0079277

SAF-RC-074
100-D/DR Burial Grounds & Remaining Sites – Soil Quick Turn
FINAL DATA PACKAGE

COMPLETE COPY OF DATA PACKAGE TO:

Kathy Wendt H4-21 KW 11/10/08
INITIAL/DATE

COMMENTS:

SDG K1391 SAF RC-074

Rad only Chem only X Rad & Chem

X Complete Partial

RECEIVED
NOV 13 2008
EDMC

Waste Sites: 118-D-3 in-process sampling, west pile/east pile

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 21, 2008

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

RECEIVED
OCT 2008

Reference: **P.O. #S00W235A00**
Eberline Services R8-10-112-7723, SDG K1391

Dear Ms. Kessner:

Enclosed is the data report for two solid (soil) samples designated under SAF No. RC-074 received at Eberline Services on October 15, 2008. The samples were analyzed according to the accompanying chain-of-custody documents.

Please call if you have any questions concerning this report.

Sincerely,

Melissa Mannion

Melissa C. Mannion
Senior Program Manager

MCM/njv

Enclosure: Data Package

1.0 GENERAL

Washington Closure Hanford (WCH) Sample Delivery Group K1391 was composed of two solid (soil) samples designated under SAF No. RC-074 with a Project Designation of: 100-D/DR Burial Grounds & Remaining Sites-Soil Quick Turn.

The samples were received as stated on the Chain-of-Custody documents. Any discrepancies are noted on the Eberline Services Sample Receipt Checklist. The results were transmitted to WCH via e-mail on October 21, 2008.

2.0 ANALYSIS NOTES

2.1 Gross Alpha/Gross Beta Analysis

No problems were encountered during the course of the analyses.

2.2 Gamma Spectroscopy

No problems were encountered during the course of the analyses.

3.0 Case Narrative Certification Statement

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

Melissa Mannion

Melissa C. Mannion
Senior Program Manager

10/21/08

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 K1391

SDG	7723
Contact	Melissa C. Mannion

Client	Hanford
Contract	No. S00W235A00
Case no	SDG_K1391

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

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

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Prepared by

Melissa Mannion
Reviewed by

Lab id	EBRLNE
Protocol	Hanford1
Version	Ver 1.0
Form	DVD-TOC
Version	3.06
Report date	10/21/08

SDG 7723
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG_K1391

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 10/21/08

ABOUT THE DATA SUMMARY SECTION

DUPLICATES

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

MATRIX SPIKES

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

DATA SHEETS

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

METHOD SUMMARIES

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

REPORT GUIDES

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

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1391

LAB SAMPLE SUMMARY

SDG 7723
Contact Melissa C. Mannion

Client Hanford
Contract No. S00W235A00
Case no SDG K1391

LAB SAMPLE ID	CLIENT SAMPLE ID	LOCATION	MATRIX	LEVEL	SAF NO	CHAIN OF CUSTODY	COLLECTED
R810112-01	J17K83	118D3 In-pro samp E.pile	SOLID		RC-074	RC-074-094	10/09/08 12:35
R810112-02	J17K84	118D3 In-pro samp W.pile	SOLID		RC-074	RC-074-095	10/09/08 12:26
R810112-03	Lab Control Sample		SOLID		RC-074		
R810112-04	Method Blank		SOLID		RC-074		
R810112-05	Duplicate (R810112-02)	118D3 In-pro samp W.pile	SOLID		RC-074		10/09/08 12:26

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-LS
Version 3.06
Report date 10/21/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1391

QC SUMMARY

SDG 7723
Contact Melissa C. Mannion

Client Hanford
Contract No. S00W235A00
Case no SDG K1391

QC BATCH	CHAIN OF CUSTODY	CLIENT SAMPLE ID	MATRIX	% SOLIDS	SAMPLE AMOUNT	BASIS AMOUNT	DAYS SINCE RECEIVED	DAYS SINCE COLL	LAB SAMPLE ID	DEPARTMENT SAMPLE ID
7723	RC-074-094	J17K83	SOLID	95.4	805 g		10/15/08	6	R810112-01	7723-001
	RC-074-095	J17K84	SOLID	95.0	773 g		10/15/08	6	R810112-02	7723-002
		Method Blank	SOLID						R810112-04	7723-004
		Lab Control Sample	SOLID						R810112-03	7723-003
		Duplicate (R810112-02)	SOLID	95.0	773 g		10/15/08	6	R810112-05	7723-005

Lab id EBERLNE
Protocol Hanford
Version Ver 1.0
Form DVD-QS
Version 3.06
Report date 10/21/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1391

SDG 7723
Contact Melissa C. Mannion

LAB WORK SUMMARY

Client Hanford
Contract No. S00W235A00
Case no SDG K1391

LAB SAMPLE COLLECTED RECEIVED	CLIENT SAMPLE ID LOCATION CUSTODY	SAF No	MATRIX	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
R810112-01	J17K83			7723-001	93A/93		10/18/08	10/20/08	BW	Gross Alpha in Solids
10/09/08	118D3 In-pro samp E.pile		SOLID	7723-001	93B/93		10/18/08	10/20/08	BW	Gross Beta in Solids
10/15/08	RC-074-094	RC-074		7723-001	GAM		10/17/08	10/20/08	CSS	Gamma Scan
R810112-02	J17K84			7723-002	93A/93		10/18/08	10/20/08	BW	Gross Alpha in Solids
10/09/08	118D3 In-pro samp W.pile		SOLID	7723-002	93B/93		10/18/08	10/20/08	BW	Gross Beta in Solids
10/15/08	RC-074-095	RC-074		7723-002	GAM		10/17/08	10/20/08	CSS	Gamma Scan
R810112-03	Lab Control Sample			7723-003	93A/93		10/18/08	10/20/08	BW	Gross Alpha in Solids
			SOLID	7723-003	93B/93		10/18/08	10/20/08	BW	Gross Beta in Solids
		RC-074		7723-003	GAM		10/17/08	10/20/08	CSS	Gamma Scan
R810112-04	Method Blank			7723-004	93A/93		10/18/08	10/20/08	BW	Gross Alpha in Solids
			SOLID	7723-004	93B/93		10/18/08	10/20/08	BW	Gross Beta in Solids
		RC-074		7723-004	GAM		10/17/08	10/20/08	CSS	Gamma Scan
R810112-05	Duplicate (R810112-02)			7723-005	93A/93		10/18/08	10/20/08	BW	Gross Alpha in Solids
10/09/08	118D3 In-pro samp W.pile		SOLID	7723-005	93B/93		10/18/08	10/20/08	BW	Gross Beta in Solids
10/15/08		RC-074		7723-005	GAM		10/17/08	10/20/08	CSS	Gamma Scan

COUNTS OF TESTS BY SAMPLE TYPE

TEST	SAF No	METHOD	REFERENCE	CLIENT	MORE	RE	BLANK	LCS	DUP SPIKE	TOTAL
93A/93	RC-074	Gross Alpha in Solids	900.0_ALPHABETA_GPC	2			1	1	1	5
93B/93	RC-074	Gross Beta in Solids	900.0_ALPHABETA_GPC	2			1	1	1	5
GAM	RC-074	Gamma Scan	GAMMA_GS	2			1	1	1	5
TOTALS				6			3	3	3	15

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-LWS
Version 3.06
Report date 10/21/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1391

7723-004 Method Blank

METHOD BLANK

SDG	7723	Client/Case no	Hanford SDG K1391
Contact	Melissa C. Mannion	Contract	No. S00W235A00
Lab sample id	R810112-04	Client sample id	Method Blank
Dept sample id	7723-004	Material/Matrix	SOLID
		SAF No	RC-074

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Gross Alpha	12587-46-1	-1.36	4.0	8.62	10.0	U	93A
Gross Beta	12587-47-2	-0.827	3.2	5.59	15.0	U	93B
Potassium 40	13966-00-2	U		1.69		U	GAM
Cobalt 60	10198-40-0	U		0.064	0.050	U	GAM
Cesium 137	10045-97-3	U		0.095	0.100	U	GAM
Radium 226	13982-63-3	U		0.145	0.100	U	GAM
Radium 228	15262-20-1	U		0.277	0.200	U	GAM
Europium 152	14683-23-9	U		0.185	0.100	U	GAM
Europium 154	15585-10-1	U		0.157	0.100	U	GAM
Europium 155	14391-16-3	U		0.164	0.100	U	GAM
Thorium 228	14274-82-9	U		0.095		U	GAM
Thorium 232	TH-232	U		0.277		U	GAM
Uranium 235	15117-96-1	U		0.255		U	GAM
Uranium 238	U-238	U		7.14		U	GAM
Americium 241	14596-10-2	U		0.244		U	GAM

100D/DR BurialGrnds&RemainSites-SQT

QC-BLANK #67693

Lab id	EBRLNE
Protocol	Hanford1
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	10/21/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1391

7723-003

Lab Control Sample

LAB CONTROL SAMPLE

SDG 7723
Contact Melissa C. Mannion

Client/Case no Hanford SDG K1391
Contract No. S00W235A00

Lab sample id R810112-03
Dept sample id 7723-003

Client sample id Lab Control Sample
Material/Matrix SOLID
SAF No RC-074

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	107	17	6.81	10.0		93A	112	4.5	96	62-138	70-130
Gross Beta	106	9.0	9.02	15.0		93B	111	4.4	96	79-121	80-120
Cobalt 60	1.81	0.17	0.106	0.050		GAM	1.92	0.077	94	82-118	80-120
Cesium 137	2.52	0.14	0.099	0.100		GAM	2.23	0.089	113	84-116	80-120

100D/DR BurialGrnds&RemainSites-SQT

QC-LCS #67692

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-LCS
Version 3.06
Report date 10/21/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1391

7723-005 J17K84

DUPLICATE

SDG	7723			Client/Case no	Hanford SDG K1391
Contact	Melissa C. Mannion			Contract	No. S00W235A00
	DUPLICATE		ORIGINAL		
Lab sample id	R810112-05	Lab sample id	R810112-02	Client sample id	J17K84
Dept sample id	7723-005	Dept sample id	7723-002	Location/Matrix	118D3 In-pro samp W.pile SOLID
		Received	10/15/08	Collected/Weight	10/09/08 12:26 773 g
% solids	95.0	% solids	95.0	Custody/SAF No	RC-074-095 RC-074

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	-0.850	15	27.0	10.0	U	93A	1.57	7.5	13.8	U	-		0.3
Gross Beta	18.3	4.8	6.42	15.0		93B	21.1	4.6	6.00		14	56	0.8
Potassium 40	8.63	2.2	0.779			GAM	6.78	2.3	0.976		24	64	1.1
Cobalt 60	0.153	0.071	0.072	0.050		GAM	0.174	0.10	0.099		13	114	0.3
Cesium 137	0.629	0.094	0.094	0.100		GAM	0.591	0.11	0.106		6	39	0.5
Radium 226	0.256	0.15	0.143	0.100		GAM	0.263	0.18	0.176		3	136	0.1
Radium 228	U		0.614	0.200	U	GAM	U		0.577	U	-		0.1
Europium 152	U		0.220	0.100	U	GAM	U		0.253	U	-		0.2
Europium 154	U		0.250	0.100	U	GAM	U		0.282	U	-		0.2
Europium 155	U		0.186	0.100	U	GAM	U		0.198	U	-		0.1
Thorium 228	0.463	0.15	0.153			GAM	0.591	0.19	0.186		24	71	1.0
Thorium 232	U		0.614		U	GAM	U		0.577	U	-		0.1
Uranium 235	U		0.324		U	GAM	U		0.371	U	-		0.2
Uranium 238	U		9.87		U	GAM	U		11.0	U	-		0.2
Americium 241	U		0.079		U	GAM	U		0.088	U	-		0.2

100D/DR BurialGrnds&RemainSites-SQT

QC-DUP#2 67694

Lab id	EBRLNE
Protocol	Hanford1
Version	Ver 1.0
Form	DVD-DUP
Version	3.06
Report date	10/21/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1391

7723-001 J17K83

DATA SHEET

SDG	7723	Client/Case no	Hanford SDG K1391
Contact	Melissa C. Mannion	Contract	No. S00W235A00
Lab sample id	R810112-01	Client sample id	J17K83
Dept sample id	7723-001	Location/Matrix	118D3 In-pro samp E.pile SOLID
Received	10/15/08	Collected/Weight	10/09/08 12:35 805 g
% solids	95.4	Custody/SAF No	RC-074-094 RC-074

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Gross Alpha	12587-46-1	5.51	9.8	16.1	10.0	U	93A
Gross Beta	12587-47-2	29.0	6.4	9.29	15.0		93B
Potassium 40	13966-00-2	8.73	0.89	0.519			GAM
Cobalt 60	10198-40-0	7.31	0.22	0.089	0.050		GAM
Cesium 137	10045-97-3	2.02	0.13	0.116	0.100		GAM
Radium 226	13982-63-3	0.263	0.13	0.168	0.100		GAM
Radium 228	15262-20-1	U		0.761	0.200	U	GAM
Europium 152	14683-23-9	U		0.319	0.100	U	GAM
Europium 154	15585-10-1	U		0.351	0.100	U	GAM
Europium 155	14391-16-3	U		0.209	0.100	U	GAM
Thorium 228	14274-82-9	0.431	0.13	0.162			GAM
Thorium 232	TH-232	U		0.761		U	GAM
Uranium 235	15117-96-1	U		0.326		U	GAM
Uranium 238	U-238	U		13.5		U	GAM
Americium 241	14596-10-2	U		0.201		U	GAM

100D/DR BurialGrnds&RemainSites-SQT

Lab id	EBRLNE
Protocol	Hanford1
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	10/21/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1391

7723-002 J17K84

DATA SHEET

SDG	7723	Client/Case no	Hanford SDG K1391
Contact	Melissa C. Mannion	Contract	No. S00W235A00
Lab sample id	R810112-02	Client sample id	J17K84
Dept sample id	7723-002	Location/Matrix	118D3 In-pro samp W.pile SOLID
Received	10/15/08	Collected/Weight	10/09/08 12:26 773 g
% solids	95.0	Custody/SAF No	RC-074-095 RC-074

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Gross Alpha	12587-46-1	1.57	7.5	13.8	10.0	U	93A
Gross Beta	12587-47-2	21.1	4.6	6.00	15.0		93B
Potassium 40	13966-00-2	6.78	2.3	0.976			GAM
Cobalt 60	10198-40-0	0.174	0.10	0.099	0.050		GAM
Cesium 137	10045-97-3	0.591	0.11	0.106	0.100		GAM
Radium 226	13982-63-3	0.263	0.18	0.176	0.100		GAM
Radium 228	15262-20-1	U		0.577	0.200	U	GAM
Europium 152	14683-23-9	U		0.253	0.100	U	GAM
Europium 154	15585-10-1	U		0.282	0.100	U	GAM
Europium 155	14391-16-3	U		0.198	0.100	U	GAM
Thorium 228	14274-82-9	0.591	0.19	0.186			GAM
Thorium 232	TH-232	U		0.577		U	GAM
Uranium 235	15117-96-1	U		0.371		U	GAM
Uranium 238	U-238	U		11.0		U	GAM
Americium 241	14596-10-2	U		0.088		U	GAM

100D/DR BurialGrnds&RemainSites-SQT

Lab id	EBRLNE
Protocol	Hanford1
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	10/21/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1391

Test 93A	Matrix SOLID
SDG 7723	
Contact Melissa C. Mannion	

LAB METHOD SUMMARY

GROSS ALPHA IN SOLIDS

GAS PROPORTIONAL COUNTING

Client Hanford	
Contract No. S00W235A00	
Contract SDG K1391	

RESULTS

LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Gross Alpha	
Preparation batch 6174-038						
R810112-01	93		7723-001	J17K83	U	
R810112-02	93		7723-002	J17K84	U	
R810112-03	93		7723-003	Lab Control Sample	ok	
R810112-04	93		7723-004	Method Blank	U	
R810112-05	93		7723-005	Duplicate (R810112-02)	-	U

Nominal values and limits from method RDLs (pCi/g) 10.0

100D/DR BurialGrnds&RemainSites-SQT

METHOD PERFORMANCE

LAB SAMPLE ID	RAW TEST	SUF-FIX	CLIENT SAMPLE ID	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	RESID mg	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 6174-038			2σ prep error 20.6 %	Reference Lab Notebook #6174, pg. 38												
R810112-01	93		J17K83	16.1	0.100			157		100			9	10/17/08	10/18	GRB-214
R810112-02	93		J17K84	13.8	0.100			142		100			9	10/17/08	10/18	GRB-216
R810112-03	93		Lab Control Sample	6.81	0.100			62		100				10/17/08	10/18	GRB-107
R810112-04	93		Method Blank	8.62	0.100			63		100				10/17/08	10/18	GRB-109
R810112-05	93		Duplicate (R810112-02)	27.0	0.100			141		100			9	10/17/08	10/18	GRB-110
Nominal values and limits from method				10.0	0.100			5-250		100			180			

PROCEDURES	REFERENCE	900.0_ALPHABETA_GPC
	SPP-070	Soil Dissolution, < 1.0g Aliquot, rev 7
	SPP-125	Gross Alpha and Gross Beta in Dissolved Solids, rev 0

AVERAGES ± 2 SD	MDA	14.5	± 15.9
FOR 5 SAMPLES	RESIDUE	113	± 93

Lab id	EBRLNE
Protocol	Hanford1
Version	Ver 1.0
Form	DVD-LMS
Version	3.06
Report date	10/21/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1391

Test 93B	Matrix SOLID
SDG 7723	
Contact Melissa C. Mannion	

LAB METHOD SUMMARY

GROSS BETA IN SOLIDS

GAS PROPORTIONAL COUNTING

Client	Hanford
Contract	No. S00W235A00
Contract	SDG K1391

RESULTS

LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Gross Beta
Preparation batch 6174-038					
R810112-01	93		7723-001	J17K83	29.0
R810112-02	93		7723-002	J17K84	21.1
R810112-03	93		7723-003	Lab Control Sample	ok
R810112-04	93		7723-004	Method Blank	U
R810112-05	93		7723-005	Duplicate (R810112-02)	ok
Nominal values and limits from method				RDLs (pCi/g)	15.0
100D/DR BurialGrnds&RemainSites-SQT					

METHOD PERFORMANCE

LAB SAMPLE ID	RAW TEST	SUF-FIX	CLIENT SAMPLE ID	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	RESID mg	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 6174-038			2σ prep error 11.0 % Reference Lab Notebook #6174, pg. 38													
R810112-01	93		J17K83	9.29	0.100			157		100			9	10/17/08	10/18	GRB-214
R810112-02	93		J17K84	6.00	0.100			142		100			9	10/17/08	10/18	GRB-216
R810112-03	93		Lab Control Sample	9.02	0.100			62		100				10/17/08	10/18	GRB-107
R810112-04	93		Method Blank	5.59	0.100			63		100				10/17/08	10/18	GRB-109
R810112-05	93		Duplicate (R810112-02)	6.42	0.100			141		100			9	10/17/08	10/18	GRB-110
Nominal values and limits from method				15.0	0.100			5-250		100			180			

PROCEDURES	REFERENCE	900.0_ALPHABETA_GPC
	SPP-070	Soil Dissolution, < 1.0g Aliquot, rev 7
	SPP-125	Gross Alpha and Gross Beta in Dissolved Solids, rev 0

AVERAGES ± 2 SD	MDA	7.26	± 3.51
FOR 5 SAMPLES	RESIDUE	113	± 93

Lab id	EBRLNE
Protocol	Hanford1
Version	Ver 1.0
Form	DVD-LMS
Version	3.06
Report date	10/21/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1391

Test GAM Matrix SOLID
SDG 7723
Contact Melissa C. Mannion

LAB METHOD SUMMARY

GAMMA SCAN

GAMMA SPECTROSCOPY

Client Hanford
Contract No. S00W235A00
Contract SDG K1391

RESULTS

LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Cobalt 60	Cesium 137
Preparation batch 6174-038						
R810112-01			7723-001	J17K83	7.31	2.02
R810112-02			7723-002	J17K84	0.174	0.591
R810112-03			7723-003	Lab Control Sample	ok	ok
R810112-04			7723-004	Method Blank	U	U
R810112-05			7723-005	Duplicate (R810112-02)	ok	ok
Nominal values and limits from method 100D/DR BurialGrnds&RemainSites-SQT				RDLs (pCi/g)	0.050	0.100

METHOD PERFORMANCE

LAB SAMPLE ID	RAW TEST	SUF-FIX	CLIENT SAMPLE ID	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 6174-038 2σ prep error 7.0 % Reference Lab Notebook #6174, pg. 38																
R810112-01			J17K83	17.0	258					113			8	10/15/08	10/17	JR,02,00
R810112-02			J17K84	21.8	270					103			8	10/15/08	10/17	JR,06,00
R810112-03			Lab Control Sample	0.106	250					104				10/15/08	10/17	JR,07,00
R810112-04			Method Blank	17.2	250					104				10/15/08	10/17	JR,08,00
R810112-05			Duplicate (R810112-02)	19.6	270					127			8	10/15/08	10/17	JR,06,00
Nominal values and limits from method				0.050	250					100			180			

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

AVERAGES ± 2 SD FOR 5 SAMPLES
MDA 15.1 ± 17.3
YIELD ____ ± ____

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 10/21/08

SDG	7723
Contact	Melissa C. Mannion

REPORT GUIDE

Client	Hanford
Contract	No. S00W235A00
Case no	SDG_K1391

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	10/21/08

SDG 7723
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG K1391

PREPARATION BATCH SUMMARY

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

The following notes apply to this report:

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

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

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

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

  These qualifiers should be reviewed as follows:

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

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

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

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

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 10/21/08

SDG 7723
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG K1391

WORK SUMMARY

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

The following notes apply to this report:

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

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

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

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

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

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

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
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REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG_K1391

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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Form DVD-RG
Version 3.06
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DATA SHEET

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

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

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

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

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

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

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

P The RESULT is 'preliminary'.

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

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

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

The following values are underlined to indicate possible problems:

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

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GUIDE, cont.

Client Hanford
Contract No. S00W235A00
Case no SDG_K1391

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 K1391

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
Version 3.06
Report date 10/21/08

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Client Hanford
Contract No. S00W235A00
Case no SDG_K1391

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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Protocol Hanford1
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REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG K1391

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 7723
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG K1391

MATRIX SPIKE

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

The following notes apply to this report:

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

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

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

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

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

* The first, computed limits for the recovery reflect:

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

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

  2. The error of ADDED.

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

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

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
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GUIDE, cont.

Client Hanford
Contract No. S00W235A00
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MATRIX SPIKE

for the recovery.

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

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

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 10/21/08

SDG 7723
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG K1391

METHOD SUMMARY

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

The following notes apply to this report:

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

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

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

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

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

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

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

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

Lab id EBRLNE
Protocol Hanford1
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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-074-094	Page 1 of 1

Collector D.W. Shea/Sub-contractor	**Company Contact** D.W.Shea	**Telephone No.** 521-6014 K1391 (7723)	**Project Coordinator** KESSNER, JH
Price Code 8J	**Data Turnaround** 7days		
Project Designation 100-D/DR Burial Grounds & Remaining Sites - Soil Quick Tu	**Sampling Location** 118-D-3 in-process sampling, ~~west pile~~ east pile DWSHEA 10/9/08	**SAF No.** RC-074	
Ice Chest No. GRP-03-004	**Field Logbook No.** EL-1607-4	**COA** R118D32600	**Method of Shipment** Fed Ex
Shipped To EBERLINE SERVICES / LIONVILLE	**Offsite Property No.** ~~See OPSC~~ JFB 10-14-08 A090017	**Bill of Lading/Air Bill No.** SEE OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS

potentially radioactive

Special Handling and/or Storage

Preservation	None	Cool 4C	None	None	None						
Type of Container	G/P	G	G/P	G/P	G/P						
No. of Container(s)	1	1	1	10	1						
Volume	60mL	60mL	500mL	5g	60mL						
SAMPLE ANALYSIS	See item (1) in Special Instructions.	TCLP Semi-VOA - 1311/8270A	Gamma Spectroscopy (TCL List)	Gross Alpha; Gross Beta	See item (2) in Special Instructions.						
Sample No. / Matrix * / Sample Date / Sample Time											
J17K83 / SOIL / 10/9/08 / 1235			✓	✓							

CHAIN OF POSSESSION	Date/Time	Sign/Print Names: Received By/Stored In	Date/Time
Relinquished By/Removed From: DWSHEA DWSHEA	10/9/08	Fridge 1A	10/9/08 1710
Relinquished By/Removed From: Fridge 1A / J.E. Bemhard	1055 10-14-08	Received By/Stored In: J.E. Bemhard	1055 10-14-08
Relinquished By/Removed From: J.E. Bemhard well	1100 10-14-08	Received By/Stored In: FED EX	
Relinquished By/Removed From: FED EX		Received By/Stored In: [illegible]	10/15/08 09:30
Relinquished By/Removed From		Received By/Stored In	
Relinquished By/Removed From		Received By/Stored In	

SPECIAL INSTRUCTIONS

(1) ICP Metals - 6010 (Full 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, Uranium, Vanadium, Zinc} and Hg via CVAA

(2) RCF GEA Shipping Screen {Americium-241, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}

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

Matrix *

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

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

WCH-EE-011

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-074-095	Page 1 of 1

Collector D.W. Shea/Sub-contractor	**Company Contact** D.W.Shea	**Telephone No.** 521-6014	**Project Coordinator** KESSNER, JH
Price Code 8J	**Data Turnaround** 7days		
Project Designation 100-D/DR Burial Grounds & Remaining Sites - Soil Quick Tu	**Sampling Location** 118-D-3 in-process sampling, west pile K1391 (7723)		**SAF No.** RC-074
Ice Chest No. GRP-03-004	**Field Logbook No.** EL-1607-4	**COA** R118D32600	**Method of Shipment** Fed Ex
Shipped To EBERLINE SERVICES / LIONVILLE	**Offsite Property No.** ~~See OPSC~~ JFB 10-14-08 A090017		**Bill of Lading/Air Bill No.** SEE OSR

POSSIBLE SAMPLE HAZARDS/REMARKS

potentially radioactive

Special Handling and/or Storage

Preservation	None	Cool 4C	None	None	None						
Type of Container	G/P	G	G/P	G/P	G/P						
No. of Container(s)	1	1	1	~~1~~ 0	1						
Volume	60mL	60mL	500mL	5g	60mL						
SAMPLE ANALYSIS	See item (1) in Special Instructions.	TCLP Semi-VOA - 1311/8270A	Gamma Spectroscopy (TCL List)	Gross Alpha: Gross Beta	See item (2) in Special Instructions.						

Sample No.	Matrix *	Sample Date	Sample Time										
J17K84	SOIL	10/9/08	1226			✓	✓						

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

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
DWShea DWSHEA	10/9/08 1700	Fridge 1A	10/9/08 1700
Fridge 1A / J.E. Bernhal	10-14-08 1055	J.E. Bernhal	10-14-08 1055
J.E. Bernhal	10-14-08 1100	FED EX	
FED EX			10/15/08 09:30
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

(1) ICP Metals - 6010 (Full 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, Uranium, Vanadium, Zinc} and Hg via CVAA

(2) RCF GEA Shipping Screen {Americium-241, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}

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

Matrix *

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

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

WCH-EE-011

ESERLINE

RICHMOND, CA LABORATORY

SAMPLE RECEIPT CHECKLIST

AK 10/15/08

Client: W.C. HANFORD City RICHLAND State WA

Date/Time received 10/15/08 09:30 CoC No. RC-074-094, 095

Container I.D. No. GP-03-004 Requested TAT (Days) 7 P.O. Received Yes [ ] No [ ]

INSPECTION

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

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

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

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

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

6. Number of samples in shipping container: 2 Sample Matrix S

7. Number of containers per sample: 1 (Or see CoC _____)

8. Samples are in correct container Yes [X] No [ ]

9. Paperwork agrees with samples? Yes [X] No [ ]

10 Samples have: Tape [ ] Hazard labels [ ] Rad labels [ ] Appropriate sample labels [X]

11. Samples are: In good condition [X] Leaking [ ] Broken Container [ ] Missing [ ]

12. Samples are: Preserved [ ] Not preserved [ ] pH _____ Preservative _____

13. Describe any anomalies:

14. Was P.M. notified of any anomalies? Yes [ ] No [ ] Date _____

15 Inspected by [signature] Date 10/15/08 Time. 10:00

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

Ion Chamber Ser. No. _____ Calibration date _____

Alpha Meter Ser. No. _____ Calibration date _____

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

Form SCP-02, 07-30-07

"over 55 years of quality nuclear services"

LIONVILLE LABORATORY INC.

3 November 2008

RECEIVED
NOV 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 #	0810L080
SDG #	K1391
SAF #	RC-074
Date Received	10/15/08
# Samples	2
Matrix	SOIL
Volatiles	
Semivolatiles	X
Pest/PCB	
PAH	
DRO/KRO/GRO	
GC Alcohols	
Herbicides	
Metals	X
Inorganics	

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

Sincerely,
Lionville Laboratory Incorporated

Orlette S. Johnson
Project Manager
r:\group\pm\orlette\hanford\data\b_ltrs.doc

208 Welsh Pool Road • Exton, PA 19341-1313 • (610) 280-3000 • Fax (610) 280-3011

RECEIVED
NOV 2008

Lionville Laboratory, Inc.
BNA ANALYTICAL DATA PACKAGE FOR
WC-HANFORD RC-074 K1391

DATE RECEIVED: 10/15/08

LVL LOT # :0810L080

CLIENT ID	LVL #	MTX	PREP #	LEACH DATE	EXTR/PREP	ANALYSIS
J17K83	003	W	08LE0513	10/18/08	10/19/08	10/21/08
J17K83	003 MS	W	08LE0513	10/18/08	10/19/08	10/21/08
J17K83	003 MSD	W	08LE0513	10/18/08	10/19/08	10/21/08
J17K84	004	W	08LE0513	10/18/08	10/19/08	10/21/08
LAB QC:						
SBLKYZ	MB1	W	08LE0513	N/A	10/19/08	10/21/08
SBLKYZ	MB1 BS	W	08LE0513	N/A	10/19/08	10/21/08
SBLKYZ	MB1 BSD	W	08LE0513	N/A	10/19/08	10/21/08
08LT0105-LB1	LB1	W	08LE0513	N/A	10/19/08	10/21/08

ADDENDUM

This report provides Toxicity Characteristics Leaching Procedure (TCLP) information. Listed on the next page, the client identification on the ITCL labchron, "TCLP" represents the non-volatile leachate fraction and "TCLP LEACHATE" represents the Zero Headspace Extraction (ZHE) volatile leachate fraction. The "EXTR/PREP DATE" is the date the leachate preparation was initiated; the "ANALYSIS DATE" is the date the leachates were completed.

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
WC-HANFORD RC-074 K1391

DATE RECEIVED: 10/15/08 LVL LOT # :0810L080

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J17K83						
TCLP	001	S	08LT0105	10/09/08	10/17/08	10/18/08
J17K84						
TCLP	002	S	08LT0105	10/09/08	10/17/08	10/18/08

LIONVILLE LABORATORY INC.

Case Narrative

Client: WC-HANFORD RC-074 K1391
LVL #: 0810L080

W.O. #: 60049-001-001-0001-00
Date Received: 10-15-2008

SEMIVOLATILE - TCLP

Two (2) leachate samples were generated on 10-18-08 from soil samples collected on 10-09-2008.

The samples and their associated QC samples were extracted according to Lionville Laboratory SOPs based on SW 846 method 3520C on 10-19-2008 and analyzed according to criteria set forth in Lionville Laboratory SOPs based on SW 846 Method 8270C for client specified Semivolatile target compounds on 10-21-2008.

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. 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, but not reported in these samples.
4. All obtainable surrogate recoveries were within acceptance criteria.
5. Two (2) of one twenty-four (24) matrix spike recoveries were outside acceptance criteria. They were biased high and had minimal impact on the data.
6. Three (3) of twenty-four (24) blank spike recoveries were outside acceptance criteria. They were biased high and had minimal impact on the data.
7. The method blanks were below the reporting limit for all target compounds.
8. All initial calibrations associated with this data set were within acceptance criteria.
9. All continuing calibration standards analyzed prior to sample extracts were within acceptance criteria.
10. Internal standard area and retention time criteria were met.
11. Manual integrations are performed according to SOP QA-125 to produce quality data with the utmost integrity. All manual integrations are required to be technically valid and properly documented. Appropriate technical flags are defined in the Glossary ("Technical Flags For Manual Integration").

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

LIONVILLE LABORATORY INC.

12. 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.

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

Iain Daniels
Laboratory Manager
Lionville Laboratory

10/29/08
Date

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

GLOSSARY

DATA QUALIFIERS

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

GLOSSARY

ABBREVIATIONS

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

TECHNICAL FLAGS FOR MANUAL INTEGRATION

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

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

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

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

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

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

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

Semivolatiles by GC/MS, TCLP Leachate

RFW Batch Number: **0810L080** Client: **WC-HANFORD RC-074** Work Order: 60049001001 Report Date: 10/22/08 11:54 Page: 1a

	Cust ID:	J17K83	J17K83	J17K83	J17K84	SBLKYZ	SBLKYZ BS
Sample Information	RFW#:	003	003 MS	003 MSD	004	08LE0513-MB1	08LE0513-MB1
	Matrix:	WATER	WATER	WATER	WATER	WATER	WATER
	D.F.:	1.00	1.00	1.00	1.00	1.00	1.00
	Units:	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Surrogate Recovery	Nitrobenzene-d5	83 %	81 %	83 %	73 %	76 %	94 %
	2-Fluorobiphenyl	86 %	87 %	88 %	70 %	78 %	101 %
	p-Terphenyl-d14	108 %	95 %	100 %	90 %	116 %	131 %
	Phenol-d5	77 %	78 %	76 %	69 %	75 %	84 %
	2-Fluorophenol	82 %	83 %	81 %	73 %	79 %	82 %
	2,4,6-Tribromophenol	82 %	92 %	95 %	71 %	86 %	103 %
		fl	fl	fl	fl	fl	fl
Pyridine		0.050 U	29 %	34 %	0.050 U	0.050 U	40 %
1,4-Dichlorobenzene		0.050 U	66 %	62 %	0.050 U	0.050 U	69 %
2-Methylphenol		0.050 U	76 %	82 %	0.050 U	0.050 U	89 %
3/4-Methylphenol		0.050 U	80 %	80 %	0.050 U	0.050 U	91 %
Hexachloroethane		0.050 U	65 %	61 %	0.050 U	0.050 U	66 %
Nitrobenzene		0.050 U	76 %	82 %	0.050 U	0.050 U	90 %
Hexachlorobutadiene		0.050 U	72 %	69 %	0.050 U	0.050 U	80 %
2,4,6-Trichlorophenol		0.050 U	85 %	87 %	0.050 U	0.050 U	87 %
2,4,5-Trichlorophenol		0.12 U	83 %	89 %	0.12 U	0.12 U	86 %
2,4-Dinitrotoluene		0.050 U	84 %	88 %	0.050 U	0.050 U	111 * %
Hexachlorobenzene		0.050 U	80 %	89 %	0.050 U	0.050 U	108 %
Pentachlorophenol		0.12 U	133 * %	145 * %	0.12 U	0.12 U	135 * %

*= Outside of EPA CLP QC limits.

000000009

	Cust ID:	SBLKYZ BSD	LCHBLK
Sample Information	RFW#:	08LE0513-MB1	08LT0105-LB1
	Matrix:	WATER	WATER
	D.F.:	1.00	1.00
	Units:	mg/L	mg/L

Surrogate Recovery	Nitrobenzene-d5	77	%	74	%
	2-Fluorobiphenyl	80	%	73	%
	p-Terphenyl-d14	98	%	99	%
	Phenol-d5	78	%	64	%
	2-Fluorophenol	80	%	73	%
	2,4,6-Tribromophenol	90	%	76	%

Pyridine	48	%	0.050	U
1,4-Dichlorobenzene	63	%	0.050	U
2-Methylphenol	78	%	0.050	U
3/4-Methylphenol	82	%	0.050	U
Hexachloroethane	59	%	0.050	U
Nitrobenzene	75	%	0.050	U
Hexachlorobutadiene	68	%	0.050	U
2,4,6-Trichlorophenol	86	%	0.050	U
2,4,5-Trichlorophenol	83	%	0.12	U
2,4-Dinitrotoluene	93	%	0.050	U
Hexachlorobenzene	90	%	0.050	U
Pentachlorophenol	125 *	%	0.12	U

*= Outside of EPA CLP QC limits.

000000010

28101080

Custody Transfer Record/Lab Work Request

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

LVLI Lionville Laboratory Inc.

000000011

ent WC HANFORD SRF# RC-074

t. Final Proj. Sampling Date

oject# 60049-001-001-0001-00

oject Contact/Phone#

nville Laboratory Project Manager O. JOHNSON

: SW846 Del STD TAT 7DAY

te Rec'd 10-15-08 Date Due 10-22-08

		AB						C							
Refrigerator #		3						3							
#/Type Container	Liquid														
	Solid	26						1P							
Volume		60						60							
Preservatives		-						-							
ANALYSES REQUESTED →		ORGANIC						INORG							
		VOA	BNA	Pest/PCB	Herb			TCP Metal	CN						
						LEACHATE									

TRIX DES:	Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	Lionville Laboratory Use Only													
									TCLP			0625T			MetO						
Soil, Sediment, Solid, Sludge, Water, Oil, Air, Drum Solids, Drum Liquids, EP/TCLP Leachate, Wipe, Other, Fish	001	J17K83			Soil	10-9-08	1235		X						X						
	002	J17K84			⊥	⊥	1226		X						X						
	003	⊥ 83 TCLP of 001			⊥	⊥						X									
	004	⊥ 84 ⊥ 002			⊥	⊥						X									

ecial Instructions: Run matrix QC

MetO = #SL + B, Bi, Li, Mo, P, Si, Sr, Sn, U

Special Instructions:

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

Relinquished by	Received by	Date	Time
[illegible]	V. Nunez	10/15/08	0935

Relinquished by	Received by	Date	Time

Relinquished	Received by	Date	Time
ORIGINAL REWRITTEN		"COMPOSITE WASTE"	

RC-074-094

Collector D.W. Shea/Sub-contractor	Company Contact D.W.Shea	Telephone No. 521-6014	Project Coordinator KESSNER, JH
Project Designation 100-D/DR Burial Grounds & Remaining Sites - Soil Quick Tu	Sampling Location 118-D-3 in-process sampling, ~~west pile~~ east pile DWShea 10/9/08		SAF No. RC-074
ce Chest No. GRP-03-015	Field Logbook No. EL-1607-4	COA R118D32600	Method of Shipment Fed Ex
Shipped To EBERLINE SERVICES / LIONVILLE	Offsite Property No. ~~See OPSC~~ SEB 10-14-08		Bill of Lading/Air Bill No. SEE OSPC

Price Code: 8J

Data Turnaround: 7 days

POSSIBLE SAMPLE HAZARDS/REMARKS

potentially radioactive

Special Handling and/or Storage

Preservation	None	Cool 4C	None	None	None						
Type of Container	G/P	G	G/P	G/P	G/P						
No. of Container(s)	1	~~1~~ 2 SEB 10-14-08	1	10	1						
Volume	60mL	60mL	500mL	5g	60mL						
SAMPLE ANALYSIS	See item (1) in Special Instructions.	TCLP Semi-VOA - 1311/8270A	Gamma Spectroscopy (TCL List)	Gross Alpha; Gross Beta	See item (2) in Special Instructions.						
Sample No. / Matrix * / Sample Date / Sample Time											
17K83 / SOIL / 10/9/08 / 1235	✓	✓									

CHAIN OF POSSESSION	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From: DWShea DWSHEA	10/9/08	Received By/Stored In: Fridge 1A	10/9/08 1710
Relinquished By/Removed From: Fridge 1A / J.E. Bernhard	10-14-08 1055	Received By/Stored In: J.E. Bernhard	10-14-08 1055
Relinquished By/Removed From: J.E. Bernhard WCH	10-14-08 1100	Received By/Stored In: FED EX	
Relinquished By/Removed From: Fed Ex	10-15-08 0935	Received By/Stored In: [signature]	10-15-08 0935
Relinquished By/Removed From		Received By/Stored In	
Relinquished By/Removed From		Received By/Stored In	

Sign/Print Names

SPECIAL INSTRUCTIONS

(1) ICP Metals - 6010 (Full 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, Uranium, Vanadium, Zinc} and by via CVAA

(2) RCF GEA Shipping Screen {Americium-241, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}

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

Matrix *

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

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

CH-EE-011

000000012

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

RC-074-095 | Page 1 of 1

ollector D.W. Shen/Sub-contractor	Company Contact D.W.Shea	Telephone No. 521-6014	Project Coordinator KESSNER, JH
Price Code 8J	Data Turnaround 7days		
roject Designation 100-D/DR Burial Grounds & Remaining Sites - Soil Quick Tu	Sampling Location 118-D-3 in-process sampling, west pile		SAF No. RC-074
e Chest No. GRP-03-015	Field Logbook No. EL-1607-4	COA R118D32600	Method of Shipment Fed Ex
hipped To EBERLINE SERVICES (LIONVILLE)	Offsite Property No. ~~See OPSC~~ JEB 10-14-08 A090033		Bill of Lading/Air Bill No. SEE OSR

000000013

OSSIBLE SAMPLE HAZARDS/REMARKS

otentially radioactive

pecial Handling and/or Storage

Preservation	None	Cool 4C	None	None	None						
Type of Container	G/P	G	G/P	G/P	G/P						
No. of Container(s)	1	~~1~~ 2 JED 10-13-08	1	~~1~~ 0	1						
Volume	60mL	60mL	500mL	5g	60mL						
SAMPLE ANALYSIS	See item (1) in Special Instructions.	TCLP Semi-VOA - 1311/8270A	Gamma Spectroscopy (TCL List)	Gross Alpha: Gross Beta	See item (2) in Special Instructions.						
Sample No.	Matrix *	Sample Date	Sample Time								
7K84	SOIL	10/9/08	1226	✓	✓						

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

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
DWShea DWSHEA	10/9/08 1700	Fridge 1A	10/9/08 1710
d/c 1A/J. E. Bernhard	Date/Time 1055 10-14-08	J. E. Bernhard	Date/Time 1055 10-14-08
E. Bernhard Welt	Date/Time 1100 10-14-08	FED EX	Date/Time
FED EX	Date/Time 10-15-08 0835	10/15/08	Date/Time 0935
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

(1) ICP Metals - 6010 (Full 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, Uranium, Vanadium, Zinc] and Hg via CVAA

(2) RCF GEA Shipping Screen [Americium-241, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155]

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

Matrix *

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

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

H-EE-011

Lionville Laboratory Incorporated

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: WC HANFORD
Project/QAP/SOW/Release #: LC-074

Date: 10/15/08

LvLI Batch #: 0810L080

Sample Custodian: [illegible]

NOTE: EXPLAIN ALL DISCREPANCIES

1. Samples Hand Delivered or Shipped?	Carrier Fed Ex		Airbill # 798037742115
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 3.3°	°C	Cooler # GRP-03-015
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

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NOV 2008

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
WC-HANFORD RC-074 K1391

DATE RECEIVED: 10/15/08 LVL LOT # :0810L080

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J17K83						
TCLP	001	S	08LT0105	10/09/08	10/17/08	10/18/08
SILVER, TOTAL	001	S	08L0380	10/09/08	10/17/08	10/19/08
SILVER, TOTAL	001 REP	S	08L0380	10/09/08	10/17/08	10/19/08
SILVER, TOTAL	001 MS	S	08L0380	10/09/08	10/17/08	10/19/08
ALUMINUM, TOTAL	001	S	08L0380	10/09/08	10/17/08	10/19/08
ALUMINUM, TOTAL	001 REP	S	08L0380	10/09/08	10/17/08	10/19/08
ALUMINUM, TOTAL	001 MS	S	08L0380	10/09/08	10/17/08	10/19/08
ARSENIC, TOTAL	001	S	08L0380	10/09/08	10/17/08	10/19/08
ARSENIC, TOTAL	001 REP	S	08L0380	10/09/08	10/17/08	10/19/08
ARSENIC, TOTAL	001 MS	S	08L0380	10/09/08	10/17/08	10/19/08
BORON, TOTAL	001	S	08L0380	10/09/08	10/17/08	10/19/08
BORON, TOTAL	001 REP	S	08L0380	10/09/08	10/17/08	10/19/08
BORON, TOTAL	001 MS	S	08L0380	10/09/08	10/17/08	10/19/08
BARIUM, TOTAL	001	S	08L0380	10/09/08	10/17/08	10/19/08
BARIUM, TOTAL	001 REP	S	08L0380	10/09/08	10/17/08	10/19/08
BARIUM, TOTAL	001 MS	S	08L0380	10/09/08	10/17/08	10/19/08
BERYLLIUM, TOTAL	001	S	08L0380	10/09/08	10/17/08	10/19/08
BERYLLIUM, TOTAL	001 REP	S	08L0380	10/09/08	10/17/08	10/19/08
BERYLLIUM, TOTAL	001 MS	S	08L0380	10/09/08	10/17/08	10/19/08
BISMUTH, TOTAL	001	S	08L0380	10/09/08	10/17/08	10/19/08
BISMUTH, TOTAL REP	001 REP	S	08L0380	10/09/08	10/17/08	10/19/08
BISMUTH, TOTAL SPIKE	001 MS	S	08L0380	10/09/08	10/17/08	10/19/08
CALCIUM, TOTAL	001	S	08L0380	10/09/08	10/17/08	10/19/08
CALCIUM, TOTAL	001 REP	S	08L0380	10/09/08	10/17/08	10/19/08
CALCIUM, TOTAL	001 MS	S	08L0380	10/09/08	10/17/08	10/19/08
CADMIUM, TOTAL	001	S	08L0380	10/09/08	10/17/08	10/19/08
CADMIUM, TOTAL	001 REP	S	08L0380	10/09/08	10/17/08	10/19/08
CADMIUM, TOTAL	001 MS	S	08L0380	10/09/08	10/17/08	10/19/08
COBALT, TOTAL	001	S	08L0380	10/09/08	10/17/08	10/19/08
COBALT, TOTAL	001 REP	S	08L0380	10/09/08	10/17/08	10/19/08
COBALT, TOTAL	001 MS	S	08L0380	10/09/08	10/17/08	10/19/08
CHROMIUM, TOTAL	001	S	08L0380	10/09/08	10/17/08	10/19/08
CHROMIUM, TOTAL	001 REP	S	08L0380	10/09/08	10/17/08	10/19/08
CHROMIUM, TOTAL	001 MS	S	08L0380	10/09/08	10/17/08	10/19/08
COPPER, TOTAL	001	S	08L0380	10/09/08	10/17/08	10/19/08

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
WC-HANFORD RC-074

DATE RECEIVED: 10/15/08 LVL LOT # :0810L080

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
COPPER, TOTAL	001 REP	S	08L0380	10/09/08	10/17/08	10/19/08
COPPER, TOTAL	001 MS	S	08L0380	10/09/08	10/17/08	10/19/08
IRON, TOTAL	001	S	08L0380	10/09/08	10/17/08	10/19/08
IRON, TOTAL	001 REP	S	08L0380	10/09/08	10/17/08	10/19/08
IRON, TOTAL	001 MS	S	08L0380	10/09/08	10/17/08	10/19/08
MERCURY, TOTAL	001	S	08C0185	10/09/08	10/17/08	10/20/08
MERCURY, TOTAL	001 REP	S	08C0185	10/09/08	10/17/08	10/20/08
MERCURY, TOTAL	001 MS	S	08C0185	10/09/08	10/17/08	10/20/08
POTASSIUM, TOTAL	001	S	08L0380	10/09/08	10/17/08	10/21/08
POTASSIUM, TOTAL	001 REP	S	08L0380	10/09/08	10/17/08	10/21/08
POTASSIUM, TOTAL	001 MS	S	08L0380	10/09/08	10/17/08	10/21/08
LITHIUM, TOTAL	001	S	08L0380	10/09/08	10/17/08	10/19/08
LITHIUM, TOTAL	001 REP	S	08L0380	10/09/08	10/17/08	10/19/08
LITHIUM, TOTAL	001 MS	S	08L0380	10/09/08	10/17/08	10/19/08
MAGNESIUM, TOTAL	001	S	08L0380	10/09/08	10/17/08	10/19/08
MAGNESIUM, TOTAL	001 REP	S	08L0380	10/09/08	10/17/08	10/19/08
MAGNESIUM, TOTAL	001 MS	S	08L0380	10/09/08	10/17/08	10/19/08
MANGANESE, TOTAL	001	S	08L0380	10/09/08	10/17/08	10/19/08
MANGANESE, TOTAL	001 REP	S	08L0380	10/09/08	10/17/08	10/19/08
MANGANESE, TOTAL	001 MS	S	08L0380	10/09/08	10/17/08	10/19/08
MOLYBDENUM, TOTAL	001	S	08L0380	10/09/08	10/17/08	10/19/08
MOLYBDENUM, TOTAL	001 REP	S	08L0380	10/09/08	10/17/08	10/19/08
MOLYBDENUM, TOTAL	001 MS	S	08L0380	10/09/08	10/17/08	10/19/08
SODIUM, TOTAL	001	S	08L0380	10/09/08	10/17/08	10/21/08
SODIUM, TOTAL	001 REP	S	08L0380	10/09/08	10/17/08	10/21/08
SODIUM, TOTAL	001 MS	S	08L0380	10/09/08	10/17/08	10/21/08
NICKEL, TOTAL	001	S	08L0380	10/09/08	10/17/08	10/19/08
NICKEL, TOTAL	001 REP	S	08L0380	10/09/08	10/17/08	10/19/08
NICKEL, TOTAL	001 MS	S	08L0380	10/09/08	10/17/08	10/19/08
PHOSPHORUS, TOTAL	001	S	08L0380	10/09/08	10/17/08	10/21/08
PHOSPHORUS, TOTAL	001 REP	S	08L0380	10/09/08	10/17/08	10/21/08
PHOSPHORUS, TOTAL	001 MS	S	08L0380	10/09/08	10/17/08	10/21/08
LEAD, TOTAL	001	S	08L0380	10/09/08	10/17/08	10/19/08
LEAD, TOTAL	001 REP	S	08L0380	10/09/08	10/17/08	10/19/08
LEAD, TOTAL	001 MS	S	08L0380	10/09/08	10/17/08	10/19/08
ANTIMONY, TOTAL	001	S	08L0380	10/09/08	10/17/08	10/19/08
ANTIMONY, TOTAL	001 REP	S	08L0380	10/09/08	10/17/08	10/19/08
ANTIMONY, TOTAL	001 MS	S	08L0380	10/09/08	10/17/08	10/19/08

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
WC-HANFORD RC-074

DATE RECEIVED: 10/15/08 LVL LOT # :0810L080

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
SELENIUM, TOTAL	001	S	08L0380	10/09/08	10/17/08	10/19/08
SELENIUM, TOTAL	001 REP	S	08L0380	10/09/08	10/17/08	10/19/08
SELENIUM, TOTAL	001 MS	S	08L0380	10/09/08	10/17/08	10/19/08
SILICON, TOTAL	001	S	08L0380	10/09/08	10/17/08	10/21/08
SILICON, TOTAL	001 REP	S	08L0380	10/09/08	10/17/08	10/21/08
SILICON, TOTAL	001 MS	S	08L0380	10/09/08	10/17/08	10/21/08
TIN, TOTAL	001	S	08L0380	10/09/08	10/17/08	10/19/08
TIN, TOTAL	001 REP	S	08L0380	10/09/08	10/17/08	10/19/08
TIN, TOTAL	001 MS	S	08L0380	10/09/08	10/17/08	10/19/08
STRONTIUM, TOTAL	001	S	08L0380	10/09/08	10/17/08	10/19/08
STRONTIUM, TOTAL	001 REP	S	08L0380	10/09/08	10/17/08	10/19/08
STRONTIUM, TOTAL	001 MS	S	08L0380	10/09/08	10/17/08	10/19/08
THALLIUM, TOTAL	001	S	08L0380	10/09/08	10/17/08	10/19/08
THALLIUM, TOTAL	001 REP	S	08L0380	10/09/08	10/17/08	10/19/08
THALLIUM, TOTAL	001 MS	S	08L0380	10/09/08	10/17/08	10/19/08
URANIUM, TOTAL	001	S	08L0380	10/09/08	10/17/08	10/19/08
URANIUM, TOTAL	001 REP	S	08L0380	10/09/08	10/17/08	10/19/08
URANIUM, TOTAL	001 MS	S	08L0380	10/09/08	10/17/08	10/19/08
VANADIUM, TOTAL	001	S	08L0380	10/09/08	10/17/08	10/19/08
VANADIUM, TOTAL	001 REP	S	08L0380	10/09/08	10/17/08	10/19/08
VANADIUM, TOTAL	001 MS	S	08L0380	10/09/08	10/17/08	10/19/08
ZINC, TOTAL	001	S	08L0380	10/09/08	10/17/08	10/19/08
ZINC, TOTAL	001 REP	S	08L0380	10/09/08	10/17/08	10/19/08
ZINC, TOTAL	001 MS	S	08L0380	10/09/08	10/17/08	10/19/08
J17K84						
TCLP	002	S	08LT0105	10/09/08	10/17/08	10/18/08
SILVER, TOTAL	002	S	08L0380	10/09/08	10/17/08	10/19/08
ALUMINUM, TOTAL	002	S	08L0380	10/09/08	10/17/08	10/19/08
ARSENIC, TOTAL	002	S	08L0380	10/09/08	10/17/08	10/19/08
BORON, TOTAL	002	S	08L0380	10/09/08	10/17/08	10/19/08
BARIUM, TOTAL	002	S	08L0380	10/09/08	10/17/08	10/19/08
BERYLLIUM, TOTAL	002	S	08L0380	10/09/08	10/17/08	10/19/08
BISMUTH, TOTAL	002	S	08L0380	10/09/08	10/17/08	10/19/08
CALCIUM, TOTAL	002	S	08L0380	10/09/08	10/17/08	10/19/08
CADMIUM, TOTAL	002	S	08L0380	10/09/08	10/17/08	10/19/08
COBALT, TOTAL	002	S	08L0380	10/09/08	10/17/08	10/19/08

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
WC-HANFORD RC-074

DATE RECEIVED: 10/15/08 LVL LOT # :0810L080

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
CHROMIUM, TOTAL	002	S	08L0380	10/09/08	10/17/08	10/19/08
COPPER, TOTAL	002	S	08L0380	10/09/08	10/17/08	10/19/08
IRON, TOTAL	002	S	08L0380	10/09/08	10/17/08	10/19/08
MERCURY, TOTAL	002	S	08C0185	10/09/08	10/17/08	10/20/08
POTASSIUM, TOTAL	002	S	08L0380	10/09/08	10/17/08	10/21/08
LITHIUM, TOTAL	002	S	08L0380	10/09/08	10/17/08	10/19/08
MAGNESIUM, TOTAL	002	S	08L0380	10/09/08	10/17/08	10/19/08
MANGANESE, TOTAL	002	S	08L0380	10/09/08	10/17/08	10/19/08
MOLYBDENUM, TOTAL	002	S	08L0380	10/09/08	10/17/08	10/19/08
SODIUM, TOTAL	002	S	08L0380	10/09/08	10/17/08	10/21/08
NICKEL, TOTAL	002	S	08L0380	10/09/08	10/17/08	10/19/08
PHOSPHORUS, TOTAL	002	S	08L0380	10/09/08	10/17/08	10/21/08
LEAD, TOTAL	002	S	08L0380	10/09/08	10/17/08	10/19/08
ANTIMONY, TOTAL	002	S	08L0380	10/09/08	10/17/08	10/19/08
SELENIUM, TOTAL	002	S	08L0380	10/09/08	10/17/08	10/19/08
SILICON, TOTAL	002	S	08L0380	10/09/08	10/17/08	10/21/08
TIN, TOTAL	002	S	08L0380	10/09/08	10/17/08	10/19/08
STRONTIUM, TOTAL	002	S	08L0380	10/09/08	10/17/08	10/19/08
THALLIUM, TOTAL	002	S	08L0380	10/09/08	10/17/08	10/19/08
URANIUM, TOTAL	002	S	08L0380	10/09/08	10/17/08	10/19/08
VANADIUM, TOTAL	002	S	08L0380	10/09/08	10/17/08	10/19/08
ZINC, TOTAL	002	S	08L0380	10/09/08	10/17/08	10/19/08

LAB QC:

SILVER LABORATORY	LC1 BS	S	08L0380	N/A	10/17/08	10/19/08
SILVER, TOTAL	MB1	S	08L0380	N/A	10/17/08	10/19/08
ALUMINUM LABORTORY	LC1 BS	S	08L0380	N/A	10/17/08	10/19/08
ALUMINUM, TOTAL	MB1	S	08L0380	N/A	10/17/08	10/19/08
ARSENIC LABORATORY	LC1 BS	S	08L0380	N/A	10/17/08	10/19/08
ARSENIC, TOTAL	MB1	S	08L0380	N/A	10/17/08	10/19/08
BORON LABORATORY	LC1 BS	S	08L0380	N/A	10/17/08	10/19/08
BORON, TOTAL	MB1	S	08L0380	N/A	10/17/08	10/19/08
BARIUM LABORATORY	LC1 BS	S	08L0380	N/A	10/17/08	10/19/08
BARIUM, TOTAL	MB1	S	08L0380	N/A	10/17/08	10/19/08
BERYLLIUM LABORATORY	LC1 BS	S	08L0380	N/A	10/17/08	10/19/08
BERYLLIUM, TOTAL	MB1	S	08L0380	N/A	10/17/08	10/19/08
BISMUTH, LCS	LC1 BS	S	08L0380	N/A	10/17/08	10/19/08

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
WC-HANFORD RC-074

DATE RECEIVED: 10/15/08 LVL LOT # :0810L080

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
BISMUTH, TOTAL	MB1	S	08L0380	N/A	10/17/08	10/19/08
CALCIUM LABORATORY	LC1 BS	S	08L0380	N/A	10/17/08	10/19/08
CALCIUM, TOTAL	MB1	S	08L0380	N/A	10/17/08	10/19/08
CADMIUM LABORATORY	LC1 BS	S	08L0380	N/A	10/17/08	10/19/08
CADMIUM, TOTAL	MB1	S	08L0380	N/A	10/17/08	10/19/08
COBALT LABORATORY	LC1 BS	S	08L0380	N/A	10/17/08	10/19/08
COBALT, TOTAL	MB1	S	08L0380	N/A	10/17/08	10/19/08
CHROMIUM LABORATORY	LC1 BS	S	08L0380	N/A	10/17/08	10/19/08
CHROMIUM, TOTAL	MB1	S	08L0380	N/A	10/17/08	10/19/08
COPPER LABORATORY	LC1 BS	S	08L0380	N/A	10/17/08	10/19/08
COPPER, TOTAL	MB1	S	08L0380	N/A	10/17/08	10/19/08
IRON LABORATORY	LC1 BS	S	08L0380	N/A	10/17/08	10/19/08
IRON, TOTAL	MB1	S	08L0380	N/A	10/17/08	10/19/08
MERCURY LABORATORY	LC1 BS	S	08C0185	N/A	10/17/08	10/20/08
MERCURY, TOTAL	MB1	S	08C0185	N/A	10/17/08	10/20/08
POTASSIUM LABORATORY	LC1 BS	S	08L0380	N/A	10/17/08	10/21/08
POTASSIUM, TOTAL	MB1	S	08L0380	N/A	10/17/08	10/21/08
LITHIUM LABORATORY	LC1 BS	S	08L0380	N/A	10/17/08	10/19/08
LITHIUM, TOTAL	MB1	S	08L0380	N/A	10/17/08	10/19/08
MAGNESIUM LABORATORY	LC1 BS	S	08L0380	N/A	10/17/08	10/19/08
MAGNESIUM, TOTAL	MB1	S	08L0380	N/A	10/17/08	10/19/08
MANGANESE LABORATORY	LC1 BS	S	08L0380	N/A	10/17/08	10/19/08
MANGANESE, TOTAL	MB1	S	08L0380	N/A	10/17/08	10/19/08
MOLYBDENUM LABORATOR	LC1 BS	S	08L0380	N/A	10/17/08	10/19/08
MOLYBDENUM, TOTAL	MB1	S	08L0380	N/A	10/17/08	10/19/08
SODIUM LABORATORY	LC1 BS	S	08L0380	N/A	10/17/08	10/21/08
SODIUM, TOTAL	MB1	S	08L0380	N/A	10/17/08	10/21/08
NICKEL LABORATORY	LC1 BS	S	08L0380	N/A	10/17/08	10/19/08
NICKEL, TOTAL	MB1	S	08L0380	N/A	10/17/08	10/19/08
PHOSPHORUS LCS	LC1 BS	S	08L0380	N/A	10/17/08	10/21/08
PHOSPHORUS, TOTAL	MB1	S	08L0380	N/A	10/17/08	10/21/08
LEAD LABORATORY	LC1 BS	S	08L0380	N/A	10/17/08	10/19/08
LEAD, TOTAL	MB1	S	08L0380	N/A	10/17/08	10/19/08
ANTIMONY LABORATORY	LC1 BS	S	08L0380	N/A	10/17/08	10/19/08
ANTIMONY, TOTAL	MB1	S	08L0380	N/A	10/17/08	10/19/08
SELENIUM LABORATORY	LC1 BS	S	08L0380	N/A	10/17/08	10/19/08
SELENIUM, TOTAL	MB1	S	08L0380	N/A	10/17/08	10/19/08
SILICON LABORATORY	LC1 BS	S	08L0380	N/A	10/17/08	10/21/08

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
WC-HANFORD RC-074

DATE RECEIVED: 10/15/08 LVL LOT # :0810L080

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
SILICON, TOTAL	MB1	S	08L0380	N/A	10/17/08	10/21/08
TIN LABORATORY	LC1 BS	S	08L0380	N/A	10/17/08	10/19/08
TIN, TOTAL	MB1	S	08L0380	N/A	10/17/08	10/19/08
STRONTIUM LCS STANDA	LC1 BS	S	08L0380	N/A	10/17/08	10/19/08
STRONTIUM, TOTAL	MB1	S	08L0380	N/A	10/17/08	10/19/08
THALLIUM LABORATORY	LC1 BS	S	08L0380	N/A	10/17/08	10/19/08
THALLIUM, TOTAL	MB1	S	08L0380	N/A	10/17/08	10/19/08
URANIUM LABORATORY	LC1 BS	S	08L0380	N/A	10/17/08	10/19/08
URANIUM, TOTAL	MB1	S	08L0380	N/A	10/17/08	10/19/08
VANADIUM LABORATORY	LC1 BS	S	08L0380	N/A	10/17/08	10/19/08
VANADIUM, TOTAL	MB1	S	08L0380	N/A	10/17/08	10/19/08
ZINC LABORATORY	LC1 BS	S	08L0380	N/A	10/17/08	10/19/08
ZINC, TOTAL	MB1	S	08L0380	N/A	10/17/08	10/19/08

LIONVILLE LABORATORY INC.

Analytical Report

Client: WC-HANFORD RC-074
LVL#: 0810L080
SDG/SAF#: K /RC-074

W.O.#: 60049-001-001-0001-00
Date Received: 10-15-08

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 2 soil samples

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

   The samples were reported with 3-fold dilutions for Potassium, Sodium, Phosphorous, and Silicon due to sample matrix.

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

4. All Initial and Continuing Calibration Verifications (ICV/CCVs) were within the 90-110% control limits (80-120% for Mercury) with the exception of Sodium and Silicon in file TA1019A. The samples were rerun and reported from file PS1021A for Sodium and Silicon along with Potassium and Phosphorous.

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

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

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

8. All laboratory control samples (LCS) were within the 80-120% control limits with the exception of Silicon at 39.8%. 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 23 pages.

9. The matrix spike (MS) recoveries for 4 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
J17K83	Antimony	100	106.0
	Silicon	6,600	95.0
	Aluminum	20,000	104.9
	Iron	40,000	85.9

11. The duplicate analyses for 5 analytes were outside the 20% Relative Percent Difference (RPD) control limits. Refer to the Inorganics Precision Report.

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

13. 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

10/24/08
Date

alm/m10-080

LIONVILLE LABORATORY INC.

METALS METHOD GLOSSARY

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

Lot#: 0810L080

Leaching Procedure: __1310 __1311 __1312 __Other:_____

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

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

Metals Analysis Methods

	SW846		EPA		STD MTD	EPA OSWR	USATHAMA
Aluminum	✓6010B		__200.7				__99
Antimony	✓6010B	__7041 [5]	__200.7	__204.2			__99
Arsenic	✓6010B	__7060A [5]	__200.7	__206.2	__3113B		__99
Barium	✓6010B		__200.7				__99
Beryllium	✓6010B		__200.7				__99
Bismuth	✓6010B [1]		__200.7 [1]			__1620	__99
Boron	✓6010B		__200.7				__99
Cadmium	✓6010B	__7131A [5]	__200.7	__213.2			__99
Calcium	✓6010B		__200.7				__99
Chromium	✓6010B	__7191 [5]	__200.7	__218.2			__SS17
Cobalt	✓6010B		__200.7				__99
Copper	✓6010B	__7211 [5]	__200.7	__220.2			__99
Iron	✓6010B		__200.7				__99
Lead	✓6010B	__7421 [5]	__200.7	__239.2	__3113B		__99
Lithium	✓6010B	__7430 [4]	__200.7			__1620	__99
Magnesium	✓6010B		__200.7				__99
Manganese	✓6010B		__200.7				__99
Mercury	__7470A [3]	✓__7471A [3]	__245.1 [2]	__245.5 [2]			__99
Molybdenum	✓6010B		__200.7				__99
Nickel	✓6010B		__200.7				__99
Potassium	✓6010B	__7610 [4]	__200.7	__258.1 [4]			__99
Rare Earths	__6010B [1]		__200.7 [1]			__1620	__99
Selenium	✓6010B	__7740 [5]	__200.7	__270.2	__3113B		__99
Silicon	✓6010B [1]		__200.7			__1620	__99
Silica	__6010B		__200.7			__1620	__99
Silver	✓6010B	__7761 [5]	__200.7	__272.2			__99
Sodium	✓6010B	__7770 [4]	__200.7	__273.1 [4]			__99
Strontium	✓6010B		__200.7				__99
Thallium	✓6010B	__7841 [5]	__200.7	__279.2__200.9			__99
Tin	✓6010B		__200.7				__99
Titanium	✓6010B		__200.7				__99
Uranium	✓6010B [1]		__200.7 [1]			__1620	__99
Vanadium	✓6010B		__200.7				__99
Zinc	✓6010B		__200.7				__99
Zirconium	__6010B [1]		__200.7 [1]			__1620	__99

Other: Phosphorous Method: 6010B

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 10/22/08

CLIENT: WC-HANFORD RC-074 LVL LOT #: 0810L080

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	J17K83	Silver, Total	0.07 u	MG/KG	0.07	1.0
		Aluminum, Total	5100	MG/KG	2.7	1.0
		Arsenic, Total	1.6	MG/KG	0.34	1.0
		Boron, Total	1.7	MG/KG	0.34	1.0
		Barium, Total	56.1	MG/KG	0.07	1.0
		Beryllium, Total	0.25	MG/KG	0.03	1.0
		Bismuth, Total	0.41 u	MG/KG	0.41	1.0
		Calcium, Total	5940	MG/KG	2.7	1.0
		Cadmium, Total	0.56	MG/KG	0.03	1.0
		Cobalt, Total	8.8	MG/KG	0.14	1.0
		Chromium, Total	7.0	MG/KG	0.14	1.0
		Copper, Total	21.3	MG/KG	0.14	1.0
		Iron, Total	25200	MG/KG	3.1	1.0
		Mercury, Total	0.03	MG/KG	0.01	1.0
		Potassium, Total	639	MG/KG	100	3.0
		Lithium, Total	4.3	MG/KG	0.03	1.0
		Magnesium, Total	4110	MG/KG	1.7	1.0
		Manganese, Total	327	MG/KG	0.03	1.0
		Molybdenum, Total	0.49	MG/KG	0.20	1.0
		Sodium, Total	237	MG/KG	4.1	3.0
		Nickel, Total	8.7	MG/KG	0.14	1.0
		Phosphorus, Total	1290	MG/KG	10.2	3.0
		Lead, Total	4.7	MG/KG	0.20	1.0
		Antimony, Total	0.20 u	MG/KG	0.20	1.0
		Selenium, Total	0.41 u	MG/KG	0.41	1.0
		Silicon, Total	214	MG/KG	13.6	3.0
		Tin, Total	0.61	MG/KG	0.41	1.0
		Strontium, Total	22.4	MG/KG	0.02	1.0
		Thallium, Total	0.41 u	MG/KG	0.41	1.0
		Uranium, Total	1.4 u	MG/KG	1.4	1.0
		Vanadium, Total	66.6	MG/KG	0.09	1.0
		Zinc, Total	145	MG/KG	0.41	1.0

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 10/22/08

CLIENT: WC-HANFORD RC-074 LVL LOT #: 0810L080

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-002	J17K84	Silver, Total	0.07 u	MG/KG	0.07	1.0
		Aluminum, Total	3440	MG/KG	2.8	1.0
		Arsenic, Total	1.1	MG/KG	0.35	1.0
		Boron, Total	0.96	MG/KG	0.35	1.0
		Barium, Total	59.3	MG/KG	0.07	1.0
		Beryllium, Total	0.16	MG/KG	0.04	1.0
		Bismuth, Total	0.42 u	MG/KG	0.42	1.0
		Calcium, Total	5310	MG/KG	2.8	1.0
		Cadmium, Total	0.27	MG/KG	0.04	1.0
		Cobalt, Total	10.4	MG/KG	0.14	1.0
		Chromium, Total	4.4	MG/KG	0.14	1.0
		Copper, Total	15.7	MG/KG	0.14	1.0
		Iron, Total	30100	MG/KG	3.2	1.0
		Mercury, Total	0.009u	MG/KG	0.009	1.0
		Potassium, Total	448	MG/KG	103	3.0
		Lithium, Total	2.8	MG/KG	0.03	1.0
		Magnesium, Total	4380	MG/KG	1.8	1.0
		Manganese, Total	336	MG/KG	0.03	1.0
		Molybdenum, Total	0.65	MG/KG	0.21	1.0
		Sodium, Total	417	MG/KG	4.2	3.0
		Nickel, Total	8.1	MG/KG	0.14	1.0
		Phosphorus, Total	1460	MG/KG	10.5	3.0
		Lead, Total	2.3	MG/KG	0.21	1.0
		Antimony, Total	0.32	MG/KG	0.21	1.0
		Selenium, Total	0.42 u	MG/KG	0.42	1.0
		Silicon, Total	174	MG/KG	14.0	3.0
		Tin, Total	0.67	MG/KG	0.42	1.0
		Strontium, Total	21.6	MG/KG	0.02	1.0
		Thallium, Total	0.42 u	MG/KG	0.42	1.0
		Uranium, Total	2.6	MG/KG	1.4	1.0
		Vanadium, Total	85.7	MG/KG	0.1	1.0
		Zinc, Total	53.1	MG/KG	0.42	1.0

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 10/22/08

CLIENT: WC-HANFORD RC-074 LVL LOT #: 0810L080

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK1	08L0380-MB1	Silver, Total	0.10 u	MG/KG	0.10	1.0
		Aluminum, Total	6.8	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	0.11	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	6.9	MG/KG	4.0	1.0
		Cadmium, Total	0.05 u	MG/KG	0.05	1.0
		Cobalt, Total	0.20 u	MG/KG	0.20	1.0
		Chromium, Total	0.20 u	MG/KG	0.20	1.0
		Copper, Total	0.20 u	MG/KG	0.20	1.0
		Iron, Total	8.1	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	0.07	MG/KG	0.04	1.0
		Molybdenum, Total	0.30 u	MG/KG	0.30	1.0
		Sodium, Total	9.6	MG/KG	2.0	1.0
		Nickel, Total	0.24	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	6.7 u	MG/KG	6.7	1.0
		Tin, Total	0.60 u	MG/KG	0.60	1.0
		Strontium, Total	0.06	MG/KG	0.03	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	08C0185-MB1	Mercury, Total	0.01 u	MG/KG	0.01	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 10/22/08

CLIENT: WC-HANFORD RC-074 LVL LOT #: 0810L080

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-001	J17K83	Silver, Total	3.0	0.07u	3.4	88.2	1.0
		Aluminum, Total	5550	5100	135	333.2*	1.0
		Arsenic, Total	125	1.6	135	91.5	1.0
		Boron, Total	62.6	1.7	67.3	90.5	1.0
		Barium, Total	187	56.1	135	97.5	1.0
		Beryllium, Total	3.5	0.25	3.4	95.6	1.0
		Bismuth, Total	314	0.41u	336	93.4	1.0
		Calcium, Total	7410	5940	1680	87.3	1.0
		Cadmium, Total	3.6	0.56	3.4	89.5	1.0
		Cobalt, Total	38.7	8.8	33.7	88.7	1.0
		Chromium, Total	20.4	7.0	13.5	99.3	1.0
		Copper, Total	34.6	21.3	16.8	79.2	1.0
		Iron, Total	25600	25200	67.3	722.7*	1.0
		Mercury, Total	0.20	0.03	0.17	101.8	1.0
		Potassium, Total	2230	639	1680	94.4	3.0
		Lithium, Total	72.4	4.3	67.3	101.2	1.0
		Magnesium, Total	5830	4110	1680	102.2	1.0
		Manganese, Total	357	327	33.7	89.9*	1.0
		Molybdenum, Total	61.2	0.49	67.3	90.2	1.0
		Sodium, Total	1920	237	1680	100.3	3.0
		Nickel, Total	40.0	8.7	33.7	92.9	1.0
		Phosphorus, Total	1560	1290	336	81.2	3.0
		Lead, Total	35.3	4.7	33.7	90.8	1.0
		Antimony, Total	23.6	0.20u	33.7	70.0	1.0
		Selenium, Total	118	0.41u	135	88.0	1.0
		Silicon, Total	399	214	67.3	274.7	3.0
		Tin, Total	60.3	0.61	67.3	88.7	1.0
		Strontium, Total	88.7	22.4	67.3	98.5	1.0
		Thallium, Total	120	0.41u	135	89.1	1.0
		Uranium, Total	335	1.4 u	336	99.6	1.0
		Vanadium, Total	99.3	66.6	33.7	97.0	1.0
		Zinc, Total	178	145	33.7	95.8*	1.0

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 10/22/08

CLIENT: WC-HANFORD RC-074 LVL LOT #: 0810L080

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-001REP	J17K83	Silver, Total	0.07u	0.07u	NC	1.0
		Aluminum, Total	5100	4970	2.6	1.0
		Arsenic, Total	1.6	1.5	6.5	1.0
		Boron, Total	1.7	5.8	109.3	1.0
		Barium, Total	56.1	54.6	2.7	1.0
		Beryllium, Total	0.25	0.27	7.1	1.0
		Bismuth, Total	0.41u	0.40u	NC	1.0
		Calcium, Total	5940	5540	6.9	1.0
		Cadmium, Total	0.56	0.55	1.3	1.0
		Cobalt, Total	8.8	8.7	1.1	1.0
		Chromium, Total	7.0	7.3	4.2	1.0
		Copper, Total	21.3	20.3	4.8	1.0
		Iron, Total	25200	25400	0.85	1.0
		Mercury, Total	0.03	0.06	66.7	1.0
		Potassium, Total	639	650	1.7	3.0
		Lithium, Total	4.3	4.5	4.5	1.0
		Magnesium, Total	4110	4150	1.0	1.0
		Manganese, Total	327	314	4.0	1.0
		Molybdenum, Total	0.49	0.52	6.6	1.0
		Sodium, Total	237	250	5.4	3.0
		Nickel, Total	8.7	11.2	25.1	1.0
		Phosphorus, Total	1290	1200	7.1	3.0
		Lead, Total	4.7	4.8	2.1	1.0
		Antimony, Total	0.20u	0.20u	NC	1.0
		Selenium, Total	0.41u	0.40u	NC	1.0
		Silicon, Total	214	161	28.6	3.0
		Tin, Total	0.61	0.98	45.6	1.0
		Strontium, Total	22.4	22.3	0.45	1.0
		Thallium, Total	0.41u	0.40u	NC	1.0
		Uranium, Total	1.4 u	1.3 u	NC	1.0
		Vanadium, Total	66.6	65.3	2.0	1.0
		Zinc, Total	145	142	2.4	1.0

Lionville Laboratory, Inc.

INORGANICS LABORATORY CONTROL STANDARDS REPORT 10/22/08

CLIENT: WC-HANFORD RC-074 LVL LOT #: 0810L080

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
LCS1	08L0380-LC1	Silver, LCS	47.8	50.0	MG/KG	95.6
		Aluminum, LCS	489	500	MG/KG	97.8
		Arsenic, LCS	930	1000	MG/KG	93.0
		Boron, LCS	456	500	MG/KG	91.2
		Barium, LCS	472	500	MG/KG	94.4
		Beryllium, LCS	24.6	25.0	MG/KG	98.4
		Bismuth, LCS	459	500	MG/KG	91.9
		Calcium, LCS	2460	2500	MG/KG	98.6
		Cadmium, LCS	23.7	25.0	MG/KG	94.8
		Cobalt, LCS	244	250	MG/KG	97.5
		Chromium, LCS	49.6	50.0	MG/KG	99.2
		Copper, LCS	119	125	MG/KG	95.2
		Iron, LCS	484	500	MG/KG	96.7
		Potassium, LCS	2180	2500	MG/KG	87.3
		Lithium, LCS	498	500	MG/KG	99.5
		Magnesium, LCS	2460	2500	MG/KG	98.3
		Manganese, LCS	73.6	75.0	MG/KG	98.1
		Molybdenum, LCS	480	500	MG/KG	96.1
		Sodium, LCS	2280	2500	MG/KG	91.2
		Nickel, LCS	194	200	MG/KG	97.0
		Phosphorus, LCS	437	500	MG/KG	87.3
		Lead, LCS	241	250	MG/KG	96.4
		Antimony, LCS	279	300	MG/KG	93.1
		Selenium, LCS	911	1000	MG/KG	91.1
		Silicon, LCS	199	500	MG/KG	39.8
		Tin, LCS	488	500	MG/KG	97.6
		Strontium, LCS	474	500	MG/KG	94.7
		Thallium, LCS	975	1000	MG/KG	97.5
		Uranium, LCS	474	500	MG/KG	94.9
		Vanadium, LCS	240	250	MG/KG	96.0
		Zinc, LCS	96.4	100	MG/KG	96.4
LCS1	08C0185-LC1	Mercury, LCS	4.9	4.7	MG/KG	104.1

SAMPLE DIGESTION RECORD

SOP: L-SPI-3020 Rev. 00

Digestion Batch #: 08L0380
Date/Time Initiated: 10/17/08 1115
Date/Time Completed: 10/17/08 1830
Analyst(s): MW
Matrix: (Soil) Water Other:
Instr. Type: AA (ICP)
Parameters: lee barkley

(Digested) Undigested (circle one)
Balance #: B29
Balance Cal Verif: (Y) NA
Hot Plate Temp: 90°

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

TMW

COC Batch # 09 W.E. MW 10/17/08	Spike Vol(s) (mL)	Initial Wt/Vol (g/mL)	Final Vol (mL)	pH <2	Type: To/So/TC	Texture	Color/Appearance	Artifact	Turb
08L198-001		1.29 gr	100 ml	<2	TO	coarse	brown solid w/ white + yellow		PAM
002		1.28 gr				not fine		pieces	
002R		1.29 gr							
002S	1.0 ml *	1.34 gr							
0810L039-001		1.72 gr				coarse	brown mud	rocks	
001R		1.57 gr							
001S	1.0 ml	1.78 gr							
0810L080-001		1.54 gr				not fine	brown soil		PAM
001R		1.57 gr							
001S	1.0 ml *	1.55 gr							
002		1.51 gr					dark brown soil		
0810L081-001		1.69 gr					brown soil		
001R		1.65 gr							
001S	1.0 ml *	1.65 gr							
002		1.65 gr							
003		1.79 gr						rock/glass	
004		1.59 gr						rocks	
005		1.59 gr							
08L0380-MB1		1.0 gr				coarse	boiling chips	N/A	
LCS	1.0 ml *	1.0 gr							

MW 10/17/08

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

Reagent IDs:
HNO_3: G17027
HCL: G26054
H_2O_2: G15A18
1:1 HNO_3: 9789-086-06
1:1 HCL:

File ID#: ~~IC038001, IC038002~~ IC038003
LIMS Transfer: (Y) N
Data Review By/Date: PMP, 10/20/08 Updated

* also 0.5 ml 6072-079-13 (2r)

Jacksonville Laboratory Incorporated

MERCURY PREPARATION

Logbook # 498

Analyst: JEB
Date: 10/17/08
Start Time/Temp: 1440 | 95°
End Time/Temp: 1510 | 98°

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

Prep Batch: 08C0185
Worksheet: HG102001
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	M1			10mL	50mL	
0.2 µg/L	3U	0.100				
1.0	2X	0.500				
2.0	3VG	1.000				
5.0	695	2.500				
10.0	569	5.000				
ICV	L16	0.125	2.5			
CCV	K	0.250	5.0			
ICB/CCB	Y83					96.5%
MB1	2V			0.30		POS185 100.00
LC1	P3	*	*	0.33		LCSS185 95.78
~~08C0185- MB1~~ TE 10/20/08	~~191~~		TE 10/20/08			TE 10/20/08
~~LC1~~	~~5H~~					
0810L080-001	C			0.31		95.78
W1R	NJ			0.35		
W1S	K9	0.500	1.0	0.31		
W2	11A			0.34		94.62
0810L081-001	G7			0.33	R	94.06
W1R	NR			0.34		
W1S	KC	0.500	1.0	0.33		
W2	HR			0.32		90.36
W3	58			0.34		92.06
W4	224			0.33		91.51
W5	Q2			0.31		91.91
0810L087-001	41			0.33		99.20 ~~99.96~~
W1R	6J			0.32		TE 10/20/08
W1S	T4	0.500	1.0	0.33		

Standard:	ID	Prep Date/Time
ICAL/MS	R1 6072-78-14B	10/17/08 0910
ICV/CCV/LCS	US 6072-78-15A	↓

Reviewed By/Date: [signature] 10/22/10

see book # 9368 for std traceability information

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

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

ME-HgCVAA-Prep1007

Page #:

000000018

Lionville Laboratory Incorporated

MERCURY PREPARATION

Logbook # 498

Analyst: UD
Date: 10/17/08
Start Time/Temp: see page 063
End Time/Temp:

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

Prep Batch: 08C0185
Worksheet: HG102001
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.
08101087-002	LV			0.36	50mL	97.28
003	L5			0.36		98.25
004	C48			0.38		99.26
08101088-001	G12			0.30		94.38
001R	BB			0.32		
001S	X3	0.500	1.0	0.30		
08101082-001	925			0.37		99.96
002	X5			0.33		97.28
002R	AP			0.36		
002S	886	0.500	1.0	0.33		
003	35			0.35		95.65
004	A7			0.34		76.39
005	500			0.31		81.17

UD 10/17/08

Standard:	ID	Prep Date/Time
ICAL/MS		
ICV/CCV/LCS	see page 063	

Reviewed By/Date: Andrea Manley 10/22/08

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

Lionville Laboratory Use Only

08101080

Custody Transfer Record/Lab Work Request

Page 1 of 1

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

LVLI Lionville Laboratory Inc.

000000020

ent WC HANFORD SAF# RC-074

t. Final Proj. Sampling Date

oject# 60049-001-001-0001-00

oject Contact/Phone#

onville Laboratory Project Manager O. JOHNSON

SW846 Del STD TAT 7DAY

ate Rec'd 10-15-08 Date Due 10-22-08

		AB						C							
Refrigerator #		3						3							
#/Type Container	Liquid														
	Solid	26						1P							
Volume		60						60							
Preservatives		-						-							
ANALYSES REQUESTED	ORGANIC: VOA	ORGANIC: BNA	ORGANIC: Pest/PCB	ORGANIC: Herb	LEACHATE			INORG: TCP Metal	INORG: CN						
Lionville Laboratory Use Only		TCLP			06251			MetO							

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													
	001	J17K83			Soil	10-9-08	1235		X					X						
	002	J17K84			⊥	⊥	1226		X					X						
	003	⊥ 83 TCLP of 001			⊥	⊥						X								
	004	⊥ 84 ⊥ 002			⊥	⊥						X								

Special Instructions: Run matrix QC

MetO = #SL + B, Bi, Li, Mo, P, Si, Sr, Sn, U

Special Instructions:

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

Relinquished by	Received by	Date	Time
[illegible]	V. Nunnery	10/15/08	0935

Relinquished by	Received by	Date	Time

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

Collector	Company Contact	Telephone No.	Project Coordinator	Price Code	Data Turnaround
D.W. Shea/Sub-contractor	D.W.Shea	521-6014	KESSNER, JH	8J	7 days

Project Designation	Sampling Location	SAF No.
100-D/DR Burial Grounds & Remaining Sites - Soil Quick Tu	118-D-3 in-process sampling, ~~west pile~~ east pile DWShea 10/9/08	RC-074

Ice Chest No.	Field Logbook No.	COA	Method of Shipment
GRP-03-015	EL-1607-4	R118D32600	Fed Ex

Shipped To	Offsite Property No.	Bill of Lading/Air Bill No.
EBERLINE SERVICES / LIONVILLE	~~See OPSC~~ JKB 10-14-08	SEE OSPC

POSSIBLE SAMPLE HAZARDS/REMARKS

potentially radioactive

Special Handling and/or Storage

Preservation	None	Cool 4C	None	None	None						
Type of Container	G/P	G	G/P	G/P	G/P						
No. of Container(s)	1	~~1~~ 2 DW 10-13-08	1	~~1~~ 0	1						
Volume	60mL	60mL	500mL	5g	60mL						
SAMPLE ANALYSIS	See item (1) in Special Instructions.	TCLP Semi-VOA - 1311/8270A	Gamma Spectroscopy (TCL List)	Gross Alpha; Gross Beta	See item (2) in Special Instructions.						
Sample No. / Matrix * / Sample Date / Sample Time											
17K83 / SOIL / 10/9/08 / 1235	✓	✓									

CHAIN OF POSSESSION	Date/Time	Sign/Print Names: Received By/Stored In	Date/Time
Relinquished By/Removed From: DWShea DWSHEA	10/9/08	Fridge 1A	10/9/08 1710
Relinquished By/Removed From: Fridge 1A / J.E. Bernhard	10-14-08 1055	Received By/Stored In: J.E. Bernhard	10-14-08 1055
Relinquished By/Removed From: J.E. Bernhard WCH	10-14-08 1100	Received By/Stored In: FED EX	
Relinquished By/Removed From: Fed Ex	10-15-08 0935	Received By/Stored In: [illegible]	10-15-08 0935
Relinquished By/Removed From		Received By/Stored In	
Relinquished By/Removed From		Received By/Stored In	

SPECIAL INSTRUCTIONS

(1) ICP Metals - 6010 (Full 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, Uranium, Vanadium, Zinc) and Hg via CVAA
(2) RCF GEA Shipping Screen (Americium-241, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155)

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

CH-EE-011

000000021

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

RC-074-095 | Page 1 of 1

ollector: D.W. Shea/Sub-contractor	Company Contact: D.W.Shea	Telephone No.: 521-6014	Project Coordinator: KESSNER, JH
Price Code: 8J	Data Turnaround: 7days		
roject Designation: 100-D/DR Burial Grounds & Remaining Sites - Soil Quick Tu	Sampling Location: 118-D-3 in-process sampling, west pile		SAF No.: RC-074
e Chest No.: GRP-03-015	Field Logbook No.: EL-1607-4	COA: R118D32600	Method of Shipment: Fed Ex
ipped To: EBERLINE SERVICES LIONVILLE	Offsite Property No.: ~~See OPSC~~ JEB 10-14-08 A090033		Bill of Lading/Air Bill No.: SEE OSPC

'OSSIBLE SAMPLE HAZARDS/REMARKS

otentially radioactive

Special Handling and/or Storage

Preservation	None	Cool 4C	None	None	None	
Type of Container	G/P	G	G/P	G/P	G/P	
No. of Container(s)	1	~~1~~ 2 JED 10-13-08	1	~~1~~ 0	1	
Volume	60mL	60mL	500mL	5g	60mL	

SAMPLE ANALYSIS

Sample No.	Matrix *	Sample Date	Sample Time	See item (1) in Special Instructions.	TCLP Semi-VOA - 1311/8270A	Gamma Spectroscopy (TCL List)	Gross Alpha: Gross Beta	See item (2) in Special Instructions.
7K84	SOIL	10/9/08	1226	✓	✓			

CHAIN OF POSSESSION	Date/Time	Sign/Print Names: Received By/Stored In	Date/Time
inquished By/Removed From: WShea DWSHEA	10/9/08 1700	Fridge 1A	10/9/08 1700
inquished By/Removed From: idge 1A/J. E. Bernhard	Date/Time 1055 10-14-08	Received By/Stored In: J. E. Bernhard	Date/Time 1055 10-14-08
inquished By/Removed From: E. Bernhard walk	Date/Time 1100 10-14-08	Received By/Stored In: FED EX	Date/Time
inquished By/Removed From: Fed Ex	Date/Time 10-15-08 0835	Received By/Stored In:	Date/Time 10-15-08 0935
inquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
inquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

(1) ICP Metals - 6010 (Full 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, Uranium, Vanadium, Zinc} and Hg via CVAA
(2) RCF GEA Shipping Screen {Americium-241, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}

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
N=Other

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

CH-EE-011

000000022

Lionville Laboratory Incorporated

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: WC HANFORD
Project/QAP/SOW/Release #: LC-074

Date: 10/15/08

LvLI Batch #: 0810L080

Sample Custodian: [illegible]

NOTE: EXPLAIN ALL DISCREPANCIES

1. Samples Hand Delivered or Shipped?	Carrier Fed Ex		Airbill # 798037742115
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 3.3°	°C	Cooler # GRP-03-015
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