

'0063031

SAF-B04-001

ERDF - Semiannual Leachate Analysis

FINAL DATA PACKAGE

E:MAIL RESULTS TO:

Tom Lazarski

N/A
INITIAL/DATE

MAIL COMPLETE COPY OF DATA PACKAGE TO:

Tom Lazarski

H9-03

mjp 9-29-04
INITIAL/DATE

Rich Weiss

H9-01

mjp 9-29-04
INITIAL/DATE

COMMENTS: (PLEASE INCLUDE THE FOLLOWING ON THE FAX COVER SHEET)

SDG

H2612

SAF-B04-001

Rad only

Chem only

X Rad & Chem

X Complete

Partial

RECEIVED
NOV 08 2004
EDMC



EBERLINE

SERVICES

September 23, 2004

Ms. Joan Kessner
Bechtel Hanford Inc.
3190 George Washington Way
MSIN H9-02
Richland, WA 99352

Reference: **P.O. #630**
Eberline Services R4-06-059-7042, SDG H2612



Dear Ms. Kessner:

Enclosed is the data report for two water samples designated under SAF No. B04-001 received at Eberline Services on June 8, 2004. The samples were analyzed according to the accompanying chain-of-custody document.

Please call if you have any questions concerning this report.

Sincerely,

Melissa C. Mannion
Senior Program Manager

MCM/

Enclosure: Data Package

Analytical Services
2030 Wright Avenue
P.O. Box 4040
Richmond, California 94804-0040
(510) 235-2633 Fax (510) 235-0438
Toll Free (800) 841-5487
www.eberlineservices.com

1.0 GENERAL

Bechtel Hanford Inc. (BHI) Sample Delivery Group H2612 was composed of two water samples designated under SAF No. B04-001 with a Project Designation of: ERDF – Semiannual Leachate Analysis.

The samples were received as stated on the Chain-of-Custody document. Any discrepancies are noted on the Eberline Services Sample Receipt Checklist. The results were transmitted to BHI via e-mail on July 22, 2004 and September 3, 2004.

2.0 ANALYSIS NOTES

2.1 Gross Alpha and Gross Beta Analyses

No problems were encountered during the course of the analyses.

2.2 Carbon-14 Analyses

No problems were encountered during the course of the analyses.

2.3 Iodine-129 Analyses

No problems were encountered during the course of the analyses.

2.4 Total Radium Analyses

No problems were encountered during the course of the analyses.

2.5 Technetium-99 Analyses

Due to a sample duplicate (RPD = 70%) failure the Tc-99 samples were reanalyzed. The data from the reanalysis is reported herein. No problems were encountered during the course of the reanalyses.

2.6 Total Uranium 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
Senior Program Manager

9/23/04

Date

EBRLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP H2612

SDG 7042
Contact Melissa C. Mannion

Client Hanford
Contract No. 630
Case no SDG_H2612

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

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J. Dutierrez / M. Mannion
Prepared by

M. Mannion
Reviewed by

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-TOC
Version 3.06
Report date 09/02/04

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2612

SDG 7042

Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford

Contract No. 630

Case no SDG H2612

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 09/02/04

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H2612

SDG 7042
Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford
Contract No. 630
Case no SDG H2612

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.

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 09/02/04

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2612

SAMPLE SUMMARY

SDG 7042
 Contact Melissa C. Mannion

Client Hanford
 Contract No. 630
 Case no SDG H2612

CLIENT SAMPLE ID	LOCATION	MATRIX	LEVEL	LAB SAMPLE ID	SAF NO	CHAIN OF CUSTODY	COLLECTED
J01K71	ERDF LEACHATE	WATER		R406059-01	B04-001	B04-001-001	06/07/04 09:45
J01K72	ERDF LEACHATE	WATER		R406059-02	B04-001	B04-001-001	06/07/04 09:45
Method Blank		WATER		R406059-04	B04-001		
Method Blank		WATER		R406059-08	B04-001		
Lab Control Sample		WATER		R406059-03	B04-001		
Lab Control Sample		WATER		R406059-07	B04-001		
Duplicate (R406059-01)	ERDF LEACHATE	WATER		R406059-05	B04-001		06/07/04 09:45
Duplicate (R406059-02)	ERDF LEACHATE	WATER		R406059-10	B04-001		06/07/04 09:45
Spike (R406059-01)	ERDF LEACHATE	WATER		R406059-06	B04-001		06/07/04 09:45

Lab id EBRLNE
 Protocol Hanford
 Version Ver 1.0
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 Version 3.06
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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2612

SDG 7042
 Contact Melissa C. Mannion

QC SUMMARY

Client Hanford
 Contract No. 630
 Case no SDG H2612

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	
7042	B04-001-001	J01K71	WATER	100.0	6.25 L		06/08/04	1	R406059-01	7042-001	
		J01K72	WATER	100.0	6.25 L		06/08/04	1	R406059-02	7042-002	
		Method Blank	WATER						R406059-04	7042-004	
		Method Blank	WATER						R406059-08	7042-008	
		Lab Control Sample	WATER						R406059-03	7042-003	
		Lab Control Sample	WATER						R406059-07	7042-007	
		Duplicate (R406059-01)	WATER		6.25	L		06/08/04	1	R406059-05	7042-005
		Duplicate (R406059-02)	WATER		6.25	L		06/08/04	1	R406059-10	7042-010
		Spike (R406059-01)	WATER		6.25	L		06/08/04	1	R406059-06	7042-006

Lab id EBRLNE
 Protocol Hanford
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 Form DVD-QS
 Version 3.06
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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2612

SDG 7042
 Contact Melissa C. Mannion

PREP BATCH SUMMARY

Client Hanford
 Contract No. 630
 Case no SDG H2612

TEST	MATRIX	METHOD	PREPARATION ERROR		PLANCHETS ANALYZED				QUALIFIERS	
			BATCH	2σ %	CLIENT	MORE	RE BLANK	LCS		DUP/ORIG MS/ORIG
Beta Counting										
TC	WATER	Technetium 99 in Water	7095-054	10.0	2		1	1	1/1	
Gas Proportional Counting										
RAT	WATER	Total Alpha Radium in Water	7095-054	5.0	2		1	1	1/1	
Gas Proportional Counting										
93A	WATER	Gross Alpha in Water	7095-054	20.0	2		1	1	1/1	
93B	WATER	Gross Beta in Water	7095-054	15.0	2		1	1	1/1	
Gamma Spectroscopy										
I	WATER	Iodine 129 in Water	7095-054	5.0	2		1	1	1/1	
Kinetic Phosphorimetry (KPA)										
U_T	WATER	Uranium, Total in Water	7095-054	9.0	2		1	1	1/1	
Liquid Scintillation Counting										
C	WATER	Carbon 14 in Water	7095-054	10.0	2		1	1	1/1	1/1 X

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

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2612

SDG 7042
 Contact Melissa C. Mannion

Client Hanford
 Contract No. 630
 Case no SDG H2612

WORK SUMMARY

CLIENT SAMPLE ID	LAB SAMPLE ID				SUF-					
LOCATION	MATRIX	COLLECTED	PLANCHET	TEST	FIX	ANALYZED	REVIEWED	BY	METHOD	
CUSTODY	SAF No	RECEIVED								
J01K71		R406059-01	7042-001	93A/93		06/29/04	07/14/04	MWT	Gross Alpha in Water	
ERDF LEACHATE	WATER	06/07/04	7042-001	93B/93		06/29/04	07/14/04	MWT	Gross Beta in Water	
B04-001-001	B04-001	06/08/04	7042-001	C		07/07/04	07/14/04	MWT	Carbon 14 in Water	
			7042-001	I		06/28/04	07/14/04	MWT	Iodine 129 in Water	
			7042-001	RAT		07/03/04	07/14/04	MWT	Total Alpha Radium in Water	
			7042-001	TC	A1	08/03/04	08/05/04	MWT	Technetium 99 in Water	
			7042-001	U_T		06/23/04	07/14/04	MWT	Uranium, Total in Water	
J01K72		R406059-02	7042-002	93A/93		06/29/04	07/14/04	MWT	Gross Alpha in Water	
ERDF LEACHATE	WATER	06/07/04	7042-002	93B/93		06/29/04	07/14/04	MWT	Gross Beta in Water	
B04-001-001	B04-001	06/08/04	7042-002	C		07/07/04	07/14/04	MWT	Carbon 14 in Water	
			7042-002	I		06/30/04	07/14/04	MWT	Iodine 129 in Water	
			7042-002	RAT		07/03/04	07/14/04	MWT	Total Alpha Radium in Water	
			7042-002	TC	A1	08/03/04	08/05/04	MWT	Technetium 99 in Water	
			7042-002	U_T		06/23/04	07/14/04	MWT	Uranium, Total in Water	
Method Blank		R406059-04	7042-004	93A/93		07/14/04	07/14/04	MWT	Gross Alpha in Water	
	WATER		7042-004	93B/93		07/14/04	07/14/04	MWT	Gross Beta in Water	
	B04-001		7042-004	C		07/08/04	07/14/04	MWT	Carbon 14 in Water	
			7042-004	I		07/01/04	07/14/04	MWT	Iodine 129 in Water	
			7042-004	RAT		07/03/04	07/14/04	MWT	Total Alpha Radium in Water	
			7042-004	U_T		06/23/04	07/14/04	MWT	Uranium, Total in Water	
Method Blank		R406059-08	7042-008	TC		08/04/04	08/06/04	MWT	Technetium 99 in Water	
	WATER									
	B04-001									
Lab Control Sample		R406059-03	7042-003	93A/93		07/13/04	07/14/04	MWT	Gross Alpha in Water	
	WATER		7042-003	93B/93		07/13/04	07/14/04	MWT	Gross Beta in Water	
	B04-001		7042-003	C		07/07/04	07/14/04	MWT	Carbon 14 in Water	
			7042-003	I		06/30/04	07/14/04	MWT	Iodine 129 in Water	
			7042-003	RAT		07/03/04	07/14/04	MWT	Total Alpha Radium in Water	
			7042-003	U_T		06/23/04	07/14/04	MWT	Uranium, Total in Water	
Lab Control Sample		R406059-07	7042-007	TC		08/03/04	08/06/04	MWT	Technetium 99 in Water	
	WATER									
	B04-001									

WORK SUMMARY

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SUMMARY DATA SECTION

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 Protocol Hanford
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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2612

SDG 7042
Contact Melissa C. Mannion

Client Hanford
Contract No. 630
Case no SDG H2612

WORK SUMMARY, cont.

CLIENT SAMPLE ID	LAB SAMPLE ID									
LOCATION	MATRIX	COLLECTED	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD	
CUSTODY	SAF No	RECEIVED								
Duplicate (R406059-01)		R406059-05	7042-005	93A/93		07/14/04	07/14/04	MWT	Gross Alpha in Water	
ERDF LEACHATE	WATER	06/07/04	7042-005	93B/93		07/14/04	07/14/04	MWT	Gross Beta in Water	
	B04-001	06/08/04	7042-005	C		07/08/04	07/14/04	MWT	Carbon 14 in Water	
			7042-005	I		07/02/04	07/14/04	MWT	Iodine 129 in Water	
			7042-005	RAT		07/08/04	07/14/04	MWT	Total Alpha Radium in Water	
			7042-005	U_T		06/23/04	07/14/04	MWT	Uranium, Total in Water	
Duplicate (R406059-02)		R406059-10	7042-010	TC		08/05/04	08/06/04	MWT	Technetium 99 in Water	
ERDF LEACHATE	WATER	06/07/04								
	B04-001	06/08/04								
Spike (R406059-01)		R406059-06	7042-006	C		07/08/04	07/14/04	MWT	Carbon 14 in Water	
ERDF LEACHATE	WATER	06/07/04								
	B04-001	06/08/04								

COUNTS OF TESTS BY SAMPLE TYPE

TEST	SAF No	METHOD	REFERENCE	CLIENT	MORE	RE	BLANK	LCS	DUP	SPIKE	TOTAL
93A/93	B04-001	Gross Alpha in Water	900.0_ALPHABETA_GPC	2			1	1	1		5
93B/93	B04-001	Gross Beta in Water	900.0_ALPHABETA_GPC	2			1	1	1		5
C	B04-001	Carbon 14 in Water	C14_CHEM_LSC	2			1	1	1	1	6
I	B04-001	Iodine 129 in Water	I129_SEP_LEPS_GS	2			1	1	1		5
RAT	B04-001	Total Alpha Radium in Water	RATOT_GPC	2			1	1	1		5
TC	B04-001	Technetium 99 in Water	TC99_TR_SEP_LSC	2			1	1	1		5
U_T	B04-001	Uranium, Total in Water	UTOT_KPA	2			1	1	1		5
TOTALS				14			7	7	7	1	36

WORK SUMMARY

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SUMMARY DATA SECTION

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Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CWS
Version 3.06
Report date 09/02/04

EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP H2612

R406059-04

Method Blank

METHOD BLANK

SDG <u>7042</u>	Client/Case no <u>Hanford</u>	<u>SDG H2612</u>
Contact <u>Melissa C. Mannion</u>	Contract <u>No. 630</u>	
Lab sample id <u>R406059-04</u>	Client sample id <u>Method Blank</u>	
Dept sample id <u>7042-004</u>	Material/Matrix <u>WATER</u>	
	SAF No <u>B04-001</u>	

ANALYTE	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI- FIERS	TEST
Gross Alpha	12587-46-1	-0.713	0.85	2.6		U	93A
Gross Beta	12587-47-2	-0.794	4.1	7.0		U	93B
Carbon 14	14762-75-5	-13.3	71	120	200	U	C
Total Uranium (ug/L)	7440-61-1	0	0.007	0.017	0.10	U	U_T
Total Radium	ALPHA-RA	<u>-0.151</u>	0.093	0.58	1.0	U	RAT
Iodine 129	15046-84-1	0.300	1.4	3.2	5.0	U	I

ERDF-Semiannual Leachate Analysis

QC-BLANK #47843

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>09/02/04</u>

EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP H2612

R406059-08

Method Blank

METHOD BLANK

SDG <u>7042</u>	Client/Case no <u>Hanford</u>	SDG <u>H2612</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>630</u>	
Lab sample id <u>R406059-08</u>	Client sample id <u>Method Blank</u>	
Dept sample id <u>7042-008</u>	Material/Matrix <u>WATER</u>	
	SAF No <u>B04-001</u>	

ANALYTE	CAS NO	RESULT pCi/L	2 σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI- FIERS	TEST
Technetium 99	14133-76-7	-0.553	3.2	11	15	U	TC

ERDF-Semiannual Leachate Analysis

QC-BLANK 48351

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>09/02/04</u>

EBERLINE SERVICES/RICHMOND
SAMPLE DELIVERY GROUP H2612

R406059-03

Lab Control Sample

LAB CONTROL SAMPLE

SDG <u>7042</u> Contact <u>Melissa C. Mannion</u>	Client/Case no <u>Hanford</u> SDG <u>H2612</u> Contract No. <u>630</u>
Lab sample id <u>R406059-03</u> Dept sample id <u>7042-003</u>	Client sample id <u>Lab Control Sample</u> Material/Matrix <u>WATER</u> SAF No <u>B04-001</u>

ANALYTE	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI- FIERS TEST	ADDED pCi/L	2σ ERR pCi/L	REC %	3σ LMTS (TOTAL)	PROTOCOL LIMITS
Gross Alpha	213	15	2.9		93A	200	8.0	106	66-134	70-130
Gross Beta	206	11	6.0		93B	205	8.2	100	75-125	80-120
Carbon 14	22400	250	120	200	C	23900	960	94	85-115	80-120
Total Uranium (ug/L)	85.0	11	<u>0.17</u>	0.10	U_T	82.5	3.3	103	75-125	80-120
Total Radium	46.4	11	0.61	1.0	RAT	56.0	2.2	83	69-131	80-120
Iodine 129	488	9.8	<u>9.0</u>	5.0	I	464	19	105	90-110	80-120

ERDF-Semiannual Leachate Analysis

QC-LCS #47842

Lab id <u>EBRLNE</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-LCS</u>
Version <u>3.06</u>
Report date <u>09/02/04</u>

EBERLINE SERVICES/RICHMOND
 SAMPLE DELIVERY GROUP H2612

R406059-07

Lab Control Sample

LAB CONTROL SAMPLE

SDG <u>7042</u> Contact <u>Melissa C. Mannion</u>	Client/Case no <u>Hanford</u> <u>SDG H2612</u> Contract <u>No. 630</u>
Lab sample id <u>R406059-07</u> Dept sample id <u>7042-007</u>	Client sample id <u>Lab Control Sample</u> Material/Matrix _____ <u>WATER</u> SAF No <u>B04-001</u>

ANALYTE	RESULT	2σ ERR	MDA	RDL	QUALI-	ADDED	2σ ERR	REC	3σ	LMTS	PROTOCOL
	pCi/L	(COUNT)	pCi/L	pCi/L	FIERS	TEST	pCi/L	%	(TOTAL)	LIMITS	
Technetium 99	2150	58	12	15		TC	2180	87	99	84-116	80-120

ERDF-Semiannual Leachate Analysis

QC-LCS 48350

Lab id <u>EBRLNE</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-LCS</u>
Version <u>3.06</u>
Report date <u>09/02/04</u>

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2612

R406059-05

J01K71

DUPLICATE

SDG <u>7042</u>	Client/Case no <u>Hanford</u>	<u>SDG H2612</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>630</u>	
DUPLICATE	ORIGINAL	
Lab sample id <u>R406059-05</u>	Lab sample id <u>R406059-01</u>	Client sample id <u>J01K71</u>
Dept sample id <u>7042-005</u>	Dept sample id <u>7042-001</u>	Location/Matrix <u>ERDF LEACHATE</u> <u>WATER</u>
	Received <u>06/08/04</u>	Collected/Volume <u>06/07/04 09:45</u> <u>6.25 L</u>
	% solids <u>100.0</u>	Custody/SAF No <u>B04-001-001</u> <u>B04-001</u>

ANALYTE	DUPLICATE pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI- FIERS	TEST	ORIGINAL pCi/L	2σ ERR (COUNT)	MDA pCi/L	QUALI- FIERS	RPD %	3σ TOT	PROT LIMIT
Gross Alpha	518	38	9.3			93A	526	39	7.5		2	45	
Gross Beta	585	18	6.6			93B	515	17	7.9		13	33	
Carbon 14	-7.31	71	120	200	U	C	27.2	70	120	U	-	-	
Total Uranium (ug/L)	794	100	1.7	0.10		U_T	756	97	1.7		5	33	
Total Radium	0.061	0.099	0.25	1.0	U	RAT	-0.246	0.18	0.61	U	-	-	
Iodine 129	-1.58	1.8	4.2	5.0	U	I	-1.10	1.5	3.5	U	-	-	

ERDF-Semiannual Leachate Analysis

QC-DUP#1 47844

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>09/02/04</u>

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2612

R406059-10

J01K72

DUPLICATE

SDG <u>7042</u>	Client/Case no <u>Hanford</u>	SDG <u>H2612</u>
Contact <u>Melissa C. Mannion</u>	Contract <u>No. 630</u>	
DUPLICATE	ORIGINAL	
Lab sample id <u>R406059-10</u>	Lab sample id <u>R406059-02</u>	Client sample id <u>J01K72</u>
Dept sample id <u>7042-010</u>	Dept sample id <u>7042-002</u>	Location/Matrix <u>ERDF LEACHATE</u> <u>WATER</u>
	Received <u>06/08/04</u>	Collected/Volume <u>06/07/04 09:45</u> <u>6.25 L</u>
	% solids <u>100.0</u>	Custody/SAF No <u>B04-001-001</u> <u>B04-001</u>

ANALYTE	DUPLICATE pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI- FIERS	TEST	ORIGINAL pCi/L	2σ ERR (COUNT)	MDA pCi/L	QUALI- FIERS	RPD %	3σ PROT TOT LIMIT
Technetium 99	641	21	11	15		TC	628	22	11		2	22

ERDF-Semiannual Leachate Analysis

DUPLICATES

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SUMMARY DATA SECTION

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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>09/02/04</u>

EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP H2612

R406059-01

J01K71

DATA SHEET

SDG <u>7042</u>	Client/Case no <u>Hanford</u>	SDG <u>H2612</u>
Contact <u>Melissa C. Mannion</u>	Contract <u>No. 630</u>	
Lab sample id <u>R406059-01</u>	Client sample id <u>J01K71</u>	
Dept sample id <u>7042-001</u>	Location/Matrix <u>ERDF LEACHATE</u>	<u>WATER</u>
Received <u>06/08/04</u>	Collected/Volume <u>06/07/04 09:45</u>	<u>6.25 L</u>
% solids <u>100.0</u>	Custody/SAF No <u>B04-001-001</u>	<u>B04-001</u>

ANALYTE	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI- FIERS	TEST
Gross Alpha	12587-46-1	526	39	7.5			93A
Gross Beta	12587-47-2	515	17	7.9			93B
Carbon 14	14762-75-5	27.2	70	120	200	U	C
Technetium 99	14133-76-7	717	110	12	15		TC
Total Uranium (ug/L)	7440-61-1	756	97	<u>1.7</u>	0.10		U_T
Total Radium	ALPHA-RA	<u>-0.246</u>	0.18	0.61	1.0	U	RAT
Iodine 129	15046-84-1	-1.10	1.5	3.5	5.0	U	I

ERDF-Semiannual Leachate Analysis

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>09/02/04</u>

EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP H2612

R406059-02

J01K72

DATA SHEET

SDG <u>7042</u>	Client/Case no <u>Hanford</u>	SDG <u>H2612</u>
Contact <u>Melissa C. Mannion</u>	Contract <u>No. 630</u>	
Lab sample id <u>R406059-02</u>	Client sample id <u>J01K72</u>	
Dept sample id <u>7042-002</u>	Location/Matrix <u>ERDF LEACHATE</u>	<u>WATER</u>
Received <u>06/08/04</u>	Collected/Volume <u>06/07/04 09:45</u>	<u>6.25 L</u>
% solids <u>100.0</u>	Custody/SAF No <u>B04-001-001</u>	<u>B04-001</u>

ANALYTE	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI- FIERS	TEST
Gross Alpha	12587-46-1	422	36	10			93A
Gross Beta	12587-47-2	514	17	6.7			93B
Carbon 14	14762-75-5	29.2	70	120	200	U	C
Technetium 99	14133-76-7	628	22	11	15		TC
Total Uranium (ug/L)	7440-61-1	751	96	<u>1.7</u>	0.10		U_T
Total Radium	ALPHA-RA	-0.067	0.12	0.56	1.0	U	RAT
Iodine 129	15046-84-1	-0.524	1.6	3.6	5.0	U	I

ERDF-Semiannual Leachate Analysis

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>09/02/04</u>

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2612

J01K71

R406059-06

MATRIX SPIKE

SDG <u>7042</u>	Client/Case no <u>Hanford</u>	<u>SDG H2612</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>630</u>	
MATRIX SPIKE	ORIGINAL	
Lab sample id <u>R406059-06</u>	Lab sample id <u>R406059-01</u>	Client sample id <u>J01K71</u>
Dept sample id <u>7042-006</u>	Dept sample id <u>7042-001</u>	Location/Matrix <u>ERDF LEACHATE</u> <u>WATER</u>
	Received <u>06/08/04</u>	Collected/Volume <u>06/07/04 09:45</u> <u>6.25 L</u>
	% solids <u>100.0</u>	Custody/SAF No <u>B04-001-001</u> <u>B04-001</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
Carbon 14	86800	880	<u>220</u>	200	X C	95700	3800	27.2	70	91	85-115	60-140

ERDF-Semiannual Leachate Analysis

QC-MS#1 47845

MATRIX SPIKES

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SUMMARY DATA SECTION

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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>09/02/04</u>

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2612

METHOD SUMMARY

TECHNETIUM 99 IN WATER
BETA COUNTING

Test IC Matrix WATER
SDG 7042
Contact Melissa C. Mannion

Client Hanford
Contract No. 630
Contract SDG H2612

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	Planchet	Technetium 99
Preparation batch 7095-054					
J01K71	R406059-01	A1	7042-001		717
J01K72	R406059-02	A1	7042-002		628
BLK (QC ID=48351)	R406059-08		7042-008		U
LCS (QC ID=48350)	R406059-07		7042-007		ok
Duplicate (R406059-02)	R406059-10		7042-010		ok

Nominal values and limits from method RDLs (pCi/L) 15
ERDF-Semiannual Leachate Analysis

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 7095-054 2σ prep error 10.0 % Reference Lab Notebook 7095 pg. 054															
J01K71	R406059-01	A1	12	0.0500				91	50	57	07/29/04	08/03	GRB-229		
J01K72	R406059-02	A1	11	0.0500				96	50	57	07/29/04	08/03	GRB-230		
BLK (QC ID=48351)	R406059-08		11	0.0500				95	50		07/29/04	08/04	GRB-202		
LCS (QC ID=48350)	R406059-07		12	0.0500				92	50		07/29/04	08/03	GRB-231		
Duplicate (R406059-02)	R406059-10		11	0.0500				97	47	59	07/29/04	08/05	GRB-220		
(QC ID=48389)															

Nominal values and limits from method 15 0.0500 20-105 50 180

PROCEDURES REFERENCE TC99_TR_SEP_LSC
CP-430 Technetium-99 Purification (Water) by Extraction Chromatography, rev 0
CP-008 Heavy Element Electroplating, rev 7

AVERAGES ± 2 SD MDA 11 ± 1.1
FOR 5 SAMPLES YIELD 94 ± 5

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 09/02/04

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2612

METHOD SUMMARY

TOTAL ALPHA RADIUM IN WATER
GAS PROPORTIONAL COUNTING

Test RAT Matrix WATER
SDG 7042
Contact Melissa C. Mannion

Client Hanford
Contract No. 630
Contract SDG H2612

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF- FIX	PLANCHET	Total Radium
Preparation batch 7095-054					
J01K71	R406059-01			7042-001	U
J01K72	R406059-02			7042-002	U
BLK (QC ID=47843)	R406059-04			7042-004	U
LCS (QC ID=47842)	R406059-03			7042-003	ok
Duplicate (R406059-01)	R406059-05			7042-005	- U
Nominal values and limits from method		RDls (pCi/L)		1.0	
ERDF-Semiannual Leachate Analysis					

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 7095-054 2σ prep error 5.0 % Reference Lab Notebook 7095 pg. 054															
J01K71	R406059-01			0.61	0.200			95	100				26	06/30/04	07/03 GAW-115
J01K72	R406059-02			0.56	0.200			97	100				26	06/30/04	07/03 GAW-114
BLK (QC ID=47843)	R406059-04			0.58	0.200			95	100					06/30/04	07/03 GAW-114
LCS (QC ID=47842)	R406059-03			0.61	0.200			93	100					06/30/04	07/03 GAW-115
Duplicate (R406059-01)	R406059-05			0.25	0.200			95	100				31	06/30/04	07/08 GAW-111
Nominal values and limits from method				1.0	0.200			20-105	100			180			

PROCEDURES REFERENCE RATOT_GPC
DWP-880 Total Radium in Drinking Water, rev 0

AVERAGES ± 2 SD MDA 0.52 ± 0.31
FOR 5 SAMPLES YIELD 95 ± 3

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 09/02/04

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2612

METHOD SUMMARY

GROSS ALPHA IN WATER

GAS PROPORTIONAL COUNTING

Test 93A Matrix WATER
 SDG 7042
 Contact Melissa C. Mannion

Client Hanford
 Contract No. 630
 Contract SDG H2612

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF- FIX	PLANCHET	Gross Alpha
Preparation batch 7095-054					
J01K71	R406059-01	93		7042-001	526
J01K72	R406059-02	93		7042-002	422
BLK (QC ID=47843)	R406059-04	93		7042-004	U
LCS (QC ID=47842)	R406059-03	93		7042-003	ok
Duplicate (R406059-01)	R406059-05	93		7042-005	ok

Nominal values and limits from method RDLs (pCi/L)
 ERDF-Semiannual Leachate Analysis

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF- FIX	MDA pCi/L	ALIQ L	PREP FAC	DILU- TION	RESID mg	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL- YZED	DETECTOR
Preparation batch 7095-054 2σ prep error 20.0 % Reference Lab Notebook 7095 pg. 054																
J01K71	R406059-01	93		7.5	<u>0.100</u>			169	100				22	06/17/04	06/29	GRB-114
J01K72	R406059-02	93		10	<u>0.100</u>			176	100				22	06/17/04	06/29	GRB-115
BLK (QC ID=47843)	R406059-04	93		2.6	<u>0.100</u>			20	100					06/17/04	07/14	GRB-114
LCS (QC ID=47842)	R406059-03	93		2.9	<u>0.100</u>			21	100					06/17/04	07/13	GRB-115
Duplicate (R406059-01)	R406059-05	93		9.3	<u>0.100</u>			164	100				37	06/17/04	07/14	GRB-115
(QC ID=47844)																

Nominal values and limits from method 0.220 5-250 100 180

PROCEDURES REFERENCE 900.0_ALPHABETA_GPC
 CP-120 Gross Alpha and Gross Beta in Water, rev 5

AVERAGES ± 2 SD MDA 6.5 ± 7.0
 FOR 5 SAMPLES RESIDUE 110 ± 164

METHOD SUMMARIES

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SUMMARY DATA SECTION

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Lab id EBRLNE
 Protocol Hanford
 Version Ver 1.0
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 Report date 09/02/04

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2612

METHOD SUMMARY

GROSS BETA IN WATER
GAS PROPORTIONAL COUNTING

Test 93B Matrix WATER
SDG 7042
Contact Melissa C. Mannion

Client Hanford
Contract No. 630
Contract SDG H2612

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Gross Beta
Preparation batch 7095-054					
J01K71	R406059-01	93		7042-001	515
J01K72	R406059-02	93		7042-002	514
BLK (QC ID=47843)	R406059-04	93		7042-004	U
LCS (QC ID=47842)	R406059-03	93		7042-003	ok
Duplicate (R406059-01)	R406059-05	93		7042-005	ok

Nominal values and limits from method RDLs (pCi/L)
ERDF-Semiannual Leachate Analysis

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MDA pCi/L	ALIQ L	PREP FAC	DILU-TION	RESID mg	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL- YZED	DETECTOR
Preparation batch 7095-054 2σ prep error 15.0 % Reference Lab Notebook 7095 pg. 054																
J01K71	R406059-01	93		7.9	<u>0.100</u>			169	100				22	06/17/04	06/29	GRB-114
J01K72	R406059-02	93		6.7	<u>0.100</u>			176	100				22	06/17/04	06/29	GRB-115
BLK (QC ID=47843)	R406059-04	93		7.0	<u>0.100</u>			20	100					06/17/04	07/14	GRB-114
LCS (QC ID=47842)	R406059-03	93		6.0	<u>0.100</u>			21	100					06/17/04	07/13	GRB-115
Duplicate (R406059-01)	R406059-05	93		6.6	<u>0.100</u>			164	100				37	06/17/04	07/14	GRB-115
(QC ID=47844)																

Nominal values and limits from method 0.220 5-250 100 180

PROCEDURES REFERENCE 900.0_ALPHABETA_GPC
CP-120 Gross Alpha and Gross Beta in Water, rev 5

AVERAGES ± 2 SD MDA 6.8 ± 1.4
FOR 5 SAMPLES RESIDUE 110 ± 164

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 09/02/04

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2612

METHOD SUMMARY

IODINE 129 IN WATER
GAMMA SPECTROSCOPY

Test I Matrix WATER
SDG 7042
Contact Melissa C. Mannion

Client Hanford
Contract No. 630
Contract SDG H2612

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF- FIX	PLANCHET	Iodine 129
Preparation batch 7095-054					
J01K71	R406059-01			7042-001	U
J01K72	R406059-02			7042-002	U
BLK (QC ID=47843)	R406059-04			7042-004	U
LCS (QC ID=47842)	R406059-03			7042-003	ok
Duplicate (R406059-01)	R406059-05			7042-005	- U

Nominal values and limits from method RDLs (pCi/L) 5.0
ERDF-Semiannual Leachate Analysis

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 7095-054 2σ prep error 5.0 % Reference Lab Notebook 7095 pg. 054																
J01K71	R406059-01			3.5	0.250			94		819			21	06/28/04	06/28	XSPEC-004
J01K72	R406059-02			3.6	0.250			92		753			23	06/29/04	06/30	XSPEC-004
BLK (QC ID=47843)	R406059-04			3.2	0.250			89		679				06/29/04	07/01	XSPEC-004
LCS (QC ID=47842)	R406059-03			<u>9.0</u>	0.250			79		<u>223</u>				06/29/04	06/30	XSPEC-004
Duplicate (R406059-01)	R406059-05			4.2	0.250			78		819			25	06/29/04	07/02	XSPEC-004
	(QC ID=47844)															

Nominal values and limits from method 5.0 0.250 20-105 300 100 180

PROCEDURES REFERENCE I129_SEP_LEPS_GS
CP-530 Iodine-129 Purification, rev 0

AVERAGES ± 2 SD MDA 4.7 ± 4.9
FOR 5 SAMPLES YIELD 86 ± 15

METHOD SUMMARIES

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SUMMARY DATA SECTION

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Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 09/02/04

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2612

METHOD SUMMARY

URANIUM, TOTAL IN WATER
KINETIC PHOSPHORIMETRY (KPA)

Test U I Matrix WATER
SDG 7042
Contact Melissa C. Mannion

Client Hanford
Contract No. 630
Contract SDG H2612

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF- FIX	PLANCHET	Total Uranium
Preparation batch 7095-054					
J01K71	R406059-01			7042-001	756
J01K72	R406059-02			7042-002	751
BLK (QC ID=47843)	R406059-04			7042-004	U
LCS (QC ID=47842)	R406059-03			7042-003	ok
Duplicate (R406059-01)	R406059-05			7042-005	ok
Nominal values and limits from method		RDLs (ug/L)		0.10	
ERDF-Semiannual Leachate Analysis					

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF- FIX	MDA ug/L	ALIQ L	PREP FAC	DILU- TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	ANAL- YZED	DETECTOR
Preparation batch 7095-054 2σ prep error 9.0 % Reference Lab Notebook 7095 pg. 054															
J01K71	R406059-01			<u>1.7</u>	0.0200					16	06/23/04	06/23	06/23	KPA-001	
J01K72	R406059-02			<u>1.7</u>	0.0200					16	06/23/04	06/23	06/23	KPA-001	
BLK (QC ID=47843)	R406059-04			0.017	0.0200						06/23/04	06/23	06/23	KPA-001	
LCS (QC ID=47842)	R406059-03			<u>0.17</u>	0.0200						06/23/04	06/23	06/23	KPA-001	
Duplicate (R406059-01)	R406059-05			<u>1.7</u>	0.0200					16	06/23/04	06/23	06/23	KPA-001	
(QC ID=47844)															
Nominal values and limits from method				0.10	0.0200	180									

PROCEDURES	REFERENCE	UTOT_KPA
CP-044		Sample Preparation for Total Uranium by Kinetic Phosphorimetry, rev 4
CP-929		Calibration of the Kinetic Phosphorimeter, rev 6

AVERAGES ± 2 SD	MDA <u>1.1</u> ± <u>1.8</u>
FOR 5 SAMPLES	YIELD _____ ± _____

METHOD SUMMARIES

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SUMMARY DATA SECTION

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Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 09/02/04

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2612

METHOD SUMMARY

CARBON 14 IN WATER
LIQUID SCINTILLATION COUNTING

Test C Matrix WATER
SDG 7042
Contact Melissa C. Mannion

Client Hanford
Contract No. 630
Contract SDG H2612

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF- FIX	PLANCHET	Carbon 14
Preparation batch 7095-054					
J01K71	R406059-01			7042-001	U
J01K72	R406059-02			7042-002	U
BLK (QC ID=47843)	R406059-04			7042-004	U
LCS (QC ID=47842)	R406059-03			7042-003	ok
Duplicate (R406059-01)	R406059-05			7042-005	- U
Spike (R406059-01)	R406059-06			7042-006	ok X
Nominal values and limits from method		RDls (pCi/L)		200	
ERDF-Semiannual Leachate Analysis					

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 7095-054		2σ prep error		10.0 %	Reference		Lab Notebook		7095	pg. 054					
J01K71	R406059-01			120	0.0100			100	100			30	07/03/04	07/07	LSC-004
J01K72	R406059-02			120	0.0100			100	100			30	07/03/04	07/07	LSC-004
BLK (QC ID=47843)	R406059-04			120	0.0100			100	100				07/03/04	07/08	LSC-004
LCS (QC ID=47842)	R406059-03			120	0.0100			100	100				07/03/04	07/07	LSC-004
Duplicate (R406059-01)	R406059-05			120	0.0100			100	100			31	07/03/04	07/08	LSC-004
(QC ID=47844)															
Spike (R406059-01)	R406059-06			220	0.0100			100	29			31	07/03/04	07/08	LSC-004
(QC ID=47845)															
Nominal values and limits from method				200	0.0100			50	180						

PROCEDURES REFERENCE C14_CHEM_LSC
CP-241 Carbon-14 in Aqueous Samples, rev 4

AVERAGES ± 2 SD MDA 140 ± 82
FOR 6 SAMPLES YIELD 100 ± 0

Lab id EBRLINE
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 09/02/04

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H2612

SDG 7042
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG H2612

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.

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SAMPLE DELIVERY GROUP H2612

SDG 7042
Contact Melissa C. Mannion

REPORT GUIDE

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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.

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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.

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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).

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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.

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- * 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.

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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.

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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.

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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.

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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

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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.

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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'

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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.

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* 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

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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.

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Shipped To: EBERLINE SERVICES (Formerly TMA)
 Bill of Lading/Air Bill No.: SEE OSPC
 Offsite Property No.: A040152

POSSIBLE SAMPLE HAZARDS/REMARKS
 HISTORICAL DATA INDICATES <2K pCi/g. NO ACTIVITY REPORT REQUIRED
 Special Handling and/or Storage: None

SAMPLE ANALYSIS

Sample No.	Matrix *	Sample Date	Sample Time	Preservation	HCl or H2SO4 to pH <2.00 aGs*	HCl or H2SO4 to pH <2.00 aGs*	INO3 to pH <2	Cool 4C	Cool 4C	INO3 to pH <2	HCl to pH <2	None
J01K70	WATER	6-7-04	0650		3	3	P	P	P	P	P	P
J01K71	WATER	6-7-04	0945		3	3	P	P	P	P	P	P
J01K72	WATER	6-07-04	0945		20ml	40ml	P	P	P	P	P	P

SPECIAL INSTRUCTIONS

(1) ICP Metals - 6010A (TAL) (Barium, Chromium, Vanadium, Zinc); ICP Metals - 6010A (Add-on) (Arsenic, Lead, Selenium, Tin)
 (2) IC Anions - 300.0 (Bromide, Chloride, Fluoride, Nitrate, Nitrite, Sulfate)

Sample No.	Matrix *	Sample Date	Sample Time	Preservation	HCl or H2SO4 to pH <2.00 aGs*	HCl or H2SO4 to pH <2.00 aGs*	INO3 to pH <2	Cool 4C	Cool 4C	INO3 to pH <2	HCl to pH <2	None
J01K70	WATER	6-7-04	0650		3	3	P	P	P	P	P	P
J01K71	WATER	6-7-04	0945		3	3	P	P	P	P	P	P
J01K72	WATER	6-07-04	0945		20ml	40ml	P	P	P	P	P	P

CHAIN OF POSSESSION

Relinquished By/Removed From	Date/Time	1430	Received By/Stored In	Date/Time
R. Feeley	6-7-04	1430	Fed Ex	
Relinquished By/Removed From	Date/Time	6-7-04	Received By/Stored In	Date/Time
Fed Ex	6/7/04 9:40		Fed Ex	6/7/04 9:40
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



2 July 2004



Joan Kessner
Bechtel-Hanford, Inc.
3190 Washington Way
MSIN H9-03
Richland, WA 99352

**Subject: Contract No. 630
Analytical Data Package**

Dear Ms. Kessner:

Enclosed are the hard copy analytical reports for the batch number/fraction indicated (marked X) in the following table:

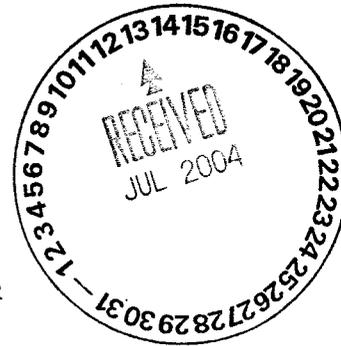
LvLI Batch #	0406L790
SDG #	H2612
SAF #	B04-001
Date Received	6-8-04
# Samples	3
Matrix	Water
Volatiles	X
Semivolatiles	
Pest/PCB	
PAH	
DRO/KRO/GRO	
GC Alcohols	
Herbicides	
Metals	X
Inorganics	X

The electronic data deliverable (EDD) will be emailed shortly. If you have any questions, please don't hesitate to contact me at (610) 280-3012.

Sincerely,
Lionville Laboratory Incorporated

Orlette S. Johnson
Project Manager

r:\group\pm\orlette\tnu-hanford\data\b_ltrs.doc



Lionville Laboratory, Inc.
VOA ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B04-001 H2612

DATE RECEIVED: 06/08/04

LVL LOT # :0406L790

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J01K70	001	W	04LVG186	06/07/04	N/A	06/15/04
J01K71	002	W	04LVG186	06/07/04	N/A	06/15/04
J01K72	003	W	04LVG186	06/07/04	N/A	06/15/04
J01K72	003 MS	W	04LVG186	06/07/04	N/A	06/15/04
J01K72	003 MSD	W	04LVG186	06/07/04	N/A	06/15/04

LAB QC:

VBLKKS	MB1	W	04LVG186	N/A	N/A	06/15/04
VBLKKS	MB1 BS	W	04LVG186	N/A	N/A	06/15/04



Client: TNU-HANFORD B04-001
LVL #: 0406L790
SDG/SAF # H2612/B04-001

W.O. #: 11343-606-001-9999-00
Date Received: 06-08-2004

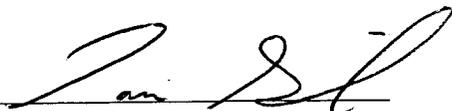
GC/MS VOLATILE

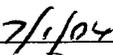
Three (3) water samples were collected on 06-07-2004.

The samples and their associated QC samples were analyzed according to criteria set forth in Lionville Laboratory SOPs based on SW 846 Method 8260B for Carbon Tetrachloride on 06-15-2004.

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.
2. Samples were analyzed within required holding time.
3. Non-target compounds were not detected in the samples.
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. Internal standard area and retention time criteria were met.
8. The pH for these samples exceeded 2.0, which indicates the samples may not have been properly preserved. All samples were analyzed within seven days of receipt.
9. "I certify that this sample data package is in compliance with SOW requirements, both technically, and for completeness, other than the conditions detailed above. Release of the data contained in this hard-copy data package has been authorized by the Laboratory Manager or a designee, as verified by the following signature."


Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated


Date

som\group\data\voa\tnu-hanford\0406-790.doc

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 10 pages.

GLOSSARY

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.

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GLOSSARY

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.

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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 resolve 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** - **Co-elution/ Background:** Peak was manually integrated to eliminate contribution from co-eluting compounds, background signal, or other interference.
- PI** - **Proper Integration:** A peak with poor or inconsistent integration (i.e., excessive tail) was properly integrated manually.

LVL-21-21-035/A-08/93

Lionville Laboratory Sample Discrepancy Report (SDR)

SDR #: 0101074

Initiator: T. Kappel Batch: 0101074-003 Parameter: CRANX
 Date: 6-15-04 Samples: 003 Matrix: Water
 Client: Tru-Hanford Port Co Method: SWB46/MCAWW/CLP/ Prep Batch: -

1. Reason for SDR

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

b. General Discrepancy

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

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

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

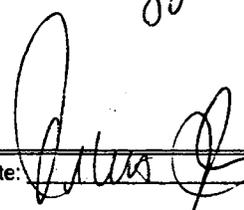
Sample J01K72 (0101074-003): All vials have pH = 7. Container label and chain of custody indicate preserved w/ HCl or H₂SO₄. Sample collected on 6-7-04 and is now past the 7 day hold for unpreserved sample. Report / Analyze out of hold?

2. Known or Probable Causes(s)

3. Discussion and Proposed Action

Other Description:

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

Analyze + Narrate


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

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

5. Final Action...signature/date:

Other Explanation:

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

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

Route Distribution of Completed SDR

Route Distribution of Completed SDR

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

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

Lionville Laboratory, Inc.
 Volatiles By GC/MS, Special List

Report Date: 07/01/04 13:22
 Page: 1a

RFW Batch Number: 0406L790

Client: TNUHANFORD B04-001 H2612 Work Order: 11343606001

Cust ID: J01K70 J01K71 J01K72 J01K72 J01K72 J01K72 VBLKKS
 RFW#: 001 002 003 003 MS 003 MSD 04LVG186-MB1
 Matrix: WATER WATER WATER WATER WATER WATER
 D.F.: 1.00 1.00 1.00 1.00 1.00 1.00
 Units: UG/L UG/L UG/L UG/L UG/L UG/L

1,2-Dichloroethane-d4	89 %	93 %	95 %	93 %	92 %	95 %
Toluene-d8	94 %	96 %	95 %	94 %	92 %	94 %
Recovery	92 %	94 %	91 %	93 %	91 %	93 %
Carbon Tetrachloride	5 U	5 U	5 U	96 %	92 %	5 U

Cust ID: VBLKKS BS

Sample Information
 RFW#: 04LVG186-MB1
 Matrix: WATER
 D.F.: 1.00
 Units: UG/L

1,2-Dichloroethane-d4	88 %	91 %	90 %	86 %
Toluene-d8	91 %	90 %	86 %	
Recovery	90 %	86 %		
Carbon Tetrachloride	86 %			

* = Outside of EPA CLP QC limits.

Bechtel Hanford Inc. Page 1 of 1

Company Contact Telephone No. **B04-001-001**

T LAZARSKI 372-9216 **Project Coordinator** **Data Turnaround**

ERDF LEACHATE **SAF No.** **Air Quality**

ERDF - Semiannual Leachate Analysis **B04-001** **45 Days**

Field Logbook No. **Method of Shipment**

EL 1517-4 **FED EX**

COA **Bill of Lading/Air Bill No.**

RRDF22560 **SEE OSCP**

Shipped To **PERC 89-05T**

EBERLINE SERVICES (Formerly TMA)

POSSIBLE SAMPLE HAZARDS/REMARKS

HISTORICAL DATA INDICATES <2K pCi/g. NO ACTIVITY REPORT

REQUIRED

Special Handling and/or Storage

COOL 40C

Sample No.	Matrix *	Sample Date	Sample Time	Preservation	IICl or 112SO4 to pH <2 Cool		HNO3 to pH <2	Cool 4C	Cool 4C	Cool 4C	HNO3 to pH <2	HCl to pH <2	None
					aGS*	aGS*							
J01K70	WATER	6.7.04	0650		3	40mL	500mL	P	P	1	2	1	
J01K71	WATER	6.7.04	0945		3	40mL	500mL	P	P	1	2	1	
J01K72	WATER	6.07.04	0945		3	40mL	500mL	P	P	1	2	1	

SPECIAL INSTRUCTIONS

(1) ICP Metals - 6010A (TAL) (Barium, Chromium, Vanadium, Zinc); ICP Metals - 6010A (Add-on) (Arsenic, Lead, Selenium, Tin)

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

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
R. Fee R. f. h. l. s.	6.7.04	Fed Ex	
F. O. S. P.	6/18/04 1015	Richard Almon	6/18/04 1015
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 _____ Disposed By _____

FINAL SAMPLE DISPOSITION Disposal Method _____

Date/Time _____

Lionville Laboratory Incorporated
SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: *TNU-HANFORD*

Date: *6-8-04*

Purchase Order / Project# /
 SAF# / SOW# / Release #:

LvLI Batch #: *0406 L790*

Sample Custodian: *Victor Hernandez*

NOTE: EXPLAIN ALL DISCREPANCIES

- | | | |
|---|---|--|
| 1. Samples Hand Delivered or <u>Shipped</u> | Carrier <i>FedEx</i> | Airbill# <i>79185982 7072</i>
<i>7</i> |
| 2. Custody seals on coolers or shipping container intact, signed and dated? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | <input type="checkbox"/> No Seals Comments |
| 3. Outside of coolers or shipping containers are free from damage? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 4. All expected paperwork received (coc and other client specific information) sealed in plastic bag and easily accessible? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 5. Samples received cooled or ambient? | Temp <i>4.5</i> °C | Cooler # <i>ERC-99-055</i> |
| 6. Custody seals on sample containers intact, signed and dated? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | <input type="checkbox"/> No Seals |
| 7. coc signed and dated? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 8. Sample containers are intact? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 9. All samples on coc received? All samples received on coc? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 10. All sample label information matches coc? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 11. Samples properly preserved? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 12. Samples received within hold times? Short holds taken to wet lab? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 13. VOA, TOC, TOX free of headspace? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | <input type="checkbox"/> N/A |
| 14. QC stickers placed on bottles designated by client? | <input type="checkbox"/> Yes <input type="checkbox"/> No | <input checked="" type="checkbox"/> N/A |
| 15. Shipment meets LvLI Sample Acceptance Policy? (Identify all bottles not within policy. See reverse side for policy) | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 16. Project Manager contacted concerning discrepancies? name/date (or samples outside criteria) | <input type="checkbox"/> Yes <input type="checkbox"/> No | <input checked="" type="checkbox"/> No Discrepancies |



Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B04-001 H2612

DATE RECEIVED: 06/08/04

LVL LOT # :0406L790

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

J01K71

ARSENIC, TOTAL	002		W	04L0408	06/07/04	06/25/04	06/25/04
ARSENIC, TOTAL	002	REP	W	04L0408	06/07/04	06/25/04	06/25/04
BARIUM, TOTAL	002		W	04L0408	06/07/04	06/25/04	06/25/04
BARIUM, TOTAL	002	REP	W	04L0408	06/07/04	06/25/04	06/25/04
CHROMIUM, TOTAL	002		W	04L0408	06/07/04	06/25/04	06/25/04
CHROMIUM, TOTAL	002	REP	W	04L0408	06/07/04	06/25/04	06/25/04
LEAD, TOTAL	002		W	04L0408	06/07/04	06/25/04	06/25/04
LEAD, TOTAL	002	REP	W	04L0408	06/07/04	06/25/04	06/25/04
SELENIUM, TOTAL	002		W	04L0408	06/07/04	06/25/04	06/25/04
SELENIUM, TOTAL	002	REP	W	04L0408	06/07/04	06/25/04	06/25/04
TIN, TOTAL	002		W	04L0408	06/07/04	06/25/04	06/25/04
TIN, TOTAL	002	REP	W	04L0408	06/07/04	06/25/04	06/25/04
VANADIUM, TOTAL	002		W	04L0408	06/07/04	06/25/04	06/25/04
VANADIUM, TOTAL	002	REP	W	04L0408	06/07/04	06/25/04	06/25/04
ZINC, TOTAL	002		W	04L0414	06/07/04	06/29/04	06/29/04
ZINC, TOTAL	002	REP	W	04L0414	06/07/04	06/29/04	06/29/04

J01K72

ARSENIC, TOTAL	003		W	04L0408	06/07/04	06/25/04	06/25/04
ARSENIC, TOTAL	003	MS	W	04L0408	06/07/04	06/25/04	06/25/04
BARIUM, TOTAL	003		W	04L0408	06/07/04	06/25/04	06/25/04
BARIUM, TOTAL	003	MS	W	04L0408	06/07/04	06/25/04	06/25/04
CHROMIUM, TOTAL	003		W	04L0408	06/07/04	06/25/04	06/25/04
CHROMIUM, TOTAL	003	MS	W	04L0408	06/07/04	06/25/04	06/25/04
LEAD, TOTAL	003		W	04L0408	06/07/04	06/25/04	06/25/04
LEAD, TOTAL	003	MS	W	04L0408	06/07/04	06/25/04	06/25/04
SELENIUM, TOTAL	003		W	04L0408	06/07/04	06/25/04	06/25/04
SELENIUM, TOTAL	003	MS	W	04L0408	06/07/04	06/25/04	06/25/04
TIN, TOTAL	003		W	04L0408	06/07/04	06/25/04	06/25/04
TIN, TOTAL	003	MS	W	04L0408	06/07/04	06/25/04	06/25/04
VANADIUM, TOTAL	003		W	04L0408	06/07/04	06/25/04	06/25/04
VANADIUM, TOTAL	003	MS	W	04L0408	06/07/04	06/25/04	06/25/04
ZINC, TOTAL	003		W	04L0414	06/07/04	06/29/04	06/29/04
ZINC, TOTAL	003	MS	W	04L0414	06/07/04	06/29/04	06/29/04

LAB QC:

Lionville Laboratory, Inc.
 INORGANIC ANALYTICAL DATA PACKAGE FOR
 TNUHANFORD B04-001 H2612

DATE RECEIVED: 06/08/04

LVL LOT # :0406L790

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
ARSENIC LABORATORY	LC1 BS	W	04L0408	N/A	06/25/04	06/25/04
ARSENIC, TOTAL	MB1	W	04L0408	N/A	06/25/04	06/25/04
BARIUM LABORATORY	LC1 BS	W	04L0408	N/A	06/25/04	06/25/04
BARIUM, TOTAL	MB1	W	04L0408	N/A	06/25/04	06/25/04
CHROMIUM LABORATORY	LC1 BS	W	04L0408	N/A	06/25/04	06/25/04
CHROMIUM, TOTAL	MB1	W	04L0408	N/A	06/25/04	06/25/04
LEAD LABORATORY	LC1 BS	W	04L0408	N/A	06/25/04	06/25/04
LEAD, TOTAL	MB1	W	04L0408	N/A	06/25/04	06/25/04
SELENIUM LABORATORY	LC1 BS	W	04L0408	N/A	06/25/04	06/25/04
SELENIUM, TOTAL	MB1	W	04L0408	N/A	06/25/04	06/25/04
TIN LABORATORY	LC1 BS	W	04L0408	N/A	06/25/04	06/25/04
TIN, TOTAL	MB1	W	04L0408	N/A	06/25/04	06/25/04
VANADIUM LABORATORY	LC1 BS	W	04L0408	N/A	06/25/04	06/25/04
VANADIUM, TOTAL	MB1	W	04L0408	N/A	06/25/04	06/25/04
ZINC LABORATORY	LC1 BS	W	04L0414	N/A	06/29/04	06/29/04
ZINC, TOTAL	MB1	W	04L0414	N/A	06/29/04	06/29/04



Analytical Report

Client: TNU-HANFORD B04-001
LVL#: 0406L790
SDG/SAF#: H2612/B04-001

W.O.#: 11343-606-001-9999-00
Date Received: 06-08-04

METALS CASE NARRATIVE

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

All samples were redigested for Zinc after the MB in the original digestion batch was found to be contaminated.
3. All analyses were performed within the required holding times.
4. All results presented in this report are derived from samples that met 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. The preparation/method blank for 1 analyte was outside 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.
 - a). The MB result for Zinc was greater than the Practical Quantitation Limit (PQL) {3 x the (IDL) Instrument Detection Level} and all samples read less than 20 times the MB concentration. However, no corrective action criteria for MBs were provided in SW846 method 6010B. The sample results were reported herein "uncorrected" for the levels found in the MB.
8. All ICP Interference Check Standards were within control limits.
9. All laboratory control samples (LCS) were within the 80-120% control limits. Refer to the Inorganics Laboratory Control Standards Report.

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 14 pages.

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.
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

7/2/04
Date

jjw/m06-790

METALS METHOD GLOSSARY

The following methods are used as reference for the digestion and analysis of samples contained within this Lot#: 0406L790

Leaching Procedure: 1310 1311 1312 Other:

CLP Metals Digestion and Analysis Methods: ILM03.0 ILM04.0

Metals Digestion Methods: 3005A 3010A 3015 3020A 3050B 3051 200.7 SS17
 Other:

Metals Analysis Methods

	SW846	EPA	STD MTD	EPA OSWR	USATHAMA
Aluminum	<u> </u> 6010B	<u> </u> 200.7			<u> </u> 99
Antimony	<u> </u> 6010B <u> </u> 7041 ⁵	<u> </u> 200.7 <u> </u> 204.2			<u> </u> 99
Arsenic	<input checked="" type="checkbox"/> 6010B <u> </u> 7060A ⁵	<u> </u> 200.7 <u> </u> 206.2	<u> </u> 3113B		<u> </u> 99
Barium	<input checked="" type="checkbox"/> 6010B	<u> </u> 200.7			<u> </u> 99
Beryllium	<u> </u> 6010B	<u> </u> 200.7			<u> </u> 99
Bismuth	<u> </u> 6010B ¹	<u> </u> 200.7 ¹		<u> </u> 1620	<u> </u> 99
Boron	<u> </u> 6010B	<u> </u> 200.7			<u> </u> 99
Cadmium	<u> </u> 6010B <u> </u> 7131A ⁵	<u> </u> 200.7 <u> </u> 213.2			<u> </u> 99
Calcium	<u> </u> 6010B	<u> </u> 200.7			<u> </u> 99
Chromium	<input checked="" type="checkbox"/> 6010B <u> </u> 7191 ⁵	<u> </u> 200.7 <u> </u> 218.2			<u> </u> SS17
Cobalt	<u> </u> 6010B	<u> </u> 200.7			<u> </u> 99
Copper	<u> </u> 6010B <u> </u> 7211 ⁵	<u> </u> 200.7 <u> </u> 220.2			<u> </u> 99
Iron	<u> </u> 6010B	<u> </u> 200.7			<u> </u> 99
Lead	<input checked="" type="checkbox"/> 6010B <u> </u> 7421 ⁵	<u> </u> 200.7 <u> </u> 239.2	<u> </u> 3113B		<u> </u> 99
Lithium	<u> </u> 6010B <u> </u> 7430 ⁴	<u> </u> 200.7		<u> </u> 1620	<u> </u> 99
Magnesium	<u> </u> 6010B	<u> </u> 200.7			<u> </u> 99
Manganese	<u> </u> 6010B	<u> </u> 200.7			<u> </u> 99
Mercury	<u> </u> 7470A ³ <u> </u> 7471A ³	<u> </u> 245.1 ² <u> </u> 245.5 ²			<u> </u> 99
Molybdenum	<u> </u> 6010B	<u> </u> 200.7			<u> </u> 99
Nickel	<u> </u> 6010B	<u> </u> 200.7			<u> </u> 99
Potassium	<u> </u> 6010B <u> </u> 7610 ⁴	<u> </u> 200.7 <u> </u> 258.1 ⁴			<u> </u> 99
Rare Earths	<u> </u> 6010B ¹	<u> </u> 200.7 ¹		<u> </u> 1620	<u> </u> 99
Selenium	<input checked="" type="checkbox"/> 6010B <u> </u> 7740 ⁵	<u> </u> 200.7 <u> </u> 270.2	<u> </u> 3113B		<u> </u> 99
Silicon	<u> </u> 6010B ¹	<u> </u> 200.7		<u> </u> 1620	<u> </u> 99
Silica	<u> </u> 6010B	<u> </u> 200.7		<u> </u> 1620	<u> </u> 99
Silver	<u> </u> 6010B <u> </u> 7761 ⁵	<u> </u> 200.7 <u> </u> 272.2			<u> </u> 99
Sodium	<u> </u> 6010B <u> </u> 7770 ⁴	<u> </u> 200.7 <u> </u> 273.1 ⁴			<u> </u> 99
Strontium	<u> </u> 6010B	<u> </u> 200.7			<u> </u> 99
Thallium	<u> </u> 6010B <u> </u> 7841 ⁵	<u> </u> 200.7 <u> </u> 279.2 <u> </u> 200.9			<u> </u> 99
Tin	<input checked="" type="checkbox"/> 6010B	<u> </u> 200.7			<u> </u> 99
Titanium	<u> </u> 6010B	<u> </u> 200.7			<u> </u> 99
Uranium	<u> </u> 6010B ¹	<u> </u> 200.7 ¹		<u> </u> 1620	<u> </u> 99
Vanadium	<input checked="" type="checkbox"/> 6010B	<u> </u> 200.7			<u> </u> 99
Zinc	<input checked="" type="checkbox"/> 6010B	<u> </u> 200.7			<u> </u> 99
Zirconium	<u> </u> 6010B ¹	<u> </u> 200.7 ¹		<u> </u> 1620	<u> </u> 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, approximately 0.3 grams of sample is taken to a final volume of 50 mL (including all reagents).
3. Flame AA.
4. Graphite Furnace AA.

L-WI-033/N-04/98

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 07/02/04

CLIENT: TNUHANFORD B04-001 H2612
 WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0406L790

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-----	-----	-----	-----	-----	-----	-----
-002	J01K71	Arsenic, Total	7.7	UG/L	3.5	1.0
		Barium, Total	84.0	UG/L	0.30	1.0
		Chromium, Total	34.8	UG/L	1.2	1.0
		Lead, Total	3.1	u UG/L	3.1	1.0
		Selenium, Total	3.9	UG/L	3.6	1.0
		Tin, Total	3.7	u UG/L	3.7	1.0
		Vanadium, Total	19.7	UG/L	1.0	1.0
		Zinc, Total	4.9	UG/L	1.3	1.0
-003	J01K72	Arsenic, Total	7.1	UG/L	3.5	1.0
		Barium, Total	81.7	UG/L	0.30	1.0
		Chromium, Total	33.1	UG/L	1.2	1.0
		Lead, Total	3.1	u UG/L	3.1	1.0
		Selenium, Total	3.6	UG/L	3.6	1.0
		Tin, Total	3.7	u UG/L	3.7	1.0
		Vanadium, Total	19.9	UG/L	1.0	1.0
		Zinc, Total	4.7	UG/L	1.3	1.0

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 07/02/04

CLIENT: TNUHANFORD B04-001 H2612

LVL LOT #: 0406L790

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
=====	=====	=====	=====	=====	=====	=====
BLANK1	04L0408-MB1	Arsenic, Total	3.5	u UG/L	3.5	1.0
		Barium, Total	1.9	UG/L	0.30	1.0
		Chromium, Total	1.2	u UG/L	1.2	1.0
		Lead, Total	3.1	u UG/L	3.1	1.0
		Selenium, Total	3.6	u UG/L	3.6	1.0
		Tin, Total	3.7	u UG/L	3.7	1.0
		Vanadium, Total	1.0	u UG/L	1.0	1.0
BLANK1	04L0414-MB1	Zinc, Total	4.1	UG/L	1.3	1.0

8

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 07/02/04

CLIENT: TNUHANFORD B04-001 H2612
 WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0406L790

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR (SPK)
=====	=====	=====	=====	=====	=====	=====	=====
-003	J01K72	Arsenic, Total	1940	7.1	2000	96.9	1.0
		Barium, Total	1950	81.7	2000	93.6	1.0
		Chromium, Total	219	33.1	200	92.9	1.0
		Lead, Total	466	3.1 u	500	93.1	1.0
		Selenium, Total	1980	3.6	2000	98.9	1.0
		Tin, Total	947	3.7 u	1000	94.7	1.0
		Vanadium, Total	488	19.9	500	93.6	1.0
		Zinc, Total	496	4.7	500	98.2	1.0

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 07/02/04

CLIENT: TNUHANFORD B04-001 H2612
 WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0406L790

SAMPLE	SITE ID	ANALYTE	INITIAL			DILUTION
			RESULT	REPLICATE RPD		
-002REP	J01K71	Arsenic, Total	7.7	6.8	12.4	1.0
		Barium, Total	84.0	81.0	3.6	1.0
		Chromium, Total	34.8	34.3	1.4	1.0
		Lead, Total	3.1 u	3.1 u	NC	1.0
		Selenium, Total	3.9	3.6 u	NC <i>zero</i>	1.0
		Tin, Total	3.7 u	3.7 u	NC	1.0
		Vanadium, Total	19.7	19.0	3.6	1.0
		Zinc, Total	4.9	5.9	18.5	1.0

Lionville Laboratory, Inc.

INORGANICS LABORATORY CONTROL STANDARDS REPORT 07/02/04

CLIENT: TNUHANFORD B04-001 H2612
 WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0406L790

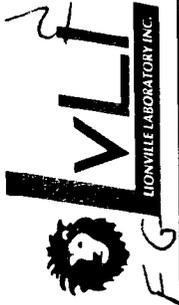
SAMPLE	SITE ID	ANALYTE	SPIKED		UNITS	%RECOV
			SAMPLE	AMOUNT		
=====	=====	=====	=====	=====	=====	=====
LCS1	04L0408-LC1	Arsenic, LCS	9490	10000	UG/L	94.9
		Barium, LCS	4760	5000	UG/L	95.2
		Chromium, LCS	474	500	UG/L	94.8
		Lead, LCS	2360	2500	UG/L	94.4
		Selenium, LCS	9670	10000	UG/L	96.7
		Tin, LCS	4760	5000	UG/L	95.2
		Vanadium, LCS	2350	2500	UG/L	94.1
LCS1	04L0414-LC1	Zinc, LCS	1010	1000	UG/L	101.3

(6) wa. mt. aly., mcll

Lionville Laboratory Use Only
0406L790

Custody Transfer Record/Lab Work Request

Page 1 of 1



FIELD PERSONNEL: COMPLETE ONLY SHADDED AREAS

Client INU. HANFORD SAF # B04-001
 Est. Final Proj. Sampling Date _____
 Project # 11343 - CAG - 001 - 9999 - 00.
 Project Contact/Phone # _____
 Lionville Laboratory Project Manager OJ
 QC Spec Del Std TAT 30 Days
 Date Rec'd 6/18/04 Date Due 7/18/04

MATRIX CODES:	Lab ID	Client ID/Description	Matrix QC Chosen (✓)		Matrix	Date Collected	Time Collected	ANALYSES REQUESTED				Heb	
			MS	MSD				ORGANIC	BNA	Pest	PCB		Heb
S - Soil	001	JOLK 70			W	6-7-04	0650						
SE - Sediment	002	L 71			L		0945						
SO - Solid	003	L 72			L								
SL - Sludge													
W - Water													
O - Oil													
A - Air													
DS - Drum Solids													
DL - Drum Liquids													
L - Leachate													
EPTCLP													
WI - Wipe													
X - Other													
F - Fish													

Special Instructions: Run Matrix QC
METO = Ba, Cr, V, Zn, As, Pb, Se, Sn
ICO = Br, Cl, FL, NO3, NO2, SO4

DATE/REVISIONS:
 6/11/04 1. TANTO cancelled - log in error.

Received by: [Signature] Date: 6/18/04 Time: 1015
 Relinquished by: [Signature] Date: 6/18/04 Time: 1015

Received by: _____ Date: _____ Time: _____
 Relinquished by: _____ Date: _____ Time: _____

"COMPOSITE" WASTE" _____

Discrepancies Between Samples Labels and COC Record? Y or N _____

NOTES: _____

Lionville Laboratory Use Only

Samples were:

1) Shipped Hand Delivered Airbill # _____
 2) Ambient or Chilled _____
 3) Received in Good Condition _____
 4) Samples Properly Preserved _____
 5) Received Within Holding Times _____

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

Refrigerator # _____

#Type Container _____

Volume _____

Preservatives _____

ANALYSES REQUESTED _____

Matrix _____

Date Collected _____

Time Collected _____

Matrix QC Chosen (✓) _____

MS _____ MSD _____

Client ID/Description _____

Lab ID _____

Matrix _____

Date Collected _____

Time Collected _____

Matrix QC Chosen (✓) _____

MS _____ MSD _____

Client ID/Description _____

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Lionville Laboratory Use Only

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ISPT _____

ISPU _____

ISPV _____

ISPW _____

ISPX _____

ISPY _____

ISPZ _____

ISPA _____

ISPB _____

ISPC _____

ISPD _____

ISPE

Bechtel Hanford Inc. **CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST** Page 1 of 1

Collector: NIELSON/FAHLBERG Telephone No. 372-9216 Project Coordinator: KESSNER, JH Price Code: 7N Data Turnaround: 45 Days

Project Designation: ERDJF - Semiannual Leachate Analysis Sampling Location: ERDF LEACHATE SAF No.: B04-001 Air Quality: Method of Shipment: FEDEX

Ice Chest No.: RC 99-05T Field Logbook No.: EL 1517-4 COA: RERDF22560

Shipped To: **RECRA FOR** Offsite Property No.: **A040 185** Bill of Lading/Air Bill No.: SEE OSPC

EBERLINE SERVICES (Formerly TMA)

POSSIBLE SAMPLE HAZARDS/REMARKS
HISTORICAL DATA INDICATES <2K pCi/g, NO ACTIVITY REPORT REQUIRED

Special Handling and/or Storage: **cool 4°C**

Sample No.	Matrix *	Sample Date	Sample Time	Preservation		HNO3 to pH <2	Cool 4C	Cool 4C	Cool 4C	HNO3 to pH <2	HCl to pH <2	Name
				Type of Container	No. of Container(s)							
J01K70	WATER	6.7.04	0650	aGs*	3	P	P	P	P	P	P	
J01K71	WATER	6.7.04	0945	aGs*	3	P	P	P	P	P	P	
J01K72	WATER	6.07.04	0945	VOA - R260A (TCL) (Carbon tetrachloride)	20mL	X	X	X	X	X	X	Carbon-14 Medium Level, Iodine-129

SAMPLE ANALYSIS

Sample No.	Matrix *	Sample Date	Sample Time	HNO3 to pH <2	Cool 4C	Cool 4C	Cool 4C	HNO3 to pH <2	HCl to pH <2	Name
J01K70	WATER	6.7.04	0650	P	P	P	P	P	P	
J01K71	WATER	6.7.04	0945	P	P	P	P	P	P	
J01K72	WATER	6.07.04	0945	P	P	P	P	P	P	

CHAIN OF POSSESSION

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
R. F. Feltz R. F. Feltz	6.7.04	Fed Ex	
F. O. Deo	6/8/04 1015	W. J. Alamy	6/8/04 1015

SPECIAL INSTRUCTIONS

(1) ICP Metals - 6010A (TAL) (Barium, Chromium, Vanadium, Zinc); ICP Metals - 6010A (Add-on) (Arsenic, Lead, Selenium, Tin)

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

LABORATORY SECTION Received By: Title: Date/Time:

FINAL SAMPLE DISPOSITION Disposal Method: Disposed By: Date/Time:

**Lionville Laboratory Incorporated
SAMPLE RECEIPT CHECKLIST (SRC)**

CLIENT: *TNU-HANFORD*

Date: *6-8-04*

Purchase Order / Project# /
SAF# / SOW# / Release #:

LvLI Batch #: *0406 L790*

Sample Custodian: *Victor Hernandez*

NOTE: EXPLAIN ALL DISCREPANCIES

- | | | |
|---|---|--|
| 1. Samples Hand Delivered or Shipped | Carrier <i>FedEx</i> | Airbill# <i>79185982 7072</i>
<i>7</i> |
| 2. Custody seals on coolers or shipping container intact, signed and dated? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | <input type="checkbox"/> No Seals Comments |
| 3. Outside of coolers or shipping containers are free from damage? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 4. All expected paperwork received (coc and other client specific information) sealed in plastic bag and easily accessible? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 5. Samples received cooled or ambient? | Temp <i>4.5</i> °C | Cooler # <i>ERC-99-055</i> |
| 6. Custody seals on sample containers intact, signed and dated? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | <input type="checkbox"/> No Seals |
| 7. coc signed and dated? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 8. Sample containers are intact? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 9. All samples on coc received? All samples received on coc? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 10. All sample label information matches coc? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 11. Samples properly preserved? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 12. Samples received within hold times? Short holds taken to wet lab? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 13. VOA, TOC, TOX free of headspace? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | <input type="checkbox"/> N/A |
| 14. QC stickers placed on bottles designated by client? | <input type="checkbox"/> Yes <input type="checkbox"/> No | <input checked="" type="checkbox"/> N/A |
| 15. Shipment meets LvLI Sample Acceptance Policy? (Identify all bottles not within policy. See reverse side for policy) | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 16. Project Manager contacted concerning discrepancies? name/date (or samples outside criteria) | <input type="checkbox"/> Yes <input type="checkbox"/> No | <input checked="" type="checkbox"/> No Discrepancies |

Lionville Laboratory, Inc.
 INORGANIC ANALYTICAL DATA PACKAGE FOR
 TNUHANFORD B04-001 H2612



DATE RECEIVED: 06/08/04

LVL LOT # : 0406L790

CLIENT ID / ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS	ANALYSIS TIME
J01K71							
BROMIDE BY IC	002	W	04LIC032	06/07/04	06/08/04	06/08/04	
BROMIDE BY IC	002 REP	W	04LIC032	06/07/04	06/08/04	06/08/04	
BROMIDE BY IC	002 MS	W	04LIC032	06/07/04	06/08/04	06/08/04	
CHLORIDE BY IC	002	W	04LIC032	06/07/04	06/08/04	06/08/04	
CHLORIDE BY IC	002 REP	W	04LIC032	06/07/04	06/08/04	06/08/04	
CHLORIDE BY IC	002 MS	W	04LIC032	06/07/04	06/08/04	06/08/04	
FLUORIDE BY IC	002	W	04LIC032	06/07/04	06/08/04	06/08/04	
FLUORIDE BY IC	002 REP	W	04LIC032	06/07/04	06/08/04	06/08/04	
FLUORIDE BY IC	002 MS	W	04LIC032	06/07/04	06/08/04	06/08/04	
NITRITE BY IC	002	W	04LIC032	06/07/04	06/08/04	06/08/04	
NITRITE BY IC	002 REP	W	04LIC032	06/07/04	06/08/04	06/08/04	1657
NITRITE BY IC	002 MS	W	04LIC032	06/07/04	06/08/04	06/08/04	1710
NITRATE BY IC	002	W	04LIC032	06/07/04	06/08/04	06/08/04	1724
NITRATE BY IC	002 REP	W	04LIC032	06/07/04	06/08/04	06/08/04	1738
NITRATE BY IC	002 MS	W	04LIC032	06/07/04	06/08/04	06/08/04	1751
SULFATE BY IC	002	W	04LIC032	06/07/04	06/08/04	06/08/04	1805
SULFATE BY IC	002 REP	W	04LIC032	06/07/04	06/08/04	06/08/04	
SULFATE BY IC	002 MS	W	04LIC032	06/07/04	06/08/04	06/08/04	
SPECIFIC CONDUCTANCE	002	W	04LSP021	06/07/04	06/09/04	06/09/04	
TOTAL DISSOLVED SOLI	002	W	04LSS101	06/07/04	06/11/04	06/11/04	
TOTAL DISSOLVED SOLI	002 REP	W	04LSS101	06/07/04	06/11/04	06/11/04	

J01K72							
BROMIDE BY IC	003	W	04LIC032	06/07/04	06/08/04	06/08/04	
CHLORIDE BY IC	003	W	04LIC032	06/07/04	06/08/04	06/08/04	
FLUORIDE BY IC	003	W	04LIC032	06/07/04	06/08/04	06/08/04	
NITRITE BY IC	003	W	04LIC032	06/07/04	06/08/04	06/08/04	1818
NITRATE BY IC	003	W	04LIC032	06/07/04	06/08/04	06/08/04	1832
SULFATE BY IC	003	W	04LIC032	06/07/04	06/08/04	06/08/04	
SPECIFIC CONDUCTANCE	003	W	04LSP021	06/07/04	06/09/04	06/09/04	
SPECIFIC CONDUCTANCE	003 REP	W	04LSP021	06/07/04	06/09/04	06/09/04	
TOTAL DISSOLVED SOLI	003	W	04LSS101	06/07/04	06/11/04	06/11/04	

LAB QC:

BROMIDE BY IC	MB1	W	04LIC032	N/A	06/08/04	06/08/04	
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Lionville Laboratory, Inc.
 INORGANIC ANALYTICAL DATA PACKAGE FOR
 TNUHANFORD B04-001 H2612

DATE RECEIVED: 06/08/04

LVL LOT # :0406L790

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
BROMIDE BY IC	MB1 BS	W	04LIC032	N/A	06/08/04	06/08/04
CHLORIDE BY IC	MB1	W	04LIC032	N/A	06/08/04	06/08/04
CHLORIDE BY IC	MB1 BS	W	04LIC032	N/A	06/08/04	06/08/04
FLUORIDE BY IC	MB1	W	04LIC032	N/A	06/08/04	06/08/04
FLUORIDE BY IC	MB1 BS	W	04LIC032	N/A	06/08/04	06/08/04
NITRITE BY IC	MB1	W	04LIC032	N/A	06/08/04	06/08/04
NITRITE BY IC	MB1 BS	W	04LIC032	N/A	06/08/04	06/08/04
NITRATE BY IC	MB1	W	04LIC032	N/A	06/08/04	06/08/04
NITRATE BY IC	MB1 BS	W	04LIC032	N/A	06/08/04	06/08/04
SULFATE BY IC	MB1	W	04LIC032	N/A	06/08/04	06/08/04
SULFATE BY IC	MB1 BS	W	04LIC032	N/A	06/08/04	06/08/04
SPECIFIC CONDUCTANCE	MB1	W	04LSP021	N/A	06/09/04	06/09/04
SPECIFIC CONDUCTANCE	MB1 BS	W	04LSP021	N/A	06/09/04	06/09/04
TOTAL DISSOLVED SOLI	MB1	W	04LSS101	N/A	06/11/04	06/11/04
TOTAL DISSOLVED SOLI	MB1 BS	W	04LSS101	N/A	06/11/04	06/11/04
TOTAL DISSOLVED SOLI	MB1 BSD	W	04LSS101	N/A	06/11/04	06/11/04



Analytical Report

Client: TNU-HANFORD B04-001 H2612
LVL#: 0406L790

W.O.#: 11343-606-001-9999-00
Date Received: 06-08-04

INORGANIC NARRATIVE

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

Elevated reporting limits for Nitrite 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 (see the sample chronology summary for analyses times for short hold samples).
4. The results presented in this report are derived from samples that met LVL's sample acceptance policy.
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 Total Dissolved Solids (TDS) was within the 20% Relative Percent Difference (RPD) control limit.
7. The matrix spike recoveries for Bromide, Chloride, Fluoride, Nitrite, Nitrate and Sulfate were within the 75-125% control limits.
8. The replicate analyses for Bromide, Chloride, Fluoride, Nitrite, Nitrate, Sulfate, TDS and Specific Conductance were within the 20% RPD control limit.
9. I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard copy package has been authorized by the Laboratory Manager or a designee, as verified by the following signature.


Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

6/29/04
Date

njp\06-790

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 14 pages.

Lionville Laboratory Incorporated

WET CHEMISTRY

METHODS GLOSSARY FOR WATER SAMPLE ANALYSIS

	<u>EPA /600</u>	<u>SW846</u>	<u>OTHER</u>
Acidity	305.1		
___ Alkalinity ___ Bicarbonate ___ Carbonate	310.1		
BOD	405.1		5210B (b)
Ion Chromatography:			
✓ Bromide ✓ 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 ___ .2 ___ .3	1312	
Total Organic Halides	450.1	9020B	
Turbidity	180.1		
Volatile Solids:			
___ Total ___ Dissolved ___ Suspended	160.4		
Other:		Method:	

Lionville Laboratory Incorporated

METHOD REFERENCES AND DATA QUALIFIERS

DATA QUALIFIERS

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

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

ABBREVIATIONS

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

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

ANALYTICAL WET CHEMISTRY METHODS

1. ASTM Standard Methods.
2. USEPA Methods for Chemical Analysis of Water and Wastes (USEPA 600/4-79-020).
3. Test Methods for Evaluating Solid Waste (USEPA SW-846).
 - a. Standard Methods for the Examination of Water and Waste, 16 ed, (1983).
 - b. Standard Methods for the Examination of Water and Waste, 17 ed, (1989)/18ed (1992).
 - c. Method of Soil Analysis, Part 1, Physical and Mineralogical Methods, 2nd ed, (1986).
 - d. Method of Soil Analysis, Part 2, Chemical and Microbiological Properties, Am. Soc. Agron., Madison, WI (1965).
 - e. USEPA Contract Laboratory Program, Statement of Work for Inorganic Analysis.
 - f. Code of Federal Regulations.

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 06/21/04

CLIENT: TNUHANFORD B04-001 H2612
 WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0406L790

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-----	-----	-----	-----	-----	-----	-----
-002	J01K71	Bromide by IC	0.78	MG/L	0.25	1.0
		Chloride by IC	178	MG/L	25.0	100
		Fluoride by IC	0.26	MG/L	0.25	1.0
		Nitrite by IC	1.25 u	MG/L	1.25	5.0
		Nitrate by IC	309	MG/L	25.0	100
		Sulfate by IC	391	MG/L	25.0	100
		Specific Conductance	2250	US/CM	1.0	1.0
		Total Dissolved Solids	1820	MG/L	5.00	1.0
-003	J01K72	Bromide by IC	0.69	MG/L	0.25	1.0
		Chloride by IC	176	MG/L	25.0	100
		Fluoride by IC	0.27	MG/L	0.25	1.0
		Nitrite by IC	1.25 u	MG/L	1.25	5.0
		Nitrate by IC	294	MG/L	25.0	100
		Sulfate by IC	380	MG/L	25.0	100
		Specific Conductance	2470	US/CM	1.0	1.0
		Total Dissolved Solids	1810	MG/L	5.00	1.0

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 06/21/04

CLIENT: TNUHANFORD B04-001 H2612
 WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0406L790

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-----	-----	-----	-----	-----	-----	-----
BLANK10	04LIC032-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
		Sulfate by IC	0.25 u	MG/L	0.25	1.0
BLANK10	04LSP021-MB1	Specific Conductance	1.0 u	US/CM	1.0	1.0
BLANK10	04LSS101-MB1	Total Dissolved Solids	5.00 u	MG/L	5.00	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 06/21/04

CLIENT: TNUHANFORD B04-001 H2612
 WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0406L790

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR (SPK)
-002	J01K71	Bromide by IC	25.3	0.78	25.0	97.9	5.0
		Chloride by IC	1170	178	1000	99.1	200
		Fluoride by IC	24.8	0.26	25.0	98.2	5.0
		Nitrite by IC	27.1	1.25u	25.0	108.6	5.0
		Nitrate by IC	1330	309	1000	102.2	200
		Sulfate by IC	1420	391	1000	102.5	200
BLANK10	04LIC032-MB1	Bromide by IC	4.9	0.25u	5.0	98.7	1.0
		Chloride by IC	4.7	0.25u	5.0	94.8	1.0
		Fluoride by IC	4.8	0.25u	5.0	96.7	1.0
		Nitrite by IC	4.73	0.25u	5.00	94.6	1.0
		Nitrate by IC	5.09	0.25u	5.00	101.8	1.0
		Sulfate by IC	4.9	0.25u	5.0	97.4	1.0
BLANK10	04LSP021-MB1	Specific Conductance	696	1.0 u	718	96.9	1.0
BLANK10	04LSS101-MB1	Total Dissolved Solids	99.0	5.00u	100	99.0	1.0
		Total Dissolved Solids	101	5.00u	100	101.0	1.0

Lionville Laboratory, Inc.

INORGANICS DUPLICATE SPIKE REPORT 06/21/04

CLIENT: TNUHANFORD B04-001 H2612
WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0406L790

SAMPLE	SITE ID	ANALYTE	SPIKE#1 SPIKE#2		%DIFF
			%RECOV	%RECOV	
BLANK10	04LSS101-MB1	Total Dissolved Solids	99.0	101.0	2.0

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 06/21/04

CLIENT: TNUHANFORD B04-001 H2612
 WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0406L790

SAMPLE	SITE ID	ANALYTE	INITIAL			DILUTION FACTOR (REP)
			RESULT	REPLICATE	RPD	
-002REP	J01K71	Bromide by IC	0.78	1.2 u	NC	5.0
		Chloride by IC	178	177	0.024	100
		Fluoride by IC	0.26	1.2 u	NC	5.0
		Nitrite by IC	1.25u	1.25u	NC	5.0
		Nitrate by IC	309	306	0.99	100
		Sulfate by IC	391	395	1.0	100
		Total Dissolved Solids	1820	1820	0.17	1.0
-003REP	J01K72	Specific Conductance	2470	2450	0.86	1.0

Bechtel Hanford Inc.
 Collector NIELSON/FAHLBERG
 Project Designation ERDF - Semiannual Leachate Analysis
 Ice Chest No. **ERC 99-05T**

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST
 Company Contact T LAZARSKI
 Telephone No. 372-9216
 Project Coordinator KESSNER, JH
 SAF No. B04-001
 Method of Shipment FED EX
 COA RERDF22560

Field Logbook No. EL 1517-4
 Offsite Property No. **A040 185**
 Bill of Lading/Air Bill No. SEE OSCP

Shipped To **RECRB FOR**
 EBERLINE SERVICES (Formerly TMA)
POSSIBLE SAMPLE HAZARDS/REMARKS
HISTORICAL DATA INDICATES <2K pCi/g. NO ACTIVITY REPORT REQUIRED
Special Handling and/or Storage
COOL 40C

SAMPLE ANALYSIS

Sample No.	Matrix *	Sample Date	Sample Time	Preservation	HCl or H2SO4 to pH <2 Cool aGs*	HCl or H2SO4 to pH <2 Cool aGs*	HNO3 to pH <2 Cool 4C	HNO3 to pH <2 Cool 4C	HNO3 to pH <2 Cool 4C	HCl to pH <2	HNO3 to pH <2	None
J01K70	WATER	6.7.04	0650		3	20mL						
J01K71	WATER	6.7.04	0945		3	40mL						
J01K72	WATER	6.07.04	0945									

CHAIN OF POSSESSION

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
R. F. Eberline	6.7.04	Fed Ex	
F. O. DeP	6/18/04	Received By/Stored In	6/18/04
		Received By/Stored In	
		Received By/Stored In	
		Received By/Stored In	

SPECIAL INSTRUCTIONS

(1) ICP Metals - 6010A (TAL) (Barium, Chromium, Vanadium, Zinc); ICP Metals - 6010A (Add-on) (Arsenic, Lead, Selenium, Tin)
 (2) IC Anions - 300.0 (Bromide, Chloride, Fluoride, Nitrate, Nitrite, Sulfate)

LABORATORY SECTION

Relinquished By/Removed From	Date/Time	Received By	Date/Time

FINAL SAMPLE DISPOSITION

Received By
 Disposal Method
 Dispersed By
 Date/Time

Lionville Laboratory Incorporated
SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: *TNU-HANFORD*

Date: *6-8-04*

Purchase Order / Project# /
 SAF# / SOW# / Release #:

LvLI Batch #: *0406 L790*

Sample Custodian: *Victor Hernandez*

NOTE: EXPLAIN ALL DISCREPANCIES

- | | | |
|---|---|--|
| 1. Samples Hand Delivered or Shipped | Carrier <i>Fed Ex</i> | Airbill# <i>79185982 7072</i>
<i>7</i> |
| 2. Custody seals on coolers or shipping container intact, signed and dated? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | <input type="checkbox"/> No Seals Comments |
| 3. Outside of coolers or shipping containers are free from damage? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 4. All expected paperwork received (coc and other client specific information) sealed in plastic bag and easily accessible? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 5. Samples received cooled or ambient? | Temp <i>4.5</i> °C | Cooler # <i>ERC-99-055</i> |
| 6. Custody seals on sample containers intact, signed and dated? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | <input type="checkbox"/> No Seals |
| 7. coc signed and dated? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 8. Sample containers are intact? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 9. All samples on coc received? All samples received on coc? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 10. All sample label information matches coc? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 11. Samples properly preserved? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 12. Samples received within hold times? Short holds taken to wet lab? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 13. VOA, TOC, TOX free of headspace? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | <input type="checkbox"/> N/A |
| 14. QC stickers placed on bottles designated by client? | <input type="checkbox"/> Yes <input type="checkbox"/> No | <input checked="" type="checkbox"/> N/A |
| 15. Shipment meets LvLI Sample Acceptance Policy? (Identify all bottles not within policy. See reverse side for policy) | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 16. Project Manager contacted concerning discrepancies? name/date (or samples outside criteria) | <input type="checkbox"/> Yes <input type="checkbox"/> No | <input checked="" type="checkbox"/> No Discrepancies |

Lionville Laboratory, Inc.
 INORGANIC ANALYTICAL DATA PACKAGE FOR
 URS LIPARI LANDFILL

DATE RECEIVED: 06/10/04

LVL LOT # :0406L827

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
CL04 AE-9684						
TOTAL SUSPENDED SOLI	003	W	04LSS100	06/10/04	06/11/04	06/11/04
CL05 AE-9685						
TOTAL SUSPENDED SOLI	004	W	04LSS100	06/10/04	06/11/04	06/11/04
PF01 AE-9686						
TOTAL SUSPENDED SOLI	005	W	04LSS100	06/10/04	06/11/04	06/11/04
ET02 AE-9689						
SULFIDE	008	W	04LSD030	06/10/04	06/14/04	06/14/04
ET01 AE-9693						
BIOCHEMICAL OXYGEN D	012	W	04LIB014	06/10/04	06/11/04	06/16/04
BOD 5 DAY	012 REP	W	04LIB014	06/10/04	06/11/04	06/16/04
ET01 AE-9694						
OIL & GREASE BY GRAV	013	W	04LOG014	06/10/04	06/14/04	06/14/04
OIL AND GREASE BY GR	013 REP	W	04LOG014	06/10/04	06/14/04	06/14/04
ET01 AE-9695						
AMMONIA	014	W	04LAM020	06/10/04	06/15/04	06/15/04
ET01 AE-9696						
TOTAL CYANIDE	015	W	04LCA42	06/10/04	06/14/04	06/14/04
ET01 AE-9698						
TOTAL SUSPENDED SOLI	017	W	04LSS100	06/10/04	06/11/04	06/11/04

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 URS LIPARI LANDFILL

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LVL LOT # :0406L827

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
WR01 AE-9699						
TOTAL SUSPENDED SOLI	018	W	04LSS100	06/10/04	06/11/04	06/11/04
WR01 AE-9700						
TOTAL SUSPENDED SOLI	019	W	04LSS100	06/10/04	06/11/04	06/11/04

LAB QC:

TOTAL SUSPENDED SOLI	MB1	W	04LSS100	N/A	06/11/04	06/11/04
TOTAL SUSPENDED SOLI	MB1 BS	W	04LSS100	N/A	06/11/04	06/11/04
TOTAL SUSPENDED SOLI	MB1 BSD	W	04LSS100	N/A	06/11/04	06/11/04
SULFIDE	MB1	W	04LSD030	N/A	06/14/04	06/14/04
SULFIDE	MB1 BS	W	04LSD030	N/A	06/14/04	06/14/04
SULFIDE	MB1 BSD	W	04LSD030	N/A	06/14/04	06/14/04
BIOCHEMICAL OXYGEN D	MB1	W	04LIB014	N/A	06/11/04	06/16/04
BOD 5 DAY	MB1 BS	W	04LIB014	N/A	06/11/04	06/16/04
OIL & GREASE BY GRAV	MB1	W	04LOG014	N/A	06/14/04	06/14/04
OIL AND GREASE BY GR	MB1 BS	W	04LOG014	N/A	06/14/04	06/14/04
OIL AND GREASE BY GR	MB1 BSD	W	04LOG014	N/A	06/14/04	06/14/04
AMMONIA	MB1	W	04LAM020	N/A	06/15/04	06/15/04
AMMONIA	MB1 BS	W	04LAM020	N/A	06/15/04	06/15/04
AMMONIA	MB1 BSD	W	04LAM020	N/A	06/15/04	06/15/04
TOTAL CYANIDE	LCS L	W	04LCA42	N/A	06/14/04	06/14/04
TOTAL CYANIDE	LCS L	W	04LCA42	N/A	06/14/04	06/14/04
TOTAL CYANIDE	MB1	W	04LCA42	N/A	06/14/04	06/14/04