

Thermo Retec
W.O. No. R0-10-075-7747

Bechtel Hanford Inc.
SDG H1086

Case Narrative

Page 1 of 1

1.0 GENERAL

Bechtel Hanford Inc. (BHI) Sample Delivery Group H1086 was composed of one solid (soil) sample designated under SAF No. B01-019 with a Project Designation of: 618-11 Burial Ground Borehole Soil Sampling and Analysis.

The sample was received as stated on the Chain-of-Custody documents. Any discrepancies are noted on the Thermo Retec Sample Receipt Checklist. The results were transmitted to BHI via e-Fax on October 20, and 25, 2000.

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 Technetium-99 Analyses

No problems were encountered during the course of the analyses.

Case Narrative Certification Statement

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

Melissa C. Mannion
Melissa C. Mannion
Program Manager

10/26/00
Date

RECEIVED
JAN 22 2001

EDMC



TMA/RICHMOND
SAMPLE DELIVERY GROUP H1086

SAMPLE SUMMARY

SDG 7747
 Contact Melissa C. Mannion

Client Hanford
 Contract TRC-SBB-207925
 Case no SDG H1086

CLIENT SAMPLE ID	LOCATION	MATRIX	LEVEL	LAB SAMPLE ID	SAF NO	CHAIN OF CUSTODY	COLLECTED
B10J80	618-11 Burial Ground	SOLID		R010075-01	B01-019	B01-019-02	10/07/00 13:08
Method Blank		SOLID		R010075-03	B01-019		
Lab Control Sample		SOLID		R010075-02	B01-019		
Duplicate (R010075-01)	618-11 Burial Ground	SOLID		R010075-04	B01-019		10/07/00 13:08

Lab id TMANC
 Protocol Hanford
 Version Ver 1.0
 Form DVD-CS
 Version 3.06
 Report date 10/25/00

TMA/RICHMOND
SAMPLE DELIVERY GROUP H1086

SDG 7747
 Contact Melissa C. Mannion

QC SUMMARY

Client Hanford
 Contract TRC-SBB-207925
 Case no SDG H1086

QC BATCH	CHAIN OF CUSTODY	CLIENT SAMPLE ID	MATRIX	% SOLIDS	SAMPLE AMOUNT	BASIS AMOUNT	DAYS SINCE RECEIVED	LAB COLL	LAB SAMPLE ID	DEPARTMENT SAMPLE ID
7747	B01-019-02	B10J80	SOLID	87.4			10/11/00 4	R010075-01		7747-001
		Method Blank	SOLID					R010075-03		7747-003
		Lab Control Sample	SOLID					R010075-02		7747-002
		Duplicate (R010075-01)	SOLID	87.4			10/11/00 4	R010075-04		7747-004

Lab id TMANC
 Protocol Hanford
 Version Ver 1.0
 Form DVD-QS
 Version 3.06
 Report date 10/25/00

TMA/RICHMOND
SAMPLE DELIVERY GROUP H1086

SDG 7747
 Contact Melissa C. Mannion

PREP BATCH SUMMARY

Client Hanford
 Contract TRC-SBB-207925
 Case no SDG H1086

TEST	MATRIX	METHOD	PREPARATION ERROR		PLANCHETS ANALYZED			QUALI- FIERS	
			BATCH	2σ %	CLIENT	MORE	RE BLANK		LCS
Beta Counting									
TC	SOLID	Technetium 99 in Soil	6952-060	10.0	1		1	1	1/1
Gas Proportional Counting									
93A	SOLID	Gross Alpha in Soil	6952-060	20.0	1		1	1	1/1
93B	SOLID	Gross Beta in Soil	6952-060	15.0	1		1	1	1/1
Liquid Scintillation Counting									
H	SOLID	Tritium in Soil	6952-060	10.0	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 10/25/00

TMA/RICHMOND
SAMPLE DELIVERY GROUP H1086

SDG 7747
Contact Melissa C. Mannion

Client Hanford
Contract TRC-SBB-207925
Case no SDG H1086

WORK SUMMARY

CLIENT SAMPLE ID	LAB SAMPLE ID									
LOCATION	MATRIX	COLLECTED	PLANCHET	TEST	SUF-	ANALYZED	REVIEWED	BY	METHOD	
CUSTODY	SAF No	RECEIVED			FIX					
B10J80		R010075-01	7747-001	93A/93		10/14/00	10/20/00	MCM	Gross Alpha in Soil	
618-11 Burial Ground	SOLID	10/07/00	7747-001	93B/93		10/14/00	10/20/00	MCM	Gross Beta in Soil	
B01-019-02	B01-019	10/11/00	7747-001	H		10/18/00	10/20/00	MCM	Tritium in Soil	
			7747-001	TC		10/20/00	10/25/00	MCM	Technetium 99 in Soil	
Method Blank		R010075-03	7747-003	93A/93		10/14/00	10/20/00	MCM	Gross Alpha in Soil	
	SOLID		7747-003	93B/93		10/14/00	10/20/00	MCM	Gross Beta in Soil	
	B01-019		7747-003	H		10/18/00	10/20/00	MCM	Tritium in Soil	
			7747-003	TC		10/23/00	10/25/00	MCM	Technetium 99 in Soil	
Lab Control Sample		R010075-02	7747-002	93A/93		10/14/00	10/20/00	MCM	Gross Alpha in Soil	
	SOLID		7747-002	93B/93		10/14/00	10/20/00	MCM	Gross Beta in Soil	
	B01-019		7747-002	H		10/18/00	10/20/00	MCM	Tritium in Soil	
			7747-002	TC		10/23/00	10/25/00	MCM	Technetium 99 in Soil	
Duplicate (R010075-01)		R010075-04	7747-004	93A/93		10/14/00	10/20/00	MCM	Gross Alpha in Soil	
618-11 Burial Ground	SOLID	10/07/00	7747-004	93B/93		10/14/00	10/20/00	MCM	Gross Beta in Soil	
	B01-019	10/11/00	7747-004	H		10/18/00	10/20/00	MCM	Tritium in Soil	
			7747-004	TC		10/20/00	10/25/00	MCM	Technetium 99 in Soil	

COUNTS OF TESTS BY SAMPLE TYPE

TEST	SAF No	METHOD	REFERENCE	CLIENT	MORE	RE	BLANK	LCS	DUP	SPIKE	TOTAL
93A/93	B01-019	Gross Alpha in Soil	900.0_ALPHABETA_GPC	1			1	1	1		4
93B/93	B01-019	Gross Beta in Soil	900.0_ALPHABETA_GPC	1			1	1	1		4
H	B01-019	Tritium in Soil	906.0_H3_LSC	1			1	1	1		4
TC	B01-019	Technetium 99 in Soil	TC99_TR_SEP_LSC	1			1	1	1		4
TOTALS				4			4	4	4		16

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CWS
Version 3.06
Report date 10/25/00

TMA / RICHMOND
SAMPLE DELIVERY GROUP H1086

R010075-03

Method Blank

METHOD BLANK

SDG <u>7747</u>	Client/Case no <u>Hanford</u>	SDG <u>H1086</u>
Contact <u>Melissa C. Mannion</u>	Contract <u>TRC-SBB-207925</u>	
Lab sample id <u>R010075-03</u>	Client sample id <u>Method Blank</u>	
Dept sample id <u>7747-003</u>	Material/Matrix <u>SOLID</u>	
	SAF No <u>B01-019</u>	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Gross Alpha	12587-46-1	-1.14	1.6	3.9	10	U	93A
Gross Beta	12587-47-2	0.071	4.0	6.9	15	U	93B
Tritium	10028-17-8	-0.699	2.4	4.1	400	U	H
Technetium 99	14133-76-7	0.189	0.22	0.59	20	U	TC

618-11 Burial Ground Borehole Soil

QC-BLANK 36170

Lab id <u>TMANC</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DS</u>
Version <u>3.06</u>
Report date <u>10/25/00</u>

TMA/RICHMOND
SAMPLE DELIVERY GROUP H1086

R010075-02

Lab Control Sample

LAB CONTROL SAMPLE

SDG <u>7747</u>	Client/Case no <u>Hanford</u>	SDG <u>H1086</u>
Contact <u>Melissa C. Mannion</u>	Case no <u>TRC-SBB-207925</u>	
Lab sample id <u>R010075-02</u>	Client sample id <u>Lab Control Sample</u>	
Dept sample id <u>7747-002</u>	Material/Matrix <u>SOLID</u>	
	SAF No <u>B01-019</u>	

ANALYTE	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST	ADDED pCi/g	2σ ERR pCi/g	REC %	3σ LMTS (TOTAL)	PROTOCOL LIMITS
Gross Alpha	270	17	3.4	10		93A	249	10	108	65-135	70-130
Gross Beta	275	12	6.2	15		93B	287	11	96	77-123	70-130
Tritium	1000	13	3.9	400		H	1050	42	95	84-116	80-120
Technetium 99	58.0	1.7	0.78	20		TC	56.7	2.3	102	83-117	80-120

618-11 Burial Ground Borehole Soil

QC-LCS 36169

Lab id <u>TMANC</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-LCS</u>
Version <u>3.06</u>
Report date <u>10/25/00</u>

TMA/RICHMOND
SAMPLE DELIVERY GROUP H1086

R010075-04

B10J80

DUPLICATE

SDG <u>7747</u>	Client/Case no <u>Hanford</u>	SDG <u>H1086</u>
Contact <u>Melissa C. Mannion</u>	Case no <u>TRC-SBB-207925</u>	
DUPLICATE	ORIGINAL	
Lab sample id <u>R010075-04</u>	Lab sample id <u>R010075-01</u>	Client sample id <u>B10J80</u>
Dept sample id <u>7747-004</u>	Dept sample id <u>7747-001</u>	Location/Matrix <u>618-11 Burial Ground</u> <u>SOLID</u>
	Received <u>10/11/00</u>	Collected <u>10/07/00 13:08</u>
% solids <u>87.4</u>	% solids <u>87.4</u>	Custody/SAF No <u>B01-019-02</u> <u>B01-019</u>

ANALYTE	DUPLICATE pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST	ORIGINAL pCi/g	2σ ERR (COUNT)	MDA pCi/g	QUALI- FIERS	RPD %	3σ TOT	PROT LIMIT
Gross Alpha	4.35	2.7	3.7	10	J	93A	3.29	2.5	3.5	U	28	151	
Gross Beta	1.68	3.4	5.5	15	U	93B	2.61	4.3	7.1	U	-		
Tritium	1.18	0.80	1.3	400	U	H	0.736	0.83	1.4	U	-		
Technetium 99	0.055	0.38	1.0	20	U	TC	0.260	0.34	0.89	U	-		

618-11 Burial Ground Borehole Soil

QC-DUP#1 36171

DUPLICATES

Page 1

SUMMARY DATA SECTION

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Lab id <u>TMANC</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DUP</u>
Version <u>3.06</u>
Report date <u>10/25/00</u>

TMA / RICHMOND
SAMPLE DELIVERY GROUP H1086

R010075-01

B10J80

DATA SHEET

SDG <u>7747</u>	Client/Case no <u>Hanford</u>	SDG <u>H1086</u>
Contact <u>Melissa C. Mannion</u>	Contract <u>TRC-SBB-207925</u>	
Lab sample id <u>R010075-01</u>	Client sample id <u>B10J80</u>	
Dept sample id <u>7747-001</u>	Location/Matrix <u>618-11 Burial Ground</u>	<u>SOLID</u>
Received <u>10/11/00</u>	Collected <u>10/07/00 13:08</u>	
% solids <u>87.4</u>	Custody/SAF No <u>B01-019-02</u>	<u>B01-019</u>

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Gross Alpha	12587-46-1	3.29	2.5	3.5	10	U	93A
Gross Beta	12587-47-2	2.61	4.3	7.1	15	U	93B
Tritium	10028-17-8	0.736	0.83	1.4	400	U	H
Technetium 99	14133-76-7	0.260	0.34	0.89	20	U	TC

618-11 Burial Ground Borehole Soil

Lab id <u>TMANC</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DS</u>
Version <u>3.06</u>
Report date <u>10/25/00</u>

TMA/RICHMOND
SAMPLE DELIVERY GROUP H1086

METHOD SUMMARY
TECHNETIUM 99 IN SOIL
BETA COUNTING

Test IC Matrix SOLID
SDG 7747
Contact Melissa C. Mannion

Client Hanford
Contract TRC-SBB-207925
Contract SDG H1086

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF- FIX	PLANCHET	Technetium 99
Preparation batch 6952-060					
B10J80	R010075-01			7747-001	U
BLK (QC ID=36170)	R010075-03			7747-003	U
LCS (QC ID=36169)	R010075-02			7747-002	ok
Duplicate (R010075-01)	R010075-04			7747-004	- U

Nominal values and limits from method RDLs (pCi/g) 20
618-11 Burial Ground Borehole Soil

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF- FIX	MDA pCi/g	ALIQ g	PREP FAC	DILU- TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT keV	DAYS HELD	ANAL- PREPARED	YZED	DETECTOR
Preparation batch 6952-060 2σ prep error 10.0 % Reference Lab Notebook 6952 pg. 060																
B10J80	R010075-01			0.89	1.00			38		101			13	10/17/00	10/20	GRB-224
BLK (QC ID=36170)	R010075-03			0.59	1.00			59		101				10/17/00	10/23	GRB-203
LCS (QC ID=36169)	R010075-02			0.78	1.00			45		101				10/17/00	10/23	GRB-202
Duplicate (R010075-01)	R010075-04			1.0	1.00			34		101			13	10/17/00	10/20	GRB-228
	(QC ID=36171)															

Nominal values and limits from method 20 1.00 20-105 50 180

PROCEDURES	REFERENCE	TC99_TR_SEP_LSC
CP-060		Soil Preparation, rev 2
CP-021		Preparation of Tc-99m Tracer, rev 0
CP-002		Q.C. Preparation, rev 2
CP-003		Tracing, rev 2
CP-542		Technetium-99 Purification (Soil) by Extraction Chromatography, rev 0
CP-008		Heavy Element Electroplating, rev 3

AVERAGES ± 2 SD	MDA	0.82 ± 0.35
FOR 4 SAMPLES	YIELD	44 ± 22

TMA/RICHMOND
SAMPLE DELIVERY GROUP H1086

METHOD SUMMARY
GROSS ALPHA IN SOIL
GAS PROPORTIONAL COUNTING

Test 93A Matrix SOLID
 SDG 7747
 Contact Melissa C. Mannion

Client Hanford
 Contract TRC-SBB-207925
 Contract SDG H1086

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF- FIX	PLANCHET	Gross Alpha
Preparation batch 6952-060					
B10J80	R010075-01	93		7747-001	U
BLK (QC ID=36170)	R010075-03	93		7747-003	U
LCS (QC ID=36169)	R010075-02	93		7747-002	ok
Duplicate (R010075-01)	R010075-04	93		7747-004	ok J

Nominal values and limits from method RDLs (pCi/g) 10
 618-11 Burial Ground Borehole Soil

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF- FIX	MDA pCi/g	ALIQ g	PREP FAC	DILU- TION	RESID mg	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	ANAL- PREPARED	YZED	DETECTOR
Preparation batch 6952-060 2σ prep error 20.0 % Reference Lab Notebook 6952 pg. 060																
B10J80	R010075-01	93		3.5	0.100			4	100			7	10/14/00	10/14		GRB-110
BLK (QC ID=36170)	R010075-03	93		3.9	0.100			24	100				10/14/00	10/14		GRB-112
LCS (QC ID=36169)	R010075-02	93		3.4	0.100			23	100				10/14/00	10/14		GRB-111
Duplicate (R010075-01) (QC ID=36171)	R010075-04	93		3.7	0.100			4	100			7	10/14/00	10/14		GRB-113

Nominal values and limits from method 10 0.100 5-250 100 180

PROCEDURES REFERENCE 900.0_ALPHABETA_GPC
 CP-060 Soil Preparation, rev 2
 CP-070 Soil Dissolution, < 1.0g Aliquot, rev 3
 CP-170 Soil Preparation for Direct Gross Alpha and Gross Beta Counting, rev 2

AVERAGES ± 2 SD MDA 3.6 ± 0.44
 FOR 4 SAMPLES RESIDUE 14 ± 23

Lab id TMANC
 Protocol Hanford
 Version Ver 1.0
 Form DVD-CMS
 Version 3.06
 Report date 10/25/00

TMA/RICHMOND
SAMPLE DELIVERY GROUP H1086

Test 93B Matrix SOLID
SDG 7747
Contact Melissa C. Mannion

METHOD SUMMARY
GROSS BETA IN SOIL
GAS PROPORTIONAL COUNTING

Client Hanford
Contract TRC-SBB-207925
Contract SDG H1086

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF- FIX	PLANCHET	Gross Beta
Preparation batch 6952-060					
B10J80	R010075-01	93		7747-001	U
BLK (QC ID=36170)	R010075-03	93		7747-003	U
LCS (QC ID=36169)	R010075-02	93		7747-002	ok
Duplicate (R010075-01)	R010075-04	93		7747-004	- U
Nominal values and limits from method		RDLs (pCi/g)		15	
618-11 Burial Ground Borehole Soil					

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF- FIX	MDA pCi/g	ALIQ g	PREP FAC	DILU- TION	RESID mg	EFF COUNT %	FWHM min keV	DRIFT KeV	DAYS HELD	ANAL- PREPARED	YZED	DETECTOR
Preparation batch 6952-060 2σ prep error 15.0 % Reference Lab Notebook 6952 pg. 060															
B10J80	R010075-01	93		7.1	0.100			<u>4</u>	100		7	10/14/00	10/14	GRB-110	
BLK (QC ID=36170)	R010075-03	93		6.9	0.100			24	100			10/14/00	10/14	GRB-112	
LCS (QC ID=36169)	R010075-02	93		6.2	0.100			23	100			10/14/00	10/14	GRB-111	
Duplicate (R010075-01)	R010075-04	93		5.5	0.100			<u>4</u>	100		7	10/14/00	10/14	GRB-113	
(QC ID=36171)															
Nominal values and limits from method				15	0.100			5-250	100			180			

PROCEDURES REFERENCE 900.0_ALPHABETA_GPC
CP-060 Soil Preparation, rev 2
CP-070 Soil Dissolution, < 1.0g Aliquot, rev 3
CP-170 Soil Preparation for Direct Gross Alpha and Gross Beta Counting, rev 2

AVERAGES ± 2 SD MDA 6.4 ± 1.5
FOR 4 SAMPLES RESIDUE 14 ± 23

Lab id TMANC
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Version 3.06
Report date 10/25/00

TMA/RICHMOND
SAMPLE DELIVERY GROUP H1086

Test H Matrix SOLID
SDG 7747
Contact Melissa C. Mannion

METHOD SUMMARY
TRITIUM IN SOIL
LIQUID SCINTILLATION COUNTING

Client Hanford
Contract TRC-SBB-207925
Contract SDG H1086

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF- FIX	PLANCHET	Tritium
Preparation batch 6952-060					
B10J80	R010075-01	7747-001			U
BLK (QC ID=36170)	R010075-03	7747-003			U
LCS (QC ID=36169)	R010075-02	7747-002			ok
Duplicate (R010075-01)	R010075-04	7747-004			- U

Nominal values and limits from method RDLs (pCi/g) 400
618-11 Burial Ground Borehole Soil

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF- FIX	MDA pCi/g	ALIQ g	PREP FAC	DILU- TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	ANAL- YZED	DETECTOR
Preparation batch 6952-060 2σ prep error 10.0 % Reference Lab Notebook 6952 pg. 060															
B10J80	R010075-01			1.4	1.01			103		120			11	10/16/00	10/18 LSC-007
BLK (QC ID=36170)	R010075-03			4.1	1.00			34		120			10/16/00	10/18 LSC-007	
LCS (QC ID=36169)	R010075-02			3.9	1.00			35		120			10/16/00	10/18 LSC-007	
Duplicate (R010075-01) (QC ID=36171)	R010075-04			1.3	1.00			106		120			11	10/16/00	10/18 LSC-007

Nominal values and limits from method 400 1.00 25 180

PROCEDURES	REFERENCE	906.0_H3_LSC
	CP-060	Soil Preparation, rev 2
	CP-216	Tritium in Solid Samples by Azeotropic Distillation, rev 2

AVERAGES ± 2 SD	MDA	2.7 ± 3.1
FOR 4 SAMPLES	YIELD	70 ± 81

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 10/25/00

Bechtel Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			B01-019-02	Page 1 of 1
Collector Doug Bowers	Company Contact Roger Ovink	Telephone No. 3759426	H1086 (7747)		Project Coordinator TRENT, SJ	Price Code DATA Turnaround
Project Designation 618-11 Burial Ground Borehole Soil Sampling and Analysis	Sampling Location 618-11 burial ground	W-11 C3264		SAF No. B01-019	Air Quality 85-7 Day (Tritium) 88-21 Day (ATB) etc	
Ice Chest No. ERC 99-066 (10FI)	Field Logbook No. EFL 1133-8	COA H618113510	Method of Shipment Fed Ex		Shipped To TMA/RECRA	
Offsite Property No. RSR# 100588			Bill of Lading/Air Bill No. NA			

POSSIBLE SAMPLE HAZARDS/REMARKS See ATTACHED H ₃ Estimated at 16,000,000 pCi/L per Historical field DATA Special Handling and/or Storage	Preservation	None	None							
	Type of Container	uG	uG							
	No. of Container(s)	①	①							
	Volume	60mL	60mL							
SAMPLE ANALYSIS		Gross Alpha; Gross Beta; Technetium-99	Tritium - H3							

Sample No.	Matrix *	Sample Date	Sample Time								
310580	soil	10-7-00	1108	X	X		61.5'	010564	See ATTACHED for estimated Tritium Concentration		

CHAIN OF POSSESSION			Sign/Print Names		SPECIAL INSTRUCTIONS			Matrix *
Relinquished By Doug Bowers	Date/Time 10-7-00/1770	Received By Stanley	Date/Time 10-7-00/1770	** High tritium concentrations may be present in these samples. samples stored in cooler on wet ice @ 618-11 Samples stored in Ref. # 1A at the 3728 Shipping Facility on 10/9/00. Collector not available to relinquish samples on 10/10/00 for shipment.			S-Soil SE-Sediment SO-Solid S-Sludge W-Water O-Oil A-Air DS-Drum Solids DL-Drum Liquids T-Tissue WI-Wipe L-Liquid V-Vegetation X-Other	
Relinquished By Lock box @ 618-11	Date/Time 10-9-00/1030	Received By Doug Bowers	Date/Time 10-9-00/1030					
Relinquished By Doug Bowers	Date/Time 10-9-00/1700	Received By Stanley	Date/Time 10-9-00/1700					
Relinquished By Removed from Ref # 1A	Date/Time 10/10/00	Received By R. Trent	Date/Time 10/10/00					
Relinquished By R. Trent	Date/Time 10/10/00	Received By R. Trent	Date/Time 10/10/00					
Relinquished By FED. EXPRESS	Date/Time 10-11/00	Received By E. Seguro	Date/Time 10-11/00					
LABORATORY SECTION	Received By	Title		Date/Time				
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By		Date/Time				

SAMPLE RECEIPT CHECKLIST

SAMPLE RECEIPT

Client: BECHTEL HANFORD INC (Waste Mngmt) Date/Time received 10-11-00 10:AM

CoC No. B01-019-02

Container I.D. No. ERC 99-066 Requested TAT (Days) 7 DAY 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: 1
7. Number of containers per sample: (2 EACH) Or see CoC _____
8. Paperwork agrees with samples? Yes [] No []
9. Samples have: Tape [] Hazard labels [] Rad labels [] Appropriate sample labels []
10. Samples are: In good condition [] Leaking [] Broken Container [] Missing []
11. Describe any anomalies: _____
13. Was P.M. notified of any anomalies? Yes [] No [] Date _____
14. Received by E. Segura Date: 10/11/00 Time: 10: AM

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

Ion Chamber Ser. No. _____ Calibration date _____

Survey Meter Ser No. _____ Calibration date _____



Recra LabNet - Lionville Laboratory
 INORGANIC ANALYTICAL DATA PACKAGE FOR
 TNUHANFORD B01-019 H1086

DATE RECEIVED: 10/18/00

RFW LOT # :0010L975

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B10J80-A						
SILVER, TOTAL	001	S	99L1692	10/07/00	11/08/00	11/09/00
SILVER, TOTAL	001 REP	S	99L1692	10/07/00	11/08/00	11/09/00
SILVER, TOTAL	001 MS	S	99L1692	10/07/00	11/08/00	11/09/00
ARSENIC, TOTAL	001	S	99L1692	10/07/00	11/08/00	11/09/00
ARSENIC, TOTAL	001 REP	S	99L1692	10/07/00	11/08/00	11/09/00
ARSENIC, TOTAL	001 MS	S	99L1692	10/07/00	11/08/00	11/09/00
BARIUM, TOTAL	001	S	99L1692	10/07/00	11/08/00	11/09/00
BARIUM, TOTAL	001 REP	S	99L1692	10/07/00	11/08/00	11/09/00
BARIUM, TOTAL	001 MS	S	99L1692	10/07/00	11/08/00	11/09/00
CADMIUM, TOTAL	001	S	99L1692	10/07/00	11/08/00	11/09/00
CADMIUM, TOTAL	001 REP	S	99L1692	10/07/00	11/08/00	11/09/00
CADMIUM, TOTAL	001 MS	S	99L1692	10/07/00	11/08/00	11/09/00
CHROMIUM, TOTAL	001	S	99L1692	10/07/00	11/08/00	11/09/00
CHROMIUM, TOTAL	001 REP	S	99L1692	10/07/00	11/08/00	11/09/00
CHROMIUM, TOTAL	001 MS	S	99L1692	10/07/00	11/08/00	11/09/00
MERCURY, TOTAL	001	S	00C0370	10/07/00	11/10/00	11/13/00
MERCURY, TOTAL	001 REP	S	00C0370	10/07/00	11/10/00	11/13/00
MERCURY, TOTAL	001 MS	S	00C0370	10/07/00	11/10/00	11/13/00
NICKEL, TOTAL	001	S	99L1692	10/07/00	11/08/00	11/09/00
NICKEL, TOTAL	001 REP	S	99L1692	10/07/00	11/08/00	11/09/00
NICKEL, TOTAL	001 MS	S	99L1692	10/07/00	11/08/00	11/09/00
LEAD, TOTAL	001	S	99L1692	10/07/00	11/08/00	11/09/00
LEAD, TOTAL	001 REP	S	99L1692	10/07/00	11/08/00	11/09/00
LEAD, TOTAL	001 MS	S	99L1692	10/07/00	11/08/00	11/09/00
SELENIUM, TOTAL	001	S	99L1692	10/07/00	11/08/00	11/09/00
SELENIUM, TOTAL	001 REP	S	99L1692	10/07/00	11/08/00	11/09/00
SELENIUM, TOTAL	001 MS	S	99L1692	10/07/00	11/08/00	11/09/00

LAB QC:

SILVER LABORATORY	LC1 BS	S	99L1692	N/A	11/08/00	11/09/00
SILVER, TOTAL	MB1	S	99L1692	N/A	11/08/00	11/09/00
ARSENIC LABORATORY	LC1 BS	S	99L1692	N/A	11/08/00	11/09/00
ARSENIC, TOTAL	MB1	S	99L1692	N/A	11/08/00	11/09/00
BARIUM LABORATORY	LC1 BS	S	99L1692	N/A	11/08/00	11/09/00

Recra LabNet - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B01-019 H1086

DATE RECEIVED: 10/18/00

RFW LOT # :0010L975

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
BARIUM, TOTAL	MB1	S	99L1692	N/A	11/08/00	11/09/00
CADMIUM LABORATORY	LC1 BS	S	99L1692	N/A	11/08/00	11/09/00
CADMIUM, TOTAL	MB1	S	99L1692	N/A	11/08/00	11/09/00
CHROMIUM LABORATORY	LC1 BS	S	99L1692	N/A	11/08/00	11/09/00
CHROMIUM, TOTAL	MB1	S	99L1692	N/A	11/08/00	11/09/00
MERCURY LABORATORY	LC1 BS	S	00C0370	N/A	11/10/00	11/13/00
MERCURY, TOTAL	MB1	S	00C0370	N/A	11/10/00	11/13/00
NICKEL LABORATORY	LC1 BS	S	99L1692	N/A	11/08/00	11/09/00
NICKEL, TOTAL	MB1	S	99L1692	N/A	11/08/00	11/09/00
LEAD LABORATORY	LC1 BS	S	99L1692	N/A	11/08/00	11/09/00
LEAD, TOTAL	MB1	S	99L1692	N/A	11/08/00	11/09/00
SELENIUM LABORATORY	LC1 BS	S	99L1692	N/A	11/08/00	11/09/00
SELENIUM, TOTAL	MB1	S	99L1692	N/A	11/08/00	11/09/00

**Recra LabNet Philadelphia
Analytical Report**

Client: TNU-HANFORD B01-019
RFW#: 0010L975
SDG/SAF#: H1086/B01-019

W.O.#: 10985-001-001-9999-00
Date Received: 10-18-00

METALS CASE NARRATIVE

1. This narrative covers the analyses of 1 soil sample.
2. The sample was 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. All preparation/method blanks (MB) were within method criteria {less than the Practical Quantitation Limit (3X the IDL), MB value less than 5% of the RCRA limit, or samples greater than 20X MB value}. Refer to the Inorganics Method Blank Data Summary.
8. All ICP Interference Check Standards were within control limits.
9. All laboratory control samples (LCS) were within the 80-120% control limits. Refer to form 7.
10. All matrix spike (MS) recoveries were within the 75-125% control limits. Refer to the Inorganics Accuracy Report.
11. All duplicate analyses were within the 20% Relative Percent Difference (RPD) control limits. Refer to the Inorganics Precision Report.

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 13 pages.

12. For the purposes of this report, the data has been reported to the Instrument Detection Limit (IDL). Values between the IDL and the Practical Quantitation Limit (PQL) are acquired in a region of less-certain quantification.
13. I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard-copy data package has been authorized by the Laboratory Manager or a designee, as verified by the following signature.



J. Michael Taylor
VP, Laboratory General Manager
Lionville Laboratory

gmb/m10-975

12-6-00
Date



METALS METHOD GLOSSARY

The following methods are used as reference for the digestion and analysis of samples contained within this Recra Lot#: 0010L975

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 ^s	200.7 204.2			99
Arsenic	6010B 7060A ^s	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 ^s	200.7 213.2			99
Calcium	6010B	200.7			99
Chromium	6010B 7191 ^s	200.7 218.2			SS17
Cobalt	6010B	200.7			99
Copper	6010B 7211 ^s	200.7 220.2			99
Iron	6010B	200.7			99
Lead	6010B 7421 ^s	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 ^s	200.7 270.2	3113B		99
Silicon	6010B ¹	200.7		1620	99
Silica	6010B	200.7		1620	99
Silver	6010B 7761 ^s	200.7 272.2			99
Sodium	6010B 7770 ⁴	200.7 273.1 ⁴			99
Strontium	6010B	200.7			99
Thallium	6010B 7841 ^s	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: _____

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 11/14/00

CLIENT: TNUHANFORD B01-019 H1086

RECRA LOT #: 0010L975

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING	DILUTION
					LIMIT	FACTOR
-001	B10J80-A	Silver, Total	0.28	u MG/KG	0.28	1.0
		Arsenic, Total	3.1	u MG/KG	3.1	1.0
		Barium, Total	32.7	MG/KG	0.26	1.0
		Cadmium, Total	0.51	u MG/KG	0.51	1.0
		Chromium, Total	7.9	MG/KG	0.37	1.0
		Mercury, Total	0.02	u MG/KG	0.02	1.0
		Nickel, Total	11.2	MG/KG	1.5	1.0
		Lead, Total	2.3	u MG/KG	2.3	1.0
		Selenium, Total	5.5	u MG/KG	5.5	1.0

Recra LabNet - Lionville

INORGANICS METHOD BLANK DATA SUMMARY PAGE 11/14/00

CLIENT: TNUHANFORD B01-019 H1086
 WORK ORDER: 10985-001-001-9999-00

RECRA LOT #: 0010L975

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-----	-----	-----	-----	-----	-----	-----
BLANK1	99L1692-MB1	Silver, Total	0.26 u	MG/KG	0.26	1.0
		Arsenic, Total	2.9 u	MG/KG	2.9	1.0
		Barium, Total	0.25 u	MG/KG	0.25	1.0
		Cadmium, Total	0.48 u	MG/KG	0.48	1.0
		Chromium, Total	0.35 u	MG/KG	0.35	1.0
		Nickel, Total	1.4 u	MG/KG	1.4	1.0
		Lead, Total	2.2 u	MG/KG	2.2	1.0
		Selenium, Total	5.2 u	MG/KG	5.2	1.0
BLANK1	00C0370-MB1	Mercury, Total	0.02 u	MG/KG	0.02	1.0

Recra LabNet - Lionville

INORGANICS ACCURACY REPORT 11/14/00

CLIENT: TNUKANFORD B01-019 H1086
 WORK ORDER: 10985-001-001-9999-00

RECRA LOT #: 0010L975

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR (SPK)
-001	B10J80-A	Silver, Total	4.7	0.28u	5.3	88.7	1.0
		Arsenic, Total	198	3.1 u	212	93.4	1.0
		Barium, Total	242	32.7	212	99.0	1.0
		Cadmium, Total	4.8	0.51u	5.3	90.6	1.0
		Chromium, Total	28.9	7.9	21.2	99.1	1.0
		Mercury, Total	0.22	0.02u	0.18	118.5	1.0
		Nickel, Total	59.3	11.2	52.9	90.9	1.0
		Lead, Total	51.5	2.3 u	52.9	97.4	1.0
		Selenium, Total	197	5.5 u	212	93.2	1.0

Recra LabNet - Lionville

INORGANICS PRECISION REPORT 11/14/00

CLIENT: TNUHANFORD B01-019 H1086

RECRA LOT #: 0010L975

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

SAMPLE	SITE ID	ANALYTE	INITIAL			DILUTION FACTOR (REP)
			RESULT	REPLICATE RPD		
-001REP	B10J80-A	Silver, Total	0.28u	0.27u	NC	1.0
		Arsenic, Total	3.1 u	3.1 u	NC	1.0
		Barium, Total	32.7	33.7	3.0	1.0
		Cadmium, Total	0.51u	0.50u	NC	1.0
		Chromium, Total	7.9	8.1	2.5	1.0
		Mercury, Total	0.02u	0.02u	NC	1.0
		Nickel, Total	11.2	12.6	11.8	1.0
		Lead, Total	2.3 u	2.3 u	NC	1.0
		Selenium, Total	5.5 u	5.4 u	NC	1.0

Recra LabNet - Lionville

INORGANICS LABORATORY CONTROL STANDARDS REPORT 11/14/00

CLIENT: TNUHANFORD B01-019 H1086
 WORK ORDER: 10985-001-001-9999-00

RECRA LOT #: 0010L975

SAMPLE	SITE ID	ANALYTE	SPIKED	SPIKED	UNITS	%RECOV
			SAMPLE	AMOUNT		
LCS1	99L1692-LC1	Silver, LCS	46.8	50.0	MG/KG	93.6
		Arsenic, LCS	949	1000	MG/KG	94.9
		Barium, LCS	496	500	MG/KG	99.3
		Cadmium, LCS	22.3	25.0	MG/KG	89.2
		Chromium, LCS	47.8	50.0	MG/KG	95.6
		Nickel, LCS	193	200	MG/KG	96.4
		Lead, LCS	238	250	MG/KG	95.0
		Selenium, LCS	956	1000	MG/KG	95.6
LCS1	00C0370-LC1	Mercury, LCS	0.69	0.7	MG/KG	96.6



0010L975

ALL FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

ME CO 10/18 RB

Client <u>TNW-HANford</u> <u>B01-019</u>	Refrigerator # <u>1</u>	<u>4</u>
Est. Final Proj. Sampling Date _____	#/Type Container	Liquid _____
Project # <u>10985-001-001-9999-00</u>	Solid <u>1AG</u>	<u>1AG</u>
Project Contact/Phone # _____	Volume	Liquid _____
RECRA Project Manager <u>OS</u>	Solid <u>60</u>	<u>60</u>
GC <u>Spec</u> Del <u>Std</u> TAT <u>21 day</u>	Preservatives	<u>1</u>
Date Rec'd <u>10-18-00</u> Date Due <u>11-8-00</u>	ANALYSES REQUESTED	
Account # _____	ORGANIC	INORG
	VOA BNA Pest/PCB Herb	Metal CN

MATRIX CODES: S - Soil SE - Sediment SO - Solid SL - Sludge W - Water O - Oil A - Air DB - Drum DL - Drum L - EP/CLP WI - Wipe X - Other F - Fish	Lab ID	Client ID/Description	Matrix OC Chosen (✓)		Matrix	Date Collected	Time Collected	RECRA LabNet Use Only														
			MS	MSD				1	2	3	4	5	6	7	8	9	10	11	12			
	<u>001</u>	<u>B10780-A</u>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<u>S</u>	<u>10/17/00</u>	<u>1309</u>	<u>1</u>														<u>Met 1</u>

Special Instructions: Saf B01-019

DATE/REVISIONS:
Met 1 1. Ba, Cd, Cr, Ni, Ag, As, Pb, Se, Hg
 2. _____
 3. _____
 4. _____
 5. _____
 6. _____

RECRA LabNet Use Only

Samples were:
 1) Shipped or Hand Delivered _____
See files
 2) Ambient or Shipped
 3) Received in Good Condition or N
 4) Labels Indicate Property 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 40 °C Temp. _____ °C

Relinquished by	Received by	Date	Time
<u>[Signature]</u>	<u>[Signature]</u>	<u>10/17/00</u>	<u>0930</u>

Relinquished by	Received by	Date	Time
COMPOSITE WASTE	ORIGINAL		

Discrepancies Between Samples Labels and COC Record? Y or N
 NOTES:
 4235 7953 9849

REWRITTEN

00102775

Bechtel Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				B01-019-03		Page 1 of 1	
Collector Doug Bowers		Company Contact Roger Ovink		Telephone No. 3759426		Project Coordinator TRENT, SJ		Price Code	
Project Designation 618-11 Burial Ground Borehole Soil Sampling and Analysis		Sampling Location 618-11 burial ground well C3264		SAF No. B01-019		Air Quality <input type="checkbox"/>		Data Turnaround 21 Days	
Ice Chest No. ERC 96-058		Field Logbook No. EFL 1133-8		COA H618113510		Method of Shipment Gov. vehicle ^{01/17/00} 12 FED EX			
Shipped To Government ^{ET 10/17/00} Front Incorporated RCRA		Offsite Property No. ^{ET 10/17/00} 12 A0100009		Bill of Lading/Air Bill No. ^{ET 10/17/00} 12 4235753-9849					
POSSIBLE SAMPLE HAZARDS/REMARKS Screening results - non detect for tritium. See attached memo Special Handling and/or Storage				Preservation		B Cool 4C	A Cool 4C		
				Type of Container		sG	sG		
				No. of Container(s)		1	1		
				Volume		60mL	60mL		
SAMPLE ANALYSIS				See Item (1) in Special Instructions.		VOA - 2360A (TCL)			
Sample No.		Matrix *	Sample Date	Sample Time					
B10J80-A		SOIL	10-7-00	1305	X	X	61.5		D10J64
B10J81-A		SOIL	10-7-00						
CHAIN OF POSSESSION				SPECIAL INSTRUCTIONS				Matrix *	
Relinquished By Doug Bowers		Date/Time 10-7-00/1330		Received By Special in		Date/Time 10-7-00/1330		(1) ICP Metals - 6010A (TAL) (Barium, Cadmium, Chromium, Nickel, Silver); ICP Metals - 6010A (Add-on) (Arsenic, Lead, Selenium); Mercury - 7471 - (CV) Samples in cooler on ice @ 618-11 well lock box Samples stored in Ref.# 1A at the 3728 Shipping Facility on 10/17/00 Collector not available to relinquish samples on 10/17/00 for shipment.. Date/Time 10/17/00	
Relinquished By Doug Bowers		Date/Time 10-9-00/1030		Received By Doug Bowers		Date/Time 10-9-00/1030			
Relinquished By Doug Bowers		Date/Time 10-9-00/1300		Received By Special in		Date/Time 10-9-00/1300			
Relinquished By R. Thore		Date/Time 10/17/00		Received By R. Thore		Date/Time 10/17/00			
Relinquished By R. Thore		Date/Time 10/17/00		Received By FED EX		Date/Time			
Relinquished By Ted Ep		Date/Time 10/18/00 0930		Received By Ted Ep		Date/Time 10/18/00 0930			
LABORATORY SECTION		Received By		Title					
FINAL SAMPLE DISPOSITION		Disposal Method		Disposed By		Date/Time			

13

Temp 4°

Recra LabNet - Lionville Laboratory
 VOA ANALYTICAL DATA PACKAGE FOR
 TNUHANFORD B01-019 H1086

DATE RECEIVED: 10/18/00

RFW LOT # :0010L975

CLIENT ID	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B10J80-A	001	S	00LVX326	10/07/00	N/A	10/21/00
B10J80-A	001 MS	S	00LVH451	10/07/00	N/A	10/19/00
B10J80-A	001 MSD	S	00LVH451	10/07/00	N/A	10/19/00

LAB QC:

VBLKXT	MB1	S	00LVX326	N/A	N/A	10/21/00
VBLKXQ	MB1	S	00LVH451	N/A	N/A	10/19/00
VBLKXQ	MB1 BS	S	00LVH451	N/A	N/A	10/19/00





Chemical and Environmental Measurement Information

**Recra LabNet Philadelphia
Analytical Report**

Client: TNU-HANFORD B01-019
RFW #: 0010L975
SDG/SAF #: H1086/B01-019

W.O. #: 10985-001-001-9999-00
Date Received: 10-18-00


GC/MS VOLATILE

One (1) solid sample was collected on 10-07-00.

The sample and its associated QC samples were analyzed according to criteria set forth in Recra OPs based on SW 846 Method 8260A for TCL Volatile target compounds on 10-19,21-00.

The following is a summary of the QC results accompanying these sample results and a description of any problems encountered during their analyses:

1. The cooler temperature upon receipt has been recorded on the chain-of-custody.
2. The samples were analyzed within required holding time.
3. Non-target compounds were not detected in these samples.
4. All surrogate recoveries were within EPA QC limits.
5. All matrix spike recoveries were within EPA QC limits. All RPDs were within EPA QC limits.
6. All blank spike recoveries were within EPA QC limits.
7. The method blanks contained the common laboratory contaminants Methylene Chloride and Acetone at levels less than 2x the CRQL and the target compounds Bromomethane, 2-Butanone, 2-hexanone. and 1,1,2,2-Tetrachloromethane at levels less than the CRQL..
8. "I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard-copy data package has been authorized by the Laboratory Manager or a designee, as verified by the following signature."


J. Michael Taylor
VP, Laboratory General Manager
Lionville Laboratory

11-30-00
Date

pef\group\data\voa\tnu-hanford-10-975.doc

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 8 pages.

GLOSSARY OF VOA DATA

DATA QUALIFIERS

- U** - Compound was analyzed for but not detected. The associated numerical value is the estimated sample quantitation limit which is included and corrected for dilution and percent moisture.
- J** - Indicates an estimated value. This flag is used under the following circumstances: 1) when estimating a concentration for tentatively identified compounds (TICs) where a 1:1 response is assumed; or 2) when the mass spectral data indicate the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero. For example, if the limit of detection is 10 ug/L and a concentration of 3 ug/L is calculated, it is reported as 3J.
- B** - This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination. This flag is also used for a TIC as well as for a positively identified TCL compound.
- E** - Indicates that the compound was detected beyond the calibration range and was subsequently analyzed at a dilution.
- D** - Identifies all compounds identified in an analysis at a secondary dilution factor.
- I** - Interference.
- NQ** - Result qualitatively confirmed but not able to quantify.
- N** - Indicates presumptive evidence of a compound. This flag is only used for tentatively identified compounds (TICs), where the identification is based on a mass spectral library search. It is applied to all TIC results. For generic characterization of a TIC, such as chlorinated hydrocarbon, the N code is not used.
- X** - This flag is used for a TIC compound which is quantified relative to a response factor generated from a daily calibration standard (rather than quantified relative to the closest internal standard).
- Y** - Additional qualifiers used as required are explained in the case narrative.



GLOSSARY OF VOA DATA

ABBREVIATIONS

- BS** - Indicates blank spike in which reagent grade water is spiked with the CLP matrix spike solutions and carried through all the steps in the method. Spike recoveries are reported.
- BSD** - Indicates blank spike duplicate.
- MS** - Indicates matrix spike.
- MSD** - Indicates matrix spike duplicate.
- DL** - Suffix added to sample number to indicate that results are from a diluted analysis.
- NA** - Not Applicable.
- DF** - Dilution Factor.
- NR** - Not Required.
- SP, Z** - Indicates Spiked Compound.



Recra LabNet - Lionville Laboratory

Volatiles by GC/MS, HSL List

Report Date: 11/22/00 10:18

RFW Batch Number: 0010L975

Client: TNUHANFORD B01-019 H1086 Work Order: 10985001001 Page: 1a

Sample Information	Cust ID:	B10J80-A	B10J80-A	B10J80-A	VBLKXT	VBLKXQ	VBLKXQ BS
	RFW#:	001	001 MS	001 MSD	00LVX326-MB1	00LVH451-MB1	00LVH451-MB1
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.04	1.04	1.06	1.00	1.00	1.00
	Units:	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
Surrogate	Toluene-d8	103 %	97 %	99 %	110 %	106 %	98 %
Recovery	Bromofluorobenzene	92 %	83 %	82 %	100 %	84 %	82 %
	1,2-Dichloroethane-d4	101 %	93 %	94 %	106 %	87 %	85 %
=====fl=====fl=====fl=====fl=====fl=====fl=====fl=====							
Chloromethane		12 U	12 U	12 U	10 U	10 U	10 U
Bromomethane		12 U	12 U	12 U	2 J	10 U	10 U
Vinyl Chloride		12 U	12 U	12 U	10 U	10 U	10 U
Chloroethane		12 U	12 U	12 U	10 U	10 U	10 U
Methylene Chloride		8 B	19 B	18 B	3 J	4 J	8 B
Acetone		9 B/J	9 B/J	4 J/B	6 J	3 J	10 U
Carbon Disulfide		6 U	6 U	6 U	5 U	5 U	5 U
1,1-Dichloroethene		6 U	98 %	94 %	5 U	5 U	103 %
1,1-Dichloroethane		6 U	6 U	6 U	5 U	5 U	5 U
1,2-Dichloroethene (total)		6 U	6 U	6 U	5 U	5 U	5 U
Chloroform		6 U	6 U	6 U	5 U	5 U	5 U
1,2-Dichloroethane		6 U	6 U	6 U	5 U	5 U	5 U
2-Butanone		4 B/J	13	3 J	2 J	10 U	10 U
1,1,1-Trichloroethane		6 U	6 U	6 U	5 U	5 U	5 U
Carbon Tetrachloride		6 U	6 U	6 U	5 U	5 U	5 U
Bromodichloromethane		6 U	6 U	6 U	5 U	5 U	5 U
1,2-Dichloropropane		6 U	6 U	6 U	5 U	5 U	5 U
cis-1,3-Dichloropropene		6 U	6 U	6 U	5 U	5 U	5 U
Trichloroethene		6 U	80 %	80 %	5 U	5 U	82 %
Dibromochloromethane		6 U	6 U	6 U	5 U	5 U	5 U
1,1,2-Trichloroethane		6 U	6 U	6 U	5 U	5 U	5 U
Benzene		6 U	97 %	95 %	5 U	5 U	87 %
Trans-1,3-Dichloropropene		6 U	6 U	6 U	5 U	5 U	5 U
Bromoform		6 U	6 U	6 U	5 U	5 U	5 U
4-Methyl-2-pentanone		12 U	12 U	12 U	10 U	10 U	10 U
2-Hexanone		12 U	12 U	12 U	2 J	10 U	10 U
Tetrachloroethene		6 U	6 U	6 U	5 U	5 U	5 U
1,1,2,2-Tetrachloroethane		6 U	6 U	6 U	1 J	5 U	5 U
Toluene		6 U	106 %	109 %	5 U	5 U	100 %

*= Outside of EPA CLP QC limits.

50

Cust ID:	B10J80-A	B10J80-A	B10J80-A	VBLKXT	VBLKXQ	VBLKXQ BS	9
RFW#:	001	001 MS	001 MSD	00LVX326-MB1	00LVH451-MB1	00LVH451-MB1	9

Chlorobenzene	6 U	98 %	99 %	5 U	5 U	94 %
Ethylbenzene	6 U	6 U	6 U	5 U	5 U	5 U
Styrene	6 U	6 U	6 U	5 U	5 U	5 U
Xylene (total)	6 U	6 U	6 U	5 U	5 U	5 U

*= Outside of EPA CLP QC limits.



0010L975

ALL FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

10-18-00 **BB**

Client <u>TNU-HANford</u> <u>B01-019</u>		Refrigerator #	<u>1</u>	<u>4</u>																
Est. Final Proj. Sampling Date		#/Type Container	Liquid																	
Project # <u>10985-001-001-9999-00</u>			Solid	<u>1AG</u>							<u>1AG</u>									
Project Contact/Phone #		Volume	Liquid																	
RECRA Project Manager <u>O</u>			Solid	<u>60</u>							<u>60</u>									
OC <u>Spec</u> Del <u>Site</u> TAT <u>21 day</u>		Preservatives		<u>1</u>						<u>1</u>										
Date Rec'd <u>10-18-00</u> Date Due <u>11-8-00</u>		ANALYSES REQUESTED →	ORGANIC					INORG												
Account #			VOA	BNA	Pest/PCB	Herb	Metal	CN												

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 (✓)		Matrix	Date Collected	Time Collected	RECRA LabNet Use Only													
			MS	MSD				1	2	3	4	5	6	7	8	9	10	11	12		
			Met ①																		
	<u>001</u>	<u>B10780-A</u>	✓	✓	<u>S</u>	<u>10/7/00</u>	<u>1309</u>	<u>1</u>													

Special Instructions: Saf B01-019

DATE/REVISIONS:
Met ① 1. Ba, Cd, Cr, Ni, Ag, As, Pb, Se, Hg
 2. _____
 3. _____
 4. _____
 5. _____
 6. _____

RECRA LabNet Use Only

Samples were:
 1) Shipped or Hand Delivered _____
See field Airbill
 2) Ambient or Shaded
 3) Received in Good Condition or N
 4) Labels Indicate Property 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. 4° °C

Relinquished by	Received by	Date	Time
<u>[Signature]</u>	<u>[Signature]</u>	<u>10/7/00</u>	<u>0950</u>

Relinquished by	Received by	Date	Time
COMPOSITE WASTE	ORIGINAL REWRITTEN		

Discrepancies Between Samples Labels and COC Record? Y or N
 NOTES:
 4235 7953 9849

Bechtel Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			B01-019-03	
Collector Doug Bowers	Company Contact Roger Ovink	Telephone No. 3759426	Project Coordinator TRENT, SJ	Price Code	Data Turnaround 21 Days	
Project Designation 618-11 Burial Ground Borehole Soil Sampling and Analysis	Sampling Location 618-11 burial ground	W-11 C3264	SAF No. B01-019	Air Quality <input type="checkbox"/>		
Ice Chest No. ERC 96-058	Field Logbook No. EFL 1133-8	COA H618113510	Method of Shipment Gov. vehicle	10/17/00 FED EX		
Shipped To Gov. Front Incorporated	Offsite Property No. RCCRA	ZT 10/17/00 A010000	Bill of Lading/Air Bill No.	ZT 10/17/00 4235753-9849		

POSSIBLE SAMPLE HAZARDS/REMARKS Screening results - non Detect for tritium. See attached memo Special Handling and/or Storage	Preservation	B Cool 4C	A Cool 4C						
	Type of Container	aG	aG						
	No. of Container(s)	1	1						
	Volume	60mL	60mL						

SAMPLE ANALYSIS		See item (1) in Special Instructions.	VOA - #260A (TCL)						
-----------------	--	---	----------------------	--	--	--	--	--	--

Sample No.	Matrix *	Sample Date	Sample Time						
B10J00-A	SOIL	10-7-00	1308	X	X		61.5		010364
B10J01-A	SOIL								

CHAIN OF POSSESSION		Sign/Print Names	
Relinquished By Doug Bowers	Date/Time 10-7-00/1330	Received By Storrd in lock box 618-11	Date/Time 10-7-00/1330
Relinquished By Doug Bowers	Date/Time 10-9-00/1030	Received By Doug Bowers	Date/Time 10-9-00/1030
Relinquished By Doug Bowers	Date/Time 10-9-00/1300	Received By Storrd in Ref #A 3728	Date/Time 10-9-00/1300
Relinquished By Remond	Date/Time 10/17/00	Received By R. Thore	Date/Time 10/17/00
Relinquished By R. Thore	Date/Time 10/17/00	Received By FED EX	Date/Time
Relinquished By T. H. G.	Date/Time 10/18/00 0930	Received By T. H. G.	Date/Time 10/18/00 0930

SPECIAL INSTRUCTIONS
 * High tritium concentrations may be present in these samples.
 ZT 10/17/00
 (1) ICP Metals - 6010A (TAL) (Barium, Cadmium, Chromium, Nickel, Silver); ICP Metals - 6010A (Add-on) (Arsenic, Lead, Selenium); Mercury - 7471 - (CV)
 wet
 samples in cooler on ice @ 618-11
 lock box
 Samples stored in Ref. # 1A at the 3728
 Shipping Facility on 10/17/00
 Collector not available to relinquish samples
 on 10/17/00 for shipment.
 RT
 10/17/00
 Date/Time

LABORATORY SECTION	Received By	Title	Disposed By	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method			

Temp 4°