

H1450

0056772

Eberline Services
W.O. No. R1-08-075-7053

Bechtel Hanford Inc.
SDG H1458

Case Narrative

Page 1 of 1

1.0 GENERAL

Bechtel Hanford Inc. (BHI) Sample Delivery Group H158 was composed of one water sample designated under SAF No. B01-059 with a Project Designation of: 200-TW-1&2-QC Sampling.

The sample was received as stated on the Chain-of-Custody document. Any discrepancies are noted on the Eberline Services Sample Receipt Checklist. The results were transmitted to BHI via e-Fax on November 1, 2001.

RECEIVED
MAR 26 2002

2.0 ANALYSIS NOTES

2.1 Gross Alpha and Beta Analyses

EDMC

The samples (planchets) were reworked (reburned) in chemistry to burn off a build-up of salts that were interfering with counting. No other 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

11/7/01
Date

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1458

SAMPLE SUMMARY

SDG 7053
 Contact Melissa C. Mannion

Client Hanford
 Contract No. 630
 Case no SDG H1458

CLIENT SAMPLE ID	LOCATION	MATRIX	LEVEL	LAB SAMPLE ID	SAF NO	CHAIN OF CUSTODY	COLLECTED
B12DB4	T-26/200 W	WATER		R108075-01	B01-059	B01-059-009	08/10/01 03:00
Method Blank		WATER		R108075-03	B01-059		
Lab Control Sample		WATER		R108075-02	B01-059		
Duplicate (R108075-01)	T-26/200 W	WATER		R108075-04	B01-059		08/10/01 03:00

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

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1458

SDG 7053
 Contact Melissa C. Mannion

QC SUMMARY

Client Hanford
 Contract No. 630
 Case no SDG H1458

QC BATCH	CHAIN OF CUSTODY	CLIENT SAMPLE ID	MATRIX	% SOLIDS	SAMPLE AMOUNT	BASIS AMOUNT	DAYS SINCE RECEIVED	LAB COLL SAMPLE ID	DEPARTMENT SAMPLE ID
7053	B01-059-009	B12DB4	WATER		2.0 L		08/15/01 5	R108075-01	7053-001
		Method Blank	WATER					R108075-03	7053-003
		Lab Control Sample	WATER					R108075-02	7053-002
		Duplicate (R108075-01)	WATER		2.0 L		08/15/01 5	R108075-04	7053-004

QC SUMMARY

Page 1

SUMMARY DATA SECTION

Page 4

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

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1458

SDG 7053
 Contact Melissa C. Mannion

PREP BATCH SUMMARY

Client Hanford
 Contract No. 630
 Case no SDG H1458

TEST	MATRIX	METHOD	PREPARATION ERROR		PLANCHETS ANALYZED				QUALI- FIERS	
			BATCH	2σ %	CLIENT	MORE	RE	BLANK		LCS
Gas Proportional Counting										
93A	WATER	Gross Alpha in Water	6994-190	20.0	1			1	1	1/1
93B	WATER	Gross Beta in Water	6994-190	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 11/01/01

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1458

WORK SUMMARY

SDG 7053
Contact Melissa C. Mannion

Client Hanford
Contract No. 630
Case no SDG H1458

CLIENT SAMPLE ID	LAB SAMPLE ID									
LOCATION	COLLECTED	MATRIX	PLANCHET	TEST	SUF-	ANALYZED	REVIEWED	BY	METHOD	
CUSTODY	RECEIVED				FIX					
SAF No										
B12DB4	R108075-01		7053-001	93A/93	R1	10/27/01	11/01/01	MCM	Gross Alpha in Water	
T-26/200 W	08/10/01	WATER	7053-001	93B/93	R1	10/27/01	11/01/01	MCM	Gross Beta in Water	
B01-059-009	08/15/01									
Method Blank	R108075-03		7053-003	93A/93	R1	10/27/01	11/01/01	MCM	Gross Alpha in Water	
		WATER	7053-003	93B/93	R1	10/27/01	11/01/01	MCM	Gross Beta in Water	
		B01-059								
Lab Control Sample	R108075-02		7053-002	93A/93	R1	10/27/01	11/01/01	MCM	Gross Alpha in Water	
		WATER	7053-002	93B/93	R1	10/27/01	11/01/01	MCM	Gross Beta in Water	
		B01-059								
Duplicate (R108075-01)	R108075-04		7053-004	93A/93	R1	10/27/01	11/01/01	MCM	Gross Alpha in Water	
T-26/200 W	08/10/01	WATER	7053-004	93B/93	R1	10/27/01	11/01/01	MCM	Gross Beta in Water	
	08/15/01									
		B01-059								

COUNTS OF TESTS BY SAMPLE TYPE											
TEST	SAF No	METHOD	REFERENCE	CLIENT	MORE	RE	BLANK	LCS	DUP	SPIKE	TOTAL
93A/93	B01-059	Gross Alpha in Water	900.0_ALPHABETA_GPC	1			1	1	1		4
93B/93	B01-059	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 11/01/01

EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP H1458

R108075-03

Method Blank

METHOD BLANK

SDG <u>7053</u>	Client/Case no <u>Hanford</u>	SDG <u>H1458</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>630</u>	
Lab sample id <u>R108075-03</u>	Client sample id <u>Method Blank</u>	
Dept sample id <u>7053-003</u>	Material/Matrix <u>WATER</u>	
	SAF No <u>B01-059</u>	

ANALYTE	CAS NO	RESULT pCi/L	2 σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI- FIERS	TEST
Gross Alpha	12587-46-1	-0.033	0.54	1.1	3.0	U	93A
Gross Beta	12587-47-2	-0.019	1.8	3.1	4.0	U	93B

200-TW-1 & 2-QC Sampling

QC-BLANK 39634

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>11/01/01</u>

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1458

R108075-02

Lab Control Sample

LAB CONTROL SAMPLE

SDG <u>7053</u>	Client/Case no <u>Hanford</u>	<u>SDG H1458</u>
Contact <u>Melissa C. Mannion</u>	Case no <u>No. 630</u>	
Lab sample id <u>R108075-02</u>	Client sample id <u>Lab Control Sample</u>	
Dept sample id <u>7053-002</u>	Material/Matrix <u>WATER</u>	
	SAF No <u>B01-059</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	76.0	5.1	1.2	3.0	93A		66.7	2.7	114	63-137	70-130
Gross Beta	71.6	3.7	2.7	4.0	93B		72.7	2.9	98	76-124	70-130

200-TW-1 & 2-QC Sampling

QC-LCS 39633

LAB CONTROL SAMPLES

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SUMMARY DATA SECTION

Page 8

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>11/01/01</u>

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1458

R108075-04

B12DB4

DUPLICATE

SDG <u>7053</u>	Client/Case no <u>Hanford</u>	<u>SDG H1458</u>
Contact <u>Melissa C. Mannion</u>	Case no <u>No. 630</u>	
<u>DUPLICATE</u>	<u>ORIGINAL</u>	
Lab sample id <u>R108075-04</u>	Lab sample id <u>R108075-01</u>	Client sample id <u>B12DB4</u>
Dept sample id <u>7053-004</u>	Dept sample id <u>7053-001</u>	Location/Matrix <u>T-26/200 W</u> <u>WATER</u>
	Received <u>08/15/01</u>	Collected/Volume <u>08/10/01 03:00</u> <u>2.0 L</u>
		Custody/SAF No <u>B01-059-009</u> <u>B01-059</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 TOT	PROT LIMIT
Gross Alpha	0.057	0.56	1.1	3.0	U	93A	-0.180	0.42	0.95	U	-		
Gross Beta	-1.12	1.5	2.7	4.0	U	93B	0.651	1.8	3.0	U	-		

200-TW-1 & 2-QC Sampling

QC-DUP#1 39635

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>11/01/01</u>

EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP H1458

R108075-01

B12DB4

DATA SHEET

SDG <u>7053</u>	Client/Case no <u>Hanford</u>	SDG <u>H1458</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>630</u>	
Lab sample id <u>R108075-01</u>	Client sample id <u>B12DB4</u>	
Dept sample id <u>7053-001</u>	Location/Matrix <u>T-26/200 W</u>	<u>WATER</u>
Received <u>08/15/01</u>	Collected/Volume <u>08/10/01 03:00</u>	<u>2.0 L</u>
	Custody/SAF No <u>B01-059-009</u>	<u>B01-059</u>

ANALYTE	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI- FIERS	TEST
Gross Alpha	12587-46-1	-0.180	0.42	0.95	3.0	U	93A
Gross Beta	12587-47-2	0.651	1.8	3.0	4.0	U	93B

200-TW-1 & 2-QC Sampling

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>11/01/01</u>

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1458

METHOD SUMMARY

GROSS ALPHA IN WATER
GAS PROPORTIONAL COUNTING

Test 93A Matrix WATER
SDG 7053
Contact Melissa C. Mannion

Client Hanford
Contract No. 630
Contract SDG H1458

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF- FIX	PLANCHET	Gross Alpha
Preparation batch 6994-190					
B12DB4	R108075-01	93	R1	7053-001	U
BLK (QC ID=39634)	R108075-03	93	R1	7053-003	U
LCS (QC ID=39633)	R108075-02	93	R1	7053-002	ok
Duplicate (R108075-01)	R108075-04	93	R1	7053-004	- U
Nominal values and limits from method		RDLs (pCi/L)		3.0	
200-TW-1 & 2-QC Sampling					

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 6994-190 2σ prep error 20.0 % Reference Lab Notebook 6994 pg. 190															
B12DB4	R108075-01	93	R1	0.95	0.300			<u>4</u>	100				78	10/27/01	GAW-114
BLK (QC ID=39634)	R108075-03	93	R1	1.1	0.300			20	100					10/27/01	GAW-114
LCS (QC ID=39633)	R108075-02	93	R1	1.2	0.300			19	100					10/27/01	GAW-115
Duplicate (R108075-01)	R108075-04	93	R1	1.1	0.300			<u>4</u>	100				78	10/27/01	GAW-115
(QC ID=39635)															
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>1.1</u> ± <u>0.21</u>
FOR 4 SAMPLES	RESIDUE <u>12</u> ± <u>18</u>

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

METHOD SUMMARIES

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SUMMARY DATA SECTION

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1458

Test 93B Matrix WATER
 SDG 7053
 Contact Melissa C. Mannion

Client Hanford
 Contract No. 630
 Contract SDG H1458

METHOD SUMMARY

GROSS BETA IN WATER
 GAS PROPORTIONAL COUNTING

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF- FIX	PLANCHET	Gross Beta
Preparation batch 6994-190					
B12DB4	R108075-01	93	R1	7053-001	U
BLK (QC ID=39634)	R108075-03	93	R1	7053-003	U
LCS (QC ID=39633)	R108075-02	93	R1	7053-002	ok
Duplicate (R108075-01)	R108075-04	93	R1	7053-004	- U
Nominal values and limits from method		RDIs (pCi/L)		4.0	
200-TW-1 & 2-QC Sampling					

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 6994-190 2σ prep error 15.0 % Reference Lab Notebook 6994 pg. 190																
B12DB4	R108075-01	93	R1	3.0	0.300			<u>4</u>	100				78	10/27/01	10/27	GRB-114
BLK (QC ID=39634)	R108075-03	93	R1	3.1	0.300			20	100					10/27/01	10/27	GRB-114
LCS (QC ID=39633)	R108075-02	93	R1	2.7	0.300			19	100					10/27/01	10/27	GRB-115
Duplicate (R108075-01)	R108075-04	93	R1	2.7	0.300			<u>4</u>	100				78	10/27/01	10/27	GRB-115
(QC ID=39635)																
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 2.9 ± 0.41
 FOR 4 SAMPLES RESIDUE 12 ± 18

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

Bechtel Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST					B01-059-009		Page 1 of 1																																													
Collector Thomas, G/Watson, D.		Company Contact Todd, M.		Telephone No. (509)372-9631		Project Coordinator TRENT, SJ		Price Code 7N		Data Turnaround																																												
Project Designation 200-TW-1 & 2 - QC Sampling		Sampling Location T-26200 W		H1458 (7053)		SAF No. B01-059		Air Quality <input type="checkbox"/>		45 Days																																												
Ice Chest No. SML 457		Field Logbook No. BL-1518-1		COA B20TW2674C		Method of Shipment Fed Ex																																																
Shipped To DFA 7/18/01 TMA/REORA Eberline		Offsite Property No. A010274				Bill of Lading/Air Bill No. 423579540439																																																
POSSIBLE SAMPLE HAZARDS/REMARKS																																																						
Special Handling and/or Storage																																																						
SAMPLE ANALYSIS																																																						
<table border="1"> <thead> <tr> <th>Preservation</th> <th>HNO3 to pH < 2</th> <th>Cool 4C</th> <th>H2SO4 to pH < 2 Cool 4C</th> <th>HCl or H2SO4 to pH < 2 Cool</th> <th>Cool 4C</th> <th>HNO3 to pH < 2</th> <th colspan="4"></th> </tr> </thead> <tbody> <tr> <td>Type of Container</td> <td>aG</td> <td>aG</td> <td>aG</td> <td>aGs*</td> <td>aG</td> <td>aG</td> <td colspan="4"></td> </tr> <tr> <td>No. of Container(s)</td> <td>1</td> <td>1</td> <td>1</td> <td>3</td> <td>2</td> <td>2</td> <td colspan="4"></td> </tr> <tr> <td>Volume</td> <td>500mL</td> <td>500mL</td> <td>500mL</td> <td>40mL</td> <td>1000mL</td> <td>1000mL</td> <td colspan="4"></td> </tr> </tbody> </table>											Preservation	HNO3 to pH < 2	Cool 4C	H2SO4 to pH < 2 Cool 4C	HCl or H2SO4 to pH < 2 Cool	Cool 4C	HNO3 to pH < 2					Type of Container	aG	aG	aG	aGs*	aG	aG					No. of Container(s)	1	1	1	3	2	2					Volume	500mL	500mL	500mL	40mL	1000mL	1000mL				
Preservation	HNO3 to pH < 2	Cool 4C	H2SO4 to pH < 2 Cool 4C	HCl or H2SO4 to pH < 2 Cool	Cool 4C	HNO3 to pH < 2																																																
Type of Container	aG	aG	aG	aGs*	aG	aG																																																
No. of Container(s)	1	1	1	3	2	2																																																
Volume	500mL	500mL	500mL	40mL	1000mL	1000mL																																																
<table border="1"> <thead> <tr> <th>Sample No.</th> <th>Matrix *</th> <th>Sample Date</th> <th>Sample Time</th> <th>See item (1) in Special Instructions.</th> <th>See item (2) in Special Instructions.</th> <th>Ammonia - 350.3; NO2/NO3 - 353.1; TOC - 9060</th> <th>VQA - 8260A (SCL)</th> <th>Semi-VQA - 8270A (Add-On) (Tributyl phosphate)</th> <th>Gross Alpha; Gross Beta</th> <th colspan="2"></th> </tr> </thead> <tbody> <tr> <td>B12DB4</td> <td>WATER</td> <td>8/10/01</td> <td>0300</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>X</td> <td></td> </tr> </tbody> </table>											Sample No.	Matrix *	Sample Date	Sample Time	See item (1) in Special Instructions.	See item (2) in Special Instructions.	Ammonia - 350.3; NO2/NO3 - 353.1; TOC - 9060	VQA - 8260A (SCL)	Semi-VQA - 8270A (Add-On) (Tributyl phosphate)	Gross Alpha; Gross Beta			B12DB4	WATER	8/10/01	0300							X																					
Sample No.	Matrix *	Sample Date	Sample Time	See item (1) in Special Instructions.	See item (2) in Special Instructions.	Ammonia - 350.3; NO2/NO3 - 353.1; TOC - 9060	VQA - 8260A (SCL)	Semi-VQA - 8270A (Add-On) (Tributyl phosphate)	Gross Alpha; Gross Beta																																													
B12DB4	WATER	8/10/01	0300							X																																												
CHAIN OF POSSESSION					SPECIAL INSTRUCTIONS					Matrix *																																												
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time		** The BRC acknowledges that the analytical holding time for Nitrate by EPA Method 300.0 will not be met.																																														
Greg Thomas / Greg Thomas		8/10/01 0745		Ref 2C		8/10/01 0745		(1) ICP Metals - 6010A (PAL) (Cadmium, Chromium, Copper, Nickel, Silver); ICP Metals - 6010A (A01-om) (Lead) (2) IC Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate) Samples did not originate in radiological controlled area. No total activity associated with sample/samples. Samples stored in Ref.# <u>2C</u> at the 3728 Shipping Facility on <u>8/10/01</u> . Collector not available to relinquish samples on <u>8/14/01</u> for shipment.																																														
REF 2C		8/14/01 1000		S. SCALE - HADL		8/14/01 1000																																																
S. SCALE - HADL		8/14/01 1000		FED EX		8-14-01																																																
Fed Ex		8-15-01 9:45		DR. PARAD / J. CALLED		8-15-01																																																
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time		S=Soil SB=Soilment SO=Solid SL=Sludge W=Water O=Oil A=Air DS=Drum Solid DL=Drum Liquid T=Tissue WP=Wipe L=Liquid V=Vegetation X=Other																																														
LABORATORY SECTION		Received By		Title		Date/Time																																																
FINAL SAMPLE DISPOSITION		Disposal Method		Disposed By		Date/Time																																																

SAMPLE RECEIPT CHECKLIST

SAMPLE RECEIPT

Client: Bechtel Hanford Date/Time received 8-16-01 9:45

CoC No. B01-058-148, B01-058-149, B01-058-150, B01-058-151 & B01-059-009

Container I.D. No. SML-457 Requested TAT (Days) 45 P.O. Received Yes No

INSPECTION

- 1. Custody seals on shipping container intact? Yes No N/A
- 2. Custody seals on shipping container dated & signed? Yes No N/A
- 3. Custody seals on sample containers intact? Yes No N/A
- 4. Custody seals on sample containers dated & signed? Yes No N/A
- 5. Cooler Temperature: _____ Packing material is: Wet Dry
- 6. Number of samples in shipping container: 5
- 7. Number of containers per sample: _____ (Or see CoC)
- 8. Paperwork agrees with samples? Yes No
- 9. Samples have: Tape Hazard labels Rad labels Appropriate sample labels
- 10. Samples are: In good condition Leaking Broken Container Missing
- 11. Describe any anomalies: _____

- 13. Was P.M. notified of any anomalies? Yes No Date 8-15-01
- 14. Received by J.P. Curo Date: 8-15-01 Time: 9:45

LOGIN

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

PROGRAM MANAGER

Sample holding times exceeded? Yes No

Client Notified: Name _____ Date/time _____

Lionville Laboratory, Inc.
VOA ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B01-059 H1458

RFW LOT # :0108L570

CLIENT ID	RFW #	MTX	PREP #	COLLECTN	DATE	REC	EXT/PREP	ANALYSIS
B12DB4	001	W	01LVX326	08/10/01	08/15/01	N/A		08/16/01
B12DB4	001 MS	W	01LVX326	08/10/01	08/15/01	N/A		08/16/01
B12DB4	001 MSD	W	01LVX326	08/10/01	08/15/01	N/A		08/16/01

LAB QC:

VBLKLS	MB1	W	01LVX326	N/A	N/A	N/A		08/16/01
VBLKLS	MB1 BS	W	01LVX326	N/A	N/A	N/A		08/16/01





Client: TNU-HANFORD B01-059
RFW #: 0108L570
SDG/SAF #: H1458/B01-059

W.O. #: 11343-606-001-9999-00
Date Received: 08-15-2001

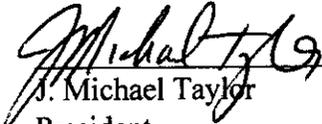
GC/MS VOLATILE

One (1) water sample was collected on 08-10-2001.

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 08-16-2001.

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 levels 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

9/10/01
Date



som\group\data\voa\tnu-hanford\0108-570.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

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.

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-WI-035/a-mi-10/00



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Lionville Laboratory, Inc.

Volatiles by GC/MS, HSL List

Report Date: 09/10/01 13:48

RFW Batch Number: 0108L570

Client: TNUHANFORD B01-059 H1458 Work Order: 11343606001 Page: 1a

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Sample Information	Cust ID:	B12DB4	B12DB4	B12DB4	VBLKLS	VBLKLS BS
	RFW#:	001	001 MS	001 MSD	01LVX326-MB1	01LVX326-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	96 %	97 %	95 %	96 %	105 %
Recovery	Bromofluorobenzene	102 %	102 %	105 %	96 %	106 %
	1,2-Dichloroethane-d4	100 %	101 %	101 %	98 %	97 %

		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		7 B	7 B	7 B	4 J	7 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	89 %	88 %	5 U	94 %
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	104 %	102 %	5 U	102 %
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	96 %	93 %	5 U	97 %
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	98 %	95 %	5 U	107 %

*= Outside of EPA CLP QC limits.

Cust ID: B12DB4 B12DB4 B12DB4 VBLKLS VBLKLS BS

RFW#: 001 001 MS 001 MSD 01LVX326-MB1 01LVX326-MB1

Chlorobenzene	5 U	99 %	98 %	5 U	99 %
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.

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Bechtel Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				B01-059-009	Page 1 of 1
Collector Thomas, G/Watson, D.	Company Contact Todd, M.	Telephone No. (509)372-9631	Project Coordinator TRENT, SJ		Price Code 7N	Data Turnaround 45 Days	
Project Designation 200-TW-1 & 2 - QC Sampling	Sampling Location T-26/200 W		SAF No. B01-059	Air Quality <input type="checkbox"/>			
Ice Chest No. SML-286	Field Logbook No. EL-1518 - 1	COA B20TW2674C	Method of Shipment Fed Ex		Bill of Lading/Air Bill No. 423579546440		
Shipped To DSA 7/18/01 RECRA TMA/RECRA LIONVILLE		Offsite Property No. A010322					

POSSIBLE SAMPLE HAZARDS/REMARKS	Preservation	HNO3 to pH < 2	Cool 4C	H2SO4 to pH < 2 Cool 4C	HCl or H2SO4 to pH < 2 Cool	Cool 4C	HNO3 to pH < 2				
	Type of Container	aG	aG	aG	aGs*	aG	aG				
	No. of Container(s)	1	1	1	3	2	2				
	Volume	500mL	500mL	500mL	40mL	1000mL	1000mL				
Special Handling and/or Storage											

SAMPLE ANALYSIS				See item (1) in Special Instructions.	See item (2) in Special Instructions.	Ammonia - 350.3; NO2/NO3 - 353.1; TOC - 9060	VOA - 8260A (TCL)	Semi-VOA - 8270A (Add-On) (Tributyl phosphate)	Gross Alpha; Gross Beta				
Sample No.	Matrix *	Sample Date	Sample Time										
B12DB4	WATER	8/10/01	0300	X	X	X	X	X					

CHAIN OF POSSESSION		Sign/Print Names	
Relinquished By/Removed From <i>Greg Thomas</i>	Date/Time 0745	Received By/Stored In <i>Ref 2C</i>	Date/Time 0745
Relinquished By/Removed From <i>REF 2C</i>	Date/Time 8/10/01 1000	Received By/Stored In <i>S.J. GALE</i>	Date/Time 8/10/01 1000
Relinquished By/Removed From <i>S.J. GALE</i>	Date/Time 8/10/01 1000	Received By/Stored In <i>FED EX</i>	Date/Time
Relinquished By/Removed From <i>FED EX</i>	Date/Time 8-15-01 0940	Received By/Stored In <i>D. J. ...</i>	Date/Time 8-15-01 0940
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

** The ERC acknowledges that the analytical holding time for Nitrate by EPA Method 300.0 will not be met.

(1) ICP Metals - 6010A (TAL) (Cadmium, Chromium, Copper, Nickel, Silver); ICP Metals - 6010A (Add-on) (Lead)

(2) IC Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate)

Samples did not originate in radiological controlled area. No total activity associated with sample/samples.

- Matrix ***
- S=Soil
 - SB=Soilmen
 - SO=Solid
 - SI=Sludge
 - W=Water
 - O=Oil
 - A=Air
 - DS=Dry Solid
 - DL=Dry Liquid
 - T=Trace
 - W=Wipe
 - L=Liquid
 - V=Vegetation
 - X=Other

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

Lionville Laboratory, Inc.
BNA ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B01-059 H1458

DATE RECEIVED: 08/15/01

LVL LOT # :0108L570

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B12DB4	001	W	01LE0961	08/10/01	08/16/01	08/21/01
B12DB4	001 MS	W	01LE0961	08/10/01	08/16/01	08/21/01
B12DB4	001 MSD	W	01LE0961	08/10/01	08/16/01	08/21/01

LAB QC:

SBLKDX	MB1	W	01LE0961	N/A	08/16/01	08/21/01
SBLKDX	MB1 BS	W	01LE0961	N/A	08/16/01	08/21/01



Client: TNU-HANFORD B01-059
LVL #: 0108L570
SDG/SAF #: H1458/B01-059

W.O. #: 11343-606-001-9999-00
Date Received: 08-15-2001

SEMIVOLATILE

One (1) water sample was collected on 08-10-2001.

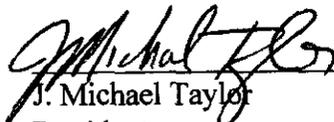
The sample and its associated QC samples were extracted on 08-16-2001 and analyzed according to criteria set forth in Lionville Laboratory OPs based on SW 846 Method 8270C for client specified Semivolatile target compound Tributylphosphate on 08-21-2001.

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 times.
3. Six (6) of fifteen (15) surrogate recoveries were outside EPA QC limits. The surrogate recovery criteria were not met for samples B12DB4 MS and the blank spike (01LE0961-MB1 BS). It appears that the matrix spike analysis for sample B12DB4 was inadvertently not spiked with surrogate or spike compounds. A copy of the Sample Discrepancy Report (SDR) has been enclosed.
4. Seven (7) of twelve (12) matrix spike recoveries were outside EPA QC limits.
Four (4) of six (6) blank spike recoveries were outside EPA QC limits.

The target compound is not included in the spiking solution. (CLP spike recoveries have been reported on the Form 3.)

5. Internal standard area and retention time criteria were met.
6. 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

9/10/01
Date



som\gorup\data\bna\tnu-hanford-0108-570.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.

Lionville Laboratory Sample Discrepancy Report (SDR)

SDR #: DLMS 278

Initiator: Blaymer Batch: 01092570 Parameter: BMA
 Date: 8-22-01 Samples: _____ Matrix: water
 Client: TNU Hazard Method: SW846/MCAWWW/CLP/ Prep Batch: 01LE0961

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)

matrix spike has no surrogates or spikes
 BS, MSD have several low recoveries

2. Known or Probable Causes(s)

Another sample in this extraction batch appears to have been double spiked with both surrogates and spikes

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)

narrate

insufficient volume for
 Re-extractin

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

[Signature] 8/24/01

- Concur with Proposed Action
- Disagree with Proposed Action; See Instruction
- Include in Case Narrative
- Client Contacted:
- Date/Person _____
- Add
- Cancel

5. Final Action...signature/date:

[Signature] 9/1/01

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	Route	Distribution of Completed SDR
<input checked="" type="checkbox"/>	Initiator	<input type="checkbox"/>	Metals: Beegle
<input checked="" type="checkbox"/>	Lab General Manager: M. Taylor	<input type="checkbox"/>	Inorganic: Perrone
<input checked="" type="checkbox"/>	Project Mgr: Stone/Johnson/Haslett	<input type="checkbox"/>	GC/LC: Kiger
<input checked="" type="checkbox"/>	Technical Mgr: Wesson/Daniels	<input type="checkbox"/>	MS: Rychlak/Layman
<input checked="" type="checkbox"/>	QA (file): Alberts	<input type="checkbox"/>	Log-in: Keppel
<input type="checkbox"/>	Data Management: Feldman	<input type="checkbox"/>	Admin: Soos
<input type="checkbox"/>	Sample Prep: Beegle/Kiger	<input type="checkbox"/>	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



5

WATER SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: Lionville Labs, Inc.Contract: 1343-06-01Case No.: TNUHANFORD B01-059 H1458RFW Lot No.: 0108L570-001MATRIX Spike - Sample No.: B12DB4Level: (low/med) LOW

COMPOUND	SPIKE	SAMPLE	MS	MS	QC
	ADDED	CONCENTRATION	CONCENTRATION	%	LIMITS
	UG/L	UG/L	UG/L	REC #	REC
1,4-Dichlorobenzene	104	0	0	0 *	36 -97
N-Nitroso-Di-n-propylamine	104	0	0	0 *	41 -116
1,2,4-Trichlorobenzene	104	0	0	0 *	39 -98
Acenaphthene	104	0	0	0 *	46 -118
2,4-Dinitrotoluene	104	0	0	0 *	24 -96
Pyrene	104	0	0	0 *	26 -127

COMPOUND	SPIKE	MSD	MSD	%	QC LIMITS	
	ADDED	CONCENTRATION	%		RPD	REC
	UG/L	UG/L	REC #	RPD #	RPD	REC
1,4-Dichlorobenzene	106	36.8	35 *	205 *	28	36 -97
N-Nitroso-Di-n-propylamine	106	54.5	51	204 *	38	41 -116
1,2,4-Trichlorobenzene	106	40.8	39	205 *	28	39 -98
Acenaphthene	106	53.8	51	204 *	31	46 -118
2,4-Dinitrotoluene	106	66.3	63	203 *	38	24 -96
Pyrene	106	76.2	72	200 *	31	26 -127

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 6 out of 6 outside limitsSpike Recovery: 7 out of 12 outside limits

COMMENTS:

3C
WATER SEMIVOLATILE BLANK SPIKE RECOVERY

Lab Name: Lionville Labs, Inc.

Contract: 1343-06-01

Case No.: TNUHANFORD B01-059 H1458

RFW Lot No.: 0108L570

BLANK Spike - Sample No.: SBLKDXLE0961-MB1

Level: (low/med) LOW

COMPOUND	SPIKE	SAMPLE	BS	BS	QC
	ADDED	CONCENTRATION	CONCENTRATION	%	LIMITS
	UG/L	UG/L	UG/L	REC #	REC
1,4-Dichlorobenzene	50.0	0	11.7	23 *	36 -97
N-Nitroso-Di-n-propylamine	50.0	0	18.9	38 *	41 -116
1,2,4-Trichlorobenzene	50.0	0	12.5	25 *	39 -98
Acenaphthene	50.0	0	18.3	37 *	46 -118
2,4-Dinitrotoluene	50.0	0	24.2	48	24 -96
Pyrene	50.0	0	28.5	57	26 -127

Column to be used to flag recovery value with an asterisk
* Values outside of QC limits

Spike Recovery: 4 out of 6 outside limits

COMMENTS:

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Bechtel Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				B01-059-009	Page 1 of 1
Collector Thomas, G/Watson, D.	Company Contact Todd, M.	Telephone No. (509)372-9631	Project Coordinator TRENT, SJ		Price Code 7N	Data Turnaround 45 Days	
Project Designation 200-TW-1 & 2 - QC Sampling		Sampling Location T-26/200 W		SAF No. B01-059	Air Quality <input type="checkbox"/>		
Ice Chest No. SML-286	Field Logbook No. EL-1518 - 1	COA B20TW2674C		Method of Shipment Fed Ex			
Shipped To DSA 7/18/01 RECRE TMA/RECRE LIONVILLE		Offsite Property No. A010322		Bill of Lading/Air Bill No. 423579546440			

POSSIBLE SAMPLE HAZARDS/REMARKS	Preservation	HNO3 to pH < 2	Cool 4C	H2SO4 to pH < 2 Cool 4C	HCl or H2SO4 to pH < 2 Cool	Cool 4C	HNO3 to pH < 2				
	Type of Container	aG	aG	aG	aGs*	aG	aG				
	No. of Container(s)	1	1	1	3	2	2				
	Volume	500mL	500mL	500mL	40mL	1000mL	1000mL				

Special Handling and/or Storage	See item (1) in Special Instructions.	See item (2) in Special Instructions.	Ammonia - 350.3; NO2/NO3 - 353.1; TOC - 9060	VOA - 8260A (TCL)	Semi-VOA - 8270A (Add-On) (Tributyl phosphate)	Gross Alpha, Gross Beta					
	<p style="text-align: center;">SAMPLE ANALYSIS</p>										

Sample No.	Matrix *	Sample Date	Sample Time								
B12DB4	WATER	8/10/01	0300	X	X	X	X	X			

CHAIN OF POSSESSION		SPECIAL INSTRUCTIONS		Matrix * S=Soil SE=Sediment SQ=Solid SL=Sledge W=Water O=Oil A=Air DS=Drum Solids DL=Drum Liquids T=Truss WP=Wipe L=Liquid V=Vegetation X=Other
Relinquished By/Removed From <i>Greg Thomas</i> 8/10/01	Date/Time 0745	Received By/Stored In <i>Ref 2C</i>	Date/Time 0745	
Relinquished By/Removed From <i>REF 2C</i> 8/14/01 1000	Date/Time	Received By/Stored In <i>S.J. GALE</i> 8/14/01 1000	Date/Time	
Relinquished By/Removed From <i>S.J. GALE</i> 8/14/01 1000	Date/Time	Received By/Stored In <i>FED EX</i>	Date/Time	
Relinquished By/Removed From <i>Fed Ex</i> 8-15-01 0940	Date/Time	Received By/Stored In <i>D. Simon</i> 8-15-01 0940	Date/Time	
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time	

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 B01-059 H1458

DATE RECEIVED: 08/15/01

LVL LOT # :0108L570

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B12DB4						
SILVER, TOTAL	001	W	01L0548	08/10/01	08/31/01	09/02/01
SILVER, TOTAL	001 REP	W	01L0548	08/10/01	08/31/01	09/02/01
SILVER, TOTAL	001 MS	W	01L0548	08/10/01	08/31/01	09/02/01
CADMIUM, TOTAL	001	W	01L0548	08/10/01	08/31/01	09/02/01
CADMIUM, TOTAL	001 REP	W	01L0548	08/10/01	08/31/01	09/02/01
CADMIUM, TOTAL	001 MS	W	01L0548	08/10/01	08/31/01	09/02/01
CHROMIUM, TOTAL	001	W	01L0548	08/10/01	08/31/01	09/02/01
CHROMIUM, TOTAL	001 REP	W	01L0548	08/10/01	08/31/01	09/02/01
CHROMIUM, TOTAL	001 MS	W	01L0548	08/10/01	08/31/01	09/02/01
COPPER, TOTAL	001	W	01L0548	08/10/01	08/31/01	09/02/01
COPPER, TOTAL	001 REP	W	01L0548	08/10/01	08/31/01	09/02/01
COPPER, TOTAL	001 MS	W	01L0548	08/10/01	08/31/01	09/02/01
NICKEL, TOTAL	001	W	01L0548	08/10/01	08/31/01	09/02/01
NICKEL, TOTAL	001 REP	W	01L0548	08/10/01	08/31/01	09/02/01
NICKEL, TOTAL	001 MS	W	01L0548	08/10/01	08/31/01	09/02/01
LEAD, TOTAL	001	W	01L0548	08/10/01	08/31/01	09/02/01
LEAD, TOTAL	001 REP	W	01L0548	08/10/01	08/31/01	09/02/01
LEAD, TOTAL	001 MS	W	01L0548	08/10/01	08/31/01	09/02/01

LAB QC:

SILVER LABORATORY	LC1 BS	W	01L0548	N/A	08/31/01	09/02/01
SILVER, TOTAL	MB1	W	01L0548	N/A	08/31/01	09/02/01
CADMIUM LABORATORY	LC1 BS	W	01L0548	N/A	08/31/01	09/02/01
CADMIUM, TOTAL	MB1	W	01L0548	N/A	08/31/01	09/02/01
CHROMIUM LABORATORY	LC1 BS	W	01L0548	N/A	08/31/01	09/02/01
CHROMIUM, TOTAL	MB1	W	01L0548	N/A	08/31/01	09/02/01
COPPER LABORATORY	LC1 BS	W	01L0548	N/A	08/31/01	09/02/01
COPPER, TOTAL	MB1	W	01L0548	N/A	08/31/01	09/02/01
NICKEL LABORATORY	LC1 BS	W	01L0548	N/A	08/31/01	09/02/01
NICKEL, TOTAL	MB1	W	01L0548	N/A	08/31/01	09/02/01
LEAD LABORATORY	LC1 BS	W	01L0548	N/A	08/31/01	09/02/01
LEAD, TOTAL	MB1	W	01L0548	N/A	08/31/01	09/02/01



Analytical Report

Client: TNU-HANFORD B01-059
LVL#: 0108L570
SDG/SAF#: H1458/B01-059

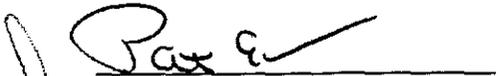
W.O.#: 11343-606-001-9999-00
Date Received: 08-15-01

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).
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.
11. The duplicate analyses for 3 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.

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 12 pages.

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/m08-570

09-17-01
Date

METALS METHOD GLOSSARY

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

Recra Lot#: 0108LS70

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	<u> 6010B</u>	<u> 200.7</u>			<u> 99</u>
Antimony	<u> 6010B 7041⁵</u>	<u> 200.7 204.2</u>			<u> 99</u>
Arsenic	<u> 6010B 7060A⁵</u>	<u> 200.7 206.2</u>	<u> 3113B</u>		<u> 99</u>
Barium	<u> 6010B</u>	<u> 200.7</u>			<u> 99</u>
Beryllium	<u> 6010B</u>	<u> 200.7</u>			<u> 99</u>
Bismuth	<u> 6010B¹</u>	<u> 200.7¹</u>		<u> 1620</u>	<u> 99</u>
Boron	<u> 6010B</u>	<u> 200.7</u>			<u> 99</u>
Cadmium	<u> / 6010B 7131A⁵</u>	<u> 200.7 213.2</u>			<u> 99</u>
Calcium	<u> 6010B</u>	<u> 200.7</u>			<u> 99</u>
Chromium	<u> / 6010B 7191⁵</u>	<u> 200.7 218.2</u>			<u> SS17</u>
Cobalt	<u> 6010B</u>	<u> 200.7</u>			<u> 99</u>
Copper	<u> / 6010B 7211⁵</u>	<u> 200.7 220.2</u>			<u> 99</u>
Iron	<u> 6010B</u>	<u> 200.7</u>			<u> 99</u>
Lead	<u> / 6010B 7421⁵</u>	<u> 200.7 239.2</u>	<u> 3113B</u>		<u> 99</u>
Lithium	<u> 6010B 7430⁴</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> 7470A³ 7471A³</u>	<u> 245.1² 245.5²</u>			<u> 99</u>
Molybdenum	<u> 6010B</u>	<u> 200.7</u>			<u> 99</u>
Nickel	<u> / 6010B</u>	<u> 200.7</u>			<u> 99</u>
Potassium	<u> 6010B 7610⁴</u>	<u> 200.7 258.1⁴</u>			<u> 99</u>
Rare Earths	<u> 6010B¹</u>	<u> 200.7¹</u>		<u> 1620</u>	<u> 99</u>
Selenium	<u> 6010B 7740⁵</u>	<u> 200.7 270.2</u>	<u> 3113B</u>		<u> 99</u>
Silicon	<u> 6010B¹</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	<u> / 6010B 7761⁵</u>	<u> 200.7 272.2</u>			<u> 99</u>
Sodium	<u> 6010B 7770⁴</u>	<u> 200.7 273.1⁴</u>			<u> 99</u>
Strontium	<u> 6010B</u>	<u> 200.7</u>			<u> 99</u>
Thallium	<u> 6010B 7841⁵</u>	<u> 200.7 279.2 200.9</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> 6010B¹</u>	<u> 200.7¹</u>		<u> 1620</u>	<u> 99</u>
Vanadium	<u> 6010B</u>	<u> 200.7</u>			<u> 99</u>
Zinc	<u> 6010B</u>	<u> 200.7</u>			<u> 99</u>
Zirconium	<u> 6010B¹</u>	<u> 200.7¹</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.

* = 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

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 09/17/01

CLIENT: TNUHANFORD B01-059 H1458
 WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0108L570

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-----	-----	-----	-----	-----	-----	-----
-001	B12DB4	Silver, Total	0.53	UG/L	0.50	1.0
		Cadmium, Total	0.45	UG/L	0.30	1.0
		Chromium, Total	8.5	UG/L	1.4	1.0
		Copper, Total	0.74	UG/L	0.50	1.0
		Nickel, Total	4.0	UG/L	1.7	1.0
		Lead, Total	2.4	u UG/L	2.4	1.0

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 09/17/01

CLIENT: TNUHANFORD B01-059 H1458
 WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0108L570

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-----	-----	-----	-----	-----	-----	-----
BLANK1	01L0546-MB1	Silver, Total	0.50	u UG/L	0.50	1.0
		Cadmium, Total	0.30	u UG/L	0.30	1.0
		Chromium, Total	1.4	u UG/L	1.4	1.0
		Copper, Total	0.66	UG/L	0.50	1.0
		Nickel, Total	1.7	u UG/L	1.7	1.0
		Lead, Total	2.4	u UG/L	2.4	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 09/17/01

CLIENT: TNUHANFORD B01-059 H1458
 WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0108L570

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR (SPK)
-001	B12DB4	Silver, Total	50.6	0.53	50.0	100.1	1.0
		Cadmium, Total	48.9	0.45	50.0	96.9	1.0
		Chromium, Total	198	8.5	200	94.7	1.0
		Copper, Total	255	0.74	250	101.6	1.0
		Nickel, Total	498	4.0	500	98.9	1.0
		Lead, Total	496	2.4 u	500	99.2	1.0

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 09/17/01

CLIENT: TNUHANFORD B01-059 H1458
 WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0108LS70

SAMPLE	SITE ID	ANALYTE	INITIAL	REPLICATE		DILUTION	
			RESULT	RPD	RPD	FACTOR (REP)	
-001REP	B12DB4	Silver, Total	0.53	0.50u	NC	200	1.0
		Cadmium, Total	0.45	0.30u	NC	200	1.0
		Chromium, Total	8.5	6.9	20.8		1.0
		Copper, Total	0.74	0.72	2.7		1.0
		Nickel, Total	4.0	3.3	19.2		1.0
		Lead, Total	2.4 u	2.4 u	NC		1.0

ms 9/17/01

Lionville Laboratory, Inc.

INORGANICS LABORATORY CONTROL STANDARDS REPORT 09/17/01

CLIENT: TNUHANFORD B01-059 H1458
 WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0108L570

SAMPLE	SITE ID	ANALYTE	SPIKED	SPIKED	UNITS	%RECOV
			SAMPLE	AMOUNT		
LCS1	01L0548-LC1	Silver, LCS	493	500	UG/L	98.7
		Cadmium, LCS	250	250	UG/L	100
		Chromium, LCS	498	500	UG/L	99.5
		Copper, LCS	1260	1250	UG/L	100.9
		Nickel, LCS	2010	2000	UG/L	100.6
		Lead, LCS	2500	2500	UG/L	100.1

Bechtel Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST					B01-059-009		Page 1 of 1								
Collector Thomas, G/Watson, D.		Company Contact Todd, M.		Telephone No. (509)372-9631		Project Coordinator TRENT, SJ		Price Code 7N		Data Turnaround 45 Days							
Project Designation 200-TW-1 & 2 - QC Sampling		Sampling Location T-26/200 W		SAF No. B01-059		Air Quality <input type="checkbox"/>											
Ice Chest No. SML-286		Field Logbook No. EL-1518 -1		COA B20TW2674C		Method of Shipment Fed Ex											
Shipped To DSA 7/18/01 RECREATION AREA LIONVILLE		Offsite Property No. A010322			Bill of Lading/Air Bill No. 423579546440												
POSSIBLE SAMPLE HAZARDS/REMARKS				Preservation	HNO3 to pH < 2	Cool 4C	H2SO4 to pH < 2 Cool 4C	HCl or H2SO4 to pH < 2 Cool	Cool 4C	HNO3 to pH < 2							
Special Handling and/or Storage				Type of Container	aG	aG	aG	aGs*	aG	aG							
				No. of Container(s)	1	1	1	3	2	2							
				Volume	500mL	500mL	500mL	40mL	1000mL	1000mL							
SAMPLE ANALYSIS				See item (1) in Special Instructions.	See item (2) in Special Instructions.	Ammonia - 350.3; NO2/NO3 - 353.1; TOC - 9060	VOA - 8160A (TCL)	Semi-VOA - 8170A (Add-On) (Tributyl phosphate)	Gross Alpha; Gross Beta								
Sample No.	Matrix *	Sample Date	Sample Time														
B12DB4	WATER	8/10/01	0300	X	X	X	X	X									
CHAIN OF POSSESSION				Sign/Print Names				SPECIAL INSTRUCTIONS				Matrix *					
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time		** The ERC acknowledges that the analytical holding time for Nitrate by EPA Method 300.0 will not be met. (1) ICP Metals - 6010A (TAL) (Cadmium, Chromium, Copper, Nickel, Silver); ICP Metals - 6010A (Add-on) (Lead) (2) IC Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate) Samples do not originate in radiological controlled area. No total activity associated with sample/samples.				S=Soil SB=Soil/Bottom SO=Soil/Solid SL=Sludge W=Water O=Oil A=Air DS=Drum Solid DL=Drum Liquid T=Times W=Wipe L=Liquid V=Vegetation X=Other					
Greg Thomas		8/10/01		Ref 2C		8/10/01											
REF 2C		8/10/01 1000		S. J. GALE		8/10/01 1000											
S. J. GALE		8/10/01 1000		FED EX													
Fed Ex		8-15-01 0940		D. J. ...		8-15-01 0940											
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time											
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time											
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time											
LABORATORY SECTION		Received By		Title				Date/Time									
FINAL SAMPLE DISPOSITION		Disposal Method		Disposed By				Date/Time									

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Lionville Laboratory, Inc.
 INORGANIC ANALYTICAL DATA PACKAGE FOR
 TNUHANFORD B01-059 H1458

DATE RECEIVED: 08/15/01

LVL LOT # :0108L570

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B12DB4						
CHLORIDE BY IC	001	W	01LIC55	08/10/01	08/22/01	08/22/01
CHLORIDE BY IC	001 REP	W	01LIC55	08/10/01	08/22/01	08/22/01
CHLORIDE BY IC	001 MS	W	01LIC55	08/10/01	08/22/01	08/22/01
FLUORIDE BY IC	001	W	01LIC55	08/10/01	08/22/01	08/22/01
FLUORIDE BY IC	001 REP	W	01LIC55	08/10/01	08/22/01	08/22/01
FLUORIDE BY IC	001 MS	W	01LIC55	08/10/01	08/22/01	08/22/01
NITRITE BY IC	001	W	01LIC55	08/10/01	08/22/01	08/22/01
NITRITE BY IC	001 REP	W	01LIC55	08/10/01	08/22/01	08/22/01
NITRITE BY IC	001 MS	W	01LIC55	08/10/01	08/22/01	08/22/01
NITRATE BY IC	001	W	01LIC55	08/10/01	08/22/01	08/22/01
NITRATE BY IC	001 REP	W	01LIC55	08/10/01	08/22/01	08/22/01
NITRATE BY IC	001 MS	W	01LIC55	08/10/01	08/22/01	08/22/01
PHOSPHATE BY IC	001	W	01LIC55	08/10/01	08/22/01	08/22/01
PHOSPHATE BY IC	001 REP	W	01LIC55	08/10/01	08/22/01	08/22/01
PHOSPHATE BY IC	001 MS	W	01LIC55	08/10/01	08/22/01	08/22/01
SULFATE BY IC	001	W	01LIC55	08/10/01	08/22/01	08/22/01
SULFATE BY IC	001 REP	W	01LIC55	08/10/01	08/22/01	08/22/01
SULFATE BY IC	001 MS	W	01LIC55	08/10/01	08/22/01	08/22/01
NITRATE NITRITE	001	W	01LN3A44	08/10/01	08/22/01	08/22/01
NITRATE NITRITE	001 REP	W	01LN3A44	08/10/01	08/22/01	08/22/01
NITRATE NITRITE	001 MS	W	01LN3A44	08/10/01	08/22/01	08/22/01
AMMONIA	001	W	01LAM040	08/10/01	08/24/01	08/24/01
AMMONIA	001 REP	W	01LAM040	08/10/01	08/24/01	08/24/01
AMMONIA	001 MS	W	01LAM040	08/10/01	08/24/01	08/24/01
TOTAL ORGANIC CARBON	001	W	01LTCA43	08/10/01	09/04/01	09/04/01
TOTAL ORGANIC CARBON	001 REP	W	01LTCA43	08/10/01	09/04/01	09/04/01
TOTAL ORGANIC CARBON	001 MS	W	01LTCA43	08/10/01	09/04/01	09/04/01

LAB QC:

CHLORIDE BY IC	MB1	W	01LIC55	N/A	08/22/01	08/22/01
CHLORIDE BY IC	MB1 BS	W	01LIC55	N/A	08/22/01	08/22/01
FLUORIDE BY IC	MB1	W	01LIC55	N/A	08/22/01	08/22/01
FLUORIDE BY IC	MB1 BS	W	01LIC55	N/A	08/22/01	08/22/01
NITRITE BY IC	MB1	W	01LIC55	N/A	08/22/01	08/22/01

Lionville Laboratory, Inc.
 INORGANIC ANALYTICAL DATA PACKAGE FOR
 TNUHANFORD B01-059 H1458

DATE RECEIVED: 08/15/01

LVL LOT # :0108L570

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
NITRITE BY IC	MB1 BS	W	01LIC55	N/A	08/22/01	08/22/01
NITRATE BY IC	MB1	W	01LIC55	N/A	08/22/01	08/22/01
NITRATE BY IC	MB1 BS	W	01LIC55	N/A	08/22/01	08/22/01
PHOSPHATE BY IC	MB1	W	01LIC55	N/A	08/22/01	08/22/01
PHOSPHATE BY IC	MB1 BS	W	01LIC55	N/A	08/22/01	08/22/01
SULFATE BY IC	MB1	W	01LIC55	N/A	08/22/01	08/22/01
SULFATE BY IC	MB1 BS	W	01LIC55	N/A	08/22/01	08/22/01
NITRATE NITRITE	MB1	W	01LN3A44	N/A	08/22/01	08/22/01
NITRATE NITRITE	MB1 BS	W	01LN3A44	N/A	08/22/01	08/22/01
AMMONIA	MB1	W	01LAM040	N/A	08/24/01	08/24/01
AMMONIA	MB1 BS	W	01LAM040	N/A	08/24/01	08/24/01
AMMONIA	MB1 BSD	W	01LAM040	N/A	08/24/01	08/24/01
TOTAL ORGANIC CARBON	MB1	W	01LTCA43	N/A	09/04/01	09/04/01
TOTAL ORGANIC CARBON	MB1 BS	W	01LTCA43	N/A	09/04/01	09/04/01



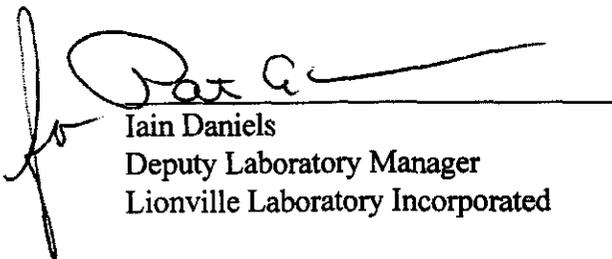
Analytical Report

Client: TNU-HANFORD B01-059 H1458
LVL#: 0108L570

W.O.#: 11343-606-001-9999-00
Date Received: 08-15-01

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 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 for Ammonia was within the 20% Relative Percent Difference (RPD) 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

09-13-01
Date

njp\08-570

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.

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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 <input checked="" type="checkbox"/> 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 <input checked="" type="checkbox"/> Organic ___ Inorganic Carbon	415.1	<input checked="" type="checkbox"/> 9060	
Oil & Grease	413.1	___ 9070	
___ pH ___ pH; paper	150.1	___ 9040B ___ 9041A	
___ Petroleum Hydrocarbons, Total Recoverable	418.1		
Phenol	420.1	___ 420.2 ___ 9065 ___ 9066	
___ Ortho ___ Total Phosphate	365.2		___ 4500-P B ___ C
Salinity			___ 210A (a) ___ 2520 (b)
Settleable Solids	160.5		
Sulfide	376.1		___ 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:	

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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.

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INORGANICS DATA SUMMARY REPORT 09/05/01

CLIENT: TNUHANFORD B01-059 H1458
 WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0108L570

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	B12DB4	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	0.40	u MG/L	0.25	1.0
		Phosphate by IC	0.25	u MG/L	0.25	1.0
		Sulfate by IC	0.26	u MG/L	0.25	1.0
		Nitrate Nitrite	0.10	u MG/L	0.020	1.0
		Ammonia, as N	0.10	u MG/L	0.10	1.0
		Total Organic Carbon	0.50	u MG/L	0.50	1.0

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INORGANICS METHOD BLANK DATA SUMMARY PAGE 09/05/01

CLIENT: TNUHANFORD B01-059 H1458
 WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0108L570

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-----	-----	-----	-----	-----	-----	-----
BLANK10	01LICCS5-MB1	Chloride by IC	0.25 u	MG/L	0.25	1.0
		Fluoride by IC	0.50 u	MG/L	0.50	1.0
		Nitrite by IC	0.25 u	MG/L	0.25	1.0
		Nitrate by IC	0.25 u	MG/L	0.25	1.0
		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	01LN3A44-MB1	Nitrate Nitrite	0.020u	MG/L	0.020	1.0
BLANK10	01LAM040-MB1	Ammonia, as N	0.10 u	MG/L	0.10	1.0
BLANK10	01LTCA43-MB1	Total Organic Carbon	0.50 u	MG/L	0.50	1.0

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INORGANICS ACCURACY REPORT 09/05/01

CLIENT: TNUHANFORD B01-059 H1458
 WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0108L570

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR (SPK)
-001	B12DB4	Chloride by IC	5.1	0.16	5.0	98.2	1.0
		Fluoride by IC	10.7	0.00	10.0	107.2	1.0
		Nitrite by IC	4.96	0.25u	5.00	99.2	1.0
		Nitrate by IC	5.23	0.40	5.00	96.6	1.0
		Phosphate by IC	4.8	0.25u	5.0	96.8	1.0
		Sulfate by IC	5.0	0.26	5.0	95.7	1.0
		Nitrate Nitrite	0.58	0.10	0.50	95.6	1.0
		Ammonia, as N	2.0	0.10u	2.0	101.5	1.0
		Total Organic Carbon	5.9	0.44	5.0	110.2	1.0
BLANK10	01LIC55-MB1	Chloride by IC	4.8	0.25u	5.0	95.1	1.0
		Fluoride by IC	10.8	0.50u	10.0	107.6	1.0
		Nitrite by IC	4.83	0.25u	5.00	96.6	1.0
		Nitrate by IC	5.02	0.25u	5.00	100.5	1.0
		Phosphate by IC	5.1	0.25u	5.0	102.3	1.0
		Sulfate by IC	4.9	0.25u	5.0	97.5	1.0
BLANK10	01LN3A44-MB1	Nitrate Nitrite	0.50	0.02u	0.50	100.8	1.0
BLANK10	01LAM040-MB1	Ammonia, as N	2.0	0.10u	2.0	98.5	1.0
		Ammonia, as N MSD	2.0	0.10u	2.0	100	1.0
BLANK10	01LTCA43-MB1	Total Organic Carbon	5.2	0.50u	5.0	104.0	1.0

Lionville Laboratory, Inc.

INORGANICS DUPLICATE SPIKE REPORT 09/05/01

CLIENT: TNUHANFORD B01-059 H1458
WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0108L570

SAMPLE	SITE ID	ANALYTE	SPIKE#1	SPIKE#2	%DIFF
			%RECOV	%RECOV	
BLANK10	01LAM040-MB1	Ammonia, as N	98.5	100	1.5

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INORGANICS PRECISION REPORT 09/05/01

CLIENT: TNUHANFORD B01-059 H1458
 WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0108L570

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE RPD		DILUTION FACTOR (REP)
-----	-----	-----	-----	-----	-----	-----
-001REP	B12DB4	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	0.40	0.40	0.25	1.0
		Phosphate by IC	0.25u	0.25u	NC	1.0
		Sulfate by IC	0.26	0.25u	NC	1.0
		Nitrate Nitrite	0.10	0.099	1.0	1.0
		Ammonia, as N	0.10u	0.10u	NC	1.0
		Total Organic Carbon	0.50u	0.50u	NC	1.0

Bechtel Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST					B01-059-009		Page 1 of 1					
Collector Thomas, G/Watson, D.		Company Contact Todd, M.		Telephone No. (509)372-9631		Project Coordinator TRENT, SJ		Price Code 7N		Data Turnaround 45 Days				
Project Designation 200-TW-1 & 2 - QC Sampling		Sampling Location T-26/200 W		SAF No. B01-059		Air Quality <input type="checkbox"/>								
Ice Chest No. SML-286		Field Logbook No. EL-1518 - 1		COA B20TW2674C		Method of Shipment Fed Ex								
Shipped To DSA 7/18/01 RECRA TMA/RSRA LIONVILLE		Offsite Property No. A010322		Bill of Lading/Air Bill No. 423579546440										
POSSIBLE SAMPLE HAZARDS/REMARKS			Preservation		HNO3 to pH <2	Cool 4C	H2SO4 to pH <2 Cool 4C	HCl or H2SO4 to pH <2 Cool	Cool 4C	HNO3 to pH <2				
Special Handling and/or Storage			Type of Container		aG	aG	aG	aGs*	aG	aG				
			No. of Container(s)		1	1	1	3	2	2				
			Volume		500mL	500mL	500mL	40mL	1000mL	1000mL				
SAMPLE ANALYSIS				See item (1) in Special Instructions.	See item (2) in Special Instructions.	Ammonia - 350.3; NO2/NO3 - 353.1; TOC - 9060	VOA - 8260A (TCL)	Semi-VOA - 8270A (Add-On) (Tributyl phosphate)	Gross Alpha; Gross Beta					
Sample No.	Matrix *	Sample Date	Sample Time											
B12DB4	WATER	8/10/01	0300	X	X	X	X	X						
CHAIN OF POSSESSION				SPECIAL INSTRUCTIONS				Matrix *						
Relinquished By/Removed From Greg Thomas/Ref JC		Date/Time 8/10/01 0745		Received By/Stored In Ref JC		Date/Time 8/10/01 0745		** The ERC acknowledges that the analytical holding time for Nitrate by EPA Method 300.0 will not be met.				<ul style="list-style-type: none"> S=Soil SB=Sediment SO=Solid SL=Sludge W=Water O=Oil A=Air DS=Drum Solids DL=Drum Liquids T=Trace W=Wipe L=Liquid V=Vegetation X=Other 		
Relinquished By/Removed From REF JC		Date/Time 8/14/01 1000		Received By/Stored In S.J. GALE		Date/Time 8/14/01 1000		(1) ICP Metals - 6010A (TAL) (Cadmium, Chromium, Copper, Nickel, Silver); ICP Metals - 6010A (Add-on) (Lead)						
Relinquished By/Removed From S.J. GALE		Date/Time 8/14/01 1000		Received By/Stored In FED EX		Date/Time		(2) IC Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate)						
Relinquished By/Removed From Fed Ex		Date/Time 8-15-01 0940		Received By/Stored In D. Simon		Date/Time 8-15-01 0940		Samples did not originate in radiological controlled area. No total activity associated with sample/samples.						
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time								
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time								
LABORATORY SECTION		Received By		Title		Date/Time								
FINAL SAMPLE DISPOSITION		Disposal Method		Disposed By		Date/Time								

Figure 1. Sample Check-in List

Date/Time Received: 8-15-01

SDG#: 0108L570

Work Order Number: _____

SAF# B01-059

Shipping Container ID: SML286

Chain of Custody # _____

- 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 2.0°
- 5. Vermiculite/packing materials is Wet [] Dry []
- 6. Number of samples in shipping container: 8
- 7. Sample holding times exceeded? NO2, NO3, PO4 Yes [] No [] 8/15/01

8. Samples have: <input type="checkbox"/> tape <input checked="" type="checkbox"/> custody seals	<input type="checkbox"/> hazard labels <input type="checkbox"/> appropriate sample labels
9. Samples are: <input checked="" type="checkbox"/> in good condition <input type="checkbox"/> broken	<input type="checkbox"/> leaking <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: 1/15/01 / LVI Date: 8-15-01

Telephoned to: _____ On _____ By _____