0078941

SAF-RC-120
618-1 Other Solid
FINAL DATA PACKAGE

COMPLETE COPY OF DATA PACKAGE TO:

Rick Kerkow	L6-06	KW 10/20/08 Initials/Date
Kathy Wendt	H4-21	KW 10/20/08 Initials/Date

COMMENTS:

SDG K1346 **SAF-RC-120**

Rad only Chem only X Rad & Chem

X Complete Partial

WASTE SITE: 618-1 Burial Ground – Anomalous Material (black tar)

RECEIVED
OCT 2 2 2008
EDMC

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

October 6, 2008

RECEIVED
OCT 2008

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

Reference: **P.O. #S00W235A00**
Eberline Services R8-09-188-7703, SDG K1346

Dear Ms. Kessner:

Enclosed is the data report for one solid (other solid) sample designated under SAF No. RC-120 received at Eberline Services on September 26, 2008. The sample was analyzed according to the accompanying chain-of-custody document.

Please call if you have any questions concerning this report.

Sincerely,

For Melissa C. Mannion
Senior Program Manager

NJV

Enclosure: Data Package

1.0 GENERAL

Washington Closure Hanford (WCH) Sample Delivery Group K1346 was composed of one solid (other solid) sample designated under SAF No. RC-120 with a Project Designation of: 618-1 Other Solid.

The sample was 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 October 3, 2008.

2.0 ANALYSIS NOTES

2.1 Gross Alpha and Gross Beta Analysis

No problems were encountered during the course of the analyses.

2.2 Isotopic Uranium Analysis

The U-232 tracer yield for the QC LCS was 108%, greater than the upper control limit of 105%; no other problems were encountered during the course of the analyses.

2.3 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 C. Mannion
Senior Program Manager

10/7/08
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 K1346

SDG	7703
Contact	Melissa C. Mannion

Client	Hanford
Contract	No. S00W235A00
Case no	SDG_K1346

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

Reviewed by

Lab id	EBRLNE
Protocol	Hanford1
Version	Ver 1.0
Form	DVD-TOC
Version	3.06
Report date	10/07/08

SDG 7703
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG_K1346

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 10/07/08

SDG 7703
Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford
Contract No. S00W235A00
Case no SDG_K1346

ABOUT THE DATA SUMMARY SECTION

DUPLICATES

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

MATRIX SPIKES

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

DATA SHEETS

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

METHOD SUMMARIES

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

REPORT GUIDES

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

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 10/07/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1346

LAB SAMPLE SUMMARY

SDG 7703
Contact Melissa C. Mannion

Client Hanford
Contract No. S00W235A00
Case no SDG K1346

LAB SAMPLE ID	CLIENT SAMPLE ID	LOCATION	MATRIX	LEVEL	SAF NO	CHAIN OF CUSTODY	COLLECTED
R809188-01	J17J81	618-1 BGrnd-AnomlsMaterl	SOLID		RC-120	RC-120-006	09/23/08 08:25
R809188-02	Lab Control Sample		SOLID		RC-120		
R809188-03	Method Blank		SOLID		RC-120		
R809188-04	Duplicate (R809188-01)	618-1 BGrnd-AnomlsMaterl	SOLID		RC-120		09/23/08 08:25

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-LS
Version 3.06
Report date 10/07/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1346

SDG 7703
Contact Melissa C. Mannion

QC SUMMARY

Client Hanford
Contract No. S00W235A00
Case no SDG K1346

: 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
'03	RC-120-006	J17J81	SOLID	100.0	124 g		09/26/08	3	R809188-01	7703-001
		Method Blank	SOLID						R809188-03	7703-003
		Lab Control Sample	SOLID						R809188-02	7703-002
		Duplicate (R809188-01)	SOLID	100.0	124 g		09/26/08	3	R809188-04	7703-004

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-QS
Version 3.06
Report date 10/07/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1346

SDG 7703
Contact Melissa C. Mannion

PREP BATCH SUMMARY

Client Hanford
Contract No. S00W235A00
Case no SDG K1346

TEST	MATRIX	METHOD	PREPARATION BATCH	ERROR 2σ %	PLANCHETS ANALYZED CLIENT	MORE	RE	BLANK	LCS	DUP/ORIG	MS/ORIG	QUALIFIERS
Alpha Spectroscopy												
U	SOLID	Uranium, Isotopic in Solids	6160-198	8.0	1			1	1	1/1		
Gas Proportional Counting												
93A	SOLID	Gross Alpha in Solids	6160-198	20.6	1			1	1	1/1		
93B	SOLID	Gross Beta in Solids	6160-198	11.0	1			1	1	1/1		
Gamma Spectroscopy												
GAM	SOLID	Gamma Scan	6160-198	7.0	1			1	1	1/1		

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

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-PBS
Version 3.06
Report date 10/07/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1346

SDG 7703
Contact Melissa C. Mannion

LAB WORK SUMMARY

Client Hanford
Contract No. S00W235A00
Case no SDG K1346

LB SAMPLE COLLECTED RECEIVED	CLIENT SAMPLE ID LOCATION CUSTODY	SAF No	MATRIX	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
09188-01	J17J81			7703-001	93A/93		10/01/08	10/02/08	BW	Gross Alpha in Solids
09/23/08	618-1 BGrnd-AnomlsMaterl		SOLID	7703-001	93B/93		10/01/08	10/02/08	BW	Gross Beta in Solids
09/26/08	RC-120-006	RC-120		7703-001	GAM		10/03/08	10/03/08	CSS	Gamma Scan
				7703-001	U		09/30/08	10/01/08	BW	Uranium, Isotopic in Solids
09188-02	Lab Control Sample			7703-002	93A/93		10/01/08	10/02/08	BW	Gross Alpha in Solids
			SOLID	7703-002	93B/93		10/01/08	10/02/08	BW	Gross Beta in Solids
		RC-120		7703-002	GAM		09/30/08	10/03/08	CSS	Gamma Scan
				7703-002	U		09/30/08	10/01/08	BW	Uranium, Isotopic in Solids
09188-03	Method Blank			7703-003	93A/93		10/01/08	10/02/08	BW	Gross Alpha in Solids
			SOLID	7703-003	93B/93		10/01/08	10/02/08	BW	Gross Beta in Solids
		RC-120		7703-003	GAM		09/30/08	10/03/08	CSS	Gamma Scan
				7703-003	U		09/30/08	10/01/08	BW	Uranium, Isotopic in Solids
09188-04	Duplicate (R809188-01)			7703-004	93A/93		10/01/08	10/02/08	BW	Gross Alpha in Solids
09/23/08	618-1 BGrnd-AnomlsMaterl		SOLID	7703-004	93B/93		10/01/08	10/02/08	BW	Gross Beta in Solids
09/26/08		RC-120		7703-004	GAM		10/02/08	10/03/08	CSS	Gamma Scan
				7703-004	U		09/30/08	10/01/08	BW	Uranium, Isotopic in Solids

COUNTS OF TESTS BY SAMPLE TYPE

TEST	SAF No	METHOD	REFERENCE	CLIENT	MORE	RE	BLANK	LCS	DUP SPIKE	TOTAL
93A/93	RC-120	Gross Alpha in Solids	900.0_ALPHABETA_GPC	1			1	1	1	4
93B/93	RC-120	Gross Beta in Solids	900.0_ALPHABETA_GPC	1			1	1	1	4
GAM	RC-120	Gamma Scan	GAMMA_GS	1			1	1	1	4
U	RC-120	Uranium, Isotopic in Solids	UISO_PLATE_AEA	1			1	1	1	4
TOTALS				4			4	4	4	16

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-LWS
Version 3.06
Report date 10/07/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1346

7703-003 Method Blank

METHOD BLANK

SDG	7703	Client/Case no	Hanford SDG K1346
Contact	Melissa C. Mannion	Contract	No. S00W235A00
Lab sample id	R809188-03	Client sample id	Method Blank
Dept sample id	7703-003	Material/Matrix	SOLID
		SAF No	RC-120

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Gross Alpha	12587-46-1	-1.19	3.4	7.89	10.0	U	93A
Gross Beta	12587-47-2	-2.19	5.0	8.88	15.0	U	93B
Uranium 233/234	U-233/234	-0.017	0.034	0.132	1.00	U	U
Uranium 235	15117-96-1	0.021	0.042	0.159	1.00	U	U
Uranium 238	U-238	0	0.034	0.132	1.00	U	U
Potassium 40	13966-00-2	U		2.50		U	GAM
Cobalt 60	10198-40-0	U		0.084	0.050	U	GAM
Cesium 137	10045-97-3	U		0.082	0.100	U	GAM
Radium 226	13982-63-3	U		0.204	0.100	U	GAM
Radium 228	15262-20-1	U		0.403	0.200	U	GAM
Europium 152	14683-23-9	U		0.247	0.100	U	GAM
Europium 154	15585-10-1	U		0.251	0.100	U	GAM
Europium 155	14391-16-3	U		0.183	0.100	U	GAM
Thorium 228	14274-82-9	U		0.137		U	GAM
Thorium 232	TH-232	U		0.403		U	GAM
Uranium 235	15117-96-1	U		0.315		U	GAM
Uranium 238	U-238	U		10.2		U	GAM
Americium 241	14596-10-2	U		0.199		U	GAM
Thorium 234	15065-10-8	U		0.750		U	GAM

618-1 Other Solid

QC-BLANK #67475
QC-BLANK 67475

Lab id	EBRLNE
Protocol	Hanford1
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	10/07/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1346

7703-002

Lab Control Sample

LAB CONTROL SAMPLE

SDG 7703

Contact Melissa C. Mannion

Client/Case no Hanford SDG K1346

Contract No. S00W235A00

Lab sample id R809188-02

Dept sample id 7703-002

Client sample id Lab Control Sample

Material/Matrix SOLID

SAF No RC-120

ANALYTE	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST	ADDED pCi/g	2σ ERR pCi/g	REC %	3σ LMTS (TOTAL)	PROTOCOL LIMITS
Gross Alpha	130	18	7.51	10.0		93A	112	4.5	116	56-144	70-130
Gross Beta	114	8.5	7.24	15.0		93B	111	4.4	103	79-121	80-120
Uranium 233/234	17.6	1.8	0.775	1.00		U	19.3	0.77	91	81-119	80-120
Uranium 235	13.4	1.5	0.180	1.00		U	15.7	0.63	85	81-119	80-120
Uranium 238	18.4	1.8	0.740	1.00		U	21.0	0.84	88	82-118	80-120
Cobalt 60	3.15	0.14	0.058	0.050		GAM	3.02	0.12	104	86-114	80-120
Cesium 137	3.62	0.13	0.084	0.100		GAM	3.49	0.14	104	86-114	80-120

618-1 Other Solid

QC-LCS #67474

QC-LCS 67474

Lab id EBRLNE

Protocol Hanford1

Version Ver 1.0

Form DVD-LCS

Version 3.06

Report date 10/07/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1346

7703-004 J17J81

DUPLICATE

SDG	7703	Client/Case no	Hanford SDG K1346
Contact	Melissa C. Mannion	Contract	No. S00W235A00
DUPLICATE		ORIGINAL	
Lab sample id	R809188-04	Lab sample id	R809188-01
Dept sample id	7703-004	Dept sample id	7703-001
		Received	09/26/08
% solids	100.0	% solids	100.0
Client sample id	J17J81		
Location/Matrix	618-1 BGrnd-AnomlsMaterl SOLID		
Collected/Weight	09/23/08 08:25 124 g		
Custody/SAF No	RC-120-006 RC-120		

ANALYTE	DUPLICATE pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST	ORIGINAL pCi/g	2σ ERR (COUNT)	MDA pCi/g	QUALI-FIERS	RPD %	3σ TOT	DER σ
Gross Alpha	9.09	3.4	3.16	10.0		93A	8.68	3.3	2.95		5	91	0.2
Gross Beta	7.58	5.1	8.29	15.0	U	93B	8.16	3.5	4.94		7	120	0.2
Uranium 233/234	3.89	0.63	0.155	1.00		U	3.68	0.44	0.115		6	35	0.5
Uranium 235	0.123	0.099	0.188	1.00	U	U	0.188	0.10	0.096		42	137	0.9
Uranium 238	3.81	0.63	0.155	1.00		U	3.70	0.44	0.099		3	35	0.3
Potassium 40	U		1.23		U	GAM	U		2.52	U	-		0.9
Cobalt 60	U		0.042	0.050	U	GAM	U		0.076	U	-		0.8
Cesium 137	U		0.044	0.100	U	GAM	U		0.071	U	-		0.6
Radium 226	U		0.095	0.100	U	GAM	U		0.395	U	-		1.5
Radium 228	U		0.194	0.200	U	GAM	U		0.404	U	-		0.9
Europium 152	U		0.113	0.100	U	GAM	U		0.225	U	-		0.9
Europium 154	U		0.123	0.100	U	GAM	U		0.222	U	-		0.8
Europium 155	U		0.085	0.100	U	GAM	U		0.224	U	-		1.2
Thorium 228	U		0.071		U	GAM	U		0.257	U	-		1.4
Thorium 232	U		0.194		U	GAM	U		0.404	U	-		0.9
Uranium 235	U		0.143		U	GAM	U		0.367	U	-		1.1
Uranium 238	U		5.45		U	GAM	U		9.45	U	-		0.7
Americium 241	U		0.042		U	GAM	U		0.214	U	-		1.6
Thorium 234	2.56	0.52	0.685			GAM	2.23	1.1	1.55		14	78	0.5

618-1 Other Solid

QC-DUP#1 67476

Lab id	EBRLNE
Protocol	Hanford1
Version	Ver 1.0
Form	DVD-DUP
Version	3.06
Report date	10/07/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1346

7703-001 J17J81

DATA SHEET

SDG	7703	Client/Case no	Hanford	SDG K1346	
Contact	Melissa C. Mannion	Contract	No. S00W235A00		
Lab sample id	R809188-01	Client sample id	J17J81		
Dept sample id	7703-001	Location/Matrix	618-1 BGrnd-AnomlsMaterl	SOLID	
Received	09/26/08	Collected/Weight	09/23/08 08:25	124 g	
% solids	100.0	Custody/SAF No	RC-120-006	RC-120	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Gross Alpha	12587-46-1	8.68	3.3	2.95	10.0		93A
Gross Beta	12587-47-2	8.16	3.5	4.94	15.0		93B
Uranium 233/234	U-233/234	3.68	0.44	0.115	1.00		U
Uranium 235	15117-96-1	0.188	0.10	0.096	1.00		U
Uranium 238	U-238	3.70	0.44	0.099	1.00		U
Potassium 40	13966-00-2	U		2.52		U	GAM
Cobalt 60	10198-40-0	U		0.076	0.050	U	GAM
Cesium 137	10045-97-3	U		0.071	0.100	U	GAM
Radium 226	13982-63-3	U		0.395	0.100	U	GAM
Radium 228	15262-20-1	U		0.404	0.200	U	GAM
Europium 152	14683-23-9	U		0.225	0.100	U	GAM
Europium 154	15585-10-1	U		0.222	0.100	U	GAM
Europium 155	14391-16-3	U		0.224	0.100	U	GAM
Thorium 228	14274-82-9	U		0.257		U	GAM
Thorium 232	TH-232	U		0.404		U	GAM
Uranium 235	15117-96-1	U		0.367		U	GAM
Uranium 238	U-238	U		9.45		U	GAM
Americium 241	14596-10-2	U		0.214		U	GAM
Thorium 234	15065-10-8	2.23	1.1	1.55			GAM

618-1 Other Solid

Lab id	EBRLNE
Protocol	Hanford1
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	10/07/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1346

Test U Matrix SOLID
SDG 7703
Contact Melissa C. Mannion

LAB METHOD SUMMARY

URANIUM, ISOTOPIC IN SOLIDS

ALPHA SPECTROSCOPY

Client Hanford
Contract No. S00W235A00
Contract SDG K1346

ESULTS

B MPLE 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
eparation batch 6160-198												
09188-01			7703-001	J17J81	3.68	0.188		3.70	99	17	5	3
09188-02			7703-002	Lab Control Sample	ok	ok		ok				
09188-03			7703-003	Method Blank	U	U		U				
09188-04			7703-004	Duplicate (R809188-01)	ok	ok	U	ok	102	24	3	3
minal values and limits from method				RDLs (pCi/g)	1.00	1.00		1.00	100		4	
.8-1 Other Solid									Averages 101		4	

ETHOD PERFORMANCE

AB MPLE ID	RAW TEST	SUF- FIX	CLIENT SAMPLE ID	MAX MDA pCi/g	ALIQ g	PREP FAC	DILU- TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL- YZED	DETECTOR
eparation batch 6160-198			2σ prep error 8.0 % Reference Lab Notebook #6160, pg. 198													
309188-01			J17J81	0.115	0.500			104		202			7	09/30/08	09/30	SS-038
309188-02			Lab Control Sample	0.775	0.500			108		132				09/30/08	09/30	SS-042
309188-03			Method Blank	0.159	0.500			97		128				09/30/08	09/30	SS-051
309188-04			Duplicate (R809188-01)	0.188	0.500			92		129			7	09/30/08	09/30	SS-052
ominal values and limits from method				1.00	0.500			20-105		100	100		180			

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

AVERAGES ± 2 SD FOR 4 SAMPLES
MDA 0.309 ± 0.624
YIELD 100 ± 14

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 10/07/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1346

Test 93A Matrix SOLID
SDG 7703
Contact Melissa C. Mannion

LAB METHOD SUMMARY

GROSS ALPHA IN SOLIDS
GAS PROPORTIONAL COUNTING

Client Hanford
Contract No. S00W235A00
Contract SDG K1346

ESULTS

LB MPLE ID	RAW TEST	SUF- FIX	PLANCHET	CLIENT SAMPLE ID	Gross Alpha
eparation batch 6160-198					
09188-01	93		7703-001	J17J81	8.68
09188-02	93		7703-002	Lab Control Sample	ok
09188-03	93		7703-003	Method Blank	U
09188-04	93		7703-004	Duplicate (R809188-01)	ok
minal values and limits from method .8-1 Other Solid				RDLs (pCi/g)	10.0

ETHOD PERFORMANCE

LB MPLE ID	RAW TEST	SUF- FIX	CLIENT SAMPLE ID	MDA pCi/g	ALIQ g	PREP FAC	DILU- TION	RESID mg	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL- YZED	DETECTOR
eparation batch 6160-198 2σ prep error 20.6 % Reference Lab Notebook #6160, pg. 198																
09188-01	93		J17J81	2.95	0.100			7		100			8	10/01/08	10/01	GRB-101
09188-02	93		Lab Control Sample	7.51	0.100			60		100				10/01/08	10/01	GRB-103
09188-03	93		Method Blank	7.89	0.100			60		100				10/01/08	10/01	GRB-213
09188-04	93		Duplicate (R809188-01)	3.16	0.100			6		100			8	10/01/08	10/01	GRB-214
minal values and limits from method				10.0	0.100			5-250		100			180			

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

AVERAGES ± 2 SD	MDA	5.38	± 5.38
FOR 4 SAMPLES	RESIDUE	33	± 62

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 10/07/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1346

Test 93B Matrix SOLID
SDG 7703
Contact Melissa C. Mannion

LAB METHOD SUMMARY

GROSS BETA IN SOLIDS
GAS PROPORTIONAL COUNTING

Client Hanford
Contract No. S00W235A00
Contract SDG K1346

ESULTS

B MPLE ID	RAW TEST	SUF- FIX	PLANCHET	CLIENT SAMPLE ID	Gross Beta	
eparation batch 6160-198						
09188-01	93		7703-001	J17J81	8.16	
09188-02	93		7703-002	Lab Control Sample	ok	
09188-03	93		7703-003	Method Blank	U	
09188-04	93		7703-004	Duplicate (R809188-01)	ok	U

minal values and limits from method RDLs (pCi/g) 15.0
.8-1 Other Solid

ETHOD PERFORMANCE

AB MPLE ID	RAW TEST	SUF- FIX	CLIENT SAMPLE ID	MDA pCi/g	ALIQ g	PREP FAC	DILU- TION	RESID mg	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL- YZED	DETECTOR
eparation batch 6160-198			2σ prep error 11.0 % Reference Lab Notebook #6160, pg. 198													
09188-01	93		J17J81	4.94	0.100			7		100			8	10/01/08	10/01	GRB-101
09188-02	93		Lab Control Sample	7.24	0.100			60		100				10/01/08	10/01	GRB-103
09188-03	93		Method Blank	8.88	0.100			60		100				10/01/08	10/01	GRB-213
09188-04	93		Duplicate (R809188-01)	8.29	0.100			6		100			8	10/01/08	10/01	GRB-214
minal values and limits from method				15.0	0.100			5-250		100			180			

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

AVERAGES ± 2 SD FOR 4 SAMPLES
MDA 7.34 ± 3.47
RESIDUE 33 ± 62

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 10/07/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1346

Test GAM Matrix SOLID
SDG 7703
Contact Melissa C. Mannion

LAB METHOD SUMMARY

GAMMA SCAN

GAMMA SPECTROSCOPY

Client Hanford
Contract No. S00W235A00
Contract SDG K1346

ESULTS

B MPLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Cobalt 60		Cesium 137	
eparation batch 6160-198								
09188-01			7703-001	J17J81	U		U	
09188-02			7703-002	Lab Control Sample	ok		ok	
09188-03			7703-003	Method Blank	U		U	
09188-04			7703-004	Duplicate (R809188-01)	-	U	-	U
minal values and limits from method .8-1 Other Solid				RDLs (pCi/g)	0.050		0.100	

ETHOD PERFORMANCE

B MPLE ID	RAW TEST	SUF-FIX	CLIENT SAMPLE ID	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
eparation batch 6160-198 2σ prep error 7.0 % Reference Lab Notebook #6160, pg. 198																
309188-01			J17J81	17.3	83.0					194			10	09/29/08	10/03	JR,02,00
309188-02			Lab Control Sample	0.058	80.0					432				09/29/08	09/30	JR,02,00
309188-03			Method Blank	21.9	80.0					432				09/29/08	09/30	JR,04,00
309188-04			Duplicate (R809188-01)	12.8	83.0					799			9	09/29/08	10/02	JR,01,00
minal values and limits from method				0.050	80.0					100			180			

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

AVERAGES ± 2 SD FOR 4 SAMPLES
MDA 13.0 ± 18.8
YIELD ____ ± ____

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 10/07/08

SDG 7703
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG K1346

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 10/07/08

SDG 7703
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG K1346

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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Protocol Hanford1
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 10/07/08

SDG 7703
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG K1346

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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REPORT GUIDE

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Contract No. S00W235A00
Case no SDG_K1346

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 7703
Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford
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Case no SDG_K1346

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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REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG_K1346

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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Protocol Hanford1
Version Ver 1.0
Form DVD-RG
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SDG 7703
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REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG K1346

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 7703
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG_K1346

MATRIX SPIKE

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

The following notes apply to this report:

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

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

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

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

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

* The first, computed limits for the recovery reflect:

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

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

  2. The error of ADDED.

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

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

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Form DVD-RG
Version 3.06
Report date 10/07/08

MATRIX SPIKE

for the recovery.

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

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

SDG 7703
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG_K1346

METHOD SUMMARY

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

The following notes apply to this report:

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

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

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

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

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

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

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

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

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METHOD SUMMARY

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

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

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

  MDAs are underlined if greater than the printed RDL.

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

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

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

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

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

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

METHOD SUMMARY

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

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

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

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

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

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

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

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

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

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

METHOD SUMMARY

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

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

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

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

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-120-006	Page 1 of 1

Collector P. Pearson, T. Stephens	**Company Contact** Joan Kessner	**Telephone No.** 509-375-4688	**Project Coordinator** WEISS, RL	**Price Code** ~~9L~~ 7F	**Data Turnaround** ~~21~~ 7 Days
Project Designation 618-1 Other Solid	**Sampling Location** K1346 (1703) 618-1 Burial Ground - Anomalous Material Black "Tar"		**SAF No.** RC-120	JRD 9/23/08	
Ice Chest No. RCL-08-032	**Field Logbook No.** EL-1395-13	**COA** RG61812600	**Method of Shipment** Fed Ex		
Shipped To EBERLINE SERVICES / LIONVILLE	**Offsite Property No.** ~~NA~~ JEB 9-25-08 A080365		**Bill of Lading/Air Bill No.** ~~NA~~ JEB 9-15-08 SEE OSPC		

POSSIBLE SAMPLE HAZARDS/REMARKS

Potential radiological contamination.

Special Handling and/or Storage

None

Preservation		None	None	Cool 4C	None	Cool 4C	Cool 4C	Cool 4C	None	
Type of Container	P	P	P	aG	aG	aG	aG	aG	N/A	
No. of Container(s)	0	1	0	1	0	0	0	0	0	
Volume	500mL	500mL	500mL	250mL	250mL	250mL	250mL	250mL	N/A	
SAMPLE ANALYSIS	Gross Alpha & Gross Beta	See item (1) in Special Instructions.	Isotopic Uranium	See item (2) in Special Instructions.	TOC - 9060	VOA - 8260A (TCL)	Semi-VOA - 8270A (TCL)	PCBs - 8082	Metals by ICP(TCLP) 1311/6010	

JRD 9/23/08

Sample No.	Matrix *	Sample Date	Sample Time										
J17J81	OTHER SOLID	9/23/08	0825	X	X	X							

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

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Paul Pearson	9-23-08 1025	JR DeBuique	1025 9/23/08
JR DeBuique	1145 9/23/08	1060 IB	1145 9/23/08
1060 IB / J.E. Bernhard	0900 9-25-08	J.E. Bernhard	0900 9-25-08
J.E. Bernhard	0915 9-25-08	FED EX	
FED EX			09/26/08 09:18

SPECIAL INSTRUCTIONS

(1) Gamma Spec - (Full List) {Americium-241, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155, Potassium-40, Radium-226, Radium-228, Thorium-234, Uranium-235, Uranium-238}
(2) ICP Metals - 6010TR (Client List) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Selenium, Silicon, Silver, Sodium, Strontium, Thallium, Tin, Titanium, Uranium, Vanadium, Zinc}

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

JRD

Matrix *

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

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

WCH-EE-011

ESERLINE

RICHMOND, CA LABORATORY

SAMPLE RECEIPT CHECKLIST

JK 9/26/08

Client: W.C. HANFORD City MCHLAND State WA

Date/Time received 09/26/08 09:10 CoC No. RC-120-006

Container I.D. No. RCC-08-032 Requested TAT (Days) 7 P.O. Received Yes [ ] No [ ]

INSPECTION

1. Custody seals on shipping container intact? Yes [✓] No [ ] N/A [ ]
2. Custody seals on shipping container dated & signed? Yes [X] No [ ] N/A [ ]
3. Custody seals on sample containers intact? Yes [X] No [ ] N/A [ ]
4. Custody seals on sample containers dated & signed? Yes [X] No [ ] N/A [ ]
5. Packing material is: Wet [ ] Dry [X]
6. Number of samples in shipping container: 1 Sample Matrix X SOLID
7. Number of containers per sample: 1 (Or see CoC ____)
8. Samples are in correct container Yes [X] No [ ]
9. Paperwork agrees with samples? Yes [X] No [ ]
10. Samples have: Tape [ ] Hazard labels [ ] Rad labels [ ] Appropriate sample labels [X]
11. Samples are: In good condition [X] Leaking [ ] Broken Container [ ] Missing [ ]
12. Samples are: Preserved [ ] Not preserved [ ] pH ____ Preservative ____
13. Describe any anomalies:
14. Was P.M. notified of any anomalies? Yes [ ] No [ ] Date ____
15. Inspected by MW Date: 09/26/08 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
J17J81	<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.

15 October 2008

RECEIVED OCT 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 #	0809L188
SDG #	K1346
SAF #	RC-120
Date Received	9/26/08
# Samples	1
Matrix	SOIL
Volatiles	X
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
d:\b_ltrs.doc

Lionville Laboratory, Inc.
VOA ANALYTICAL DATA PACKAGE FOR
WC-HANFORD RC-120 K134

RECEIVED OCT 2008

DATE RECEIVED: 09/26/08 LVL LOT # 0809L188

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J17J81	001 M1	SO	08LVG167	09/23/08	N/A	09/29/08
J17J81	001 MS M1	SO	08LVG167	09/23/08	N/A	09/29/08
J17J81	001 MSD M1	SO	08LVG167	09/23/08	N/A	09/29/08

LAB QC:

VBLKHU	MB1	S	08LVG167	N/A	N/A	09/29/08
VBLKHU	MB1 BS	S	08LVG167	N/A	N/A	09/29/08

LIONVILLE LABORATORY INC.

Case Narrative

Client: WC-HANFORD RC-120 K1346
LVL #: 0809L188
SDG/SAF #

W.O. #: 60049-001-001-0001-00
Date Received: 09-26-2008

GC/MS VOLATILE

One (1) tar sample was collected on 09-23-2008.

The sample and the associated QC samples were analyzed according to criteria set forth in Lionville Laboratory SOPs based on SW 846 Method 8260B for TCL Volatile target compounds on 09-29-2008.

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

1. The sample was analyzed within required holding time.
2. Non-target compounds were not detected in these samples.
3. Due to sample matrix the sample required a medium level dilution.
4. All surrogate recoveries were within acceptance criteria.
5. All matrix spike recoveries were within acceptance criteria.
6. All blank spike recoveries were within acceptance criteria.
7. The method blank was below the reporting limit for all target compounds.
8. All internal standard area and retention time criteria were met.
9. Manual integrations are performed according to SOP QA-125 to produce quality data with 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").
10. LvL is NELAP accredited by the State of Pennsylvania. For a complete listing of accrediting authorities and the corresponding analytes/methods, please contact your Project Manager.

r:\group\data\2008\voa\tnu\0809-188cs1.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 11 pages.

LIONVILLE LABORATORY INC.

Case Narrative

11. "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

10/9/08
Date

r:\group\data\2008\voa\tnu\0809-188cs1.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 pages.

GLOSSARY

DATA QUALIFIERS

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

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

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

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

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

I = Interference.

NQ = Result qualitatively confirmed but not able to quantify.

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

X = This flag is used for a TIC compound which is quantified relative to a response factor generated from a daily calibration standard (rather than quantified relative to the closes 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 resolve on the BNA column.

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

CB - **Co-elution/ Background:** Peak was manually integrated to eliminate contribution from co-eluting compounds, background signal, or other interference.

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

Volatiles by GC/MS, HSL List

RFW Batch Number: 0809L188 Client: WC-HANFORD RC-120 Work Order: 60049001001 Page: 1a

Report Date: 10/02/08 11:59

	Cust ID:	J17J81		J17J81		J17J81		VBLKHU		VBLKHU BS	
Sample Information	RFW#:	001		001 MS		001 MSD		08LVG167-MB1		08LVG167-MB1	
	Matrix:	SOLID		SOLID		SOLID		SOIL		SOIL	
	D.F.:	0.976		0.976		0.976		1.00		1.00	
	Units:	ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg	
	Level:	MED		MED		MED		MED		MED	
Surrogate Recovery	Toluene-d8	107	%	108	%	107	%	108	%	111	%
	Bromofluorobenzene	115	%	115	%	115	%	113	%	113	%
	1,2-Dichloroethane-d4	87	%	90	%	89	%	88	%	86	%
Chloromethane		1200	U	77	%	74	%	1200	U	89	%
Bromomethane		1200	U	57	%	56	%	1200	U	62	%
Vinyl Chloride		1200	U	77	%	81	%	1200	U	87	%
Chloroethane		1200	U	56	%	52	%	1200	U	59	%
Methylene Chloride		330	JB	92	%	91	%	370	J	93	%
Acetone		610	J	73	%	74	%	1200	U	137	%
Carbon Disulfide		610	U	117	%	115	%	620	U	119	%
1,1-Dichloroethene		610	U	109	%	108	%	620	U	114	%
1,1-Dichloroethane		610	U	95	%	91	%	620	U	97	%
1,2-Dichloroethene (total)		610	U	102	%	103	%	620	U	102	%
Chloroform		610	U	97	%	98	%	620	U	95	%
1,2-Dichloroethane		610	U	89	%	90	%	620	U	86	%
2-Butanone		1200	U	80	%	78	%	1200	U	81	%
1,1,1-Trichloroethane		610	U	92	%	92	%	620	U	85	%
Carbon Tetrachloride		610	U	92	%	95	%	620	U	87	%
Bromodichloromethane		610	U	94	%	94	%	620	U	93	%
1,2-Dichloropropane		610	U	93	%	94	%	620	U	97	%
cis-1,3-Dichloropropene		610	U	104	%	101	%	620	U	108	%
Trichloroethene		250	J	103	%	104	%	620	U	100	%
Dibromochloromethane		610	U	104	%	104	%	620	U	101	%
1,1,2-Trichloroethane		610	U	102	%	101	%	620	U	103	%
Benzene		610	U	94	%	95	%	620	U	95	%
Trans-1,3-Dichloropropene		610	U	99	%	99	%	620	U	101	%
Bromoform		610	U	100	%	103	%	620	U	99	%
4-Methyl-2-pentanone		1200	U	84	%	88	%	1200	U	87	%
2-Hexanone		1200	U	79	%	82	%	1200	U	85	%
Tetrachloroethene		610	U	99	%	104	%	620	U	94	%
1,1,2,2-Tetrachloroethane		610	U	98	%	100	%	620	U	97	%
Toluene		610	U	110	%	108	%	620	U	109	%

*= Outside of EPA CLP QC limits.

000000007

Cust ID:	J17J81		J17J81		J17J81		VBLKHU		VBLKHU BS	
RFW#:	001		001 MS		001 MSD		08LVG167-MB1		08LVG167-MB1	
Level:	MED		MED		MED		MED		MED	
Chlorobenzene	610	U	102	%	101	%	620	U	102	%
Ethylbenzene	610	U	110	%	110	%	620	U	107	%
Styrene	610	U	110	%	112	%	620	U	110	%
Xylenes (total)	610	U	108	%	108	%	620	U	106	%
cis-1,2-dichloroethene	610	U	102	%	102	%	620	U	101	%
trans-1,2-dichloroethene	610	U	103	%	104	%	620	U	102	%

*= Outside of EPA CLP QC limits.

Lionville Laboratory Use Only

0809L188

Custody Transfer Record/Lab Work Request

Page 1 of 1

LVLI

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

A

Client: Washington (Closure Hanford) SAF# RC120

Est. Final Proj. Sampling Date:

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

Project Contact/Phone#:

Lionville Laboratory Project Manager: Orlette Johnson

QC: Del: TAT: 7 Days

Date Rec'd: 9-26-08 Date Due: 10-3-08

Refrigerator #		3														
#/Type Container	Liquid															
	Solid	1q														
Volume	Solid	250														
Preservatives		—														
ANALYSES REQUESTED →		ORGANIC							INORG							
		VOA	BNA	Pest/PCB	Herb				(2) Metal	CN	TOC	ICP metals	RCRA HAZ			

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	0624H	0625H	OPCB				Met①		TOC	TCLP	Met②		
001	J17J81	✓	✓	SO	9-23-08	0825	X	X	X				X		X	X	X		
002	+ TCLP of 001			L	**												X		

Lionville Laboratory Use Only

Special Instructions:

Met① = HSL + B, Bi, Li, Mo, P, Si, Sr, Sn, Ti, U

Met② = RCRA TCW

* See Lab chron

Special Instructions:

* → 1. Matrix = Tar.

2.

3.

4.

5.

6.

Relinquished by	Received by	Date	Time
Fed Ex	[illegible]	9-26-08	0920

Relinquished by	Received by	Date	Time

Relinquished by	Received by	Date	Time
ORIGINAL REWRITTEN		COMPOSITE WASTE"	

000000009

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-120-006	Page 1 of 1

Collector P. Pearson, T. Stephens	Company Contact Joan Kessner Telephone No. 509-375-4688	Project Coordinator WEISS, RL	Price Code 9L Data Turnaround 21 Days
Project Designation 618-1 Other Solid	Sampling Location 618-1 Burial Ground - Anomalous Material Black "Tar"	SAF No. RC-120	8F 7
Ice Chest No.	Field Logbook No. EL-1395-13 COA RG61812600	Method of Shipment Fed Ex JRD 9/23/08	
Shipped To EBERLINE SERVICES (LIONVILLE)	Offsite Property No. NA	Bill of Lading/Air Bill No. NA	

POSSIBLE SAMPLE HAZARDS/REMARKS

Potential radiological contamination.

Special Handling and/or Storage

None

Preservation		None	None	Cool 4C	None	Cool 4C	Cool 4C	Cool 4C	None	
Type of Container	P	P	P	aG	aG	aG	aG	aG	N/A	
No. of Container(s)	0	1	0	1	0	0	0	0	0	
Volume	500mL	500mL	500mL	250mL	250mL	250mL	250mL	250mL	N/A	
SAMPLE ANALYSIS	Gross Alpha & Gross Beta	See item (1) in Special Instructions.	Isotopic Uranium	See item (2) in Special Instructions.	TOC - 9060	VOA - 8260A (TCL)	Semi-VOA - 8270A (TCL)	PCBs - 8082	Metals by ICP(TCLP) 1311/6010	

Sample No.	Matrix *	Sample Date	Sample Time										
J17J81	OTHER SOLID	9/23/08	0825	JRD 9/23/08			X	X	X	X	X	X	

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

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Paul PEARSON	9-23-08 1025	JRDeBruijne JRDeBruijne	9/23/08 1025
JRDeBruijne JRDeBruijne	9/23/08 1145	1060 IB	9/23/08 1145
1060 IB / J.E. Bemhard	9-25-08 0900	J.E. Bemhard	9-25-08 0900
J.E. Bemhard	9-25-08 0915	FED EX	
FED EX	9.26.08/0920	D. Smith	9.26.08/0920

SPECIAL INSTRUCTIONS

(1) Gamma Spec - (Full List) {Americium-241, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155, Potassium-40, Radium-226, Radium-228, Thorium-234, Uranium-235, Uranium-238}
(2) ICP Metals - 6010TR (Client List) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Selenium, Silicon, Silver, Sodium, Strontium, Thallium, Tin, Titanium, Uranium, Vanadium, Zinc}

*Note: Please contact Joan Kessner if you need more material.

JRD 9/23/08

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

Lionville Laboratory Incorporated

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: W.C. Hanford

Project/SAF/SOW/Release #: RC.120

Date: 9-26-08

LvLI Batch #: 08091188

Sample Custodian: D. Smith

NOTE: EXPLAIN ALL DISCREPANCIES

1. Samples Hand Delivered or Shipped?	Carrier FedEx		Airbill # 7993 8118 353.
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 2.3 °C		Cooler # AFS-04-054
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.
BNA ANALYTICAL DATA PACKAGE FOR
WC-HANFORD RC-120 K1346

RECEIVED OCT 2008

DATE RECEIVED: 09/26/08 LVL LOT # 0809L188

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J17J81	001	SO	08LE0475	09/23/08	09/29/08	10/05/08
J17J81	001 MS	SO	08LE0475	09/23/08	09/29/08	10/05/08
J17J81	001 MSD	SO	08LE0475	09/23/08	09/29/08	10/05/08

LAB QC:

SBLKYH	MB1	S	08LE0475	N/A	09/29/08	10/01/08
SBLKYH	MB1 BS	S	08LE0475	N/A	09/29/08	10/01/08

LIONVILLE LABORATORY INC.

Case Narrative

Client: WC-HANFORD RC-120 K1346
LVL #: 0809L188

W.O. #: 60049-001-001-0001-00
Date Received: 09-26-2008

SEMIVOLATILE

One (1) solid sample was collected on 09-23-2008.

The sample and its associated QC samples were extracted according to Lionville Laboratory SOPs based on SW 846 method 3540C on 09-29-2008 and analyzed according to criteria set forth in Lionville Laboratory SOPs based on SW 846 Method 8270C for TCL Semivolatile target compounds on 10-01, 05-2008.

All solid samples are reported on a wet weight basis. The sample was extracted with a reduced initial volume (0.5 grams) and had an elevated final volume of 10.0 ml; reporting limits have been adjusted to reflect these changes.

The following is a summary of QC results accompanying the sample results. Lionville Laboratory (LVL) 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 LvL's sample acceptance policy.

2. Samples were extracted and analyzed within holding time.

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

4. The sample and matrix spike/matrix spike duplicate required a 5-fold dilution due to matrix effects (dark, sticky).

5. Two (2) of thirty (30) obtainable surrogate recoveries were outside acceptance criteria. These surrogates were diluted out.

6. Eleven (11) of one hundred twenty-eight (128) obtainable matrix spike recoveries were outside acceptance criteria. A copy of the Sample Discrepancy Report (SDR) # 08MS226 is enclosed. Several matrix spike recoveries were unobtainable due to dilution required for analysis.

7. Four (4) of sixty-four (64) blank spike recoveries were outside acceptance criteria. A copy of SDR# 08MS226 is enclosed.

8. The method blank was below the reporting limit for all target compounds.

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

10. All continuing calibration standards analyzed prior to sample extracts were within acceptance criteria with the exception of target compound hexachlorobutadiene analyzed on 10-01-2008 on instrument 5972N. Refer to SDR 08MS226 enclosed.

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

The results presented in this report relate only to the analytical testing andconditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 14 pages.

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

12. 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").

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

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

Iain Daniels
Laboratory Manager
Lionville Laboratory

10/10/08
Date

LVLI
LIONVILLE LABORATORY INC.

Lionville Laboratory Sample Discrepancy Report (SDR)

SDR #: 08MS226

Initiator: Sharon Saylor
Date: 10-8-08
Client: WCH Hanford RC120 K1346

Batch: 08E09L KK
Samples: BS MS/MSD
Method: (SW846)/MCAWW/CLP/

Parameter: 8270
Matrix: Solid
Prep Batch: 08IE0475

1. Reason for SDR

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

b. General Discrepancy

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

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

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

① low recovery of isophorone, 1,2,4-trichlorobenzene, & 2-4-dimethylphenol in the BS
② low or no recovery of several spike analytes in the MS, MSD
③ %D for hexachlorobutadiene exceeded 20% continuing calibration criteria performed on 10/1/08 instrument "N"

2. Known or Probable Causes(s) ① Acidic phenols are subject to erratic chromatographic behavior especially if the GC system contaminated with high boiling material. others sporadic, all other spikes ok. Surrogates within acceptance criteria ② possible matrix effect; samples required a 5 fold dilution in addition to a elevated final volume of 10 ml/5, samples were tar. ③ data reflected an increase in instrument response consequently the ability to identify this compound was not impaired.

Re-analyze

3. Discussion and Proposed Action Other Description: Cmpd not detected in the associated sample ∴ minimal impact on the data

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: _____ 10/6/08

✓ 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: _____ Other Explanation:

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

When Final Action has been recorded, forward original to QA for diposition.

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

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

QA-139-A-0208

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.

	Cust ID:	J17J81	J17J81	J17J81	SBLKYH	SBLKYH BS
Sample Information	RFW#:	001	001 MS	001 MSD	08LE0475-MB1	08LE0475-MB1
	Matrix:	SOLID	SOLID	SOLID	SOIL	SOIL
	D.F.:	50.0	50.0	50.0	1.00	1.00
	Units:	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg
Surrogate Recovery	Nitrobenzene-d5	52 %	75 %	62 %	72 %	60 %
	2-Fluorobiphenyl	53 %	74 %	66 %	64 %	84 %
	Terphenyl-d14	66 %	78 %	82 %	93 %	106 %
	Phenol-d5	D %	46 %	43 %	66 %	87 %
	2-Fluorophenol	77 %	68 %	71 %	62 %	77 %
	2,4,6-Tribromophenol	D %	57 %	61 %	55 %	117 %
Phenol		1000000 U	47 * %	50 %	330 U	79 %
bis(2-Chloroethyl)ether		1000000 U	58 %	63 %	330 U	88 %
2-Chlorophenol		1000000 U	47 * %	56 %	330 U	98 %
1,3-Dichlorobenzene		1000000 U	67 %	68 %	330 U	75 %
1,4-Dichlorobenzene		1000000 U	64 %	71 %	330 U	74 %
1,2-Dichlorobenzene		1000000 U	60 %	56 %	330 U	79 %
2-Methylphenol		1000000 U	D %	70 %	330 U	76 %
2,2'-oxybis(1-Chloropropane)		1000000 U	86 %	90 %	330 U	83 %
3/4 Methylphenol		1000000 U	D %	D %	330 U	85 %
N-Nitroso-di-n-propylamine		1000000 U	51 %	96 %	330 U	94 %
Hexachloroethane		1000000 U	61 %	77 %	330 U	82 %
Nitrobenzene		1000000 U	59 %	82 %	330 U	55 %
Isophorone		1000000 U	56 * %	71 %	330 U	55 * %
2-Nitrophenol		1000000 U	D %	D %	330 U	51 %
2,4-Dimethylphenol		1000000 U	D %	50 %	330 U	63 %
bis(2-Chloroethoxy)methane		1000000 U	82 %	76 %	330 U	63 %
2,4-Dichlorophenol		1000000 U	D %	D %	330 U	58 %
1,2,4-Trichlorobenzene		1000000 U	59 * %	65 %	330 U	54 * %
Naphthalene		1000000 U	69 %	72 %	330 U	54 %
4-Chloroaniline		1000000 U	D %	54 %	330 U	58 %
Hexachlorobutadiene		1000000 U	64 %	87 %	330 U	65 %
4-Chloro-3-methylphenol		1000000 U	D %	D %	330 U	66 %
2-Methylnaphthalene		1000000 U	56 * %	62 %	330 U	60 %
Hexachlorocyclopentadiene		1000000 U	D %	D %	330 U	73 %
2,4,6-Trichlorophenol		1000000 U	D %	58 %	330 U	97 %
2,4,5-Trichlorophenol		2500000 U	D %	D %	830 U	93 %

*= Outside of EPA CLP QC limits.

000000008

Cust ID:	J17J81	J17J81	J17J81	SBLKYH	SBLKYH BS
RFW#:	001	001 MS	001 MSD	08LE0475-MB1	08LE0475-MB1
2-Chloronaphthalene	1000000 U	52 %	76 %	330 U	83 %
2-Nitroaniline	2500000 U	46 * %	60 %	830 U	98 %
Dimethylphthalate	1000000 U	89 %	95 %	330 U	118 %
Acenaphthylene	1000000 U	64 %	66 %	330 U	91 %
2,6-Dinitrotoluene	1000000 U	48 * %	50 * %	330 U	106 %
3-Nitroaniline	2500000 U	D %	D %	830 U	103 %
Acenaphthene	1000000 U	59 %	68 %	330 U	87 %
2,4-Dinitrophenol	2500000 U	D %	D %	830 U	13 * %
4-Nitrophenol	2500000 U	D %	D %	830 U	98 %
Dibenzofuran	1000000 U	68 %	74 %	330 U	94 %
2,4-Dinitrotoluene	1000000 U	D %	D %	330 U	99 %
Diethylphthalate	1000000 U	83 %	98 %	330 U	130 %
4-Chlorophenyl-phenylether	1000000 U	60 %	70 %	330 U	125 * %
Fluorene	1000000 U	49 * %	73 %	330 U	106 %
4-Nitroaniline	2500000 U	D %	D %	830 U	82 %
4,6-Dinitro-2-methylphenol	2500000 U	D %	D %	830 U	67 %
N-Nitrosodiphenylamine (1)	1000000 U	52 %	51 %	330 U	88 %
4-Bromophenyl-phenylether	1000000 U	64 %	85 %	330 U	104 %
Hexachlorobenzene	1000000 U	71 %	79 %	330 U	104 %
Pentachlorophenol	2500000 U	D %	D %	830 U	93 %
Phenanthrene	1000000 U	67 %	81 %	330 U	104 %
Anthracene	1000000 U	74 %	76 %	330 U	104 %
Carbazole	1000000 U	70 %	67 %	330 U	92 %
Di-n-butylphthalate	1000000 U	92 %	106 %	330 U	143 %
Fluoranthene	1000000 U	88 %	88 %	330 U	115 %
Pyrene	1000000 U	63 %	75 %	330 U	96 %
Butylbenzylphthalate	1000000 U	112 %	89 %	330 U	132 %
3,3'-Dichlorobenzidine	1000000 U	75 %	96 %	330 U	110 %
Benzo(a)anthracene	1000000 U	85 %	98 %	330 U	96 %
Chrysene	1000000 U	119 %	136 * %	330 U	96 %
bis(2-Ethylhexyl)phthalate	1000000 U	107 %	106 %	330 U	137 %
Di-n-octyl phthalate	1000000 U	104 %	112 %	330 U	133 %
Benzo(b)fluoranthene	1000000 U	85 %	104 %	330 U	94 %
Benzo(k)fluoranthene	1000000 U	121 %	87 %	330 U	100 %
Benzo(a)pyrene	1000000 U	138 * %	106 %	330 U	95 %
Indeno(1,2,3-cd)pyrene	1000000 U	106 %	112 %	330 U	92 %
Dibenz(a,h)anthracene	1000000 U	104 %	109 %	330 U	93 %
Benzo(g,h,i)perylene	1000000 U	105 %	131 %	330 U	95 %

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

000000009

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

J17J81

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

Client: WC-HANFORD RC-120 K1346

Matrix: (soil/water) SOLID

Lab Sample ID: 0809L188-001

Sample wt/vol: 0.500 (g/mL) G

Lab File ID: N100416

Level: (low/med) LOW

Date Received: 09/26/08

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

Date Extracted: 09/29/08

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 10/05/08

Injection Volume: 2.0(uL)

Dilution Factor: 50.0

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	24.234	400000	J
2.	UNKNOWN	24.513	400000	J
3.	UNKNOWN	26.143	600000	J
4.	UNKNOWN	27.041	400000	J
5.	UNKNOWN	28.584	600000	J

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

SBLKYH

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

Client: WC-HANFORD RC-120 K1346

Matrix: (soil/water) SOIL

Lab Sample ID: 08LE0475-MB1

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

Lab File ID: N100110

Level: (low/med) LOW

Date Received: 09/29/08

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

Date Extracted: 09/29/08

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 10/01/08

Injection Volume: 2.0(uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) N

pH: _____

Number TICs found: 1

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	24.669	70	J

FORM 1 SV-TIC

RFW (v3.3)

nville Laboratory Use Only

08.09L188

Custody Transfer Record/Lab Work Request

Page 1 of 1

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

LVLI

000000012

nt Washington Closure Hanford SAF# RC120

Final Proj. Sampling Date

ect# 60049-001-001-0001-00

ect Contact/Phone#

nville Laboratory Project Manager Arlette Johnson

Del TAT 7 Days

e Rec'd 9-26-08 Date Due 10-3-08

Refrigerator #		A															
#/Type Container	Liquid																
	Solid	1gl															
Volume	Solid	250															
Preservatives		1															
ANALYSES REQUESTED		ORGANIC							INORG								
		VOA	BNA	Pest+PCB	Herb			(2) Metal	CN	TOC	ICP Metals	TCLP Metals					

MATRIX CODES: Soil, Sediment, Solid, Sludge, Water, Oil, Air, Drum Solids, Drum Liquids, EP/TCLP Leachate, Wipe, Other, Fish	Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	Lionville Laboratory Use Only: 8260H	8260H	8082B					Met①		DOCT	TCLP	Met②			
	001	J17J81	✓	✓	SO	9-23-08	0825	X	X	X					X		X	X	X			
	002	+ TCLP of 001			L	**													X			

Special Instructions:

Met① = HSL + B, Bi, Li, Mo, P, Si, Sr, Sn, Ti, U

Met② = RCRA TCLP

* See Lab chron

Special Instructions:

* → 1. Matrix = Tar.

2.

3.

4.

5.

6.

Relinquished by	Received by	Date	Time
[illegible]	[illegible]	9-26-08	0920

Relinquished by	Received by	Date	Time

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

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-120-006	Page 1 of 1

Collector P. Pearson, T. Stephens	Company Contact Joan Kessner Telephone No. 509-375-4688	Project Coordinator WEISS, RL	Price Code 9L 8F Data Turnaround 21 Days 7
Project Designation 618-1 Other Solid	Sampling Location 618-1 Burial Ground - Anomalous Material Black "Tar"	SAF No. RC-120	JRD 9/23/08
Ice Chest No.	Field Logbook No. EL-1395-13 COA RG61812600	Method of Shipment Fed Ex	
Shipped To EBERLINE SERVICES, LIONVILLE	Offsite Property No. NA	Bill of Lading/Air Bill No. NA	

POSSIBLE SAMPLE HAZARDS/REMARKS

Potential radiological contamination.

Special Handling and/or Storage

None

Preservation		None	None	Cool 4C	None	Cool 4C	Cool 4C	Cool 4C	None	
Type of Container	P	P	P	aG	aG	aG	aG	aG	N/A	
No. of Container(s)	0	1	0	1	0	0	0	0	0	
Volume	500mL	500mL	500mL	250mL	250mL	250mL	250mL	250mL	N/A	

SAMPLE ANALYSIS

Sample No.	Matrix *	Sample Date	Sample Time	Gross Alpha & Gross Beta	See item (1) in Special Instructions.	Isotopic Uranium	See item (2) in Special Instructions.	TOC - 9060	VOA - 8260A (TCL)	Semi-VOA - 8270A (TCL)	PCBs - 8082	Metals by ICP(TCLP) 1311/6010	
J17J81	OTHER SOLID	9/23/08	0825	JRD			x	x	x	x	x	x	

JRD 9/23/08

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

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Paul PEARSON	9-23-08 1025	JRDeBruijne JRDeBruijne	1025 9/23/08
JRDeBruijne JRDeBruijne	1145 9/23/08	1060 IB	1145 9/23/08
1060 IB / J.E. Bernhard	0900 9-25-08	J.E. Bernhard	0900 9-25-08
J.E. Bernhard	0915 9-25-08	FED EX	
Fed Ex	9-26-08/0920	[illegible]	9-26-08/0920

SPECIAL INSTRUCTIONS

(1) Gamma Spec - (Full List) {Americium-241, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155, Potassium-40, Radium-226, Radium-228, Thorium-234, Uranium-235, Uranium-238}
(2) ICP Metals - 6010TR (Client List) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Selenium, Silicon, Silver, Sodium, Strontium, Thallium, Tin, Titanium, Uranium, Vanadium, Zinc}

* Note: Please contact Joan Kessner if you need more material.

JRD 9/23/08

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

NCH-EE-011

0000000013

Lionville Laboratory Incorporated

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: W.C. Hanford **Date:** 9.26.08

Project/SAF/SOW/Release #: RC-120

LvLI Batch #: 08091188 **Sample Custodian:** D. Young

NOTE: EXPLAIN ALL DISCREPANCIES

1. Samples Hand Delivered or Shipped?	Carrier FedEx		Airbill # 7993 8118 353
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 2.3 °C		Cooler # AFS-04-054
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.
INORGANIC ANALYTICAL DATA PACKAGE FOR
WC-HANFORD RC-120 K1346

RECEIVED OCT 2008

DATE RECEIVED: 09/26/08 LVL LOT # :0809L188

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J17J81						
TCLP	001	SO	08LT0098	09/23/08	09/29/08	09/30/08
SILVER, TOTAL	001	SO	08L0358	09/23/08	10/01/08	10/08/08
SILVER, TOTAL	001 REP	SO	08L0358	09/23/08	10/01/08	10/08/08
SILVER, TOTAL	001 MS	SO	08L0358	09/23/08	10/01/08	10/08/08
ALUMINUM, TOTAL	001	SO	08L0358	09/23/08	10/01/08	10/07/08
ALUMINUM, TOTAL	001 REP	SO	08L0358	09/23/08	10/01/08	10/07/08
ALUMINUM, TOTAL	001 MS	SO	08L0358	09/23/08	10/01/08	10/07/08
ARSENIC, TOTAL	001	SO	08L0358	09/23/08	10/01/08	10/08/08
ARSENIC, TOTAL	001 REP	SO	08L0358	09/23/08	10/01/08	10/08/08
ARSENIC, TOTAL	001 MS	SO	08L0358	09/23/08	10/01/08	10/08/08
BORON, TOTAL	001	SO	08L0358	09/23/08	10/01/08	10/08/08
BORON, TOTAL	001 REP	SO	08L0358	09/23/08	10/01/08	10/08/08
BORON, TOTAL	001 MS	SO	08L0358	09/23/08	10/01/08	10/08/08
BARIUM, TOTAL	001	SO	08L0358	09/23/08	10/01/08	10/08/08
BARIUM, TOTAL	001 REP	SO	08L0358	09/23/08	10/01/08	10/08/08
BARIUM, TOTAL	001 MS	SO	08L0358	09/23/08	10/01/08	10/08/08
BERYLLIUM, TOTAL	001	SO	08L0358	09/23/08	10/01/08	10/08/08
BERYLLIUM, TOTAL	001 REP	SO	08L0358	09/23/08	10/01/08	10/08/08
BERYLLIUM, TOTAL	001 MS	SO	08L0358	09/23/08	10/01/08	10/08/08
BISMUTH, TOTAL	001	SO	08L0358	09/23/08	10/01/08	10/08/08
BISMUTH, TOTAL REP	001 REP	SO	08L0358	09/23/08	10/01/08	10/08/08
BISMUTH, TOTAL SPIKE	001 MS	SO	08L0358	09/23/08	10/01/08	10/08/08
CALCIUM, TOTAL	001	SO	08L0358	09/23/08	10/01/08	10/08/08
CALCIUM, TOTAL	001 REP	SO	08L0358	09/23/08	10/01/08	10/08/08
CALCIUM, TOTAL	001 MS	SO	08L0358	09/23/08	10/01/08	10/08/08
CADMIUM, TOTAL	001	SO	08L0358	09/23/08	10/01/08	10/08/08
CADMIUM, TOTAL	001 REP	SO	08L0358	09/23/08	10/01/08	10/08/08
CADMIUM, TOTAL	001 MS	SO	08L0358	09/23/08	10/01/08	10/08/08
COBALT, TOTAL	001	SO	08L0358	09/23/08	10/01/08	10/08/08
COBALT, TOTAL	001 REP	SO	08L0358	09/23/08	10/01/08	10/08/08
COBALT, TOTAL	001 MS	SO	08L0358	09/23/08	10/01/08	10/08/08
CHROMIUM, TOTAL	001	SO	08L0358	09/23/08	10/01/08	10/08/08
CHROMIUM, TOTAL	001 REP	SO	08L0358	09/23/08	10/01/08	10/08/08
CHROMIUM, TOTAL	001 MS	SO	08L0358	09/23/08	10/01/08	10/08/08
COPPER, TOTAL	001	SO	08L0358	09/23/08	10/01/08	10/08/08

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
WC-HANFORD RC-120 K1346

DATE RECEIVED: 09/26/08 LVL LOT # :0809L188

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
COPPER, TOTAL	001 REP	SO	08L0358	09/23/08	10/01/08	10/08/08
COPPER, TOTAL	001 MS	SO	08L0358	09/23/08	10/01/08	10/08/08
IRON, TOTAL	001	SO	08L0358	09/23/08	10/01/08	10/08/08
IRON, TOTAL	001 REP	SO	08L0358	09/23/08	10/01/08	10/08/08
IRON, TOTAL	001 MS	SO	08L0358	09/23/08	10/01/08	10/08/08
MERCURY, TOTAL	001	SO	08C0174	09/23/08	09/30/08	10/01/08
MERCURY, TOTAL	001 REP	SO	08C0174	09/23/08	09/30/08	10/01/08
MERCURY, TOTAL	001 MS	SO	08C0174	09/23/08	09/30/08	10/01/08
POTASSIUM, TOTAL	001	SO	08L0358	09/23/08	10/01/08	10/07/08
POTASSIUM, TOTAL	001 REP	SO	08L0358	09/23/08	10/01/08	10/07/08
POTASSIUM, TOTAL	001 MS	SO	08L0358	09/23/08	10/01/08	10/07/08
LITHIUM, TOTAL	001	SO	08L0358	09/23/08	10/01/08	10/08/08
LITHIUM, TOTAL	001 REP	SO	08L0358	09/23/08	10/01/08	10/08/08
LITHIUM, TOTAL	001 MS	SO	08L0358	09/23/08	10/01/08	10/08/08
MAGNESIUM, TOTAL	001	SO	08L0358	09/23/08	10/01/08	10/08/08
MAGNESIUM, TOTAL	001 REP	SO	08L0358	09/23/08	10/01/08	10/08/08
MAGNESIUM, TOTAL	001 MS	SO	08L0358	09/23/08	10/01/08	10/08/08
MANGANESE, TOTAL	001	SO	08L0358	09/23/08	10/01/08	10/08/08
MANGANESE, TOTAL	001 REP	SO	08L0358	09/23/08	10/01/08	10/08/08
MANGANESE, TOTAL	001 MS	SO	08L0358	09/23/08	10/01/08	10/08/08
MOLYBDENUM, TOTAL	001	SO	08L0358	09/23/08	10/01/08	10/08/08
MOLYBDENUM, TOTAL	001 REP	SO	08L0358	09/23/08	10/01/08	10/08/08
MOLYBDENUM, TOTAL	001 MS	SO	08L0358	09/23/08	10/01/08	10/08/08
SODIUM, TOTAL	001	SO	08L0358	09/23/08	10/01/08	10/07/08
SODIUM, TOTAL	001 REP	SO	08L0358	09/23/08	10/01/08	10/07/08
SODIUM, TOTAL	001 MS	SO	08L0358	09/23/08	10/01/08	10/07/08
NICKEL, TOTAL	001	SO	08L0358	09/23/08	10/01/08	10/08/08
NICKEL, TOTAL	001 REP	SO	08L0358	09/23/08	10/01/08	10/08/08
NICKEL, TOTAL	001 MS	SO	08L0358	09/23/08	10/01/08	10/08/08
PHOSPHORUS, TOTAL	001	SO	08L0358	09/23/08	10/01/08	10/07/08
PHOSPHORUS, TOTAL	001 REP	SO	08L0358	09/23/08	10/01/08	10/07/08
PHOSPHORUS, TOTAL	001 MS	SO	08L0358	09/23/08	10/01/08	10/07/08
LEAD, TOTAL	001	SO	08L0358	09/23/08	10/01/08	10/08/08
LEAD, TOTAL	001 REP	SO	08L0358	09/23/08	10/01/08	10/08/08
LEAD, TOTAL	001 MS	SO	08L0358	09/23/08	10/01/08	10/08/08
ANTIMONY, TOTAL	001	SO	08L0358	09/23/08	10/01/08	10/08/08
ANTIMONY, TOTAL	001 REP	SO	08L0358	09/23/08	10/01/08	10/08/08
ANTIMONY, TOTAL	001 MS	SO	08L0358	09/23/08	10/01/08	10/08/08

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
WC-HANFORD RC-120 K1346

DATE RECEIVED: 09/26/08 LVL LOT # :0809L188

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
SELENIUM, TOTAL	001	SO	08L0358	09/23/08	10/01/08	10/08/08
SELENIUM, TOTAL	001 REP	SO	08L0358	09/23/08	10/01/08	10/08/08
SELENIUM, TOTAL	001 MS	SO	08L0358	09/23/08	10/01/08	10/08/08
SILICON, TOTAL	001	SO	08L0358	09/23/08	10/01/08	10/08/08
SILICON, TOTAL	001 REP	SO	08L0358	09/23/08	10/01/08	10/08/08
SILICON, TOTAL	001 MS	SO	08L0358	09/23/08	10/01/08	10/08/08
TIN, TOTAL	001	SO	08L0358	09/23/08	10/01/08	10/08/08
TIN, TOTAL	001 REP	SO	08L0358	09/23/08	10/01/08	10/08/08
TIN, TOTAL	001 MS	SO	08L0358	09/23/08	10/01/08	10/08/08
STRONTIUM, TOTAL	001	SO	08L0358	09/23/08	10/01/08	10/08/08
STRONTIUM, TOTAL	001 REP	SO	08L0358	09/23/08	10/01/08	10/08/08
STRONTIUM, TOTAL	001 MS	SO	08L0358	09/23/08	10/01/08	10/08/08
TITANIUM, TOTAL	001	SO	08L0358	09/23/08	10/01/08	10/08/08
TITANIUM, TOTAL	001 REP	SO	08L0358	09/23/08	10/01/08	10/08/08
TITANIUM, TOTAL	001 MS	SO	08L0358	09/23/08	10/01/08	10/08/08
THALLIUM, TOTAL	001	SO	08L0358	09/23/08	10/01/08	10/08/08
THALLIUM, TOTAL	001 REP	SO	08L0358	09/23/08	10/01/08	10/08/08
THALLIUM, TOTAL	001 MS	SO	08L0358	09/23/08	10/01/08	10/08/08
URANIUM, TOTAL	001	SO	08L0358	09/23/08	10/01/08	10/08/08
URANIUM, TOTAL	001 REP	SO	08L0358	09/23/08	10/01/08	10/08/08
URANIUM, TOTAL	001 MS	SO	08L0358	09/23/08	10/01/08	10/08/08
VANADIUM, TOTAL	001	SO	08L0358	09/23/08	10/01/08	10/08/08
VANADIUM, TOTAL	001 REP	SO	08L0358	09/23/08	10/01/08	10/08/08
VANADIUM, TOTAL	001 MS	SO	08L0358	09/23/08	10/01/08	10/08/08
ZINC, TOTAL	001	SO	08L0358	09/23/08	10/01/08	10/08/08
ZINC, TOTAL	001 REP	SO	08L0358	09/23/08	10/01/08	10/08/08
ZINC, TOTAL	001 MS	SO	08L0358	09/23/08	10/01/08	10/08/08
SILVER, TCLP LEACHAT	002	W	08L0357	09/30/08	10/01/08	10/06/08
SILVER, TCLP LEACHAT	002 REP	W	08L0357	09/30/08	10/01/08	10/06/08
SILVER, TCLP LEACHAT	002 MS	W	08L0357	09/30/08	10/01/08	10/06/08
ARSENIC, TCLP LEACHA	002	W	08L0357	09/30/08	10/01/08	10/06/08
ARSENIC, TCLP LEACHA	002 REP	W	08L0357	09/30/08	10/01/08	10/06/08
ARSENIC, TCLP LEACHA	002 MS	W	08L0357	09/30/08	10/01/08	10/06/08
BARIUM, TCLP LEACHAT	002	W	08L0357	09/30/08	10/01/08	10/06/08
BARIUM, TCLP LEACHAT	002 REP	W	08L0357	09/30/08	10/01/08	10/06/08
BARIUM, TCLP LEACHAT	002 MS	W	08L0357	09/30/08	10/01/08	10/06/08
CADMIUM, TCLP LEACHA	002	W	08L0357	09/30/08	10/01/08	10/06/08
CADMIUM, TCLP LEACHA	002 REP	W	08L0357	09/30/08	10/01/08	10/06/08

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
WC-HANFORD RC-120 K1346

DATE RECEIVED: 09/26/08 LVL LOT # :0809L188

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
CADMIUM, TCLP LEACHA	002 MS	W	08L0357	09/30/08	10/01/08	10/06/08
CHROMIUM, TCLP LEACH	002	W	08L0357	09/30/08	10/01/08	10/06/08
CHROMIUM, TCLP LEACH	002 REP	W	08L0357	09/30/08	10/01/08	10/06/08
CHROMIUM, TCLP LEACH	002 MS	W	08L0357	09/30/08	10/01/08	10/06/08
MERCURY, TCLP LEACHA	002	W	08C0175	09/30/08	10/01/08	10/02/08
MERCURY, TCLP LEACHA	002 REP	W	08C0175	09/30/08	10/01/08	10/02/08
MERCURY, TCLP LEACHA	002 MS	W	08C0175	09/30/08	10/01/08	10/02/08
LEAD, TCLP LEACHATE	002	W	08L0357	09/30/08	10/01/08	10/06/08
LEAD, TCLP LEACHATE	002 REP	W	08L0357	09/30/08	10/01/08	10/06/08
LEAD, TCLP LEACHATE	002 MS	W	08L0357	09/30/08	10/01/08	10/06/08
SELENIUM, TCLP LEACH	002	W	08L0357	09/30/08	10/01/08	10/06/08
SELENIUM, TCLP LEACH	002 REP	W	08L0357	09/30/08	10/01/08	10/06/08
SELENIUM, TCLP LEACH	002 MS	W	08L0357	09/30/08	10/01/08	10/06/08

LAB QC:

SILVER LABORATORY	LC1 BS	S	08L0358	N/A	10/01/08	10/08/08
SILVER, TOTAL	MB1	S	08L0358	N/A	10/01/08	10/08/08
ALUMINUM LABORTORY	LC1 BS	S	08L0358	N/A	10/01/08	10/07/08
ALUMINUM, TOTAL	MB1	S	08L0358	N/A	10/01/08	10/07/08
ARSENIC LABORATORY	LC1 BS	S	08L0358	N/A	10/01/08	10/08/08
ARSENIC, TOTAL	MB1	S	08L0358	N/A	10/01/08	10/08/08
BORON LABORATORY	LC1 BS	S	08L0358	N/A	10/01/08	10/08/08
BORON, TOTAL	MB1	S	08L0358	N/A	10/01/08	10/08/08
BARIUM LABORATORY	LC1 BS	S	08L0358	N/A	10/01/08	10/08/08
BARIUM, TOTAL	MB1	S	08L0358	N/A	10/01/08	10/08/08
BERYLLIUM LABORATORY	LC1 BS	S	08L0358	N/A	10/01/08	10/08/08
BERYLLIUM, TOTAL	MB1	S	08L0358	N/A	10/01/08	10/08/08
BISMUTH, LCS	LC1 BS	S	08L0358	N/A	10/01/08	10/08/08
BISMUTH, TOTAL	MB1	S	08L0358	N/A	10/01/08	10/08/08
CALCIUM LABORATORY	LC1 BS	S	08L0358	N/A	10/01/08	10/08/08
CALCIUM, TOTAL	MB1	S	08L0358	N/A	10/01/08	10/08/08
CADMIUM LABORATORY	LC1 BS	S	08L0358	N/A	10/01/08	10/08/08
CADMIUM, TOTAL	MB1	S	08L0358	N/A	10/01/08	10/08/08
COBALT LABORATORY	LC1 BS	S	08L0358	N/A	10/01/08	10/08/08
COBALT, TOTAL	MB1	S	08L0358	N/A	10/01/08	10/08/08
CHROMIUM LABORATORY	LC1 BS	S	08L0358	N/A	10/01/08	10/08/08
CHROMIUM, TOTAL	MB1	S	08L0358	N/A	10/01/08	10/08/08

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
WC-HANFORD RC-120 K1346

DATE RECEIVED: 09/26/08 LVL LOT # :0809L188

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
COPPER LABORATORY	LC1 BS	S	08L0358	N/A	10/01/08	10/08/08
COPPER, TOTAL	MB1	S	08L0358	N/A	10/01/08	10/08/08
IRON LABORATORY	LC1 BS	S	08L0358	N/A	10/01/08	10/08/08
IRON, TOTAL	MB1	S	08L0358	N/A	10/01/08	10/08/08
MERCURY LABORATORY	LC1 BS	S	08C0174	N/A	09/30/08	10/01/08
MERCURY, TOTAL	MB1	S	08C0174	N/A	09/30/08	10/01/08
POTASSIUM LABORATORY	LC1 BS	S	08L0358	N/A	10/01/08	10/07/08
POTASSIUM, TOTAL	MB1	S	08L0358	N/A	10/01/08	10/07/08
LITHIUM LABORATORY	LC1 BS	S	08L0358	N/A	10/01/08	10/08/08
LITHIUM, TOTAL	MB1	S	08L0358	N/A	10/01/08	10/08/08
MAGNESIUM LABORATORY	LC1 BS	S	08L0358	N/A	10/01/08	10/08/08
MAGNESIUM, TOTAL	MB1	S	08L0358	N/A	10/01/08	10/08/08
MANGANESE LABORATORY	LC1 BS	S	08L0358	N/A	10/01/08	10/08/08
MANGANESE, TOTAL	MB1	S	08L0358	N/A	10/01/08	10/08/08
MOLYBDENUM LABORATOR	LC1 BS	S	08L0358	N/A	10/01/08	10/08/08
MOLYBDENUM, TOTAL	MB1	S	08L0358	N/A	10/01/08	10/08/08
SODIUM LABORATORY	LC1 BS	S	08L0358	N/A	10/01/08	10/07/08
SODIUM, TOTAL	MB1	S	08L0358	N/A	10/01/08	10/07/08
NICKEL LABORATORY	LC1 BS	S	08L0358	N/A	10/01/08	10/08/08
NICKEL, TOTAL	MB1	S	08L0358	N/A	10/01/08	10/08/08
PHOSPHORUS LCS	LC1 BS	S	08L0358	N/A	10/01/08	10/07/08
PHOSPHORUS, TOTAL	MB1	S	08L0358	N/A	10/01/08	10/07/08
LEAD LABORATORY	LC1 BS	S	08L0358	N/A	10/01/08	10/08/08
LEAD, TOTAL	MB1	S	08L0358	N/A	10/01/08	10/08/08
ANTIMONY LABORATORY	LC1 BS	S	08L0358	N/A	10/01/08	10/08/08
ANTIMONY, TOTAL	MB1	S	08L0358	N/A	10/01/08	10/08/08
SELENIUM LABORATORY	LC1 BS	S	08L0358	N/A	10/01/08	10/08/08
SELENIUM, TOTAL	MB1	S	08L0358	N/A	10/01/08	10/08/08
SILICON LABORATORY	LC1 BS	S	08L0358	N/A	10/01/08	10/08/08
SILICON, TOTAL	MB1	S	08L0358	N/A	10/01/08	10/08/08
TIN LABORATORY	LC1 BS	S	08L0358	N/A	10/01/08	10/08/08
TIN, TOTAL	MB1	S	08L0358	N/A	10/01/08	10/08/08
STRONTIUM LCS STANDA	LC1 BS	S	08L0358	N/A	10/01/08	10/08/08
STRONTIUM, TOTAL	MB1	S	08L0358	N/A	10/01/08	10/08/08
TITANIUM LABORATORY	LC1 BS	S	08L0358	N/A	10/01/08	10/08/08
TITANIUM, TOTAL	MB1	S	08L0358	N/A	10/01/08	10/08/08
THALLIUM LABORATORY	LC1 BS	S	08L0358	N/A	10/01/08	10/08/08
THALLIUM, TOTAL	MB1	S	08L0358	N/A	10/01/08	10/08/08

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
WC-HANFORD RC-120 K1346

DATE RECEIVED: 09/26/08 LVL LOT # :0809L188

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
URANIUM LABORATORY	LC1 BS	S	08L0358	N/A	10/01/08	10/08/08
URANIUM, TOTAL	MB1	S	08L0358	N/A	10/01/08	10/08/08
VANADIUM LABORATORY	LC1 BS	S	08L0358	N/A	10/01/08	10/08/08
VANADIUM, TOTAL	MB1	S	08L0358	N/A	10/01/08	10/08/08
ZINC LABORATORY	LC1 BS	S	08L0358	N/A	10/01/08	10/08/08
ZINC, TOTAL	MB1	S	08L0358	N/A	10/01/08	10/08/08
SILVER LABORATORY	LC1 BS	W	08L0357	N/A	10/01/08	10/06/08
SILVER, TCLP LEACHAT	MB1	W	08L0357	N/A	10/01/08	10/06/08
SILVER, TCLP LEACHAT	MB2	W	08L0357	N/A	10/01/08	10/06/08
ARSENIC LABORATORY	LC1 BS	W	08L0357	N/A	10/01/08	10/06/08
ARSENIC, TCLP LEACHA	MB1	W	08L0357	N/A	10/01/08	10/06/08
ARSENIC, TCLP LEACHA	MB2	W	08L0357	N/A	10/01/08	10/06/08
BARIUM LABORATORY	LC1 BS	W	08L0357	N/A	10/01/08	10/06/08
BARIUM, TCLP LEACHAT	MB1	W	08L0357	N/A	10/01/08	10/06/08
BARIUM, TCLP LEACHAT	MB2	W	08L0357	N/A	10/01/08	10/06/08
CADMIUM LABORATORY	LC1 BS	W	08L0357	N/A	10/01/08	10/06/08
CADMIUM, TCLP LEACHA	MB1	W	08L0357	N/A	10/01/08	10/06/08
CADMIUM, TCLP LEACHA	MB2	W	08L0357	N/A	10/01/08	10/06/08
CHROMIUM LABORATORY	LC1 BS	W	08L0357	N/A	10/01/08	10/06/08
CHROMIUM, TCLP LEACH	MB1	W	08L0357	N/A	10/01/08	10/06/08
CHROMIUM, TCLP LEACH	MB2	W	08L0357	N/A	10/01/08	10/06/08
MERCURY LABORATORY	LC1 BS	W	08C0175	N/A	10/01/08	10/02/08
MERCURY, TOTAL	MB1	W	08C0175	N/A	10/01/08	10/02/08
MERCURY, TCLP LEACHA	MB2	W	08C0175	N/A	10/01/08	10/02/08
MERCURY, TCLP LEACHA	MB3	W	08C0175	N/A	10/01/08	10/02/08
LEAD LABORATORY	LC1 BS	W	08L0357	N/A	10/01/08	10/06/08
LEAD, TCLP LEACHATE	MB1	W	08L0357	N/A	10/01/08	10/06/08
LEAD, TCLP LEACHATE	MB2	W	08L0357	N/A	10/01/08	10/06/08
SELENIUM LABORATORY	LC1 BS	W	08L0357	N/A	10/01/08	10/06/08
SELENIUM, TCLP LEACH	MB1	W	08L0357	N/A	10/01/08	10/06/08
SELENIUM, TCLP LEACH	MB2	W	08L0357	N/A	10/01/08	10/06/08

LIONVILLE LABORATORY INC.

Analytical Report

Client: WC-HANFORD RC-120
LVL#: 0809L188
SDG/SAF#: K1346/RC-120

W.O.#: 60049-001-001-0001-00
Date Received: 09-26-08

METALS CASE NARRATIVE

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

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

1. This narrative covers the analyses of 1 solid sample and 1 TCLP leachate sample.

2. The samples were prepared and analyzed in accordance with methods checked on the attached glossary. The solid sample was reported on a wet weight, 'as-received' basis.

   The sample results for Aluminum, Potassium, and Sodium were reported from another instrument along with the Phosphorous analysis.

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 the last CCV in file PS1006B (TCLP leachate file) for Lead. All sample results contained in this report were surrounded by QC within control.

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), MB value less than 5% of the RCRA limit, 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 with the exception of Silicon at 54.7%. Refer to the Inorganics Laboratory Control Standards Report. Associated sample results may be biased low.

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 29 pages.

9. The matrix spike (MS) recoveries for 5 analytes were outside the 75-125% control limits. Refer to the Inorganics Accuracy Report.

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

Sample ID	Element	PDS Concentration (ppb)	PDS % Recovery
J17J81	Aluminum	4,000	115.6
	Iron	12,000	96.8
	Manganese	3,000	114.5
	Silicon	2,100	99.9
	Titanium	100	128.3

11. The duplicate analyses for 21 total analytes, and for 1 TCLP leachate analyte, were outside the 20% Relative Percent Difference (RPD) control limits. Refer to the Inorganics Precision Report.

12. The TCLP extract from sample J17J81 was selected for the matrix spike (MS) for this analytical batch. All MS recoveries were greater than 50% as per method criteria.

13. 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.

14. LvL 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.

15. 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 Strom

Iain Daniels
Laboratory Manager
Lionville Laboratory

10/10/08
Date

jjw/m09-188

LIONVILLE LABORATORY INC.

METALS METHOD GLOSSARY

The following methods are used as reference for the digestion and analysis of samples contained within t
Lot#: 0809L188

Leaching Procedure: __1310 X 1311 __1312 __Other:_____

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

Metals Digestion Methods: __3005A X 3010A __3015 __3020A X 3050B __3051 __200.7 __SS17
__Other: _____

Metals Analysis Methods

	SW846		EPA		STD MTD	EPA OSWR	USATHAMA
Aluminum	X 6010B		__200.7				__99
Antimony	X 6010B	__7041 [5]	__200.7	__204.2			__99
Arsenic	X 6010B	__7060A [5]	__200.7	__206.2	__3113B		__99
Barium	X 6010B		__200.7				__99
Beryllium	X 6010B		__200.7				__99
Bismuth	X 6010B [1]		__200.7 [1]			__1620	__99
Boron	X 6010B		__200.7				__99
Cadmium	X 6010B	__7131A [5]	__200.7	__213.2			__99
Calcium	X 6010B		__200.7				__99
Chromium	X 6010B	__7191 [5]	__200.7	__218.2			__SS17
Cobalt	X 6010B		__200.7				__99
Copper	X 6010B	__7211 [5]	__200.7	__220.2			__99
Iron	X 6010B		__200.7				__99
Lead	X 6010B	__7421 [5]	__200.7	__239.2	__3113B		__99
Lithium	X 6010B	__7430 [4]	__200.7			__1620	__99
Magnesium	X 6010B		__200.7				__99
Manganese	X 6010B		__200.7				__99
Mercury	X 7470A [3]	X 7471A [3]	__245.1 [2]	__245.5 [2]			__99
Molybdenum	X 6010B		__200.7				__99
Nickel	X 6010B		__200.7				__99
Potassium	X 6010B	__7610 [4]	__200.7	__258.1 [4]			__99
Rare Earths	__6010B [1]		__200.7 [1]			__1620	__99
Selenium	X 6010B	__7740 [5]	__200.7	__270.2	__3113B		__99
Silicon	X 6010B [1]		__200.7			__1620	__99
Silica	__6010B		__200.7			__1620	__99
Silver	X 6010B	__7761 [5]	__200.7	__272.2			__99
Sodium	X 6010B	__7770 [4]	__200.7	__273.1 [4]			__99
Strontium	X 6010B		__200.7				__99
Thallium	X 6010B	__7841 [5]	__200.7	__279.2 __200.9			__99
Tin	X 6010B		__200.7				__99
Titanium	X 6010B		__200.7				__99
Uranium	X 6010B [1]		__200.7 [1]			__1620	__99
Vanadium	X 6010B		__200.7				__99
Zinc	X 6010B		__200.7				__99
Zirconium	__6010B [1]		__200.7 [1]			__1620	__99

Phosphorous Method: 6010B

L-W000000009

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 10/09/08

CLIENT: WC-HANFORD RC-120 K1346 LVL LOT #: 0809L188

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	J17J81	Silver, Total	0.09 u	MG/KG	0.09	1.0
		Aluminum, Total	334	MG/KG	3.6	1.0
		Arsenic, Total	0.45 u	MG/KG	0.45	1.0
		Boron, Total	0.45 u	MG/KG	0.45	1.0
		Barium, Total	4.5	MG/KG	0.09	1.0
		Beryllium, Total	0.05 u	MG/KG	0.05	1.0
		Bismuth, Total	0.54 u	MG/KG	0.54	1.0
		Calcium, Total	440	MG/KG	3.6	1.0
		Cadmium, Total	0.05 u	MG/KG	0.05	1.0
		Cobalt, Total	0.47	MG/KG	0.18	1.0
		Chromium, Total	0.82	MG/KG	0.18	1.0
		Copper, Total	1.0	MG/KG	0.18	1.0
		Iron, Total	1190	MG/KG	4.1	1.0
		Mercury, Total	0.04 u	MG/KG	0.04	5.0
		Potassium, Total	58.0	MG/KG	44.4	1.0
		Lithium, Total	0.48	MG/KG	0.04	1.0
		Magnesium, Total	240	MG/KG	2.3	1.0
		Manganese, Total	18.3	MG/KG	0.04	1.0
		Molybdenum, Total	0.27 u	MG/KG	0.27	1.0
		Sodium, Total	31.4	MG/KG	1.8	1.0
		Nickel, Total	6.4	MG/KG	0.18	1.0
		Phosphorus, Total	50.5	MG/KG	4.5	1.0
		Lead, Total	0.39	MG/KG	0.27	1.0
		Antimony, Total	0.27 u	MG/KG	0.27	1.0
		Selenium, Total	0.54 u	MG/KG	0.54	1.0
		Silicon, Total	147	MG/KG	3.6	1.0
		Tin, Total	0.60	MG/KG	0.54	1.0
		Strontium, Total	3.2	MG/KG	0.03	1.0
		Titanium, Total	99.8	MG/KG	0.09	1.0
		Thallium, Total	0.54 u	MG/KG	0.54	1.0
		Uranium, Total	1.8 u	MG/KG	1.8	1.0
		Vanadium, Total	3.2	MG/KG	0.13	1.0
		Zinc, Total	3.2	MG/KG	0.54	1.0

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 10/09/08

CLIENT: WC-HANFORD RC-120 K1346 LVL LOT #: 0809L188

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-002	J17J81	Silver, TCLP Leachate	9.0	u	UG/L	9.0	1.0
		Arsenic, TCLP Leachate	63.4	u	UG/L	63.4	1.0
		Barium, TCLP Leachate	70.3		UG/L	6.2	1.0
		Cadmium, TCLP Leachate	11.2	u	UG/L	11.2	1.0
		Chromium, TCLP Leachate	9.2	u	UG/L	9.2	1.0
		Mercury, TCLP Leachate	0.06	u	UG/L	0.06	1.0
		Lead, TCLP Leachate	39.9		UG/L	6.0	1.0
		Selenium, TCLP Leachate	16.4		UG/L	10.0	1.0

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 10/09/08

CLIENT: WC-HANFORD RC-120 K1346 LVL LOT #: 0809L188

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK1	08L0358-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
		Boron, Total	0.50 u	MG/KG	0.50	1.0
		Barium, Total	0.20	MG/KG	0.10	1.0
		Beryllium, Total	0.05 u	MG/KG	0.05	1.0
		Bismuth, Total	0.60 u	MG/KG	0.60	1.0
		Calcium, Total	6.3	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	0.22	MG/KG	0.20	1.0
		Iron, Total	4.5 u	MG/KG	4.5	1.0
		Potassium, Total	49.3 u	MG/KG	49.3	1.0
		Lithium, Total	0.04 u	MG/KG	0.04	1.0
		Magnesium, Total	2.5 u	MG/KG	2.5	1.0
		Manganese, Total	0.04 u	MG/KG	0.04	1.0
		Molybdenum, Total	0.30 u	MG/KG	0.30	1.0
		Sodium, Total	8.3	MG/KG	2.0	1.0
		Nickel, Total	0.20 u	MG/KG	0.20	1.0
		Phosphorus, Total	5.0 u	MG/KG	5.0	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
		Silicon, Total	4.0 u	MG/KG	4.0	1.0
		Tin, Total	0.94	MG/KG	0.60	1.0
		Strontium, Total	0.03	MG/KG	0.03	1.0
		Titanium, Total	0.10 u	MG/KG	0.10	1.0
		Thallium, Total	0.60 u	MG/KG	0.60	1.0
		Uranium, Total	2.0 u	MG/KG	2.0	1.0
		Vanadium, Total	0.14 u	MG/KG	0.14	1.0
		Zinc, Total	0.60 u	MG/KG	0.60	1.0
BLANK1	08C0174-MB1	Mercury, Total	0.01 u	MG/KG	0.01	1.0
BLANK1	08L0357-MB1	Silver, TCLP Leachate	4.5 u	UG/L	4.5	1.0
		Arsenic, TCLP Leachate	31.7 u	UG/L	31.7	1.0
		Barium, TCLP Leachate	3.1 u	UG/L	3.1	1.0
		Cadmium, TCLP Leachate	5.6 u	UG/L	5.6	1.0
		Chromium, TCLP Leachate	4.6 u	UG/L	4.6	1.0

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 10/09/08

CLIENT: WC-HANFORD RC-120 K1346 LVL LOT #: 0809L188

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK1	08L0357-MB1	Lead, TCLP Leachate	34.8	u	UG/L	34.8	1.0
		Selenium, TCLP Leachate	41.3	u	UG/L	41.3	1.0
BLANK2	08L0357-MB2	Silver, TCLP Leachate	4.5	u	UG/L	4.5	1.0
		Arsenic, TCLP Leachate	31.7	u	UG/L	31.7	1.0
		Barium, TCLP Leachate	3.1	u	UG/L	3.1	1.0
		Cadmium, TCLP Leachate	5.6	u	UG/L	5.6	1.0
		Chromium, TCLP Leachate	4.6	u	UG/L	4.6	1.0
		Lead, TCLP Leachate	34.8	u	UG/L	34.8	1.0
		Selenium, TCLP Leachate	41.3	u	UG/L	41.3	1.0
BLANK1	08C0175-MB1	Mercury, Total	0.06	u	UG/L	0.06	1.0
BLANK2	08C0175-MB2	Mercury, TCLP Leachate	0.06	u	UG/L	0.06	1.0
BLANK3	08C0175-MB3	Mercury, TCLP Leachate	0.06	u	UG/L	0.06	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 10/09/08

CLIENT: WC-HANFORD RC-120 K1346 LVL LOT #: 0809L188

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-001	J17J81	Silver, Total	3.9	0.09u	4.3	90.7	1.0
		Aluminum, Total	268	334	172	-39.	1.0
		Arsenic, Total	158	0.45u	172	91.5	1.0
		Boron, Total	77.5	0.45u	86.2	89.9	1.0
		Barium, Total	162	4.5	172	91.6	1.0
		Beryllium, Total	4.0	0.05u	4.3	93.0	1.0
		Bismuth, Total	399	0.54u	431	92.5	1.0
		Calcium, Total	2220	440	2160	82.4	1.0
		Cadmium, Total	4.0	0.05u	4.3	93.0	1.0
		Cobalt, Total	40.3	0.47	43.1	92.4	1.0
		Chromium, Total	16.7	0.82	17.2	92.3	1.0
		Copper, Total	20.4	1.0	21.6	89.8	1.0
		Iron, Total	455	1190	86.2	-860. *	1.0
		Mercury, Total	1.5	0.04u	1.5	99.3	5.0
		Potassium, Total	1900	58.0	2160	85.3	1.0
		Lithium, Total	85.6	0.48	86.2	98.7	1.0
		Magnesium, Total	2060	240	2160	84.5	1.0
		Manganese, Total	46.6	18.3	43.1	65.7	1.0
		Molybdenum, Total	79.7	0.27u	86.2	92.5	1.0
		Sodium, Total	1980	31.4	2160	90.6	1.0
		Nickel, Total	41.6	6.4	43.1	81.7	1.0
		Phosphorus, Total	398	50.5	431	80.6	1.0
		Lead, Total	40.7	0.39	43.1	93.5	1.0
		Antimony, Total	38.6	0.27u	43.1	89.6	1.0
		Selenium, Total	154	0.54u	172	89.3	1.0
		Silicon, Total	192	147	86.2	52.2	1.0
		Tin, Total	79.9	0.60	86.2	92.0	1.0
		Strontium, Total	82.5	3.2	86.2	92.0	1.0
		Titanium, Total	115	99.8	86.2	17.3	1.0
		Thallium, Total	158	0.54u	172	91.8	1.0
		Uranium, Total	405	1.8 u	431	94.1	1.0
		Vanadium, Total	41.8	3.2	43.1	89.6	1.0
		Zinc, Total	41.1	3.2	43.1	87.9	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 10/09/08

CLIENT: WC-HANFORD RC-120 K1346 LVL LOT #: 0809L188

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-002	J17J81	Silver, TCLP Leachate	4780	9.0 u	5000	95.6	1.0
		Arsenic, TCLP Leachate	4970	63.4 u	5000	99.3	1.0
		Barium, TCLP Leachate	97200	70.3	100000	97.2	1.0
		Cadmium, TCLP Leachate	960	11.2 u	1000	96.0	1.0
		Chromium, TCLP Leachat	4850	9.2 u	5000	97.0	1.0
		Mercury, TCLP Leachate	187	0.06u	200	93.4	50.0
		Lead, TCLP Leachate	5090	39.9	5000	100.9	1.0
		Selenium, TCLP Leachat	993	16.4	1000	97.7	1.0

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 10/09/08

CLIENT: WC-HANFORD RC-120 K1346 LVL LOT #: 0809L188

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-001REP	J17J81	Silver, Total	0.09u	0.08u	NC	1.0
		Aluminum, Total	334	91.2	114.3	1.0
		Arsenic, Total	0.45u	0.41u	NC	1.0
		Boron, Total	0.45u	0.41u	NC	1.0
		Barium, Total	4.5	1.6	95.1	1.0
		Beryllium, Total	0.05u	0.04u	NC	1.0
		Bismuth, Total	0.54u	0.49u	NC	1.0
		Calcium, Total	440	161	92.6	1.0
		Cadmium, Total	0.05u	0.04u	NC	1.0
		Cobalt, Total	0.47	0.16u	* ~~NC~~ 200	1.0
		Chromium, Total	0.82	0.35	80.0	1.0
		Copper, Total	1.0	0.25	119.5	1.0
		Iron, Total	1190	303	119.0	1.0
		Mercury, Total	0.04u	0.05u	NC	5.0
		Potassium, Total	58.0	54.0	7.1	1.0
		Lithium, Total	0.48	0.17	97.1	1.0
		Magnesium, Total	240	74.7	105.1	1.0
		Manganese, Total	18.3	5.3	110.2	1.0
		Molybdenum, Total	0.27u	0.24u	NC	1.0
		Sodium, Total	31.4	14.0	76.7	1.0
		Nickel, Total	6.4	11.4	56.2	1.0
		Phosphorus, Total	50.5	14.0	113.2	1.0
		Lead, Total	0.39	0.24u	* ~~NC~~ 200	1.0
		Antimony, Total	0.27u	0.24u	NC	1.0
		Selenium, Total	0.54u	0.49u	NC	1.0
		Silicon, Total	147	61.1	82.4	1.0
		Tin, Total	0.60	0.49u	* ~~NC~~ 200	1.0
		Strontium, Total	3.2	1.4	78.3	1.0
		Titanium, Total	99.8	25.7	118.1	1.0
		Thallium, Total	0.54u	0.49u	NC	1.0
		Uranium, Total	1.8 u	1.9	* ~~NC~~ 200	1.0
		Vanadium, Total	3.2	0.88	113.9	1.0
		Zinc, Total	3.2	1.1	97.7	1.0

* corrected values
MW 10/10/08

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 10/09/08

CLIENT: WC-HANFORD RC-120 K1346 LVL LOT #: 0809L188

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-002REP	J17J81	Silver, TCLP Leachate	9.0 u	9.0 u	NC	1.0
		Arsenic, TCLP Leachate	63.4 u	63.4 u	NC	1.0
		Barium, TCLP Leachate	70.3	65.6	6.9	1.0
		Cadmium, TCLP Leachate	11.2 u	11.2 u	NC	1.0
		Chromium, TCLP Leachate	9.2 u	9.2 u	NC	1.0
		Mercury, TCLP Leachate	0.06u	0.06u	NC	1.0
		Lead, TCLP Leachate	39.9	33.8	16.6	1.0
		Selenium, TCLP Leachate	16.4	10.0 u	~~NC~~ 200	1.0

corrected value
PN 10/10/08

Lionville Laboratory, Inc.

INORGANICS LABORATORY CONTROL STANDARDS REPORT 10/09/08

CLIENT: WC-HANFORD RC-120 K1346 LVL LOT #: 0809L188

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
LCS1	08L0358-LC1	Silver, LCS	47.5	50.0	MG/KG	95.0
		Aluminum, LCS	463	500	MG/KG	92.6
		Arsenic, LCS	978	1000	MG/KG	97.8
		Boron, LCS	474	500	MG/KG	94.8
		Barium, LCS	487	500	MG/KG	97.4
		Beryllium, LCS	25.3	25.0	MG/KG	101.2
		Bismuth, LCS	479	500	MG/KG	95.7
		Calcium, LCS	2580	2500	MG/KG	103.4
		Cadmium, LCS	25.0	25.0	MG/KG	100
		Cobalt, LCS	247	250	MG/KG	98.8
		Chromium, LCS	50.8	50.0	MG/KG	101.6
		Copper, LCS	122	125	MG/KG	97.8
		Iron, LCS	486	500	MG/KG	97.3
		Potassium, LCS	2250	2500	MG/KG	90.1
		Lithium, LCS	511	500	MG/KG	102.2
		Magnesium, LCS	2510	2500	MG/KG	100.2
		Manganese, LCS	76.9	75.0	MG/KG	102.5
		Molybdenum, LCS	482	500	MG/KG	96.4
		Sodium, LCS	2280	2500	MG/KG	91.2
		Nickel, LCS	202	200	MG/KG	101.2
		Phosphorus, LCS	454	500	MG/KG	90.9
		Lead, LCS	252	250	MG/KG	100.8
		Antimony, LCS	288	300	MG/KG	95.9
		Selenium, LCS	953	1000	MG/KG	95.3
		Silicon, LCS	273	500	MG/KG	54.7
		Tin, LCS	484	500	MG/KG	96.9
		Strontium, LCS	489	500	MG/KG	97.8
		Titanium, LCS	498	500	MG/KG	99.5
		Thallium, LCS	963	1000	MG/KG	96.3
		Uranium, LCS	495	500	MG/KG	99.0
		Vanadium, LCS	247	250	MG/KG	98.7
		Zinc, LCS	99.4	100	MG/KG	99.4
LCS1	08C0174-LC1	Mercury, LCS	5.0	4.7	MG/KG	107.2
LCS1	08L0357-LC1	Silver, LCS	489	500	UG/L	97.9
		Arsenic, LCS	9850	10000	UG/L	98.5
		Barium, LCS	4910	5000	UG/L	98.3
		Cadmium, LCS	233	250	UG/L	93.3
		Chromium, LCS	490	500	UG/L	98.0

Lionville Laboratory, Inc.

INORGANICS LABORATORY CONTROL STANDARDS REPORT 10/09/08

CLIENT: WC-HANFORD RC-120 K1346

LVL LOT #: 0809L188

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
LCS1	08L0357-LC1	Lead, LCS	2480	2500	UG/L	99.3
		Selenium, LCS	9690	10000	UG/L	96.9
LCS1	08C0175-LC1	Mercury, LCS	5.0	5.0	UG/L	100.4

Lionville Laboratory Incorporated

MERCURY PREPARATION

Logbook # 498

Analyst: TEB
Date: 9/30/08
Start Time/Temp: 1615 | 91°
End Time/Temp: 1645 | 95°

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

Prep Batch: 08C0174
Worksheet: HG000101
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	JC			10mL	50mL	
0.2 µg/L	C7	0.100				
1.0	C48	0.500				
2.0	DR	1.000				
5.0	3P	2.500				
10.0	HS	5.000				
ICV	W0	0.125	2.5			
CCV	514	0.250	5.0			
ICB/CCB	183					9.50L
MB1	290			0.30		PBS174 100.0
LC1	PF	*	*	0.30		LCSS174 ⊥
0809L173-001	3X			0.34		100.0
W1R	DX			0.33		⊥
W1S	L15	0.500	1.0	0.34		⊥
0809L139-001	537			0.30		99.98
W2	U7			0.33		99.67
W2R	SE			0.36		⊥
W2S	CB2	0.500	1.0	0.33		⊥
003	303			0.30		99.69
004	B6			0.36		99.47
005	BB			0.31		99.97
006	OLN			0.38		98.50
007	B			0.35		99.39
008	GR			0.35		99.53
009	31			0.30		99.85
010	JB			0.34		99.82
011	3C			0.36		99.67

Standard:	ID	Prep Date/Time
CAL/MS	R16077-78-14B	9/30/08 1230 0800
CV/CCV/LCS	US 16077-78-15A	⊥ TEB 9/30/08

Reviewed By/Date: [signature] 10/6/08

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

Conville Laboratory
Incorporated

MERCURY PREPARATION

Logbook # 498

Analyst: TEB
Date: 9/30/08
Start Time/Temp: _____
End Time/Temp: see page 045

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

Prep Batch: 08C0174
Worksheet: HG100101
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.
0809L139-012	S			0.35	50mL	99.45
013	ST			0.35	↓	99.56
0809L187-001	PA			0.33	↓	R 94.09
001R	ET			0.30	↓	↓
001S	AH	0.500	1.0	0.30	↓	↓
002	JI			0.32	↓	98.87
003	SD8			0.36	↓	97.57
004	205			0.30	↓	98.40
005	HH			0.31	↓	97.86
0809L188-001	NLO			0.34	↓	100.00
001R	PD			0.32	↓	↓
001S	76	0.050	10.0	0.34	↓	↓

TEB 9/30/08

Standard:	ID	Prep Date/Time
DUMS		
CV/CCV/LCS	see page	045

Reviewed By/Date: [signature] 10/6/08

see book # 9268 for std traceability information

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

onville Laboratory
ncorporated

MERCURY PREPARATION

Logbook # 498

Analyst: EB
Date: 10/1/08
Start Time/Temp: 1600 | 98°
End Time/Temp: 1800 | 98°

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

Prep Batch: 08C0175
Worksheet: HG100201
SOP No. ME-HgCVAA, Rev. 02

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

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

LvLI Batch #	Container Number	Spike Volume (mL)	Spike Conc. (µg/L)	Initial Wt. or Volume (g or mL)	Final Sample Volume (mL)	Comments, % Solids, etc.
Blank	2B			33mL	33mL	
0.2 µg/L	M7	0.0667				
1.0	700	0.334				
2.0	H	0.667				
5.0	H3	1.667				
10.0	8T	3.334				
ICV	3VG	0.0834	2.5			
CCV	R2	0.167	5.0			
ICB/CCB	1721					TE 10/1/08
MB1	F8					PBSW175
LCI	L16	0.167	5.0			LCSW175
0809L142-028	752					
030	198					
032	N30					
033	465					
034	25					
037	3P0					
044	L50					
0809L188-002	5094					
002R	216					
002S	569	0.667	200			
0809L149-002	019					
002S	48	0.667	200			
TE 10/1/08 002T	313	0.667	200			
0809L150-011	695					
011S	F2	0.667	200			
011T	C7	0.667	200			

Standard:	ID	Prep Date/Time
PBLMS	RI 6072-78-14B	10/1/08 1040
ICV/CCV/LCS	US 6072-78-15A	↓

Reviewed By/Date: [signature] 10/7/08

see book # 9368 for std traceability information

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

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

HgCVAA-Prep1007

Page #:

000000023

Jonville Laboratory
Incorporated

MERCURY PREPARATION

Logbook # 498

Analyst: TEO
Date: 10/1/08
Start Time/Temp: Sempage
End Time/Temp: 047

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

Prep Batch: 08C0175
Worksheet: HG100231
SOP No. ME-HgCVAA, Rev. 02

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

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

LvLI Batch #	Container Number	Spike Volume (mL)	Spike Conc. (µg/L)	Initial Wt. or Volume (g or mL)	Final Sample Volume (mL)	Comments, % Solids, etc.
08094450-012	191			33mL	33mL	
013	312					
014	58					
08094172-007	KN					
007S	L5	0.667	200			
007T	89	0.667	200			
008	216					
08LT097-LB1	2X					
08LT098-LB1	NB					

TEO 10/1/08

Standard:	ID	Prep Date/Time
ALMS		
CCV/CCV/LCS	Sempage	047

Reviewed By/Date: 10/2/08

see book # 9368 for std traceability information

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

HgCVAA-Prep1007

Page #:

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Lionville Laboratory Incorporated

Logbook #: 752

SAMPLE DIGESTION RECORD

SOP: L-SPI-3020 Rev. 00

Digestion Batch #: 08L0357
Date/Time Initiated: 10/1/08 0945
Date/Time Completed: 10/1/08 1530
Analyst(s): MW
Matrix: Soil Water Other: TCLP
Instr. Type: AA ICP
Parameters: RCRA+Sb/RCRA

Digested / Undigested (circle one)
Balance #: N/A
Balance Cal Verif: Y NA
Hot Plate Temp: 90°

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

BJC/TMW

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
0809L142-028		100ml	100ml	<2	TC	N/A	clear/colorless	N/A	
029									
029R									
029S	1.0ml *								
030									
031									
032									
033									
034									
035									
036									
037									
038									
039									
040									
041									
042									
044									
0809L188-002		50ml							
002R									
002S	0.5ml								
08LT0095-LB1		100ml							
08L0357-MB1									
LC1	1.0ml								

— end of batch MW 10/1/08 —

Spiking IDs:
MS #: 6072-078-05 (TCLP-1)
6072-080-09 (Ba)

LCS #: 6072-78-08
09
10
11

Reagent IDs:
HNO_3 G11022
HCL
H_2O_2
1:1 HNO_3
1:1 HCL 9789-069-03

File ID#: IC035701
IC035702

LIMS Transfer: Y N

Data Review By/Date: 10/7/08

* also 1.0ml UTS spike

Lionville Laboratory Incorporated

Logbook #: 4D

SAMPLE DIGESTION RECORD

SOP: L-SPI-3020 Rev. 00

Digestion Batch #: 08L0358
Date/Time Initiated: 10/1/08 1030
Date/Time Completed: 10/1/08 2030
Analyst(s): MW
Matrix: (Soil) Water Other: _____
Instr. Type: AA (ICP)
Parameters: HSL + B-, Bi, Mo, P-, Si, Sn, Sr, Ti, U-

(Digested) / Undigested (circle one)
Balance #: B20
Balance Cal Verif: (Y) NA
Hot Plate Temp: 90

Method: SW (circle)

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

TM

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
0809L187-001		1.34gm	100ml	<2	TO	fine	brown soil	ROCKS	RAD
001R		1.33gm							
001S	1.0ml*	1.39gm							
002		1.35gm							
003		1.23gm							
004		1.32gm							
005		1.34gm							
0809L188-001		1.11gm				coarse	black tar	N/A	RAD
001R		1.23gm							
001S	1.0ml*	1.16gm							
08L0358-MB1		1.0gm					boiling chips		
LC1	1.0ml*	1.0gm							

MW 10/1/08

Spiking IDs:
MS #: 8100-04-04
05
06
6072-78-07
LCS #: 08
09
10
11

Reagent IDs:
HNO_3 G11022
HCL G26054
H_2O_2 G15A18
1:1 HNO_3 9789-083-08
1:1 HCL

File ID#: IC035801 updated

LIMS Transfer: (Y) N

Data Review By/Date: 10/7/08

* also 0.5 ml 6072-079-14 (P-)
0.5 ml 6072-078-01 (U-)
0.5 ml 6072-080-10 (Bi)

onville Laboratory Use Only

08091189

Custody Transfer Record/Lab Work Request

Page 1 of 1

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

VLI

000000027

ant Washington Closure Hanford SAF# RC120

. Final Proj. Sampling Date

ject# 60049-001-001-0001-00

ject Contact/Phone#

nville Laboratory Project Manager Orlette Johnson

Del TAT 7 Days

te Rec'd 9-26-08 Date Due 10-3-08

Refrigerator #		A 3																
#/Type Container	Liquid																	
	Solid	1gl											L					
Volume																		
	Solid	250											L					
Preservatives																		
ANALYSES REQUESTED →		ORGANIC							INORG									
		VOA	BNA	Pest/PCB	Herb				(2) Metal	CN	TOC	ICP Metals	RCRA Chlorine					
		Lionville Laboratory Use Only																
		0624H	0625H	UPCB					Met ①		DOCT	TCLP	Met ②					

MATRIX CODES:	Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	0624H	0625H	UPCB					Met ①		DOCT	TCLP	Met ②				
Soil, Sediment, Solid, Sludge, Water, Oil, Air, Drum Solids, Drum Liquids, EP/TCLP Leachate, Wipe, Other, Fish	001	J17J81	✓	✓	SO	9-23-08	0825	X	X	X					X		X	X	X				
	002	+ TCLP of 001			L	**													X				

Special Instructions:

Met ① = HSL + B, Bi, Li, Mo, P, Si, Sr, Sn, Ti, U

Met ② = RCRA Tcw

* See Lab chron

Special Instructions:

* → 1. Matrix = Tar.

2.

3.

4.

5.

6.

Relinquished by	Received by	Date	Time
FedEx	[signature]	9-26-08	0920

Relinquished by	Received by	Date	Time

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

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-120-006	Page 1 of 1

Collector P. Pearson, T. Stephens	Company Contact Joan Kessner	Telephone No. 509-375-4688	Project Coordinator WEISS, RL
Project Designation 618-1 Other Solid	Sampling Location 618-1 Burial Ground - Anomalous Material Black "Tar"		SAF No. RC-120
Ice Chest No.	Field Logbook No. EL-1395-13	COA RG61812600	Method of Shipment Fed Ex
Shipped To EBERLINE SERVICES LIONVILLE	Offsite Property No. NA		Bill of Lading/Air Bill No. NA

Price Code 9L 8F — Data Turnaround 21 Days 7

JRD 9/23/08

POSSIBLE SAMPLE HAZARDS/REMARKS

Potential radiological contamination.

Special Handling and/or Storage

None

Preservation		None	None	Cool 4C	None	Cool 4C	Cool 4C	Cool 4C	None	
Type of Container	P	P	P	aG	aG	aG	aG	aG	N/A	
No. of Container(s)	0	1	0	1	0	0	0	0	0	
Volume	500mL	500mL	500mL	250mL	250mL	250mL	250mL	250mL	N/A	
SAMPLE ANALYSIS	Gross Alpha & Gross Beta	See item (1) in Special Instructions.	Isotopic Uranium	See item (2) in Special Instructions.	TOC - 9060	VOA - 8260A (TCL)	Semi-VOA - 8270A (TCL)	PCBs - 8082	Metals by ICP(TCLP) 1311/6010	

Sample No.	Matrix *	Sample Date	Sample Time										
J17J81	OTHER SOLID	9/23/08	0825				X	X	X	X	X	X	

JRD 9/23/08

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Paul Pearson	9-23-08 1025	JRDeBruijne	1025 9/23/08
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
JRDeBruijne	1145 9/23/08	1060 IB	1145 9/23/08
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
1060 IB / J.E. Bemlad	0900 9-25-08	J.E. Bemlad	0900 9-25-08
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
J.E. Bemlad	0915 9-25-08	FED EX	
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Fed Ex	9-26-08/0920		9-26-08/0920
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

(1) Gamma Spec - (Full List) {Americium-241, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155, Potassium-40, Radium-226, Radium-228, Thorium-234, Uranium-235, Uranium-238}
(2) ICP Metals - 6010TR (Client List) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Selenium, Silicon, Silver, Sodium, Strontium, Thallium, Tin, Titanium, Uranium, Vanadium, Zinc}

*Note: Please contact Joan Kessner if you need more material.

JRD 9/23/08

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

WCH-EE-011

00000028

Lionville Laboratory Incorporated

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: W.C. Hanford **Date:** 9.26.08

Project/SAF/SDW/Release #: RC-120

LvLI Batch #: 0809L188 **Sample Custodian:** D. Yonig

NOTE: EXPLAIN ALL DISCREPANCIES

1. Samples Hand Delivered or Shipped?	Carrier FedEx		Airbill # 7993 8118 353
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 2.3 °C		Cooler # AFS-04-054
How was the temperature taken?	☑ IR	☐ Temp. Blank	☐ Other (Specify):
Is the Temp. Criteria met for these samples? (Hg in soils @ 4°C)	☑ Yes	☐ No	
6. Custody seals on sample containers intact, signed and dated?	☑ Yes	☐ No	☐ No Seals
7. COC (Client & LvLI) signed & dated?	☑ Yes	☐ No	
8. Sample containers are intact?	☑ Yes	☐ No	
9. All samples on COC received?	☑ Yes	☐ No	
All samples received on COC?	☑ Yes	☐ No	
10. All sample label information matches COC?	☑ Yes	☐ No	
11. Samples properly preserved? (If #5 is no, then this is no.)	☑ Yes	☐ No	
12. Samples received within hold times?	☑ Yes	☐ No	
Short holds taken to wet lab?	☐ Yes	☐ No	☑ N/A
13. VOA, TOC, TOX free of headspace?	☐ Yes	☐ No	☑ N/A
14. QC stickers placed on bottles designated by client?	☑ Yes	☐ No	☐ N/A
15. Shipment meets LvLI Sample Acceptance Policy? (Identify all bottles that do not meet the policy, which is on the reverse of this page.)	☑ Yes	☐ No	
16. Project Manager contacted concerning any discrepancies?	☐ Yes	☐ No	☑ N/A

Person Contacted _____ Date _____

LVLI LIONVILLE LABORATORY INC.

RECEIVED
OCT 2008

Lionville Laboratory, Inc.
PCB ANALYTICAL DATA PACKAGE FOR
WC-HANFORD RC-120 K1346

DATE RECEIVED: 09/26/08 LVL LOT # :0809L188

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J17J81	001	SO	08LE0474	09/23/08	09/29/08	10/02/08
J17J81	001 MS	SO	08LE0474	09/23/08	09/29/08	10/02/08
J17J81	001 MSD	SO	08LE0474	09/23/08	09/29/08	10/02/08
LAB QC:						
PBLKVM	MB1	S	08LE0474	N/A	09/29/08	10/02/08
PBLKVM	MB1 BS	S	08LE0474	N/A	09/29/08	10/02/08

LIONVILLE LABORATORY INC.

Case Narrative

Client: WC-HANFORD RC-030
LVL #: 0809L188
SDG/SAF # K1346/RC-030

W.O. #: 60049-001-001-0001-00
Date Received: 09-26-2008

PCB

One (1) solid sample (tar) was collected on 09-23-2008.

The sample and associated QC samples were extracted on 09-29-2008 and analyzed according to Lionville Laboratory SOPs based on SW846, 3rd Edition procedure on 10-02-2008. The extraction procedure was based on method 3540C and the extracts were analyzed based on method 8082.

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

1. Samples were extracted and analyzed within required holding time.

2. The sample and associated QC samples received Silica Gel, Copper-Sulfur and Sulfuric Acid cleanups according to Lionville Laboratory SOPs based on SW846 methods 3630C, 3660A and 3665A, respectively.

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

4. Five (5) of ten (10) surrogate recoveries were outside acceptance criteria. A copy of the Sample Discrepancy Report (SDR) #08GC127 is enclosed.

5. All blank spike recoveries were within acceptance criteria.

6. Three (3) of four (4) matrix spike recoveries were outside acceptance criteria. A copy of SDR# 08GC127 is 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-pcb\wc-hanford\0809-188jsol1.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.

9. LvL 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

10/6/08
Date

LvLI
LIONVILLE LABORATORY INC.

Lionville Laboratory Sample Discrepancy Report (SDR)

SDR #: 08GC127

Initiator: Svetlana Zok Batch: 08091188 Parameter: PCB
Date: 10/02/08 Samples: BG, 001, MS/MSD Matrix: SOLID
Client: WC Hanford Method: SW846/MCAWW/CLP/ Prep Batch: 08LE474

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)

BS Not Spiked w/Surrogate
Sample, MS/MSD - Low Spike Recovery

2. Known or Probable Causes(s)

Clean up, (matrix = tar) Very bad matrix.

3. Discussion and Proposed Action Other Description:

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

Sample, MS/MSD - low recoveries due to probable matrix effect, report + narrate
BS - report + narrate, spike in blank okay

4. Project Manager Instructions...signature/date: [signature] 10/4/08

✓ 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: _____ 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

GLOSSARY OF DATA

DATA QUALIFIERS

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

ABBREVIATIONS

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

Lionville Laboratory, Inc.

PCBs by GC

Report Date: 10/02/08 13:57

RFW Batch Number: **0809L188** Client: **WC-HANFORD RC-120** Work Order: 60049001001 Page: 1

	Cust ID:	J17J81	J17J81	J17J81	PBLKVM	PBLKVM BS
Sample Information	RFW#:	001	001 MS	001 MSD	08LE0474-MB1	08LE0474-MB1
	Matrix:	SOLID	SOLID	SOLID	SOIL	SOIL
	D.F.:	1.00	1.00	1.00	1.00	1.00
	Units:	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
Surrogate:	Tetrachloro-m-xylene	77 %	75 %	67 %	90 %	0 * %
	Decachlorobiphenyl	38 * %	34 * %	26 * %	91 %	0 * %
Aroclor-1016		800 U	52 %	46 * %	13 U	88 %
Aroclor-1221		800 U	800 U	800 U	13 U	13 U
Aroclor-1232		800 U	800 U	800 U	13 U	13 U
Aroclor-1242		800 U	800 U	800 U	13 U	13 U
Aroclor-1248		800 U	800 U	800 U	13 U	13 U
Aroclor-1254		800 U	800 U	800 U	13 U	13 U
Aroclor-1260		800 U	46 * %	39 * %	13 U	98 %

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

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SAMPLE EXTRACTION RECORD

Sheet no.: 1

Extract. Date: 09/29/08 Extraction Batch No: 08LE0474 Analyst: MF Method: ****

Test: OPCB Cleanup Date: 10/01/08 Analyst: MF Client: WC-HANFORD RC-120

LIMS Report Date: 10/01/08 Solvent: DCM,HEXANE Adsorbent: SL/ACD

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
0809L188-	WC-HANFORD RC-120										
001	J17J81		0.5	1.0		10		1.0	N	0.0	20000
001 -S	J17J81		0.5	1.0	1.0	10		1.0	N	0.0	20000
001 -T	J17J81		0.5	1.0	1.0	10		1.0	N	0.0	20000
08LE0474-MB1	PBLKVM		30.0	1.0		10		1.0	N	100.00	333.3
08LE0474-MB1 -S	PBLKVM		30.0	1.0	1.0	10		1.0	N	100.00	333.3

Comments: TAR SAMPLE 2X SIL,2 ACID CLNS
Surrogate: 250 UL OLM PSURR 89916408
Spike: 250 UL AR1660 89916603

Extracts Transferred	Relinquished By	Date Time	Received By	Date Time	Reason for Transfer
[illegible]	[illegible]	10/01/08 1400	SZ	10/01/08 14:00	GC

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onville Laboratory Use Only
0809L188

Custody Transfer Record/Lab Work Request

Page 1 of 1

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

A

ent Washington Closure Hanford SAF# RC.120
. Final Proj. Sampling Date
ject# 60049-601-001-0001-00
ject Contact/Phone#
nville Laboratory Project Manager Orlotte Johnson
Del TAT 7 Days
te Rec'd 9.26.08 Date Due 10-3-08

Refrigerator #		3														
#/Type Container	Liquid															
	Solid	1gl														
Volume																
	Solid	250														
Preservatives		—														
ANALYSES REQUESTED →		ORGANIC							INORG							
		VOA	BNA	Pest/PCB	Herb				(2) Metal	CN	TOC	ICP Metals	LEACHATE			
		Lionville Laboratory Use Only														
		0624H	0625H	OPCB					Met(1)		DOCT	TCLP	Met(2)			

TRIX DES:	Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	0624H	0625H	OPCB					Met(1)		DOCT	TCLP	Met(2)		
Soil	001	J17J81	✓	✓	SO	9.23.08	0825	X	X	X					X		X	X	X*		
Sediment	002	+ TCLP of 001			L	**													X	9/26/08	
Solid																					
Sludge																					
Water																					
Oil																					
Air																					
Drum Solids																					
Drum Liquids																					
EP/TCLP Leachate																					
Wipe																					
Other																					
Fish																					

pecial Instructions:

Met(1) = HSL + B, Bi, Li, Mo, P, Si, Sr, Sn, Ti, U
Met(2) = RCRA TCW
* See Lab chron

Special Instructions:

* → 1. Matrix = Tar.
2.
3.
4.
5.
6.

Relinquished by	Received by	Date	Time
FedEx	[signature]	9.26.08	0920

Relinquished by	Received by	Date	Time

Relinquished by	Received by	Date	Time
ORIGINAL REWRITTEN		COMPOSITE WASTE"	

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Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-120-006	Page 1 of 1

Collector P. Pearson, T. Stephens	Company Contact Joan Kessner Telephone No. 509-375-4688	Project Coordinator WEISS, RL	Price Code 9L Data Turnaround 21 Days
Project Designation 618-1 Other Solid	Sampling Location 618-1 Burial Ground - Anomalous Material Black "Tar"	SAF No. RC-120	8F 7
Ice Chest No.	Field Logbook No. EL-1395-13 COA RG61812600	Method of Shipment Fed Ex	JRD 9/23/08
Shipped To EBERLINE SERVICES LIONVILLE	Offsite Property No. NA	Bill of Lading/Air Bill No. NA	

POSSIBLE SAMPLE HAZARDS/REMARKS

Potential radiological contamination.

Special Handling and/or Storage

None

Preservation		None	None	Cool 4C	None	Cool 4C	Cool 4C	Cool 4C	None		
Type of Container	P	P	P	aG	aG	aG	aG	aG	N/A		
No. of Container(s)	0	1	0	1	0	0	0	0	0		
Volume	500mL	500mL	500mL	250mL	250mL	250mL	250mL	250mL	N/A		
SAMPLE ANALYSIS	Gross Alpha & Gross Beta	See item (1) in Special Instructions.	Isotopic Uranium	See item (2) in Special Instructions.	TOC - 9060	VOA - 8260A (TCL)	Semi-VOA - 8270A (TCL)	PCBs - 8082	Metals by ICP(TCLP) 1311/6010		
Sample No.	Matrix *	Sample Date	Sample Time								
J17J81	OTHER SOLID	9/23/08	0825			x	x	x	x	x	x

JRD 9/23/08

CHAIN OF POSSESSION	Date/Time	Sign/Print Names: Received By/Stored In	Date/Time
Relinquished By/Removed From: Paul Pearson	9-23-08 1025	Received By/Stored In: JRDeBruigne	1025 9/23/08
Relinquished By/Removed From: JRDeBruigne	1145 9/23/08	Received By/Stored In: 1060 IB	1145 9/23/08
Relinquished By/Removed From: 1060 IB / J.E. Bernard	0900 9-25-08	Received By/Stored In: J.E. Bernard	0900 9-25-08
Relinquished By/Removed From: J.E. Bernard	09/5 9-25-08	Received By/Stored In: FED EX	
Relinquished By/Removed From: Fed Ex	9-26-08/0920	Received By/Stored In:	9-26-08/0920
Relinquished By/Removed From		Received By/Stored In	

SPECIAL INSTRUCTIONS

(1) Gamma Spec - (Full List) {Americium-241, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155, Potassium-40, Radium-226, Radium-228, Thorium-234, Uranium-235, Uranium-238}
(2) ICP Metals - 6010TR (Client List) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Selenium, Silicon, Silver, Sodium, Strontium, Thallium, Tin, Titanium, Uranium, Vanadium, Zinc}

* Note: Please contact Joan Kessner if you need more material.

JRD 9/23/08

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

Lionville Laboratory Incorporated

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: W.C. Hanford **Date:** 9.26.08

Project/SAF/SDW/Release #: RC-120

LvLI Batch #: 0809L188 **Sample Custodian:** D. Yonig

NOTE: EXPLAIN ALL DISCREPANCIES

1. Samples Hand Delivered or Shipped?	Carrier FedEx		Airbill # 7993 8118 353
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 2.3 °C		Cooler # AFS-04-054
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.