, Total	3950	UG/L	17.8	1.0
		Magnesium, Total	15400	UG/L	6.3	1.0
		Manganese, Total	293	UG/L	0.20	1.0
		Sodium, Total	7440	UG/L	4.8	1.0
		Nickel, Total	2.9	UG/L	1.0	1.0
		Lead, Total	3.0	UG/L	2.1	1.0
		Antimony, Total	2.1 u	UG/L	2.1	1.0
		Tin, Total	2.6 u	UG/L	2.6	1.0
		Strontium, Total	387	UG/L	0.10	1.0
		Vanadium, Total	4.1	UG/L	0.60	1.0
		Zinc, Total	41.3	UG/L	0.50	1.0

Recra LabNet - Lionville

INORGANICS DATA SUMMARY REPORT 01/28/00

CLIENT: TNU-HANFORD C00-005 RECRA LOT #: 9911L759

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-009	B0WR38	Silver, Total	0.80 u	UG/L	0.80	1.0
		Aluminum, Total	13.0	UG/L	10.1	1.0
		Barium, Total	40.4	UG/L	0.20	1.0
		Beryllium, Total	0.10 u	UG/L	0.10	1.0
		Calcium, Total	48900	UG/L	8.6	1.0
		Cadmium, Total	0.40 u	UG/L	0.40	1.0
		Cobalt, Total	0.70 u	UG/L	0.70	1.0
		Chromium, Total	1180	UG/L	0.70	1.0
		Copper, Total	2.6	UG/L	0.50	1.0
		Iron, Total	13.6 u	UG/L	13.6	1.0
		Potassium, Total	3270	UG/L	17.8	1.0
		Magnesium, Total	11800	UG/L	6.3	1.0
		Manganese, Total	0.30	UG/L	0.20	1.0
		Sodium, Total	5050	UG/L	4.8	1.0
		Nickel, Total	1.0 u	UG/L	1.0	1.0
		Lead, Total	2.1 u	UG/L	2.1	1.0
		Antimony, Total	4.8	UG/L	2.1	1.0
		Tin, Total	2.6 u	UG/L	2.6	1.0
		Strontium, Total	295	UG/L	0.10	1.0
		Vanadium, Total	7.7	UG/L	0.60	1.0
		Zinc, Total	43.2	UG/L	0.50	1.0

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INORGANICS DATA SUMMARY REPORT 01/28/00

CLIENT: TNU-HANFORD C00-005

RECRA LOT #: 9911L759

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-010	B0WR39	Silver, Total	0.80 u	UG/L	0.80	1.0
		Aluminum, Total	10.1 u	UG/L	10.1	1.0
		Barium, Total	40.0	UG/L	0.20	1.0
		Beryllium, Total	0.10 u	UG/L	0.10	1.0
		Calcium, Total	48500	UG/L	8.6	1.0
		Cadmium, Total	0.40 u	UG/L	0.40	1.0
		Cobalt, Total	0.70 u	UG/L	0.70	1.0
		Chromium, Total	1170	UG/L	0.70	1.0
		Copper, Total	5.7	UG/L	0.50	1.0
		Iron, Total	62.4	UG/L	13.6	1.0
		Potassium, Total	3180	UG/L	17.8	1.0
		Magnesium, Total	11600	UG/L	6.3	1.0
		Manganese, Total	0.49	UG/L	0.20	1.0
		Sodium, Total	4850	UG/L	4.8	1.0
		Nickel, Total	1.0 u	UG/L	1.0	1.0
		Lead, Total	3.3	UG/L	2.1	1.0
		Antimony, Total	3.2	UG/L	2.1	1.0
		Tin, Total	2.6 u	UG/L	2.6	1.0
		Strontium, Total	288	UG/L	0.10	1.0
		Vanadium, Total	8.1	UG/L	0.60	1.0
		Zinc, Total	44.8	UG/L	0.50	1.0

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INORGANICS METHOD BLANK DATA SUMMARY PAGE 01/28/00

CLIENT: TNU-HANFORD C00-005 RECRA LOT #: 9911L759

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK1	99L0933-MB1	Silver, Total	0.80 u	UG/L	0.80	1.0
		Aluminum, Total	22.3	UG/L	10.1	1.0
		Barium, Total	0.37	UG/L	0.20	1.0
		Beryllium, Total	0.10 u	UG/L	0.10	1.0
		Calcium, Total	11.2	UG/L	8.6	1.0
		Cadmium, Total	0.40 u	UG/L	0.40	1.0
		Cobalt, Total	0.70 u	UG/L	0.70	1.0
		Chromium, Total	0.70 u	UG/L	0.70	1.0
		Copper, Total	0.59	UG/L	0.50	1.0
		Iron, Total	13.6 u	UG/L	13.6	1.0
		Potassium, Total	21.0	UG/L	17.8	1.0
		Magnesium, Total	6.3 u	UG/L	6.3	1.0
		Manganese, Total	0.20 u	UG/L	0.20	1.0
		Sodium, Total	104	UG/L	4.8	1.0
		Nickel, Total	1.0 u	UG/L	1.0	1.0
		Lead, Total	2.1 u	UG/L	2.1	1.0
		Antimony, Total	2.1 u	UG/L	2.1	1.0
		Tin, Total	3.0	UG/L	2.6	1.0
		Strontium, Total	0.10 u	UG/L	0.10	1.0
		Vanadium, Total	0.60 u	UG/L	0.60	1.0
		Zinc, Total	1.4	UG/L	0.50	1.0

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INORGANICS ACCURACY REPORT 01/28/00

CLIENT: TNU-HANFORD C00-005 RECRA LOT #: 9911L759

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-001	B0WR00	Silver, Total	50.1	0.80u	50.0	100.2	1.0
		Aluminum, Total	2040	10.1 u	2000	102.1	1.0
		Barium, Total	2070	77.6	2000	99.7	1.0
		Beryllium, Total	50.4	0.10u	50.0	100.8	1.0
		Calcium, Total	134000	111000	25000	92.6*	1.0
		Cadmium, Total	48.7	0.40u	50.0	97.4	1.0
		Cobalt, Total	494	0.93	500	98.6	1.0
		Chromium, Total	330	130	200	100	1.0
		Copper, Total	250	1.8	250	99.2	1.0
		Iron, Total	1040	38.1	1000	100.4	1.0
		Potassium, Total	32300	5910	25000	105.6	1.0
		Magnesium, Total	49500	24900	25000	98.7	1.0
		Manganese, Total	512	1.2	500	102.2	1.0
		Sodium, Total	38700	14400	25000	97.2	1.0
		Nickel, Total	491	4.1	500	97.3	1.0
		Lead, Total	487	2.1 u	500	97.4	1.0
		Antimony, Total	510	2.1 u	500	101.9	1.0
		Tin, Total	1010	2.6 u	1000	101.5	1.0
		Strontium, Total	1540	566	1000	97.6	1.0
		Vanadium, Total	520	9.8	500	102.0	1.0
		Zinc, Total	494	1.3	500	98.5	1.0

Recra LabNet - Lionville

INORGANICS PRECISION REPORT 01/28/00

CLIENT: TNU-HANFORD C00-005

RECRA LOT #: 9911L759

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-001REP	B0WR00	Silver, Total	0.80u	0.80u	NC	1.0
		Aluminum, Total	10.1 u	29.1	~~NC~~ 200 PW 1/23/00	1.0
		Barium, Total	77.6	78.3	0.90	1.0
		Beryllium, Total	0.10u	0.10u	NC	1.0
		Calcium, Total	111000	112000	0.66	1.0
		Cadmium, Total	0.40u	0.40u	NC	1.0
		Cobalt, Total	0.93	0.70u	~~NC~~ 200 MW 1/28/00	1.0
		Chromium, Total	130	131	0.76	1.0
		Copper, Total	1.8	0.93	63.7	1.0
		Iron, Total	38.1	37.8	0.79	1.0
		Potassium, Total	5910	5950	0.76	1.0
		Magnesium, Total	24900	25100	0.76	1.0
		Manganese, Total	1.2	1.2	0.00	1.0
		Sodium, Total	14400	14500	0.93	1.0
		Nickel, Total	4.1	3.7	10.3	1.0
		Lead, Total	2.1 u	2.1 u	NC	1.0
		Antimony, Total	2.1 u	2.1 u	NC	1.0
		Tin, Total	2.6 u	2.6 u	NC	1.0
		Strontium, Total	566	572	0.98	1.0
		Vanadium, Total	9.8	9.4	4.2	1.0
		Zinc, Total	1.3	0.50u	~~NC~~ 200 MW 1/28/00	1.0

Recra LabNet - Lionville

INORGANICS LABORATORY CONTROL STANDARDS REPORT 01/28/00

CLIENT: TNU-HANFORD C00-005 RECRA LOT #: 9911L759

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
LCS1	99L0933-LC1	Silver, LCS	499	500	UG/L	99.8
		Aluminum, LCS	5020	5000	UG/L	100.3
		Barium, LCS	4950	5000	UG/L	99.0
		Beryllium, LCS	247	250	UG/L	99.0
		Calcium, LCS	24900	25000	UG/L	99.4
		Cadmium, LCS	247	250	UG/L	98.9
		Cobalt, LCS	2470	2500	UG/L	98.6
		Chromium, LCS	498	500	UG/L	99.6
		Copper, LCS	1240	1250	UG/L	98.9
		Iron, LCS	4980	5000	UG/L	99.6
		Potassium, LCS	24900	25000	UG/L	99.6
		Magnesium, LCS	24700	25000	UG/L	98.8
		Manganese, LCS	756	750	UG/L	100.9
		Sodium, LCS	24300	25000	UG/L	97.3
		Nickel, LCS	1970	2000	UG/L	98.6
		Lead, LCS	2460	2500	UG/L	98.6
		Antimony, LCS	2970	3000	UG/L	99.0
		Tin, LCS	4940	5000	UG/L	98.8
		Strontium, LCS	4910	5000	UG/L	98.3
		Vanadium, LCS	2520	2500	UG/L	100.6
		Zinc, LCS	983	1000	UG/L	98.3

Recra LabNet - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNU-HANFORD C00-005

DATE RECEIVED: 11/18/99 RFW LOT # :9911L759

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B0WR00						
SILVER, TOTAL	001	W	99L0933	11/15/99	01/19/00	01/24/00
SILVER, TOTAL	001 REP	W	99L0933	11/15/99	01/19/00	01/24/00
SILVER, TOTAL	001 MS	W	99L0933	11/15/99	01/19/00	01/24/00
ALUMINUM, TOTAL	001	W	99L0933	11/15/99	01/19/00	01/24/00
ALUMINUM, TOTAL	001 REP	W	99L0933	11/15/99	01/19/00	01/24/00
ALUMINUM, TOTAL	001 MS	W	99L0933	11/15/99	01/19/00	01/24/00
BARIUM, TOTAL	001	W	99L0933	11/15/99	01/19/00	01/24/00
BARIUM, TOTAL	001 REP	W	99L0933	11/15/99	01/19/00	01/24/00
BARIUM, TOTAL	001 MS	W	99L0933	11/15/99	01/19/00	01/24/00
BERYLLIUM, TOTAL	001	W	99L0933	11/15/99	01/19/00	01/24/00
BERYLLIUM, TOTAL	001 REP	W	99L0933	11/15/99	01/19/00	01/24/00
BERYLLIUM, TOTAL	001 MS	W	99L0933	11/15/99	01/19/00	01/24/00
CALCIUM, TOTAL	001	W	99L0933	11/15/99	01/19/00	01/24/00
CALCIUM, TOTAL	001 REP	W	99L0933	11/15/99	01/19/00	01/24/00
CALCIUM, TOTAL	001 MS	W	99L0933	11/15/99	01/19/00	01/24/00
CADMIUM, TOTAL	001	W	99L0933	11/15/99	01/19/00	01/24/00
CADMIUM, TOTAL	001 REP	W	99L0933	11/15/99	01/19/00	01/24/00
CADMIUM, TOTAL	001 MS	W	99L0933	11/15/99	01/19/00	01/24/00
COBALT, TOTAL	001	W	99L0933	11/15/99	01/19/00	01/24/00
COBALT, TOTAL	001 REP	W	99L0933	11/15/99	01/19/00	01/24/00
COBALT, TOTAL	001 MS	W	99L0933	11/15/99	01/19/00	01/24/00
CHROMIUM, TOTAL	001	W	99L0933	11/15/99	01/19/00	01/24/00
CHROMIUM, TOTAL	001 REP	W	99L0933	11/15/99	01/19/00	01/24/00
CHROMIUM, TOTAL	001 MS	W	99L0933	11/15/99	01/19/00	01/24/00
COPPER, TOTAL	001	W	99L0933	11/15/99	01/19/00	01/24/00
COPPER, TOTAL	001 REP	W	99L0933	11/15/99	01/19/00	01/24/00
COPPER, TOTAL	001 MS	W	99L0933	11/15/99	01/19/00	01/24/00
IRON, TOTAL	001	W	99L0933	11/15/99	01/19/00	01/24/00
IRON, TOTAL	001 REP	W	99L0933	11/15/99	01/19/00	01/24/00
IRON, TOTAL	001 MS	W	99L0933	11/15/99	01/19/00	01/24/00
POTASSIUM, TOTAL	001	W	99L0933	11/15/99	01/19/00	01/24/00
POTASSIUM, TOTAL	001 REP	W	99L0933	11/15/99	01/19/00	01/24/00
POTASSIUM, TOTAL	001 MS	W	99L0933	11/15/99	01/19/00	01/24/00
MAGNESIUM, TOTAL	001	W	99L0933	11/15/99	01/19/00	01/24/00
MAGNESIUM, TOTAL	001 REP	W	99L0933	11/15/99	01/19/00	01/24/00

Recra LabNet - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNU-HANFORD C00-005

DATE RECEIVED: 11/18/99 RFW LOT # :9911L759

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
MAGNESIUM, TOTAL	001 MS	W	99L0933	11/15/99	01/19/00	01/24/00
MANGANESE, TOTAL	001	W	99L0933	11/15/99	01/19/00	01/24/00
MANGANESE, TOTAL	001 REP	W	99L0933	11/15/99	01/19/00	01/24/00
MANGANESE, TOTAL	001 MS	W	99L0933	11/15/99	01/19/00	01/24/00
SODIUM, TOTAL	001	W	99L0933	11/15/99	01/19/00	01/24/00
SODIUM, TOTAL	001 REP	W	99L0933	11/15/99	01/19/00	01/24/00
SODIUM, TOTAL	001 MS	W	99L0933	11/15/99	01/19/00	01/24/00
NICKEL, TOTAL	001	W	99L0933	11/15/99	01/19/00	01/24/00
NICKEL, TOTAL	001 REP	W	99L0933	11/15/99	01/19/00	01/24/00
NICKEL, TOTAL	001 MS	W	99L0933	11/15/99	01/19/00	01/24/00
LEAD, TOTAL	001	W	99L0933	11/15/99	01/19/00	01/24/00
LEAD, TOTAL	001 REP	W	99L0933	11/15/99	01/19/00	01/24/00
LEAD, TOTAL	001 MS	W	99L0933	11/15/99	01/19/00	01/24/00
ANTIMONY, TOTAL	001	W	99L0933	11/15/99	01/19/00	01/24/00
ANTIMONY, TOTAL	001 REP	W	99L0933	11/15/99	01/19/00	01/24/00
ANTIMONY, TOTAL	001 MS	W	99L0933	11/15/99	01/19/00	01/24/00
TIN, TOTAL	001	W	99L0933	11/15/99	01/19/00	01/24/00
TIN, TOTAL	001 REP	W	99L0933	11/15/99	01/19/00	01/24/00
TIN, TOTAL	001 MS	W	99L0933	11/15/99	01/19/00	01/24/00
STRONTIUM, TOTAL	001	W	99L0933	11/15/99	01/19/00	01/24/00
STRONTIUM, TOTAL	001 REP	W	99L0933	11/15/99	01/19/00	01/24/00
STRONTIUM, TOTAL	001 MS	W	99L0933	11/15/99	01/19/00	01/24/00
VANADIUM, TOTAL	001	W	99L0933	11/15/99	01/19/00	01/24/00
VANADIUM, TOTAL	001 REP	W	99L0933	11/15/99	01/19/00	01/24/00
VANADIUM, TOTAL	001 MS	W	99L0933	11/15/99	01/19/00	01/24/00
ZINC, TOTAL	001	W	99L0933	11/15/99	01/19/00	01/24/00
ZINC, TOTAL	001 REP	W	99L0933	11/15/99	01/19/00	01/24/00
ZINC, TOTAL	001 MS	W	99L0933	11/15/99	01/19/00	01/24/00
B0WR01						
SILVER, TOTAL	002	W	99L0933	11/15/99	01/19/00	01/24/00
ALUMINUM, TOTAL	002	W	99L0933	11/15/99	01/19/00	01/24/00
BARIUM, TOTAL	002	W	99L0933	11/15/99	01/19/00	01/24/00
BERYLLIUM, TOTAL	002	W	99L0933	11/15/99	01/19/00	01/24/00
CALCIUM, TOTAL	002	W	99L0933	11/15/99	01/19/00	01/24/00
CADMIUM, TOTAL	002	W	99L0933	11/15/99	01/19/00	01/24/00
COBALT, TOTAL	002	W	99L0933	11/15/99	01/19/00	01/24/00

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INORGANIC ANALYTICAL DATA PACKAGE FOR
TNU-HANFORD C00-005

DATE RECEIVED: 11/18/99 RFW LOT # :9911L759

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
CHROMIUM, TOTAL	002	W	99L0933	11/15/99	01/19/00	01/24/00
COPPER, TOTAL	002	W	99L0933	11/15/99	01/19/00	01/24/00
IRON, TOTAL	002	W	99L0933	11/15/99	01/19/00	01/24/00
POTASSIUM, TOTAL	002	W	99L0933	11/15/99	01/19/00	01/24/00
MAGNESIUM, TOTAL	002	W	99L0933	11/15/99	01/19/00	01/24/00
MANGANESE, TOTAL	002	W	99L0933	11/15/99	01/19/00	01/24/00
SODIUM, TOTAL	002	W	99L0933	11/15/99	01/19/00	01/24/00
NICKEL, TOTAL	002	W	99L0933	11/15/99	01/19/00	01/24/00
LEAD, TOTAL	002	W	99L0933	11/15/99	01/19/00	01/24/00
ANTIMONY, TOTAL	002	W	99L0933	11/15/99	01/19/00	01/24/00
TIN, TOTAL	002	W	99L0933	11/15/99	01/19/00	01/24/00
STRONTIUM, TOTAL	002	W	99L0933	11/15/99	01/19/00	01/24/00
VANADIUM, TOTAL	002	W	99L0933	11/15/99	01/19/00	01/24/00
ZINC, TOTAL	002	W	99L0933	11/15/99	01/19/00	01/24/00
B0WPY4						
SILVER, TOTAL	003	W	99L0933	11/15/99	01/19/00	01/24/00
ALUMINUM, TOTAL	003	W	99L0933	11/15/99	01/19/00	01/24/00
BARIUM, TOTAL	003	W	99L0933	11/15/99	01/19/00	01/24/00
BERYLLIUM, TOTAL	003	W	99L0933	11/15/99	01/19/00	01/24/00
CALCIUM, TOTAL	003	W	99L0933	11/15/99	01/19/00	01/24/00
CADMIUM, TOTAL	003	W	99L0933	11/15/99	01/19/00	01/24/00
COBALT, TOTAL	003	W	99L0933	11/15/99	01/19/00	01/24/00
CHROMIUM, TOTAL	003	W	99L0933	11/15/99	01/19/00	01/24/00
COPPER, TOTAL	003	W	99L0933	11/15/99	01/19/00	01/24/00
IRON, TOTAL	003	W	99L0933	11/15/99	01/19/00	01/24/00
POTASSIUM, TOTAL	003	W	99L0933	11/15/99	01/19/00	01/24/00
MAGNESIUM, TOTAL	003	W	99L0933	11/15/99	01/19/00	01/24/00
MANGANESE, TOTAL	003	W	99L0933	11/15/99	01/19/00	01/24/00
SODIUM, TOTAL	003	W	99L0933	11/15/99	01/19/00	01/24/00
NICKEL, TOTAL	003	W	99L0933	11/15/99	01/19/00	01/24/00
LEAD, TOTAL	003	W	99L0933	11/15/99	01/19/00	01/24/00
ANTIMONY, TOTAL	003	W	99L0933	11/15/99	01/19/00	01/24/00
TIN, TOTAL	003	W	99L0933	11/15/99	01/19/00	01/24/00
STRONTIUM, TOTAL	003	W	99L0933	11/15/99	01/19/00	01/24/00
VANADIUM, TOTAL	003	W	99L0933	11/15/99	01/19/00	01/24/00
ZINC, TOTAL	003	W	99L0933	11/15/99	01/19/00	01/24/00

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INORGANIC ANALYTICAL DATA PACKAGE FOR
TNU-HANFORD C00-005

DATE RECEIVED: 11/18/99 RFW LOT # :9911L759

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B0WPY5						
SILVER, TOTAL	004	W	99L0933	11/15/99	01/19/00	01/24/00
ALUMINUM, TOTAL	004	W	99L0933	11/15/99	01/19/00	01/24/00
BARIUM, TOTAL	004	W	99L0933	11/15/99	01/19/00	01/24/00
BERYLLIUM, TOTAL	004	W	99L0933	11/15/99	01/19/00	01/24/00
CALCIUM, TOTAL	004	W	99L0933	11/15/99	01/19/00	01/24/00
CADMIUM, TOTAL	004	W	99L0933	11/15/99	01/19/00	01/24/00
COBALT, TOTAL	004	W	99L0933	11/15/99	01/19/00	01/24/00
CHROMIUM, TOTAL	004	W	99L0933	11/15/99	01/19/00	01/24/00
COPPER, TOTAL	004	W	99L0933	11/15/99	01/19/00	01/24/00
IRON, TOTAL	004	W	99L0933	11/15/99	01/19/00	01/24/00
POTASSIUM, TOTAL	004	W	99L0933	11/15/99	01/19/00	01/24/00
MAGNESIUM, TOTAL	004	W	99L0933	11/15/99	01/19/00	01/24/00
MANGANESE, TOTAL	004	W	99L0933	11/15/99	01/19/00	01/24/00
SODIUM, TOTAL	004	W	99L0933	11/15/99	01/19/00	01/24/00
NICKEL, TOTAL	004	W	99L0933	11/15/99	01/19/00	01/24/00
LEAD, TOTAL	004	W	99L0933	11/15/99	01/19/00	01/24/00
ANTIMONY, TOTAL	004	W	99L0933	11/15/99	01/19/00	01/24/00
TIN, TOTAL	004	W	99L0933	11/15/99	01/19/00	01/24/00
STRONTIUM, TOTAL	004	W	99L0933	11/15/99	01/19/00	01/24/00
VANADIUM, TOTAL	004	W	99L0933	11/15/99	01/19/00	01/24/00
ZINC, TOTAL	004	W	99L0933	11/15/99	01/19/00	01/24/00
B0WPY2						
SILVER, TOTAL	005	W	99L0933	11/15/99	01/19/00	01/24/00
ALUMINUM, TOTAL	005	W	99L0933	11/15/99	01/19/00	01/24/00
BARIUM, TOTAL	005	W	99L0933	11/15/99	01/19/00	01/24/00
BERYLLIUM, TOTAL	005	W	99L0933	11/15/99	01/19/00	01/24/00
CALCIUM, TOTAL	005	W	99L0933	11/15/99	01/19/00	01/24/00
CADMIUM, TOTAL	005	W	99L0933	11/15/99	01/19/00	01/24/00
COBALT, TOTAL	005	W	99L0933	11/15/99	01/19/00	01/24/00
CHROMIUM, TOTAL	005	W	99L0933	11/15/99	01/19/00	01/24/00
COPPER, TOTAL	005	W	99L0933	11/15/99	01/19/00	01/24/00
IRON, TOTAL	005	W	99L0933	11/15/99	01/19/00	01/24/00
POTASSIUM, TOTAL	005	W	99L0933	11/15/99	01/19/00	01/24/00

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INORGANIC ANALYTICAL DATA PACKAGE FOR
TNU-HANFORD C00-005

DATE RECEIVED: 11/18/99 RFW LOT # :9911L759

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
MAGNESIUM, TOTAL	005	W	99L0933	11/15/99	01/19/00	01/24/00
MANGANESE, TOTAL	005	W	99L0933	11/15/99	01/19/00	01/24/00
SODIUM, TOTAL	005	W	99L0933	11/15/99	01/19/00	01/24/00
NICKEL, TOTAL	005	W	99L0933	11/15/99	01/19/00	01/24/00
LEAD, TOTAL	005	W	99L0933	11/15/99	01/19/00	01/24/00
ANTIMONY, TOTAL	005	W	99L0933	11/15/99	01/19/00	01/24/00
TIN, TOTAL	005	W	99L0933	11/15/99	01/19/00	01/24/00
STRONTIUM, TOTAL	005	W	99L0933	11/15/99	01/19/00	01/24/00
VANADIUM, TOTAL	005	W	99L0933	11/15/99	01/19/00	01/24/00
ZINC, TOTAL	005	W	99L0933	11/15/99	01/19/00	01/24/00
B0WPY3						
SILVER, TOTAL	006	W	99L0933	11/15/99	01/19/00	01/24/00
ALUMINUM, TOTAL	006	W	99L0933	11/15/99	01/19/00	01/24/00
BARIUM, TOTAL	006	W	99L0933	11/15/99	01/19/00	01/24/00
BERYLLIUM, TOTAL	006	W	99L0933	11/15/99	01/19/00	01/24/00
CALCIUM, TOTAL	006	W	99L0933	11/15/99	01/19/00	01/24/00
CADMIUM, TOTAL	006	W	99L0933	11/15/99	01/19/00	01/24/00
COBALT, TOTAL	006	W	99L0933	11/15/99	01/19/00	01/24/00
CHROMIUM, TOTAL	006	W	99L0933	11/15/99	01/19/00	01/24/00
COPPER, TOTAL	006	W	99L0933	11/15/99	01/19/00	01/24/00
IRON, TOTAL	006	W	99L0933	11/15/99	01/19/00	01/24/00
POTASSIUM, TOTAL	006	W	99L0933	11/15/99	01/19/00	01/24/00
MAGNESIUM, TOTAL	006	W	99L0933	11/15/99	01/19/00	01/24/00
MANGANESE, TOTAL	006	W	99L0933	11/15/99	01/19/00	01/24/00
SODIUM, TOTAL	006	W	99L0933	11/15/99	01/19/00	01/24/00
NICKEL, TOTAL	006	W	99L0933	11/15/99	01/19/00	01/24/00
LEAD, TOTAL	006	W	99L0933	11/15/99	01/19/00	01/24/00
ANTIMONY, TOTAL	006	W	99L0933	11/15/99	01/19/00	01/24/00
TIN, TOTAL	006	W	99L0933	11/15/99	01/19/00	01/24/00
STRONTIUM, TOTAL	006	W	99L0933	11/15/99	01/19/00	01/24/00
VANADIUM, TOTAL	006	W	99L0933	11/15/99	01/19/00	01/24/00
ZINC, TOTAL	006	W	99L0933	11/15/99	01/19/00	01/24/00
B0WR40						
SILVER, TOTAL	007	W	99L0933	11/15/99	01/19/00	01/24/00

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INORGANIC ANALYTICAL DATA PACKAGE FOR
TNU-HANFORD C00-005

DATE RECEIVED: 11/18/99 RFW LOT # :9911L759

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
ALUMINUM, TOTAL	007	W	99L0933	11/15/99	01/19/00	01/24/00
BARIUM, TOTAL	007	W	99L0933	11/15/99	01/19/00	01/24/00
BERYLLIUM, TOTAL	007	W	99L0933	11/15/99	01/19/00	01/24/00
CALCIUM, TOTAL	007	W	99L0933	11/15/99	01/19/00	01/24/00
CADMIUM, TOTAL	007	W	99L0933	11/15/99	01/19/00	01/24/00
COBALT, TOTAL	007	W	99L0933	11/15/99	01/19/00	01/24/00
CHROMIUM, TOTAL	007	W	99L0933	11/15/99	01/19/00	01/24/00
COPPER, TOTAL	007	W	99L0933	11/15/99	01/19/00	01/24/00
IRON, TOTAL	007	W	99L0933	11/15/99	01/19/00	01/24/00
POTASSIUM, TOTAL	007	W	99L0933	11/15/99	01/19/00	01/24/00
MAGNESIUM, TOTAL	007	W	99L0933	11/15/99	01/19/00	01/24/00
MANGANESE, TOTAL	007	W	99L0933	11/15/99	01/19/00	01/24/00
SODIUM, TOTAL	007	W	99L0933	11/15/99	01/19/00	01/24/00
NICKEL, TOTAL	007	W	99L0933	11/15/99	01/19/00	01/24/00
LEAD, TOTAL	007	W	99L0933	11/15/99	01/19/00	01/24/00
ANTIMONY, TOTAL	007	W	99L0933	11/15/99	01/19/00	01/24/00
TIN, TOTAL	007	W	99L0933	11/15/99	01/19/00	01/24/00
STRONTIUM, TOTAL	007	W	99L0933	11/15/99	01/19/00	01/24/00
VANADIUM, TOTAL	007	W	99L0933	11/15/99	01/19/00	01/24/00
ZINC, TOTAL	007	W	99L0933	11/15/99	01/19/00	01/24/00
B0WR41						
SILVER, TOTAL	008	W	99L0933	11/15/99	01/19/00	01/24/00
ALUMINUM, TOTAL	008	W	99L0933	11/15/99	01/19/00	01/24/00
BARIUM, TOTAL	008	W	99L0933	11/15/99	01/19/00	01/24/00
BERYLLIUM, TOTAL	008	W	99L0933	11/15/99	01/19/00	01/24/00
CALCIUM, TOTAL	008	W	99L0933	11/15/99	01/19/00	01/24/00
CADMIUM, TOTAL	008	W	99L0933	11/15/99	01/19/00	01/24/00
COBALT, TOTAL	008	W	99L0933	11/15/99	01/19/00	01/24/00
CHROMIUM, TOTAL	008	W	99L0933	11/15/99	01/19/00	01/24/00
COPPER, TOTAL	008	W	99L0933	11/15/99	01/19/00	01/24/00
IRON, TOTAL	008	W	99L0933	11/15/99	01/19/00	01/24/00
POTASSIUM, TOTAL	008	W	99L0933	11/15/99	01/19/00	01/24/00
MAGNESIUM, TOTAL	008	W	99L0933	11/15/99	01/19/00	01/24/00
MANGANESE, TOTAL	008	W	99L0933	11/15/99	01/19/00	01/24/00
SODIUM, TOTAL	008	W	99L0933	11/15/99	01/19/00	01/24/00
NICKEL, TOTAL	008	W	99L0933	11/15/99	01/19/00	01/24/00

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INORGANIC ANALYTICAL DATA PACKAGE FOR
TNU-HANFORD-C00-005

DATE RECEIVED: 11/18/99 RFW LOT # :9911L759

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
LEAD, TOTAL	008	W	99L0933	11/15/99	01/19/00	01/24/00
ANTIMONY, TOTAL	008	W	99L0933	11/15/99	01/19/00	01/24/00
TIN, TOTAL	008	W	99L0933	11/15/99	01/19/00	01/24/00
STRONTIUM, TOTAL	008	W	99L0933	11/15/99	01/19/00	01/24/00
VANADIUM, TOTAL	008	W	99L0933	11/15/99	01/19/00	01/24/00
ZINC, TOTAL	008	W	99L0933	11/15/99	01/19/00	01/24/00
B0WR38						
SILVER, TOTAL	009	W	99L0933	11/15/99	01/19/00	01/24/00
ALUMINUM, TOTAL	009	W	99L0933	11/15/99	01/19/00	01/24/00
BARIUM, TOTAL	009	W	99L0933	11/15/99	01/19/00	01/24/00
BERYLLIUM, TOTAL	009	W	99L0933	11/15/99	01/19/00	01/24/00
CALCIUM, TOTAL	009	W	99L0933	11/15/99	01/19/00	01/24/00
CADMIUM, TOTAL	009	W	99L0933	11/15/99	01/19/00	01/24/00
COBALT, TOTAL	009	W	99L0933	11/15/99	01/19/00	01/24/00
CHROMIUM, TOTAL	009	W	99L0933	11/15/99	01/19/00	01/24/00
COPPER, TOTAL	009	W	99L0933	11/15/99	01/19/00	01/24/00
IRON, TOTAL	009	W	99L0933	11/15/99	01/19/00	01/24/00
POTASSIUM, TOTAL	009	W	99L0933	11/15/99	01/19/00	01/24/00
MAGNESIUM, TOTAL	009	W	99L0933	11/15/99	01/19/00	01/24/00
MANGANESE, TOTAL	009	W	99L0933	11/15/99	01/19/00	01/24/00
SODIUM, TOTAL	009	W	99L0933	11/15/99	01/19/00	01/24/00
NICKEL, TOTAL	009	W	99L0933	11/15/99	01/19/00	01/24/00
LEAD, TOTAL	009	W	99L0933	11/15/99	01/19/00	01/24/00
ANTIMONY, TOTAL	009	W	99L0933	11/15/99	01/19/00	01/24/00
TIN, TOTAL	009	W	99L0933	11/15/99	01/19/00	01/24/00
STRONTIUM, TOTAL	009	W	99L0933	11/15/99	01/19/00	01/24/00
VANADIUM, TOTAL	009	W	99L0933	11/15/99	01/19/00	01/24/00
ZINC, TOTAL	009	W	99L0933	11/15/99	01/19/00	01/24/00
B0WR39						
SILVER, TOTAL	010	W	99L0933	11/15/99	01/19/00	01/24/00
ALUMINUM, TOTAL	010	W	99L0933	11/15/99	01/19/00	01/24/00
BARIUM, TOTAL	010	W	99L0933	11/15/99	01/19/00	01/24/00
BERYLLIUM, TOTAL	010	W	99L0933	11/15/99	01/19/00	01/24/00
CALCIUM, TOTAL	010	W	99L0933	11/15/99	01/19/00	01/24/00

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INORGANIC ANALYTICAL DATA PACKAGE FOR
TNU-HANFORD C00-005

DATE RECEIVED: 11/18/99 RFW LOT # :9911L759

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
CADMIUM, TOTAL	010	W	99L0933	11/15/99	01/19/00	01/24/00
COBALT, TOTAL	010	W	99L0933	11/15/99	01/19/00	01/24/00
CHROMIUM, TOTAL	010	W	99L0933	11/15/99	01/19/00	01/24/00
COPPER, TOTAL	010	W	99L0933	11/15/99	01/19/00	01/24/00
IRON, TOTAL	010	W	99L0933	11/15/99	01/19/00	01/24/00
POTASSIUM, TOTAL	010	W	99L0933	11/15/99	01/19/00	01/24/00
MAGNESIUM, TOTAL	010	W	99L0933	11/15/99	01/19/00	01/24/00
MANGANESE, TOTAL	010	W	99L0933	11/15/99	01/19/00	01/24/00
SODIUM, TOTAL	010	W	99L0933	11/15/99	01/19/00	01/24/00
NICKEL, TOTAL	010	W	99L0933	11/15/99	01/19/00	01/24/00
LEAD, TOTAL	010	W	99L0933	11/15/99	01/19/00	01/24/00
ANTIMONY, TOTAL	010	W	99L0933	11/15/99	01/19/00	01/24/00
TIN, TOTAL	010	W	99L0933	11/15/99	01/19/00	01/24/00
STRONTIUM, TOTAL	010	W	99L0933	11/15/99	01/19/00	01/24/00
VANADIUM, TOTAL	010	W	99L0933	11/15/99	01/19/00	01/24/00
ZINC, TOTAL	010	W	99L0933	11/15/99	01/19/00	01/24/00

LAB QC:

SILVER LABORATORY	LC1 BS	W	99L0933	N/A	01/19/00	01/24/00
SILVER, TOTAL	MB1	W	99L0933	N/A	01/19/00	01/24/00
ALUMINUM LABORTORY	LC1 BS	W	99L0933	N/A	01/19/00	01/24/00
ALUMINUM, TOTAL	MB1	W	99L0933	N/A	01/19/00	01/24/00
BARIUM LABORATORY	LC1 BS	W	99L0933	N/A	01/19/00	01/24/00
BARIUM, TOTAL	MB1	W	99L0933	N/A	01/19/00	01/24/00
BERYLLIUM LABORATORY	LC1 BS	W	99L0933	N/A	01/19/00	01/24/00
BERYLLIUM, TOTAL	MB1	W	99L0933	N/A	01/19/00	01/24/00
CALCIUM LABORATORY	LC1 BS	W	99L0933	N/A	01/19/00	01/24/00
CALCIUM, TOTAL	MB1	W	99L0933	N/A	01/19/00	01/24/00
CADMIUM LABORATORY	LC1 BS	W	99L0933	N/A	01/19/00	01/24/00
CADMIUM, TOTAL	MB1	W	99L0933	N/A	01/19/00	01/24/00
COBALT LABORATORY	LC1 BS	W	99L0933	N/A	01/19/00	01/24/00
COBALT, TOTAL	MB1	W	99L0933	N/A	01/19/00	01/24/00
CHROMIUM LABORATORY	LC1 BS	W	99L0933	N/A	01/19/00	01/24/00
CHROMIUM, TOTAL	MB1	W	99L0933	N/A	01/19/00	01/24/00
COPPER LABORATORY	LC1 BS	W	99L0933	N/A	01/19/00	01/24/00
COPPER, TOTAL	MB1	W	99L0933	N/A	01/19/00	01/24/00
IRON LABORATORY	LC1 BS	W	99L0933	N/A	01/19/00	01/24/00

Recra LabNet - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNU-HANFORD C00-005

DATE RECEIVED: 11/18/99 RFW LOT # :9911L759

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
IRON, TOTAL	MB1	W	99L0933	N/A	01/19/00	01/24/00
POTASSIUM LABORATORY	LC1 BS	W	99L0933	N/A	01/19/00	01/24/00
POTASSIUM, TOTAL	MB1	W	99L0933	N/A	01/19/00	01/24/00
MAGNESIUM LABORATORY	LC1 BS	W	99L0933	N/A	01/19/00	01/24/00
MAGNESIUM, TOTAL	MB1	W	99L0933	N/A	01/19/00	01/24/00
MANGANESE LABORATORY	LC1 BS	W	99L0933	N/A	01/19/00	01/24/00
MANGANESE, TOTAL	MB1	W	99L0933	N/A	01/19/00	01/24/00
SODIUM LABORATORY	LC1 BS	W	99L0933	N/A	01/19/00	01/24/00
SODIUM, TOTAL	MB1	W	99L0933	N/A	01/19/00	01/24/00
NICKEL LABORATORY	LC1 BS	W	99L0933	N/A	01/19/00	01/24/00
NICKEL, TOTAL	MB1	W	99L0933	N/A	01/19/00	01/24/00
LEAD LABORATORY	LC1 BS	W	99L0933	N/A	01/19/00	01/24/00
LEAD, TOTAL	MB1	W	99L0933	N/A	01/19/00	01/24/00
ANTIMONY LABORATORY	LC1 BS	W	99L0933	N/A	01/19/00	01/24/00
ANTIMONY, TOTAL	MB1	W	99L0933	N/A	01/19/00	01/24/00
TIN LABORATORY	LC1 BS	W	99L0933	N/A	01/19/00	01/24/00
TIN, TOTAL	MB1	W	99L0933	N/A	01/19/00	01/24/00
STRONTIUM LCS STANDA	LC1 BS	W	99L0933	N/A	01/19/00	01/24/00
STRONTIUM, TOTAL	MB1	W	99L0933	N/A	01/19/00	01/24/00
VANADIUM LABORATORY	LC1 BS	W	99L0933	N/A	01/19/00	01/24/00
VANADIUM, TOTAL	MB1	W	99L0933	N/A	01/19/00	01/24/00
ZINC LABORATORY	LC1 BS	W	99L0933	N/A	01/19/00	01/24/00
ZINC, TOTAL	MB1	W	99L0933	N/A	01/19/00	01/24/00

RECRA LabNet Use Only

9911L759

Custody Transfer Record/Lab Work Request

Page 1 of 1

All FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

RECRA LabNet

Client: TNU Hanford C00-005

Est. Final Proj. Sampling Date:

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

Project Contact/Phone #:

RECRA Project Manager: OJ

QC: spec Del: std TAT: 30 days

Date Rec'd: 11/18/99 Date Due: 12/18/99

Account #:

Refrigerator #									3		3					
#/Type Container	Liquid								1PL		1PL					
	Solid															
Volume	Liquid								500		500					
	Solid															
Preservatives									HNO3		—					
ANALYSES REQUESTED →		ORGANIC							INORG							
		VOA	BNA	Pest/PCB	Herb				Tot Metal	CN	TC ANIONS					
		RECRA LabNet Use Only														
									Met①		Ang①					

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

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	Met①	Ang①
001	BOW R00			W	11/15/99	0910	1	
002	R01					⊥	1	1
003	PY4					0815	1	
004	PY5					⊥	1	1
005	PY2					1007	1	
006	PY3					⊥	1	1
007	R40					1215	1	
008	R41					⊥	1	1
009	R38					1133	1	
010	R39			⊥	⊥	⊥	1	1

Special Instructions:

Met① = Ag, Al, Ba, Be, Ca, Cd, Co, Cr, Cu, Fe, K, Mg, Mn, Na, Ni, Pb, Sb, Sn, Sr, V, Zn

COMPOSITE WASTE

sdg-H0638 saf-C00-005

DATE/REVISIONS:

001-002 1. Times on COC Read 0912 on

2. Samples Reads 0910.

Ang① 3. ICCL, ICFL, ICNO2, ICNO3, ICSO4

4. Run matrix QC

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 ✓ or N

4) Labels Indicate Properly Preserved ✓ or N

5) Received Within Holding Times ✓ or N

COC Tape was: 1) Present on Outer Package ✓ or N

2) Unbroken on Outer Package ✓ or N

3) Present on Sample ✓ or N

4) Unbroken on Sample ✓ or N

COC Record Present Upon Sample Rec't ✓ or N

Cooler Temp. 5-8 °C

Relinquished by	Received by	Date	Time
[signature]	[signature]	11/18/99	1000

Relinquished by	Received by	Date	Time
	ORIGINAL		
	REWRITTEN		

Discrepancies Between Samples Labels and COC Record? Y or N

NOTES:

81470266 5357

C23

PNNL

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. # C00-005-1

Page 1 of 1

Collector: D.R. BREWINGTON	Contact/Requester: JH KESSNER	Telephone No.: (509) 375-4688 MSIN FAX
SAF No.: C00-005	Sampling Origin: HANFORD SITE	Purchase Order/Charge Code
Project Title: 100-HR3-IAM (1 & 2) GW MONITORING NOVEMBER 1999	Logbook No.: WIMSML-1475	Ice Chest No.: SML452 Temp.
Shipped To (Lab): TMA/RECRA	Method of Shipment: GOVT. VEHICLE	Bill of Lading/Air Bill No.: 4235 7953 1750
Protocol: CERCLA	Data Turnaround: 45 Days	Offsite Property No.: W00-0-0034

POSSIBLE SAMPLE HAZARDS/REMARKS
** **

SPECIAL INSTRUCTIONS Hold Time Total Activity Exemption: Yes ☑ No ☐
SUBMIT INVOICES AND DELIVERABLES TO JH KESSNER, BHI
FAX COPIES OF QES & TMA LOG-IN TO DL STEWART (376-1704) AND JH KESSNER (372-9487)

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B0WR00 (F)		W	11-15-99	0910	1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
B0WR01		W			1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
B0WR01		W			1x500-mL P	IC Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Sulfate)	Cool 4C
B0WR01		W			1x20-mL P	Activity Scan	None
B0WR01		W			2x1000-mL G/P	Gross Alpha	HNO3 to pH <2
B0WR01		W			2x1000-mL G/P	Gross Beta	HNO3 to pH <2
B0WR01		W			1x250-mL P	Tritium - H3	None

Relinquished By	Received By
Print: D.R. BREWINGTON Sign: D.R. Brewington Date/Time: 1430	Print: Fed. Ex Sign: 11-15-99 Date/Time:
Relinquished By: FedEx 11-16-99 10:00	Received By: TNV M. Goldenberg 11-16-99 10:00
Relinquished By: Fed Ex 11/18/99 1000	Received By: [illegible] 11/18/99 1000
Relinquished By: Date/Time:	Received By: Date/Time:

Matrix *

S	= Soil	DS	= Drum Solid
SE	= Sediment	DL	= Drum Liquid
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. # C00-005-4

Page 1 of 1

Collector: D.R. BREWINGTON	Contact/Requester: JH KESSNER	Telephone No.: (509) 375-4688 MSIN FAX
SAF No.: C00-005	Sampling Origin: HANFORD SITE	Purchase Order/Charge Code
Project Title: 100-HR3-JAM (1 & 2) GW MONITORING, NOVEMBER 1999	Logbook No.: WIN-SINL-H75	Ice Chest No.: SINL452 Temp.
Shipped To (Lab): TMA/RECRA	Method of Shipment: GOVT. VEHICLE	Bill of Lading/Air Bill No.: 423 7953 1790
Protocol: CERCLA	Data Turnaround: 45 Days	Offsite Property No.: W00-0-0034

POSSIBLE SAMPLE HAZARDS/REMARKS
** **

SPECIAL INSTRUCTIONS Hold Time Total Activity Exemption: Yes ☑ No ☐
SUBMIT INVOICES AND DELIVERABLES TO JH KESSNER, BHI
FAX COPIES OF QES & TMA LOG-IN TO DL STEWART (376-1704) AND JH KESSNER (372-9487)

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B0WPY4 (F)		W	11-15-99	0815	1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
B0WPY5		W			1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
B0WPY5		W			1x500-mL P	IC Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Sulfate)	Cool 4C
B0WPY5		W			1x20-mL P	Activity Scan	None
B0WPY5		W			2x1000-mL G/P	Gross Alpha	HNO3 to pH <2
B0WPY5		W			2x1000-mL G/P	Gross Beta	HNO3 to pH <2
B0WPY5		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		1430	Fed Ex		11-15-99	
Fed Ex			11-16-99 10:00	TNU M. Goldenberg			11-16-99 10:00
Fed Ex			11/18/99 1000	[illegible]			11/18/99 1000

Matrix *

S = Soil		DS = Drum Solid	
SE = Sediment		DL = Drum Liquid	
SO = Solid		T = Tissue	
SL = Sludge		WI = Wine	
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. # C00-005-3

Page 1 of 1

Collector: D.R. BREWINGTON	Contact/Requester: JH KESSNER	Telephone No.: (509) 375-4688 MSIN FAX
SAF No.: C00-005	Sampling Origin: HANFORD SITE	Purchase Order/Charge Code
Project Title: 100-HR3-IAM (1 & 2) GW MONITORING, NOVEMBER 1999	Logbook No.: WHM-5M1-1125	Ice Chest No.: 5M2452 Temp.
Shipped To (Lab): TMA/RECRA	Method of Shipment: GOVT. VEHICLE	Bill of Lading/Air Bill No.: 4235 7953 1790
Protocol: CERCLA	Data Turnaround: 45 Days	Offsite Property No.: W00-0-0034

POSSIBLE SAMPLE HAZARDS/REMARKS
** **

SPECIAL INSTRUCTIONS Hold Time Total Activity Exemption: Yes ☑ No ☐
SUBMIT INVOICES AND DELIVERABLES TO JH KESSNER, BHI
FAX COPIES OF QES & TMA LOG-IN TO DL STEWART (376-1704) AND JH KESSNER (372-9487)

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B0WPY2 (F)		W	11-15-99	1007	1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
B0WPY3		W			1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
B0WPY3		W			1x500-mL P	IC Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Sulfate)	Cool 4C
B0WPY3		W			1x20-mL P	Activity Scan	None
B0WPY3		W			2x1000-mL G/P	Gross Alpha	HNO3 to pH <2
B0WPY3		W			2x1000-mL G/P	Gross Beta	HNO3 to pH <2
B0WPY3		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	1430	Fed Ex	11-15-99
Fed Ex	11-16-99 10:00	TNV M. Goldenberg	11-16-99 10:00
Fed Ex	11/18/99 1000	Victor Henning	11/18/99 1000

Matrix *

S = Soil		DS = Drum Solid	
SE = Sediment		DL = Drum Liquid	
SO = Solid		T = Tissue	
SL = Sludge		WI = Wine	
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

C00-005-37

Collector D.R. BREWINGTON	Contact/Requester JH KESSNER	Telephone No. (509) 375-4688 MSIN FAX
SAF No. C00-005	Sampling Origin HANFORD SITE	Purchase Order/Charge Code
Project Title 100-HR3-IAM (1 & 2) GW MONITORING NOVEMBER 1999	Logbook No. WM-SML-H25	Ice Chest No. SML 418 Temp.
Shipped To (Lab) TMA/RECRA	Method of Shipment GOVT. VEHICLE	Bill of Lading/Air Bill No. 4235795 3 1804
Protocol CERCLA	Data Turnaround 45 Days	Offsite Property No. W00-0-0034

POSSIBLE SAMPLE HAZARDS/REMARKS
** **

SPECIAL INSTRUCTIONS Hold Time Total Activity Exemption: Yes ☑ No ☐
SUBMIT INVOICES AND DELIVERABLES TO JH KESSNER, BHI
FAX COPIES OF QES & TMA LOG-IN TO DL STEWART (376-1704) AND JH KESSNER (372-9487)

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B0WR40 (F)		W	11-15-99	1215	1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
B0WR41		W			1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
B0WR41		W			1x500-mL P	IC Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Sulfate)	Cool 4C
B0WR41		W			1x20-mL P	Activity Scan	None
B0WR41		W			2x1000-mL G/P	Gross Alpha	HNO3 to pH <2
B0WR41		W			2x1000-mL G/P	Gross Beta	HNO3 to pH <2
B0WR41		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		11/15/99 1430	FedEx.		11-15-99	
FedEx 11-16-99 10:00				TNT M. Goldenberg 11-16-99 10:00			
Fed Ex 11/18/99 1000				Peter Henry 11/18/99 1000			

Matrix *

S = Soil		DS = Drum Solid	
SE = Sediment		DL = Drum Liqui	
SO = Solid		T = Tissue	
SL = Sludge		WI = Wine	
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. # C00-005-39

Page 1 of 1

Collector: D.R. BREWINGTON	Contact/Requester: JH KESSNER	Telephone No.: (509) 375-4688 MSIN FAX
SAF No.: C00-005	Sampling Origin: HANFORD SITE	Purchase Order/Charge Code
Project Title: 100-HR3-IAM (1 & 2) GW MONITORING, NOVEMBER 1999	Logbook No.: WM-SML-1125	Ice Chest No.: SML 418 Temp.
Shipped To (Lab): TMA/RECRA	Method of Shipment: GOVT. VEHICLE	Bill of Lading/Air Bill No.: 42357953-1804
Protocol: CERCLA	Data Turnaround: 45 Days	Offsite Property No.: W00-0-0034

POSSIBLE SAMPLE HAZARDS/REMARKS
** **

SPECIAL INSTRUCTIONS Hold Time Total Activity Exemption: Yes ☑ No ☐
SUBMIT INVOICES AND DELIVERABLES TO JH KESSNER, BHI
FAX COPIES OF QES & TMA LOG-IN TO DL STEWART (376-1704) AND JH KESSNER (372-9487)

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B0WR38 (F)		W	11-15-99	1133	1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
B0WR39		W			1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
B0WR39		W			1x500-mL P	IC Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Sulfate)	Cool 4C
B0WR39		W			1x20-mL P	Activity Scan	None
B0WR39		W			2x1000-mL G/P	Gross Alpha	HNO3 to pH <2
B0WR39		W			2x1000-mL G/P	Gross Beta	HNO3 to pH <2
B0WR39		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		11/15/99 1430	Fed Ex		11-15-99	
Relinquished By	Fed Ex		11-16-99 10:00	Received By	TNU McGoldenberg		11-16-99 10:00
Relinquished By	Fed Ex		11/18/99 1000	Received By			11/18/99 1000
Relinquished By			Date/Time	Received By			Date/Time

Matrix *

S = Soil		DS = Drum Solid	
SE = Sediment		DL = Drum Liquid	
SO = Solid		T = Tissue	
SL = Sludge		WI = Wine	
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

RECRA
ENVIRONMENTAL
INC.

Chemical and Environmental Measurement Information

Recra LabNet Philadelphia
Analytical Report

Client : TNU-HANFORD C00-005
RFW# : 9911L759
SDG# : H0638
SAF# : C00-005

W.O. # : 10985-001-001-9999-00
Date Received: 11-18-99

FEB 2000
RECEIVED
Data
Log In

INORGANIC CASE NARRATIVE

1. This narrative covers the analyses of 5 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 and Nitrite 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.

Pat E

J. Michael Taylor
Vice President
Philadelphia Analytical Laboratory

1-12-00
Date

njp\i11-759

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 16 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	
✓Nitrite ✓Nitrate ___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	
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:**	

A1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
FEB 2000
RECEIVED
Data
Log In

L-WI-034/A-06/99

02

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 12/28/99

CLIENT: TNU-HANFORD C00-005 RECRA LOT #: 9911L759

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-002	B0WR01	Chloride by IC	52.1	MG/L	5.0	20.0
		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	100	MG/L	5.0	20
		Sulfate by IC	170	MG/L	5.0	20.0
-004	B0WPY5	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
		Sulfate by IC	0.25 u	MG/L	0.25	1.0
-006	B0WPY3	Chloride by IC	31.3	MG/L	2.5	10.0
		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	82	MG/L	2.5	10
		Sulfate by IC	220	MG/L	12.5	50.0
-008	B0WR41	Chloride by IC	14.5	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	44	MG/L	1.2	5.0
		Sulfate by IC	85.8	MG/L	5.0	20.0
-010	B0WR39	Chloride by IC	12.5	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	21	MG/L	1.2	5.0
		Sulfate by IC	64.7	MG/L	5.0	20.0

Recra LabNet - Lionville

INORGANICS METHOD BLANK DATA SUMMARY PAGE 12/28/99

CLIENT: TNU-HANFORD C00-005

RECRA LOT #: 9911L759

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK10	99LIC100-MB1	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
		Sulfate by IC	0.25 u	MG/L	0.25	1.0
BLANK10	99LIC099-MB1	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
		Sulfate by IC	0.25 u	MG/L	0.25	1.0

Recra LabNet - Lionville

INORGANICS ACCURACY REPORT 12/28/99

CLIENT: TNU-HANFORD C00-005

RECRA LOT #: 9911L759

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-004	B0WPY5	Chloride by IC	5.1	0.00	5.0	102.0	1.0
		Fluoride by IC	10.7	0.00	10.0	106.6	1.0
		Nitrite by IC	5.0	0.25u	5.0	100.2	1.0
		Nitrate by IC	4.9	0.25u	5.0	98.8	1.0
		Sulfate by IC	5.0	0.25u	5.0	99.4	1.0
BLANK10	99LIC100-MB1	Chloride by IC	4.8	0.25u	5.0	95.6	1.0
		Fluoride by IC	10.5	0.50u	10.0	105.0	1.0
		Nitrite by IC	4.9	0.25u	5.0	97.5	1.0
		Nitrate by IC	4.9	0.25u	5.0	97.9	1.0
		Sulfate by IC	4.8	0.25u	5.0	95.2	1.0
BLANK10	99LIC099-MB1	Chloride by IC	4.6	0.25u	5.0	93.0	1.0
		Fluoride by IC	10.4	0.50u	10.0	103.8	1.0
		Nitrite by IC	4.9	0.25u	5.0	97.6	1.0
		Nitrate by IC	4.8	0.25u	5.0	96.6	1.0
		Sulfate by IC	4.8	0.25u	5.0	95.3	1.0

Recra LabNet - Lionville

INORGANICS PRECISION REPORT 12/28/99

CLIENT: TNU-HANFORD C00-005

RECRA LOT #: 9911L759

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-004REP	B0WPY5	Chloride by IC	0.25u	0.46	NC	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	0.25u	0.25u	NC	1.0
		Sulfate by IC	0.25u	0.25u	NC	1.0

Recra LabNet - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNU-HANFORD C00-005

DATE RECEIVED: 11/18/99 RFW LOT # :9911L759

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B0WR01						
CHLORIDE BY IC	002	W	99LIC100	11/15/99	11/19/99	11/19/99
FLUORIDE BY IC	002	W	99LIC099	11/15/99	11/18/99	11/18/99
NITRITE BY IC	002	W	99LIC099	11/15/99	11/18/99	11/18/99
NITRATE BY IC	002	W	99LIC100	11/15/99	11/19/99	11/19/99
SULFATE BY IC	002	W	99LIC100	11/15/99	11/19/99	11/19/99
B0WPY5						
CHLORIDE BY IC	004	W	99LIC099	11/15/99	11/18/99	11/18/99
CHLORIDE BY IC	004 REP	W	99LIC100	11/15/99	11/19/99	11/19/99
CHLORIDE BY IC	004 MS	W	99LIC100	11/15/99	11/19/99	11/19/99
FLUORIDE BY IC	004	W	99LIC099	11/15/99	11/18/99	11/18/99
FLUORIDE BY IC	004 REP	W	99LIC100	11/15/99	11/19/99	11/19/99
FLUORIDE BY IC	004 MS	W	99LIC100	11/15/99	11/19/99	11/19/99
NITRITE BY IC	004	W	99LIC099	11/15/99	11/18/99	11/18/99
NITRITE BY IC	004 REP	W	99LIC100	11/15/99	11/19/99	11/19/99
NITRITE BY IC	004 MS	W	99LIC100	11/15/99	11/19/99	11/19/99
NITRATE BY IC	004	W	99LIC099	11/15/99	11/18/99	11/18/99
NITRATE BY IC	004 REP	W	99LIC100	11/15/99	11/19/99	11/19/99
NITRATE BY IC	004 MS	W	99LIC100	11/15/99	11/19/99	11/19/99
SULFATE BY IC	004	W	99LIC099	11/15/99	11/18/99	11/18/99
SULFATE BY IC	004 REP	W	99LIC100	11/15/99	11/19/99	11/19/99
SULFATE BY IC	004 MS	W	99LIC100	11/15/99	11/19/99	11/19/99
B0WPY3						
CHLORIDE BY IC	006	W	99LIC100	11/15/99	11/19/99	11/19/99
FLUORIDE BY IC	006	W	99LIC099	11/15/99	11/18/99	11/18/99
NITRITE BY IC	006	W	99LIC099	11/15/99	11/18/99	11/18/99
NITRATE BY IC	006	W	99LIC100	11/15/99	11/19/99	11/19/99
SULFATE BY IC	006	W	99LIC100	11/15/99	11/19/99	11/19/99
B0WR41						
CHLORIDE BY IC	008	W	99LIC100	11/15/99	11/19/99	11/19/99

Recra LabNet - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNU-HANFORD C00-005

DATE RECEIVED: 11/18/99 RFW LOT # :9911L759

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
FLUORIDE BY IC	008	W	99LIC099	11/15/99	11/18/99	11/18/99
NITRITE BY IC	008	W	99LIC099	11/15/99	11/18/99	11/18/99
NITRATE BY IC	008	W	99LIC100	11/15/99	11/19/99	11/19/99
SULFATE BY IC	008	W	99LIC100	11/15/99	11/19/99	11/19/99
B0WR39						
CHLORIDE BY IC	010	W	99LIC100	11/15/99	11/19/99	11/19/99
FLUORIDE BY IC	010	W	99LIC099	11/15/99	11/18/99	11/18/99
NITRITE BY IC	010	W	99LIC099	11/15/99	11/18/99	11/18/99
NITRATE BY IC	010	W	99LIC100	11/15/99	11/19/99	11/19/99
SULFATE BY IC	010	W	99LIC100	11/15/99	11/19/99	11/19/99

LAB QC:

CHLORIDE BY IC	MB1	W	99LIC100	N/A	11/19/99	11/19/99
CHLORIDE BY IC	MB1 BS	W	99LIC100	N/A	11/19/99	11/19/99
FLUORIDE BY IC	MB1	W	99LIC099	N/A	11/18/99	11/18/99
FLUORIDE BY IC	MB1 BS	W	99LIC099	N/A	11/18/99	11/18/99
NITRITE BY IC	MB1	W	99LIC099	N/A	11/18/99	11/18/99
NITRITE BY IC	MB1 BS	W	99LIC099	N/A	11/18/99	11/18/99
NITRATE BY IC	MB1	W	99LIC099	N/A	11/18/99	11/18/99
NITRATE BY IC	MB1 BS	W	99LIC099	N/A	11/18/99	11/18/99
NITRITE BY IC	MB1	W	99LIC100	N/A	11/19/99	11/19/99
NITRITE BY IC	MB1 BS	W	99LIC100	N/A	11/19/99	11/19/99
NITRATE BY IC	MB1	W	99LIC100	N/A	11/19/99	11/19/99
NITRATE BY IC	MB1 BS	W	99LIC100	N/A	11/19/99	11/19/99
SULFATE BY IC	MB1	W	99LIC100	N/A	11/19/99	11/19/99
SULFATE BY IC	MB1 BS	W	99LIC100	N/A	11/19/99	11/19/99
CHLORIDE BY IC	MB1	W	99LIC099	N/A	11/18/99	11/18/99
CHLORIDE BY IC	MB1 BS	W	99LIC099	N/A	11/18/99	11/18/99
FLUORIDE BY IC	MB1	W	99LIC100	N/A	11/19/99	11/19/99
FLUORIDE BY IC	MB1 BS	W	99LIC100	N/A	11/19/99	11/19/99
SULFATE BY IC	MB1	W	99LIC099	N/A	11/18/99	11/18/99
SULFATE BY IC	MB1 BS	W	99LIC099	N/A	11/18/99	11/18/99

RECRA LabNet Use Only

9911L759

Custody Transfer Record/Lab Work Request

Page 1 of 1

All FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

RECRA LabNet

Client: Tru Hanford COO-005

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: 11/18/99 Date Due: 12/18/99

Account #:

Refrigerator #									3		3					
#/Type Container	Liquid								1PL		1PL					
	Solid															
Volume	Liquid								500		500					
	Solid															
Preservatives									HNO3		—					
ANALYSES REQUESTED →		ORGANIC							INORG							
		VOA	BNA	Pest/PCB	Herb				TCP Metal	CN	TC ANIONS					
		RECRA LabNet Use Only														
									Met①		Ang①					

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

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	Met①	Ang①
001	BOW R00			W	11/15/99	0910	1	
002	B01					⊥	1	1
003	PY4					0815	1	
004	PY5					⊥	1	1
005	PY2					1007	1	
006	PY3					⊥	1	1
007	R40					1215	1	
008	R41					⊥	1	1
009	R38					1133	1	
010	R39			⊥	⊥	⊥	1	1

Special Instructions:
Met① = Ag, Al, Ba, Be, Ca, Cd, Co, Cr, Cu, Fe, K, Mg, Mn, Na, Ni, Pb, Sb, Sn, Sr, V, Zn

COMPOSITE WASTE

sdg-H0638 saf-COO-005

DATE/REVISIONS:
001-002 1. Times on COC Read 0912 on
2. Samples Reads 0910.
Ang① = ICCL, ICFL, ICNO2, ICNO3, ICSO4
3.
4. Run matrix QC
5.
6.

Relinquished by	Received by	Date	Time
[signature]	[signature]	11/18/99	1000

Relinquished by	Received by	Date	Time
	ORIGINAL		
	REWRITTEN		

RECRA LabNet Use Only

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

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

COC Record Present Upon Sample Rec't ✓ or N

Cooler Temp. 5-8 °C

Discrepancies Between Samples Labels and COC Record? Y or N

NOTES:

814702665357

11-19-99 No, and No, rec'd part bottle

PNNL

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. # C00-005-1

Page 1 of 1

Collector: D.R. BREWINGTON	Contact/Requester: JH KESSNER	Telephone No.: (509) 375-4688 MSIN FAX
AF No.: C00-005	Sampling Origin: HANFORD SITE	Purchase Order/Charge Code
Project Title: 100-HR3-IAM (1 & 2) GW MONITORING NOVEMBER 1999	Logbook No.: WMSML-1475	Ice Chest No.: SML452 Temp.
Shipped To (Lab): TMA/RECRA	Method of Shipment: GOVT. VEHICLE	Bill of Lading/Air Bill No.: 4235 7953 1750
Protocol: CERCLA	Data Turnaround: 45 Days	Offsite Property No.: W00-0-0034

POSSIBLE SAMPLE HAZARDS/REMARKS
** **

SPECIAL INSTRUCTIONS Hold Time Total Activity Exemption: Yes ☑ No ☐
SUBMIT INVOICES AND DELIVERABLES TO JH KESSNER, BHI
FAX COPIES OF QES & TMA LOG-IN TO DL STEWART (376-1704) AND JH KESSNER (372-9487)

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B0WR00 (F)		W	11-15-99	0910	1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
B0WR01		W			1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
B0WR01		W			1x500-mL P	IC Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Sulfate)	Cool 4C
B0WR01		W			1x20-mL P	Activity Scan	None
B0WR01		W			2x1000-mL G/P	Gross Alpha	HNO3 to pH <2
B0WR01		W			2x1000-mL G/P	Gross Beta	HNO3 to pH <2
B0WR01		W			1x250-mL P	Tritium - H3	None

Relinquished By	Received By
Print: D.R. BREWINGTON Sign: D.R. Brewington Date/Time: 1430	Print: Fed. Ex Sign: 11-15-99 Date/Time:
Relinquished By: FedEx 11-16-99 Date/Time: 10100	Received By: TNV M. Goldenberg 11-16-99 10:00 Date/Time:
Relinquished By: Fed Ex Date/Time: 11/18/99 1000	Received By: Date/Time: 11/18/99 1000
Relinquished By: Date/Time:	Received By: Date/Time:

Matrix *

S	= Soil	DS	= Drum Solid
SE	= Sediment	DL	= Drum Liqui
SO	= Solid	T	= Tissue
SL	= Sludge	WI	= Wine
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. # C00-005-4

Page 1 of 1

Collector: D.R. BREWINGTON	Contact/Requester: JH KESSNER	Telephone No.: (509) 375-4688 MSIN FAX
AF No.: C00-005	Sampling Origin: HANFORD SITE	Purchase Order/Charge Code
Project Title: 100-HR3-IAM (1 & 2) GW MONITORING NOVEMBER 1999	Logbook No.: WIN-SINL-H 25	Ice Chest No.: SIN1452 Temp.
Shipped To (Lab): TMA/RECRA	Method of Shipment: GOVT. VEHICLE	Bill of Lading/Air Bill No.: 423 7953 1790
Protocol: CERCLA	Data Turnaround: 45 Days	Offsite Property No.: W00-0-0034

POSSIBLE SAMPLE HAZARDS/REMARKS
** **

SPECIAL INSTRUCTIONS Hold Time Total Activity Exemption: Yes ☑ No ☐
SUBMIT INVOICES AND DELIVERABLES TO JH KESSNER, BHI
FAX COPIES OF QES & TMA LOG-IN TO DL STEWART (376-1704) AND JH KESSNER (372-9487)

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B0WPY4 (F)		W	11-15-99	0815	1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
B0WPY5		W			1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
B0WPY5		W			1x500-mL P	IC Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Sulfate)	Cool 4C
B0WPY5		W			1x20-mL P	Activity Scan	None
B0WPY5		W			2x1000-mL G/P	Gross Alpha	HNO3 to pH <2
B0WPY5		W			2x1000-mL G/P	Gross Beta	HNO3 to pH <2
B0WPY5		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		1430	Fed Ex			11-15-99
Relinquished By: FedEx			11-16-99 10:00	Received By: TNU M. Goldenberg			11-16-99 10:00
Relinquished By: Fed Ex			11/18/99 1000	Received By: [illegible]			11/18/99 1000
Relinquished By			Date/Time	Received By			Date/Time

Matrix *

S = Soil		DS = Drum Solid	
SE = Sediment		DL = Drum Liqui	
SO = Solid		T = Tissue	
SL = Sludge		WI = Wine	
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. # C00-005-3

Page 1 of 1

Collector: D.R. BREWINGTON	Contact/Requester: JH KESSNER	Telephone No.: (509) 375-4688 MSIN FAX
AF No.: C00-005	Sampling Origin: HANFORD SITE	Purchase Order/Charge Code
Project Title: 100-HR3-IAM (1 & 2) GW MONITORING NOVEMBER 1999	Logbook No.: WM-SMI-1125	Ice Chest No.: SMI 452 Temp.
Shipped To (Lab): TMA/RECRA	Method of Shipment: GOVT. VEHICLE	Bill of Lading/Air Bill No.: 4235 7953 1790
Protocol: CERCLA	Data Turnaround: 45 Days	Offsite Property No.: W00-0-0034

POSSIBLE SAMPLE HAZARDS/REMARKS
** **

SPECIAL INSTRUCTIONS Hold Time Total Activity Exemption: Yes ☑ No ☐
SUBMIT INVOICES AND DELIVERABLES TO JH KESSNER, BHI
FAX COPIES OF QES & TMA LOG-IN TO DL STEWART (376-1704) AND JH KESSNER (372-9487)

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B0WPY2 (F)		W	11-15-99	1007	1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
B0WPY3		W	↓	↓	1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
B0WPY3		W	↓	↓	1x500-mL P	IC Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Sulfate)	Cool 4C
B0WPY3		W	↓	↓	1x20-mL P	Activity Scan	None
B0WPY3		W	↓	↓	2x1000-mL G/P	Gross Alpha	HNO3 to pH <2
B0WPY3		W	↓	↓	2x1000-mL G/P	Gross Beta	HNO3 to pH <2
B0WPY3		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		1430	Fed Ex		11-15-99	
Relinquished By			Date/Time	Received By			Date/Time
Fed Ex			11-16-99 10:00	TAN M. Goldenberg			11-16-99 10:00
Relinquished By			Date/Time	Received By			Date/Time
Fed Ex			11/18/99 1000	Victor Henning			11/18/99 1000
Relinquished By			Date/Time	Received By			Date/Time

Matrix *

S = Soil		DS = Drum Solid	
SE = Sediment		DL = Drum Liqui	
SO = Solid		T = Tissue	
SL = Sludge		WI = Wine	
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

C00-005-37

llector D.R. BREWINGTON	Contact/Requester JH KESSNER	Telephone No. (509) 375-4688 MSIN FAX
F No. C00-005	Sampling Origin HANFORD SITE	Purchase Order/Charge Code
oject Title 100-HR3-IAM (1 & 2) GW MONITORING, NOVEMBER 1999	Logbook No. WM-SML-H25	Ice Chest No. SML 418 Temp.
ipped To (Lab) TMA/RECRA	Method of Shipment GOVT. VEHICLE	Bill of Lading/Air Bill No. 4235795 3 1804
otocol CERCLA	Data Turnaround 45 Days	Offsite Property No. W00-0-0034

OSSIBLE SAMPLE HAZARDS/REMARKS
* **

SPECIAL INSTRUCTIONS Hold Time Total Activity Exemption: Yes ☑ No ☐
SUBMIT INVOICES AND DELIVERABLES TO JH KESSNER, BHI
FAX COPIES OF QES & TMA LOG-IN TO DL STEWART (376-1704) AND JH KESSNER (372-9487)

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
30WR40 (F)		W	11-15-99	1215	1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
30WR41		W			1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
30WR41		W			1x500-mL P	IC Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Sulfate)	Cool 4C
30WR41		W			1x20-mL P	Activity Scan	None
30WR41		W			2x1000-mL G/P	Gross Alpha	HNO3 to pH <2
30WR41		W			2x1000-mL G/P	Gross Beta	HNO3 to pH <2
30WR41		W			1x250-mL P	Tritium - H3	None

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
R. BREWINGTON	D.R. Brewington		11/15/99 1430	Fed Ex.			11-15-99
Relinquished By			Date/Time	Received By			Date/Time
FedEx			11-16-99 10:00	TNV M. Goldenberg			11-16-99 10:00
Relinquished By			Date/Time	Received By			Date/Time
Fed Ex			11/18/99 1000	Paul Henning			11/18/99 1000
Relinquished By			Date/Time	Received By			Date/Time

Matrix *

S = Soil		DS = Drum Solid	
SE = Sediment		DL = Drum Liqui	
SO = Solid		T = Tissue	
SL = Sludge		WI = Wine	
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. # C00-005-39

Collector: D.R. BREWINGTON	Contact/Requester: JH KESSNER	Telephone No.: (509) 375-4688 MSIN FAX
AF No.: C00-005	Sampling Origin: HANFORD SITE	Purchase Order/Charge Code
Project Title: 100-HR3-IAM (1 & 2) GW MONITORING NOVEMBER 1999	Logbook No.: WM-SML-425	Ice Chest No.: SML 418 Temp.
Shipped To (Lab): TMA/RECRA	Method of Shipment: GOVT. VEHICLE	Bill of Lading/Air Bill No.: 42357953-1804
Protocol: CERCLA	Data Turnaround: 45 Days	Offsite Property No.: W00-0-0034

POSSIBLE SAMPLE HAZARDS/REMARKS
* **

SPECIAL INSTRUCTIONS Hold Time Total Activity Exemption: Yes ☑ No ☐
SUBMIT INVOICES AND DELIVERABLES TO JH KESSNER, BHI
FAX COPIES OF QES & TMA LOG-IN TO DL STEWART (376-1704) AND JH KESSNER (372-9487)

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
30WR38 (F)		W	11-15-99	1133	1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
30WR39		W			1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
30WR39		W			1x500-mL P	IC Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Sulfate)	Cool 4C
30WR39		W			1x20-mL P	Activity Scan	None
30WR39		W			2x1000-mL G/P	Gross Alpha	HNO3 to pH <2
30WR39		W			2x1000-mL G/P	Gross Beta	HNO3 to pH <2
30WR39		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	11/15/99 1430	Fed Ex			11-15-99
Relinquished By	Fed Ex		11-16-99 10:00	Received By	TNU McGoldenberg		11-16-99 10:00
Relinquished By	Fed Ex		11/18/99 1000	Received By			11/18/99 1000
Relinquished By			Date/Time	Received By			Date/Time

Matrix *

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

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

Thermo NUtech CHAIN OF CUSTODY ORD # N9-11-161

11/17/99 12:26:03 WORK ID: SAF C99-005/SDG H0638

RCVD: 11/16/99 DUE: 12/31/99 KEEP: 12/30/00 DISP: S

DASH	SAMPLE IDENTIFICATION	STORED	TESTS		
01A-W	B0WR00 (F)	RECRA	DISPOS	WB028	
02A-W	B0WR01	RECRA	DISPOS	WB028	WB464
02B-W	B0WR01 MS	RECRA	WB028	WB464	
02C-W	B0WR01 DUP	RECRA	WB028	WB464	
03A-W	B0WPY2 (F)	RECRA	DISPOS	WB028	
04A-W	B0WPY3	RECRA	DISPOS	WB028	WB464
05A-W	B0WPY4 (F)	RECRA	DISPOS	WB028	
06A-W	B0WPY5	RECRA	DISPOS	WB028	WB464
07A-W	B0WR38 (F)	RECRA	DISPOS	WB028	
08A-W	B0WR39	RECRA	DISPOS	WB028	WB464
09A-W	B0WR40 (F)	RECRA	DISPOS	WB028	
10A-W	B0WR41	RECRA	DISPOS	WB028	WB464

RELEASED BY	DATE	TRANSFERRED TO	DATE	RECEIVED BY	DATE
Kevin [illegible]	8-23-99	RECRA LAB	8-23-99		