0078698

SAF-RC-088
618-7 Burial Ground – Other Liquids
FINAL DATA PACKAGE

COMPLETE COPY OF DATA PACKAGE TO:

Rick Kerkow	L6-06	KW 9/2/08 Initials/Date
Kathy Wendt	H4-21	KW 9/2/08 Initials/Date

COMMENTS:

SDG K1297 **SAF-RC-088**

Rad only Chem only X Rad & Chem

X Complete Partial

WASTE SITE: 618-7 Burial Ground (drums)

RECEIVED
SEP 0 8 2008
EDMC

EBERLINE SERVICES

EBERLINE ANALYTICAL CORPORATION
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Richmond, California 94804-3849
Phone (510) 235-2633 Fax (510) 235-0438
Toll Free (800) 841-5487
www.eberlineservices.com

August 28, 2008

RECEIVED
SEP 2008

Ms. Joan Kessner
Washington Closure Hanford
2620 Fermi Avenue
MSIN H4-21
Richland, WA 99352

Reference: **P.O. #S00W235A00**
Eberline Services R8-08-156-7870, SDG K1297

Dear Ms. Kessner:

Enclosed is the data report for one solid (other solid) sample designated under SAF No. RC-088 received at Eberline Services on August 21, 2008. The sample was analyzed according to the accompanying chain-of-custody document.

Please call if you have any questions concerning this report.

Sincerely,

Melissa Mannion

Melissa C. Mannion
Senior Program Manager

MCM/njv

Enclosure: Data Package

1.0 GENERAL

Washington Closure Hanford (WCH) Sample Delivery Group K1297 was composed of one solid (other solid) sample designated under SAF No. RC-088 with a Project Designation of: 618-7 Burial Ground-Other Solids.

The sample was received as stated on the Chain-of-Custody document. Any discrepancies are noted on the Eberline Services Sample Receipt Checklist. A partial result set was transmitted to WCH via e-mail on August 26, and a full data set on August 28, 2008.

2.0 ANALYSIS NOTES

2.1 Gross Alpha and Gross Beta Analysis

No problems were encountered during the course of the analyses.

2.2 Total Strontium Analysis

No problems were encountered during the course of the analyses.

2.3 Isotopic Thorium Analysis

No problems were encountered during the course of the analyses.

2.4 Isotopic Uranium Analysis

No problems were encountered during the course of the analyses.

2.5 Isotopic Plutonium Analysis

No problems were encountered during the course of the analyses.

2.6 Americium-241 Analysis

No problems were encountered during the course of the analyses.

3.0 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 Mannion

Melissa C. Mannion
Senior Program Manager

08/29/08

Date

E B E R L I N E S E R V I C E S / R I C H M O N D
SAMPLE DELIVERY GROUP K1297

SDG	7870
Contact	Melissa C. Mannion

Client	Hanford
Contract	No. S00W235A00
Case no	SDG_K1297

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

T A B L E O F C O N T E N T S

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Prepared by

Melissa Mannion

Reviewed by

Lab id	EBRLNE
Protocol	Hanford1
Version	Ver 1.0
Form	DVD-TOC
Version	3.06
Report date	08/28/08

SDG 7870
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG_K1297

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.

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 08/28/08

ABOUT THE DATA SUMMARY SECTION

DUPLICATES

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

MATRIX SPIKES

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

DATA SHEETS

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

METHOD SUMMARIES

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

REPORT GUIDES

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

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1297

SDG 7870
Contact Melissa C. Mannion

LAB SAMPLE SUMMARY

Client Hanford
Contract No. S00W235A00
Case no SDG K1297

LAB SAMPLE ID	CLIENT SAMPLE ID	LOCATION	MATRIX	LEVEL	SAF NO	CHAIN OF CUSTODY	COLLECTED
R808156-01	J178L9	618-7 Burial Grnd(drums)	SOLID		RC-088	RC-088-063	08/19/08 14:45
R808156-02	Lab Control Sample		SOLID		RC-088		
R808156-03	Method Blank		SOLID		RC-088		
R808156-04	Duplicate (R808156-01)	618-7 Burial Grnd(drums)	SOLID		RC-088		08/19/08 14:45

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-LS
Version 3.06
Report date 08/28/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1297

QC SUMMARY

SDG 7870
Contact Melissa C. Mannion

Client Hanford
Contract No. S00W235A00
Case no SDG K1297

QC BATCH	CHAIN OF CUSTODY	CLIENT SAMPLE ID	MATRIX	% SOLIDS	SAMPLE AMOUNT	BASIS AMOUNT	DAYS SINCE RECEIVED	DAYS SINCE COLL	LAB SAMPLE ID	DEPARTMENT SAMPLE ID
7870	RC-088-063	J178L9	SOLID	100.0	672 g		08/21/08	2	R808156-01	7870-001
		Method Blank	SOLID						R808156-03	7870-003
		Lab Control Sample	SOLID						R808156-02	7870-002
		Duplicate (R808156-01)	SOLID	100.0	672 g		08/21/08	2	R808156-04	7870-004

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-QS
Version 3.06
Report date 08/28/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1297

SDG 7870
Contact Melissa C. Mannion

PREP BATCH SUMMARY

Client Hanford
Contract No. S00W235A00
Case no SDG K1297

TEST	MATRIX	METHOD	PREPARATION ERROR BATCH	2σ %	PLANCHETS ANALYZED CLIENT	MORE	RE	BLANK	LCS	DUP/ORIG	MS/ORIG	QUALIFIERS
Alpha Spectroscopy												
AM	SOLID	Americium 241 in Solids	6160-087	8.0	1			1	1	1/1		
PU	SOLID	Plutonium, Isotopic in Solids	6160-087	8.0	1			1	1	1/1		
TH	SOLID	Thorium, Isotopic in Solids	6160-087	8.0	1			1	1	1/1		
U	SOLID	Uranium, Isotopic in Solids	6160-087	8.0	1			1	1	1/1		
Beta Counting												
SR	SOLID	Total Strontium in Solids	6160-087	10.4	1			1	1	1/1		
Gas Proportional Counting												
93A	SOLID	Gross Alpha in Solids	6160-087	20.6	1			1	1	1/1		
93B	SOLID	Gross Beta in Solids	6160-087	11.0	1			1	1	1/1		
Gamma Spectroscopy												
GAM	SOLID	Gamma Scan	6160-087	7.0	1			1	1	1/1		

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

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-PBS
Version 3.06
Report date 08/28/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1297

SDG 7870
Contact Melissa C. Mannion

LAB WORK SUMMARY

Client Hanford
Contract No. S00W235A00
Case no SDG K1297

LAB SAMPLE COLLECTED RECEIVED	CLIENT SAMPLE ID LOCATION CUSTODY	SAF No	MATRIX	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
R808156-01	J178L9			7870-001	93A/93		08/23/08	08/25/08	BW	Gross Alpha in Solids
08/19/08	618-7 Burial Grnd(drums)		SOLID	7870-001	93B/93		08/23/08	08/25/08	BW	Gross Beta in Solids
08/21/08	RC-088-063	RC-088		7870-001	AM		08/26/08	08/27/08	BW	Americium 241 in Solids
				7870-001	GAM		08/22/08	08/25/08	CSS	Gamma Scan
				7870-001	PU		08/27/08	08/28/08	BW	Plutonium, Isotopic in Solids
				7870-001	SR		08/26/08	08/28/08	BW	Total Strontium in Solids
				7870-001	TH		08/26/08	08/27/08	BW	Thorium, Isotopic in Solids
				7870-001	U		08/26/08	08/27/08	BW	Uranium, Isotopic in Solids
R808156-02	Lab Control Sample			7870-002	93A/93		08/23/08	08/25/08	BW	Gross Alpha in Solids
			SOLID	7870-002	93B/93		08/23/08	08/25/08	BW	Gross Beta in Solids
		RC-088		7870-002	AM		08/26/08	08/27/08	BW	Americium 241 in Solids
				7870-002	GAM		08/22/08	08/25/08	CSS	Gamma Scan
				7870-002	PU		08/27/08	08/28/08	BW	Plutonium, Isotopic in Solids
				7870-002	SR		08/26/08	08/28/08	BW	Total Strontium in Solids
				7870-002	TH		08/26/08	08/27/08	BW	Thorium, Isotopic in Solids
				7870-002	U		08/26/08	08/27/08	BW	Uranium, Isotopic in Solids
R808156-03	Method Blank			7870-003	93A/93		08/23/08	08/25/08	BW	Gross Alpha in Solids
			SOLID	7870-003	93B/93		08/23/08	08/25/08	BW	Gross Beta in Solids
		RC-088		7870-003	AM		08/26/08	08/27/08	BW	Americium 241 in Solids
				7870-003	GAM		08/22/08	08/25/08	CSS	Gamma Scan
				7870-003	PU		08/27/08	08/28/08	BW	Plutonium, Isotopic in Solids
				7870-003	SR		08/26/08	08/28/08	BW	Total Strontium in Solids
				7870-003	TH		08/26/08	08/27/08	BW	Thorium, Isotopic in Solids
				7870-003	U		08/26/08	08/27/08	BW	Uranium, Isotopic in Solids
R808156-04	Duplicate (R808156-01)			7870-004	93A/93		08/23/08	08/25/08	BW	Gross Alpha in Solids
08/19/08	618-7 Burial Grnd(drums)		SOLID	7870-004	93B/93		08/23/08	08/25/08	BW	Gross Beta in Solids
08/21/08		RC-088		7870-004	AM		08/26/08	08/27/08	BW	Americium 241 in Solids
				7870-004	GAM		08/23/08	08/25/08	CSS	Gamma Scan
				7870-004	PU		08/27/08	08/28/08	BW	Plutonium, Isotopic in Solids
				7870-004	SR		08/26/08	08/28/08	BW	Total Strontium in Solids
				7870-004	TH		08/26/08	08/27/08	BW	Thorium, Isotopic in Solids
				7870-004	U		08/26/08	08/27/08	BW	Uranium, Isotopic in Solids

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-LWS
Version 3.06
Report date 08/28/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1297

SDG 7870
Contact Melissa C. Mannion

WORK SUMMARY, cont.

Client Hanford
Contract No. S00W235A00
Case no SDG K1297

COUNTS OF TESTS BY SAMPLE TYPE

TEST	SAF No	METHOD	REFERENCE	CLIENT	MORE	RE	BLANK	LCS	DUP SPIKE	TOTAL
93A/93	RC-088	Gross Alpha in Solids	900.0_ALPHABETA_GPC	1			1	1	1	4
93B/93	RC-088	Gross Beta in Solids	900.0_ALPHABETA_GPC	1			1	1	1	4
AM	RC-088	Americium 241 in Solids	AMCMISO_IE_PLATE_AEA	1			1	1	1	4
GAM	RC-088	Gamma Scan	GAMMA_GS	1			1	1	1	4
PU	RC-088	Plutonium, Isotopic in Solids	PUISO_PLATE_AEA	1			1	1	1	4
SR	RC-088	Total Strontium in Solids	SRTOT_SEP_PRECIP_GPC	1			1	1	1	4
TH	RC-088	Thorium, Isotopic in Solids	THISO_IE_PLATE_AEA	1			1	1	1	4
U	RC-088	Uranium, Isotopic in Solids	UISO_PLATE_AEA	1			1	1	1	4
TOTALS				8			8	8	8	32

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-LWS
Version 3.06
Report date 08/28/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1297

7870-003 Method Blank

METHOD BLANK

SDG	7870	Client/Case no	Hanford	SDG K1297	
Contact	Melissa C. Mannion	Contract	No. S00W235A00		
Lab sample id	R808156-03	Client sample id	Method Blank		
Dept sample id	7870-003	Material/Matrix		SOLID	
		SAF No	RC-088		

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Gross Alpha	12587-46-1	-2.10	2.9	7.50	10.0	U	93A
Gross Beta	12587-47-2	-0.394	3.6	6.32	15.0	U	93B
Total Strontium	SR-RAD	-0.014	0.13	0.279	1.00	U	SR
Americium 241	14596-10-2	0	0.060	0.229	1.00	U	AM
Thorium 228	14274-82-9	-0.055	0.16	0.393	1.00	U	TH
Thorium 230	14269-63-7	-0.027	0.16	0.262	1.00	U	TH
Thorium 232	TH-232	0	0.055	0.209	1.00	U	TH
Uranium 233/234	U-233/234	0.022	0.043	0.165	1.00	U	U
Uranium 235	15117-96-1	0	0.052	0.200	1.00	U	U
Uranium 238	U-238	0	0.043	0.165	1.00	U	U
Plutonium 238	13981-16-3	0.112	0.090	0.172	1.00	U	PU
Plutonium 239/240	PU-239/240	0.022	0.045	0.172	1.00	U	PU
Potassium 40	13966-00-2	U		0.110		U	GAM
Cobalt 60	10198-40-0	U		0.012	0.050	U	GAM
Cesium 137	10045-97-3	U		0.012	0.100	U	GAM
Radium 226	13982-63-3	U		0.021	0.100	U	GAM
Radium 228	15262-20-1	U		0.044	0.200	U	GAM
Europium 152	14683-23-9	U		0.030	0.100	U	GAM
Europium 154	15585-10-1	U		0.039	0.100	U	GAM
Europium 155	14391-16-3	U		0.023	0.100	U	GAM
Thorium 228	14274-82-9	U		0.017		U	GAM
Thorium 232	TH-232	U		0.044		U	GAM
Uranium 235	15117-96-1	U		0.041		U	GAM
Uranium 238	U-238	U		1.36		U	GAM
Americium 241	14596-10-2	U		0.012		U	GAM

618-7 Burial Ground - Other Liquid

QC-BLANK #66982

Lab id	EBRLNE
Protocol	Hanford1
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	08/28/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1297

7870-002

Lab Control Sample

LAB CONTROL SAMPLE

SDG 7870

Contact Melissa C. Mannion

Client/Case no Hanford SDG K1297

Contract No. S00W235A00

Lab sample id R808156-02

Dept sample id 7870-002

Client sample id Lab Control Sample

Material/Matrix SOLID

SAF No RC-088

ANALYTE	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST	ADDED pCi/g	2σ ERR pCi/g	REC %	3σ LMTS (TOTAL)	PROTOCOL LIMITS
Gross Alpha	105	16	5.32	10.0		93A	102	4.1	103	60-140	70-130
Gross Beta	97.4	8.7	8.93	15.0		93B	92.7	3.7	105	77-123	80-120
Total Strontium	9.26	0.59	0.278	1.00		SR	9.27	0.37	100	81-119	80-120
Americium 241	19.2	2.1	0.249	1.00		AM	20.4	0.82	94	80-120	80-120
Thorium 230	34.1	3.3	0.251	1.00		TH	37.8	1.5	90	82-118	80-120
Uranium 233/234	16.6	1.7	0.784	1.00		U	18.6	0.74	89	82-118	80-120
Uranium 235	13.4	1.5	0.185	1.00		U	15.1	0.60	89	81-119	80-120
Uranium 238	17.8	1.8	0.754	1.00		U	20.2	0.81	88	82-118	80-120
Plutonium 238	21.5	2.0	0.172	1.00		PU	23.4	0.94	92	82-118	80-120
Plutonium 239/240	25.6	2.3	0.172	1.00		PU	26.4	1.1	97	81-119	80-120
Cobalt 60	0.908	0.030	0.015	0.050		GAM	0.875	0.035	104	87-113	80-120
Cesium 137	0.999	0.025	0.017	0.100		GAM	0.971	0.039	103	87-113	80-120

618-7 Burial Ground - Other Liquid

QC-LCS #66981

Lab id EBRLNE

Protocol Hanford1

Version Ver 1.0

Form DVD-LCS

Version 3.06

Report date 08/28/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1297

7870-004 J178L9

DUPLICATE

SDG	7870			Client/Case no	Hanford SDG K1297
Contact	Melissa C. Mannion			Contract	No. S00W235A00
DUPLICATE		ORIGINAL			
Lab sample id	R808156-04	Lab sample id	R808156-01	Client sample id	J178L9
Dept sample id	7870-004	Dept sample id	7870-001	Location/Matrix	618-7 Burial Grnd(drums) SOLID
		Received	08/21/08	Collected/Weight	08/19/08 14:45 672 g
% solids	100.0	% solids	100.0	Custody/SAF No	RC-088-063 RC-088

ANALYTE	DUPLICATE pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST	ORIGINAL pCi/g	2σ ERR (COUNT)	MDA pCi/g	QUALI-FIERS	RPD %	3σ TOT	DER σ
Gross Alpha	8.39	5.4	6.18	10.0		93A	19.3	7.4	6.79		79	110	2.2
Gross Beta	20.6	4.3	5.28	15.0		93B	14.2	4.3	5.89		37	58	1.9
Total Strontium	0.048	0.14	0.281	1.00	U	SR	0.168	0.16	0.293	U	-		1.1
Americium 241	0.132	0.13	0.253	1.00	U	AM	0.032	0.13	0.249	U	-		1.1
Thorium 228	0.360	0.26	0.362	1.00	U	TH	0.388	0.28	0.372		7	154	0.1
Thorium 230	0.327	0.26	0.313	1.00		TH	0.222	0.22	0.212		38	187	0.6
Thorium 232	0.294	0.20	0.250	1.00		TH	0.222	0.17	0.212		28	154	0.5
Uranium 233/234	1.15	0.32	0.149	1.00		U	0.922	0.28	0.147		22	64	1.0
Uranium 235	0.024	0.047	0.180	1.00	U	U	0.093	0.093	0.178	U	-		1.3
Uranium 238	3.85	0.61	0.149	1.00		U	3.44	0.56	0.147		11	38	0.9
Plutonium 238	0.084	0.085	0.162	1.00	U	PU	0	0.042	0.162	U	-		1.8
Plutonium 239/240	0	0.084	0.202	1.00	U	PU	0	0.042	0.161	U	-		0
Potassium 40	7.76	0.32	0.170			GAM	7.48	0.34	0.213		4	17	0.6
Cobalt 60	U		0.017	0.050	U	GAM	U		0.016	U	-		0.1
Cesium 137	U		0.015	0.100	U	GAM	U		0.016	U	-		0.1
Radium 226	0.242	0.044	0.036	0.100		GAM	0.238	0.042	0.035		2	41	0.1
Radium 228	0.445	0.078	0.071	0.200		GAM	0.406	0.072	0.067		9	40	0.7
Europium 152	U		0.040	0.100	U	GAM	U		0.043	U	-		0.1
Europium 154	U		0.050	0.100	U	GAM	U		0.053	U	-		0.1
Europium 155	U		0.034	0.100	U	GAM	U		0.035	U	-		0
Thorium 228	0.347	0.031	0.021			GAM	0.356	0.031	0.022		3	24	0.3
Thorium 232	0.445	0.078	0.071			GAM	0.406	0.072	0.067		9	40	0.7
Uranium 235	U		0.079		U	GAM	U		0.079	U	-		0
Uranium 238	2.80	2.2	2.45			GAM	2.90	2.1	2.38		4	161	0.1
Americium 241	U		0.019		U	GAM	U		0.020	U	-		0.1

618-7 Burial Ground - Other Liquid

Lab id	EBRLNE
Protocol	Hanford1
Version	Ver 1.0
Form	DVD-DUP
Version	3.06
Report date	08/28/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1297

7870-004 J178L9

DUPLICATE, cont.

SDG	7870			Client/Case no	Hanford SDG K1297
Contact	Melissa C. Mannion			Contract	No. S00W235A00
	DUPLICATE		ORIGINAL		
Lab sample id	R808156-04	Lab sample id	R808156-01	Client sample id	J178L9
Dept sample id	7870-004	Dept sample id	7870-001	Location/Matrix	618-7 Burial Grnd(drums) SOLID
		Received	08/21/08	Collected/Weight	08/19/08 14:45 672 g
% solids	100.0	% solids	100.0	Custody/SAF No	RC-088-063 RC-088

QC-DUP#1 66983

Lab id	EBRLNE
Protocol	Hanford1
Version	Ver 1.0
Form	DVD-DUP
Version	3.06
Report date	08/28/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1297

7870-001 J178L9

DATA SHEET

SDG	7870	Client/Case no	Hanford	SDG K1297	
Contact	Melissa C. Mannion	Contract	No. S00W235A00		
Lab sample id	R808156-01	Client sample id	J178L9		
Dept sample id	7870-001	Location/Matrix	618-7 Burial Grnd(drums)	SOLID	
Received	08/21/08	Collected/Weight	08/19/08 14:45	672 g	
% solids	100.0	Custody/SAF No	RC-088-063	RC-088	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Gross Alpha	12587-46-1	19.3	7.4	6.79	10.0		93A
Gross Beta	12587-47-2	14.2	4.3	5.89	15.0		93B
Total Strontium	SR-RAD	0.168	0.16	0.293	1.00	U	SR
Americium 241	14596-10-2	0.032	0.13	0.249	1.00	U	AM
Thorium 228	14274-82-9	0.388	0.28	0.372	1.00		TH
Thorium 230	14269-63-7	0.222	0.22	0.212	1.00		TH
Thorium 232	TH-232	0.222	0.17	0.212	1.00		TH
Uranium 233/234	U-233/234	0.922	0.28	0.147	1.00		U
Uranium 235	15117-96-1	0.093	0.093	0.178	1.00	U	U
Uranium 238	U-238	3.44	0.56	0.147	1.00		U
Plutonium 238	13981-16-3	0	0.042	0.162	1.00	U	PU
Plutonium 239/240	PU-239/240	0	0.042	0.161	1.00	U	PU
Potassium 40	13966-00-2	7.48	0.34	0.213			GAM
Cobalt 60	10198-40-0	U		0.016	0.050	U	GAM
Cesium 137	10045-97-3	U		0.016	0.100	U	GAM
Radium 226	13982-63-3	0.238	0.042	0.035	0.100		GAM
Radium 228	15262-20-1	0.406	0.072	0.067	0.200		GAM
Europium 152	14683-23-9	U		0.043	0.100	U	GAM
Europium 154	15585-10-1	U		0.053	0.100	U	GAM
Europium 155	14391-16-3	U		0.035	0.100	U	GAM
Thorium 228	14274-82-9	0.356	0.031	0.022			GAM
Thorium 232	TH-232	0.406	0.072	0.067			GAM
Uranium 235	15117-96-1	U		0.079		U	GAM
Uranium 238	U-238	2.90	2.1	2.38			GAM
Americium 241	14596-10-2	U		0.020		U	GAM

618-7 Burial Ground - Other Liquid

Lab id	EBRLNE
Protocol	Hanford1
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	08/28/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1297

Test AM Matrix SOLID
SDG 7870
Contact Melissa C. Mannion

LAB METHOD SUMMARY

AMERICIUM 241 IN SOLIDS

ALPHA SPECTROSCOPY

Client Hanford
Contract No. S00W235A00
Contract SDG K1297

RESULTS

LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Americium 241	
Preparation batch 6160-087						
R808156-01			7870-001	J178L9	U	
R808156-02			7870-002	Lab Control Sample	ok	
R808156-03			7870-003	Method Blank	U	
R808156-04			7870-004	Duplicate (R808156-01)	-	U
Nominal values and limits from method				RDLs (pCi/g)	1.00	
618-7 Burial Ground - Other Liquid						

METHOD PERFORMANCE

LAB SAMPLE ID	RAW TEST	SUF-FIX	CLIENT SAMPLE ID	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 6160-087			2σ prep error 8.0 %	Reference Lab Notebook #6160, pg. 87												
R808156-01			J178L9	0.249	0.500			56		115			7	08/26/08	08/26	SS-051
R808156-02			Lab Control Sample	0.249	0.500			65		115				08/26/08	08/26	SS-052
R808156-03			Method Blank	0.229	0.500			67		115				08/26/08	08/26	SS-053
R808156-04			Duplicate (R808156-01)	0.253	0.500			69		115			7	08/26/08	08/26	SS-054
Nominal values and limits from method				1.00	0.500			20-105		100	100		180			

PROCEDURES	REFERENCE	AMCMISO_IE_PLATE_AEA
	SPP-061	Determination of Moisture Content in Solid Samples rev 0
	SPP-071	Soil Dissolution, > 1.0g Aliquot, rev 5
	CP-963	Americium and Curium in Water and Dissolved Samples by Extraction Chromatography, rev 6
	CP-008	Heavy Element Electroplating, rev 12

AVERAGES ± 2 SD FOR 4 SAMPLES
MDA 0.245 ± 0.022
YIELD 64 ± 11

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 08/28/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1297

Test PU Matrix SOLID
SDG 7870
Contact Melissa C. Mannion

LAB METHOD SUMMARY

PLUTONIUM, ISOTOPIC IN SOLIDS

ALPHA SPECTROSCOPY

Client Hanford
Contract No. S00W235A00
Contract SDG K1297

RESULTS

LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Plutonium 238		Plutonium 239/240	
Preparation batch 6160-087								
R808156-01			7870-001	J178L9	U		U	
R808156-02			7870-002	Lab Control Sample	ok		ok	
R808156-03			7870-003	Method Blank	U		U	
R808156-04			7870-004	Duplicate (R808156-01)	-	U	-	U
Nominal values and limits from method				RDLs (pCi/g)	1.00		1.00	
618-7 Burial Ground - Other Liquid								

METHOD PERFORMANCE

LAB SAMPLE ID	RAW TEST	SUF-FIX	CLIENT SAMPLE ID	MAX MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 6160-087			2σ prep error 8.0 %	Reference Lab Notebook #6160, pg. 87												
R808156-01			J178L9	0.162	0.500			61		165			8	08/27/08	08/27	SS-051
R808156-02			Lab Control Sample	0.172	0.500			65		165				08/27/08	08/27	SS-052
R808156-03			Method Blank	0.172	0.500			62		165				08/27/08	08/27	SS-053
R808156-04			Duplicate (R808156-01)	0.202	0.500			75		165			8	08/27/08	08/27	SS-054
Nominal values and limits from method				1.00	0.500			20-105		100	100		180			

PROCEDURES	REFERENCE	PUISO_PLATE_AEA
	SPP-071	Soil Dissolution, > 1.0g Aliquot, rev 5
	CP-941	Plutonium in Water and Dissolved Samples by Extraction Chromatography, rev 3
	CP-008	Heavy Element Electroplating, rev 12

AVERAGES ± 2 SD FOR 4 SAMPLES
MDA 0.177 ± 0.035
YIELD 66 ± 13

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 08/28/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1297

Test TH Matrix SOLID
SDG 7870
Contact Melissa C. Mannion

LAB METHOD SUMMARY

THORIUM, ISOTOPIC IN SOLIDS

ALPHA SPECTROSCOPY

Client Hanford
Contract No. S00W235A00
Contract SDG K1297

RESULTS

LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Thorium 230
Preparation batch 6160-087					
R808156-01			7870-001	J178L9	0.222
R808156-02			7870-002	Lab Control Sample	ok
R808156-03			7870-003	Method Blank	U
R808156-04			7870-004	Duplicate (R808156-01)	ok
Nominal values and limits from method				RDLs (pCi/g)	1.00
618-7 Burial Ground - Other Liquid					

METHOD PERFORMANCE

LAB SAMPLE ID	RAW TEST	SUF-FIX	CLIENT SAMPLE ID	MAX MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 6160-087			2σ prep error 8.0 %	Reference Lab Notebook #6160, pg. 87												
R808156-01			J178L9	0.372	0.250			96		167			7	08/26/08	08/26	SS-027
R808156-02			Lab Control Sample	0.251	0.250			94		167				08/26/08	08/26	SS-028
R808156-03			Method Blank	0.393	0.250			104		166				08/26/08	08/26	SS-033
R808156-04			Duplicate (R808156-01)	0.362	0.250			106		166			7	08/26/08	08/26	SS-034
Nominal values and limits from method				1.00	0.250			20-105		150			180			

PROCEDURES	REFERENCE	THISO_IE_PLATE_AEA
	SPP-071	Soil Dissolution, > 1.0g Aliquot, rev 5
	CP-900	Thorium in Water and Dissolved Solid Samples by Extraction Chromatography, rev 1
	CP-008	Heavy Element Electroplating, rev 12

AVERAGES ± 2 SD FOR 4 SAMPLES
MDA 0.344 ± 0.127
YIELD 100 ± 12

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 08/28/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1297

Test U Matrix SOLID
SDG 7870
Contact Melissa C. Mannion

LAB METHOD SUMMARY

URANIUM, ISOTOPIC IN SOLIDS

ALPHA SPECTROSCOPY

Client Hanford
Contract No. S00W235A00
Contract SDG K1297

RESULTS

LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	1: Uranium 233/234	2: Uranium 235	3: Uranium 238	RESULT RATIOS (%) 1+3	2σ	2+3	2σ
Preparation batch 6160-087											
R808156-01			7870-001	J178L9	0.922	U	3.44	27	9	3	3
R808156-02			7870-002	Lab Control Sample	ok	ok	ok				
R808156-03			7870-003	Method Blank	U	U	U				
R808156-04			7870-004	Duplicate (R808156-01)	ok	- U	ok	30	10	1	1
Nominal values and limits from method				RDLs (pCi/g)	1.00	1.00	1.00	100		4	
618-7 Burial Ground - Other Liquid							Averages	28		2	

METHOD PERFORMANCE

LAB SAMPLE ID	RAW TEST	SUF-FIX	CLIENT SAMPLE ID	MAX MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 6160-087			2σ prep error 8.0 %	Reference Lab Notebook #6160, pg. 87												
R808156-01			J178L9	0.178	0.500			90		122			7	08/26/08	08/26	SS-051
R808156-02			Lab Control Sample	0.784	0.500			99		122				08/26/08	08/26	SS-052
R808156-03			Method Blank	0.200	0.500			87		123				08/26/08	08/26	SS-053
R808156-04			Duplicate (R808156-01)	0.180	0.500			110		123			7	08/26/08	08/26	SS-054
Nominal values and limits from method				1.00	0.500			20-105		100	100		180			

PROCEDURES	REFERENCE	UISO_PLATE_AEA
	SPP-071	Soil Dissolution, > 1.0g Aliquot, rev 5
	SPP-062	Sample Aliquoting, rev 0
	CP-921	Uranium in Water and Dissolved Samples by Extraction Chromatography, rev 1
	CP-008	Heavy Element Electroplating, rev 12

AVERAGES ± 2 SD FOR 4 SAMPLES
MDA 0.336 ± 0.598
YIELD 96 ± 21

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 08/28/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1297

Test	SR
Matrix	SOLID
SDG	7870
Contact	Melissa C. Mannion

LAB METHOD SUMMARY

TOTAL STRONTIUM IN SOLIDS

BETA COUNTING

Client	Hanford
Contract	No. S00W235A00
Contract	SDG K1297

RESULTS

LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Total Strontium	
Preparation batch 6160-087						
R808156-01			7870-001	J178L9	U	
R808156-02			7870-002	Lab Control Sample	ok	
R808156-03			7870-003	Method Blank	U	
R808156-04			7870-004	Duplicate (R808156-01)	-	U
Nominal values and limits from method				RDLs (pCi/g)	1.00	
618-7 Burial Ground - Other Liquid						

METHOD PERFORMANCE

LAB SAMPLE ID	RAW TEST	SUF-FIX	CLIENT SAMPLE ID	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 6160-087			2σ prep error 10.4 % Reference Lab Notebook #6160, pg. 87													
R808156-01			J178L9	0.293	1.00			93		100			7	08/26/08	08/26	GRB-221
R808156-02			Lab Control Sample	0.278	1.00			94		100				08/26/08	08/26	GRB-222
R808156-03			Method Blank	0.279	1.00			95		100				08/26/08	08/26	GRB-223
R808156-04			Duplicate (R808156-01)	0.281	1.00			93		100			7	08/26/08	08/26	GRB-224
Nominal values and limits from method				1.00	1.00			30-105		100			180			

PROCEDURES	REFERENCE	SRTOT_SEP_PRECIP_GPC
	SPP-071	Soil Dissolution, > 1.0g Aliquot, rev 5
	SPP-062	Sample Aliquoting, rev 0
	CP-380	Strontium in Water Samples, rev 2

AVERAGES ± 2 SD	MDA	0.283	± 0.014
FOR 4 SAMPLES	YIELD	94	± 2

Lab id	EBRLNE
Protocol	Hanford1
Version	Ver 1.0
Form	DVD-LMS
Version	3.06
Report date	08/28/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1297

Test 93A Matrix SOLID
SDG 7870
Contact Melissa C. Mannion

LAB METHOD SUMMARY

GROSS ALPHA IN SOLIDS
GAS PROPORTIONAL COUNTING

Client Hanford
Contract No. S00W235A00
Contract SDG K1297

RESULTS

LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Gross Alpha
Preparation batch 6160-087					
R808156-01	93		7870-001	J178L9	19.3
R808156-02	93		7870-002	Lab Control Sample	ok
R808156-03	93		7870-003	Method Blank	U
R808156-04	93		7870-004	Duplicate (R808156-01)	ok

Nominal values and limits from method RDLs (pCi/g) 10.0
618-7 Burial Ground - Other Liquid

METHOD PERFORMANCE

LAB SAMPLE ID	RAW TEST	SUF-FIX	CLIENT SAMPLE ID	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	RESID mg	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 6160-087 2σ prep error 20.6 % Reference Lab Notebook #6160, pg. 87																
R808156-01	93		J178L9	6.79	0.100			46		100			4	08/23/08	08/23	GRB-105
R808156-02	93		Lab Control Sample	5.32	0.100			61		100				08/23/08	08/23	GRB-107
R808156-03	93		Method Blank	7.50	0.100			61		100				08/23/08	08/23	GRB-108
R808156-04	93		Duplicate (R808156-01)	6.18	0.100			46		100			4	08/23/08	08/23	GRB-109
Nominal values and limits from method				10.0	0.100			5-250		100			180			

PROCEDURES	REFERENCE	900.0_ALPHABETA_GPC
	SPP-071	Soil Dissolution, > 1.0g Aliquot, rev 5
	SPP-125	Gross Alpha and Gross Beta in Dissolved Solids, rev 0

AVERAGES ± 2 SD FOR 4 SAMPLES
MDA 6.45 ± 1.85
RESIDUE 54 ± 17

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 08/28/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1297

Test 93B Matrix SOLID
SDG 7870
Contact Melissa C. Mannion

LAB METHOD SUMMARY

GROSS BETA IN SOLIDS

GAS PROPORTIONAL COUNTING

Client Hanford
Contract No. S00W235A00
Contract SDG K1297

RESULTS

LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Gross Beta
Preparation batch 6160-087					
R808156-01	93		7870-001	J178L9	14.2
R808156-02	93		7870-002	Lab Control Sample	ok
R808156-03	93		7870-003	Method Blank	U
R808156-04	93		7870-004	Duplicate (R808156-01)	ok
Nominal values and limits from method				RDLs (pCi/g)	15.0
618-7 Burial Ground - Other Liquid					

METHOD PERFORMANCE

LAB SAMPLE ID	RAW TEST	SUF-FIX	CLIENT SAMPLE ID	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	RESID mg	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 6160-087			2σ prep error 11.0 % Reference Lab Notebook #6160, pg. 87													
R808156-01	93		J178L9	5.89	0.100			46		100			4	08/23/08	08/23	GRB-105
R808156-02	93		Lab Control Sample	8.93	0.100			61		100				08/23/08	08/23	GRB-107
R808156-03	93		Method Blank	6.32	0.100			61		100				08/23/08	08/23	GRB-108
R808156-04	93		Duplicate (R808156-01)	5.28	0.100			46		100			4	08/23/08	08/23	GRB-109
Nominal values and limits from method				15.0	0.100			5-250		100			180			

PROCEDURES	REFERENCE	900.0_ALPHABETA_GPC
	SPP-071	Soil Dissolution, > 1.0g Aliquot, rev 5
	SPP-125	Gross Alpha and Gross Beta in Dissolved Solids, rev 0

AVERAGES ± 2 SD FOR 4 SAMPLES
MDA 6.60 ± 3.22
RESIDUE 54 ± 17

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 08/28/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1297

Test GAM Matrix SOLID
SDG 7870
Contact Melissa C. Mannion

LAB METHOD SUMMARY

GAMMA SCAN

GAMMA SPECTROSCOPY

Client Hanford
Contract No. S00W235A00
Contract SDG K1297

RESULTS

LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Cobalt 60		Cesium 137	
Preparation batch 6160-087								
R808156-01			7870-001	J178L9	U		U	
R808156-02			7870-002	Lab Control Sample	ok		ok	
R808156-03			7870-003	Method Blank	U		U	
R808156-04			7870-004	Duplicate (R808156-01)	-	U	-	U
Nominal values and limits from method				RDLs (pCi/g)	0.050		0.100	
618-7 Burial Ground - Other Liquid								

METHOD PERFORMANCE

LAB SAMPLE ID	RAW TEST	SUF-FIX	CLIENT SAMPLE ID	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 6160-087			2σ prep error 7.0 %	Reference Lab Notebook #6160, pg. 87												
R808156-01			J178L9	4.34	245					1035			3	08/22/08	08/22	JR,01,00
R808156-02			Lab Control Sample	0.015	240					1035				08/22/08	08/22	JR,02,00
R808156-03			Method Blank	2.02	240					1035				08/22/08	08/22	JR,07,00
R808156-04			Duplicate (R808156-01)	4.13	245					1116			4	08/22/08	08/23	JR,01,00
Nominal values and limits from method				0.050	240					100			180			

PROCEDURES	REFERENCE	GAMMA_GS
	SPP-071	Soil Dissolution, > 1.0g Aliquot, rev 5
	SPP-100	Ge(Li) Preparation for Commercial Samples, rev 7

AVERAGES ± 2 SD FOR 4 SAMPLES
MDA 2.63 ± 4.06
YIELD ____ ± ____

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 08/28/08

SDG 7870
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG K1297

SAMPLE SUMMARY

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

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

The following notes apply to these reports:

* LAB SAMPLE ID is the lab's primary identification for a sample.

* DEPARTMENT SAMPLE ID is an alternate lab id, for example one assigned by a radiochemistry department in a lab.

* CLIENT SAMPLE ID is the client's primary identification for a sample. It includes any sample preparation done by the client that is necessary to identify the sample.

* QC BATCH is a lab assigned code that groups samples to be processed and QCed together. These samples should have similar matrices.

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

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

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 08/28/08

SDG 7870
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG K1297

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.

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 08/28/08

SDG 7870
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG_K1297

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.

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 08/28/08

SDG 7870
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG K1297

DATA SHEET

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

The following notes apply to this report:

* TEST is a code for the method used to measure an analyte. If the TEST is empty, no data is available; the analyte was not analyzed for.

* The LAB SAMPLE ID and TEST uniquely identify work within the Summary Data Section of a Data Package. The Work Summary and Method Summary Reports further identify raw data that underlies this work.

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

* ERRORs can be labeled TOTAL or COUNT. TOTAL implies a preparation (non-counting method) error has been added, as square root of sum of squares, to the counting error denoted by COUNT. The preparation errors, which may vary by preparation batch, are shown on the Method Summary Report.

* A RESULT can be 'N.R.' (Not Reported). This means the lab did this work but chooses not to report it now, possibly because it was reported at another time.

* When reporting a Method Blank, a RESULT can be 'N.A.' (Not Applicable). This means there is no reported client sample work in the same preparation batch as the Blank's result. This is likely to occur when the Method Blank is associated with reanalyses of selected work for a few samples in the SDG.

The following qualifiers are defined by the DVD system:

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

Lab id EBRLNE
Protocol Hanford1
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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.

SDG 7870
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GUIDE, cont.

Client Hanford
Contract No. S00W235A00
Case no SDG_K1297

DATA SHEET

* An ERROR is underlined if the 1.645 sigma counting error is bigger than both the MDA and the RESULT, implying that the MDA may not be a good estimate of the 'real' minimum detectable activity.

* A negative RESULT is underlined if it is less than the negative of its 2 sigma counting ERROR.

* When reporting a Method Blank, a RESULT is underlined if greater than its MDA. If the MDA is blank, the 2 sigma counting error is used in the comparison.

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 08/28/08

SDG 7870
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REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG K1297

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.

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 08/28/08

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Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG K1297

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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DUPLICATE

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

* The RPD is underlined if it is greater than either limit.

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

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

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

SDG 7870
Contact Melissa C. Mannion

REPORT GUIDE

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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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GUIDE, cont.

Client Hanford
Contract No. S00W235A00
Case no SDG_K1297

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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Version Ver 1.0
Form DVD-RG
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SDG 7870
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG_K1297

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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METHOD SUMMARY

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

* Duplicate sample results are shown as: ok, No data, or OUT, with the last two underlined. 'No data' means there was no original sample data found for this duplicate. 'OUT' corresponds to when the RPD is underlined on the Duplicate Report. See this report for supporting data.

* If the MDA column is labeled 'MAX MDA', there was more than one result measured by the reported method and the MDA shown is the largest MDA. If not all these results have the same RDL, the MAX MDA reflects only those results with RDL equal to the smallest one.

  MDAs are underlined if greater than the printed RDL.

* Aliquots are underlined if less than the nominal value specified for the method.

* Prepareation 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.

METHOD SUMMARY

* Count times are underlined if less than the nominal value specified for the method.

* Resolutions (as FWHM; Full Width at Half Max) are underlined if greater than the method specified limit.

* Tracer drifts are underlined if their absolute values are greater than the method specified limit. Tracer drifts are not printed if percent moistures are.

* Days Held are underlined if greater than the holding time specified in the protocol.

* Analysis dates are underlined if before their planchet's preparation date or, if a limit is specified, too far after it.

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

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

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

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

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

METHOD SUMMARY

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

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

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

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

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-088-063	Page 1 of 1

Collector B. Lawrence	Company Contact Joan Kessner Telephone No. 509-375-4688	Project Coordinator KESSNER, JH	Price Code NA Data Turnaround ~~15~~ Days 3
Project Designation 618-7 Burial Ground - Other	Sampling Location 618-7 Burial Ground (drums) K1297 (7870)	SAF No. RC-088	
Ice Chest No. RCC-08-002	Field Logbook No. EL-1395-13 COA RG61878500	Method of Shipment FED EX	RTC 8/19/08
Shipped To EBERLINE SERVICES / LIONVILLE	Offsite Property No. A080328	Bill of Lading/Air Bill No.	

POSSIBLE SAMPLE HAZARDS/REMARKS

Potential Radioactive contamination, potential beryllium contamination

Special Handling and/or Storage

None

Preservation	Cool 4C	Cool 4C	None	None	None					
Type of Container	aG	aG	P	P	P					
No. of Container(s)	1	0	0	0	1					
Volume	250mL	125mL	125mL	60mL	500mL					
SAMPLE ANALYSIS	Semi-VOA - 8270A (TCL)	PCBs - 8082 8/15/08	See item (1) in Special Instructions. RTC	Ignitability - 1010	See item (2) in Special Instructions.					
Sample No. / Matrix * / Sample Date / Sample Time										
J178L9 / OTHER / 8/19/08 / 1445					X			BLUE LIQUID IN SOIL / SS TANK		
~~J178M0 / OTHER~~										
~~J178M1 / OTHER~~										

CHAIN OF POSSESSION	Date/Time	Sign/Print Names: Received By/Stored In	Date/Time
Relinquished By/Removed From: B Lawrence	1515 8-19-08	Received By/Stored In: RT Coffman / RT Coffman	1515 8/19/08
Relinquished By/Removed From: RT Coffman / RT Coffman	1745 8/19/08	Received By/Stored In: REFER # 1B, 1060,	1745 8/19/08
Relinquished By/Removed From: 1060/1B J.E. Bernhard	1115 8-20-08	Received By/Stored In: FED EX	
Relinquished By/Removed From: FED EX		Received By/Stored In:	08/21/08 09:00
Relinquished By/Removed From		Received By/Stored In	
Relinquished By/Removed From		Received By/Stored In	

SPECIAL INSTRUCTIONS

(1) ICP Metals - 6010A (TAL) {Aluminum, Antimony, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Magnesium, Manganese, Nickel, Potassium, Silver, Sodium, Vanadium, Zinc}; ICP Metals - 6010A (Add-on) {Arsenic, Lead, Selenium, Thallium, Tin, Zirconium}; Mercury - 7471 - (CV)

(2) Gross Alpha; Gross Beta; Gamma Spectroscopy (TCL List) {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Isotopic Uranium; Isotopic Thorium; Americium-241; Isotopic Plutonium; Strontium-89,90 -- Total Sr

Matrix *

S=Soil
SE=Sediment
SO=Solid
SI=Sludge
W = Water
O=Oil
A=Air
DS=Drum Solids
DL=Drum Liquids
T=Tissue
WI=Wipe
L=Liquid
V=Vegetation
X=Other

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

WCH-EE-011

EBERLINE

RICHMOND, CA LABORATORY

SAMPLE RECEIPT CHECKLIST

Hk 8/21/08

Client: W.C. HANFORD City RICHLAND State WA

Date/Time received 08/21/08 09:00 CoC No. RC-088-063

Container I.D. No. RCC-08-002 Requested TAT (Days) 3 P.O. Received Yes [ ] No [ ]

INSPECTION

1. Custody seals on shipping container intact? Yes [X] No [ ] N/A [ ]
2. Custody seals on shipping container dated & signed? Yes [X] No [ ] N/A [ ]
3. Custody seals on sample containers intact? Yes [X] No [ ] N/A [ ]
4. Custody seals on sample containers dated & signed? Yes [X] No [ ] N/A [ ]
5. Packing material is: Wet [ ] Dry [X]
6. Number of samples in shipping container 1 Sample Matrix X SOLID
7. Number of containers per sample 1 (Or see CoC _____)
8. Samples are in correct container Yes [X] No [ ]
9. Paperwork agrees with samples? Yes [X] No [ ]
10. Samples have: Tape [ ] Hazard labels [ ] Rad labels [ ] Appropriate sample labels [X]
11. Samples are: In good condition [X] Leaking [ ] Broken Container [ ] Missing [ ]
12. Samples are Preserved [ ] Not preserved [ ] pH _____ Preservative _____
13. Describe any anomalies:
14. Was P.M. notified of any anomalies? Yes [ ] No [ ] Date _____
15. Inspected by MZY Date: 08/21/08 Time: 09:35

Customer Sample No.	Beta/Gamma cpm	Ion Chamber mR/hr	Wipe	Customer Sample No	Beta/Gamma cpm	Ion Chamber mR/hr	wipe
J17819	<60						

Ion Chamber Ser. No _____ Calibration date _____

Alpha Meter Ser. No. _____ Calibration date _____

Beta/Gamma Meter Ser. No. 100482 Calibration date 10 JUL 08

RECEIVED
AUG 2008

29 August 2008

Joan Kessner
WC-Hanford, Inc.
2620 Fermi Avenue
MSIN H9-03
Richland, WA 99354

Subject: 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 #	0808L100
SDG #	K1297
SAF #	RC-088
Date Received	8/21/08
# Samples	1
Matrix	OTHER
Volatiles	
Semivolatiles	X
Pest/PCB	X
Glycols	X
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:\[illegible]\orlette\tnu-hanford\data\b_ltrs.doc

RECEIVED
AUG 2008

Lionville Laboratory, Inc.
BNA ANALYTICAL DATA PACKAGE FOR
WC-HANFORD RC-088 K1297

DATE RECEIVED: 08/21/08 LVL LOT # :0808L100

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J178L9	001	SO	08LE0396	08/19/08	08/21/08	08/24/08
J178L9	001 MS	SO	08LE0396	08/19/08	08/21/08	08/24/08
J178L9	001 MSD	SO	08LE0396	08/19/08	08/21/08	08/24/08
LAB QC:						
SBLKXD	MB1	S	08LE0396	N/A	08/21/08	08/23/08
SBLKXD	MB1 BS	S	08LE0396	N/A	08/21/08	08/23/08
SBLKXD	MB1 BSD	S	08LE0396	N/A	08/21/08	08/23/08

LIONVILLE LABORATORY INC.

Case Narrative

Client: TNU-HANFORD RC-088
LVL #: 0808L100
SDG/SAF # K1297 / RC-088

W.O. #: 60049-001-001-0001-00
Date Received: 08-21-2008

SEMIVOLATILE

One (1) solid sample was collected on 08-19-2008.

The sample and its associated QC samples were extracted according to Lionville Laboratory SOPs based on SW 846 method 3540C on 08-21-2008 and analyzed according to criteria set forth in Lionville Laboratory SOPs based on SW 846 Method 8270C for TCL Semivolatile target compounds on 08-23,24-2008.

All solid samples are reported on a wet weight basis. The following is a summary of QC results accompanying the sample results. Lionville Laboratory Inc (LvLI) certifies that all test results meet the requirements of NELAC except as noted below:

1. All results presented in this report are derived from samples that met LvLI's sample acceptance policy.

2. Samples were extracted and analyzed within holding time.

3. Non-target compounds were detected in these samples.

4. All surrogate recoveries were within acceptance criteria.

5. Four (4) of one hundred twenty-eight (128) matrix spike recoveries were outside acceptance criteria. A copy of the Sample Discrepancy Report (SDR# 08MS188) has been enclosed.

6. One (1) of one hundred twenty-eight (128) blank spike recoveries was outside acceptance criteria. A copy of the Sample Discrepancy Report (SDR# 08MS188) has been enclosed.

7. The method blank contained the common laboratory contaminants Di-n-butylphthalate and Bis (2-Ethylhexy) phthalate at levels less than the CRQL.

8. All initial calibrations associated with this data set were within acceptance criteria.

r:\group\data\2008\bna\tnu\0808-100csol1.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 14 pages.

LvLI
LIONVILLE LABORATORY INC.

9. All continuing calibration standards analyzed prior to sample extracts were within acceptance criteria.

10. Internal standard area and retention time criteria were met.

11. Manual integrations are performed according to SOP QA-125 to produce quality data with the utmost integrity. All manual integrations are required to be technically valid and properly documented. Appropriate technical flags are defined in the Glossary ("Technical Flags For Manual Integration").

12. LvLI is NELAP accredited by the State of Pennsylvania. For a complete listing of accrediting authorities and the corresponding analytes/methods, please contact your Project Manager.

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

8/27/08
Date

Lionville Laboratory Sample Discrepancy Report (SDR)

SDR #: 08MS188

Initiator: Sharon Saylor
Date: 8-25-08
Client: WC-Hanford BC0888 K1297

Batch: 08UFL100
Samples: MS, MSD, BS
Method: SW846/MCAWW/CLP/

Parameter: 8270
Matrix: SOLID
Prep Batch: 08HE0396

1. Reason for SDR

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

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

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

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

① low recovery of 4,6-dinitro-2-methylphenol in the msd + BS but ms is ok
② low recovery of hexachlorocyclopentadiene in the msd but MS + BS are ok
③ low recovery of 4-nitrophenol in ms, but msd + BS are ok
④ low recovery of 2,4-dinitrophenol in the msd, but ms + BS are ok

2. Known or Probable Causes(s) Hexachlorocyclopentadiene is subject to thermal decomposition in the hot theojus chromatograph, chemical reactions in acetone solution, and photochemical decomposition. Acidic phenols are subject to erratic chromatographic behavior especially if the GC system is contaminated with high boiling material

3. Discussion and Proposed Action Other Description: narrate

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

4. Project Manager Instructions...signature/date: _____ 8/28/08
__ 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: Kelly Porter 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 for diposition.

Route
__ Lab Manager: Daniels
1 Project Mgr (circle): Johnson / Stone
__ Sample Prep (circle): Ford
__ Log-in: King

Route
__ Metals: Welsh / _____
__ Inorganic: Perrone / _____
__ GC/LC: Carey / _____
__ MS VOA: Rubino / _____
2 MS BNA: Carden / _____
__ Other: _____

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.

A = Indicates that a TIC is a suspected aldol-condensation product.

N = Indicates presumptive evidence of a compound. This flag is only used for tentatively identified compounds (TICs), where the identification is based on a mass spectral library search. It is applied to all TIC results. For generic characterization of a TIC, such as chlorinated hydrocarbon, the N code is not used.

X = This flag is used for a TIC compound which is quantified relative to a response factor generated from a daily calibration standard (rather than quantified relative to the closest internal standard).

Y = Additional qualifiers used as required are explained in the case narrative.

GLOSSARY

ABBREVIATIONS

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

GLOSSARY

DATA QUALIFIERS

U = Compound was analyzed for but not detected. The associated numerical value is the estimated sample quantitation limit which is included and corrected for dilution and percent moisture.

J = Indicates an estimated value. This flag is used under the following circumstances: 1) when estimating a concentration for tentatively identified compounds (TICs) where a 1:1 response is assumed; or 2) when the mass spectral data indicate the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero. For example, if the limit of detection is 10 ug/L and a concentration of 3 ug/L is calculated, it is reported as 3J.

B = This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination. This flag is also used for a TIC as well as for a positively identified TCL compound.

E = Indicates that the compound was detected beyond the calibration range and was subsequently analyzed at a dilution.

D = Identifies all compounds identified in an analysis at a secondary dilution factor.

I = Interference.

NQ = Result qualitatively confirmed but not able to quantify.

A = Indicates that a TIC is a suspected aldol-condensation product.

N = Indicates presumptive evidence of a compound. This flag is only used for tentatively identified compounds (TICs), where the identification is based on a mass spectral library search. It is applied to all TIC results. For generic characterization of a TIC, such as chlorinated hydrocarbon, the N code is not used.

X = This flag is used for a TIC compound which is quantified relative to a response factor generated from a daily calibration standard (rather than quantified relative to the closest internal standard).

Y = Additional qualifiers used as required are explained in the case narrative.

Semivolatiles by GC/MS, HSL List

RFW Batch Number: 0808L100 Client: WC-HANFORD RC-088 Work Order: 60049001001 Report Date: 08/25/08 15:54 Page: 1a

	Cust ID:	J178L9	J178L9	J178L9	SBLKXD	SBLKXD BS	SBLKXD BSD
Sample Information	RFW#:	001	001 MS	001 MSD	08LE0396-MB1	08LE0396-MB1	08LE0396-MB1
	Matrix:	SOLID	SOLID	SOLID	SOIL	SOIL	SOIL
	D.F.:	1.00	1.00	1.00	1.00	1.00	1.00
	Units:	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg
Surrogate Recovery	Nitrobenzene-d5	81 %	74 %	68 %	90 %	77 %	68 %
	2-Fluorobiphenyl	95 %	110 %	82 %	92 %	86 %	67 %
	Terphenyl-d14	75 %	90 %	83 %	108 %	107 %	85 %
	Phenol-d5	84 %	108 %	81 %	83 %	82 %	70 %
	2-Fluorophenol	82 %	108 %	81 %	90 %	83 %	69 %
	2,4,6-Tribromophenol	56 %	95 %	52 %	33 %	84 %	63 %
Phenol		330 U	104 %	83 %	330 U	78 %	65 %
bis(2-Chloroethyl)ether		330 U	91 %	75 %	330 U	75 %	61 %
2-Chlorophenol		330 U	96 %	78 %	330 U	77 %	64 %
1,3-Dichlorobenzene		330 U	78 %	66 %	330 U	68 %	59 %
1,4-Dichlorobenzene		330 U	78 %	67 %	330 U	68 %	58 %
1,2-Dichlorobenzene		330 U	82 %	71 %	330 U	70 %	61 %
2-Methylphenol		330 U	119 %	95 %	330 U	80 %	62 %
2,2'-oxybis(1-Chloropropane)		330 U	86 %	72 %	330 U	73 %	61 %
3/4 Methylphenol		330 U	101 %	82 %	330 U	78 %	64 %
N-Nitroso-di-n-propylamine		330 U	92 %	76 %	330 U	75 %	63 %
Hexachloroethane		330 U	76 %	62 %	330 U	70 %	58 %
Nitrobenzene		330 U	70 %	67 %	330 U	71 %	63 %
Isophorone		330 U	69 %	66 %	330 U	69 %	61 %
2-Nitrophenol		330 U	72 %	70 %	330 U	71 %	66 %
2,4-Dimethylphenol		330 U	74 %	81 %	330 U	77 %	65 %
bis(2-Chloroethoxy)methane		330 U	73 %	71 %	330 U	74 %	67 %
2,4-Dichlorophenol		330 U	79 %	77 %	330 U	77 %	66 %
1,2,4-Trichlorobenzene		330 U	64 %	68 %	330 U	72 %	64 %
Naphthalene		330 U	65 %	66 %	330 U	69 %	63 %
4-Chloroaniline		330 U	39 %	47 %	330 U	54 %	52 %
Hexachlorobutadiene		330 U	70 %	70 %	330 U	73 %	67 %
4-Chloro-3-methylphenol		330 U	85 %	87 %	330 U	86 %	74 %
2-Methylnaphthalene		330 U	70 %	71 %	330 U	74 %	65 %
Hexachlorocyclopentadiene		330 U	21 %	4 * %	330 U	64 %	49 %
2,4,6-Trichlorophenol		330 U	91 %	45 %	330 U	83 %	63 %
2,4,5-Trichlorophenol		830 U	110 %	71 %	830 U	91 %	70 %

*= Outside of EPA CLP QC limits.

000000008

Cust ID:	J178L9		J178L9		J178L9		SBLKXD		SBLKXD BS		SBLKXD BSD	
RFW#:	001		001 MS		001 MSD		08LE0396-MB1		08LE0396-MB1		08LE0396-MB1	
2-Chloronaphthalene	330	U	103	%	83	%	330	U	80	%	64	%
2-Nitroaniline	830	U	117	%	96	%	830	U	92	%	73	%
Dimethylphthalate	330	U	102	%	84	%	330	U	88	%	68	%
Acenaphthylene	330	U	102	%	79	%	330	U	80	%	64	%
2,6-Dinitrotoluene	330	U	102	%	83	%	330	U	87	%	66	%
3-Nitroaniline	830	U	80	%	73	%	830	U	82	%	69	%
Acenaphthene	330	U	98	%	80	%	330	U	80	%	64	%
2,4-Dinitrophenol	830	U	21	%	2 *	%	830	U	47	%	23	%
4-Nitrophenol	830	U	17 *	%	119	%	830	U	91	%	74	%
Dibenzofuran	330	U	103	%	82	%	330	U	86	%	68	%
2,4-Dinitrotoluene	330	U	103	%	81	%	330	U	96	%	73	%
Diethylphthalate	330	U	98	%	81	%	330	U	91	%	71	%
4-Chlorophenyl-phenylether	330	U	97	%	79	%	330	U	86	%	66	%
Fluorene	330	U	99	%	81	%	330	U	86	%	66	%
4-Nitroaniline	830	U	98	%	87	%	830	U	89	%	73	%
4,6-Dinitro-2-methylphenol	830	U	51	%	15 *	%	830	U	58	%	35 *	%
N-Nitrosodiphenylamine (1)	330	U	109	%	85	%	330	U	75	%	58	%
4-Bromophenyl-phenylether	330	U	104	%	87	%	330	U	77	%	60	%
Hexachlorobenzene	330	U	107	%	86	%	330	U	81	%	62	%
Pentachlorophenol	830	U	95	%	36	%	830	U	75	%	47	%
Phenanthrene	26	J	112	%	86	%	330	U	90	%	70	%
Anthracene	330	U	100	%	79	%	330	U	87	%	65	%
Carbazole	330	U	93	%	83	%	330	U	91	%	71	%
Di-n-butylphthalate	34	JB	85	%	79	%	20	J	94	%	73	%
Fluoranthene	27	J	80	%	72	%	330	U	94	%	74	%
Pyrene	160	J	76	%	67	%	330	U	92	%	71	%
Butylbenzylphthalate	40	J	88	%	79	%	330	U	93	%	73	%
3,3'-Dichlorobenzidine	330	U	98	%	90	%	330	U	71	%	62	%
Benzo(a)anthracene	52	J	101	%	80	%	330	U	90	%	69	%
Chrysene	160	J	107	%	80	%	330	U	89	%	69	%
bis(2-Ethylhexyl)phthalate	220	JB	98	%	77	%	72	J	95	%	74	%
Di-n-octyl phthalate	29	J	75	%	68	%	330	U	98	%	76	%
Benzo(b)fluoranthene	330	U	88	%	77	%	330	U	98	%	72	%
Benzo(k)fluoranthene	84	J	78	%	69	%	330	U	92	%	72	%
Benzo(a)pyrene	330	U	89	%	77	%	330	U	95	%	72	%
Indeno(1,2,3-cd)pyrene	330	U	111	%	97	%	330	U	89	%	65	%
Dibenz(a,h)anthracene	330	U	114	%	94	%	330	U	92	%	68	%
Benzo(g,h,i)perylene	36	J	113	%	101	%	330	U	91	%	66	%

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

000000009

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

J178L9

Lab Name: Lionville Labs, Inc. Work Order: 60049001001

Client: WC-HANFORD RC-088 K1297

Matrix: (soil/water) SOLID

Lab Sample ID: 0808L100-001

Sample wt/vol: 30.0 (g/mL) G

Lab File ID: C082308

Level: (low/med) LOW

Date Received: 08/21/08

% Moisture: 100 decanted: (Y/N)__

Date Extracted: 08/21/08

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 08/24/08

Injection Volume: 2.0(uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) N pH: _____

Number TICs found: 5

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	7.988	50000	JB
2.	UNKNOWN	26.137	5000	J
3.	UNKNOWN	26.568	4000	J
4.	UNKNOWN	26.852	5000	J
5.	UNKNOWN	31.184	5000	J

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

SBLKXD

Lab Name: Lionville Labs, Inc. Work Order: 60049001001

Client: WC-HANFORD RC-088 K1297

Matrix: (soil/water) SOIL

Lab Sample ID: 08LE0396-MB1

Sample wt/vol: 30.0 (g/mL) G

Lab File ID: C082303

Level: (low/med) LOW

Date Received: 08/21/08

% Moisture: _____ decanted: (Y/N)__

Date Extracted: 08/21/08

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 08/23/08

Injection Volume: 2.0(uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) N

pH: _____

Number TICs found: 5

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	6.898	200	J
2.	ALDOL CONDENSATE	7.346	2000	JA
3.	UNKNOWN	7.992	60000	J
4.	ALDOL CONDENSATE	9.499	400	JA
5.	UNKNOWN	22.428	600	J

Lionville Laboratory Use Only

08081100

Custody Transfer Record/Lab Work Request

Page 1 of 1

LVLI Lionville Laboratory Inc.

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client: WC Hanford SAF# RC-088

Est. Final Proj. Sampling Date:

Project#: 60049-001-001-0001-00

Project Contact/Phone#:

Lionville Laboratory Project Manager: Arlette Johnson

QC: SW846 Del: STD TAT: 3 days

Date Rec'd: 8-21-08 Date Due: 8-24-08

Refrigerator #		A												
#/Type Container	Liquid	2												
	Solid	1gl												
Volume	Liq	950												
Preservatives														
ANALYSES REQUESTED		ORGANIC							INORG					
		VOA	BNA	Pest/PCB	Herb				Metal + Hg	CN	Ign.			
		Lionville Laboratory Use Only												
			8625H	8PCB		8015			Met(1)		IIGN			

MATRIX CODES:
S- Soil
SE- Sediment
SO- Solid
SL- Sludge
W- Water
O- Oil
A- Air
DS- Drum Solids
DL- Drum Liquids
L- EP/TCLP Leachate
WI- Wipe
X- Other
F- Fish

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	VOA	BNA	Pest/PCB	Herb			Metal	CN	Ign.				
001	J17869			X	8.19.08	1445		X	X		X		X		X				

Special Instructions: Run matrix QC

Met(1) = HSL + Sn, Zr

X = Solids

Special Instructions:
8-22-08 1. Add 8015 to sample 001 - per client propylene & Ethylene
2.
3.
4.
5.
6.

Relinquished by	Received by	Date	Time
FedEx	[signature]	8.21.08	1015

Relinquished by	Received by	Date	Time

Relinquished by	Received by	Date	Time
ORIGINAL REWRITTEN		COMPOSITE WASTE	

000000012

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-088-063	Page 1 of 1

llector B. Lawrence	Company Contact Joan Kessner Telephone No. 509-375-4688	Project Coordinator KESSNER, JH	Price Code NA Data Turnaround ~~15~~ Days 3 RTC 8/19/08
ıject Designation 518-7 Burial Ground - Other	Sampling Location 618-7 Burial Ground (drums)	SAF No. RC-088	
Chest No. SML - 203	Field Logbook No. EL-1395-13 COA RG61878500	Method of Shipment FED EX	
ipped To EBERLINE SERVICES / LIONVILLE	Offsite Property No. A080314	Bill of Lading/Air Bill No.	

OSSIBLE SAMPLE HAZARDS/REMARKS

otential Radioactive contamination, potential beryllium ontamination

pecial Handling and/or Storage

one

Preservation	Cool 4C	Cool 4C	None	None	None	
Type of Container	aG	aG	P	P	P	
No. of Container(s)	1	0	0	0	1	
Volume	250mL	125mL	125mL	60mL	100mL	
SAMPLE ANALYSIS	Semi-VOA - 8270A (TCL)	PCBs - 8082	See item (1) in Special Instructions.	Ignitability - 1010	See item (2) in Special Instructions. RTC 8/19/08	

Sample No.	Matrix *	Sample Date	Sample Time									
78L9	OTHER	8/19/08	1445	X	X	X	X				BLUE LIQUID IN SOIL / SS TANK	
~~78M0~~	~~OTHER~~											
~~78M1~~	~~OTHER~~											

CHAIN OF POSSESSION — **Sign/Print Names**

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
[signature]	1515 8-19-08	RTCoffman / RT Coffman	1515 8/19/08
Coffman / RT Coffman	1745 8/19/08	REFEX + IB, 1060, 8/19/08	1745
6018 J.E. Bernhard LCH	1115 8-20-08	FED EX	
[signature]	8-21-08 1015	[signature]	8-21-08 1015

SPECIAL INSTRUCTIONS

(1) ICP Metals - 6010A (TAL) {Aluminum, Antimony, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Magnesium, Manganese, Nickel, Potassium, Silver, Sodium, Vanadium, Zinc}; ICP Metals - 6010A (Add-on) {Arsenic, Lead, Selenium, Thallium, Tin, Zirconium}; Mercury - 7471 - (CV)

(2) Gross Alpha; Gross Beta; Gamma Spectroscopy (TCL List) {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Isotopic Uranium; Isotopic Thorium; Americium-241; Isotopic Plutonium; Strontium-89,90 -- Total Sr

Matrix *

S=Soil
SE=Sediment
SO=Solid
Sl=Sludge
W = Water
O=Oil
A=Air
DS=Drum Solids
DL=Drum Liquids
T=Tissue
Wi=Wipe
L=Liquid
V=Vegetation
X=Other

BORATORY SECTION	Received By	Title	Date/Time
AL SAMPLE SPOSITION	Disposal Method	Disposed By	Date/Time

H-EE-011

000000013

Lionville Laboratory Incorporated

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: WC Hanford

Project/SAF/SOW/Release #: RC-088

Date: 8-21-08

LvLI Batch #: 0808L100

Sample Custodian: D. Yanich

NOTE: EXPLAIN ALL DISCREPANCIES

1. Samples Hand Delivered or Shipped?	Carrier Fed Ex		Airbill # 7984 9930 315
2. Custody Seals on coolers or shipping containers intact, signed & dated?	☑ Yes	☐ No	☐ No Seals
3. Outside of coolers or shipping containers are free from damage?	☑ Yes	☐ No	*Comments:*
4. All expected paperwork received (coc & other client specific information) sealed in plactic bag and easily accessible?	☑ Yes	☐ No	
5. Samples received cooled or ambient?	Temp 4.5	°C	Cooler # SML 203
How was the temperature taken?	☑ IR	☐ Temp. Blank	☐ Other (Specify):
Is the Temp. Criteria met for these samples? (Hg in soils @ 4°C)	☑ Yes	☐ No	
6. Custody seals on sample containers intact, signed and dated?	☑ Yes	☐ No	☐ No Seals
7. COC (Client & LvLI) signed & dated?	☑ Yes	☐ No	
8. Sample containers are intact?	☑ Yes	☐ No	
9. All samples on COC received?	☑ Yes	☐ No	
All samples received on COC?	☑ Yes	☐ No	
10. All sample label information matches COC?	☑ Yes	☐ No	
11. Samples properly preserved? (If #5 is no, then this is no.)	☑ Yes	☐ No	
12. Samples received within hold times?	☑ Yes	☐ No	
Short holds taken to wet lab?	☐ Yes	☐ No	☑ N/A
13. VOA, TOC, TOX free of headspace?	☐ Yes	☐ No	☑ N/A
14. QC stickers placed on bottles designated by client?	☐ Yes	☐ No	☑ N/A
15. Shipment meets LvLI Sample Acceptance Policy? (Identify all bottles that do not meet the policy, which is on the reverse of this page.)	☑ Yes	☐ No	
16. Project Manager contacted concerning any discrepancies?	☐ Yes	☐ No	☑ N/A

Person Contacted _____ Date _____

LVLI LIONVILLE LABORATORY, INC.

Lionville Laboratory, Inc.
PCB ANALYTICAL DATA PACKAGE FOR
WC-HANFORD RC-088

RECEIVED
AUG 2008

DATE RECEIVED: 08/21/08 LVL LOT # :0808L100

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J178L9	001	SO	08LE0397	08/19/08	08/21/08	08/22/08
J178L9	001 MS	SO	08LE0397	08/19/08	08/21/08	08/22/08
J178L9	001 MSD	SO	08LE0397	08/19/08	08/21/08	08/22/08

LAB QC:

PBLKTV	MB1	S	08LE0397	N/A	08/21/08	08/22/08
PBLKTV	MB1 BS	S	08LE0397	N/A	08/21/08	08/22/08

LIONVILLE LABORATORY INC.

Case Narrative

Client: WC-HANFORD RC-088
LVL #: 0808L100
SDG/SAF # K1297 / RC-088

W.O. #: 60049-001-001-0001-00
Date Received: 08-21-2008

PCB

One (1) solid sample was collected on 08-19-2008.

The sample and its associated QC samples was extracted on 08-21-2008 and analyzed according to Lionville Laboratory SOPs based on SW846, 3rd Edition procedure on 08-22-2008. The extraction procedure was based on method 3540C and the extracts were analyzed based on method 8082.

All soil samples are reported on a dry weight basis unless requested by the client, required by the method, or noted otherwise. The following is a summary of the QC results accompanying the sample results. Lionville Laboratory Inc (LvLI) certifies that all test results meet the requirements of NELAC except as noted below:

1. The sample was extracted and analyzed within required holding time
2. The method blank was below the reporting limits for all target compounds.
3. All surrogate recoveries were within acceptance criteria.
4. The blank spike recoveries were within acceptance criteria.
5. The matrix spike recoveries were within acceptance criteria.
6. The initial calibrations associated with this data set were within acceptance criteria.
7. The continuing calibration standards analyzed prior to sample extracts were within acceptance criteria.

r:\group\data\2008\pest\tmu\0808-100csoil.pcb.doc

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 9 pages.

LIONVILLE LABORATORY INC.

8. LvLI is NELAP accredited by the State of Pennsylvania. For a complete listing of accrediting authorities and the corresponding analytes/methods, please contact your Project Manager.

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.

Ian Daniels
Laboratory Manager
Lionville Laboratory Incorporated

8/28/05
Date

GLOSSARY OF DATA

DATA QUALIFIERS

U	=	Indicates that the compound was analyzed for but not detected. The minimum detection limit for the sample (not the method detection limit) is reported with the U (e.g., 10U).
J	=	Indicates an estimated value. This flag is used in cases where a target analyte is detected at a level less than the lower quantification level. If the limit of quantification is 10 ug/L and a concentration of 3 ug/L is calculated, it is reported as 3J.
B	=	This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination.
E	=	Indicates that the compound was detected beyond the calibration range and was subsequently analyzed at a dilution.
I	=	Interference.
.I	=	Indicates an interference on one analytical column only. Result is reported from remaining analytical column.

ABBREVIATIONS

BS	=	Indicates blank spike in which reagent grade water is spiked with the CLP matrix spiking solutions and carried through all the steps in the method. Spike recoveries are reported.
BSD	=	Indicates blank spike duplicate.
MS	=	Indicates matrix spike.
MSD	=	Indicates matrix spike duplicate.
DL	=	Indicates that recoveries were not obtained because the extract had to be diluted for analysis.
NA	=	Not Applicable.
DF	=	Dilution Factor.
NR	=	Not Required.
NS	=	Not Spiked.
SP	=	Indicates Spiked Compound.
P	=	This flag is used for an PESTICIDE/PCB target analyte when there is greater than 25% difference for detected concentrations between the two GC columns (see Form X). The lower of the two values is reported on Form I and flagged with a "P".
D	=	This flag identifies all compounds identified in an analysis at a secondary dilution factor.
C	=	This flag applies to a compound that has been confirmed by GC/MS.
NPM	=	No pattern match for multi-component target analytes.

Lionville Laboratory, Inc.

PCBs by GC

Report Date: 08/25/08 09:58

RFW Batch Number: 0808L100 Client: WC-HANFORD RC-088 Work Order: 60049001001 Page: 1

000000005

	Cust ID:	J178L9		J178L9		J178L9		PBLKTV		PBLKTV BS	
Sample Information	RFW#:	001		001 MS		001 MSD		08LE0397-MB1		08LE0397-MB1	
	Matrix:	SOLID		SOLID		SOLID		SOIL		SOIL	
	D.F.:	1.00		1.00		1.00		1.00		1.00	
	Units:	UG/KG		UG/KG		UG/KG		UG/KG		UG/KG	
Surrogate:	Tetrachloro-m-xylene	110	%	104	%	115	%	99	%	106	%
	Decachlorobiphenyl	110	%	108	%	116	%	106	%	123	%
Aroclor-1016		27	U	91	%	98	%	13	U	98	%
Aroclor-1221		27	U	27	U	27	U	13	U	13	U
Aroclor-1232		27	U	27	U	27	U	13	U	13	U
Aroclor-1242		27	U	27	U	27	U	13	U	13	U
Aroclor-1248		27	U	27	U	27	U	13	U	13	U
Aroclor-1254		27	U	27	U	27	U	13	U	13	U
Aroclor-1260		27	U	107	%	115	%	13	U	125	%

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

Lionville Laboratory, Inc.

SAMPLE EXTRACTION RECORD

Sheet no.: 1

Extract. Date: 08/21/08 Extraction Batch No: 08LE0397 Analyst: MF Method: **** SOX3540

Test: OPCB Cleanup Date: 08/22/08 Analyst: MF Client: WC-HANFORD RC-088

LIMS Report Date: 08/22/08 Solvent: DCM/ACETONE,HEXANE Adsorbent: H2SO4

Sample No:	Client Name / Client ID	pH	Initial WT/VOL	Surr. Mult.	Spike Mult.	Final VOL	Final VOL	Split Mult.	GPC Y/N	% Solids	C/D FACTOR
0808L100-	WC-HANFORD RC-088										
001	J178L9		15.0	1.0		10		1.0	N	0.0	666.7
001 -S	J178L9		15.0	1.0	1.0	10		1.0	N	0.0	666.7
001 -T	J178L9		15.0	1.0	1.0	10		1.0	N	0.0	666.7
08LE0397-MB1	PBLKTV		30.0	1.0		10		1.0	N	100.00	333.3
08LE0397-MB1 -S	PBLKTV		30.0	1.0	1.0	10		1.0	N	100.00	333.3

Comments:
Surrogate: 250 UL OLM PSURR 89916407
Spike: 250 UL AR1660 89916603

Extracts Transferred	Relinquished By	Date Time	Received By	Date Time	Reason for Transfer
		8/22/08 1330	SZ	8/22/08 13:25	GC

000000006

Lionville Laboratory Use Only

08081100

Custody Transfer Record/Lab Work Request

Page 1 of 1

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client: WC Hanford SAF# RC-080

Est. Final Proj. Sampling Date:

Project#: 60649-001-001-0001-00

Project Contact/Phone#:

Lionville Laboratory Project Manager: Arlette Johnson

QC: SW846 Del: STD TAT: 3 days

Date Rec'd: 8-21-08 Date Due: 8-24-08

Refrigerator #			A														
#/Type Container	Liquid		2														
	Solid		191														
Volume	Liq		250														
Preservatives																	
ANALYSES REQUESTED →			ORGANIC							INORG							
			VOA	BNA	Pest/PCB	Herb				Metal + Hg	CN	Inst					
			Lionville Laboratory Use Only														
				0625H	0PCB		08015			Meth		IIGN					

MATRIX CODES:
S- Soil
SE- Sediment
SO- Solid
SL- Sludge
W- Water
O- Oil
A- Air
DS- Drum Solids
DL- Drum Liquids
L- EP/TCLP Leachate
WI- Wipe
X- Other
F- Fish

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected													
001	J17869			X	8.19.08	1445		X	X		X			X		X			

Special Instructions: Run matrix QC

Meth = HSL + Sn, Zr

X = Solid's

Special Instructions:
8-22-08 1. Add 08015 to sample 001 - per client propylene & ethylene
2.
3.
4.
5.
6.

Relinquished by	Received by	Date	Time
FedEx	[illegible]	8-21-08	1015

Relinquished by	Received by	Date	Time

Relinquished by	Received by	Date	Time
ORIGINAL REWRITTEN		COMPOSITE WASTE	

000000007

Washington Closure Hanford | **CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST** | RC-088-063 | Page 1 of 1

Collector: B. Lawrence	Company Contact: Joan Kessner	Telephone No.: 509-375-4688	Project Coordinator: KESSNER, JH
Project Designation: 618-7 Burial Ground - Other	Sampling Location: 618-7 Burial Ground (drums)		SAF No.: RC-088
Ice Chest No.: SML-203	Field Logbook No.: EL-1395-13	COA: RG61878500	Method of Shipment: FED EX
Shipped To: EBERLINE SERVICES, LIONVILLE	Offsite Property No.: A080314		Bill of Lading/Air Bill No.

Price Code: NA

Data Turnaround: ~~15~~ 3 Days RTC 8/19/08

POSSIBLE SAMPLE HAZARDS/REMARKS

Potential Radioactive contamination, potential beryllium contamination

Special Handling and/or Storage

None

Preservation	Cool 4C	Cool 4C	None	None	None						
Type of Container	aG	aG	P	P	P						
No. of Container(s)	1	0	0	0	1						
Volume	250mL	125mL	125mL	60mL	500mL						
SAMPLE ANALYSIS	Semi-VOA - 8270A (TCL)	PCBs - 8082	See item (1) in Special Instructions.	Ignitability - 1010	See item (2) in Special Instructions. RTC 8/19/08						

Sample No.	Matrix *	Sample Date	Sample Time									
H178L9	OTHER	8/19/08	1445	X	X	X	X				BLUE LIQUID IN SOIL / SS TANK	
~~H178M0~~	~~OTHER~~											
~~H178M1~~	~~OTHER~~											

CHAIN OF POSSESSION — **Sign/Print Names**

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
[signature]	1515 8-19-08	RT Coffman / RT Coffman	1515 8/19/08
RT Coffman / RT Coffman	1745 8/19/08	REFEX #1B, 1060, 8/19/08	1745
1060 1B J.E. Bernhard LEH	1115 8-20-08	FED EX	
FED EX	8-21-08 1015	[signature]	8-21-08 1015

SPECIAL INSTRUCTIONS

(1) ICP Metals - 6010A (TAL) {Aluminum, Antimony, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Magnesium, Manganese, Nickel, Potassium, Silver, Sodium, Vanadium, Zinc}; ICP Metals - 6010A (Add-on) {Arsenic, Lead, Selenium, Thallium, Tin, Zirconium}; Mercury - 7471 - (CV)

(2) Gross Alpha; Gross Beta; Gamma Spectroscopy (TCL List) {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Isotopic Uranium; Isotopic Thorium; Americium-241; Isotopic Plutonium; Strontium-89,90 -- Total Sr

Matrix *

S=Soil
SE=Sediment
SO=Solid
SI=Sludge
W = Water
O=Oil
A=Air
DS=Drum Solids
DL=Drum Liquids
T=Tissue
WI=Wipe
L=Liquid
V=Vegetation
X=Other

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

/CH-EE-011

Lionville Laboratory Incorporated

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: WC Hanford

Project/EAF/SOW/Release #: RC-088

Date: 8-21-08

LvLI Batch #: 0808L100

Sample Custodian: D. Yunich

NOTE: EXPLAIN ALL DISCREPANCIES

1. Samples Hand Delivered or Shipped?	Carrier Fed Ex		Airbill # 7984 9936 315
2. Custody Seals on coolers or shipping containers intact, signed & dated?	☑ Yes	☐ No	☐ No Seals
3. Outside of coolers or shipping containers are free from damage?	☑ Yes	☐ No	*Comments:*
4. All expected paperwork received (coc & other client specific information) sealed in plactic bag and easily accessible?	☑ Yes	☐ No	
5. Samples received cooled or ambient?	Temp 4.5	°C	Cooler # SML 203
How was the temperature taken?	☑ IR	☐ Temp. Blank	☐ Other (Specify):
Is the Temp. Criteria met for these samples? (Hg in soils @ 4°C)	☑ Yes	☐ No	
6. Custody seals on sample containers intact, signed and dated?	☑ Yes	☐ No	☐ No Seals
7. COC (Client & LvLI) signed & dated?	☑ Yes	☐ No	
8. Sample containers are intact?	☑ Yes	☐ No	
9. All samples on COC received?	☑ Yes	☐ No	
All samples received on COC?	☑ Yes	☐ No	
10. All sample label information matches COC?	☑ Yes	☐ No	
11. Samples properly preserved? (If #5 is no, then this is no.)	☑ Yes	☐ No	
12. Samples received within hold times?	☑ Yes	☐ No	
Short holds taken to wet lab?	☐ Yes	☐ No	☑ N/A
13. VOA, TOC, TOX free of headspace?	☐ Yes	☐ No	☑ N/A
14. QC stickers placed on bottles designated by client?	☐ Yes	☐ No	☑ N/A
15. Shipment meets LvLI Sample Acceptance Policy? (Identify all bottles that do not meet the policy, which is on the reverse of this page.)	☑ Yes	☐ No	
16. Project Manager contacted concerning any discrepancies?	☐ Yes	☐ No	☑ N/A

Person Contacted _____ Date _____

LVLI LIONVILLE LABORATORY INC.

RECEIVED
AUG 2008

Lionville Laboratory, Inc.
8015 ANALYTICAL DATA PACKAGE FOR
WC-HANFORD RC-088 K1297

DATE RECEIVED: 08/21/08 LVL LOT # :0808L100

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J178L9	001	SO	08GCX029	08/19/08	08/25/08	08/25/08

LAB QC:

BLK	MB1	S	08GCX029	N/A	08/25/08	08/25/08
BLK	MB1 BS	S	08GCX029	N/A	08/25/08	08/25/08
BLK	MB1 BSD	S	08GCX029	N/A	08/25/08	08/25/08

LIONVILLE LABORATORY INC.

Case Narrative

Client: WC-HANFORD RC-088
LVL #: 0808L100
SDG/SAF # K1297 / RC-088

W.O. #: 60049-001-001-0001-00
Date Received: 08-21-2008

GC SCAN

One (1) solid sample was collected on 08-19-2008.

The sample and its associated QC samples were analyzed according to Lionville Laboratory SOPs based on SW846, 3rd Edition procedure on 08-25-2008. The sample was prepared (Microextraction – 1g into 2 mls of water) and analyzed based on method 8015B for Propylene Glycol and Ethylene Glycol.

The following is a summary of QC results accompanying the sample results. Lionville Laboratory Inc (LvLI) certifies that all test results meet the requirements of NELAC except as noted below:

1. The sample was extracted and analyzed within required holding time.
2. The method blank was below the reporting limits for the target compounds.
3. All obtainable surrogate recoveries were within acceptance criteria.
4. All blank spike recoveries were within acceptance criteria.
5. The initial calibrations associated with this data set were within acceptance criteria.
6. The continuing calibration standards analyzed prior to sample extracts were within acceptance criteria.
7. LvLI is NELAP accredited by the State of Pennsylvania. For a complete listing of accrediting authorities and the corresponding analytes/methods, please contact your Project Manager.

r:\group\data\2008\8015\tnu\0808-100csol1.e-p-glycol.doc

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 9 pages.

LIONVILLE LABORATORY INC.

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

Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

8/28/08
Date

GLOSSARY OF DATA

DATA QUALIFIERS

U	=	Indicates that the compound was analyzed for but not detected. The minimum detection limit for the sample (not the method detection limit) is reported with the U (e.g., 10U).
J	=	Indicates an estimated value. This flag is used in cases where a target analyte is detected at a level less than the lower quantification level. If the limit of quantification is 10 ug/L and a concentration of 3 ug/L is calculated, it is reported as 3J.
B	=	This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination.
E	=	Indicates that the compound was detected beyond the calibration range and was subsequently analyzed at a dilution.
I	=	Interference.
.I	=	Indicates an interference on one analytical column only. Result is reported from remaining analytical column.

ABBREVIATIONS

BS	=	Indicates blank spike in which reagent grade water is spiked with the CLP matrix spiking solutions and carried through all the steps in the method. Spike recoveries are reported.
BSD	=	Indicates blank spike duplicate.
MS	=	Indicates matrix spike.
MSD	=	Indicates matrix spike duplicate.
DL	=	Indicates that recoveries were not obtained because the extract had to be diluted for analysis.
NA	=	Not Applicable.
DF	=	Dilution Factor.
NR	=	Not Required.
NS	=	Not Spiked.
SP	=	Indicates Spiked Compound.
P	=	This flag is used for an PESTICIDE/PCB target analyte when there is greater than 25% difference for detected concentrations between the two GC columns (see Form X). The lower of the two values is reported on Form I and flagged with a "P".
D	=	This flag identifies all compounds identified in an analysis at a secondary dilution factor.
C	=	This flag applies to a compound that has been confirmed by GC/MS.
[illegible]	=	No pattern match for multi-component target analytes.

Lionville Laboratory, Inc.

Nonhalogenated Volatiles by GC, Method 8015 Report Date: 08/25/08 13:34

RFW Batch Number: **0808L100** Client: **WC-HANFORD RC-088** Work Order: 60049001001 Page: 1

	Cust ID:	J178L9	BLK	BLK BS	BLK BSD
Sample Information	RFW#:	001	08GCX029-MB1	08GCX029-MB1	08GCX029-MB1
	Matrix:	SOLID	SOIL	SOIL	SOIL
	D.F.:	1.00	1.00	1.00	1.00
	Units:	mg/Kg	mg/Kg	mg/Kg	mg/Kg
1,4-Butanediol		91 %	88 %	103 %	98 %
Propylene Glycol		40.0 U	40.0 U	110 %	113 %
Ethylene Glycol		260	40.0 U	73 %	78 %

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

000000005

Lionville Laboratory, Inc.

SAMPLE EXTRACTION RECORD

Sheet no.: 1

Extract. Date: 08/25/08 Extraction Batch No: 08GCX029 Analyst: SZ Method: N/A

Test: O801 Cleanup Date: Analyst: Client: WC-HANFORD RC-088

LIMS Report Date: 08/25/08 Solvent: H2O Adsorbent:

Sample No:	Client Name / Client ID	pH	Initial WT/VOL	Surr. Mult.	Spike Mult.	Final VOL	Final VOL	Split Mult.	GPC Y/N	% Solids	C/D FACTOR
0808L100-	WC-HANFORD RC-088										
001 5	J178L9		1.0	1.0		2.0		1.0	N	100.00	2.0
08GCX029-MB1 5	BLK		1.0	1.0		2.0		1.0	N	100.00	2.0
08GCX029-MB1 5S	BLK		1.0	1.0	1.0	2.0		1.0	N	100.00	2.0
08GCX029-MB1 5T	BLK		1.0	1.0	1.0	2.0		1.0	N	100.00	2.0

Comments:
Surrogate: 20 UL 90533801
Spike: 20 UL EACH 90533802,04

Extracts Transferred	Relinquished By	Date Time	Received By	Date Time	Reason for Transfer

000000006

Lionville Laboratory Use Only

08086100

Custody Transfer Record/Lab Work Request

Page 1 of 1

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

LVLI Transfer Laboratory Inc.

000000007

Client: W.C. Hanford SAF# RC-088

Est. Final Proj. Sampling Date:

Project#: 460649-001-001-0001-00

Project Contact/Phone#:

Lionville Laboratory Project Manager: Arlette Johnson

QC: SWK46 Del: STD TAT: 3 days

Date Rec'd: 8-21-08 Date Due: 8-24-08

		A													
Refrigerator #			2												
#/Type Container	Liquid		191								1				
#/Type Container	Solid														
Volume	L.8		850								1				
Preservatives															
ANALYSES REQUESTED →		ORGANIC							INORG						
		VOA	BNA	Pest/PCB	Herb				Metal + Hg	CN	Ign.				
Lionville Laboratory Use Only			06025H	0PCB		08015			MetD		IGN				

MATRIX CODES:	Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected												
S- Soil, SE- Sediment, SO- Solid, SL- Sludge, W- Water, O- Oil, A- Air, DS- Drum Solids, DL- Drum Liquids, L- EP/TCLP Leachate, WI- Wipe, X- Other, F- Fish	001	J17819			X	8-19-08	1445		X	X		X			X		X		

Special Instructions: Run matrix QC

MetD = HSL + Sn, Zr

X = Solids

Special Instructions:

8-22-08 1. Add 08015 to sample 001 - per client propylene & Thylene

2.

3.

4.

5.

6.

Relinquished by	Received by	Date	Time
FedEx	[signature]	8-21-08	1015

Relinquished by	Received by	Date	Time

Relinquished by	Received by	Date	Time
ORIGINAL REWRITTEN		"COMPOSITE WASTE"	

Washington Closure Hanford

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

RC-088-063 | Page 1 of 1

Collector: B. Lawrence	Company Contact: Joan Kessner	Telephone No.: 509-375-4688	Project Coordinator: KESSNER, JH
Price Code: NA	Data Turnaround: ~~15~~ Days 3 RTC 8/19/08		
Project Designation: 618-7 Burial Ground - Other	Sampling Location: 618-7 Burial Ground (drums)		SAF No.: RC-088
Ice Chest No.: SML-203	Field Logbook No.: EL-1395-13	COA: RG61878500	Method of Shipment: FED EX
Shipped To: EBERLINE SERVICES / LIONVILLE	Offsite Property No.: A080314		Bill of Lading/Air Bill No.

POSSIBLE SAMPLE HAZARDS/REMARKS

Potential Radioactive contamination, potential beryllium contamination

Special Handling and/or Storage

None

Preservation	Cool 4C	Cool 4C	None	None	None						
Type of Container	aG	aG	P	P	P						
No. of Container(s)	1	0	0	0	1						
Volume	250mL	125mL	125mL	60mL	500mL						
SAMPLE ANALYSIS	Semi-VOA - 8270A (TCL)	PCBs - 8082	See item (1) in Special Instructions.	Ignitability - 1010	See item (2) in Special Instructions. RTC 8/19/08						
Sample No. / Matrix * / Sample Date / Sample Time											
J178L9 / OTHER / 8/19/08 / 1445	X	X	X	X					BLUE	LIQUID	IN
~~J178M0 / OTHER~~									SOIL	/ SS	TANK
~~J178M1 / OTHER~~											

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
S Lawrence	8-19-08 1515	RT Coffman / RT Coffman	8/19/08 1515
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
RT Coffman / RT Coffman	8/19/08 1745	REFEX 1B, 1060, 8/19/08	1745
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
1060 1B J.E. Bernhard LEH	8-20-08 1115	FED EX	
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
FED EX	8-21-08 1015	D Smith	8-21-08 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

SPECIAL INSTRUCTIONS

(1) ICP Metals - 6010A (TAL) {Aluminum, Antimony, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Magnesium, Manganese, Nickel, Potassium, Silver, Sodium, Vanadium, Zinc}; ICP Metals - 6010A (Add-on) {Arsenic, Lead, Selenium, Thallium, Tin, Zirconium}; Mercury - 7471 - (CV)

(2) Gross Alpha; Gross Beta; Gamma Spectroscopy (TCL List) {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Isotopic Uranium; Isotopic Thorium; Americium-241; Isotopic Plutonium; Strontium-89,90 -- Total Sr

Matrix *

S=Soil
SB=Sediment
SO=Solid
SI=Sludge
W = Water
O=Oil
A=Air
DS=Drum Solids
DL=Drum Liquids
T=Tissue
WI=Wipe
L=Liquid
Ve=Vegetation
X=Other

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

ICH-EE-011

000000008

Lionville Laboratory Incorporated

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: WC Hanford Date: 8-21-08

Project/SAF/SOW/Release #: RC-088

LvLI Batch #: 0808L100 Sample Custodian: D. Yunich

NOTE: EXPLAIN ALL DISCREPANCIES

1. Samples Hand Delivered or Shipped?	Carrier: Fed Ex		Airbill # 7984 9930 31:
2. Custody Seals on coolers or shipping containers intact, signed & dated?	☑ Yes	☐ No	☐ No Seals
3. Outside of coolers or shipping containers are free from damage?	☑ Yes	☐ No	*Comments:*
4. All expected paperwork received (coc & other client specific information) sealed in plactic bag and easily accessible?	☑ Yes	☐ No	
5. Samples received cooled or ambient?	Temp 4.5	°C	Cooler # SML 203
How was the temperature taken?	☑ IR	☐ Temp. Blank	☐ Other (Specify):
Is the Temp. Criteria met for these samples? (Hg in soils @ 4°C)	☑ Yes	☐ No	
6. Custody seals on sample containers intact, signed and dated?	☑ Yes	☐ No	☐ No Seals
7. COC (Client & LvLI) signed & dated?	☑ Yes	☐ No	
8. Sample containers are intact?	☑ Yes	☐ No	
9. All samples on COC received?	☑ Yes	☐ No	
All samples received on COC?	☑ Yes	☐ No	
10. All sample label information matches COC?	☑ Yes	☐ No	
11. Samples properly preserved? (If #5 is no, then this is no.)	☑ Yes	☐ No	
12. Samples received within hold times?	☑ Yes	☐ No	
Short holds taken to wet lab?	☐ Yes	☐ No	☑ N/A
13. VOA, TOC, TOX free of headspace?	☐ Yes	☐ No	☑ N/A
14. QC stickers placed on bottles designated by client?	☐ Yes	☐ No	☑ N/A
15. Shipment meets LvLI Sample Acceptance Policy? (Identify all bottles that do not meet the policy, which is on the reverse of this page.)	☑ Yes	☐ No	
16. Project Manager contacted concerning any discrepancies?	☐ Yes	☐ No	☑ N/A

Person Contacted _____ Date _____

LVLI LIONVILLE LABORATORY INC.

RECEIVED
AUG 2008

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
WC-HANFORD RC-088 K1297

DATE RECEIVED: 08/21/08 LVL LOT # :0808L100

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J178L9						
SILVER, TOTAL	001	SO	08L0311	08/19/08	08/26/08	08/26/08
SILVER, TOTAL	001 REP	SO	08L0311	08/19/08	08/26/08	08/26/08
SILVER, TOTAL	001 MS	SO	08L0311	08/19/08	08/26/08	08/26/08
ALUMINUM, TOTAL	001	SO	08L0311	08/19/08	08/26/08	08/26/08
ALUMINUM, TOTAL	001 REP	SO	08L0311	08/19/08	08/26/08	08/26/08
ALUMINUM, TOTAL	001 MS	SO	08L0311	08/19/08	08/26/08	08/26/08
ARSENIC, TOTAL	001	SO	08L0311	08/19/08	08/26/08	08/26/08
ARSENIC, TOTAL	001 REP	SO	08L0311	08/19/08	08/26/08	08/26/08
ARSENIC, TOTAL	001 MS	SO	08L0311	08/19/08	08/26/08	08/26/08
BARIUM, TOTAL	001	SO	08L0311	08/19/08	08/26/08	08/26/08
BARIUM, TOTAL	001 REP	SO	08L0311	08/19/08	08/26/08	08/26/08
BARIUM, TOTAL	001 MS	SO	08L0311	08/19/08	08/26/08	08/26/08
BERYLLIUM, TOTAL	001	SO	08L0311	08/19/08	08/26/08	08/26/08
BERYLLIUM, TOTAL	001 REP	SO	08L0311	08/19/08	08/26/08	08/26/08
BERYLLIUM, TOTAL	001 MS	SO	08L0311	08/19/08	08/26/08	08/26/08
CALCIUM, TOTAL	001	SO	08L0311	08/19/08	08/26/08	08/26/08
CALCIUM, TOTAL	001 REP	SO	08L0311	08/19/08	08/26/08	08/26/08
CALCIUM, TOTAL	001 MS	SO	08L0311	08/19/08	08/26/08	08/26/08
CADMIUM, TOTAL	001	SO	08L0311	08/19/08	08/26/08	08/26/08
CADMIUM, TOTAL	001 REP	SO	08L0311	08/19/08	08/26/08	08/26/08
CADMIUM, TOTAL	001 MS	SO	08L0311	08/19/08	08/26/08	08/26/08
COBALT, TOTAL	001	SO	08L0311	08/19/08	08/26/08	08/26/08
COBALT, TOTAL	001 REP	SO	08L0311	08/19/08	08/26/08	08/26/08
COBALT, TOTAL	001 MS	SO	08L0311	08/19/08	08/26/08	08/26/08
CHROMIUM, TOTAL	001	SO	08L0311	08/19/08	08/26/08	08/26/08
CHROMIUM, TOTAL	001 REP	SO	08L0311	08/19/08	08/26/08	08/26/08
CHROMIUM, TOTAL	001 MS	SO	08L0311	08/19/08	08/26/08	08/26/08
COPPER, TOTAL	001	SO	08L0311	08/19/08	08/26/08	08/26/08
COPPER, TOTAL	001 REP	SO	08L0311	08/19/08	08/26/08	08/26/08
COPPER, TOTAL	001 MS	SO	08L0311	08/19/08	08/26/08	08/26/08
IRON, TOTAL	001	SO	08L0311	08/19/08	08/26/08	08/26/08
IRON, TOTAL	001 REP	SO	08L0311	08/19/08	08/26/08	08/26/08
IRON, TOTAL	001 MS	SO	08L0311	08/19/08	08/26/08	08/26/08
MERCURY, TOTAL	001	SO	08C0146	08/19/08	08/25/08	08/25/08
MERCURY, TOTAL	001 REP	SO	08C0146	08/19/08	08/25/08	08/25/08

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
WC-HANFORD RC-088 K1297

DATE RECEIVED: 08/21/08 LVL LOT # :0808L100

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
MERCURY, TOTAL	001 MS	SO	08C0146	08/19/08	08/25/08	08/25/08
POTASSIUM, TOTAL	001	SO	08L0311	08/19/08	08/26/08	08/26/08
POTASSIUM, TOTAL	001 REP	SO	08L0311	08/19/08	08/26/08	08/26/08
POTASSIUM, TOTAL	001 MS	SO	08L0311	08/19/08	08/26/08	08/26/08
MAGNESIUM, TOTAL	001	SO	08L0311	08/19/08	08/26/08	08/26/08
MAGNESIUM, TOTAL	001 REP	SO	08L0311	08/19/08	08/26/08	08/26/08
MAGNESIUM, TOTAL	001 MS	SO	08L0311	08/19/08	08/26/08	08/26/08
MANGANESE, TOTAL	001	SO	08L0311	08/19/08	08/26/08	08/26/08
MANGANESE, TOTAL	001 REP	SO	08L0311	08/19/08	08/26/08	08/26/08
MANGANESE, TOTAL	001 MS	SO	08L0311	08/19/08	08/26/08	08/26/08
SODIUM, TOTAL	001	SO	08L0311	08/19/08	08/26/08	08/26/08
SODIUM, TOTAL	001 REP	SO	08L0311	08/19/08	08/26/08	08/26/08
SODIUM, TOTAL	001 MS	SO	08L0311	08/19/08	08/26/08	08/26/08
NICKEL, TOTAL	001	SO	08L0311	08/19/08	08/26/08	08/26/08
NICKEL, TOTAL	001 REP	SO	08L0311	08/19/08	08/26/08	08/26/08
NICKEL, TOTAL	001 MS	SO	08L0311	08/19/08	08/26/08	08/26/08
LEAD, TOTAL	001	SO	08L0311	08/19/08	08/26/08	08/26/08
LEAD, TOTAL	001 REP	SO	08L0311	08/19/08	08/26/08	08/26/08
LEAD, TOTAL	001 MS	SO	08L0311	08/19/08	08/26/08	08/26/08
ANTIMONY, TOTAL	001	SO	08L0311	08/19/08	08/26/08	08/26/08
ANTIMONY, TOTAL	001 REP	SO	08L0311	08/19/08	08/26/08	08/26/08
ANTIMONY, TOTAL	001 MS	SO	08L0311	08/19/08	08/26/08	08/26/08
SELENIUM, TOTAL	001	SO	08L0311	08/19/08	08/26/08	08/26/08
SELENIUM, TOTAL	001 REP	SO	08L0311	08/19/08	08/26/08	08/26/08
SELENIUM, TOTAL	001 MS	SO	08L0311	08/19/08	08/26/08	08/26/08
TIN, TOTAL	001	SO	08L0311	08/19/08	08/26/08	08/26/08
TIN, TOTAL	001 REP	SO	08L0311	08/19/08	08/26/08	08/26/08
TIN, TOTAL	001 MS	SO	08L0311	08/19/08	08/26/08	08/26/08
THALLIUM, TOTAL	001	SO	08L0311	08/19/08	08/26/08	08/26/08
THALLIUM, TOTAL	001 REP	SO	08L0311	08/19/08	08/26/08	08/26/08
THALLIUM, TOTAL	001 MS	SO	08L0311	08/19/08	08/26/08	08/26/08
VANADIUM, TOTAL	001	SO	08L0311	08/19/08	08/26/08	08/26/08
VANADIUM, TOTAL	001 REP	SO	08L0311	08/19/08	08/26/08	08/26/08
VANADIUM, TOTAL	001 MS	SO	08L0311	08/19/08	08/26/08	08/26/08
ZINC, TOTAL	001	SO	08L0311	08/19/08	08/26/08	08/26/08
ZINC, TOTAL	001 REP	SO	08L0311	08/19/08	08/26/08	08/26/08
ZINC, TOTAL	001 MS	SO	08L0311	08/19/08	08/26/08	08/26/08
ZIRCONIUM, TOTAL	001	SO	08L0311	08/19/08	08/26/08	08/26/08

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
WC-HANFORD RC-088 K1297

DATE RECEIVED: 08/21/08 LVL LOT # :0808L100

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
ZIRCONIUM, TOTAL	001 REP	SO	08L0311	08/19/08	08/26/08	08/26/08
ZIRCONIUM, TOTAL	001 MS	SO	08L0311	08/19/08	08/26/08	08/26/08

LAB QC:

SILVER LABORATORY	LC1 BS	S	08L0311	N/A	08/26/08	08/26/08
SILVER, TOTAL	MB1	S	08L0311	N/A	08/26/08	08/26/08
ALUMINUM LABORTORY	LC1 BS	S	08L0311	N/A	08/26/08	08/26/08
ALUMINUM, TOTAL	MB1	S	08L0311	N/A	08/26/08	08/26/08
ARSENIC LABORATORY	LC1 BS	S	08L0311	N/A	08/26/08	08/26/08
ARSENIC, TOTAL	MB1	S	08L0311	N/A	08/26/08	08/26/08
BARIUM LABORATORY	LC1 BS	S	08L0311	N/A	08/26/08	08/26/08
BARIUM, TOTAL	MB1	S	08L0311	N/A	08/26/08	08/26/08
BERYLLIUM LABORATORY	LC1 BS	S	08L0311	N/A	08/26/08	08/26/08
BERYLLIUM, TOTAL	MB1	S	08L0311	N/A	08/26/08	08/26/08
CALCIUM LABORATORY	LC1 BS	S	08L0311	N/A	08/26/08	08/26/08
CALCIUM, TOTAL	MB1	S	08L0311	N/A	08/26/08	08/26/08
CADMIUM LABORATORY	LC1 BS	S	08L0311	N/A	08/26/08	08/26/08
CADMIUM, TOTAL	MB1	S	08L0311	N/A	08/26/08	08/26/08
COBALT LABORATORY	LC1 BS	S	08L0311	N/A	08/26/08	08/26/08
COBALT, TOTAL	MB1	S	08L0311	N/A	08/26/08	08/26/08
CHROMIUM LABORATORY	LC1 BS	S	08L0311	N/A	08/26/08	08/26/08
CHROMIUM, TOTAL	MB1	S	08L0311	N/A	08/26/08	08/26/08
COPPER LABORATORY	LC1 BS	S	08L0311	N/A	08/26/08	08/26/08
COPPER, TOTAL	MB1	S	08L0311	N/A	08/26/08	08/26/08
IRON LABORATORY	LC1 BS	S	08L0311	N/A	08/26/08	08/26/08
IRON, TOTAL	MB1	S	08L0311	N/A	08/26/08	08/26/08
MERCURY LABORATORY	LC1 BS	S	08C0146	N/A	08/25/08	08/25/08
MERCURY, TOTAL	MB1	S	08C0146	N/A	08/25/08	08/25/08
POTASSIUM LABORATORY	LC1 BS	S	08L0311	N/A	08/26/08	08/26/08
POTASSIUM, TOTAL	MB1	S	08L0311	N/A	08/26/08	08/26/08
MAGNESIUM LABORATORY	LC1 BS	S	08L0311	N/A	08/26/08	08/26/08
MAGNESIUM, TOTAL	MB1	S	08L0311	N/A	08/26/08	08/26/08
MANGANESE LABORATORY	LC1 BS	S	08L0311	N/A	08/26/08	08/26/08
MANGANESE, TOTAL	MB1	S	08L0311	N/A	08/26/08	08/26/08
SODIUM LABORATORY	LC1 BS	S	08L0311	N/A	08/26/08	08/26/08
SODIUM, TOTAL	MB1	S	08L0311	N/A	08/26/08	08/26/08
NICKEL LABORATORY	LC1 BS	S	08L0311	N/A	08/26/08	08/26/08

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
WC-HANFORD RC-088 K1297

DATE RECEIVED: 08/21/08 LVL LOT # :0808L100

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
NICKEL, TOTAL	MB1	S	08L0311	N/A	08/26/08	08/26/08
LEAD LABORATORY	LC1 BS	S	08L0311	N/A	08/26/08	08/26/08
LEAD, TOTAL	MB1	S	08L0311	N/A	08/26/08	08/26/08
ANTIMONY LABORATORY	LC1 BS	S	08L0311	N/A	08/26/08	08/26/08
ANTIMONY, TOTAL	MB1	S	08L0311	N/A	08/26/08	08/26/08
SELENIUM LABORATORY	LC1 BS	S	08L0311	N/A	08/26/08	08/26/08
SELENIUM, TOTAL	MB1	S	08L0311	N/A	08/26/08	08/26/08
TIN LABORATORY	LC1 BS	S	08L0311	N/A	08/26/08	08/26/08
TIN, TOTAL	MB1	S	08L0311	N/A	08/26/08	08/26/08
THALLIUM LABORATORY	LC1 BS	S	08L0311	N/A	08/26/08	08/26/08
THALLIUM, TOTAL	MB1	S	08L0311	N/A	08/26/08	08/26/08
VANADIUM LABORATORY	LC1 BS	S	08L0311	N/A	08/26/08	08/26/08
VANADIUM, TOTAL	MB1	S	08L0311	N/A	08/26/08	08/26/08
ZINC LABORATORY	LC1 BS	S	08L0311	N/A	08/26/08	08/26/08
ZINC, TOTAL	MB1	S	08L0311	N/A	08/26/08	08/26/08
ZIRCONIUM LABORATORY	LC1 BS	S	08L0311	N/A	08/26/08	08/26/08
ZIRCONIUM, TOTAL	MB1	S	08L0311	N/A	08/26/08	08/26/08

LIONVILLE LABORATORY INC.

Analytical Report

Client: WC-HANFORD RC-088
LVL#: 0808L100
SDG/SAF#: K1297/RC-088

W.O.#: 60049-001-001-0001-00
Date Received: 08-21-08

METALS CASE NARRATIVE

The following is a summary of the QC results accompanying the sample results. Lionville Laboratory (LvLI) certifies that all test results meet the requirements of NELAC except as noted below.

All soil samples are reported on a dry weight basis unless requested by the client, required by the method, or noted otherwise.

1. This narrative covers the analysis of 1 solid sample.

2. The sample was prepared and analyzed in accordance with methods checked on the attached glossary. The sample result was reported on a wet weight "as received" basis.

   The sample was run with a 3-fold dilution for ICP metals due to sample matrix.

3. All analyses were performed within the required holding times.

4. All Initial and Continuing Calibration Verifications (ICV/CCVs) were within the 90-110% control limits (80-120% for Mercury).

5. All Initial and Continuing Calibration Blanks (ICB/CCBs) were within control limits (less than the LOQ).

6. The preparation/method blank for 1 analyte was outside method criteria. {less than the Limit of Quantitation (3-10X the LOD), the sample read greater than 20X MB value}. Refer to the Inorganics Method Blank Data Summary.

   a). The MB result for Sodium was greater than the Limit of Quantitation (LOQ) {3-10x the (LOD) Limit of Detection} and the sample 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.

7. All ICP Interference Check Standards were within control limits.

8. All laboratory control samples (LCS) were within the 80-120% control. Refer to the Inorganics

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 19 pages.

Laboratory Control Standards Report.

9. The matrix spike (MS) recoveries for 7 analytes were outside the 75-125% control limits. Refer to the Inorganics Accuracy Report.

10. For analytes where the ICP MS is out-of-control, a post-digestion MS (PDS) and serial dilution are performed. A PDS was prepared at meaningful concentration level for the following analytes:

Sample ID	Element	PDS Concentration (ppb)	PDS % Recovery
J178L9	Aluminum	66,000	102.0
	Calcium	66,000	98.1
	Magnesium	66,000	99.7
	Manganese	3,000	104.5
	Iron	66,000	92.0
	Antimony	300	97.7
	Vanadium	3,000	102.2

11. The duplicate analyses for 4 analytes were outside the 20% Relative Percent Difference (RPD) control limits. Refer to the Inorganics Precision Report.

12. For the purposes of this report, the data has been reported to the Limit of Detection (LOD). Values between the LOD and the Limit of Quantitation (LOQ) are acquired in a region of less-certain quantification.

13. LvLI is NELAP accredited by the state of Pennsylvania. For a complete listing of accrediting authorities and the corresponding analytes/methods, please contact your Project Manager.

14. 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.

Judy Stone

Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

8/28/05
Date

alm/m08-100

LvLI
LIONVILLE LABORATORY INC.

METALS METHOD GLOSSARY

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

Lot#: 08081100

Leaching Procedure: __1310 __1311 __1312 __Other:_____

CLP Metals __ Digestion and __ Analysis Methods: __ILM03.0 __ILM04.0

Metals Digestion Methods: __3005A __3010A __3015 __3020A ✓3050B __3051 __200.7 __SS17
__Other: _____

Metals Analysis Methods

	SW846		EPA		STD MTD	EPA OSWR	USATHAMA
Aluminum	✓6010B		__200.7				__99
Antimony	✓6010B	__7041 [5]	__200.7	__204.2			__99
Arsenic	✓6010B	__7060A [5]	__200.7	__206.2	__3113B		__99
Barium	✓6010B		__200.7				__99
Beryllium	✓6010B		__200.7				__99
Bismuth	__6010B [1]		__200.7 [1]			__1620	__99
Boron	__6010B		__200.7				__99
Cadmium	✓6010B	__7131A [5]	__200.7	__213.2			__99
Calcium	✓6010B		__200.7				__99
Chromium	✓6010B	__7191 [5]	__200.7	__218.2			__SS17
Cobalt	✓6010B		__200.7				__99
Copper	✓6010B	__7211 [5]	__200.7	__220.2			__99
Iron	✓6010B		__200.7				__99
Lead	✓6010B	__7421 [5]	__200.7	__239.2	__3113B		__99
Lithium	__6010B	__7430 [4]	__200.7			__1620	__99
Magnesium	✓6010B		__200.7				__99
Manganese	✓6010B		__200.7				__99
Mercury	__7470A [3]	✓7471A [3]	__245.1 [2]	__245.5 [2]			__99
Molybdenum	__6010B		__200.7				__99
Nickel	✓6010B		__200.7				__99
Potassium	✓6010B	__7610 [4]	__200.7	__258.1 [4]			__99
Rare Earths	__6010B [1]		__200.7 [1]			__1620	__99
Selenium	✓6010B	__7740 [5]	__200.7	__270.2	__3113B		__99
Silicon	__6010B [1]		__200.7			__1620	__99
Silica	__6010B		__200.7			__1620	__99
Silver	✓6010B	__7761 [5]	__200.7	__272.2			__99
Sodium	✓6010B	__7770 [4]	__200.7	__273.1 [4]			__99
Strontium	__6010B		__200.7				__99
Thallium	✓6010B	__7841 [5]	__200.7	__279.2 __200.9			__99
Tin	✓6010B		__200.7				__99
Titanium	__6010B		__200.7				__99
Uranium	__6010B [1]		__200.7 [1]			__1620	__99
Vanadium	✓6010B		__200.7				__99
Zinc	✓6010B		__200.7				__99
Zirconium	✓6010B [1]		__200.7 [1]			__1620	__99

Other: Method: _____

METHOD REFERENCES AND DATA QUALIFIERS

DATA QUALIFIERS

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

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

ABBREVIATIONS

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

ANALYTICAL METAL METHODS

1. Not included in the method element list.

2. Modified Hg: Hg1 and Hg2 require less total volume of digestate due to the autosampler analysis. Sample volumes and reagents for mercury determinations in water and soil have been proportionately scaled down to adapt to this semi-automated technique. The sample volume used for water analysis is 33 mL. For soils, 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 08/27/08

CLIENT: WC-HANFORD RC-088 K1297 LVL LOT #: 0808L100

WORK ORDER: 60049-001-001-0001-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	J178L9	Silver, Total	0.21 u	MG/KG	0.21	3.0
		Aluminum, Total	3960	MG/KG	8.4	3.0
		Arsenic, Total	2.7	MG/KG	1.1	3.0
		Barium, Total	50.0	MG/KG	0.21	3.0
		Beryllium, Total	0.11 u	MG/KG	0.11	3.0
		Calcium, Total	4690	MG/KG	8.4	3.0
		Cadmium, Total	0.11 u	MG/KG	0.11	3.0
		Cobalt, Total	6.3	MG/KG	0.42	3.0
		Chromium, Total	7.2	MG/KG	0.42	3.0
		Copper, Total	11.8	MG/KG	0.42	3.0
		Iron, Total	17900	MG/KG	9.5	3.0
		Mercury, Total	0.01 u	MG/KG	0.01	1.0
		Potassium, Total	545	MG/KG	8.4	3.0
		Magnesium, Total	3320	MG/KG	5.3	3.0
		Manganese, Total	250	MG/KG	0.08	3.0
		Sodium, Total	145	MG/KG	4.2	3.0
		Nickel, Total	10.0	MG/KG	0.42	3.0
		Lead, Total	4.2	MG/KG	0.63	3.0
		Antimony, Total	0.63 u	MG/KG	0.63	3.0
		Selenium, Total	1.3 u	MG/KG	1.3	3.0
		Tin, Total	1.3 u	MG/KG	1.3	3.0
		Thallium, Total	1.3 u	MG/KG	1.3	3.0
		Vanadium, Total	45.9	MG/KG	0.30	3.0
		Zinc, Total	38.5	MG/KG	1.3	3.0
		Zirconium, Total	16.4	MG/KG	10.6	3.0

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 08/27/08

CLIENT: WC-HANFORD RC-088 K1297 LVL LOT #: 0808L100

WORK ORDER: 60049-001-001-0001-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK1	08L0311-MB1	Silver, Total	0.10 u	MG/KG	0.10	1.0
		Aluminum, Total	20.8	MG/KG	4.0	1.0
		Arsenic, Total	0.50 u	MG/KG	0.50	1.0
		Barium, Total	0.10 u	MG/KG	0.10	1.0
		Beryllium, Total	0.05 u	MG/KG	0.05	1.0
		Calcium, Total	9.1	MG/KG	4.0	1.0
		Cadmium, Total	0.05 u	MG/KG	0.05	1.0
		Cobalt, Total	0.20 u	MG/KG	0.20	1.0
		Chromium, Total	0.20 u	MG/KG	0.20	1.0
		Copper, Total	0.24	MG/KG	0.20	1.0
		Iron, Total	4.5 u	MG/KG	4.5	1.0
		Potassium, Total	7.7	MG/KG	4.0	1.0
		Magnesium, Total	2.5 u	MG/KG	2.5	1.0
		Manganese, Total	0.04	MG/KG	0.04	1.0
		Sodium, Total	18.1	MG/KG	2.0	1.0
		Nickel, Total	0.20 u	MG/KG	0.20	1.0
		Lead, Total	0.30 u	MG/KG	0.30	1.0
		Antimony, Total	0.30 u	MG/KG	0.30	1.0
		Selenium, Total	0.71	MG/KG	0.60	1.0
		Tin, Total	1.6	MG/KG	0.60	1.0
		Thallium, Total	0.60 u	MG/KG	0.60	1.0
		Vanadium, Total	0.14 u	MG/KG	0.14	1.0
		Zinc, Total	0.60 u	MG/KG	0.60	1.0
		Zirconium, Total	5.0 u	MG/KG	5.0	1.0
BLANK1	08C0146-MB1	Mercury, Total	0.01 u	MG/KG	0.01	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 08/27/08

CLIENT: WC-HANFORD RC-088 K1297 LVL LOT #: 0808L100

WORK ORDER: 60049-001-001-0001-00

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-001	J178L9	Silver, Total	3.2	0.21u	3.4	94.1	3.0
		Aluminum, Total	5540	3960	138	1146 *	3.0
		Arsenic, Total	132	2.7	138	93.8	3.0
		Barium, Total	192	50.0	138	102.5	3.0
		Beryllium, Total	3.1	0.11u	3.4	91.2	3.0
		Calcium, Total	7890	4690	1720	185.5	3.0
		Cadmium, Total	3.4	0.11u	3.4	100	3.0
		Cobalt, Total	41.2	6.3	34.5	101.2	3.0
		Chromium, Total	21.3	7.2	13.8	102.2	3.0
		Copper, Total	30.2	11.8	17.3	106.4	3.0
		Iron, Total	23200	17900	69.0	7656 *	3.0
		Mercury, Total	0.19	0.01u	0.16	115.5	1.0
		Potassium, Total	2250	545	1720	98.7	3.0
		Magnesium, Total	5750	3320	1720	140.6	3.0
		Manganese, Total	343	250	34.5	268.4*	3.0
		Sodium, Total	1900	145	1720	101.9	3.0
		Nickel, Total	43.8	10.0	34.5	98.0	3.0
		Lead, Total	35.9	4.2	34.5	91.9	3.0
		Antimony, Total	18.4	0.63u	34.5	53.3	3.0
		Selenium, Total	114	1.3 u	138	83.0	3.0
		Tin, Total	65.2	1.3 u	69.0	94.5	3.0
		Thallium, Total	132	1.3 u	138	95.3	3.0
		Vanadium, Total	94.5	45.9	34.5	140.9	3.0
		Zinc, Total	75.3	38.5	34.5	106.7	3.0
		Zirconium, Total	340	16.4	345	93.8	3.0

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 08/27/08

CLIENT: WC-HANFORD RC-088 K1297 LVL LOT #: 0808L100

WORK ORDER: 60049-001-001-0001-00

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-001REP	J178L9	Silver, Total	0.21u	0.21u	NC	3.0
		Aluminum, Total	3960	4290	7.9	3.0
		Arsenic, Total	2.7	2.6	3.8	3.0
		Barium, Total	50.0	59.6	17.5	3.0
		Beryllium, Total	0.11u	0.10u	NC	3.0
		Calcium, Total	4690	5430	14.7	3.0
		Cadmium, Total	0.11u	0.22	NC	3.0
		Cobalt, Total	6.3	7.4	16.1	3.0
		Chromium, Total	7.2	6.3	13.3	3.0
		Copper, Total	11.8	12.7	7.3	3.0
		Iron, Total	17900	20600	13.9	3.0
		Mercury, Total	0.01u	0.00u	NC	1.0
		Potassium, Total	545	583	6.6	3.0
		Magnesium, Total	3320	3360	1.1	3.0
		Manganese, Total	250	293	15.7	3.0
		Sodium, Total	145	179	20.9	3.0
		Nickel, Total	10.0	8.0	22.2	3.0
		Lead, Total	4.2	2.4	54.5	3.0
		Antimony, Total	0.63u	0.62u	NC	3.0
		Selenium, Total	1.3 u	1.2 u	NC	3.0
		Tin, Total	1.3 u	1.2 u	NC	3.0
		Thallium, Total	1.3 u	1.2 u	NC	3.0
		Vanadium, Total	45.9	54.0	16.2	3.0
		Zinc, Total	38.5	38.8	0.78	3.0
		Zirconium, Total	16.4	21.9	28.7	3.0

Lionville Laboratory, Inc.

INORGANICS LABORATORY CONTROL STANDARDS REPORT 08/27/08

CLIENT: WC-HANFORD RC-088 K1297 LVL LOT #: 0808L100

WORK ORDER: 60049-001-001-0001-00

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
LCS1	08L0311-LC1	Silver, LCS	48.2	50.0	MG/KG	96.4
		Aluminum, LCS	501	500	MG/KG	100.3
		Arsenic, LCS	886	1000	MG/KG	88.6
		Barium, LCS	478	500	MG/KG	95.6
		Beryllium, LCS	24.0	25.0	MG/KG	96.0
		Calcium, LCS	2480	2500	MG/KG	99.3
		Cadmium, LCS	23.6	25.0	MG/KG	94.4
		Cobalt, LCS	240	250	MG/KG	95.8
		Chromium, LCS	48.4	50.0	MG/KG	96.8
		Copper, LCS	122	125	MG/KG	98.0
		Iron, LCS	488	500	MG/KG	97.7
		Potassium, LCS	2200	2500	MG/KG	87.9
		Magnesium, LCS	2390	2500	MG/KG	95.5
		Manganese, LCS	73.3	75.0	MG/KG	97.7
		Sodium, LCS	2320	2500	MG/KG	92.6
		Nickel, LCS	192	200	MG/KG	96.0
		Lead, LCS	236	250	MG/KG	94.6
		Antimony, LCS	266	300	MG/KG	88.5
		Selenium, LCS	846	1000	MG/KG	84.6
		Tin, LCS	463	500	MG/KG	92.6
		Thallium, LCS	909	1000	MG/KG	90.9
		Vanadium, LCS	240	250	MG/KG	96.0
		Zinc, LCS	94.8	100	MG/KG	94.8
		Zirconium, LCS	473	500	MG/KG	94.5
LCS1	08C0146-LC1	Mercury, LCS	5.0	4.7	MG/KG	106.1

Lionville Laboratory Incorporated Logbook #: 482

SAMPLE DIGESTION RECORD

SOP: L-SPI-3020 Rev. 00

Digestion Batch #: 08L0311
Date/Time Initiated: 8/26/08 0945
Date/Time Completed: 8/26/08 1500
Analyst(s): MW/PMP
Matrix: Soil Water Other: solid/oil
Instr. Type: AA (CP)
Parameters: HSL + Sn, Zr

(Digested) / Undigested (circle one)
Balance #: B20
Balance Cal Verif: (Y) NA
Hot Plate Temp: 92°

Method: SW (circle)
3005A
3010A
3015
3020A
7060A (As/Se)
7760A (Ag)
(3050B)
3051
CLP ILMO3.0
ILMO4.0

DW 200.7 (1994)
200.9
3113B
MCAWW 200.7 (1982)
200 (AA)
206.2 (As/Se)
SM 3030C (NC)
Other Teflon

TW

COC Batch #	Spike Vol(s) (mL)	Initial Wt/Vol (g/mL)	Final Vol (mL)	pH <2	Type: To/So/TC	Texture	Color/Appearance	Artifact	Turb
08081100-001		1.42gm	100ml	<2	TO	coarse	black soil	small rocks	
001R		1.44gm							
001S	1.0ml *	1.45gm							
08082090-001		1.39gm				N/A	black oil		
001R		1.39gm							
001S	1.0ml *	1.39gm							
002		1.41gm					mud-like oil		
003		1.39gm					white oil		
08081102-001		1.15gm					black oil		
001R		1.19gm							
001S	1.0ml *	1.16gm							
002		1.17gm							
08081073-002		1.03gm				coarse	metal shavings		
003		1.04gm							
08L0311-MB1		1.0gm					boiling chips		
LC1	1.0ml *	1.0gm							

MW 8/26/08

Spiking IDs:
MS #: 8100-04-01
02
03
6072-78-07
LCS #: 08
09
10
11

Reagent IDs:
HNO_3 G07057
HCL 615040
H_2O_2 615A18
1:1 HNO_3 9789-083-05
1:1 HCL

File ID#: IC031101
LIMS Transfer: (Y) N updated
Data Review By/Date: PMP, 08/26/08

* also 0.5ml 6072-079-13 (Zr)

Lionville Laboratory Incorporated

MERCURY PREPARATION

Logbook # 455

Analyst: CEB
Date 8/25/08
Start Time/Temp: 1430 / 94°
End Time/Temp: 1500 / 98°

Instrument ID HG-3.1
Balance #: B29 / NA
Pipette Calibration (Daily) Y ✓

Prep Batch: 08C0146
Worksheet: HG082501
SOP No. ME-HgCVAA Rev. 02

pH < 2 for Liquids? __ Yes NA No (If no: designate affected samples in Comments column, and initiate an SDR)

NOTE: The Inital/Final Volume for water samples = 33mL, unless otherwise noted.
The Final volume for soil samples = 50mL, unless otherwise noted.

LvLI Batch #	Container Number	Spike Volume (mL)	Spike Conc. (µg/L)	Initial Wt. or Volume (g or mL)	Final Sample Volume (mL)	Comments, % Solids, etc
Blank	X8			10mL	50mL	
0.2 µg/L	PF	0.100				
1.0	290	0.500				
2.0	818	1.000				
5.0	AH	2.500				
10.0	8H	5.000				
ICV	PO	0.125	2.5			
CCV	X5	0.250	5.0			
ICB/CCB	DX/114					90.80L
MB1	C8			0.30		PBS146 100.0
LCI	A27	*	*	0.39		LCSS146
0808L073-002	411			0.36		
002R	NR			0.36		
002S	AP	0.050	10.0	0.36		
003	NB			0.31		
0808L100-001	~~BC~~ CB2			~~0.30~~ 0.31		R 100.0
001R	~~AW~~ X3			~~0.34~~ 0.36		
001S	~~81G~~ R2	~~0.050~~ 0.500	~~10.0~~ 1.0	~~0.30~~ 0.31		
0808L090-001	~~CB2~~ 3C			0.30		R 100.0
001R	~~X3~~ AW			0.34		
001S	~~R2~~ 81G	0.050	10.0	0.30		
002	CM			0.31		
003	40			0.33		
0808L102-001	886			0.32		
001R	F2			0.30		
001S	A9	0.050	10.0	0.32		
002	Gd			0.30		

Standard:	ID	Prep Date/Time
ICAL/MS	R16572-78-14B	8/25/08 1115
ICV/CCV/LCS	US 6572-78-15A	

Reviewed By/Date: [signature] 8/25

see book # 9368 for std traceability information

Soil LCS =US Metals in soil No.3; True Value = 4.70 mg/Kg *
Catalogue #1RM-021, Lot # E021

Water Matrix Spiking Solution Concentration = 0.1 µg/ml
Water LCS Spiking Concentration: 1.0 µg/ml

ME-HgCVAA-Prep1007 ⊕ INADVERTENTLY weighed wrong samples out. WROTE in correct sample tube I.D.s & weights for appropriate samples. CEB 8/25/08

Page #: 000000015

Lionville Laboratory Incorporated

MERCURY PREPARATION

Logbook # 455

Analyst: TLB
Date 8/25/08
Start Time/Temp: see page 098
End Time/Temp:

Instrument ID HG-3.1
Balance #: B29 /NA
Pipette Calibration (Daily) Y ✓

Prep Batch: 08C0146
Worksheet: HG082501
SOP No. ME-HgCVAA, Rev. 02

pH < 2 for Liquids? __ Yes NA No (If no: designate affected samples in Comments column, and initiate an SDR)

NOTE: The Initial/Final Volume for water samples = 33mL, unless otherwise noted.
The Final volume for soil samples = 50mL, unless otherwise noted.

LvLI Batch #	Container Number	Spike Volume (mL)	Spike Conc. (µg/L)	Initial Wt. or Volume (g or mL)	Final Sample Volume (mL)	Comments, % Solids, etc.
0808L075-001	194			0.31	50mL	R
001R	401			0.38	↓	↓
001S	183	0.500	1.0	0.31	↓	↓

TLB 8/25/08

Standard:	ID	Prep Date/Time
ICAL/MS		
ICV/CCV/LCS	See page 098	

Reviewed By/Date: [signature] 8/27/0

see book #_____ for std traceability information

Soil LCS =US Metals in soil No.3; True Value = 4.70 mg/Kg
Catalogue #1RM-021, Lot # E021

Water Matrix Spiking Solution Concentration = 0.1 µg/ml
Water LCS Spiking Concentration: 1.0 µg/ml

nville Laboratory Use Only
08081100

Custody Transfer Record/Lab Work Request

Page 1 of 1

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

VLI

000000017

nt WC Hanford SAF# RC-088

Final Proj. Sampling Date

ject# 60649-001-001-0001-00

ject Contact/Phone#

nville Laboratory Project Manager Arlette Johnson

SW846 Del STD TAT 3 days

e Rec'd 8-21-08 Date Due 8-24-08

Refrigerator #			A														
#/Type Container	Liquid		2														
	Solid		191														
Volume	Liq		950														
Preservatives																	
ANALYSES REQUESTED →			ORGANIC							INORG							
			VOA	BNA	Pest/PCB	Herb				Metal + Hg	CN	Fluoride					
			Lionville Laboratory Use Only														
				0625H	0PCB					MetO		IF6N					

TRIX
DES:
Soil
Sediment
Solid
Sludge
Water
Oil
Air
Drum Solids
Drum Liquids
EP/TCLP
Leachate
Wipe
Other
Fish

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected													
001	J178L9			X	8.19.08	1445		X	X					X		X			

ecial Instructions: Run matrix QC

MetO = HSL + Sn, Zr

X = Solids

Special Instructions:

1.
2.
3.
4.
5.
6.

Relinquished by	Received by	Date	Time
FedEx	[signature]	8-21-08	1015

Relinquished by	Received by	Date	Time

Relinquished by	Received by	Date	Time
ORIGINAL REWRITTEN		"COMPOSITE WASTE"	

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-088-063	Page 1 of 1

ollector B. Lawrence	Company Contact Joan Kessner	Telephone No. 509-375-4688	Project Coordinator KESSNER, JH
Price Code NA	Data Turnaround ~~15~~ Days 3 RTC 8/19/08		
oject Designation 618-7 Burial Ground - Other	Sampling Location 618-7 Burial Ground (drums)		SAF No. RC-088
e Chest No. SML-203	Field Logbook No. EL-1395-13	COA RG61878500	Method of Shipment FED EX
ipped To EBERLINE SERVICES / LIONVILLE	Offsite Property No. A080314		Bill of Lading/Air Bill No.

OSSIBLE SAMPLE HAZARDS/REMARKS

otential Radioactive contamination, potential beryllium ontamination

pecial Handling and/or Storage

one

Preservation	Cool 4C	Cool 4C	None	None	None	
Type of Container	aG	aG	P	P	P	
No. of Container(s)	1	0	0	0	1	
Volume	250mL	125mL	125mL	60mL	500mL	
SAMPLE ANALYSIS	Semi-VOA - 8270A (TCL)	PCBs - 8082	See item (1) in Special Instructions.	Ignitability - 1010	See item (2) in Special Instructions. RTC 8/19/08	

Sample No.	Matrix *	Sample Date	Sample Time									
78L9	OTHER	8/19/08	1445	X	X	X	X				BLUE	LIQUID IN
~~78M0~~	~~OTHER~~										SOIL	/ SS TANK
~~78M1~~	~~OTHER~~											

CHAIN OF POSSESSION	Sign/Print Names	
inquished By/Removed From	Date/Time 1515 8-19-08	Received By/Stored In RT Coffman / RT Coffman	Date/Time 1515 8/19/08
inquished By/Removed From	Date/Time 1745	Received By/Stored In	Date/Time 1745
T Coffman / RT Coffman 8/19/08		REFE #1B, 1060, 8/19/08	
inquished By/Removed From	Date/Time 1115	Received By/Stored In	Date/Time
060 18 J.E. Bernhard 8-20-08		FED EX	
inquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
FED EX 8-21-08	1015	D Smith 8-21-08	1015
inquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
inquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

(1) ICP Metals - 6010A (TAL) {Aluminum, Antimony, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Magnesium, Manganese, Nickel, Potassium, Silver, Sodium, Vanadium, Zinc}; ICP Metals - 6010A (Add-on) {Arsenic, Lead, Selenium, Thallium, Tin, Zirconium}; Mercury - 7471 - (CV)

(2) Gross Alpha; Gross Beta; Gross Spectroscopy (TCL List) {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Isotopic Uranium; Isotopic Thorium; Americium-241; Isotopic Plutonium; Strontium-89,90 -- Total Sr

Matrix *

S=Soil
SE=Sediment
SO=Solid
Sl=Sludge
W = Water
O=Oil
A=Air
DS=Drum Solids
DL=Drum Liquids
T=Tissue
Wi=Wipe
L=Liquid
V=Vegetation
X=Other

ABORATORY SECTION	Received By	Title	Date/Time
NAL SAMPLE ISPOSITION	Disposal Method	Disposed By	Date/Time

CH-EE-011

000000018

Lionville Laboratory Incorporated

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: WC Hanford Date: 8-21-08

Project/EAF/SOW/Release #: RC-088

LvLI Batch #: 0808L100 Sample Custodian: D. Smith

NOTE: EXPLAIN ALL DISCREPANCIES

1. Samples Hand Delivered or Shipped?	Carrier Fed Ex			Airbill # 7984 9930 315
2. Custody Seals on coolers or shipping containers intact, signed & dated?	☑ Yes		☐ No	☐ No Seals
3. Outside of coolers or shipping containers are free from damage?	☑ Yes		☐ No	*Comments:*
4. All expected paperwork received (coc & other client specific information) sealed in plactic bag and easily accessible?	☑ Yes		☐ No	
5. Samples received cooled or ambient?	Temp	4.5	°C	Cooler # SML 203
How was the temperature taken?	☑ IR		☐ Temp. Blank	☐ Other (Specify):
Is the Temp. Criteria met for these samples? (Hg in soils @ 4°C)	☑ Yes		☐ No	
6. Custody seals on sample containers intact, signed and dated?	☑ Yes		☐ No	☐ No Seals
7. COC (Client & LvLI) signed & dated?	☑ Yes		☐ No	
8. Sample containers are intact?	☑ Yes		☐ No	
9. All samples on COC received?	☑ Yes		☐ No	
All samples received on COC?	☑ Yes		☐ No	
10. All sample label information matches COC?	☑ Yes		☐ No	
11. Samples properly preserved? (If #5 is no, then this is no.)	☑ Yes		☐ No	
12. Samples received within hold times?	☑ Yes		☐ No	
Short holds taken to wet lab?	☐ Yes		☐ No	☑ N/A
13. VOA, TOC, TOX free of headspace?	☐ Yes		☐ No	☑ N/A
14. QC stickers placed on bottles designated by client?	☐ Yes		☐ No	☑ N/A
15. Shipment meets LvLI Sample Acceptance Policy? (Identify all bottles that do not meet the policy, which is on the reverse of this page.)	☑ Yes		☐ No	
16. Project Manager contacted concerning any discrepancies?	☐ Yes		☐ No	☑ N/A

Person Contacted _____ Date _____

LvLI LIONVILLE LABORATORY INC.

RECEIVED
AUG 2008

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
WC-HANFORD RC-088 K1297

DATE RECEIVED: 08/21/08 LVL LOT # :0808L100

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J178L9						
IGNITABILITY	001	SO	08LFPA24	08/19/08	08/26/08	08/24/08

LIONVILLE LABORATORY INC.

Analytical Report

Client: WC-HANFORD RC-088 K1297
LVL#: 0808L100

W.O.#: 60049-001-001-0001-00
Date Received: 08-21-08

INORGANIC NARRATIVE

1. This narrative covers the analysis of 1 solid sample.

2. The sample was prepared and analyzed in accordance with the method checked on the attached glossary.

3. Sample holding time as required by the method and/or contract was met.

4. The result presented in this report is derived from a sample that met LvLI's sample acceptance policy.

5. The Laboratory Control Sample (LCS) was within the method criteria.

6. Insufficient sample volume was provided so as to perform replicate analysis.

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

Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

8/27/08
Date

njp\i08-100

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 8 pages.

Lionville Laboratory Incorporated

WET CHEMISTRY

METHODS GLOSSARY FOR SOIL/SOLIDS SAMPLE ANALYSIS

	ASTM	SW846	OTHER
% Ash	__ D2216-80		
% Moisture	__ D2216-80		__ ILMO4.0 (e)
% Solids	__ D2216-80		__ ILMO4.0 (e)
% Volatile Solids	__ D2216-80		
ASTM Extraction in Water	__ D3987-81/85		
BTU	__ D240-87		
CEC		__ 9081	__ c
Chromium VI		__ 3060A/7196A	
Corrosivity ___ by coupon ___ by pH		__ 1110(mod) __ 9045C	
Cyanide, Total		__ 9010B	__ ILMO4.0 (e)
Cyanide, Reactive		__ Section 7.3/9014	
Halides, Extractable Organic		__ 9020B	__ EPA 600/4/84-008
Halides, Total		__ 9020B	__ EPA 600/4/84-008
EP Toxicity		__ 1310A	
Flash Point		__ 1010	
Ignitability		✓ 1010	
Oil & Grease		__ 9071A	
Carbon, Total Organic		__ 9060	__ Lloyd Kahn (mod)
Oxygen Bomb Prep for Anions	__ D240-87(mod)	__ 5050	
Petroleum Hydrocarbons, Total Recoverable		__ 9071	__ EPA 418.1
pH, Soil		__ 9045C	
Sulfide, Reactive		__ Section 7.3/9030B	
Sulfide		__ 9030B(mod)	
Specific Gravity	__ D1429-76C/	__ D5057-90	
Sulfur, Total		__ 9056	
Synthetic Preparation Leach		__ 1312	
Paint Filter		__ 9095A	

Other: **Method:**

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.

Inorganic Data Summary Report
Physical Testing Observation

Client: WC-HANFORD RC-088 K1297
LVL#: 0808L100

W.O.#: 60049-001-001-0001-00
Date Received: 08-21-08

Analyte:	**Observation:**
Ignitability	Sample J178L9 did not ignite. The sample was heated to approximately 210°F. p-Xylene was used to determined the accuracy of the ignitability apparatus. The p-Xylene will ignite at 81°F +/- 1°F. For this test, the p-Xylene ignited at 81°F.

njp\i08-100pt2

LIONVILLE LABORATORY INC.

Lionville Laboratory Use Only

08082100

Custody Transfer Record/Lab Work Request

Page 1 of 1

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client: WC Hanford SAF# RC-088

Est. Final Proj. Sampling Date:

Project#: 66649-001-001-0001-00

Project Contact/Phone#:

Lionville Laboratory Project Manager: Arlette Johnson

QC: SW846 Del: STD TAT: 3 days

Date Rec'd: 8-21-08 Date Due: 8-24-08

Refrigerator #			A 2													
#/Type Container	Liquid / Solid		191													
Volume	Liq		250													
Preservatives																
ANALYSES REQUESTED →			ORGANIC: VOA	BNA	Pest/PCB	Herb				INORG: Metal + Hg	CN	Ign+				
			Lionville Laboratory Use Only	06254	0PCB		08015			Met(1)		IFGN				

MATRIX CODES:
S- Soil
SE- Sediment
SO- Solid
SL- Sludge
W- Water
O- Oil
A- Air
DS- Drum Solids
DL- Drum Liquids
L- EP/TCLP Leachate
WI- Wipe
X- Other
F- Fish

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected												
001	J17869			X	8-19-08	1445		X	X		X		X		X			

Special Instructions: Run matrix QC

Met(1) = HSL + Sn, Zr

X = Solid's

Special Instructions:
8-22-08 1. Add 08015 to sample 001 - per client Propylene & Ethylene
2.
3.
4.
5.
6.

Relinquished by	Received by	Date	Time
FedEx	[signature]	8-21-08	1015

Relinquished by	Received by	Date	Time

Relinquished by	Received by	Date	Time
ORIGINAL REWRITTEN		"COMPOSITE WASTE"	

000000006

Washington Closure Hanford

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

RC-088-063

llector B. Lawrence	Company Contact Joan Kessner	Telephone No. 509-375-4688	Project Coordinator KESSNER, JH
Price Code NA	Data Turnaround ~~15~~ Days 3 RTC 8/19/08		
›ject Designation 518-7 Burial Ground - Other	Sampling Location 618-7 Burial Ground (drums)		SAF No. RC-088
: Chest No. SML - 203	Field Logbook No. EL-1395-13	COA RG61878500	Method of Shipment FED EX
ipped To EBERLINE SERVICES/ LIONVILLE	Offsite Property No. A080314		Bill of Lading/Air Bill No.

OSSIBLE SAMPLE HAZARDS/REMARKS

ɔtential Radioactive contamination, potential beryllium ɔntamination

pecial Handling and/or Storage

one

Preservation	Cool 4C	Cool 4C	None	None	None					
Type of Container	aG	aG	P	P	P					
No. of Container(s)	1	0	0	0	1					
Volume	250mL	125mL	125mL	60mL	300mL					
SAMPLE ANALYSIS	Semi-VOA - 8270A (TCL)	PCBs - 8082	See item (1) in Special Instructions.	Ignitability - 1010	See item (2) in Special Instructions. RTC 8/19/08					

Sample No.	Matrix *	Sample Date	Sample Time									
78L9	OTHER	8/19/08	1445	X	X	X	X				BLUE	LIQUID IN
~~78M0~~	~~OTHER~~										SOIL	/ SS TANK
~~78M1~~	~~OTHER~~											

CHAIN OF POSSESSION — **Sign/Print Names**

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
[signature]	8-19-08 1515	RTCoffman / RT Coffman	8/19/08 1515
RTCoffman / RT Coffman	8/19/08 1745	REFEX 1B, 1060,	8/19/08 1745
1060 1B J.E. Bernhard	LCH 8-20-08 1115	FED EX	
FED EX	8-21-08 1015	[signature]	8.21.08 1015

SPECIAL INSTRUCTIONS

(1) ICP Metals - 6010A (TAL) (Aluminum, Antimony, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Magnesium, Manganese, Nickel, Potassium, Silver, Sodium, Vanadium, Zinc); ICP Metals - 6010A (Add-on) (Arsenic, Lead, Selenium, Thallium, Tin, Zirconium); Mercury - 7471 - (CV)

(2) Gross Alpha; Gross Beta; Gamma Spectroscopy (TCL List) (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); Isotopic Uranium; Isotopic Thorium; Americium-241; Isotopic Plutonium; Strontium-89,90 -- Total Sr

Matrix *

S=Soil
SE=Sediment
SO=Solid
SI=Sludge
W = Water
O=Oil
A=Air
DS=Drum Solids
DL=Drum Liquids
T=Tissue
WI=Wipe
L=Liquid
V=Vegetation
X=Other

ABORATORY SECTION	Received By	Title	Date/Time
NAL SAMPLE ISPOSITION	Disposal Method	Disposed By	Date/Time

:H-EE-011

0000000007

Lionville Laboratory Incorporated

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: WC Hanford

Project/SAF/SOW/Release #: RC-088

Date: 8-21-08

LvLI Batch #: 0808L100

Sample Custodian: D. Yunich

NOTE: EXPLAIN ALL DISCREPANCIES

1. Samples Hand Delivered or Shipped?	Carrier Fed Ex		Airbill # 7984 9936 315
2. Custody Seals on coolers or shipping containers intact, signed & dated?	☑ Yes	☐ No	☐ No Seals
3. Outside of coolers or shipping containers are free from damage?	☑ Yes	☐ No	*Comments:*
4. All expected paperwork received (coc & other client specific information) sealed in plactic bag and easily accessible?	☑ Yes	☐ No	
5. Samples received cooled or ambient?	Temp 4.5 °C		Cooler # SML 203
How was the temperature taken?	☑ IR	☐ Temp. Blank	☐ Other (Specify):
Is the Temp. Criteria met for these samples? (Hg in soils @ 4°C)	☑ Yes	☐ No	
6. Custody seals on sample containers intact, signed and dated?	☑ Yes	☐ No	☐ No Seals
7. COC (Client & LvLI) signed & dated?	☑ Yes	☐ No	
8. Sample containers are intact?	☑ Yes	☐ No	
9. All samples on COC received?	☑ Yes	☐ No	
All samples received on COC?	☑ Yes	☐ No	
10. All sample label information matches COC?	☑ Yes	☐ No	
11. Samples properly preserved? (If #5 is no, then this is no.)	☑ Yes	☐ No	
12. Samples received within hold times?	☑ Yes	☐ No	
Short holds taken to wet lab?	☐ Yes	☐ No	☑ N/A
13. VOA, TOC, TOX free of headspace?	☐ Yes	☐ No	☑ N/A
14. QC stickers placed on bottles designated by client?	☐ Yes	☐ No	☑ N/A
15. Shipment meets LvLI Sample Acceptance Policy? (Identify all bottles that do not meet the policy, which is on the reverse of this page.)	☑ Yes	☐ No	
16. Project Manager contacted concerning any discrepancies?	☐ Yes	☐ No	☑ N/A

Person Contacted _____ Date _____

LVLI LIONVILLE LABORATORY INC.