0078923

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

COMPLETE COPY OF DATA PACKAGE TO:

Rick Kerkow	L6-06	KW 9/23/08 Initials/Date
Kathy Wendt	H4-21	KW 9/23/08 Initials/Date

COMMENTS:

SDG K1301 **SAF-RC-088**

Rad only Chem only X Rad & Chem

X Complete Partial

WASTE SITE: 618-7 Burial Ground (drums)

RECEIVED
OCT 2 0 2008
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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

September 8, 2008

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

RECEIVED
SEP 2008

Reference: **P.O. #S00W235A00**
Eberline Services R8-08-191-7873, SDG K1301

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 28, 2008. The samples were analyzed according to the accompanying chain-of-custody document.

Please call if you have any questions concerning this report.

Sincerely,

Melissa Mannion

Melissa C. Mannion
Senior Program Manager

MCM/njv

Enclosure: Data Package

1.0 GENERAL

Washington Closure Hanford (WCH) Sample Delivery Group K1301 was composed of two liquid (other liquid) samples designated under SAF No. RC-088 with a Project Designation of: 618-7 Burial Ground-Other.

The samples were received as stated on the Chain-of-Custody document. Any discrepancies are noted on the Eberline Services Sample Receipt Checklist. The results were transmitted to WCH via e-mail on September 8, 2008.

2.0 ANALYSIS NOTES

2.1 Gross Alpha and Gross Beta Analysis

The initial analysis was rejected due to contamination in the detectors on which the samples were counted; the detectors has previously been used to count hot samples which caused detector contamination. The samples were realiquoted and reanalyzed with new QC samples. No problems were encountered during the reanalysis.

2.2 Total Strontium Analysis

The QC LCS activity recovery was 75%, less than the lower control limit of 80%; no other 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.

2.7 Gamma Spectroscopy

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

09/08/08
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 K1301

SDG	7873
Contact	Melissa C. Mannion

Client	Hanford
Contract	No. S00W235A00
Case no	SDG_K1301

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

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

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Prepared by

Melissa Mannion

Reviewed by

Lab id	EBRLNE
Protocol	Hanford1
Version	Ver 1.0
Form	DVD-TOC
Version	3.06
Report date	09/08/08

SDG 7873
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG_K1301

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 09/08/08

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 K1301

LAB SAMPLE SUMMARY

SDG 7873
Contact Melissa C. Mannion

Client Hanford
Contract No. S00W235A00
Case no SDG K1301

LAB SAMPLE ID	CLIENT SAMPLE ID	LOCATION	MATRIX	LEVEL	SAF NO	CHAIN OF CUSTODY	COLLECTED
R808191-01	J178M0	618-7 Burial Grnd(drums)	LIQUID		RC-088	RC-088-063	08/20/08 07:40
R808191-02	J178M1	618-7 Burial Grnd(drums)	LIQUID		RC-088	RC-088-063	08/20/08 07:40
R808191-03	Lab Control Sample		LIQUID		RC-088		
R808191-04	Method Blank		LIQUID		RC-088		
R808191-05	Duplicate (R808191-01)	618-7 Burial Grnd(drums)	LIQUID		RC-088		08/20/08 07:40
R808191-06	Lab Control Sample		LIQUID		RC-088		
R808191-07	Method Blank		LIQUID		RC-088		
R808191-08	Duplicate (R808191-01)	618-7 Burial Grnd(drums)	LIQUID		RC-088		08/20/08 07:40

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-LS
Version 3.06
Report date 09/08/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1301

SDG 7873
Contact Melissa C. Mannion

QC SUMMARY

Client Hanford
Contract No. S00W235A00
Case no SDG K1301

C 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
873	RC-088-063	J178M0	LIQUID		512 mL		08/28/08	8	R808191-01	7873-001
		J178M1	LIQUID		505 mL		08/28/08	8	R808191-02	7873-002
		Method Blank	LIQUID						R808191-04	7873-004
		Method Blank	LIQUID						R808191-07	7873-007
		Lab Control Sample	LIQUID						R808191-03	7873-003
		Lab Control Sample	LIQUID						R808191-06	7873-006
		Duplicate (R808191-01)	LIQUID		512 mL		08/28/08	8	R808191-05	7873-005
		Duplicate (R808191-01)	LIQUID		512 mL		08/28/08	8	R808191-08	7873-008

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-QS
Version 3.06
Report date 09/08/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1301

SDG 7873
Contact Melissa C. Mannion

PREP BATCH SUMMARY

Client Hanford
Contract No. S00W235A00
Case no SDG K1301

TEST	MATRIX	METHOD	PREPARATION BATCH	ERROR 2σ %	PLANCHETS ANALYZED CLIENT	MORE	RE	BLANK	LCS	DUP/ORIG	MS/ORIG	QUALIFIERS
Alpha Spectroscopy												
AM	LIQUID	Americium 241 in Liquid	6160-096	8.0	2			1	1	1/1		
PU	LIQUID	Plutonium-238,239/240, Liquid	6160-096	8.0	2			1	1	1/1		
TH	LIQUID	Thorium, Isotopic in Liquid	6160-096	8.0	2			1	1	1/1		
U	LIQUID	Uranium in Liquid	6160-096	8.0	2			1	1	1/1		
Beta Counting												
SR	LIQUID	Total Strontium in Liquids	6160-096	10.4	2			1	1	1/1		
Gas Proportional Counting												
93A	LIQUID	Gross Alpha in Liquid	6160-096	20.6	2			1	1	1/1		
93B	LIQUID	Gross Beta in Liquid	6160-096	11.0	2			1	1	1/1		
Gamma Spectroscopy												
GAM	LIQUID	Gamma Scan in Liquid	6160-096	7.0	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 09/08/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1301

SDG 7873
Contact Melissa C. Mannion

LAB WORK SUMMARY

Client Hanford
Contract No. S00W235A00
Case no SDG K1301

AB SAMPLE COLLECTED RECEIVED	CLIENT SAMPLE ID LOCATION CUSTODY	SAF No	MATRIX	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
808191-01	J178M0			7873-001	93A/93	A1	09/06/08	09/08/08	BW	Gross Alpha in Liquid
08/20/08	618-7 Burial Grnd(drums)		LIQUID	7873-001	93B/93	A1	09/06/08	09/08/08	BW	Gross Beta in Liquid
08/28/08	RC-088-063	RC-088		7873-001	AM		09/03/08	09/03/08	BW	Americium 241 in Liquid
				7873-001	GAM		09/01/08	09/03/08	CSS	Gamma Scan in Liquid
				7873-001	PU		09/03/08	09/05/08	BW	Plutonium-238,239/240, Liquid
				7873-001	SR		08/30/08	09/03/08	BW	Total Strontium in Liquids
				7873-001	TH		09/03/08	09/05/08	BW	Thorium, Isotopic in Liquid
				7873-001	U		09/02/08	09/05/08	BW	Uranium in Liquid
808191-02	J178M1			7873-002	93A/93	A1	09/06/08	09/08/08	BW	Gross Alpha in Liquid
08/20/08	618-7 Burial Grnd(drums)		LIQUID	7873-002	93B/93	A1	09/06/08	09/08/08	BW	Gross Beta in Liquid
08/28/08	RC-088-063	RC-088		7873-002	AM		09/03/08	09/03/08	BW	Americium 241 in Liquid
				7873-002	GAM		09/01/08	09/03/08	CSS	Gamma Scan in Liquid
				7873-002	PU		09/03/08	09/05/08	BW	Plutonium-238,239/240, Liquid
				7873-002	SR		08/30/08	09/03/08	BW	Total Strontium in Liquids
				7873-002	TH		09/03/08	09/05/08	BW	Thorium, Isotopic in Liquid
				7873-002	U		09/02/08	09/05/08	BW	Uranium in Liquid
808191-03	Lab Control Sample			7873-003	AM		09/03/08	09/03/08	BW	Americium 241 in Liquid
			LIQUID	7873-003	GAM		09/01/08	09/03/08	CSS	Gamma Scan in Liquid
		RC-088		7873-003	PU		09/03/08	09/05/08	BW	Plutonium-238,239/240, Liquid
				7873-003	SR		08/30/08	09/03/08	BW	Total Strontium in Liquids
				7873-003	TH		09/03/08	09/05/08	BW	Thorium, Isotopic in Liquid
				7873-003	U		09/02/08	09/05/08	BW	Uranium in Liquid
808191-04	Method Blank			7873-004	AM		09/03/08	09/03/08	BW	Americium 241 in Liquid
			LIQUID	7873-004	GAM		09/01/08	09/03/08	CSS	Gamma Scan in Liquid
		RC-088		7873-004	PU		09/03/08	09/05/08	BW	Plutonium-238,239/240, Liquid
				7873-004	SR		08/30/08	09/03/08	BW	Total Strontium in Liquids
				7873-004	TH		09/04/08	09/05/08	BW	Thorium, Isotopic in Liquid
				7873-004	U		09/03/08	09/05/08	BW	Uranium in Liquid
808191-05	Duplicate (R808191-01)			7873-005	AM		09/03/08	09/03/08	BW	Americium 241 in Liquid
08/20/08	618-7 Burial Grnd(drums)		LIQUID	7873-005	GAM		09/01/08	09/03/08	CSS	Gamma Scan in Liquid
08/28/08		RC-088		7873-005	PU		09/03/08	09/05/08	BW	Plutonium-238,239/240, Liquid
				7873-005	SR		08/30/08	09/03/08	BW	Total Strontium in Liquids
				7873-005	TH		09/03/08	09/05/08	BW	Thorium, Isotopic in Liquid
				7873-005	U		09/02/08	09/05/08	BW	Uranium in Liquid

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-LWS
Version 3.06
Report date 09/08/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1301

SDG 7873
Contact Melissa C. Mannion

WORK SUMMARY, cont.

Client Hanford
Contract No. S00W235A00
Case no SDG K1301

AB SAMPLE COLLECTED RECEIVED	CLIENT SAMPLE ID LOCATION CUSTODY	SAF No	MATRIX	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
308191-06	Lab Control Sample			7873-006	93A/93		09/06/08	09/08/08	BW	Gross Alpha in Liquid
			LIQUID	7873-006	93B/93		09/06/08	09/08/08	BW	Gross Beta in Liquid
		RC-088								
308191-07	Method Blank			7873-007	93A/93		09/06/08	09/08/08	BW	Gross Alpha in Liquid
			LIQUID	7873-007	93B/93		09/06/08	09/08/08	BW	Gross Beta in Liquid
		RC-088								
308191-08	Duplicate (R808191-01)			7873-008	93A/93		09/06/08	09/08/08	BW	Gross Alpha in Liquid
08/20/08	618-7 Burial Grnd(drums)		LIQUID	7873-008	93B/93		09/06/08	09/08/08	BW	Gross Beta in Liquid
08/28/08		RC-088								

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
GAM	RC-088	Gamma Scan in Liquid	GAMMA_GS	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				16			8	8	8	40

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-LWS
Version 3.06
Report date 09/08/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1301

7873-004 Method Blank

METHOD BLANK

SDG	7873	Client/Case no	Hanford SDG K1301
Contact	Melissa C. Mannion	Contract	No. S00W235A00
Lab sample id	R808191-04	Client sample id	Method Blank
Dept sample id	7873-004	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
Total Strontium	SR-RAD	-0.012	0.12	0.246	1.00	U	SR
Americium 241	14596-10-2	0	0.14	0.283	1.00	U	AM
Thorium 228	14274-82-9	0.057	0.082	0.145	1.00	U	TH
Thorium 230	14269-63-7	-0.033	0.065	0.109	1.00	U	TH
Thorium 232	TH-232	0	0.016	0.063	1.00	U	TH
Uranium 233/234	U-233/234	0.024	0.047	0.180	1.00	U	U
Uranium 235	15117-96-1	0.029	0.057	0.218	1.00	U	U
Uranium 238	U-238	0.024	0.047	0.180	1.00	U	U
Plutonium 238	13981-16-3	-0.052	0.10	0.396	1.00	U	PU
Plutonium 239/240	PU-239/240	0	0.10	0.396	1.00	U	PU
Potassium 40	13966-00-2	U		0.543		U	GAM
Cobalt 60	10198-40-0	U		0.025	0.050	U	GAM
Cesium 137	10045-97-3	U		0.024	0.050	U	GAM
Radium 226	13982-63-3	U		0.058	0.100	U	GAM
Radium 228	15262-20-1	U		0.119	0.200	U	GAM
Europium 152	14683-23-9	U		0.071	0.100	U	GAM
Europium 154	15585-10-1	U		0.070	0.100	U	GAM
Europium 155	14391-16-3	U		0.056	0.100	U	GAM
Thorium 228	14274-82-9	U		0.049		U	GAM
Thorium 232	TH-232	U		0.119		U	GAM
Uranium 235	15117-96-1	U		0.110		U	GAM
Uranium 238	U-238	U		3.11		U	GAM
Americium 241	14596-10-2	U		0.062		U	GAM

618-7 Burial Ground - Other

QC-BLANK #67062

Lab id	EBRLNE
Protocol	Hanford1
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	09/08/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1301

7873-007 **Method Blank**

METHOD BLANK

SDG	7873	Client/Case no	Hanford	SDG K1301	
Contact	Melissa C. Mannion	Contract	No. S00W235A00		
Lab sample id	R808191-07	Client sample id	Method Blank		
Dept sample id	7873-007	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	-0.120	2.5	5.76	10.0	U	93A
Gross Beta	12587-47-2	-0.051	5.3	8.82	15.0	U	93B

618-7 Burial Ground - Other

QC-BLANK #67174

Lab id	EBRLNE
Protocol	Hanford1
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	09/08/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1301

7873-003

Lab Control Sample

LAB CONTROL SAMPLE

SDG 7873
Contact Melissa C. Mannion

Client/Case no Hanford SDG K1301
Contract No. S00W235A00

Lab sample id R808191-03
Dept sample id 7873-003

Client sample id Lab Control Sample
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
Total Strontium	6.95	0.43	0.203	1.00		SR	9.27	0.37	75	85-115	80-120
Americium 241	22.2	1.9	0.229	1.00		AM	20.4	0.82	109	80-120	80-120
Thorium 230	34.5	2.8	0.202	1.00		TH	37.8	1.5	91	83-117	80-120
Uranium 233/234	17.9	1.7	0.775	1.00		U	18.6	0.74	96	81-119	80-120
Uranium 235	14.3	1.5	0.171	1.00		U	15.1	0.60	95	80-120	80-120
Uranium 238	18.1	1.7	0.744	1.00		U	20.2	0.81	90	82-118	80-120
Plutonium 238	23.3	2.9	0.400	1.00		PU	23.4	0.94	100	77-123	80-120
Plutonium 239/240	23.4	2.9	0.320	1.00		PU	26.4	1.1	89	79-121	80-120
Cobalt 60	2.09	0.16	0.122	0.050		GAM	2.09	0.084	100	83-117	80-120
Cesium 137	2.36	0.16	0.133	0.050		GAM	2.33	0.093	101	84-116	80-120

618-7 Burial Ground - Other

QC-LCS #67061

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-LCS
Version 3.06
Report date 09/08/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1301

7873-006

Lab Control Sample

LAB CONTROL SAMPLE

SDG 7873

Contact Melissa C. Mannion

Client/Case no Hanford SDG K1301

Contract No. S00W235A00

Lab sample id R808191-06

Dept sample id 7873-006

Client sample id Lab Control Sample

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	105	16	6.12	10.0		93A	112	4.5	94	63-137	70-130
Gross Beta	110	8.0	5.80	15.0		93B	111	4.4	99	80-120	70-130

618-7 Burial Ground - Other

QC-LCS #67173

Lab id EBRLNE

Protocol Hanford1

Version Ver 1.0

Form DVD-LCS

Version 3.06

Report date 09/08/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1301

7873-005 J178M0

DUPLICATE

SDG	7873	Client/Case no	Hanford SDG K1301
Contact	Melissa C. Mannion	Contract	No. S00W235A00
DUPLICATE		ORIGINAL	
Lab sample id	R808191-05	Lab sample id	R808191-01
Dept sample id	7873-005	Dept sample id	7873-001
		Received	08/28/08
Client sample id	J178M0		
Location/Matrix	618-7 Burial Grnd(drums) LIQUID		
Collected/Volume	08/20/08 07:40 512 mL		
Custody/SAF No	RC-088-063 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
Total Strontium	-0.035	0.11	0.236	1.00	U	SR	0.042	0.11	0.220	U	-		1.0
Americium 241	-0.108	0.11	0.413	1.00	U	AM	0	0.14	0.340	U	-		1.2
Thorium 228	0.071	0.19	0.364	1.00	U	TH	0.060	0.16	0.289	U	-		0.1
Thorium 230	0.119	0.19	0.227	1.00	U	TH	0.140	0.16	0.153	U	-		0.2
Thorium 232	-0.024	0.048	0.182	1.00	U	TH	0.020	0.040	0.153	U	-		1.4
Uranium 233/234	1.42	0.31	0.124	1.00		U	1.02	0.29	0.137		33	55	1.8
Uranium 235	0.059	0.079	0.151	1.00	U	U	0.087	0.087	0.166	U	-		0.5
Uranium 238	0.829	0.23	0.124	1.00		U	1.31	0.33	0.137		45	59	2.3
Plutonium 238	0.174	0.17	0.332	1.00	U	PU	0	0.15	0.417	U	-		1.5
Plutonium 239/240	0	0.087	0.332	1.00	U	PU	-0.038	0.076	0.289	U	-		0.7
Potassium 40	U		0.286		U	GAM	U		0.399	U	-		0.5
Cobalt 60	U		0.032	0.050	U	GAM	U		0.049	U	-		0.6
Cesium 137	U		0.030	0.050	U	GAM	U		0.052	U	-		0.7
Radium 226	U		0.055	0.100	U	GAM	U		0.084	U	-		0.6
Radium 228	U		0.111	0.200	U	GAM	U		0.175	U	-		0.6
Europium 152	U		0.076	0.100	U	GAM	U		0.114	U	-		0.6
Europium 154	U		0.099	0.100	U	GAM	U		0.172	U	-		0.7
Europium 155	U		0.053	0.100	U	GAM	U		0.089	U	-		0.7
Thorium 228	U		0.044		U	GAM	U		0.122	U	-		1.2
Thorium 232	U		0.111		U	GAM	U		0.175	U	-		0.6
Uranium 235	U		0.167		U	GAM	U		0.173	U	-		0
Uranium 238	U		3.80		U	GAM	U		6.43	U	-		0.7
Americium 241	U		0.035		U	GAM	U		0.058	U	-		0.7

618-7 Burial Ground - Other

QC-DUP#1 67063

Lab id	EBRLNE
Protocol	Hanford1
Version	Ver 1.0
Form	DVD-DUP
Version	3.06
Report date	09/08/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1301

7873-008 J178M0

DUPLICATE

SDG	7873			Client/Case no	Hanford SDG K1301
Contact	Melissa C. Mannion			Contract	No. S00W235A00
	DUPLICATE		ORIGINAL		
Lab sample id	R808191-08	Lab sample id	R808191-01	Client sample id	J178M0
Dept sample id	7873-008	Dept sample id	7873-001	Location/Matrix	618-7 Burial Grnd(drums) LIQUID
		Received	08/28/08	Collected/Volume	08/20/08 07:40 , 512 mL
				Custody/SAF No	RC-088-063 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	2.24	1.8	2.26	10.0	U	93A	0.665	1.2	2.12	U	-		1.4
Gross Beta	6.18	4.2	6.61	15.0	U	93B	4.27	3.6	5.61	U	-		0.7

618-7 Burial Ground - Other

QC-DUP#1 67175

Lab id	EBRLNE
Protocol	Hanford1
Version	Ver 1.0
Form	DVD-DUP
Version	3.06
Report date	09/08/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1301

7873-001 J178M0

DATA SHEET

SDG	7873	Client/Case no	Hanford SDG_K1301
Contact	Melissa C. Mannion	Contract	No. S00W235A00
Lab sample id	R808191-01	Client sample id	J178M0
Dept sample id	7873-001	Location/Matrix	618-7 Burial Grnd(drums) LIQUID
Received	08/28/08	Collected/Volume	08/20/08 07:40 512 mL
		Custody/SAF No	RC-088-063 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	0.665	1.2	2.12	10.0	U	93A
Gross Beta	12587-47-2	4.27	3.6	5.61	15.0	U	93B
Total Strontium	SR-RAD	0.042	0.11	0.220	1.00	U	SR
Americium 241	14596-10-2	0	0.14	0.340	1.00	U	AM
Thorium 228	14274-82-9	0.060	0.16	0.289	1.00	U	TH
Thorium 230	14269-63-7	0.140	0.16	0.153	1.00	U	TH
Thorium 232	TH-232	0.020	0.040	0.153	1.00	U	TH
Uranium 233/234	U-233/234	1.02	0.29	0.137	1.00		U
Uranium 235	15117-96-1	0.087	0.087	0.166	1.00	U	U
Uranium 238	U-238	1.31	0.33	0.137	1.00		U
Plutonium 238	13981-16-3	0	0.15	0.417	1.00	U	PU
Plutonium 239/240	PU-239/240	-0.038	0.076	0.289	1.00	U	PU
Potassium 40	13966-00-2	U		0.399		U	GAM
Cobalt 60	10198-40-0	U		0.049	0.050	U	GAM
Cesium 137	10045-97-3	U		0.052	0.050	U	GAM
Radium 226	13982-63-3	U		0.084	0.100	U	GAM
Radium 228	15262-20-1	U		0.175	0.200	U	GAM
Europium 152	14683-23-9	U		0.114	0.100	U	GAM
Europium 154	15585-10-1	U		0.172	0.100	U	GAM
Europium 155	14391-16-3	U		0.089	0.100	U	GAM
Thorium 228	14274-82-9	U		0.122		U	GAM
Thorium 232	TH-232	U		0.175		U	GAM
Uranium 235	15117-96-1	U		0.173		U	GAM
Uranium 238	U-238	U		6.43		U	GAM
Americium 241	14596-10-2	U		0.058		U	GAM

618-7 Burial Ground - Other

Lab id	EBRLNE
Protocol	Hanford1
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	09/08/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1301

7873-002 J178M1

DATA SHEET

SDG	7873	Client/Case no	Hanford SDG K1301
Contact	Melissa C. Mannion	Contract	No. S00W235A00
Lab sample id	R808191-02	Client sample id	J178M1
Dept sample id	7873-002	Location/Matrix	618-7 Burial Grnd(drums) LIQUID
Received	08/28/08	Collected/Volume	08/20/08 07:40 505 mL
		Custody/SAF No	RC-088-063 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	40.1	5.8	1.92	10.0		93A
Gross Beta	12587-47-2	31.6	6.2	7.97	15.0		93B
Total Strontium	SR-RAD	0.062	0.11	0.200	1.00	U	SR
Americium 241	14596-10-2	0.080	0.16	0.305	1.00	U	AM
Thorium 228	14274-82-9	0.061	0.16	0.312	1.00	U	TH
Thorium 230	14269-63-7	0	0.12	0.156	1.00	U	TH
Thorium 232	TH-232	0.041	0.041	0.156	1.00	U	TH
Uranium 233/234	U-233/234	21.9	2.0	0.337	1.00		U
Uranium 235	15117-96-1	2.35	0.46	0.164	1.00		U
Uranium 238	U-238	15.3	1.5	0.325	1.00		U
Plutonium 238	13981-16-3	0.033	0.20	0.364	1.00	U	PU
Plutonium 239/240	PU-239/240	0.033	0.13	0.252	1.00	U	PU
Potassium 40	13966-00-2	U		2.17		U	GAM
Cobalt 60	10198-40-0	U		0.069	0.050	U	GAM
Cesium 137	10045-97-3	U		0.083	0.050	U	GAM
Radium 226	13982-63-3	U		0.177	0.100	U	GAM
Radium 228	15262-20-1	U		0.364	0.200	U	GAM
Europium 152	14683-23-9	U		0.206	0.100	U	GAM
Europium 154	15585-10-1	U		0.213	0.100	U	GAM
Europium 155	14391-16-3	U		0.217	0.100	U	GAM
Thorium 228	14274-82-9	U		0.130		U	GAM
Thorium 232	TH-232	U		0.364		U	GAM
Uranium 235	15117-96-1	1.06	0.39	0.482			GAM
Uranium 238	U-238	23.7	7.5	8.55			GAM
Americium 241	14596-10-2	U		0.374		U	GAM

618-7 Burial Ground - Other

Lab id	EBRLNE
Protocol	Hanford1
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	09/08/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1301

Test AM Matrix LIQUID
SDG 7873
Contact Melissa C. Mannion

LAB METHOD SUMMARY

AMERICIUM 241 IN LIQUID

ALPHA SPECTROSCOPY

Client Hanford
Contract No. S00W235A00
Contract SDG K1301

:ESULTS

AB AMPLE ID	RAW TEST	SUF- FIX	PLANCHET	CLIENT SAMPLE ID	Americium 241	
reparation batch 6160-096						
808191-01			7873-001	J178M0	U	
808191-02			7873-002	J178M1	U	
808191-03			7873-003	Lab Control Sample	ok	
808191-04			7873-004	Method Blank	U	
808191-05			7873-005	Duplicate (R808191-01)	-	U

ominal values and limits from method RDLs (pCi/mL) 1.00
18-7 Burial Ground - Other

IETHOD PERFORMANCE

AB AMPLE 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
reparation batch 6160-096			2σ prep error 8.0 % Reference Lab Notebook #6160, pg. 096													
808191-01			J178M0	0.340	0.495			63		100			14	09/02/08	09/03	SS-027
808191-02			J178M1	0.305	0.529			61		100			14	09/02/08	09/03	SS-028
808191-03			Lab Control Sample	0.229	0.500			64		203				09/02/08	09/03	SS-032
808191-04			Method Blank	0.283	0.500			62		203				09/02/08	09/03	SS-034
808191-05			Duplicate (R808191-01)	0.413	0.495			58		100			14	09/02/08	09/03	SS-040
ominal 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 0.314 ± 0.137
FOR 5 SAMPLES YIELD 62 ± 5

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 09/08/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1301

Test PU Matrix LIQUID
SDG 7873
Contact Melissa C. Mannion

LAB METHOD SUMMARY

PLUTONIUM-238,239/240, LIQUID
ALPHA SPECTROSCOPY

Client Hanford
Contract No. S00W235A00
Contract SDG K1301

:ESULTS

AB AMPLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Plutonium 238	Plutonium 239/240
reparation batch 6160-096						
308191-01			7873-001	J178M0	U	U
308191-02			7873-002	J178M1	U	U
308191-03			7873-003	Lab Control Sample	ok	ok
308191-04			7873-004	Method Blank	U	U
308191-05			7873-005	Duplicate (R808191-01)	- U	- U
ominal values and limits from method				RDLs (pCi/mL)	1.00	1.00
18-7 Burial Ground - Other						

IETHOD PERFORMANCE

AB AMPLE 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
reparation batch 6160-096			2σ prep error 8.0 %	Reference Lab Notebook #6160, pg. 096												
308191-01			J178M0	0.417	0.495			56		107			14	09/03/08	09/03	SS-027
308191-02			J178M1	0.364	0.529			63		108			14	09/03/08	09/03	SS-033
308191-03			Lab Control Sample	0.400	0.500			64		108				09/03/08	09/03	SS-034
308191-04			Method Blank	0.396	0.500			50		119				09/03/08	09/03	SS-040
308191-05			Duplicate (R808191-01)	0.332	0.495			53		120			14	09/03/08	09/03	SS-042
ominal 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 FOR 5 SAMPLES				
	MDA	0.382	±	0.068
	YIELD	57	±	12

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 09/08/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1301

Test TH Matrix LIQUID	Client Hanford
SDG 7873	Contract No. S00W235A00
Contact Melissa C. Mannion	Contract SDG K1301

LAB METHOD SUMMARY

THORIUM, ISOTOPIC IN LIQUID

ALPHA SPECTROSCOPY

:ESULTS

AB AMPLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Thorium 230
reparation batch 6160-096					
308191-01			7873-001	J178M0	U
308191-02			7873-002	J178M1	U
308191-03			7873-003	Lab Control Sample	ok
308191-04			7873-004	Method Blank	U
308191-05			7873-005	Duplicate (R808191-01)	- U

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

18-7 Burial Ground - Other

:ETHOD PERFORMANCE

AB AMPLE 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
reparation batch 6160-096			2σ prep error 8.0 % Reference Lab Notebook #6160, pg. 096													
308191-01			J178M0	0.289	0.247			98		227			14	09/03/08	09/03	SS-061
308191-02			J178M1	0.312	0.264			90		228			14	09/03/08	09/03	SS-062
308191-03			Lab Control Sample	0.202	0.250			95		227				09/03/08	09/03	SS-064
308191-04			Method Blank	0.145	0.250			94		810				09/03/08	09/04	SS-040
308191-05			Duplicate (R808191-01)	0.364	0.247			99		203			14	09/03/08	09/03	SS-033
ominal 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	MDA	0.262 ±	0.176
FOR 5 SAMPLES	YIELD	95 ±	7

Lab id	EBRLNE
Protocol	Hanford1
Version	Ver 1.0
Form	DVD-LMS
Version	3.06
Report date	09/08/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1301

Test U	Matrix LIQUID
SDG 7873	
Contact Melissa C. Mannion	

LAB METHOD SUMMARY

URANIUM IN LIQUID

ALPHA SPECTROSCOPY

Client Hanford	
Contract No. S00W235A00	
Contract SDG K1301	

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
reparation batch 6160-096											
308191-01			7873-001	J178M0	1.02	U	1.31	78	30	7	7
308191-02			7873-002	J178M1	21.9	2.35	15.3	143	19	15	3
308191-03			7873-003	Lab Control Sample	ok	ok	ok				
308191-04			7873-004	Method Blank	U	U	U				
308191-05			7873-005	Duplicate (R808191-01)	ok	- U	ok	171	60	7	10
ominal values and limits from method				RDLs (pCi/mL)	1.00	1.00	1.00				
18-7 Burial Ground - Other								Averages 131		10	

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
reparation batch 6160-096			2σ prep error 8.0 % Reference Lab Notebook #6160, pg. 096													
308191-01			J178M0	0.166	0.495			86		138			13	09/02/08	09/02	SS-051
308191-02			J178M1	0.337	0.529			94		138			13	09/02/08	09/02	SS-052
308191-03			Lab Control Sample	0.775	0.500			91		138				09/02/08	09/02	SS-053
308191-04			Method Blank	0.218	0.500			102		107				09/02/08	09/03	SS-028
308191-05			Duplicate (R808191-01)	0.151	0.495			99		137			13	09/02/08	09/02	SS-058
ominal 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	MDA	0.329 ±	0.519
FOR 5 SAMPLES	YIELD	94 ±	13

Lab id	EBRLNE
Protocol	Hanford1
Version	Ver 1.0
Form	DVD-LMS
Version	3.06
Report date	09/08/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1301

Test SR Matrix LIQUID
SDG 7873
Contact Melissa C. Mannion

LAB METHOD SUMMARY

TOTAL STRONTIUM IN LIQUIDS

BETA COUNTING

Client Hanford
Contract No. S00W235A00
Contract SDG K1301

ESULTS

AB AMPLE ID	RAW TEST	SUF- FIX	PLANCHET	CLIENT SAMPLE ID	Total Strontium
reparation batch 6160-096					
808191-01			7873-001	J178M0	U
808191-02			7873-002	J178M1	U
808191-03			7873-003	Lab Control Sample	LOW
808191-04			7873-004	Method Blank	U
808191-05			7873-005	Duplicate (R808191-01)	- U

ominal values and limits from method RDLs (pCi/mL) 1.00
18-7 Burial Ground - Other

IETHOD PERFORMANCE

AB AMPLE 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
reparation batch 6160-096			2σ prep error 10.4 % Reference Lab Notebook #6160, pg. 096													
308191-01			J178M0	0.220	0.990			95		100			10	08/30/08	08/30	GRB-202
308191-02			J178M1	0.200	1.06			96		100			10	08/30/08	08/30	GRB-227
308191-03			Lab Control Sample	0.203	1.00			94		100				08/30/08	08/30	GRB-228
308191-04			Method Blank	0.246	1.00			94		100				08/30/08	08/30	GRB-224
308191-05			Duplicate (R808191-01)	0.236	0.990			95		100			10	08/30/08	08/30	GRB-207
ominal 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 0.221 ± 0.040
YIELD 95 ± 2

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 09/08/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1301

Test 93A Matrix LIQUID
SDG 7873
Contact Melissa C. Mannion

LAB METHOD SUMMARY

GROSS ALPHA IN LIQUID
GAS PROPORTIONAL COUNTING

Client Hanford
Contract No. S00W235A00
Contract SDG K1301

ESULTS

AB AMPLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Gross Alpha
reparation batch 6160-096					
808191-01	93	A1	7873-001	J178M0	U
808191-02	93	A1	7873-002	J178M1	40.1
808191-06	93		7873-006	Lab Control Sample	ok
808191-07	93		7873-007	Method Blank	U
808191-08	93		7873-008	Duplicate (R808191-01)	- U

ominal values and limits from method RDLs (pCi/mL) 10.0
18-7 Burial Ground - Other

IETHOD PERFORMANCE

AB AMPLE 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
reparation batch 6160-096			2σ prep error 20.6 % Reference Lab Notebook #6160, pg. 096													
308191-01	93	A1	J178M0	2.12	0.0990			0		100			17	09/05/08	09/06	GRB-105
308191-02	93	A1	J178M1	1.92	0.106			1		100			17	09/05/08	09/06	GRB-107
308191-06	93		Lab Control Sample	6.12	0.100			59		100				09/05/08	09/06	GRB-105
308191-07	93		Method Blank	5.76	0.100			59		100				09/05/08	09/06	GRB-107
308191-08	93		Duplicate (R808191-01)	2.26	0.0990			0		100			17	09/05/08	09/06	GRB-108
ominal 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 MDA 3.64 ± 4.22
FOR 5 SAMPLES RESIDUE 24 ± 64

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 09/08/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1301

Test 93B	Matrix LIQUID
SDG 7873	
Contact Melissa C. Mannion	

LAB METHOD SUMMARY

GROSS BETA IN LIQUID

GAS PROPORTIONAL COUNTING

Client Hanford	
Contract No. S00W235A00	
Contract SDG K1301	

ESULTS

AB AMPLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Gross Beta
reparation batch 6160-096					
308191-01	93	A1	7873-001	J178M0	U
308191-02	93	A1	7873-002	J178M1	31.6
308191-06	93		7873-006	Lab Control Sample	ok
308191-07	93		7873-007	Method Blank	U
308191-08	93		7873-008	Duplicate (R808191-01)	- U

ominal values and limits from method RDLs (pCi/mL) 15.0

18-7 Burial Ground - Other

ETHOD PERFORMANCE

AB AMPLE 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
reparation batch 6160-096			2σ prep error 11.0 % Reference Lab Notebook #6160, pg. 096													
308191-01	93	A1	J178M0	5.61	0.0990			0		100			17	09/05/08	09/06	GRB-105
308191-02	93	A1	J178M1	7.97	0.106			1		100			17	09/05/08	09/06	GRB-107
308191-06	93		Lab Control Sample	5.80	0.100			59		100				09/05/08	09/06	GRB-105
308191-07	93		Method Blank	8.82	0.100			59		100				09/05/08	09/06	GRB-107
308191-08	93		Duplicate (R808191-01)	6.61	0.0990			0		100			17	09/05/08	09/06	GRB-108
ominal 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	MDA	6.96	± 2.79
FOR 5 SAMPLES	RESIDUE	24	± 64

Lab id	EBRLNE
Protocol	Hanford1
Version	Ver 1.0
Form	DVD-LMS
Version	3.06
Report date	09/08/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1301

Test GAM Matrix LIQUID
SDG 7873
Contact Melissa C. Mannion

LAB METHOD SUMMARY

GAMMA SCAN IN LIQUID

GAMMA SPECTROSCOPY

Client Hanford
Contract No. S00W235A00
Contract SDG K1301

.ESULTS

AB AMPLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Cobalt 60		Cesium 137	
reparation batch 6160-096								
308191-01			7873-001	J178M0	U		U	
308191-02			7873-002	J178M1	U		U	
308191-03			7873-003	Lab Control Sample	ok		ok	
308191-04			7873-004	Method Blank	U		U	
308191-05			7873-005	Duplicate (R808191-01)	-	U	-	U
ominal values and limits from method				RDLs (pCi/mL)	0.050		0.050	
18-7 Burial Ground - Other								

IETHOD PERFORMANCE

AB AMPLE 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
reparation batch 6160-096			2σ prep error 7.0 % Reference Lab Notebook #6160, pg. 096													
308191-01			J178M0	0.052	100					404			12	08/29/08	09/01	JR,07,00
308191-02			J178M1	0.083	101					402			12	08/29/08	09/01	JR,08,00
308191-03			Lab Control Sample	0.133	100					402				08/29/08	09/01	JR,06,00
308191-04			Method Blank	0.025	100					1007				08/29/08	09/01	JR,02,00
308191-05			Duplicate (R808191-01)	0.032	100					1007			12	08/29/08	09/01	JR,07,00
ominal values and limits from method				0.050	100					100			180			

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

AVERAGES ± 2 SD MDA 0.065 ± 0.088
FOR 5 SAMPLES YIELD _____ ± _____

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 09/08/08

SDG 7873
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG K1301

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 09/08/08

SDG 7873
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG_K1301

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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Form DVD-RG
Version 3.06
Report date 09/08/08

SDG 7873
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG_K1301

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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SDG 7873
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REPORT GUIDE

Client Hanford
Contract No. S00W235A00
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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.

SDG 7873
Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford
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Case no SDG K1301

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
Form DVD-RG
Version 3.06
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REPORT GUIDE

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Contract No. S00W235A00
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LAB CONTROL SAMPLE

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

The following notes apply to this report:

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

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

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

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

* The first, computed limits for the recovery reflect:

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

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

  2. The error of ADDED.

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

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

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

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Version Ver 1.0
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SDG 7873
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG_K1301

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 7873
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG K1301

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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SDG 7873
Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford
Contract No. S00W235A00
Case no SDG K1301

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 09/08/08

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'

METHOD SUMMARY

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

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

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

  MDAs are underlined if greater than the printed RDL.

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

* Prepareation factors are underlined if greater than the nominal value specified for the method.

* Dilution factors are underlined if greater than the nominal value specified for the method.

* Residues are underlined if outside the range specified for the method. Residues are not printed if yields are.

* Yields, which may be gravimetric, radiometric or some type of recovery depending on the method, are underlined if outside the range specified for the method.

* Efficiencies are underlined if outside the range specified for the method. Efficiencies are detector and geometry dependent so this test is only approximate.

METHOD SUMMARY

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

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

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

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

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

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

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

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

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

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

METHOD SUMMARY

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

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

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

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

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

Collector B. Lawrence	**Company Contact** Joan Kessner	**Telephone No.** 509-375-4688	**Project Coordinator** KESSNER, JH
Price Code	**Data Turnaround** ~~15~~ 7 Days		
Project Designation 618-7 Burial Ground - Other	**Sampling Location** 618-7 Burial Ground (drums) K1301 (7873)	**SAF No.** RC-088	
Ice Chest No. RCC-02-003	**Field Logbook No.** EL-1395-13	**COA** RG61878500	**Method of Shipment** FedEx RTC 8/20/08
Shipped To EBERLINE SERVICES / DIONVILLE	**Offsite Property No.** A080330	**Bill of Lading/Air Bill No.** see OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS

Potential Radioactive contamination, potential beryllium contamination

Special Handling and/or Storage

None

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

Sample No.	Matrix *	Sample Date	Sample Time										
~~J178L9~~	~~OTHER~~												
J178M0	OTHER	8/20/08	0740					X					6322
J178M1	OTHER	8/20/08	0740					X					5780

CHAIN OF POSSESSION	Date/Time	Sign/Print Names	Date/Time
Relinquished By/Removed From B Lawrence	8-20-08 1130	Received By/Stored In RTCOFFMAN / RT Coffman	8/20/08 1130
Relinquished By/Removed From B Lawrence	8-20-08 1130	Received By/Stored In 1060 / 1B	8-20-08 1130
Relinquished By/Removed From 1060/1B	AUG 27 2008 1100	Received By/Stored In MTSlankard	AUG 27 2008 1100
Relinquished By/Removed From MTSlankard	AUG 27 2008 1100	Received By/Stored In FedEx	
Relinquished By/Removed From FEDEX		Received By/Stored In	08/28/08 09:00
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

* HOMOGENIZE MEDIA PRIOR TO ANALYSIS

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

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

ESBERLINE

RICHMOND, CA LABORATORY

SAMPLE RECEIPT CHECKLIST

Jk 8/28/08

Client: W.C. HANFORD City RICHLAND State WA

Date/Time received 08/28/08 09:00 CoC No. RC-088-063

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

INSPECTION

1 Custody seals on shipping container intact? Yes [X] No [ ] N/A [ ]

2 Custody seals on shipping container dated & signed? Yes [X] No [ ] N/A [ ]

3 Custody seals on sample containers intact? Yes [X] No [ ] N/A [ ]

4 Custody seals on sample containers dated & signed? Yes [X] No [ ] N/A [ ]

5 Packing material is: Wet [ ] Dry [X]

6 Number of samples in shipping container 2 Sample Matrix 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: 08/28/08 Time: 10:00

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

Ion Chamber Ser. No _____ Calibration date _____

Alpha Meter Ser. No _____ Calibration date _____

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

LIONVILLE LABORATORY INC.

16 September 2008

RECEIVED SEP 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 #	0808L135
SDG #	K1301
SAF #	RC-088
Date Received	8/28/08
# Samples	3
Matrix	OTHER LIQUID
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
r:\group\pm\orlette\tnu-hanford\data\b_ltrs.doc

208 Welsh Pool Road • Exton, PA 19341- 1313 • (610) 280-3000 • Fax (610) 280-3041

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
WC-HANFORD RC-088 K1301

RECEIVED SEP 2008

DATE RECEIVED: 08/28/08 LVL LOT # :08081135

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J178M0						
SILVER, TOTAL	001	OI	08L0318	08/20/08	08/29/08	09/02/08
SILVER, TOTAL	001 REP	OI	08L0318	08/20/08	08/29/08	09/02/08
SILVER, TOTAL	001 MS	OI	08L0318	08/20/08	08/29/08	09/02/08
ALUMINUM, TOTAL	001	OI	08L0318	08/20/08	08/29/08	09/02/08
ALUMINUM, TOTAL	001 REP	OI	08L0318	08/20/08	08/29/08	09/02/08
ALUMINUM, TOTAL	001 MS	OI	08L0318	08/20/08	08/29/08	09/02/08
ARSENIC, TOTAL	001	OI	08L0318	08/20/08	08/29/08	09/02/08
ARSENIC, TOTAL	001 REP	OI	08L0318	08/20/08	08/29/08	09/02/08
ARSENIC, TOTAL	001 MS	OI	08L0318	08/20/08	08/29/08	09/02/08
BARIUM, TOTAL	001	OI	08L0318	08/20/08	08/29/08	09/02/08
BARIUM, TOTAL	001 REP	OI	08L0318	08/20/08	08/29/08	09/02/08
BARIUM, TOTAL	001 MS	OI	08L0318	08/20/08	08/29/08	09/02/08
BERYLLIUM, TOTAL	001	OI	08L0318	08/20/08	08/29/08	09/02/08
BERYLLIUM, TOTAL	001 REP	OI	08L0318	08/20/08	08/29/08	09/02/08
BERYLLIUM, TOTAL	001 MS	OI	08L0318	08/20/08	08/29/08	09/02/08
CALCIUM, TOTAL	001	OI	08L0318	08/20/08	08/29/08	09/02/08
CALCIUM, TOTAL	001 REP	OI	08L0318	08/20/08	08/29/08	09/02/08
CALCIUM, TOTAL	001 MS	OI	08L0318	08/20/08	08/29/08	09/02/08
CADMIUM, TOTAL	001	OI	08L0318	08/20/08	08/29/08	09/02/08
CADMIUM, TOTAL	001 REP	OI	08L0318	08/20/08	08/29/08	09/02/08
CADMIUM, TOTAL	001 MS	OI	08L0318	08/20/08	08/29/08	09/02/08
COBALT, TOTAL	001	OI	08L0318	08/20/08	08/29/08	09/02/08
COBALT, TOTAL	001 REP	OI	08L0318	08/20/08	08/29/08	09/02/08
COBALT, TOTAL	001 MS	OI	08L0318	08/20/08	08/29/08	09/02/08
CHROMIUM, TOTAL	001	OI	08L0318	08/20/08	08/29/08	09/02/08
CHROMIUM, TOTAL	001 REP	OI	08L0318	08/20/08	08/29/08	09/02/08
CHROMIUM, TOTAL	001 MS	OI	08L0318	08/20/08	08/29/08	09/02/08
COPPER, TOTAL	001	OI	08L0318	08/20/08	08/29/08	09/02/08
COPPER, TOTAL	001 REP	OI	08L0318	08/20/08	08/29/08	09/02/08
COPPER, TOTAL	001 MS	OI	08L0318	08/20/08	08/29/08	09/02/08
IRON, TOTAL	001	OI	08L0318	08/20/08	08/29/08	09/02/08
IRON, TOTAL	001 REP	OI	08L0318	08/20/08	08/29/08	09/02/08
IRON, TOTAL	001 MS	OI	08L0318	08/20/08	08/29/08	09/02/08
MERCURY, TOTAL	001	OI	08C0150	08/20/08	09/02/08	09/03/08
MERCURY, TOTAL	001 REP	OI	08C0150	08/20/08	09/02/08	09/03/08

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
WC-HANFORD RC-088 K1301

DATE RECEIVED: 08/28/08 LVL LOT # :0808L135

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
MERCURY, TOTAL	001 MS	OI	08C0150	08/20/08	09/02/08	09/03/08
POTASSIUM, TOTAL	001	OI	08L0318	08/20/08	08/29/08	09/04/08
POTASSIUM, TOTAL	001 REP	OI	08L0318	08/20/08	08/29/08	09/04/08
POTASSIUM, TOTAL	001 MS	OI	08L0318	08/20/08	08/29/08	09/04/08
MAGNESIUM, TOTAL	001	OI	08L0318	08/20/08	08/29/08	09/02/08
MAGNESIUM, TOTAL	001 REP	OI	08L0318	08/20/08	08/29/08	09/02/08
MAGNESIUM, TOTAL	001 MS	OI	08L0318	08/20/08	08/29/08	09/02/08
MANGANESE, TOTAL	001	OI	08L0318	08/20/08	08/29/08	09/02/08
MANGANESE, TOTAL	001 REP	OI	08L0318	08/20/08	08/29/08	09/02/08
MANGANESE, TOTAL	001 MS	OI	08L0318	08/20/08	08/29/08	09/02/08
SODIUM, TOTAL	001	OI	08L0318	08/20/08	08/29/08	09/04/08
SODIUM, TOTAL	001 REP	OI	08L0318	08/20/08	08/29/08	09/04/08
SODIUM, TOTAL	001 MS	OI	08L0318	08/20/08	08/29/08	09/04/08
NICKEL, TOTAL	001	OI	08L0318	08/20/08	08/29/08	09/02/08
NICKEL, TOTAL	001 REP	OI	08L0318	08/20/08	08/29/08	09/02/08
NICKEL, TOTAL	001 MS	OI	08L0318	08/20/08	08/29/08	09/02/08
LEAD, TOTAL	001	OI	08L0318	08/20/08	08/29/08	09/02/08
LEAD, TOTAL	001 REP	OI	08L0318	08/20/08	08/29/08	09/02/08
LEAD, TOTAL	001 MS	OI	08L0318	08/20/08	08/29/08	09/02/08
ANTIMONY, TOTAL	001	OI	08L0318	08/20/08	08/29/08	09/02/08
ANTIMONY, TOTAL	001 REP	OI	08L0318	08/20/08	08/29/08	09/02/08
ANTIMONY, TOTAL	001 MS	OI	08L0318	08/20/08	08/29/08	09/02/08
SELENIUM, TOTAL	001	OI	08L0318	08/20/08	08/29/08	09/02/08
SELENIUM, TOTAL	001 REP	OI	08L0318	08/20/08	08/29/08	09/02/08
SELENIUM, TOTAL	001 MS	OI	08L0318	08/20/08	08/29/08	09/02/08
TIN, TOTAL	001	OI	08L0318	08/20/08	08/29/08	09/02/08
TIN, TOTAL	001 REP	OI	08L0318	08/20/08	08/29/08	09/02/08
TIN, TOTAL	001 MS	OI	08L0318	08/20/08	08/29/08	09/02/08
THALLIUM, TOTAL	001	OI	08L0318	08/20/08	08/29/08	09/02/08
THALLIUM, TOTAL	001 REP	OI	08L0318	08/20/08	08/29/08	09/02/08
THALLIUM, TOTAL	001 MS	OI	08L0318	08/20/08	08/29/08	09/02/08
VANADIUM, TOTAL	001	OI	08L0318	08/20/08	08/29/08	09/02/08
VANADIUM, TOTAL	001 REP	OI	08L0318	08/20/08	08/29/08	09/02/08
VANADIUM, TOTAL	001 MS	OI	08L0318	08/20/08	08/29/08	09/02/08
ZINC, TOTAL	001	OI	08L0318	08/20/08	08/29/08	09/02/08
ZINC, TOTAL	001 REP	OI	08L0318	08/20/08	08/29/08	09/02/08
ZINC, TOTAL	001 MS	OI	08L0318	08/20/08	08/29/08	09/02/08
ZIRCONIUM, TOTAL	001	OI	08L0318	08/20/08	08/29/08	09/02/08

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
WC-HANFORD RC-088 K1301

DATE RECEIVED: 08/28/08 LVL LOT # :0808L135

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
ZIRCONIUM, TOTAL	001 REP	OI	08L0318	08/20/08	08/29/08	09/02/08
ZIRCONIUM, TOTAL	001 MS	OI	08L0318	08/20/08	08/29/08	09/02/08
J178M1-A						
SILVER, TOTAL	002	OI	08L0318	08/20/08	08/29/08	09/02/08
ALUMINUM, TOTAL	002	OI	08L0318	08/20/08	08/29/08	09/02/08
ARSENIC, TOTAL	002	OI	08L0318	08/20/08	08/29/08	09/02/08
BARIUM, TOTAL	002	OI	08L0318	08/20/08	08/29/08	09/02/08
BERYLLIUM, TOTAL	002	OI	08L0318	08/20/08	08/29/08	09/02/08
CALCIUM, TOTAL	002	OI	08L0318	08/20/08	08/29/08	09/02/08
CADMIUM, TOTAL	002	OI	08L0318	08/20/08	08/29/08	09/02/08
COBALT, TOTAL	002	OI	08L0318	08/20/08	08/29/08	09/02/08
CHROMIUM, TOTAL	002	OI	08L0318	08/20/08	08/29/08	09/02/08
COPPER, TOTAL	002	OI	08L0318	08/20/08	08/29/08	09/02/08
IRON, TOTAL	002	OI	08L0318	08/20/08	08/29/08	09/02/08
MERCURY, TOTAL	002	OI	08C0150	08/20/08	09/02/08	09/03/08
POTASSIUM, TOTAL	002	OI	08L0318	08/20/08	08/29/08	09/04/08
MAGNESIUM, TOTAL	002	OI	08L0318	08/20/08	08/29/08	09/02/08
MANGANESE, TOTAL	002	OI	08L0318	08/20/08	08/29/08	09/02/08
SODIUM, TOTAL	002	OI	08L0318	08/20/08	08/29/08	09/04/08
NICKEL, TOTAL	002	OI	08L0318	08/20/08	08/29/08	09/02/08
LEAD, TOTAL	002	OI	08L0318	08/20/08	08/29/08	09/02/08
ANTIMONY, TOTAL	002	OI	08L0318	08/20/08	08/29/08	09/02/08
SELENIUM, TOTAL	002	OI	08L0318	08/20/08	08/29/08	09/02/08
TIN, TOTAL	002	OI	08L0318	08/20/08	08/29/08	09/02/08
THALLIUM, TOTAL	002	OI	08L0318	08/20/08	08/29/08	09/02/08
VANADIUM, TOTAL	002	OI	08L0318	08/20/08	08/29/08	09/02/08
ZINC, TOTAL	002	OI	08L0318	08/20/08	08/29/08	09/02/08
ZIRCONIUM, TOTAL	002	OI	08L0318	08/20/08	08/29/08	09/02/08
J178M1-B						
SILVER, TOTAL	003	OI	08L0318	08/20/08	08/29/08	09/02/08
ALUMINUM, TOTAL	003	OI	08L0318	08/20/08	08/29/08	09/02/08
ARSENIC, TOTAL	003	OI	08L0318	08/20/08	08/29/08	09/02/08
BARIUM, TOTAL	003	OI	08L0318	08/20/08	08/29/08	09/02/08
BERYLLIUM, TOTAL	003	OI	08L0318	08/20/08	08/29/08	09/02/08

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
WC-HANFORD RC-088 K1301

DATE RECEIVED: 08/28/08 LVL LOT # :0808L135

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
CALCIUM, TOTAL	003	OI	08L0318	08/20/08	08/29/08	09/02/08
CADMIUM, TOTAL	003	OI	08L0318	08/20/08	08/29/08	09/02/08
COBALT, TOTAL	003	OI	08L0318	08/20/08	08/29/08	09/02/08
CHROMIUM, TOTAL	003	OI	08L0318	08/20/08	08/29/08	09/02/08
COPPER, TOTAL	003	OI	08L0318	08/20/08	08/29/08	09/02/08
IRON, TOTAL	003	OI	08L0318	08/20/08	08/29/08	09/02/08
MERCURY, TOTAL	003	OI	08C0150	08/20/08	09/02/08	09/03/08
POTASSIUM, TOTAL	003	OI	08L0318	08/20/08	08/29/08	09/04/08
MAGNESIUM, TOTAL	003	OI	08L0318	08/20/08	08/29/08	09/02/08
MANGANESE, TOTAL	003	OI	08L0318	08/20/08	08/29/08	09/02/08
SODIUM, TOTAL	003	OI	08L0318	08/20/08	08/29/08	09/04/08
NICKEL, TOTAL	003	OI	08L0318	08/20/08	08/29/08	09/02/08
LEAD, TOTAL	003	OI	08L0318	08/20/08	08/29/08	09/02/08
ANTIMONY, TOTAL	003	OI	08L0318	08/20/08	08/29/08	09/02/08
SELENIUM, TOTAL	003	OI	08L0318	08/20/08	08/29/08	09/02/08
TIN, TOTAL	003	OI	08L0318	08/20/08	08/29/08	09/02/08
THALLIUM, TOTAL	003	OI	08L0318	08/20/08	08/29/08	09/02/08
VANADIUM, TOTAL	003	OI	08L0318	08/20/08	08/29/08	09/02/08
ZINC, TOTAL	003	OI	08L0318	08/20/08	08/29/08	09/02/08
ZIRCONIUM, TOTAL	003	OI	08L0318	08/20/08	08/29/08	09/02/08

LAB QC:

SILVER LABORATORY	LC1 BS	S	08L0318	N/A	08/29/08	09/03/08
SILVER, TOTAL	MB1	S	08L0318	N/A	08/29/08	09/02/08
ALUMINUM LABORTORY	LC1 BS	S	08L0318	N/A	08/29/08	09/03/08
ALUMINUM, TOTAL	MB1	S	08L0318	N/A	08/29/08	09/02/08
ARSENIC LABORATORY	LC1 BS	S	08L0318	N/A	08/29/08	09/03/08
ARSENIC, TOTAL	MB1	S	08L0318	N/A	08/29/08	09/02/08
BARIUM LABORATORY	LC1 BS	S	08L0318	N/A	08/29/08	09/03/08
BARIUM, TOTAL	MB1	S	08L0318	N/A	08/29/08	09/02/08
BERYLLIUM LABORATORY	LC1 BS	S	08L0318	N/A	08/29/08	09/03/08
BERYLLIUM, TOTAL	MB1	S	08L0318	N/A	08/29/08	09/02/08
CALCIUM LABORATORY	LC1 BS	S	08L0318	N/A	08/29/08	09/03/08
CALCIUM, TOTAL	MB1	S	08L0318	N/A	08/29/08	09/02/08
CADMIUM LABORATORY	LC1 BS	S	08L0318	N/A	08/29/08	09/03/08
CADMIUM, TOTAL	MB1	S	08L0318	N/A	08/29/08	09/02/08
COBALT LABORATORY	LC1 BS	S	08L0318	N/A	08/29/08	09/03/08

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
WC-HANFORD RC-088 K1301

DATE RECEIVED: 08/28/08 LVL LOT # :0808L135

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
COBALT, TOTAL	MB1	S	08L0318	N/A	08/29/08	09/02/08
CHROMIUM LABORATORY	LC1 BS	S	08L0318	N/A	08/29/08	09/03/08
CHROMIUM, TOTAL	MB1	S	08L0318	N/A	08/29/08	09/02/08
COPPER LABORATORY	LC1 BS	S	08L0318	N/A	08/29/08	09/03/08
COPPER, TOTAL	MB1	S	08L0318	N/A	08/29/08	09/02/08
IRON LABORATORY	LC1 BS	S	08L0318	N/A	08/29/08	09/03/08
IRON, TOTAL	MB1	S	08L0318	N/A	08/29/08	09/02/08
MERCURY LABORATORY	LC1 BS	S	08C0150	N/A	09/02/08	09/03/08
MERCURY, TOTAL	MB1	S	08C0150	N/A	09/02/08	09/03/08
POTASSIUM LABORATORY	LC1 BS	S	08L0318	N/A	08/29/08	09/04/08
POTASSIUM, TOTAL	MB1	S	08L0318	N/A	08/29/08	09/04/08
MAGNESIUM LABORATORY	LC1 BS	S	08L0318	N/A	08/29/08	09/03/08
MAGNESIUM, TOTAL	MB1	S	08L0318	N/A	08/29/08	09/02/08
MANGANESE LABORATORY	LC1 BS	S	08L0318	N/A	08/29/08	09/03/08
MANGANESE, TOTAL	MB1	S	08L0318	N/A	08/29/08	09/02/08
SODIUM LABORATORY	LC1 BS	S	08L0318	N/A	08/29/08	09/04/08
SODIUM, TOTAL	MB1	S	08L0318	N/A	08/29/08	09/04/08
NICKEL LABORATORY	LC1 BS	S	08L0318	N/A	08/29/08	09/03/08
NICKEL, TOTAL	MB1	S	08L0318	N/A	08/29/08	09/02/08
LEAD LABORATORY	LC1 BS	S	08L0318	N/A	08/29/08	09/03/08
LEAD, TOTAL	MB1	S	08L0318	N/A	08/29/08	09/02/08
ANTIMONY LABORATORY	LC1 BS	S	08L0318	N/A	08/29/08	09/03/08
ANTIMONY, TOTAL	MB1	S	08L0318	N/A	08/29/08	09/02/08
SELENIUM LABORATORY	LC1 BS	S	08L0318	N/A	08/29/08	09/03/08
SELENIUM, TOTAL	MB1	S	08L0318	N/A	08/29/08	09/02/08
TIN LABORATORY	LC1 BS	S	08L0318	N/A	08/29/08	09/03/08
TIN, TOTAL	MB1	S	08L0318	N/A	08/29/08	09/02/08
THALLIUM LABORATORY	LC1 BS	S	08L0318	N/A	08/29/08	09/03/08
THALLIUM, TOTAL	MB1	S	08L0318	N/A	08/29/08	09/02/08
VANADIUM LABORATORY	LC1 BS	S	08L0318	N/A	08/29/08	09/03/08
VANADIUM, TOTAL	MB1	S	08L0318	N/A	08/29/08	09/02/08
ZINC LABORATORY	LC1 BS	S	08L0318	N/A	08/29/08	09/03/08
ZINC, TOTAL	MB1	S	08L0318	N/A	08/29/08	09/02/08
ZIRCONIUM LABORATORY	LC1 BS	S	08L0318	N/A	08/29/08	09/03/08
ZIRCONIUM, TOTAL	MB1	S	08L0318	N/A	08/29/08	09/02/08

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU-HANFORD RC-088
LVL#: 0808L135
SDG/SAF#: K1301/RC-088

W.O.#: 11343-606-001-9999-00
Date Received: 08-28-08

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 3 liquid samples.

2. The samples were prepared and analyzed in accordance with methods checked on the attached glossary.

   Sample J178M1 was found to be biphasic. The two phases were separated and analyzed individually (J178M1-A and J178M1-B)

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 Potassium and Sodium in file TA0902C. The samples were rerun for Potassium and Sodium in file PS0904A.

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 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 limits. 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.

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.

10. The duplicate analyses for 3 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.

Brian Daniels
Laboratory Manager
Lionville Laboratory Incorporated

9/8/08
Date

jjw/m08-135

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#: 0808L135

Leaching Procedure: __1310 __1311 __1312 __Other:_____

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

Metals Digestion Methods: __3005A __3010A __3015 __3020A X3050B __3051 __200.7 __SS17
__Other: _____

Metals Analysis Methods

	SW846		EPA		STD MTD	EPA OSWR	USATHAMA
Aluminum	X6010B		__200.7				__99
Antimony	X6010B	__7041 [5]	__200.7	__204.2			__99
Arsenic	X6010B	__7060A [5]	__200.7	__206.2	__3113B		__99
Barium	X6010B		__200.7				__99
Beryllium	X6010B		__200.7				__99
Bismuth	__6010B [1]		__200.7 [1]			__1620	__99
Boron	__6010B		__200.7				__99
Cadmium	X6010B	__7131A [5]	__200.7	__213.2			__99
Calcium	X6010B		__200.7				__99
Chromium	X6010B	__7191 [5]	__200.7	__218.2			__SS17
Cobalt	X6010B		__200.7				__99
Copper	X6010B	__7211 [5]	__200.7	__220.2			__99
Iron	X6010B		__200.7				__99
Lead	X6010B	__7421 [5]	__200.7	__239.2	__3113B		__99
Lithium	__6010B	__7430 [4]	__200.7			__1620	__99
Magnesium	X6010B		__200.7				__99
Manganese	X6010B		__200.7				__99
Mercury	__7470A [3]	X7471A [3]	__245.1 [2]	__245.5 [2]			__99
Molybdenum	__6010B		__200.7				__99
Nickel	X6010B		__200.7				__99
Potassium	X6010B	__7610 [4]	__200.7	__258.1 [4]			__99
Rare Earths	__6010B [1]		__200.7 [1]			__1620	__99
Selenium	X6010B	__7740 [5]	__200.7	__270.2	__3113B		__99
Silicon	__6010B [1]		__200.7			__1620	__99
Silica	__6010B		__200.7			__1620	__99
Silver	X6010B	__7761 [5]	__200.7	__272.2			__99
Sodium	X6010B	__7770 [4]	__200.7	__273.1 [4]			__99
Strontium	__6010B		__200.7				__99
Thallium	X6010B	__7841 [5]	__200.7	__279.2	__200.9		__99
Tin	X6010B		__200.7				__99
Titanium	__6010B		__200.7				__99
Uranium	__6010B [1]		__200.7 [1]			__1620	__99
Vanadium	X6010B		__200.7				__99
Zinc	X6010B		__200.7				__99
Zirconium	X6010B [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 09/05/08

CLIENT: WC-HANFORD RC-088 K1301 LVL LOT #: 0808L135

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	J178M0	Silver, Total	0.08 u	MG/KG	0.08	1.0
		Aluminum, Total	3.4 u	MG/KG	3.4	1.0
		Arsenic, Total	0.42 u	MG/KG	0.42	1.0
		Barium, Total	0.08 u	MG/KG	0.08	1.0
		Beryllium, Total	0.04 u	MG/KG	0.04	1.0
		Calcium, Total	55.2	MG/KG	3.4	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	0.17 u	MG/KG	0.17	1.0
		Copper, Total	0.17	MG/KG	0.17	1.0
		Iron, Total	4.5	MG/KG	3.8	1.0
		Mercury, Total	0.008u	MG/KG	0.008	1.0
		Potassium, Total	41.4 u	MG/KG	41.4	1.0
		Magnesium, Total	5.0	MG/KG	2.1	1.0
		Manganese, Total	0.13	MG/KG	0.03	1.0
		Sodium, Total	34.9	MG/KG	1.7	1.0
		Nickel, Total	0.17 u	MG/KG	0.17	1.0
		Lead, Total	0.25 u	MG/KG	0.25	1.0
		Antimony, Total	0.25 u	MG/KG	0.25	1.0
		Selenium, Total	0.50 u	MG/KG	0.50	1.0
		Tin, Total	0.81	MG/KG	0.50	1.0
		Thallium, Total	0.50 u	MG/KG	0.50	1.0
		Vanadium, Total	0.12 u	MG/KG	0.12	1.0
		Zinc, Total	0.50 u	MG/KG	0.50	1.0
		Zirconium, Total	4.2 u	MG/KG	4.2	1.0

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 09/05/08

CLIENT: WC-HANFORD RC-088 K1301

LVL LOT #: 0808L135

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-002	J178M1-A	Silver, Total	0.09 u	MG/KG	0.09	1.0
		Aluminum, Total	5.8	MG/KG	3.5	1.0
		Arsenic, Total	0.57	MG/KG	0.44	1.0
		Barium, Total	17.6	MG/KG	0.09	1.0
		Beryllium, Total	0.53	MG/KG	0.04	1.0
		Calcium, Total	261	MG/KG	3.5	1.0
		Cadmium, Total	0.04 u	MG/KG	0.04	1.0
		Cobalt, Total	0.99	MG/KG	0.17	1.0
		Chromium, Total	8.6	MG/KG	0.17	1.0
		Copper, Total	0.90	MG/KG	0.17	1.0
		Iron, Total	947	MG/KG	3.9	1.0
		Mercury, Total	0.05 u	MG/KG	0.05	5.0
		Potassium, Total	42.9 u	MG/KG	42.9	1.0
		Magnesium, Total	29.2	MG/KG	2.2	1.0
		Manganese, Total	5.0	MG/KG	0.03	1.0
		Sodium, Total	920	MG/KG	1.7	1.0
		Nickel, Total	0.22	MG/KG	0.17	1.0
		Lead, Total	0.26 u	MG/KG	0.26	1.0
		Antimony, Total	0.26 u	MG/KG	0.26	1.0
		Selenium, Total	0.52 u	MG/KG	0.52	1.0
		Tin, Total	2.8	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	12.9	MG/KG	0.52	1.0
		Zirconium, Total	4.4 u	MG/KG	4.4	1.0

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 09/05/08

CLIENT: WC-HANFORD RC-088 K1301 LVL LOT #: 0808L135

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-003	J178M1-B	Silver, Total	0.09 u	MG/KG	0.09	1.0
		Aluminum, Total	4.9	MG/KG	3.8	1.0
		Arsenic, Total	0.73	MG/KG	0.47	1.0
		Barium, Total	46.9	MG/KG	0.09	1.0
		Beryllium, Total	1.4	MG/KG	0.05	1.0
		Calcium, Total	592	MG/KG	3.8	1.0
		Cadmium, Total	0.05 u	MG/KG	0.05	1.0
		Cobalt, Total	2.5	MG/KG	0.19	1.0
		Chromium, Total	23.8	MG/KG	0.19	1.0
		Copper, Total	1.6	MG/KG	0.19	1.0
		Iron, Total	2580	MG/KG	4.2	1.0
		Mercury, Total	0.05 u	MG/KG	0.05	5.0
		Potassium, Total	46.5 u	MG/KG	46.5	1.0
		Magnesium, Total	56.9	MG/KG	2.4	1.0
		Manganese, Total	11.9	MG/KG	0.04	1.0
		Sodium, Total	1200	MG/KG	1.9	1.0
		Nickel, Total	0.77	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	0.57 u	MG/KG	0.57	1.0
		Tin, Total	1.4	MG/KG	0.57	1.0
		Thallium, Total	0.57 u	MG/KG	0.57	1.0
		Vanadium, Total	0.13 u	MG/KG	0.13	1.0
		Zinc, Total	22.9	MG/KG	0.57	1.0
		Zirconium, Total	4.7 u	MG/KG	4.7	1.0

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 09/05/08

CLIENT: WC-HANFORD RC-088 K1301 LVL LOT #: 0808L135

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK1	08L0318-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	17.9	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	0.20 u	MG/KG	0.20	1.0
		Iron, Total	4.9	MG/KG	4.5	1.0
		Potassium, Total	49.3 u	MG/KG	49.3	1.0
		Magnesium, Total	7.2	MG/KG	2.5	1.0
		Manganese, Total	0.04	MG/KG	0.04	1.0
		Sodium, Total	9.6	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	0.60 u	MG/KG	0.60	1.0
		Tin, Total	0.78	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	1.9	MG/KG	0.60	1.0
		Zirconium, Total	5.0 u	MG/KG	5.0	1.0
BLANK1	08C0150-MB1	Mercury, Total	0.01 u	MG/KG	0.01	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 09/05/08

CLIENT: WC-HANFORD RC-088 K1301 LVL LOT #: 0808L135

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-001	J178M0	Silver, Total	4.1	0.08u	4.2	97.6	1.0
		Aluminum, Total	152	3.4 u	168	90.7	1.0
		Arsenic, Total	157	0.42u	168	93.3	1.0
		Barium, Total	160	0.08u	168	95.3	1.0
		Beryllium, Total	4.1	0.04u	4.2	97.6	1.0
		Calcium, Total	2080	55.2	2100	96.5	1.0
		Cadmium, Total	4.0	0.04u	4.2	95.2	1.0
		Cobalt, Total	40.3	0.17u	42.0	96.0	1.0
		Chromium, Total	16.4	0.17u	16.8	97.6	1.0
		Copper, Total	20.4	0.17	21.0	96.3	1.0
		Iron, Total	83.3	4.5	84.0	93.8	1.0
		Mercury, Total	1.3	0.00u	1.3	99.7	1.0
		Potassium, Total	1890	41.4 u	2100	89.9	1.0
		Magnesium, Total	1960	5.0	2100	93.1	1.0
		Manganese, Total	40.8	0.13	42.0	96.8	1.0
		Sodium, Total	1990	34.9	2100	93.2	1.0
		Nickel, Total	40.3	0.17u	42.0	96.0	1.0
		Lead, Total	40.5	0.25u	42.0	96.4	1.0
		Antimony, Total	39.2	0.25u	42.0	93.3	1.0
		Selenium, Total	137	0.50u	168	81.8	1.0
		Tin, Total	79.4	0.81	84.0	93.6	1.0
		Thallium, Total	160	0.50u	168	95.2	1.0
		Vanadium, Total	40.1	0.12u	42.0	95.5	1.0
		Zinc, Total	40.1	0.50u	42.0	95.5	1.0
		Zirconium, Total	398	4.2 u	420	94.8	1.0

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 09/05/08

CLIENT: WC-HANFORD RC-088 K1301 LVL LOT #: 0808L135

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-001REP	J178M0	Silver, Total	0.08u	0.08u	NC	1.0
		Aluminum, Total	3.4 u	3.4 u	NC	1.0
		Arsenic, Total	0.42u	0.42u	NC	1.0
		Barium, Total	0.08u	0.1	~~NC~~ 200	1.0
		Beryllium, Total	0.04u	0.04u	NC	1.0
		Calcium, Total	55.2	56.9	3.0	1.0
		Cadmium, Total	0.04u	0.04u	NC	1.0
		Cobalt, Total	0.17u	0.17u	NC	1.0
		Chromium, Total	0.17u	0.17u	NC	1.0
		Copper, Total	0.17	0.27	41.7	1.0
		Iron, Total	4.5	3.8 u	~~NC~~ 200	1.0
		Mercury, Total	0.00u	0.01u	NC	1.0
		Potassium, Total	41.4 u	41.7 u	NC	1.0
		Magnesium, Total	5.0	6.0	18.2	1.0
		Manganese, Total	0.13	0.13	3.4	1.0
		Sodium, Total	34.9	39.9	13.4	1.0
		Nickel, Total	0.17u	0.17u	NC	1.0
		Lead, Total	0.25u	0.25u	NC	1.0
		Antimony, Total	0.25u	0.25u	NC	1.0
		Selenium, Total	0.50u	0.51u	NC	1.0
		Tin, Total	0.81	0.87	7.9	1.0
		Thallium, Total	0.50u	0.51u	NC	1.0
		Vanadium, Total	0.12u	0.12u	NC	1.0
		Zinc, Total	0.50u	0.51u	NC	1.0
		Zirconium, Total	4.2 u	4.2 u	NC	1.0

Lionville Laboratory, Inc.

INORGANICS LABORATORY CONTROL STANDARDS REPORT 09/05/08

CLIENT: WC-HANFORD RC-088 K1301 LVL LOT #: 0808L135

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
LCS1	08L0318-LC1	Silver, LCS	47.9	50.0	MG/KG	95.8
		Aluminum, LCS	482	500	MG/KG	96.5
		Arsenic, LCS	948	1000	MG/KG	94.8
		Barium, LCS	471	500	MG/KG	94.1
		Beryllium, LCS	23.9	25.0	MG/KG	95.6
		Calcium, LCS	2410	2500	MG/KG	96.3
		Cadmium, LCS	23.4	25.0	MG/KG	93.6
		Cobalt, LCS	234	250	MG/KG	93.4
		Chromium, LCS	47.7	50.0	MG/KG	95.4
		Copper, LCS	120	125	MG/KG	96.2
		Iron, LCS	466	500	MG/KG	93.3
		Potassium, LCS	2170	2500	MG/KG	86.7
		Magnesium, LCS	2330	2500	MG/KG	93.2
		Manganese, LCS	72.4	75.0	MG/KG	96.5
		Sodium, LCS	2250	2500	MG/KG	89.9
		Nickel, LCS	190	200	MG/KG	95.0
		Lead, LCS	238	250	MG/KG	95.4
		Antimony, LCS	282	300	MG/KG	94.0
		Selenium, LCS	902	1000	MG/KG	90.2
		Tin, LCS	474	500	MG/KG	94.8
		Thallium, LCS	949	1000	MG/KG	94.9
		Vanadium, LCS	235	250	MG/KG	93.8
		Zinc, LCS	97.8	100	MG/KG	97.8
		Zirconium, LCS	484	500	MG/KG	96.8
LCS1	08C0150-LC1	Mercury, LCS	4.9	4.7	MG/KG	105.0

Lionville Laboratory Incorporated

MERCURY PREPARATION

Logbook # 498

Analyst: EO
Date 9/2/08
Start Time/Temp: 1610 | 95°
End Time/Temp: 1640 | 97°

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

Prep Batch: 08C0150
Worksheet: HG-090301|09
SOP No. ME-HgCVAA, Rev. 02

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

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

LvLI Batch #	Container Number	Spike Volume (mL)	Spike Conc. (µg/L)	Initial Wt. or Volume (g or mL)	Final Sample Volume (mL)	Comments, % Solids, etc.
Blank	E			10mL	50mL	
0.2 µg/L	JC	0.100				
1.0	LS3	0.500				
2.0	KX	1.000				
5.0	A901	2.500				
10.0	1721	5.000				
ICV	6J	0.125	2.5			
CCV	205	0.250	5.0			
ICB/CCB	X0					
MB1	A1			0.30		PBS/50 5.0 mL 100.0
LC1	H2	*	*	0.31		LCSS/50
0808L118-001	UT	MOVED TO a Different batch Tue 9/2/08				
~~002~~	NR					
0808L135-001	411			0.38		R
001R	N2			0.30		
001S	40	0.0500	10.0	0.38		
002	F2			0.32		
003	886			0.31		
0808L137-001	M1			0.30		
001R	WK			0.34		
001S	C48	0.0500	10.0	0.30		
002	NJ			0.35		
003	J1			0.30		R
004	NB			0.37		
005	CB			0.30		R
006	CM			0.36		
007	Gd			0.38		

Standard:	ID	Prep Date/Time
ICAL/MS	R1 6072-78-14B	9/2/08 1030
ICV/CCV/LCS	US 6072-78-15A	↓

Reviewed By/Date: [signature] 9/5/08

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 # 498

Analyst: TLB
Date 9/2/08
Start Time/Temp: [illegible]
End Time/Temp: 005

Instrument ID HG3.1
Balance #: B29 NA
Pipette Calibration (Daily) Y ✓

Prep Batch: 08C0150
Worksheet: HG090301|09
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.
0808L137 - 008	31			0.30	50mL	100.00
009	N4			0.31		R
010	HW			0.31		
011	AIR			0.36		
012	76			0.31		R
0808L144-001	11A			0.34		89.72
001R	AP			0.36		
001S	RU	0.500	1.0	0.34		
002	81G			0.30		75.75

OA 9/2/08

Standard:	ID	Prep Date/Time
ICAL/MS		
ICV/CCV/LCS	See page 005	

Reviewed By/Date: [illegible] 9/5/08

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

ME-HgCVAA-Prep1007

Page #:

000000018

Lionville Laboratory Incorporated

Logbook #: 482

SAMPLE DIGESTION RECORD

SOP: L-SPI-3020 Rev. 00

Digestion Batch #: 08L0318
Date/Time Initiated: 8/29/08 1200
Date/Time Completed: 8/29/08 1930
Analyst(s): NW
Matrix: (Soil) Water (Other) unknown liquids
Instr. Type: AA (ICP)
Parameters: see backlog

(Digested) / Undigested (circle one)
Balance #: B20
Balance Cal Verif: (Y) NA
Hot Plate Temp: 94

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

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

TNW

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
08082075-001		1.32gm	100.ml	<2	TO	coarse	brown soil	roots	
001R		1.27gm							
001S	1.0ml *	1.32gm							
08082135-001		1.19gm				liquid	greyish white	clum	
001R		1.18gm							
001S	1.0ml *	1.19gm							
002		1.15gm					light brown, milky a bit thicker		
003		1.06gm					brown milky a bit thicker yet		
08L0318-MB1		1.0gm				coarse	brining chips		
LC1	1.0ml *	1.0gm							

NW 8/29/08

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

Reagent IDs:
HNO_3 G07057
HCL G15040
H_2O_2 G15A18
1:1 HNO_3 9789-083-08
1:1 HCL

File ID#: IC031801
IC031802
IC031803

LIMS Transfer: (Y) N

UPLOADED

Data Review By/Date: Cindy Smalley 9/3/08

* also 0.5ml 6072-076-11 (Bi)
0.5ml 6072-079-14 (P-)
0.5ml 6072-078-01 (U-)
0.5ml 6072-079-13 (Zr)

L-SPI-3020-A-0601

Lionville Laboratory Use Only

08081135

Custody Transfer Record/Lab Work Request

Page 1 of 1

LVLI Lionville Laboratory Inc.

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

A

Client: Washington Closure Hanford RC088

Est. Final Proj. Sampling Date:

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

Project Contact/Phone#:

Lionville Laboratory Project Manager: Arletta Johnson

QC: SW846 Del: STD TAT: 7 Days

Date Rec'd: 8-28-08 Date Due: 9-4-08

Refrigerator #		2
#/Type Container	Liquid / Solid	1 qt
Volume	Liq	250
Preservatives		

ANALYSES REQUESTED →

ORGANIC				INORG		
VOA	BNA	Pest/PCB	Herb	Metal + Hg	CN	Ignit

Lionville Laboratory Use Only

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

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix *	Date Collected	Time Collected		0625H	OPCB					Meth		IIGN				
001	J178M0			X	8-20-08	0740		X	X					X		X				
002	J178M1-A (unknown)			↓	↓	0800		X	X					X		X				
003	J178M1-B (oil)			↓	↓	0800		X	X					X		X				

Special Instructions:

Meth (1) = HSL + Sn, Zr

Special Instructions:

1. * per client C.O.C. / Homogenize media prior to analysis if separated.
2.
3.
4. Matrix = 2 layers - oil, unknown - J178M1 is
5. split into two samples J178M1-B = oil and J178M1-A = unknown
6.

Relinquished by	Received by	Date	Time
[illegible]	[illegible]	8-28-08	0935

Relinquished by	Received by	Date	Time

Relinquished by	Received by	Date	Time
ORIGINAL REWRITTEN		COPY OF RECORD	

000000020

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

Collector: B. Lawrence	Company Contact: Joan Kessner	Telephone No.: 509-375-4688	Project Coordinator: KESSNER, JH
Project Designation: 618-7 Burial Ground - Other	Sampling Location: 618-7 Burial Ground (drums)		SAF No.: RC-088
Ice Chest No.: RCC-08-032	Field Logbook No.: EL-1395-13	COA: RG61878500	Method of Shipment: FedEx
Shipped To: EBERLINE SERVICES (LIONVILLE)	Offsite Property No.: A080318		Bill of Lading/Air Bill No.: See ops

Price Code:

Data Turnaround: ~~15~~ 7 Days RTC 8/20/08

000000021

POSSIBLE SAMPLE HAZARDS/REMARKS

Potential Radioactive contamination, potential beryllium contamination

Special Handling and/or Storage

None

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

Sample No.	Matrix *	Sample Date	Sample Time										
~~H178L9~~	~~OTHER~~												
H178M0	OTHER	8/20/08	0740	X	X	X	X	X					6322
H178M1	OTHER	8/20/08	0800	X	X	X	X	X					5780

RTC 8/20/08

CHAIN OF POSSESSION	Sign/Print Names	
Relinquished By/Removed From: B. Lawrence — Date/Time: 8-20-08 1130	Received By/Stored In: RT Coffman / RT Coffman — Date/Time: 8/20/08 1130	
Relinquished By/Removed From: B. Lawrence — Date/Time: 8-20-08 1130	Received By/Stored In: 1060/1B — Date/Time: 8-20-08 1130	
Relinquished By/Removed From: 1060/1B MDO — Date/Time: 8/27/08	Received By/Stored In: M Stankovich — Date/Time: AUG 27 2008 1100	
Relinquished By/Removed From: M Stankovich — Date/Time: AUG 27 2008 1100	Received By/Stored In: FedEx — Date/Time:	
Relinquished By/Removed From: FedEx — Date/Time: 8.28.08 0935	Received By/Stored In: [signature] — Date/Time: 8.28.08 0935	
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

*HOMOGENIZE MEDIA PRIOR TO ANALYSIS IF SEPARATED.

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

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

WCH-EE-011

Lionville Laboratory Incorporated

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: W.C. Hanford
Project/SAF/SOW/Release #: RC-088

Date: 8.28.08

LvLI Batch #: 0808L135

Sample Custodian: D Smith

NOTE: EXPLAIN ALL DISCREPANCIES

1. Samples Hand Delivered or Shipped?	Carrier FedEx		Airbill # 7920 9986 927.
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 2.8	°C	Cooler # RCC.08.032
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.
BNA ANALYTICAL DATA PACKAGE FOR
WC-HANFORD RC-088 K1301

RECEIVED
SEP 2008

DATE RECEIVED: 08/28/08 LVL LOT # :08081135

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J178M0	001	OI	08LE0407	08/20/08	08/29/08	09/03/08
J178M0	001 MS	OI	08LE0407	08/20/08	08/29/08	09/03/08
J178M0	001 MSD	OI	08LE0407	08/20/08	08/29/08	09/03/08
J178M1-A	002	OI	08LE0407	08/20/08	08/29/08	09/03/08
J178M1-B	003	OI	08LE0407	08/20/08	08/29/08	09/03/08
LAB QC:						
SBLKXH	MB1	OI	08LE0407	N/A	08/29/08	09/03/08
SBLKXH	MB1 BS	OI	08LE0407	N/A	08/29/08	09/03/08

LIONVILLE LABORATORY INC.

Case Narrative

Client: WC-HANFORD RC-088
LVL #: 0808L135
SDG/SAF # K1301 / RC-088

W.O. #: 60049-001-001-0001-00
Date Received: 08-28-2008

SEMIVOLATILE

Three (3) oil samples were collected on 08-20-2008.

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 08-29-2008 and analyzed according to criteria set forth in Lionville Laboratory SOPs based on SW 846 Method 8270C for TCL Semivolatile target compounds on 09-03-2008.

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 surrogate recoveries were within acceptance criteria.
5. Two (2) of one hundred twenty eight (128) matrix spike recoveries were outside acceptance criteria. The results were biased high and had minimal impact on the data.
6. One (1) of sixty-four (64) blank spike recoveries was outside acceptance criteria. A copy of the Sample Discrepancy Report (SDR# 08MS196) 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\tnu\0808-135coi2.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 18 pages.

LIONVILLE LABORATORY INC.

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

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

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

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

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

Judy Stern

Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

9/16/08
Date

Lionville Laboratory Sample Discrepancy Report (SDR)

SDR #: 08MS196

Initiator: Sharon Saylor
Date: 9-4-08
Client: TMI Hanford RC0000 KI301

Batch: 0808L135
Samples: BS
Method: SW846/MCAWW/CLP/

Parameter: 8270
Matrix: OIL
Prep Batch: 08160407

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)

low recovery of 2-methylphenol in the BS but ms + msd are ok (57% (60-120%))

2. Known or Probable Causes(s) Acidic phenols are subject to erratic chromatographic behavior especially if the GC system is contaminated with high boiling material

3. Discussion and Proposed Action Other Description:

narrate

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

4. Project Manager Instructions...signature/date: 9/4/08

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

5. Final Action...signature/date: 9/7/08 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: Carden / _____
__ Other: _____

GLOSSARY

DATA QUALIFIERS

U	=	Compound was analyzed for but not detected. The associated numerical value is the estimated sample quantitation limit which is included and corrected for dilution and percent moisture.
J	=	Indicates an estimated value. This flag is used under the following circumstances: 1) when estimating a concentration for tentatively identified compounds (TICs) where a 1:1 response is assumed; or 2) when the mass spectral data indicate the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero. For example, if the limit of detection is 10 ug/L and a concentration of 3 ug/L is calculated, it is reported as 3J.
B	=	This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination. This flag is also used for a TIC as well as for a positively identified TCL compound.
E	=	Indicates that the compound was detected beyond the calibration range and was subsequently analyzed at a dilution.
D	=	Identifies all compounds identified in an analysis at a secondary dilution factor.
I	=	Interference.
NQ	=	Result qualitatively confirmed but not able to quantify.
A	=	Indicates that a TIC is a suspected aldol-condensation product.
N	=	Indicates presumptive evidence of a compound. This flag is only used for tentatively identified compounds (TICs), where the identification is based on a mass spectral library search. It is applied to all TIC results. For generic characterization of a TIC, such as chlorinated hydrocarbon, the N code is not used.
X	=	This flag is used for a TIC compound which is quantified relative to a response factor generated from a daily calibration standard (rather than quantified relative to the closest internal standard).
Y	=	Additional qualifiers used as required are explained in the case narrative.

GLOSSARY

ABBREVIATIONS

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

TECHNICAL FLAGS FOR MANUAL INTEGRATION

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

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

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

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

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

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

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

Lionville Laboratory, Inc.

Semivolatiles by GC/MS, HSL List

Report Date: 09/05/08 08:23

RFW Batch Number: 0808L135 Client: WC-HANFORD RC-088 K1301 Work Order: 60049001001 Page: 1a

	Cust ID:	J178M0	J178M0	J178M0	J178M1-A	J178M1-B	SBLKXH
Sample Information	RFW#:	001	001 MS	001 MSD	002	003	08LE0407-MB1
	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	47 %	47 %	49 %	53 %	43 %	48 %
	2-Fluorobiphenyl	51 %	52 %	54 %	62 %	55 %	52 %
	Terphenyl-d14	46 %	51 %	53 %	66 %	41 %	46 %
	Phenol-d5	49 %	39 %	45 %	58 %	51 %	47 %
	2-Fluorophenol	51 %	48 %	51 %	57 %	52 %	52 %
	2,4,6-Tribromophenol	49 %	46 %	51 %	68 %	51 %	50 %
		fl	fl	fl	fl	fl	fl
Phenol		210000 U	65 %	91 %	210000 U	210000 U	210000 U
bis(2-Chloroethyl)ether		210000 U	93 %	101 %	210000 U	210000 U	210000 U
2-Chlorophenol		210000 U	65 %	93 %	210000 U	210000 U	210000 U
1,3-Dichlorobenzene		210000 U	97 %	109 %	210000 U	210000 U	210000 U
1,4-Dichlorobenzene		210000 U	97 %	107 %	210000 U	210000 U	210000 U
1,2-Dichlorobenzene		210000 U	98 %	109 %	210000 U	210000 U	210000 U
2-Methylphenol		210000 U	75 %	98 %	210000 U	210000 U	210000 U
2,2'-oxybis(1-Chloropropane)		210000 U	97 %	108 %	210000 U	210000 U	210000 U
3/4 Methylphenol		210000 U	62 %	86 %	210000 U	210000 U	210000 U
N-Nitroso-di-n-propylamine		210000 U	97 %	103 %	210000 U	210000 U	210000 U
Hexachloroethane		210000 U	98 %	103 %	210000 U	210000 U	210000 U
Nitrobenzene		210000 U	92 %	100 %	210000 U	210000 U	210000 U
Isophorone		210000 U	91 %	96 %	210000 U	210000 U	210000 U
2-Nitrophenol		210000 U	91 %	101 %	210000 U	210000 U	210000 U
2,4-Dimethylphenol		210000 U	72 %	95 %	210000 U	210000 U	210000 U
bis(2-Chloroethoxy)methane		210000 U	95 %	103 %	210000 U	210000 U	210000 U
2,4-Dichlorophenol		210000 U	96 %	87 %	210000 U	210000 U	210000 U
1,2,4-Trichlorobenzene		210000 U	95 %	100 %	210000 U	210000 U	210000 U
Naphthalene		210000 U	94 %	102 %	210000 U	210000 U	210000 U
4-Chloroaniline		210000 U	96 %	107 %	210000 U	210000 U	210000 U
Hexachlorobutadiene		210000 U	100 %	111 %	210000 U	210000 U	210000 U
4-Chloro-3-methylphenol		210000 U	119 %	115 %	210000 U	210000 U	210000 U
2-Methylnaphthalene		210000 U	97 %	103 * %	210000 U	34000 J	210000 U
Hexachlorocyclopentadiene		210000 U	90 %	99 %	210000 U	210000 U	210000 U
2,4,6-Trichlorophenol		210000 U	89 %	112 %	210000 U	210000 U	210000 U
2,4,5-Trichlorophenol		520000 U	92 %	110 %	520000 U	520000 U	520000 U

*= Outside of EPA CLP QC limits.

000000008

Cust ID:	J178M0		J178M0		J178M0		J178M1-A		J178M1-B		SBLKXH	
RFW#:	001		001 MS		001 MSD		002		003		08LE0407-MB1	
2-Chloronaphthalene	210000	U	98	%	103	%	210000	U	210000	U	210000	U
2-Nitroaniline	520000	U	96	%	107	%	520000	U	520000	U	520000	U
Dimethylphthalate	210000	U	94	%	104	%	210000	U	210000	U	210000	U
Acenaphthylene	210000	U	100	%	105	%	210000	U	210000	U	210000	U
2,6-Dinitrotoluene	210000	U	94	%	106	%	210000	U	210000	U	210000	U
3-Nitroaniline	520000	U	99	%	111	%	520000	U	520000	U	520000	U
Acenaphthene	210000	U	96	%	105	%	210000	U	210000	U	210000	U
2,4-Dinitrophenol	520000	U	104	%	120	%	520000	U	520000	U	520000	U
4-Nitrophenol	520000	U	78	%	92	%	520000	U	520000	U	520000	U
Dibenzofuran	210000	U	100	%	108	%	210000	U	210000	U	210000	U
2,4-Dinitrotoluene	210000	U	106	%	107	%	210000	U	210000	U	210000	U
Diethylphthalate	210000	U	98	%	106	%	210000	U	210000	U	210000	U
4-Chlorophenyl-phenylether	210000	U	93	%	99	%	210000	U	210000	U	210000	U
Fluorene	210000	U	98	%	104	%	210000	U	210000	U	210000	U
4-Nitroaniline	520000	U	89	%	95	%	520000	U	520000	U	520000	U
4,6-Dinitro-2-methylphenol	520000	U	101	%	111	%	520000	U	520000	U	520000	U
N-Nitrosodiphenylamine (1)	210000	U	80	%	84	%	210000	U	210000	U	210000	U
4-Bromophenyl-phenylether	210000	U	87	%	92	%	210000	U	210000	U	210000	U
Hexachlorobenzene	210000	U	101	%	102	%	210000	U	210000	U	210000	U
Pentachlorophenol	520000	U	94	%	135 *	%	520000	U	520000	U	520000	U
Phenanthrene	210000	U	98	%	101	%	210000	U	160000	J	210000	U
Anthracene	210000	U	96	%	101	%	210000	U	210000	U	210000	U
Carbazole	210000	U	90	%	92	%	210000	U	210000	U	210000	U
Di-n-butylphthalate	210000	U	97	%	100	%	210000	U	11000	J	210000	U
Fluoranthene	210000	U	99	%	103	%	210000	U	210000	U	210000	U
Pyrene	210000	U	92	%	98	%	210000	U	210000	U	210000	U
Butylbenzylphthalate	210000	U	95	%	99	%	210000	U	210000	U	210000	U
3,3'-Dichlorobenzidine	210000	U	75	%	89	%	210000	U	210000	U	210000	U
Benzo(a)anthracene	210000	U	88	%	96	%	210000	U	210000	U	210000	U
Chrysene	210000	U	93	%	99	%	210000	U	210000	U	210000	U
bis(2-Ethylhexyl)phthalate	210000	U	90	%	96	%	210000	U	210000	U	210000	U
Di-n-octyl phthalate	210000	U	86	%	102	%	210000	U	210000	U	210000	U
Benzo(b)fluoranthene	210000	U	90	%	104	%	210000	U	210000	U	210000	U
Benzo(k)fluoranthene	210000	U	93	%	104	%	210000	U	210000	U	210000	U
Benzo(a)pyrene	210000	U	89	%	103	%	210000	U	210000	U	210000	U
Indeno(1,2,3-cd)pyrene	210000	U	88	%	98	%	210000	U	210000	U	210000	U
Dibenz(a,h)anthracene	210000	U	89	%	101	%	210000	U	210000	U	210000	U
Benzo(g,h,i)perylene	210000	U	89	%	99	%	210000	U	210000	U	210000	U

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

000000009

000000010

Cust ID: SBLKXH BS

Sample Information

RFW#: 08LE0407-MB1
Matrix: OIL
D.F.: 21.0
Units: ug/Kg

Surrogate Recovery	Nitrobenzene-d5	34	%
	2-Fluorobiphenyl	39	%
	Terphenyl-d14	42	%
	Phenol-d5	28	%
	2-Fluorophenol	37	%
	2,4,6-Tribromophenol	33	%

Phenol	78		%
bis(2-Chloroethyl)ether	71		%
2-Chlorophenol	75		%
1,3-Dichlorobenzene	75		%
1,4-Dichlorobenzene	76		%
1,2-Dichlorobenzene	76		%
2-Methylphenol	57	*	%
2,2'-oxybis(1-Chloropropane)	75		%
3/4 Methylphenol	71		%
N-Nitroso-di-n-propylamine	78		%
Hexachloroethane	74		%
Nitrobenzene	72		%
Isophorone	68		%
2-Nitrophenol	68		%
2,4-Dimethylphenol	74		%
bis(2-Chloroethoxy)methane	73		%
2,4-Dichlorophenol	50		%
1,2,4-Trichlorobenzene	73		%
Naphthalene	70		%
4-Chloroaniline	74		%
Hexachlorobutadiene	75		%
4-Chloro-3-methylphenol	93		%
2-Methylnaphthalene	76		%
Hexachlorocyclopentadiene	70		%
2,4,6-Trichlorophenol	63		%
2,4,5-Trichlorophenol	105		%

*= Outside of EPA CLP QC limits.

Cust ID: **SBLKXH BS**

RFW#: **08LE0407-MB1**

2-Chloronaphthalene	76	%
2-Nitroaniline	78	%
Dimethylphthalate	74	%
Acenaphthylene	78	%
2,6-Dinitrotoluene	76	%
3-Nitroaniline	79	%
Acenaphthene	74	%
2,4-Dinitrophenol	85	%
4-Nitrophenol	75	%
Dibenzofuran	76	%
2,4-Dinitrotoluene	77	%
Diethylphthalate	77	%
4-Chlorophenyl-phenylether	74	%
Fluorene	80	%
4-Nitroaniline	68	%
4,6-Dinitro-2-methylphenol	81	%
N-Nitrosodiphenylamine (1)	61	%
4-Bromophenyl-phenylether	64	%
Hexachlorobenzene	73	%
Pentachlorophenol	76	%
Phenanthrene	75	%
Anthracene	74	%
Carbazole	70	%
Di-n-butylphthalate	77	%
Fluoranthene	76	%
Pyrene	77	%
Butylbenzylphthalate	76	%
3,3'-Dichlorobenzidine	64	%
Benzo(a)anthracene	71	%
Chrysene	73	%
bis(2-Ethylhexyl)phthalate	75	%
Di-n-octyl phthalate	71	%
Benzo(b)fluoranthene	78	%
Benzo(k)fluoranthene	70	%
Benzo(a)pyrene	70	%
Indeno(1,2,3-cd)pyrene	69	%
Dibenz(a,h)anthracene	68	%
Benzo(g,h,i)perylene	70	%

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

000000011

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

J178M0

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

Client: WC-HANFORD RC-088 K1301

Matrix: (soil/water) OIL

Lab Sample ID: 0808L135-001

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

Lab File ID: C090311

Level: (low/med) LOW

Date Received: 08/28/08

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

Date Extracted: 08/29/08

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 09/03/08

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)

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

J178M1-A

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

Client: WC-HANFORD RC-088 K1301

Matrix: (soil/water) OIL

Lab Sample ID: 0808L135-002

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

Lab File ID: C090314

Level: (low/med) LOW

Date Received: 08/28/08

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

Date Extracted: 08/29/08

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 09/03/08

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.	UNKNOWN	8.893	300000	J
2.	UNKNOWN	18.394	50000	J
3.	TRIMETHYLNAPHTHALENE	19.462	60000	J
4.	UNKNOWN	19.634	70000	J
5.	TRIMETHYLNAPHTHALENE	19.970	70000	J

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

J178M1-B

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

Client: WC-HANFORD RC-088 K1301

Matrix: (soil/water) OIL

Lab Sample ID: 0808L135-003

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

Lab File ID: C090315

Level: (low/med) LOW

Date Received: 08/28/08

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

Date Extracted: 08/29/08

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 09/03/08

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	19.465	800000	J
2.	UNKNOWN	20.352	800000	J
3.	ALKANE	20.524	2000000	J
4.	ALKANE	21.386	1000000	J
5.	UNKNOWN	24.797	3000000	J

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

SBLKXH

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

Client: WC-HANFORD RC-088 K1301

Matrix: (soil/water) OIL

Lab Sample ID: 08LE0407-MB1

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

Lab File ID: C090310

Level: (low/med) LOW

Date Received: 08/29/08

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

Date Extracted: 08/29/08

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 09/03/08

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)

Lionville Laboratory Use Only

08081135

Custody Transfer Record/Lab Work Request

Page 1 of 1

LVLI Lionville Laboratory Inc.

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

A.

Client: Washington Closure Hanford RC088

Est. Final Proj. Sampling Date:

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

Project Contact/Phone#:

Lionville Laboratory Project Manager: Arlette Johnson

QC: SW846 Del: STD TAT: 7 Days

Date Rec'd: 8-28-08 Date Due: 9-4-08

Refrigerator #		2
#/Type Container	Liquid / Solid	191
Volume	Liq	250
Preservatives		

ANALYSES REQUESTED →

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix *	Date Collected	Time Collected	ORGANIC VOA	BNA (0625H)	Pest/PCB (OPCB)	Herb				INORG Metal + Hg (Meth 1)	CN	Isotopic (IIGN)				
001	J178M0			X	8-30-08	0740		X	X					X		X				
002	J178M1-A (unknown)			↓	↓	0800		X	X					X		X				
003	J178M1-B (oil)			↓	↓	0800		X	X					X		X				

Lionville Laboratory Use Only

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

Special Instructions:

Meth 1 = HSL + Sn, Zr

Special Instructions:

1. * per client C.O.C. / Homogenize matrix prior to analysis if separated.
2.
3.
4. Matrix = 2 layers - oil, unknown - J178M1 is
5. split into two samples J178M1-B = oil and J178M1-A = unknown
6.

Relinquished by	Received by	Date	Time
FedEx	[signature]	8-28-08	0935

Relinquished by	Received by	Date	Time

Relinquished by	Received by	Date	Time
ORIGINAL REWRITTEN		COPY MADE	

000000016

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

Collector: B. Lawrence	Company Contact: Joan Kessner	Telephone No.: 509-375-4688	Project Coordinator: KESSNER, JH
Price Code	Data Turnaround: ~~15~~ Days 7 RTC 8/20/08		
Project Designation: 618-7 Burial Ground - Other	Sampling Location: 618-7 Burial Ground (drums)		SAF No.: RC-088
Ice Chest No.: RCC-08-032	Field Logbook No.: EL-1395-13	COA: RG61878500	Method of Shipment: FedEx
Shipped To: EBERLINE SERVICES (LIONVILLE)	Offsite Property No.: A080318		Bill of Lading/Air Bill No.: See ops

POSSIBLE SAMPLE HAZARDS/REMARKS

Potential Radioactive contamination, potential beryllium contamination

Special Handling and/or Storage

None

Preservation	Cool 4C	Cool 4C	None	None	None						
Type of Container	aG	aG	P	P	P						
No. of Container(s)	1	0	0	0	1						
Volume	250mL	125mL	125mL	60mL	100mL						
SAMPLE ANALYSIS	Semi-VOA - 8270A (TCL)	PCBs - 8082	See item (1) in Special Instructions.	Ignitability - 1010	See item (2) in Special Instructions.						PIN #
Sample No. / Matrix * / Sample Date / Sample Time											
~~J178L9~~ ~~OTHER~~											
J178M0 / OTHER / 8/20/08 / 0740	X	X	X	X	X						6322
J178M1 / OTHER / 8/20/08 / 0800	X	X	X	X	X						5780

RTC 8/20/08

CHAIN OF POSSESSION	Date/Time	Sign/Print Names: Received By/Stored In	Date/Time
Relinquished By/Removed From: B Lawrence	8-20-08 1130	RT Coffman / RT Coffman	8/20/08 1130
Relinquished By/Removed From: B Lawrence	8-20-08 1130	1060/1B	8-20-08 1130
Relinquished By/Removed From: 1060/1B MDO	8/27/08 1100	M Stankovich	AUG 27 2008 1100
Relinquished By/Removed From: M Stankovich	AUG 27 2008 1100	FedEx	
Relinquished By/Removed From: FedEx	8.28.08 0935	[illegible]	8.28.08 0935
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

*HOMOGENIZE MEDIA PRIOR TO ANALYSIS IF SEPARATED.

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

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
Ve=Vegetation
X=Other

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

BLC

VCH-EE-011

000000017

Lionville Laboratory Incorporated

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: W.C. Hanford
Project/SAF/SOW/Release #: RC-088

Date: 8.28.08

LvLI Batch #: 0808L135

Sample Custodian: D Smith

NOTE: EXPLAIN ALL DISCREPANCIES

1. Samples Hand Delivered or Shipped?	Carrier FedEx		Airbill # 7920 9986 927.
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 2.8	°C	Cooler # RCC.08.032
How was the temperature taken?	☑ IR	☐ Temp. Blank	☐ Other (Specify):
Is the Temp. Criteria met for these samples? (Hg in soils @ 4°C)	☑ Yes	☐ No	
6. Custody seals on sample containers intact, signed and dated?	☑ Yes	☐ No	☐ No Seals
7. COC (Client & LvLI) signed & dated?	☑ Yes	☐ No	
8. Sample containers are intact?	☑ Yes	☐ No	
9. All samples on COC received?	☑ Yes	☐ No	
All samples received on COC?	☑ Yes	☐ No	
10. All sample label information matches COC?	☑ Yes	☐ No	
11. Samples properly preserved? (If #5 is no, then this is no.)	☑ Yes	☐ No	
12. Samples received within hold times?	☑ Yes	☐ No	
Short holds taken to wet lab?	☐ Yes	☐ No	☑ N/A
13. VOA, TOC, TOX free of headspace?	☐ Yes	☐ No	☑ N/A
14. QC stickers placed on bottles designated by client?	☐ Yes	☐ No	☑ N/A
15. Shipment meets LvLI Sample Acceptance Policy? (Identify all bottles that do not meet the policy, which is on the reverse of this page.)	☑ Yes	☐ No	
16. Project Manager contacted concerning any discrepancies?	☐ Yes	☐ No	☑ N/A

Person Contacted _____ Date _____

LVLI LIONVILLE LABORATORY INC.

Lionville Laboratory, Inc.
PCB ANALYTICAL DATA PACKAGE FOR
WC-HANFORD RC-088 K1301

RECEIVED
SEP 2008

DATE RECEIVED: 08/28/08 LVL LOT # :0808L135

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J178M0	001	OI	08LE0406	08/20/08	08/29/08	09/02/08
J178M0	001 MS	OI	08LE0406	08/20/08	08/29/08	09/02/08
J178M0	001 MSD	OI	08LE0406	08/20/08	08/29/08	09/02/08
J178M1-A	002	OI	08LE0406	08/20/08	08/29/08	09/02/08
J178M1-B	003	OI	08LE0406	08/20/08	08/29/08	09/02/08
LAB QC:						
PBLKUC	MB1	S	08LE0406	N/A	08/29/08	08/29/08
PBLKUC	MB1 BS	S	08LE0406	N/A	08/29/08	08/29/08

LIONVILLE LABORATORY INC.

Case Narrative

Client: WC-HANFORD RC-088
LVL #: 0808L135
SDG/SAF # K1301 / RC-088

W.O. #: 60049-001-001-0001-00
Date Received: 08-28-2008

PCB

Three (3) oil samples were collected on 08-20-2008.

The samples and their associated QC samples were extracted on 08-29-2008 and analyzed according to Lionville Laboratory SOPs based on SW846, 3rd Edition procedure on 08-29-2008 and 09-02-2008. 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. All required holding times for extraction and analysis have been met.
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 surrogate recoveries were within acceptance criteria.
5. All blank spike recoveries were within acceptance criteria.
6. Two (2) of four (4) matrix spike recoveries were outside acceptance criteria. A copy of the Sample Discrepancy Report (SDR# 08GC104) has been enclosed.
7. All initial calibrations associated with this data set were within acceptance criteria.
8. All continuing calibration standards analyzed prior to sample extracts were within acceptance criteria.

r:\group\data\2008\pest\tmu\0808-135coil2.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.

LvLI
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.

Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

9/9/08
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 Sample Discrepancy Report (SDR)

SDR #: 08GC104

Initiator: Svetlana Zak
Date: 9/02/08
Client: WC-Hanford

Batch: 0808L135
Samples: 001-S, T
Method: SW846/MCAWW/CLP/

Parameter: PCB
Matrix: oil/unknown
Prep Batch: 08LE0406

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)

Low AR1016 spike recovery on 001-S, 001-T

2. Known or Probable Causes(s)

Matrix effect

3. Discussion and Proposed Action

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

Other Description:

BS is good
Narrate

9/8/08

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: _____ 9/2/08

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
✓ Project Mgr (circle): Johnson / Stone
__ Sample Prep (circle): Ford
__ Log-in: King

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

QA-139-A-0208

Lionville Laboratory Use Only

08081135

Custody Transfer Record/Lab Work Request

Page 1 of 1

LVLI

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

A

Client: Washington Closure Hanford RC088

Est. Final Proj. Sampling Date

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

Project Contact/Phone#:

Lionville Laboratory Project Manager: Arlette Johnson

QC: SW846 Del: STD TAT: 7 Days

Date Rec'd: 8-28-08 Date Due: 9-4-08

Refrigerator #		2												
#/Type Container	Liquid / Solid	1 gl												
Volume	Liq	250												
Preservatives														
ANALYSES REQUESTED		ORGANIC: VOA	BNA	Pest/PCB	Herb				INORG: Metal + Hg	CN	TSS+			

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

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix *	Date Collected	Time Collected	Lionville Laboratory Use Only: VOA	BNA (0625H)	Pest/PCB (OPCB)	Herb				Metal + Hg (Meth)	CN	TSS+ (IIGN)				
001	J178M0			X	8-20-08	0740		X	X					X		X				
002	J178M1-A (unknown)					0800		X	X					X		X				
003	J178M1-B (oil)					0800		X	X					X		X				

Special Instructions:

Meth (1) = HSL + Sn, Zr

Special Instructions:

1. * per client C.O.C. / Homogenize media prior to analysis if separated.
2.
3.
4. Matrix = 2 layers - oil, unknown - J178M1 is
5. split into two samples J178M1-B = oil and J178M1-A = unknown
6.

Relinquished by	Received by	Date	Time
FedEx	[signature]	8-28-08	0935

Relinquished by	Received by	Date	Time

Relinquished by	Received by	Date	Time
ORIGINAL REWRITTEN			

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

Collector: B. Lawrence	Company Contact: Joan Kessner	Telephone No.: 509-375-4688	Project Coordinator: KESSNER, JH
Price Code	Data Turnaround: ~~15~~ Days 7 RT 8/20/08		
Project Designation: 618-7 Burial Ground - Other	Sampling Location: 618-7 Burial Ground (drums)		SAF No.: RC-088
Ice Chest No.: RCC-08-032	Field Logbook No.: EL-1395-13	COA: RG61878500	Method of Shipment: FedEx
Shipped To: EBERLINE SERVICES LIONVILLE	Offsite Property No.: A080318		Bill of Lading/Air Bill No.: See ASPC

POSSIBLE SAMPLE HAZARDS/REMARKS

Potential Radioactive contamination, potential beryllium contamination

Special Handling and/or Storage

None

Preservation	Cool 4C	Cool 4C	None	None	None						
Type of Container	aG	aG	P	P	P						
No. of Container(s)	1	0	0	0	1						
Volume	250mL	125mL	125mL	60mL	100mL						
SAMPLE ANALYSIS	Semi-VOA - 8270A (TCL)	PCBs - 8082	See item (1) in Special Instructions.	Ignitability - 1010	See item (2) in Special Instructions.						PIN #
Sample No. / Matrix * / Sample Date / Sample Time											
~~J178L9~~ ~~OTHER~~											
J178M0 / OTHER / 8/20/08 / 0740	X	X	X	X							6322
J178M1 / OTHER / 8/20/08 / 0800	X	X	X	X							5780

RT 8/20/08

CHAIN OF POSSESSION	Date/Time	Sign/Print Names: Received By/Stored In	Date/Time
Relinquished By/Removed From: B. Lawrence	8-20-08 1130	RT Coffman / RT Coffman	8/20/08 1130
Relinquished By/Removed From: B. Lawrence	8-20-08 1130	Received By/Stored In: 1060/1B	8-20-08 1130
Relinquished By/Removed From: 1060/1B MDO	8/27/08	Received By/Stored In: M Stankovich	AUG 27 2008 1100
Relinquished By/Removed From: M Stankovich	AUG 27 2008 1100	Received By/Stored In: FedEx	
Relinquished By/Removed From: FedEx	8.28.08 0935	Received By/Stored In: [illegible]	8.28.08 0935
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

*HOMOGENIZE MEDIA PRIOR TO ANALYSIS IF SEPARATED.

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

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

BLL

VCH-EE-011

0000000007

Lionville Laboratory Incorporated

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: W.C. Hanford

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

Date: 8.28.08

LvLI Batch #: 0808L135

Sample Custodian: D Smith

NOTE: EXPLAIN ALL DISCREPANCIES

1. Samples Hand Delivered or Shipped?	Carrier FedEx		Airbill # 7920 9986 927.
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 2.8	°C	Cooler # RCC.08.032
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: 09/03/08 14:42

RFW Batch Number: **0808L135** Client: **WC-HANFORD RC-088 K1301** Work Order: 60049001001 Page: 1

600000000

	Cust ID:	J178M0	J178M0	J178M0	J178M1-A	J178M1-B	PBLKUC
Sample Information	RFW#:	001	001 MS	001 MSD	002	003	08LE0406-MB1
	Matrix:	OIL	OIL	OIL	OIL	OIL	SOIL
	D.F.:	1.00	1.00	1.00	1.00	1.00	1.00
	Units:	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
Surrogate:	Tetrachloro-m-xylene	99 %	126 %	129 %	59 %	82 %	90 %
	Decachlorobiphenyl	91 %	132 %	140 %	70 %	103 %	78 %
Aroclor-1016		400 U	31 * %	32 * %	400 U	400 U	400 U
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		400 U	400 U	400 U	400 U	400 U	400 U
Aroclor-1260		400 U	58 %	65 %	400 U	400 U	400 U

	Cust ID:	PBLKUC BS
Sample Information	RFW#:	08LE0406-MB1
	Matrix:	SOIL
	D.F.:	1.00
	Units:	UG/KG
Surrogate:	Tetrachloro-m-xylene	100 %
	Decachlorobiphenyl	90 %
Aroclor-1016		88 %
Aroclor-1221		400 U
Aroclor-1232		400 U
Aroclor-1242		400 U
Aroclor-1248		400 U
Aroclor-1254		400 U
Aroclor-1260		95 %

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

SAMPLE EXTRACTION RECORD

Sheet no.: 1

Extract. Date: 08/29/08 Extraction Batch No: 08LE0406 Analyst: MF Method: ****

Test: OPCB Cleanup Date: 08/29/08 Analyst: MF Client: WC-HANFORD RC-088 K1301

LIMS Report Date: 09/02/08 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
0808L135-	WC-HANFORD RC-088 K1301										
001	J178M0		1.0	1.0		10		1.0	N	0.00	10000
001 -S	J178M0		1.0	1.0	1.0	10		1.0	N	0.00	10000
001 -T	J178M0		1.0	1.0	1.0	10		1.0	N	0.00	10000
002	J178M1-A		1.0	1.0		10		1.0	N	0.00	10000
003	J178M1-B		1.0	1.0		10		1.0	N	0.00	10000
08LE0406-MB1	PBLKUC		1.	1.0		10		1.0	N	100.00	10000
08LE0406-MB1 -S	PBLKUC		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

000000010

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
WC-HANFORD RC-088 K1301

RECEIVED
SEP 2008

DATE RECEIVED: 08/28/08 LVL LOT # :0808L135

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J178M0						
IGNITABILITY	001	OI	08LFP025	08/20/08	09/02/08	09/02/08
J178M1-A						
IGNITABILITY	002	OI	08LFP025	08/20/08	09/02/08	09/02/08
J178M1-B						
IGNITABILITY	003	OI	08LFP025	08/20/08	09/02/08	09/02/08

LIONVILLE LABORATORY INC.

Analytical Report

Client: WC-HANFORD RC-088 K1301
LVL#: 0808L135

W.O.#: 60049-001-001-0001-00
Date Received: 08-28-08

INORGANIC NARRATIVE

1. This narrative covers the analysis of 3 liquid samples.

2. The samples were prepared and analyzed in accordance with the method checked on the attached glossary.

   LvLI is NELAP accredited by the State of Pennsylvania. For a complete list of accrediting authorities and the corresponding analytes/methods, please contact your Project Manager. LvLI certifies that all test results meet the requirements of NELAC with any exception noted in the following statements.

3. Sample holding times as required by the method and/or contract were met.

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

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

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

Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

9/8/08
Date

njp\i08-135

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**		

* Oil samples / liquid

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 K1301
LVL#: 0808L135

W.O.#: 60049-001-001-0001-00
Date Received: 08-28-08

Analyte:	**Observation:**
Ignitability	Samples J178M0, J178M0 duplicate, J178M1-A and J178M1-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 80°F.

njp\i08-135.pt2

LIONVILLE LABORATORY INC.

Lionville Laboratory Use Only

08081135

Custody Transfer Record/Lab Work Request

Page ___ of ___

LVLI

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

A

Client: Washington Closure Hanford RC088

Est. Final Proj. Sampling Date

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

Project Contact/Phone#:

Lionville Laboratory Project Manager: Arlette Johnson

QC: SW846 Del: STD TAT: 7 Days

Date Rec'd: 8-28-08 Date Due: 9-4-08

Refrigerator #			2													
#/Type Container	Liquid		1gl													
	Solid															
Volume	L/S		250													
Preservatives																
ANALYSES REQUESTED		ORGANIC							INORG							
		VOA	BNA	Pest/PCB	Herb				Metal + Hg	CN	TSS					
		Lionville Laboratory Use Only														
			0625H	OPCB					MetO		IIGN					

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

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix *	Date Collected	Time Collected													
001	J178m0			X	8-30-08	0740		X	X					X		X			
002	J178m1-A (unknown)			↓	↓	0800		X	X					X		X			
003	J178m1-B (oil)			↓	↓	0800		X	X					X		X			

Special Instructions:

MetO = HSL + Sn, Zr

Special Instructions:

1. * per client C.O.C. / Homogenize media prior to analysis if separated.
2.
3.
4. * Matrix = 2 layers - oil, unknown - J178M1 is
5. split into two samples, J178M1-B = oil and J178M1-A = unknown
6.

Relinquished by	Received by	Date	Time
FedEx	[signature]	8-28-08	0935

Relinquished by	Received by	Date	Time

Relinquished by	Received by	Date	Time
ORIGINAL REWRITTEN		DO NOT USE MASTER	

0000000006

Washington Closure Hanford

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

RC-088-063 | Page 1 of 1

Collector: B. Lawrence	Company Contact: Joan Kessner	Telephone No.: 509-375-4688	Project Coordinator: KESSNER, JH
Price Code	Data Turnaround: ~~15~~ Days 7 RTC 8/20/08		
Project Designation: 618-7 Burial Ground - Other	Sampling Location: 618-7 Burial Ground (drums)		SAF No.: RC-088
Ice Chest No.: RCC-08-032	Field Logbook No.: EL-1395-13	COA: RG61878500	Method of Shipment: FedEx
Shipped To: EBERLINE SERVICES (LIONVILLE)	Offsite Property No.: A080318		Bill of Lading/Air Bill No.: See ops

POSSIBLE SAMPLE HAZARDS/REMARKS

Potential Radioactive contamination, potential beryllium contamination

Special Handling and/or Storage

None

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

Sample No.	Matrix *	Sample Date	Sample Time										
~~J178L9~~	~~OTHER~~												
J178M0	OTHER	8/20/08	0740	X	X	X	X						6322
J178M1	OTHER	8/20/08	0800	X	X	X	X						5780

Rec'd 8/20/08 RTC

CHAIN OF POSSESSION	Date/Time	Sign/Print Names: Received By/Stored In	Date/Time
B Lawrence	8-20-08	RT Coffman / RT Coffman	1130 8/20/08
B Lawrence	8-20-08	1060/1B	1130 8-20-08
1060/1B MOO	8/27/08	M Stankovich	1100 AUG 27 2008
M Stankovich	1100 AUG 27 2008	FedEx	
FedEx	8.28.08 0935	D Munn	8.28.08 0935
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

*HOMOGENIZE MEDIA PRIOR TO ANALYSIS IF SEPARATED.

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

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

BLL

VCH-EE-011

00000007

Lionville Laboratory Incorporated

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: W.C. Hanford
Project/SAF/SOW/Release #: RC-088

Date: 8.28.08

LvLI Batch #: 0808L135

Sample Custodian: D Smith

NOTE: EXPLAIN ALL DISCREPANCIES

1. Samples Hand Delivered or Shipped?	Carrier FedEx		Airbill # 7920 9986 927.
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 2.8	°C	Cooler # RCC.08.032
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.