



1.0 GENERAL

EDMC

Bechtel Hanford Inc. (BHI) Sample Delivery Group H1565 was composed of one water sample designated under SAF No. B02-007 with a Project Designation of: 200 Area Source Characterization 200-CS-1 OU – QC Sampling.

The sample was received as stated on the Chain-of-Custody documents. Any discrepancies are noted on the Eberline Services Sample Receipt Checklist. The results were transmitted to BHI via e-Fax on November 15, 2001.

2.0 ANALYSIS NOTES

2.1 Gross Alpha and Gross Beta 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

12/10/01
Date

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1565

SAMPLE SUMMARY

SDG 7128
 Contact Melissa C. Mannion

Client Hanford
 Contract No. 630
 Case no SDG H1565

CLIENT SAMPLE ID	LOCATION	MATRIX	LEVEL	LAB SAMPLE ID	SAF NO	CHAIN OF CUSTODY	COLLECTED
B13C82	200 East & West	WATER		R110172-01	B02-007	B02-007-01	10/29/01 08:00
Method Blank		WATER		R110172-03	B02-007		
Lab Control Sample		WATER		R110172-02	B02-007		
Duplicate (R110172-01)	200 East & West	WATER		R110172-04	B02-007		10/29/01 08:00

Lab id TMANC
 Protocol Hanford
 Version Ver 1.0
 Form DVD-CS
 Version 3.06
 Report date 11/15/01

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1565

SDG 7128
 Contact Melissa C. Mannion

QC SUMMARY

Client Hanford
 Contract No. 630
 Case no SDG H1565

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
7128	802-007-01	813C82	WATER		2.0 L		10/31/01 2	R110172-01		7128-001
		Method Blank	WATER					R110172-03		7128-003
		Lab Control Sample	WATER					R110172-02		7128-002
		Duplicate (R110172-01)	WATER		2.0 L		10/31/01 2	R110172-04		7128-004

Lab id TMANC
 Protocol Hanford
 Version Ver 1.0
 Form DVD-QS
 Version 3.06
 Report date 11/15/01

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1565

SDG 7128
 Contact Melissa C. Mannion

PREP BATCH SUMMARY

Client Hanford
 Contract No. 630
 Case no SDG H1565

TEST	MATRIX	METHOD	PREPARATION ERROR		PLANCHETS ANALYZED			QUALI-	
			BATCH	2σ %	CLIENT	MORE	RE		BLANK
Gas Proportional Counting									
93A	WATER	Gross Alpha in Water	7012-112	20.0	1		1	1	1/1
93B	WATER	Gross Beta in Water	7012-112	15.0	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 11/15/01

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1565

SDG 7128
 Contact Melissa C. Mannion

WORK SUMMARY

Client Hanford
 Contract No. 630
 Case no SDG H1565

CLIENT SAMPLE ID	LAB SAMPLE ID								
LOCATION	MATRIX	COLLECTED	SUF-						
CUSTODY	SAF No	RECEIVED	PLANCHET	TEST	FIX	ANALYZED	REVIEWED	BY	METHOD
813C82		R110172-01	7128-001	93A/93		11/09/01	11/15/01	MCM	Gross Alpha in Water
200 East & West	WATER	10/29/01	7128-001	93B/93		11/09/01	11/15/01	MCM	Gross Beta in Water
B02-007-01	B02-007	10/31/01							
Method Blank		R110172-03	7128-003	93A/93		11/09/01	11/15/01	MCM	Gross Alpha in Water
	WATER		7128-003	93B/93		11/09/01	11/15/01	MCM	Gross Beta in Water
	B02-007								
Lab Control Sample		R110172-02	7128-002	93A/93		11/09/01	11/15/01	MCM	Gross Alpha in Water
	WATER		7128-002	93B/93		11/09/01	11/15/01	MCM	Gross Beta in Water
	B02-007								
Duplicate (R110172-01)		R110172-04	7128-004	93A/93		11/15/01	11/15/01	MCM	Gross Alpha in Water
200 East & West	WATER	10/29/01	7128-004	93B/93		11/15/01	11/15/01	MCM	Gross Beta in Water
	B02-007	10/31/01							

COUNTS OF TESTS BY SAMPLE TYPE

TEST	SAF No	METHOD	REFERENCE	CLIENT	MORE	RE	BLANK	LCS	DUP	SPIKE	TOTAL
93A/93	B02-007	Gross Alpha in Water	900.0_ALPHABETA_GPC	1			1	1	1		4
93B/93	B02-007	Gross Beta in Water	900.0_ALPHABETA_GPC	1			1	1	1		4
TOTALS				2			2	2	2		8

Lab id TMANC
 Protocol Hanford
 Version Ver 1.0
 Form DVD-CWS
 Version 3.06
 Report date 11/15/01

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H1565

R110172-03

Method Blank

METHOD BLANK

SDG <u>7128</u>	Client/Case no <u>Hanford</u>	<u>SDG H1565</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>630</u>	
Lab sample id <u>R110172-03</u>	Client sample id <u>Method Blank</u>	
Dept sample id <u>7128-003</u>	Material/Matrix _____	<u>WATER</u>
	SAF No <u>B02-007</u>	

ANALYTE	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI- FIERS	TEST
Gross Alpha	12587-46-1	0.244	0.66	1.2	3.0	U	93A
Gross Beta	12587-47-2	-1.26	1.7	3.0	4.0	U	93B

200 Area Source Chara. 200-CS-1 OU

QC-BLANK 40182

METHOD BLANKS

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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-DS</u>
Version <u>3.06</u>
Report date <u>11/15/01</u>

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1565

R110172-02

Lab Control Sample

LAB CONTROL SAMPLE

SDG <u>7128</u>	Client/Case no <u>Hanford</u>	<u>SDG H1565</u>
Contact <u>Melissa C. Mannion</u>	Case no <u>No. 630</u>	
Lab sample id <u>R110172-02</u>	Client sample id <u>Lab Control Sample</u>	
Dept sample id <u>7128-002</u>	Material/Matrix <u>WATER</u>	
	SAF No <u>B02-007</u>	

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	67.8	5.1	1.1	3.0		93A	71.7	2.9	95	69-131	70-130
Gross Beta	95.4	4.3	3.3	4.0		93B	80.0	3.2	119	71-129	70-130

200 Area Source Chara. 200-CS-1 OU

QC-LCS 40181

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>11/15/01</u>

EBERLINE SERVICES/RICHMOND
SAMPLE DELIVERY GROUP H1565

R110172-04

B13C82

DUPLICATE

SDG <u>7128</u>	Client/Case no <u>Hanford</u>	SDG <u>H1565</u>
Contact <u>Melissa C. Mannion</u>	Case no <u>No. 630</u>	
DUPLICATE	ORIGINAL	
Lab sample id <u>R110172-04</u>	Lab sample id <u>R110172-01</u>	Client sample id <u>B13C82</u>
Dept sample id <u>7128-004</u>	Dept sample id <u>7128-001</u>	Location/Matrix <u>200 East & West</u> <u>WATER</u>
	Received <u>10/31/01</u>	Collected/Volume <u>10/29/01 08:00</u> <u>2.0 L</u>
		Custody/SAF No <u>B02-007-01</u> <u>B02-007</u>

ANALYTE	DUPLICATE pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI- FIERS	TEST	ORIGINAL pCi/L	2σ ERR (COUNT)	MDA pCi/L	QUALI- FIERS	RPD %	3σ PROT TOT LIMIT
Gross Alpha	-0.017	0.40	0.79	3.0	U	93A	0.323	0.51	0.77	U	-	
Gross Beta	-0.497	1.0	1.8	4.0	U	93B	-0.509	1.2	2.1	U	-	

200 Area Source Chara. 200-CS-1 OU

QC-DUP#1 40183

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>11/15/01</u>

EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP H1565

R110172-01

B13C82

DATA SHEET

SDG <u>7128</u>	Client/Case no <u>Hanford</u>	SDG <u>H1565</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>630</u>	
Lab sample id <u>R110172-01</u>	Client sample id <u>B13C82</u>	
Dept sample id <u>7128-001</u>	Location/Matrix <u>200 East & West</u>	<u>WATER</u>
Received <u>10/31/01</u>	Collected/Volume <u>10/29/01 08:00</u>	<u>2.0 L</u>
	Custody/SAF No <u>B02-007-01</u>	<u>B02-007</u>

ANALYTE	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI- FIERS	TEST
Gross Alpha	12587-46-1	0.323	0.51	0.77	3.0	U	93A
Gross Beta	12587-47-2	-0.509	1.2	2.1	4.0	U	93B

200 Area Source Chara. 200-CS-1 OU

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>11/15/01</u>

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1565

METHOD SUMMARY

GROSS ALPHA IN WATER
GAS PROPORTIONAL COUNTING

Test 93A Matrix WATER
SDG 7128
Contact Melissa C. Mannion

Client Hanford
Contract No. 630
Contract SDG H1565

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF- FIX	PLANCHET	Gross Alpha
Preparation batch 7012-112					
B13C82	R110172-01	93		7128-001	U
BLK (QC ID=40182)	R110172-03	93		7128-003	U
LCS (QC ID=40181)	R110172-02	93		7128-002	ok
Duplicate (R110172-01)	R110172-04	93		7128-004	- U
Nominal values and limits from method		RDLs (pCi/L)		3.0	
200 Area Source Chara. 200-CS-1 OU					

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	ANAL- YZED	DETECTOR
Preparation batch 7012-112 2σ prep error 20.0 % Reference Lab Notebook 7012 pg. 112															
B13C82	R110172-01	93		0.77	0.300			<u>4</u>		100			11	11/09/01	11/09 GRB-102
BLK (QC ID=40182)	R110172-03	93		1.2	0.300			21		100				11/09/01	11/09 GRB-114
LCS (QC ID=40181)	R110172-02	93		1.1	0.300			21		100				11/09/01	11/09 GRB-106
Duplicate (R110172-01) (QC ID=40183)	R110172-04	93		0.79	0.300			<u>4</u>		100			17	11/09/01	11/15 GRB-101
Nominal values and limits from method				3.0	0.300			5-250		100			180		

PROCEDURES	REFERENCE	900.0_ALPHABETA_GPC
CP-060	Soil Preparation, rev 3	
CP-070	Soil Dissolution, < 1.0g Aliquot, rev 4	
CP-170	Soil Preparation for Direct Gross Alpha and Gross Beta Counting, rev 3	

AVERAGES ± 2 SD	MDA	<u>0.96</u> ± <u>0.44</u>
FOR 4 SAMPLES	RESIDUE	<u>12</u> ± <u>20</u>

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 11/15/01

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1565

METHOD SUMMARY

GROSS BETA IN WATER
GAS PROPORTIONAL COUNTING

Test 93B Matrix WATER
SDG 7128
Contact Melissa C. Mannion

Client Hanford
Contract No. 630
Contract SDG H1565

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF- FIX	PLANCHET	Gross Beta
Preparation batch 7012-112					
B13C82	R110172-01	93		7128-001	U
BLK (QC ID=40182)	R110172-03	93		7128-003	U
LCS (QC ID=40181)	R110172-02	93		7128-002	ok
Duplicate (R110172-01)	R110172-04	93		7128-004	- U
Nominal values and limits from method		RDLs (pCi/L)		4.0	
200 Area Source Chara. 200-CS-1 OU					

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	ANAL- YZED	DETECTOR
Preparation batch 7012-112 2σ prep error 15.0 % Reference Lab Notebook 7012 pg. 112															
B13C82	R110172-01	93		2.1	0.300			<u>4</u>		100			11	11/09/01	11/09 GRB-102
BLK (QC ID=40182)	R110172-03	93		3.0	0.300			21		100				11/09/01	11/09 GRB-114
LCS (QC ID=40181)	R110172-02	93		3.3	0.300			21		100				11/09/01	11/09 GRB-106
Duplicate (R110172-01) (QC ID=40183)	R110172-04	93		1.8	0.300			<u>4</u>		100			17	11/09/01	11/15 GRB-101
Nominal values and limits from method				4.0	0.300			5-250		100			180		

PROCEDURES REFERENCE 900.0_ALPHABETA_GPC
 CP-060 Soil Preparation, rev 3
 CP-070 Soil Dissolution, < 1.0g Aliquot, rev 4
 CP-170 Soil Preparation for Direct Gross Alpha and Gross Beta Counting, rev 3

AVERAGES ± 2 SD MDA 2.6 ± 1.4
FOR 4 SAMPLES RESIDUE 12 ± 20

Lab id TMANC
 Protocol Hanford
 Version Ver 1.0
 Form DVD-CMS
 Version 3.06
 Report date 11/15/01

SAMPLE RECEIPT CHECKLIST

SAMPLE RECEIPT			
Client: <u>BushTel Hanford</u>	Date/Time received <u>10-31-01 9:45</u>		
CoC No. <u>BDZ-007-01</u>			
Container I.D. No. <u>ERC-99-045</u>	Requested TAT (Days) <u>45</u>	P.O. Received Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
INSPECTION			
1. Custody seals on shipping container intact?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>
2. Custody seals on shipping container dated & signed?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>
3. Custody seals on sample containers intact?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>
4. Custody seals on sample containers dated & signed?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>
5. Cooler Temperature: _____	Packing material is:	Wet <input type="checkbox"/>	Dry <input checked="" type="checkbox"/>
6. Number of samples in shipping container: <u>1</u>			
7. Number of containers per sample: <u>2</u>	(Or see CoC _____)		
8. Paperwork agrees with samples?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
9. Samples have: Tape <input checked="" type="checkbox"/>	Hazard labels <input type="checkbox"/>	Rad labels <input type="checkbox"/>	Appropriate sample labels <input checked="" type="checkbox"/>
10. Samples are: In good condition <input checked="" type="checkbox"/>	Leaking <input type="checkbox"/>	Broken Container <input type="checkbox"/>	Missing <input type="checkbox"/>
11. Describe any anomalies: _____			
13. Was P.M. notified of any anomalies? Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Date <u>10-31-01</u>	
14. Received by <u>AP Casao</u>	Date: <u>10-31-01</u>	Time: <u>9:45</u>	

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

Ion Chamber Ser. No. _____ Calibration date _____

Survey Meter Ser No. _____ Calibration date _____

Lionville Laboratory, Inc.
 VOA ANALYTICAL DATA PACKAGE FOR
 TNU-HANFORD B02-007 *H1565*



Days
 RFW LOT # :0110L235

CLIENT ID	RFW #	MTX	PREP #	COLLECTN	DATE	REC	EXT/PREP	ANALYSIS
B13C82	001	W	01LVX487	10/29/01	10/31/01	N/A		11/08/01
B13C82	001 MS	W	01LVX487	10/29/01	10/31/01	N/A		11/08/01
B13C82	001 MSD	W	01LVX487	10/29/01	10/31/01	N/A		11/08/01

LAB QC:

VBLKJS	MB1	W	01LVX487	N/A	N/A	N/A		11/08/01
VBLKJS	MB1 BS	W	01LVX487	N/A	N/A	N/A		11/08/01



Client: TNU-HANFORD B02-007
LVL #: 0110L235
SDG/SAF #: H1565/B02-007

W.O. #: 11343-606-001-9999-00
Date Received: 10-31-2001

GC/MS VOLATILE

One (1) water sample was collected on 10-29-2001.

The sample and its associated QC samples were analyzed according to criteria set forth in Lionville Laboratory OPs based on SW 846 Method 8260A for TCL Volatile target compounds on 11-08-2001.

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 sample was analyzed within required holding time.
3. Non-target compounds were not detected in the sample.
4. All surrogate recoveries were within EPA QC limits.
5. All matrix spike recoveries were within EPA QC limits.
6. All blank spike recoveries were within EPA QC limits.
7. The method blank contained the common laboratory contaminant Methylene Chloride at a level less than 2x the CRQL. The method blank also contained the target compound Trichloroethene at a level less than the CRQL.
8. Internal standard area and retention time criteria were met.
9. A spectral search was performed for Decane; however, it was not detected in the sample.
10. "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
President
Lionville Laboratory Incorporated

11-27-01
Date

som\group\data\voa\tnu-hanford\0110-235.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 9 pages.

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.

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.

TECHNICAL FLAGS FOR MANUAL INTEGRATION

Manual quan modifications or integrations are performed routinely to improve the data quality for a variety of technical reasons. Documentation of these modifications should be clear and concise. The following "flags" are used to indicate the technical reasons for quan modifications:

- MP** - **Missed Peak:** manually added peak not found by automatic quan program.
- PA** - **Peak Assignment:** quan report was changed to reflect correct peak assignment.
- RI** - **Routine Integration:** routine integrations are performed for some analytes that are consistently integrated improperly by the automatic integration programs. Examples are the dichlorobenzene isomers on the VOA packed column and benzo(b)fluoranthene/benzo(k)fluoranthene which are poorly resolved on the BNA column.
- SP** - **Split Peak:** the automatic integration improperly split the peak; a manual integration was performed to get the correct area.
- CB** - **Coelution/Background:** peak was manually integrated to eliminate contribution from coeluting compounds, background signal, or other interference.
- PI** - **Proper Integration:** a peak with poor or inconsistent integration (e.g., excessive tail) was properly integrated manually.

Lionville Laboratory, Inc.

Volatiles by GC/MS, HSL List

Report Date: 11/26/01 13:27

RFW Batch Number: 0110L235

Client: TNUHANFORD B02-007 H1565 Work Order: 11343606001 Page: 1a

Sample Information	Cust ID:	B13C82	B13C82	B13C82	VBLKJS	VBLKJS BS
	RFW#:	001	001 MS	001 MSD	01LVX487-MB1	01LVX487-MB1
	Matrix:	WATER	WATER	WATER	WATER	WATER
	D.F.:	1.00	1.00	1.00	1.00	1.00
	Units:	ug/L	ug/L	ug/L	ug/L	ug/L
Surrogate	Toluene-d8	98 %	105 %	97 %	97 %	99 %
Recovery	Bromofluorobenzene	94 %	95 %	86 %	91 %	98 %
	1,2-Dichloroethane-d4	96 %	94 %	93 %	99 %	96 %
=====fl=====fl=====fl=====fl=====fl=====fl=====fl=====						
Chloromethane		10 U	10 U	10 U	10 U	10 U
Bromomethane		10 U	10 U	10 U	10 U	10 U
Vinyl Chloride		10 U	10 U	10 U	10 U	10 U
Chloroethane		10 U	10 U	10 U	10 U	10 U
Methylene Chloride		6 B	7 B	7 B	9	8 B
Acetone		10 U	10 U	10 U	10 U	10 U
Carbon Disulfide		5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethene		5 U	83 %	81 %	5 U	81 %
1,1-Dichloroethane		5 U	5 U	5 U	5 U	5 U
1,2-Dichloroethene (total)		5 U	5 U	5 U	5 U	5 U
Chloroform		5 U	5 U	5 U	5 U	5 U
1,2-Dichloroethane		5 U	5 U	5 U	5 U	5 U
2-Butanone		10 U	10 U	10 U	10 U	10 U
1,1,1-Trichloroethane		5 U	5 U	5 U	5 U	5 U
Carbon Tetrachloride		5 U	5 U	5 U	5 U	5 U
Bromodichloromethane		5 U	5 U	5 U	5 U	5 U
1,2-Dichloropropane		5 U	5 U	5 U	5 U	5 U
cis-1,3-Dichloropropene		5 U	5 U	5 U	5 U	5 U
Trichloroethene		5 U	99 %	100 %	2 J	95 %
Dibromochloromethane		5 U	5 U	5 U	5 U	5 U
1,1,2-Trichloroethane		5 U	5 U	5 U	5 U	5 U
Benzene		5 U	94 %	93 %	5 U	89 %
Trans-1,3-Dichloropropene		5 U	5 U	5 U	5 U	5 U
Bromoform		5 U	5 U	5 U	5 U	5 U
4-Methyl-2-pentanone		10 U	10 U	10 U	10 U	10 U
2-Hexanone		10 U	10 U	10 U	10 U	10 U
Tetrachloroethene		5 U	5 U	5 U	5 U	5 U
1,1,2,2-Tetrachloroethane		5 U	5 U	5 U	5 U	5 U
Toluene		5 U	103 %	96 %	5 U	94 %

*= Outside of EPA CLP QC limits.

Cust ID: B13C82 B13C82 B13C82 VBLKJS VBLKJS BS

RFW#: 001 001 MS 001 MSD 01LVX487-MB1 01LVX487-MB1

Chlorobenzene	5 U	96 %	96 %	5 U	93 %
Ethylbenzene	5 U	5 U	5 U	5 U	5 U
Styrene	5 U	5 U	5 U	5 U	5 U
Xylene (total)	5 U	5 U	5 U	5 U	5 U

*= Outside of EPA CLP QC limits.

U11062004 0314

Bechtel Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				B02-007-01	Page 1 of 1
Collector Thomas, G/Watson, D	Company Contact Cearlock, CS	Telephone No. 372-9638	Project Coordinator TRENT, SJ	Price Code 7N	Data Turnaround 45 Days		
Project Designation 200 Area Source Characterization 200-CS-1 OU - QC Samplin	Sampling Location 200 East & West	SAF No. B02-007	Air Quality <input type="checkbox"/>				
Ice Chest No. ERC-96-018	Field Logbook No. EL-1551	COA XL2002CHGR	Method of Shipment Fed Ex				
Shipped To TMA/RECRA	Offsite Property No. A020019	Bill of Lading/Air Bill No. 42357954-8409					

POSSIBLE SAMPLE HAZARD MARKS
 Samples did not originate in radiological controlled area. No total activity associated with sample/samples.
 Special Handling and/or Storage
 RT 10:30:01

Preservation	HCl or H2SO4 to pH < 2 Cool 4C	Cool 4C	HNO3 to pH < 2	H2SO4 to pH < 2 Cool 4C	Cool 4C Cool 4C	ZnAc+NaOH to pH > 9 Cool	HNO3 to pH < 2
Type of Container	A-C	DE	F	G	H	I	aG
No. of Container(s)	3	2	1	1	1	1	2
Volume	40mL	1000mL	1000mL	1000mL	1000mL	500mL	1000mL

SAMPLE ANALYSIS				VOA - 8260A (TCL); VOA - 8260A (Add-On) (1-Propanol, Ethanol)	Semi-VOA - 8270A (Add-On) (Tributyl phosphate)	See item (1) in Special Instructions.	NO2/NO3 - 353.1; Ammonia - 350.3	See item (2) in Special Instructions.	Sulfides - 9030	Grav Alpha; Oils Beta
-----------------	--	--	--	---	--	---------------------------------------	----------------------------------	---------------------------------------	-----------------	-----------------------

Sample No.	Matrix *	Sample Date	Sample Time							
B13C82	WATER	10/29/01	0600	X	X	X	X	X	X	

CHAIN OF POSSESSION		Sign/Print Names	
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
DS Watson/TBW	10/29/01 0815	REF. 2B	3728 BLDG. 10/29/01 0815
Ref. 2B	10:30:01	R. Thorey	10:30:01
R. Thorey	10:30:01	F. O'Neil	
F. O'Neil	10:31:01 0925	L. A. Hernandez	10-31-01 0925

SPECIAL INSTRUCTIONS

- Laboratory is to measure pH within 24 hours of sample receipt.
- The ERC acknowledges the 48-hour holding time will not be met for Nitrate using EPA method 300.0.
- The laboratory is to report Decane as a TIC if present in detectable quantities.

(1) ICP Metals - 6010A (Supertrace) (Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver); ICP Metals - 6010A (Supertrace Add-On) (Beryllium, Copper, Nickel, Vanadium, Zinc)
 (2) IC Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate); pH (Water) - 9040

Samples stored in Ref. #2B at the 3728 Shipping Facility on 10/29/01. Collector not available to relinquish samples on 10/30/01 for shipment.
 RT 10:30:01

Matrix *

- S=Soil
- SB=Sediment
- SO=Solid
- SL=Sludge
- W=Water
- O=Oil
- A=Air
- DS=Drum Solids
- DL=Drum Liquid
- T=Time
- W=Wipe
- L=Liquid
- V=Vegetation
- X=Other

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

REC 423579548409

Lionville Laboratory, Inc.
 GCSC ANALYTICAL DATA PACKAGE FOR
 TNUHANFORD B02-007 H1565



RFW LOT # :0110L235

CLIENT ID	RFW #	MTX	PREP #	COLLECTN DATE	REC	EXT/PREP	ANALYSIS
B13C82	001	W	01LJLB14	10/29/01	10/31/01	11/14/01	11/14/01
B13C82	001 MS	W	01LJLB14	10/29/01	10/31/01	11/14/01	11/14/01
B13C82	001 MSD	W	01LJLB14	10/29/01	10/31/01	11/14/01	11/14/01
LAB QC:							
BLK	MB1	W	01LJLB14	N/A	N/A	11/14/01	11/14/01
BLK	MB1 BS	W	01LJLB14	N/A	N/A	11/14/01	11/14/01
BLK	MB1 BSD	W	01LJLB14	N/A	N/A	11/14/01	11/14/01

Signature



Analytical Report

Client: TNU HANFORD B02-007
LVL#: 0110L235
SDG/SAF#: H1565/B02-007

W.O.#: 11343-606-001-9999-00
Date Received: 10-31-01

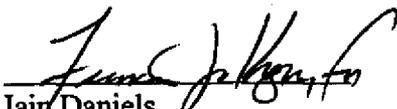
GC SCAN

One (1) water sample was collected on 10-29-01.

The sample and its associated QC samples were analyzed according to criteria set forth in Lionville Laboratory OPs based on Method 8015 for target compounds Ethanol and n-Propyl Alcohol on 11-14-01.

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 temperatures upon receipt have been recorded on the chain-of-custody.
2. The sample was packaged and stored as specified in the method protocol.
3. Surrogates are not currently employed in the methodology.
4. All initial calibrations were within acceptance criteria.
5. All continuing calibrations run prior to analysis were within acceptance criteria.
6. All blank spike recoveries were within acceptance criteria.
7. All matrix spike recoveries were within acceptance criteria.


Iain Daniels
Deputy Laboratory Manager
Lionville Laboratory Incorporated

r:\share\gcpest\ Narr temp\thu235gsc.doc

11/19/01
Date

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.

Lionville Laboratory, Inc.

GC SCAN

Report Date: 11/16/01 08:09 *MO*

RFW Batch Number: 0110L235

Client: *TNUHANFORD* B02-007 H1565 Work Order: 11343606001 Page: 1

	Cust ID:	B13C82	B13C82	B13C82	BLK	BLK BS	BLK BSD
Sample	RFW#:	001	001 MS	001 MSD	01LJLB14-MB1	01LJLB14-MB1	01LJLB14-MB1
Information	Matrix:	WATER	WATER	WATER	WATER	WATER	WATER
	D.F.:	1.00	1.00	1.00	1.00	1.00	1.00
	Units:	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L

	fl	fl	fl	fl	fl	fl
n-Propyl Alcohol	5.0 U	92 %	96 %	5.0 U	95 %	97 %
Ethanol	5.0 U	96 %	98 %	5.0 U	92 %	97 %

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not reported. NS= Not spiked.
 %= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC

John 11/16/01

01106235410314

Bechtel Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			B02-007-01	Page 1 of 1
Collector Thomas, G/Watson, D	Company Contact Cearlock, CS	Telephone No. 372-9638	Project Coordinator TRENT, SJ		Price Code 7N	Data Turnaround 45 Days
Project Designation 200 Area Source Characterization 200-CS-1 OU - QC Samplin		Sampling Location 200 East & West		SAF No. B02-007	Air Quality <input type="checkbox"/>	
Ice Chest No. ERC-96-018	Field Logbook No. EL-1551	COA XL2002CHGR		Method of Shipment Fed Ex		
Shipped To TMA/RECRA		Offsite Property No. A020019		Bill of Lading/Air Bill No. 42357954-8409		

POSSIBLE SAMPLE HAZARD/REMARKS
 Samples did not originate in radiological controlled area. No total activity associated with sample/samples.
 Special Handling and/or Storage
 RT 1030.01

Preservation	HCl or H2SO4 to pH < 2 Cool	Cool 4C	HNO3 to pH < 2	H2SO4 to pH < 2 Cool 4C	Cool 4C Cool 4C	ZnAs+NaOH to pH > 9 Cool	HNO3 to pH < 2
Type of Container	aGr*	aG	aG	aG	aG	aG	aG
No. of Container(s)	3	2	1	1	1	1	2
Volume	40mL	1000mL	1000mL	1000mL	1000mL	500mL	1000mL

SAMPLE ANALYSIS				VOA - 8260A (TIC); VOA - 8260A (Add-On) (1-Propanol, Ethanol)	Semi-VOA - 8270A (Add-On) (Triethyl phosphate)	See item (1) in Special Instructions.	NO2/NO3 - 353.1; Ammonia - 350.3	See item (2) in Special Instructions.	Sulfides - 9030	Grav. Alpha; Grav. Beta
Sample No.	Matrix *	Sample Date	Sample Time							
B13C82	WATER	10/29/01	0600	X	X	X	X	X	X	

CHAIN OF POSSESSION		Sign/Print Names	
Relinquished By/Removed From D. SWATSON/T. SWAN	Date/Time 10/29/01 0915	Received By/Stored In REF. 2B. 3728 BUDG.	Date/Time 10/29/01 0915
Relinquished By/Removed From Ref. 2B 3728	Date/Time 10:30:01	Received By/Stored In R. Thore	Date/Time 10:30:01
Relinquished By/Removed From R. Thore	Date/Time 10:30:01	Received By/Stored In F. O. G. W.	Date/Time
Relinquished By/Removed From F. O. G. W.	Date/Time 10/31/01 0925	Received By/Stored In V. Hernandez	Date/Time 10-31-01 0925
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS
 ** Laboratory is to measure pH within 24 hours of sample receipt.
 ** The ERC acknowledges the 48-hour holding time will not be met for Nitrate using EPA method 300.0.
 ** The laboratory is to report Decane as a TIC if present in detectable quantities.

(1) ICP Metals - 6010A (Supertrace) (Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver);
 ICP Metals - 6010A (Supertrace Add-On) (Beryllium, Copper, Nickel, Vanadium, Zinc)
 (2) IC Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate); pH (Water) - 9040

Samples stored in Ref. # 2B at the 3728 Shipping Facility on 10/29/01. Collector not available to relinquish samples on 10/30/01 for shipment.
 RT 10:30:01

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

Fed Ex 423579548409

Figure 1. Sample Check-in List

Date/Time Received: 10-31-01 0925

SDG#: 01106235

Work Order Number: _____

SAF# B00-007

Shipping Container ID: ERC-96-018

Chain of Custody # B00-007-01

- 1. Custody Seals on shipping container intact? Yes No
- 2. Custody Seals dated and signed? Yes No
- 3. Chain-of-Custody record present? Yes No
- 4. Cooler temperature _____ 1.3
- 5. Vermiculite/packing materials is Wet Dry
- 6. Number of samples in shipping container: _____ 15
- 7. Sample holding times exceeded? Yes No 10-31-01

8. Samples have:

<input type="checkbox"/> tape	<input type="checkbox"/> hazard labels
<input checked="" type="checkbox"/> custody seals	<input type="checkbox"/> appropriate sample labels

9. Samples are:

<input checked="" type="checkbox"/> in good condition	<input type="checkbox"/> leaking
<input type="checkbox"/> broken	<input type="checkbox"/> have air bubbles

10. Were any anomalies identified in sample receipt? Yes No

11. Description of anomalies (include sample numbers): _____

Sample Custodian/Laboratory: Eric H. Allen & Associates, Inc. Date: 10-31-01

Telephoned to: _____ On _____ By _____

Lionville Laboratory, Inc.
BNA ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B02-007 H1565



DATE RECEIVED: 10/31/01

LVL LOT # :0110L235

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B13C82	001	W	01LE1321	10/29/01	11/01/01	11/20/01
B13C82	001 MS	W	01LE1321	10/29/01	11/01/01	11/20/01
B13C82	001 MSD	W	01LE1321	10/29/01	11/01/01	11/20/01

LAB QC:

SBLKJF	MB1	W	01LE1321	N/A	11/01/01	11/19/01
SBLKJF	MB1 BS	W	01LE1321	N/A	11/01/01	11/20/01
SBLKJF	MB1 BSD	W	01LE1321	N/A	11/01/01	11/20/01



Client: TNU-HANFORD B02-007
LVL #: 0110L235
SDG/SAF #: H1565/B02-007

W.O. #: 11343-606-001-9999-00
Date Received: 10-31-2001

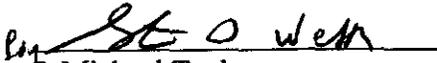
SEMIVOLATILE

One (1) water sample was collected on 10-29-2001.

The sample and its associated QC samples were extracted on 11-01-2001 and analyzed according to criteria set forth in Lionville Laboratory OPs based on SW 846 Method 8270C for client specified and Tributylphosphate Semivolatile target compounds on 11-19,20-2001.

The following is a summary of the QC results accompanying the 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 sample was extracted and analyzed within required holding time.
3. Non-target compounds were not detected in the sample.
4. All surrogate recoveries were within EPA QC limits.
5. All blank spike duplicate recoveries were within EPA QC limits. The blank spike 01LE1321-MB1 BS was inadvertently not spiked; consequently, all spike compounds have been flagged with 'NS' (not spiked). A copy of the Sample Discrepancy Report (SDR) has been enclosed.
6. All matrix spike recoveries were within EPA QC limits.
7. The method blank contained the common laboratory contaminant Bis (2-Ethylhexyl) phthalate at a level less than the CRQL.
8. Internal standard area and retention time criteria were met.
9. I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard-copy data package has been authorized by the Laboratory Manager or a designee, as verified by the following signature.


J. Michael Taylor

President

Lionville Laboratory Incorporated

som\gonup\data\bna\tnu-hanford-0110-235.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 10 pages.

11-27-01
Date

Lionville Laboratory Sample Discrepancy Report (SDR)

SDR #: 01MS 331

Initiator: J. Johnson Batch: 01102 235 - Parameter: BNA
 Date: 11/22/01 Samples: 001 Matrix: water
 Client: 700 Harvard Method: SW646/MCAVVV/CLPI Prep Batch: GILE 1321

1. Reason for SDR

a. COC Discrepancy Tech Profile Error Client Request Sampler Error on C-O-C
 Transcription Error Wrong Test Code Other _____

b. General Discrepancy

Missing Sample/Extract Container Broken Wrong Sample Pulled Label ID's Illegible
 Hold Time Exceeded Insufficient Sample Preservation Wrong Received Past Hold
 Improper Bottle Type Not Amenable to Analysis

Note: Verified by [Log-In] or [Prep Group] (circle)...signature/date: _____

c. Problem (Include all relevant specific results; attach data if necessary)

① 001 - unspiked analysis appears to have low level contamination of matrix spike compounds
 ② BS - not spiked

2. Known or Probable Causes(s)

① cross contamination with MS/MSD
 ② analyst error

3. Discussion and Proposed Action

Other Description:

Re-log
 Entire Batch
 Following Samples: _____
 Re-leach
 Re-extract
 Re-digest
 Revise EDD
 Change Test Code to _____
 Place On/Take Off Hold (circle)

narrative - all spike compounds are "S" level hits
 ① MS, MSD and BS all met criteria

4. Project Manager Instructions...signature/date:

Concur with Proposed Action
 Disagree with Proposed Action; See Instruction
 Include in Case Narrative
 Client Contacted:
 Date/Person Jan Kessner 11/26/01
 Add
 Cancel

Eric Johnson 11/26/01

5. Final Action...signature/date:

Other Explanation:

Verified re-[log][leach][extract][digest][analysis] (circle)
 Included in Case Narrative
 Hard Copy COC Revised
 Electronic COC Revised
 EDD Corrections Completed

When Final Action has been recorded, forward original to QA Specialist for distribution and filing.

Route Distribution of Completed SDR

X Initiator
 X Lab General Manager: M. Taylor
 X Project Mgr: Stone/Johnson/Haslett
 X Technical Mgr: Wesson/Daniels
 X QA (file): Alberts
 Data Management: Feldman
 Sample Prep: Beegle/Kiger

Route Distribution of Completed SDR

Metals: Beegle
 Inorganic: Perrone
 GC/LC: Kiger
 MS: Rychlak/Layman
 Log-in: Keppel
 Admin: Soos
 Other: _____

GLOSSARY OF BNA 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.
- A** = Indicates that a TIC is a suspected aldol-condensation product.
- 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 BNA 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.

TECHNICAL FLAGS FOR MANUAL INTEGRATION

Manual quantitation modifications or integrations are performed routinely to improve the data quality for a variety of technical reasons. Documentation of these modifications should be clear and concise. The following "flags" are used to indicate the technical reasons for quantitation modifications:

- MP** - **Missed Peak:** manually added peak not found by automatic quantitation program.
- PA** - **Peak Assignment:** quantitation report was changed to reflect correct peak assignment.
- RI** - **Routine Integration:** routine integrations are performed for some analytes that are consistently integrated improperly by the automatic integration programs. Examples are the dichlorobenzene isomers on the VOA packed column and benzo(b)fluoranthene/benzo(k)fluoranthene which are poorly resolved on the BNA column.
- SP** - **Split Peak:** the automatic integration improperly split the peak; a manual integration was performed to get the correct area.
- CB** - **Coelution/Background:** peak was manually integrated to eliminate contribution from coeluting compounds, background signal, or other interference.
- PI** - **Proper Integration:** a peak with poor or inconsistent integration (e.g., excessive tail) was properly integrated manually.

L-W1-035/a-mi-10/00



Lionville Laboratory, Inc.

Semivolatiles by GC/MS, Special List

Report Date: 11/26/01 08:57

RFW Batch Number: 0110L235

Client: TNUHANFORD B02-007 H1565

Work Order: 11343606001

Page: 1a

Sample Information	Cust ID:	B13C82	B13C82	B13C82	SBLKJF	SBLKJF BS	SBLKJF BSD
	RFW#:	001	001 MS	001 MSD	01LE1321-MB1	01LE1321-MB1	01LE1321-MB1
	Matrix:	WATER	WATER	WATER	WATER	WATER	WATER
	D.F.:	1.00	1.00	1.00	1.00	1.00	1.00
	Units:	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Surrogate	Nitrobenzene-d5	72 %	81 %	50 %	60 %	82 %	72 %
Recovery	2-Fluorobiphenyl	68 %	78 %	49 %	56 %	75 %	65 %
	p-Terphenyl-d14	87 %	109 %	73 %	86 %	113 %	100 %
	Phenol-d5	75 %	58 %	57 %	57 %	30 %	71 %
	2-Fluorophenol	74 %	77 %	51 %	57 %	78 %	72 %
	2,4,6-Tribromophenol	60 %	87 %	53 %	49 %	76 %	70 %
=====fl=====fl=====fl=====fl=====fl=====fl=====fl=====							
Phenol		1 J	75 %	55 %	10 U	NS %	72 %
bis(2-Chloroethyl) ether		10 U	20 U	22 U	10 U	10 U	10 U
2-Chlorophenol		1 J	77 %	53 %	10 U	NS %	69 %
1,3-Dichlorobenzene		10 U	20 U	22 U	10 U	10 U	10 U
1,4-Dichlorobenzene		0.5 J	47 %	39 %	10 U	NS %	46 %
1,2-Dichlorobenzene		10 U	20 U	22 U	10 U	10 U	10 U
2-Methylphenol		10 U	20 U	22 U	10 U	10 U	10 U
2,2'-oxybis(1-Chloropropane)		10 U	20 U	22 U	10 U	10 U	10 U
4-Methylphenol		10 U	20 U	22 U	10 U	10 U	10 U
N-Nitroso-Di-n-propylamine		10 U	92 %	54 %	10 U	NS %	68 %
Hexachloroethane		10 U	20 U	22 U	10 U	10 U	10 U
Nitrobenzene		10 U	20 U	22 U	10 U	10 U	10 U
Isophorone		10 U	20 U	22 U	10 U	10 U	10 U
2-Nitrophenol		10 U	20 U	22 U	10 U	10 U	10 U
2,4-Dimethylphenol		10 U	20 U	22 U	10 U	10 U	10 U
bis(2-Chloroethoxy)methane		10 U	20 U	22 U	10 U	10 U	10 U
2,4-Dichlorophenol		10 U	20 U	22 U	10 U	10 U	10 U
1,2,4-Trichlorobenzene		0.6 J	50 %	39 %	10 U	NS %	48 %
Naphthalene		10 U	20 U	22 U	10 U	10 U	10 U
4-Chloroaniline		10 U	20 U	22 U	10 U	10 U	10 U
Hexachlorobutadiene		10 U	20 U	22 U	10 U	10 U	10 U
4-Chloro-3-methylphenol		0.8 J	85 %	54 %	10 U	NS %	73 %
2-Methylnaphthalene		10 U	20 U	22 U	10 U	10 U	10 U
Hexachlorocyclopentadiene		10 U	20 U	22 U	10 U	10 U	10 U
2,4,6-Trichlorophenol		10 U	20 U	22 U	10 U	10 U	10 U
2,4,5-Trichlorophenol		26 U	50 U	54 U	25 U	25 U	25 U

*= Outside of EPA CLP QC limits.

Cust ID: B13C82 B13C82 B13C82 SBLKJF SBLKJF BS SBLKJF BSD



RFW#: 001 001 MS 001 MSD 01LE1321-MB1 01LE1321-MB1 01LE1321-MB1

2-Chloronaphthalene	10 U	20 U	22 U	10 U	10 U	10 U
2-Nitroaniline	26 U	50 U	54 U	25 U	25 U	25 U
Dimethylphthalate	10 U	20 U	22 U	10 U	10 U	10 U
Acenaphthylene	10 U	20 U	22 U	10 U	10 U	10 U
2,6-Dinitrotoluene	10 U	20 U	22 U	10 U	10 U	10 U
3-Nitroaniline	26 U	50 U	54 U	25 U	25 U	25 U
Acenaphthene	0.8 J	69 %	49 %	10 U	NS %	64 %
2,4-Dinitrophenol	26 U	50 U	54 U	25 U	25 U	25 U
4-Nitrophenol	26 U	68 %	45 %	25 U	NS %	50 %
Dibenzofuran	10 U	20 U	22 U	10 U	10 U	10 U
2,4-Dinitrotoluene	10 U	86 %	54 %	10 U	NS %	74 %
Diethylphthalate	10 U	20 U	22 U	10 U	10 U	10 U
4-Chlorophenyl-phenylether	10 U	20 U	22 U	10 U	10 U	10 U
Fluorene	10 U	20 U	22 U	10 U	10 U	10 U
4-Nitroaniline	26 U	50 U	54 U	25 U	25 U	25 U
4,6-Dinitro-2-methylphenol	26 U	50 U	54 U	25 U	25 U	25 U
N-Nitrosodiphenylamine (1)	10 U	20 U	22 U	10 U	10 U	10 U
4-Bromophenyl-phenylether	10 U	20 U	22 U	10 U	10 U	10 U
Hexachlorobenzene	10 U	20 U	22 U	10 U	10 U	10 U
Pentachlorophenol	26 U	82 %	24 %	25 U	NS %	40 %
Phenanthrene	10 U	20 U	22 U	10 U	10 U	10 U
Anthracene	10 U	20 U	22 U	10 U	10 U	10 U
Carbazole	10 U	20 U	22 U	10 U	10 U	10 U
Di-n-Butylphthalate	1 J	1 J	22 U	10 U	10 U	10 U
Fluoranthene	10 U	20 U	22 U	10 U	10 U	10 U
Pyrene	1 J	91 %	66 %	10 U	NS %	97 %
Butylbenzylphthalate	10 U	20 U	22 U	10 U	10 U	10 U
3,3'-Dichlorobenzidine	10 U	20 U	22 U	10 U	10 U	10 U
Benzo(a)anthracene	10 U	20 U	22 U	10 U	10 U	10 U
Chrysene	10 U	20 U	22 U	10 U	10 U	10 U
bis(2-Ethylhexyl)phthalate	10 U	20 U	22 U	1 J	0.6 JB	1 JB
Di-n-Octyl phthalate	10 U	20 U	22 U	10 U	10 U	10 U
Benzo(b)fluoranthene	10 U	20 U	22 U	10 U	10 U	10 U
Benzo(k)fluoranthene	10 U	20 U	22 U	10 U	10 U	10 U
Benzo(a)pyrene	10 U	20 U	22 U	10 U	10 U	10 U
Indeno(1,2,3-cd)pyrene	10 U	20 U	22 U	10 U	10 U	10 U
Dibenzo(a,h)anthracene	10 U	20 U	22 U	10 U	10 U	10 U
Benzo(g,h,i)perylene	10 U	20 U	22 U	10 U	10 U	10 U
Tributylphosphate	10 U	20 U	22 U	10 U	10 U	10 U

(1) - Cannot be separated from Diphenylamine. *= Outside of EPA CLP QC limits.

0110235410317

01

Bechtel Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				B02-007-01	Page 1 of 1
Collector Thomas, G/Watson, D	Company Contact Cearlock, CS	Telephone No. 372-9638	Project Coordinator TRENT, SJ		Price Code 7N	Data Turnaround 45 Days	
Project Designation 200 Area Source Characterization 200-CS-1 OU - QC Sampling		Sampling Location 200 East & West	SAF No. B02-007		Air Quality <input type="checkbox"/>		
Ice Chest No. ERC-96-018	Field Logbook No. EL-1551	COA XL2002CHGR	Method of Shipment Fed Ex				
Shipped To TMA/RECREA	Offsite Property No. A020019		Bill of Lading/Air Bill No. 42357954-8409				

POSSIBLE SAMPLE HAZARD MARKS
 Samples did not originate in radiological controlled area. No total activity associated with sample/samples.
 Special Handling and/or Storage

RT 1030.01

Preservation	HCl or H2SO4 to pH < 2 Cool	Cool 4C	HNO3 to pH < 2	H2SO4 to pH < 2 Cool 4C	Cool 4C Cool 4C	ZnAc+NaOH to pH > 9 Cool	HNO3 to pH < 2
Type of Container	aG* A-C	aG DE	aG F	aG G	aG H	aG I	aG
No. of Container(s)	3	2	1	1	1	1	2
Volume	40mL	1000mL	1000mL	1000mL	1000mL	500mL	1000mL

SAMPLE ANALYSIS				VOA - 8260A (TCL); VOA - 8260A (Add-On) (1-Propanol, Ethanol)	Semi-VOA - 8270A (Add-On) (Tributyl phosphate)	See item (1) in Special Instructions.	NO2/NO3 - 353.1; Ammonia - 350.3	See item (2) in Special Instructions.	Sulfides - 9030	Grav. Alpha; Grav. Beta
-----------------	--	--	--	---	--	---------------------------------------	----------------------------------	---------------------------------------	-----------------	-------------------------

Sample No.	Matrix *	Sample Date	Sample Time							
B13C82	WATER	10/29/01	0800	X	X	X	X	X	X	

CHAIN OF POSSESSION		Sign/Print Names	
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
D. Watson / DSW	10/29/01 0915	REF. JB. 3728 BLDG.	10/29/01 0915
Ref. JB 3728	10:30:01	RT	10:30:01
RT	10:30:01	FE OAS	
FE OAS	10:31:01 0925	Vicki Hernandez	10-31-01 0925

SPECIAL INSTRUCTIONS

** Laboratory is to measure pH within 24 hours of sample receipt.
 ** The ERC acknowledges the 48-hour holding time will not be met for Nitrate using EPA method 300.0.
 ** The laboratory is to report Decane as a TIC if present in detectable quantities.

(1) ICP Metals - 6010A (Supertrace) (Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver); ICP Metals - 6010A (Supertrace Add-On) (Beryllium, Copper, Nickel, Vanadium, Zinc)
 (2) IC Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate); pH (Water) - 9040

Samples stored in Ref. # 28 at the 3728 Shipping Facility on 10/29/01. Collector not available to relinquish samples on 10/30/01 for shipment.
 RT 10:30:01

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

FE OAS 423579548409

Lionville Laboratory, Inc.
 INORGANIC ANALYTICAL DATA PACKAGE FOR
 TNUHANFORD B02-007 H1565



DATE RECEIVED: 10/31/01

LVL LOT # :0110L235

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B13C82						
SILVER, TOTAL	001	W	01L0725	10/29/01	11/06/01	11/07/01
SILVER, TOTAL	001 REP	W	01L0725	10/29/01	11/06/01	11/07/01
SILVER, TOTAL	001 MS	W	01L0725	10/29/01	11/06/01	11/07/01
ARSENIC, TOTAL	001	W	01L0725	10/29/01	11/06/01	11/07/01
ARSENIC, TOTAL	001 REP	W	01L0725	10/29/01	11/06/01	11/07/01
ARSENIC, TOTAL	001 MS	W	01L0725	10/29/01	11/06/01	11/07/01
BARIUM, TOTAL	001	W	01L0725	10/29/01	11/06/01	11/07/01
BARIUM, TOTAL	001 REP	W	01L0725	10/29/01	11/06/01	11/07/01
BARIUM, TOTAL	001 MS	W	01L0725	10/29/01	11/06/01	11/07/01
BERYLLIUM, TOTAL	001	W	01L0725	10/29/01	11/06/01	11/07/01
BERYLLIUM, TOTAL	001 REP	W	01L0725	10/29/01	11/06/01	11/07/01
BERYLLIUM, TOTAL	001 MS	W	01L0725	10/29/01	11/06/01	11/07/01
CADMIUM, TOTAL	001	W	01L0725	10/29/01	11/06/01	11/07/01
CADMIUM, TOTAL	001 REP	W	01L0725	10/29/01	11/06/01	11/07/01
CADMIUM, TOTAL	001 MS	W	01L0725	10/29/01	11/06/01	11/07/01
CHROMIUM, TOTAL	001	W	01L0725	10/29/01	11/06/01	11/07/01
CHROMIUM, TOTAL	001 REP	W	01L0725	10/29/01	11/06/01	11/07/01
CHROMIUM, TOTAL	001 MS	W	01L0725	10/29/01	11/06/01	11/07/01
COPPER, TOTAL	001	W	01L0725	10/29/01	11/06/01	11/07/01
COPPER, TOTAL	001 REP	W	01L0725	10/29/01	11/06/01	11/07/01
COPPER, TOTAL	001 MS	W	01L0725	10/29/01	11/06/01	11/07/01
NICKEL, TOTAL	001	W	01L0725	10/29/01	11/06/01	11/07/01
NICKEL, TOTAL	001 REP	W	01L0725	10/29/01	11/06/01	11/07/01
NICKEL, TOTAL	001 MS	W	01L0725	10/29/01	11/06/01	11/07/01
LEAD, TOTAL	001	W	01L0725	10/29/01	11/06/01	11/07/01
LEAD, TOTAL	001 REP	W	01L0725	10/29/01	11/06/01	11/07/01
LEAD, TOTAL	001 MS	W	01L0725	10/29/01	11/06/01	11/07/01
SELENIUM, TOTAL	001	W	01L0725	10/29/01	11/06/01	11/07/01
SELENIUM, TOTAL	001 REP	W	01L0725	10/29/01	11/06/01	11/07/01
SELENIUM, TOTAL	001 MS	W	01L0725	10/29/01	11/06/01	11/07/01
VANADIUM, TOTAL	001	W	01L0725	10/29/01	11/06/01	11/07/01
VANADIUM, TOTAL	001 REP	W	01L0725	10/29/01	11/06/01	11/07/01
VANADIUM, TOTAL	001 MS	W	01L0725	10/29/01	11/06/01	11/07/01
ZINC, TOTAL	001	W	01L0725	10/29/01	11/06/01	11/07/01
ZINC, TOTAL	001 REP	W	01L0725	10/29/01	11/06/01	11/07/01

Lionville Laboratory, Inc.
 INORGANIC ANALYTICAL DATA PACKAGE FOR
 TNUHANFORD B02-007 H1565

DATE RECEIVED: 10/31/01

LVL LOT # :0110L235

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
ZINC, TOTAL	001 MS	W	01L0725	10/29/01	11/06/01	11/07/01

LAB QC:

SILVER LABORATORY	LC1 BS	W	01L0725	N/A	11/06/01	11/07/01
SILVER, TOTAL	MB1	W	01L0725	N/A	11/06/01	11/07/01
ARSENIC LABORATORY	LC1 BS	W	01L0725	N/A	11/06/01	11/07/01
ARSENIC, TOTAL	MB1	W	01L0725	N/A	11/06/01	11/07/01
BARIUM LABORATORY	LC1 BS	W	01L0725	N/A	11/06/01	11/07/01
BARIUM, TOTAL	MB1	W	01L0725	N/A	11/06/01	11/07/01
BERYLLIUM LABORATORY	LC1 BS	W	01L0725	N/A	11/06/01	11/07/01
BERYLLIUM, TOTAL	MB1	W	01L0725	N/A	11/06/01	11/07/01
CADMIUM LABORATORY	LC1 BS	W	01L0725	N/A	11/06/01	11/07/01
CADMIUM, TOTAL	MB1	W	01L0725	N/A	11/06/01	11/07/01
CHROMIUM LABORATORY	LC1 BS	W	01L0725	N/A	11/06/01	11/07/01
CHROMIUM, TOTAL	MB1	W	01L0725	N/A	11/06/01	11/07/01
COPPER LABORATORY	LC1 BS	W	01L0725	N/A	11/06/01	11/07/01
COPPER, TOTAL	MB1	W	01L0725	N/A	11/06/01	11/07/01
NICKEL LABORATORY	LC1 BS	W	01L0725	N/A	11/06/01	11/07/01
NICKEL, TOTAL	MB1	W	01L0725	N/A	11/06/01	11/07/01
LEAD LABORATORY	LC1 BS	W	01L0725	N/A	11/06/01	11/07/01
LEAD, TOTAL	MB1	W	01L0725	N/A	11/06/01	11/07/01
SELENIUM LABORATORY	LC1 BS	W	01L0725	N/A	11/06/01	11/07/01
SELENIUM, TOTAL	MB1	W	01L0725	N/A	11/06/01	11/07/01
VANADIUM LABORATORY	LC1 BS	W	01L0725	N/A	11/06/01	11/07/01
VANADIUM, TOTAL	MB1	W	01L0725	N/A	11/06/01	11/07/01
ZINC LABORATORY	LC1 BS	W	01L0725	N/A	11/06/01	11/07/01
ZINC, TOTAL	MB1	W	01L0725	N/A	11/06/01	11/07/01



Analytical Report

Client: TNU-HANFORD B02-007
LVL#: 0110L235
SDG/SAF#: H1565/B02-007

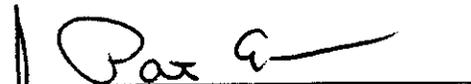
W.O.#: 11343-606-001-9999-00
Date Received: 10-31-01

METALS CASE NARRATIVE

1. This narrative covers the analysis of 1 water 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.
6. All Initial and Continuing Calibration Blanks (ICB/CCBs) were within control limits (less than the PQL).
7. The preparation/method blanks for 3 analytes were outside 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.
 - a). The MB results for Beryllium, Copper, and Zinc were greater than the Practical Quantitation Limit (PQL) {3 x the (IDL) Instrument Detection Level} and all samples read less than 20 times the MB concentration. However, no corrective action criteria for MBs were provided in SW846 method 6010B. The sample results were reported herein "uncorrected" for the levels found in the MB.
8. All ICP Interference Check Standards were within control limits.
9. All laboratory control samples (LCS) were within the 80-120% 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 13 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.
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.



Iain Daniels
Deputy Laboratory Manager
Lionville Laboratory Incorporated
gmb/m10-235

11-15-01
Date



METALS METHOD GLOSSARY

The following methods are used as reference for the digestion and analysis of samples contained within this

lot#: 01102235

Eaching Procedure: 1310 1311 1312 Other: _____

LP 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	<u>6010B</u>	<u>200.7</u>			<u>99</u>
Antimony	<u>6010B</u> <u>7041^s</u>	<u>200.7</u> <u>204.2</u>			<u>99</u>
Arsenic	<input checked="" type="checkbox"/> <u>6010B</u> <u>7060A^s</u>	<u>200.7</u> <u>206.2</u>	<u>3113B</u>		<u>99</u>
Barium	<input checked="" type="checkbox"/> <u>6010B</u>	<u>200.7</u>			<u>99</u>
Beryllium	<input checked="" type="checkbox"/> <u>6010B</u>	<u>200.7</u>			<u>99</u>
Bismuth	<u>6010Bⁱ</u>	<u>200.7ⁱ</u>		<u>1620</u>	<u>99</u>
Boron	<u>6010B</u>	<u>200.7</u>			<u>99</u>
Cadmium	<input checked="" type="checkbox"/> <u>6010B</u> <u>7131A^s</u>	<u>200.7</u> <u>213.2</u>			<u>99</u>
Calcium	<u>6010B</u>	<u>200.7</u>			<u>99</u>
Chromium	<input checked="" type="checkbox"/> <u>6010B</u> <u>7191^s</u>	<u>200.7</u> <u>218.2</u>			<u>SS17</u>
Cobalt	<input checked="" type="checkbox"/> <u>6010B</u>	<u>200.7</u>			<u>99</u>
Copper	<input checked="" type="checkbox"/> <u>6010B</u> <u>7211^s</u>	<u>200.7</u> <u>220.2</u>			<u>99</u>
Iron	<u>6010B</u>	<u>200.7</u>			<u>99</u>
Lead	<input checked="" type="checkbox"/> <u>6010B</u> <u>7421^s</u>	<u>200.7</u> <u>239.2</u>	<u>3113B</u>		<u>99</u>
Lithium	<u>6010B</u> <u>7430^s</u>	<u>200.7</u>		<u>1620</u>	<u>99</u>
Magnesium	<u>6010B</u>	<u>200.7</u>			<u>99</u>
Manganese	<u>6010B</u>	<u>200.7</u>			<u>99</u>
Mercury	<u>7470A^s</u> <u>7471A^s</u>	<u>245.1^s</u> <u>245.5^s</u>			<u>99</u>
Molybdenum	<input checked="" type="checkbox"/> <u>6010B</u>	<u>200.7</u>			<u>99</u>
Nickel	<input checked="" type="checkbox"/> <u>6010B</u>	<u>200.7</u>			<u>99</u>
Potassium	<u>6010B</u> <u>7610^s</u>	<u>200.7</u> <u>258.1^s</u>			<u>99</u>
Rare Earths	<u>6010Bⁱ</u>	<u>200.7ⁱ</u>		<u>1620</u>	<u>99</u>
Selenium	<input checked="" type="checkbox"/> <u>6010B</u> <u>7740^s</u>	<u>200.7</u> <u>270.2</u>	<u>3113B</u>		<u>99</u>
Silicon	<u>6010Bⁱ</u>	<u>200.7</u>		<u>1620</u>	<u>99</u>
Silica	<u>6010B</u>	<u>200.7</u>		<u>1620</u>	<u>99</u>
Silver	<input checked="" type="checkbox"/> <u>6010B</u> <u>7761^s</u>	<u>200.7</u> <u>272.2</u>			<u>99</u>
Sodium	<u>6010B</u> <u>7770^s</u>	<u>200.7</u> <u>273.1^s</u>			<u>99</u>
Strontium	<u>6010B</u>	<u>200.7</u>			<u>99</u>
Thallium	<u>6010B</u> <u>7841^s</u>	<u>200.7</u> <u>279.2</u> <u>200.9</u>			<u>99</u>
Tin	<u>6010B</u>	<u>200.7</u>			<u>99</u>
Titanium	<u>6010B</u>	<u>200.7</u>			<u>99</u>
Uranium	<u>6010Bⁱ</u>	<u>200.7ⁱ</u>		<u>1620</u>	<u>99</u>
Vanadium	<input checked="" type="checkbox"/> <u>6010B</u>	<u>200.7</u>			<u>99</u>
Zinc	<input checked="" type="checkbox"/> <u>6010B</u>	<u>200.7</u>			<u>99</u>
Zirconium	<u>6010Bⁱ</u>	<u>200.7ⁱ</u>		<u>1620</u>	<u>99</u>

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.
- B = Indicates that the parameter was between the Instrument Detection Limit (IDL) and the Contract Required Detection Limit (CRDL)

Q QUALIFIERS

- E = The reported value is estimated because of the presence of interference.
- M = Duplicate injection precision not met.
- N = Spiked sample recovery not within control limits.
- S = The reported value was determined by the Method of Standard Additions (MSA).
- W = Post Digestion spike for Furnace AA analysis is out of control limits (85 -115 %), while sample absorbance is less than 50% of spike absorbance.
- * = Duplicate analysis not within control limits.
- + = Correlation coefficient for the MSA is less than 0.995.

ABBREVIATIONS

- PB = Method or Preparation Blank.
- S = Matrix Spike.
- T = Matrix Spike Duplicate.
- R or D = Sample Replicate

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/O-01/97

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 11/13/01

CLIENT: TNUHANFORD BC2-007 H1565
 WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0110L235

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	B13C82	Silver, Total	0.60	u UG/L	0.60	1.0
		Arsenic, Total	3.2	u UG/L	3.2	1.0
		Barium, Total	0.75	UG/L	0.10	1.0
		Beryllium, Total	0.31	UG/L	0.10	1.0
		Cadmium, Total	0.30	u UG/L	0.30	1.0
		Chromium, Total	0.72	UG/L	0.60	1.0
		Copper, Total	3.9	UG/L	0.50	1.0
		Nickel, Total	1.0	u UG/L	1.0	1.0
		Lead, Total	1.9	u UG/L	1.9	1.0
		Selenium, Total	2.2	u UG/L	2.2	1.0
		Vanadium, Total	0.50	u UG/L	0.50	1.0
		Zinc, Total	9.3	UG/L	0.30	1.0

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 11/13/01

CLIENT: TNUHANFORD B02-007 H1565
 WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0110L235

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-----	-----	-----	-----	-----	-----	-----
BLANK1	01L0725-MB1	Silver, Total	0.60 u	UG/L	0.60	1.0
		Arsenic, Total	3.2 u	UG/L	3.2	1.0
		Barium, Total	0.24	UG/L	0.10	1.0
		Beryllium, Total	0.31	UG/L	0.10	1.0
		Cadmium, Total	0.30 u	UG/L	0.30	1.0
		Chromium, Total	0.60 u	UG/L	0.60	1.0
		Copper, Total	1.6	UG/L	0.50	1.0
		Nickel, Total	1.0 u	UG/L	1.0	1.0
		Lead, Total	1.9 u	UG/L	1.9	1.0
		Selenium, Total	2.2 u	UG/L	2.2	1.0
		Vanadium, Total	0.50 u	UG/L	0.50	1.0
		Zinc, Total	2.3	UG/L	0.30	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 11/13/01

CLIENT: TNUHANFORD B02-007 H1565
 WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0110L235

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR (SPK)
-001	B13C82	Silver, Total	49.4	0.60u	50.0	98.8	1.0
		Arsenic, Total	1980	3.2 u	2000	98.9	1.0
		Barium, Total	1940	0.75	2000	96.9	1.0
		Beryllium, Total	50.4	0.31	50.0	100.2	1.0
		Cadmium, Total	49.1	0.30u	50.0	98.2	1.0
		Chromium, Total	197	0.72	200	98.3	1.0
		Copper, Total	253	3.9	250	99.8	1.0
		Nickel, Total	502	1.0 u	500	100.4	1.0
		Lead, Total	498	1.9 u	500	99.6	1.0
		Selenium, Total	1980	2.2 u	2000	99.2	1.0
		Vanadium, Total	490	0.50u	500	98.0	1.0
		Zinc, Total	500	9.3	500	98.1	1.0

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 11/13/01

CLIENT: TNUHANFORD B02-007 H1565
 WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0110L235

SAMPLE	SITE ID	ANALYTE	INITIAL			DILUTION
			RESULT	REPLICATE RPD		
-001REP	B13C82	Silver, Total	0.60u	0.60u	NC	1.0
		Arsenic, Total	3.2 u	3.2 u	NC	1.0
		Barium, Total	0.75	0.52	36.2	1.0
		Beryllium, Total	0.31	0.36	14.9	1.0
		Cadmium, Total	0.30u	0.30u	NC	1.0
		Chromium, Total	0.72	0.60u	NC	1.0
		Copper, Total	3.9	1.4	94.3	1.0
		Nickel, Total	1.0 u	1.0 u	NC	1.0
		Lead, Total	1.9 u	1.9 u	NC	1.0
		Selenium, Total	2.2 u	2.2 u	NC	1.0
		Vanadium, Total	0.50u	0.50u	NC	1.0
		Zinc, Total	9.3	6.0	43.1	1.0

200

YH 11/13/01

Lionville Laboratory, Inc.

INORGANICS LABORATORY CONTROL STANDARDS REPORT 11/13/01

CLIENT: TNUHANFORD B02-007 H1565
 WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0110L235

SAMPLE	SITE ID	ANALYTE	SPIKED	SPIKED	UNITS	%RECOV
			SAMPLE	AMOUNT		
LCS1	01L0725-LC1	Silver, LCS	446	500	UG/L	89.2
		Arsenic, LCS	9700	10000	UG/L	97.0
		Barium, LCS	4790	5000	UG/L	95.7
		Beryllium, LCS	249	250	UG/L	99.6
		Cadmium, LCS	245	250	UG/L	97.8
		Chromium, LCS	487	500	UG/L	97.5
		Copper, LCS	1240	1250	UG/L	99.0
		Nickel, LCS	1980	2000	UG/L	99.1
		Lead, LCS	2460	2500	UG/L	98.3
		Selenium, LCS	9860	10000	UG/L	98.6
		Vanadium, LCS	2460	2500	UG/L	98.5
		Zinc, LCS	990	1000	UG/L	99.0

Bechtel Hanford Inc. CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Director: Thomas, G/Watson, D
 Company Contact: Cearlock, CS Telephone No. 372-9638
 Project Coordinator: TRENT, SJ Price Code: 7N Data Turnaround: 45 Days

Project Designation: 200 Area Source Characterization 200-CS-1 OU - QC Sampling
 Sampling Location: 200 East & West
 SAF No. B02-007
 Air Quality:

Chest No. ERC-96-018
 Field Logbook No. EL-1551
 COA: XL2002CHGR
 Method of Shipment: Fed Ex

Shipped To: TMA/RECREA
 Offsite Property No. A020019
 Bill of Lading/Air Bill No. 42357954-8409

POSSIBLE SAMPLE HAZARD MARKS: Samples did not originate in radiological controlled area. No total activity associated with sample/samples. Special Handling and/or Storage: RT 10:30:01

Preservation	HCl or H2SO4 to pH < 2 Cool	Cool 4C	HNO3 to pH < 2	H2SO4 to pH < 2 Cool 4C	Cool 4C Cool 4C	ZnAc+NaOH to pH > 9 Cool	HNO3 to pH < 2
Type of Container	A-C	D-E	F	G	H	I	J
No. of Container(s)	3	2	1	1	1	1	2
Volume	40mL	1000mL	1000mL	1000mL	1000mL	500mL	1000mL

SAMPLE ANALYSIS

VOA - 8260A (TCL); VOA - 8260A (Add-On) (1-Propanol, Ethanol)	Semi-VOA - 8270A (Add-On) (Tributyl phosphate)	See item (1) in Special Instructions.	NO2/NO3 - 353.1; Ammonia - 350.3	See item (2) in Special Instructions.	Sulfides - 9030	Cr+6, Al+3, Cd+2, Pb+2
---	--	---------------------------------------	----------------------------------	---------------------------------------	-----------------	------------------------

Sample No.	Matrix *	Sample Date	Sample Time						
B13C82	WATER	10/29/01	0800	X	X	X	X	X	X

CHAIN OF POSSESSION

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
D. S. Watson / B. Smith	10/29/01 0815	REF. 2B - 3728 Bldg.	10/29/01 0815
Ref. 2B 3728	10:30:01	RT Trent	10:30:01
RT Trent	10:30:01	FE Ours	
FE Ours	10:31:01 0925	Vicki Hernandez	10-31-01 0925

SPECIAL INSTRUCTIONS

- ** Laboratory is to measure pH within 24 hours of sample receipt.
- ** The ERC acknowledges the 48-hour holding time will not be met for Nitrate using EPA method 300.0.
- ** The laboratory is to report Decane as a TIC if present in detectable quantities.

(1) ICP Metals - 6010A (Supertrace) (Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver); ICP Metals - 6010A (Supertrace Add-On) (Beryllium, Copper, Nickel, Vanadium, Zinc)
 (2) IC Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate); pH (Water) - 9040

Samples stored in Ref. # 2B at the 3728 Shipping Facility on 10/29/01. Collector not available to relinquish samples on 10/30/01 for shipment.
 RT 10:30:01

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



Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B02-007 H1565

DATE RECEIVED: 10/31/01

LVL LOT # :0110L235

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B13C82						
CHLORIDE BY IC	001	W	01LICB71	10/29/01	11/01/01	11/01/01
CHLORIDE BY IC	001 REP	W	01LICB71	10/29/01	11/01/01	11/01/01
CHLORIDE BY IC	001 MS	W	01LICB71	10/29/01	11/01/01	11/01/01
FLUORIDE BY IC	001	W	01LICB71	10/29/01	11/01/01	11/01/01
FLUORIDE BY IC	001 REP	W	01LICB71	10/29/01	11/01/01	11/01/01
FLUORIDE BY IC	001 MS	W	01LICB71	10/29/01	11/01/01	11/01/01
NITRITE BY IC	001	W	01LICB71	10/29/01	11/01/01	11/01/01
NITRITE BY IC	001 REP	W	01LICB71	10/29/01	11/01/01	11/01/01
NITRITE BY IC	001 MS	W	01LICB71	10/29/01	11/01/01	11/01/01
NITRATE BY IC	001	W	01LICB71	10/29/01	11/01/01	11/01/01
NITRATE BY IC	001 REP	W	01LICB71	10/29/01	11/01/01	11/01/01
NITRATE BY IC	001 MS	W	01LICB71	10/29/01	11/01/01	11/01/01
PHOSPHATE BY IC	001	W	01LICB71	10/29/01	11/01/01	11/01/01
PHOSPHATE BY IC	001 REP	W	01LICB71	10/29/01	11/01/01	11/01/01
PHOSPHATE BY IC	001 MS	W	01LICB71	10/29/01	11/01/01	11/01/01
SULFATE BY IC	001	W	01LICB71	10/29/01	11/01/01	11/01/01
SULFATE BY IC	001 REP	W	01LICB71	10/29/01	11/01/01	11/01/01
SULFATE BY IC	001 MS	W	01LICB71	10/29/01	11/01/01	11/01/01
NITRATE NITRITE	001	W	01LN3058	10/29/01	11/02/01	11/02/01
NITRATE NITRITE	001 REP	W	01LN3058	10/29/01	11/02/01	11/02/01
NITRATE NITRITE	001 MS	W	01LN3058	10/29/01	11/02/01	11/02/01
AMMONIA	001	W	01LAMB49	10/29/01	11/06/01	11/06/01
AMMONIA	001 REP	W	01LAMB49	10/29/01	11/06/01	11/06/01
AMMONIA	001 MS	W	01LAMB49	10/29/01	11/06/01	11/06/01
PH	001	W	01LPH073	10/29/01	11/01/01	11/01/01
PH	001 REP	W	01LPH073	10/29/01	11/01/01	11/01/01
SULFIDE	001	W	01LSD060	10/29/01	11/05/01	11/05/01
SULFIDE	001 REP	W	01LSD060	10/29/01	11/05/01	11/05/01
SULFIDE	001 MS	W	01LSD060	10/29/01	11/05/01	11/05/01

LAB QC:

CHLORIDE BY IC	MB1	W	01LICB71	N/A	11/01/01	11/01/01
CHLORIDE BY IC	MB1 BS	W	01LICB71	N/A	11/01/01	11/01/01
FLUORIDE BY IC	MB1	W	01LICB71	N/A	11/01/01	11/01/01

Lionville Laboratory, Inc.
 INORGANIC ANALYTICAL DATA PACKAGE FOR
 TNUHANFORD B02-007 H1565

DATE RECEIVED: 10/31/01

LVL LOT # :0110L235

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
FLUORIDE BY IC	MB1 BS	W	01LICB71	N/A	11/01/01	11/01/01
NITRITE BY IC	MB1	W	01LICB71	N/A	11/01/01	11/01/01
NITRITE BY IC	MB1 BS	W	01LICB71	N/A	11/01/01	11/01/01
NITRATE BY IC	MB1	W	01LICB71	N/A	11/01/01	11/01/01
NITRATE BY IC	MB1 BS	W	01LICB71	N/A	11/01/01	11/01/01
PHOSPHATE BY IC	MB1	W	01LICB71	N/A	11/01/01	11/01/01
PHOSPHATE BY IC	MB1 BS	W	01LICB71	N/A	11/01/01	11/01/01
SULFATE BY IC	MB1	W	01LICB71	N/A	11/01/01	11/01/01
SULFATE BY IC	MB1 BS	W	01LICB71	N/A	11/01/01	11/01/01
NITRATE NITRITE	MB1	W	01LN3058	N/A	11/02/01	11/02/01
NITRATE NITRITE	MB1 BS	W	01LN3058	N/A	11/02/01	11/02/01
AMMONIA	MB1	W	01LAMB49	N/A	11/06/01	11/06/01
AMMONIA	MB1 BS	W	01LAMB49	N/A	11/06/01	11/06/01
AMMONIA	MB1 BSD	W	01LAMB49	N/A	11/06/01	11/06/01
SULFIDE	MB1	W	01LSD060	N/A	11/05/01	11/05/01
SULFIDE	MB1 BS	W	01LSD060	N/A	11/05/01	11/05/01
SULFIDE	MB1 BSD	W	01LSD060	N/A	11/05/01	11/05/01



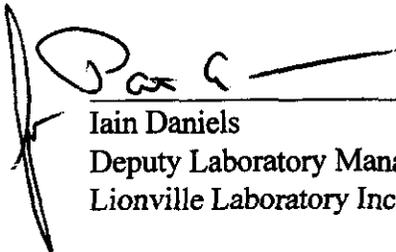
Analytical Report

Client: TNU-HANFORD B02-007 H1565
LVL#: 0110L235

W.O.#: 11343-606-001-9999-00
Date Received: 10-31-01

INORGANIC NARRATIVE

1. This narrative covers the analyses of 1 water sample.
2. The sample was prepared and analyzed in accordance with the methods checked on the attached glossary.
3. Sample holding times as required by the method and/or contract were met with the exception of pH, Nitrate, Nitrite and Phosphate that were received past hold.
4. The cooler temperature was recorded on the chain of custody.
5. The method blanks were within the method criteria.
6. The Laboratory Control Samples (LCS) were within the laboratory control limits. the duplicate LCS were within the 20% Relative Percent difference (RP) control limit.
7. The matrix spike recoveries were within the 75-125% control limits.
8. The replicate analyses were within the 20% RPD control limit.
9. I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard copy package has been authorized by the Laboratory Manager or a designee, as verified by the following signature.



Iain Daniels
Deputy Laboratory Manager
Lionville Laboratory Incorporated

11-15-01
Date

njpl10-235

The results presented in this report relate to the analytical testing and conditions of the samples upon 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.

Lionville Laboratory Incorporated

WET CHEMISTRY

METHODS GLOSSARY FOR WATER SAMPLE ANALYSIS

	<u>EPA /600</u>	<u>SW846</u>	<u>OTHER</u>
Acidity	305.1		
___ Alkalinity ___ Bicarbonate ___ Carbonate	310.1		
BOD	405.1		___ 5210B (b)
Ion Chromatography:			
___ Bromide <input checked="" type="checkbox"/> Chloride <input checked="" type="checkbox"/> Fluoride	<input checked="" type="checkbox"/> 300.0	___ 9056	
<input checked="" type="checkbox"/> Nitrate <input checked="" type="checkbox"/> Nitrite ___ Phosphate	<input checked="" type="checkbox"/> 300.0	___ 9056	
<input checked="" type="checkbox"/> Sulfate ___ Formate ___ Acetate ___ Oxalate	<input checked="" type="checkbox"/> 300.0	___ 9056	
Chloride	325.2	___ 9251	
Chlorine, Residual	330.5 (mod)		
Cyanide, Amenable to Chlorination	335.2	___ 9010B	
Cyanide, Total	335.2	___ 9010B	___ 9014 ___ ILMO4.0 (e)
Cyanide, Weak Acid Dissociable			___ 412 (a) ___ 4500CN-I (b)
COD	410.4(mod)		___ 5220C (b)
Color	110.2		
Corrosivity by Coupon		___ 1110(mod)	
Chromium VI		___ 7196A	___ 3500Cr-D (b)
Fluoride	340.2		___ 4500-FC
Hardness, Calcium	215.2		
Hardness, Total	130.2		
Iodide			___ ASTM D19P202 (1)
Surfactant	425.1		
<input checked="" type="checkbox"/> Nitrate-Nitrite ___ Nitrate ___ Nitrite	<input checked="" type="checkbox"/> 353.2		
Ammonia	350.3		
Total ___ Kjeldahl ___ Organic Nitrogen	351.3		
Total ___ Organic ___ Inorganic Carbon	415.1	___ 9060	
Oil & Grease	413.1	___ 9070	
<input checked="" type="checkbox"/> pH ___ pH; paper	150.1	<input checked="" type="checkbox"/> 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		<input checked="" type="checkbox"/> 9030B/9034 (acid soluble)
Reactive ___ Cyanide ___ Sulfide		___ Section 7.3 (___ 9014 ___ 9030B)	
Silica	370.1		
Sulfite	377.1		
Sulfate	375.4	___ 9038	
Specific Conductance	120.1	___ 9050A	
Specific Gravity			___ D5057-90 ___ 213E (a)
Synthetic Precipitation Leach		___ 1312	
Total ___ Dissolved ___ Suspended ___ Solids	160 ___ .1 ___ .2 ___ .3		
Total Organic Halides	450.1	___ 9020B	
Turbidity	180.1		
Volatile Solids:			
___ Total ___ Dissolved ___ Suspended	160.4		
Other:		Method:	

Lionville Laboratory Incorporated

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.

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 11/15/01

CLIENT: TNUHANFORD B02-007 H1565
 WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0110L235

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
*****	*****	*****	*****	*****	*****	*****
-001	B13C82	Chloride by IC	0.25 u	MG/L	0.25	1.0
		Fluoride by IC	0.50 u	MG/L	0.50	1.0
		Nitrite by IC	0.25 u	MG/L	0.25	1.0
		Nitrate by IC	0.25 u	MG/L	0.25	1.0
		Phosphate by IC	0.25 u	MG/L	0.25	1.0
		Sulfate by IC	0.25 u	MG/L	0.25	1.0
		Nitrate Nitrite	0.020u	MG/L	0.020	1.0
		Ammonia, as N	0.10 u	MG/L	0.10	1.0
		pH	5.3	PH UNIT	0.01	1.0
		Sulfide	1.0 u	MG/L	1.0	1.0

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 11/15/01

CLIENT: TNUHANFORD B02-007 H1565
 WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0110L235

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-----	-----	-----	-----	-----	-----	-----
BLANK10	01LICB71-MB1	Bromide by IC	0.25 u	MG/L	0.25	1.0
		Chloride by IC	0.25 u	MG/L	0.25	1.0
		Fluoride by IC	0.50 u	MG/L	0.50	1.0
		Nitrite by IC	0.25 u	MG/L	0.25	1.0
		Nitrate by IC	0.25 u	MG/L	0.25	1.0
		Phosphate by IC	0.25 u	MG/L	0.25	1.0
		Sulfate by IC	0.25 u	MG/L	0.25	1.0
BLANK10	01LN3058-MB1	Nitrate Nitrite	0.020u	MG/L	0.020	1.0
BLANK10	01LAMB49-MB1	Ammonia, as N	0.10 u	MG/L	0.10	1.0
BLANK10	01LSD060-MB1	Sulfide	1.0 u	MG/L	1.0	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 11/15/01

CLIENT: TNUHANFORD B02-007 H1565
 WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0110L235

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR (SPK)
-001	B13C82	Chloride by IC	5.3	0.22	5.0	100.5	1.0
		Fluoride by IC	10.6	0.00	10.0	106.4	1.0
		Nitrite by IC	5.06	0.25u	5.00	101.2	1.0
		Nitrate by IC	4.86	0.25u	5.00	97.1	1.0
		Phosphate by IC	4.8	0.25u	5.0	96.1	1.0
		Sulfate by IC	4.9	0.25u	5.0	97.6	1.0
		Nitrate Nitrite	0.48	0.02u	0.50	96.4	1.0
		Ammonia, as N	2.1	0.10u	2.0	104.0	1.0
		Sulfide	28.7	0.30	30.9	91.9	1.0
BLANK10	01LICB71-MB1	Bromide by IC	4.8	0.25u	5.0	95.1	1.0
		Chloride by IC	4.7	0.25u	5.0	94.9	1.0
		Fluoride by IC	10.6	0.50u	10.0	105.7	1.0
		Nitrite by IC	4.80	0.25u	5.00	96.1	1.0
		Nitrate by IC	4.96	0.25u	5.00	99.1	1.0
		Phosphate by IC	5.1	0.25u	5.0	102.3	1.0
		Sulfate by IC	4.8	0.25u	5.0	95.8	1.0
BLANK10	01LN3058-MB1	Nitrate Nitrite	0.52	0.02u	0.50	104.0	1.0
BLANK10	01LAMB49-MB1	Ammonia, as N	2.0	0.10u	2.0	101.0	1.0
		Ammonia, as N MSD	2.1	0.10u	2.0	103.0	1.0
BLANK10	01LSD060-MB1	Sulfide	7.9	1.0 u	7.7	102.6	1.0
		Sulfide MSD	7.7	1.0 u	7.7	100	1.0

Lionville Laboratory, Inc.

INORGANICS DUPLICATE SPIKE REPORT 11/15/01

CLIENT: TNUHANFORD B02-007 H1565
WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0110L235

SAMPLE	SITE ID	ANALYTE	SPIKE#1 %RECOV	SPIKE#2 %RECOV	%DIFF
BLANK10	01LAMB49-MB1	Ammonia, as N	101.0	103.0	2.0
BLANK10	01LSD060-MB1	Sulfide	102.6	100	2.6

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 11/15/01

CLIENT: TNUHANFORD B02-007 H1565
 WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0110L235

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE RPD		DILUTION FACTOR (REP)
-----	-----	-----	-----	-----	-----	-----
-001RBP	B13C02	Chloride by IC	0.25u	0.25u	NC	1.0
		Fluoride by IC	0.50u	0.50u	NC	1.0
		Nitrite by IC	0.25u	0.25u	NC	1.0
		Nitrate by IC	0.25u	0.25u	NC	1.0
		Phosphate by IC	0.25u	0.25u	NC	1.0
		Sulfate by IC	0.25u	0.25u	NC	1.0
		Nitrate Nitrite	0.02u	0.02u	NC	1.0
		Ammonia, as N	0.10u	0.10u	NC	1.0
		pH	5.3	5.3	0.6	1.0
		Sulfide	1.0 u	1.0 u	NC	1.0

U110LX00410717

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Bechtel Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			B02-007-01	Page 1 of 1
Collector Thomas, G/Watson, D	Company Contact Clearlock, CS	Telephone No. 372-9638	Project Coordinator TRENT, SJ		Price Code 7N	Data Turnaround 45 Days
Project Designation 200 Area Source Characterization 200-CS-1 OU - QC Samplin		Sampling Location 200 East & West	SAF No. B02-007		Air Quality <input type="checkbox"/>	
Ice Chest No. ERC-96-018	Field Logbook No. EL-1551	COA XL2002CHGR	Method of Shipment Fed Ex			
Shipped To TMA/RECRA		Offsite Property No. A020019	Bill of Lading/Air Bill No. 42357954-8409			

POSSIBLE SAMPLE HAZARD MARKS Samples did not originate in radiological controlled area. No total activity associated with sample/samples. Special Handling and/or Storage RT 10:30:01	Preservation	HCl or H2SO4 to pH < 2 Cool	Cool 4C	HNO3 to pH < 2	H2SO4 to pH < 2 Cool 4C	Cool 4C Cool 4C	ZnAc+NaOH to pH > 9 Cool	HNO3 to pH < 2				
	Type of Container	A-C	DE	F	G	H	I	J				
	No. of Container(s)	3	2	1	1	1	1	1	2			
	Volume	40mL	1000mL	1000mL	1000mL	1000mL	500mL	1000mL				

SAMPLE ANALYSIS		VOA - 8260A (TCL); VOA - 8260A (Add-On) (1-Propanol, Ethanol)	Semi-VOA - 8270A (Add-On) (Triethyl phosphate)	See item (1) in Special Instructions.	NO2/NO3 - 353.1; Ammonia - 350.3	See item (2) in Special Instructions.	Sulfides - 9030	Organic Alcohols; Other Alcohols				
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Sample No.	Matrix *	Sample Date	Sample Time									
B13C82	WATER	10/29/01	0800	X	X	X	X	X	X			

CHAIN OF POSSESSION		Sign/Print Names	
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
D. Watson / B. Watson	10/29/01 0815	REF. 28 - 3728 BLDG.	10/29/01 0815
Ref. 23 3728	10:30:01	R. Thore	10:30:01
R. Thore	10:30:01	F. O. [Signature]	
F. O. [Signature]	10/31/01 0925	Vicki Hernandez	10/31/01 0925

SPECIAL INSTRUCTIONS

- ** Laboratory is to measure pH within 24 hours of sample receipt.
- ** The ERC acknowledges the 48-hour holding time will not be met for Nitrate using EPA method 300.0.
- ** The laboratory is to report Decane as a TIC if present in detectable quantities.

(1) ICP Metals - 6010A (Supertrace) (Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver); ICP Metals - 6010A (Supertrace Add-On) (Beryllium, Copper, Nickel, Vanadium, Zinc)
 (2) IC Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate); pH (Water) - 9040

Samples stored in Ref. # 28 at the 3728 Shipping Facility on 10/29/01. Collector not available to relinquish samples on 10/30/01 for shipment.
 RT 10:30:01

Matrix *

- S=Soil
- SD=Soil/Dust
- SO=Solid
- SL=Sludge
- W=Water
- O=Oil
- A=Air
- DS=Dry-Solids
- DL=Dry-Liquids
- T=Time
- W=Wipe
- L=Liquid
- V=Vegetation
- X=Other

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

Fed Ex 4235 7954 8409

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Figure 1. Sample Check-in List

Date/Time Received: 10-31-01 0925

SDG#: 01106235

Work Order Number: _____

SAF# B00-007

Shipping Container ID: ERC-96-018

Chain of Custody # B00-007-01

- 1. Custody Seals on shipping container intact? Yes No
- 2. Custody Seals dated and signed? Yes No
- 3. Chain-of-Custody record present? Yes No
- 4. Cooler temperature _____ 1-3
- 5. Vermiculite/packing materials is Wet Dry
- 6. Number of samples in shipping container: _____ 15
- 7. Sample holding times exceeded? Yes No 10-31-01

<p>8. Samples have:</p> <p>_____ tape</p> <p><input checked="" type="checkbox"/> custody seals</p>	<p>_____ hazard labels</p> <p>_____ appropriate sample labels</p>
<p>9. Samples are:</p> <p><input checked="" type="checkbox"/> in good condition</p> <p>_____ broken</p>	<p>_____ leaking</p> <p>_____ have air bubbles</p>

10. Were any anomalies identified in sample receipt? Yes No

11. Description of anomalies (include sample numbers): _____

Sample Custodian/Laboratory: Piedmont & Triville Laboratory, Inc. Date: 10-31-01

Telephoned to: _____ On _____ By _____