0078695

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 K1291 **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 15, 2008

RECEIVED AUG 2008

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

Reference: **P.O. #S00W235A00**
Eberline Services R8-08-034-7858, SDG K1291

Dear Ms. Kessner:

Enclosed is the data report for two liquid (other liquid) samples designated under SAF No. RC-088 received at Eberline Services on August 5, 2008. The samples were analyzed according to the accompanying chain-of-custody documents.

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 K1291 was composed of two liquid (other liquid) samples designated under SAF No. RC-088 with a Project Designation of: 618-7 Burial Ground-Other liquids.

Note: the samples were mixtures of liquid and metal chips. The metal chips were separated from the liquid and the liquid analyzed alone.

The samples were received as stated on the Chain-of-Custody documents. Any discrepancies are noted on the Eberline Services Sample Receipt Checklist. The results were transmitted to WCH via e-mail on August 14, 2008.

2.0 ANALYSIS NOTES

2.1 Gross Alpha and Gross Beta Analysis

No problems were encountered during the course of the analysis.

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

08/15/08

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 K1291

SDG	7858
Contact	Melissa C. Mannion

Client	Hanford
Contract	No. S00W235A00
Case no	SDG K1291

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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Melissa Mannion
Prepared by

Melissa Mannion
Reviewed by

Lab id	EBRLNE
Protocol	Hanford1
Version	Ver 1.0
Form	DVD-TOC
Version	3.06
Report date	08/14/08

SDG 7858
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG K1291

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 08/14/08

SDG 7858
Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford
Contract No. S00W235A00
Case no SDG_K1291

ABOUT THE DATA SUMMARY SECTION

DUPLICATES

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

MATRIX SPIKES

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

DATA SHEETS

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

METHOD SUMMARIES

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

REPORT GUIDES

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

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 08/14/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1291

SDG 7858
Contact Melissa C. Mannion

LAB SAMPLE SUMMARY

Client Hanford
Contract No. S00W235A00
Case no SDG K1291

LAB SAMPLE ID	CLIENT SAMPLE ID	LOCATION	MATRIX	LEVEL	SAF NO	CHAIN OF CUSTODY	COLLECTED
R808034-01	J177M2-B	618-7 Burial Ground-drum	LIQUID		RC-088	RC-088-055	07/30/08 13:10
R808034-02	Lab Control Sample		LIQUID		RC-088		
R808034-03	Method Blank		LIQUID		RC-088		
R808034-04	Duplicate (R808034-01)	618-7 Burial Ground-drum	LIQUID		RC-088		07/30/08 13:10
R808034-05	J177M4-B	618-7 Burial Ground-drum	LIQUID		RC-088	RC-088-056	07/31/08 15:10

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-LS
Version 3.06
Report date 08/14/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1291

SDG 7858
Contact Melissa C. Mannion

QC SUMMARY

Client Hanford
Contract No. S00W235A00
Case no SDG K1291

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
7858	RC-088-055	J177M2-B	LIQUID		0.481 L		08/05/08	6	R808034-01	7858-001
	RC-088-056	J177M4-B	LIQUID		0.504 L		08/06/08	6	R808034-05	7858-005
		Method Blank	LIQUID						R808034-03	7858-003
		Lab Control Sample	LIQUID						R808034-02	7858-002
		Duplicate (R808034-01)	LIQUID		0.481 L		08/05/08	6	R808034-04	7858-004

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-QS
Version 3.06
Report date 08/14/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1291

SDG 7858
Contact Melissa C. Mannion

PREP BATCH SUMMARY

Client Hanford
Contract No. S00W235A00
Case no SDG K1291

TEST	MATRIX	METHOD	PREPARATION ERROR BATCH	2σ %	PLANCHETS ANALYZED CLIENT	MORE	RE	BLANK	LCS	DUP/ORIG	MS/ORIG	QUALIFIERS
Alpha Spectroscopy												
AM	LIQUID	Americium 241 in Liquid	6160-053	8.0	2			1	1	1/1		
PU	LIQUID	Plutonium-238,239/240, Liquid	6160-053	8.0	2			1	1	1/1		
TH	LIQUID	Thorium, Isotopic in Liquid	6160-053	8.0	2			1	1	1/1		
U	LIQUID	Uranium in Liquid	6160-053	8.0	2			1	1	1/1		
Beta Counting												
SR	LIQUID	Total Strontium in Liquids	6160-053	10.4	2			1	1	1/1		
Gas Proportional Counting												
93A	LIQUID	Gross Alpha in Liquid	6160-053	20.6	2			1	1	1/1		
93B	LIQUID	Gross Beta in Liquid	6160-053	11.0	2			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 08/14/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1291

SDG 7858
Contact Melissa C. Mannion

LAB WORK SUMMARY

Client Hanford
Contract No. S00W235A00
Case no SDG K1291

LAB SAMPLE COLLECTED RECEIVED	CLIENT SAMPLE ID LOCATION CUSTODY	SAF No	MATRIX	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
R808034-01	J177M2-B			7858-001	93A/93		08/11/08	08/12/08	BW	Gross Alpha in Liquid
07/30/08	618-7 Burial Ground-drum		LIQUID	7858-001	93B/93		08/11/08	08/12/08	BW	Gross Beta in Liquid
08/05/08	RC-088-055	RC-088		7858-001	AM		08/12/08	08/12/08	BW	Americium 241 in Liquid
				7858-001	PU		08/12/08	08/12/08	BW	Plutonium-238,239/240, Liquid
				7858-001	SR		08/08/08	08/11/08	BW	Total Strontium in Liquids
				7858-001	TH		08/12/08	08/13/08	BW	Thorium, Isotopic in Liquid
				7858-001	U		08/11/08	08/12/08	BW	Uranium in Liquid
R808034-02	Lab Control Sample			7858-002	93A/93		08/11/08	08/12/08	BW	Gross Alpha in Liquid
			LIQUID	7858-002	93B/93		08/11/08	08/12/08	BW	Gross Beta in Liquid
		RC-088		7858-002	AM		08/12/08	08/12/08	BW	Americium 241 in Liquid
				7858-002	PU		08/12/08	08/12/08	BW	Plutonium-238,239/240, Liquid
				7858-002	SR		08/08/08	08/11/08	BW	Total Strontium in Liquids
				7858-002	TH		08/12/08	08/13/08	BW	Thorium, Isotopic in Liquid
				7858-002	U		08/11/08	08/12/08	BW	Uranium in Liquid
R808034-03	Method Blank			7858-003	93A/93		08/11/08	08/12/08	BW	Gross Alpha in Liquid
			LIQUID	7858-003	93B/93		08/11/08	08/12/08	BW	Gross Beta in Liquid
		RC-088		7858-003	AM		08/12/08	08/12/08	BW	Americium 241 in Liquid
				7858-003	PU		08/12/08	08/12/08	BW	Plutonium-238,239/240, Liquid
				7858-003	SR		08/08/08	08/12/08	BW	Total Strontium in Liquids
				7858-003	TH		08/13/08	08/13/08	BW	Thorium, Isotopic in Liquid
				7858-003	U		08/11/08	08/12/08	BW	Uranium in Liquid
R808034-04	Duplicate (R808034-01)			7858-004	93A/93		08/11/08	08/12/08	BW	Gross Alpha in Liquid
07/30/08	618-7 Burial Ground-drum		LIQUID	7858-004	93B/93		08/11/08	08/12/08	BW	Gross Beta in Liquid
08/05/08		RC-088		7858-004	AM		08/12/08	08/12/08	BW	Americium 241 in Liquid
				7858-004	PU		08/12/08	08/12/08	BW	Plutonium-238,239/240, Liquid
				7858-004	SR		08/08/08	08/11/08	BW	Total Strontium in Liquids
				7858-004	TH		08/12/08	08/13/08	BW	Thorium, Isotopic in Liquid
				7858-004	U		08/11/08	08/12/08	BW	Uranium in Liquid
R808034-05	J177M4-B			7858-005	93A/93		08/11/08	08/12/08	BW	Gross Alpha in Liquid
07/31/08	618-7 Burial Ground-drum		LIQUID	7858-005	93B/93		08/11/08	08/12/08	BW	Gross Beta in Liquid
08/06/08	RC-088-056	RC-088		7858-005	AM		08/12/08	08/12/08	BW	Americium 241 in Liquid
				7858-005	PU		08/11/08	08/12/08	BW	Plutonium-238,239/240, Liquid
				7858-005	SR		08/08/08	08/11/08	BW	Total Strontium in Liquids
				7858-005	TH		08/12/08	08/13/08	BW	Thorium, Isotopic in Liquid
				7858-005	U		08/11/08	08/12/08	BW	Uranium in Liquid

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-LWS
Version 3.06
Report date 08/14/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1291

SDG 7858
Contact Melissa C. Mannion

WORK SUMMARY, cont.

Client Hanford
Contract No. S00W235A00
Case no SDG K1291

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 Liquid	900.0_ALPHABETA_GPC	2			1	1	1	5
93B/93	RC-088	Gross Beta in Liquid	900.0_ALPHABETA_GPC	2			1	1	1	5
AM	RC-088	Americium 241 in Liquid	AMCMISO_IE_PLATE_AEA	2			1	1	1	5
PU	RC-088	Plutonium-238,239/240, Liquid	PUISO_PLATE_AEA	2			1	1	1	5
SR	RC-088	Total Strontium in Liquids	SRTOT_SEP_PRECIP_GPC	2			1	1	1	5
TH	RC-088	Thorium, Isotopic in Liquid	THISO_IE_PLATE_AEA	2			1	1	1	5
U	RC-088	Uranium in Liquid	UISO_PLATE_AEA	2			1	1	1	5
TOTALS				14			7	7	7	35

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-LWS
Version 3.06
Report date 08/14/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1291

7858-003 Method Blank

METHOD BLANK

SDG	7858	Client/Case no	Hanford	SDG K1291
Contact	Melissa C. Mannion	Contract	No. S00W235A00	
Lab sample id	R808034-03	Client sample id	Method Blank	
Dept sample id	7858-003	Material/Matrix		LIQUID
		SAF No	RC-088	

ANALYTE	CAS NO	RESULT pCi/mL	2σ ERR (COUNT)	MDA pCi/mL	RDL pCi/mL	QUALI-FIERS	TEST
Gross Alpha	12587-46-1	0.651	2.7	5.64	10.0	U	93A
Gross Beta	12587-47-2	-1.32	5.0	8.87	15.0	U	93B
Total Strontium	SR-RAD	0.094	0.12	0.219	1.00	U	SR
Americium 241	14596-10-2	0	0.21	0.407	1.00	U	AM
Thorium 228	14274-82-9	0.056	0.17	0.311	1.00	U	TH
Thorium 230	14269-63-7	0.112	0.17	0.215	1.00	U	TH
Thorium 232	TH-232	-0.028	0.056	0.215	1.00	U	TH
Uranium 233/234	U-233/234	-0.003	0.013	0.024	1.00	U	U
Uranium 235	15117-96-1	0	0.008	0.029	1.00	U	U
Uranium 238	U-238	0.003	0.006	0.024	1.00	U	U
Plutonium 238	13981-16-3	0.044	0.073	0.123	1.00	U	PU
Plutonium 239/240	PU-239/240	-0.015	0.029	0.089	1.00	U	PU

618-7 Burial Ground - Other

QC-BLANK #66739

Lab id	EBRLNE
Protocol	Hanford1
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	08/14/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1291

7858-002 Lab Control Sample

LAB CONTROL SAMPLE

SDG 7858 Client/Case no Hanford SDG K1291

Contact Melissa C. Mannion Contract No. S00W235A00

Lab sample id R808034-02 Client sample id Lab Control Sample

Dept sample id 7858-002 Material/Matrix LIQUID

SAF No RC-088

ANALYTE	RESULT pCi/mL	2σ ERR (COUNT)	MDA pCi/mL	RDL pCi/mL	QUALI-FIERS	TEST	ADDED pCi/mL	2σ ERR pCi/mL	REC %	3σ LMTS (TOTAL)	PROTOCOL LIMITS
Gross Alpha	120	17	5.57	10.0		93A	102	4.1	118	55-145	70-130
Gross Beta	87.7	7.2	5.63	15.0		93B	92.8	3.7	94	80-120	70-130
Total Strontium	9.93	0.60	0.280	1.00		SR	9.28	0.37	107	80-120	80-120
Americium 241	20.8	2.6	0.327	1.00		AM	20.4	0.82	102	77-123	80-120
Thorium 230	34.0	3.3	0.297	1.00		TH	37.8	1.5	90	82-118	80-120
Uranium 233/234	17.1	0.72	0.311	1.00		U	18.6	0.74	92	86-114	80-120
Uranium 235	13.7	0.62	0.031	1.00		U	15.1	0.60	91	86-114	80-120
Uranium 238	17.6	0.73	0.297	1.00		U	20.2	0.81	87	87-113	80-120
Plutonium 238	22.6	1.2	0.193	1.00		PU	25.0	1.0	90	86-114	80-120
Plutonium 239/240	26.3	1.3	0.081	1.00		PU	26.4	1.1	100	85-115	80-120

618-7 Burial Ground - Other

QC-LCS #66738

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-LCS
Version 3.06
Report date 08/14/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1291

7858-004 J177M2-B

DUPLICATE

SDG 7858
Contact Melissa C. Mannion

DUPLICATE
Lab sample id R808034-04
Dept sample id 7858-004

ORIGINAL
Lab sample id R808034-01
Dept sample id 7858-001
Received 08/05/08

Client/Case no Hanford SDG K1291
Contract No. S00W235A00
Client sample id J177M2-B
Location/Matrix 618-7 Burial Ground-drum LIQUID
Collected/Volume 07/30/08 13:10 0.481 L
Custody/SAF No RC-088-055 RC-088

ANALYTE	DUPLICATE pCi/mL	2σ ERR (COUNT)	MDA pCi/mL	RDL pCi/mL	QUALI-FIERS	TEST	ORIGINAL pCi/mL	2σ ERR (COUNT)	MDA pCi/mL	QUALI-FIERS	RPD %	3σ TOT	DER σ
Gross Alpha	1.12	1.2	1.80	10.0	U	93A	2.13	1.5	1.80		62	183	1.0
Gross Beta	4.82	4.6	7.71	15.0	U	93B	2.04	4.5	7.71	U	-		0.9
Total Strontium	-0.070	0.13	0.299	1.00	U	SR	0.037	0.16	0.315	U	-		1.0
Americium 241	0.162	0.24	0.387	1.00	U	AM	0.082	0.33	0.629	U	-		0.4
Thorium 228	0	0.14	0.337	1.00	U	TH	-0.088	0.18	0.450	U	-		0.8
Thorium 230	-0.035	0.21	0.336	1.00	U	TH	-0.117	0.12	0.280	U	-		0.7
Thorium 232	0	0.070	0.268	1.00	U	TH	-0.029	0.059	0.224	U	-		0.6
Uranium 233/234	0.478	0.090	0.031	1.00		U	0.518	0.086	0.034		8	41	0.6
Uranium 235	0.054	0.039	0.037	1.00		U	0.068	0.034	0.033		23	128	0.5
Uranium 238	0.358	0.081	0.044	1.00		U	0.381	0.078	0.034		6	49	0.4
Plutonium 238	0.036	0.087	0.143	1.00	U	PU	0.305	0.37	0.467	U	-		1.4
Plutonium 239/240	0.109	0.058	0.055	1.00		PU	0.183	0.24	0.467	U	51	254	0.6

618-7 Burial Ground - Other

QC-DUP#1 66740

Matrix: Other Liquid

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-DUP
Version 3.06
Report date 08/14/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1291

7858-001 J177M2-B

DATA SHEET

SDG	7858	Client/Case no	Hanford	SDG K1291	
Contact	Melissa C. Mannion	Contract	No. S00W235A00		
Lab sample id	R808034-01	Client sample id	J177M2-B		
Dept sample id	7858-001	Location/Matrix	618-7 Burial Ground-drum	LIQUID	
Received	08/05/08	Collected/Volume	07/30/08 13:10	0.481 L	
		Custody/SAF No	RC-088-055	RC-088	

ANALYTE	CAS NO	RESULT pCi/mL	2σ ERR (COUNT)	MDA pCi/mL	RDL pCi/mL	QUALI-FIERS	TEST
Gross Alpha	12587-46-1	2.13	1.5	1.80	10.0		93A
Gross Beta	12587-47-2	2.04	4.5	7.71	15.0	U	93B
Total Strontium	SR-RAD	0.037	0.16	0.315	1.00	U	SR
Americium 241	14596-10-2	0.082	0.33	0.629	1.00	U	AM
Thorium 228	14274-82-9	-0.088	0.18	0.450	1.00	U	TH
Thorium 230	14269-63-7	-0.117	0.12	0.280	1.00	U	TH
Thorium 232	TH-232	-0.029	0.059	0.224	1.00	U	TH
Uranium 233/234	U-233/234	0.518	0.086	0.034	1.00		U
Uranium 235	15117-96-1	0.068	0.034	0.033	1.00		U
Uranium 238	U-238	0.381	0.078	0.034	1.00		U
Plutonium 238	13981-16-3	0.305	0.37	0.467	1.00	U	PU
Plutonium 239/240	PU-239/240	0.183	0.24	0.467	1.00	U	PU

618-7 Burial Ground - Other

Matrix: Other Liquid

Lab id	EBRLNE
Protocol	Hanford1
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	08/14/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1291

7858-005 J177M4-B

DATA SHEET

SDG	7858	Client/Case no	Hanford SDG K1291
Contact	Melissa C. Mannion	Contract	No. S00W235A00
Lab sample id	R808034-05	Client sample id	J177M4-B
Dept sample id	7858-005	Location/Matrix	618-7 Burial Ground-drum LIQUID
Received	08/06/08	Collected/Volume	07/31/08 15:10 0.504 L
		Custody/SAF No	RC-088-056 RC-088

ANALYTE	CAS NO	RESULT pCi/mL	2σ ERR (COUNT)	MDA pCi/mL	RDL pCi/mL	QUALI-FIERS	TEST
Gross Alpha	12587-46-1	0.408	0.96	1.82	10.0	U	93A
Gross Beta	12587-47-2	-1.29	2.6	4.82	15.0	U	93B
Total Strontium	SR-RAD	-0.064	0.14	0.286	1.00	U	SR
Americium 241	14596-10-2	-0.042	0.17	0.405	1.00	U	AM
Thorium 228	14274-82-9	0	0.17	0.315	1.00	U	TH
Thorium 230	14269-63-7	0.028	0.17	0.217	1.00	U	TH
Thorium 232	TH-232	-0.028	0.057	0.217	1.00	U	TH
Uranium 233/234	U-233/234	0.126	0.047	0.030	1.00		U
Uranium 235	15117-96-1	0	0.019	0.036	1.00	U	U
Uranium 238	U-238	0.161	0.048	0.030	1.00		U
Plutonium 238	13981-16-3	0.063	0.090	0.146	1.00	U	PU
Plutonium 239/240	PU-239/240	0.027	0.054	0.086	1.00	U	PU

618-7 Burial Ground - Other

Matrix: Other Liquid

Lab id	EBRLNE
Protocol	Hanford1
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	08/14/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1291

Test AM	Matrix LIQUID
SDG 7858	
Contact Melissa C. Mannion	

LAB METHOD SUMMARY

AMERICIUM 241 IN LIQUID

ALPHA SPECTROSCOPY

Client Hanford	
Contract No. S00W235A00	
Contract SDG K1291	

RESULTS

LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Americium 241	
Preparation batch 6160-053						
R808034-01			7858-001	J177M2-B	U	
R808034-02			7858-002	LCS (QC ID=66738)	ok	
R808034-03			7858-003	BLK (QC ID=66739)	U	
R808034-04			7858-004	Duplicate (R808034-01)	-	U
R808034-05			7858-005	J177M4-B	U	

Nominal values and limits from method RDLs (pCi/mL) 1.00

618-7 Burial Ground - Other

METHOD PERFORMANCE

LAB SAMPLE ID	RAW TEST	SUF-FIX	CLIENT SAMPLE ID	MDA pCi/mL	ALIQ mL	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 6160-053			2σ prep error 8.0 %	Reference Lab Notebook #6160, pg. 053												
R808034-01			J177M2-B	0.629	0.535			31		115			13	08/09/08	08/12	SS-040
R808034-02			LCS (QC ID=66738)	0.327	0.500			60		108				08/09/08	08/12	SS-031
R808034-03			BLK (QC ID=66739)	0.407	0.500			46		108				08/09/08	08/12	SS-032
R808034-04			Duplicate (R808034-01) (QC ID=66740)	0.387	0.535			50		108			13	08/09/08	08/12	SS-033
R808034-05			J177M4-B	0.405	0.559			56		108			12	08/09/08	08/12	SS-034
Nominal values and limits from method				1.00	0.500			20-105		50	100		180			

PROCEDURES	REFERENCE	AMCMISO_IE_PLATE_AEA
	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	MDA	0.431	± 0.231
FOR 5 SAMPLES	YIELD	49	± 22

Lab id	EBRLNE
Protocol	Hanford1
Version	Ver 1.0
Form	DVD-LMS
Version	3.06
Report date	08/14/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1291

Test PU Matrix LIQUID
SDG 7858
Contact Melissa C. Mannion

LAB METHOD SUMMARY

PLUTONIUM-238,239/240, LIQUID

ALPHA SPECTROSCOPY

Client Hanford
Contract No. S00W235A00
Contract SDG K1291

RESULTS

LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Plutonium 238		Plutonium 239/240
Preparation batch 6160-053							
R808034-01			7858-001	J177M2-B	U		U
R808034-02			7858-002	LCS (QC ID=66738)	ok		ok
R808034-03			7858-003	BLK (QC ID=66739)	U		U
R808034-04			7858-004	Duplicate (R808034-01)	-	U	ok
R808034-05			7858-005	J177M4-B	U		U
Nominal values and limits from method				RDLs (pCi/mL)	1.00		1.00
618-7 Burial Ground - Other							

METHOD PERFORMANCE

LAB SAMPLE ID	RAW TEST	SUF-FIX	CLIENT SAMPLE ID	MAX MDA pCi/mL	ALIQ mL	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 6160-053			2σ prep error 8.0 % Reference Lab Notebook #6160, pg. 053													
R808034-01			J177M2-B	0.467	0.535			36		114			13	08/11/08	08/12	SS-042
R808034-02			LCS (QC ID=66738)	0.193	0.500			44		694				08/11/08	08/12	SS-055
R808034-03			BLK (QC ID=66739)	0.123	0.500			47		692				08/11/08	08/12	SS-061
R808034-04			Duplicate (R808034-01) (QC ID=66740)	0.143	0.535			49		693			13	08/11/08	08/12	SS-062
R808034-05			J177M4-B	0.146	0.559			43		692			11	08/11/08	08/11	SS-063
Nominal values and limits from method				1.00	0.500			20-105		50			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	MDA	0.214 ±	0.287
FOR 5 SAMPLES	YIELD	44 ±	10

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 08/14/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1291

Test TH Matrix LIQUID
SDG 7858
Contact Melissa C. Mannion

LAB METHOD SUMMARY

THORIUM, ISOTOPIC IN LIQUID

ALPHA SPECTROSCOPY

Client Hanford
Contract No. S00W235A00
Contract SDG K1291

RESULTS

LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Thorium 230	
Preparation batch 6160-053						
R808034-01			7858-001	J177M2-B	U	
R808034-02			7858-002	LCS (QC ID=66738)	ok	
R808034-03			7858-003	BLK (QC ID=66739)	U	
R808034-04			7858-004	Duplicate (R808034-01)	-	U
R808034-05			7858-005	J177M4-B	U	

Nominal values and limits from method RDLs (pCi/mL) 1.00
618-7 Burial Ground - Other

METHOD PERFORMANCE

LAB SAMPLE ID	RAW TEST	SUF-FIX	CLIENT SAMPLE ID	MAX MDA pCi/mL	ALIQ mL	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 6160-053			2σ prep error 8.0 % Reference Lab Notebook #6160, pg. 053													
R808034-01			J177M2-B	0.450	0.267			99		153			13	08/11/08	08/12	SS-035
R808034-02			LCS (QC ID=66738)	0.297	0.250			98		154				08/11/08	08/12	SS-037
R808034-03			BLK (QC ID=66739)	0.311	0.250			103		163				08/11/08	08/13	SS-061
R808034-04			Duplicate (R808034-01) (QC ID=66740)	0.337	0.267			101		156			13	08/11/08	08/12	SS-063
R808034-05			J177M4-B	0.315	0.279			96		156			12	08/11/08	08/12	SS-061
Nominal values and limits from method				1.00	0.250			20-110		100	100		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 5 SAMPLES
MDA 0.342 ± 0.124
YIELD 99 ± 5

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 08/14/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1291

Test U Matrix LIQUID
SDG 7858
Contact Melissa C. Mannion

LAB METHOD SUMMARY

URANIUM IN LIQUID
ALPHA SPECTROSCOPY

Client Hanford
Contract No. S00W235A00
Contract SDG K1291

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 6160-053											
R808034-01			7858-001	J177M2-B	0.518	0.068	0.381	136	36	18	10
R808034-02			7858-002	LCS (QC ID=66738)	ok	ok	ok				
R808034-03			7858-003	BLK (QC ID=66739)	U	U	U				
R808034-04			7858-004	Duplicate (R808034-01)	ok	ok	ok	134	39	15	11
R808034-05			7858-005	J177M4-B	0.126	U	0.161	78	37	0	12
Nominal values and limits from method				RDLs (pCi/mL)	1.00	1.00	1.00				
618-7 Burial Ground - Other								Averages 116		11	

METHOD PERFORMANCE

LAB SAMPLE ID	RAW TEST	SUF-FIX	CLIENT SAMPLE ID	MAX MDA pCi/mL	ALIQ mL	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 6160-053 2σ prep error 8.0 % Reference Lab Notebook #6160, pg. 053																
R808034-01			J177M2-B	0.034	0.535			92		694			12	08/09/08	08/11	SS-056
R808034-02			LCS (QC ID=66738)	0.311	0.500			87		694				08/09/08	08/11	SS-057
R808034-03			BLK (QC ID=66739)	0.029	0.500			101		694				08/09/08	08/11	SS-058
R808034-04			Duplicate (R808034-01) (QC ID=66740)	0.044	0.535			88		693			12	08/09/08	08/11	SS-065
R808034-05			J177M4-B	0.036	0.559			91		693			11	08/09/08	08/11	SS-066
Nominal values and limits from method				1.00	0.500					100			180			

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

AVERAGES ± 2 SD FOR 5 SAMPLES
MDA 0.091 ± 0.246
YIELD 92 ± 11

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 08/14/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1291

Test	SR
Matrix	LIQUID
SDG	7858
Contact	Melissa C. Mannion

LAB METHOD SUMMARY

TOTAL STRONTIUM IN LIQUIDS

BETA COUNTING

Client	Hanford
Contract	No. S00W235A00
Contract	SDG K1291

RESULTS

LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Total Strontium	
Preparation batch 6160-053						
R808034-01			7858-001	J177M2-B	U	
R808034-02			7858-002	LCS (QC ID=66738)	ok	
R808034-03			7858-003	BLK (QC ID=66739)	U	
R808034-04			7858-004	Duplicate (R808034-01)	-	U
R808034-05			7858-005	J177M4-B	U	

Nominal values and limits from method RDLs (pCi/mL) 1.00

618-7 Burial Ground - Other

METHOD PERFORMANCE

LAB SAMPLE ID	RAW TEST	SUF-FIX	CLIENT SAMPLE ID	MDA pCi/mL	ALIQ mL	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 6160-053 2σ prep error 10.4 % Reference Lab Notebook #6160, pg. 053																
R808034-01			J177M2-B	0.315	1.07			92		100			9	08/08/08	08/08	GRB-229
R808034-02			LCS (QC ID=66738)	0.280	1.00			91		100				08/08/08	08/08	GRB-231
R808034-03			BLK (QC ID=66739)	0.219	1.00			94		100				08/08/08	08/08	GRB-217
R808034-04			Duplicate (R808034-01) (QC ID=66740)	0.299	1.07			90		100			9	08/08/08	08/08	GRB-232
R808034-05			J177M4-B	0.286	1.12			93		100			8	08/08/08	08/08	GRB-225
Nominal values and limits from method				1.00	1.00					100			180			

PROCEDURES	REFERENCE	SRTOT_SEP_PRECIP_GPC
	SPP-071	Soil Dissolution, > 1.0g Aliquot, rev 5
	CP-383	Strontium in Dissolved Solid of < 5.0g Aliquot, rev 1

AVERAGES ± 2 SD FOR 5 SAMPLES	MDA	0.280	±	0.073
	YIELD	92	±	3

Lab id	EBRLNE
Protocol	Hanford1
Version	Ver 1.0
Form	DVD-LMS
Version	3.06
Report date	08/14/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1291

Test 93A Matrix LIQUID
SDG 7858
Contact Melissa C. Mannion

LAB METHOD SUMMARY

GROSS ALPHA IN LIQUID
GAS PROPORTIONAL COUNTING

Client Hanford
Contract No. S00W235A00
Contract SDG K1291

RESULTS

LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Gross Alpha	
Preparation batch 6160-053						
R808034-01	93		7858-001	J177M2-B	2.13	
R808034-02	93		7858-002	LCS (QC ID=66738)	ok	
R808034-03	93		7858-003	BLK (QC ID=66739)	U	
R808034-04	93		7858-004	Duplicate (R808034-01)	ok	U
R808034-05	93		7858-005	J177M4-B	U	

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

METHOD PERFORMANCE

LAB SAMPLE ID	RAW TEST	SUF-FIX	CLIENT SAMPLE ID	MDA pCi/mL	ALIQ mL	PREP FAC	DILU-TION	RESID mg	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 6160-053			2σ prep error 20.6 % Reference Lab Notebook #6160, pg. 053													
R808034-01	93		J177M2-B	1.80	0.107			0		100			12	08/09/08	08/11	GRB-214
R808034-02	93		LCS (QC ID=66738)	5.57	0.100			59		100				08/09/08	08/11	GRB-216
R808034-03	93		BLK (QC ID=66739)	5.64	0.100			62		100				08/09/08	08/11	GRB-213
R808034-04	93		Duplicate (R808034-01) (QC ID=66740)	1.80	0.107			0		100			12	08/09/08	08/11	GRB-214
R808034-05	93		J177M4-B	1.82	0.112			3		100			11	08/09/08	08/11	GRB-216
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-120	Gross Alpha and Gross Beta in Water, rev 0

AVERAGES ± 2 SD FOR 5 SAMPLES				
MDA	3.33	±	4.16
RESIDUE	25	±	65

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 08/14/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1291

Test 93B Matrix LIQUID
SDG 7858
Contact Melissa C. Mannion

LAB METHOD SUMMARY

GROSS BETA IN LIQUID
GAS PROPORTIONAL COUNTING

Client Hanford
Contract No. S00W235A00
Contract SDG K1291

RESULTS

LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Gross Beta	
Preparation batch 6160-053						
R808034-01	93		7858-001	J177M2-B	U	
R808034-02	93		7858-002	LCS (QC ID=66738)	ok	
R808034-03	93		7858-003	BLK (QC ID=66739)	U	
R808034-04	93		7858-004	Duplicate (R808034-01)	-	U
R808034-05	93		7858-005	J177M4-B	U	

Nominal values and limits from method RDLs (pCi/mL) 15.0
618-7 Burial Ground - Other

METHOD PERFORMANCE

LAB SAMPLE ID	RAW TEST	SUF-FIX	CLIENT SAMPLE ID	MDA pCi/mL	ALIQ mL	PREP FAC	DILU-TION	RESID mg	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 6160-053			2σ prep error 11.0 % Reference Lab Notebook #6160, pg. 053													
R808034-01	93		J177M2-B	7.71	0.107			0		100			12	08/09/08	08/11	GRB-214
R808034-02	93		LCS (QC ID=66738)	5.63	0.100			59		100				08/09/08	08/11	GRB-216
R808034-03	93		BLK (QC ID=66739)	8.87	0.100			62		100				08/09/08	08/11	GRB-213
R808034-04	93		Duplicate (R808034-01) (QC ID=66740)	7.71	0.107			0		100			12	08/09/08	08/11	GRB-214
R808034-05	93		J177M4-B	4.82	0.112			3		100			11	08/09/08	08/11	GRB-216
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-120	Gross Alpha and Gross Beta in Water, rev 0

AVERAGES ± 2 SD FOR 5 SAMPLES
MDA 6.95 ± 3.33
RESIDUE 25 ± 65

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 08/14/08

SDG	7858
Contact	Melissa C. Mannion

REPORT GUIDE

Client	Hanford
Contract	No. S00W235A00
Case no	SDG K1291

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	08/14/08

SDG 7858
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG K1291

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 08/14/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1291

SDG	7858
Contact	Melissa C. Mannion

REPORT GUIDE

Client	Hanford
Contract	No. S00W235A00
Case no	SDG K1291

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	08/14/08

SDG 7858
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG K1291

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
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 08/14/08

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 7858
Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford
Contract No. S00W235A00
Case no SDG_K1291

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 08/14/08

SDG 7858
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG K1291

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 08/14/08

SDG 7858
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG K1291

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.

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
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Version 3.06
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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 7858
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG K1291

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

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
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Report date 08/14/08

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.

SDG 7858
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG_K1291

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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Protocol Hanford1
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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-088-055	Page 1 of 1

Collector B. Lawrence / E. Harries	**Company Contact** Joan Kessner	**Telephone No.** 509-375-4688	**Project Coordinator** KESSNER, JH
Price Code 8F 9F	**Data Turnaround** ~~15~~ 7 Days RTC 7/30/08		
Project Designation 618-7 Burial Ground - Other	**Sampling Location** 618-7 Burial Ground (drums) ~~K1289~~ (7858)	**SAF No.** RC-088	
Ice Chest No. ERC-02-003	**Field Logbook No.** EL-1395-12	**COA** RG61878500 K1291	**Method of Shipment** Fed Ex
Shipped To EBERLINE SERVICES / LIONVILLE	**Offsite Property No.** A080323		**Bill of Lading/Air Bill No.** SECOSPC

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	1	1	1	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.					PIN #

MCM 8/6/08

Sample No.	Matrix *	Sample Date	Sample Time									
~~J177M1~~	~~OTHER LIQUID~~											
J177M2 - B	OTHER LIQUID	7/30/08	1310				X				DRUM	5146
~~J177M3~~	~~OTHER LIQUID~~	7/30/08	1325				X				B-18	3118

CHAIN OF POSSESSION	Sign/Print Names	
Relinquished By/Removed From [signature]	Date/Time 1500 7-30-08	Received By/Stored In RTCOFFMAN / RTCoffman 7/30/08 Date/Time 1500
Relinquished By/Removed From RTCOFFMAN / RTCoffman 7/30/08	Date/Time 1700	Received By/Stored In REFER #1A, 1060 7/30/08 Date/Time 1700
Relinquished By/Removed From 1060/1A 0930 AUG 04 2008	Date/Time	Received By/Stored In MSTankovich AUG 04 2008 Date/Time 0930
Relinquished By/Removed From MSTankovich AUG 04 2008	Date/Time 0930	Received By/Stored In FED EX Date/Time
Relinquished By/Removed From FED EX	Date/Time	Received By/Stored In [signature] 08/05/08 09:00 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

Sampler unavailable to remove samples from controlled storage. Shipper removed samples from storage location taking custody of samples for shipment to lab.

JPD

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

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

WCH-EE-011

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-088-056	Page 1 of 1

Collector B. Lawrence / E. Harries	**Company Contact** Joan Kessner	**Telephone No.** 509-375-4688	**Project Coordinator** KESSNER, JH
Project Designation 618-7 Burial Ground - Other Liquids	**Sampling Location** 618-7 Burial Ground (drums) K1291 (7858)		**SAF No.** RC-088
Ice Chest No. SML-461	**Field Logbook No.** EL-1395-12	**COA** RG61878500	**Method of Shipment** Fed Ex
Shipped To EBERLINE SERVICES / LIONVILLE	**Offsite Property No.** A080324		**Bill of Lading/Air Bill No.** See OSPC

Price Code 9F

Data Turnaround ~~15~~ 7 Days 7/31/08

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	1	1	1	1					
Volume	250mL	125mL	125mL	60mL	500mL					
SAMPLE ANALYSIS MCM 8/6/8	Semi-VOA - 8270A (TCL)	PCBs - 8082	See item (1) in Special Instructions.	Ignitability - 1010	See item (2) in Special Instructions.				RLF#	Drum

Sample No.	Matrix *	Sample Date	Sample Time										
J177M4 – B	OTHER LIQUID	7-31-08	~~1310~~ 1510 JRD 7-31-08	JRD 7-31-08				X				J177K4	5204
~~J177M5~~	~~OTHER LIQUID~~	JRD 7-31-08											
~~J177M6~~	~~OTHER LIQUID~~												
~~J177M7~~	~~OTHER LIQUID~~												

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

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
[signature]	1530 7-31-08	JRD Bvigne JRD Bvigne	1530 7-31-08
JRD Bvigne JRD Bvigne	1640 7-31-08	1060 1A	7-31-08 1640
1060/1A 0920	AUG 05 2008	[signature] mstanlouch	0920 AUG 05 2008
WCH [signature] mstanlouch	0920 AUG 05 2008	Fed Ex	
FED EX		[signature]	08/06/08 09:00

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

Sampler unavailable to remove samples from controlled storage. Shipper removed samples from storage location taking custody of samples for shipment to lab.

JRD

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

AK 8/5/08

Client: W.C. HANFORD City RICHLAND State WA

Date/Time received 08/05/08 09:00 CoC No. RC-088-055

Container I.D. No. ERC-02-003 Requested TAT (Days) 7 P.O. Received Yes [ ] No [X]

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 LIQUID
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: J177M2 - LIQUID
14. Was P.M. notified of any anomalies? Yes [ ] No [ ] Date _____
15. Inspected by [signature] Date: 08/05/08 Time: 10:15

Customer Sample No.	Beta/Gamma cpm	Ion Chamber mR/hr	Wipe	Customer Sample No.	Beta/Gamma cpm	Ion Chamber mR/hr	wipe
J177M2	260						

Ion Chamber Ser. No. _____ Calibration date _____

Alpha Meter Ser. No. _____ Calibration date _____

Beta/Gamma Meter Ser. No. 100487 Calibration date 10 JUL 08

EBERLINE SERVICES

EBERLINE ANALYTICAL CORPORATION
2030 Wright Avenue
Richmond, California 94804-3849
Phone (510) 235-2633 Fax (510) 235-0438
Toll Free (800) 841-5487
www.eberlineservices.com

August 15, 2008

RECEIVED AUG 2008

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

Reference: **P.O. #S00W235A00**
Eberline Services R8-08-042-7861, SDG K1291

Dear Ms. Kessner:

Enclosed is the data report for two solid (other solid) samples designated under SAF No. RC-088 received at Eberline Services on August 6, 2008. The samples were analyzed according to the accompanying chain-of-custody documents.

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 K1291 was composed of two solid (other solid) samples designated under SAF No. RC-088 with a Project Designation of: 618-7 Burial Ground-Other Solid.

Note: the samples were a mixture of oil and metal chips. The metal chips were separated from the oil and the metal chips analyzed alone. Results are reported in pCi/g.

The samples were received as stated on the Chain-of-Custody documents. Any discrepancies are noted on the Eberline Services Sample Receipt Checklist. The results were transmitted to WCH via e-mail on August 15, 2008.

2.0 ANALYSIS NOTES

2.1 Gross Alpha and Gross Beta Analysis

No problems were encountered during the course of the analysis.

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/~~27~~ 15/08

Date

1.0 GENERAL

Washington Closure Hanford (WCH) Sample Delivery Group K1291 was composed of two solid (other solid) samples designated under SAF No. RC-088 with a Project Designation of: 618-7 Burial Ground-Other Solid.

samples split. text. oil & metal chips

The samples were received as stated on the Chain-of-Custody documents. Any discrepancies are noted on the Eberline Services Sample Receipt Checklist. The results were transmitted to WCH via e-mail on August 15, 2008.

2.0 ANALYSIS NOTES

2.1 Gross Alpha and Gross Beta Analysis

No problems were encountered during the course of the analysis.

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 C. Mannion
Senior Program Manager

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 K1291

SDG	7861
Contact	Melissa C. Mannion

Client	Hanford
Contract	No. S00W235A00
Case no	SDG_K1291

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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End of Section	34

Prepared by

Melissa Mannion
Reviewed by

Lab id	EBRLNE
Protocol	Hanford1
Version	Ver 1.0
Form	DVD-TOC
Version	3.06
Report date	08/15/08

SDG	7861
Contact	Melissa C. Mannion

REPORT GUIDE

Client	Hanford
Contract	No. S00W235A00
Case no	SDG K1291

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	08/15/08

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 K1291

LAB SAMPLE SUMMARY

SDG 7861
Contact Melissa C. Mannion

Client Hanford
Contract No. S00W235A00
Case no SDG K1291

LAB SAMPLE ID	CLIENT SAMPLE ID	LOCATION	MATRIX	LEVEL	SAF NO	CHAIN OF CUSTODY	COLLECTED
R808042-01	J177M4-A	618-7 BurialGrnd(drums)	SOLID		RC-088	RC-088-056	07/31/08 15:10
R808042-02	J177M2-A	618-7 BurialGrnd(drums)	SOLID		RC-088	RC-088-056	07/30/08 13:10
R808042-03	Lab Control Sample		SOLID		RC-088		
R808042-04	Method Blank		SOLID		RC-088		
R808042-05	Duplicate (R808042-01)	618-7 BurialGrnd(drums)	SOLID		RC-088		07/31/08 15:10

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-LS
Version 3.06
Report date 08/15/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1291

QC SUMMARY

SDG 7861
Contact Melissa C. Mannion

Client Hanford
Contract No. S00W235A00
Case no SDG K1291

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
7861	RC-088-056	J177M2-A	SOLID	100.0	25 g		08/05/08	6	R808042-02	7861-002
		J177M4-A	SOLID	100.0	10 g		08/06/08	6	R808042-01	7861-001
		Method Blank	SOLID						R808042-04	7861-004
		Lab Control Sample	SOLID						R808042-03	7861-003
		Duplicate (R808042-01)	SOLID	100.0	10 g		08/06/08	6	R808042-05	7861-005

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-QS
Version 3.06
Report date 08/15/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1291

SDG 7861
Contact Melissa C. Mannion

PREP BATCH SUMMARY

Client Hanford
Contract No. S00W235A00
Case no SDG K1291

TEST	MATRIX	METHOD	PREPARATION BATCH	ERROR 2σ %	PLANCHETS ANALYZED CLIENT	MORE	RE	BLANK	LCS	DUP/ORIG	MS/ORIG	QUALIFIERS
Alpha Spectroscopy												
AM	SOLID	Americium 241 in Solids	6160-061	8.0	2			1	1	1/1		
PU	SOLID	Plutonium, Isotopic in Solids	6160-061	8.0	2			1	1	1/1		
TH	SOLID	Thorium, Isotopic in Solids	6160-061	8.0	2			1	1	1/1		
U	SOLID	Uranium, Isotopic in Solids	6160-061	8.0	2			1	1	1/1		
Beta Counting												
SR	SOLID	Total Strontium in Solids	6160-061	10.4	2			1	1	1/1		
Gas Proportional Counting												
93A	SOLID	Gross Alpha in Solids	6160-061	20.6	2			1	1	1/1		
93B	SOLID	Gross Beta in Solids	6160-061	11.0	2			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
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Report date 08/15/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1291

SDG 7861
Contact Melissa C. Mannion

LAB WORK SUMMARY

Client Hanford
Contract No. S00W235A00
Case no SDG K1291

LAB SAMPLE COLLECTED RECEIVED	CLIENT SAMPLE ID LOCATION CUSTODY	SAF No	MATRIX	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
R808042-01	J177M4-A			7861-001	93A/93		08/12/08	08/14/08	BW	Gross Alpha in Solids
07/31/08	618-7 BurialGrnd(drums)		SOLID	7861-001	93B/93		08/12/08	08/14/08	BW	Gross Beta in Solids
08/06/08	RC-088-056	RC-088		7861-001	AM		08/12/08	08/14/08	BW	Americium 241 in Solids
				7861-001	PU		08/12/08	08/13/08	BW	Plutonium, Isotopic in Solids
				7861-001	SR		08/11/08	08/14/08	BW	Total Strontium in Solids
				7861-001	TH		08/12/08	08/13/08	BW	Thorium, Isotopic in Solids
				7861-001	U		08/12/08	08/13/08	BW	Uranium, Isotopic in Solids
R808042-02	J177M2-A			7861-002	93A/93		08/13/08	08/14/08	BW	Gross Alpha in Solids
07/30/08	618-7 BurialGrnd(drums)		SOLID	7861-002	93B/93		08/13/08	08/14/08	BW	Gross Beta in Solids
08/05/08	RC-088-056	RC-088		7861-002	AM		08/12/08	08/14/08	BW	Americium 241 in Solids
				7861-002	PU		08/12/08	08/13/08	BW	Plutonium, Isotopic in Solids
				7861-002	SR		08/11/08	08/14/08	BW	Total Strontium in Solids
				7861-002	TH		08/12/08	08/13/08	BW	Thorium, Isotopic in Solids
				7861-002	U		08/12/08	08/13/08	BW	Uranium, Isotopic in Solids
R808042-03	Lab Control Sample			7861-003	93A/93		08/12/08	08/14/08	BW	Gross Alpha in Solids
			SOLID	7861-003	93B/93		08/12/08	08/14/08	BW	Gross Beta in Solids
		RC-088		7861-003	AM		08/12/08	08/14/08	BW	Americium 241 in Solids
				7861-003	PU		08/12/08	08/13/08	BW	Plutonium, Isotopic in Solids
				7861-003	SR		08/11/08	08/14/08	BW	Total Strontium in Solids
				7861-003	TH		08/12/08	08/13/08	BW	Thorium, Isotopic in Solids
				7861-003	U		08/13/08	08/13/08	BW	Uranium, Isotopic in Solids
R808042-04	Method Blank			7861-004	93A/93		08/12/08	08/14/08	BW	Gross Alpha in Solids
			SOLID	7861-004	93B/93		08/12/08	08/14/08	BW	Gross Beta in Solids
		RC-088		7861-004	AM		08/14/08	08/14/08	BW	Americium 241 in Solids
				7861-004	PU		08/12/08	08/13/08	BW	Plutonium, Isotopic in Solids
				7861-004	SR		08/11/08	08/14/08	BW	Total Strontium in Solids
				7861-004	TH		08/12/08	08/13/08	BW	Thorium, Isotopic in Solids
				7861-004	U		08/13/08	08/13/08	BW	Uranium, Isotopic in Solids
R808042-05	Duplicate (R808042-01)			7861-005	93A/93		08/12/08	08/14/08	BW	Gross Alpha in Solids
07/31/08	618-7 BurialGrnd(drums)		SOLID	7861-005	93B/93		08/12/08	08/14/08	BW	Gross Beta in Solids
08/06/08		RC-088		7861-005	AM		08/12/08	08/14/08	BW	Americium 241 in Solids
				7861-005	PU		08/12/08	08/13/08	BW	Plutonium, Isotopic in Solids
				7861-005	SR		08/11/08	08/14/08	BW	Total Strontium in Solids
				7861-005	TH		08/13/08	08/13/08	BW	Thorium, Isotopic in Solids
				7861-005	U		08/13/08	08/13/08	BW	Uranium, Isotopic in Solids

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-LWS
Version 3.06
Report date 08/15/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1291

SDG 7861
Contact Melissa C. Mannion

WORK SUMMARY, cont.

Client Hanford
Contract No. S00W235A00
Case no SDG K1291

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	2			1	1	1	5
93B/93	RC-088	Gross Beta in Solids	900.0_ALPHABETA_GPC	2			1	1	1	5
AM	RC-088	Americium 241 in Solids	AMCMISO_IE_PLATE_AEA	2			1	1	1	5
PU	RC-088	Plutonium, Isotopic in Solids	PUISO_PLATE_AEA	2			1	1	1	5
SR	RC-088	Total Strontium in Solids	SRTOT_SEP_PRECIP_GPC	2			1	1	1	5
TH	RC-088	Thorium, Isotopic in Solids	THISO_IE_PLATE_AEA	2			1	1	1	5
U	RC-088	Uranium, Isotopic in Solids	UISO_PLATE_AEA	2			1	1	1	5
TOTALS				14			7	7	7	35

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-LWS
Version 3.06
Report date 08/15/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1291

7861-004 Method Blank

METHOD BLANK

SDG	7861	Client/Case no	Hanford	SDG K1291	
Contact	Melissa C. Mannion	Contract	No. S00W235A00		
Lab sample id	R808042-04	Client sample id	Method Blank		
Dept sample id	7861-004	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	1.87	3.7	6.47	10.0	U	93A
Gross Beta	12587-47-2	-0.154	3.6	6.27	15.0	U	93B
Total Strontium	SR-RAD	0.075	0.15	0.291	1.00	U	SR
Americium 241	14596-10-2	0.030	0.059	0.113	1.00	U	AM
Thorium 228	14274-82-9	0.052	0.069	0.106	1.00	U	TH
Thorium 230	14269-63-7	-0.060	0.10	0.229	1.00	U	TH
Thorium 232	TH-232	-0.017	0.034	0.082	1.00	U	TH
Uranium 233/234	U-233/234	0.065	0.065	0.124	1.00	U	U
Uranium 235	15117-96-1	0	0.039	0.150	1.00	U	U
Uranium 238	U-238	0.016	0.032	0.124	1.00	U	U
Plutonium 238	13981-16-3	0.048	0.076	0.125	1.00	U	PU
Plutonium 239/240	PU-239/240	-0.005	0.019	0.053	1.00	U	PU

618-7 Burial Ground - Other Solid

QC-BLANK #66748

Lab id	EBRLNE
Protocol	Hanford1
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	08/15/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1291

7861-003

Lab Control Sample

LAB CONTROL SAMPLE

SDG 7861

Contact Melissa C. Mannion

Client/Case no Hanford SDG K1291

Contract No. S00W235A00

Lab sample id R808042-03

Dept sample id 7861-003

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	104	17	6.26	10.0		93A	102	4.1	102	59-141	70-130
Gross Beta	88.7	7.2	5.35	15.0		93B	92.8	3.7	96	80-120	80-120
Total Strontium	9.38	0.56	0.248	1.00		SR	9.28	0.37	101	81-119	80-120
Americium 241	20.9	1.2	0.106	1.00		AM	20.4	0.82	102	84-116	80-120
Thorium 230	35.1	1.7	0.225	1.00		TH	37.8	1.5	93	86-114	80-120
Uranium 233/234	16.9	1.5	0.696	1.00		U	18.6	0.74	91	83-117	80-120
Uranium 235	14.3	1.4	0.140	1.00		U	15.1	0.60	95	81-119	80-120
Uranium 238	17.1	1.5	0.669	1.00		U	20.2	0.81	85	84-116	80-120
Plutonium 238	22.6	0.99	0.102	1.00		PU	23.4	0.94	97	85-115	80-120
Plutonium 239/240	25.7	1.1	0.040	1.00		PU	26.4	1.1	97	85-115	80-120

618-7 Burial Ground - Other Solid

QC-LCS #66747

Lab id EBRLNE

Protocol Hanford1

Version Ver 1.0

Form DVD-LCS

Version 3.06

Report date 08/15/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1291

7861-005 J177M4-A

DUPLICATE

SDG	7861			Client/Case no	Hanford SDG K1291
Contact	Melissa C. Mannion			Contract	No. S00W235A00
	DUPLICATE		ORIGINAL		
Lab sample id	R808042-05	Lab sample id	R808042-01	Client sample id	J177M4-A
Dept sample id	7861-005	Dept sample id	7861-001	Location/Matrix	618-7 BurialGrnd(drums) SOLID
		Received	08/06/08	Collected/Weight	07/31/08 15:10 10 g
% solids	100.0	% solids	100.0	Custody/SAF No	RC-088-056 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	2.46	1.7	1.79	10.0		93A	1.50	0.84	1.13		48	150	1.0
Gross Beta	3.43	3.2	5.17	15.0	U	93B	1.63	2.2	3.56	U	-		0.9
Total Strontium	-0.076	0.11	0.254	1.00	U	SR	0.085	0.13	0.244	U	-		1.9
Americium 241	0.060	0.060	0.085	1.00	U	AM	-0.020	0.12	0.222	U	-		1.2
Thorium 228	0.106	0.16	0.202	1.00	U	TH	0.095	0.088	0.140	U	-		0.1
Thorium 230	-0.026	0.16	0.352	1.00	U	TH	-0.063	0.10	0.204	U	-		0.4
Thorium 232	0	0.053	0.201	1.00	U	TH	-0.006	0.025	0.060	U	-		0.2
Uranium 233/234	0.928	0.24	0.111	1.00		U	0.997	0.12	0.045		7	45	0.5
Uranium 235	0.088	0.070	0.134	1.00	U	U	0.122	0.049	0.031		32	123	0.8
Uranium 238	0.798	0.24	0.111	1.00		U	0.731	0.10	0.041		9	54	0.5
Plutonium 238	0.066	0.055	0.093	1.00	U	PU	-0.046	0.072	0.148	U	-		2.5
Plutonium 239/240	-0.005	0.033	0.068	1.00	U	PU	0.026	0.031	0.039	U	-		1.4

618-7 Burial Ground - Other Solid

QC-DUP#1 66749

Lab id	EBRLNE
Protocol	Hanford1
Version	Ver 1.0
Form	DVD-DUP
Version	3.06
Report date	08/15/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1291

7861-001 J177M4-A

DATA SHEET

SDG	7861	Client/Case no	Hanford	SDG K1291	
Contact	Melissa C. Mannion	Contract	No. S00W235A00		
Lab sample id	R808042-01	Client sample id	J177M4-A		
Dept sample id	7861-001	Location/Matrix	618-7 BurialGrnd(drums)	SOLID	
Received	08/06/08	Collected/Weight	07/31/08 15:10	10 g	
% solids	100.0	Custody/SAF No	RC-088-056	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	1.50	0.84	1.13	10.0		93A
Gross Beta	12587-47-2	1.63	2.2	3.56	15.0	U	93B
Total Strontium	SR-RAD	0.085	0.13	0.244	1.00	U	SR
Americium 241	14596-10-2	-0.020	0.12	0.222	1.00	U	AM
Thorium 228	14274-82-9	0.095	0.088	0.140	1.00	U	TH
Thorium 230	14269-63-7	-0.063	0.10	0.204	1.00	U	TH
Thorium 232	TH-232	-0.006	0.025	0.060	1.00	U	TH
Uranium 233/234	U-233/234	0.997	0.12	0.045	1.00		U
Uranium 235	15117-96-1	0.122	0.049	0.031	1.00		U
Uranium 238	U-238	0.731	0.10	0.041	1.00		U
Plutonium 238	13981-16-3	-0.046	0.072	0.148	1.00	U	PU
Plutonium 239/240	PU-239/240	0.026	0.031	0.039	1.00	U	PU

618-7 Burial Ground - Other Solid

Lab id	EBRLNE
Protocol	Hanford1
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	08/15/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1291

7861-002 J177M2-A

DATA SHEET

SDG	7861	Client/Case no	Hanford	SDG K1291	
Contact	Melissa C. Mannion	Contract	No. S00W235A00		
Lab sample id	R808042-02	Client sample id	J177M2-A		
Dept sample id	7861-002	Location/Matrix	618-7 BurialGrnd(drums)	SOLID	
Received	08/05/08	Collected/Weight	07/30/08 13:10	25 g	
% solids	100.0	Custody/SAF No	RC-088-056	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	0.772	0.69	1.00	10.0	U	93A
Gross Beta	12587-47-2	0.667	1.6	2.60	15.0	U	93B
Total Strontium	SR-RAD	0.073	0.14	0.271	1.00	U	SR
Americium 241	14596-10-2	0.011	0.057	0.096	1.00	U	AM
Thorium 228	14274-82-9	0.110	0.11	0.163	1.00	U	TH
Thorium 230	14269-63-7	-0.073	0.11	0.218	1.00	U	TH
Thorium 232	TH-232	0	0.037	0.070	1.00	U	TH
Uranium 233/234	U-233/234	0.449	0.082	0.037	1.00		U
Uranium 235	15117-96-1	0.061	0.033	0.031	1.00		U
Uranium 238	U-238	0.192	0.054	0.032	1.00		U
Plutonium 238	13981-16-3	0.107	0.090	0.134	1.00	U	PU
Plutonium 239/240	PU-239/240	0	0.023	0.062	1.00	U	PU

618-7 Burial Ground - Other Solid

Lab id	EBRLNE
Protocol	Hanford1
Version	Ver 1.0
Form	DVD-DS
Version	3.06
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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1291

Test	AM
Matrix	SOLID
SDG	7861
Contact	Melissa C. Mannion

LAB METHOD SUMMARY

AMERICIUM 241 IN SOLIDS

ALPHA SPECTROSCOPY

Client	Hanford
Contract	No. S00W235A00
Contract	SDG K1291

RESULTS

LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Americium 241	
Preparation batch 6160-061						
R808042-01			7861-001	J177M4-A	U	
R808042-02			7861-002	J177M2-A	U	
R808042-03			7861-003	Lab Control Sample	ok	
R808042-04			7861-004	Method Blank	U	
R808042-05			7861-005	Duplicate (R808042-01)	-	U

Nominal values and limits from method RDLs (pCi/g) 1.00

618-7 Burial Ground - Other Solid

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 6160-061 2σ prep error 8.0 % Reference Lab Notebook #6160, pg. 61																
R808042-01			J177M4-A	0.222	0.500			80		138			12	08/11/08	08/12	SS-027
R808042-02			J177M2-A	0.096	0.500			59		700			13	08/11/08	08/12	SS-037
R808042-03			Lab Control Sample	0.106	0.500			52		700				08/11/08	08/12	SS-040
R808042-04			Method Blank	0.113	0.500			45		320				08/11/08	08/14	SS-051
R808042-05			Duplicate (R808042-01)	0.085	0.500			82		687			12	08/11/08	08/12	SS-056
Nominal values and limits from method				1.00	0.500			20-105		100	100		180			

PROCEDURES	REFERENCE	AMCMISO_IE_PLATE_AEA
	SPP-073	Soil Leaching 10-200 g Aliquot, rev 0
	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 5 SAMPLES				
MDA	0.124	±	0.111
YIELD	64	±	33

Lab id	EBRLNE
Protocol	Hanford1
Version	Ver 1.0
Form	DVD-LMS
Version	3.06
Report date	08/15/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1291

Test PU Matrix SOLID
SDG 7861
Contact Melissa C. Mannion

LAB METHOD SUMMARY

PLUTONIUM, ISOTOPIC IN SOLIDS

ALPHA SPECTROSCOPY

Client Hanford
Contract No. S00W235A00
Contract SDG K1291

RESULTS

LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Plutonium 238		Plutonium 239/240	
Preparation batch 6160-061								
R808042-01			7861-001	J177M4-A	U		U	
R808042-02			7861-002	J177M2-A	U		U	
R808042-03			7861-003	Lab Control Sample	ok		ok	
R808042-04			7861-004	Method Blank	U		U	
R808042-05			7861-005	Duplicate (R808042-01)	-	U	-	U
Nominal values and limits from method				RDLs (pCi/g)	1.00		1.00	
618-7 Burial Ground - Other Solid								

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 6160-061			2σ prep error 8.0 %	Reference Lab Notebook #6160, pg. 61												
R808042-01			J177M4-A	0.148	0.500			66		700			12	08/12/08	08/12	SS-035
R808042-02			J177M2-A	0.134	0.500			58		701			13	08/12/08	08/12	SS-036
R808042-03			Lab Control Sample	0.102	0.500			67		701				08/12/08	08/12	SS-038
R808042-04			Method Blank	0.125	0.500			68		687				08/12/08	08/12	SS-055
R808042-05			Duplicate (R808042-01)	0.093	0.500			63		687			12	08/12/08	08/12	SS-061
Nominal values and limits from method				1.00	0.500			20-105		100	100		180			

PROCEDURES	REFERENCE	PUISO_PLATE_AEA
	SPP-073	Soil Leaching 10-200 g Aliquot, rev 0
	CP-941	Plutonium in Water and Dissolved Samples by Extraction Chromatography, rev 3
	CP-008	Heavy Element Electroplating, rev 12

AVERAGES ± 2 SD FOR 5 SAMPLES
MDA 0.120 ± 0.045
YIELD 64 ± 8

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 08/15/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1291

Test TH Matrix SOLID
SDG 7861
Contact Melissa C. Mannion

LAB METHOD SUMMARY

THORIUM, ISOTOPIC IN SOLIDS

ALPHA SPECTROSCOPY

Client Hanford
Contract No. S00W235A00
Contract SDG K1291

RESULTS

LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Thorium 230	
Preparation batch 6160-061						
R808042-01			7861-001	J177M4-A	U	
R808042-02			7861-002	J177M2-A	U	
R808042-03			7861-003	Lab Control Sample	ok	
R808042-04			7861-004	Method Blank	U	
R808042-05			7861-005	Duplicate (R808042-01)	-	U
Nominal values and limits from method				RDLs (pCi/g)	1.00	
618-7 Burial Ground - Other Solid						

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 6160-061			2σ prep error 8.0 % Reference Lab Notebook #6160, pg. 61													
R808042-01			J177M4-A	0.204	0.250			99		764			12	08/11/08	08/12	SS-033
R808042-02			J177M2-A	0.218	0.250			95		685			13	08/11/08	08/12	SS-063
R808042-03			Lab Control Sample	0.225	0.250			94		686				08/11/08	08/12	SS-065
R808042-04			Method Blank	0.229	0.250			95		686				08/11/08	08/12	SS-066
R808042-05			Duplicate (R808042-01)	0.352	0.250			102		201			13	08/11/08	08/13	SS-065
Nominal values and limits from method				1.00	0.250			20-105		150			180			

PROCEDURES	REFERENCE	THISO_IE_PLATE_AEA
	SPP-073	Soil Leaching 10-200 g Aliquot, rev 0
	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 5 SAMPLES				
MDA	0.246	±	0.120
YIELD	97	±	7

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 08/15/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1291

Test U Matrix SOLID
SDG 7861
Contact Melissa C. Mannion

LAB METHOD SUMMARY

URANIUM, ISOTOPIC IN SOLIDS

ALPHA SPECTROSCOPY

Client Hanford
Contract No. S00W235A00
Contract SDG K1291

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 6160-061											
R808042-01			7861-001	J177M4-A	0.997	0.122	0.731	136	25	17	7
R808042-02			7861-002	J177M2-A	0.449	0.061	0.192	234	78	32	19
R808042-03			7861-003	Lab Control Sample	ok	ok	ok				
R808042-04			7861-004	Method Blank	U	U	U				
R808042-05			7861-005	Duplicate (R808042-01)	ok	ok U	ok	116	46	11	9
Nominal values and limits from method				RDLs (pCi/g)	1.00	1.00	1.00	100		4	
618-7 Burial Ground - Other Solid								Averages 162		20	

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 6160-061 2σ prep error 8.0 % Reference Lab Notebook #6160, pg. 61																
R808042-01			J177M4-A	0.045	0.500			98		687			12	08/09/08	08/12	SS-057
R808042-02			J177M2-A	0.037	0.500			95		687			13	08/09/08	08/12	SS-058
R808042-03			Lab Control Sample	0.696	0.500			94		165				08/09/08	08/13	SS-056
R808042-04			Method Blank	0.150	0.500			88		165				08/09/08	08/13	SS-057
R808042-05			Duplicate (R808042-01)	0.134	0.500			93		165			13	08/09/08	08/13	SS-058
Nominal values and limits from method				1.00	0.500			20-105		100	100		180			

PROCEDURES	REFERENCE	UISO_PLATE_AEA
	SPP-073	Soil Leaching 10-200 g Aliquot, 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 5 SAMPLES
MDA 0.212 ± 0.550
YIELD 94 ± 7

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 08/15/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1291

Test SR	Matrix SOLID
SDG 7861	
Contact Melissa C. Mannion	

LAB METHOD SUMMARY

TOTAL STRONTIUM IN SOLIDS

BETA COUNTING

Client Hanford	
Contract No. S00W235A00	
Contract SDG K1291	

RESULTS

LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Total Strontium	
Preparation batch 6160-061						
R808042-01			7861-001	J177M4-A	U	
R808042-02			7861-002	J177M2-A	U	
R808042-03			7861-003	Lab Control Sample	ok	
R808042-04			7861-004	Method Blank	U	
R808042-05			7861-005	Duplicate (R808042-01)	-	U

Nominal values and limits from method RDLs (pCi/g) 1.00

618-7 Burial Ground - Other Solid

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 6160-061			2σ prep error 10.4 % Reference Lab Notebook #6160, pg. 61													
R808042-01			J177M4-A	0.244	1.00			89		100			11	08/11/08	08/11	GRB-221
R808042-02			J177M2-A	0.271	1.00			88		100			12	08/11/08	08/11	GRB-218
R808042-03			Lab Control Sample	0.248	1.00			85		100				08/11/08	08/11	GRB-222
R808042-04			Method Blank	0.291	1.00			88		100				08/11/08	08/11	GRB-201
R808042-05			Duplicate (R808042-01)	0.254	1.00			90		100			11	08/11/08	08/11	GRB-202
Nominal values and limits from method				1.00	1.00			30-105		100			180			

PROCEDURES	REFERENCE	SRTOT_SEP_PRECIP_GPC
	SPP-073	Soil Leaching 10-200 g Aliquot, rev 0
	CP-381	Strontium in Solids, rev 1

AVERAGES ± 2 SD FOR 5 SAMPLES				
MDA	0.262	±	0.039
YIELD	88	±	4

Lab id	EBRLNE
Protocol	Hanford1
Version	Ver 1.0
Form	DVD-LMS
Version	3.06
Report date	08/15/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1291

Test 93A Matrix SOLID
SDG 7861
Contact Melissa C. Mannion

LAB METHOD SUMMARY

GROSS ALPHA IN SOLIDS
GAS PROPORTIONAL COUNTING

Client Hanford
Contract No. S00W235A00
Contract SDG K1291

RESULTS

LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Gross Alpha
Preparation batch 6160-061					
R808042-01	93		7861-001	J177M4-A	1.50
R808042-02	93		7861-002	J177M2-A	U
R808042-03	93		7861-003	Lab Control Sample	ok
R808042-04	93		7861-004	Method Blank	U
R808042-05	93		7861-005	Duplicate (R808042-01)	ok
Nominal values and limits from method				RDLs (pCi/g)	10.0
618-7 Burial Ground - Other Solid					

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 6160-061			2σ prep error 20.6 % Reference Lab Notebook #6160, pg. 61													
R808042-01	93		J177M4-A	1.13	0.100			2		400			12	08/09/08	08/12	GRB-114
R808042-02	93		J177M2-A	1.00	0.100			2		400			14	08/09/08	08/13	GRB-112
R808042-03	93		Lab Control Sample	6.26	0.100			62		100				08/09/08	08/12	GRB-109
R808042-04	93		Method Blank	6.47	0.100			60		100				08/09/08	08/12	GRB-110
R808042-05	93		Duplicate (R808042-01)	1.79	0.100			1		100			12	08/09/08	08/12	GRB-111
Nominal values and limits from method				10.0	0.100			5-250		100			180			

PROCEDURES		
	REFERENCE	900.0_ALPHABETA_GPC
	SPP-073	Soil Leaching 10-200 g Aliquot, rev 0
	SPP-125	Gross Alpha and Gross Beta in Dissolved Solids, rev 0

AVERAGES ± 2 SD FOR 5 SAMPLES				
MDA	3.33	±	5.58
RESIDUE	25	±	65

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 08/15/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1291

Test 93B Matrix SOLID
SDG 7861
Contact Melissa C. Mannion

LAB METHOD SUMMARY

GROSS BETA IN SOLIDS
GAS PROPORTIONAL COUNTING

Client Hanford
Contract No. S00W235A00
Contract SDG K1291

RESULTS

LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Gross Beta	
Preparation batch 6160-061						
R808042-01	93		7861-001	J177M4-A	U	
R808042-02	93		7861-002	J177M2-A	U	
R808042-03	93		7861-003	Lab Control Sample	ok	
R808042-04	93		7861-004	Method Blank	U	
R808042-05	93		7861-005	Duplicate (R808042-01)	-	U

Nominal values and limits from method RDLs (pCi/g) 15.0
618-7 Burial Ground - Other Solid

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 6160-061			2σ prep error 11.0 % Reference Lab Notebook #6160, pg. 61													
R808042-01	93		J177M4-A	3.56	0.100			2		400			12	08/09/08	08/12	GRB-114
R808042-02	93		J177M2-A	2.60	0.100			2		400			14	08/09/08	08/13	GRB-112
R808042-03	93		Lab Control Sample	5.35	0.100			62		100				08/09/08	08/12	GRB-109
R808042-04	93		Method Blank	6.27	0.100			60		100				08/09/08	08/12	GRB-110
R808042-05	93		Duplicate (R808042-01)	5.17	0.100			1		100			12	08/09/08	08/12	GRB-111
Nominal values and limits from method				15.0	0.100			5-250		100			180			

PROCEDURES	REFERENCE	900.0_ALPHABETA_GPC
	SPP-073	Soil Leaching 10-200 g Aliquot, rev 0
	SPP-125	Gross Alpha and Gross Beta in Dissolved Solids, rev 0

AVERAGES ± 2 SD FOR 5 SAMPLES				
MDA	4.59	±	2.96
RESIDUE	25	±	65

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
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SDG 7861
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG K1291

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 08/15/08

SDG 7861
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG K1291

PREPARATION BATCH SUMMARY

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

The following notes apply to this report:

* The preparation batches are shown in the same order as the Method Summary Reports are printed.

* Only analyses of planchets relevant to the SDG are included.

* Each preparation batch should have at least one Method Blank and LCS in it to validate client sample results.

* The QUALIFIERS shown are all qualifiers other than U, J, B, L and H that occur on any analysis in the preparation batch. The Method Summary Report has these qualifiers on a per sample basis.

  These qualifiers should be reviewed as follows:

  X Some data has been manually entered or modified. Transcription errors are possible.

  P One or more results are 'preliminary'. The data is not ready for final reporting.

  2 There were two or more results for one analyte on one planchet imported at one time. The results in DVD may not be the same as on the raw data sheets.

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

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1291

SDG	7861
Contact	Melissa C. Mannion

REPORT GUIDE

Client	Hanford
Contract	No. S00W235A00
Case no	SDG K1291

WORK SUMMARY

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

The following notes apply to this report:

* TEST is a code for the method used to measure associated analytes. Results and related information for each analyte are on the Data Sheet Report. In special cases, a test code used in the summary data section is not the same as in associated raw data. In this case, both codes are shown on the Work Summary.

* SUFFIX is the lab's code to distinguish multiple analyses (recounts, reworks, reanalyses) of a fraction of the sample. The suffix indicates which result is being reported. An empty suffix normally identifies the first attempt to analyze the sample.

* The LAB SAMPLE ID, TEST and SUFFIX uniquely identify all supporting data for a result. The Method Summary Report for each TEST has method performance data, such as yield, for each lab sample id and suffix and procedures used in the method.

* PLANCHET is an alternate lab identifier for work done for one test. It, combined with the TEST and SUFFIX, may be the best link to raw data.

* For QC samples, only analyses that directly QC some regular sample are shown. The Lab Control Sample, Method Blank, Duplicate, Matrix Spike and Method Summary Reports detail these relationships.

* The SAS (Special Analytical Services) Number is a client or lab assigned code that reflects special processing for samples, such as rapid turn around. Counts of tests done are lists by SAS number since it is likely to affect prices.

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Client Hanford
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DATA SHEET

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

The following notes apply to this report:

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

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

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

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

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

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

The following qualifiers are defined by the DVD system:

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

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DATA SHEET

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

J The RESULT is less than the RDL (Required Detection Limit) and no U qualifier is assigned.

B A Method Blank associated with this sample had a result without a U flag and, after correcting for possibly different aliquots, that result is greater than or equal to the MDA for this sample.

Normally, B is not assigned if U is. When method blank subtraction is shown on this report, B flags are assigned based on the unsubtracted values while U's are assigned based on the subtracted ones. Both flags can be assigned in this case.

For each sample result, all Method Blank results in the same preparation batch are compared. The Method Summary Report documents this and other QC relationships.

L Some Lab Control Sample that QC's this sample had a low recovery. The lab can disable assignment of this qualifier.

H Similar to 'L' except the recovery was high.

P The RESULT is 'preliminary'.

X Some data necessary to compute the RESULT, ERROR or MDA was manually entered or modified.

2 There were two or more results available for this analyte. The reported result may not be the same as in the raw data.

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

The following values are underlined to indicate possible problems:

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

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GUIDE, cont.

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Case no SDG K1291

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.

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Protocol Hanford1
Version Ver 1.0
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SDG 7861
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REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG K1291

LAB CONTROL SAMPLE

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

The following notes apply to this report:

* All fields in common with the Data Sheet Report have similar usage. Refer to its Report Guide for details.

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

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

* REC (Recovery) is RESULT divided by ADDED expressed as a percent.

* The first, computed limits for the recovery reflect:

  1. The error of RESULT, including that introduced by rounding the result prior to printing.

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

  2. The error of ADDED.

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

* The second limits are protocol defined upper and lower QC limits for the recovery.

* The recovery is underlined if it is outside either of these ranges.

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REPORT GUIDE

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Contract No. S00W235A00
Case no SDG K1291

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.

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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

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 08/15/08

SDG 7861
Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford
Contract No. S00W235A00
Case no SDG K1291

MATRIX SPIKE

for the recovery.

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

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

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 08/15/08

SDG 7861
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG_K1291

METHOD SUMMARY

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

The following notes apply to this report:

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

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

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

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

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

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

* Non-U results for Method Blanks are underlined to indicate possible contamination of other samples in the preparation batch. The Method Blank Report has supporting data.

* Lab Control Sample and Matrix Spike results are shown as: ok, No data, LOW or HIGH, with the last two underlined. 'No data'

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 08/15/08

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-088-056	Page 1 of 1

Collector B. Lawrence / E. Harries	**Company Contact** Joan Kessner	**Telephone No.** 509-375-4688	**Project Coordinator** KESSNER, JH
Project Designation 618-7 Burial Ground - Other Liquids	**Sampling Location** 618-7 Burial Ground (drums) K1291 (7861)		**SAF No.** RC-088
Ice Chest No. SML-461	**Field Logbook No.** EL-1395-12	**COA** RG61878500	**Method of Shipment** Fed Ex
Shipped To EBERLINE SERVICES / LIONVILLE	**Offsite Property No.** A080324		**Bill of Lading/Air Bill No.** See OSPC

Price Code 9F

Data Turnaround ~~15~~ 7 Days 7/31/08

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	1	1	1	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.					

MCM 8/6/8

solid.

Sample No.	Matrix *	Sample Date	Sample Time									RLF#	Drum
J177M4 -A	OTHER ~~LIQUID~~	7-31-08	~~1310~~ 1510 JRD 7-31-08					X				J177K4	5204
~~J177M5~~	~~OTHER LIQUID~~												
~~J177M6~~	~~OTHER LIQUID~~	JRD 7-31-08											
~~J177M7~~	~~OTHER LIQUID~~												

JRD 7-31-08

CHAIN OF POSSESSION		Sign/Print Names	
Relinquished By/Removed From [signature]	Date/Time 1530 7-31-08	Received By/Stored In JRDeBuigne JRDeBuigne	Date/Time 1530 7-31-08
Relinquished By/Removed From JRDeBuigne JRDeBuigne	Date/Time 1640 7-31-08	Received By/Stored In 1060 1A	Date/Time 7-31-08 1640
Relinquished By/Removed From 1060/1A	Date/Time 0920 AUG 05 2008	Received By/Stored In MStanlouch	Date/Time 0920 AUG 05 2008
Relinquished By/Removed From WCH MStanlouch	Date/Time 0920 AUG 05 2008	Received By/Stored In Fed Ex	Date/Time
Relinquished By/Removed From FED EX	Date/Time	Received By/Stored In [signature]	Date/Time 08/06/08 09:00
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

Sampler unavailable to remove samples from controlled storage. Shipper removed samples from storage location taking custody of samples for shipment to lab.

JRD

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

U.L.

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			RC-088-055	Page 1 of 1
Collector: B. Lawrence / E. Harries	Company Contact: Joan Kessner	Telephone No.: 509-375-4688	Project Coordinator: KESSNER, JH	Price Code: ~~8F~~ 9FD8	Data Turnaround: ~~15~~ 7 Days RTC 7/30/08
Project Designation: 618-7 Burial Ground - Other	Sampling Location: 618-7 Burial Ground (drums) K1291 (7861)		SAF No.: RC-088		
Ice Chest No.: ERC-02-003	Field Logbook No.: EL-1395-12	COA: RG61878500	Method of Shipment: Fed Ex		
Shipped To: EBERLINE SERVICES / LIONVILLE	Offsite Property No.: A080323		Bill of Lading/Air Bill No.: SCCOSPC		

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	x 0	x 0	x 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.					

MLM 8/6/8

solid

RTC 7/30/08

Sample No.	Matrix *	Sample Date	Sample Time										PIN #
~~J177M1~~	~~OTHER LIQUID~~												
J177M2 – A	OTHER ~~LIQUID~~	7/30/08	1310					X				DRUM	5146
~~J177M3~~	~~OTHER LIQUID~~	~~7/30/08~~	~~1315~~					X				~~B-10~~	~~3118~~

RC 7/30/08

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From: Blawrence	Date/Time: 1500 7-30-08	Received By/Stored In: RT COFFMAN / RT Coffman	Date/Time: 1500 7/30/08
Relinquished By/Removed From: RT COFFMAN / RT Coffman	Date/Time: 1700 7/30/08	Received By/Stored In: REFER # 1A, 1060	Date/Time: 1700 7/30/08
Relinquished By/Removed From: 1060/1A	Date/Time: 0930 AUG 04 2008	Received By/Stored In: mstankovich	Date/Time: 0930 AUG 04 2008
Relinquished By/Removed From: WCH mstankovich	Date/Time: 0930 AUG 04 2008	Received By/Stored In: Fed Ex	Date/Time:
Relinquished By/Removed From: FED EX	Date/Time:	Received By/Stored In: [signature]	Date/Time: 08/05/08 09:00
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

Sampler unavailable to remove samples from controlled storage. Shipper removed samples from storage location taking custody of samples for shipment to lab.

JPD

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

AK 8/6/08

Client: W.C. HANFORD City RICHLAND State WA

Date/Time received 08/06/08 09:08 CoC No. RC-088-056

Container I.D. No. SML-161 Requested TAT (Days) 7 P.O. Received Yes [ ] No [X]

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 LIQUID
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 [signature] Date: 08/06/08 Time: 09:30

Customer Sample No.	Beta/Gamma cpm	Ion Chamber mR/hr	Wipe	Customer Sample No.	Beta/Gamma cpm	Ion Chamber mR/hr	wipe
J177M4	<60						

Ion Chamber Ser. No. ____ Calibration date ____

Alpha Meter Ser. No. ____ Calibration date ____

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

EBERLINE SERVICES

EBERLINE ANALYTICAL CORPORATION
2030 Wright Avenue
Richmond, California 94804-3849
Phone (510) 235-2633 Fax (510) 235-0438
Toll Free (800) 841-5487
www.eberlineservices.com

August 15, 2008

RECEIVED
AUG 2008

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

Reference: **P.O. #S00W235A00**
Eberline Services R8-08-043-7862, SDG K1291

Dear Ms. Kessner:

Enclosed is the data report for three liquid (other liquid) samples designated under SAF No. RC-088 received at Eberline Services on August 6, 2008. The samples were analyzed according to the accompanying chain-of-custody documents.

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 K1291 was composed of three liquid (other liquid) samples designated under SAF No. RC-088 with a Project Designation of: 618-7 Burial Ground-Other liquids.

Note: the samples were mixtures of liquid and metal chips; the two phases were not separated. The samples were counted as received except for sample J177M1. Due to a miscommunication in the laboratory sample J177M1 was split into its component phases (liquid and metal chips) and aliquots of the metal chips taken for dissolution. When the mistake was discovered the remaining metal chips and the liquid were recombined and counted. Results are reported in units of pCi/sample.

The samples were received as stated on the Chain-of-Custody documents. Any discrepancies are noted on the Eberline Services Sample Receipt Checklist. The results were transmitted to WCH via e-mail on August 13, 2008.

2.0 ANALYSIS NOTES

2.1 Gamma Spectroscopy

No problems were encountered during the course of the analysis.

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

08/15/08

Date

EBERLINE SERVICES/RICHMOND
SAMPLE DELIVERY GROUP K1291

SDG	7862
Contact	Melissa C. Mannion

Client	Hanford
Contract	No. S00W235A00
Case no	SDG K1291

SUMMARY DATA SECTION

TABLE OF CONTENTS

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Prep Batch Summary	5
Work Summary	6
Method Blanks	7
Lab Control Samples	8
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End of Section	28

Melissa Mannion
Prepared by

Melissa Mannion
Reviewed by

Lab id	EBRLNE
Protocol	Hanford1
Version	Ver 1.0
Form	DVD-TOC
Version	3.06
Report date	08/13/08

SDG 7862
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG K1291

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 08/13/08

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 K1291

SDG 7862
Contact Melissa C. Mannion

LAB SAMPLE SUMMARY

Client Hanford
Contract No. S00W235A00
Case no SDG K1291

LAB SAMPLE ID	CLIENT SAMPLE ID	LOCATION	MATRIX	LEVEL	SAF NO	CHAIN OF CUSTODY	COLLECTED
R808043-01	J177M1	618-7 Burial Ground	OTHER		RC-088	RC-088-055	07/29/08 12:55
R808043-02	J177M2	618-7 Burial Ground	OTHER		RC-088	RC-088-055	07/30/08 13:10
R808043-03	J177M4	618-7 Burial Ground	OTHER		RC-088	RC-088-056	07/31/08 15:10
R808043-04	Lab Control Sample		OTHER		RC-088		
R808043-05	Method Blank		OTHER		RC-088		
R808043-06	Duplicate (R808043-03)	618-7 Burial Ground	OTHER		RC-088		07/31/08 15:10

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-LS
Version 3.06
Report date 08/13/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1291

QC SUMMARY

SDG 7862
Contact Melissa C. Mannion

Client Hanford
Contract No. S00W235A00
Case no SDG K1291

QC BATCH	CHAIN OF CUSTODY	CLIENT SAMPLE ID	MATRIX	% SOLIDS	SAMPLE AMOUNT	BASIS AMOUNT	RECEIVED	DAYS SINCE COLL	LAB SAMPLE ID	DEPARTMENT SAMPLE ID
7862	RC-088-055	J177M1	OTHER		1.0 S		08/04/08	6	R808043-01	7862-001
		J177M2	OTHER		1.0 S		08/05/08	6	R808043-02	7862-002
	RC-088-056	J177M4	OTHER		1.0 S		08/05/08	5	R808043-03	7862-003
		Method Blank	OTHER						R808043-05	7862-005
		Lab Control Sample	OTHER						R808043-04	7862-004
		Duplicate (R808043-03)	OTHER		1.0 S		08/05/08	5	R808043-06	7862-006

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-QS
Version 3.06
Report date 08/13/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1291

SDG 7862
Contact Melissa C. Mannion

PREP BATCH SUMMARY

Client Hanford
Contract No. S00W235A00
Case no SDG K1291

TEST	MATRIX	METHOD	PREPARATION BATCH	ERROR 2σ %	PLANCHETS ANALYZED CLIENT	MORE	RE	BLANK	LCS	DUP/ORIG	MS/ORIG	QUALIFIERS
Gamma Spectroscopy												
GAM	OTHER	Gamma Scan	6160-064	7.0	3			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 08/13/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1291

SDG 7862
Contact Melissa C. Mannion

LAB WORK SUMMARY

Client Hanford
Contract No. S00W235A00
Case no SDG K1291

LAB SAMPLE / COLLECTED / RECEIVED	CLIENT SAMPLE ID / LOCATION / CUSTODY	SAF No	MATRIX	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
R808043-01	J177M1			7862-001	GAM		08/07/08	08/13/08	CSS	Gamma Scan
07/29/08	618-7 Burial Ground		OTHER							
08/04/08	RC-088-055	RC-088								
R808043-02	J177M2			7862-002	GAM		08/07/08	08/13/08	CSS	Gamma Scan
07/30/08	618-7 Burial Ground		OTHER							
08/05/08	RC-088-055	RC-088								
R808043-03	J177M4			7862-003	GAM		08/07/08	08/13/08	CSS	Gamma Scan
07/31/08	618-7 Burial Ground		OTHER							
08/05/08	RC-088-056	RC-088								
R808043-04	Lab Control Sample			7862-004	GAM		08/07/08	08/13/08	CSS	Gamma Scan
			OTHER							
		RC-088								
R808043-05	Method Blank			7862-005	GAM		08/07/08	08/13/08	CSS	Gamma Scan
			OTHER							
		RC-088								
R808043-06	Duplicate (R808043-03)			7862-006	GAM		08/07/08	08/13/08	CSS	Gamma Scan
07/31/08	618-7 Burial Ground		OTHER							
08/05/08		RC-088								

COUNTS OF TESTS BY SAMPLE TYPE

TEST	SAF No	METHOD	REFERENCE	CLIENT	MORE	RE	BLANK	LCS	DUP SPIKE	TOTAL
GAM	RC-088	Gamma Scan	GAMMA_GS	3			1	1	1	6
TOTALS				3			1	1	1	6

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-LWS
Version 3.06
Report date 08/13/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1291

7862-005 Method Blank

METHOD BLANK

SDG	7862	Client/Case no	Hanford SDG K1291
Contact	Melissa C. Mannion	Contract	No. S00W235A00
Lab sample id	R808043-05	Client sample id	Method Blank
Dept sample id	7862-005	Material/Matrix	OTHER
		SAF No	RC-088

ANALYTE	CAS NO	RESULT pCi/smpl	2σ ERR (COUNT)	MDA pCi/smpl	RDL pCi/smpl	QUALI-FIERS	TEST
Potassium 40	13966-00-2	U		99.6		U	GAM
Cobalt 60	10198-40-0	U		4.61	0.050	U	GAM
Cesium 137	10045-97-3	U		4.22	0.100	U	GAM
Radium 226	13982-63-3	U		13.5	0.100	U	GAM
Radium 228	15262-20-1	U		22.1	0.200	U	GAM
Europium 152	14683-23-9	U		15.0	0.100	U	GAM
Europium 154	15585-10-1	U		12.0	0.100	U	GAM
Europium 155	14391-16-3	U		14.8	0.100	U	GAM
Thorium 228	14274-82-9	U		13.4		U	GAM
Thorium 232	TH-232	U		22.1		U	GAM
Uranium 235	15117-96-1	U		25.8		U	GAM
Uranium 238	U-238	U		591		U	GAM
Americium 241	14596-10-2	U		19.1		U	GAM

618-7 Burial Ground - Other

QC-BLANK #66751

Lab id	EBRLNE
Protocol	Hanford1
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	08/13/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1291

7862-004

Lab Control Sample

LAB CONTROL SAMPLE

SDG 7862

Contact Melissa C. Mannion

Client/Case no Hanford SDG K1291

Contract No. S00W235A00

Lab sample id R808043-04

Dept sample id 7862-004

Client sample id Lab Control Sample

Material/Matrix OTHER

SAF No RC-088

ANALYTE	RESULT pCi/smpl	2σ ERR (COUNT)	MDA pCi/smpl	RDL pCi/smpl	QUALI-FIERS	TEST	ADDED pCi/smpl	2σ ERR pCi/smpl	REC %	3σ LMTS (TOTAL)	PROTOCOL LIMITS
Cobalt 60	255	17	8.91	0.050		GAM	246	9.8	104	84-116	80-120
Cesium 137	298	14	6.86	0.100		GAM	280	11	106	85-115	80-120

618-7 Burial Ground - Other

QC-LCS #66750

Lab id EBRLNE

Protocol Hanford1

Version Ver 1.0

Form DVD-LCS

Version 3.06

Report date 08/13/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1291

7862-006 J177M4

DUPLICATE

SDG	7862	Client/Case no	Hanford SDG K1291
Contact	Melissa C. Mannion	Contract	No. S00W235A00
DUPLICATE		ORIGINAL	
Lab sample id	R808043-06	Lab sample id	R808043-03
Dept sample id	7862-006	Dept sample id	7862-003
		Received	08/05/08
Client sample id	J177M4		
Location/Matrix	618-7 Burial Ground OTHER		
Collected/Amount	07/31/08 15:10 1.0 S		
Custody/SAF No	RC-088-056 RC-088		

ANALYTE	DUPLICATE pCi/smpl	2σ ERR (COUNT)	MDA pCi/smpl	RDL pCi/smpl	QUALI-FIERS	TEST	ORIGINAL pCi/smpl	2σ ERR (COUNT)	MDA pCi/smpl	QUALI-FIERS	RPD %	3σ TOT	DER σ
Potassium 40	U		245		U	GAM	U		58.6	U	-		1.5
Cobalt 60	U		6.23	0.050	U	GAM	U		6.08	U	-		0
Cesium 137	U		4.94	0.100	U	GAM	U		5.73	U	-		0.2
Radium 226	U		41.9	0.100	U	GAM	U		12.5	U	-		1.3
Radium 228	U		37.7	0.200	U	GAM	U		23.2	U	-		0.7
Europium 152	U		15.6	0.100	U	GAM	U		14.8	U	-		0.1
Europium 154	U		15.2	0.100	U	GAM	U		16.6	U	-		0.1
Europium 155	U		24.5	0.100	U	GAM	U		14.0	U	-		0.7
Thorium 228	U		38.2		U	GAM	U		9.53	U	-		1.5
Thorium 232	U		37.7		U	GAM	U		23.2	U	-		0.7
Uranium 235	U		53.9		U	GAM	U		35.2	U	-		0.6
Uranium 238	U		1020		U	GAM	U		1470	U	-		0.5
Americium 241	U		12.5		U	GAM	U		8.25	U	-		0.6

618-7 Burial Ground - Other

QC-DUP#3 66752

Lab id	EBRLNE
Protocol	Hanford1
Version	Ver 1.0
Form	DVD-DUP
Version	3.06
Report date	08/13/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1291

7862-001 J177M1

DATA SHEET

SDG	7862	Client/Case no	Hanford	SDG_K1291	
Contact	Melissa C. Mannion	Contract	No. S00W235A00		
Lab sample id	R808043-01	Client sample id	J177M1		
Dept sample id	7862-001	Location/Matrix	618-7 Burial Ground	OTHER	
Received	08/04/08	Collected/Amount	07/29/08 12:55	1.0 S	
		Custody/SAF No	RC-088-055	RC-088	

ANALYTE	CAS NO	RESULT pCi/smpl	2σ ERR (COUNT)	MDA pCi/smpl	RDL pCi/smpl	QUALI-FIERS	TEST
Potassium 40	13966-00-2	U		107		U	GAM
Cobalt 60	10198-40-0	U		10.0	0.050	U	GAM
Cesium 137	10045-97-3	U		12.4	0.100	U	GAM
Radium 226	13982-63-3	U		23.0	0.100	U	GAM
Radium 228	15262-20-1	U		41.0	0.200	U	GAM
Europium 152	14683-23-9	U		31.1	0.100	U	GAM
Europium 154	15585-10-1	U		23.0	0.100	U	GAM
Europium 155	14391-16-3	U		71.6	0.100	U	GAM
Thorium 228	14274-82-9	U		36.7		U	GAM
Thorium 232	TH-232	U		41.0		U	GAM
Uranium 235	15117-96-1	2150	110	115			GAM
Uranium 238	U-238	43200	2600	1620			GAM
Americium 241	14596-10-2	U		57.0		U	GAM

618-7 Burial Ground - Other

Lab id	EBRLNE
Protocol	Hanford1
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	08/13/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1291

7862-002 J177M2

DATA SHEET

SDG	7862	Client/Case no	Hanford	SDG K1291	
Contact	Melissa C. Mannion	Contract	No. S00W235A00		
Lab sample id	R808043-02	Client sample id	J177M2		
Dept sample id	7862-002	Location/Matrix	618-7 Burial Ground	OTHER	
Received	08/05/08	Collected/Amount	07/30/08 13:10	1.0 S	
		Custody/SAF No	RC-088-055	RC-088	

ANALYTE	CAS NO	RESULT pCi/smpl	2σ ERR (COUNT)	MDA pCi/smpl	RDL pCi/smpl	QUALI-FIERS	TEST
Potassium 40	13966-00-2	U		92.1		U	GAM
Cobalt 60	10198-40-0	U		4.16	0.050	U	GAM
Cesium 137	10045-97-3	U		4.69	0.100	U	GAM
Radium 226	13982-63-3	U		15.8	0.100	U	GAM
Radium 228	15262-20-1	U		30.4	0.200	U	GAM
Europium 152	14683-23-9	U		14.4	0.100	U	GAM
Europium 154	15585-10-1	U		13.0	0.100	U	GAM
Europium 155	14391-16-3	U		15.1	0.100	U	GAM
Thorium 228	14274-82-9	U		15.6		U	GAM
Thorium 232	TH-232	U		30.4		U	GAM
Uranium 235	15117-96-1	U		34.8		U	GAM
Uranium 238	U-238	U		807		U	GAM
Americium 241	14596-10-2	U		21.1		U	GAM

618-7 Burial Ground - Other

Lab id	EBRLNE
Protocol	Hanford1
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	08/13/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1291

7862-003 J177M4

DATA SHEET

SDG	7862	Client/Case no	Hanford	SDG K1291	
Contact	Melissa C. Mannion	Contract	No. S00W235A00		
Lab sample id	R808043-03	Client sample id	J177M4		
Dept sample id	7862-003	Location/Matrix	618-7 Burial Ground	OTHER	
Received	08/05/08	Collected/Amount	07/31/08 15:10	1.0 S	
		Custody/SAF No	RC-088-056	RC-088	

ANALYTE	CAS NO	RESULT pCi/smpl	2σ ERR (COUNT)	MDA pCi/smpl	RDL pCi/smpl	QUALI-FIERS	TEST
Potassium 40	13966-00-2	U		58.6		U	GAM
Cobalt 60	10198-40-0	U		6.08	0.050	U	GAM
Cesium 137	10045-97-3	U		5.73	0.100	U	GAM
Radium 226	13982-63-3	U		12.5	0.100	U	GAM
Radium 228	15262-20-1	U		23.2	0.200	U	GAM
Europium 152	14683-23-9	U		14.8	0.100	U	GAM
Europium 154	15585-10-1	U		16.6	0.100	U	GAM
Europium 155	14391-16-3	U		14.0	0.100	U	GAM
Thorium 228	14274-82-9	U		9.53		U	GAM
Thorium 232	TH-232	U		23.2		U	GAM
Uranium 235	15117-96-1	U		35.2		U	GAM
Uranium 238	U-238	U		1470		U	GAM
Americium 241	14596-10-2	U		8.25		U	GAM

618-7 Burial Ground - Other

Lab id	EBRLNE
Protocol	Hanford1
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	08/13/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1291

Test GAM Matrix OTHER
SDG 7862
Contact Melissa C. Mannion

LAB METHOD SUMMARY

GAMMA SCAN

GAMMA SPECTROSCOPY

Client Hanford
Contract No. S00W235A00
Contract SDG K1291

RESULTS

LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Cobalt 60		Cesium 137	
Preparation batch 6160-064								
R808043-01			7862-001	J177M1	U		U	
R808043-02			7862-002	J177M2	U		U	
R808043-03			7862-003	J177M4	U		U	
R808043-04			7862-004	LCS (QC ID=66750)	ok		ok	
R808043-05			7862-005	BLK (QC ID=66751)	U		U	
R808043-06			7862-006	Duplicate (R808043-03)	-	U	-	U
Nominal values and limits from method				RDLs (pCi/smpl)	0.050		0.100	
618-7 Burial Ground - Other								

METHOD PERFORMANCE

LAB SAMPLE ID	RAW TEST	SUF-FIX	CLIENT SAMPLE ID	MDA pCi/smpl	ALIQ sample	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 6160-064			2σ prep error 7.0 %	Reference Lab Notebook #6160, pg. 64												
R808043-01			J177M1	2860	0.692					207			9	08/07/08	08/07	01,01,00
R808043-02			J177M2	1120	1.00					207			8	08/07/08	08/07	01,02,00
R808043-03			J177M4	1380	1.00					207			7	08/07/08	08/07	MB,07,00
R808043-04			LCS (QC ID=66750)	8.91	1.00					197				08/07/08	08/07	01,01,00
R808043-05			BLK (QC ID=66751)	1110	1.00					197				08/07/08	08/07	01,02,00
R808043-06			Duplicate (R808043-03) (QC ID=66752)	1350	1.00					300			7	08/07/08	08/07	MB,07,00
Nominal values and limits from method				0.050	1.00					100			180			

PROCEDURES REFERENCE GAMMA_GS
SPP-100 Ge(Li) Preparation for Commercial Samples, rev 7

AVERAGES ± 2 SD MDA 1300 ± 1830
FOR 6 SAMPLES YIELD _____ ± _____

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 08/13/08

SDG 7862
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG_K1291

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 08/13/08

SDG 7862
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG_K1291

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 08/13/08

SDG 7862
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG_K1291

WORK SUMMARY

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

The following notes apply to this report:

* TEST is a code for the method used to measure associated analytes. Results and related information for each analyte are on the Data Sheet Report. In special cases, a test code used in the summary data section is not the same as in associated raw data. In this case, both codes are shown on the Work Summary.

* SUFFIX is the lab's code to distinguish multiple analyses (recounts, reworks, reanalyses) of a fraction of the sample. The suffix indicates which result is being reported. An empty suffix normally identifies the first attempt to analyze the sample.

* The LAB SAMPLE ID, TEST and SUFFIX uniquely identify all supporting data for a result. The Method Summary Report for each TEST has method performance data, such as yield, for each lab sample id and suffix and procedures used in the method.

* PLANCHET is an alternate lab identifier for work done for one test. It, combined with the TEST and SUFFIX, may be the best link to raw data.

* For QC samples, only analyses that directly QC some regular sample are shown. The Lab Control Sample, Method Blank, Duplicate, Matrix Spike and Method Summary Reports detail these relationships.

* The SAS (Special Analytical Services) Number is a client or lab assigned code that reflects special processing for samples, such as rapid turn around. Counts of tests done are lists by SAS number since it is likely to affect prices.

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Protocol Hanford1
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 08/13/08

SDG 7862
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG K1291

DATA SHEET

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

The following notes apply to this report:

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

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

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

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

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

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

The following qualifiers are defined by the DVD system:

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

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Protocol Hanford1
Version Ver 1.0
Form DVD-RG
Version 3.06
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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 7862
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GUIDE, cont.

Client Hanford
Contract No. S00W235A00
Case no SDG_K1291

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
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SDG 7862
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REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG K1291

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
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Report date 08/13/08

SDG 7862
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG_K1291

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 7862
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG K1291

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

Lab id EBRLNE
Protocol Hanford1
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Version 3.06
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GUIDE, cont.

Client Hanford
Contract No. S00W235A00
Case no SDG K1291

MATRIX SPIKE

for the recovery.

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

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

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 08/13/08

SDG 7862
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG K1291

METHOD SUMMARY

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

The following notes apply to this report:

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

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

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

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

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

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

* Non-U results for Method Blanks are underlined to indicate possible contamination of other samples in the preparation batch. The Method Blank Report has supporting data.

* Lab Control Sample and Matrix Spike results are shown as: ok, No data, LOW or HIGH, with the last two underlined. 'No data'

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 08/13/08

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-088-055	Page 1 of 1
Collector: B. Lawrence / E. Harries	Company Contact: Joan Kessner	Telephone No.: 509-375-4688	Project Coordinator: KESSNER, JH	Price Code: 9F
Project Designation: 618-7 Burial Ground - Other Liquids	Sampling Location: 618-7 Burial Ground (drums) K1291 (7862)		SAF No.: RC-088	Data Turnaround: ~~15~~ 7 Days 7/29/08 RTC
Ice Chest No.: Fiberboard Box	Field Logbook No.: EL-1395-12	COA: RG61878500	Method of Shipment: Ground.	
Shipped To: EBERLINE SERVICES LIONVILLE	Offsite Property No.: see HSMR		Bill of Lading/Air Bill No.: see HSMR	

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	1	1	1	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					

pCi/sample

RTC 7/29/08

Sample No.	Matrix *	Sample Date	Sample Time										
~~J177M0~~	~~OTHER LIQUID~~												
J177M1	OTHER LIQUID	7/29/08	1255					X				PIN #	3757
~~J177M2~~	~~OTHER LIQUID~~												
~~J177M3~~	~~OTHER LIQUID~~												

CHAIN OF POSSESSION		Sign/Print Names	
Relinquished By/Removed From: B Lawrence	Date/Time: 1500 7-29-08	Received By/Stored In: RT Coffman/RT Coffman	Date/Time: 1500 7/29/08
Relinquished By/Removed From: RT Coffman/RT Coffman	Date/Time: 1200 7/31/08	Received By/Stored In: MS Stankovich	Date/Time: 1205 7/31/08
Relinquished By/Removed From: MS Stankovich	Date/Time: 1300 7/31/08	Received By/Stored In: Ground.	Date/Time:
Relinquished By/Removed From: FED EX	Date/Time:	Received By/Stored In: 08/04/08	Date/Time: 10:30
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~~

MCM 8/6/8

NOTE: GEA ON COMBINED LIQUID & SOLID PHASES. ISOTOPIC ANALYSES ON EACH PHASE SEPARATELY.

RK 7/29/08

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

O.L.

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-088-055	Page 1 of 1

Collector B. Lawrence / E. Harries	**Company Contact** Joan Kessner	**Telephone No.** 509-375-4688	**Project Coordinator** KESSNER, JH
Price Code 8F	**Data Turnaround** ~~15~~ 7 Days RTC 7/30/08		
Project Designation 618-7 Burial Ground - Other	**Sampling Location** 618-7 Burial Ground (drums) K1291 (7862)	**SAF No.** RC-088	
Ice Chest No. ERC-02-003	**Field Logbook No.** EL-1395-12	**COA** RG61878500	**Method of Shipment** Fed Ex
Shipped To EBERLINE SERVICES / LIONVILLE	**Offsite Property No.** A080323	**Bill of Lading/Air Bill No.** SECOSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS

Potential Radioactive contamination, potential beryllium contamination

Special Handling and/or Storage

None

pCi/sample

Preservation	Cool 4C	Cool 4C	None	None	None					
Type of Container	aG	aG	P	P	P					
No. of Container(s)	1	1	1	1	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.					Pin #

RTC 7/30/08

Sample No.	Matrix *	Sample Date	Sample Time										
~~J177M1~~	~~OTHER LIQUID~~												
J177M2	OTHER LIQUID	7/30/08	1310					X				DRUM	5146
~~J177M3~~	~~OTHER LIQUID~~	~~7/30/08~~	~~1345~~					X				R-10	3118

CHAIN OF POSSESSION	Date/Time	Sign/Print Names	Date/Time
Relinquished By/Removed From	1500 7-30-08	Received By/Stored In RTCOFFMAN / RTCoffman	1500 7/30/08
Relinquished By/Removed From RTCOFFMAN / RTCoffman 7/30/08	1700	Received By/Stored In REFER #1A, 1060 7/30/08	1700
Relinquished By/Removed From 1060/1A 0930 AUG 0 4 2008		Received By/Stored In MSTANKOUCH AUG 0 4 2008	0930
Relinquished By/Removed From MSTANKOUCH AUG 0 4 2008	0930	Received By/Stored In FedEx	
Relinquished By/Removed From FED EX		Received By/Stored In	08/05/08 09:08
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.~~

Sampler unavailable to remove samples from controlled storage. Shipper removed samples from storage location taking custody of samples for shipment to lab.

JPD

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

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-088-056	Page 1 of 1

Collector B. Lawrence / E. Harries	**Company Contact** Joan Kessner	**Telephone No.** 509-375-4688	**Project Coordinator** KESSNER, JH
Price Code 9F	**Data Turnaround** ~~15~~ 7 Days		
Project Designation 618-7 Burial Ground - Other Liquids	**Sampling Location** 618-7 Burial Ground (drums)		**SAF No.** RC-088
Ice Chest No. SML-461	**Field Logbook No.** EL-1395-12	**COA** RG61878500	**Method of Shipment** Fed Ex
Shipped To EBERLINE SERVICES LIONVILLE	**Offsite Property No.** A080324		**Bill of Lading/Air Bill No.** See OSPC

POSSIBLE SAMPLE HAZARDS/REMARKS

Potential Radioactive contamination, potential beryllium contamination

Special Handling and/or Storage

None

pCi/sample

Preservation	Cool 4C	Cool 4C	None	None	None						
Type of Container	aG	aG	P	P	P						
No. of Container(s)	1	1	1	1	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.					RLF#	Drum
Sample No. / Matrix * / Sample Date / Sample Time											
J177M4 / OTHER LIQUID / 7-31-08 / ~~1310~~		7-31-08			X					J177K4	5204
~~J177M5~~ / ~~OTHER LIQUID~~ / 1510 JRD 7-31-08											
~~J177M6~~ / ~~OTHER LIQUID~~ / JRD 7-31-08											
~~J177M7~~ / ~~OTHER LIQUID~~											

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From	Date/Time 1530 7-31-08	Received By/Stored In JRDeBuigne JRD 7-31-08	Date/Time 1530
Relinquished By/Removed From JRDeBuigne JRD 7-31-08	Date/Time 1640	Received By/Stored In 1060 1A	Date/Time 7-31-08 1640
Relinquished By/Removed From 1060/1A 0920	Date/Time AUG 05 2008	Received By/Stored In mstanlouch	Date/Time 0920 AUG 05 2008
Relinquished By/Removed From mstanlouch	Date/Time 0920 AUG 05 2008	Received By/Stored In Fed Ex	Date/Time
Relinquished By/Removed From JRD Ex	Date/Time	Received By/Stored In	Date/Time 08/06/08 09:00
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~~

Sampler unavailable to remove samples from controlled storage. Shipper removed samples from storage location taking custody of samples for shipment to lab.

MCM 8/6/8

JRD

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

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 #	0808L015
SDG #	K1291
SAF #	RC-088
Date Received	8/6/08
# Samples	4
Matrix	OTHER
Volatiles	
Semivolatiles	X
Pest/PCB	X
Glycols	
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
LIONVILLE LABORATORY INC.
...\orlette\tnu-hanford\data\b_ltrs.doc

RECEIVED
AUG 2008

Lionville Laboratory, Inc.
BNA ANALYTICAL DATA PACKAGE FOR
WC-HANFORD RC-088 K1291

DATE RECEIVED: 08/06/08 LVL LOT # :0808L015

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J177M4-B	001	OI	08LE0367	07/31/08	08/06/08	08/12/08
J177M4-B	001 MS	OI	08LE0367	07/31/08	08/06/08	08/12/08
J177M4-B	001 MSD	OI	08LE0367	07/31/08	08/06/08	08/12/08
J177M2-B	004	OI	08LE0367	07/30/08	08/06/08	08/12/08
J177M2-B	004 MS	OI	08LE0367	07/30/08	08/06/08	08/12/08
J177M2-B	004 MSD	OI	08LE0367	07/30/08	08/06/08	08/12/08
LAB QC:						
SBLKWQ	MB1	OI	08LE0367	N/A	08/06/08	08/12/08
SBLKWQ	MB1 BS	OI	08LE0367	N/A	08/06/08	08/12/08

LIONVILLE LABORATORY INC.

Case Narrative

Client: WC-HANFORD RC-088
LVL #: 0808L015
SDG/SAF # K1291 /RC-088

W.O. #: 60049-001-001-0001-00
Date Received: 08-06-2008

SEMIVOLATILE

Two (2) oil samples were collected on 07-30,31-2008.

The samples and their associated QC samples were extracted according to Lionville Laboratory SOPs based on SW 846 method 3580A (Waste Dilution Protocol, 1g into 10mL DCM) on 08-06-2008 and analyzed according to criteria set forth in Lionville Laboratory SOPs based on SW 846 Method 8270C for TCL Semivolatile target compounds on 08-12-2008.

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. The samples were extracted and analyzed within holding times.

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

4. All obtainable surrogate recoveries were within acceptance criteria.

5. Twenty-one (21) of two hundred fifty-six (256) matrix spike recoveries were outside acceptance criteria. A copy of the Sample Discrepancy Report (SDR# 08MS179) has been enclosed.

6. One (1) of sixty-four (64) blank spike recoveries were outside acceptance criteria. A copy of the Sample Discrepancy Report (SDR# 08MS179) has been enclosed.

7. The method blank was below the reporting limits for all target compounds.

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

r:\group\data\2008\bna\mu\0808-015coi2.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 17 pages.

LIONVILLE LABORATORY INC.

9. Internal standard area and retention time criteria were not met for sample J177M2-B MSD due to matrix effects. Associated matrix spike analyses fulfilled its reanalysis requirement.

10. 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").

11. 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.

12. 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

8/15/08
Date

Lionville Laboratory Sample Discrepancy Report (SDR)

SDR #: 08MS179

Initiator: Sharon Saylor
Date: 8-14-08
Client: WC-Hanford RL080 / C1291

Batch: 08OFL015
Samples: BS, ms, msd
Method: SW846/MCAWW/CLP/

Parameter: 8270
Matrix: oil
Prep Batch: 08LED367

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 2-methylphenol in the BS
② no recovery of pentachlorophenol in the 001 ms + 001 msd but BS is ok
③ no recovery of 2,4-dinitrophenol in the 004 ms + 004 msd but BS is ok
④ low spike recoveries in 001 ms, 001 msd, 004 ms, 004 msd

2. Known or Probable Causes(s) acidic phenols/nitroanilines are subject to erratic chromatographic behavior especially if the GC system is contaminated with high boiling materials. MS/MSD possible matrix effect (extra samples were oils). Hydrocarbon contamination appears as large unresolved chromatographic peak several minutes under the analytes. (RUBINBOTE)

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: _____

__ 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: CJ Kelly 8/14/08 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: Garden / _____
__ 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.

TECHNICAL FLAGS FOR MANUAL INTEGRATION

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

MP - Missed Peak: manually added peak not found by automatic quan program.

PA - Peak Assignment: quan report was changed to reflect correct peak assignment.

RI - Routine Integration: routine integrations are performed for some analytes that are consistently integrated improperly by the automatic integration programs. Examples are the dichlorobenzene isomers on the VOA packed column and benzo(b)fluoranthene/benzo(k)fluoranthene which are poorly resolved on the BNA column.

SP - Split Peak: the automatic integration improperly split the peak; a manual integration was performed to get the correct area.

CB - Coelution/Background: peak was manually integrated to eliminate contribution from coeluting compounds, background signal, or other interference.

PI - Proper Integration: a peak with poor or inconsistent integration (e.g., excessive tail) was properly integrated manually.

Semivolatiles by GC/MS, HSL List

RFW Batch Number: 0808L015 Client: WC-HANFORD RC-088 K1291 Work Order: 60049001001 Report Date: 08/14/08 10:44 Page: 1a

	Cust ID:	J177M4-B	J177M4-B	J177M4-B	J177M2-B	J177M2-B	J177M2-B
Sample Information	RFW#:	001	001 MS	001 MSD	004	004 MS	004 MSD
	Matrix:	OIL	OIL	OIL	OIL	OIL	OIL
	D.F.:	21.0	21.0	21.0	21.0	21.0	21.0
	Units:	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg
Surrogate Recovery	Nitrobenzene-d5	104 %	69 %	59 %	77 %	65 %	66 %
	2-Fluorobiphenyl	69 %	79 %	79 %	65 %	61 %	73 %
	Terphenyl-d14	104 %	116 %	112 %	126 %	119 %	132 %
	Phenol-d5	96 %	68 %	82 %	73 %	84 %	89 %
	2-Fluorophenol	98 %	68 %	85 %	74 %	97 %	91 %
	2,4,6-Tribromophenol	83 %	59 %	75 %	61 %	61 %	65 %
		fl	fl	fl	fl	fl	fl
Phenol		210000 U	67 %	93 %	210000 U	82 %	98 %
bis(2-Chloroethyl)ether		210000 U	92 %	115 %	210000 U	76 %	96 %
2-Chlorophenol		210000 U	77 %	111 %	210000 U	90 %	94 %
1,3-Dichlorobenzene		210000 U	81 %	118 * %	210000 U	83 %	88 %
1,4-Dichlorobenzene		210000 U	81 %	110 %	210000 U	87 %	82 %
1,2-Dichlorobenzene		210000 U	82 %	99 %	210000 U	87 %	94 %
2-Methylphenol		210000 U	44 * %	45 * %	210000 U	44 * %	49 * %
2,2'-oxybis(1-Chloropropane)		210000 U	68 %	122 * %	210000 U	91 %	92 %
3/4 Methylphenol		210000 U	57 * %	85 %	210000 U	74 %	70 %
N-Nitroso-di-n-propylamine		210000 U	63 %	72 %	210000 U	70 %	82 %
Hexachloroethane		210000 U	58 %	89 %	210000 U	79 %	84 %
Nitrobenzene		210000 U	70 %	66 %	210000 U	61 %	64 %
Isophorone		210000 U	60 %	70 %	210000 U	55 * %	60 %
2-Nitrophenol		210000 U	69 %	64 %	210000 U	70 %	71 %
2,4-Dimethylphenol		210000 U	68 %	76 %	210000 U	72 %	77 %
bis(2-Chloroethoxy)methane		210000 U	59 %	69 %	210000 U	51 %	54 %
2,4-Dichlorophenol		210000 U	71 %	82 %	210000 U	80 %	71 %
1,2,4-Trichlorobenzene		210000 U	75 %	77 %	210000 U	80 %	81 %
Naphthalene		210000 U	72 %	68 %	210000 U	72 %	75 %
4-Chloroaniline		210000 U	59 %	62 %	210000 U	71 %	58 %
Hexachlorobutadiene		210000 U	68 %	79 %	210000 U	79 %	81 %
4-Chloro-3-methylphenol		210000 U	72 %	84 %	210000 U	83 %	88 %
2-Methylnaphthalene		42000 J	69 %	76 %	42000 J	79 %	68 %
Hexachlorocyclopentadiene		210000 U	76 %	70 %	210000 U	53 %	58 %
2,4,6-Trichlorophenol		210000 U	56 %	55 %	210000 U	67 %	74 %
2,4,5-Trichlorophenol		520000 U	99 %	80 %	520000 U	99 %	97 %

*= Outside of EPA CLP QC limits.

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RFW Batch Number: [illegible]

Cust ID:	J177M4-B		J177M4-B		J177M4-B		J177M2-B		J177M2-B		J177M2-B	
RFW#:	001		001 MS		001 MSD		004		004 MS		004 MSD	
2-Chloronaphthalene	210000	U	75	%	67	%	210000	U	70	%	71	%
2-Nitroaniline	520000	U	77	%	60	%	520000	U	63	%	64	%
Dimethylphthalate	210000	U	69	%	63	%	210000	U	52	%	64	%
Acenaphthylene	210000	U	83	%	82	%	210000	U	72	%	80	%
2,6-Dinitrotoluene	210000	U	85	%	73	%	210000	U	53 *	%	77	%
3-Nitroaniline	520000	U	45 *	%	54	%	520000	U	45 *	%	60	%
Acenaphthene	210000	U	81	%	83	%	20000	J	72	%	75	%
2,4-Dinitrophenol	520000	U	67	%	58	%	520000	U	0 *	%	0 *	%
4-Nitrophenol	520000	U	115	%	77	%	520000	U	108	%	49	%
Dibenzofuran	210000	U	90	%	85	%	39000	J	66	%	77	%
2,4-Dinitrotoluene	210000	U	114	%	108	%	210000	U	92	%	95	%
Diethylphthalate	210000	U	78	%	70	%	210000	U	88	%	70	%
4-Chlorophenyl-phenylether	210000	U	101	%	94	%	210000	U	82	%	94	%
Fluorene	170000	J	84	%	73	%	69000	J	80	%	76	%
4-Nitroaniline	520000	U	33 *	%	63	%	520000	U	52	%	76	%
4,6-Dinitro-2-methylphenol	520000	U	59	%	39 *	%	520000	U	30 *	%	32 *	%
N-Nitrosodiphenylamine (1)	210000	U	85	%	82	%	210000	U	75	%	79	%
4-Bromophenyl-phenylether	210000	U	83	%	83	%	210000	U	91	%	83	%
Hexachlorobenzene	210000	U	97	%	98	%	210000	U	113	%	100	%
Pentachlorophenol	520000	U	0 *	%	0 *	%	520000	U	10 *	%	13 *	%
Phenanthrene	200000	J	79	%	78	%	220000		80	%	76	%
Anthracene	17000	J	78	%	76	%	35000	J	71	%	71	%
Carbazole	210000	U	85	%	83	%	210000	U	85	%	75	%
Di-n-butylphthalate	29000	J	66	%	69	%	210000	U	76	%	67	%
Fluoranthene	29000	J	88	%	97	%	35000	J	103	%	82	%
Pyrene	47000	J	97	%	108	%	31000	J	98	%	114	%
Butylbenzylphthalate	210000	U	75	%	97	%	210000	U	80	%	87	%
3,3'-Dichlorobenzidine	210000	U	114	%	119	%	210000	U	109	%	110	%
Benzo(a)anthracene	210000	U	80	%	90	%	210000	U	78	%	85	%
Chrysene	210000	U	83	%	84	%	210000	U	79	%	84	%
bis(2-Ethylhexyl)phthalate	210000	U	77	%	78	%	210000	U	69	%	82	%
Di-n-octyl phthalate	23000	J	83	%	81	%	210000	U	85	%	90	%
Benzo(b)fluoranthene	210000	U	95	%	89	%	210000	U	91	%	96	%
Benzo(k)fluoranthene	210000	U	81	%	84	%	210000	U	79	%	92	%
Benzo(a)pyrene	210000	U	81	%	82	%	210000	U	79	%	86	%
Indeno(1,2,3-cd)pyrene	210000	U	74	%	75	%	210000	U	71	%	77	%
Dibenz(a,h)anthracene	210000	U	73	%	74	%	210000	U	72	%	77	%
Benzo(g,h,i)perylene	210000	U	76	%	78	%	210000	U	69	%	78	%

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

	Cust ID:	SBLKWQ		SBLKWQ BS	
Sample Information	RFW#:	08LE0367-MB1		08LE0367-MB1	
	Matrix:	OIL		OIL	
	D.F.:	21.0		21.0	
	Units:	ug/Kg		ug/Kg	
Surrogate Recovery	Nitrobenzene-d5	107	%	76	%
	2-Fluorobiphenyl	98	%	81	%
	Terphenyl-d14	116	%	85	%
	Phenol-d5	108	%	86	%
	2-Fluorophenol	116	%	80	%
	2,4,6-Tribromophenol	74	%	74	%
Phenol		210000	U	100	%
bis(2-Chloroethyl)ether		210000	U	83	%
2-Chlorophenol		210000	U	81	%
1,3-Dichlorobenzene		210000	U	81	%
1,4-Dichlorobenzene		210000	U	84	%
1,2-Dichlorobenzene		210000	U	77	%
2-Methylphenol		210000	U	51 *	%
2,2'-oxybis(1-Chloropropane)		210000	U	74	%
3/4 Methylphenol		210000	U	76	%
N-Nitroso-di-n-propylamine		210000	U	80	%
Hexachloroethane		210000	U	89	%
Nitrobenzene		210000	U	73	%
Isophorone		210000	U	85	%
2-Nitrophenol		210000	U	67	%
2,4-Dimethylphenol		210000	U	81	%
bis(2-Chloroethoxy)methane		210000	U	80	%
2,4-Dichlorophenol		210000	U	65	%
1,2,4-Trichlorobenzene		210000	U	70	%
Naphthalene		210000	U	70	%
4-Chloroaniline		210000	U	59	%
Hexachlorobutadiene		210000	U	74	%
4-Chloro-3-methylphenol		210000	U	69	%
2-Methylnaphthalene		210000	U	73	%
Hexachlorocyclopentadiene		210000	U	72	%
2,4,6-Trichlorophenol		210000	U	70	%
2,4,5-Trichlorophenol		520000	U	82	%

*= Outside of EPA CLP QC limits.

000000010

	Cust ID: SBLKWQ		SBLKWQ BS	
	RFW#: 08LE0367-MB1		08LE0367-MB1	
2-Chloronaphthalene	210000	U	81	%
2-Nitroaniline	520000	U	87	%
Dimethylphthalate	210000	U	82	%
Acenaphthylene	210000	U	82	%
2,6-Dinitrotoluene	210000	U	83	%
3-Nitroaniline	520000	U	74	%
Acenaphthene	210000	U	83	%
2,4-Dinitrophenol	520000	U	71	%
4-Nitrophenol	520000	U	66	%
Dibenzofuran	210000	U	86	%
2,4-Dinitrotoluene	210000	U	81	%
Diethylphthalate	210000	U	89	%
4-Chlorophenyl-phenylether	210000	U	76	%
Fluorene	210000	U	87	%
4-Nitroaniline	520000	U	82	%
4,6-Dinitro-2-methylphenol	520000	U	66	%
N-Nitrosodiphenylamine (1)	210000	U	64	%
4-Bromophenyl-phenylether	210000	U	72	%
Hexachlorobenzene	210000	U	86	%
Pentachlorophenol	520000	U	81	%
Phenanthrene	210000	U	83	%
Anthracene	210000	U	84	%
Carbazole	210000	U	80	%
Di-n-butylphthalate	210000	U	90	%
Fluoranthene	210000	U	86	%
Pyrene	210000	U	78	%
Butylbenzylphthalate	210000	U	87	%
3,3'-Dichlorobenzidine	210000	U	72	%
Benzo(a)anthracene	210000	U	80	%
Chrysene	210000	U	82	%
bis(2-Ethylhexyl)phthalate	210000	U	86	%
Di-n-octyl phthalate	210000	U	91	%
Benzo(b)fluoranthene	210000	U	96	%
Benzo(k)fluoranthene	210000	U	81	%
Benzo(a)pyrene	210000	U	83	%
Indeno(1,2,3-cd)pyrene	210000	U	76	%
Dibenz(a,h)anthracene	210000	U	76	%
Benzo(g,h,i)perylene	210000	U	79	%

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

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

J177M4-B

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

Client: WC-HANFORD RC-088 K1291

Matrix: (soil/water) OIL

Lab Sample ID: 0808L015-001

Sample wt/vol: 1.00 (g/mL) G

Lab File ID: N081211

Level: (low/med) LOW

Date Received: 08/06/08

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

Date Extracted: 08/06/08

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 08/12/08

Injection Volume: 2.0(uL)

Dilution Factor: 21.0

GPC Cleanup: (Y/N) N

pH: _____

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

Number TICs found: 5

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	TRIMETHYLNAPHTHALENE	16.726	900000	J
2.	UNKNOWN	18.086	900000	J
3.	UNKNOWN	18.208	1000000	J
4.	UNKNOWN	18.932	1000000	J
5.	UNKNOWN	20.720	1000000	J

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

J177M2-B

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

Client: WC-HANFORD RC-088 K1291

Matrix: (soil/water) OIL

Lab Sample ID: 0808L015-004

Sample wt/vol: 1.00 (g/mL) G

Lab File ID: N081214

Level: (low/med) LOW

Date Received: 08/06/08

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

Date Extracted: 08/06/08

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 08/12/08

Injection Volume: 2.0(uL)

Dilution Factor: 21.0

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.	TRIMETHYLNAPHTHALENE	16.722	1000000	J
2.	UNKNOWN	16.905	1000000	J
3.	UNKNOWN	18.196	900000	J
4.	UNKNOWN	18.920	700000	J
5.	UNKNOWN	20.359	1000000	J

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

SBLKWQ

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

Client: WC-HANFORD RC-088 K1291

Matrix: (soil/water) OIL

Lab Sample ID: 08LE0367-MB1

Sample wt/vol: 1.00 (g/mL) G

Lab File ID: N081210

Level: (low/med) LOW

Date Received: 08/06/08

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

Date Extracted: 08/06/08

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 08/12/08

Injection Volume: 2.0(uL)

Dilution Factor: 21.0

GPC Cleanup: (Y/N) N

pH: _____

Number TICs found: 0

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

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

FORM 1 SV-TIC

RFW (v3.3)

onville Laboratory Use Only

0808L015

Custody Transfer Record/Lab Work Request

Page 1 of 1

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

LVLI

WC-HANFORD

ent TNU HANFORD SHF# KC-088

t. Final Proj. Sampling Date

oject# 60049-001-001-0001-00

oject Contact/Phone#

onville Laboratory Project Manager O. JOHNSON

SW846 Del STD TAT 7 Day

ate Rec'd 8-6-08 Date Due 8-13-08

Refrigerator #									A 2												
#/Type Container	Liquid								16												
	Solid																				
Volume									25												
Preservatives																					
ANALYSES REQUESTED →									ORGANIC							INORG					
									VOA	BNA	Pest/PCB	Herb	Sprinkler			TCP Metal Hg	CN				
									Lionville Laboratory Use Only												
										0625H	OPCB		IIGN			Met ①					
Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected															
001	J177M4-B	/	/	Oil	7-31-08	1510			X	X		X				X	WC 8-8-08				
002	M4-A			SO	↓	1510										X					
003	M2-A			SO	7-30-08	1310										X					
004	M2-B			Oil	↓	1310			X	X		X									

MATRIX CODES: Soil, Sediment, Solid, Sludge, Water, Oil, Air, Drum Solids, Drum Liquids, EP/TCLP, Leachate, Wipe, Other, Fish

Special Instructions:

Met ① = HSL + Sn, Zr

Special Instructions:

8-8-08 1. Per client -001 biphasic sample filtered (-001 = oil; -002 = Solid)

2.

8-8-08 3. per client 0808L007-001 biphasic sample moved to 0808L015-003,

4. 0808L015-004

5.

6.

Matrix QC

Relinquished by	Received by	Date	Time
[signature]	[signature]	8/6/08	0945

Relinquished by	Received by	Date	Time

Relinquished	Received by	Date	Time
ORIGINAL REWRITTEN		"COMPOSITE WASTE"	

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Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		RC-088-056	Page 1 of 1
llector 3. Lawrence / E. Harries	Company Contact Joan Kessner	Telephone No. 509-375-4688	Project Coordinator KESSNER, JH	Price Code 9F
›iect Designation 518-7 Burial Ground - Other Liquids	Sampling Location 618-7 Burial Ground (drums)		SAF No. RC-088	Data Turnaround ~~15~~ 7 Days
Chest No. AFS-04-121	Field Logbook No. EL-1395-12	COA RG61878500	Method of Shipment Fed Ex	
ipped To EBERLINE SERVICES / LIONVILLE	Offsite Property No. A080311		Bill of Lading/Air Bill No. see ospc	

OSSIBLE SAMPLE HAZARDS/REMARKS

otential Radioactive contamination, potential beryllium ›ntamination

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	~~1~~ 0	~~1~~ 0	~~1~~ 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.					

JRD 7-10-08

JRD 7-31-08

Sample No.	Matrix *	Sample Date	Sample Time								RLF#	Drum
77M4	OTHER LIQUID	7-31-08	~~1310~~ 1510 JRD 7-31-08	X	X	X	X				J177K4	5204
~~77M5~~	~~OTHER LIQUID~~											
~~77M6~~	~~OTHER LIQUID~~	JRD 7-31-08										
~~77M7~~	~~OTHER LIQUID~~											

CHAIN OF POSSESSION	Sign/Print Names		
linquished By/Removed From: Lawrence	Date/Time: 7-31-08 1530	Received By/Stored In: JRDeBrigne JRDeBrigne	Date/Time: 7-31-08 1530
linquished By/Removed From: JRDeBrigne JRDeB	Date/Time: 7-31-08 1640	Received By/Stored In: 1060 1A	Date/Time: 7-31-08 1640
linquished By/Removed From: 060/1A	Date/Time: AUG 05 2008 0920	Received By/Stored In: mstankouch	Date/Time: AUG 05 2008 0920
linquished By/Removed From: mstankouch wcbt	Date/Time: AUG 05 2008 0920	Received By/Stored In: Fed EX	Date/Time:
linquished By/Removed From: Fed Ex	Date/Time: 8-6-08 0945	Received By/Stored In: [signature]	Date/Time: 8-6-08 0945
linquished 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

Sampler unavailable to remove samples from controlled storage. Shipper removed samples from storage location taking custody of samples for shipment to lab.

JRD

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
'INAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

'CH-EE-011

000000016

Lionville Laboratory Incorporated

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: TNU HANFORD

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

Date: 8/6/08

LvLI Batch #: 0808L 015

Sample Custodian: Violet Hernandez

NOTE: EXPLAIN ALL DISCREPANCIES

1. Samples Hand Delivered or Shipped?	Carrier FED EX		Airbill # 798490870922
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 2-2°	°C	Cooler # AFS-04-121
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.
PCB ANALYTICAL DATA PACKAGE FOR
WC-HANFORD RC-088 K1291

DATE RECEIVED: 08/06/08 LVL LOT # :0808L015

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J177M4-B	001	OI	08LE0369	07/31/08	08/06/08	08/08/08
J177M4-B	001 MS	OI	08LE0369	07/31/08	08/06/08	08/08/08
J177M4-B	001 MSD	OI	08LE0369	07/31/08	08/06/08	08/08/08
J177M2-B	004	OI	08LE0369	07/30/08	08/06/08	08/08/08
J177M2-B	004 MS	OI	08LE0369	07/30/08	08/06/08	08/08/08
J177M2-B	004 MSD	OI	08LE0369	07/30/08	08/06/08	08/08/08

LAB QC:

PBLKTF	MB1	S	08LE0369	N/A	08/06/08	08/07/08
PBLKTF	MB1 BS	S	08LE0369	N/A	08/06/08	08/07/08

LIONVILLE LABORATORY INC.

Case Narrative

Client: TNU-HANFORD RC-088
LVL #: 0808L015
SDG/SAF # K129(/ RC-088

W.O. #: 60049-001-001-0001-00
Date Received: 08-06-2008

PCB

Two (2) oil samples were collected on 07-30,31-2008.

The samples and their associated QC samples were extracted on 08-06-2008 and analyzed according to Lionville Laboratory SOPs based on SW846, 3rd Edition procedure on 08-07,08-2008. The extraction procedure was based on method 3580A (waste dilution 1g into 10 mLs of Hexane) and the extracts were analyzed based on method 8082.

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. Samples were extracted and analyzed within required holding time.
2. The samples and their associated QC samples received Copper-Sulfur and Sulfuric Acid cleanups according to Lionville Laboratory SOPs based on SW846 methods 3660A and 3665A respectively.
3. The method blank was below the reporting limits for all target compounds.
4. All obtainable surrogate recoveries were within acceptance criteria.
5. All blank spike recoveries were within acceptance criteria.
6. All matrix spike recoveries were within acceptance criteria.
7. The initial calibrations associated with this data set were within acceptance criteria.
8. The continuing calibration standards analyzed prior to sample extracts were within acceptance criteria.

r:\group\data\2008\pest\tnu\0808-015coil2.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 10 pages.

LIONVILLE LABORATORY INC.

9. 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.

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

for Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

8/13/08
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.
NPM	=	No pattern match for multi-component target analytes.

Lionville Laboratory Use Only

0808L015

Custody Transfer Record/Lab Work Request

Page 1 of 1

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

LVLI

WC-HANFORD

Client: TNU HANFORD SAF # RC-088

Est. Final Proj. Sampling Date:

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

Project Contact/Phone#:

Lionville Laboratory Project Manager: O. JOHNSON

C SW846 Del STD TAT 7 Day

Date Rec'd: 8-6-08 Date Due: 8-13-08

Refrigerator #			A																		
#/Type Container	Liquid		2																		
	Solid		16																		
Volume			25°																		
Preservatives																					
ANALYSES REQUESTED →			ORGANIC													INORG					
			VOA	BNA	Pest/PCB	Herb	Ignitable									TCLP Metal Hg	CN				
			Lionville Laboratory Use Only																		
				0625H	OPCB		IIGN									Met (1)					
Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected															
001	J177M4-B	/	/	Oil	7-31-08	1510		X	X		X					~~X~~					
002	M4-A			SO	↓	1510										X					
003	M2-A			SO	7-30-08	1310										X					
004	M2-B			Oil	↓	1310		X	X		X										

MATRIX CODES: - Soil, E- Sediment, D- Solid, L- Sludge, W- Water, - Oil, - Air, S- Drum Solids, L- Drum Liquids, EP/TCLP Leachate, WI- Wipe, - Other, - Fish

WL 8-8-08

Special Instructions:

Met (1) = HSL + Sn, Zr

Special Instructions:

8-8-08 1. Per client -001 biphasic sample filtered (-001 = oil; -002 = Solid)

2.

8-8-08 3. per client 0808L007-001. biphasic sample moved to 0808L015-003,

4. 0808L015-004

5.

6.

matrix QC

Relinquished by	Received by	Date	Time
[signature]	[signature]	8/6/08	0945

Relinquished by	Received by	Date	Time

Relinquished by	Received by	Date	Time

ORIGINAL REWRITTEN "COMPOSITE WASTE"

000000005

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-088-056	Page 1 of 1

ollector B. Lawrence / E. Harries	Company Contact Joan Kessner Telephone No. 509-375-4688	Project Coordinator KESSNER, JH	Price Code 9F Data Turnaround ~~15~~ 7 Days
oject Designation 618-7 Burial Ground - Other Liquids	Sampling Location 618-7 Burial Ground (drums)	SAF No. RC-088	
e Chest No. AFS-04-121	Field Logbook No. EL-1395-12 COA RG61878500	Method of Shipment Fed Ex	
hipped To EBERLINE SERVICES / LIONVILLE	Offsite Property No. A080311	Bill of Lading/Air Bill No. see ospc	

OSSIBLE SAMPLE HAZARDS/REMARKS

otential Radioactive contamination, potential beryllium ontamination

Special 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	~~1~~ 0	~~1~~ 0	~~1~~ 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.						
Sample No. / Matrix * / Sample Date / Sample Time										RLF#	Drum
177M4 / OTHER LIQUID / 7-31-08 / ~~1310~~ 1510	X	X	X	X						J177K4	5204
~~177M5~~ / ~~OTHER LIQUID~~											
~~177M6~~ / ~~OTHER LIQUID~~											
~~177M7~~ / ~~OTHER LIQUID~~											

JRD 7-31-08

JRD 7-31-08

JRD 7-31-08

CHAIN OF POSSESSION		Sign/Print Names	
elinquished By/Removed From Lawrence	Date/Time 1530 7-31-08	Received By/Stored In JRDeBrigne	Date/Time 1530 7-31-08
elinquished By/Removed From JRDeBrigne	Date/Time 1640 7-31-08	Received By/Stored In 1060 1A	Date/Time 7-31-08 1640
elinquished By/Removed From 1060/1A	Date/Time 0920 AUG 05 2008	Received By/Stored In mstankouch	Date/Time 0920 AUG 05 2008
elinquished By/Removed From mstankouch wcH	Date/Time 0920 AUG 05 2008	Received By/Stored In Fed EX	Date/Time
elinquished By/Removed From Fed Ex	Date/Time 8-6-08 0945	Received By/Stored In	Date/Time 8-6-08 0945
elinquished 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

Sampler unavailable to remove samples from controlled storage. Shipper removed samples from storage location taking custody of samples for shipment to lab.

JRD

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

VCH-EE-011

00000006

Lionville Laboratory Incorporated

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: TNU HANFORD

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

Date: 8/6/08

LvLI Batch #: 0808L 015

Sample Custodian: Vidal Hernandez

NOTE: EXPLAIN ALL DISCREPANCIES

1. Samples Hand Delivered or Shipped?	Carrier FED EX		Airbill # 798490870922
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 2-2°	°C	Cooler # AFS-04-121
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.

PCBs by GC

Report Date: 08/11/08 11:38

RFW Batch Number: **0808L015** Client: **WC-HANFORD RC-088** Work Order: 60049001001 Page: 1

	Cust ID:	J177M4-B	J177M4-B	J177M4-B	J177M2-B	J177M2-B	J177M2-B
Sample Information	RFW#:	001	001 MS	001 MSD	004	004 MS	004 MSD
	Matrix:	OIL	OIL	OIL	OIL	OIL	OIL
	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:	Tetrachloro-m-xylene	86 %	83 %	71 %	88 %	87 %	86 %
	Decachlorobiphenyl	101 %	103 %	110 %	107 %	103 %	107 %
		fl	fl	fl	fl	fl	fl
Aroclor-1016		400 U	81 %	81 %	400 U	85 %	81 %
Aroclor-1221		400 U	400 U	400 U	400 U	400 U	400 U
Aroclor-1232		400 U	400 U	400 U	400 U	400 U	400 U
Aroclor-1242		400 U	400 U	400 U	400 U	400 U	400 U
Aroclor-1248		400 U	400 U	400 U	400 U	400 U	400 U
Aroclor-1254		600	NR	NR	400 U	400 U	400 U
Aroclor-1260		400 U	112 %	114 %	400 U	114 %	110 %

	Cust ID:	PBLKTF	PBLKTF BS
Sample Information	RFW#:	08LE0369-MB1	08LE0369-MB1
	Matrix:	SOIL	SOIL
	D.F.:	1.00	1.00
	Units:	UG/KG	UG/KG
Surrogate:	Tetrachloro-m-xylene	127 %	135 %
	Decachlorobiphenyl	118 %	123 %
		fl	fl
Aroclor-1016		400 U	94 %
Aroclor-1221		400 U	400 U
Aroclor-1232		400 U	400 U
Aroclor-1242		400 U	400 U
Aroclor-1248		400 U	400 U
Aroclor-1254		400 U	400 U
Aroclor-1260		400 U	89 %

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

0000000008

SAMPLE EXTRACTION RECORD

Sheet no.: 1

Extract. Date: 08/06/08 Extraction Batch No: 08LE0369 Analyst: MF Method: **** WD3860

Test: OPCB Cleanup Date: 08/06/08 Analyst: MF Client: WC-HANFORD RC-088

LIMS Report Date: 08/08/08 Solvent: 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
0808L015-	WC-HANFORD RC-088										
001	J177M4-B		1.0	1.0		10		1.0	N	0.00	10000
001 -S	J177M4-B		1.0	1.0	1.0	10		1.0	N	0.00	10000
001 -T	J177M4-B		1.0	1.0	1.0	10		1.0	N	0.00	10000
004	J177M2-B		1.0	1.0	1.0	10		1.0	N	0.00	10000
004 -S	J177M2-B		1.0	1.0	1.0	10		1.0	N	0.00	10000
004 -T	J177M2-B		1.0	1.0	1.0	10		1.0	N	0.00	10000
08LE0369-MB1	PBLKTF		1.0	1.0		10		1.0	N	100.00	10000
08LE0369-MB1 -S	PBLKTF		1.0	1.0	1.0	10		1.0	N	100.00	10000

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
all	[signature]	8/8/08 1440			Revision

0808L007-001 S,T WAS Renamed as 0808L015-004, -ST per P.M. OJ.

600000000

SAMPLE EXTRACTION RECORD

Sheet no.: 1 WD 3580

Extract. Date: 08/06/08 Extraction Batch No: 08LE0369 Analyst: MF Method: **** ~~SOP 5540~~

Test: OPCB Cleanup Date: 08/06/08 Analyst: MF Client: WC-HANFORD RC-088

LIMS Report Date: 08/07/08 Solvent: 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
0808L007-	WC-HANFORD RC-088										
001	J177M2		1.0	1.0		10		1.0	N	0.0	10000
001 -S	J177M2		1.0	1.0	1.0	10		1.0	N	0.0	10000
001 -T	J177M2		1.0	1.0	1.0	10		1.0	N	0.0	10000
0808L015-	WC-HANFORD RC-088										
001	J177M4		1.0	1.0		10		1.0	N	0.0	10000
001 -S	J177M4		1.0	1.0	1.0	10		1.0	N	0.0	10000
001 -T	J177M4		1.0	1.0	1.0	10		1.0	N	0.0	10000
08LE0369-MB1	PBLKTF		1.0	1.0		10		1.0	N	100.00	10000
08LE0369-MB1 -S	PBLKTF		1.0	1.0	1.0	10		1.0	N	100.00	10000

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
all	MF	8/7/08 1240	SZ	8/7/08 12:50	GC

000000010

RECEIVED
AUG 2008

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
WC-HANFORD RC-088 K1291

DATE RECEIVED: 08/06/08 LVL LOT # :0808L015

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J177M4-A						
SILVER, TOTAL	002	SO	08L0301	07/31/08	08/13/08	08/14/08
SILVER, TOTAL	002 REP	SO	08L0301	07/31/08	08/13/08	08/14/08
SILVER, TOTAL	002 MS	SO	08L0301	07/31/08	08/13/08	08/14/08
ALUMINUM, TOTAL	002	SO	08L0301	07/31/08	08/13/08	08/14/08
ALUMINUM, TOTAL	002 REP	SO	08L0301	07/31/08	08/13/08	08/14/08
ALUMINUM, TOTAL	002 MS	SO	08L0301	07/31/08	08/13/08	08/14/08
ARSENIC, TOTAL	002	SO	08L0301	07/31/08	08/13/08	08/14/08
ARSENIC, TOTAL	002 REP	SO	08L0301	07/31/08	08/13/08	08/14/08
ARSENIC, TOTAL	002 MS	SO	08L0301	07/31/08	08/13/08	08/14/08
BARIUM, TOTAL	002	SO	08L0301	07/31/08	08/13/08	08/14/08
BARIUM, TOTAL	002 REP	SO	08L0301	07/31/08	08/13/08	08/14/08
BARIUM, TOTAL	002 MS	SO	08L0301	07/31/08	08/13/08	08/14/08
BERYLLIUM, TOTAL	002	SO	08L0301	07/31/08	08/13/08	08/14/08
BERYLLIUM, TOTAL	002 REP	SO	08L0301	07/31/08	08/13/08	08/14/08
BERYLLIUM, TOTAL	002 MS	SO	08L0301	07/31/08	08/13/08	08/14/08
CALCIUM, TOTAL	002	SO	08L0301	07/31/08	08/13/08	08/14/08
CALCIUM, TOTAL	002 REP	SO	08L0301	07/31/08	08/13/08	08/14/08
CALCIUM, TOTAL	002 MS	SO	08L0301	07/31/08	08/13/08	08/14/08
CADMIUM, TOTAL	002	SO	08L0301	07/31/08	08/13/08	08/14/08
CADMIUM, TOTAL	002 REP	SO	08L0301	07/31/08	08/13/08	08/14/08
CADMIUM, TOTAL	002 MS	SO	08L0301	07/31/08	08/13/08	08/14/08
COBALT, TOTAL	002	SO	08L0301	07/31/08	08/13/08	08/14/08
COBALT, TOTAL	002 REP	SO	08L0301	07/31/08	08/13/08	08/14/08
COBALT, TOTAL	002 MS	SO	08L0301	07/31/08	08/13/08	08/14/08
CHROMIUM, TOTAL	002	SO	08L0301	07/31/08	08/13/08	08/14/08
CHROMIUM, TOTAL	002 REP	SO	08L0301	07/31/08	08/13/08	08/14/08
CHROMIUM, TOTAL	002 MS	SO	08L0301	07/31/08	08/13/08	08/14/08
COPPER, TOTAL	002	SO	08L0301	07/31/08	08/13/08	08/14/08
COPPER, TOTAL	002 REP	SO	08L0301	07/31/08	08/13/08	08/14/08
COPPER, TOTAL	002 MS	SO	08L0301	07/31/08	08/13/08	08/14/08
IRON, TOTAL	002	SO	08L0301	07/31/08	08/13/08	08/14/08
IRON, TOTAL	002 REP	SO	08L0301	07/31/08	08/13/08	08/14/08
IRON, TOTAL	002 MS	SO	08L0301	07/31/08	08/13/08	08/14/08
MERCURY, TOTAL	002	SO	08C0143	07/31/08	08/15/08	08/15/08
MERCURY, TOTAL	002 REP	SO	08C0143	07/31/08	08/15/08	08/15/08

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
WC-HANFORD RC-088 K1291

DATE RECEIVED: 08/06/08 LVL LOT # :0808L015

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
MERCURY, TOTAL	002 MS	SO	08C0143	07/31/08	08/15/08	08/15/08
POTASSIUM, TOTAL	002	SO	08L0301	07/31/08	08/13/08	08/14/08
POTASSIUM, TOTAL	002 REP	SO	08L0301	07/31/08	08/13/08	08/14/08
POTASSIUM, TOTAL	002 MS	SO	08L0301	07/31/08	08/13/08	08/14/08
MAGNESIUM, TOTAL	002	SO	08L0301	07/31/08	08/13/08	08/14/08
MAGNESIUM, TOTAL	002 REP	SO	08L0301	07/31/08	08/13/08	08/14/08
MAGNESIUM, TOTAL	002 MS	SO	08L0301	07/31/08	08/13/08	08/14/08
MANGANESE, TOTAL	002	SO	08L0301	07/31/08	08/13/08	08/14/08
MANGANESE, TOTAL	002 REP	SO	08L0301	07/31/08	08/13/08	08/14/08
MANGANESE, TOTAL	002 MS	SO	08L0301	07/31/08	08/13/08	08/14/08
SODIUM, TOTAL	002	SO	08L0301	07/31/08	08/13/08	08/14/08
SODIUM, TOTAL	002 REP	SO	08L0301	07/31/08	08/13/08	08/14/08
SODIUM, TOTAL	002 MS	SO	08L0301	07/31/08	08/13/08	08/14/08
NICKEL, TOTAL	002	SO	08L0301	07/31/08	08/13/08	08/14/08
NICKEL, TOTAL	002 REP	SO	08L0301	07/31/08	08/13/08	08/14/08
NICKEL, TOTAL	002 MS	SO	08L0301	07/31/08	08/13/08	08/14/08
LEAD, TOTAL	002	SO	08L0301	07/31/08	08/13/08	08/14/08
LEAD, TOTAL	002 REP	SO	08L0301	07/31/08	08/13/08	08/14/08
LEAD, TOTAL	002 MS	SO	08L0301	07/31/08	08/13/08	08/14/08
ANTIMONY, TOTAL	002	SO	08L0301	07/31/08	08/13/08	08/14/08
ANTIMONY, TOTAL	002 REP	SO	08L0301	07/31/08	08/13/08	08/14/08
ANTIMONY, TOTAL	002 MS	SO	08L0301	07/31/08	08/13/08	08/14/08
SELENIUM, TOTAL	002	SO	08L0301	07/31/08	08/13/08	08/14/08
SELENIUM, TOTAL	002 REP	SO	08L0301	07/31/08	08/13/08	08/14/08
SELENIUM, TOTAL	002 MS	SO	08L0301	07/31/08	08/13/08	08/14/08
TIN, TOTAL	002	SO	08L0301	07/31/08	08/13/08	08/14/08
TIN, TOTAL	002 REP	SO	08L0301	07/31/08	08/13/08	08/14/08
TIN, TOTAL	002 MS	SO	08L0301	07/31/08	08/13/08	08/14/08
THALLIUM, TOTAL	002	SO	08L0301	07/31/08	08/13/08	08/14/08
THALLIUM, TOTAL	002 REP	SO	08L0301	07/31/08	08/13/08	08/14/08
THALLIUM, TOTAL	002 MS	SO	08L0301	07/31/08	08/13/08	08/14/08
VANADIUM, TOTAL	002	SO	08L0301	07/31/08	08/13/08	08/14/08
VANADIUM, TOTAL	002 REP	SO	08L0301	07/31/08	08/13/08	08/14/08
VANADIUM, TOTAL	002 MS	SO	08L0301	07/31/08	08/13/08	08/14/08
ZINC, TOTAL	002	SO	08L0301	07/31/08	08/13/08	08/14/08
ZINC, TOTAL	002 REP	SO	08L0301	07/31/08	08/13/08	08/14/08
ZINC, TOTAL	002 MS	SO	08L0301	07/31/08	08/13/08	08/14/08
ZIRCONIUM, TOTAL	002	SO	08L0301	07/31/08	08/13/08	08/14/08

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
WC-HANFORD RC-088 K1291

DATE RECEIVED: 08/06/08 LVL LOT # :0808L015

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
ZIRCONIUM, TOTAL	002 REP	SO	08L0301	07/31/08	08/13/08	08/14/08
ZIRCONIUM, TOTAL	002 MS	SO	08L0301	07/31/08	08/13/08	08/14/08
J177M2-A						
SILVER, TOTAL	003	SO	08L0301	07/30/08	08/13/08	08/14/08
ALUMINUM, TOTAL	003	SO	08L0301	07/30/08	08/13/08	08/14/08
ARSENIC, TOTAL	003	SO	08L0301	07/30/08	08/13/08	08/14/08
BARIUM, TOTAL	003	SO	08L0301	07/30/08	08/13/08	08/14/08
BERYLLIUM, TOTAL	003	SO	08L0301	07/30/08	08/13/08	08/14/08
CALCIUM, TOTAL	003	SO	08L0301	07/30/08	08/13/08	08/14/08
CADMIUM, TOTAL	003	SO	08L0301	07/30/08	08/13/08	08/14/08
COBALT, TOTAL	003	SO	08L0301	07/30/08	08/13/08	08/14/08
CHROMIUM, TOTAL	003	SO	08L0301	07/30/08	08/13/08	08/14/08
COPPER, TOTAL	003	SO	08L0301	07/30/08	08/13/08	08/14/08
IRON, TOTAL	003	SO	08L0301	07/30/08	08/13/08	08/14/08
MERCURY, TOTAL	003	SO	08C0143	07/30/08	08/15/08	08/15/08
POTASSIUM, TOTAL	003	SO	08L0301	07/30/08	08/13/08	08/14/08
MAGNESIUM, TOTAL	003	SO	08L0301	07/30/08	08/13/08	08/14/08
MANGANESE, TOTAL	003	SO	08L0301	07/30/08	08/13/08	08/14/08
SODIUM, TOTAL	003	SO	08L0301	07/30/08	08/13/08	08/14/08
NICKEL, TOTAL	003	SO	08L0301	07/30/08	08/13/08	08/14/08
LEAD, TOTAL	003	SO	08L0301	07/30/08	08/13/08	08/14/08
ANTIMONY, TOTAL	003	SO	08L0301	07/30/08	08/13/08	08/14/08
SELENIUM, TOTAL	003	SO	08L0301	07/30/08	08/13/08	08/14/08
TIN, TOTAL	003	SO	08L0301	07/30/08	08/13/08	08/14/08
THALLIUM, TOTAL	003	SO	08L0301	07/30/08	08/13/08	08/14/08
VANADIUM, TOTAL	003	SO	08L0301	07/30/08	08/13/08	08/14/08
ZINC, TOTAL	003	SO	08L0301	07/30/08	08/13/08	08/14/08
ZIRCONIUM, TOTAL	003	SO	08L0301	07/30/08	08/13/08	08/14/08

LAB QC:

SILVER LABORATORY	LC1 BS	S	08L0301	N/A	08/13/08	08/13/08
SILVER, TOTAL	MB1	S	08L0301	N/A	08/13/08	08/13/08
ALUMINUM LABORTORY	LC1 BS	S	08L0301	N/A	08/13/08	08/13/08
ALUMINUM, TOTAL	MB1	S	08L0301	N/A	08/13/08	08/13/08
ARSENIC LABORATORY	LC1 BS	S	08L0301	N/A	08/13/08	08/13/08

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
WC-HANFORD RC-088 K1291

DATE RECEIVED: 08/06/08 LVL LOT # :0808L015

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
ARSENIC, TOTAL	MB1	S	08L0301	N/A	08/13/08	08/13/08
BARIUM LABORATORY	LC1 BS	S	08L0301	N/A	08/13/08	08/13/08
BARIUM, TOTAL	MB1	S	08L0301	N/A	08/13/08	08/13/08
BERYLLIUM LABORATORY	LC1 BS	S	08L0301	N/A	08/13/08	08/13/08
BERYLLIUM, TOTAL	MB1	S	08L0301	N/A	08/13/08	08/13/08
CALCIUM LABORATORY	LC1 BS	S	08L0301	N/A	08/13/08	08/13/08
CALCIUM, TOTAL	MB1	S	08L0301	N/A	08/13/08	08/13/08
CADMIUM LABORATORY	LC1 BS	S	08L0301	N/A	08/13/08	08/13/08
CADMIUM, TOTAL	MB1	S	08L0301	N/A	08/13/08	08/13/08
COBALT LABORATORY	LC1 BS	S	08L0301	N/A	08/13/08	08/13/08
COBALT, TOTAL	MB1	S	08L0301	N/A	08/13/08	08/13/08
CHROMIUM LABORATORY	LC1 BS	S	08L0301	N/A	08/13/08	08/13/08
CHROMIUM, TOTAL	MB1	S	08L0301	N/A	08/13/08	08/13/08
COPPER LABORATORY	LC1 BS	S	08L0301	N/A	08/13/08	08/13/08
COPPER, TOTAL	MB1	S	08L0301	N/A	08/13/08	08/13/08
IRON LABORATORY	LC1 BS	S	08L0301	N/A	08/13/08	08/13/08
IRON, TOTAL	MB1	S	08L0301	N/A	08/13/08	08/13/08
MERCURY LABORATORY	LC1 BS	S	08C0143	N/A	08/15/08	08/15/08
MERCURY, TOTAL	MB1	S	08C0143	N/A	08/15/08	08/15/08
POTASSIUM LABORATORY	LC1 BS	S	08L0301	N/A	08/13/08	08/13/08
POTASSIUM, TOTAL	MB1	S	08L0301	N/A	08/13/08	08/13/08
MAGNESIUM LABORATORY	LC1 BS	S	08L0301	N/A	08/13/08	08/13/08
MAGNESIUM, TOTAL	MB1	S	08L0301	N/A	08/13/08	08/13/08
MANGANESE LABORATORY	LC1 BS	S	08L0301	N/A	08/13/08	08/13/08
MANGANESE, TOTAL	MB1	S	08L0301	N/A	08/13/08	08/13/08
SODIUM LABORATORY	LC1 BS	S	08L0301	N/A	08/13/08	08/13/08
SODIUM, TOTAL	MB1	S	08L0301	N/A	08/13/08	08/13/08
NICKEL LABORATORY	LC1 BS	S	08L0301	N/A	08/13/08	08/13/08
NICKEL, TOTAL	MB1	S	08L0301	N/A	08/13/08	08/13/08
LEAD LABORATORY	LC1 BS	S	08L0301	N/A	08/13/08	08/13/08
LEAD, TOTAL	MB1	S	08L0301	N/A	08/13/08	08/13/08
ANTIMONY LABORATORY	LC1 BS	S	08L0301	N/A	08/13/08	08/13/08
ANTIMONY, TOTAL	MB1	S	08L0301	N/A	08/13/08	08/13/08
SELENIUM LABORATORY	LC1 BS	S	08L0301	N/A	08/13/08	08/13/08
SELENIUM, TOTAL	MB1	S	08L0301	N/A	08/13/08	08/13/08
TIN LABORATORY	LC1 BS	S	08L0301	N/A	08/13/08	08/13/08
TIN, TOTAL	MB1	S	08L0301	N/A	08/13/08	08/13/08
THALLIUM LABORATORY	LC1 BS	S	08L0301	N/A	08/13/08	08/13/08

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
WC-HANFORD RC-088 K1291

DATE RECEIVED: 08/06/08 LVL LOT # :0808L015

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
THALLIUM, TOTAL	MB1	S	08L0301	N/A	08/13/08	08/13/08
VANADIUM LABORATORY	LC1 BS	S	08L0301	N/A	08/13/08	08/13/08
VANADIUM, TOTAL	MB1	S	08L0301	N/A	08/13/08	08/13/08
ZINC LABORATORY	LC1 BS	S	08L0301	N/A	08/13/08	08/13/08
ZINC, TOTAL	MB1	S	08L0301	N/A	08/13/08	08/13/08
ZIRCONIUM LABORATORY	LC1 BS	S	08L0301	N/A	08/13/08	08/13/08
ZIRCONIUM, TOTAL	MB1	S	08L0301	N/A	08/13/08	08/13/08

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU-HANFORD RC-088
LVL#: 0808L015
SDG/SAF#: K1291/RC-088

W.O.#: 60049-001-001-0001-00
Date Received: 08-06-08

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 analyses of 2 solid samples.

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

   Sample J177M4-A was run and reported with a 48-fold dilution for ICP metals with exception of Zirconium with a 400-fold dilution. Mercury was run with a 5-fold dilution.

   Sample J177M2-A was rerun and reported with a 6-fold dilution for Zirconium and a 5-fold dilution for Mercury. All dilutions were due to sample matrix and/or high concentration.

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) with the exception of CCV4 for Potassium, Sodium, Calcium, and Cadmium in file TA0813A. All data reported is surrounded by in control CCVs.

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

6. All preparation/method blanks (MB) were within method criteria {less than the Limit of Quantitation (3-10X the LOD), or samples were greater than 20X MB value}. Refer to the Inorganics Method Blank Data Summary.

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 22 pages.

Laboratory Control Standards Report.

9. The matrix spike (MS) recoveries for 11 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
J177M4-A	Silver	4,800	99.8
	Beryllium	52,800	113.5
	Chromium	4,800	110.8
	Magnesium	38,400	65.2
	Nickel	4,800	106.7
	Lead	4,800	93.5
	Selenium	4,800	104.0
	Iron	48,000	104.0
	Tin	4,800	135.8
	Zinc	4,800	106.8
	Zirconium	800,000	99.7

11. The duplicate analysis for 1 analyte was outside the 20% Relative Percent Difference (RPD) control limits. Refer to the Inorganics Precision Report.

12. For the purposes of this report, the data has been reported to the 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.

Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

8/18/08
Date

alm/m08-015

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#: 08081015

Leaching Procedure: __1310 __1311 __1312 __Other:_____

TCLP 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: _____

LW000000008

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 08/18/08

CLIENT: WC-HANFORD RC-088 K1291

LVL LOT #: 0808L015

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-002	J177M4-A	Silver, Total	4.3	u	MG/KG	4.3	48.0
		Aluminum, Total	173	u	MG/KG	173	48.0
		Arsenic, Total	21.6	u	MG/KG	21.6	48.0
		Barium, Total	4.3	u	MG/KG	4.3	48.0
		Beryllium, Total	7970		MG/KG	2.2	48.0
		Calcium, Total	173	u	MG/KG	173	48.0
		Cadmium, Total	2.2	u	MG/KG	2.2	48.0
		Cobalt, Total	8.6	u	MG/KG	8.6	48.0
		Chromium, Total	327		MG/KG	8.6	48.0
		Copper, Total	19.0		MG/KG	8.6	48.0
		Iron, Total	370		MG/KG	195	48.0
		Mercury, Total	0.05	u	MG/KG	0.05	5.0
		Potassium, Total	173	u	MG/KG	173	48.0
		Magnesium, Total	108	u	MG/KG	108	48.0
		Manganese, Total	1.7	u	MG/KG	1.7	48.0
		Sodium, Total	865	u	MG/KG	865	48.0
		Nickel, Total	110		MG/KG	8.6	48.0
		Lead, Total	13.0	u	MG/KG	13.0	48.0
		Antimony, Total	13.0	u	MG/KG	13.0	48.0
		Selenium, Total	25.9	u	MG/KG	25.9	48.0
		Tin, Total	2910		MG/KG	25.9	48.0
		Thallium, Total	25.9	u	MG/KG	25.9	48.0
		Vanadium, Total	6.1	u	MG/KG	6.1	48.0
		Zinc, Total	25.9	u	MG/KG	25.9	48.0
		Zirconium, Total	201000		MG/KG	1800	400

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 08/18/08

CLIENT: WC-HANFORD RC-088 K1291

LVL LOT #: 0808L015

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-003	J177M2-A	Silver, Total	0.09 u	MG/KG	0.09	1.0
		Aluminum, Total	3.7 u	MG/KG	3.7	1.0
		Arsenic, Total	0.46 u	MG/KG	0.46	1.0
		Barium, Total	0.40	MG/KG	0.09	1.0
		Beryllium, Total	2.4	MG/KG	0.05	1.0
		Calcium, Total	10.4	MG/KG	3.7	1.0
		Cadmium, Total	0.05 u	MG/KG	0.05	1.0
		Cobalt, Total	0.19	MG/KG	0.19	1.0
		Chromium, Total	3.3	MG/KG	0.19	1.0
		Copper, Total	42.9	MG/KG	0.19	1.0
		Iron, Total	36.5	MG/KG	4.2	1.0
		Mercury, Total	0.09	MG/KG	0.05	5.0
		Potassium, Total	3.7 u	MG/KG	3.7	1.0
		Magnesium, Total	2.3 u	MG/KG	2.3	1.0
		Manganese, Total	0.63	MG/KG	0.04	1.0
		Sodium, Total	306	MG/KG	18.5	1.0
		Nickel, Total	2.3	MG/KG	0.19	1.0
		Lead, Total	0.28 u	MG/KG	0.28	1.0
		Antimony, Total	0.28 u	MG/KG	0.28	1.0
		Selenium, Total	0.56 u	MG/KG	0.56	1.0
		Tin, Total	22.4	MG/KG	0.56	1.0
		Thallium, Total	0.56 u	MG/KG	0.56	1.0
		Vanadium, Total	0.13 u	MG/KG	0.13	1.0
		Zinc, Total	2.0	MG/KG	0.56	1.0
		Zirconium, Total	1380	MG/KG	27.8	6.0

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 08/18/08

CLIENT: WC-HANFORD RC-088 K1291 LVL LOT #: 0808L015

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK1	08L0301-MB1	Silver, Total	0.10 u	MG/KG	0.10	1.0
		Aluminum, Total	4.0 u	MG/KG	4.0	1.0
		Arsenic, Total	0.50 u	MG/KG	0.50	1.0
		Barium, Total	0.15	MG/KG	0.10	1.0
		Beryllium, Total	0.05 u	MG/KG	0.05	1.0
		Calcium, Total	6.0	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	0.90	MG/KG	0.20	1.0
		Iron, Total	4.5 u	MG/KG	4.5	1.0
		Potassium, Total	4.0 u	MG/KG	4.0	1.0
		Magnesium, Total	3.3	MG/KG	2.5	1.0
		Manganese, Total	0.04 u	MG/KG	0.04	1.0
		Sodium, Total	20.0 u	MG/KG	20.0	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	0.60 u	MG/KG	0.60	1.0
		Tin, Total	0.60 u	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	08C0143-MB1	Mercury, Total	0.01 u	MG/KG	0.01	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 08/18/08

CLIENT: WC-HANFORD RC-088 K1291

LVL LOT #: 0808L015

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-002	J177M4-A	Silver, Total	4.3 u	4.3 u	4.5	NC	48.0
		Aluminum, Total	206	173 u	179	115.5	48.0
		Arsenic, Total	158	21.6 u	179	88.5	48.0
		Barium, Total	171	4.3 u	179	95.8	48.0
		Beryllium, Total	10200	7970	4.5	50520 *	48.0
		Calcium, Total	2710	173 u	2230	121.2	48.0
		Cadmium, Total	5.6	2.2 u	4.5	124.4	48.0
		Cobalt, Total	46.9	8.6 u	44.6	105.2	48.0
		Chromium, Total	395	327	17.9	380.4*	48.0
		Copper, Total	44.7	19.0	22.3	115.2	48.0
		Iron, Total	566	370	89.3	220.4*	48.0
		Mercury, Total	1.6	0.05u	1.6	101.5	5.0
		Potassium, Total	1940	173 u	2230	86.8	48.0
		Magnesium, Total	838	108 u	2230	37.6	48.0
		Manganese, Total	48.1	1.7 u	44.6	107.8	48.0
		Sodium, Total	2160	865 u	2230	96.7	48.0
		Nickel, Total	210	110	44.6	225.8	48.0
		Lead, Total	12.9 u	13.0 u	44.6	NC	48.0
		Antimony, Total	39.9	13.0 u	44.6	89.5	48.0
		Selenium, Total	56.6	25.9 u	179	31.7	48.0
		Tin, Total	3600	2910	89.3	783.3*	48.0
		Thallium, Total	196	25.9 u	179	109.7	48.0
		Vanadium, Total	39.9	6.1 u	44.6	89.5	48.0
		Zinc, Total	109	25.9 u	44.6	243.9	48.0
		Zirconium, Total	242000	201000	446	9277 *	400

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 08/18/08

CLIENT: WC-HANFORD RC-088 K1291 LVL LOT #: 0808L015

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-002REP	J177N4-A	Silver, Total	4.3 u	4.0 u	NC	48.0
		Aluminum, Total	173 u	161 u	NC	48.0
		Arsenic, Total	21.6 u	20.2 u	NC	48.0
		Barium, Total	4.3 u	4.0 u	NC	48.0
		Beryllium, Total	7970	6410	21.7	48.0
		Calcium, Total	173 u	161 u	NC	48.0
		Cadmium, Total	2.2 u	2.0 u	NC	48.0
		Cobalt, Total	8.6 u	8.1 u	NC	48.0
		Chromium, Total	327	280	15.7	48.0
		Copper, Total	19.0	8.1 u	NC	48.0
		Iron, Total	370	327	12.3	48.0
		Mercury, Total	0.05u	0.04u	NC	5.0
		Potassium, Total	173 u	161 u	NC	48.0
		Magnesium, Total	108 u	101 u	NC	48.0
		Manganese, Total	1.7 u	1.6 u	NC	48.0
		Sodium, Total	865 u	806 u	NC	48.0
		Nickel, Total	110	106	3.2	48.0
		Lead, Total	13.0 u	12.1 u	NC	48.0
		Antimony, Total	13.0 u	12.1 u	NC	48.0
		Selenium, Total	25.9 u	24.2 u	NC	48.0
		Tin, Total	2910	2570	12.4	48.0
		Thallium, Total	25.9 u	24.2 u	NC	48.0
		Vanadium, Total	6.1 u	5.6 u	NC	48.0
		Zinc, Total	25.9 u	24.2 u	NC	48.0
		Zirconium, Total	201000	174000	14.5	400

Lionville Laboratory, Inc.

INORGANICS LABORATORY CONTROL STANDARDS REPORT 08/18/08

CLIENT: WC-HANFORD RC-088 K1291 LVL LOT #: 0808L015

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
LCS1	08L0301-LC1	Silver, LCS	44.3	50.0	MG/KG	88.6
		Aluminum, LCS	449	500	MG/KG	89.9
		Arsenic, LCS	860	1000	MG/KG	86.0
		Barium, LCS	443	500	MG/KG	88.7
		Beryllium, LCS	21.9	25.0	MG/KG	87.6
		Calcium, LCS	2220	2500	MG/KG	88.9
		Cadmium, LCS	21.6	25.0	MG/KG	86.4
		Cobalt, LCS	220	250	MG/KG	88.0
		Chromium, LCS	44.3	50.0	MG/KG	88.6
		Copper, LCS	112	125	MG/KG	89.4
		Iron, LCS	442	500	MG/KG	88.4
		Potassium, LCS	2110	2500	MG/KG	84.5
		Magnesium, LCS	2160	2500	MG/KG	86.4
		Manganese, LCS	66.6	75.0	MG/KG	88.8
		Sodium, LCS	2110	2500	MG/KG	84.4
		Nickel, LCS	176	200	MG/KG	87.8
		Lead, LCS	219	250	MG/KG	87.5
		Antimony, LCS	260	300	MG/KG	86.8
		Selenium, LCS	847	1000	MG/KG	84.7
		Tin, LCS	440	500	MG/KG	88.1
		Thallium, LCS	881	1000	MG/KG	88.1
		Vanadium, LCS	219	250	MG/KG	87.7
		Zinc, LCS	87.6	100	MG/KG	87.6
		Zirconium, LCS	442	500	MG/KG	88.5
LCS1	08C0143-LC1	Mercury, LCS	4.6	4.7	MG/KG	98.1

SAMPLE DIGESTION RECORD

SOP: L-SPI-3020 Rev. 00

Digestion Batch #: 080301
Date/Time Initiated: 08/13/08, 1:30
Date/Time Completed: 08/13/08,
Analyst(s): RMP
Matrix: (Soil) Water Other:
Instr. Type: AA (ICP)
Parameters: HSL+Sn, Zr
(Digested) / Undigested (circle one)
Balance #: B-20
Balance Cal Verif: (Y) NA
Hot Plate Temp: 91°

Method: SW (circle) 3005A, 3010A, 3015, 3020A, 7060A (As/Se), 7760A (Ag), (3050B), 3051
DW 200.7 (1994), 200.9, 3113B
MCAWW 200.7 (1982), 200 (AA), 206.2 (As/Se)
SM 3030C (NC)
CLP ILMO3.0, ILMO4.0
Other

(WC-Hanford)

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
08082007-002		1.09	100	N/A	TO	fine	Black soil	NONE	N/A
-002R		1.10							
-002S	1.0 ●	1.13							
08082015-002		1.11					metal shavings		
-002R		1.19							
-002S	1.0 ●	1.12							
-003		1.08							
08082011-001		1.62					oil		
-001R		1.62							
-001S	1.0 ●	1.62							
-002		1.0●				fine	metal shavings		
080301-MB1		1.00					Boiling chips		
-LC1	1.0 ●	1.00							

Prepared
08-13-08

Spiking IDs:
MS #: 8100-04-01
-02
-03
6072-78-07
LCS #: 6072-078-08
-09
-10
-11

Reagent IDs:
HNO_3 G07057
HCL G15040
H_2O_2 G15A18
1:1 HNO_3 9789-81-03
1:1 HCL

File ID#: IC030101
LIMS Transfer: (Y) N update
Data Review By/Date: Opm 8/15/08

● Also spike with 0.5 ml Zr (6072-079-13)

Lionville Laboratory Incorporated

MERCURY PREPARATION

Logbook # 455

Analyst: TLN
Date 8/15/08
Start Time/Temp: 1045 | 93°
End Time/Temp: 1115 | 98°

Instrument ID Hg3.1
Balance #: B29 /NA
Pipette Calibration (Daily) Y ✓

Prep Batch: 08C0143
Worksheet: HG081501
SOP No. ME-HgCVAA, Rev. 02

pH < 2 for Liquids? __ Yes __ 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	ET			10mL	50mL	
0.2 µg/L	B2	0.100				
1.0	508	0.500				
2.0	154	1.000				
5.0	N2	2.500				
10.0	A901	5.000				
ICV	L53	0.125				
CCV	857	0.750				
ICB/CCB	L15/Z4					9.501
MB1	AB			0.30		PBS143 100.0
LC1	CB	*	*	0.32		LCSS143
08084007-002	SPRT			0.40		R
002R	R			0.33		
002S	CR	0.500	1.0	0.40		
08084011-001	HS			0.34		
001R	JB			0.40		
001S	3	0.500	1.0	0.34		
002	B32			0.30		
002R	N4			0.32		
002S	B14	0.050	10.0	0.30		
08084015-002	P3			0.31		
002R	5H			0.34		
002S	M1	0.050	10.0	0.31		
003	31			0.32		
08074511-007	M8			0.21		Amt'd Sample
009	WN			0.33		
009S	K17	0.050	10.0	0.33		

Standard:	ID	Prep Date/Time
ICAL/MS	R1 6072-78-14B	8/15/08 0930
ICV/CCV/LCS	US 6072-78-15A	

Reviewed By/Date [signature] 8/18/08

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

Lionville Laboratory Incorporated

MERCURY PREPARATION

Logbook # 455

Analyst: TLO
Date 8/15/08
Start Time/Temp: see page 094
End Time/Temp:

Instrument ID H63.1
Balance #: B29 /NA
Pipette Calibration (Daily) Y ✓

Prep Batch: 08C0143
Worksheet: HG08150I
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.
0807L511 009T	461	0.050	10.0	0.32	50mL	100.00
0808L030-001	H			0.38	↓	R 99.89
001R	C15			0.33	↓	↓
001S	27	0.500	1.0	0.38	↓	↓
0808L001-001	C7			0.39	↓	97.20
001R	A94			0.35	↓	↓
001S	P1	0.500	1.0	0.39	↓	↓
002	S			0.36	↓	84.10
0808L038-002	C4D			0.31	↓	100.00
002S	8T	0.0500	10.0	0.31	↓	↓
002T	L2	0.0500	10.0	0.32	↓	↓
0808L033-001	OLN			0.30	↓	R 98.18
001R	PA			0.38	↓	↓
001S	514	0.500	1.0	0.32	↓	↓

TLO 8/15/08

Standard:	ID	Prep Date/Time
ICAL/MS	See page 094	
ICV/CCV/LCS		

Reviewed By/Date: [signature] 8/18/08

see book # 9365 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

Page #:

000000018

Lionville Laboratory Use Only

0808L015

Custody Transfer Record/Lab Work Request

Page 1 of 1

LVLI

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

WC-HANFORD

Client: TNU HANFORD SHT # RC-088

Int. Final Proj. Sampling Date:

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

Project Contact/Phone#:

Lionville Laboratory Project Manager: O. JOHNSON

SW846 Del: STD TAT: 7 Day

Date Rec'd: 8-6-08 Date Due: 8-13-08

		A													
Refrigerator #		2													
#/Type Container	Liquid	16													
	Solid														
Volume		25°													
Preservatives															

ANALYSES REQUESTED →

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	VOA	BNA	Pest/PCB	Herb	Ignitability			TCLP Metal Hg	CN						
								0625H	OPCB		IIGN			Mat (1)							
001	J 177M4-B	/	/	Oil	7-31-08	1510		X	X		X			X	WC 8-8-08						
002	M4-A			SO	↓	1510								X							
003	M2-A			SO	7-30-08	1310								X							
004	M2-B			Oil	↓	1310		X	X		X										

Lionville Laboratory Use Only

MATRIX CODES: Soil, Sediment, Solid, Sludge, Water, Oil, Air, Drum Solids, Drum Liquids, EP/TCLP Leachate, Wipe, Other, Fish

Special Instructions:

Mat (1) = HSL + Sn, Zr

Special Instructions:

8-8-08 1. Per client -001 biphasic sample filtered (-001 = oil; -002 = Solid)

2.

8-8-08 3. per client 0808L007-001 biphasic sample moved to 0808L015-003,

4. 0808L015-004

5.

6.

Matrix QC

Relinquished by	Received by	Date	Time
[signature]	[signature]	8/6/08	0945

Relinquished by	Received by	Date	Time

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

000000019

onville Laboratory Use Only

808L015

Custody Transfer Record/Lab Work Request

Page 1 of 1

LVLI

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

WC-HANFORD

ent TNU HANFORD SHF# RC-088

t. Final Proj. Sampling Date

ject# 60049-001-001-0001-00

ject Contact/Phone#

nville Laboratory Project Manager O. JOHNSON

SW846 Del STD TAT 7 Day

te Rec'd 8-6-08 Date Due 8-13-08

		A													
Refrigerator #		2													
#/Type Container	Liquid	1G													
	Solid														
Volume		25°													
Preservatives															
ANALYSES REQUESTED →		ORGANIC								INORG					
		VOA	BNA	Pest/PCB	Herb					Metal Hg	CN				
		Lionville Laboratory Use Only													
			0625H	OPCB		IIGN			Mat(1)						
			X	X		X			X						

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	J177M4	/	/	0.1	7-31-08	1510

pecial Instructions:

Mat (1) = HSL + Sn, Zr

Special Instructions:

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

Relinquished by	Received by	Date	Time
[signature]	[signature]	8/6/08	0945

Relinquished by	Received by	Date	Time

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

000000020

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-088-056	Page 1 of 1

ollector B. Lawrence / E. Harries	Company Contact Joan Kessner	Telephone No. 509-375-4688	Project Coordinator KESSNER, JH
Price Code 9F	Data Turnaround ~~15~~ 7 Days per 7/30/01		
oject Designation 618-7 Burial Ground - Other Liquids	Sampling Location 618-7 Burial Ground (drums)		SAF No. RC-088
e Chest No. AFS-04-121	Field Logbook No. EL-1395-12	COA RG61878500	Method of Shipment Fed Ex
ipped To EBERLINE SERVICES JACKSONVILLE	Offsite Property No. A080311		Bill of Lading/Air Bill No. see ospc

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						
		JRD 7-10-08									
No. of Container(s)	1	~~1~~ 0	~~1~~ 0	~~1~~ 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.					RLF#	Drum

Sample No.	Matrix *	Sample Date	Sample Time										
177M4	OTHER LIQUID	7-31-08	~~1310~~ 1510 JRD 7-31-08	X	X	X	X	JRD 7-31-08				J177K4	5204
~~177M5~~	~~OTHER LIQUID~~												
~~177M6~~	~~OTHER LIQUID~~	JRD 7-31-08											
~~177M7~~	~~OTHER LIQUID~~												

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From	Date/Time 1530 7-31-08	Received By/Stored In JRDeBrigne	Date/Time 1530 7-31-08
Relinquished By/Removed From JRDeBrigne	Date/Time 1640 7-31-08	Received By/Stored In 1060 1A	Date/Time 7-31-08 1640
Relinquished By/Removed From 1060/1A	Date/Time 0920 AUG 05 2008	Received By/Stored In mstankovich	Date/Time 0920 AUG 05 2008
Relinquished By/Removed From mstankovich	Date/Time 0920 AUG 05 2008	Received By/Stored In Fed EX	Date/Time
Relinquished By/Removed From Fed EX	Date/Time 8-6-08 0945	Received By/Stored In	Date/Time 8-6-08 0945
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

Sampler unavailable to remove samples from controlled storage. Shipper removed samples from storage location taking custody of samples for shipment to lab.

JRD

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

000000021

Lionville Laboratory Incorporated

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: TNU HANFORD

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

Date: 8/6/08

LvLI Batch #: 0808L 015

Sample Custodian: Vicki Hernandez

NOTE: EXPLAIN ALL DISCREPANCIES

1. Samples Hand Delivered or Shipped?	Carrier FED EX		Airbill # 798490870922
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 2-2°	°C	Cooler # AFS-04-121
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 K1291

DATE RECEIVED: 08/06/08

LVL LOT # :0808L015

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J177M4-B						
IGNITABILITY	001	OI	08LFP021	07/31/08	08/12/08	08/12/08
J177M2-B						
IGNITABILITY	004	OI	08LFP021	07/30/08	08/12/08	08/12/08

LIONVILLE LABORATORY INC.

Analytical Report

Client: WC-HANFORD RC-088 K1291
LVL#: 0808L015

W.O.#: 60049-001-001-0001-00
Date Received: 08-06-08

INORGANIC NARRATIVE

1. This narrative covers the analysis of 2 liquid samples.

2. The samples were 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 were met.

4. The resulst presented in this report are derived from samples 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

8/20/08
Date

njp\i08-015

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**

L-WI-034/B-01/01

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 K1291
LVL#: 0808L015

W.O.#: 60049-001-001-0001-00
Date Received: 08-06-08

Analyte:

Ignitability

Observation:

Samples J177M4-B and J177M2-B did not ignite.

The samples were 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 82°F.

njp\i08-015.pt2

LIONVILLE LABORATORY INC.

ionville Laboratory Use Only

0808L015

Custody Transfer Record/Lab Work Request

Page 1 of 1

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

WC-HANFORD RC-088 K1291 A

lent ~~FALL HANFORD~~ SHF RC-088 8-14-08

t. Final Proj. Sampling Date

oject# 60049-001-001-0001-00

oject Contact/Phone#

onville Laboratory Project Manager O. JOHNSON

SW846 Del STD TAT 7 Day

ate Rec'd 8-6-08 Date Due 8-13-08

Refrigerator #									2												
#/Type Container	Liquid								16												
	Solid																				
Volume									25												
Preservatives																					
ANALYSES REQUESTED →									ORGANIC							INORG					
									VOA	BNA	Pest/PCB	Herb	Anstrat			TCLP Metal Hg	CN				
									Lionville Laboratory Use Only												
										0625H	OPCB		IIGN			Met(1)					
Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected															
001	J177M4-B	✓	✓	Oil	7-31-08	1070			X	X		X				X	WC 8-8-08				
002	M4-A			SO	↓	1510										X					
003	M2-A			SO	7-30-08	1310										X					
004	M2-B			Oil	↓	1310			X	X		X									

ATRIX ODES: Soil, Sediment, Solid, Sludge, Water, Oil, Air, Drum Solids, Drum Liquids, EP/TCLP, Leachate, Wipe, Other, Fish

pecial Instructions:

Met ① = HSL + Sn, Zr

Special Instructions:

8-8-08 1. Per client -001 biphasic sample filtered (-001 = oil; -002 = Solid)

2.

8-8-08 3. per client 0808L007-001. biphasic sample moved to 0808L015-003,

4. 0808L015-004

5.

6.

Matrix QC

Relinquished by	Received by	Date	Time
[signature]	[signature]	8/6/08	0945

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-088-056	Page 1 of 1
llector B. Lawrence / E. Harries	Company Contact Joan Kessner Telephone No. 509-375-4688	Project Coordinator KESSNER, JH	Price Code 9F Data Turnaround ~~15~~ 7 Days
ɔject Designation 618-7 Burial Ground - Other Liquids	Sampling Location 618-7 Burial Ground (drums)	SAF No. RC-088	
: Chest No. AFS-04-121	Field Logbook No. EL-1395-12 COA RG61878500	Method of Shipment Fed Ex	
ipped To EBERLINE SERVICES / CLONVILLE	Offsite Property No. A080311	Bill of Lading/Air Bill No. see aspc	

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	1	1	1	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.						
Sample No.	Matrix *	Sample Date	Sample Time							RLF#	Drum
77M4	OTHER LIQUID	7-31-08	~~1310~~ 1510	X	X	X	X			J17K4	5204
~~77M5~~	~~OTHER LIQUID~~		JRD 7-31-08								
~~77M6~~	~~OTHER LIQUID~~	JRD 7-31-08									
~~77M7~~	~~OTHER LIQUID~~										

JRD 7-31-08

CHAIN OF POSSESSION	Sign/Print Names		
linquished By/Removed From	Date/Time 1530	Received By/Stored In	Date/Time 1530
B Lawrence	7-31-08	JRDeBrigan	7-31-08
linquished By/Removed From	Date/Time 1640	Received By/Stored In	Date/Time
RDeBrigan	7-31-08	1060 1A	7-31-08 1640
linquished By/Removed From	Date/Time 0920	Received By/Stored In	Date/Time 0920
060/1A	AUG 05 2008	mstankovich	AUG 05 2008
linquished By/Removed From	Date/Time 0920	Received By/Stored In	Date/Time
mstankovich	AUG 05 2008	Fed Ex	
linquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Fed Ex	8-6-08 0945		8-6-08 0945
linquished 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

Sampler unavailable to remove samples from controlled storage. Shipper removed samples from storage location taking custody of samples for shipment to lab.

JRD

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
INAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

CH-EE-011

000000007

Lionville Laboratory Incorporated

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: TNU HANFORD

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

Date: 8/6/08

LvLI Batch #: 0808L 015

Sample Custodian: Vidal Hernandez

NOTE: EXPLAIN ALL DISCREPANCIES

1. Samples Hand Delivered or Shipped?	Carrier FED EX		Airbill # 798490870922
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 2-2°	°C	Cooler # AFS-04-121
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

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 #	0808L102
SDG #	K1291 ADDON
SAF #	RC-088
Date Received	8/21/08
# Samples	2
Matrix	OTHER
Volatiles	
Semivolatiles	
Pest/PCB	
Glycols	
DRO/KRO/GRO	
GC Alcohols	
Herbicides	
Metals	X
Inorganics	

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

LIONVILLE LABORATORY INC.

RECEIVED
AUG 2008

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
WC-HANFORD RC-088 K1291

DATE RECEIVED: 08/21/08 LVL LOT # :0808L102

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J177M4-B						
SILVER, TOTAL	001	OI	08L0311	07/31/08	08/26/08	08/26/08
SILVER, TOTAL	001 REP	OI	08L0311	07/31/08	08/26/08	08/26/08
SILVER, TOTAL	001 MS	OI	08L0311	07/31/08	08/26/08	08/26/08
ALUMINUM, TOTAL	001	OI	08L0311	07/31/08	08/26/08	08/26/08
ALUMINUM, TOTAL	001 REP	OI	08L0311	07/31/08	08/26/08	08/26/08
ALUMINUM, TOTAL	001 MS	OI	08L0311	07/31/08	08/26/08	08/26/08
ARSENIC, TOTAL	001	OI	08L0311	07/31/08	08/26/08	08/26/08
ARSENIC, TOTAL	001 REP	OI	08L0311	07/31/08	08/26/08	08/26/08
ARSENIC, TOTAL	001 MS	OI	08L0311	07/31/08	08/26/08	08/26/08
BARIUM, TOTAL	001	OI	08L0311	07/31/08	08/26/08	08/26/08
BARIUM, TOTAL	001 REP	OI	08L0311	07/31/08	08/26/08	08/26/08
BARIUM, TOTAL	001 MS	OI	08L0311	07/31/08	08/26/08	08/26/08
BERYLLIUM, TOTAL	001	OI	08L0311	07/31/08	08/26/08	08/26/08
BERYLLIUM, TOTAL	001 REP	OI	08L0311	07/31/08	08/26/08	08/26/08
BERYLLIUM, TOTAL	001 MS	OI	08L0311	07/31/08	08/26/08	08/26/08
CALCIUM, TOTAL	001	OI	08L0311	07/31/08	08/26/08	08/26/08
CALCIUM, TOTAL	001 REP	OI	08L0311	07/31/08	08/26/08	08/26/08
CALCIUM, TOTAL	001 MS	OI	08L0311	07/31/08	08/26/08	08/26/08
CADMIUM, TOTAL	001	OI	08L0311	07/31/08	08/26/08	08/26/08
CADMIUM, TOTAL	001 REP	OI	08L0311	07/31/08	08/26/08	08/26/08
CADMIUM, TOTAL	001 MS	OI	08L0311	07/31/08	08/26/08	08/26/08
COBALT, TOTAL	001	OI	08L0311	07/31/08	08/26/08	08/26/08
COBALT, TOTAL	001 REP	OI	08L0311	07/31/08	08/26/08	08/26/08
COBALT, TOTAL	001 MS	OI	08L0311	07/31/08	08/26/08	08/26/08
CHROMIUM, TOTAL	001	OI	08L0311	07/31/08	08/26/08	08/26/08
CHROMIUM, TOTAL	001 REP	OI	08L0311	07/31/08	08/26/08	08/26/08
CHROMIUM, TOTAL	001 MS	OI	08L0311	07/31/08	08/26/08	08/26/08
COPPER, TOTAL	001	OI	08L0311	07/31/08	08/26/08	08/26/08
COPPER, TOTAL	001 REP	OI	08L0311	07/31/08	08/26/08	08/26/08
COPPER, TOTAL	001 MS	OI	08L0311	07/31/08	08/26/08	08/26/08
IRON, TOTAL	001	OI	08L0311	07/31/08	08/26/08	08/26/08
IRON, TOTAL	001 REP	OI	08L0311	07/31/08	08/26/08	08/26/08
IRON, TOTAL	001 MS	OI	08L0311	07/31/08	08/26/08	08/26/08
MERCURY, TOTAL	001	OI	08C0146	07/31/08	08/25/08	08/25/08
MERCURY, TOTAL	001 REP	OI	08C0146	07/31/08	08/25/08	08/25/08

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

DATE RECEIVED: 08/21/08 LVL LOT # :0808L102

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
MERCURY, TOTAL	001 MS	OI	08C0146	07/31/08	08/25/08	08/25/08
POTASSIUM, TOTAL	001	OI	08L0311	07/31/08	08/26/08	08/26/08
POTASSIUM, TOTAL	001 REP	OI	08L0311	07/31/08	08/26/08	08/26/08
POTASSIUM, TOTAL	001 MS	OI	08L0311	07/31/08	08/26/08	08/26/08
MAGNESIUM, TOTAL	001	OI	08L0311	07/31/08	08/26/08	08/26/08
MAGNESIUM, TOTAL	001 REP	OI	08L0311	07/31/08	08/26/08	08/26/08
MAGNESIUM, TOTAL	001 MS	OI	08L0311	07/31/08	08/26/08	08/26/08
MANGANESE, TOTAL	001	OI	08L0311	07/31/08	08/26/08	08/26/08
MANGANESE, TOTAL	001 REP	OI	08L0311	07/31/08	08/26/08	08/26/08
MANGANESE, TOTAL	001 MS	OI	08L0311	07/31/08	08/26/08	08/26/08
SODIUM, TOTAL	001	OI	08L0311	07/31/08	08/26/08	08/26/08
SODIUM, TOTAL	001 REP	OI	08L0311	07/31/08	08/26/08	08/26/08
SODIUM, TOTAL	001 MS	OI	08L0311	07/31/08	08/26/08	08/26/08
NICKEL, TOTAL	001	OI	08L0311	07/31/08	08/26/08	08/26/08
NICKEL, TOTAL	001 REP	OI	08L0311	07/31/08	08/26/08	08/26/08
NICKEL, TOTAL	001 MS	OI	08L0311	07/31/08	08/26/08	08/26/08
LEAD, TOTAL	001	OI	08L0311	07/31/08	08/26/08	08/26/08
LEAD, TOTAL	001 REP	OI	08L0311	07/31/08	08/26/08	08/26/08
LEAD, TOTAL	001 MS	OI	08L0311	07/31/08	08/26/08	08/26/08
ANTIMONY, TOTAL	001	OI	08L0311	07/31/08	08/26/08	08/26/08
ANTIMONY, TOTAL	001 REP	OI	08L0311	07/31/08	08/26/08	08/26/08
ANTIMONY, TOTAL	001 MS	OI	08L0311	07/31/08	08/26/08	08/26/08
SELENIUM, TOTAL	001	OI	08L0311	07/31/08	08/26/08	08/26/08
SELENIUM, TOTAL	001 REP	OI	08L0311	07/31/08	08/26/08	08/26/08
SELENIUM, TOTAL	001 MS	OI	08L0311	07/31/08	08/26/08	08/26/08
TIN, TOTAL	001	OI	08L0311	07/31/08	08/26/08	08/26/08
TIN, TOTAL	001 REP	OI	08L0311	07/31/08	08/26/08	08/26/08
TIN, TOTAL	001 MS	OI	08L0311	07/31/08	08/26/08	08/26/08
THALLIUM, TOTAL	001	OI	08L0311	07/31/08	08/26/08	08/26/08
THALLIUM, TOTAL	001 REP	OI	08L0311	07/31/08	08/26/08	08/26/08
THALLIUM, TOTAL	001 MS	OI	08L0311	07/31/08	08/26/08	08/26/08
VANADIUM, TOTAL	001	OI	08L0311	07/31/08	08/26/08	08/26/08
VANADIUM, TOTAL	001 REP	OI	08L0311	07/31/08	08/26/08	08/26/08
VANADIUM, TOTAL	001 MS	OI	08L0311	07/31/08	08/26/08	08/26/08
ZINC, TOTAL	001	OI	08L0311	07/31/08	08/26/08	08/26/08
ZINC, TOTAL	001 REP	OI	08L0311	07/31/08	08/26/08	08/26/08
ZINC, TOTAL	001 MS	OI	08L0311	07/31/08	08/26/08	08/26/08
ZIRCONIUM, TOTAL	001	OI	08L0311	07/31/08	08/26/08	08/26/08

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

DATE RECEIVED: 08/21/08 LVL LOT # :0808L102

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
ZIRCONIUM, TOTAL	001 REP	OI	08L0311	07/31/08	08/26/08	08/26/08
ZIRCONIUM, TOTAL	001 MS	OI	08L0311	07/31/08	08/26/08	08/26/08
J177M2-B						
SILVER, TOTAL	002	OI	08L0311	07/30/08	08/26/08	08/26/08
ALUMINUM, TOTAL	002	OI	08L0311	07/30/08	08/26/08	08/26/08
ARSENIC, TOTAL	002	OI	08L0311	07/30/08	08/26/08	08/26/08
BARIUM, TOTAL	002	OI	08L0311	07/30/08	08/26/08	08/26/08
BERYLLIUM, TOTAL	002	OI	08L0311	07/30/08	08/26/08	08/26/08
CALCIUM, TOTAL	002	OI	08L0311	07/30/08	08/26/08	08/26/08
CADMIUM, TOTAL	002	OI	08L0311	07/30/08	08/26/08	08/26/08
COBALT, TOTAL	002	OI	08L0311	07/30/08	08/26/08	08/26/08
CHROMIUM, TOTAL	002	OI	08L0311	07/30/08	08/26/08	08/26/08
COPPER, TOTAL	002	OI	08L0311	07/30/08	08/26/08	08/26/08
IRON, TOTAL	002	OI	08L0311	07/30/08	08/26/08	08/26/08
MERCURY, TOTAL	002	OI	08C0146	07/30/08	08/25/08	08/25/08
POTASSIUM, TOTAL	002	OI	08L0311	07/30/08	08/26/08	08/26/08
MAGNESIUM, TOTAL	002	OI	08L0311	07/30/08	08/26/08	08/26/08
MANGANESE, TOTAL	002	OI	08L0311	07/30/08	08/26/08	08/26/08
SODIUM, TOTAL	002	OI	08L0311	07/30/08	08/26/08	08/26/08
NICKEL, TOTAL	002	OI	08L0311	07/30/08	08/26/08	08/26/08
LEAD, TOTAL	002	OI	08L0311	07/30/08	08/26/08	08/26/08
ANTIMONY, TOTAL	002	OI	08L0311	07/30/08	08/26/08	08/26/08
SELENIUM, TOTAL	002	OI	08L0311	07/30/08	08/26/08	08/26/08
TIN, TOTAL	002	OI	08L0311	07/30/08	08/26/08	08/26/08
THALLIUM, TOTAL	002	OI	08L0311	07/30/08	08/26/08	08/26/08
VANADIUM, TOTAL	002	OI	08L0311	07/30/08	08/26/08	08/26/08
ZINC, TOTAL	002	OI	08L0311	07/30/08	08/26/08	08/26/08
ZIRCONIUM, TOTAL	002	OI	08L0311	07/30/08	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

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

DATE RECEIVED: 08/21/08 LVL LOT # :0808L102

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

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

DATE RECEIVED: 08/21/08 LVL LOT # :0808L102

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
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#: 0808L102
SDG/SAF#: L291/RC-088

W.O.#: 60049-001-001-0001-00
Date Received: 08-06-08
Relog Date: 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.

1. This narrative covers the analyses of 2 oil samples.

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

   The samples J177M4-B and J177M2-B are relogs of LvLI#: 0808L015-001 and 004 as per the client.

   The samples were run with 5-fold dilutions for Mercury 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 blanks for 2 analytes were 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 results for Aluminum and Sodium were greater than the Limit of Quantitation (LOQ) {3-10x the (LOD) Limit of Detection} The samples for Aluminum and sample J177M4-B for Sodium 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.

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.

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

9. All matrix spike (MS) recoveries were within the 75-125% control limits. Refer to the Inorganics Accuracy Report.

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

11. 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.

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

alm/m08-102

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#: 0808L102

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: _____

L-W000000008

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

LVL LOT #: 0808L102

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	J177M4-B	Silver, Total	0.09 u	MG/KG	0.09	1.0
		Aluminum, Total	4.8	MG/KG	3.5	1.0
		Arsenic, Total	0.44 u	MG/KG	0.44	1.0
		Barium, Total	0.46	MG/KG	0.09	1.0
		Beryllium, Total	1.5	MG/KG	0.04	1.0
		Calcium, Total	58.1	MG/KG	3.5	1.0
		Cadmium, Total	0.04 u	MG/KG	0.04	1.0
		Cobalt, Total	0.17 u	MG/KG	0.17	1.0
		Chromium, Total	0.31	MG/KG	0.17	1.0
		Copper, Total	0.21	MG/KG	0.17	1.0
		Iron, Total	31.4	MG/KG	3.9	1.0
		Mercury, Total	0.05 u	MG/KG	0.05	5.0
		Potassium, Total	3.5 u	MG/KG	3.5	1.0
		Magnesium, Total	4.1	MG/KG	2.2	1.0
		Manganese, Total	0.42	MG/KG	0.03	1.0
		Sodium, Total	56.7	MG/KG	1.7	1.0
		Nickel, Total	0.17 u	MG/KG	0.17	1.0
		Lead, Total	0.30	MG/KG	0.26	1.0
		Antimony, Total	0.26 u	MG/KG	0.26	1.0
		Selenium, Total	0.72	MG/KG	0.52	1.0
		Tin, Total	0.58	MG/KG	0.52	1.0
		Thallium, Total	0.52 u	MG/KG	0.52	1.0
		Vanadium, Total	0.12 u	MG/KG	0.12	1.0
		Zinc, Total	7.3	MG/KG	0.52	1.0
		Zirconium, Total	4.4 u	MG/KG	4.4	1.0

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 08/27/08

CLIENT: WC-HANFORD RC-088

LVL LOT #: 0808L102

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-002	J177M2-B	Silver, Total	0.78	MG/KG	0.09	1.0
		Aluminum, Total	6.5	MG/KG	3.4	1.0
		Arsenic, Total	0.43 u	MG/KG	0.43	1.0
		Barium, Total	1.3	MG/KG	0.09	1.0
		Beryllium, Total	9.5	MG/KG	0.04	1.0
		Calcium, Total	18.7	MG/KG	3.4	1.0
		Cadmium, Total	0.11	MG/KG	0.04	1.0
		Cobalt, Total	1.1	MG/KG	0.17	1.0
		Chromium, Total	0.23	MG/KG	0.17	1.0
		Copper, Total	2.6	MG/KG	0.17	1.0
		Iron, Total	52.6	MG/KG	3.8	1.0
		Mercury, Total	0.05	MG/KG	0.05	5.0
		Potassium, Total	6.4	MG/KG	3.4	1.0
		Magnesium, Total	5.6	MG/KG	2.1	1.0
		Manganese, Total	0.54	MG/KG	0.03	1.0
		Sodium, Total	2080	MG/KG	1.7	1.0
		Nickel, Total	0.17 u	MG/KG	0.17	1.0
		Lead, Total	0.84	MG/KG	0.26	1.0
		Antimony, Total	0.27	MG/KG	0.26	1.0
		Selenium, Total	0.52	MG/KG	0.51	1.0
		Tin, Total	1.4	MG/KG	0.51	1.0
		Thallium, Total	0.51 u	MG/KG	0.51	1.0
		Vanadium, Total	0.12 u	MG/KG	0.12	1.0
		Zinc, Total	9.5	MG/KG	0.51	1.0
		Zirconium, Total	17.4	MG/KG	4.3	1.0

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 08/27/08

CLIENT: WC-HANFORD RC-088

LVL LOT #: 0808L102

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

LVL LOT #: 0808L102

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-001	J177M4-B	Silver, Total	4.2	0.09u	4.3	97.7	1.0
		Aluminum, Total	181	4.8	172	102.2	1.0
		Arsenic, Total	160	0.44u	172	92.6	1.0
		Barium, Total	169	0.46	172	97.8	1.0
		Beryllium, Total	5.6	1.5	4.3	95.3	1.0
		Calcium, Total	2140	58.1	2160	96.8	1.0
		Cadmium, Total	4.0	0.04u	4.3	93.0	1.0
		Cobalt, Total	41.0	0.17u	43.1	95.1	1.0
		Chromium, Total	16.9	0.31	17.2	96.5	1.0
		Copper, Total	21.9	0.21	21.6	100.4	1.0
		Iron, Total	112	31.4	86.2	93.0	1.0
		Mercury, Total	1.6	0.05u	1.6	102.0	5.0
		Potassium, Total	1960	3.5 u	2160	90.9	1.0
		Magnesium, Total	2060	4.1	2160	95.5	1.0
		Manganese, Total	42.2	0.42	43.1	96.9	1.0
		Sodium, Total	2110	56.7	2160	95.3	1.0
		Nickel, Total	40.5	0.17u	43.1	94.0	1.0
		Lead, Total	40.6	0.30	43.1	93.5	1.0
		Antimony, Total	39.4	0.26u	43.1	91.4	1.0
		Selenium, Total	138	0.72	172	79.9	1.0
		Tin, Total	81.5	0.58	86.2	93.9	1.0
		Thallium, Total	159	0.52u	172	92.5	1.0
		Vanadium, Total	41.3	0.12u	43.1	95.8	1.0
		Zinc, Total	47.3	7.3	43.1	92.8	1.0
		Zirconium, Total	415	4.4 u	431	96.4	1.0

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 08/27/08

CLIENT: WC-HANFORD RC-088 LVL LOT #: 0808L102

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-001REP	J177M4-B	Silver, Total	0.09u	0.08u	NC	1.0
		Aluminum, Total	4.8	4.0	18.2	1.0
		Arsenic, Total	0.44u	0.42u	NC	1.0
		Barium, Total	0.46	0.44	3.9	1.0
		Beryllium, Total	1.5	1.5	0.00	1.0
		Calcium, Total	58.1	55.0	5.5	1.0
		Cadmium, Total	0.04u	0.05	NC	1.0
		Cobalt, Total	0.17u	0.17u	NC	1.0
		Chromium, Total	0.31	0.23	29.4	1.0
		Copper, Total	0.21	0.17u	NC	1.0
		Iron, Total	31.4	28.4	10.0	1.0
		Mercury, Total	0.05u	0.05u	NC	5.0
		Potassium, Total	3.5 u	3.4 u	NC	1.0
		Magnesium, Total	4.1	3.1	27.8	1.0
		Manganese, Total	0.42	0.39	7.1	1.0
		Sodium, Total	56.7	55.2	2.7	1.0
		Nickel, Total	0.17u	0.17u	NC	1.0
		Lead, Total	0.30	0.42	31.7	1.0
		Antimony, Total	0.26u	0.25u	NC	1.0
		Selenium, Total	0.72	0.70	2.9	1.0
		Tin, Total	0.58	1.0	52.9	1.0
		Thallium, Total	0.52u	0.50u	NC	1.0
		Vanadium, Total	0.12u	0.12u	NC	1.0
		Zinc, Total	7.3	7.3	0.00	1.0
		Zirconium, Total	4.4 u	4.2 u	NC	1.0

Lionville Laboratory, Inc.

INORGANICS LABORATORY CONTROL STANDARDS REPORT 08/27/08

CLIENT: WC-HANFORD RC-088 LVL LOT #: 0808L102

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: ITSL + 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
DW 200.7 (1994), 200.9, 3113B
MCAWW 200.7 (1982), 200 (AA), 206.2 (As/Se)
SM 3030C (NC)
CLP ILMO3.0, ILMO4.0
Other Teflon

TNV

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
08082L100-001		1.42gm	100ml	<2	TO	coarse	black soil	small rocks	
001R		1.44gm							
001S	1.0ml *	1.45gm							
08082L090-001		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		
08082L102-001		1.15gm					black oil		
001R		1.19gm							
001S	1.0ml *	1.16gm							
002		1.17gm							
08082L073-002		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 G15A18
1:1 HNO_3 9789-053-05
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 HG3.1
Balance #: B29 / NA
Pipette Calibration (Daily) Y ✓

Prep Batch: 080146
Worksheet: HG082501
SOP No. ME-HgCVAA, Rev. 0

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					9.50L
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~~ CD2			~~0.30~~ 0.31		R 100.0
001R	~~AW~~ X3			~~0.34~~ 0.36		
001S	~~8K~~ R2	~~0.500~~ ~~0.050~~	~~1.0~~ ~~10.0~~	~~0.30~~ 0.31		
0808L090-001	~~CD2~~ 3C			0.30		R 100.0
001R	~~X3~~ AW			0.34		
001S	~~R2~~ 8K	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] 8/2

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 #: 000000017

Lionville Laboratory Incorporated

MERCURY PREPARATION

Logbook # 455

Analyst: DLA
Date 8/25/08
Start Time/Temp: See page 098
End Time/Temp:

Instrument ID HG3.1
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.
0808L075-001	194			0.31	50mL	R
001R	401			0.38	↓	↓
001S	183	0.500	1.0	0.31	↓	↓

DLA 8/25/08

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

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

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

Lionville Laboratory Use Only
0808L102

Custody Transfer Record/Lab Work Request

Page 1 of 1

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

VLI

Client: WC-HANFORD RC-088
Est. Final Proj. Sampling Date
Project# 60049-001-001-0001-00
Project Contact/Phone#
Lionville Laboratory Project Manager: O Johnson
PO: SW846 Del: STD TAT: 10 days
Date Rec'd: 8-21-08 Date Due: 8-31-08

Refrigerator #									2							
#/Type Container	Liquid								16							
	Solid															
Volume									250							
Preservatives																
ANALYSES REQUESTED		ORGANIC							INORG							
		VOA	BNA	Pest/PCB	Herb			TCP	Metal Hg	CN						

Lionville Laboratory Use Only

MATRIX CODES: S- Soil, E- Sediment, O- Solid, L- Sludge, W- Water, - Oil, - Air, DS- Drum Solids, DL- Drum Liquids, - EP/TCLP Leachate, W- Wipe, - Other, - Fish

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected														
													mat①							
001	J177M4-B	✓	✓	Oil	7-31-08	1510							X							
002	J177M2-B			Oil	7-30-08	1310							X							

Special Instructions:
mat① = HSL + Sn, Zr

Special Instructions:
1. Relog OS 0808L015-001+004
2.
3.
4.
5.
6.

Relinquished by	Received by	Date	Time	Relinquished by	Received by	Date	Time	Relinquished by	Received by	Date	Time

0000000019