H0660-TMA/RECRA

0052734

1.0 GENERAL

Bechtel Hanford Inc. (BHI) Sample Delivery Group H0660 was composed of one liquid (water) sample designated under SAF No. C00-005 with a Project Designation of: 100-HR3-IAM (1&2) GW Monitoring, November 1999.

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

2.0 ANALYSIS NOTES

2.1 Gross Alpha and Gross Beta Analyses

Gross alpha and gross beta samples were batched with SDG H0647 (7295). No problems were encountered during the course of the analyses.

2.2 Tritium Analyses

Tritium samples were batched with SDG H0647 (7295). The associated matrix spike in SDG H0647 had a 75% recovery The duplicate analysis RPD was 12%, greater than the allowable 91% three-sigma total protocol error.

RECEIVED
MAR 20 2000
EDMC

FEB 2000
RECEIVED
Data
Log In

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0660

SAMPLE SUMMARY

SDG 7304
Contact Melissa C. Mannion

Client Hanford
Contract TRB-SBB-207925
Case no SDG H0660

CLIENT SAMPLE ID	LOCATION	MATRIX	LEVEL	LAB SAMPLE ID	SAF NO	CHAIN OF CUSTODY	COLLECTED
B0WR86	Hanford Site	WATER		N912008-01	C00-005	C00-005-15	11/30/99 09:37
Method Blank		WATER		N911195-06	C00-005		
Lab Control Sample		WATER		N911195-05	C00-005		
Duplicate (N912008-01)	Hanford Site	WATER		N912008-02	C00-005		11/30/99 09:37

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CS
Version 3.06
Report date 01/29/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0660

SDG 7304
Contact Melissa C. Mannion

QC SUMMARY

Client Hanford
Contract TRB-SBB-207925
Case no SDG H0660

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
7295		Method Blank	WATER						N911195-06	7295-006
		Lab Control Sample	WATER						N911195-05	7295-005
7304	C00-005-15	B0WR86	WATER				12/01/99	1	N912008-01	7304-001
		Duplicate (N912008-01)	WATER				12/01/99	1	N912008-02	7304-002

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-QS
Version 3.06
Report date 01/29/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0660

PREP BATCH SUMMARY

SDG 7304
Contact Melissa C. Mannion

Client Hanford
Contract TRB-SBB-207925
Case no SDG H0660

TEST	MATRIX	METHOD	PREPARATION BATCH	ERROR 2σ %	PLANCHETS ANALYZED CLIENT	MORE	RE	BLANK	LCS	DUP/ORIG	MS/ORIG	QUALIFIERS
Gas Proportional Counting												
82B	WATER	Gross Beta in Water	6909-102	15.0	1			1	1	1/1		
88A	WATER	Gross Alpha in Water	6909-102	20.0	1			1	1	1/1		
Liquid Scintillation Counting												
H	WATER	Tritium in Water	6909-102	10.0	1			1	1	1/1		X

Duplicates and Matrix Spikes are those with original (Client) sample in this Sample Delivery Group.
Blank and LCS planchets are those in the same preparation batch as some Client, Duplicate or Spike sample.

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-PBS
Version 3.06
Report date 01/29/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0660

WORK SUMMARY

SDG 7304
Contact Melissa C. Mannion

Client Hanford
Contract TRB-SBB-207925
Case no SDG H0660

CLIENT SAMPLE ID / LOCATION / CUSTODY	SAF No	MATRIX	LAB SAMPLE ID / COLLECTED / RECEIVED	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
B0WR86			N912008-01	7304-001	82B/82		01/04/00	01/29/00	MCM	Gross Beta in Water
Hanford Site		WATER	11/30/99	7304-001	88A/88		01/03/00	01/29/00	MCM	Gross Alpha in Water
C00-005-15	C00-005		12/01/99	7304-001	H		01/04/00	01/29/00	MCM	Tritium in Water
Method Blank			N911195-06	7295-006	82B/82		12/30/99	01/29/00	MCM	Gross Beta in Water
		WATER		7295-006	88A/88		01/04/00	01/29/00	MCM	Gross Alpha in Water
	C00-005			7295-006	H		12/28/99	01/29/00	MCM	Tritium in Water
Lab Control Sample			N911195-05	7295-005	82B/82		12/30/99	01/29/00	MCM	Gross Beta in Water
		WATER		7295-005	88A/88		01/03/00	01/29/00	MCM	Gross Alpha in Water
	C00-005			7295-005	H		12/28/99	01/29/00	MCM	Tritium in Water
Duplicate (N912008-01)			N912008-02	7304-002	82B/82		12/30/99	01/29/00	MCM	Gross Beta in Water
Hanford Site		WATER	11/30/99	7304-002	88A/88		01/03/00	01/29/00	MCM	Gross Alpha in Water
	C00-005		12/01/99	7304-002	H		01/04/00	01/29/00	MCM	Tritium in Water

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	1			1	1	1	4
88A/88	C00-005	Gross Alpha in Water	EPA900.0	1			1	1	1	4
H	C00-005	Tritium in Water	EPA906.0	1			1	1	1	4
TOTALS				3			3	3	3	12

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CWS
Version 3.06
Report date 01/29/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0660

N911195-06 Method Blank

METHOD BLANK

SDG	7304	Client/Case no	Hanford	SDG H0660
Contact	Melissa C. Mannion	Contract	TRB-SBB-207925	
Lab sample id	N911195-06	Client sample id	Method Blank	
Dept sample id	7295-006	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	-0.243	0.44	1.1		U	88A
Gross Beta	12587-47-2	-0.164	1.3	2.3		U	82B
Tritium	10028-17-8	-73.8	93	160	400	U	H

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

QC-BLANK 32816

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	01/29/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0660

N911195-05

Lab Control Sample

LAB CONTROL SAMPLE

SDG 7304

Contact Melissa C. Mannion

Client/Case no Hanford SDG H0660

Case no TRB-SBB-207925

Lab sample id N911195-05

Dept sample id 7295-005

Client sample id Lab Control Sample

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	55.2	4.3	1.2			88A	67.0	2.7	82	73-127	
Gross Beta	76.0	3.5	2.0			82B	75.0	3.0	101	75-125	
Tritium	6890	230	160	400	X	H	6980	280	99	83-117	80-120

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

QC-LCS 32815

Lab id TMANC

Protocol Hanford

Version Ver 1.0

Form DVD-LCS

Version 3.06

Report date 01/29/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0660

N912008-02 B0WR86

DUPLICATE

SDG	7304			Client/Case no	Hanford SDG H0660
Contact	Melissa C. Mannion			Case no	TRB-SBB-207925
	DUPLICATE		ORIGINAL		
Lab sample id	N912008-02	Lab sample id	N912008-01	Client sample id	B0WR86
Dept sample id	7304-002	Dept sample id	7304-001	Location/Matrix	Hanford Site WATER
		Received	12/01/99	Collected	11/30/99 09:37
				Custody/SAF No	C00-005-15 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	0.694	1.0	1.8		U	88A	0.597	1.0	1.8	U	-		
Gross Beta	3.19	1.4	2.0			82B	3.07	1.4	2.0		4	100	
Tritium	859	250	380	400		H	276	220	360	U	103	91	

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

QC-DUP#1 32947

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DUP
Version	3.06
Report date	01/29/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0660

N912008-01 B0WR86

DATA SHEET

SDG	7304	Client/Case no	Hanford	SDG H0660	
Contact	Melissa C. Mannion	Contract	TRB-SBB-207925		
Lab sample id	N912008-01	Client sample id	B0WR86		
Dept sample id	7304-001	Location/Matrix	Hanford Site	WATER	
Received	12/01/99	Collected	11/30/99 09:37		
		Custody/SAF No	C00-005-15	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	0.597	1.0	1.8		U	88A
Gross Beta	12587-47-2	3.07	1.4	2.0			82B
Tritium	10028-17-8	276	220	360	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	01/29/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0660

Test 82B Matrix WATER	Client Hanford
SDG 7304	Contract TRB-SBB-207925
Contact Melissa C. Mannion	Case no SDG H0660

METHOD SUMMARY

GROSS BETA IN WATER

GAS PROPORTIONAL COUNTING

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 6909-102								
B0WR86	N912008-01	82		7304-001	3.07			
BLK (QC ID=32816)	N911195-06	82		7295-006	U			
LCS (QC ID=32815)	N911195-05	82		7295-005	ok			
Duplicate (N912008-01)	N912008-02	82		7304-002	ok			

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

100-HR3-IAM (1&2) GW Mon., Nov. 1999 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 6909-102 2σ prep error 15.0 % Reference Lab Notebook 6909 pg. 102																
B0WR86	N912008-01	82		2.0	0.300			113		100			35	12/30/99	01/04	GRB-115
BLK (QC ID=32816)	N911195-06	82		2.3	0.300			23		100				12/30/99	12/30	GRB-112
LCS (QC ID=32815)	N911195-05	82		2.0	0.300			22		100				12/30/99	12/30	GRB-111
Duplicate (N912008-01) (QC ID=32947)	N912008-02	82		2.0	0.300			112		100			30	12/30/99	12/30	GRB-115
Nominal values and limits from method					0.300			5-150		100						

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

AVERAGES ± 2 SD FOR 4 SAMPLES				
	MDA	2.1	±	0.30
	RESIDUE	68	±	104

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-CMS
Version	3.06
Report date	01/29/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0660

Test 88A Matrix WATER	Client Hanford
SDG 7304	Contract TRB-SBB-207925
Contact Melissa C. Mannion	Case no SDG H0660

METHOD SUMMARY

GROSS ALPHA IN WATER

GAS PROPORTIONAL COUNTING

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Gross Alpha	
Preparation batch 6909-102						
B0WR86	N912008-01	88		7304-001	U	
BLK (QC ID=32816)	N911195-06	88		7295-006	U	
LCS (QC ID=32815)	N911195-05	88		7295-005	ok	
Duplicate (N912008-01)	N912008-02	88		7304-002	-	U

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

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 6909-102	2σ prep error 20.0 %				Reference Lab Notebook 6909 pg. 102											
B0WR86	N912008-01	88		1.8	0.300			111		100			34	12/30/99	01/03	GRB-111
BLK (QC ID=32816)	N911195-06	88		1.1	0.300			22		100				12/30/99	01/04	GRB-113
LCS (QC ID=32815)	N911195-05	88		1.2	0.300			23		100				12/30/99	01/03	GRB-115
Duplicate (N912008-01) (QC ID=32947)	N912008-02	88		1.8	0.300			114		100			34	12/30/99	01/03	GRB-112
Nominal values and limits from method					0.300			5-150		100						

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

AVERAGES ± 2 SD	MDA	1.5	± 0.75
FOR 4 SAMPLES	RESIDUE	68	± 104

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-CMS
Version	3.06
Report date	01/29/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0660

Test H	Matrix WATER
SDG 7304	
Contact Melissa C. Mannion	

METHOD SUMMARY

TRITIUM IN WATER

LIQUID SCINTILLATION COUNTING

Client Hanford	
Contract TRB-SBB-207925	
Case no SDG H0660	

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW. TEST	SUF-FIX	PLANCHET	Tritium	
Preparation batch 6909-102						
B0WR86	N912008-01			7304-001	U	
BLK (QC ID=32816)	N911195-06			7295-006	U	
LCS (QC ID=32815)	N911195-05			7295-005	ok	X
Duplicate (N912008-01)	N912008-02			7304-002	OUT	

Nominal values and limits from method RDLs (pCi/L) 400

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 6909-102	2σ prep error 10.0 %				Reference Lab Notebook 6909 pg. 102											
B0WR86	N912008-01			360	0.0100			100		100			35	12/28/99	01/04	LSC-004
BLK (QC ID=32816)	N911195-06			160	0.0100			100		100				12/28/99	12/28	LSC-007
LCS (QC ID=32815)	N911195-05			160	0.0100			100		100				12/28/99	12/28	LSC-007
Duplicate (N912008-01) (QC ID=32947)	N912008-02			380	0.0100			100		100			35	12/28/99	01/04	LSC-004
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	MDA 260	± 240
FOR 4 SAMPLES	YIELD 100	± 0

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-CMS
Version	3.06
Report date	01/29/00

1304

PNNL

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. # **C00-005-15**

Collector: R.T SICKLE	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.: WM-1 Temp.
Shipped To (Lab): TMA/RECRA	Method of Shipment: GOVT. VEHICLE	Bill of Lading/Air Bill No.: 4235 7953 2329
Protocol: CERCLA	Data Turnaround: 45 Days	Offsite Property No.

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
B0WR85 (F)		W	11-30-99	0937	1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
B0WR86		W			1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
B0WR86		W			1x500-mL P	IC Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Sulfate)	Cool 4C
B0WR86		W			1x20-mL P	Activity Scan F	None
B0WR86		W			2x1000-mL G/P	Gross Alpha A, B	HNO3 to pH <2
B0WR86		W			2x1000-mL G/P	Gross Beta C, D	HNO3 to pH <2
B0WR86		W			1x250-mL P	Tritium - H3 E	None

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
R.T SICKLE			11-30-99 1400	Fed Ex			11-30-99
Relinquished By			Date/Time	Received By			Date/Time
Fed Ex			12-1-99 9:30	TNV M. Goldenberg			12-1-99 9:30
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 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

Thermo NUtech - Richmond

SAMPLE RECEIPT CHECKLIST

PNNL

SAMPLE RECEIPT

Client: Bechtel Hanford Inc Date/Time received 12-1-99 9:30

CoC No. C00-005-15

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

INSPECTION

1. Custody seals on shipping container intact? Yes [✓] No [ ] N/A [ ]
2. Custody seals on shipping container dated & signed? Yes [✓] No [ ] N/A [ ]
3. Custody seals on sample containers intact? Yes [✓] No [ ] N/A [ ]
4. Custody seals on sample containers dated & signed? Yes [✓] No [ ] N/A [ ]
5. Cooler Temperature: _____ Packing material is: Wet [ ] Dry [✓]
6. Number of samples in shipping container: 7
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: 12-1-99 Time: 9:30

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 LabNet
a division of Recra Environmental, Inc.
Virtual Laboratories Everywhere

Recra LabNet Philadelphia
Analytical Report

Client : TNU-HANFORD C00-005
RFW# : 9912L906
SDG# : H0660
SAF# : C00-005

W.O. # : 10985-001-001-9999-00
Date Received: 12-03-99

INORGANIC CASE NARRATIVE

1. This narrative covers the analyses of 1 water sample.

2. The sample was prepared and analyzed in accordance with the methods indicated 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.

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% RPD control limit.

FEB 2000

Pat E

J. Michael Taylor
Vice President
Philadelphia Analytical Laboratory

1-24-00
Date

njp\i12-906

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 10 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
cidity	___ 305.1		
__Alkalinity ___Bicarbonate ___Carbonate	___ 310.1		
OD	___ 405.1		___ 5210B (b)
on Chormatography:			
__Bromide ✓Chloride ✓Fluoride	✓ 300.0	___ 9056	
✓Nitrite ✓Nitrite ___Phosphate	✓ 300.0	___ 9056	
✓Sulfate ___Formate ___Acetate ___Oxalate	✓ 300.0	___ 9056	
hloride	___ 325.2	___ 9251	
horine, Residual	___ 330.5 (mod)		
yanide, Amenable to Chorination	___ 335.2	___ 9010B	
yanide, Total	___ 335.2	___ 9010B ___ 9014	___ ILMO4.0 (e)
yanide, Weak Acid Dissociable		___	___ 412 (a) ___ 4500CN-I (b
OD	___ 410.4(mod)		___ 5220C (b)
olor	___ 110.2		
orrosivity 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:**

FEB 2000 RECEIVED Data Log In

Recra LabNet Philadelphia
METHOD REFERENCES AND DATA QUALIFIERS

DATA QUALIFIERS

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

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

ABBREVIATIONS

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

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

ANALYTICAL WET CHEMISTRY METHODS

1. ASTM Standard Methods.

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

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

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

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

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

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

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

f. Code of Federal Regulations.

Recra LabNet - Lionville

INORGANICS DATA SUMMARY REPORT 12/16/99

CLIENT: TNU-HANFORD C00-005 RECRA LOT #: 9912L906

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-002	B0WR86	Chloride by IC	23.2	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	49	MG/L	1.2	5.0
		Sulfate by IC	168	MG/L	5.0	20.0

Recra LabNet - Lionville

INORGANICS METHOD BLANK DATA SUMMARY PAGE 12/16/99

CLIENT: TNU-HANFORD C00-005 RECRA LOT #: 9912L906

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK10	99LBC105-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 12/16/99

CLIENT: TNU-HANFORD C00-005 RECRA LOT #: 9912L906

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-002	B0WR86	Chloride by IC	75.9	23.2	50.0	105.4	10.0
		Fluoride by IC	11.5	0.14	10.0	113.6	1.0
		Nitrite by IC	4.9	0.25u	5.0	98.0	1.0
		Nitrate by IC	320	49	250	110.1	50
		Sulfate by IC	433	168	250	106.0	50.0
BLANK10	99LBC105-MB1	Chloride by IC	4.7	0.25u	5.0	94.5	1.0
		Fluoride by IC	10.6	0.50u	10.0	105.8	1.0
		Nitrite by IC	4.9	0.25u	5.0	97.2	1.0
		Nitrate by IC	5.2	0.25u	5.0	103.2	1.0
		Sulfate by IC	4.8	0.25u	5.0	96.5	1.0

Recra LabNet - Lionville

INORGANICS PRECISION REPORT 12/16/99

CLIENT: TNU-HANFORD C00-005 RECRA LOT #: 9912L906

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-002REP	B0WR86	Chloride by IC	23.2	22.9	1.2	5.0
		Fluoride by IC	0.50u	0.50u	NC	1.0
		Nitrite by IC	0.25u	0.25u	NC	1.0
		Nitrate by IC	49	48	2.1	5.0
		Sulfate by IC	168	169	0.80	20.0

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

DATE RECEIVED: 12/03/99 RFW LOT # :9912L906

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B0WR86						
CHLORIDE BY IC	002	W	99LBC105	11/30/99	12/03/99	12/03/99
CHLORIDE BY IC	002 REP	W	99LBC105	11/30/99	12/03/99	12/03/99
CHLORIDE BY IC	002 MS	W	99LBC105	11/30/99	12/03/99	12/03/99
FLUORIDE BY IC	002	W	99LBC105	11/30/99	12/03/99	12/03/99
FLUORIDE BY IC	002 REP	W	99LBC105	11/30/99	12/03/99	12/03/99
FLUORIDE BY IC	002 MS	W	99LBC105	11/30/99	12/03/99	12/03/99
NITRITE BY IC	002	W	99LBC105	11/30/99	12/03/99	12/03/99
NITRITE BY IC	002 REP	W	99LBC105	11/30/99	12/03/99	12/03/99
NITRITE BY IC	002 MS	W	99LBC105	11/30/99	12/03/99	12/03/99
NITRATE BY IC	002	W	99LBC105	11/30/99	12/03/99	12/03/99
NITRATE BY IC	002 REP	W	99LBC105	11/30/99	12/03/99	12/03/99
NITRATE BY IC	002 MS	W	99LBC105	11/30/99	12/03/99	12/03/99
SULFATE BY IC	002	W	99LBC105	11/30/99	12/03/99	12/03/99
SULFATE BY IC	002 REP	W	99LBC105	11/30/99	12/03/99	12/03/99
SULFATE BY IC	002 MS	W	99LBC105	11/30/99	12/03/99	12/03/99

LAB QC:

CHLORIDE BY IC	MB1	W	99LBC105	N/A	12/03/99	12/03/99
CHLORIDE BY IC	MB1 BS	W	99LBC105	N/A	12/03/99	12/03/99
FLUORIDE BY IC	MB1	W	99LBC105	N/A	12/03/99	12/03/99
FLUORIDE BY IC	MB1 BS	W	99LBC105	N/A	12/03/99	12/03/99
NITRITE BY IC	MB1	W	99LBC105	N/A	12/03/99	12/03/99
NITRITE BY IC	MB1 BS	W	99LBC105	N/A	12/03/99	12/03/99
NITRATE BY IC	MB1	W	99LBC105	N/A	12/03/99	12/03/99
NITRATE BY IC	MB1 BS	W	99LBC105	N/A	12/03/99	12/03/99
SULFATE BY IC	MB1	W	99LBC105	N/A	12/03/99	12/03/99
SULFATE BY IC	MB1 BS	W	99LBC105	N/A	12/03/99	12/03/99

RECRA LabNet Use Only

99121906

Custody Transfer Record/Lab Work Request

Page 1 of 1

RECRA LabNet

All

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client: TNU 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 days

Date Rec'd: 12/3/99 Date Due: 1/2/00

Account #:

Refrigerator #										3		3					
#/Type Container	Liquid									1R		1R					
	Solid																
Volume	Liquid									500		500					
	Solid																
Preservatives										HNO3		—					
ANALYSES REQUESTED →		ORGANIC							INORG								
		VOA	BNA	Pest/PCB	Herb				Tot Metal	CN	IC Anions						
		RECRA LabNet Use Only															
									Met ①		Ang ①						

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

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected															
001	BOWR85			W	11/30/99	0937								1							
002	1 86			1	1	1								1		1					

Special Instructions:

saf # COO-005

selg # H0660

COMPOSITE WASTE

DATE/REVISIONS:

Met ① = Ag, Al, Ba, Be, Ca, Cd, Co, Cr,
2. Cu, Fe, K, Mg, Mn, Na, Ni, Pb,
3. Sb, Sn, Sr, V, Zn
Ang ① = ICCL, ICFL, ICNO2, ICNO3, ICSO4
5.
6. Run matrix QC

RECRA LabNet Use Only

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

COC Tape was:
1) Present on Outer Package Y or N
2) Unbroken on Outer Package Y or N
3) Present on Sample Y or N
4) Unbroken on Sample Y or N
COC Record Present Upon Sample Rec't Y or N
Cooler Temp. 4.1 °C

Relinquished by	Received by	Date	Time
Fed Ex	[illegible]	12-3-99	0920

Relinquished by	Received by	Date	Time
	ORIGINAL		
	REWRITTEN		

Discrepancies Between Samples Labels and COC Record? Y or N

NOTES:

4235 7953 2329

NO2/3 out

PNNL

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. # C00-005-15

Page 1 of 1

Collector: R.T SICKLE	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.: WM-SML-H25	Ice Chest No.: WM-1 Temp.
Shipped To (Lab): TMA/RECRA	Method of Shipment: GOVT. VEHICLE	Bill of Lading/Air Bill No.: 4235 7953 2329
Protocol: CERCLA	Data Turnaround: 45 Days	Offsite Property No.

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
B0WR85 (F)		W	11-30-99	0937	1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
B0WR86		W			1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
B0WR86		W			1x500-mL P	IC Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Sulfate)	Cool 4C
B0WR86		W			1x20-mL P	Activity Scan	None
B0WR86		W			2x1000-mL G/P	Gross Alpha	HNO3 to pH <2
B0WR86		W			2x1000-mL G/P	Gross Beta	HNO3 to pH <2
B0WR86		W			1x250-mL P	Tritium - H3	None

Relinquished By (Print / Sign)	Date/Time	Received By (Print / Sign)	Date/Time
R.T SICKLE	11-30-99 1400	Fed Ex	11-30-99
Fed Ex	12-1-99 9:30	TNV M. Goldenberg	12-1-99 9:30
Fed Ex	12-3-99 0930	R. Henry	12-3-99 0930

Matrix *

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

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

4.1

RECRA
ENVIRONMENTAL
INC.

Chemical and Environmental Measurement Information

Recra LabNet Philadelphia
Analytical Report

Client : TNU-HANFORD C00-005
RFW# : 9912L906
SDG/SAF# : H0660/C00-005

W.O.# : 10985-001-001-9999-00
Date Received: 12-03-99

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METALS CASE NARRATIVE

1. This narrative covers the analyses of 2 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) with the exception of the ending CCV for Cadmium (111.6%) and Lead (110.7%). All samples for Cadmium and Lead between the CCV in control and the CCV which was high have results less than the IDL. There should be no significant bias to the data.

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

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

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

9. All laboratory control samples (LCS) were within the 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 16 pages.

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.

Pat E

J. Michael Taylor
Vice President
Philadelphia Analytical Laboratory

mld/m12-906

1-31-00
Date

FEB 2000
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Date
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METALS METHOD GLOSSARY

The following methods are used as reference for the digestion and analysis of samples contained within this Recra Lot#: 9912L906

Leaching Procedure: __1310 __1311 __1312 __Other:_____

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

Metals Digestion Methods: ✓3005A __3010A __3015 __3020A __3050B __3051 __200.7 __SS17
__Other: _____

Metals Analysis Methods

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

Other:_____ Method:_____

L-WI-033/M-11/99

METHOD REFERENCES AND DATA QUALIFIERS

DATA QUALIFIERS

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

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

ABBREVIATIONS

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

ANALYTICAL METAL METHODS

1. Not included in the method element list.

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

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

4. Flame AA.

5. Graphite Furnace AA.

Recra LabNet - Lionville

INORGANICS DATA SUMMARY REPORT 01/31/00

CLIENT: TNU-HANFORD C00-005

RECRA LOT #: 9912L906

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	B0WR85	Silver, Total	0.80	u	UG/L	0.80	1.0
		Aluminum, Total	10.1	u	UG/L	10.1	1.0
		Barium, Total	100		UG/L	0.20	1.0
		Beryllium, Total	0.10	u	UG/L	0.10	1.0
		Calcium, Total	89700		UG/L	8.6	1.0
		Cadmium, Total	0.40	u	UG/L	0.40	1.0
		Cobalt, Total	4.0		UG/L	0.70	1.0
		Chromium, Total	642		UG/L	0.70	1.0
		Copper, Total	1.2		UG/L	0.50	1.0
		Iron, Total	13.6	u	UG/L	13.6	1.0
		Potassium, Total	3640		UG/L	17.8	1.0
		Magnesium, Total	20100		UG/L	6.3	1.0
		Manganese, Total	1.3		UG/L	0.20	1.0
		Sodium, Total	14700		UG/L	4.8	1.0
		Nickel, Total	5.4		UG/L	1.0	1.0
		Lead, Total	2.1	u	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	436		UG/L	0.10	1.0
		Vanadium, Total	3.2		UG/L	0.60	1.0
		Zinc, Total	1.8		UG/L	0.50	1.0

Recra LabNet - Lionville

INORGANICS DATA SUMMARY REPORT 01/31/00

CLIENT: TNU-HANFORD C00-005 RECRA LOT #: 9912L906

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-002	B0WR86	Silver, Total	0.80 u	UG/L	0.80	1.0
		Aluminum, Total	45.9	UG/L	10.1	1.0
		Barium, Total	98.2	UG/L	0.20	1.0
		Beryllium, Total	0.10 u	UG/L	0.10	1.0
		Calcium, Total	91900	UG/L	8.6	1.0
		Cadmium, Total	0.40 u	UG/L	0.40	1.0
		Cobalt, Total	4.1	UG/L	0.70	1.0
		Chromium, Total	656	UG/L	0.70	1.0
		Copper, Total	0.50 u	UG/L	0.50	1.0
		Iron, Total	129	UG/L	13.6	1.0
		Potassium, Total	3670	UG/L	17.8	1.0
		Magnesium, Total	20600	UG/L	6.3	1.0
		Manganese, Total	8.1	UG/L	0.20	1.0
		Sodium, Total	14800	UG/L	4.8	1.0
		Nickel, Total	4.9	UG/L	1.0	1.0
		Lead, Total	2.1 u	UG/L	2.1	1.0
		Antimony, Total	4.1	UG/L	2.1	1.0
		Tin, Total	2.6 u	UG/L	2.6	1.0
		Strontium, Total	431	UG/L	0.10	1.0
		Vanadium, Total	2.9	UG/L	0.60	1.0
		Zinc, Total	2.6	UG/L	0.50	1.0

Recra LabNet - Lionville

INORGANICS METHOD BLANK DATA SUMMARY PAGE 01/31/00

CLIENT: TNU-HANFORD C00-005 RECRA LOT #: 9912L906

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

Recra LabNet - Lionville

INORGANICS ACCURACY REPORT 01/31/00

CLIENT: TNU-HANFORD C00-005

RECRA LOT #: 9912L906

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-001	B0WR85	Silver, Total	51.3	0.80u	50.0	102.6	1.0
		Aluminum, Total	2020	10.1 u	2000	101.2	1.0
		Barium, Total	2050	100	2000	97.4	1.0
		Beryllium, Total	53.2	0.10u	50.0	106.4	1.0
		Calcium, Total	115000	89700	25000	101.4	1.0
		Cadmium, Total	53.1	0.40u	50.0	106.2	1.0
		Cobalt, Total	529	4.0	500	104.9	1.0
		Chromium, Total	851	642	200	104.6	1.0
		Copper, Total	243	1.2	250	96.7	1.0
		Iron, Total	1060	13.6 u	1000	106.1	1.0
		Potassium, Total	29100	3640	25000	102.0	1.0
		Magnesium, Total	46700	20100	25000	106.7	1.0
		Manganese, Total	535	1.3	500	106.7	1.0
		Sodium, Total	39400	14700	25000	99.0	1.0
		Nickel, Total	527	5.4	500	104.3	1.0
		Lead, Total	524	2.1 u	500	104.7	1.0
		Antimony, Total	521	2.9	500	103.6	1.0
		Tin, Total	1090	2.6 u	1000	109.3	1.0
		Strontium, Total	1400	436	1000	96.0	1.0
		Vanadium, Total	530	3.2	500	105.4	1.0
		Zinc, Total	514	1.8	500	102.4	1.0

Recra LabNet - Lionville

INORGANICS PRECISION REPORT 01/31/00

CLIENT: TNU-HANFORD C00-005 RECRA LOT #: 9912L906

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-001REP	B0WR85	Silver, Total	0.80u	0.80u	NC	1.0
		Aluminum, Total	10.1 u	10.1 u	NC	1.0
		Barium, Total	100	97.7	2.3	1.0
		Beryllium, Total	0.10u	0.10u	NC	1.0
		Calcium, Total	89700	89000	0.81	1.0
		Cadmium, Total	0.40u	0.40u	NC	1.0
		Cobalt, Total	4.0	4.3	7.2	1.0
		Chromium, Total	642	634	1.1	1.0
		Copper, Total	1.2	1.2	0.00	1.0
		Iron, Total	13.6 u	13.6 u	NC	1.0
		Potassium, Total	3640	3590	1.3	1.0
		Magnesium, Total	20100	20000	0.29	1.0
		Manganese, Total	1.3	1.7	26.7	1.0
		Sodium, Total	14700	14400	1.9	1.0
		Nickel, Total	5.4	4.2	25.0	1.0
		Lead, Total	2.1 u	2.1 u	NC	1.0
		Antimony, Total	2.9	2.1	32.0	1.0
		Tin, Total	2.6 u	2.6 u	NC	1.0
		Strontium, Total	436	426	2.3	1.0
		Vanadium, Total	3.2	3.6	11.8	1.0
		Zinc, Total	1.8	2.4	28.6	1.0

Recra LabNet - Lionville

INORGANICS LABORATORY CONTROL STANDARDS REPORT 01/31/00

CLIENT: TNU-HANFORD C00-005 RECRA LOT #: 9912L906

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: 12/03/99 RFW LOT # :9912L906

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B0WR85						
SILVER, TOTAL	001	W	99L0933	11/30/99	01/19/00	01/24/00
SILVER, TOTAL	001 REP	W	99L0933	11/30/99	01/19/00	01/24/00
SILVER, TOTAL	001 MS	W	99L0933	11/30/99	01/19/00	01/24/00
ALUMINUM, TOTAL	001	W	99L0933	11/30/99	01/19/00	01/24/00
ALUMINUM, TOTAL	001 REP	W	99L0933	11/30/99	01/19/00	01/24/00
ALUMINUM, TOTAL	001 MS	W	99L0933	11/30/99	01/19/00	01/24/00
BARIUM, TOTAL	001	W	99L0933	11/30/99	01/19/00	01/24/00
BARIUM, TOTAL	001 REP	W	99L0933	11/30/99	01/19/00	01/24/00
BARIUM, TOTAL	001 MS	W	99L0933	11/30/99	01/19/00	01/24/00
BERYLLIUM, TOTAL	001	W	99L0933	11/30/99	01/19/00	01/24/00
BERYLLIUM, TOTAL	001 REP	W	99L0933	11/30/99	01/19/00	01/24/00
BERYLLIUM, TOTAL	001 MS	W	99L0933	11/30/99	01/19/00	01/24/00
CALCIUM, TOTAL	001	W	99L0933	11/30/99	01/19/00	01/25/00
CALCIUM, TOTAL	001 REP	W	99L0933	11/30/99	01/19/00	01/25/00
CALCIUM, TOTAL	001 MS	W	99L0933	11/30/99	01/19/00	01/25/00
CADMIUM, TOTAL	001	W	99L0933	11/30/99	01/19/00	01/24/00
CADMIUM, TOTAL	001 REP	W	99L0933	11/30/99	01/19/00	01/24/00
CADMIUM, TOTAL	001 MS	W	99L0933	11/30/99	01/19/00	01/24/00
COBALT, TOTAL	001	W	99L0933	11/30/99	01/19/00	01/24/00
COBALT, TOTAL	001 REP	W	99L0933	11/30/99	01/19/00	01/24/00
COBALT, TOTAL	001 MS	W	99L0933	11/30/99	01/19/00	01/24/00
CHROMIUM, TOTAL	001	W	99L0933	11/30/99	01/19/00	01/24/00
CHROMIUM, TOTAL	001 REP	W	99L0933	11/30/99	01/19/00	01/24/00
CHROMIUM, TOTAL	001 MS	W	99L0933	11/30/99	01/19/00	01/24/00
COPPER, TOTAL	001	W	99L0933	11/30/99	01/19/00	01/24/00
COPPER, TOTAL	001 REP	W	99L0933	11/30/99	01/19/00	01/24/00
COPPER, TOTAL	001 MS	W	99L0933	11/30/99	01/19/00	01/24/00
IRON, TOTAL	001	W	99L0933	11/30/99	01/19/00	01/24/00
IRON, TOTAL	001 REP	W	99L0933	11/30/99	01/19/00	01/25/00
IRON, TOTAL	001 MS	W	99L0933	11/30/99	01/19/00	01/24/00
POTASSIUM, TOTAL	001	W	99L0933	11/30/99	01/19/00	01/24/00
POTASSIUM, TOTAL	001 REP	W	99L0933	11/30/99	01/19/00	01/24/00
POTASSIUM, TOTAL	001 MS	W	99L0933	11/30/99	01/19/00	01/24/00
MAGNESIUM, TOTAL	001	W	99L0933	11/30/99	01/19/00	01/24/00
MAGNESIUM, TOTAL	001 REP	W	99L0933	11/30/99	01/19/00	01/24/00

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

DATE RECEIVED: 12/03/99 RFW LOT # :9912L906

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
MAGNESIUM, TOTAL	001 MS	W	99L0933	11/30/99	01/19/00	01/24/00
MANGANESE, TOTAL	001	W	99L0933	11/30/99	01/19/00	01/24/00
MANGANESE, TOTAL	001 REP	W	99L0933	11/30/99	01/19/00	01/24/00
MANGANESE, TOTAL	001 MS	W	99L0933	11/30/99	01/19/00	01/24/00
SODIUM, TOTAL	001	W	99L0933	11/30/99	01/19/00	01/24/00
SODIUM, TOTAL	001 REP	W	99L0933	11/30/99	01/19/00	01/24/00
SODIUM, TOTAL	001 MS	W	99L0933	11/30/99	01/19/00	01/24/00
NICKEL, TOTAL	001	W	99L0933	11/30/99	01/19/00	01/24/00
NICKEL, TOTAL	001 REP	W	99L0933	11/30/99	01/19/00	01/24/00
NICKEL, TOTAL	001 MS	W	99L0933	11/30/99	01/19/00	01/24/00
LEAD, TOTAL	001	W	99L0933	11/30/99	01/19/00	01/24/00
LEAD, TOTAL	001 REP	W	99L0933	11/30/99	01/19/00	01/24/00
LEAD, TOTAL	001 MS	W	99L0933	11/30/99	01/19/00	01/24/00
ANTIMONY, TOTAL	001	W	99L0933	11/30/99	01/19/00	01/24/00
ANTIMONY, TOTAL	001 REP	W	99L0933	11/30/99	01/19/00	01/24/00
ANTIMONY, TOTAL	001 MS	W	99L0933	11/30/99	01/19/00	01/24/00
TIN, TOTAL	001	W	99L0933	11/30/99	01/19/00	01/24/00
TIN, TOTAL	001 REP	W	99L0933	11/30/99	01/19/00	01/24/00
TIN, TOTAL	001 MS	W	99L0933	11/30/99	01/19/00	01/24/00
STRONTIUM, TOTAL	001	W	99L0933	11/30/99	01/19/00	01/24/00
STRONTIUM, TOTAL	001 REP	W	99L0933	11/30/99	01/19/00	01/24/00
STRONTIUM, TOTAL	001 MS	W	99L0933	11/30/99	01/19/00	01/24/00
VANADIUM, TOTAL	001	W	99L0933	11/30/99	01/19/00	01/24/00
VANADIUM, TOTAL	001 REP	W	99L0933	11/30/99	01/19/00	01/24/00
VANADIUM, TOTAL	001 MS	W	99L0933	11/30/99	01/19/00	01/24/00
ZINC, TOTAL	001	W	99L0933	11/30/99	01/19/00	01/24/00
ZINC, TOTAL	001 REP	W	99L0933	11/30/99	01/19/00	01/24/00
ZINC, TOTAL	001 MS	W	99L0933	11/30/99	01/19/00	01/24/00
B0WR86						
SILVER, TOTAL	002	W	99L0933	11/30/99	01/19/00	01/24/00
ALUMINUM, TOTAL	002	W	99L0933	11/30/99	01/19/00	01/24/00
BARIUM, TOTAL	002	W	99L0933	11/30/99	01/19/00	01/24/00
BERYLLIUM, TOTAL	002	W	99L0933	11/30/99	01/19/00	01/24/00
CALCIUM, TOTAL	002	W	99L0933	11/30/99	01/19/00	01/25/00
CADMIUM, TOTAL	002	W	99L0933	11/30/99	01/19/00	01/24/00
COBALT, TOTAL	002	W	99L0933	11/30/99	01/19/00	01/24/00

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

DATE RECEIVED: 12/03/99 RFW LOT # :9912L906

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
CHROMIUM, TOTAL	002	W	99L0933	11/30/99	01/19/00	01/24/00
COPPER, TOTAL	002	W	99L0933	11/30/99	01/19/00	01/24/00
IRON, TOTAL	002	W	99L0933	11/30/99	01/19/00	01/24/00
POTASSIUM, TOTAL	002	W	99L0933	11/30/99	01/19/00	01/24/00
MAGNESIUM, TOTAL	002	W	99L0933	11/30/99	01/19/00	01/24/00
MANGANESE, TOTAL	002	W	99L0933	11/30/99	01/19/00	01/24/00
SODIUM, TOTAL	002	W	99L0933	11/30/99	01/19/00	01/24/00
NICKEL, TOTAL	002	W	99L0933	11/30/99	01/19/00	01/24/00
LEAD, TOTAL	002	W	99L0933	11/30/99	01/19/00	01/24/00
ANTIMONY, TOTAL	002	W	99L0933	11/30/99	01/19/00	01/24/00
TIN, TOTAL	002	W	99L0933	11/30/99	01/19/00	01/24/00
STRONTIUM, TOTAL	002	W	99L0933	11/30/99	01/19/00	01/24/00
VANADIUM, TOTAL	002	W	99L0933	11/30/99	01/19/00	01/24/00
ZINC, TOTAL	002	W	99L0933	11/30/99	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
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

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

DATE RECEIVED: 12/03/99 RFW LOT # :9912L906

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
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

99121906

Custody Transfer Record/Lab Work Request

Page 1 of 1

A11

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

RECRA LabNet

Client: TNU 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 days

Date Rec'd: 12/3/99 Date Due: 1/2/00

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					ICP Metal	CN	IC Anions					
RECRA LabNet Use Only										Met①		Ang①					

MATRIX CODES:	Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	Met①	Ang①
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	001	BOWR85			W	11/30/99	0937	1	
	002	1 86			1	1	1	1	1

Special Instructions:

saf# COO-005

selg# H0660

COMPOSITE WASTE

DATE/REVISIONS:

Met ① = Ag, Al, Ba, Be, Ca, Cd, Co, Cr,

2. Cu, Fe, K, Mg, Mn, Na, Ni, Pb,

3. Sb, Sn, Sr, V, Zn

Ang ① = ICCL, ICFL, ICNO2, ICNO3, ICSO4

5.

6. Run matrix QC

RECRA LabNet Use Only

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

COC Tape was:
1) Present on Outer Package (Y) or N
2) Unbroken on Outer Package (Y) or N
3) Present on Sample (Y) or N
4) Unbroken on Sample (Y) or N
COC Record Present Upon Sample Rec't (Y) or N
Cooler Temp. 4.1 °C

Relinquished by	Received by	Date	Time
Fed Ex	[illegible]	12-3-99	0920

Relinquished by	Received by	Date	Time
	ORIGINAL REWRITTEN		

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

NOTES:

4235 7753 2329 1302/3 out

015

PNNL

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. # C00-005-15

Page 1 of 1

Collector: R.T SICKLE	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.: WM-1 Temp.
Shipped To (Lab): TMA/RECRA	Method of Shipment: GOVT. VEHICLE	Bill of Lading/Air Bill No.: 4235 7953 2329
Protocol: CERCLA	Data Turnaround: 45 Days	Offsite Property No.

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
B0WR85 (F)		W	11-30-99	0937	1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
B0WR86		W			1x500-mL G/P	ICP Metals - 6010A RCRA GW	HNO3 to pH <2
B0WR86		W			1x500-mL P	IC Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Sulfate)	Cool 4C
B0WR86		W			1x20-mL P	Activity Scan	None
B0WR86		W			2x1000-mL G/P	Gross Alpha	HNO3 to pH <2
B0WR86		W			2x1000-mL G/P	Gross Beta	HNO3 to pH <2
B0WR86		W			1x250-mL P	Tritium - H3	None

Relinquished By (Print / Sign)	Date/Time	Received By (Print / Sign)	Date/Time
R.T SICKLE	11-30-99 1400	Fed Ex	11-30-99
Fed Ex	12-1-99 9:30	TNV M. Goldenberg	12-1-99 9:30
Fed Ex	12-3-99 0900	[illegible]	12-3-99 0900

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

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