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February 26, 2003

Ms. Joan Kessner
Bechtel Hanford Inc.
3350 George Washington Way
Richland, WA 99352
MSIN: H0-25

Reference: **P.O. #630**
Eberline Services R3-01-075-7432, SDG H2047

Dear Ms. Kessner:

Enclosed is the data report for four water samples designated under SAF No. B01-108 received at Eberline Services on January 17, 2003. The samples were analyzed according to the accompanying chain-of-custody documents.

Please call if you have any questions concerning this report.

Sincerely,

Melissa C. Mannion
Program Manager

MCM

Enclosure: *Data Package*

Analytical Services
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Richmond, California 94804-0040
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1.0 GENERAL

Bechtel Hanford Inc. (BHI) Sample Delivery Group H2047 was composed of four water samples designated under SAF No. B01-108 with a Project Designation of: 105-D/H Rx Waste Water Sampling.

As requested by BHI all samples were filtered (8 micron filter).

The samples were 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 February 18 and 19, 2003.

2.0 ANALYSIS NOTES

2.1 Tritium Analyses

The LCS and method blank were not scaled to the nominal aliquot of 0.01 L. No problems were encountered during the course of the analyses.

2.2 Carbon-14 Analyses

The LCS and method blank were not scaled to the nominal aliquot of 0.03 L. No problems were encountered during the course of the analyses.

2.3 Nickel-63 Analyses

No problems were encountered during the course of the analyses.

2.4 Total Strontium Analyses

There was activity in the method blank (3.21 pCi/L). The activity was above the RDL (2.0 pCi/L) for total strontium. All client sample results were significantly greater than 5-times the method blank activity. No other problems were encountered during the course of the analyses.

2.5 Isotopic Thorium Analyses

No problems were encountered during the course of the analyses.

2.6 Isotopic Uranium Analyses

No problems were encountered during the course of the analyses.

2.7 Neptunium-237 Analyses

The Np-237 LCS had a recovery of 75%, below the protocol limits of 80 to 120%. BHI stated that the LCS was acceptable for the intended purposes of the data. No other problems were encountered during the course of the analyses.

2.8 Isotopic Plutonium Analyses

No problems were encountered during the course of the analyses.

2.9 Americium-241 Analyses

No problems were encountered during the course of the analyses.

2.10 Gamma Spectroscopy Analyses

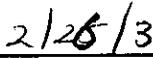
No problems were encountered during the course of the analyses.

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
Program Manager



Date

EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP H2047

SDG 7432
Contact Melissa C. Mannion

Client Hanford
Contract No. 630
Case no SDG_H2047

S U M M A R Y D A T A S E C T I O N

T A B L E O F C O N T E N T S				
About this section	.	.	.	1
Sample Summaries	.	.	.	3
Prep Batch Summary	.	.	.	5
Work Summary	.	.	.	6
Method Blanks	.	.	.	9
Lab Control Samples	.	.	.	11
Duplicates	.	.	.	12
Matrix Spikes	.	.	.	14
Data Sheets	.	.	.	15
Method Summaries	.	.	.	19
Report Guides	.	.	.	34
End of Section	.	.	.	48

Melissa Mannion
Prepared by

Melissa Mannion
Reviewed by

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-TOC
Version 3.06
Report date 02/20/03

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H2047

SDG 7432
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG_H2047

ABOUT THE DATA SUMMARY SECTION

The Data Summary Section of a Data Package has all data, in several useful orders, necessary for first level, routine review of the data package for a Sample Delivery Group (SDG). This section follows the Data Package Narrative, which has an overview of the data package and a discussion of special problems. It is followed by the Raw Data Section, which has full details.

The Data Summary Section has several groups of reports:

SAMPLE SUMMARIES

The Sample and QC Summary Reports show all samples, including QC samples, reported in one SDG. These reports cross-reference client and lab sample identifiers.

PREPARATION BATCH SUMMARY

The Preparation Batch Summary Report shows all preparation batches (lab groupings reflecting how work was organized) relevant to the reported SDG with information necessary to check the completeness and consistency of the SDG.

WORK SUMMARY

The Work Summary Report shows all samples and work done on them relevant to the reported SDG.

METHOD BLANKS

The Method Blank Reports, one for each Method Blank relevant to the SDG, show all results and primary supporting information for the blanks.

LAB CONTROL SAMPLES

The Lab Control Sample Reports, one for each Lab Control Sample relevant to the SDG, show all results, recoveries and primary supporting information for these QC samples.

REPORT GUIDES

Page 1

SUMMARY DATA SECTION

Page 1

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 02/20/03

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H2047

SDG 7432
Contact Melissa C. Mannion

GUIDE , c o n t .

Client Hanford
Contract No. 630
Case no SDG_H2047

ABOUT THE DATA SUMMARY SECTION

DUPLICATES

The Duplicate Reports, one for each Duplicate and Original sample pair relevant to the SDG, show all results, differences and primary supporting information for these QC samples.

MATRIX SPIKES

The Matrix Spike Reports, one for each Spiked and Original sample pair relevant to the SDG, show all results, recoveries and primary supporting information for these QC samples.

DATA SHEETS

The Data Sheet Reports, one for each client sample in the SDG, show all results and primary supporting information for these samples.

METHOD SUMMARIES

The Method Summary Reports, one for each test used in the SDG, show all results, QC and method performance data for one analyte on one or two pages. (A test is a short code for the method used to do certain work to the client's specification.)

REPORT GUIDES

The Report Guides, one for each of the above groups of reports, have documentation on how to read the associated reports.

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2047

SAMPLE SUMMARY

SDG 7432
 Contact Melissa C. Mannion

Client Hanford
 Contract No. 630
 Case no SDG H2047

CLIENT SAMPLE ID	LOCATION	MATRIX	LEVEL	LAB SAMPLE ID	SAF NO	CHAIN OF CUSTODY	COLLECTED
J00FX3	100-H	WATER		R301075-01	B01-108	B01-108-025	01/14/03 08:50
J00FX4	100-H	WATER		R301075-02	B01-108	B01-108-025	01/14/03 09:10
J00FX5	100-H	WATER		R301075-03	B01-108	B01-108-026	01/14/03 12:40
J00FX6	100-H	WATER		R301075-04	B01-108	B01-108-026	01/14/03 12:10
Method Blank		WATER		R301075-06	B01-108		
Lab Control Sample		WATER		R301075-05	B01-108		
Duplicate (R301075-01)	100-H	WATER		R301075-07	B01-108		01/14/03 08:50
Spike (R301075-02)	100-H	WATER		R301075-08	B01-108		01/14/03 09:10

SAMPLE SUMMARY

Page 1

SUMMARY DATA SECTION

Page 3

Lab id EBRLNE
 Protocol Hanford
 Version Ver 1.0
 Form DVD-CS
 Version 3.06
 Report date 02/20/03

EBERLINE SERVICES/RICHMOND
 SAMPLE DELIVERY GROUP H2047

SDG 7432
 Contact Melissa C. Mannion

QC SUMMARY

Client Hanford
 Contract No. 630
 Case no SDG H2047

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
7432	B01-108-025	J00FX3	WATER		5.25 L		01/17/03	3	R301075-01	7432-001
		J00FX4	WATER		5.25 L		01/17/03	3	R301075-02	7432-002
	B01-108-026	J00FX5	WATER		5.25 L		01/17/03	3	R301075-03	7432-003
		J00FX6	WATER		5.25 L		01/17/03	3	R301075-04	7432-004
		Method Blank	WATER						R301075-06	7432-006
		Lab Control Sample	WATER						R301075-05	7432-005
		Duplicate (R301075-01)	WATER		5.25 L		01/17/03	3	R301075-07	7432-007
		Spike (R301075-02)	WATER		5.25 L		01/17/03	3	R301075-08	7432-008

Lab id EBRLNE
 Protocol Hanford
 Version Ver 1.0
 Form DVD-QS
 Version 3.06
 Report date 02/20/03

EBERLINE SERVICES/RICHMOND
SAMPLE DELIVERY GROUP H2047

SDG 7432
 Contact Melissa C. Mannion

PREP BATCH SUMMARY

Client Hanford
 Contract No. 630
 Case no SDG H2047

TEST	MATRIX	METHOD	PREPARATION ERROR		PLANCHETS ANALYZED				QUALI-	
			BATCH	2σ %	CLIENT	MORE	RE	BLANK		LCS
Alpha Spectroscopy										
AM	WATER	Americium 241 in Water	7043-036	5.0	4			1	1	1/1
NP	WATER	Neptunium in Water	7043-036	5.0	4			1	1	1/1
PU	WATER	Plutonium, Isotopic in Water	7043-036	5.0	4			1	1	1/1
TH	WATER	Thorium, Isotopic in Water	7043-036	5.0	4			1	1	1/1
U	WATER	Uranium, Isotopic in Water	7043-036	5.0	4			1	1	1/1
Beta Counting										
SR	WATER	Total Strontium in Water	7043-036	10.0	4			1	1	1/1
Gamma Scan										
GAM	WATER	Gamma Emitters	7043-036	15.0	4			1	1	1/1
Liquid Scintillation Counting										
C	WATER	Carbon 14 in Water	7043-036	10.0	4			1	1	1/1 1/1 X
H	WATER	Tritium in Water	7043-036	10.0	4			1	1	1/1
NI_L	WATER	Nickel-63 in Liquid	7043-036	10.0	4			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 EBRLNE
 Protocol Hanford
 Version Ver 1.0
 Form DVD-PBS
 Version 3.06
 Report date 02/20/03

EBERLINE SERVICES/RICHMOND
SAMPLE DELIVERY GROUP H2047

SDG 7432
 Contact Melissa C. Mannion

Client Hanford
 Contract No. 630
 Case no SDG H2047

WORK SUMMARY

CLIENT SAMPLE ID	LAB SAMPLE ID				SUF-					
LOCATION	COLLECTED	MATRIX	PLANCHET	TEST	FIX	ANALYZED	REVIEWED	BY	METHOD	
CUSTODY	RECEIVED	SAF No								
J00FX3	R301075-01		7432-001	AM		02/06/03	02/18/03	MCM	Americium 241 in Water	
100-H	01/14/03	WATER	7432-001	C		02/04/03	02/18/03	MCM	Carbon 14 in Water	
B01-108-025	01/17/03	B01-108	7432-001	GAM		02/05/03	02/18/03	MCM	Gamma Emitters	
			7432-001	H		02/11/03	02/18/03	MCM	Tritium in Water	
			7432-001	NI_L		02/07/03	02/18/03	MCM	Nickel-63 in Liquid	
			7432-001	NP		02/07/03	02/18/03	MCM	Neptunium in Water	
			7432-001	PU		02/06/03	02/18/03	MCM	Plutonium, Isotopic in Water	
			7432-001	SR		02/01/03	02/18/03	MCM	Total Strontium in Water	
			7432-001	TH		02/04/03	02/18/03	MCM	Thorium, Isotopic in Water	
			7432-001	U		02/04/03	02/18/03	MCM	Uranium, Isotopic in Water	
J00FX4	R301075-02		7432-002	AM		02/06/03	02/18/03	MCM	Americium 241 in Water	
100-H	01/14/03	WATER	7432-002	C		02/05/03	02/18/03	MCM	Carbon 14 in Water	
B01-108-025	01/17/03	B01-108	7432-002	GAM		02/05/03	02/18/03	MCM	Gamma Emitters	
			7432-002	H		02/11/03	02/18/03	MCM	Tritium in Water	
			7432-002	NI_L		02/07/03	02/18/03	MCM	Nickel-63 in Liquid	
			7432-002	NP		02/10/03	02/18/03	MCM	Neptunium in Water	
			7432-002	PU		02/06/03	02/18/03	MCM	Plutonium, Isotopic in Water	
			7432-002	SR		02/01/03	02/18/03	MCM	Total Strontium in Water	
			7432-002	TH		02/04/03	02/18/03	MCM	Thorium, Isotopic in Water	
			7432-002	U		02/04/03	02/18/03	MCM	Uranium, Isotopic in Water	
J00FX5	R301075-03		7432-003	AM		02/06/03	02/18/03	MCM	Americium 241 in Water	
100-H	01/14/03	WATER	7432-003	C		02/05/03	02/18/03	MCM	Carbon 14 in Water	
B01-108-026	01/17/03	B01-108	7432-003	GAM		02/10/03	02/18/03	MCM	Gamma Emitters	
			7432-003	H		02/11/03	02/18/03	MCM	Tritium in Water	
			7432-003	NI_L		02/07/03	02/18/03	MCM	Nickel-63 in Liquid	
			7432-003	NP		02/11/03	02/18/03	MCM	Neptunium in Water	
			7432-003	PU		02/06/03	02/18/03	MCM	Plutonium, Isotopic in Water	
			7432-003	SR		02/01/03	02/18/03	MCM	Total Strontium in Water	
			7432-003	TH		02/04/03	02/18/03	MCM	Thorium, Isotopic in Water	
			7432-003	U		02/04/03	02/18/03	MCM	Uranium, Isotopic in Water	

Lab id EBRLNE
 Protocol Hanford
 Version Ver 1.0
 Form DVD-CWS
 Version 3.06
 Report date 02/20/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2047

SDG 7432
Contact Melissa C. Mannion

WORK SUMMARY, cont.

Client Hanford
Contract No. 630
Case no SDG H2047

CLIENT SAMPLE ID	LAB SAMPLE ID									
LOCATION	MATRIX	COLLECTED	PLANCHET	TEST	SUF-	ANALYZED	REVIEWED	BY	METHOD	
CUSTODY	SAF No	RECEIVED			FIX					
J00FX6		R301075-04	7432-004	AM		02/06/03	02/18/03	MCM	Americium 241 in Water	
100-H		01/14/03	7432-004	C		02/05/03	02/18/03	MCM	Carbon 14 in Water	
B01-108-026	B01-108	01/17/03	7432-004	GAM		02/10/03	02/18/03	MCM	Gamma Emitters	
			7432-004	H		02/11/03	02/18/03	MCM	Tritium in Water	
			7432-004	NI_L		02/07/03	02/18/03	MCM	Nickel-63 in Liquid	
			7432-004	NP		02/11/03	02/18/03	MCM	Neptunium in Water	
			7432-004	PU		02/06/03	02/18/03	MCM	Plutonium, Isotopic in Water	
			7432-004	SR		02/01/03	02/18/03	MCM	Total Strontium in Water	
			7432-004	TH		02/04/03	02/18/03	MCM	Thorium, Isotopic in Water	
			7432-004	U		02/04/03	02/18/03	MCM	Uranium, Isotopic in Water	
Method Blank		R301075-06	7432-006	AM		02/06/03	02/18/03	MCM	Americium 241 in Water	
			7432-006	C		02/05/03	02/18/03	MCM	Carbon 14 in Water	
	B01-108		7432-006	GAM		02/06/03	02/18/03	MCM	Gamma Emitters	
			7432-006	H		02/11/03	02/18/03	MCM	Tritium in Water	
			7432-006	NI_L		02/07/03	02/18/03	MCM	Nickel-63 in Liquid	
			7432-006	NP		02/07/03	02/18/03	MCM	Neptunium in Water	
			7432-006	PU		02/07/03	02/18/03	MCM	Plutonium, Isotopic in Water	
			7432-006	SR		02/01/03	02/18/03	MCM	Total Strontium in Water	
			7432-006	TH		02/04/03	02/18/03	MCM	Thorium, Isotopic in Water	
			7432-006	U		02/04/03	02/18/03	MCM	Uranium, Isotopic in Water	
Lab Control Sample		R301075-05	7432-005	AM		02/06/03	02/18/03	MCM	Americium 241 in Water	
			7432-005	C		02/05/03	02/18/03	MCM	Carbon 14 in Water	
	B01-108		7432-005	GAM		02/12/03	02/18/03	MCM	Gamma Emitters	
			7432-005	H		02/11/03	02/18/03	MCM	Tritium in Water	
			7432-005	NI_L		02/07/03	02/18/03	MCM	Nickel-63 in Liquid	
			7432-005	NP		02/11/03	02/20/03	MCM	Neptunium in Water	
			7432-005	PU		02/06/03	02/18/03	MCM	Plutonium, Isotopic in Water	
			7432-005	SR		02/01/03	02/18/03	MCM	Total Strontium in Water	
			7432-005	TH		02/04/03	02/18/03	MCM	Thorium, Isotopic in Water	
			7432-005	U		02/11/03	02/18/03	MCM	Uranium, Isotopic in Water	

WORK SUMMARY

Page 2

SUMMARY DATA SECTION

Page 7

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CWS
Version 3.06
Report date 02/20/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2047

SDG 7432
Contact Melissa C. Mannion

WORK SUMMARY, cont.

Client Hanford
Contract No. 630
Case no SDG H2047

CLIENT SAMPLE ID	LAB SAMPLE ID									
LOCATION	MATRIX	COLLECTED	PLANCHET	TEST	SUF-	ANALYZED	REVIEWED	BY	METHOD	
CUSTODY	SAF No	RECEIVED			FIX					
Duplicate (R301075-01)		R301075-07	7432-007	AM		02/06/03	02/18/03	MCM	Americium 241 in Water	
100-H		01/14/03	7432-007	C		02/05/03	02/18/03	MCM	Carbon 14 in Water	
	B01-108	01/17/03	7432-007	GAM		02/10/03	02/18/03	MCM	Gamma Emitters	
			7432-007	H		02/11/03	02/18/03	MCM	Tritium in Water	
			7432-007	NI_L		02/08/03	02/18/03	MCM	Nickel-63 in Liquid	
			7432-007	NP		02/07/03	02/18/03	MCM	Neptunium in Water	
			7432-007	PU		02/07/03	02/18/03	MCM	Plutonium, Isotopic in Water	
			7432-007	SR		02/01/03	02/18/03	MCM	Total Strontium in Water	
			7432-007	TH		02/04/03	02/18/03	MCM	Thorium, Isotopic in Water	
			7432-007	U		02/04/03	02/18/03	MCM	Uranium, Isotopic in Water	
Spike (R301075-02)		R301075-08	7432-008	C		02/05/03	02/18/03	MCM	Carbon 14 in Water	
100-H		01/14/03								
	B01-108	01/17/03								

COUNTS OF TESTS BY SAMPLE TYPE											
TEST	SAF No	METHOD	REFERENCE	CLIENT	MORE	RE	BLANK	LCS	DUP	SPIKE	TOTAL
AM	B01-108	Americium 241 in Water	AMCMISO_IE_PLATE_AEA	4			1	1	1		7
C	B01-108	Carbon 14 in Water	C14_CHEM_LSC	4			1	1	1	1	8
GAM	B01-108	Gamma Emitters	GAMMA_GS	4			1	1	1		7
H	B01-108	Tritium in Water	906.0_H3_LSC	4			1	1	1		7
NI_L	B01-108	Nickel-63 in Liquid	NI63_LSC	4			1	1	1		7
NP	B01-108	Neptunium in Water	NP237_LLE_PLATE_AEA	4			1	1	1		7
PU	B01-108	Plutonium, Isotopic in Water	PUISO_PLATE_AEA	4			1	1	1		7
SR	B01-108	Total Strontium in Water	SRTOT_SEP_PRECIP_GPC	4			1	1	1		7
TH	B01-108	Thorium, Isotopic in Water	THISO_IE_PLATE_AEA	4			1	1	1		7
U	B01-108	Uranium, Isotopic in Water	UIISO_PLATE_AEA	4			1	1	1		7
TOTALS				40			10	10	10	1	71

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CWS
Version 3.06
Report date 02/20/03

EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP H2047

R301075-06

Method Blank

METHOD BLANK

SDG <u>7432</u>	Client/Case no <u>Hanford</u>	SDG <u>H2047</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>630</u>	
Lab sample id <u>R301075-06</u>	Client sample id <u>Method Blank</u>	
Dept sample id <u>7432-006</u>	Material/Matrix <u>WATER</u>	
	SAF No <u>B01-108</u>	

ANALYTE	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI- FIERS	TEST
Tritium	10028-17-8	9.77	12	21	400	U	H
Carbon 14	14762-75-5	0.474	0.49	0.99	200	U	C
Nickel 63	13981-37-8	0.648	2.0	3.4	15	U	NI_L
Total Strontium	SR-RAD	<u>3.21</u>	0.74	0.88	2.0		SR
Thorium 228	14274-82-9	0.087	0.078	0.12		U	TH
Thorium 230	14269-63-7	0.107	0.12	0.21	1.0	U	TH
Thorium 232	TH-232	-0.010	0.019	0.074	1.0	U	TH
Uranium 233/234	U-233/234	0	0.10	0.39	1.0	U	U
Uranium 235	15117-96-1	0	0.12	0.47	1.0	U	U
Uranium 238	U-238	0	0.10	0.39	1.0	U	U
Neptunium 237	13994-20-2	0.101	0.20	0.30	1.0	U	NP
Plutonium 238	13981-16-3	0.052	0.21	0.40	1.0	U	PU
Plutonium 239/240	PU-239/240	0	0.10	0.40	1.0	U	PU
Americium 241	14596-10-2	0.050	0.20	0.38	1.0	U	AM
Potassium 40	13966-00-2	U		250		U	GAM
Cobalt 60	10198-40-0	U		11	25	U	GAM
Barium 133	13981-41-4	U		9.4		U	GAM
Cesium 137	10045-97-3	U		11	15	U	GAM
Radium 226	13982-63-3	U		19		U	GAM
Radium 228	15262-20-1	U		44		U	GAM
Europium 152	14683-23-9	U		24	50	U	GAM
Europium 154	15585-10-1	U		28	50	U	GAM
Europium 155	14391-16-3	U		20	50	U	GAM
Thorium 228	14274-82-9	U		12		U	GAM
Thorium 232	TH-232	U		44		U	GAM
Uranium 235	15117-96-1	U		34		U	GAM
Uranium 238	U-238	U		1100		U	GAM
Americium 241	14596-10-2	U		11		U	GAM

105-D/H Rx Waste Water Sampling

Lab id <u>EBRLNE</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DS</u>
Version <u>3.06</u>
Report date <u>02/20/03</u>

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2047

R301075-07

J00FX3

DUPLICATE

SDG <u>7432</u>		Client/Case no <u>Hanford</u>	SDG <u>H2047</u>
Contact <u>Melissa C. Mannion</u>		Contract No. <u>630</u>	
DUPLICATE	ORIGINAL		
Lab sample id <u>R301075-07</u>	Lab sample id <u>R301075-01</u>	Client sample id <u>J00FX3</u>	
Dept sample id <u>7432-007</u>	Dept sample id <u>7432-001</u>	Location/Matrix <u>100-H</u>	<u>WATER</u>
	Received <u>01/17/03</u>	Collected/Volume <u>01/14/03 08:50</u>	<u>5.25 L</u>
		Custody/SAF No <u>B01-108-025</u>	<u>B01-108</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
Tritium	260000	1400	210	400		H	264000	1400	210		2	21	
Carbon 14	561	27	33	200		C	561	15	17		0	23	
Nickel 63	2240	23	4.2	15		NI_L	2250	23	4.3		0	21	
Total Strontium	67000	92	1.0	2.0	B	SR	64700	440	6.8		3	21	
Thorium 228	0.069	0.069	0.12		U	TH	0.096	0.096	0.16	U	-		
Thorium 230	0.182	0.14	0.27	1.0	U	TH	0.008	0.11	0.25	U	-		
Thorium 232	0.043	0.052	0.066	1.0	U	TH	0.040	0.032	0.061	U	-		
Uranium 233/234	9.85	1.6	0.38	1.0	U		7.22	1.3	0.45		31	38	
Uranium 235	0.606	0.37	0.46	1.0	U		0.965	0.46	0.43		46	113	
Uranium 238	9.10	1.6	0.38	1.0	U		9.76	1.6	0.45		7	38	
Neptunium 237	0	0.29	0.43	1.0	U	NP	0.091	0.18	0.27	U	-		
Plutonium 238	5.00	1.1	0.44	1.0		PU	4.04	0.72	0.24		21	45	
Plutonium 239/240	146	13	0.44	1.0		PU	123	7.9	0.24		17	20	
Americium 241	134	10	0.31	1.0		AM	149	12	0.43		11	20	
Potassium 40	U		470		U	GAM	U		200	U	-		
Cobalt 60	38.5	20	20	25		GAM	42.8	12	11		11	92	
Barium 133	U		28		U	GAM	U		17	U	-		
Cesium 137	1550	53	34	15		GAM	1580	34	19		2	32	
Radium 226	U		47		U	GAM	U		28	U	-		
Radium 228	U		98		U	GAM	U		61	U	-		
Europium 152	1260	83	84	50		GAM	1240	59	60		2	34	
Europium 154	196	63	61	50		GAM	190	45	43		3	68	
Europium 155	U		100	50	U	GAM	U		65	U	-		
Thorium 228	U		34		U	GAM	U		24	U	-		
Thorium 232	U		98		U	GAM	U		61	U	-		
Uranium 235	U		120		U	GAM	U		80	U	-		
Uranium 238	U		3100		U	GAM	U		2000	U	-		
Americium 241	U		250		U	GAM	U		140	U	-		

105-D/H Rx Waste Water Sampling

DUPLICATES

Page 1

SUMMARY DATA SECTION

Page 12

Lab id <u>EBRLNE</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DUP</u>
Version <u>3.06</u>
Report date <u>02/20/03</u>

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2047

R301075-07

J00FX3

DUPLICATE, cont.

SDG <u>7432</u>		Client/Case no <u>Hanford</u>	<u>SDG H2047</u>
Contact <u>Melissa C. Mannion</u>		Contract <u>No. 630</u>	
DUPLICATE	ORIGINAL		
Lab sample id <u>R301075-07</u>	Lab sample id <u>R301075-01</u>	Client sample id <u>J00FX3</u>	
Dept sample id <u>7432-007</u>	Dept sample id <u>7432-001</u>	Location/Matrix <u>100-H</u>	<u>WATER</u>
	Received <u>01/17/03</u>	Collected/Volume <u>01/14/03 08:50</u>	<u>5.25 L</u>
		Custody/SAF No <u>B01-108-025</u>	<u>B01-108</u>

QC-DUP#1 43698

Lab id <u>EBRLNE</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DUP</u>
Version <u>3.06</u>
Report date <u>02/20/03</u>

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2047

R301075-08

J00FX4

MATRIX SPIKE

SDG <u>7432</u>	Client/Case no <u>Hanford</u>	<u>SDG H2047</u>
Contact <u>Melissa C. Mannion</u>	Contract <u>No. 630</u>	
MATRIX SPIKE	ORIGINAL	
Lab sample id <u>R301075-08</u>	Lab sample id <u>R301075-02</u>	Client sample id <u>J00FX4</u>
Dept sample id <u>7432-008</u>	Dept sample id <u>7432-002</u>	Location/Matrix <u>100-H</u> <u>WATER</u>
	Received <u>01/17/03</u>	Collected/Volume <u>01/14/03 09:10</u> <u>5.25 L</u>
		Custody/SAF No <u>B01-108-025</u> <u>B01-108</u>

ANALYTE	SPIKE pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI- FIERS	TEST	ADDED pCi/L	2σ ERR pCi/L	ORIGINAL pCi/L	2σ ERR (COUNT)	REC 3σ % (TOTAL)	LMTS (LIMITS)	PROTOCOL LIMITS
Carbon 14	65800	660	120	200	X	C	63800	2600	666	17	102	83-117	60-140

105-D/H Rx Waste Water Sampling

QC-MS#2 43699

MATRIX SPIKES

Page 1

SUMMARY DATA SECTION

Page 14

Lab id <u>EBRLNE</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-MS</u>
Version <u>3.06</u>
Report date <u>02/20/03</u>

EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP H2047

R301075-01

J00FX3

DATA SHEET

SDG <u>7432</u>	Client/Case no <u>Hanford</u>	SDG <u>H2047</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>630</u>	
Lab sample id <u>R301075-01</u>	Client sample id <u>J00FX3</u>	
Dept sample id <u>7432-001</u>	Location/Matrix <u>100-H</u>	<u>WATER</u>
Received <u>01/17/03</u>	Collected/Volume <u>01/14/03 08:50</u>	<u>5.25 L</u>
	Custody/SAF No <u>B01-108-025</u>	<u>B01-108</u>

ANALYTE	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI- FIERS	TEST
Tritium	10028-17-8	264000	1400	210	400		H
Carbon 14	14762-75-5	561	15	17	200		C
Nickel 63	13981-37-8	2250	23	4.3	15		NI_L
Total Strontium	SR-RAD	64700	440	<u>6.8</u>	2.0		SR
Thorium 228	14274-82-9	0.096	0.096	0.16		U	TH
Thorium 230	14269-63-7	0.008	0.11	0.25	1.0	U	TH
Thorium 232	TH-232	0.040	0.032	0.061	1.0	U	TH
Uranium 233/234	U-233/234	7.22	1.3	0.45	1.0		U
Uranium 235	15117-96-1	0.965	0.46	0.43	1.0		U
Uranium 238	U-238	9.76	1.6	0.45	1.0		U
Neptunium 237	13994-20-2	0.091	0.18	0.27	1.0	U	NP
Plutonium 238	13981-16-3	4.04	0.72	0.24	1.0		PU
Plutonium 239/240	PU-239/240	123	7.9	0.24	1.0		PU
Americium 241	14596-10-2	149	12	0.43	1.0		AM
Potassium 40	13966-00-2	U		200		U	GAM
Cobalt 60	10198-40-0	42.8	12	11	25		GAM
Barium 133	13981-41-4	U		17		U	GAM
Cesium 137	10045-97-3	1580	34	<u>19</u>	15		GAM
Radium 226	13982-63-3	U		28		U	GAM
Radium 228	15262-20-1	U		61		U	GAM
Europium 152	14683-23-9	1240	59	<u>60</u>	50		GAM
Europium 154	15585-10-1	190	45	43	50		GAM
Europium 155	14391-16-3	U		<u>65</u>	50	U	GAM
Thorium 228	14274-82-9	U		24		U	GAM
Thorium 232	TH-232	U		61		U	GAM
Uranium 235	15117-96-1	U		80		U	GAM
Uranium 238	U-238	U		2000		U	GAM
Americium 241	14596-10-2	U		140		U	GAM

105-D/H Rx Waste Water Sampling

DATA SHEETS
 Page 1
 SUMMARY DATA SECTION
 Page 15

Lab id <u>EBRLNE</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DS</u>
Version <u>3.06</u>
Report date <u>02/20/03</u>

EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP H2047

R301075-02

J00FX4

DATA SHEET

SDG <u>7432</u>	Client/Case no <u>Hanford</u>	SDG <u>H2047</u>
Contact <u>Melissa C. Mannion</u>	Contract <u>No. 630</u>	
Lab sample id <u>R301075-02</u>	Client sample id <u>J00FX4</u>	
Dept sample id <u>7432-002</u>	Location/Matrix <u>100-H</u>	<u>WATER</u>
Received <u>01/17/03</u>	Collected/Volume <u>01/14/03 09:10</u>	<u>5.25 L</u>
	Custody/SAF No <u>B01-108-025</u>	<u>B01-108</u>

ANALYTE	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI- FIERS	TEST
Tritium	10028-17-8	259000	1400	210	400		H
Carbon 14	14762-75-5	666	17	17	200		C
Nickel 63	13981-37-8	2090	21	3.3	15		NI_L
Total Strontium	SR-RAD	64500	300	<u>3.3</u>	2.0		SR
Thorium 228	14274-82-9	0.099	0.066	0.10		U	TH
Thorium 230	14269-63-7	0.042	0.066	0.15	1.0	U	TH
Thorium 232	TH-232	0.024	0.019	0.036	1.0	U	TH
Uranium 233/234	U-233/234	10.5	1.3	0.27	1.0		U
Uranium 235	15117-96-1	0.478	0.28	0.26	1.0		U
Uranium 238	U-238	10.1	1.3	0.22	1.0		U
Neptunium 237	13994-20-2	0.072	0.14	0.22	1.0	U	NP
Plutonium 238	13981-16-3	4.98	0.69	0.15	1.0		PU
Plutonium 239/240	PU-239/240	128	8.6	0.15	1.0		PU
Americium 241	14596-10-2	142	14	0.27	1.0		AM
Potassium 40	13966-00-2	U		280		U	GAM
Cobalt 60	10198-40-0	55.2	12	12	25		GAM
Barium 133	13981-41-4	U		15		U	GAM
Cesium 137	10045-97-3	1670	30	<u>19</u>	15		GAM
Radium 226	13982-63-3	U		26		U	GAM
Radium 228	15262-20-1	U		59		U	GAM
Europium 152	14683-23-9	1440	53	<u>54</u>	50		GAM
Europium 154	15585-10-1	218	47	47	50		GAM
Europium 155	14391-16-3	U		38	50	U	GAM
Thorium 228	14274-82-9	U		19		U	GAM
Thorium 232	TH-232	U		59		U	GAM
Uranium 235	15117-96-1	U		55		U	GAM
Uranium 238	U-238	U		1700		U	GAM
Americium 241	14596-10-2	U		140		U	GAM

105-D/H Rx Waste Water Sampling

Lab id <u>EBRLNE</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DS</u>
Version <u>3.06</u>
Report date <u>02/20/03</u>

DATA SHEETS

Page 2

SUMMARY DATA SECTION

Page 16

EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP H2047

R301075-03

J00FX5

DATA SHEET

SDG <u>7432</u>	Client/Case no <u>Hanford</u>	SDG <u>H2047</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>630</u>	
Lab sample id <u>R301075-03</u>	Client sample id <u>J00FX5</u>	
Dept sample id <u>7432-003</u>	Location/Matrix <u>100-H</u>	<u>WATER</u>
Received <u>01/17/03</u>	Collected/Volume <u>01/14/03 12:40</u>	<u>5.25 L</u>
	Custody/SAF No <u>B01-108-026</u>	<u>B01-108</u>

ANALYTE	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI- FIERS	TEST
Tritium	10028-17-8	138000	1000	200	400		H
Carbon 14	14762-75-5	22.0	16	33	200	U	C
Nickel 63	13981-37-8	14.2	1.7	2.1	15		NI_L
Total Strontium	SR-RAD	231000	580	<u>3.5</u>	2.0		SR
Thorium 228	14274-82-9	0.022	0.034	0.053		U	TH
Thorium 230	14269-63-7	0.039	0.056	0.12	1.0	U	TH
Thorium 232	TH-232	0.017	0.022	0.043	1.0	U	TH
Uranium 233/234	U-233/234	64.5	5.9	0.71	1.0		U
Uranium 235	15117-96-1	5.93	1.1	0.30	1.0		U
Uranium 238	U-238	63.5	5.8	0.69	1.0		U
Neptunium 237	13994-20-2	0	0.20	0.30	1.0	U	NP
Plutonium 238	13981-16-3	0.505	0.19	0.14	1.0		PU
Plutonium 239/240	PU-239/240	43.9	3.2	0.14	1.0		PU
Americium 241	14596-10-2	15.6	1.5	0.29	1.0		AM
Potassium 40	13966-00-2	U		380		U	GAM
Cobalt 60	10198-40-0	U		22	25	U	GAM
Barium 133	13981-41-4	U		470		U	GAM
Cesium 137	10045-97-3	774000	1300	<u>360</u>	15		GAM
Radium 226	13982-63-3	U		510		U	GAM
Radium 228	15262-20-1	U		230		U	GAM
Europium 152	14683-23-9	U		<u>1100</u>	50	U	GAM
Europium 154	15585-10-1	U		<u>110</u>	50	U	GAM
Europium 155	14391-16-3	U		<u>950</u>	50	U	GAM
Thorium 228	14274-82-9	U		450		U	GAM
Thorium 232	TH-232	U		230		U	GAM
Uranium 235	15117-96-1	U		1400		U	GAM
Uranium 238	U-238	U		6400		U	GAM
Americium 241	14596-10-2	U		2500		U	GAM

105-D/H Rx Waste Water Sampling

Lab id	<u>EBRLNE</u>
Protocol	<u>Hanford</u>
Version	<u>Ver 1.0</u>
Form	<u>DVD-DS</u>
Version	<u>3.06</u>
Report date	<u>02/20/03</u>

EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP H2047

R301075-04

J00FX6

DATA SHEET

SDG <u>7432</u>	Client/Case no <u>Hanford</u>	<u>SDG H2047</u>
Contact <u>Melissa C. Mannion</u>	Contract <u>No. 630</u>	
Lab sample id <u>R301075-04</u>	Client sample id <u>J00FX6</u>	
Dept sample id <u>7432-004</u>	Location/Matrix <u>100-H</u>	<u>WATER</u>
Received <u>01/17/03</u>	Collected/Volume <u>01/14/03 12:10</u>	<u>5.25 L</u>
	Custody/SAF No <u>B01-108-026</u>	<u>B01-108</u>

ANALYTE	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI- FIERS	TEST
Tritium	10028-17-8	141000	1000	210	400		H
Carbon 14	14762-75-5	10.3	16	33	200	U	C
Nickel 63	13981-37-8	10.6	1.6	2.1	15		NI_L
Total Strontium	SR-RAD	235000	600	<u>3.5</u>	2.0		SR
Thorium 228	14274-82-9	0.010	0.021	0.049		U	TH
Thorium 230	14269-63-7	0.052	0.072	0.16	1.0	U	TH
Thorium 232	TH-232	0	0.010	0.040	1.0	U	TH
Uranium 233/234	U-233/234	59.3	5.3	0.64	1.0		U
Uranium 235	15117-96-1	4.90	0.90	0.28	1.0		U
Uranium 238	U-238	54.6	4.9	0.61	1.0		U
Neptunium 237	13994-20-2	0.047	0.095	0.14	1.0	U	NP
Plutonium 238	13981-16-3	0.485	0.21	0.16	1.0		PU
Plutonium 239/240	PU-239/240	36.8	3.0	0.16	1.0		PU
Americium 241	14596-10-2	12.0	1.3	0.27	1.0		AM
Potassium 40	13966-00-2	U		150		U	GAM
Cobalt 60	10198-40-0	U		19	25	U	GAM
Barium 133	13981-41-4	U		490		U	GAM
Cesium 137	10045-97-3	566000	900	<u>320</u>	15		GAM
Radium 226	13982-63-3	U		520		U	GAM
Radium 228	15262-20-1	U		180		U	GAM
Europium 152	14683-23-9	U		<u>1200</u>	50	U	GAM
Europium 154	15585-10-1	U		<u>76</u>	50	U	GAM
Europium 155	14391-16-3	U		<u>980</u>	50	U	GAM
Thorium 228	14274-82-9	U		550		U	GAM
Thorium 232	TH-232	U		180		U	GAM
Uranium 235	15117-96-1	U		1400		U	GAM
Uranium 238	U-238	U		4700		U	GAM
Americium 241	14596-10-2	U		1300		U	GAM

105-D/H Rx Waste Water Sampling

Lab id <u>EBRLNE</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DS</u>
Version <u>3.06</u>
Report date <u>02/20/03</u>

EBERLINE SERVICES/RICHMOND
SAMPLE DELIVERY GROUP H2047

METHOD SUMMARY
AMERICIUM 241 IN WATER
ALPHA SPECTROSCOPY

Test AM Matrix WATER
SDG 7432
Contact Melissa C. Mannion

Client Hanford
Contract No. 630
Contract SDG H2047

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Americium 241
Preparation batch 7043-036					
J00FX3	R301075-01			7432-001	149
J00FX4	R301075-02			7432-002	142
J00FX5	R301075-03			7432-003	15.6
J00FX6	R301075-04			7432-004	12.0
BLK (QC ID=43697)	R301075-06			7432-006	U
LCS (QC ID=43696)	R301075-05			7432-005	ok
Duplicate (R301075-01)	R301075-07			7432-007	ok
Nominal values and limits from method				RDLs (pCi/L)	1.0
105-D/H Rx Waste Water Sampling					

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MDA pCi/L	ALIQ L	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	ANAL- PREPARED	YZED	DETECTOR
Preparation batch 7043-036		2σ prep error 5.0 %		Reference Lab Notebook 7043 pg. 036												
J00FX3	R301075-01			0.43	0.250			86		179			23	02/06/03	02/06	SS-031
J00FX4	R301075-02			0.27	0.500			71		179			23	02/06/03	02/06	SS-032
J00FX5	R301075-03			0.29	0.500			76		178			23	02/06/03	02/06	SS-039
J00FX6	R301075-04			0.27	0.500			75		178			23	02/06/03	02/06	SS-040
BLK (QC ID=43697)	R301075-06			0.38	0.250			70		178				02/06/03	02/06	SS-042
LCS (QC ID=43696)	R301075-05			0.66	0.250			48		178				02/06/03	02/06	SS-041
Duplicate (R301075-01)	R301075-07			0.31	0.250			80		176			23	02/06/03	02/06	SS-043
(QC ID=43698)																
Nominal values and limits from method				1.0	0.250			20-105		100	100		180			

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 02/20/03

EBERLINE SERVICES/RICHMOND
SAMPLE DELIVERY GROUP H2047

Test AM Matrix WATER
SDG 7432
Contact Melissa C. Mannion

METHOD SUMMARY, cont.
AMERICIUM 241 IN WATER
ALPHA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG H2047

PROCEDURES	REFERENCE	AMCMISO_IE_PLATE_AEA
	CP-050	Environmental Water Filtration and Preservation, rev 3
	CP-963	Americium and Curium in Water and Dissolved Samples by Extraction Chromatography, rev 3
	CP-008	Heavy Element Electroplating, rev 7

AVERAGES ± 2 SD	MDA <u>0.37</u> ± <u>0.28</u>
FOR 7 SAMPLES	YIELD <u>72</u> ± <u>24</u>

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 02/20/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2047

METHOD SUMMARY

NEPTUNIUM IN WATER
ALPHA SPECTROSCOPY

Test NP Matrix WATER
SDG 7432
Contact Melissa C. Mannion

Client Hanford
Contract No. 630
Contract SDG H2047

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF- FIX	PLANCHET	Neptunium 237
Preparation batch 7043-036					
J00FX3	R301075-01	7432-001			U
J00FX4	R301075-02	7432-002			U
J00FX5	R301075-03	7432-003			U
J00FX6	R301075-04	7432-004			U
BLK (QC ID=43698)	R301075-06	7432-006			U
LCS (QC ID=43697)	R301075-05	7432-005			<u>LOW</u>
Duplicate (R301075-01)	R301075-07	7432-007			- U

Nominal values and limits from method RDLs (pCi/L) 1.0
105-D/H Rx Waste Water Sampling

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF- FIX	MDA pCi/L	ALIQ L	PREP FAC	DILU- TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	ANAL- PREPARED	YZED	DETECTOR
Preparation batch 7043-036 2σ prep error 5.0 % Reference Lab Notebook 7043 pg. 036																
J00FX3	R301075-01	0.27		0.200				64		120			24	02/07/03	02/07	SS-003
J00FX4	R301075-02	0.22		0.200				59		156			27	02/07/03	02/10	SS-005
J00FX5	R301075-03	0.30		0.200				69		114			28	02/07/03	02/11	SS-050
J00FX6	R301075-04	0.14		0.200				97		144			28	02/07/03	02/11	SS-005
BLK (QC ID=43698)	R301075-06	0.30		0.200				63		124				02/07/03	02/07	SS-042
LCS (QC ID=43697)	R301075-05	0.21		0.200				66		144				02/07/03	02/11	SS-008
Duplicate (R301075-01)	R301075-07	0.43		0.200				39		123			24	02/07/03	02/07	SS-045
	(QC ID=43699)															

Nominal values and limits from method 1.0 0.200 20-105 100 180

METHOD SUMMARIES

Page 3

SUMMARY DATA SECTION

Page 21

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 02/20/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2047

Test NP Matrix WATER
SDG 7432
Contact Melissa C. Mannion

METHOD SUMMARY, cont.

NEPTUNIUM IN WATER
ALPHA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG H2047

PROCEDURES	REFERENCE	NP237_LLE_PLATE_AEA
	CP-050	Environmental Water Filtration and Preservation, rev 3
	CP-930	Neptunium from Solids and Water by Extraction Chromatography, rev 0
	CP-008	Heavy Element Electroplating, rev 7

AVERAGES ± 2 SD	MDA	<u>0.27</u> ± <u>0.18</u>
FOR 7 SAMPLES	YIELD	<u>65</u> ± <u>34</u>

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 02/20/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2047

METHOD SUMMARY

PLUTONIUM, ISOTOPIC IN WATER
ALPHA SPECTROSCOPY

Test PU Matrix WATER
SDG 7432
Contact Melissa C. Mannion

Client Hanford
Contract No. 630
Contract SDG H2047

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW SUF- TEST FIX PLANCHET	Plutonium 238	Plutonium 239/240
Preparation batch 7043-036				
J00FX3	R301075-01	7432-001	4.04	123
J00FX4	R301075-02	7432-002	4.98	128
J00FX5	R301075-03	7432-003	0.505	43.9
J00FX6	R301075-04	7432-004	0.485	36.8
BLK (QC ID=43697)	R301075-06	7432-006	U	U
LCS (QC ID=43696)	R301075-05	7432-005	ok	ok
Duplicate (R301075-01)	R301075-07	7432-007	ok	ok

Nominal values and limits from method RDLs (pCi/L) 1.0 1.0
105-D/H Rx Waste Water Sampling

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW SUF- TEST FIX	MAX MDA pCi/L	ALIQ L	PREP FAC	DILU- TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	ANAL- PREPARED	YZED	DETECTOR
Preparation batch 7043-036 2σ prep error 5.0 % Reference Lab Notebook 7043 pg. 036															
J00FX3	R301075-01		0.24	0.250			100	176			23	02/06/03	02/06	SS-044	
J00FX4	R301075-02		0.15	0.500			86	168			23	02/06/03	02/06	SS-045	
J00FX5	R301075-03		0.14	0.500			88	176			23	02/06/03	02/06	SS-047	
J00FX6	R301075-04		0.16	0.500			78	176			23	02/06/03	02/06	SS-048	
BLK (QC ID=43697)	R301075-06		0.40	0.250			88	124				02/06/03	02/07	SS-043	
LCS (QC ID=43696)	R301075-05		0.37	0.250			74	177				02/06/03	02/06	SS-050	
Duplicate (R301075-01)	R301075-07		0.44	0.250			76	124			24	02/06/03	02/07	SS-044	
(QC ID=43698)															

Nominal values and limits from method 1.0 0.250 20-105 100 100 180

METHOD SUMMARIES

Page 5

SUMMARY DATA SECTION

Page 23

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 02/20/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2047

Test PU Matrix WATER
SDG 7432
Contact Melissa C. Mannion

METHOD SUMMARY, cont.

PLUTONIUM, ISOTOPIC IN WATER
ALPHA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG H2047

PROCEDURES	REFERENCE	PUISO_PLATE_AEA
	CP-050	Environmental Water Filtration and Preservation, rev 3
	CP-941	Plutonium in Water and Dissolved Samples by Extraction Chromatography, rev 1
	CP-008	Heavy Element Electroplating, rev 7

AVERAGES ± 2 SD	MDA	<u>0.27</u>	±	<u>0.26</u>
FOR 7 SAMPLES	YIELD	<u>84</u>	±	<u>18</u>

METHOD SUMMARIES

Page 6

SUMMARY DATA SECTION

Page 24

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 02/20/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2047

Test TH Matrix WATER
 SDG 7432
 Contact Melissa C. Mannion

METHOD SUMMARY
 THORIUM, ISOTOPIC IN WATER
 ALPHA SPECTROSCOPY

Client Hanford
 Contract No. 630
 Contract SDG H2047

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF- FIX	PLANCHET	Thorium 230
Preparation batch 7043-036					
J00FX3	R301075-01			7432-001	U
J00FX4	R301075-02			7432-002	U
J00FX5	R301075-03			7432-003	U
J00FX6	R301075-04			7432-004	U
BLK (QC ID=43697)	R301075-06			7432-006	U
LCS (QC ID=43696)	R301075-05			7432-005	ok
Duplicate (R301075-01)	R301075-07			7432-007	- U

Nominal values and limits from method RDLs (pCi/L) 1.0
 105-D/H Rx Waste Water Sampling

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF- FIX	MAX MDA pCi/L	ALIQ L	PREP FAC	DILU- TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	ANAL- YZED	DETECTOR
Preparation batch 7043-036 2σ prep error 5.0 % Reference Lab Notebook 7043 pg. 036															
J00FX3	R301075-01			0.25	0.250			101		750			21	02/04/03	02/04 SS-031
J00FX4	R301075-02			0.15	0.400			97		750			21	02/04/03	02/04 SS-032
J00FX5	R301075-03			0.12	0.400			90		750			21	02/04/03	02/04 SS-051
J00FX6	R301075-04			0.16	0.400			88		751			21	02/04/03	02/04 SS-056
BLK (QC ID=43697)	R301075-06			0.21	0.250			84		751				02/04/03	02/04 SS-058
LCS (QC ID=43696)	R301075-05			0.27	0.250			96		751				02/04/03	02/04 SS-057
Duplicate (R301075-01)	R301075-07			0.27	0.250			92		754			21	02/04/03	02/04 SS-048
	(QC ID=43698)														

Nominal values and limits from method 1.0 0.250 20-110 150 100 180

Lab id EBRLNE
 Protocol Hanford
 Version Ver 1.0
 Form DVD-CMS
 Version 3.06
 Report date 02/20/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2047

Test TH Matrix WATER
SDG 7432
Contact Melissa C. Mannion

METHOD SUMMARY, cont.
THORIUM, ISOTOPIC IN WATER
ALPHA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG H2047

PROCEDURES	REFERENCE	THISO_IE_PLATE_AEA
	CP-050	Environmental Water Filtration and Preservation, rev 3
	CP-907	Thorium in Water and Dissolved Solid Samples by TEVA and Anion Exchange Column Method, rev 2
	CP-008	Heavy Element Electroplating, rev 7

AVERAGES \pm 2 SD MDA 0.20 \pm 0.12
FOR 7 SAMPLES YIELD 93 \pm 12

METHOD SUMMARIES

Page 8

SUMMARY DATA SECTION

Page 26

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 02/20/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2047

METHOD SUMMARY

URANIUM, ISOTOPIC IN WATER
ALPHA SPECTROSCOPY

Test U Matrix WATER
SDG 7432
Contact Melissa C. Mannion

Client Hanford
Contract No. 630
Contract SDG H2047

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW SUF- TEST FIX PLANCHET	1: Uranium	2: Uranium	3: Uranium	RESULT RATIOS (%)				
			233/234	235	238	1+3	2σ	2+3	2σ	
Preparation batch 7043-036										
J00FX3	R301075-01	7432-001	7.22	0.965	9.76	<u>74</u>	18	<u>10</u>	5	
J00FX4	R301075-02	7432-002	10.5	0.478	10.1	104	19	5	3	
J00FX5	R301075-03	7432-003	64.5	5.93	63.5	102	13	<u>9</u>	2	
J00FX6	R301075-04	7432-004	59.3	4.90	54.6	109	14	<u>9</u>	2	
BLK (QC ID=43697)	R301075-06	7432-006	U	U	U					
LCS (QC ID=43696)	R301075-05	7432-005	ok	ok	ok					
Duplicate (R301075-01)	R301075-07	7432-007	ok	ok	ok	108	26	7	4	
Nominal values and limits from method			RDLs (pCi/L)	1.0	1.0	1.0	100		4	
105-D/H Rx Waste Water Sampling						Averages	99		8	

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW SUF- TEST FIX	MAX MDA pCi/L	ALIQ L	PREP FAC	DILU- TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	ANAL- PREPARED	YZED	DETECTOR
Preparation batch 7043-036 2σ prep error 5.0 % Reference Lab Notebook 7043 pg. 036															
J00FX3	R301075-01		0.45	0.300			97		102		21	02/04/03	02/04	SS-003	
J00FX4	R301075-02		0.27	0.500			102		103		21	02/04/03	02/04	SS-005	
J00FX5	R301075-03		0.71	0.500			85		103		21	02/04/03	02/04	SS-006	
J00FX6	R301075-04		0.64	0.500			91		103		21	02/04/03	02/04	SS-008	
BLK (QC ID=43697)	R301075-06		0.47	0.300			89		105			02/04/03	02/04	SS-010	
LCS (QC ID=43696)	R301075-05		<u>1.6</u>	0.300			82		127			02/04/03	02/11	SS-011	
Duplicate (R301075-01)	R301075-07		0.46	0.300			99		106		21	02/04/03	02/04	SS-011	
(QC ID=43698)															
Nominal values and limits from method			1.0	0.300			30-105		100	100	180				

PROCEDURES	REFERENCE	UISO_PLATE_AEA
	CP-040	Environmental Water Dissolution, rev 5
	CP-921	Uranium in Water and Dissolved Samples by Extraction Chromatography, rev 0
	CP-008	Heavy Element Electroplating, rev 7

AVERAGES ± 2 SD	MDA	<u>0.66</u> ± <u>0.88</u>
FOR 7 SAMPLES	YIELD	<u>92</u> ± <u>15</u>

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 02/20/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2047

Test SR Matrix WATER
 SDG 7432
 Contact Melissa C. Mannion

METHOD SUMMARY
 TOTAL STRONTIUM IN WATER
 BETA COUNTING

Client Hanford
 Contract No. 630
 Contract SDG H2047

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF- FIX	PLANCHET	Total Strontium
Preparation batch 7043-036					
J00FX3	R301075-01	7432-001			64700
J00FX4	R301075-02	7432-002			64500
J00FX5	R301075-03	7432-003			231000
J00FX6	R301075-04	7432-004			235000
BLK (QC ID=43697)	R301075-06	7432-006			<u>3.21</u>
LCS (QC ID=43696)	R301075-05	7432-005			ok
Duplicate (R301075-01)	R301075-07	7432-007			ok

Nominal values and limits from method RDLs (pCi/L) 2.0
 105-D/H Rx Waste Water Sampling

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF- FIX	MDA pCi/L	ALIQ L	PREP FAC	DILU- TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	ANAL- YZED	DETECTOR	
Preparation batch 7043-036 2σ prep error 10.0 % Reference Lab Notebook 7043 pg. 036																
J00FX3	R301075-01	<u>6.8</u>		0.250				81	<u>5</u>				18	02/01/03	02/01 GRB-203	
J00FX4	R301075-02	<u>3.3</u>		0.500				88	<u>5</u>				18	02/01/03	02/01 GRB-204	
J00FX5	R301075-03	<u>3.5</u>		0.500				84	<u>5</u>				18	02/01/03	02/01 GRB-201	
J00FX6	R301075-04	<u>3.5</u>		0.500				80	<u>5</u>				18	02/01/03	02/01 GRB-202	
BLK (QC ID=43697)	R301075-06	0.88		0.250				86	100					02/01/03	02/01 GRB-222	
LCS (QC ID=43696)	R301075-05	1.2		0.250				78	100					02/01/03	02/01 GRB-203	
Duplicate (R301075-01)	R301075-07	1.0		0.250				81	100					18	02/01/03	02/01 GRB-217
	(QC ID=43698)															
Nominal values and limits from method				2.0	0.250				100				180			

PROCEDURES REFERENCE SRTOT_SEP_PRECIP_GPC
 CP-050 Environmental Water Filtration and Preservation, rev 3
 CP-380 Strontium in Water Samples, rev 0

AVERAGES ± 2 SD MDA 2.9 ± 4.2
 FOR 7 SAMPLES YIELD 83 ± 7

Lab id EBRLNE
 Protocol Hanford
 Version Ver 1.0
 Form DVD-CMS
 Version 3.06
 Report date 02/20/03

EBERLINE SERVICES/RICHMOND
SAMPLE DELIVERY GROUP H2047

METHOD SUMMARY
GAMMA EMITTERS
GAMMA SCAN

Test GAM Matrix WATER
SDG 7432
Contact Melissa C. Mannion

Client Hanford
Contract No. 630
Contract SDG H2047

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF- FIX	PLANCHET	Cobalt 60	Cesium 137
Preparation batch 7043-036						
J00FX3	R301075-01			7432-001	42.8	1580
J00FX4	R301075-02			7432-002	55.2	1670
J00FX5	R301075-03			7432-003	U	774000
J00FX6	R301075-04			7432-004	U	566000
BLK (QC ID=43696)	R301075-06			7432-006	U	U
LCS (QC ID=43696)	R301075-05			7432-005	ok	ok
Duplicate (R301075-01)	R301075-07			7432-007	ok	ok

Nominal values and limits from method RDLs (pCi/L) 25 15
105-D/H Rx Waste Water Sampling

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF- FIX	MDA pCi/L	ALIQ L	PREP FAC	DILU- TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	ANAL- PREPARED	YZED	DETECTOR
Preparation batch 7043-036 2σ prep error 15.0 % Reference Lab Notebook 7043 pg. 036																
J00FX3	R301075-01			<u>95</u>	0.500					759			22	01/30/03	02/05	MB,05,00
J00FX4	R301075-02			<u>70</u>	0.500					759			22	01/30/03	02/05	MB,07,00
J00FX5	R301075-03			<u>1900</u>	0.500					198			27	01/30/03	02/10	MB,05,00
J00FX6	R301075-04			<u>1900</u>	0.500					198			27	01/30/03	02/10	01,04,00
BLK (QC ID=43696)	R301075-06			<u>40</u>	0.500					760				01/30/03	02/06	MB,07,00
LCS (QC ID=43696)	R301075-05			<u>22</u>	0.500					733				01/30/03	02/12	01,03,00
Duplicate (R301075-01)	R301075-07			<u>170</u>	0.500					315			27	01/30/03	02/10	MB,05,00
(QC ID=43696)																

Nominal values and limits from method 15 0.500 100 180

PROCEDURES REFERENCE GAMMA_GS
CP-050 Environmental Water Filtration and Preservation, rev 3
CP-100 Ge(Li) Preparation for Commercial Samples, rev 5

AVERAGES ± 2 SD MDA 600 ± 1800
FOR 7 SAMPLES YIELD _____ ± _____

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 02/20/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2047

METHOD SUMMARY

CARBON 14 IN WATER

LIQUID SCINTILLATION COUNTING

Test C Matrix WATER
 SDG 7432
 Contact Melissa C. Mannion

Client Hanford
 Contract No. 630
 Contract SDG H2047

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF- FIX	PLANCHET	Carbon 14
Preparation batch 7043-036					
J00FX3	R301075-01	7432-001			561
J00FX4	R301075-02	7432-002			666
J00FX5	R301075-03	7432-003			U
J00FX6	R301075-04	7432-004			U
BLK (QC ID=43697)	R301075-06	7432-006			U
LCS (QC ID=43696)	R301075-05	7432-005			ok
Duplicate (R301075-01)	R301075-07	7432-007			ok
Spike (R301075-02)	R301075-08	7432-008			ok X
Nominal values and limits from method		RDLs (pCi/L)	200		
105-D/H Rx Waste Water Sampling					

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF- FIX	MDA pCi/L	ALIQ L	PREP FAC	DILU- TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	ANAL- PREPARED	YZED	DETECTOR
Preparation batch 7043-036		2σ prep error		10.0 %	Reference		Lab Notebook		7043 pg. 036							
J00FX3	R301075-01			17	0.0300			100		357			21	02/04/03	02/04	LSC-005
J00FX4	R301075-02			17	0.0300			100		357			22	02/04/03	02/05	LSC-005
J00FX5	R301075-03			33	0.0300			100		100			22	02/04/03	02/05	LSC-005
J00FX6	R301075-04			33	0.0300			100		100			22	02/04/03	02/05	LSC-005
BLK (QC ID=43697)	R301075-06			0.99	1.00			100		100				02/04/03	02/05	LSC-005
LCS (QC ID=43696)	R301075-05			0.96	1.00			100		100				02/04/03	02/05	LSC-005
Duplicate (R301075-01)	R301075-07			33	0.0300			100		100			22	02/04/03	02/05	LSC-005
(QC ID=43698)																
Spike (R301075-02)	R301075-08			120	<u>0.0200</u>			100		<u>20</u>			22	02/04/03	02/05	LSC-005
(QC ID=43699)																
Nominal values and limits from method				200	0.0300					50			180			

METHOD SUMMARIES

Page 12

SUMMARY DATA SECTION

Page 30

Lab id EBRLNE
 Protocol Hanford
 Version Ver 1.0
 Form DVD-CMS
 Version 3.06
 Report date 02/20/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2047

Test C Matrix WATER
SDG 7432
Contact Melissa C. Mannion

METHOD SUMMARY, cont.

CARBON 14 IN WATER
LIQUID SCINTILLATION COUNTING

Client Hanford
Contract No. 630
Contract SDG_H2047

PROCEDURES	REFERENCE	C14_CHEM_LSC
	CP-050	Environmental Water Filtration and Preservation, rev 3
	CP-241	Carbon-14 in Aqueous Samples, rev 4

AVERAGES \pm 2 SD MDA 32 \pm 76
FOR 8 SAMPLES YIELD 100 \pm 0

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 02/20/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2047

METHOD SUMMARY
TRITIUM IN WATER
LIQUID SCINTILLATION COUNTING

Test H Matrix WATER
SDG 7432
Contact Melissa C. Mannion

Client Hanford
Contract No. 630
Contract SDG H2047

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF- FIX	PLANCHET	Tritium
Preparation batch 7043-036					
J00FX3	R301075-01			7432-001	264000
J00FX4	R301075-02			7432-002	259000
J00FX5	R301075-03			7432-003	138000
J00FX6	R301075-04			7432-004	141000
BLK (QC ID=43697)	R301075-06			7432-006	U
LCS (QC ID=43696)	R301075-05			7432-005	ok
Duplicate (R301075-01)	R301075-07			7432-007	ok

Nominal values and limits from method RDLs (pCi/L) 400
105-D/H Rx Waste Water Sampling

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF- FIX	MDA pCi/L	ALIQ L	PREP FAC	DILU- TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL- YZED	DETECTOR
Preparation batch 7043-036 2σ prep error 10.0 % Reference Lab Notebook 7043 pg. 036																
J00FX3	R301075-01			210	0.0100			100	120				28	02/08/03	02/11	LSC-004
J00FX4	R301075-02			210	0.0100			100	120				28	02/08/03	02/11	LSC-004
J00FX5	R301075-03			200	0.0100			100	120				28	02/08/03	02/11	LSC-004
J00FX6	R301075-04			210	0.0100			100	120				28	02/08/03	02/11	LSC-004
BLK (QC ID=43697)	R301075-06			21	1.00			10	120					02/08/03	02/11	LSC-004
LCS (QC ID=43696)	R301075-05			21	1.00			10	120					02/08/03	02/11	LSC-004
Duplicate (R301075-01) (QC ID=43698)	R301075-07			210	0.0100			100	120				28	02/08/03	02/11	LSC-004

Nominal values and limits from method 400 0.0100 25 180

PROCEDURES REFERENCE 906.0_H3_LSC
CP-050 Environmental Water Filtration and Preservation, rev 3
CP-210 Tritium in Water Samples by Distillation, rev 6

AVERAGES ± 2 SD MDA 150 ± 180
FOR 7 SAMPLES YIELD 74 ± 88

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2047

Test NI L Matrix WATER
 SDG 7432
 Contact Melissa C. Mannion

METHOD SUMMARY
NICKEL-63 IN LIQUID
LIQUID SCINTILLATION COUNTING

Client Hanford
 Contract No. 630
 Contract SDG H2047

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST FIX	SUF- PLANCHET	Nickel 63
Preparation batch 7043-036				
J00FX3	R301075-01	7432-001		2250
J00FX4	R301075-02	7432-002		2090
J00FX5	R301075-03	7432-003		14.2
J00FX6	R301075-04	7432-004		10.6
BLK (QC ID=43697)	R301075-06	7432-006		U
LCS (QC ID=43696)	R301075-05	7432-005		ok
Duplicate (R301075-01)	R301075-07	7432-007		ok

Nominal values and limits from method RDLs (pCi/L) 15
 105-D/H Rx Waste Water Sampling

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST FIX	SUF- pCi/L	MDA	ALIQ L	PREP FAC	DILU- TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	ANAL- PREPARED	YZED	DETECTOR
Preparation batch 7043-036 2σ prep error 10.0 % Reference Lab Notebook 7043 pg. 036																
J00FX3	R301075-01		4.3	0.250				100		63		24	02/06/03	02/07		LSC-005
J00FX4	R301075-02		3.3	0.400				98		<u>43</u>		24	02/06/03	02/07		LSC-005
J00FX5	R301075-03		2.1	0.400				100		100		24	02/06/03	02/07		LSC-005
J00FX6	R301075-04		2.1	0.400				100		100		24	02/06/03	02/07		LSC-005
BLK (QC ID=43697)	R301075-06		3.4	0.250				100		100			02/06/03	02/07		LSC-005
LCS (QC ID=43696)	R301075-05		3.4	0.250				100		100			02/06/03	02/07		LSC-005
Duplicate (R301075-01)	R301075-07		4.2	0.250				100		63		25	02/06/03	02/08		LSC-005
			(QC ID=43698)													

Nominal values and limits from method 15 0.250 50 180

PROCEDURES REFERENCE NI63_LSC
 CP-050 Environmental Water Filtration and Preservation, rev 3
 RP-431 Nickel-63 Purification, rev 6

AVERAGES ± 2 SD MDA 3.3 ± 1.8
 FOR 7 SAMPLES YIELD 100 ± 2

Lab id EBRLNE
 Protocol Hanford
 Version Ver 1.0
 Form DVD-CMS
 Version 3.06
 Report date 02/20/03

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H2047

SDG 7432
 Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
 Contract No. 630
 Case no SDG H2047

SAMPLE SUMMARY

The Sample and QC Summary Reports show all samples, including QC samples, reported in one Sample Delivery Group (SDG).

The Sample Summary Report fully identifies client samples and gives the corresponding lab sample identification. The QC Summary Report shows at the sample level how the lab organized the samples into batches and generated QC samples. The Preparation Batch and Method Summary Reports show this at the analysis level.

The following notes apply to these reports:

- * LAB SAMPLE ID is the lab's primary identification for a sample.
- * DEPARTMENT SAMPLE ID is an alternate lab id, for example one assigned by a radiochemistry department in a lab.
- * CLIENT SAMPLE ID is the client's primary identification for a sample. It includes any sample preparation done by the client that is necessary to identify the sample.
- * QC BATCH is a lab assigned code that groups samples to be processed and QCed together. These samples should have similar matrices.

QC BATCH is not necessarily the same as SDG, which reflects samples received and reported together.

- * All Lab Control Samples, Method Blanks, Duplicates and Matrix Spikes are shown that QC any of the samples. Due to possible reanalyses, not all results for all these QC samples may be relevant to the SDG. The Lab Control Sample, Method Blank, Duplicate, Matrix Spike and Method Summary Reports detail these relationships.

Lab id EBRLNE
 Protocol Hanford
 Version Ver 1.0
 Form DVD-RG
 Version 3.06
 Report date 02/20/03

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H2047

SDG 7432
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG H2047

PREPARATION BATCH SUMMARY

The Preparation Batch Summary Report shows all preparation batches in one Sample Delivery Group (SDG) with information necessary to check the completeness and consistency of the SDG.

The following notes apply to this report:

- * The preparation batches are shown in the same order as the Method Summary Reports are printed.
- * Only analyses of planchets relevant to the SDG are included.
- * Each preparation batch should have at least one Method Blank and LCS in it to validate client sample results.
- * The QUALIFIERS shown are all qualifiers other than U, J, B, L and H that occur on any analysis in the preparation batch. The Method Summary Report has these qualifiers on a per sample basis.

These qualifiers should be reviewed as follows:

- X Some data has been manually entered or modified. Transcription errors are possible.
- P One or more results are 'preliminary'. The data is not ready for final reporting.
- 2 There were two or more results for one analyte on one planchet imported at one time. The results in DVD may not be the same as on the raw data sheets.

Other lab defined qualifiers may occur. In general, these should be addressed in the SDG narrative.

REPORT GUIDES

Page 2

SUMMARY DATA SECTION

Page 35

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 02/20/03

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H2047

SDG 7432
 Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
 Contract No. 630
 Case no SDG_H2047

WORK SUMMARY

The Work Summary Report shows all samples, including QC samples, and all relevant analyses in one Sample Delivery Group (SDG). This report is often useful as supporting documentation for an invoice.

The following notes apply to this report:

- * TEST is a code for the method used to measure associated analytes. Results and related information for each analyte are on the Data Sheet Report. In special cases, a test code used in the summary data section is not the same as in associated raw data. In this case, both codes are shown on the Work Summary.
- * SUFFIX is the lab's code to distinguish multiple analyses (recounts, reworks, reanalyses) of a fraction of the sample. The suffix indicates which result is being reported. An empty suffix normally identifies the first attempt to analyze the sample.
- * The LAB SAMPLE ID, TEST and SUFFIX uniquely identify all supporting data for a result. The Method Summary Report for each TEST has method performance data, such as yield, for each lab sample id and suffix and procedures used in the method.
- * PLANCHET is an alternate lab identifier for work done for one test. It, combined with the TEST and SUFFIX, may be the best link to raw data.
- * For QC samples, only analyses that directly QC some regular sample are shown. The Lab Control Sample, Method Blank, Duplicate, Matrix Spike and Method Summary Reports detail these relationships.
- * The SAS (Special Analytical Services) Number is a client or lab assigned code that reflects special processing for samples, such as rapid turn around. Counts of tests done are lists by SAS number since it is likely to affect prices.

REPORT GUIDES

Page 3

SUMMARY DATA SECTION

Page 36

Lab id EBRLNE
 Protocol Hanford
 Version Ver 1.0
 Form DVD-RG
 Version 3.06
 Report date 02/20/03

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H2047

SDG 7432
 Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
 Contract No. 630
 Case no SDG H2047

DATA SHEET

The Data Sheet Report shows all results and primary supporting information for one client sample or Method Blank. This report corresponds to both the CLP Inorganics and Organics Data Sheet.

The following notes apply to this report:

- * TEST is a code for the method used to measure an analyte. If the TEST is empty, no data is available; the analyte was not analyzed for.
- * The LAB SAMPLE ID and TEST uniquely identify work within the Summary Data Section of a Data Package. The Work Summary and Method Summary Reports further identify raw data that underlies this work.

The Method Summary Report for each TEST has method performance data, such as yield, for each Lab Sample ID and a list of procedures used in the method.

- * ERRORS can be labeled TOTAL or COUNT. TOTAL implies a preparation (non-counting method) error has been added, as square root of sum of squares, to the counting error denoted by COUNT. The preparation errors, which may vary by preparation batch, are shown on the Method Summary Report.
- * A RESULT can be 'N.R.' (Not Reported). This means the lab did this work but chooses not to report it now, possibly because it was reported at another time.
- * When reporting a Method Blank, a RESULT can be 'N.A.' (Not Applicable). This means there is no reported client sample work in the same preparation batch as the Blank's result. This is likely to occur when the Method Blank is associated with reanalyses of selected work for a few samples in the SDG.

The following qualifiers are defined by the DVD system:

- U The RESULT is less than the MDA (Minimum Detectable Activity).

Lab id EBRLNE
 Protocol Hanford
 Version Ver 1.0
 Form DVD-RG
 Version 3.06
 Report date 02/20/03

REPORT GUIDES

Page 4

SUMMARY DATA SECTION

Page 37

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H2047

SDG 7432
 Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford
 Contract No. 630
 Case no SDG H2047

DATA SHEET

If the MDA is blank, the ERROR is used as the limit.

- J The RESULT is less than the RDL (Required Detection Limit) and no U qualifier is assigned.
 - B A Method Blank associated with this sample had a result without a U flag and, after correcting for possibly different aliquots, that result is greater than or equal to the MDA for this sample.
- Normally, B is not assigned if U is. When method blank subtraction is shown on this report, B flags are assigned based on the unsubtracted values while U's are assigned based on the subtracted ones. Both flags can be assigned in this case.
- For each sample result, all Method Blank results in the same preparation batch are compared. The Method Summary Report documents this and other QC relationships.
- L Some Lab Control Sample that QC's this sample had a low recovery. The lab can disable assignment of this qualifier.
 - H Similar to 'L' except the recovery was high.
 - P The RESULT is 'preliminary'.
 - X Some data necessary to compute the RESULT, ERROR or MDA was manually entered or modified.
 - 2 There were two or more results available for this analyte. The reported result may not be the same as in the raw data.

Other qualifiers are lab defined. Definitions should be in the SDG narrative.

The following values are underlined to indicate possible problems:

- * An MDA is underlined if it is bigger than its RDL.

Lab id EBRLNE
 Protocol Hanford
 Version Ver 1.0
 Form DVD-RG
 Version 3.06
 Report date 02/20/03

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H2047

SDG 7432
Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford
Contract No. 630
Case no SDG H2047

DATA SHEET

- * An ERROR is underlined if the 1.645 sigma counting error is bigger than both the MDA and the RESULT, implying that the MDA may not be a good estimate of the 'real' minimum detectable activity.
- * A negative RESULT is underlined if it is less than the negative of its 2 sigma counting ERROR.
- * When reporting a Method Blank, a RESULT is underlined if greater than its MDA. If the MDA is blank, the 2 sigma counting error is used in the comparison.

REPORT GUIDES

Page 6

SUMMARY DATA SECTION

Page 39

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 02/20/03

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H2047

SDG 7432
 Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
 Contract No. 630
 Case no SDG_H2047

LAB CONTROL SAMPLE

The Lab Control Sample Report shows all results, recoveries and primary supporting information for one Lab Control Sample.

The following notes apply to this report:

- * All fields in common with the Data Sheet Report have similar usage. Refer to its Report Guide for details.
- * An amount ADDED is the lab's value for the actual amount spiked into this sample with its ERROR an estimate of the error of this amount.

An amount added is underlined if its ratio to the corresponding RDL is outside protocol specified limits.

- * REC (Recovery) is RESULT divided by ADDED expressed as a percent.
- * The first, computed limits for the recovery reflect:
 1. The error of RESULT, including that introduced by rounding the result prior to printing.

If the limits are labeled (TOTAL), they include preparation error in the result. If labeled (COUNT), they do not.
 2. The error of ADDED.
 3. A lab specified, per analyte bias. The bias changes the center of the computed limits.
- * The second limits are protocol defined upper and lower QC limits for the recovery.
- * The recovery is underlined if it is outside either of these ranges.

REPORT GUIDES

Page 7

SUMMARY DATA SECTION

Page 40

Lab id EBRLNE
 Protocol Hanford
 Version Ver 1.0
 Form DVD-RG
 Version 3.06
 Report date 02/20/03

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H2047

SDG 7432
 Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
 Contract No. 630
 Case no SDG H2047

DUPLICATE

The Duplicate Report shows all results, differences and primary supporting information for one Duplicate and associated Original sample.

The following notes apply to this report:

- * All fields in common with the Data Sheet Report have similar usage. This applies both to the Duplicate and Original sample data. Refer to the Data Sheet Report Guide for details.

If the Duplicate has data for a TEST and the lab did not do this test to the Original, the Original's RESULTS are underlined.

- * The RPD (Relative Percent Difference) is the absolute value of the difference of the RESULTS divided by their average expressed as a percent.

If both RESULTS are less than their MDAs, no RPD is computed and a '-' is printed.

For an analyte, if the lab did work for both samples but has data for only one, the MDA from the sample with data is used as the other's result in the RPD.

- * The first, computed limit is the sum, as square root of sum of squares, of the errors of the results divided by the average result as a percent, hence the relative error of the difference rather than the error of the relative difference. The errors include those introduced by rounding the RESULTS prior to printing.

If this limit is labeled TOT, it includes the preparation error in the RESULTS. If labeled CNT, it does not.

This value reported for this limit is at most 999.

- * The second limit for the RPD is the larger of:

1. A fixed percentage specified in the protocol.

REPORT GUIDES

Page 8

SUMMARY DATA SECTION

Page 41

Lab id EBRLNE
 Protocol Hanford
 Version Ver 1.0
 Form DVD-RG
 Version 3.06
 Report date 02/20/03

EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP H2047

SDG 7432
Contact Melissa C. Mannion

GUIDE , c o n t .

Client Hanford
Contract No. 630
Case no SDG H2047

DUPLICATE

2. A protocol factor (typically 2) times the average MDA as a percent of the average result. This limit applies when the results are close to the MDAs.

- * The RPD is underlined if it is greater than either limit.
- * If specified by the lab, the second limit column is replaced by the Difference Error Ratio (DER), which is the absolute value of the difference of the results divided by the quadratic sum of their one sigma errors, the same errors as used in the first limit.

Except for differences due to rounding, the DER is the same as the RPD divided by the first RPD limit with the limit scaled to 1 sigma.

- * The DER is underlined if it is greater than the sigma factor, typically 2 or 3, shown in the header for the first RPD limit.

REPORT GUIDES

Page 9

SUMMARY DATA SECTION

Page 42

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 02/20/03

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H2047

SDG 7432
 Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
 Contract No. 630
 Case no SDG H2047

MATRIX SPIKE

The Matrix Spike Report shows all results, recoveries and primary supporting information for one Matrix Spike and associated Original sample.

The following notes apply to this report:

- * All fields in common with the Data Sheet Report have similar usage. This applies both to the Spiked and Original sample data. Refer to the Data Sheet Report Guide for details.

If the Spike has data for a TEST and the lab did not do this test to the Original, the Original's RESULTS are underlined.

- * An amount ADDED is the lab's value for the actual amount spiked into the Spike sample with its ERROR an estimate of the error of this amount.

An amount is underlined if its ratio to the corresponding RDL is outside protocol specified limits.

- * REC (Recovery) is the Spike RESULT minus the Original RESULT divided by ADDED expressed as a percent.

- * The first, computed limits for the recovery reflect:

1. The errors of the two RESULTS, including those introduced by rounding them prior to printing.

If the limits are labeled (TOTAL), they include preparation error in the result. If labeled (COUNT), they do not.

2. The error of ADDED.

3. A lab specified, per analyte bias. The bias changes the center of the computed limits.

- * The second limits are protocol defined upper and lower QC limits

REPORT GUIDES

Page 10

SUMMARY DATA SECTION

Page 43

Lab id EBRLNE
 Protocol Hanford
 Version Ver 1.0
 Form DVD-RG
 Version 3.05
 Report date 02/20/03

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H2047

SDG 7432
Contact Melissa C. Mannion

GUIDE , c o n t .

Client Hanford
Contract No. 630
Case no SDG H2047

MATRIX SPIKE

for the recovery.

These limits are left blank if the Original RESULT is more than a protocol defined factor (typically 4) times ADDED. This is a way of accounting for that when the spike is small compared to the amount in the original sample, the recovery is unreliable.

* The recovery is underlined (out of spec) if it is outside either of these ranges.

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 02/20/03

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H2047

SDG 7432
 Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
 Contract No. 630
 Case no SDG H2047

METHOD SUMMARY

The Method Summary Report has two tables. One shows up to five results measured using one method. The other has performance data for the method. There is one report for each TEST, as used on the Data Sheet Report.

The following notes apply to this report:

- * Each table is subdivided into sections, one for each preparation batch. A preparation batch is a group of aliquots prepared at roughly the same time in one work area of the lab using the same method.

There should be Lab Control Sample and Method Blank results in each preparation batch since this close correspondence makes the QC meaningful. Depending on lab policy, Duplicates need not occur in each batch since they QC sample dependencies such as matrix effects.

- * The RAW TEST column shows the test code used in the raw data to identify a particular analysis if it is different than the test code in the header of the report. This occurs in special cases due to method specific details about how the lab labels work.

The Lab Sample or Planchet ID combined with the (Raw) Test Code and Suffix uniquely identify the raw data for each analysis.

- * If a result is less than both its MDA and RDL, it is replaced by just 'U' on this report. If it is greater than or equal to the RDL but less than the MDA, the result is shown with a 'U' flag.

The J and X flags are as on the data sheet.

- * Non-U results for Method Blanks are underlined to indicate possible contamination of other samples in the preparation batch. The Method Blank Report has supporting data.
- * Lab Control Sample and Matrix Spike results are shown as: ok, No data, LOW or HIGH, with the last two underlined. 'No data'

Lab id EBRLNE
 Protocol Hanford
 Version Ver 1.0
 Form DVD-RG
 Version 3.06
 Report date 02/20/03

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H2047

SDG 7432
 Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford
 Contract No. 630
 Case no SDG H2047

METHOD SUMMARY

means no amount ADDED was specified. 'LOW' and 'HIGH' correspond to when the recovery is underlined on the Lab Control Sample or Matrix Spike Report. See these reports for supporting data.

- * Duplicate sample results are shown as: ok, No data, or OUT, with the last two underlined. 'No data' means there was no original sample data found for this duplicate. 'OUT' corresponds to when the RPD is underlined on the Duplicate Report. See this report for supporting data.
 - * If the MDA column is labeled 'MAX MDA', there was more than one result measured by the reported method and the MDA shown is the largest MDA. If not all these results have the same RDL, the MAX MDA reflects only those results with RDL equal to the smallest one.
- MDAs are underlined if greater than the printed RDL.
- * Aliquots are underlined if less than the nominal value specified for the method.
 - * Preparation factors are underlined if greater than the nominal value specified for the method.
 - * Dilution factors are underlined if greater than the nominal value specified for the method.
 - * Residues are underlined if outside the range specified for the method. Residues are not printed if yields are.
 - * Yields, which may be gravimetric, radiometric or some type of recovery depending on the method, are underlined if outside the range specified for the method.
 - * Efficiencies are underlined if outside the range specified for the method. Efficiencies are detector and geometry dependent so this test is only approximate.

REPORT GUIDES

Page 13

SUMMARY DATA SECTION

Page 46

Lab id EBRLNE
 Protocol Hanford
 Version Ver 1.0
 Form DVD-RG
 Version 3.06
 Report date 02/20/03

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H2047

SDG 7432
 Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford
 Contract No. 630
 Case no SDG H2047

METHOD SUMMARY

- * Count times are underlined if less than the nominal value specified for the method.
- * Resolutions (as FWHM; Full Width at Half Max) are underlined if greater than the method specified limit.
- * Tracer drifts are underlined if their absolute values are greater than the method specified limit. Tracer drifts are not printed if percent moistures are.
- * Days Held are underlined if greater than the holding time specified in the protocol.
- * Analysis dates are underlined if before their planchet's preparation date or, if a limit is specified, too far after it.

For some methods, ratios as percentages and error estimates for them are computed for pairs of results. A ratio column header like '1+3' means the ratio of the first result column and the third result column.

Ratios are not computed for Lab Control Sample, Method Blank or Matrix Spike results since their matrices are not necessarily similar to client samples'.

The error estimate for a ratio of results from one planchet reflects only counting errors since other errors should be correlated. For a ratio involving different planchets, if QC limits are computed based on total errors, the error for the ratio allows for the preparation errors for the planchets.

The ratio is underlined (out of spec) if the absolute value of its difference from the nominal value is greater than its error estimate. If no nominal value is specified, this test is not done.

For Gross Alpha or Gross Beta results, there may be a column showing the sum of other Alpha or Beta emitters. This sum includes all relevant

REPORT GUIDES

Page 14

SUMMARY DATA SECTION

Page 47

Lab id EBRINE
 Protocol Hanford
 Version Ver 1.0
 Form DVD-RG
 Version 3.06
 Report date 02/20/03

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H2047

SDG 7432
 Contact Melissa C. Mannion

GUIDE , cont .

Client Hanford
 Contract No. 630
 Case no SDG H2047

METHOD SUMMARY

results in the DVD database, whether reported or not. Results in the sum are weighted by a particles/decay value specified by the lab for each relevant analyte. Results less than their MDA are not included. No sums are computed for Lab Control, Method Blank or Matrix Spike samples since their various planchets may not be physically related.

If a ratio of total isotopic to Gross Alpha or Beta is shown, the error for the ratio reflects both the error in the Gross result and the sum, as square root of sum of squares, of the errors in the isotopic results.

For total elemental uranium or thorium results, there may be a column showing the total weight computed from associated isotopic results. Ignoring results less than their MDAs, this is a weighted sum of the isotopic results. The weights depend on the molecular weight and half-life of each isotope so as to convert activities (decays) to weight (atoms).

If a ratio of total computed to measured elemental uranium or thorium is shown, the error for the ratio reflects the errors in all the measurements.

Lab id EBRLNE
 Protocol Hanford
 Version Ver 1.0
 Form DVD-RG
 Version 3.06
 Report date 02/20/03

Collector GALE	Company Contact RIKKI THOREN	Telephone No. 521-8003	Project Coordinator KESSNER, JH	Price Code 7L	Data Turnaround 21 Days
Project Designation 105-D/H Rx Waste Water Sampling	Sampling Location 100-H	H2047 (7432)	SAF No. B01-108	Air Quality <input type="checkbox"/>	
Ice Chest No. SEE OSR	Field Logbook No. EL-1518-2	COA R105HX2F2E	Method of Shipment FED EX		
Shipped To TMA/RECRA	Offsite Property No. A030-118		Bill of Lading/Air Bill No. SEE OSR		

POSSIBLE SAMPLE HAZARDS/REMARKS RADIOACTIVE $\frac{1}{2}$ TO J00FX1 Special Handling and/or Storage None	Preservation	HNO3 to pH <2	None	None	HNO3 to pH <2	NaOH to pH >= 12 Cool 4C	ZnAc+NaOH to pH >9 Cool	Cool 4C	Cool 4C	HCl to pH <2 Cool 4C	Cooled to 4C
	Type of Container	P	P	P	P	P	P	P	P	aG	aG
	No. of Container(s)	5	1	1	1	1	1	1	1	1	4
	Volume	1000mL	125mL	125mL	500mL	500mL	500mL	500mL	500mL	500mL	125mL

SAMPLE ANALYSIS				See item (1) in Special Instructions	Tritium - H3	Carbon-14	See item (2) in Special Instructions	Total Cyanide - 9010	Sulfides - 9030	See item (3) in Special Instructions	TSS - 160.2, TDS - 160.1	TOC - 415.1	PCBs - 8082
Sample No.	Matrix *	Sample Date	Sample Time										
J00FX3	WATER	1-14-03	0850	X	X	X							
J00FX4	WATER	1-14-03	0910	X	X	X							
J00207	WATER												

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 or method 9056 will not be met. ** The laboratory is to analyze pH within 24 hours of sample receipt. (1) Americium-241; Gamma Spectroscopy(Water) (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); Gamma Spec - Add-on (Barium-133); Nickel-63; Neptunium-237; Isotopic Plutonium; Strontium-89,90 - Total Sr; Isotopic Thorium (Thorium-228, Thorium-232); Isotopic Uranium (2) ICP Metals - 6010A (TAL) (Barium, Cadmium, Chromium, Silver); ICP Metals - 6010A (Add-on) (Arsenic, Lead, Selenium); Mercury - 7470 - (CV) (3) IC Anions - 300.0 (Bromide, Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate); pH (Water) - 9040 Personnel not available to relinquish samples from the 3728 Ref # 1A on 1/16/03						S=Soil SE=Sediment SO=Solid SI=Sludge W=Water O=Oil A=Air DS=Drum Solids DL=Drum Liquids T=Tissue WL=Wipe L=Liquid V=Vegetation X=Other		
SIGALE/JAL	1/14/03 1600	REF 1A	1/14/03 1600									
1A 3728	1-16-03 1000	R. Fehlbay	1-16-03 1000									
ER	1-16-03 1000	Fed Ex										
			1-17-03 1000									

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

Bechtel Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST					B01-108-026		Page 1 of 12							
Collector GALE / FAHLBERG		Company Contact RIKKI THOREN		Telephone No. 521-8003		Project Coordinator KESSNER, JH		Price Code 7L		Data Turnaround 21 Days						
Project Designation 105-D/H Rx Waste Water Sampling		Sampling Location 100-D H20N7 (7432)		SAF No. B01-108		Air Quality <input type="checkbox"/>										
Ice Chest No. SEE OSP		Field Logbook No. EL-1518-2		COA R105DX2126 1-16-03		Method of Shipment FED EX										
Shipped To TMA/RECRA		Offsite Property No. A030118		Bill of Lading/Air Bill No. SEE OSP												
POSSIBLE SAMPLE HAZARDS/REMARKS Tieto J00FX2 Radioactive Special Handling and/or Storage None				Preservation	HNO3 to pH <2	None	None	HNO3 to pH <2	NaOH to pH >= 12 Cool 4C	ZnAc+NaOH to pH >9 Cool	Cool 4C	Cool 4C	HCl to pH <2 Cool 4C	Cool to 4C		
				Type of Container	P	P	P	P	P	P	P	P	P	P	aG	aG
				No. of Container(s)	5	1	1	1	1	1	1	1	1	1	1	4
				Volume	1000mL	125mL	125mL	500mL	500mL	500mL	500mL	500mL	500mL	125mL	1000mL	
SAMPLE ANALYSIS				See item (1) in Special Instructions.	Tritium - H3	Carbon-14	See item (2) in Special Instructions.	Total Cyanide - 9010	Sulfides - 9030	See item (3) in Special Instructions.	TSS - 160.2; TDS - 160.1	TOC - 415.1	PCBs - 8082			
				R105DX2126 1-16-03												
Sample No.	Matrix *	Sample Date	Sample Time													
J00FX5	WATER	1-14-03	1240	X	X	X										
J00FX6	WATER	1-14-03	1210	X	X	X										
CHAIN OF POSSESSION				Sign/Print Names				SPECIAL INSTRUCTIONS				Matrix *				
Relinquished By/Removed From		Date/Time 1300		Received By/Stored In		Date/Time 1300		** The ERC acknowledges that the analytical holding time for Nitrate by EPA Method 300.0 or method 9056 will not be met. ** The laboratory is to analyze pH within 24 hours of sample receipt. (1) Americium-241; Gamma Spectroscopy (Water) (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); Gamma Spec - Add-on (Barium-133); Nickel-63; Neptunium-237; Isotopic Plutonium; Strontium-89,90 - Total Sr; Isotopic Thorium (Thorium-228, Thorium-232); Isotopic Uranium (2) ICP Metals - 6010A (TAL) (Barium, Cadmium, Chromium, Silver); ICP Metals - 6010A (Add-on) (Arsenic, Lead, Selenium); Mercury - 7470 - (CV) (3) IC Anions - 300.0 (Bromide, Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate); pH (Water) - 9040				S=Soil SE=Sediment SO=Solid SL=Sludge W = Water O=Oil A=Air DS=Drum Solids DL=Drum Liquids T=Tissue WI=Wipe L=Liquid V=Vegetation X=Other				
R. F. Follen R. F. Follen		1-14-03		105 D HMSR		1-14-03										
R. F. Follen R. F. Follen		1-15-03		R. F. Follen		1-15-03										
105 D HMSR		1-15-03		R. F. Follen R. F. Follen		1-15-03										
R. F. Follen R. F. Follen		1-15-03		1-B 3728		1-15-03										
1-B 3728		1-16-03 1000		R. F. Follen R. F. Follen		1-16-03										
R. F. Follen R. F. Follen		1-16-03		Fed Ex												
LABORATORY SECTION		Received By		Title		Date/Time										
		R. F. Follen				1-17-03 1000										
FINAL SAMPLE DISPOSITION		Disposal Method		Disposed By		Date/Time										

Bechtel Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			B01-108-023	Page <u>2</u> of <u>2</u>
Collector GALE	Company Contact RIKKI THOREN	Telephone No. 521-8003	Project Coordinator KESSNER, JH		Price Code 7L	Data Turnaround 24 Hours
Project Designation 105-D/H Rx Waste Water Sampling		Sampling Location 100-H <i>H2047 (7432)</i>	SAF No. B01-108		Air Quality <input type="checkbox"/>	
Ice Chest No. <i>ERC 97-029</i>	Field Logbook No. <i>EL-1518-2</i>	COA R105HX2F2C	Method of Shipment FED-EX <i>GOV. VEHICLE</i>			
Shipped To Radiological Counting Facility		Offsite Property No. <i>NA</i>	Bill of Lading/Air Bill No. <i>NA</i>			

POSSIBLE SAMPLE HAZARDS/REMARKS RADIOACTIVE Special Handling and/or Storage <i>None</i>	Preservation	None																
	Type of Container	P																
	No. of Container(s)	1																
	Volume	125mL																

SAMPLE ANALYSIS					<i>Rad. Screen</i> GEA <i>4/2</i> <i>1903</i>													
-----------------	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Sample No.	Matrix *	Sample Date	Sample Time															
J00FX1	WATER	1-14-03	0850	X														

CHAIN OF POSSESSION			Sign/Print Names			SPECIAL INSTRUCTIONS						Matrix *
Relinquished By/Removed From <i>DJ GALE</i>	Date/Time <i>1/14/03 1600</i>	Received By/Stored In <i>REF 1A</i>	Date/Time <i>1/14/03 1600</i>	Personnel not available to relinquish samples from the 3728 Ref # <i>1A</i> on <i>1/15/03</i> Sample originally sent to RCF for on site analysis. Page <u>2</u> of <u>2</u> represents custody transfer to RCF. The sample was picked up from RCF and re-labeled for off-site analysis. A new COC was generated for appropriate off site custody transfer. Page <u>1</u> of <u>2</u> represents custody transfer to offsite laboratory for directed analysis.						S=Soil SE=Sediment SO=Solid SL=Sludge W=Water O=Oil A=Air DS=Drum Solids DL=Drum Liquids T=Tissue WI=Wipe L=Liquid V=Vegetation X=Other		
Relinquished By/Removed From <i>117</i>	Date/Time <i>3/28 1:15 03</i>	Received By/Stored In <i>REF 1A</i>	Date/Time <i>1/15/03 0700</i>									
Relinquished By/Removed From <i>Jeff Hagan</i>	Date/Time <i>1/15/03 0710</i>	Received By/Stored In <i>Ch Landes</i>	Date/Time <i>1/15/03 0710</i>									
Relinquished By/Removed From <i>Ch Landes</i>	Date/Time <i>1/15/03 1406</i>	Received By/Stored In <i>SJ GALE</i>	Date/Time <i>1/15/03 1406</i>									
Relinquished By/Removed From <i>DJ GALE</i>	Date/Time <i>1/15/03 1415</i>	Received By/Stored In <i>REF 1B</i>	Date/Time <i>1/15/03 1415</i>									
Relinquished By/Removed From	Date/Time	Received By/Stored In <i>Steve</i>	Date/Time <i>1-17-03 0000</i>									

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

NA 11603
2072

Bechtel Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				B01-108-024		Page 1 of 1		
Collector GALE	<i>Fahlberg</i>	Company Contact RIKKI THOREN	Telephone No. 521-8003	Project Coordinator KESSNER, JH	Price Code 7L	Data Turnaround 24 Hours				
Project Designation 105-D/H Rx Waste Water Sampling		Sampling Location 100-D <i>H2047 (7432)</i>		SAF No. B01-108	Air Quality <input type="checkbox"/>					
Ice Chest No. <i>ERC 97-079</i>	Field Logbook No. <i>EL-1518-2</i>	COA <i>R105DX200C</i> <i>R105DX212E</i>		Method of Shipment <i>AP1903</i> FED-EX <i>GOV. VEHICLE</i>						
Shipped To Radiological Counting Facility		Offsite Property No. <i>NA</i>		Bill of Lading/Air Bill No. <i>NA</i>						
POSSIBLE SAMPLE HAZARDS/REMARKS <i>Radioactive</i> <i>Toxic</i> Special Handling and/or Storage <i>None</i>				Preservation None						
				Type of Container P						
				No. of Container(s) 1						
				Volume 125mL						
SAMPLE ANALYSIS				Red-Green GEA <i>190</i> <i>1903</i>						
				<i>RCF</i>						
Sample No.	Matrix *	Sample Date	Sample Time							
J00FX2	WATER	01-14-03	1210	X	10782					
CHAIN OF POSSESSION				Sign/Print Names				SPECIAL INSTRUCTIONS		
Relinquished By/Removed From <i>R.F. Fahlberg</i>		Date/Time <i>1:14:00</i>		Received By/Stored In <i>105 D HTHSR</i>		Date/Time <i>1:14:03</i>		<p>Sample originally sent to RCF for on site analysis. Page 2 of 2 represents custody transfer to RCF. The sample was picked up from RCF and re-labeled for off-site analysis. A new COC was generated for appropriate off site custody transfer. Page 1 of 2 represents custody transfer to offsite laboratory for directed analysis.</p>		
Relinquished By/Removed From <i>R.F. Fahlberg</i>		Date/Time <i>1:15:00</i>		Received By/Stored In		Date/Time				
Relinquished By/Removed From <i>BJD HTHSR</i>		Date/Time <i>1:15:03</i>		Received By/Stored In <i>R.F. Fahlberg</i>		Date/Time <i>1:15:03</i>				
Relinquished By/Removed From <i>R.F. Fahlberg</i>		Date/Time <i>1:15:03</i>		Received By/Stored In <i>CN Landes</i>		Date/Time <i>1:15:03/1040</i>				
Relinquished By/Removed From <i>CN Landes</i>		Date/Time <i>1:15:03/1400</i>		Received By/Stored In <i>S. GALE</i>		Date/Time <i>1:15:03 1400</i>				
Relinquished By/Removed From <i>20045 HTHSR</i>		Date/Time <i>1:15:03 1415</i>		Received By/Stored In <i>ROF 18</i>		Date/Time <i>1:15:03 1415</i>				
LABORATORY SECTION	Received By <i>R. Curran</i>	Title				Date/Time <i>1-17-03</i>		Date/Time <i>10-00</i>		
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By				Date/Time				

Richmond, CA Laboratory

SAMPLE RECEIPT CHECKLIST

SAMPLE RECEIPT

Client: BH Date/Time received 1000 1-17-03

CoC No. B01-108-025

Container I.D. No. FERC-02-008 Requested TAT (Days) 2 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. Packing material is: 3 Wet [] Dry []

6. Number of samples in shipping container: _____

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: SAMPLE FOOTPRINT LISTED ON COC
BUT NOT RECEIVED MM 1/17/3

13. Was P.M. notified of any anomalies? Yes [] No [] Date 1-17-03

14. Received by [Signature] Date: 1-17-03 Time: 1000

Customer Sample No.	cpm	mr/hr	wipe	Customer Sample No.	cpm	mr/hr	wipe

Ion Chamber Ser. No. _____ Calibration date _____

Alpha meter Ser. No. _____ Calibration date _____

Survey Meter Ser. No. _____ Calibration date _____

Lionville Laboratory, Inc.
VOA ANALYTICAL DATA PACKAGE FOR
TNU-HANFORD B01-108, H2047

FEB 2003

DATE RECEIVED: 01/17/03

LVL LOT # :0301L515

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J00FX4	002	W	03LVX011	01/14/03	N/A	01/20/03
J00207	003	W	03LVX011	01/13/03	N/A	01/20/03
J00FX5	004	W	03LVX011	01/14/03	N/A	01/20/03
J00FX5	004 MS	W	03LVX011	01/14/03	N/A	01/20/03
J00FX5	004 MSD	W	03LVX011	01/14/03	N/A	01/20/03
J00FX6	005	W	03LVX011	01/14/03	N/A	01/20/03

LAB QC:

VBLKEU	MB1	W	03LVX011	N/A	N/A	01/20/03
VBLKEU	MB1 BS	W	03LVX011	N/A	N/A	01/20/03



Client: TNU-HANFORD B01-108
LVL #: 0301L515
SDG/SAF # H2047/B01-108

W.O. #: 11343-606-001-9999-00
Date Received: 01-17-2003

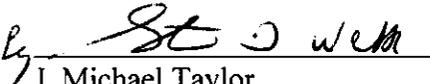
GC/MS VOLATILE

Four (4) water samples were collected on 01-13,14-2003.

The samples and their associated QC samples were analyzed according to criteria set forth in Lionville Laboratory OPs based on SW 846 Method 8260B for TCL volatile target compounds on 01-20-2003.

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

1. All results presented in this report are derived from samples that met LvLI's sample acceptance policy with the exception of some discrepancies, which have been recorded on the Sample Receipt Checklist (p-20).
2. The required holding time for analysis was met.
3. A non-target compound was detected in sample J00FX4.
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.
8. Internal standard area and retention time criteria were met.
9. A spectral search was conducted for compounds 1-Butanol, Propionitrile, 2-Pentanone and Tetrahydrofuran; however, none of these compounds was identified in the samples.
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

01-28-03
Date

son\group\data\voa\tnu-hanford\0301-515.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 20 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.

RFW Batch Number: 0301L515

Client: TNU-HANFORD B01-108, H2047 Work Order: 11343606001 Page: 1a

Sample Information	Cust ID:	J00FX4	J00207	J00FX5	J00FX5	J00FX5	J00FX5	J00FX6
	RFW#:	002	003	004	004 MS	004 MSD	005	
	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	Toluene-d8	96 %	96 %	95 %	101 %	98 %	97 %	
Recovery	Bromofluorobenzene	96 %	94 %	95 %	103 %	98 %	94 %	
	1,2-Dichloroethane-d4	94 %	95 %	94 %	105 %	100 %	101 %	
		-----fl-----	-----fl-----	-----fl-----	-----fl-----	-----fl-----	-----fl-----	
	Chloromethane	10 U						
	Bromomethane	10 U						
	Vinyl Chloride	10 U						
	Chloroethane	10 U						
	Methylene Chloride	3 JB	1 JB	4 JB	2 JB	3 JB	1 JB	
	Acetone	10 U						
	Carbon Disulfide	5 U	5 U	5 U	5 U	5 U	5 U	
	1,1-Dichloroethene	5 U	5 U	5 U	75 %	76 %	5 U	
	1,1-Dichloroethane	5 U	5 U	5 U	5 U	5 U	5 U	
	1,2-Dichloroethene (total)	5 U	5 U	5 U	5 U	5 U	5 U	
	Chloroform	5 U	5 U	5 U	5 U	5 U	5 U	
	1,2-Dichloroethane	5 U	5 U	5 U	5 U	5 U	5 U	
	2-Butanone	10 U						
	1,1,1-Trichloroethane	5 U	5 U	5 U	5 U	5 U	5 U	
	Carbon Tetrachloride	5 U	5 U	5 U	5 U	5 U	5 U	
	Bromodichloromethane	5 U	5 U	5 U	5 U	5 U	5 U	
	1,2-Dichloropropane	5 U	5 U	5 U	5 U	5 U	5 U	
	cis-1,3-Dichloropropene	5 U	5 U	5 U	5 U	5 U	5 U	
	Trichloroethene	5 U	5 U	5 U	107 %	96 %	5 U	
	Dibromochloromethane	5 U	5 U	5 U	5 U	5 U	5 U	
	1,1,2-Trichloroethane	5 U	5 U	5 U	5 U	5 U	5 U	
	Benzene	5 U	5 U	5 U	95 %	87 %	5 U	
	Trans-1,3-Dichloropropene	5 U	5 U	5 U	5 U	5 U	5 U	
	Bromoform	5 U	5 U	5 U	5 U	5 U	5 U	
	4-Methyl-2-pentanone	10 U						
	2-Hexanone	10 U						
	Tetrachloroethane	5 U	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	5 U	
	Toluene	5 U	5 U	5 U	104 %	91 %	5 U	

*= Outside of EPA CLP QC limits.

Cust ID: J00FX4 J00207 J00FX5 J00FX5 J00FX5 J00FX6

RFW#: 002 003 004 004 MS 004 MSD 005

Chlorobenzene	5 U	5 U	5 U	109 %	91 %	5 U
Ethylbenzene	5 U	5 U	5 U	5 U	5 U	5 U
Styrene	5 U	5 U	5 U	5 U	5 U	5 U
Xylene (total)	5 U	5 U	5 U	5 U	5 U	5 U

*= Outside of EPA CLP QC limits.

Cust ID: VBLKEU VBLKEU BS

7

RFW#: 03LVX011-MB1 03LVX011-MB1

Chlorobenzene _____	5	U	86	%
Ethylbenzene _____	5	U	5	U
Styrene _____	5	U	5	U
Xylene (total) _____	5	U	5	U

*= Outside of EPA CLP QC limits.

1E
VOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

J00FX4

Lab Name: Lionville Labs, Inc. Work Order: 11343606001

Client: TNU-HANFORD B01-108

Matrix: WATER

Lab Sample ID: Q301L515-002

Sample wt/vol: 5.00 (g/mL) ML

Lab File ID: x012012

Level: (low/med) LOW

Date Received: 01/17/03

% Moisture: not dec.

Date Analyzed: 01/20/03

Column: (pack/cap) CAP

Dilution Factor: 1.00

Number TICs found: 1

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	SILOXANE	17.527	9	J

1E
VOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

J00207

Lab Name: Lionville Labs, Inc. Work Order: 11343606001

Client: TNU-HANFORD B01-108

Matrix: WATER

Lab Sample ID: 0301L515-003

Sample wt/vol: 5.00 (g/mL) ML

Lab File ID: x012013

Level: (low/med) LOW

Date Received: 01/17/03

% Moisture: not dec.

Date Analyzed: 01/20/03

Column: (pack/cap) CAP

Dilution Factor: 1.00

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.				

1E
VOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

J00FX5

Lab Name: Lionville Labs, Inc. Work Order: 11343606001

Client: TNU-HANFORD B01-108

Matrix: WATER

Lab Sample ID: 0301L515-004

Sample wt/vol: 5.00 (g/mL) ML

Lab File ID: x012014

Level: (low/med) LOW

Date Received: 01/17/03

% Moisture: not dec. _____

Date Analyzed: 01/20/03

Column: (pack/cap) CAP

Dilution Factor: 1.00

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.				

1E
VOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

J00FX6

Lab Name: Lionville Labs, Inc. Work Order: 11343606001

Client: TNU-HANFORD B01-108

Matrix: WATER

Lab Sample ID: 0301L515-005

Sample wt/vol: 5.00 (g/mL) ML

Lab File ID: x012017

Level: (low/med) LOW

Date Received: 01/17/03

% Moisture: not dec. _____

Date Analyzed: 01/20/03

Column: (pack/cap) CAP

Dilution Factor: 1.00

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.				

1E
VOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

VBLKEU

Lab Name: Lionville Labs, Inc. Work Order: 11343606001

Client: TNU-HANFORD B01-108

Matrix: WATER

Lab Sample ID: 03LVX011-MB1

Sample wt/vol: 5.00 (g/mL) ML

Lab File ID: x012006

Level: (low/med) LOW

Date Received: 01/20/03

% Moisture: not dec.

Date Analyzed: 01/20/03

Column: (pack/cap) CAP

Dilution Factor: 1.00

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.				

Bechtel Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST					B01-108-025		Page 1 of 2							
Collector GALE		Company Contact RIKKI THOREN		Telephone No. 521-8003		Project Coordinator KESSNER, JH		Price Code 7L		Data Turnaround 21 Days						
Project Designation 105-D/H Rx Waste Water Sampling		Sampling Location 100-H		SAF No. B01-108		Air Quality <input type="checkbox"/>										
Ice Chest No. SEE OSPC		Field Logbook No. EL-1518-2		COA R105HX2F2C		Method of Shipment FED EX										
Shipped To TMA/RECRA		Offsite Property No. 17030-106		Bill of Lading/Air Bill No. SEE OSPC												
POSSIBLE SAMPLE HAZARDS/REMARKS Tie To JOO Fxi RADIOACTIVE Special Handling and/or Storage Cool 4°C				Preservation	HNO3 to pH <2	None	None	HNO3 to pH <2	NaOH to pH >= 12 Cool 4C	ZnAc+NaOH to pH >9 Cool	Cool 4C	Cool 4C	HCl to pH <2 Cool 4C	Cooled to 4C		
				Type of Container	P	P	P	P	P	P	P	P	aG	aG		
				No. of Container(s)	5	1	1	1	1	1	1	1	1	1	1	4
				Volume	1000mL	125mL	125mL	500mL	500mL	500mL	500mL	500mL	500mL	125mL	1000mL	
SAMPLE ANALYSIS				See item (1) in Special Instructions.	Tritium - 13	Carbon-14	See item (2) in Special Instructions.	Total Cyanide - 9010	Sulfides - 9030	See item (3) in Special Instructions.	TSS - 160.2; TDS - 160.1	TOC - 415.1	PCBs - 8082			
				<div style="position: absolute; top: 0; left: 0; width: 100%; height: 100%; border: 1px solid black; transform: rotate(-45deg); opacity: 0.5;"> See item (1) in Special Instructions. Tritium - 13 Carbon-14 See item (2) in Special Instructions. Total Cyanide - 9010 Sulfides - 9030 See item (3) in Special Instructions. TSS - 160.2; TDS - 160.1 TOC - 415.1 PCBs - 8082 </div>												
Sample No.	Matrix *	Sample Date	Sample Time													
J00FX3	WATER	1-14-03	0850				X	X	X	X	X	X	X	X		
J00FX4	WATER	1-14-03	0910				X	X	X	X	X	X	X	X		
J00207	WATER															
CHAIN OF POSSESSION				Sign/Print Names				SPECIAL INSTRUCTIONS								
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 or method 9056 will not be met. ** The laboratory is to analyze pH within 24 hours of sample receipt. (1) Americium-241; Gamma Spectroscopy(Water) {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on (Barium-133); Nickel-63; Neptunium-237; Isotopic Plutonium; Strontium-89,90 - Total Sr; Isotopic Thorium (Thorium-228, Thorium-232); Isotopic Uranium (2) ICP Metals - 6010A (TAL) {Barium, Cadmium, Chromium, Silver}; ICP Metals - 6010A (Add-on) {Arsenic, Lead, Selenium}; Mercury - 7470 - (CV) (3) IC Anions - 300.0 (Bromide, Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate); pH (Water) - 9040 Personnel not available to relinquish samples from the 3728 Ref # 1A on 1/16/03								
3 J00ACE		1/14/03 1600		REF 1A		1/14/03 1600										
1A		3728 1.16.03 1000		R. Felle		R. Felle 1.16.03										
R. Felle		R. Felle 1.16.03		Fed Ex												
R. Felle		1.17.03 0922		D. Min		1.17.03 0922										
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						

Bechtel Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				B01-108-025		Page 2 of 2		
Collector GALE		Company Contact RIKKI THOREN		Telephone No. 521-8003		Project Coordinator KESSNER, JH		Price Code 7L Data Turnaround 21 Days		
Project Designation 105-D/H Rx Waste Water Sampling		Sampling Location 100-H		SAF No. B01-108		Air Quality <input type="checkbox"/>				
Ice Chest No. SEE OSCP		Field Logbook No. EL-1518-2		COA R105HX2F2C		Method of Shipment FED EX				
Shipped To TMA(RECRA)		Offsite Property No. #030 106				Bill of Lading/Air Bill No. SEE OSCP				
POSSIBLE SAMPLE HAZARDS/REMARKS Tie To J00 FX1 RADIOACTIVE Special Handling and/or Storage COOL 4°C		Preservation	Cool 4C	HCl to pH <2 Cool 4C	Cool 4C	None				
		Type of Container	aG	aGs*	P	aG				
		No. of Container(s)	2	3	1	1				
		Volume	1000mL	20mL	500mL	250mL				
SAMPLE ANALYSIS		Semi-VOA - 8270A (ETF)	VOA - 8260A (ETF)	Conductivity - 120.1	Ignitability - 1010					
Sample No.	Matrix *	Sample Date	Sample Time							
J00FX3	WATER	1-14-03	0850	X		X	X			
J00FX4	WATER	1-14-03	0910	X	X	X	X			
J00207	WATER	1-13-03	1345		X					
CHAIN OF POSSESSION		Sign/Print Names				SPECIAL INSTRUCTIONS				Matrix *
Relinquished By/Removed From <i>SJGALC</i> <i>D/Sal</i> 1/14/03 1600		Date/Time		Received By/Stored In <i>REF 1A</i> 1/14/03 1600		Date/Time		** The ERC acknowledges that the analytical holding time for Nitrate by EPA Method 300.0 or method 9056 will not be met. ** The laboratory is to analyze pH within 24 hours of sample receipt. Personnel not available to relinquish samples from the 372# Ref # <i>1A</i> on <i>1/16/03</i>		S=Soil SE=Soil/Stone SO=Solid SL=Sludge W=Water O=Oil A=Air DS=Drum Solids DL=Drum Liquids T=Tissue WI=Wipe L=Liquid V=Vegetation X=Other
Relinquished By/Removed From <i>1A</i> <i>372#</i> 1-16-03 1000		Date/Time		Received By/Stored In <i>R. F. Hill</i> <i>R. F. Hill</i> 1-16-03		Date/Time				
Relinquished By/Removed From <i>R. F. Hill</i> <i>R. F. Hill</i> 1-16-03		Date/Time		Received By/Stored In <i>Fed Ex</i>		Date/Time				
Relinquished By/Removed From <i>See Ex</i> 1-17-03 0922		Date/Time		Received By/Stored In <i>R. Thoren</i> 1-17-03 0922		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		

Bechtel Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				B01-108-026 Page 1 of 2	
Collector GALE / FAHLBERG	Company Contact RIKKI THOREN	Telephone No. 521-8003	Project Coordinator KESSNER, JH		Price Code 7L	Data Turnaround 21 Days	
Project Designation 105-D/H Rx Waste Water Sampling	Sampling Location 100-D		SAF No. B01-108		Air Quality <input type="checkbox"/>		
Ice Chest No. SEE OSRC	Field Logbook No. EL-1518-2	COA R105DX2F2E 1-16-03	Method of Shipment FED EX		Bill of Lading/Air Bill No. SEE OSRC		
Shipped To TMA/RECRA	Offsite Property No. A030 106						

POSSIBLE SAMPLE HAZARDS/REMARKS Radioactive Tie To J00FX2 Special Handling and/or Storage Cool 14°C	Preservation	HNO3 to pH <2	None	None	HNO3 to pH <2	NaOH to pH >= 12 Cool 4C	ZnAc+NaOH to pH >9 Cool	Cool 4C	Cool 4C	HCl to pH <2 Cool 4C	Cooled to 4C
	Type of Container	P	P	P	P	P	P	P	P	aG	aG
	No. of Container(s)	5	1	1	1	1	1	1	1	1	4
	Volume	1000mL	125mL	125mL	500mL	500mL	500mL	500mL	500mL	500mL	125mL

SAMPLE ANALYSIS				See item (1) in Special Instructions.	Tritium - H3 1-16-03	Carbon-14	See item (2) in Special Instructions.	Total Cyanide - 9010	Sulfides - 9030	See item (3) in Special Instructions.	TSS - 160.2; TDS - 160.1	TOC - 415.1	PCBs - 8082
Sample No.	Matrix *	Sample Date	Sample Time										
J00FX5	WATER	1-14-03	1240				X	X	X	X	X	X	X
J00FX6	WATER	1-14-03	1210				X	X	X	X	X	X	X

CHAIN OF POSSESSION		Sign/Print Names	
Relinquished By/Removed From R. Fahlgren R. Fahlgren 1-14-03	Date/Time 1300	Received By/Stored In 105D HMSR	Date/Time 1300 1-14-03
Relinquished By/Removed From 105D HMSR	Date/Time 1000 1-14-03	Received By/Stored In R. Fahlgren R. Fahlgren	Date/Time 1150 1-15-03
Relinquished By/Removed From R. Fahlgren R. Fahlgren	Date/Time 1300 1-15-03	Received By/Stored In 1-B 3728	Date/Time 1300 1-15-03
Relinquished By/Removed From 1-B 3728	Date/Time 1000 1-16-03	Received By/Stored In R. Fahlgren R. Fahlgren	Date/Time 1100 1-16-03
Relinquished By/Removed From R. Fahlgren R. Fahlgren	Date/Time 1000 1-16-03	Received By/Stored In F. Ex	Date/Time
Relinquished By/Removed From Fed Ex	Date/Time 117.03 0922	Received By/Stored In D. J. [Signature]	Date/Time 117.03 0922

SPECIAL INSTRUCTIONS		Matrix *
** The ERC acknowledges that the analytical holding time for Nitrate by EPA Method 300.0 or method 9056 will not be met. ** The laboratory is to analyze pH within 24 hours of sample receipt.		S=Soil SO=Soil/soil SL=Sludge W=Water O=Oil A=Air DS=Drum Solids DL=Drum Liquids T=Tissue Wt=Wipe L=Liquid V=Vegetation X=Other
(1) Americium-241; Gamma Spectroscopy (Water) (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); Gamma Spec - Add-on (Barium-133); Nickel-63; Neptunium-237; Isotopic Plutonium; Strontium-89,90 - Total Sr; Isotopic Thorium (Thorium-228, Thorium-232); Isotopic Uranium (2) ICP Metals - 6010A (TAL) (Barium, Cadmium, Chromium, Silver); ICP Metals - 6010A (Add-on) (Arsenic, Lead, Selenium); Mercury - 7470 - (CV) (3) IC Anions - 300.0 (Bromide, Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate); pH (Water) - 9040		

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

Bechtel Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST						BUI-108-020			
Collector GALE / FAHLBERG		Company Contact RIKKI THOREN		Telephone No. 521-8003		Project Coordinator KESSNER, JH		Price Code 7L	Data Turnaround 21 Days		
Project Designation 105-D/H Rx Waste Water Sampling		Sampling Location 100-D		SAF No. B01-108		Air Quality <input type="checkbox"/>					
Ice Chest No. SEE OSPA		Field Logbook No. EL-1518-2		COA R105DX2F26		Method of Shipment FED EX					
Shipped To TMA (RECRA)		Offsite Property No. A030 106				Bill of Lading/Air Bill No. SEE OSPA					
POSSIBLE SAMPLE HAZARDS/REMARKS Radioactive 77e To 700 Fx2 Special Handling and/or Storage Cool 40C				Preservation	Cool 4C	HCl to pH <2 Cool 4C	Cool 4C	None			
				Type of Container	aG	aGs*	P	aG			
				No. of Container(s)	2	3	1	1			
				Volume	1000mL	20mL	500mL	250mL			
SAMPLE ANALYSIS				Semi-VOA - 8270A (ETF)	VOA - 8260A (ETF)	Conductivity - 120.1	Ignitability - 1010				
Sample No.	Matrix *	Sample Date	Sample Time								
J00FX5	WATER	1-14-03	1240	X	F	X	X				
J00FX6	WATER	1-14-03	1210	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 or method 9056 will not be met. ** The laboratory is to analyze pH within 24 hours of sample receipt.		S=Soil SE=Settlement SO=Solid SI=Sludge W = Water O=Oil A=Air DS=Drum Solids DL=Drum Liquids T=Tissue WI=Wipe L=Liquid V=Vegetation X=Other		
R. Feller R. Fahmy		1300 1-14-03	105D HMSR		1300 1-14-03						
105D HMSR		1000 1-15-03	R. Feller R. Fahmy		1100 1-15-03						
R. Feller R. Fahmy		1300 1-15-03	1-B 3728		1300 1-15-03						
1B 3728		1000 1-16-03	R. Feller R. Fahmy		1000 1-16-03						
R. Feller R. Fahmy		1800 1-16-03	Fed Ex								
R. Feller R. Fahmy		1800 1-16-03	Fed Ex								
R. Feller R. Fahmy		0900 1-17-03	S. J. Jones		0900 1-17-03						
LABORATORY SECTION		Received By		Title		Date/Time					
FINAL SAMPLE DISPOSITION		Disposal Method		Disposed By		Date/Time					

LIONVILLE LABORATORY INCORPORATED

SAMPLE RECEIPT CHECKLIST

Client: TNU Hanford

Purchase Order/Project:

DATE: 1-17-03

Lab # / SOW# / Release #: B01-108

Laboratory SDG #: 0301L515

NOTE: ALL ENTRIES MARKED "NO" MUST BE EXPLAINED IN THE COMMENT SECTION

Item	Yes	No	N/A	see Comment #
1. Custody seals on coolers or shipping container intact, signed and dated?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Outside of coolers or shipping containers are free from damage?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Airbill # recorded?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. All expected paperwork received (coc and other client specific: historical data, alpha/beta or other screening data as applicable)? (paperwork sealed in plastic bag and taped to inside lid)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Sample containers are intact?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Custody seals on sample containers intact, signed and dated?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. All samples on coc received?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
8. All sample label information matches coc?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Laboratory QC samples designated on coc? (QC stickers placed on bottles?)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
10. Shipment meets LVLJ Sample Acceptance Policy? (identify all bottles not within policy. See reverse side for policy)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
11. Where applicable, bar code labels are affixed to coc?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. coc signed and dated?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. coc will be faxed or emailed to client?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. Project Manager/Client contacted concerning discrepancies? (name/date)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Del. 1-17-03

Cooler # / temp (°C) and Comments:

ERC-01-024 / 0.9°
 # ERC-02-101 / 0.5°
 # ERC-02-002 / 0.8°

#1 did not receive PCB bottles for sample 004 + BNA #
 Do not receive 1 bot for BNA samp. 005 (1 bottle)
 #2 headspace in all TOC sample all IC Anions out of hold.
 (claim) Missing page 1, E 2 for sample TOC Ex 3, TOC Ex 4

Laboratory Sample Custodian: [Signature]

Laboratory Project Manager:

FEB 2003

Lionville Laboratory, Inc.
BNA ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B01-108 H2047

DATE RECEIVED: 01/17/03

LVL LOT # :0301L515

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J00FX3	001	W	03LE0073	01/14/03	01/20/03	01/24/03
J00FX3	001 MS	W	03LE0073	01/14/03	01/20/03	01/27/03
J00FX3	001 MSD	W	03LE0073	01/14/03	01/20/03	01/24/03
J00FX4	002	W	03LE0073	01/14/03	01/20/03	01/24/03
J00FX5	004	W	03LE0073	01/14/03	01/20/03	01/24/03
J00FX6	005	W	03LE0073	01/14/03	01/20/03	01/24/03

LAB QC:

SBLKLQ	MB1	W	03LE0073	N/A	01/20/03	01/24/03
SBLKLQ	MB1 BS	W	03LE0073	N/A	01/20/03	01/24/03
SBLKLQ	MB1 BSD	W	03LE0073	N/A	01/20/03	01/24/03



Client: TNU-HANFORD B01-108
LVL #: 0301L515
SDG/SAF # H2047/B01-108

W.O. #: 11343-606-001-9999-00
Date Received: 01-17-2003

SEMIVOLATILE

Four (4) water samples were collected on 01-14-2003.

The samples and their associated QC samples were extracted according to Lionville Laboratory OPs based on modified method 3520 on 01-20-2003 and analyzed according to criteria set forth in Lionville Laboratory OPs based on SW 846 Method 8270C for client specified Semivolatile target compounds on 01-24,27-2003.

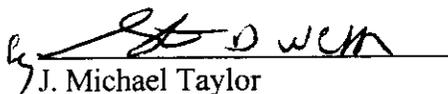
The following is a summary of the QC results accompanying the sample results and a description of any problems encountered during their analyses:

1. All results presented in this report are derived from samples that met LvLI's sample acceptance policy with the exception of some discrepancies, which have been recorded on the Sample Receipt Checklist (p-15).
2. Samples were extracted and analyzed within required holding time.
3. One (1) of fifty-four (54) surrogate recoveries was outside EPA QC limits. However, EPA CLP surrogate recovery criteria were met (i.e., no more than one outlier per fraction {acid and base neutral} and no recoveries less than 10%).
4. Two (2) of twenty-two (22) matrix spike recoveries were outside EPA QC limits.

One (1) of twenty-two (22) blank spike recoveries was outside EPA QC limits.

Not all target compounds were included in the spiking solution. (CLP spike recoveries have been reported on the Form 3.)

5. Internal standard area criteria were not met for the matrix spike sample J00FX3 MS. The analysis of associated matrix spike duplicate fulfills the reanalysis requirement.
6. Manual integrations are performed according to OP 21-06A-125 to produce quality data with the utmost integrity. All manual integrations are required to be technically valid and properly documented. Appropriate technical flags are defined in the Glossary ("Technical Flags For Manual Integration").
7. 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

01-29-03
Date

son\gcorup\data\bna\tnu-hanford-0301-515.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 15 pages.

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.

mmz\10-94\gloss.bna



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.

mmz\10-94\gloss.bna



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.

Semivolatiles by GC/MS, Special List

Report Date: 01/28/03 16:34

RFW Batch Number: 0301L515

Client: TNUHANFORD B01-108 H2047

Work Order: 11343606001

Page: 1a

Sample Information	Cust ID:	J00FX3	J00FX3	J00FX3	J00FX4	J00FX5	J00FX6
	RFW#:	001	001 MS	001 MSD	002	004	005
	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	Phenol-d5	64 %	59 %	65 %	56 %	54 %	44 %
Recovery	2-Fluorophenol	61 %	72 %	65 %	50 %	50 %	39 %
	2,4,6-Tribromophenol	84 %	90 %	91 %	75 %	81 %	73 %
	Nitrobenzene-d5	64 %	72 %	57 %	42 %	52 %	55 %
	2-Fluorobiphenyl	56 %	67 %	52 %	26 * %	48 %	48 %
	p-Terphenyl-d14	57 %	63 %	81 %	53 %	87 %	77 %
=====fl=====fl=====fl=====fl=====fl=====fl=====							
	1,4-Dichlorobenzene	10 U	62 %	53 %	10 U	10 U	10 U
	Benzyl alcohol	10 U	21 U	21 U	10 U	10 U	10 U
	3 and/or 4-Methylphenol	10 U	21 U	21 U	10 U	10 U	10 U
	2-Methylphenol	10 U	21 U	21 U	10 U	10 U	10 U
	Naphthalene	10 U	21 U	21 U	10 U	10 U	10 U
	Hexachloroethane	10 U	21 U	21 U	10 U	10 U	10 U
	Di-n-Octyl phthalate	10 U	21 U	21 U	10 U	10 U	10 U
	N-Nitrosodimethylamine	10 U	21 U	21 U	10 U	10 U	10 U
	Acetophenone	10 U	21 U	21 U	10 U	10 U	10 U
	Tributylphosphate	10 U	21 U	21 U	10 U	10 U	10 U

*= Outside of EPA CLP QC limits.

WATER SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: Lionville Labs, Inc.Contract: 1343-06-01Case No.: TNUHANFORD B01-108 H2047RFW Lot No.: 0301L515-001MATRIX Spike - Sample No.: J00FX3Level: (low/med) LOW

COMPOUND	SPIKE ADDED UG/L	SAMPLE CONCENTRATION UG/L	MS CONCENTRATION UG/L	MS % REC #	QC LIMITS REC
Phenol	159	0	101	63	12 -110
2-Chlorophenol	159	0	111	70	27 -123
1,4-Dichlorobenzene	106	0	65.5	62	36 - 97
N-Nitroso-Di-n-propylamine	106	0	83.3	79	41 -116
1,2,4-Trichlorobenzene	106	0	68.4	64	39 - 98
4-Chloro-3-methylphenol	159	0	119	75	23 - 97
Acenaphthene	106	0	71.2	67	46 -118
4-Nitrophenol	159	0	130	82 *	10 - 80
2,4-Dinitrotoluene	106	0	98.2	93	24 - 96
Pentachlorophenol	159	0	137	86	9 -103
Pyrene	106	0	65.3	62	26 -127

COMPOUND	SPIKE ADDED UG/L	MSD CONCENTRATION UG/L	MSD % REC #	% RPD #	QC LIMITS RPD	REC
Phenol	159	101	64	1	42	12 -110
2-Chlorophenol	159	97.6	61	13	40	27 -123
1,4-Dichlorobenzene	106	56.1	53	15	28	36 - 97
N-Nitroso-Di-n-propylamine	106	55.2	52	41 *	38	41 -116
1,2,4-Trichlorobenzene	106	59.4	56	13	28	39 - 98
4-Chloro-3-methylphenol	159	131	82	8	42	23 - 97
Acenaphthene	106	73.0	69	2	31	46 -118
4-Nitrophenol	159	136	85 *	3	50	10 - 80
2,4-Dinitrotoluene	106	87.0	82	12	38	24 - 96
Pentachlorophenol	159	136	86	0	50	9 -103
Pyrene	106	91.5	86	32 *	31	26 -127

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

* Values outside of QC limits

RPD: 2 out of 11 outside limitsSpike Recovery: 2 out of 22 outside limits

COMMENTS:

WATER SEMIVOLATILE BLANK SPIKE/BLANK SPIKE DUPLICATE RECOVERY

Lab Name: Lionville Labs, Inc.Contract: 1343-06-01Case No.: TNUHANFORD B01-108 H2047RFW Lot No.: 0301L515BLANK Spike - Sample No.: SBLKLOLE0073-MB1Level: (low/med) LOW

COMPOUND	SPIKE	SAMPLE	BS	BS	QC
	ADDED	CONCENTRATION	CONCENTRATION	%	LIMITS
	UG/L	UG/L	UG/L	REC #	REC
Phenol	75.0	0	58.2	78	12 -110
2-Chlorophenol	75.0	0	59.3	79	27 -123
1,4-Dichlorobenzene	50.0	0	34.0	68	36 - 97
N-Nitroso-Di-n-propylamine	50.0	0	35.6	71	41 -116
1,2,4-Trichlorobenzene	50.0	0	36.5	73	39 - 98
4-Chloro-3-methylphenol	75.0	0	61.7	82	23 - 97
Acenaphthene	50.0	0	43.1	86	46 -118
4-Nitrophenol	75.0	0	58.6	78	10 - 80
2,4-Dinitrotoluene	50.0	0	49.5	99 *	24 - 96
Pentachlorophenol	75.0	0	66.3	88	9 -103
Pyrene	50.0	0	41.6	83	26 -127

COMPOUND	SPIKE	BSD	BSD	%	QC LIMITS	
	ADDED	CONCENTRATION	%	RPD #	RPD	REC
	UG/L	UG/L	REC #			
Phenol	75.0	61.9	82	5	42	12 -110
2-Chlorophenol	75.0	60.2	80	1	40	27 -123
1,4-Dichlorobenzene	50.0	32.3	65	4	28	36 - 97
N-Nitroso-Di-n-propylamine	50.0	43.9	88	21	38	41 -116
1,2,4-Trichlorobenzene	50.0	34.4	69	5	28	39 - 98
4-Chloro-3-methylphenol	75.0	62.2	83	1	42	23 - 97
Acenaphthene	50.0	40.3	81	6	31	46 -118
4-Nitrophenol	75.0	57.8	77	1	50	10 - 80
2,4-Dinitrotoluene	50.0	45.4	91	8	38	24 - 96
Pentachlorophenol	75.0	66.1	88	0	50	9 -103
Pyrene	50.0	42.8	86	3	31	26 -127

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

* Values outside of QC limits

RPD: 0 out of 11 outside limitsSpike Recovery: 1 out of 22 outside limits

COMMENTS:

Bechtel Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST						B01-108-025		Page 1 of 2						
Collector GALE		Company Contact RIKKI THOREN		Telephone No. 521-8003		Project Coordinator KESSNER, JH		Price Code 7L		Data Turnaround 21 Days						
Project Designation 105-D/H Rx Waste Water Sampling		Sampling Location 100-H		SAF No. B01-108		Air Quality <input type="checkbox"/>										
Ice Chest No. SEE OSPC		Field Logbook No. EL-1518-2		COA R105HX2F2C		Method of Shipment FED EX										
Shipped To TMA/RECRA		Offsite Property No. 17030-106				Bill of Lading/Air Bill No. SEE OSPC										
POSSIBLE SAMPLE HAZARDS/REMARKS Tie To JOO FX1 RADIOACTIVE Special Handling and/or Storage Cool 4°C				Preservation	HNO3 to pH <2	None	None	HNO3 to pH <2	NaOH to pH >= 12 Cool 4C	ZnAc+NaOH to pH >9 Cool	Cool 4C	Cool 4C	HCl to pH <2 Cool 4C	Cooled to 4C		
				Type of Container	P	P	P	P	P	P	P	P	aG	aG		
				No. of Container(s)	5	1	1	1	1	1	1	1	1	1	1	4
				Volume	1000mL	125mL	125mL	500mL	500mL	500mL	500mL	500mL	500mL	125mL	1000mL	
SAMPLE ANALYSIS				See item (1) in Special Instructions.	Tritium - H3 1-16-03	Carbon-14	See item (2) in Special Instructions.	Total Cyanide - 9010	Sulfides - 9030	See item (3) in Special Instructions.	TSS - 160.2; TDS - 160.1	TOC - 415.1	PCBs - 8082			
Sample No.	Matrix *	Sample Date	Sample Time													
JOOFX3	WATER	1-14-03	0850				X	X	X	X	X	X	X	X		
JOOFX4	WATER	1-14-03	0910				X	X	X	X	X	X	X	X		
JOO207	WATER															
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 or method 9056 will not be met. ** The laboratory is to analyze pH within 24 hours of sample receipt. (1) Americium-241; Gamma Spectroscopy(Water) {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on (Barium-133); Nickel-63; Neptunium-237; Isotopic Plutonium; Strontium-89,90 - Total Sr; Isotopic Thorium {Thorium-228, Thorium-232}; Isotopic Uranium (2) ICP Metals - 6010A (TAL) {Barium, Cadmium, Chromium, Silver}; ICP Metals - 6010A (Add-on) {Arsenic, Lead, Selenium}; Mercury - 7470 - (CV) (3) IC Anions - 300.0 {Bromide, Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate}; pH (Water) - 9040 Personnel not available to relinquish samples from the 3728 Ref # 1A on 1/16/03				S=Soil SE=Soil/men SO=Solid SL=Sludge W = Water O=Oil A=Air DS=Drum Solids DL=Drum Liquids T=Tissue W=Wipe L=Liquid V=Vegetation X=Other				
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										
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								

Bechtel Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				B01-108-025		Page 2 of 2			
Collector GALE		Company Contact RIKKI THOREN		Telephone No. 521-8003		Project Coordinator KESSNER, JH		Price Code 7L Data Turnaround 21 Days			
Project Designation 105-D/H Rx Waste Water Sampling		Sampling Location 100-H		SAF No. B01-108		Air Quality <input type="checkbox"/>					
Ice Chest No. SEE OSPC		Field Logbook No. EL-1518-2		COA R105HX2F2C		Method of Shipment FED EX					
Shipped To TMA (RECRA)		Offsite Property No. A030 106		Bill of Lading/Air Bill No. SEE OSPC							
POSSIBLE SAMPLE HAZARDS/REMARKS Tie To J00 FX1 RADIOACTIVE Special Handling and/or Storage cool 4°C		Preservation		Cool 4C	HCl to pH <2 Cool 4C	Cool 4C	None				
		Type of Container		aG	aGs*	P	aG				
		No. of Container(s)		2	3	1	1				
		Volume		1000mL	20mL	500mL	250mL				
SAMPLE ANALYSIS		Semi-VOA - 8270A (ETF)		VOA - 8260A (ETF)		Conductivity - 120.1		Ignitability - 1010			
Sample No.	Matrix *	Sample Date	Sample Time								
J00FX3	WATER	1-14-03	0850	X		X	X				
J00FX4	WATER	1-14-03	0910	X	X	X	X				
J00207	WATER	1-13-03	1345		X						
CHAIN OF POSSESSION				Sign/Print Names				SPECIAL INSTRUCTIONS		Matrix *	
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time		<p>** The ERC acknowledges that the analytical holding time for Nitrate by EPA Method 300.0 or method 9056 will not be met.</p> <p>** The laboratory is to analyze pH within 24 hours of sample receipt.</p> <p>Personnel not available to relinquish samples from the 372# Ref # 1A on 1/16/03</p>		<p>S=Soil SE=Sediment SO=Solid SL=Sludge W=Water O=Oil A=Air DS=Drum Solids DL=Drum Liquids T=Tissue W=Wipe L=Liquid V=Vegetation X=Other</p>	
SJOALE D/SAL		11403 1600		REF 1A		11403 1600					
1A 372#		1-16-03 1000		R. F. Kelly		1-16-03 1000					
R. F. Kelly		1-16-03 1000		F. E. Ex							
R. F. Kelly		1-17-03 0922		D. J. Miller		1-17-03 0922					
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			

Bechtel Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST						B01-108-026		Page 1 of 2						
Collector GALE / FAHLBERG		Company Contact RIKKI THOREN		Telephone No. 521-8003		Project Coordinator KESSNER, JH		Price Code 7L		Data Turnaround 21 Days						
Project Designation 105-D/H Rx Waste Water Sampling		Sampling Location 100-D		SAF No. B01-108		Air Quality <input type="checkbox"/>										
Ice Chest No. SEE OSRC		Field Logbook No. EL-1518-2		COA R105DX2R2E 1-16-03		Method of Shipment FED EX										
Shipped To TMA/RECRA		Offsite Property No. A030 106		Bill of Lading/Air Bill No. SEE OSRC												
POSSIBLE SAMPLE HAZARDS/REMARKS Radionuclide Tie To JOOFX2 Special Handling and/or Storage Cool 14°C				Preservation	HNO3 to pH <2	None	None	HNO3 to pH <2	NaOH to pH >= 12 Cool 4C	ZnAc+NaOH to pH >9 Cool	Cool 4C	Cool 4C	HCl to pH <2 Cool 4C	Cooled to 4C		
				Type of Container	P	P	P	P	P	P	P	P	P	aG	aG	
				No. of Container(s)	5	1	1	1	1	1	1	1	1	1	1	4
				Volume	1000mL	125mL	125mL	500mL	500mL	500mL	500mL	500mL	500mL	125mL	1000mL	
SAMPLE ANALYSIS				See item (1) in Special Instructions.	Tritium - H3	Carbon-14	See item (2) in Special Instructions.	Total Cyanide - 9010	Sulfides - 9030	See item (3) in Special Instructions.	TSS - 160.2; TDS - 160.1	TOC - 415.1	PCBs - 8082			
				1-16-03												
Sample No.	Matrix *	Sample Date	Sample Time													
JOOFX5	WATER	1-14-03	1240				X	X	X	X	X	X	X			
JOOFX6	WATER	1-14-03	1210				X	X	X	X	X	X	X			
CHAIN OF POSSESSION				Sign/Print Names				SPECIAL INSTRUCTIONS								
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 or method 9056 will not be met. ** The laboratory is to analyze pH within 24 hours of sample receipt. (1) Americium-241; Gamma Spectroscopy(Water) {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Barium-133}; Nickel-63; Neptunium-237; Isotopic Plutonium; Strontium-89,90 - Total Sr; Isotopic Thorium {Thorium-228, Thorium-232}; Isotopic Uranium (2) ICP Metals - 6010A (TAL) {Barium, Cadmium, Chromium, Silver}; ICP Metals - 6010A (Add-on) {Arsenic, Lead, Selenium}; Mercury - 7470 - (CV) (3) IC Anions - 300.0 {Bromide, Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate}; pH (Water) - 9040								
R. F. Ahlberg		1-14-03 1300		105 D HmsR		1-14-03 1300										
105 D HmsR		1-14-03 1000		R. F. Ahlberg		1-15-03 1300										
R. F. Ahlberg		1-15-03 1300		1-13 3728		1-15-03 1300										
1-13 3728		1-16-03 1000		R. F. Ahlberg		1-16-03 1000										
R. F. Ahlberg		1-16-03 1000		F. Ex		1-16-03 0922		Matrix * S=Soil SE=Sediment SO=Solid SH=Sludge W=Water O=Oil A=Air DS=Drum Solids DL=Drum Liquids T=Tissue WI=Wipe L=Liquid V=Vegetation X=Other								
F. Ex		1-17-03 0922		D. J. Thoren		1-17-03 0922										
LABORATORY SECTION		Received By		Title		Date/Time										
FINAL SAMPLE DISPOSITION		Disposal Method		Disposed By		Date/Time										

Collector GALE / FAHLBERG Company Contact RIKKI THOREN Telephone No. 521-8003 Project Coordinator KESSNER, JH Price Code 7L Data Turnaround 21 Days

Project Designation 105-D/H Rx Waste Water Sampling Sampling Location 100-D SAF No. B01-108 Air Quality

Ice Chest No. SEE OSR Field Logbook No. EL-1518-2 COA R105DX2F26 00 20 1-15-03 Method of Shipment FED EX

Shipped To TMA (RECREA) Offsite Property No. A030 106 Bill of Lading/Air Bill No. SEE OSR

POSSIBLE SAMPLE HAZARDS/REMARKS Radioactive JTeTo J00 FX2 Special Handling and/or Storage Cool 40C	Preservation	Cool 4C	HCl to pH <2 Cool 4C	Cool 4C	None						
	Type of Container	aG	aGs*	P	aG						
	No. of Container(s)	2	3	1	1						
	Volume	1000mL	20mL	500mL	250mL						

SAMPLE ANALYSIS	Semi-VOA - 8270A (ETF)	VOA - 8260A (ETF)	Conductivity - 120.1	Ignitability - 1010						

Sample No.	Matrix *	Sample Date	Sample Time								
J00FX5	WATER	1-14-03	1240	X	X	X	X				
J00FX6	WATER	1-14-03	1210	X	X	X	X				

CHAIN OF POSSESSION		Sign/Print Names		SPECIAL INSTRUCTIONS		Matrix * S=Soil SE=Settlement SO=Solid Sl=Sludge W=Water O=Oil A=Air DS=Drum Solids DL=Drum Liquids T=Tissue WI=Wipe L=Liquid V=Vegetation X=Other
Relinquished By/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 or method 9056 will not be met. ** The laboratory is to analyze pH within 24 hours of sample receipt.		
R. Fahlberg	1-14-03 1300	105D HMSR	1-14-03 1300			
105D HMSR	1-15-03 1000	R. Fahlberg	1-15-03 1100			
R. Fahlberg	1-15-03 1300	1-B 3728	1-15-03 1300			
1-B 3728	1-16-03 1000	R. Fahlberg	1-16-03 1000			
R. Fahlberg	1-16-03 1800	Ex				
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time			
See Ex	1-17-03 0922	J. D. ...	1-17-03 0922			

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

LIONVILLE LABORATORY INCORPORATED

SAMPLE RECEIPT CHECKLIST

AGENT: *TNU Hanford*

Purchase Order/Project:

DATE: *1-17-03*

F#/SOW# / Release #: *B01-108*

Laboratory SDG #:

0301L515

NOTE: ALL ENTRIES MARKED "NO" MUST BE EXPLAINED IN THE COMMENT SECTION

- | | | | | |
|--|---|--|---|--|
| 1. Custody seals on coolers or shipping container intact, signed and dated? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 2. Outside of coolers or shipping containers are free from damage? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 3. Airbill # recorded? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 4. All expected paperwork received (coc and other client specific: historical data, alpha/beta or other screening data as applicable)? (paperwork sealed in plastic bag and taped to inside lid) | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 5. Sample containers are intact? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 6. Custody seals on sample containers intact, signed and dated? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 7. All samples on coc received? | <input checked="" type="checkbox"/> Yes | <input checked="" type="checkbox"/> No | <input type="checkbox"/> N/A | <input checked="" type="checkbox"/> see Comment # <i>1</i> |
| 8. All sample label information matches coc? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 9. Laboratory QC samples designated on coc? (QC stickers placed on bottles?) | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input checked="" type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 10. Shipment meets LvLI Sample Acceptance Policy? (identify all bottles not within policy. See reverse side for policy) | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No | <input type="checkbox"/> N/A | <input checked="" type="checkbox"/> see Comment # <i>2</i> |
| 11. Where applicable, bar code labels are affixed to coc? | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 12. coc signed and dated? | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 13. coc will be faxed or emailed to client? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 14. Project Manager/Client contacted concerning discrepancies? (name/date) | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |

Cooler # / temp (°C) and Comments:

ERC-01-024 / 0.9°

ERC-02-101 / 0.5°

ERC-02-002 / 0.8°

#1 did not receive PCB bottles for sample 004 + BNA #C
 Did not receive 1 bot for BNA samp. 005 (1 bottle)

#2 headspace in all TOC sample
 all IC Anions out of hold.
 (check) Missing page 1 & 2 for samples TOC#3, TOC#4, TOC#5

Laboratory Sample Custodian:

Laboratory Project Manager:

[Signature]

FEB 2003

Lionville Laboratory, Inc.
PCB ANALYTICAL DATA PACKAGE FOR
TNU-HANFORD B01-108; H2047

DATE RECEIVED: 01/17/03

LVL LOT # :0301L515

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J00FX3	001	W	03LE0077	01/14/03	01/21/03	01/24/03
J00FX3	001 MS	W	03LE0077	01/14/03	01/21/03	01/24/03
J00FX3	001 MSD	W	03LE0077	01/14/03	01/21/03	01/24/03
J00FX4	002	W	03LE0077	01/14/03	01/21/03	01/24/03
J00FX5	004	W	03LE0077	01/14/03	01/21/03	01/24/03
J00FX6	005	W	03LE0077	01/14/03	01/21/03	01/24/03

LAB QC:

PBLKKT	MB1	W	03LE0077	N/A	01/21/03	01/23/03
PBLKKT	MB1 BS	W	03LE0077	N/A	01/21/03	01/24/03
PBLKKT	MB1 BSD	W	03LE0077	N/A	01/21/03	01/24/03

Jan 17/03



Analytical Report

Client: TNU-HANFORD B01-108
LVL #: 0301L515
SDG/SAF #: H2047/B01-108

W.O. #: 11343-606-001-9999-00
Date Received: 01-17-2003

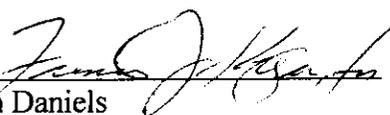
PCB

Four (4) water samples were collected on 01-14-2003.

The samples and their associated QC samples were extracted on 01-21-2003 and analyzed according to Lionville Laboratory OPs based on SW846, 3rd Edition procedures on 01-23,24-2003. The extraction procedure was based on method 3540 and the extracts were analyzed based on method 8082 for Aroclors only.

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

1. All results presented in this report are derived from samples that met LvLI's sample acceptance policy with the exception of some discrepancies, which have been recorded on the Sample Receipt Checklist (p-11).
2. The required holding time for extraction and analysis has been met.
3. Samples and their associated QC samples received a Sulfuric Acid cleanup.
4. The method blank was below the reporting limits for all target compounds.
5. All surrogate recoveries were within acceptance criteria.
6. All blank spike recoveries were within acceptance criteria.
7. All matrix spike recoveries were within acceptance criteria.
8. All initial calibrations associated with this data set were within acceptance criteria .
9. All continuing calibration standards analyzed prior to sample extracts were within acceptance criteria.
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.


Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated


Date

son\tr\group\data\pest\tnu hanford\01L-515.pcb

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 11 pages.



GLOSSARY OF PESTICIDE/PCB DATA

DATA QUALIFIERS

- U** = Indicates that the compound was analyzed for but not detected. The minimum detection limit for the sample (not the method detection limit) is reported with the U (e.g., 10U).
- J** = Indicates an estimated value. This flag is used in cases where a target analyte is detected at a level less than the lower quantification level. If the limit of quantification 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.
- E** = Indicates that the compound was detected beyond the calibration range and was subsequently analyzed at a dilution.
- I** = Interference.

ABBREVIATIONS

- BS** = Indicates blank spike in which reagent grade water is spiked with the CLP matrix spiking 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** = Indicates that recoveries were not obtained because the extract had to be diluted for analysis.
- NA** = Not Applicable.
- DF** = Dilution Factor.
- NR** = Not Required.
- SP** = Indicates Spiked Compound.



GLOSSARY OF PESTICIDE/PCB DATA

- = This flag is used for an PESTICIDE/PCB target analyte when there is greater than 25% difference for detected concentrations between the two GC columns (see Form X). The lower of the two values is reported on Form I and flagged with a "P".
- D = This flag identifies all compounds identified in an analysis at a secondary dilution factor.
- C = This flag applies to a compound that has been confirmed by GC/MS.

Lionville Laboratory, Inc.

PCBs by GC

Report Date: 01/24/03 16:54

RFW Batch Number: 0301L515

Client: TNU-HANFORD B01-108, H 2047 Work Order: 11343606001 Page: 1

Sample Information	Cust ID:	J00FX3	J00FX3	J00FX3	J00FX4	J00FX5	J00FX6
	RFW#:	001	001 MS	001 MSD	002	004	005
	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:	Tetrachloro-m-xylene	95 %	90 %	85 %	90 %	85 %	75 %
	Decachlorobiphenyl	55 %	70 %	45 %	50 %	85 %	65 %
		=====fl=====	=====fl=====	=====fl=====	=====fl=====	=====fl=====	=====fl=====
Aroclor-1016		1.0 U	85 %	78 %	1.0 U	1.0 U	1.0 U
Aroclor-1221		2.1 U	2.0 U				
Aroclor-1232		1.0 U					
Aroclor-1242		1.0 U					
Aroclor-1248		1.0 U					
Aroclor-1254		1.0 U					
Aroclor-1260		1.0 U	87 %	70 %	1.0 U	1.0 U	1.0 U

Sample Information	Cust ID:	PBLKKT	PBLKKT BS	PBLKKT BSD
	RFW#:	03LE0077-MB1	03LE0077-MB1	03LE0077-MB1
	Matrix:	WATER	WATER	WATER
	D.F.:	1.00	1.00	1.00
	Units:	UG/L	UG/L	UG/L
Surrogate:	Tetrachloro-m-xylene	90 %	90 %	90 %
	Decachlorobiphenyl	105 %	105 %	110 %
		=====fl=====	=====fl=====	=====fl=====
Aroclor-1016		1.0 U	92 %	82 %
Aroclor-1221		2.0 U	2.0 U	2.0 U
Aroclor-1232		1.0 U	1.0 U	1.0 U
Aroclor-1242		1.0 U	1.0 U	1.0 U
Aroclor-1248		1.0 U	1.0 U	1.0 U
Aroclor-1254		1.0 U	1.0 U	1.0 U
Aroclor-1260		1.0 U	94 %	90 %

Handwritten signature

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

Bechtel Hanford Inc.			CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST						B01-108-025		Page 1 of 2				
Collector GALE			Company Contact RIKKI THOREN		Telephone No. 521-8003		Project Coordinator KESSNER, JH		Price Code 7L		Data Turnaround 21 Days				
Project Designation 105-D/H Rx Waste Water Sampling			Sampling Location 100-H		SAF No. B01-108		Air Quality <input type="checkbox"/>								
Ice Chest No. SEE OSPC			Field Logbook No. EL-1518-2		COA R105HX2F2C		Method of Shipment FED EX								
Shipped To TMA/RECRA			Offsite Property No. 17030-106				Bill of Lading/Air Bill No. SEE OSPC								
POSSIBLE SAMPLE HAZARDS/REMARKS Tie To JOO FX1 RADIOACTIVE Special Handling and/or Storage Cool 4°C				Preservation	HNO3 to pH <2	None	None	HNO3 to pH <2	NaOH to pH >= 12 Cool 4C	ZnAc+NaOH to pH >9 Cool	Cool 4C	Cool 4C	HCl to pH <2 Cool 4C	Cooled to 4C	
				Type of Container	P	P		P	P	P	P	P	P	aG	aG
				No. of Container(s)	5	1	1	1	1	1	1	1	1	1	4
				Volume	1000mL	125mL	125mL	500mL	500mL	500mL	500mL	500mL	500mL	125mL	1000mL
SAMPLE ANALYSIS				See item (1) in Special Instructions.	Tritium - 133	Carbon-14	See item (2) in Special Instructions.	Total Cyanide - 9010	Sulfides - 9030	See item (3) in Special Instructions.	TSS - 160.2; TDS - 160.1	TOC - 415.1	PCBs - 8082		
Sample No.	Matrix *	Sample Date	Sample Time												
J00FX3	WATER	1-14-03	0850				X	X	X	X	X	X	X		
J00FX4	WATER	1-14-03	0910				X	X	X	X	X	X	X		
J00207	WATER														
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 or method 9056 will not be met. ** The laboratory is to analyze pH within 24 hours of sample receipt. (1) Americium-241; Gamma Spectroscopy(Water) (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); Gamma Spec - Add-on (Barium-133); Nickel-63; Neptunium-237; Isotopic Plutonium; Strontium-89,90 -- Total Sr; Isotopic Thorium (Thorium-228, Thorium-232); Isotopic Uranium (2) ICP Metals - 6010A (TAL) (Barium, Cadmium, Chromium, Silver); ICP Metals - 6010A (Add-on) (Arsenic, Lead, Selenium); Mercury - 7470 - (CV) (3) IC Anions - 300.0 (Bromide, Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate); pH (Water) - 9040 Personnel not available to relinquish samples from the 3728 Ref # 1A on 1/16/03					S=Soil SE=Sediment SO=Solid SL=Sludge W=Water O=Oil A=Air DS=Drum Solids DL=Drum Liquids T=Tissue WI=Wipe L=Liquid V=Vegetation X=Other		
3 J GALE		1/14/03 1600		REF 1A		1/14/03 1600									
LA 3729		1-16-03 1000		R. Felle		1-16-03									
ERC		1000		Fed Ex											
1-17-03 0932		1-17-03 0932													
LABORATORY SECTION	Received By	Title				Date/Time									
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By				Date/Time									

Bechtel Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST					B01-108-025	Page 2 of 2													
Collector GALE		Company Contact RIKKI THOREN		Telephone No. 521-8003		Project Coordinator KESSNER, JH		Price Code 7L	Data Turnaround 21 Days												
Project Designation 105-D/H Rx Waste Water Sampling		Sampling Location 100-H			SAF No. B01-108		Air Quality <input type="checkbox"/>														
Ice Chest No. <i>SEE OSR</i>		Field Logbook No. EL-1518-2		COA R105HX2F2C		Method of Shipment FED EX															
Shipped To TMA (RECRE)		Offsite Property No. <i>A030 106</i>			Bill of Lading/Air Bill No. <i>SEE OSR</i>																
POSSIBLE SAMPLE HAZARDS/REMARKS <i>Tie To J00 FX1</i> RADIOACTIVE Special Handling and/or Storage <i>COOL 4°C</i>				Preservation		Cool 4C	HCl to pH <2 Cool 4C	Cool 4C	None												
				Type of Container		aG	aGs*	P	aG												
				No. of Container(s)		2	3	1	1												
				Volume		1000mL	20mL	500mL	250mL												
				SAMPLE ANALYSIS		Semi-VOA - 8270A (ETF)	VOA - 8260A (ETF)	Conductivity - 120.1	Ignitability - 1010												
Sample No.	Matrix *	Sample Date	Sample Time																		
J00FX3	WATER	<i>1-14-03</i>	<i>0850</i>	X		X	X														
J00FX4	WATER	<i>1-14-03</i>	<i>0910</i>	X	X	X	X														
<i>J00207</i>	<i>WATER</i>	<i>1-13-03</i>	<i>1345</i>		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 or method 9056 will not be met. ** The laboratory is to analyze pH within 24 hours of sample receipt. Personnel not available to relinquish samples from the 372# Ref# <i>1A</i> on <i>1/16/03</i>					S=Soil SE=Sediment SO=Solid SL=Sludge W=Water O=Oil A=Air DS=Drum Solids DL=Drum Liquids T=Tissue WL=Wipe L=Liquid V=Vegetation X=Other								
<i>SJGALC D/SAL</i>		<i>1/14/03 1600</i>		<i>REF 1A</i>		<i>1/14/03 1600</i>															
<i>1A 3728</i>		<i>1-16-03 1000</i>		<i>R. F. Hill</i>		<i>1-16-03</i>															
<i>ERC</i>		<i>1000</i>		<i>Fed Ex</i>																	
<i>R. F. Hill</i>		<i>1-16-03</i>		<i>Fed Ex</i>																	
<i>Geo Ex</i>		<i>1-17-03 0922</i>		<i>D. J. Miller</i>		<i>1-17-03 0922</i>															
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										

Bechtel Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				B01-108-026	Page 1 of 2
Collector GALE / FAHLBERG	Company Contact RIKKI THOREN	Telephone No. 521-8003	Project Coordinator KESSNER, JH		Price Code 7L	Data Turnaround 21 Days	
Project Designation 105-D/H Rx Waste Water Sampling	Sampling Location 100-D	SAF No. B01-108	Air Quality <input type="checkbox"/>				
Ice Chest No. SEE OSRC	Field Logbook No. EL-1518-2	COA R105DX2R2E 1-16-03	Method of Shipment FED EX				
Shipped To TMA/RECRA	Offsite Property No. A030 106	Bill of Lading/Air Bill No. SEE OSRC					

POSSIBLE SAMPLE HAZARDS/REMARKS Radionuclide Tie To J00FX2 Special Handling and/or Storage Cool 14°C	Preservation	HNO3 to pH <2	None	None	HNO3 to pH <2	NaOH to pH >= 12 Cool 4C	ZnAc+NaOH to pH >9 Cool	Cool 4C	Cool 4C	HCl to pH <2 Cool 4C	Cooled to 4C
	Type of Container	P	P	P	P	P	P	P	P	aG	aG
	No. of Container(s)	5	1	1	1	1	1	1	1	1	4
	Volume	1000mL	125mL	125mL	500mL	500mL	500mL	500mL	500mL	125mL	1000mL

SAMPLE ANALYSIS				See item (1) in Special Instructions.	Tridium - H ³	Carbon-14	See item (2) in Special Instructions.	Total Cyanide - 9010	Sulfides - 9030	See item (3) in Special Instructions.	TSS - 160.2; TDS - 160.1	TOC - 413.1	PCBs - 8082
Sample No.	Matrix *	Sample Date	Sample Time										
J00FX5	WATER	1-14-03	1240				X	X	X	X	X	X	X
J00FX6	WATER	1-14-03	1210				X	X	X	X	X	X	X

CHAIN OF POSSESSION		Sign/Print Names		SPECIAL INSTRUCTIONS		Matrix *
Relinquished By/Removed From R. Fahlgren Date/Time 1-14-03 1300	Received By/Stored In JOS D H M S R Date/Time 1-14-03 1300			** The ERC acknowledges that the analytical holding time for Nitrate by EPA Method 300.0 or method 9056 will not be met. ** The laboratory is to analyze pH within 24 hours of sample receipt.		S=Soil SE=Sediment SO=Solid SL=Sludge W=Water O=Oil A=Air DS=Drum Solids DL=Drum Liquids T=Tissue WI=Wipe L=Liquid V=Vegetation X=Other
Relinquished By/Removed From JOS D H M S R Date/Time 1-14-03 1000	Received By/Stored In R. Fahlgren Date/Time 1-15-03 1000			(1) Americium-241; Gamma Spectroscopy(Water) (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); Gamma Spec - Add-on (Barium-133); Nickel-63; Neptunium-237; Isotopic Plutonium; Strontium-89,90 - Total Sr; Isotopic Thorium (Thorium-228, Thorium-232); Isotopic Uranium		
Relinquished By/Removed From R. Fahlgren Date/Time 1-15-03 1300	Received By/Stored In 1-B 3728 Date/Time 1-15-03 1300			(2) ICP Metals - 6010A (TAL) (Barium, Cadmium, Chromium, Silver); ICP Metals - 6010A (Add-on) (Arsenic, Lead, Selenium); Mercury - 7470 - (CV)		
Relinquished By/Removed From 1-B 3728 Date/Time 1-16-03 1000	Received By/Stored In R. Fahlgren Date/Time 1-16-03 1000			(3) IC Anions - 300.0 (Bromide, Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate); pH (Water) - 9040		
Relinquished By/Removed From R. Fahlgren Date/Time 1-16-03 1000	Received By/Stored In FED EX Date/Time					
Relinquished By/Removed From FED EX Date/Time 1-17-03 0922	Received By/Stored In JOS D H M S R Date/Time 1-17-03 0922					

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

Bechtel Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST						B01-108-026		Page 2 of 2				
Collector GALE / FAHLBERG		Company Contact RIKKI THOREN		Telephone No. 521-8003		Project Coordinator KESSNER, JH		Price Code 7L		Data Turnaround 21 Days				
Project Designation 105-D/H Rx Waste Water Sampling		Sampling Location 100-D		SAF No. B01-108		Air Quality <input type="checkbox"/>								
Ice Chest No. SEE OSA		Field Logbook No. EL-1518-2		COA R105DX2F2E 1-15-03		Method of Shipment FED EX								
Shipped To TMA RECRA		Offsite Property No. A030 106				Bill of Lading/Air Bill No. SEE OSA								
POSSIBLE SAMPLE HAZARDS/REMARKS Radioactive T1e To J00 Fx2 Special Handling and/or Storage Cool 40C				Preservation		Cool 4C	HCl to pH <2 Cool 4C	Cool 4C	None					
				Type of Container		aG	aGs*	P	aG					
				No. of Container(s)		2	3	1	1					
				Volume		1000mL	20mL	500mL	250mL					
				SAMPLE ANALYSIS				Semi-VOA - 8270A (ETF)	VOA - 8260A (ETF)	Conductivity - 120.1	Ignitability - 1010			
Sample No.	Matrix *	Sample Date	Sample Time											
J00FX5	WATER	1-14-03	1240	X	K	X	X							
J00FX6	WATER	1-14-03	1210	X	X	X	X							
CHAIN OF POSSESSION				Sign/Print Names				SPECIAL INSTRUCTIONS				Matrix *		
Relinquished By/Removed From R. F. Felder		Date/Time 1-14-03 1300		Received By/Stored In 105D HMSR		Date/Time 1-14-03 1300		** The ERC acknowledges that the analytical holding time for Nitrate by EPA Method 300.0 or method 9056 will not be met. ** The laboratory is to analyze pH within 24 hours of sample receipt.				S=Soil SE=Sediment SO=Solid Sl=Sludge W=Water O=Oil A=Air DS=Drum Solids DL=Drum Liquids T=Tissue Wl=Wipe L=Liquid V=Vegetation X=Other		
Relinquished By/Removed From 105D HMSR		Date/Time 1-15-03 1000		Received By/Stored In R. F. Felder R. Fahlgren		Date/Time 1-15-03 1100								
Relinquished By/Removed From R. F. Felder R. Fahlgren		Date/Time 1-15-03 1300		Received By/Stored In 1-B 3728		Date/Time 1-15-03 1300								
Relinquished By/Removed From 1-B 3728		Date/Time 1-16-03 1000		Received By/Stored In R. F. Felder R. Fahlgren		Date/Time 1-16-03 1000								
Relinquished By/Removed From R. F. Felder R. Fahlgren		Date/Time 1-16-03 1500		Received By/Stored In FedEx		Date/Time								
Relinquished By/Removed From FedEx		Date/Time 1-17-03 0922		Received By/Stored In S. J. D. [Signature]		Date/Time 1-17-03 0922								
LABORATORY SECTION		Received By		Title		Date/Time								
FINAL SAMPLE DISPOSITION		Disposal Method		Disposed By				Date/Time						

LIONVILLE LABORATORY INCORPORATED SAMPLE RECEIPT CHECKLIST

CLIENT: TNU Hanford

Purchase Order/Project:

DATE: 1-17-03

F# / SOW# / Release #: B01-108

Laboratory SDG #: 0301L515

NOTE: ALL ENTRIES MARKED "NO" MUST BE EXPLAINED IN THE COMMENT SECTION

- | | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
|--|-------------------------------------|-------------------------------------|-------------------------------------|--|
| 1. Custody seals on coolers or shipping container intact, signed and dated? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 2. Outside of coolers or shipping containers are free from damage? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 3. Airbill # recorded? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 4. All expected paperwork received (coc and other client specific: historical data, alpha/beta or other screening data as applicable)? (paperwork sealed in plastic bag and taped to inside lid) | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 5. Sample containers are intact? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 6. Custody seals on sample containers intact, signed and dated? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 7. All samples on coc received? | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 8. All sample label information matches coc? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 9. Laboratory QC samples designated on coc? (QC stickers placed on bottles?) | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 10. Shipment meets Lvl1 Sample Acceptance Policy? (identify all bottles not within policy. See reverse side for policy) | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 11. Where applicable, bar code labels are affixed to coc? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 12. coc signed and dated? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 13. coc will be faxed or emailed to client? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 14. Project Manager/Client contacted concerning discrepancies? (name/date) | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

eJ. / 1-17-03

Cooler # / temp (°C) and Comments:

ERC-01-024 / 0.9°

ERC-02-101 / 0.5°

ERC-02-002 / 0.8°

#1 did not receive PCB bottles for sample 001 + BNA #0
 Did not receive 1 bot for BNA samp. 005 (1 bot 1/2)
 #2 headspace in all TOC samples all IC Anions out of hold.
 (clar) Missing page 1 of 2 for samples J04E13, J04E14, J04E15

Laboratory Sample Custodian:

Laboratory Project Manager:

[Handwritten Signature]

FEB 2003

Lionville Laboratory, Inc.
 INORGANIC ANALYTICAL DATA PACKAGE FOR
 TNUHANFORD B01-108 H2047

DATE RECEIVED: 01/17/03

LVL LOT # :0301L515

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J00FX3						
SILVER, SOLUBLE	001	W	03L0041	01/14/03	01/24/03	01/27/03
SILVER, SOLUBLE	001 REP	W	03L0041	01/14/03	01/24/03	01/27/03
ARSENIC, SOLUBLE	001	W	03L0041	01/14/03	01/24/03	01/27/03
ARSENIC, SOLUBLE	001 REP	W	03L0041	01/14/03	01/24/03	01/27/03
BARIUM, SOLUBLE	001	W	03L0041	01/14/03	01/24/03	01/27/03
BARIUM, SOLUBLE	001 REP	W	03L0041	01/14/03	01/24/03	01/27/03
CADMIUM, SOLUBLE	001	W	03L0041	01/14/03	01/24/03	01/27/03
CADMIUM, SOLUBLE	001 REP	W	03L0041	01/14/03	01/24/03	01/27/03
CHROMIUM, SOLUBLE	001	W	03L0041	01/14/03	01/24/03	01/27/03
CHROMIUM, SOLUBLE	001 REP	W	03L0041	01/14/03	01/24/03	01/27/03
MERCURY, SOLUBLE	001	W	03C0016	01/14/03	01/28/03	01/29/03
MERCURY, SOLUBLE	001 REP	W	03C0016	01/14/03	01/28/03	01/29/03
LEAD, SOLUBLE	001	W	03L0041	01/14/03	01/24/03	01/27/03
LEAD, SOLUBLE	001 REP	W	03L0041	01/14/03	01/24/03	01/27/03
SELENIUM, SOLUBLE	001	W	03L0041	01/14/03	01/24/03	01/27/03
SELENIUM, SOLUBLE	001 REP	W	03L0041	01/14/03	01/24/03	01/27/03
J00FX4						
SILVER, SOLUBLE	002	W	03L0041	01/14/03	01/24/03	01/27/03
SILVER, SOLUBLE	002 MS	W	03L0041	01/14/03	01/24/03	01/27/03
ARSENIC, SOLUBLE	002	W	03L0041	01/14/03	01/24/03	01/27/03
ARSENIC, SOLUBLE	002 MS	W	03L0041	01/14/03	01/24/03	01/27/03
BARIUM, SOLUBLE	002	W	03L0041	01/14/03	01/24/03	01/27/03
BARIUM, SOLUBLE	002 MS	W	03L0041	01/14/03	01/24/03	01/27/03
CADMIUM, SOLUBLE	002	W	03L0041	01/14/03	01/24/03	01/27/03
CADMIUM, SOLUBLE	002 MS	W	03L0041	01/14/03	01/24/03	01/27/03
CHROMIUM, SOLUBLE	002	W	03L0041	01/14/03	01/24/03	01/27/03
CHROMIUM, SOLUBLE	002 MS	W	03L0041	01/14/03	01/24/03	01/27/03
MERCURY, SOLUBLE	002	W	03C0016	01/14/03	01/28/03	01/29/03
MERCURY, SOLUBLE	002 MS	W	03C0016	01/14/03	01/28/03	01/29/03
LEAD, SOLUBLE	002	W	03L0041	01/14/03	01/24/03	01/27/03
LEAD, SOLUBLE	002 MS	W	03L0041	01/14/03	01/24/03	01/27/03
SELENIUM, SOLUBLE	002	W	03L0041	01/14/03	01/24/03	01/27/03
SELENIUM, SOLUBLE	002 MS	W	03L0041	01/14/03	01/24/03	01/27/03

Lionville Laboratory, Inc.
 INORGANIC ANALYTICAL DATA PACKAGE FOR
 TNUHANFORD B01-108 H2047

DATE RECEIVED: 01/17/03

LVL LOT # :0301L515

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J00FX5						
SILVER, SOLUBLE	004	W	03L0041	01/14/03	01/24/03	01/27/03
ARSENIC, SOLUBLE	004	W	03L0041	01/14/03	01/24/03	01/27/03
BARIUM, SOLUBLE	004	W	03L0041	01/14/03	01/24/03	01/27/03
CADMIUM, SOLUBLE	004	W	03L0041	01/14/03	01/24/03	01/27/03
CHROMIUM, SOLUBLE	004	W	03L0041	01/14/03	01/24/03	01/27/03
MERCURY, SOLUBLE	004	W	03C0016	01/14/03	01/28/03	01/29/03
LEAD, SOLUBLE	004	W	03L0041	01/14/03	01/24/03	01/27/03
SELENIUM, SOLUBLE	004	W	03L0041	01/14/03	01/24/03	01/27/03

J00FX6						
SILVER, SOLUBLE	005	W	03L0041	01/14/03	01/24/03	01/27/03
ARSENIC, SOLUBLE	005	W	03L0041	01/14/03	01/24/03	01/27/03
BARIUM, SOLUBLE	005	W	03L0041	01/14/03	01/24/03	01/27/03
CADMIUM, SOLUBLE	005	W	03L0041	01/14/03	01/24/03	01/27/03
CHROMIUM, SOLUBLE	005	W	03L0041	01/14/03	01/24/03	01/27/03
MERCURY, SOLUBLE	005	W	03C0016	01/14/03	01/28/03	01/29/03
LEAD, SOLUBLE	005	W	03L0041	01/14/03	01/24/03	01/27/03
SELENIUM, SOLUBLE	005	W	03L0041	01/14/03	01/24/03	01/27/03

LAB QC:

SILVER LABORATORY	LC1 BS	W	03L0041	N/A	01/24/03	01/27/03
SILVER, TOTAL	MB1	W	03L0041	N/A	01/24/03	01/27/03
ARSENIC LABORATORY	LC1 BS	W	03L0041	N/A	01/24/03	01/27/03
ARSENIC, TOTAL	MB1	W	03L0041	N/A	01/24/03	01/27/03
BARIUM LABORATORY	LC1 BS	W	03L0041	N/A	01/24/03	01/27/03
BARIUM, TOTAL	MB1	W	03L0041	N/A	01/24/03	01/27/03
CADMIUM LABORATORY	LC1 BS	W	03L0041	N/A	01/24/03	01/27/03
CADMIUM, TOTAL	MB1	W	03L0041	N/A	01/24/03	01/27/03
CHROMIUM LABORATORY	LC1 BS	W	03L0041	N/A	01/24/03	01/27/03
CHROMIUM, TOTAL	MB1	W	03L0041	N/A	01/24/03	01/27/03
MERCURY LABORATORY	LC1 BS	W	03C0016	N/A	01/28/03	01/29/03
MERCURY, TOTAL	MB1	W	03C0016	N/A	01/28/03	01/29/03
MERCURY, TCLP LEACHA	MB2	W	03C0016	N/A	01/28/03	01/29/03

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B01-108 H2047

DATE RECEIVED: 01/17/03

LVL LOT # :0301L515

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
MERCURY, TCLP LEACHA	MB3	W	03C0016	N/A	01/28/03	01/29/03
LEAD LABORATORY	LC1 BS	W	03L0041	N/A	01/24/03	01/27/03
LEAD, TOTAL	MB1	W	03L0041	N/A	01/24/03	01/27/03
SELENIUM LABORATORY	LC1 BS	W	03L0041	N/A	01/24/03	01/27/03
SELENIUM, TOTAL	MB1	W	03L0041	N/A	01/24/03	01/27/03



Analytical Report

Client: TNU-HANFORD B01-108
LVL#: 0301L515
SDG/SAF#: H2047/B01-108

W.O.#: 11343-606-001-9999-00
Date Received: 01-17-03

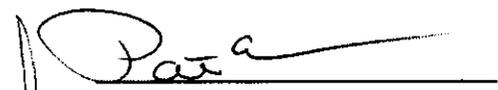
METALS CASE NARRATIVE

1. This narrative covers the analyses of 4 water samples.
2. The samples were prepared and analyzed in accordance with methods checked on the attached glossary.

Aliquots from unpreserved bottles were filtered, but not preserved, prior to digestion for ICP metals and Mercury, per project manager request.
3. All analyses were performed within the required holding times.
4. Please refer to the Sample Receipt Check List for sample discrepancies in LVL's sample acceptance policy.
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. All preparation/method blanks (MB) were within method criteria {less than the Practical Quantitation Limit (3X the IDL), or samples greater than 20X MB value}. Refer to the Inorganics Method Blank Data Summary.
8. All ICP Interference Check Standards were within control limits.
9. All laboratory control samples (LCS) were within the 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 analysis for 1 analyte was outside the 20% Relative Percent Difference (RPD) control limits. Refer to the Inorganics Precision Report.

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 18 pages.

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


Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated
jjw/m01-515

01-31-03
Date

METALS METHOD GLOSSARY

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

Lot#: 0301L515

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	<input type="checkbox"/> 6010B	<input type="checkbox"/> 200.7			<input type="checkbox"/> 99
Antimony	<input type="checkbox"/> 6010B <input type="checkbox"/> 7041 ⁵	<input type="checkbox"/> 200.7 <input type="checkbox"/> 204.2			<input type="checkbox"/> 99
Arsenic	<input checked="" type="checkbox"/> 6010B <input type="checkbox"/> 7060A ⁵	<input type="checkbox"/> 200.7 <input type="checkbox"/> 206.2	<input type="checkbox"/> 3113B		<input type="checkbox"/> 99
Barium	<input checked="" type="checkbox"/> 6010B	<input type="checkbox"/> 200.7			<input type="checkbox"/> 99
Beryllium	<input type="checkbox"/> 6010B	<input type="checkbox"/> 200.7			<input type="checkbox"/> 99
Bismuth	<input type="checkbox"/> 6010B ¹	<input type="checkbox"/> 200.7 ¹		<input type="checkbox"/> 1620	<input type="checkbox"/> 99
Boron	<input type="checkbox"/> 6010B	<input type="checkbox"/> 200.7			<input type="checkbox"/> 99
Cadmium	<input checked="" type="checkbox"/> 6010B <input type="checkbox"/> 7131A ⁵	<input type="checkbox"/> 200.7 <input type="checkbox"/> 213.2			<input type="checkbox"/> 99
Calcium	<input type="checkbox"/> 6010B	<input type="checkbox"/> 200.7			<input type="checkbox"/> 99
Chromium	<input checked="" type="checkbox"/> 6010B <input type="checkbox"/> 7191 ⁵	<input type="checkbox"/> 200.7 <input type="checkbox"/> 218.2			<input type="checkbox"/> SS17
Cobalt	<input type="checkbox"/> 6010B	<input type="checkbox"/> 200.7			<input type="checkbox"/> 99
Copper	<input type="checkbox"/> 6010B <input type="checkbox"/> 7211 ⁵	<input type="checkbox"/> 200.7 <input type="checkbox"/> 220.2			<input type="checkbox"/> 99
Iron	<input type="checkbox"/> 6010B	<input type="checkbox"/> 200.7			<input type="checkbox"/> 99
Lead	<input checked="" type="checkbox"/> 6010B <input type="checkbox"/> 7421 ⁵	<input type="checkbox"/> 200.7 <input type="checkbox"/> 239.2	<input type="checkbox"/> 3113B		<input type="checkbox"/> 99
Lithium	<input type="checkbox"/> 6010B <input type="checkbox"/> 7430 ⁴	<input type="checkbox"/> 200.7		<input type="checkbox"/> 1620	<input type="checkbox"/> 99
Magnesium	<input type="checkbox"/> 6010B	<input type="checkbox"/> 200.7			<input type="checkbox"/> 99
Manganese	<input type="checkbox"/> 6010B	<input type="checkbox"/> 200.7			<input type="checkbox"/> 99
Mercury	<input checked="" type="checkbox"/> 7470A ³ <input type="checkbox"/> 7471A ³	<input type="checkbox"/> 245.1 ² <input type="checkbox"/> 245.5 ²			<input type="checkbox"/> 99
Molybdenum	<input type="checkbox"/> 6010B	<input type="checkbox"/> 200.7			<input type="checkbox"/> 99
Nickel	<input type="checkbox"/> 6010B	<input type="checkbox"/> 200.7			<input type="checkbox"/> 99
Potassium	<input type="checkbox"/> 6010B <input type="checkbox"/> 7610 ⁴	<input type="checkbox"/> 200.7 <input type="checkbox"/> 258.1 ⁴			<input type="checkbox"/> 99
Rare Earths	<input type="checkbox"/> 6010B ¹	<input type="checkbox"/> 200.7 ¹		<input type="checkbox"/> 1620	<input type="checkbox"/> 99
Selenium	<input checked="" type="checkbox"/> 6010B <input type="checkbox"/> 7740 ⁵	<input type="checkbox"/> 200.7 <input type="checkbox"/> 270.2	<input type="checkbox"/> 3113B		<input type="checkbox"/> 99
Silicon	<input type="checkbox"/> 6010B ¹	<input type="checkbox"/> 200.7		<input type="checkbox"/> 1620	<input type="checkbox"/> 99
Silica	<input type="checkbox"/> 6010B	<input type="checkbox"/> 200.7		<input type="checkbox"/> 1620	<input type="checkbox"/> 99
Silver	<input checked="" type="checkbox"/> 6010B <input type="checkbox"/> 7761 ⁵	<input type="checkbox"/> 200.7 <input type="checkbox"/> 272.2			<input type="checkbox"/> 99
Sodium	<input type="checkbox"/> 6010B <input type="checkbox"/> 7770 ⁴	<input type="checkbox"/> 200.7 <input type="checkbox"/> 273.1 ⁴			<input type="checkbox"/> 99
Strontium	<input type="checkbox"/> 6010B	<input type="checkbox"/> 200.7			<input type="checkbox"/> 99
Thallium	<input type="checkbox"/> 6010B <input type="checkbox"/> 7841 ⁵	<input type="checkbox"/> 200.7 <input type="checkbox"/> 279.2 <input type="checkbox"/> 200.9			<input type="checkbox"/> 99
Tin	<input type="checkbox"/> 6010B	<input type="checkbox"/> 200.7			<input type="checkbox"/> 99
Titanium	<input type="checkbox"/> 6010B	<input type="checkbox"/> 200.7			<input type="checkbox"/> 99
Uranium	<input type="checkbox"/> 6010B ¹	<input type="checkbox"/> 200.7 ¹		<input type="checkbox"/> 1620	<input type="checkbox"/> 99
Vanadium	<input type="checkbox"/> 6010B	<input type="checkbox"/> 200.7			<input type="checkbox"/> 99
Zinc	<input type="checkbox"/> 6010B	<input type="checkbox"/> 200.7			<input type="checkbox"/> 99
Zirconium	<input type="checkbox"/> 6010B ¹	<input type="checkbox"/> 200.7 ¹		<input type="checkbox"/> 1620	<input type="checkbox"/> 99

Other: _____

Method: _____

METHOD REFERENCES AND DATA QUALIFIERS

DATA QUALIFIERS

- U = Indicates that the parameter was not detected at or above the reported limit. The associated numerical value is the sample detection limit.
- * = Indicates that the original sample result is greater than 4x the spike amount added.

ABBREVIATIONS

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

ANALYTICAL METAL METHODS

1. Not included in the method element list.
2. Modified Hg: Hg1 and Hg2 require less total volume of digestate due to the autosampler analysis. Sample volumes and reagents for mercury determinations in water and soil have been proportionately scaled down to adapt to this semi-automated technique. The sample volume used for water analysis is 33 mL. For soils, 0.1 grams of sample is taken to a final volume of 50 mL (including all reagents).
3. Modified Hg: Hg1 and Hg2 require less total volume of digestate due to the autosampler analysis. Sample volumes and reagents for mercury determinations in water and soil have been proportionately scaled down to adapt to this semi-automated technique. The sample volume used for water analysis is 33 mL. For soils, three 0.1 gram of sample is taken to a final volume of 50 mL (including all reagents).
4. Flame AA.
5. Graphite Furnace AA.

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

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 01/30/03

CLIENT: TNUHANFORD B01-108 H2047
 WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0301L515

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	J00FX3	Silver, Soluble	0.80 u	UG/L	0.80	1.0
		Arsenic, Soluble	36.3	UG/L	3.5	1.0
		Barium, Soluble	46.0	UG/L	0.10	1.0
		Cadmium, Soluble	0.40 u	UG/L	0.40	1.0
		Chromium, Soluble	4.0	UG/L	0.60	1.0
		Mercury, Soluble	0.10 u	UG/L	0.10	1.0
		Lead, Soluble	2.6 u	UG/L	2.6	1.0
		Selenium, Soluble	4.8	UG/L	3.6	1.0
-002	J00FX4	Silver, Soluble	0.80 u	UG/L	0.80	1.0
		Arsenic, Soluble	35.8	UG/L	3.5	1.0
		Barium, Soluble	45.6	UG/L	0.10	1.0
		Cadmium, Soluble	0.40 u	UG/L	0.40	1.0
		Chromium, Soluble	3.8	UG/L	0.60	1.0
		Mercury, Soluble	0.10 u	UG/L	0.10	1.0
		Lead, Soluble	2.6 u	UG/L	2.6	1.0
		Selenium, Soluble	4.2	UG/L	3.6	1.0
-004	J00FX5	Silver, Soluble	0.80 u	UG/L	0.80	1.0
		Arsenic, Soluble	3.5 u	UG/L	3.5	1.0
		Barium, Soluble	20.7	UG/L	0.10	1.0
		Cadmium, Soluble	0.40 u	UG/L	0.40	1.0
		Chromium, Soluble	0.60 u	UG/L	0.60	1.0
		Mercury, Soluble	0.10 u	UG/L	0.10	1.0
		Lead, Soluble	2.6 u	UG/L	2.6	1.0
		Selenium, Soluble	5.0	UG/L	3.6	1.0
-005	J00FX6	Silver, Soluble	0.80 u	UG/L	0.80	1.0
		Arsenic, Soluble	3.5 u	UG/L	3.5	1.0
		Barium, Soluble	21.3	UG/L	0.10	1.0
		Cadmium, Soluble	0.40 u	UG/L	0.40	1.0
		Chromium, Soluble	0.60 u	UG/L	0.60	1.0
		Mercury, Soluble	0.10 u	UG/L	0.10	1.0
		Lead, Soluble	2.6 u	UG/L	2.6	1.0
		Selenium, Soluble	3.6 u	UG/L	3.6	1.0

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 01/30/03

CLIENT: TNUHANFORD B01-108 H2047
 WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0301L515

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
*****	*****	*****	*****	*****	*****	*****
BLANK1	03L0041-MB1	Silver, Total	0.80 u	UG/L	0.80	1.0
		Arsenic, Total	3.5 u	UG/L	3.5	1.0
		Barium, Total	0.14	UG/L	0.10	1.0
		Cadmium, Total	0.40 u	UG/L	0.40	1.0
		Chromium, Total	0.60 u	UG/L	0.60	1.0
		Lead, Total	2.6 u	UG/L	2.6	1.0
		Selenium, Total	3.6 u	UG/L	3.6	1.0
BLANK1	03C0016-MB1	Mercury, Total	0.10 u	UG/L	0.10	1.0
BLANK2	03C0016-MB2	Mercury, TCLP Leachate	0.10 u	UG/L	0.10	1.0
BLANK3	03C0016-MB3	Mercury, TCLP Leachate	0.14	UG/L	0.10	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 01/30/03

CLIENT: TNUHANFORD B01-108 H2047
 WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0301L515

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR (SPK)
-002	J00FX4	Silver, Soluble	49.9	0.80u	50.0	99.8	1.0
		Arsenic, Soluble	2110	35.8	2000	103.8	1.0
		Barium, Soluble	2060	45.6	2000	100.9	1.0
		Cadmium, Soluble	50.9	0.40u	50.0	101.8	1.0
		Chromium, Soluble	210	3.8	200	103.2	1.0
		Mercury, Soluble	0.75	0.10u	1.0	75.0	1.0
		Lead, Soluble	520	2.6 u	500	104.0	1.0
		Selenium, Soluble	2030	4.2	2000	101.5	1.0

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 01/30/03

CLIENT: TNUHANFORD B01-108 H2047
 WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0301L515

SAMPLE	SITE ID	ANALYTE	INITIAL			DILUTION
			RESULT	REPLICATE	RPD	
-001RBP	J00FX3	Silver, Soluble	0.80u	0.80u	NC	1.0
		Arsenic, Soluble	36.3	35.3	2.8	1.0
		Barium, Soluble	46.0	45.0	2.2	1.0
		Cadmium, Soluble	0.40u	0.40u	NC	1.0
		Chromium, Soluble	4.0	3.7	7.8	1.0
		Mercury, Soluble	0.10u	0.10u	NC	1.0
		Lead, Soluble	2.6 u	2.6 u	NC	1.0
		Selenium, Soluble	4.8	3.9	20.7	1.0

Lionville Laboratory, Inc.

INORGANICS LABORATORY CONTROL STANDARDS REPORT 01/30/03

CLIENT: TNUANFORD B01-108 H2047

LVL LOT #: 0301L515

WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	SPIKED	SPIKED	UNITS	%RECOV
			SAMPLE	AMOUNT		
LCS1	03L0041-LC1	Silver, LCS	500	500	UG/L	100.0
		Arsenic, LCS	9990	10000	UG/L	99.9
		Barium, LCS	4980	5000	UG/L	99.6
		Cadmium, LCS	250	250	UG/L	100
		Chromium, LCS	504	500	UG/L	100.8
		Lead, LCS	2500	2500	UG/L	99.9
		Selenium, LCS	10200	10000	UG/L	102.2
LCS1	03C0016-LC1	Mercury, LCS	4.4	5.0	UG/L	87.7

Bechtel Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST					B01-108-025		Page 1 of 2							
Collector GALE		Company Contact RIKKI THOREN		Telephone No. 521-8003		Project Coordinator KESSNER, JH		Price Code 7L		Data Turnaround 21 Days						
Project Designation 105-D/H Rx Waste Water Sampling		Sampling Location 100-H		SAF No. B01-108		Air Quality <input type="checkbox"/>										
Ice Chest No. SEE OSPC		Field Logbook No. EL-1518-2		COA R105HX2F2C		Method of Shipment FED EX										
Shipped To TMA/RECRA		Offsite Property No. 17030-106		Bill of Lading/Air Bill No. SEE OSPC												
POSSIBLE SAMPLE HAZARDS/REMARKS Tie To JOO Fxi RADIOACTIVE Special Handling and/or Storage Cool 4°C				Preservation	HNO3 to pH < 2	None	None	HNO3 to pH < 2	NaOH to pH >= 12 Cool 4C	ZnAc+NaOH to pH >9 Cool	Cool 4C	Cool 4C	HCl to pH <2 Cool 4C	Cooled to 4C		
				Type of Container	P	P		P	P	P	P	P	P	P	aG	aG
				No. of Container(s)	5	1	1	1	1	1	1	1	1	1	1	4
				Volume	1000mL	125mL	125mL	500mL	500mL	500mL	500mL	500mL	500mL	125mL	1000mL	
SAMPLE ANALYSIS				See item (1) in Special Instructions.	Tritium - 10	Carbon-14	See item (2) in Special Instructions.	Total Cyanide - 9010	Sulfides - 9030	See item (3) in Special Instructions.	TSS - 160.2; TDS - 160.1	TOC - 415.1	PCBs - 8082			
					1-16-03											
Sample No.	Matrix *	Sample Date	Sample Time													
JOOFX3	WATER	1-14-03	0850				X	X	X	X	X	X	X	X		
JOOFX4	WATER	1-14-03	0910				X	X	X	X	X	X	X	X		
JOO207	WATER															
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 or method 9056 will not be met. ** The laboratory is to analyze pH within 24 hours of sample receipt. (1) Americium-241; Gamma Spectroscopy(Water) (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); Gamma Spec - Add-on (Barium-133); Nickel-63; Neptunium-237; Isotopic Plutonium; Strontium-89,90 - Total Sr; Isotopic Thorium (Thorium-228, Thorium-232); Isotopic Uranium (2) ICP Metals - 6010A (TAL) (Barium, Cadmium, Chromium, Silver); ICP Metals - 6010A (Add-on) (Arsenic, Lead, Selenium); Mercury - 7470 - (CV) (3) IC Anions - 300.0 (Bromide, Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate); pH (Water) - 9040 Personnel not available to relinquish samples from the 3728 Ref # 1A on 1/16/03				S=Soil SE=Sediment SO=Solid SL=Sludge W=Water O=Oil A=Air DS=Drym Solids DL=Drym Lipids T=Tissue WI=Wipe L=Liquid V=Vegetation X=Other				
3 SOALC/MSL		1/14/03 1600		REF 1A		1/14/03 1600										
1A 3728		1-16-03 1000		R. Felle		1-16-03										
ERC		1000		Fed Ex												
Dede		1-17-03 0922		D. Vined		1-17-03 0922										
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								

14

Collector: GALE Company Contact: RIKKI THOREN Telephone No.: 521-8003 Project Coordinator: KESSNER, JH Price Code: 7L Data Turnaround: 21 Days

Project Designation: 105-D/H Rx Waste Water Sampling Sampling Location: 100-H SAF No.: B01-108 Air Quality:

Ice Chest No.: SEE OSPA Field Logbook No.: EL-1518-2 COA: R105HX2F2C Method of Shipment: FED EX

Shipped To: TMA (RECRA) Offsite Property No.: A030 106 Bill of Lading/Air Bill No.: SEE OSPA

POSSIBLE SAMPLE HAZARDS/REMARKS: Tie To J00 Fx1 RADIOACTIVE Special Handling and/or Storage: Cool 4°C

Preservation	Cool 4C	HCl to pH <2 Cool 4C	Cool 4C	None
Type of Container	aG	aGs*	P	aG
No. of Container(s)	2	3	1	1
Volume	1000mL	20mL	500mL	250mL

SAMPLE ANALYSIS

Sample No.	Matrix *	Sample Date	Sample Time	Semi-VOA - 8270A (ETF)	VOA - 8260A (ETF)	Conductivity - 120.1	Ignitability - 1010
J00FX3	WATER	1-14-03	0850	X		X	X
J00FX4	WATER	1-14-03	0910	X	X	X	X
J00207	WATER	1-13-03	1345		X		

CHAIN OF POSSESSION		Sign/Print Names		SPECIAL INSTRUCTIONS ** The ERC acknowledges that the analytical holding time for Nitrate by EPA Method 300.0 or method 9056 will not be met. ** The laboratory is to analyze pH within 24 hours of sample receipt. Personnel not available to relinquish samples from the 372# Ref# 1A on 1/16/03	Matrix * S=Soil SE=Sediment SO=Solid SR=Sludge W=Water O=Oil A=Air DS=Dry Solids DL=Drum Liquids T=Tissue WI=Wipe L=Liquid V=Vegetation X=Other
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time		
S. GALE	1/14/03 1600	REF 1A	1/14/03 1600		
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time		
IA 372#	1-16-03 1000	R. Fahlke	1-16-03 1000		
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time		
R. Fahlke	1-16-03 1000	Fed Ex			
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time		
Joe Ex	1-17-03 0922	D. J. [Signature]	1-17-03 0922		
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: _____

Bechtel Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST					B01-108-026		Page 1 of 2					
Collector GALE / FAHLBECK		Company Contact RJJKI THOREN		Telephone No. 521-8003		Project Coordinator KESSNER, JH		Price Code 7L		Data Turnaround 21 Days				
Project Designation 105-D/H Rx Waste Water Sampling		Sampling Location 100-D			SAF No. B01-108		Air Quality <input type="checkbox"/>							
Ice Chest No. SEE OSRC		Field Logbook No. EL-1518-2		COA R105DX2F2E 1-16-03		Method of Shipment FED EX								
Shipped To TMA/RECRA		Offsite Property No. A030 106			Bill of Lading/Air Bill No. SEE OSRC									
POSSIBLE SAMPLE HAZARDS/REMARKS Radioactive Tie To JOOFX2 Special Handling and/or Storage Cool 14°C				Preservation	HNO3 to pH <2	None	None	HNO3 to pH <2	NaOH to pH >= 12 Cool 4C	ZnAc+NaOH to pH >9 Cool	Cool 4C	Cool 4C	HCl to pH <2 Cool 4C	Cooled to 4C
				Type of Container	P	P	P	P	P	P	P	P	aG	aG
				No. of Container(s)	5	1	1	1	1	1	1	1	1	4
				Volume	1000mL	125mL	125mL	500mL	500mL	500mL	500mL	500mL	125mL	1000mL
SAMPLE ANALYSIS				See item (1) in Special Instructions.	Tritium - H3	Carbon-14	See item (2) in Special Instructions.	Total Cyanide - 9010	Sulfides - 9030	See item (3) in Special Instructions.	TSS - 160.2; TDS - 160.1	TOC - 415.1	PCBs - 8082	
				<div style="text-align: center; font-size: 2em; font-weight: bold; transform: rotate(-45deg); opacity: 0.5;"> 1-16-03 </div>										
Sample No.	Matrix *	Sample Date	Sample Time											
JOOFX5	WATER	1-14-03	1240				X	X	X	X	X	X	X	
JOOFX6	WATER	1-14-03	1210				X	X	X	X	X	X	X	
CHAIN OF POSSESSION				Sign/Print Names				SPECIAL INSTRUCTIONS					Matrix *	
Relinquished By/Removed From		Date/Time 1300		Received By/Stored In		Date/Time 1300		** The ERC acknowledges that the analytical holding time for Nitrate by EPA Method 300.0 or method 9056 will not be met. ** The laboratory is to analyze pH within 24 hours of sample receipt. (1) Americium-241; Gamma Spectroscopy (Water) (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); Gamma Spec - Add-on (Barium-133); Nickel-63; Neptunium-237; Isotopic Plutonium; Strontium-89,90 -- Total Sr; Isotopic Thorium (Thorium-228, Thorium-232); Isotopic Uranium (2) ICP Metals - 6010A (TAL) (Barium, Cadmium, Chromium, Silver); ICP Metals - 6010A (Add-on) (Arsenic, Lead, Selenium); Mercury - 7470 - (CV) (3) IC Anions - 300.0 (Bromide, Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate); pH (Water) - 9040					S=Soil SE=Settlement SO=Solid SL=Sludge W=Water O=Oil A=Air DS=Drum Solids DL=Drum Liquids T=Tissue WI=Wipe L=Liquid V=Vegetation X=Other	
Relinquished By/Removed From		Date/Time 1000		Received By/Stored In		Date/Time 1000								
Relinquished By/Removed From		Date/Time 1300		Received By/Stored In		Date/Time 1300								
Relinquished By/Removed From		Date/Time 1000		Received By/Stored In		Date/Time 1000								
Relinquished By/Removed From		Date/Time 1000		Received By/Stored In		Date/Time 1000								
Relinquished By/Removed From		Date/Time 0920		Received By/Stored In		Date/Time 0920								
LABORATORY SECTION	Received By			Title			Date/Time							
FINAL SAMPLE DISPOSITION	Disposal Method			Disposed By			Date/Time							

Bechtel Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				B01-108-026		Page 2 of 2				
Collector GALE / FAHLBERG		Company Contact RIKKI THOREN		Telephone No. 521-8003		Project Coordinator KESSNER, JH		Price Code 7L Data Turnaround 21 Days				
Project Designation 105-D/H Rx Waste Water Sampling		Sampling Location 100-D		SAF No. B01-108		Air Quality <input type="checkbox"/>						
Ice Chest No. SEE OSPA		Field Logbook No. EL-1518-2		COA R105DX2FEG 1-15-03		Method of Shipment FED EX						
Shipped To TMA/ECRA		Offsite Property No. A030 106		Bill of Lading/Air Bill No. SEE OSPA								
POSSIBLE SAMPLE HAZARDS/REMARKS Radioactive Tie To JOO FX2 Special Handling and/or Storage Cool 40C				Preservation	Cool 4C	HCl to pH <2 Cool 4C	Cool 4C	None				
				Type of Container	aG	aGs*	P	aG				
				No. of Container(s)	2	3	1	1				
				Volume	1000mL	20mL	500mL	250mL				
SAMPLE ANALYSIS				Semi-VOA - 8270A (ETF)	VOA - 8260A (ETF)	Conductivity - 120.1	Ignitability - 1010					
Sample No.	Matrix *	Sample Date	Sample Time									
JOOFX5	WATER	1-14-03	1240	X	F	X	X					
JOOFX6	WATER	1-14-03	1210	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 or method 9056 will not be met.				S=Soil SE=Sediment SO=Solid W=Water O=Oil A=Air DS=Drm Solids DL=Drm Liquids T=Tissue WI=Wipe L=Liquid V=Vegetation X=Other		
R. F. GALE		1-14-03 1300	R. F. GALE		1-14-03 1300	** The laboratory is to analyze pH within 24 hours of sample receipt.						
105 D HMSR		1-15-03 1000	R. F. GALE		1-15-03 1100							
R. F. GALE		1-15-03 1300	R. F. GALE		1-15-03 1300							
1B 3728		1-16-03 1000	R. F. GALE		1-16-03 1000							
R. F. GALE		1-16-03 1000	R. F. GALE		1-16-03 1000							
R. F. GALE		1-17-03 0922	R. F. GALE		1-17-03 0922							
LABORATORY SECTION	Received By	Title				Date/Time						
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By				Date/Time						

LIONVILLE LABORATORY INCORPORATED

SAMPLE RECEIPT CHECKLIST

Client: TNU Hamford

Purchase Order/Project:

DATE: 1-17-03

F# / SOW# / Release #: B01-108

Laboratory SDG #: 0301L515

NOTE: ALL ENTRIES MARKED "NO" MUST BE EXPLAINED IN THE COMMENT SECTION

- | | | | | |
|--|---|--|---|---|
| 1. Custody seals on coolers or shipping container intact, signed and dated? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 2. Outside of coolers or shipping containers are free from damage? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 3. Airbill # recorded? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 4. All expected paperwork received (coc and other client specific: historical data, alpha/beta or other screening data as applicable)? (paperwork sealed in plastic bag and taped to inside lid) | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 5. Sample containers are intact? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 6. Custody seals on sample containers intact, signed and dated? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 7. All samples on coc received? | <input checked="" type="checkbox"/> Yes | <input checked="" type="checkbox"/> No | <input type="checkbox"/> N/A | <input checked="" type="checkbox"/> see Comment # 1 |
| 8. All sample label information matches coc? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 9. Laboratory QC samples designated on coc? (QC stickers placed on bottles?) | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input checked="" type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 10. Shipment meets LVLJ Sample Acceptance Policy? (identify all bottles not within policy. See reverse side for policy) | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No | <input type="checkbox"/> N/A | <input checked="" type="checkbox"/> see Comment # 2 |
| 11. Where applicable, bar code labels are affixed to coc? | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 12. coc signed and dated? | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 13. coc will be faxed or emailed to client? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 14. Project Manager/Client contacted concerning discrepancies? (name/date) | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |

1-17-03

03 / 1-17-03

Cooler # / temp (°C) and Comments:

* ERC - 01 - 024 / 0.9°C
 ± ERC - 02 - 101 / 0.5°C
 # ERC - 02 - 002 / 0.8°C

1 did not receive PCB bottles for sample 004 + BNA # 0
 Do not receive 1 bot for BNA sample 005 (1 bottle)
 # 2 headspace in all TOC samples
 all IC Anions out of hold.
 (check) Missing page 1 of 2 for samples TOC#3, TOC#4, TOC#5

Laboratory Sample Custodian:

Laboratory Project Manager:

[Signature]

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B01-108 H2047

DATE RECEIVED: 01/17/03

LVL LOT #: 03011515

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

J00FX3

BROMIDE BY IC 001 03LTC005 01/14/03 01/28/03

CHLORIDE BY IC 001 03LTC005 01/14/03 01/28/03

FLUORIDE BY IC 001 03LTC005 01/14/03 01/28/03

NITRATE BY IC 001 03LTC005 01/14/03 01/28/03

NITRITE BY IC 001 03LTC005 01/14/03 01/28/03

TOTAL CYANIDE 001 03LTC003 01/14/03 01/27/03

PHOSPHATE BY IC 001 03LTC005 01/14/03 01/28/03

SULFATE BY IC 001 03LTC005 01/14/03 01/28/03

IGNITABILITY 001 03LFP004 01/14/03 01/30/03

TOTAL ORGANIC CARBON 001 03LTC002 01/14/03 01/20/03

TOTAL ORGANIC CARBON 001 MS 03LTC002 01/14/03 01/20/03

PH 001 03LPH006 01/14/03 01/23/03

PH 001 REP 03LPH006 01/14/03 01/23/03

SULFIDE 001 03LSD002 01/14/03 01/21/03

SULFIDE 001 REP 03LSD002 01/14/03 01/21/03

SPECIFIC CONDUCTANCE 001 03LSPB01 01/14/03 01/23/03

TOTAL DISSOLVED SOLI 001 03LSS010 01/14/03 01/20/03

TOTAL SUSPENDED SOLI 001 03LSSA10 01/14/03 01/20/03

J00FX4

BROMIDE BY IC 002 03LIC005 01/14/03 01/28/03

BROMIDE BY IC 002 REP 03LIC005 01/14/03 01/28/03

CHLORIDE BY IC 002 03LIC005 01/14/03 01/28/03

CHLORIDE BY IC 002 REP 03LIC005 01/14/03 01/28/03

CHLORIDE BY IC 002 MS 03LIC005 01/14/03 01/28/03

FLUORIDE BY IC 002 03LIC005 01/14/03 01/28/03

FLUORIDE BY IC 002 REP 03LIC005 01/14/03 01/28/03

FLUORIDE BY IC 002 MS 03LIC005 01/14/03 01/28/03

NITRATE BY IC 002 03LIC005 01/14/03 01/28/03

NITRATE BY IC 002 REP 03LIC005 01/14/03 01/28/03

NITRITE BY IC 002 MS 03LIC005 01/14/03 01/28/03

NITRITE BY IC 002 03LIC005 01/14/03 01/28/03

1734
1719
1709
1699

1623
1620

1629
1639
1629

ANALYSIS TIME

Lionville Laboratory, Inc.
 INORGANIC ANALYTICAL DATA PACKAGE FOR
 TNUHANFORD B01-108 H2047

DATE RECEIVED: 01/17/03

LVL LOT # :0301L515

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS	ANALYSIS TIME
NITRATE BY IC	002 REP	W	03LIC005	01/14/03	01/28/03	01/28/03	1749
NITRATE BY IC	002 MS	W	03LIC005	01/14/03	01/28/03	01/28/03	1752
TOTAL CYANIDE	002	W	03LC003	01/14/03	01/27/03	01/27/03	
PHOSPHATE BY IC	002	W	03LIC005	01/14/03	01/28/03	01/28/03	1659
PHOSPHATE BY IC	002 REP	W	03LIC005	01/14/03	01/28/03	01/28/03	1709
PHOSPHATE BY IC	002 MS	W	03LIC005	01/14/03	01/28/03	01/28/03	1719
SULFATE BY IC	002	W	03LIC005	01/14/03	01/28/03	01/28/03	
SULFATE BY IC	002 REP	W	03LIC005	01/14/03	01/28/03	01/28/03	
SULFATE BY IC	002 MS	W	03LIC005	01/14/03	01/28/03	01/28/03	
IGNITABILITY	002	W	03LFP004	01/14/03	01/30/03	01/30/03	
TOTAL ORGANIC CARBON	002	W	03LTC002	01/14/03	01/20/03	01/20/03	
PH	002	W	03LPH006	01/14/03	01/23/03	01/23/03	1626
SULFIDE	002	W	03LSD002	01/14/03	01/21/03	01/21/03	
SULFIDE	002 MS	W	03LSD002	01/14/03	01/21/03	01/21/03	
SPECIFIC CONDUCTANCE	002	W	03LSPB01	01/14/03	01/23/03	01/23/03	
TOTAL DISSOLVED SOLI	002	W	03LSS010	01/14/03	01/20/03	01/20/03	
TOTAL DISSOLVED SOLI	002 REP	W	03LSS010	01/14/03	01/20/03	01/20/03	
TOTAL SUSPENDED SOLI	002	W	03LSSA10	01/14/03	01/20/03	01/20/03	
TOTAL SUSPENDED SOLI	002 REP	W	03LSSA10	01/14/03	01/20/03	01/20/03	
J00FX5							
BROMIDE BY IC	004	W	03LIC005	01/14/03	01/28/03	01/28/03	
CHLORIDE BY IC	004	W	03LIC005	01/14/03	01/28/03	01/28/03	
FLUORIDE BY IC	004	W	03LIC005	01/14/03	01/28/03	01/28/03	
NITRITE BY IC	004	W	03LIC005	01/14/03	01/28/03	01/28/03	1908
NITRATE BY IC	004	W	03LIC005	01/14/03	01/28/03	01/28/03	1918
TOTAL CYANIDE	004	W	03LC003	01/14/03	01/27/03	01/27/03	
PHOSPHATE BY IC	004	W	03LIC005	01/14/03	01/28/03	01/28/03	1958
SULFATE BY IC	004	W	03LIC005	01/14/03	01/28/03	01/28/03	
IGNITABILITY	004	W	03LFP004	01/14/03	01/30/03	01/30/03	
TOTAL ORGANIC CARBON	004	W	03LTC002	01/14/03	01/20/03	01/20/03	
PH	004	W	03LPH006	01/14/03	01/23/03	01/23/03	1630
SULFIDE	004	W	03LSD002	01/14/03	01/21/03	01/21/03	
SPECIFIC CONDUCTANCE	004	W	03LSPB01	01/14/03	01/23/03	01/23/03	
TOTAL DISSOLVED SOLI	004	W	03LSS010	01/14/03	01/20/03	01/20/03	
TOTAL SUSPENDED SOLI	004	W	03LSSA10	01/14/03	01/20/03	01/20/03	
J00FX6							
BROMIDE BY IC	005	W	03LIC005	01/14/03	01/28/03	01/28/03	

Lionville Laboratory, Inc.
 INORGANIC ANALYTICAL DATA PACKAGE FOR
 TNUHANFORD B01-108 H2047

DATE RECEIVED: 01/17/03

LVL LOT # :0301L515

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS	ANALYSIS TIME
CHLORIDE BY IC	005	W	03LIC005	01/14/03	01/28/03	01/28/03	
FLUORIDE BY IC	005	W	03LIC005	01/14/03	01/28/03	01/28/03	
NITRITE BY IC	005	W	03LIC005	01/14/03	01/28/03	01/28/03	1938
NITRATE BY IC	005	W	03LIC005	01/14/03	01/28/03	01/28/03	1948
TOTAL CYANIDE	005	W	03LC003	01/14/03	01/27/03	01/27/03	
PHOSPHATE BY IC	005	W	03LIC005	01/14/03	01/28/03	01/28/03	1928
SULFATE BY IC	005	W	03LIC005	01/14/03	01/28/03	01/28/03	
IGNITABILITY	005	W	03LFP004	01/14/03	01/30/03	01/30/03	
TOTAL ORGANIC CARBON	005	W	03LTC002	01/14/03	01/20/03	01/20/03	
PH	005	W	03LPH006	01/14/03	01/23/03	01/23/03	1635
SULFIDE	005	W	03LSD002	01/14/03	01/21/03	01/21/03	
SPECIFIC CONDUCTANCE	005	W	03LSPB01	01/14/03	01/23/03	01/23/03	
TOTAL DISSOLVED SOLI	005	W	03LSS010	01/14/03	01/20/03	01/20/03	
TOTAL SUSPENDED SOLI	005	W	03LSSA10	01/14/03	01/20/03	01/20/03	

LAB QC:

BROMIDE BY IC	MB1	W	03LIC005	N/A	01/28/03	01/28/03	
BROMIDE BY IC	MB1 BS	W	03LIC005	N/A	01/28/03	01/28/03	
CHLORIDE BY IC	MB1	W	03LIC005	N/A	01/28/03	01/28/03	
CHLORIDE BY IC	MB1 BS	W	03LIC005	N/A	01/28/03	01/28/03	
FLUORIDE BY IC	MB1	W	03LIC005	N/A	01/28/03	01/28/03	
FLUORIDE BY IC	MB1 BS	W	03LIC005	N/A	01/28/03	01/28/03	
NITRITE BY IC	MB1	W	03LIC005	N/A	01/28/03	01/28/03	
NITRITE BY IC	MB1 BS	W	03LIC005	N/A	01/28/03	01/28/03	
NITRATE BY IC	MB1	W	03LIC005	N/A	01/28/03	01/28/03	
NITRATE BY IC	MB1 BS	W	03LIC005	N/A	01/28/03	01/28/03	
TOTAL CYANIDE	LCS L	W	03LC003	N/A	01/27/03	01/27/03	
TOTAL CYANIDE	LCS L	W	03LC003	N/A	01/27/03	01/27/03	
TOTAL CYANIDE	MB1	W	03LC003	N/A	01/27/03	01/27/03	
PHOSPHATE BY IC	MB1	W	03LIC005	N/A	01/28/03	01/28/03	
PHOSPHATE BY IC	MB1 BS	W	03LIC005	N/A	01/28/03	01/28/03	
SULFATE BY IC	MB1	W	03LIC005	N/A	01/28/03	01/28/03	
SULFATE BY IC	MB1 BS	W	03LIC005	N/A	01/28/03	01/28/03	
TOTAL ORGANIC CARBON	MB1	W	03LTC002	N/A	01/20/03	01/20/03	
TOTAL ORGANIC CARBON	MB1 BS	W	03LTC002	N/A	01/20/03	01/20/03	
SULFIDE	MB1	W	03LSD002	N/A	01/21/03	01/21/03	
SULFIDE	MB1 BS	W	03LSD002	N/A	01/21/03	01/21/03	

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B01-108 H2047

DATE RECEIVED: 01/17/03

LVL LOT # :0301L515

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
SULFIDE	MB1 BSD	W	03LSD002	N/A	01/21/03	01/21/03
SPECIFIC CONDUCTANCE	MB1	W	03LSPB01	N/A	01/23/03	01/23/03
SPECIFIC CONDUCTANCE	MB1 BS	W	03LSPB01	N/A	01/23/03	01/23/03
TOTAL DISSOLVED SOLI	MB1	W	03LSS010	N/A	01/20/03	01/20/03
TOTAL DISSOLVED SOLI	MB1 BS	W	03LSS010	N/A	01/20/03	01/20/03
TOTAL DISSOLVED SOLI	MB1 BSD	W	03LSS010	N/A	01/20/03	01/20/03
TOTAL SUSPENDED SOLI	MB1	W	03LSSA10	N/A	01/20/03	01/20/03
TOTAL SUSPENDED SOLI	MB1 BS	W	03LSSA10	N/A	01/20/03	01/20/03
TOTAL SUSPENDED SOLI	MB1 BSD	W	03LSSA10	N/A	01/20/03	01/20/03



Analytical Report

Client: TNU-HANFORD B01-108 H2047
LVL#: 0301L515

W.O.#: 11343-606-001-9999-00
Date Received: 01-17-03

INORGANIC NARRATIVE

1. This narrative covers the analyses of 4 water samples.
2. The samples were prepared and analyzed in accordance with the methods indicated on the attached glossary.

Elevated reporting limits for Bromide samples J00FX5 and J00FX6 are the result of the necessity to dilute the samples to diminish co-elution effects.
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 (see the sample chronology summary for analyses times for short hold samples)
4. The results presented in this report are derived from samples that did not meet LVL's sample acceptance policy as noted on the Sample Receipt Checklist.
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 Sulfide, Total Dissolved Solids (TDS) and Total Suspended Solids (TSS) were within the 20% Relative Percent Difference (RPD) control limit.
7. The matrix spike recoveries for Total Organic Carbon (TOC), Bromide, Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate and Sulfide were within the 75-125% control limits.
8. The replicate analyses for TOC, pH, Sulfide, Bromide, Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate, TDS and TSS were within the 20% RPD control limit.

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 22 pages.

9. Insufficient sample volume was provided so as to perform matrix quality control analyses for Total Cyanide. Replicate analysis for Specific Conductance was inadvertently overlooked for this sample set.
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 package has been authorized by the Laboratory Manager or a designee, as verified by the following signature.


Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

01-30-03
Date

njp01-515



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 ✓ Chloride ✓ Fluoride	300.0	___ 9056	
✓ Nitrate ✓ Nitrite ✓ Phosphate	300.0	___ 9056	
✓ Sulfate ___ Formate ___ Acetate ___ Oxalate	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-1 (b)
COD	410.4(mod)		___ 5220C (b)
Color	110.2		
Corrosivity by Coupon		___ 1110(mod)	
Chromium VI		___ 7196A	___ 3500Cr-D (b)
Fluoride	340.2		___ 4500-FC
Hardness, Calcium	215.2		
Hardness, Total	130.2		
Iodide			___ ASTM D19P202 (1)
Surfactant	425.1		
___ Nitrate-Nitrite ___ Nitrate ___ Nitrite	353.2		
Ammonia	350.3		
Total ___ Kjeldahl ___ Organic Nitrogen	351.3		
Total ✓ Organic ___ Inorganic Carbon	415.1	___ 9060	
Oil & Grease	413.1	___ 9070	
✓ pH ___ pH; paper	150.1	___ ✓ 9040B ___ 9041A	
Petroleum Hydrocarbons, Total Recoverable	418.1		
Phenol	420.1	___ 420.2 ___ 9065 ___ 9066	
___ Ortho ___ Total Phosphate	365.2		___ 4500-P B ___ C
Salinity			___ 210A (a) ___ 2520 (b)
Settleable Solids	160.5		
Sulfide	376.1		___ ✓ 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			
Total ✓ Dissolved ✓ Suspended ___ Solids	160 ✓ .1 ✓ 1312	___ .2 ___ .3	
Total Organic Halides	450.1	___ 9020B	
Turbidity	180.1		
Volatile Solids:			
___ Total ___ Dissolved ___ Suspended	160.4		
Other: <i>Ignitability</i>		Method: <i>SW1010</i>	

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.

**Inorganic Data Summary Report
Physical Testing Observation**

Client: TNU-HANFORD B01-108
LVL#: 0301L515

W.O.#: 11343-606-001-9999-00
Date Received: 01-17-03

Analyte:

Ignitability

Observation:

Samples J00FX3, J00FX3 duplicate, J00FX4, J00FX5 and J00FX6 did not ignite.

p-Xylene was used to determine the accuracy of the ignitability apparatus. The p-Xylene will ignite at 81°F +/- 1°F. For this test, the p-Xylene ignited at 81°F.

njp\01-515.pt2

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 01/30/03

CLIENT: TNUHANFORD B01-108 H2047
 WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0301L515

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	J00FX3	Bromide by IC	0.25	u MG/L	0.25	1.0
		Chloride by IC	6.5	MG/L	0.25	1.0
		Fluoride by IC	0.25	u MG/L	0.25	1.0
		Nitrite by IC	0.25	u MG/L	0.25	1.0
		Nitrate by IC	12.2	MG/L	0.50	2.0
		Cyanide, Total	5.00	u UG/L	5.00	1.0
		Phosphate by IC	0.48	MG/L	0.25	1.0
		Sulfate by IC	184	MG/L	12.5	50.0
		Total Organic Carbon	11.0	MG/L	0.50	1.0
		pH	7.9	PH UNIT	0.01	1.0
		Sulfide	1.0	u MG/L	1.0	1.0
		Specific Conductance	610	US/CM	1.0	1.0
		Total Dissolved Solids	435	MG/L	5.00	1.0
		Total Suspended Solids	49.9	MG/L	5.00	1.0
-002	J00FX4	Bromide by IC	0.25	u MG/L	0.25	1.0
		Chloride by IC	6.3	MG/L	0.25	1.0
		Fluoride by IC	0.25	u MG/L	0.25	1.0
		Nitrite by IC	0.25	u MG/L	0.25	1.0
		Nitrate by IC	11.8	MG/L	1.25	5.0
		Cyanide, Total	5.00	u UG/L	5.00	1.0
		Phosphate by IC	0.40	MG/L	0.25	1.0
		Sulfate by IC	187	MG/L	12.5	50.0
		Total Organic Carbon	10.1	MG/L	0.50	1.0
		pH	8.0	PH UNIT	0.01	1.0
		Sulfide	1.0	u MG/L	1.0	1.0
		Specific Conductance	600	US/CM	1.0	1.0
		Total Dissolved Solids	440	MG/L	5.00	1.0
		Total Suspended Solids	53.5	MG/L	5.00	1.0
-004	J00FX5	Bromide by IC	0.50	u MG/L	0.50	2.0
		Chloride by IC	16.0	MG/L	0.50	2.0
		Fluoride by IC	5.4	MG/L	0.25	1.0
		Nitrite by IC	1.65	MG/L	0.50	2.0
		Nitrate by IC	47.6	MG/L	1.25	5.0
		Cyanide, Total	5.00	u UG/L	5.00	1.0
		Phosphate by IC	0.25	u MG/L	0.25	1.0
		Sulfate by IC	20.7	MG/L	1.2	5.0
		Total Organic Carbon	3.1	MG/L	0.50	1.0
		pH	8.4	PH UNIT	0.01	1.0

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 01/30/03

CLIENT: TNUHANFORD B01-108 H2047
 WORK ORDER: 11343-606-001-9999-00

IVL LOT #: 0301L515

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-----	-----	-----	-----	-----	-----	-----
-004	J00FX5	Sulfide	2.0	u MG/L	2.0	1.0
		Specific Conductance	409	US/CM	1.0	1.0
		Total Dissolved Solids	273	MG/L	5.00	1.0
		Total Suspended Solids	85.1	MG/L	5.00	1.0
-005	J00FX6	Bromide by IC	0.50	u MG/L	0.50	2.0
		Chloride by IC	15.6	MG/L	0.50	2.0
		Fluoride by IC	5.4	MG/L	0.25	1.0
		Nitrite by IC	1.67	MG/L	0.50	2.0
		Nitrate by IC	47.7	MG/L	1.25	5.0
		Cyanide, Total	5.21	u UG/L	5.21	1.0
		Phosphate by IC	0.25	u MG/L	0.25	1.0
		Sulfate by IC	20.9	MG/L	1.2	5.0
		Total Organic Carbon	3.0	MG/L	0.50	1.0
		pH	8.5	PH UNIT	0.01	1.0
		Sulfide	2.0	u MG/L	2.0	1.0
		Specific Conductance	418	US/CM	1.0	1.0
		Total Dissolved Solids	262	MG/L	5.00	1.0
		Total Suspended Solids	43.6	MG/L	5.00	1.0

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 01/30/03

CLIENT: TNUHANFORD B01-108 H2047
 WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0301L515

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-----	-----	-----	-----	-----	-----	-----
BLANK10	03LIC005-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	0.25 u	MG/L	0.25	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
BLANK1	03LC003-MB1	Cyanide, Total	5.00 u	UG/L	5.00	1.0
BLANK10	03LTC002-MB1	Total Organic Carbon	0.50 u	MG/L	0.50	1.0
BLANK10	03LSD002-MB1	Sulfide	1.0 u	MG/L	1.0	1.0
BLANK10	03LSPB01-MB1	Specific Conductance	1.0 u	US/CM	1.0	1.0
BLANK10	03LSS010-MB1	Total Dissolved Solids	5.00 u	MG/L	5.00	1.0
BLANK10	03LSSA10-MB1	Total Suspended Solids	5.00 u	MG/L	5.00	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 01/30/03

CLIENT: TNUHANFORD B01-108 H2047
 WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0301L515

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR (SPK)
-001	J00FX3	Total Organic Carbon	16.0	11.0	5.0	99.0	1.0
-002	J00FX4	Bromide by IC	4.5	0.00	5.0	89.6	1.0
		Chloride by IC	16.4	6.3	10.0	100.4	2.0
		Fluoride by IC	5.2	0.054	5.0	102.7	1.0
		Nitrite by IC	5.27	0.25u	5.00	105.4	1.0
		Nitrate by IC	37.1	11.8	25.0	101.0	5.0
		Phosphate by IC	5.8	0.40	5.0	108.1	1.0
		Sulfate by IC	451	187	250	105.8	50.0
		Sulfide	8.8	0.22	9.0	95.3	1.0
BLANK10	03LIC005-MB1	Bromide by IC	4.9	0.25u	5.0	97.3	1.0
		Chloride by IC	4.7	0.25u	5.0	94.9	1.0
		Fluoride by IC	5.2	0.25u	5.0	103.2	1.0
		Nitrite by IC	4.82	0.25u	5.00	96.5	1.0
		Nitrate by IC	4.71	0.25u	5.00	94.2	1.0
		Phosphate by IC	5.4	0.25u	5.0	108.3	1.0
		Sulfate by IC	4.8	0.25u	5.0	96.0	1.0
BLANK10	03LTC002-MB1	Total Organic Carbon	5.0	0.50u	5.0	99.7	1.0
BLANK10	03LSD002-MB1	Sulfide	9.2	1.0 u	9.0	102.2	1.0
		Sulfide MSD	9.1	1.0 u	9.0	101.1	1.0
BLANK10	03LSPB01-MB1	Specific Conductance	1360	1.0 u	1410	96.1	1.0
BLANK10	03LSS010-MB1	Total Dissolved Solids	93.0	5.00u	100	93.0	1.0
		Total Dissolved Solids	95.0	5.00u	100	95.0	1.0
BLANK10	03LSSA10-MB1	Total Suspended Solids	99.3	5.00u	100	99.3	1.0
		Total Suspended Solids	99.5	5.00u	100	99.5	1.0

Lionville Laboratory, Inc.

INORGANICS DUPLICATE SPIKE REPORT 01/30/03

CLIENT: TNUHANFORD B01-108 H2047
WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0301L515

SAMPLE	SITE ID	ANALYTE	SPIKE#1 SPIKE#2		%DIFF
			%RECOV	%RECOV	
BLANK10	03LSD002-MB1	Sulfide	102.2	101.1	1.1
BLANK10	03LSS010-MB1	Total Dissolved Solids	93.0	95.0	2.1
BLANK10	03LSSA10-MB1	Total Suspended Solids	99.3	99.5	0.20

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 01/30/03

CLIENT: TNUHANFORD B01-108 H2047
 WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0301L515

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE RPD		DILUTION FACTOR (REP)
*****	*****	*****	*****	*****	*****	*****
-001REP	J00FX3	Total Organic Carbon	11.0	10.9	0.71	1.0
		pH	7.9	7.9	0.4	1.0
		Sulfide	1.0 u	1.0 u	NC	1.0
-002REP	J00FX4	Bromide by IC	0.25u	0.25u	NC	1.0
		Chloride by IC	6.3	6.3	0.49	1.0
		Fluoride by IC	0.25u	0.25u	NC	1.0
		Nitrite by IC	0.25u	0.25u	NC	1.0
		Nitrate by IC	11.8	11.8	0.059	5.0
		Phosphate by IC	0.40	0.36	12.0	1.0
		Sulfate by IC	187	186	0.40	50.0
		Total Dissolved Solids	440	455	3.4	1.0
		Total Suspended Solids	53.5	60.2	11.8	1.0

Lionville Laboratory, Inc.

INORGANICS LABORATORY CONTROL STANDARDS REPORT 01/30/03

CLIENT: TNUHANFORD B01-108 H2047
WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0301L515

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
LCSS1	03LC003-LCS1	Cyanide, Total LCS	19.1	20.0	UG/L	95.6
LCSS2	03LC003-LCS2	Cyanide, Total LCS	95.3	100	UG/L	95.3

Bechtel Hanford Inc.			CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST					B01-108-025		Page 1 of 2					
Collector GALE			Company Contact RIKKI THOREN		Telephone No. 521-8003		Project Coordinator KESSNER, JH		Price Code 7L		Data Turnaround 21 Days				
Project Designation 105-D/H Rx Waste Water Sampling			Sampling Location 100-H		SAF No. B01-108		Air Quality <input type="checkbox"/>								
Ice Chest No. SEE OSPC			Field Logbook No. EL-1518-2		COA R105HX2F2C		Method of Shipment FED EX								
Shipped To TMA/RECRA			Offsite Property No. 17030-106			Bill of Lading/Air Bill No. SEE OSPC									
POSSIBLE SAMPLE HAZARDS/REMARKS Tie To JO0FX1 RADIOACTIVE Special Handling and/or Storage Cool 4°C			Preservation		HNO3 to pH <2	None	None	HNO3 to pH <2	NaOH to pH >= 12 Cool 4C	ZnAc+NaOH to pH >9 Cool	Cool 4C	Cool 4C	HCl to pH <2 Cool 4C	Cooled to 4C	
			Type of Container		P	P	P	P	P	P	P	P	P	aG	aG
			No. of Container(s)		5	1	1	1	1	1	1	1	1	1	4
			Volume		1000mL	125mL	125mL	500mL	500mL	500mL	500mL	500mL	500mL	125mL	1000mL
SAMPLE ANALYSIS			See item (1) in Special Instructions.		Trinium - H3	Carbon-14	See item (2) in Special Instructions.		Total Cyanide - 9010	Sulfides - 9030	See item (3) in Special Instructions.		TSS - 160.2; TDS - 160.1	TOC - 415.1	PCBs - 8082
Sample No.	Matrix *	Sample Date	Sample Time												
JO0FX3	WATER	1-14-03	0850				X	X	X	X	X	X	X	X	X
JO0FX4	WATER	1-14-03	0910				X	X	X	X	X	X	X	X	X
JO0207	WATER														
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 or method 9056 will not be met. ** The laboratory is to analyze pH within 24 hours of sample receipt. (1) Americium-241; Gamma Spectroscopy(Water) {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Barium-133}; Nickel-63; Neptunium-237; Isotopic Plutonium; Strontium-89,90 - Total Sr; Isotopic Thorium {Thorium-228, Thorium-232}; Isotopic Uranium (2) ICP Metals - 6010A (TAL) {Barium, Cadmium, Chromium, Silver}; ICP Metals - 6010A (Add-on) {Arsenic, Lead, Selenium}; Mercury - 7470 - (CV) (3) IC Anions - 300.0 {Bromide, Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate}; pH (Water) - 9040 Personnel not available to relinquish samples from the 3729 Ref # 1A on 1/16/03						S=Soil SE=Sediment SO=Solid SL=Sludge W = Water O=Oil A=Air DS=Drum Solids DL=Drum Liquids T=Tissue WI=Wipe L=Liquid V=Vegetation X=Other	
Relinquished By/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									
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					

Bechtel Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST						B01-108-025		Page 2 of 2				
Collector GALE		Company Contact RIKKI THOREN		Telephone No. 521-8003		Project Coordinator KESSNER, JH		Price Code 7L		Data Turnaround 21 Days				
Project Designation 105-D/H Rx Waste Water Sampling		Sampling Location 100-H		SAF No. B01-108		Air Quality <input type="checkbox"/>								
Ice Chest No. SEE OSR		Field Logbook No. EL-1518-2		COA R105HX2F2C		Method of Shipment FED EX								
Shipped To TMA (RECRE)		Offsite Property No. A030 106		Bill of Lading/Air Bill No. SEE OSR										
POSSIBLE SAMPLE HAZARDS/REMARKS Tie To J00 FX1 RADIOACTIVE Special Handling and/or Storage cool 4°C				Preservation	Cool -C	HCl to pH <2 Cool 4C	Cool 4C	None						
				Type of Container	aG	aGs*	P	aG						
				No. of Container(s)	2	3	1	1						
				Volume	1000mL	20mL	500mL	250mL						
SAMPLE ANALYSIS				Semi-VOA - 8270A (ETF)	VOA - 8260A (ETF)	Conductivity - 120.1	Ignitability - 1010							
Sample No.	Matrix *	Sample Date	Sample Time											
J00FX3	WATER	1-14-03	0850	X		X	X							
J00FX4	WATER	1-14-03	0910	X	X	X	X							
J00207	WATER	1-13-03	1345		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 or method 9056 will not be met. ** The laboratory is to analyze pH within 24 hours of sample receipt. Personnel not available to relinquish samples from the 372# Ref # 1A on 1/16/03				S=Soil SE=Sediment SO=Solid SI=Sludge W = Water O=Oil A=Air DS=Drum Solids DL=Drum Liquids T=Tissue WI=Wipe L=Liquid V=Vegetation X=Other		
SJOACE S/Sol 11403 1600				REF 1A 11403 1600										
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time								
1A 372# 1-16-03 1000				R. F. Kelly R. F. Kelly 1-16-03										
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time								
R. F. Kelly R. F. Kelly 1-16-03		1000		Fed Ex										
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time								
D. E. Ex 1-17-03 0922				D. J. Miller		1-17-03 0922								
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								

Bechtel Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST					B01-108-026		Page 1 of 2						
Collector GALE / FAHLBERG		Company Contact RIKKI THOREN		Telephone No. 521-8003		Project Coordinator KESSNER, JH		Price Code 7L		Data Turnaround 21 Days					
Project Designation 105-D/H Rx Waste Water Sampling		Sampling Location 100-D			SAF No. B01-108		Air Quality <input type="checkbox"/>								
Ice Chest No. SEE OSRC		Field Logbook No. EL-1518-2		COA R105DX2F2E 1-16-03		Method of Shipment FED EX									
Shipped To TMA/RECRA		Offsite Property No. A030 106			Bill of Lading/Air Bill No. SEE OSRC										
POSSIBLE SAMPLE HAZARDS/REMARKS Radioactive Tie To JOOFX2 Special Handling and/or Storage Cool 14°C				Preservation	HNO3 to pH <2	None	None	HNO3 to pH <2	NaOH to pH >= 12 Cool 4C	ZnAc+NaOH to pH >9 Cool	Cool 4C	Cool 4C	HCl to pH <2 Cool 4C	Cooled to 4C	
				Type of Container	P	P	P	P	P	P	P	P	aG	aG	
				No. of Container(s)	5	1	1	1	1	1	1	1	1	1	4
				Volume	1000mL	125mL	125mL	500mL	500mL	500mL	500mL	500mL	500mL	125mL	1000mL
SAMPLE ANALYSIS				See item (1) in Special Instructions.	Tritium - H3	Carbon-14	See item (2) in Special Instructions.	Total Cyanide - 9010	Sulfides - 9030	See item (3) in Special Instructions.	TSS - 160.2; TDS - 160.1	TOC - 415.1	PCBs - 8082		
				Sample No.	Matrix *	Sample Date	Sample Time								
JOOFX5	WATER	1-14-03	1240				X	X	X	X	X	X	X		
JOOFX6	WATER	1-14-03	1210				X	X	X	X	X	X	X		
CHAIN OF POSSESSION				Sign/Print Names				SPECIAL INSTRUCTIONS				Matrix *			
Relinquished By/Removed From		Date/Time 1300		Received By/Stored In		Date/Time 1300		** The ERC acknowledges that the analytical holding time for Nitrate by EPA Method 300.0 or method 9056 will not be met. ** The laboratory is to analyze pH within 24 hours of sample receipt. (1) Americium-241; Gamma Spectroscopy (Water) {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Barium-133}; Nickel-63; Neptunium-237; Isotopic Plutonium; Strontium-89,90 - Total Sr; Isotopic Thorium {Thorium-228, Thorium-232}; Isotopic Uranium (2) ICP Metals - 6010A (TAL) {Barium, Cadmium, Chromium, Silver}; ICP Metals - 6010A (Add-on) {Arsenic, Lead, Selenium}; Mercury - 7470 - (CV) (3) IC Anions - 300.0 {Bromide, Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate}; pH (Water) - 9040				S=Soil SE=Sediment SO=Solid SL=Sludge W=Water O=Oil A=Air DS=Drum Solids DL=Drum Liquids T=Tissue WI=Wipe L=Liquid V=Vegetation X=Other			
R. F. Kelly R. F. Kelly 1-14-03		105 D HMSR 1-14-03		P. Kelly R. Kelly 1-15-03		1-15-03									
R. Kelly R. Kelly 1-15-03		1-B 3728 1-15-03		R. Kelly R. Kelly 1-16-03		1-16-03									
R. Kelly R. Kelly 1-16-03		R. Kelly R. Kelly 1-16-03		F. Kelly											
R. Kelly R. Kelly 1-16-03		F. Kelly 1-16-03		F. Kelly											
F. Kelly 1-17-03 0922		1-17-03 0922		F. Kelly 1-17-03 0922											
LABORATORY SECTION	Received By			Title			Date/Time								
FINAL SAMPLE DISPOSITION	Disposal Method			Disposed By			Date/Time								

Bechtel Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST						B01-108-026		Page 2 of 2			
Collector GALE / FAHLBERG		Company Contact RIKKI THOREN		Telephone No. 521-8003		Project Coordinator KESSNER, JH		Price Code 7L		Data Turnaround 21 Days			
Project Designation 105-D/H Rx Waste Water Sampling		Sampling Location 100-D		SAF No. B01-108		Air Quality <input type="checkbox"/>							
Ice Chest No. SEE OSA		Field Logbook No. EL-1518-2		COA R105DX2PFG 1-15-03		Method of Shipment FED EX							
Shipped To TMA (RECRA)		Offsite Property No. A030 106				Bill of Lading/Air Bill No. SEE OSA							
POSSIBLE SAMPLE HAZARDS/REMARKS Radioactive Tie To J00 FX2 Special Handling and/or Storage Cool 40C				Preservation		Cool 4C	HCl to pH <2 Cool 4C	Cool 4C	None				
				Type of Container		aG	aGs*	P	aG				
				No. of Container(s)		2	3	1	1				
				Volume		1000mL	20mL	500mL	250mL				
SAMPLE ANALYSIS				Semi-VOA - 8270A (ETF)		VOA - 8260A (ETF)		Conductivity - 120.1		Ignitability - 1010			
Sample No.	Matrix *	Sample Date	Sample Time										
J00FX5	WATER	1-14-03	1240	X	X	X	X						
J00FX6	WATER	1-14-03	1210	X	X	X	X						
CHAIN OF POSSESSION				Sign/Print Names				SPECIAL INSTRUCTIONS					
Relinquished By/Removed From		Date/Time 1300		Received By/Stored In		Date/Time 1300		** The ERC acknowledges that the analytical holding time for Nitrate by EPA Method 300.0 or method 9056 will not be met. ** The laboratory is to analyze pH within 24 hours of sample receipt.					
R. Feller R. Fahlgren		1-14-03		105D HMSR		1-14-03							
Relinquished By/Removed From		Date/Time 1000		Received By/Stored In		Date/Time 1100							
105D HMSR		1-15-03		R. Feller R. Fahlgren		1-15-03							
Relinquished By/Removed From		Date/Time 1300		Received By/Stored In		Date/Time 1300							
R. Feller R. Fahlgren		1-15-03		1-B 3728		1-15-03							
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time 1000							
1-B 3728		1-16-03 1000		R. Feller R. Fahlgren		1-16-03							
Relinquished By/Removed From		Date/Time 1800		Received By/Stored In		Date/Time							
R. Feller R. Fahlgren		1-16-03		Fed Ex									
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time							
Fed Ex		1-17-03 0922		S. J. Thore		1-17-03 0922							
LABORATORY SECTION		Received By		Title		Date/Time		Matrix *					
FINAL SAMPLE DISPOSITION		Disposal Method		Disposed By		Date/Time		S=Soil SE=Sediment SO=Solid SL=Sludge W=Water O=Oil A=Air DS=Drum Solids DL=Drum Liquids T=Tissue WI=Wipe L=Liquid V=Vegetation X=Other					

LIONVILLE LABORATORY INCORPORATED SAMPLE RECEIPT CHECKLIST

CLIENT: TNU Hanford

Purchase Order/Project:

DATE: 1-17-03

AF# / SOW# / Release #: B01-108

Laboratory SDG #: 0301L515

NOTE: ALL ENTRIES MARKED "NO" MUST BE EXPLAINED IN THE COMMENT SECTION

- | | | | | |
|--|---|--|---|---|
| 1. Custody seals on coolers or shipping container intact, signed and dated? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 2. Outside of coolers or shipping containers are free from damage? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 3. Airbill # recorded? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 4. All expected paperwork received (coc and other client specific: historical data, alpha/beta or other screening data as applicable)? (paperwork sealed in plastic bag and taped to inside lid) | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 5. Sample containers are intact? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 6. Custody seals on sample containers intact, signed and dated? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 7. All samples on coc received? | <input checked="" type="checkbox"/> Yes | <input checked="" type="checkbox"/> No | <input type="checkbox"/> N/A | <input checked="" type="checkbox"/> see Comment # 1 |
| 8. All sample label information matches coc? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 9. Laboratory QC samples designated on coc? (QC stickers placed on bottles?) | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input checked="" type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 10. Shipment meets LVL1 Sample Acceptance Policy? (identify all bottles not within policy. See reverse side for policy) | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No | <input type="checkbox"/> N/A | <input checked="" type="checkbox"/> see Comment # 2 |
| 11. Where applicable, bar code labels are affixed to coc? | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 12. coc signed and dated? | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 13. coc will be faxed or emailed to client? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 14. Project Manager/Client contacted concerning discrepancies? (name/date) | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |

05 / 1-17-03

Cooler # / temp (°C) and Comments:

ERC-01-024 / 0.9°C

ERC-02-101 / 0.5°C

ERC-02-002 / 0.8°C

#1 did not receive PCB bottles for sample 004 + BNA #
 Do not receive 1 bot for BNA samp. 005 (1 bottle)
 #2 headspace in all TOC sample
 all IC Arjins out of hold.
 (chain) Missing mg 1, E 2 for sample TOC Ex 3, TOC Ex 4

Laboratory Sample Custodian:

Laboratory Project Manager:

[Handwritten signature]

NO₂, NO₃, PO₄ only